

CONTRACT DOCUMENTS FOR THE CONSTRUCTION OF THE

TRIANGLE AREA CIVIL SITE DEVELOPMENT PROJECT

GRIFFISS INTERNATIONAL AIRPORT ONEIDA COUNTY ROME, NEW YORK

POFESSION

ONEIDA COUNTY CONTRACT NO. H_____ BID REFERENCE # 2335

> OWNER: ONEIDA COUNTY GRIFFISS INTERNATIONAL AIRPORT 660 HANGAR ROAD, SUITE 223 ROME, NY 13441 (315) 736-4171

ENGINEER: C&S ENGINEERS, INC. 499 Col. Eileen Collins Boulevard Syracuse, New York 13212 (315) 455-2000



May 2, 2025

Eric N. Kenna, P.E. - N.Y.S.P.E. Lic. No. 088339

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Protection and restoration of property and landscape

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ADVERTISEMENT - INVITATION TO BID

Sealed Proposals, subject to the conditions contained herein will be received by Oneida County Department of Aviation, at the Griffiss International Airport Terminal Building, 660 Hangar Road, Suite 223, Rome, NY 13441 until **June 3, 2025 at 1:30 pm** then publicly opened and read aloud for furnishing all labor and materials and performing all work for:

BID REF NO. 2335 TRIANGLE AREA CIVIL SITE DEVELOPMENT PROJECT GRIFFISS INTERNATIONAL AIRPORT ONEIDA COUNTY, ROME, NEW YORK

Perimeter Road will be reconstructed from the connection with a new roundabout on State Route 825 (by others) and traversing into the proposed triangle development site. Existing asphalt and concrete pavements will be reconstructed to accommodate the new asphalt pavement section including curb, stormwater drainage and management, sidewalk and landscaping. This project includes extension of water, sanitary sewer, electrical (street lighting), and communications utility infrastructure parallel with the Perimeter Road alignment and continuing north into the Triangle site. The existing airport perimeter fence will be realigned per the triangle area development land release so that the proposed development is outside of the secure airport Air Operations Area. Once the fence is realigned, the project site will fall outside the airport secure environment. The project will generally follow state and City of Rome construction standards.

Electronic PDF copies of the Contract Documents may be obtained at no expense from C&S Engineers, on behalf of the purchasing department, starting on May 6, 2025 at 9:00am. To initiate the process, please contact Rita Fendick at <u>rfendick@cscos.com</u>, 315-703-4127 where your organizations name, contacts name, address, telephone number, and email address will be recorded on the plan holders list. Once the required information is recorded, the contact will receive an email with the attached documents or a download link dependent upon file size. The Bidder will be responsible for any and all printing and shipping costs of plans and specifications, and selection of a printing company, as deemed necessary in order to prepare their Bid. If your bid documents request is not fulfilled within 24 hours, alternatively contact <u>ekenna@cscos.com</u>, Phone: (315)-703-4109.

Bids must be submitted upon the proposal form(s) furnished, and the entire proposal booklet must be submitted. A deposit in the amount of 5% of the bid will be required. This deposit shall consist of a bid bond or certified check payable to the COUNTY OF ONEIDA. Failure to submit a bid bond or certified check with bid will result in automatic disqualification of bid. Failure to submit a bid upon the proposal form(s) in the proposal book furnished by the Oneida County will result in automatic disqualification of bid. Performance and Material & Labor payment bonds will be required for an amount not less than 100% of bid price. Packages containing bids must be sealed marked and addressed to the Director of Purchasing, Griffiss International Airport, 660 Hangar Road, Suite 223, Rome, NY 13441. Also mark on the envelope or package the Bid Reference Number and project title.

Any inquires regarding the Contract Documents must be directed in writing to Eric N. Kenna, P.E. of C&S Engineers, Inc., 499 Col. Eileen Collins Blvd., Syracuse, NY 13212, Phone: (315)-703-4109, Email: ekenna@cscos.com.

A pre-bid conference has been scheduled in order to review the specific requirements of this contract. All prospective bidders are encouraged to attend. The pre-bid conference is scheduled for **May 13, 2025 at 9:00 am** at the Oneida County Department of Aviation, Griffiss International Airport, 660 Hangar Road, Suite 223 (second floor), Rome, NY 13441. Optional Microsoft Teams virtual meeting link: <u>Join the meeting now</u>, Meeting ID: 288 967 731 474 6, Passcode: Af3ju9pt

The Owner reserves the right to revise or amend the Contract Documents prior to the date set for opening bids. Such revisions and amendments, if any, will be announced by addenda to this advertisement. The owner also reserves the right to reject all bids received. The County of Oneida, in order to promote its established Affirmative Action Plan, invites sealed bids from minority groups. This Affirmative Action Policy regarding sealed bids and contracts applies to all persons without regard to race, color, creed, national origin, age, sex or handicap. This contract is subject to

compliance with Article 8 of the New York State Labor Law regarding prevailing rate of wages.

Date: May 6, 2025

Alfred A. Barbato, Director of Purchasing

GENERAL INSTRUCTION TO BIDDERS

- 1. Sealed bids will be received by the Oneida County Director of Purchasing at his office in the Purchasing Department, Oneida County Office Building, 800 Park Avenue, Utica, N.Y., in accordance with the published invitation for bids.
- 2. The sealed bids, subject to the conditions contained herein, will then be publicly opened and read aloud. All bidding must be on the forms furnished and returned in the envelope provided by the Director of Purchasing.
- 3. A Performance Bond will be required of the successful bidder.
- 4. Notice of Project Under New York State Labor Law 220-i. This request for bids is for a public work and for a covered project subject to Labor Law § 220-i. No contractor may bid for this contract unless it is registered with the Department of Labor. No subcontractor may begin work upon this public work unless it is first registered with the Department of Labor. Each bidder must submit its Department of Labor-issued certificate of registration with its bid. The County will reject any bid not accompanied by a certificate of registration for the contractor.
- 5. All delivery charges must be included in the bid price.
- 6. No combination bid on any units will be accepted and each unit must be bid separately. Quantities shown on the Bidding Sheet are approximate only. The contract shall be for the quantities actually ordered during the contract period.
- 7. Any material delivered by a bidder, which is not in accordance with specifications or is otherwise unsatisfactory, in the opinion of the department, may be retained and, if necessary, used until it is replaced with satisfactory material.
- 8. Except for causes not in the control of the bidder, no request for postponement of the date of delivery, or completion, shall be considered. The Director of Purchasing reserves the right to postpone, and may do so as circumstances require.
- 9. When specified, bid bond or certified check must accompany the bid; the same must be made out to the <u>County of Oneida</u>. Failure to submit bid bond or certified check when specified will result in automatic disqualification of bid.
- 10. The County is not subject to tax; the County will sign exemption certificates when required.
- 11. Bidders are warned that all deliveries are to be new, unused and first quality. No rejects, "seconds" or otherwise imperfect or low quality material will be acceptable.
- 12. For the sake of simplicity in drawing the accompanying specifications, manufacturers name or catalog numbers may have been used. In all such cases, they are well known manufacturers whose catalogs are readily available to all bidders. The use of particular manufacturers' names or numbers is not intended to restrict bidding or bar the equal or superior product of other manufacturers. Dimensions given are approximate and bidders are to verify all figures.
- 13. If a date is stated in the specifications, all deliveries and installations shall be completed by said date.

- 14. When reference is made to the New York State Department of Public Works specifications and/or the State of New York, Division of Standards and Purchase Specifications in the specification of any item, a copy of such specifications may be examined in the office of the Director of Purchasing.
- 15. The Director of Purchasing reserves the right to make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Director of Purchasing all such information and data for this purpose as he may request, including, but not limited to, the name and address of the manufacturer of the articles quoted on. The Director of Purchasing also reserves the right to reject any bid if the evidence submitted by, or the investigation of, such bidder fails to satisfy the Director of Purchasing that such bidder is qualified to carry out the obligations of the bid or to complete the deliveries contemplated therein.
- 16. The Director of Purchasing reserves the right to consider informally a bid not prepared and submitted in accordance with the provisions of these specifications, or to waive informalities in any bid as received. The Director of Purchasing also reserves the right to reject any and all bids, as in the best interests of Oneida County, without cause.
- 17. A successful Bidder, upon his failure or refusal to execute a Performance Bond, if required, within five days after he has been notified of the acceptance of his bid, shall forfeit to the County as liquidated damages for such failure or refusal, the security deposited with this bid (if a security was required with the bid).
- 18. No bidder may withdraw his bid within forty-five days after the bids are opened, but may withdraw it at any time prior to the closing time for the reception of bids.
- 19. Alternate proposed items shall fulfill the requirements of the basic specifications in function, type, materials, construction, color, and finish. If bid differs from specifications, brochures or cuts should be submitted with the bid.
- 20. In submitting this bid, the bidder declares that he is, or they are, the only person or persons interested in said bid, that it is made without any connection with any person making another bid for the same materials, and that the bid is in all respects fair and without collusion, fraud, or mental reservation.
- 21. In submitting this bid, any bidder subject to the provisions of Article 18 of the General Municipal Law and/or the Ethics Law of the County of Oneida declares that he, she or they shall comply with the same.
- 22. The Bidder to whom a contract shall be let, granted or awarded is prohibited from assigning, transferring, conveying, subletting or otherwise disposing of the same, or of his right, title or interest therein, or his power to execute such contract to any other person or corporation, except as provided in Section 109 of the NYS General Municipal Law.
- 23. No bid for materials, supplies, equipment or services may be accepted from, or contract therefor awarded to, any person who is in arrears in taxes or upon debt or contract to or with the County or who has defaulted as a surety or otherwise upon a contract or obligation to the County, or who may be otherwise disqualified under any act of the legislature not inconsistent with the Oneida County Charter or Oneida County Administrative Code.
- 24. The Bidder agrees to make no claim for damages for delay occasioned by an act or omission of the County of Oneida.
- 25. Pursuant to NYS Labor Law, Article 8, Sec. 220-a, the following is required: Every Bidder and/or contractor and subcontractor, shall submit to the department of jurisdiction (Oneida County Purchasing,

800 Park Avenue, Utica, NY 13501) within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll record, as provided by this Article, subscribed and affirmed as true under the penalties of perjury, as long as this contract is in place.

- 25. Pursuant to NYS General Municipal Law Section (103)(3) & (16), as well as Section 104, it is the intent of this Invitation To Bid that all political subdivisions, and districts located in the State of New York, be entitled to make purchases of materials, equipment or supplies from the resulting bid award. All orders will be placed by the participating entities. Each participating entity shall be billed by and make payment to the successful bidder directly. The sole responsibility in regard to performance of the bid, or any obligation, covenant, condition or term thereunder by the successful bidder and the participating entities and not by Oneida County. In the event of a failure or breach in performance of any such bid by a participating entity or the successful bidder, Oneida County specifically and expressly disclaims any and all liability for such defective performance or breach, or failure of either party to perform in accordance with its obligations, covenants and the terms and conditions of this bid.
- 26. By signing and submitting a bid, the bidder acknowledges, agrees with and accepts each and every provision of these instructions, as well as each and every provision of the item specifications. The signature and submission of a bid constitutes a declaration and certification that the bidder can furnish the materials, equipment, and/or services required satisfactorily in complete compliance with the specifications.
- 27. The proposal must be made out in the corporate or other entity name of the bidder, and must be fully and properly executed by an authorized person.
- 28. Awards will be made to the lowest responsible bidder as will best promote the public interest, taking into consideration the reliability of the bidder, the quality of materials or equipment to be furnished, their conformity with the specifications, the purpose for which required, and the terms of delivery.
- 29. Where pricing is described in both words and numerals, the words will govern.

30. It is understood and agreed that in questions of interpretation in the specifications, the Purchasing Director shall expressly have the right to determine the meaning and shall control the decision, and such decision shall be binding and final.

END OF GENERAL INSTRUCTIONS TO BIDDERS

CONTRACTOR'S EXECUTED PROPOSAL SECTION TO BE INSERTED AFTER AWARD AS PART OF THE CONFORMED CONSTRUCTION DOCUMENTS

(The Proposal Section is a separate bound document and must be entirely completed and submitted)

AGREEMENT

THIS AGREEMENT, in <u>3 or</u>	riginal copies, made and entered into this _	day of
, 20 <u></u> , by	and between the County of Oneida,	a municipal corporation
organized and existing under the laws	of the State of New York with its princi	pal offices located at 800
Park Avenue, Utica, New York 13501	(hereinafter referred to as "Owner"), and	, a
organized and	existing under the laws of the State of	with its principal
offices located	(hereinafter ref	erred to as "Contractor").

WITNESSETH: That the parties hereto, each in consideration of the agreements on the part of the other herein contained have mutually agreed and hereby mutually agree, the Owner for itself and its successors, and the Contractor for itself, himself, or themselves and its successors, his or their executors, administrators and assigns as follows:

Article 1. DESCRIPTION. Under this Agreement the Contractor shall construct the: Triangle Area Civil Site Development Project

Article 2. In consideration of the payments to be made as hereinafter provided, and of the performance by the Owner of all of the matters and things to be performed by the Owner as herein provided, the Contractor agrees, at his or its own sole cost and expense, to perform all the labor and services and to furnish all the labor and materials, plant and equipment, necessary to complete in good, substantial workmanlike and approved manner, the work described under Article 1 hereof, within the time hereinafter specified and in accordance with the terms, conditions and provision of this Agreement and the Contract, and with the instructions, orders and direction of the Engineer made in accordance with the Contract.

Article 3. The Owner agrees to pay, and the Contractor agrees to accept as full compensation for all work done, and materials furnished, and also for all costs and expenses incurred and loss or damages sustained by reason of the action of the elements, or growing out of the nature of the work, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all risks of every description connected with the suspension or discontinuance of the work as herein specified, and for faithfully completing the work, and the whole thereof, as herein provided, and for maintaining the work in good condition until the final payment is made, the prices stipulated in the Bid hereto attached.

3.1 The Owner will pay Contractor for completion of the Work in accordance with the Contract for the Total Base Bid and ______: in the amount of \$______, hereby identified as the Contract Price, as shown in the Contractor's Proposal, with discrepancies corrected in accordance with Award and Execution of Contract Section 30-01 "Consideration of Proposals" and 30-02 "Award of Contract" if applicable.

Article 4. CONTRACT DOCUMENTS. The following documents shall constitute integral parts of this Agreement, the whole to be collectively known and referred to as the Contract: Advertisement; General Provisions; Bid; this Agreement; Special Provisions; Contract Drawings; and all interpretations of or addenda to the Contract documents issued by the Owner or the Engineer with the approval of the Owner. The Table of Contents, headings and titles contained herein and in said documents are solely to facilitate reference to various provisions of the Contract documents and in no way effect, limit or cast light on the interpretation of the provisions to which they refer.

Article 5. If the Contractor shall fail to comply with any of the terms, conditions, provisions or stipulations of the Contract, according to the true intent and meaning thereof, then the Owner may make use of any or all remedies provided in that behalf in the Contract or in law, and shall have the right and power to proceed in accordance with the provisions thereof.

Article 6. The following alterations and addenda have been made and included in the Contract before it was signed by the parties thereto:

IN WITNESS WHEREOF, the parties to this Agreement have hereunto set their hands and seals and have executed this Agreement, in three original copies, the day and year first above written.

OWNER:

By: ___

Hon. Anthony J. Picente, Jr. (SEAL) Oneida County Executive

CONTRACTOR:

By:_____ (SEAL)

Print Name:

Title: _____

AGREEMENT (ACKNOWLEDGMENT OF OFFICER OF OWNER ATTESTING CONTRACT)

STATE OF NEW YORK	}
	} ss:
COUNTY OF ONEIDA	}

On this _____ day of _____, 20___, before me, the undersigned, a Notary Public in and for said State, personally appeared Anthony J. Picente, Jr., personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public

AGREEMENT (ACKNOWLEDGMENT OF CONTRACTOR, IF A CORPORATION)

STATE OF	}]		
COUNTY OF	}	} 88:		
On this	day of	, 20	, before me, the undersign	ied, a Notary Public,
personally came	and appeared			
to me known, who	o being by me duly sw	vorn,		
did depose and s	say that he resides at			;
that he / she is the				
			of	, the
corporation describes corporation; that	ribed in which execution one of the seals affixed	ited the forego d to said instrur	ing instrument; that he known in the	ws the seal of said so affixed by order of

the Directors of said corporation, and that he signed his name thereto by like order.

Notary Public

AGREEMENT (ACKNOWLEDGMENT OF CONTRACTOR, IF OTHER THAN A CORPORATION)

STATE OF]	
COUNTY O	F	<u>ک</u> ۵۶:	
On the	day of	in the year 20, before	me, the undersigned, a Notary
Public in and	for said State, person	ally appeared	, personally
known to me	or proved to me on th	e basis of satisfactory evidence to b	be the individual(s) whose name(s)
is(are) subscri	ibed to the within ins	trument and acknowledged to me th	at he/she/they executed the same in
his/her/their c	apacity(ies), and that	by his/her/their signature(s) on the	instrument, the individual(s), or the
person upon b	behalf of which the in	dividual(s) acted, executed the instr	rument.

Notary Public

AGREEMENT (CERTIFICATE OF OWNER'S ATTORNEY)

I, the undersigned, ______, the duly authorized and acting legal representative of the Owner, do hereby certify as follows:

I have examined the foregoing Agreement, the Contract and surety bond and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that said agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions and provisions thereof.

Owner's Attorney

Date

END OF AGREEMENT

STANDARD ONEIDA COUNTY CONDITIONS

The County of Oneida ("County") and _____ ("Contractor"), for good consideration, agree to be bound by the following clauses which are hereby made a part of the foregoing Agreement:

1. <u>EXECUTORY OR NON-APPROPRIATION CLAUSE</u>.

The County shall have no liability or obligation under this Contract to the Contractor or to anyone else beyond the annual funds being appropriated and available for this Contract.

2. <u>ONEIDA COUNTY BOARD OF LEGISLATORS: RESOLUTION #249 SOLID</u> WASTE DISPOSAL REQUIREMENTS.

Pursuant to Oneida County Board of Legislator Resolution No. 249 of May 26, 1999, the Contractor agrees to deliver exclusively to the facilities of the Oneida-Herkimer Solid Waste Authority, all waste and recyclables generated within the Authority's service area by performance of this Contract by the Contractor and any subcontractors. Upon awarding of this Contract, and before work commences, the Contractor will be required to provide Oneida County with proof that Resolution No. 249 of 1999 has been complied with, and that all wastes and recyclables in the Oneida-Herkimer Solid Waste Authority's service area which are generated by the Contractor and any subcontractors in performance of this Contract will be delivered exclusively to Oneida-Herkimer Solid Waste Authority facilities.

3. <u>CERTIFICATIONS REGARDING LOBBYING, DEBARMENT, SUSPENSION AND</u> <u>OTHER RESPONSIBILITY MATTERS, AND DRUG-FREE WORKPLACE</u> <u>REQUIREMENTS.</u>

- a. Lobbying. As required by Section 1352, Title 31 of the U.S. Code and implemented at 34 CFR Part 82 for persons entering into a grant or cooperative agreement over \$100,000, as defined at 34 CFR Part 82, Section 82.105 and 82.110, the Contractor certifies that:
 - i. No federal appropriated funds have been paid or will be paid, by or on behalf of the Contractor, to any persons for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making of any federal grant, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal grant or cooperative agreement.

- ii. If any funds other than federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal grant or cooperative agreement, the Contractor shall complete and submit Standard Form 111 "Disclosure Form to Report Lobbying," in accordance with its instructions.
- iii. The Contractor shall require that the language of this certification be included in the award documents for all subcontracts and that all subcontractors shall certify and disclose accordingly.
- b. Debarment, Suspension and other Responsibility Matters. As required by Executive Order 12549, Debarments and Suspension, and implemented at 34 CFR Part 85, for prospective participants in primary covered transactions, as defined at 34 CFR Part 85, Sections 83.105 and 85.110,
 - i. The Contractor certifies that it and its principals:
 - A. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;
 - B. Have not within a three-year period preceding this Contract been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction, violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - C. Are not presently indicted or otherwise criminally or civilly charged by a Government entity (federal, state or

local) with commission of any of the offenses enumerated in subparagraph (B), above, of this certification; and

- D. Have not within a three-year period preceding this Contract had one or more public transactions (federal, state, or local) for cause or default;
- ii. Where the Contractor is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this Contract.
- c. Drug-Free Workplace (Contractors other than individuals). As required by the Drug-Free Workplace Act of 1988, and implemented at 34 CFR Part 85, Subpart F, for Contractors, as defined at 34 CFR Part 85, Sections 85.605 and 85.610:
 - i. The Contractor will or will continue to provide a drug-free workplace by:
 - A. Publishing a statement notifying employees that the manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
 - B. Establishing an ongoing drug-free awareness program to inform employees about:
 - 1) The dangers of drug abuse in the workplace;
 - 2) The Contractor's policy of maintaining a drugfree workplace;
 - 3) Any available drug counseling, rehabilitation, and employee assistance program; and
 - The penalties that may be imposed upon an employee for drug abuse violation occurring in the workplace;

- C. Making it a requirement that each employee to be engaged in the performance of the Contract be given a copy of the statement required by paragraph (A), above;
- D. Notifying the employee in the statement required by paragraph (A), above, that as a condition of employment under the Contract, the employee will:
 - 1) Abide by the terms of the statement; and
 - Notify the employer in writing of his or her conviction for a violation of a criminal drug statue occurring in the workplace no later than five (5) calendar days after such conviction;
- E. Notifying the County, in writing within ten (10) calendar days after having received notice under subparagraph (D)(2), above, from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position and title, to:

Director, Grants Management Bureau, State Office Building Campus, Albany, New York 12240. Notice shall include the identification number(s) of each affected contract.

- F. Taking one of the following actions, within thirty (30) calendar days of receiving notice under paragraph (D)(2), above, with respect to any employee who is so convicted;
 - Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - 2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes

by a federal, state or local health, law enforcement, or other appropriate agency;

- G. Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (A),(B),(C),(D),(E) and (F), above.
- ii. The Contractor may insert in the space provided below the site(s) for the performance of work done in connection with the specific contract.

Place of Performance (street, address, city, county, state, zip code).

Griffiss International Airport, Oneida County NY,

- d. Drug-Free Workplace (Contractors who are individuals). As required by the Drug-Free Workplace act of 1988, and implemented at 34 CFR Part 85, Subpart F, for Contractors that are individuals, as defined at 34 CFR Part 85, Sections 85.605 and 85.610:
 - i. As a condition of the contract, the Contractor certifies that he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the Contract; and
 - ii. If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any contract activity, the Contractor will report the conviction, in writing, within ten (10) calendar days of the conviction, to:

Director, Grants Management Bureau, State Office Building Campus, Albany, NY 12240. Notice shall include the identification number(s) of each affected Contract.

4. <u>HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPPA)</u>.

When applicable to the services provided pursuant to the Contract:

- a. The Contractor, as a Business Associate of the County, shall comply with the Health Insurance Portability and Accountability Act of 1996, hereinafter referred to as "HIPAA," as well as all regulations promulgated by the Federal Government in furtherance thereof, to assure the privacy and security of all protected health information exchanged between the Contractor and the County. In order to assure such privacy and security, the Contractor agrees to enact the following safeguards for protected health information:
 - i. Establish policies and procedures, in written or electronic form, that are reasonably designed, taking into consideration the size of, and the type of activities undertaken by, the Contractor, to comply with the Standards for Privacy of Individual Identifiable Health Information, commonly referred to as the Privacy Rule;
 - ii. Utilize a combination of electronic hardware and computer software in order to securely store, maintain, transmit, and access, protected health information electronically; and
 - iii. Utilize an adequate amount of physical hardware, including but not limited to, locking filing cabinets, locks on drawers, other cabinets and office doors, in order to prevent unwarranted and illegal access to computers and paper files that contain protected health information of the County's clients.
- b. This agreement does not authorize the Contractor to use or further disclose the protected health information that the Contractor handles in treating patients of the County in any manner that would violate the requirements of 45 CFR § 164.504(e), if that same use or disclosure were done by the County, except that:
 - i. The Contractor may use and disclose protected health information for the Contractor's own proper management and administration; and
 - ii. The Contractor may provide data aggregation services relating to the health care operations of the County.
- c. The Contractor shall:

- i. Not use or further disclose protected health information other than as permitted or required by this contract or as required by law;
- ii. Use appropriate safeguards to prevent the use or disclosure of protected health information other than as provided for in this Contract;
- Report to the County any use or disclosure of the information not provided for by this Contract of which the Contractor becomes aware;
- iv. Ensure that any agents, including a subcontractor, to whom the Contractor provides protected health information received from, or created or received by the Contractor on behalf of the County, agrees to the same restrictions and conditions that apply to the Contractor with respect to such protected health information;
- v. Make available protected health information in accordance with 45 CFR §164.524;
- vi. Make available protected health information for amendment and incorporate any amendments to protected health information in accordance with 45 CFR §164.528;
- vii. Make available the information required to provide an accounting of disclosures in accordance with 45 CFR § 164.528;
- viii. Make its internal practices, books, and records relating to the use and disclosure of protected health information received from, or created or received by, the Contractor on behalf of the County available to the Secretary of Health and Human Services for purposes of determining the County's compliance with 45 CFR § 164.504(e)(2)(ii); and
- ix. At the termination of this Contract, if feasible, return or destroy all protected health information received from, or created or received by, the Contractor on behalf of the County that the Contractor still maintains, in any form, and retain no copies of such information; or, if such return or destruction is not feasible,

extend the protections of this Contract permanently to such information and limit further uses and disclosures to those purposes that make the return or destruction of the information infeasible.

- d. The Contractor agrees that this contract may be amended if any of the following events occurs:
 - i. HIPAA, or any of the regulations promulgated in furtherance thereof, is modified by Congress or the Department of Health and Human Services;
 - ii. HIPAA, or any of the regulations promulgated in furtherance thereof, is interpreted by a court in a manner impacting the County's HIPAA compliance; or
 - iii. There is a material change in the business practices and procedures of the County.
- e. Pursuant to 45 CFR § 164.504(e)(2)(iii), the County is authorized to unilaterally terminate this Contract if the County determines that the Contractor has violated a material term of this Contract.

5. <u>NON-ASSIGNMENT CLAUSE</u>.

In accordance with Section 109 of the General Municipal Law, this Contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the County's previous written consent, and any attempts to do so are null and void. The Contractor may, however, assign its right to receive payments without the County's prior written consent unless this Contract concerns Certificates of Participation pursuant to Section 109-b of the General Municipal Law.

6. WORKER'S COMPENSATION BENEFITS.

In accordance with Section 108 of the General Municipal Law, this Contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this Contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.

7. <u>NON-DISCRIMINATION REQUIREMENTS</u>.

To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other state and federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, sexual orientation, age, disability, genetic predisposition or carrier status, or marital status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a Contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this Contract shall be performed within the State of New York, the Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this Contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 of the Labor Law, the Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this Contract. The Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this Contract and forfeiture of all monies due hereunder for a second or subsequent violation.

8. WAGE AND HOURS PROVISIONS.

If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 of the Labor Law, neither the Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said Articles, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, the Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the County of any County-approved sums due and owing for work done upon the project.

9. <u>NON-COLLUSIVE BIDDING CERTIFICATION.</u>

In accordance with Section 103-d of the General Municipal Law, if this Contract is awarded based upon the submission of bids, the Contractor certifies and affirms, under penalty of perjury, as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (1) the prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; and (2) unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (3) no attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition. The Contractor further affirms that, at the time the Contractor submitted its bid, an authorized and responsible person executed and delivered to the County a non-collusive bidding certification on the Contractor's behalf.

10. <u>RECORDS</u>.

The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertaining to performance under this Contract (hereinafter, collectively, "the Records"). The Records shall include, but not be limited to, reports, statements, examinations, letters, memoranda, opinions, folders, files, books, manuals, pamphlets, forms, papers, designs, drawings, maps, photos, letters, microfilms, computer tapes or discs, electronic files, e-mails (and all attachments thereto), rules, regulations and codes. The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The County Comptroller, the County Attorney and any other person or entity authorized to conduct an audit or examination, as well as the agency or agencies involved in this Contract, shall have access to the Records during normal business hours at an office of the Contractor within the County or, if no such office is available, at a mutually agreeable and reasonable venue within the County, for the term specified above, for the purposes of inspection, auditing and copying. The County shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute"), provided that: (a) the Contractor shall timely inform an appropriate County official, in writing, that said records should not be disclosed; (b) said records shall be sufficiently identified; and (c) in the sole discretion of the County, designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the County's right to discovery in any pending or future litigation. Notwithstanding any other language, the Records may be subject to disclosure under the New York Freedom of Information Law, for other applicable state or federal law, rule or regulation.

11. <u>IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.</u>

- a. Identification Number(s). Every invoice or claim for payment submitted to a County agency by a payee, for payment for the sale of goods or service or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. This number includes any or all of the following: (i) the payee's Federal employer identification number, (ii) the payee's Federal social security number, and/or (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System. Where the payee does not have such number or numbers, the payee, on its invoice or claim for payment, must state with specificity the reason or reasons why the payee does not have such numbers.
- b. Privacy Notification. (i) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the County is mandatory. The principle purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their liabilities and to generally identify persons affected by the taxes administered by the New York State Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (ii) The personal information is requested by the County's purchasing unit contracting to purchase goods or services or lease the real or personal property covered by this Contract.

12. <u>CONFLICTING TERMS</u>.

In the event of a conflict between the terms of the Contract (including any and all attachments thereto and amendments thereof) and the terms of this Addendum, the terms of this Addendum shall control.

13. <u>GOVERNING LAW</u>.

This Contract shall be governed by the laws of the State of New York except where the Federal Supremacy Clause requires otherwise.

14. <u>PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS.</u>

The Contractor certifies and warrants that all wood products to be used under this Contract award will be acquired in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law (Use of Tropical Hardwoods), which prohibits purchase and use of tropical hardwoods, unless specifically exempted by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the sole responsibility of the Contractor to establish to meet with the approval of the County.

In addition, when any portion of this Contract involving the use of woods, whether for supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in Section 165 of the State Finance Law. Any such use must meet with approval of the County; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the sole responsibility of the Contractor to establish to meet with the approval of the County.

15. <u>COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH</u> <u>AND NOTIFICATION ACT</u>.

The Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa).

16. <u>GRATUITIES AND KICKBACKS</u>.

a. Gratuities. It shall be unethical for any person to offer, give, or agree to give any County employee or former County employee, or for any County employee or former County employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request; influencing the content of any specification or procurement standard; rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application; request for ruling, determination, claim, or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. b. Kickbacks. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime Contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

17. <u>AUDIT</u>

The County, the State of New York, and the United States shall have the right at any time during the term of this agreement and for the period limited by the applicable statute of limitations to audit the payment of monies hereunder. The Contractor shall comply with any demands made by the County to provide information with respect to the payment of monies made hereunder during the period covered by this paragraph. The Contractor shall maintain its books and records in accordance with generally accepted accounting principles or such other method of account which is approved in writing by the County prior to the date of this agreement. The revenues and expenditures of the Contractor in connection with this agreement shall be separately identifiable. Each expenditure or claim for payment shall be fully documented. Expenditures or claims for payment which are not fully documented may be disallowed. The Contractor agrees to provide to, or permit the County to examine or obtain copies of, any documents relating to the payment of money to the Contractor or expenditures made by the County. The Contractor shall maintain all records required by this paragraph for 7 years after the date this agreement is terminated or ends.

If the Contractor has expended, in any fiscal year, \$300,000.00 or more in funds provided by a federal financial assistance program from a federal agency pursuant to this agreement and all other contracts with the County, the Contractor shall provide the County with an audit prepared by an independent auditor in accordance with the Single Audit Act of 1984, 31 U.S.C. §§ 7501, et seq., as amended, and the regulations adopted pursuant to such Act.

18. <u>CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT</u>.

Pursuant to Section 103-g of the General Municipal Law, by submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, each bidder or Contractor, or any person signing on behalf of any bidder or Contractor, and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies, under penalty of perjury, that once the Prohibited Entities List is posted on the Office of General Services (hereinafter "OGS") website, that to the best of its knowledge and belief, that each bidder or Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to State Finance Law § 165-a(3)(b).

Additionally, the bidder or Contractor is advised that once the Prohibited Entities List is posted on the OGS website, any bidder or Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to this solicitation must certify at the time the Contract is renewed, extended or assigned that it is not included on the Prohibited Entities List.

During the term of the Contract, should the County receive information that a bidder or Contractor is in violation of the above-referenced certification, the County will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he, she or it has ceased engagement in the investment which is in violation of the Iran Divestment Act of 2012 within ninety (90) days after the determination of such violation, then the County shall take such action as may be appropriate, including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the bidder or Contractor in default.

The County reserves the right to reject any bid or request for assignment for a bidder or Contractor that appears on the Prohibited Entities List prior to the award of a Contract and to pursue a responsibility review with respect to any bidder or Contractor that is awarded a Contract and subsequently appears on the Prohibited Entities List.

19. <u>PROHIBITION ON TOBACCO AND E-CIGARETTE USE ON COUNTY PROPERTY</u>

Pursuant to Local Law No. 3 of 2016, the use of tobacco and e-cigarettes are prohibited on Oneida County property, as follows:

- a. For the purposes of this provision, the "use of tobacco" shall include:
 - i. The burning of a lighted cigarette, pipe, cigar or other lighted instrument for the purpose of smoking tobacco or a tobacco substitute;
 - ii. The use of tobacco and/or a substance containing tobacco or a tobacco substitute by means other than smoking, including: chewing; holding in the mouth; or expectoration of chewing tobacco.
- b. For the purposes of this provision, "e-cigarette" shall mean an electronic device composed of a mouthpiece, heating element, battery and electronic circuit that delivers vapor which is inhaled by an individual user as he or she simulates smoking.

- c. For the purposes of this provision, "on Oneida County property" shall be defined as:
 - i. Upon all real property owned or leased by the County of Oneida; and
 - ii. Within all County of Oneida-owned vehicles or within private vehicles when being used for a County of Oneida purpose, except that a driver may smoke in a privately-owned vehicle being used for a County of Oneida Purpose if the driver is the sole occupant of the vehicle.
- d. Each violation of this Local Law No. 3 of 2016 shall constitute a separate and distinct offense and may be punishable by a fine of up to \$200.00 for a first offense and up to \$1,000.00 for subsequent offenses.

20. COMPLIANCE WITH NEW YORK STATE LABOR LAW § 201-G

The Contractor shall comply with the provisions of New York State Labor Law § 201-g.

21. COMPLIANCE WITH NEW YORK STATE LABOR LAW § 220-i

If this contract is for a public work and is a covered project as set forth in Labor Law § 220-i, the Contractor shall at all times comply with, and shall require its subcontractors (if any) to comply with, Labor Law § 220-i. The Contractor and its subcontractors (if any) shall at all times be registered by the Department of Labor as set forth in Labor Law § 220-i. Should the registration of the Contractor or its subcontractors (if any) lapse during the term of the contract or subcontract, the Contractor and its subcontractors shall be subject to Labor Law § 220-i(5). Should a Contractor or subcontractor be determined by the Department of Labor to be unfit to be registered by the Department of Labor during the term of the contract, then its work may continue only if a monitor is appointed to oversee the work completed at the sole expense of the Contractor or its subcontractor, as applicable. Such monitor must be approved by the Department of Labor.

END OF STANDARD ONEIDA COUNTY CONDITIONS

Part 1 – General Contract Provisions

Section 10 Definition of Terms

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	AASHTO	The American Association of State Highway and Transportation Officials.
10-02	Access Road	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	Advertisement	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	Airport	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-06	Air Operations Area (AOA)	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	Apron	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	ASTM International (ASTM)	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	Award	The Owner's notice to the successful bidder of the acceptance of the submitted bid.
10-10	Bidder	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.
10-11	Building Area	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of- way together with all airport buildings and facilities located thereon.

Paragraph Number	Term	Definition
10-12	Calendar Day	Every day shown on the calendar.
10-13	Certificate of Analysis (COA)	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	Certificate of Compliance (COC)	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	Change Order	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	Contract	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment.
		The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	Contract Item (Pay Item)	A specific unit of work for which a price is provided in the contract.
10-18	Contract Time	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	Contractor	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	Contractors Quality Control (QC) Facilities	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	Contractor Quality Control Program (CQCP)	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.

Paragraph Number	Term	Definition			
10-22	Control Strip	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.			
10-23	Construction Safety and Phasing Plan (CSPP)	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.			
10-24	Drainage System	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.			
10-25	Engineer	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, of the contract work and acting directly or through an authorized representative.			
10-26	Equipment	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.			
10-27	Extra Work	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.			
10-28	FAA	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.			
Paragraph Number	Term	Definition			
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10-30	Force Account	a. Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis.			
		b. Owner Force Account - Work performed for the project by the Owner's employees.			
10-31	Intention of Terms	Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner.			
		Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.			
10-32	Lighting	A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.			
10-33	Major and Minor Contract Items	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall b considered minor contract items.			
10-34	Materials	Any substance specified for use in the construction of the contract work.			
10-35	Modification of Standards (MOS)	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.			
10-36	Notice to Proceed (NTP)	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.			
10-37	Owner	The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is Oneida County , New York.			

Paragraph Number	Term	Definition			
10-39	Pavement Structure	The combined surface course, base course(s), and subbase course(s), if any, considere4d as a single unit.			
10-40	Payment bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.			
10-41	Performance bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.			
10-42	Plans	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'			
10-43	Project	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.			
10-44	Proposal	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.			
10-45	Proposal guaranty	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.			
10-46	Quality Assurance (QA)	Owner's responsibility to assure that construction work completed complies with specifications for payment.			
10-47	Quality Control (QC)	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.			
10-48	Quality Assurance (QA) Inspector	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.			
10-49	Quality Assurance (QA) Laboratory	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.			

Paragraph Number	Term	Definition					
10-50	Resident Project Representative (RPR)	The individual, partnership, firm, or corporation duly authorize by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnish or being furnished by the Contractor, and acting directly or through an authorized representative.					
10-51	Runway	The area on the airport prepared for the landing and takeoff of aircraft.					
10-52	Runway Safety Area (RSA)	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.					
10-53	Safety Plan Compliance Document (SPCD)	Details how the Contractor will comply with the CSPP.					
10-54	Specifications	art of the contract containing the written directions and tirements for completing the contract work. Standards for sifying materials or testing which are cited in the contract sifications by reference shall have the same force and effect f included in the contract physically.					
10-55	Sponsor	A Sponsor is defined in 49 USC § 47102(24) as a public agency nat submits to the FAA for an AIP grant; or a private Owner of a ublic-use airport that submits to the FAA an application for an AIP grant for the airport.					
10-56	Structures	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.					
10-57	Subgrade	The soil that forms the pavement foundation.					
10-58	Superintendent	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.					
10-59 Supplemental Agreement		A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.					

Paragraph Number	Term	Definition					
10-60	Surety	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.					
10-61	Taxilane	A taxiway designed for low speed movement of aircraft betwee aircraft parking areas and terminal areas.					
10-62	Taxiway	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas.					
10-63	Taxiway/Taxilane Safety Area (TSA)	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.					
10-64	Work	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.					
10-65	Working day	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.					
10-66	Owner Defined terms	The following terms are included in this contract.					
	Contract Drawings	Plans.					
Subcontractor		The subcontractor refers any individual, firm, or corporation to whom the contractor, with approval of the Owner, sublets any part of work.					
	Time and Materials Work	An item or items of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within the intended scope of the contract as previously modified and an agreed price cannot be agreed upon. The Contractor shall perform this work and the Owner agrees to pay the Contractor based upon the work performed by the Contractor's employees and subcontractors, and for materials and equipment used in the construction (along with the Contractor's allowed overhead and profit).					

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). See the Advertisement located in the front of these Contract Documents.

20-02 Qualification of bidders. Within one week of receiving a written request, the bidder shall submit the requirements of this section to the Owner.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

The bidder who receives a written request shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

In addition, each bidder who receives a written request shall furnish the following to the Owner:

- a. A list of the categories of work to be performed by the bidder's work force and a list of work to be subcontracted out (See Section 80-01).
- b. A list of construction projects completed in the past five years. The list shall include the project name, completion date, total contract value, value of bidder's portion of the work, engineer and owner contact information (names and phone numbers).
- c. A list of construction projects in progress and under contract including the project name, percent complete, estimated completion date, total contract value, value of bidder's portion of the work, engineer and owner contact information (names and phone numbers).
- d. A Schedule of Values showing the following information:
 - 1. For each lump sum bid item: Provide a breakdown of values for major products, assemblies or operations, indicating separate amounts for (a) purchased materials, (b) labor, and (c) construction equipment, which total to the lump sum price bid for each item.
 - 2. For each unit price bid item: Provide a breakdown of values for the unit price allocated to (a) purchased materials, (b) labor, and (c) construction equipment which total to the unit price bid for each item.

The Schedule of Values will be reviewed by the Engineer. Any additional detail or justification for cost distribution shall be provided by the apparent low bidder upon request. The Schedule of Values shall serve as a basis for computing progress payments during construction for installed portions of lump sum items, and to assist the Engineer in determining if change order costs are reasonable.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization, if included in this proposal, is specified in Item C-105.

A prebid conference is required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements. The location, date and time are stated in the Advertisement.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

c. Documented record of Contractor default under previous contracts with the Owner.

d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It

is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

Prices should be written in whole dollars and cents. The extended total amount of each item should not be rounded.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside.

When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened. No faxed or emailed proposals will be accepted. The official time shall be kept locally by the Owner.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by fax or by email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms*, of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than 7 calendar days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

Section 30 Award and Execution of Contract

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern. Where discrepancies in the summation of the products occur, the Owner will make the necessary corrections and the corrected values will be used in the Owner's consideration of proposals.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section 20, paragraph 20-09, Irregular Proposals.

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within 45 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

30-03 Cancellation of award. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals*. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds*.

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

The successful bidder shall submit in triplicate, a "Performance Bond" guaranteeing the performance of the work equal to one hundred percent (100%) of the amount of the Contract awarded, and a "Labor and Material Payment Bond" guaranteeing the payment of all legal debts that may be incurred by reason of the

Contractor's performance of the work equal to one hundred percent (100%) of the amount of the Contract awarded.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds*, of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

The Contractor shall also furnish the required insurance certificates in accordance with the subsection titled RESPONSIBILITY FOR DAMAGE CLAIMS of Sections 70 and 200. The successful bidder shall recognize that the proposal included in the contract for execution may differ from the proposal which was submitted with their bid. The proposal included in the contract for execution will include corrections to discrepancies which were discovered during the Owners consideration of proposals and will contain only the pages from the successful bidder's proposal which cover the bids which were awarded. As a result, the proposal pages in the contract to be executed may contain pages which are not consecutively numbered due to the intentional omission of those proposal pages which cover bids that were not awarded.

49 CFR Part 26 provides that each contract the owner signs with a contractor (and each subcontract the prime contractor signs with a subcontractor) shall include the following assurance:

"The contractor, sub-recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of Department of Transportation (DOT) assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate."

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract*, of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

Section 40 Scope of Work

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

However, if the Contractor elects to waive the limitations on work that increase or decrease the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same wage determination as was included in the originally awarded contract.

All supplemental agreements shall require consent of the Contractor's surety and separate performance and payment bonds.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (<u>http://mutcd.fhwa.dot.gov/</u>), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,

- **b.** Remove such material from the site, upon written approval of the RPR; or
- c. Use such material for the Contractor's own temporary construction on site; or,
- **d.** Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

Contractor shall leave the premises broom-clean and everything in perfect order and repair. Upon neglect or refusal of Contractor to keep the premises clean, the RPR shall have the authority to have such work performed, and the cost of the same shall be charged to the Contractor in default and collected from any monies which have or may become due on this Contract. The RPR shall issue no certificates of payment on the Contract until premises are clean, in good order, and all claims properly resolved.

Section 50 Control of Work

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs

contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. See Special Provisions section to the General Provisions.

50-05 Cooperation of Contractor. The Contractor shall be supplied with five hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades,

alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): five (5) full size copies of signed and sealed surveys, five (5) copies of the notes as well as pdf copies of both.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

Refer to Technical Specification item C-107 Project Survey and Stakeout for additional information.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done

without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been

satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Manufacturer's certificates of compliance shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the RPR, and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. The Engineer/RPR field office, if required, shall be as indicated in C-105, Mobilization.

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of

aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Ownerfurnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

Section 70 Legal Regulations and Responsibility to Public

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner, the Engineer, the RPR and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, the Engineer, the RPR, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated as follows:

<u>Utility</u>

Person to Contact

Phone No.

"Not Applicable"

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be

Location (Sheet No.)

entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. Not applicable.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic*, and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is described in the Construction Safety and Phasing Plan, Appendix A to Section 70.

During the work of this Contract, the Owner will make such arrangements to coordinate aircraft movements and Airport operations as necessary to conform to the construction procedures outlined in the Construction Safety and Phasing Plan, and as shown on the Contract Drawings. The Contractor shall give adequate notice to the RPR, so as to afford time to coordinate construction with the Owner.

70-09 Use of explosives. The use of explosives is not permitted on this project.

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner. The Contractor shall indemnify the Owner for any and all costs for the repair or replacement of the Owner's property including, but not limited to, buildings and roads, which arise from or in any manner grow out of any act or neglect on or about the Project site by the Contractor and anyone for whom the Contractor is legally liable.

70-11 Responsibility for damage claims. The Contractor shall indemnify, defend and hold harmless the Engineer/RPR and the Owner and their respective representatives, directors, officers, agents, and employees from all suits, actions, damages, costs, expenses or claims, of any character, (including attorney's fees), and liability (including statutory liability) brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct or arising out of or related to any negligence of the Contractor or anyone for whom the Contractor is legally liable in performing or safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any and all environmental impairment; or because of any act or omission, neglect, or misconduct of said Contractor or anyone for whom the Contractor is legally liable of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

As a material part of the consideration to be rendered by the Owner, the Contractor hereby waives all claims against the Owner for damages to the goods, wares, and merchandise in, upon, or about the Project, and the Contractor will hold the Owner exempt and harmless from any damage and injury to any such person or to the goods, wares, or merchandise of any such person, arising from the use of the Project site by the Contractor or from failure of the Contractor to keep the Project site in good condition and repair as provided in this Section.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Opening sections of work to traffic shall be as described in the CSPP.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings

shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the

Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-15.1 FAA facilities and cable runs. Not Used.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor

to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

The Contractor shall perform all testing, removal of contaminated material, transportation, treatment, remediation, and disposal of contaminated materials which are the result of a spill or release caused by the Contractor, and he shall provide and properly place materials to restore the property to its original condition, all to the Owner's satisfaction and at the Contractor's expense. Refer to the subsection 70-10 titled PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE of this section.

- A. Air Pollution
 - 1. No burning of combustible waste shall be permitted.
 - 2. Alternatives to Burning Land Cleared Material.
 - a. All spoil material from clearing and grubbing operations shall be disposed of in accordance with the Technical Specifications, unless otherwise directed.
 - b. Wood may be salvaged for firewood or commercial use or it may be chipped and disposed of for use as mulch.
 - c. Logs, brush, etc. may be removed to an authorized disposal area or disposed of to the general public without charge.
 - 3. Dust Control.
 - a. Common construction operations which may cause excessive dust include:
 - 1) Quarry, drilling and rock crushing.
 - 2) Clearing, grubbing and stripping.
 - 3) Excavation and placement of embankment.
 - 4) Cement and aggregate handling.
 - 5) Cement or lime stabilization.
 - 6) Blasting.
 - 7) Use of haul roads.
 - 8) Sandblasting or grinding.
 - b. Other construction operations which may cause air pollution are:
 - 1) Volatiles escaping from asphalt and cut back materials.
 - 2) Use of herbicides or fertilizers.
 - 3) Smoke from asphalt plants or heater/planers.

- c. Control of Dust and Other Air Pollutants shall be the responsibility of the Contractor and may include the following control methods:
 - 1) Drilling apparatus equipped with water or chemical dust controlling systems.
 - 2) Exposing the minimum area of land.
 - 3) Applying temporary mulch with or without seeding.
 - 4) Use of water sprinkling trucks.
 - 5) Use of covered haul trucks.
 - 6) Use of stabilizing agents in solution.
 - 7) Use of dust palliative and penetration asphalt on temporary roads.
 - 8) Use of wood chips in traffic or work areas.
 - 9) Use of vacuum equipped sandblasting systems.
 - 10) Use of plastic sheet coverings.
 - 11) Restricting the application rate of herbicides to recommended dosage. Materials should be covered and protected from the elements. Application, equipment and empty containers shall not be rinsed and discharged to a stream, etc. or allowed to enter the groundwater.
 - 12) Use dust control measures at bituminous mixing plants, and quarry operations.
 - 13) Delay operations until climate or wind conditions dissipate or inhibit the potential pollutants in a manner satisfactory to the RPR.
- B. Water Pollution
 - 1. The Contractor shall use suitable precautions to minimize water pollution during the progress of the work. Erosion control devices or methods may consist of berms, dikes, dams, drains, sediment basins, fiber mats, woven plastic filter cloths, gravel, mulches, quick growing grasses, sod, bituminous spray or other control devices.
 - 2. The amount of surface area of erodible earth at any one time shall not exceed the area allowed by permit.
 - 3. Pollutants such as fuels, lubricants, bitumen, raw sewage and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or man-made channels leading thereto. Wash water or waste from concrete mixing and curing operations should not be allowed to enter streams, etc.

In the event of conflict between these requirements and pollution control laws, rules or regulations or other Federal, State or local agencies, the more restrictive laws, rules, or regulations shall apply.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work*, and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements.

The Contractor, at their own expense, shall procure and maintain, until final acceptance by the Owner of the work covered by the Contract, comprehensive liability insurance for damages imposed by law of the kinds and in the amounts hereinafter provided, written by a financially solvent insurance company authorized to do such business and write such coverage in the place where the Project is located, covering all operations under the Contract, whether performed by the Contractor or by its Subcontractor(s). Before commencing the work, the Contractor shall furnish to the Owner three (3) certificates of insurance, in satisfactory form to the Owner, showing that the Contractor has complied with the requirements of this Section. The policies and certificates shall provide that the policies shall not be changed or canceled until thirty (30) days after written notice thereof has been given to each of the Additional Insureds listed below. Property damage insurance shall include coverage for explosion, collapse, and underground operations (X C U hazards).

- A. The kinds and amounts of insurance are as follows:
 - 1. General Liability insurance policies shall be Commercial General Liability Insurance (including premises operations, independent contractors, products/completed operations, explosion, collapse and underground hazard, broad form property damage, and blanket contractual liability coverages) and shall be written on an Occurrence basis with the following minimum limits:

Each Occurrence \$1,000,000 General Aggregate \$3,000,000 See sample Acord Form for additional requirements

As an alternative to the above limits for General Aggregate and Each Occurrence, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall likewise be written on an Occurrence basis. If the Contractor so elects, then the sum of the General Liability Each Occurrence limit and the Excess Liability Each Occurrence limit shall total at least \$1,000,000. The sum of the General Liability General Aggregate limit and the Excess Liability Aggregate limit shall total at least \$3,000,000.

2. Automobile Liability policies shall cover "Any Auto". The minimum Combined Single Limit shall be \$1,000,000.

As an alternative to the above limit for Automobile Liability, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall be written on an Occurrence basis. If the Contractor so elects, then the sum of the Combined Single Limit and the Excess Liability Each Occurrence limit shall total at least \$1,000,000.

3. Policy or policies covering the obligations of the Contractor in accordance with the provisions of any applicable Worker's Compensation or Disability Benefits Law including (for the State

of New York) Chapter 41, Laws of 1914, as amended, known as the Worker's Compensation Law, and amendments thereto, and Chapter 600 of the Laws of 1949, as amended, known as the Disability Benefits Law. See Sample Acord Form for minimum limits required.

- 4. If applicable, the Contractor and its Subcontractor(s) engaged in work involving "hazardous substances," as defined in Section 3 of PL 1993, c. 139 (C.13:1K-8), or "hazardous waste," as defined in Section 1 of PL 1976, c. 99 (C.13:1E-38), shall procure and maintain pollution liability insurance, also known as "environmental impairment liability insurance."
- 5. General Liability insurance policies shall include Owners and Contractors Protection (OCP) and shall be written on an Occurrence basis with the following minimum limits:
 Each Occurrence \$1,000,000 (or amount of contract sum, whichever is greater)
 General Aggregate \$1,000,000 (or amount of contract sum, whichever is greater)
- B. Contractor's insurance shall be primary over all other collectible insurance.
- C. Anti-subrogation applies to General Liability and to Automobile Liability insurance coverages.
- D. The Certificate Holder shall be the **Oneida County, 800 Park Avenue Utica New York 13501**.
- E. The following shall be named as Additional Insureds: Oneida County; C&S Engineers, Inc.; the Federal Aviation Administration; the New York State Department of Transportation.
- F. The General Liability policies shall provide coverage for liability for damages imposed by law upon the Contractor and its Subcontractor(s) with respect to all work performed by any of them under the Contract. The insurance company providing General Liability insurance coverage acknowledges that the Contractor has agreed in this Contract to defend, hold harmless, and indemnify the Owner, the Design Engineer, the Engineer, and their respective directors, officers, representatives and employees as set forth in this Section.
- G. The Contractor's policies shall provide coverage for contractual liability imposed by contract, including this Contract, and completed operations liability for damages imposed by law arising between the date of the certification of completion of the work and the date of the expiration of the Contractor's guarantee.
- H. Contractor's policy shall provide coverage for liability arising out of the acts or omissions of its Subcontractors.
- I. Each Subcontractor employed on the Project site by the Contractor shall provide comprehensive liability insurance in accordance with the above-described requirements of the Contractor. Such insurance requirements shall be submitted to the Engineer as part of the Subcontractor approval process.
- J. The Contractor shall submit his/her evidence of liability insurance coverage on the ACORD Corporation form 25-S "Certificate of Liability Insurance" and form 75-S "Insurance Binder" per Oneida County's requirements. Sample forms, entitled "Exhibit 1 and 2", have been included at the end of this section.

ACORD [®] Exhibit 1	ER	TIF	ICATE OF LIAI	BILI		URANC	E	TE (MM/DD/YYY	(Y)
THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.						IIS ES ED			
IMPORTANT: If the certificate holder in If SUBROGATION IS WAIVED, subject this certificate does not confer rights	s an to th	ADD ne ter	ITIONAL INSURED, the p ms and conditions of th	oolicy(i e polic	ies) must hav cy, certain po dorsement(s	ve ADDITION olicies may i	IAL INSURED provisions o require an endorsement. A	be endorse statement	∋d. on
PRODUCER		COL		CONTA		<u>).</u> Contact In	formation		
				PHONE	<u>Agent</u>	Contact III	FAX (A/C, No):		
Insurance Agent Name and	Add	dress	5	E-MAIL	SS:				
					INS	URER(S) AFFOR	RDING COVERAGE	NAIC	#
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INSURED				INSURE	ER B :				
Contractor Name and Ad	dres	s		INSURE	ER C :				
				INSURE	ER D :	"SAMPLE	<u>-</u>		
				INSURE	ER E :				
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THIS IS TO CERTIFY THAT THE POLICIES	OF	NSUF	ANCE LISTED BFI OW HAV	/E BFF	N ISSUED TO	THE INSURF	D NAMED ABOVE FOR THE		OD
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INSR LTR TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER		POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
X COMMERCIAL GENERAL LIABILITY							EACH OCCURRENCE \$	1,000,000	
CLAIMS-MADE X OCCUR							PREMISES (Ea occurrence) \$	50,000	
XCU Hazards	Х	Х	###########		vv/vv/vv	vv/vv/vv	MED EXP (Any one person) \$	5,000	
A						~~~~~	PERSONAL & ADV INJURY \$	1,000,00	<u>)0</u>
GEN'L AGGREGATE LIMIT APPLIES PER:							GENERAL AGGREGATE \$	3,000,000	0
							PRODUCTS - COMP/OP AGG \$	2,000,00)0
							COMBINED SINGLE LIMIT	1 000 000	<u> </u>
X ANY AUTO							(Ea accident) BODILY INJURY (Per person) \$	1,000,000	,
	Х	Х	##########		xx/xx/xx	xx/xx/xx	BODILY INJURY (Per accident) \$		
AUTOS ONLY AUTOS HIRED NON-OWNED							PROPERTY DAMAGE		
							\$		
X UMBRELLA LIAB X OCCUR			May be added if needed t	to			EACH OCCURRENCE \$		
A EXCESS LIAB CLAIMS-MADE	Х	х	supplement GL and/or Au	uto	xx/xx/xx	xx/xx/xx	AGGREGATE \$		
DED RETENTION \$			coverage limits				\$		
WORKERS COMPENSATION AND EMPLOYERS' LIABILITY							X STATUTE ER		
A OFFICER/MEMBER EXCLUDED?	N/A	x	###########		xx/xx/xx	<u>vv/vv/vv</u>	E.L. EACH ACCIDENT \$	100,000	
(Mandatory in NH)							E.L. DISEASE - EA EMPLOYEE \$	100,000	
DÉSCRIPTION OF OPERATIONS below							E.L. DISEASE - POLICY LIMIT \$	500,000	
DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICI	ES (A	CORD	101, Additional Remarks Schedul	e, may b	e attached if more	e space is require	ed)		
Project Name and Location	- 12			, .					
Oneida County, Federal Aviation Administr	ation	, NYS	DOT, and C&S Engineers,	, Inc., a	are Additional	Insureds on a	a Primary/Non-		
Contributory basis for general liability, auto	mobi	le liat	ility, and umbrella liability.	Waive	r of subrogatio	on to Certifica	te Holder applies to GL, AL,	JL, and WC v	when
required by written contract. Thirty (30) day	notio	ce of	cancellation to Certificate H	lolder	and additiona	l insureds.			
CERTIFICATE HOLDER CANCELLATION									
Opeida County									
				ACCORDANCE WITH THE POLICY PROVISIONS.					
				AUTU-					
Utica, NY 13501-2975				AUTHORIZED REPRESENTATIVE					
				Signature					
					@ 10	88-2015 10		righte rocor	hav

The ACORD name and logo are registered marks of ACORD



INSURANCE BINDER

Exhibit 2

DATE (MM/DD/YYYY) xx/xx/xxxx

COMPANY BINDER #					
Insurance Company ###					
DATE EFFECTIVE TIME DATE TIME					
PM XX/XX/XX NOON					
THIS BINDER IS ISSUED TO EXTEND COVERAGE IN THE ABOVE NAMED COMPANY					
PER EXPIRING POLICY #:					
DESCRIPTION OF OPERATIONS/VEHICLES/PROPERTY (Including Location)					
Project Name and Location					
Designated Contractor: Name and Address					
"SAMPLE"					
DATE EFFECTIVE TIME DATE XX/XX/XX HH:MM AM PM XX/XX/XX THIS BINDER IS ISSUED TO EXTEND COVERAGE IN THE ABOVE NAMED COMP/ PER EXPIRING POLICY #: DESCRIPTION OF OPERATIONS/VEHICLES/PROPERTY (Including Location) Project Name and Location Designated Contractor: Name and Address "SAMPLE"					

COVERAGES	LIMITS			
TYPE OF INSURANCE	COVERAGE/FORMS	DEDUCTIBLE	COINS %	AMOUNT
PROPERTY CAUSES OF LOSS				
BASIC BROAD SPEC				
GENERAL LIABILITY		EACH OCCURRI	ENCE	\$ 1,000,000 +
COMMERCIAL GENERAL LIABILITY	(One million limit or amount of contract sum, whichever is greater)	RENTED PREMI	SES	\$
		MED EXP (Any o	ne person)	\$
			OV INJURY	\$
X Owner's & Contractor's		GENERAL AGGE	REGATE	\$ 1,000,000 +
Protection (OCP)	RETRO DATE FOR CLAIMS MADE:	PRODUCTS - CO	OMP/OP AGG	\$
		COMBINED SINC	GLE LIMIT	\$
ANY AUTO		BODILY INJURY	(Per person)	\$
ALL OWNED AUTOS		BODILY INJURY	(Per accident)	\$
SCHEDULED AUTOS		PROPERTY DAM	IAGE	\$
HIRED AUTOS		MEDICAL PAYM	ENTS	\$
NON-OWNED AUTOS		PERSONAL INJU	JRY PROT	\$
		UNINSURED MC	TORIST	\$
				\$
AUTO PHYSICAL DAMAGE DEDUCTIBLE	ALL VEHICLES SCHEDULED VEHICLES	ACTUAL C	CASH VALUE	
COLLISION:		STATED A	MOUNT	\$
OTHER THAN COL:		OTHER		
GARAGE LIABILITY		AUTO ONLY - EA	ACCIDENT	\$
ANY AUTO		OTHER THAN A	UTO ONLY:	
		EAC	HACCIDENT	\$
			AGGREGATE	\$
		EACH OCCURRI	ENCE	\$
		AGGREGATE		\$
OTHER THAN UMBRELLA FORM	RETRO DATE FOR CLAIMS MADE:	SELF-INSURED	RETENTION	\$
		WC STAT	UTORY LIMITS	
WORKER'S COMPENSATION AND		E.L. EACH ACCI	DENT	\$
EMPLOYER'S LIABILITY		E.L. DISEASE - E	A EMPLOYEE	\$
		E.L. DISEASE - F	POLICY LIMIT	\$
SPECIAL CONDITIONS/		FEES		\$
OTHER COVERAGES		TAXES		\$
		ESTIMATED TO	TAL PREMIUM	\$
NAME & ADDRESS				

	MORTGAGEE	GEE ADDITIONAL INSURED				
Opeide County	LOSS PAYEE	ΈΕ Ε				
Oneida County	LOAN #	LOAN #				
800 Park Avenue						
Utica, NY 13501	AUTHORIZED REP	REPRESENTATIVE				

ATTACHMENT "A" TO SECTION 70-08

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

FOR THE CONSTRUCTION OF

TRIANGLE AREA CIVIL SITE DEVELOPMENT PROJECT

AT

GRIFFIS INTERNATIONAL AIRPORT (RME)

Oneida County, Rome, New York







May 2, 2025 FINAL DESIGN SUBMITTAL

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CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

1.0 PURPOSE.

Aviation safety is the primary consideration at airports, especially during construction. The Airport Owner's Construction Safety and Phasing Plan (CSPP) and the Contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard.

The CSPP sets forth benchmarks and requirements for the project to help ensure the highest levels of safety, security and efficiency at the airport at the time of construction. Requirements for this CSPP were developed from FAA Advisory Circular (AC) 150/5370-2 Operational Safety on Airports During Construction, latest edition.

The CSPP is a standalone document, written to correspond with the safety and security requirements set forth in the AC, the airport safety and security requirements, and local codes and requirements. The CSPP is to be used by all personnel involved in the project. The CSPP covers the actions of not only the construction personnel and equipment, but also the action of inspection personnel and airport staff. This document has been developed in order to minimize interruptions to airport operations, reduce construction costs, and maximize the performance and safety of construction activity. Strict adherence to the provisions of the CSPP by all personnel assigned to or visiting the construction site is mandatory.

The Contractor shall submit a Safety Plan Compliance Document (SPCD) to the Airport Owner describing how the Contractor will comply with the requirements set forth in this CSPP. The SPCD must be submitted to the Airport Owner prior to issuance of Notice to Proceed. In the event the Contractor's activities are found in non-compliance with the provisions of the CSPP or the SPCD, the Airport Owner's Representative will direct the Contractor, in writing, to immediately cease those operations in violation. In addition, a safety meeting will be conducted for the purpose of reviewing those provisions in the CSPP/SPCD which were violated. The Contractor will not be allowed to resume any construction operations until conclusion of the safety meeting and all corrective actions have been implemented.

2.0 SCOPE OF PROJECT AND CSPP.

Perimeter Road will be reconstructed from the connection with a new roundabout on State Route 825 (by others) and traversing into the proposed triangle development site. Existing asphalt and concrete pavements will be reconstructed to accommodate the new asphalt pavement section including curb and gutter, stormwater drainage and management, sidewalk and landscaping. This project includes extension of water, sanitary sewer, electrical (street lighting), and communications utility infrastructure parallel with Perimeter Road alignment and continuing north into the Triangle site. **The existing airport perimeter fence will be realigned per the Triangle Development Land Release so that the proposed development is outside of the secure airport Air Operations Area. Once the fence is realigned, the project site will fall outside the airport secure environment. <u>This project will not affect any airport operating areas, including runway, all taxiways and aprons.</u>**
Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the Airport Owner must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities and associated costs will be identified. As they are identified, their impact to airport operations must be assessed. Adjustments are made to the proposed construction activities, often by phasing the project and/or to airport operations in order to maintain operational safety. This planning effort will ultimately result in a project CSPP. The development of the CSPP takes place through the following five steps:

- a. Identify Affected Areas
- **b.** Describe Current Operations
- c. Allow for Temporary Changes to Operations
- d. Take Required Measures to Revise Operations
- e. Manage Safety Risk

3.0 PLAN REQUIREMENTS.

3.1 COORDINATION.

The following items shall be coordinated as required:

All communications between the Contractor and airport users and the ATCT shall be coordinated though Airport Operations and the RPR. Airport Operations contact: Dean Millington, phone: 315-272-5881, email: <u>DMillington@oneidacountyny.gov</u>

a. **Preconstruction Meeting.** A preconstruction meeting will be conducted to discuss operational safety, testing, quality control, quality acceptance, security, safety, labor requirements, environmental factors, and other issues. All parties affected by the construction will be asked to attend including, but not limited to, the Airport Owner, tenants, contractor, subcontractors and RPR.

At the preconstruction meeting, the Contractor shall submit a plan of operation and schedule of work to the RPR for approval. The Contractor's plan of operation shall indicate, in detail, the amount of construction planned, and the number of shifts and/or overtime operations proposed for the project. The schedule of work shall clearly indicate the sequence of work to be performed. The Contractor shall conform, at all times, to the requirements of these provisions and with current safety practices, rules, regulations and security requirements of Airport Owner. The preconstruction meeting will be held prior to issuance of a Notice to Proceed.

b. Contractor Progress Meetings. A minimum of one progress meeting to discuss scheduling and coordination shall be held each week unless otherwise directed by the Airport Owner, throughout the duration of the Contract, between the Airport Owner, Contractor, RPR and any other interested parties at a time and place to be designated by the RPR. These meetings shall include a detailed discussion of construction phasing and safety with regard to the Contractor's compliance with the requirements stipulated in the Contract Documents.

In attendance at these meetings shall be a Contractor's representative with the authority to make decisions concerning the scheduling and coordination of work. Progress meetings shall be facilitated by the RPR. Operational safety shall be a standing agenda item during progress meetings throughout the construction project.

- **c. Scope or Schedule Changes.** Changes in the Scope of Work or Project Schedule shall be governed by Section 40 and Section 80 of the Contract Documents. Any proposed change that results in a deviation from the established CSPP as expressed by the Contract Documents must be submitted to the FAA and Airport Owner for review and approval. FAA review and approval can be expected to take sixty business days.
- **d. FAA ATO Coordination.** Early coordination with Federal Aviation Administration (FAA) Air Traffic Organization (ATO) required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart.

No adjustments to NAVAID, encroachment on facility critical areas, or facility shutdowns are anticipated during construction, so ATO coordination will not be necessary.

e. Payment. The cost of complying with the requirements of this section, including but not limited to scheduling; providing flag people; construction, maintenance and removal of temporary access roads and staging areas; providing, placing, relocating, maintaining and removing temporary barricades; protection of aircraft and vehicular traffic; installation, maintenance and removal of temporary airfield markings; maintenance of airport lighting circuits; installation, maintenance, and removal of temporary wiring and airfield lighting facilities; cleaning of paved surfaces; restoration of surfaces disturbed as a result of the Contractor's operations; providing, maintaining, and removing temporary access gates; providing padlocks for access gates; providing a guard at access gates; and all security requirements shall be included under Technical Specification Item C-106, Safety, Security and Maintenance of Traffic.

3.2 PHASING.

a. Phase Elements (Work Areas)

The sequence of construction and phasing, for this project, was developed in order to maintain the maximum efficiency of aircraft operations while maintaining safety and allowing for the required construction activities for this project. The project phasing and detailed work areas are depicted on the drawings included in Appendix 1.

This project only has one work area. Airfield security requirements will only apply to personnel while operating within the established airport security fence, either in its existing or proposed position. Once the new fence is established, the existing fence can be demolished, and the site becomes "landside" and out of the airport security environment. Working outside of the established airfield security fence does not require gate guards or security requirements.

No airfield pavements or protected surfaces will be impacted as part of this project.

1. Construction Safety Requirements

The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No active runway or taxiway shall be crossed, entered, or obstructed at any time. The Contractor shall plan and coordinate his/her work in such a manner as to ensure safety and a minimum of hindrance to airport operations. All Contractor equipment and material stockpiles shall be stored at locations determined during construction or as shown on the Construction Safety and Phasing Plans (Appendix 1). No equipment will be allowed to park within the approach area of an active runway at any time.

During the work under this Contract, the Airport Owner will make such arrangements to coordinate aircraft movements and Airport operations as necessary to conform to the construction procedures as outlined below and as shown on the Contract Drawings. The Contractor shall give adequate notice to the RPR, so as to afford time to coordinate construction with the Airport Owner. No work shall proceed in any area without prior approval.

The Contractor shall always confine construction operations to the Contractor work area and designated haul routes. Contractor personnel, equipment, stored materials, subcontractors and suppliers will not be allowed on any other area within the Air Operations Area and within the Airport boundaries without prior approval of the Airport Owner or RPR.

The RPR will perform a visual site assessment before the Contractor occupies the Contractor work area. The Contractor shall be held responsible for all repairs and cleanup costs incurred as a result of the Contractor's construction operations. Restoration shall be the complete return of all work areas to the original conditions.

Prior to the start of construction operations, the Contractor shall perform the following:

- Coordinate issuing Notices to Airmen (NOTAM) with the Airport Owner and RPR for the construction activities involved at least 48 hours in advance of the work.
- Station a Gate Guard at the access gate or keep it locked after use.

At the conclusion of construction operations, the Contractor shall perform the following:

- Coordinate cancellation of the NOTAMs with the Airport Owner and RPR.
- **b.** Construction Safety and Phasing Plans. Drawings specifically indicating operational safety procedures and methods in affected areas have been developed for each construction phase. Such drawings are included in Appendix 1 and are included in the contract drawing package.

3.3 AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY.

Contractor, subcontractor, and supplier employees or any other unauthorized persons shall be

restricted from entering an active airport operating area without previous permission from the Airport Owner and the Aircraft Control Tower.

In an emergency situation, the Airport Owner or other designated airport representative may order the Contractor to suspend operations; move personnel, equipment, and materials to a safe location; and stand by until aircraft use is completed.

The Contractor shall cooperate with the airport users through the RPR, in coordination with airport operations, in scheduling the operations to provide adequate clearance for safe aircraft parking, fueling, maintenance, loading or unloading, maneuvering, taxing operations, or other aircraft operations.

a. Identification of Affected Areas

The impacts to Airport Operations Areas are identified in the drawings included in Appendix 1.

b. Mitigation of effects.

This CSPP has established specific requirements and operational procedures necessary to maintain the safety and efficiency of airport operations during the construction of this project.

All coordination pertaining to airport operations during construction will go through the Airport Owner's Representative and the Airport Operations Manager. Any required NOTAM's to be issued will be sent through the Airport Owner's Representative and issued by Airport Operations.

- 1. Temporary Changes to runway and/or taxiway operations: Any affected Airport Operations Areas identified in the previous section for reduced access or identified as being closed entirely to aircraft traffic, will be barricaded by the use of low profile, lighted barricades placed as shown in the drawings provided in Appendix 1. In addition, required NOTAM's shall be issued on the various temporary changes to aircraft access through the affected areas.
- 2. Detours for ARFF and other airport vehicles: The project work site shall remain open to all ARFF vehicles in emergency situations. The Contractor is required to maintain access in and around the project work area for all ARFF vehicles. Proper routing of this traffic will be effectively communicated to all supervisory personnel involved in the construction project.
- **3. Maintenance of essential utilities:** Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the Airport Owner and FAA shall locate all of their underground utilities. It is the Contractor's responsibility to have the locations of cabling and other underground utilities marked prior to beginning excavation. Any locations provided by the Airport Owner or FAA are approximate locations and the Contractor shall verify all locations prior to beginning excavations. When an underground cable or utility is damaged due to the Contractor's negligence the Contractor shall immediately repair the affected cable or utility at his/her own expense. Full coordination between airport staff, field inspectors, and

construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation.

4. Temporary Changes to air traffic control procedures: Changes to air traffic control procedures have been coordinated with airport ATO. Any additional requests for changes must be made to the Airport Owner, through the RPR, in writing. These requested changes will be reviewed by the RPR, Airport Owner and ATO. If these changes are acceptable to all the aforementioned parties, the RPR will request a modification to the CSPP previously turned into the FAA. The Contractor shall plan on a minimum 90 days for this process to be completed. No deviation to the original CSPP shall be made without final FAA approval.

3.4 NAVIGATION AID (NAVAID) PROTECTION.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs are not anticipated in this project.

3.5 CONTRACTOR ACCESS.

This section of the CSPP details the areas to which the Contractor must have access, and how Contractor personnel will access those project work areas.

a. Location of stockpiled construction materials.

The Contractor shall store material and equipment and schedule his operations for work to be done so that no unauthorized interference to normal Airport operations will result there from. Construction operations shall not be conducted in a manner to cause interference with Airport Operations. Stockpiled materials and equipment storage are not permitted within the Runway Safety Area/ Taxiway Safety Area (RSA/TSA), Obstacle Free Zone (OFZ) or Object Free Area (OFA) of an operational runway or taxiway. Stockpiled construction materials must be located inside the Contractor staging area as shown on the Construction Safety and Phasing Plans (Appendix 1) unless otherwise approved by the RPR.

Stockpiled material shall be constrained in a manner to prevent movement resulting from either aircraft jet blast or wind conditions in excess of ten miles per hour. In addition, stockpiled material shall have silt fence located around the material to prevent Foreign Object Debris (FOD) from moving onto the airfield pavements or polluting watercourses.

Open trenches exceeding 3 inches in depth and 5 inches in width or stockpiled material are not permitted within the limits of safety areas of operational runways or taxiways. Stockpiled material shall not be permitted within the protected areas of the runways or allowed to penetrate into any of the protected airspace.

b. Vehicle and pedestrian operations. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the Air Operations Area (AOA).

The Airport Owner will coordinate requirements for vehicle operations with the affected airport tenants. Specific vehicle and pedestrian requirements for this project are as follows:

All construction vehicles and personnel shall be restricted to the immediate work areas specified by the contract for this project. These areas include the haul routes into the work area, the designated Contractor staging area and the apron area under construction. Use of alternate haul routes or staging areas by the Contractor shall not be permitted without prior notification and approval by the Airport Owner's Representative.

1. Construction Site Parking:

The Contractor's personal vehicle parking area shall be in the Employee Parking Area, as shown on the Construction Safety and Phasing Plans (Appendix 1). Contractor personal vehicles will not be allowed inside the airport fence Air Operations Area (AOA) or secured area.

A staging area, as indicated on the Contract Drawings, will be provided where the Contractor may set up a field office and store equipment and materials. The Contractor shall make his own arrangements for and bear all costs of required utilities. The Contractor shall use and maintain the site in accordance with requirements of the Airport Owner. Upon completion of work, the Contractor's staging area shall be removed and the area cleaned and restored to original or better condition.

2. Construction Equipment Parking:

The Contractor's equipment storage area shall be in the Contractor staging area as shown on the Construction Safety and Phasing Plans (Appendix 1). The Contractor's equipment and construction vehicles shall be restricted to the construction site or storage areas during construction and parked in the equipment storage area during non-working periods. Maximum allowable equipment height in the staging area shall be **35 feet**. Maximum allowable equipment height in the work areas shall be **35 feet**. Maximum allowable equipment height at the borrow area shall be **35 feet**.

Contractor must service all construction vehicles within the limits of the project work area or the Contractor's Staging Area. Parked construction vehicles must be outside the OFA and never in the safety area of an active runway or taxiway. Inactive equipment must not be parked on closed taxiways or runways. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees shall also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT, as applicable, to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids.

3. Access and Haul Roads:

The Contractor shall clear, construct and maintain haul routes as required for the prosecution of the work. The haul routes and access points shall only be in the locations approved by the RPR and the Airport Owner or as shown on the Construction Safety and Phasing Plans (Appendix 1).

Access or haul routes used by Contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Construction traffic must remain on the designated haul routes, never straying from the approved paths. Haul and access routes shall be clearly delineated with temporary marking and signage by the Contractor. Signage and marking placement shall be reviewed and approved by the RPR and Airport Owner prior to being put into service. The Contractor shall fully describe the appropriate access routes to all his/her employees, subcontractors and material delivery personnel.

The Contractor shall be responsible for maintaining existing haul routes. At the completion of the project, these areas shall be returned to their original lines and grades and shall be restored to a condition equal to or better than original. All non-paved areas that are disturbed by Contractor's haul roads, staging area, etc., located outside of the seeding limits shown on the plans shall be re-seeded and restored to their original or better condition by the Contractor at no additional cost to the Airport Owner.

The Contractor shall coordinate haul routes, closures and schedules with other projects which may be underway during the same time period as this contract.

The Contractor shall control and coordinate the material (supplies) that are hauled to and from work area. Delivery of equipment and materials to the area of work shall be by way of the access route shown on the Construction Safety and Phasing Plans (Appendix 1) or designated by the Airport Owner or RPR.

The Contractor shall maintain all haul routes and work areas in a dust free condition at all times. The Contractor shall control dust from the construction operations by vacuum type sweeping, watering or other methods as approved by the RPR. Contractor shall have equipment (in operating condition) on site, at all times, to control dust. If the Contractor fails to comply with this requirement, construction will be suspended until a plan for controlling the dust is approved by the RPR. Landside haul routes, boulevards and drives shall be kept clean by use of a vacuum sweeper on a daily basis as required. Application of water on dirt or gravel haul routes must be provided as often as necessary. Haul roads in any airport traffic areas must be especially monitored for dust and debris to prevent any potential Foreign Object Debris (FOD) situations.

The existing perimeter road shall remain open and accessible for airport personnel at all times. Special attention must be given to ensure that if construction traffic is to share or cross any Airport Rescue and Fire Fighting (ARFF) routes that ARFF right of way is not impeded at any time, and that construction traffic on haul roads do not interfere with NAVAIDs or approach surfaces of operational runways.

Portions of the project area(s) shall be bounded by the low profile barricades identifying Contractor personnel and vehicle area operation limits. The locations of any barricaded project limits, haul routes, Contractor Staging Areas, and associated safety and security details are also provided graphically in the attached exhibits.

4. Marking and Lighting of Vehicles:

When any vehicle or piece of equipment, other than one that has prior approval from the Airport Owner, must operate on an airport, it shall be escorted and properly identified.

The Contractor shall limit access within the airport security fence to authorized vehicles. All authorized vehicles shall have a vehicle dashboard placard permit issued by the Airport Owner or an identification sign on both sides of the vehicle containing the Contractor's company name. Private vehicles of the Contractor's personnel must be parked outside the airport security fence and will not be allowed within the airport security fence at any time.

All vehicles operating on the airport and in the general vicinity of the safety area or in aircraft movement areas must be marked with flashing yellow/amber beacons or orange and white flags during daylight hours. During hours of darkness or low visibility they shall be marked with at least flashing yellow/amber beacons.

Beacons and flags must be maintained to standards and in good working and operational condition. Beacons must be located on the uppermost part of the vehicle structure, visible from any direction, and flash 75 +/- 15 flashes per minute. Flags shall be 3' by 3' with alternating 1' by 1' international orange and white squares and shall be replaced by the Contractor if they become faded, discolored, or ragged as determined by Airport Operations or the Airport Owner's Representative.

5. Description of Proper Vehicle Operations:

The Contractor shall be required to follow guidance on the additional identification and control of construction equipment per the Airport's Security Plan. No Contractor's vehicle or pedestrian crossing of active runways or taxiways will be allowed at any time during the work of this Contract, unless otherwise specified. No deviation from the pedestrian and vehicle routes to and from the Project Areas will be allowed unless specific permission has been granted by the Airport Owner.

The ground movement of aircraft shall have the right-of-way at all times, and the Contractor's vehicles and equipment shall yield to aircraft at all times.

6. Required Escorts:

Anyone not in possession of a current airport badge shall be escorted by an appropriately badged person. At no time will vehicles or personnel enter portions of the secure AOA outside the contract area unless permitted and accompanied by an airport approved escort.

All construction-related activity taking place within any airport defined movement area requires the presence of an authorized Airport escort having radio communication with the FAA control tower or UNICOM unless prior approval is obtained from Airport Operations. Spotters and/or flaggers having radio or telephone contact with the Airport may be used with the approval of the on shift Airport Operations Manager.

At no time shall active taxiways or taxilanes be crossed by construction equipment without notification and proper approval/clearance from radio-trained gate guards or Airport Operations.

7. Training Requirements for Vehicle Drivers:

Any employees the Contractor would request to be given permission by Airport Operations to drive on the AOA shall complete airport badging and driver training per the Airport's requirements. These employees then must have an airfield driving experience with Airport Operations and if Airport Operations is satisfied of the employee's competency, that employee may be granted permission from Airport Operations to drive on the AOA. Passing the AOA driver training does not give the Contractor's employees the ability to drive on the AOA.

8. Situational Awareness:

Aircraft traffic will continue to use existing runways, aprons, and taxiways of the Airport during the time that work under a contract is being performed. The Contractor shall, at all times, conduct the work as to create no hindrance, hazard, or obstacle to aircraft using the Airport.

Vehicle drivers must confirm by personnel observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

9. Two-way Radio Communication Procedures:

Two-way radio communications are required between Contractors and Airport Traffic Control Tower until a work area is established with all necessary maintenance and protection devices.

Vehicular traffic located in or crossing an active movement area shall have a working twoway radio or be directed by a flag person in radio contact with the Airport Traffic Control Tower. Prior to proceeding into the active movement area, all drivers shall confirm through personal observation that no aircraft is approaching the vehicle position. Construction personnel may operate in movement areas without two-way radio communication provided a NOTAM is issued closing the area, and provided that the area is properly marked to prevent incursions. The Contractor shall comply with proper radio usage, including read back requirements and proper phraseology including the International Phonetic Alphabet.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard "Ground Vehicle Guide to Airport Signs and Markings." This safety placard may be downloaded through the Runway Safety Program Web site at http://www.faa.gov/airports/ runway_safety/publications/ (See "Signs & Markings Vehicle Dashboard Sticker".) or obtained from the FAA Airports Regional Office.

10. Maintenance of the Secured Area of the Airport.

The Contractor shall be required to maintain security and comply with the Airport Security Plan and the Transportation Security Administration Security Rules and Regulations throughout the duration of the project. The Contractor and the Surety shall indemnify and save harmless the Airport Owner, RPR and third party or political subdivision from any and all breaches of security and shall indemnify the Airport Owner for any fines, expenses and damages which it may be obliged to pay by reason of any breach of security resulting from the Contractor's actions at any time during the prosecution of the work. Such breaches of security are subject to fines by the Transportation Security Administration of up to ten thousand dollars (\$10,000) per incident.

The Contractor shall be responsible for maintaining security at all access gates used during the project and will be held liable by the Airport Owner for any breach of security. No gate shall be left open. Airport Owner and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates shall be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle.

- (a) Fencing and Gates. Airport Owner and contractors must also maintain a high level of security during construction when access points are created in the security fencing to permit construction vehicle access. Temporary gates shall be equipped and/or manned by construction personnel to prevent unauthorized access by vehicles, animals or people. Procedures conforming to Airport security protocols should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. Access shall be made available at all times to all airport emergency vehicles traveling to operations areas within the proximity of the construction work zone.
- **(b) Badging Requirements.** Each Contractor's employee, subcontractors and their employees shall have, and properly display, either an ID Badge or a Construction Badge.

The Security Office requires that the following people, as a minimum, obtain an ID Badge to become a Contractor Escort: Superintendents, Foremen, Flagmen and

Gate Guards. Contractor may also request ID Badges for any other individuals who will be designated as a Contractor Escort.

All other workers shall obtain a Construction Badge from the Security Office. The Construction Badge is for identification purposes only and grants no airport access privilege or authority beyond a tool for escort control.

One ID Badged person may escort up to 5 workers, as long as the workers are under the ID Badged person's control. Control in this situation means that the worker shall be within visual range and audible control of the Contractor's Escort. Each Contractor Escort must know which workers they are responsible for, and each worker must know who their Contractor Escort is at all times.

Each person who needs to obtain an ID Badge must fill out an AOA/SIDA Fingerprint Application Form and complete security training. There is a approx. \$65.00 fee for processing each application. A sample copy of the forms are included at the end of this section. Applicants requesting a SIDA Badge for access to Griffiss International Airport are required to complete an Acknowledgment of SIDA Requirements Form and a SIDA Badge Application Form. Both forms can be accessed from: <u>https://oneidacountyny.gov/departments/airport/resources/sida-badge-requirements/</u>

After completing both forms, please e-mail them to **mboehlert@oneidacountyny.gov.** After receipt and review of your forms, you will be sent an email with further instructions. Badging will be done M-F 9:15am - 3:15pm **BY APPOINTMENT ONLY**. **Please contact the Airport Office at the main phone number of 315-736-4171 to set appointment.** Please note, that at the time of your appointment you will be required to show one (1) form of unexpired identification. Forms of identification may be driver's license, passport, military id, etc.

Any person who submits a fingerprint application and is rejected by the Security Office will not be allowed on the project, working within the security fence.

ANY PERSON WHO IS ISSUED AN ID BADGE AND LOSES IT, OR DOESN'T BRING IT TO THE JOB SITE, WILL NOT BE ALLOWED TO ENTER THE AIR OPERATIONS AREA OF THE AIRPORT, NOR ALLOWED TO BE ESCORTED ON THE JOB SITE. NO EXCEPTIONS. Lost ID Badges may be replaced at the Security Office's discretion. Any lost ID or Construction Badges, and Badges not returned at the end of the project are subject to a charge of one thousand dollars (\$1,000.00). The money for lost or unreturned Badges shall be deducted from the Contractor's payment.

Contractor shall provide a Gate Guard stationed at the Security Checkpoint. The Gate Guard will be responsible for escorting workers through the Security Checkpoint and coordinating a Contractor's Escort for the workers to the Work Areas. Gate Guard will also be responsible for providing flags for all vehicles

entering the secure area. The Gate Guard must be in possession of a cell phone and a badge for unescorted access at all times.

At the beginning of each work day, the Contractor will be escorted to the respective work areas by the Airport Operations Office. The Airport Operations Office will inspect the work areas at the end of each work day, prior to the Contractor leaving the site.

Contractor shall provide a list of workers expected to be on the job site to the RPR. The list shall include names, addresses, Social Security Numbers, phone numbers, driver's license numbers with issuing State, and affiliated company. The list will be stamped by the RPR and given to the Security Officer manning the Security Checkpoint. Workers not on the list will not be allowed to enter the Secure Area. A similar list shall be provided for all subcontractors.

Contractor shall provide a list of all company vehicles that will require access to the work area. Copies of Insurance Certificates covering the vehicles must be submitted with the list. Vehicles shall have their company name marked on the side of the vehicle and the driver shall possess a valid driver's license and a Construction Badge in order to enter the Air Operations Area. Vehicles with drivers of vehicles that do not possess an ID Badge shall be escorted to the respective work areas by a Contractor's Escort.

Contractor shall provide a list of supply and material deliverymen expected to be on the job site to the RPR. The list shall include names, addresses, Social Security Numbers, phone numbers, driver's license numbers with issuing State, and affiliated company. The list will be stamped by the RPR and given to the Security Officer manning the Security Checkpoint. Deliverymen not on the list will not be allowed to enter the Air Operations Area. Delivery vehicles shall have their company name marked on the side of the vehicle and the driver shall possess a valid driver's license in order to enter the Air Operations Area. Delivery vehicles shall have a flag displayed. Delivery vehicles shall be escorted to the respective work areas by a Contractor's Escort. Deliverymen are not required to obtain a Badge but must remain under escort at all times.

In general, security in the work area is the responsibility of the Contractor.

The Security Office will perform periodic checks in the Work Areas throughout the duration of this project to ensure that Security procedures are being followed. All persons entering the Air Operations Area are subject to search. All vehicles entering the Air Operations Area will be subject to search by the Security Office, or their representative.

3.6 WILDLIFE MANAGEMENT.

Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities

that can create wildlife hazards on airports.

- **a. Trash.** Food scraps from construction personnel activity must be collected and disposed of at a proper facility.
- **b. Standing water.** Water shall not be allowed to collect and pool for more than any single 24hour period. Temporary grading may be required to promote drainage during daily operations as well as between work phases.
- **c. Tall grass and seeds.** The use of millet seed in turfing and seeding operations shall not be permitted. The Contractor is also responsible for mowing and maintaining the grass areas within the project work areas, while those areas are under the Contractor's control. Mowing shall be performed when the grass height reaches the maximum allowable height per the Owner's requirements.
- **d. Poorly maintained fencing and gates.** The Contractor shall maintain a constant secure perimeter to the airfield, including continuous security perimeter fencing and gates (if applicable).
- e. Disruption of existing wildlife habitat. Not applicable to this project.

Contractor shall take immediate remedial action to remove wildlife attractants should any occurrence be noted. Contractor shall immediately report to the RPR and Airport Owner should any wildlife congregation be noted, and in particular if mammals enter the airport through the construction gate.

3.7 FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT.

Special care and measures shall be taken to prevent Foreign Object Debris (FOD) damage when working in an airport environment. Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. The Contractor shall be responsible for implementing an approved FOD Management Plan prior to the start of construction activities. The FOD Management Plan will have procedures for prevention, regular cleanup, and containment of construction material and debris. The Contractor will ensure all vehicles related to the construction project using paved surfaces in the AOA shall be free of any debris that could create a FOD hazard. Special attention will be given to the cleaning of cracks and pavement joints. All taxiways, aprons, and runways must remain clean. Waste containers with attached lids shall be required on construction sites.

Special attention should be given to securing lightweight construction material (concrete insulating blankets, tarps, insulation, etc.). Specific securing procedures and/or chain link enclosures may be required.

Contractors will provide their own equipment for vehicle and equipment washing and clean up.

Immediate access to a power sweeper is required when construction occurs on any pavement area inside the AOA, unless an appropriate alternative has been approved by the Airport Owner's Representative and Airport Operations Manager.

3.8 HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT.

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel, hydraulic fluid, or other chemical fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. To that end, the Contractor is required to develop a spill prevention plan and response procedures for vehicle operations prior to the start of construction activities. This includes maintenance of appropriate MSDS data and appropriate prevention and response equipment on-site.

Fueling Procedures and Spill Recovery Procedures shall be in accordance with New York State Fire Code, latest edition, and the National Fire Protection Association standard procedures for spill response, latest edition. If fueling is to take place in the staging area, it must be away from catch basins. Contractor must have spill containment kits on site.

In the event of a fuel spill or the spill of other hazardous materials, the Contractor shall immediately notify the Airport Owner and the RPR, the New York State Department of Environmental Conservation, the Environmental Protection Agency, the Airport Owner and the RPR.

Contractor shall abide by the specific requirements contained in the Technical Specifications of this contract.

3.9 NOTIFICATION OF CONSTRUCTION ACTIVITY.

The following is information and procedures for immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport.

- a. Maintenance of a list of Responsible Representatives/ Point of contact. A list of responsible representatives and points of contact shall be created by the RPR, the Airport and the Contractor prior to the start of construction. This list shall be compiled as part of the project pre-construction meeting agenda. Procedures will be established to contact all parties, including after regular work hours. Updates will be made to the list throughout the project duration by the RPR. Contractor points of contact shall be incorporated into the contractor's SPCD.
- **b.** Notices to Airman (NOTAM). Only the Airport Owner may initiate or cancel NOTAMs on airport conditions and is the only entity that can close or open a runway or taxiway. The Airport Owner must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The Airport Owner must file and maintain a list of authorized representatives with the FSS. Only the FAA may issue or cancel NOTAMs on shutdown or

irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the Airport Owner. See Section 3.14 regarding issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

Any NOTAMs for planned airfield closures for this project must be coordinated through the airport manager and the airports duly appointed construction management representative. Reference Section 3.2 for planned closures for this project, which require issuance of a NOTAM.

- **c. Emergency Notification Procedures.** In the event of an aircraft emergency, severe weather conditions, or any issue as determined by the Airport that may affect aircraft operations, the Contractor's personnel and/or equipment may be required to immediately vacate the area(s) affected. Points of contact for the various parties involved with the project shall be identified and shared at the pre-construction meeting among the various parties. Emergency points of contact shall be incorporated into the contractor's SPCD.
- **d. Coordination with ARFF Personnel.** The Contractor shall coordinate, through the duly appointed airport representative, with ARFF personnel, mutual aid providers and other emergency services if construction requires the following:
 - The deactivation and subsequent reactivation of water lines or fire hydrants, or
 - The re-routing, blocking and restoration of emergency access routes, or
 - The use of hazardous materials on the airfield.

Procedures and methods for addressing any planned or emergency response actions on the airfield concerning this project shall be established and implemented prior to the start of construction.

e. Notification to the FAA.

- 1. Part 77. Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e. cranes, graders, other equipment) on airports. FAA Form 7460-1, Notice of Proposed Construction or Alteration, is used for this purpose and submitted to the appropriated FAA Airports Regional or District Office. A 7460-1 form for this project has been prepared by the Engineer and submitted to the FAA for using equipment with a maximum height of **35 feet**. A new 7460-1 form must be submitted to the FAA for review and comment for any equipment that the Contractor will use which is taller than the equipment used in the above 7460-1 submission. The Airport Owner will be responsible for submitting the new 7460-1 form to the FAA. To that end, the Contractor shall identify the equipment in his SPCD, including the maximum height it will extended to during construction, the area(s) in which the equipment will be used, and the duration the equipment will be used.
- 2. Part 157. It is not anticipated that Part 157 notifications will be required for this project.
- **3. NAVAIDS.** There will be no impacts to airport or FAA owned Navigation Aids.

f. Accidents. The Contractor shall provide at the site such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the work. The Contractor must promptly report in writing to the RPR all accidents whatsoever arising out of, or in connection with, the performance for the work, whether on or adjacent to the site which caused death, personal injury or property damages, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the RPR and the Airport Owner.

If any claim is made by anyone against the Contractor or any Subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the RPR giving full details of the claims.

3.10 INSPECTION REQUIREMENTS.

- a. Daily (or more frequent) inspections. Inspections shall be conducted by the Contractor at least daily, but more frequently, if necessary, to ensure conformance with the CSPP. A sample checklist is provided in Appendix 2 of this document. In addition to Contractor's required inspections, airport operations will inspect the construction site two (2) times a day to ensure compliance with the CSPP and the SPCD. The Airport Owner's Representative will have full-time inspectors monitoring activity throughout construction. Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.
- **b. Final inspections.** A final inspection with the Airport Owner's Representative, Airport and Contractor will take place prior to allowing airport operations.

3.11 UNDERGROUND UTILITIES.

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the FAA shall locate all of their underground cables. The Contractor shall locate and/or arrange for the location of all the underground cables. When an underground cable is damaged due to the Contractor's negligence the Contractor shall immediately repair the cable affected at his/her own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation. Locations of cabling will be marked prior to beginning excavation.

Prior to opening an excavation, effort shall be made to determine whether underground installation: i.e., sewer, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the approximate locations of such an installation, the exact locations shall be determined by careful hand probing or hand digging, and/or use of a vacuum truck, and when it is uncovered, adequate protection shall be provided for the existing installation. All known owners of underground facilities in the area concerned shall be advised of proposed work at least 48 hours prior to the start of actual excavation.

The information concerning underground utilities was compiled from information and sketches furnished by or obtained from utility companies and the Airport. The Airport Owner and the RPR do not guarantee their accuracy. The Contractor is advised to determine the exact locations from the available sources of information or provide his own means of detection. The only case in which the RPR will consider redesign or relocation of a proposed facility in the project is when an existing utility is located within the construction limits. In this case, the RPR will work with the Airport Owner to determine the appropriate action to resolve the conflict. If such relocation is impossible, the RPR will consider re-design or relocation of the proposed facilities. In both cases, Contractor shall be responsible for all underground utilities and shall not be separately compensated for delays or extra cost.

Note that most utility location services do not include locating FAA and Airport Owner facilities, and most will not locate services within the AOA. **The contractor shall hire an approved private party utility locating service at their cost.**

3.12 PENALTIES.

Failure on the part of the Contractor to adhere to prescribed requirements may have consequences that jeopardize the health, safety or lives of customers and employees at the airport. The Airport may issue warnings on the first offense based upon the circumstances of the incident. Individuals involved in non-compliance violations may be required to surrender their Airport ID badges and/or be prohibited from working at the airport, pending an investigation of the matter.

Penalties for violations related to airport safety and security procedures will be established by the Airport.

Note: project shutdown or misdemeanor citations may be issued on a first offense. When construction operations are suspended, activity shall not resume until all deficiencies are rectified.

3.13 SPECIAL CONDITIONS.

In the event of an aircraft emergency, the Contractor's personnel and/or equipment may be required to immediately vacate the area. The Contractor will receive notification from airport operations when special conditions require the construction site to be vacated. In any event, extreme care should be exercised should construction personnel identify any ARFF (Airport Rescue and Fire-Fighting) or other emergency or rescue vehicle moving toward the Runway with emergency lights displayed. This will generally mean that an emergency situation is imminent.

Special conditions that could require suspension of the construction work include the following: aircraft in distress, aircraft accident, security breach, VIP operation, vehicle/pedestrian deviation, severe weather, or failing to abide by this Construction Safety and Phasing Plan and/or the Safety Plan Compliance Document.

3.14 RUNWAY AND TAXIWAY VISUAL AIDS.

This topic includes marking, lighting, signs, and visual NAVAIDs. Those areas where aircraft will be operating shall be clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, the Contractor shall inspect and verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs and visual NAVAIDs remain in place and operational.

a. General. Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

Marking and lighting for a temporary threshold is not required. Closed runway markings are not required.

- **b. Markings.** Markings must be in compliance with the standards of AC 150/5340-1, Standards for Airport Markings, current edition, and the drawings and technical specifications of this project.
 - 1. Closed Runways and Taxiways. Not applicable.
- c. Lighting and visual NAVAIDs. Not applicable.
- **d. Signs.** Signs must be in conformance with AC 150/5345-44, Specification for Runway and Taxiway Signs and AC 150/5340-18, Standard for Airport Sign Systems, current edition.
 - **1. Signs.** Not applicable.
- e. Testing of Airport Lighting Circuits. Not applicable.

3.15 MARKING AND SIGNS FOR ACCESS ROUTES.

Location of haul routes on the airport site shall be as specified in the project drawing set and as provided graphically in the attached exhibits, reference Appendix 1. It shall be the Contractor's responsibility to coordinate off-site haul routes with the appropriate owner who has jurisdiction over the affected route. The haul routes, to the extent possible, shall be marked and signed in accordance with FAA airfield signage requirements, the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or state highway specifications, as applicable.

3.16 HAZARD MARKING, LIGHTING AND SIGNING.

a. Purpose. Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft and prevent construction personnel from entering areas open to aircraft. The CSPP specifies prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting is also

be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also included are markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

b. Equipment.

- 1. **Barricades.** Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. Gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. Barricades intended to exclude pedestrians must be continuously linked.
- 2. Lights. Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.
- **3.** Supplement Barricades with Signs (for example) As Necessary. Examples are "No Entry" and "No Vehicles."
- 4. Air Operations Area General. Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway/taxilane safety area, or apron must be no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground.
- 5. Air Operations Area Runway/Taxiway Intersections. Use highly reflective barricades with lights to close taxiways leading to closed runways. Close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

- 6. Air Operations Area Other. Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.
- **7. Maintenance.** The contractor is required to maintain the hazard markings, lighting and signing and to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

3.17 WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION.

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. All support equipment, except haul trucks, should be equipped with artificial illumination to safely illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways. The Owner and the ATCT shall approve the location of and aiming of lighting equipment before it is used.

3.18 PROTECTION OF AIRFIELD AREAS.

Safety area encroachments, improper ground vehicle operations and unmarked or uncovered holes and trenches in the vicinity of aircraft operation surfaces and construction areas are the three most recurring threats to safety during construction. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces shall be a standing requirement for the duration of construction operations.

a. Runway Safety Area (RSA). A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway by aircraft.

	Aircraft	RSA Distance from			RSA Length
Runway	Design	Centerline		RSA Width	from End of
	Group	RSA	Holdline		Runway
15-33	D-V	250 ft.	286 ft.	500 ft.	1,000 ft.

No construction may occur within the existing RSA while the runway is open. Any construction between RSA and Holdline must be approved with Airport Operations prior to starting work.

The Airport Owner must coordinate any adjustment of RSA dimensions, to meet the above requirement, with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

Open trenches or excavations are not permitted within the RSA while the runway is open. The Contractor must backfill trenches before the runway is opened. Coverings are not allowed in runway safety areas. There shall be no stockpiled materials or equipment stored within the limits of the RSA.

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

b. Runway Object Free Area (ROFA). Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

Runway	Aircraft Design Group	ROFA Distance from Centerline	ROFA Width	ROFA Length from End of Runway
15-33	D-V	400 ft.	800 ft.	1,000 ft.

c. Taxiway Safety Area (TSA). The taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. No construction may occur within the TSA while the taxiway is open for aircraft operations.

Taxiway	Aircraft Design Group	TSA Distance from Centerline	TSA Width
All	D-V	107 ft.	214 ft.

Open trenches or excavations are not permitted within the TSA while the taxiway is open. The Contractor must backfill trenches before the taxiway is opened. Coverings are not allowed in taxiway safety areas.

The Airport Owner must coordinate any adjustment of TSA dimensions, to meet the above requirement, with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

After the Taxiway has been closed, Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the Airport Owner, and light them with red lights during hours of restricted visibility or darkness.

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

d. Taxiway Object Free Area (TOFA). Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway/taxilane object free area during normal operations. Thus, the restrictions are more stringent. No construction equipment may be parked within the TOFA while the taxiway/taxilane is open for aircraft operations.

Taxiway	Aircraft Design Group	TOFA Distance from Centerline	TOFA Width
All	D-V	142.5 ft.	285 ft.
Terminal Apron	B-II	62 ft.	124 ft.

Taxilane	Aircraft Design Group	TLOFA Distance from Centerline	TLOFA Width
All	D-V	135 ft.	270 ft.
Terminal Apron	B-II	55 ft.	110 ft.

- e. Obstacle Free Zone (OFZ). Construction personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. The OFZ is a defined volume of airspace centered about and above the runway centerline.
- **f. Runway approach/departure surfaces.** All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the Airport Owner with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

	Aircraft	Airplane	Minimum Safety	Minimum Unobstructed Approach
Runway	Approach	Design Group	Area Behind	Slope
End	Category		Threshold	
15	D	V	1,000 ft	34:1 to 200 feet behind threshold
33	D	V	1,000 ft	50:1 to 200 feet behind threshold

3.19 OTHER LIMITATIONS ON CONSTRUCTION.

- **a. Prohibitions.** The following prohibitions are in effect for the duration of this project:
 - **1.** No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.
 - **2.** No use of open flame welding or torches unless fire safety precautions are provided, and the Airport Owner has approved their use.
 - **3.** No use of electrical blasting caps or explosives of any kind on or within 1,000 ft (300 m) of the airport property.
 - **4.** No use of flare pots within AOA.

b. Restrictions.

- 1. Construction suspension required during specific airport operations: Not Applicable
- **2.** Areas that cannot be worked on simultaneously: Not applicable.
- **3.** Day or night construction restrictions: Equipment for nighttime lighting of construction areas shall be sufficient to adequately illuminate the work area in order to ensure quality construction. The lights shall be positioned to provide the most natural color illumination and contrast with a minimum of shadows. Lighting pavements from both sides is considered preferable as lighting from only one side can result in objectionable shadows. Light towers shall be positioned and adjusted to aim away from ATCT cabs, active runways, and active taxiways to prevent blinding effects. The Contractor shall prepare a plan showing the locations, heights and aiming points of light towers for review by the Owner, RPR and ATCT personnel. The final location and aiming of light towers shall be determined by trial, therefore, the Contractor must be aware that several attempts at locations and aiming angles may be necessary before the light towers can be operational. Light towers shall be removed from the construction site prior to opening the pavement to aircraft operations.

It is recommended that all equipment, except haul trucks, be equipped with artificial illumination to safely illuminate the area immediately surrounding their location.

Unless provided for elsewhere, the cost of nighttime lighting of construction areas shall be considered a subsidiary and incidental part of construction and as such, the Contractor shall include all costs associated with nighttime lighting of construction areas in the various pay items of work involved.

Where work on this Contract is not scheduled for night work and the Contractor requests and receives permission to work at night, there will be no additional compensation allowed for the extra costs associated with night work. Lights shall be positioned as to not interfere with airport operations. Lights shall be aimed as to not blind piolet's or the ATCT personnel.

- **4.** Seasonal Construction Restrictions: To be determined by the Contractor based on soil, groundwater, and forecasted weather.
- **5.** Temporary signs not approved by the airport operator
- 6. Grade changes that could result in unplanned effects on NAVAIDs.

APPENDIX 1

LOCATION MAP (Sheet GI-001 of the Contract Drawings)

GENERAL PLAN (Sheet GC-101 of the Contract Drawings)

CONSTRUCTION SAFETY AND PHASING PLANS (Sheets GC-102 & GC-103 of the Contract Drawings)

CONSTRUCTION SAFETY AND PHASING DETAILS (Sheet GC-501 of the Contract Drawings) **APPENDIX 2**

CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

Construction Project Daily Safety Inspection Checklist

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety Area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovers holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the Contractor may use to aid in identifying and correcting potentially hazardous conditions.

Potentially Hazardous Conditions

Item	Action Required a	r N	None
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.			
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.			
Runway resurfacing projects resulting in lips exceeding 3 inches from pavement edges and ends.			
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.			
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.			
Tall and especially relatively low visibility units (that is, equipment with slim profiles) –cranes, drills, and similar objects—located in critical areas, such as OFZ and approach zones.			
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on an apron, open taxiway, or open taxi lane or in related safety, approach, or departure area.			

Item	Action Required o	None
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.		
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.		
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.		
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.		
Obliterated or faded temporary markings on active operational areas.		
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		

Item	Action Required	or	None
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.			
Lack of radio communications with construction vehicles in airport movement areas.			
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.			
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.			
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.			
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).			
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.			
Failure to control dust. Consider limiting the amount of area from which the Contractor is allowed to strip turf.			
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.			
Site burning, which can cause possible obscuration.			
Construction work taking place outside of designated work areas and out of phase.			

APPENDIX 3

CONTRACTORS SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

(The SPCD Certification is located in the Proposal Section)

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

Project Location:	Griffiss International Airport
<u> </u>	
Project Name:	Triangle Area Civil Site Development

General Statement:

The Construction Safety and Phasing Plan (CSPP), identified as Attachment "A" to Section 70-08, has been prepared in accordance with FAA Advisory Circular 150/5370-2G, *Operational Safety on Airports During Construction and the requirements of the Airport Owner*. The CSPP has been submitted to the FAA for review and comment. Any comments from the FAA which were received prior to bid opening have been incorporated into the CSPP.

In the event that the FAA transmits comments which require that the CSPP be revised after bid opening, I understand that I am obligated to abide by the conditions and statements contained in the revised CSPP. I further understand that I will be given the opportunity to evaluate the revised CSPP as it relates to my contract and request appropriate compensation in accordance with the provisions of the contract.

Supplemental Information:

Where the CSPP covers a subject and no additional information is needed, the statement below reads, "No supplemental information required". Where additional information is required by the Contractor, the information shall be provided in the spaces below.

The section numbers below correspond with the section numbers in the CSPP.

3.1 Coordination

Statement: [Explain how you will distribute information and details of meetings to employees and subcontractors.]

3.2 Phasing

Statement: [List the number of days each Work Area will take. State the time day work will start and finish for each work area.]

3.3 Areas and operations affected by the construction activity

Statement: Information is provided in the CSPP. No supplemental information is required.

3.4 Protection of NAVAIDs

Statement: Information is provided in the CSPP. No supplemental information is required.

3.5 Contractor Access

Security Statement: [Explain how you will maintain integrity of the airport security fence at the access gate, e.g.: Gate guards, closed and locked gates, temporary fencing, etc.]

Training Statement: [List individuals who will receive driver training (for certificated airports and as requested.]

Communication Statement: [Identify types of radios, if any, you will use to communicate with drivers and personnel. Identify who will be monitoring radios. Identify a contact person and phone number if ATCT cannot reach the contractor's designated person by radio.]

Escort Statement: [Identify who will escort material delivery vehicles.]

3.6 Wildlife Management

Statement: [Identify who will be monitoring wildlife in the construction area. Identify who will be monitoring wildlife at the construction gate.]

3.7 Foreign Object Debris (FOD) Management

Statement: [Identify who will be preparing a FOD Management Plan. (Plan must be approved prior to the start of construction activities.)]

3.8 Hazardous material (HAZMAT) management

Statement: [Identify who will be preparing a Spill Prevention Plan. (Plan must be approved prior to the start of construction activities.)]

3.9 Notification of construction activities. Provide the following:

Key Personnel Statement: [Identify your key personnel points of contact with phone numbers.]

Emergency Contacts Statement: [Identify your emergency contacts with 24 hour phone numbers.]

Equipment Statement: [Part 77: Identify equipment you will be using that is taller than 35 feet, including on-site batch plants. Identify the maximum height it will be extended to during construction for each Work Area and the expected duration. Identify when during the day it will be used.]

3.10 Inspection requirements.

Statement: [Identify the person who will be responsible for daily inspections to ensure conformance with the CSPP. Describe additional inspections you will employ, if any, to ensure conformance.]

3.11 Underground utilities.

Statement: [Discuss proposed methods of identifying and protecting underground utilities.]

3.12 Penalties

Statement: Information is provided in the CSPP. No supplemental information is required.

3.13 Special conditions.

Statement: [Identify who will be responsible for moving equipment and personnel from the work area and vacating the area in the event of a special condition listed in the CSPP.]

3.14 Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.15 Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.16 Hazard marking and lighting.

Statement: [Identify who will be responsible for maintaining hazard marking and lighting. Include a 24 hour phone number.]

3.17 Protection of taxiway and runway safety areas. Include object free areas, obstacle free zones, approach/departure surfaces and safety areas as required. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:

Equipment and methods for maintaining Taxiway/Taxilane Safety Area standards.

Statement: Information is provided in the CSPP. No supplemental information is required.

Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.18 Other limitations on construction.

Other limitations are identified in the CSPP and do not require an entry in this document.

APPENDIX 4

ONEIDA COUNTY DEPARTMENT OF AVIATION A0A/SIDA BADGE APPLICATION SAMPLE FORMS
Acknowledgement of SIDA Badge Requirements

By my signature herein, I acknowledge that I have been advised of the basic requirements of the TSA regarding SIDA (Secure Identification Display Area) access.

I agree to comply with the outlines requirements.

I further acknowledge having been given a list of <u>Disqualifying Offenses</u>. I hereby certify that I have not been convicted of any of the captioned felony offenses within the last ten years except any that I may have discussed with the Airport Security Coordinator. I further agree to immediately advise the Airport Security Coordinator of any arrest and conviction of any of the listed offenses during the time period that I have a SIDA access badge. Pursuant to Federal Regulations 14CFR 107.209 there is an obligation to report any such conviction within 24 hours to the Airport Operator.

Certification

"I authorize the Social Security Administration to release my Social Security Number and full name to the TSA, Office of Transportation Threat Assessment and Credentialing (TTAC), Aviation Programs (TSA-19)/Aviation Worker Program, 601 12th Street, Arlington, VS 20598."

"I am the individual to whom the information applies and wan this information released to verify that my SS number is correct. I know that if I make any representation that I know is false to obtain information from Social Security records, I could be punished by a fine or imprisonment or both.

Signature:

SSN and Full Name: _____

Certification

DOB:

"The Information I have provided is true, complete, and correct to the best of my knowledge and belief and is provided in good faith. I understand that a knowing and willful false statement can be punished by fine or imprisonment or both (See Section 1001 of Title 18 of the United State Code.)"

Signature:

The Privacy Act of 1974 5 U.S.C. 522a(e)(3) Privacy Act Notice

Purpose- The Department of Homeland Security will use the biographic information to conduct a security threat assessment. Your fingerprints and associated information will be provided to the Federal Bureau of Investigation for the purpose of comparing your fingerprints to other fingerprints in the FBI's Next Generation Identification system or its successor systems including civil, criminal, and latent fingerprint repositories. The FBI may retain your fingerprints and associated information in NGI after the completion of this application and, while retained, your fingerprints may continue to be compared against other fingerprints submitted to or retained by NGI. DHS will also transmit your fingerprints for enrollment into US-VISIT Automated Biometrics Identification System. If you provide your Social Security Number, DHS may provide your name and SSN to the Social Security Administration to compare that information against SSA records to ensure the validity of the information.

Routine Uses- In addition to those disclosures generally permitted under 5 U.S.C. 522a(b) of the Privacy Act, all or the portion of the records or information contained in this system may be disclosed outside DHS as a routine use pursuant to 5 U.S.C. 522a(b)(3) including with third parties during the course of a security threat assessment, employment investigation, or adjudication of a waiver or appeal request to the extent necessary to obtain information pertinent to the assessment, investigation, or adjudication of your application or in accordance with the routine uses identified ibn the TSA system, for as long as your fingerprints and associated information are retained in NGI, your information may be disclosed pursuant to your consent or without your consent as permitted by the Privacy Act of 1974 and all applicable routine uses as may be published at any time in the Federal Register; including the routine uses for the NGI system and the FBI's blanket routine uses.

Disclosure- Furnishing this information (including your SSN) is voluntary; however, if you do not provide your SSN or any other related information requested, DHS may be unable to complete your application for a Security Threat Assessment.



Griffiss International Airport

660 Hangar Rd, Suite 223 Rome, N.Y. 13441 Telephone: (315) 736-4171 / Fax: (315) 736-0568

ANTHONY J. PICENTE, JR.

County Executive

EDWARD ARCURI Commissioner of Aviation

Todays Data:				Airport D	roject:				
		Airport Project:							
Your Business/Name:									
Movement Training :	YES NO								
Non - Movement Training :		YES NO			Approved Gates				
			RME						
	SIDA (SECU	RE ID AR	EA) BADG	ING APPI		DN			
LAST NAME		FIRST NAME		MIDDLE INT.	SEX	HEIGHT	WEIGHT	EYE	
				ж. Т					
RESIDENTIA	_ (STREET) ADDRES	S			CITY		STATE	ZIP (CODE
DATE OF BIRTH (MM/DD/YYYY)	BIRTH STATE	BIRTH STATE NON-US CITIZEN ARN OR 194 NUMBER		DRIVER'S LICENSE #		ISSUING STATE			
	/ COUNTRY	/ COUNTRY							
						CDODT NUM			COLUMITON
SOCIAL SECURITY NUMBER	HOME PHO	HOME PHONE NUMBER WORK PHON		NE NUMBER	PASSPORT NUMBER		ISSUING COUNTRY		
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DATE OF HIRE (MM/DD/YYYY)		COMPANY'S NAME			COMPANY'S FULL ADDRESS				
POSITION HELD		SUPERVISOR'S NAME			SUPERVISOR/COMPANY PHONE NUMBER				
L									

Have you ever been convicted of a FELONY?	YES	NO	
If yes, please explain:			

FOR OFFICIAL USE ONLY

TYPE OF BADGE	SIDA BADGE/CARD #		DATE CARD ISSUED		
Instructors Signature		Commissioner Signature			

Section 80 Execution and Progress

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within one day of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall show all work items identified in the project proposal for each work area and shall include the project start date and end date.

80-03.1 Requirements.

- **A.** Nomenclature and Definitions
- B. Schedule Personnel
- C. Software Compatibility Requirements
- **D.** Preconstruction Schedule Meeting
- E. Baseline Schedule Development
- **F.** Progress Schedule Update
- G. Schedule for Submittals

80-03.1.A Nomenclature and Definitions

Actual Start date- At the task level, the Actual Start date represents the point in time that meaningful work actually started on a task.

Actual Finish date - At the task level, the Actual Finish date represents the point in time that work actually ended on a task.; At the Project level, the Actual Finish date represents the point in time that the Contractor completes all Work in accordance with the time standards described in the CSPP.

Baseline Progress Schedule - The Progress Schedule submitted by the Contractor and accepted by the RPR that shows the plan to complete the construction contract work. The Baseline Schedule represents the Contractor's plan at the time of Contract Award for completing the Project.

Bid Date – The date that bids will be publicly opened and read aloud.

Constraint - A schedule restriction imposed on the Start or Finish date(s) of a task that modifies or overrides a task's relationships.

Critical Task – A task on the critical path.

Critical Path – In the Progress Schedule, the critical path shall be those tasks being on the longest path. In a project network diagram, the series of tasks determines the earliest completion of the project.

Critical Delay - An event, action, or other factor that delays the critical path of the Progress Schedule and extends the time needed for completion of the construction project.

Critical Path Method (CPM) – A network analysis technique used to predict Project duration by analyzing which sequence of tasks (which path) has the least amount of scheduling flexibility (the least amount of float or slack). A scheduling technique utilizing tasks, durations, and interrelationships/dependencies (logic), such that all tasks are interrelated with logic ties from the beginning of the project to the completion of the project. Early dates are calculated by means of a forward pass using a specified start date. Late dates are calculated by means of a backward pass starting from a specified completion date (usually the forward pass's calculated project early finish date).

Duration, Original - The original estimated number of Working Days (not including holidays or other nonworking periods) in which the work task associated with the task is expected to be performed. (The number of calendar days may be different based on the calendar assigned to the task.) For certain tasks such as concrete curing, or others approved by the RPR, the calendar shall reflect no non-working days.

Duration, Remaining - The estimated time, expressed in Working Days (not including holidays or other nonworking periods), needed to complete a task that has started but has not finished

Early Dates – The earliest date a task can start or finish based upon logic and durations. They are calculated by the software application when scheduling the project. Progress Schedules.

Final Baseline Progress Schedule *(a)* **Award** - The original plan against which the Contractor's progress is measured. The Final Baseline Progress Schedule *(a)* Award represents the original plan at the award of the Contract, of what is expected to happen. Once the Final Baseline Progress Schedule *(a)* Award is accepted by the RPR it is saved and used as a basis to compare against Progress Schedules Updates. (See also Section 80-3 of the FAA's General Provisions.)

Fragnet – A subdivision of a project network diagram usually representing some portion of the project.

Late Dates – The latest a task can start or finish without delaying the time standards contained in the CSPP.

Longest Path - The sequence of tasks through the Progress Schedule network that establishes the Milestones contained in the CSPP.

Look-Ahead Schedule – Commonly a one or two week time segment generated from the accepted Progress Schedule that forecasts the work planned for the one or two week period following the Status Date, and includes any major materials to be delivered anticipated shifts in Work Areas.

Milestone - A task with zero duration that typically represents a significant event, usually the beginning and end of the project, milestones set forth in the contract proposal, construction stages, a major work package, or the contract interim time-related clauses.

Notice to Proceed– The actual date the Contractor starts fieldwork of a contract pay item, which is entered as a Start milestone task in the schedule. Contractually no work may start until after the Contract is awarded by the Owner, and the Contractor has received a written Notice to Proceed.

Open End - The condition that exists when a task has either no predecessor or no successor, or when a task's only predecessor relationship is a finish-to-finish relationship or only successor relationship is a start-to-start relationship.

Predecessor – A task that is defined by Schedule logic to precede another task. A predecessor may control the Start Date or Finish Date of its successor.

Progress Schedule – Also referred to as the Project's Schedule.

Progress Schedule Update – Changes to the Progress Schedule that reflect the status of tasks that have commenced or have been completed, including the following items: (a) Actual Start date and or Actual Finish date as appropriate; (b) Remaining Duration for tasks commenced and not complete; and (c) Suspend or Resume dates for tasks commenced and not complete.

Progress Schedule Revision – Revisions to the Progress Schedule ensures it accurately reflects the current means and methods of how the Project is anticipated to progress, including modifications made to any of the following items: (a) changes in logic connections between tasks; (b) changes in constraints; (c) changes to task descriptions; (d) task additions or deletions; (e) changes in calendar assignments.

Project Scheduler – The person that is responsible for developing and maintaining the Progress Schedule.

Recovery Schedule – A schedule depicting the plan for recovery of significant time lost on the project. This separate CPM schedule submission shall provide the resolution and include appropriate changes in network logic, task and calendar adjustments.

Relationships - The interdependence among tasks relationships link a task to its predecessors and successors. Relationships are defined as:

- Finish to Start The successor task can start only when the current task finishes.
- Finish to Finish The finish of the successor task depends on the finish of the current task.
- Start to Start The start of the successor task depends on the start of the current task.
- Start to Finish The successor task cannot finish until the current task starts.

Slack (Float), Free - The amount a task can slip without delaying the immediate successor task. Free Float is the property of a task and not the network path. The Owner owns the Project's Free Slack (Float).

Slack (Float) Suppression - Utilization of zero free slack (float) constraints which allows a task to start as late as possible by using all of its' available free slack (float). This technique allows tasks to appear more critical than if the task's total float was based on early dates. Assigning zero free float prevents true sharing of total float between the Owner and the Contractor. Utilization of overly generous task durations and overly restrictive calendar non-working periods are also considered to cause slack (float) suppression.

Slack (Float), Total - The amount of time a task (or chain of tasks) can be delayed from its early start without delaying the contract completion date. Float is a mathematical calculation and can change as the project progresses and changes are made to the project plan. Total Slack (Float) is calculated and reported for each task in a network, however, Total Float is an attribute of a network path and not associated with any one specific task along that path. The Owner owns the Project's Total Slack (Float).

Status Date – The date used to update a project. The Status Date is used as the starting point to calculate the schedule.

Task- A discrete, identifiable task or event that usually has an expected duration, has a definable Start Date and/or Finish Date, and can be used to plan, schedule, and monitor a project.

Work Breakdown Structure (WBS) - A deliverable-oriented grouping of project elements, which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of project components or work packages.

Work Package - A deliverable that is a group of related tasks within a project at the lowest level of the work breakdown structure.

Work Day - A calendar day scheduled for active prosecution of contract work by the Contractor or the Contractor's representative. (See Section 10-65 of the FAA's General Provisions.)

80-03.1.B Scheduling Personnel. The Contractor shall designate a Project scheduler to have all scheduling responsibilities for the Work. The Project scheduler must have had previous scheduling responsibilities on similar projects of similar size and complexities.

80-03-1.C Software Compatibility Requirements. The Owner uses Microsoft Project 2019 to schedule

and monitor its construction program. All schedules submitted shall be in a format compatible with this program and version.

80-03.1.D Preconstruction Schedule Coordination. The Contractor shall contact the RPR after notification they are the low bidder, but no later than two (2) Work Days following Contract award to coordinate schedule development. The purpose of this will be to discuss essential matters pertaining to the satisfactory scheduling of project tasks, and to resolve any known questions regarding interpretation of the contract requirements for this work. The Project Scheduler shall be prepared to discuss the following:

- The proposed hierarchal Work Breakdown Structure (WBS) for the Progress Schedules.
- The proposed Project calendars.
- The factors that the Contractor determines to control the completion of the project and any milestone task completion dates contained therein.
- File naming Procedures for submissions.

80-03.1.E Baseline Schedule Development. The Contractor shall prepare, furnish, and maintain a computer-generated Progress Schedule using the Critical Path Method on Microsoft Project scheduling software The Contractor and the Owner shall use the Progress Schedule to manage the Work. No Work other than installation of the Engineer's Field Office, mobilization, procurement and administrative tasks, will be permitted to start until the RPR in writing has approved the Baseline Progress Schedule.

The purpose of the Progress Schedule, and scheduling provisions in the Contract, shall be to:

- Ensure that the Contractor and the Owner have a detailed plan to complete the Project in accordance with time standards contained in the CSPP;
- Provide a means of monitoring the progress of Work;
- Aid in communication and coordination of tasks among all affected parties;
- Analyze the effect of changed conditions on the time standards contained in the CSPP;
- Analyze the impact of proposed Contract Amendments.
- Establish a standard methodology for time adjustment analysis based on the principles of the Critical Path Method of scheduling, to analyze delays and resolve construction disputes concerning time;
- Determine appropriate extensions or reductions of Contract Time.

In scheduling and executing the work, the Contractor shall:

- Sequence the Work to commensurate with the Contractor's abilities, resources and the Contract Documents. The scheduling of tasks is the responsibility of the Contractor.
- Ensure that Progress Schedules prepared by the Project Scheduler for submission to the Owner are in compliance with the Contract. The intent should be that Schedule submissions are timely, complete, accurate, and in compliance with the Contract.
- Communicate all Contract changes, and decisions or actions taken by the Contractor and all subcontractors, fabricators, etc., that effect the Progress Schedule to the Project Scheduler in a timely manner to allow appropriate development, maintenance, and update of the Progress Schedule.
- Include all Work contained in the Contract and all Work directed in writing by the RPR. Work tasks directed by the RPR to be added to the Contract shall be included in the next Monthly Progress Schedule submission.

- Assure that Progress Schedule Updates reflect the actual dates that work tasks started and were completed in the field.
- Break a schedule task into multiple tasks to reflect a discontinuity in the work if a work task is suspended in the field and restarted at a later date, and the break between when the Work was suspended to when it was resumed is significant compared to the original task duration.
- Ensure the Progress Schedule contains all Work constraints and Milestones defined in the Contract including the CSPP.
- Schedule the Work using such procedures and staging or phasing as required by the Contract. Work designated as part of separate stages may be performed concurrently with other stages where allowed by the Contract or where approved by the RPR. Failure by the Contractor to include any element of Work required by the Contract in the accepted Progress Schedule does not relieve the Contractor from its responsibility to perform such Work.

The schedule shall be developed utilizing the following elements:

- Work Breakdown Structure (WBS) A multi-level hierarchal WBS shall be incorporated that provides a deliverable-oriented grouping of tasks and defines the total scope of the project. The Contractor shall develop a detailed project specific WBS for the RPR's review and approval prior to the development of the Baseline Schedule. The RPR shall make the final determination on the number of levels of the WBS, and how the tasks shall be grouped to represent the deliverables of the project. A minimum WBS shall consist of the following Levels (X)
 - PRECONSTRUCTION (1)
 - GENERAL(2)
 - SHOP DRAWING AND SUBMITTALS (2)
 - PROCUREMENT/FABRICATION/DELIVERY(2)
 - CONSTRUCTION (1)
 - WORK PHASE (2)
 - CONSTRUCTION COMPONENT (3) (earthwork, drainage, paving, etc.)
 - \circ POST CONSTRUCTION(1)
 - PUNCHLIST (2)
 - DEMOBILIZATION (2)
 - PROJECT DOCUMENTATION (2)
- **Task ID** Include a unique identification number for each task. Task ID numbers shall not be changed, or reassigned for the duration of the contract.
- **Task** Clearly and uniquely define each task with a description of the work that is readily identifiable to inspection staff and the progress of each task can be measured.
- **Milestone Tasks** To the extent not specifically addressed in the CSPP, this term include tasks for all Contract milestones that define significant contractual events such as Contract Award, Notice to Proceed, Contractor Start Work, Substantial Completion, Contract Completion, and coordination points with outside entities such as utilities, the FAA, Time-Related Contract Provisions, etc.
- **Task Durations** Define the Original Duration of each task in units of whole work days. With the exception of submittal/procurement tasks, durations shall not exceed 15 work days unless approved by the RPR. Durations for RPR submittal reviews shall meet the requirements set forth in the

contract documents. If requested by the RPR, the Contractor shall justify the reasonableness of planned task time durations.

- **Relationships** Clearly assign predecessors and successors relationships to each task, and assign appropriate logic ties between tasks (Finish to Start, Start to Start, Finish to Finish, etc.). Openended tasks are not permitted, with the exception of the first and last tasks in the schedule. Do not include inappropriate logic ties with Milestone Tasks (For a finish milestone task: a predecessor shall only be assigned a Finish to Finish logic tie, a successor shall only be assigned a Finish to Start or Finish to Finish logic tie. For a start milestone: a predecessor shall only be assigned a Finish to Start or Start to Start logic tie, a successor shall only be assigned a Finish to Start or Start to Start logic tie, a successor shall only be assigned a Finish to a start milestone: a predecessor shall only be assigned a Finish to Start or Start to Start logic tie, a successor shall only be assigned a Finish to a start milestone task as a predecessor to all Review and Approval type tasks to be performed by the RPR.
- Task Constraint Dates The Contractor shall not have any constrained tasks, with the exception of contractual dates, unless the RPR accepts such constraints in writing.
- **Task Dates** With the exception of contract Milestone dates, "Actual Start" and "Actual Finish" dates and "Start" and "Finish" dates, task dates shall be calculated by the Project scheduler tool within the scheduling software.
- **Calendars** Notwithstanding the Contractor's assigned risk for delays due to weather (See Section Nos. 80-6 and 80-7 of the FAA's General Provisions), use clearly defined calendars that account for expected seasonal weather conditions (including winter shutdown periods) and environmental permit requirements, for the planning and scheduling of tasks. Do not incorporate a task with a description of "Winter Shutdown" that requires constraints rather utilize non-working periods utilizing a Base Calendar.

80-03-1.F Progress Schedule Update

In addition to the detailed schedule requirements for the submission of the Baseline Progress Schedule, the Contractor shall complete the following additional requirements for Monthly Progress Schedule submissions:

Durations – The Original Duration shall not be changed without prior written justification by the Contractor, and written approval by the RPR. The Contractor shall edit the Remaining Duration to reflect progress made on work tasks, and shall not use Duration percentage. If a proposed change to Original Duration is due to additional or changed work to the Contract, the Contractor shall instead add a task to reflect this additional work. The Contractor shall not use zero durations for Task Dependent tasks.

Started and Finished dates – For each task where work was begun during the Monthly reporting period, the Contractor shall check the box adjacent to Started and enter the date the work began. For each task where work was completed during the Monthly reporting period.

If the Contractor fails to submit the required Progress Schedule updates and revisions, the Contractor waives its rights to adjustments of time and related compensation for delays that accrue during the period in which the progress schedule has not been submitted in accordance with the detailed CPM scheduling requirements.

The Owner will have no liability for any subsequent Contractor time related disputes which occurred during the period of time in which the Contractor failed to submit monthly progress schedule updates and revisions in a timely manner.

80-03.1.G Schedule for Submittals.

Progress Schedule submissions will only be considered complete when all documents and data have been provided to the RPR. When preparing a formal submission of the Progress Schedule, the Contractor shall make a pdf of the current Progress Schedule and name it according to the file naming convention determined at the Preconstruction Scheduling Meeting.

- **A.** Submittals shall be uploaded to a designated location on the Project FTP Site as directed by the RPR with sufficient time to allow for review.
- **B.** Allow five (5) calendar days for review and turnaround of Progress Schedule submittals.
- **C.** Monthly submission of updated Progress Schedule shall be completed prior to processing of monthly pay requisition.
- **D.** Immediate Rejection of Progress Schedule submissions. The following deficiencies in a Contractor's Progress Schedule submission shall be grounds for the immediate rejection by the RPR, without further review, analysis and/or comments.
 - Failure of the Project Scheduler to "schedule" the Project, as of the status date.
 - Any tasks without predecessors or tasks without successors, appearing in the Schedule with the exception of the first and last task in the schedule.
 - Any task constraints appearing in the Schedule that have not been approved in writing by the RPR, or that are not specifically allowed by this specification.
 - Any Tasks with Actual Dates > Status Date
 - Any Milestone Tasks with invalid relationships
 - Failure to have a clearly defined Critical Path from the Status Date to the last task in the schedule, using the Longest Path method. This would reflect logic errors in the project schedule.
 - If any of these deficiencies are found, the Contractor's submission shall be considered deficient, and RPR will notify the Contractor immediately.

No direct payment will be made for the coordinated construction schedule. The cost of creating, revising, maintaining, updating, etc. the coordinated construction schedule shall be included in the price of the bid for the various items of the Contract.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary

temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

See Attachment "A" to Section 70-08 - Construction Safety and Phasing Plan (CSPP) at the end of Section 70.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

If the Contractor requests changes to the CSPP and the requested changes are acceptable to the Owner, the Engineer, and the RPR, the Engineer will request a modification to the CSPP from the FAA. The Contractor shall plan on a minimum of 90 days for this process to be completed. No deviation to the original CSPP shall be made without FAA approval.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of calendar days shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Schedule	Liquidated Damages Cost	Allowed Construction Time		
Total Contract	\$2,00.00 per day	120 Calendar Days		

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the execution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

Section 90 Measurement and Payment

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds (907 kg) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles

Measurement and Payment Terms

Term	Description
	shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%.
	In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator
	and the KPK can safely and conveniently view them.

Term	Description
	Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.
	All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 <i>Payment for Extra Work</i> .
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities,* will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items*, the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order.

Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

Payment for extra work for "agreed prices" and for "time and materials" work shall be based on the following:

- 1. Agreed Price/Time and Materials Work. All agreed price and time and materials work shall be approved by the Owner and the FAA prior to proceeding with the work. The Engineer and Contractor shall be responsible for tracking the number of employees, number of hours and classification of each employee, numbers of hours that equipment is utilized and materials utilized for the extra work that is paid utilizing time and materials work.
 - **a. Miscellaneous**. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
 - **b.** Comparison of Record. The Contractor and the Engineer shall compare records of the cost of agreed price/time and materials work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.
 - **c. Statement**. No payment will be made for work performed on an agreed price/time and materials basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such agreed price/time and materials work detailed as follows:
 - (1) Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.
 - (2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
 - (a) Contractor Owned Equipment Trucks and Plant.- Contractor shall be reimbursed for its ownership costs and for its operating costs for self owned equipment at the rates listed in the Rental Rate Blue Book published by Dataquest, Inc. applied in the following manner as modified by the "Rate Adjustment Table":
 - (i) Ownership Costs -- It is mutually understood that the rates for ownership costs reimburse the Contractor for all non-operating costs of owning the equipment, truck or plant including depreciation on the original purchase, insurance, applicable taxes, interest on investment, storage, overhead, repairs, moving the equipment onto and away from the project or work site, and profit. Reimbursement will be made for the hours of actual use as described below.
 - Less than 8 hours of actual use, the product of the actual number of hours used or fraction thereof multiplied by the hourly rate, or the daily rate, whichever is less.
 - (iii) Between 8 hours and 40 hours of actual use, the product of the actual number of hours used divided by 8 multiplied by the daily rate, or the weekly rate, whichever is less.
 - (iv) Between 40 and 176 hours of actual use, the product of the actual number of hours used divided by 40 multiplied by the weekly rate, or the monthly rate, whichever is less.

- (v) Over 176 hours of actual use, the product of the actual number of hours used divided by 176 multiplied by the monthly rate.
- (vi) Operating Costs -- The rate for operating costs includes fuel, lubricants, other operating expendables, and preventative and field maintenance. Operating cost does not include the operator's wages. The Contractor shall be reimbursed the product of the number of hours of actual use multiplied by the Estimated Operating Cost/Hour.
- (vii) The rates used shall be those in effect at the time the agreed price/time and materials work is done as reflected in the then current publication of the Rental Rate Blue Book. When agreed price/time and materials type analysis are used to establish agreed prices in accordance with paragraph A above, the rates used shall be those in effect when the agreed price is developed by the Contractor.
- (viii) In the event that a rate is not established in the Rental Rate Blue Book for a particular piece of equipment, truck or plant, the Engineer shall establish rates for ownership costs and operating costs for that piece of equipment, truck or plant that is consistent with its cost and expected life.
- (ix) The geographic Regional Adjustment Factor shown in the map at the beginning of each section of the Rental Rate Blue Book shall not be applied to the equipment rates subsequently listed in each section, and shall not be used as a basis for payment.
- (b) Rented Equipment, Trucks and Plant -
 - (i) In the event that the Contractor does not own a specific type of equipment and must obtain it by rental, it shall be paid the actual rental rate for the equipment for the time that the equipment is used to accomplish the work or is required by the Engineer to be present, not to exceed the adjusted rental rate in the Rental Rate Blue Book, plus the reasonable cost of moving the equipment onto and away from the project site.
 - (ii) The Contractor shall also be reimbursed for the operating cost of the equipment unless reflected in the rental price. Such operating cost shall be determined in the same manner as specified for Contractor Owned Equipment above.
 - (iii) In the event that area practice dictates the rental of equipment with an operator or fully fueled and maintained equipment, truck or plants, payment will be made on the basis of an invoice for the rental of the equipment with an operator, fully fueled and/or maintained equipment, trucks or plants including all costs incidental to its use, including costs of moving to and from the site, provided the rated is substantiated by area practice.
- (c) Maximum Amount Payable -- The maximum amount of reimbursement for the ownership costs of Contractor owned or the rental cost of rented equipment, trucks or plant is limited to the original purchase price of the equipment, truck or plant for any agreed price/time and materials work as listed in the Green Guide for Construction Equipment published by the Dataquest, Inc. In the specific event when the ownership or rental reimbursement is limited by the original purchase price, the Contractor shall, nevertheless, be reimbursed for the operating Cost/Hour for each hour of actual use.
- (3) Quantities of materials, prices, and extensions.
- (4) Transportation of materials.

(5) Overhead and Profit. If any of the work is performed by a subcontractor, the Contractor shall be paid the actual and reasonable cost of such subcontracted work computed as outlined in a through d above, or on such other basis as may be approved by the Owner. Subcontractor profit and overhead shall be paid as outlined in this section, plus an additional allowance of five percent (5%) of materials and direct labor to cover the Contractor's profit, superintendence, administration, insurance and other overhead. For the purposes of computing overhead and profit, only one level or tier of subcontractors will be allowed.

Overhead shall be defined to include, but not be limited to:

- premium on bonds;
- premium on insurance required by workman's compensation insurance, public liability and property damage insurance, unemployment insurance, social security tax, and other payroll taxes and such reasonable charges that are paid by the Contractor pursuant to written agreement with his/her employee;
- all salary and expenses of executive officers, supervising officers or supervising employees;
- all clerical or stenographic employees;
- all charges for minor equipment, such as small tools, including shovels, picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, etc. and other miscellaneous supplies and services;
- all drafting room accessories such as paper, tracing cloth, blueprinting, etc.

Overhead and profit cost shall be computed at 20 percent of the following:

- Total Direct Labor Cost (actual hours worked multiplied by the basic hourly wage rate) plus supplemental benefits payments, payroll taxes, insurance payments and other labor related fringe benefit payments as defined in 'a' above, but not including the overtime additive payments. Overhead and profit shall not be paid on the premium portion of overtime.
- Total Cost of Materials as defined in (3) and (4) above.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. From the total of the amount determined to be payable on a partial payment, 5 percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-03. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 7 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 7 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

No partial payments will be made for work items lacking approved submittals, or lacking acceptable manufacturer's material certifications.

Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Airport Sponsor. This clause applies to both DBE and non-DBE subcontractors.

Contractors shall include in their subcontracts language providing that Contractors and subcontractors will use appropriate alternative dispute resolution mechanisms to resolve payment disputes.

The Contractor will not be reimbursed for work performed by subcontractors unless and until the Contractor ensures that the subcontractors are promptly paid for the work they have performed.

The same requirement for prompt payment shall be applied to all tier subcontractors.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

e. Deposits in escrow shall be maintained for a period of time described in the subsection titled GUARANTY of this section, or the Contractor shall furnish a bond as described in the subsection titled SECURITY FOR GUARANTEE of this section.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes*, or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

i. The Owner and Engineer will perform a warranty inspection with the Contractor approximately three (3) months before the end of the one year warranty period.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, Final Cleanup.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Women and Minority Business Enterprise (M/WBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s). The Contractor shall prepare a project O&M Manual for the Owner. The O&M Manual shall consist of approved certification submittals, approved shop and setting drawing submittals, approved catalogue data submittals, circuit test results in accordance with Item L-108, and O&M Manuals for equipment installed that have operating procedures and/or maintenance requirements associated with them. The O&M manual shall be neatly bound in a properly sized 3-ring binder and tabbed by specification section. The O&M Manual shall be submitted to the Engineer prior to final payment to facilitate project closeout.

k. Security for Construction Warranty.

I. Equipment commissioning documentation submitted, if required.

m. Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706) from the Prime Contractor.

n. Contractor's Affidavit of Release of Liens (AIA Document G706A) from the Prime Contractor.

o. Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706) from each subcontractor.

p. Contractor's Affidavit of Release of Liens (AIA Document G706A) from each subcontractor.

q. Consent of Surety to Final Payment (AIA Document G707) from the Prime Contractor.

r. Prime Contractor's Certification (New York State Labor Law Section 220-a).

s. Subcontractor's Certification (New York State Labor Law Section 220-a).

END OF SECTION 90

Special Provisions to the General Provisions

SP 20-16 Addenda and interpretation. No interpretation of the meaning of the Contract Documents, Contract Drawings or other portions of the Contract will be made orally. Every request for such interpretation must be in writing and addressed to C&S Engineers, Inc., 499 Col. Eileen Collins Boulevard, Syracuse, New York 13212, and to be given consideration must be received at the above address at least seven (7) days prior to the date fixed for opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda, which, when issued, will be sent via email to all holders of Contract Documents at the respective addresses furnished for such purposes, not later than twenty-four (24) hours prior to the date fixed for the opening of bids. Failure of any Bidder to receive or retrieve any such addenda or interpretation shall not relieve said Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract.

SP 20-17 Sales tax exemption. The Owner is exempt from payment of Sales and Compensating Use Taxes of the State of New York and of cities and counties on all materials and supplies sold to the Owner pursuant to the provisions of this Contract. These taxes are not to be included in bids. This exemption does not, however, apply to tools, machinery, equipment or other property leased by or to the Contractor or a Subcontractor to materials and supplies of any kind which will not be incorporated into the completed project, and the Contractor and his Subcontractors shall be responsible for and pay any and all applicable taxes including Sales and Compensating Use Taxes on such leased tools, machinery, equipment or other property or on such unincorporated materials and supplies, and the provisions set forth below will not be applicable to such tools, machinery, equipment, property and unincorporated materials and supplies.

The Contractor agrees to sell, free of encumbrances, and the Owner agrees to purchase all of the materials and supplies (except as above set forth) required, necessary or proper for or incidental to the construction of the Project covered by this agreement. Title to all materials and supplies to be sold by the Contractor to the Owner, pursuant to the provisions of the Contract, shall immediately vest in and become the sole property of the Owner upon delivery of such materials and supplies to the Project site. The Contractor shall mark or otherwise identify all such materials and supplies as the property of the Owner. The Contractor, at the request of the Owner, shall furnish to the Owner such confirmatory bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, confirming to the Owner, title to such materials and supplies free of encumbrances.

In the event that after title has passed to the Owner any of such materials and supplies are rejected as being defective or otherwise unsatisfactory, title to all such materials and supplies shall upon such rejection revest in the Contractor.

The sum paid under this Agreement shall be deemed to be in full consideration for the performance by the Contractor of all his duties and obligations under this Agreement in connection with said sale.

The Contractor agrees to construct the Project and to furnish and perform all work and labor required, necessary or proper for or incidental thereto, except that the materials and supplies sold to the Owner under the preceding paragraph shall be furnished by the Owner to the Contractor for use in the performance of said work and labor, and the sum paid pursuant to this Agreement shall be deemed to be in full consideration for the performances by the Contractor of all his duties and obligations under this Agreement in connection with said work and labor.

The purchase by the Contractor of the materials and supplies sold hereunder will be a purchase or procurement for resale to the Owner (an organization described in subdivision (a) of Sec. 1116 of the Tax Law of the State of New York) and therefore not subject to the New York State Sales or Compensating Use

or any such taxes of cities and counties. The sale of such materials and supplies by the Contractor to the Owner will not be subject to the aforesaid Sales and Compensating Use Taxes.

The purchase by Subcontractors of materials and supplies to be sold hereunder will also be a purchase or procurement for resale to the Contractor (either directly or through other Subcontractors), and ultimately to the Owner, and therefore not subject to the aforesaid Sales and Compensating Use Taxes, provided that the Subcontract Agreements provide for the resale of such materials and supplies prior to and separate and apart from the incorporation of such materials and supplies into the permanent construction and that such Subcontract Agreements are in a form similar to this Contract with respect to the separation of the sale of materials and supplies from the work and labor to be provided.

If as a result of such sale of materials and supplies (l) any claim is made against the Contractor or any Subcontractor by the State of New York or any city or county for Sales or Compensating Use Taxes on the aforementioned materials and supplies or (2) any claim is made against the Contractor or any Subcontractor by a materialman or a Subcontractor on account of a claim against such materialman or Subcontractor by the State of New York or any city or county for Sales or Compensation Use Taxes on the aforementioned materials and supplies, to range the Contractor and Subcontractor or any Subcontractor, as the case may be, for an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that:

- A. 1. The Subcontract Agreements in connection with this Contract, provide for the resale of such materials and supplies, prior to and separate and apart from the incorporation of such materials and supplies into the permanent construction.
 - 2. Such Subcontract Agreements are in a form similar to this Contract with respect to the separation of the sale of materials and supplies from the other work and labor to be provided, and
 - 3. Such separation is actually followed in practice, including the separation of payments for materials and supplies from the payments for other work and labor, and
- B. The Contractor and his Subcontractors and materialmen complete New York State Sales Tax Form ST120.1. (Contractor Exempt Purchase Certificate), and furnish such certificate to all persons, firms or corporations from which they purchase materials and supplies for the performance of the work covered by this Contract, and
- C. The Contractor and all Subcontractors maintain and keep, for a period of six (6) years after the date of final payment for the sale, or, if a claim for Sales or Compensating Use Tax is pending or threatened at the end of such six (6) year period, until such claim is finally settled, records, which in the judgment of the Department of Taxation and Finance, adequately show (1) all materials and supplies purchased by them for resale, pursuant to the provisions of this Contract and (2) all materials and supplies sold to the Owner pursuant to the provisions of this Contract, and
- D. The Owner is afforded the opportunity, before any payment of tax is made, to contest said claim in the manner and to the extent that the Owner may choose and to settle or satisfy said claims, and such attorney as the Owner may designate is authorized to act for the purpose of contesting, settling and satisfying said claim, and
- E. The Contractor and Subcontractor give immediate notice to the Owner of any such claim, cooperate with the Owner and its designated attorney in contesting said claim and furnish promptly to the

Owner and said attorney all information and documents necessary or convenient for contesting said claim, said information and documents to be preserved for six (6) years after date of final payment for the sale, or if such a claim is pending or threatened at the end of such six (6) years, until such claim is finally settled. If the Owner elects to contest any such claim, it will bear the expense of such contest.

Nothing in this Article is intended or shall be construed as relieving the Contractor from his obligations under this Agreement and the Contractor shall have the full continuing responsibility to install the materials and supplies purchased in accordance with the provisions of this Contract, to protect the same, to maintain them in proper condition and to forthwith repair, replace and make good any damage thereto without cost to the Owner until such time as the work covered by the Contract is fully accepted by the Owner.

SP 30-09 Conformed Contract Documents. Conformed Contract Documents sent to the successful bidder for execution will consist of the original contract documents with a copy of the successful bidder's Proposal section inserted. In addition, the Form of Contract will be edited to include a contract date, the Contractor's name and address, the contract parts that are being awarded: Total Bid; Total Base Bid; Total Base Bid plus Add-On No. 1; Total Alternate No. 1 Bid plus Add-On No. 1; etc., the total contract amount awarded, the list of Addenda and dates, the contractor's company name on the signature page, a copy of the Contractor's Performance Bond, Labor and Material Payment Bond and Insurance Certificates will be inserted. The original completed and signed Proposal will be kept on file with the Owner or Engineer.

The Conformed Contracts Documents may incorporate changes to the General Provisions and the Technical Specifications which were made by addendum. If changes are so included, the addendum cover sheets will be included in the Conformed Contract Documents before the Table of Contents, otherwise the full addendum will be included before the Table of Contents.

SP 30-10 Issued for Construction Contract Documents. Issued for Construction (IFC) Contact Documents will be distributed prior to the start of construction. The IFC contract documents consist of the Conformed Contract Documents and the Contract Drawings. The IFC Contract Documents will include a copy of the executed Form of Contract. The original filled out and signed Form of Contract will be kept on file with the Owner or Engineer. The IFC Construction Drawings will incorporate any changes made by addendum during the bidding process.

SP 50-18 Removal of water. The Contractor shall at all times during construction, provide and maintain proper and satisfactory means and devices for the removal of all water entering the excavations, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with the prosecution of the work or the proper placing of materials or other work.

Removal of water includes the construction and removal of cofferdams, sheeting and bracing, the furnishing of materials and labor necessary therefore, the excavation and maintenance of ditches and sluiceways and the furnishing and operation of pumps, wellpoints and appliances needed to maintain thorough drainage of the work in a satisfactory manner.

Water shall not be allowed to rise over or come in contact with any masonry, concrete or mortar, until at least twenty-four (24) hours after placement and no stream of water shall be allowed to flow over such work until such time as the RPR may permit.

Unless otherwise specified, all excavations which extend down to or below the static groundwater elevations at the sites of structures shall be dewatered by lowering and maintaining the groundwater beneath such excavations at an elevation not less than that specified herein at all times when work thereon is in progress, during subgrade preparation and the placing of the structure or other materials thereon.

Where the presence of fine granular subsurface materials and a high groundwater table may cause the upward flow of water into the excavation with a resulting quick condition, the Contractor shall install and operate a suitable dewatering system to prevent the upward flow of water during construction.

When the water table is within the capillary rise of silt/clay subsurface material, the Contractor shall select and operate his equipment in a manner to prevent the deterioration of the working surface due to the upward flow of water during construction.

The effluent pumped from the dewatering system shall be examined periodically by qualified personnel to determine if the system is operating satisfactorily without the removal of fines.

Unless otherwise directed by the RPR or shown on the Contract Documents, the water level shall not be permitted to rise until construction in the immediate area is completed and the excavation backfilled to the original grade or proposed grade.

Where well points are used, the groundwater shall be lowered and maintained continuously (day and night) at a level not less than two (2) feet below the bottom of the excavation. Excavation will not be permitted at a level lower than two (2) feet above the water level as indicated by the observation wells.

The wellpoint system shall be designed or installed by or under the supervision of an organization whose principal business is wellpointing and has at least five (5) consecutive years of similar experience and can furnish a representative list of satisfactory similar operations. Wellpoint headers, points and other pertinent equipment shall not be placed within the limits of the excavation in such a manner or location as to interfere with the laying of pipe or trenching operations or with the excavation for and/or construction of other structures. Standby gasoline or diesel powered equipment shall be provided so that in the event of failure of the operating equipment, the standby equipment can be readily connected to the dewatering system. The standby equipment shall be maintained in good order and actuated regularly not less than twice a week when directed.

Wellpoints shall be installed in the center of a sand wick drain which shall be placed by means of a sanding shell or other approved means to provide a sand core not less than ten (10) inches in diameter.

Detached observation wells of similar construction to the wellpoints shall be installed at intervals of not less than fifty (50) feet along the opposite side of the trench from the header pipe and line of wellpoints, or around the excavation for a structure or as shown on the Contract Drawings, to a depth of at least five (5) feet below the proposed excavation. In addition, one wellpoint in every fifty (50) feet shall be fitted with a tee, plug and valve so that the wellpoint can be converted for use as an observation well. Observation wells shall be not less than one and one-half (12) inch in diameter.

Water pumped or drained from excavations, or any sewers, drains, or water courses encountered in the work, shall be disposed of in a suitable manner without injury to adjacent property, the work under construction, or to pavements, roads and drives. No water shall be discharged to sanitary sewers. Sanitary sewage shall be pumped to sanitary sewers or shall be disposed of by an approved method.

Any damage caused by improper handling of water shall be repaired by the Contractor at his/her own expense.

SP 50-19 Sheeting and bracing. The Contractor shall furnish, place and maintain such sheeting, bracing and shoring as required to support the sides and ends of excavations in such a manner as to prevent any movement which would in any way damage the pipe, sewers, masonry or other work, diminish the width

necessary, otherwise damage or delay the work, or endanger existing structures, pipes or pavements, or to occasion a hazard to persons engaged on the project or to the general public.

Sheeting and bracing or other trench protection shall be utilized as required for the safety of employees exposed to the hazard of falling or sliding material from any trench or excavation in conformance with the provisions of Industrial Code Rule 23 as amended, and OSHA. Sheeting and bracing must be designed by, signed and stamped by a Professional Engineer licensed to practice in the State in which the project is located. The Contractor shall be responsible for the adequacy of all trench support systems used and for all damage to persons or property resulting from improper quality, strength, placing, maintenance and removal.

All material used for sheeting and bracing shall be sound and free from defects which might impair its strength or effectiveness. All timber sheeting and bracing shall be sound and straight, free from cracks, shakes and large or loose knots. All steel sheeting and bracing shall be sound and straight, free from bends, twists or splits, having square and undamaged ends. Sheeting shall be driven vertically from the original ground surface as the excavation progresses. Sufficient toe support shall be sustained so as to maintain pressure against the original ground at all times. Timber sheeting shall be driven so that edges are tight together and steel sheeting driven with the individual members interlocking. All bracing shall be of such design and strength as to maintain the sheeting in its proper position. The Contractor shall be solely responsible for the adequacy of all sheeting and bracing.

In general, all sheeting and bracing, whether of steel, timber or other material, used to support the sides of trenches or other open excavations, shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a pipe, sewer or structure shall be withdrawn, unless otherwise directed, before more than 6 inches of earth is placed above the top of the pipe, sewer or structure and before any bracing is removed. The voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Contractor shall be responsible for the adequate shoring and/or bracing of any existing utilities encountered during the excavation. Such utilities shall be braced or shored in a manner acceptable to the local jurisdictional agency having authority over the utility encountered. It shall be the responsibility of the Contractor to prevent damage to or displacement of utilities, and to work with and request the concurrence of the utility's company representative in this matter.

SP 60-09 Shop and setting drawings and catalogue data. All materials and equipment used in the work shall be submitted to the RPR, unless otherwise directed. The RPR will forward the submittals to Engineer for their review and approval prior to ordering the equipment. All information required for the Engineer's review of each particular pay item shall be sent as one submittal. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Drawings and data shall be submitted sufficiently in advance of the work to permit proper review, including time for necessary revisions and re-submittals. The Contractor is solely responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

Shop and setting drawings shall present complete and accurate information relative to all working dimensions, equipment weight assembly and sectional view, all the necessary details, pertaining to coordinating the work of the Contract, lists of materials and finishes, parts lists and the description thereof, lists of spare parts and tools where such parts or tools are required, no-scale control diagrams for control wiring and control piping, and any other items of information that are required to demonstrate detail compliance with the Plans and Specifications. Each drawing shall be dated and shall show the name of the Project, Contract Number and the name of the manufacturer of the equipment covered by the drawing or drawings. The Engineer will not review any drawings that are not properly identified or that do not contain complete data on the work or that have not been checked, stamped and signed by the Contractor for compliance with the Contract Documents.

The Engineer's review of the Contractor's Shop Drawings signifies only that such drawings appear to be in substantial conformity with the Contract Drawings and Contract Documents. Such review does not indicate approval of every detail of the drawings nor of the work methods of the Contractor which are indicated thereon. Regardless of the corrections made in or made of such drawings by the Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings, for their conformity to the Plans and Specifications and for the proper fitting and construction of the work.

No work covered by shop and setting drawings shall be done until the drawings have been reviewed and found acceptable by the Engineer. No payment shall be made on any item for which submittals are not received and found acceptable by the Engineer.

SP 60-10 Electrical shop drawings. Drawings for electrical equipment shall show physical dimensions and installation details and shall include elementary and connection diagrams for each control assembly and the interconnection diagrams for all equipment. The drawings shall show clearly the coordination of control work, shall identify the components external to electrical equipment and shall define the contact arrangement and control action of the primary and final control elements.

Where standard electrical control equipment having complex internal wiring is required, such as control panels, generator transfer panels, electric or electronic instruments and similar items, the detail shop wiring diagrams for such equipment will not be required, and, if submitted, will in general not be reviewed. The submittal for each such item of equipment shall, however, include an elementary diagram of the input and output elements which require connections to external equipment, and/or a complete step by step description of the control action of the equipment being submitted. In the event that any questions arise as to the type of information to be presented on the submittal, the supplier shall direct inquiries to the RPR through the Prime Contractor in advance of the preparation of his/her submittal.

SP 60-11 Substitute items. If in the Engineer's sole judgment an item of material or equipment proposed by the Contractor does not qualify as an "or-equal" item, it will be considered a substitute item. The Contractor shall submit sufficient information as provided below to allow the Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. The procedure for review by the Engineer will include the following and as the Engineer may decide is appropriate under the circumstances. Requests for review of substitute items of material or equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall first make a written application through the RPR to the Engineer for acceptance thereof, certifying that the substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the substitute will prejudice the Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents or Contract Drawings (or in the provisions

of any other direct contract with the Owner for work on the Project) to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. If the substitute item requires modifications to any existing features or to any proposed work, the application shall also include details of proposed modifications necessary to accommodate the substitute item. Such details shall include scaled layouts, dimensions and other pertinent information to enable the Engineer to accurately assess the entire application. If the substitute item and proposed modifications are approved, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications and absorb all costs of any related changes imposed on other Contractor's. All variations of the substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the substitute. The Engineer may require the Contractor to furnish additional data about the substitute.

- A. Engineer's Evaluation. The Engineer will be the sole judge of acceptability. No substitute will be ordered, installed or utilized without the Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The Engineer will record time required by the Engineer and the Engineer's Consultants in evaluating substitutes proposed or submitted by the Contractor and in making changes in the Contract Documents or Contract Drawings (or in the provisions of any other direct contract with Owner for work on the Project) occasioned thereby. The Engineer's charges shall be at the same rates the Engineer charges for such services to the Owner.
- **B.** Contractor's Expense. All data to be provided by the Contractor in support of any substitute item will be at the Contractor's expense. In order to aid the Engineer in determining the equality of an or substitute item (when compared to the item actually specified), the Contractor shall arrange for the performance of any tests requested by the Engineer. The Engineer shall determine the nature, extent, tester and degree of supervision of such tests. Certified test results shall be mailed directly to the Engineer for all tests requested. All costs of such tests, including engineering costs, shall be borne by the Contractor. The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute. Whether or not the Engineer accepts a substitute item so proposed or submitted by the Contractor, the Contractor shall reimburse the Owner for the charges of the Engineer and the Engineer's Consultants for evaluating each such substitute item. The costs for evaluating substitute items shall be deducted from the Owner's payment to the Contractor.

SP 60-12 Submittal procedure. The following procedure has been established for the submittal and processing of shop and setting drawings, working drawings, and catalogue data. Departures from this procedure may result in delay and misunderstandings.

- **A.** All information required for the Engineer's review of each particular pay item shall be sent as one submittal to the RPR with an attached submittal cover sheet. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time.
- **B.** In submitting certifications, drawings, catalog data, and similar items for review, one (1) electronic copy shall be submitted to DocExpress. Access to DocExpress will be provided by the RPR upon award of the Contract. The submittal will be reviewed by the Engineer, stamped and signed. The submittal bearing the reviewed stamp and signature will be reloaded back to DocExpress by the Engineer. It will be the Contractor's responsibility to check DocExpress for updated submittals.

The Contractor shall provide one (1) hard copy of each of the stamped and signed submittals for inclusion in the O&M Manual prior to contract closeout.

The RPR shall be responsible for printing sufficient copies of each submittal for their own records. The Contractor shall be responsible for printing sufficient copies of each submittal for their own records and distributing to each of the other prime or subcontractors whose work is to be correlated with such submittals.

- C. Submittals will be stamped by the Engineer as follows:
 - 1. "Approved", if no change or rejection is made.
 - 2. "Approved as Noted", if minor changes or additions are made, but re-submittal is not considered necessary. All copies will bear the corrective marks.
 - 3. "Revise and Resubmit", if the changes requested are extensive. In this case, re-submittal after correction is necessary and the same number of copies shall be included in the re-submittal as in the first submittal.
 - 4. "Rejected", if it is considered that the data submitted cannot with reasonable revision meet the requirements of the Plans and Specifications.
 - 5. "Submit Specified Item", if the data submitted is not clear, complete, or for other reasons cannot be examined by the Engineer to establish compliance with the Plans and Specifications.
- **D.** Unless otherwise approved in specific cases, all submittals must be transmitted by the Prime Contractor, not by the Subcontractors or vendors.

Any changes in re-submittals, other than those indicated as requested, must be specifically brought to the attention of the RPR. Changes or additions shall not be made in, or to, any fabricated item, part or material without having a re-review.

SP 70-22 Additional sanitary, health, and safety provisions.

New York State Labor Law requires for every contract for the construction, reconstruction, maintenance and/or repair of public work to which the State or a municipality is a party, where the total cost of all work to be performed under the contract is at least \$250,000, all laborers, workers and mechanics employed performing work of the contract on the work site be certified as having successfully completed an OSHA 10-hour Construction Safety course. This requirement applies to the contractor, subcontractors and other persons.

SP 70-23 New York State Department of Transportation (NYSDOT) standard clauses for New York state contracts. The following verbiage is included verbatim from Appendix A, Standard Clauses for New York State Contracts, dated January 2014 as required by New York State Department of Transportation grant assurances:

STANDARD CLAUSES FOR NYS CONTRACTS

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "the contract" or "this contract") agree to be bound by the following clauses which are hereby made a part of the contract (the word "Contractor" herein refers to any party other than the State, whether a contractor, licenser, licensee, lessor, lessee or any other party):

- 1. <u>EXECUTORY CLAUSE</u>. In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.
- 2. <u>NON-ASSIGNMENT CLAUSE</u>. In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the State's previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of the contracting agency and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller's approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor's business entity or enterprise. The State retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the State. The Contractor may, however, assign its right to receive payments without the State's prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.
- 3. <u>COMPTROLLER'S APPROVAL</u>. In accordance with Section 112 of the State Finance Law (or, if this contract is with the State University or City University of New York, Section 355 or Section 6218 of the Education Law), if this contract exceeds \$50,000 (or the minimum thresholds agreed to by the Office of the State Comptroller for certain S.U.N.Y. and C.U.N.Y. contracts), or if this is an amendment for any amount to a contract which, as so amended, exceeds said statutory amount, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds \$10,000, it shall not be valid, effective or binding upon the State until it has been approved by the State Comptroller and filed in his office. Comptroller's approval of contracts let by the Office of General Services is required when such contracts exceed \$85,000 (State Finance Law Section 163.6-a). However, such pre-approval shall not be required for any contract established as a centralized contract through the Office of General Services or for a purchase order or other transaction issued under such centralized contract.
- 4. <u>WORKERS' COMPENSATION BENEFITS</u>. In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.
- 5. <u>NON-DISCRIMINATION REQUIREMENTS</u>. To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex (including gender identity or expression), national origin, sexual orientation, military status, age, disability, predisposing genetic characteristics, marital status or domestic violence victim status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the

State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

- 6. WAGE AND HOURS PROVISIONS. If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of any State approved sums due and owing for work done upon the project. SEE "SPECIAL NOTE" REGARDING PREVAILING WAGE RATES FOLLOWING THIS SECTION.
- 7. <u>NON-COLLUSIVE BIDDING CERTIFICATION</u>. In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the State a non-collusive bidding certification on Contractor's behalf.
- 8. INTERNATIONAL BOYCOTT PROHIBITION. In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds \$5,000, the Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2NYCRR 105.4).
- 9. <u>SET-OFF RIGHTS</u>. The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or

agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State agency, its representatives, or the State Comptroller.

10. <u>RECORDS</u>. The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the agency or agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The State shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate State official, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the State's right to discovery in any pending or future litigation.

11. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.

- a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to a New York State agency by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following:
 - (i) the payee's Federal employer identification number,
 - (ii) the payee's Federal social security number, and/or
 - (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System.

Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

- (b) Privacy Notification.
 - (1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law.
 - (2) The personal information is requested by the purchasing unit of the agency contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the

Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

- 12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN. In accordance with Section 312 of the Executive Law and 5 NYCRR 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000.00, whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting agency; or (ii) a written agreement in excess of \$100,000.00 whereby a contracting agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of \$100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:
 - (a) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;
 - (b) at the request of the contracting agency, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and
 - (c) the Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

Contractor will include the provisions of "a", "b", and "c" above, in every subcontract over \$25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this section. The contracting agency shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, the contracting agency shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful
rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

- **13.** <u>CONFLICTING TERMS</u>. In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.
- 14. <u>GOVERNING LAW</u>. This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.
- **15.** <u>LATE PAYMENT</u>. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.
- 16. <u>NO ARBITRATION</u>. Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized), but must, instead, be heard in a court of competent jurisdiction of the State of New York.
- 17. <u>SERVICE OF PROCESS</u>. In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.
- 18. <u>PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS</u>. The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law, (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in §165 State Finance Law. Any such use must meet with the approval of the State; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

- **19.** <u>MACBRIDE FAIR EMPLOYMENT PRINCIPLES</u>. In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.
- 20. <u>OMNIBUS PROCUREMENT ACT OF 1992</u>. It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and

women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from: NYS Department of Economic Development

Division for Small Business Albany, New York 12245 Telephone: 518-292-5100 Fax: 518-292-5884 email: opa@esd.ny.gov

A directory of certified minority and women-owned business enterprises is available from: NYS Department of Economic Development Division of Minority and Women's Business Development 633 Third Avenue New York, NY 10017 212-803-2414 email: <u>mwbecertification@esd.ny.gov</u> <u>https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp</u>

The Omnibus Procurement Act of 1992 requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than \$1 million:

- (a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and womenowned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;
- (b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;
- (c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and
- (d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.
- **21.** <u>**RECIPROCITY AND SANCTIONS PROVISIONS.</u>** Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 15, 2002, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii. Contact NYS Department of Economic Development for a current list of jurisdictions subject to this provision.</u>

- 22. <u>COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH AND</u> <u>NOTIFICATION ACT.</u> Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).
- 23. <u>COMPLIANCE WITH CONSULTANT DISCLOSURE LAW</u>. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal or similar services, then, in accordance with Section 163 (4-g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to the agency that awarded the contract, the Department of Civil Service and the State Comptroller.
- 24. <u>PROCUREMENT LOBBYING</u>. To the extent this agreement is a "procurement contract" as defined by State Finance Law Sections 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

25. <u>CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING</u> <u>USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND</u> <u>SUBCONTRACTORS.</u>

To the extent this agreement is a contract as defined by Tax Law Section 5-a, if the contractor fails to make the certification required by Tax Law Section 5-a or if during the term of the contract, the Department of Taxation and Finance or the covered agency, as defined by Tax Law 5-a, discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the agreement, if the covered agency determines that such action is in the best interest of the State.

26. <u>IRAN DIVESTMENT ACT</u>. By entering into this Agreement, Contractor certifies in accordance with State Finance Law §165-a that it is not on the "Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012" ("Prohibited Entities List") posted at: <u>http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf</u>

Contractor further certifies that it will not utilize on this Contract any subcontractor that is identified on the Prohibited Entities List. Contractor agrees that should it seek to renew or extend this Contract, it must provide the same certification at the time the Contract is renewed or extended. Contractor also agrees that any proposed Assignee of this Contract will be required to certify that it is not on the Prohibited Entities List before the contract assignment will be approved by the State.

During the term of the Contract, should the state agency receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, the state agency will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then the state agency shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not

limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

The state agency reserves the right to reject any bid, request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the award, assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

SP 70-24 NYSDOT terms and conditions. The following verbiage is included verbatim as required by a New York State Department of Transportation grant assurance:

TERMS AND CONDITIONS (ADDENDUM NO. 1):

- 1. The Grantee agrees to incorporate or cause to be incorporated into any contract for construction work, or furnishing of any materials, supplies, or equipment or professional consulting services of any kind in connection with the Project, clauses under which the Contractor:
 - a. Agrees to procure and maintain insurance of the kinds and in the amounts specified.
 - b. Agrees that he will comply with the requirements of the State Labor Law and particularly Sections 220 and 220-4 thereof as amended, and as set forth in Appendix A hereof.
 - c. Agrees that during the performance of this contract, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color or national origin and will comply with the Non-Discrimination provisions set forth in Appendix A hereof.
 - d. Agrees that he will cause all persons employed upon the work including his subcontractors, agents, officers and employees, to comply with all applicable laws in the jurisdiction in which the work is performed.
 - e. Agrees not to assign, transfer, convey, sublet or otherwise dispose of this agreement or any part thereof, or of its right, title or interest therein or its power to execute such agreement to any person, company or corporation without the previous consent in writing of the Grantee and the Commissioner of Transportation.
 - f. Agrees that in accordance with its status as an independent contractor, it will conduct itself with such status that it will neither hold itself out as nor claim to be an officer or employee of the State by reason hereof, and that it will not by reason hereof, make any claim demand of application to or for any right or privilege applicable to an officer or employee of the State, including, but not limited to, Workmen's Compensation coverage, Unemployment Insurance Benefits, Social Security coverage or Retirement membership or Credit.
 - g. Agrees that this agreement may be canceled or terminated by the Grantee if any work under this agreement is in conflict with the provisions of Section 74 of the Public Officers Law.
 - h. Agrees that any patentable result arising out of this Agreement, as well as all information, designs, specification, know-how, data, and findings, shall be made available without cost to the State or its licenses for public use.

- i. Agrees that for construction work he will furnish a performance bond in an amount at least equal to 100 percent of this contract price as security for the faithful performance of his contract and also a labor and material bond in an amount equal to 100 percent of his contract price as security for the payment of all persons performing labor on the project under his contract and furnishing materials in connection with his contract. The performance bond and the labor and material bond may be in one or in separate instruments in accordance with law.
- j. Agrees that the Commissioner and the State Comptroller reserve the right to audit and inspect the work of the contractor and any and all records thereof through representatives of the State, as well as through officers and employees of the State, as they shall determine.
- k. Agrees that the State shall not be obligated or liable hereunder to any party other than the Grantee.
- 1. Agrees that if any provision of this Agreement is held invalid, the remainder of this Agreement shall not be affected thereby if such remainder would then continue to conform to the terms and requirements of the applicable law.
- m. Agrees that by execution of the Agreement the Contractor represents that it has not paid and, also, agrees not to pay, any bonus or commission for the purpose of obtaining an approval of this agreement.
- n. Agrees that all project documents requiring formal approval by a Federal Agency will be submitted to the Commissioner for his prior approval and forwarding to the Federal Agency for its formal approval.
- 2. The Grantee agrees to give full opportunity for free, open and competitive bidding for each contract to be let by it calling for construction or the furnishing of any materials, supplies, or equipment to be paid for with Project funds in accordance with the requirements of Section 103 of the General Municipal Law, the State Finance Law and any other applicable State Laws, Regulations or any requirements or opinions of the State comptroller.
- 3. The Grantee agrees that contracts for professional or consulting services may be negotiated, but they must be in writing and must state the maximum compensation or reimbursement to be paid. Negotiations must be adequately documented to show consultants considered, proposals received, reasons for selecting the proposed consultant, and the unit basis or other detailed explanation in support of the amount of compensation to be paid.

SP-70-25 Labor affidavits, New York State Laws of 1988. The following outlines the certification and reporting procedures required by the Office of the State Comptroller to implement Chapter 698, Laws of 1988 (Labor Affidavits) for all public improvement contracts let (bid opening date) after March 1, 1989. COPIES OF AFFIDAVITS FOLLOW THE END OF THIS SECTION.

- A. The prime contractor must provide each subcontractor with a copy of the schedule of wages and supplements specified in the contract before the subcontractor's work is started.
- B. The prime contractor must immediately obtain the subcontractor's certification. Such certification must be maintained by the prime contractor until the final payment is requested. The prime contractor's and subcontractor's certification forms are on the following three (3) pages.

- C. If revised schedules of wages and supplements are issued, the prime contractor must provide each subcontractor with such revised schedules and obtain a revised subcontractor's certification.
- D. The prime contractor must submit a labor affidavit in support of the payment of wages to its own employees.
- E. The subcontractor's certification (s) and the prime contractor's affidavit must be submitted to the State Comptroller's Office with the prime contractor's final payment request. Failure to obtain and provide the required certifications will delay the contractor's final payment.

NOTE: The term subcontractor applies to both subcontractors of the contractor and subcontractors of a subcontractor.

SP 70-26 PARTICIPATION OPPORTUNITIES FOR NEW YORK STATE CERTIFIED MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISE (M/WBE's). It is the policy of Oneida County to comply with laws, rules and regulations governing the New York State and Empire State Development (ESD) M/WBE Program. Section 85 of the Highway Law, Section 428 of the Transportation Law, and Executive Law Article 15-A comprise the statutory authority for the M/WBE Program for the Department of Transportation. Regulations for the M/WBE Program have been promulgated under 5 NYCRR 140-145.

Bidders shall take all necessary and reasonable steps to achieve the M/WBE contract participation goals set by Oneida County, ESD and NYS. Bidders shall not use the requirements of these specifications to discriminate against any qualified company or group of companies.

I. General Provisions

A. Empire State Development (ESD) is required to implement the provisions of New York State Executive Law Article 15-A and Parts 140-145 of Title 5 of the New York Codes, Rules and Regulations ("NYCRR") for all State contracts, as defined therein, with a value (1) in excess of \$25,000 for labor, services, equipment, materials, or any combination of the foregoing or (2) in excess of \$100,000 for real property renovations and construction.

B. The contractor to the subject contract (the "Contractor" and the "Contract," respectively) agrees, in addition to any other nondiscrimination provision of the Contract and at no additional cost to ESD, to fully comply and cooperate with ESD in the implementation of New York State Executive Law Article 15-A. These requirements include equal employment opportunities for minority group members and women ("EEO") and contracting opportunities for certified minority and women-owned business enterprises ("MWBEs"). The Contractor's demonstration of "good faith efforts" pursuant to 5 NYCRR § 142.8 shall be a part of these requirements. These provisions shall be deemed supplementary to, and not in lieu of, the nondiscrimination provisions required by New York State Executive Law Article 15 (the "Human Rights Law") or other applicable federal, state or local laws.

C. Failure to comply with all of the requirements herein may result in a finding of non responsiveness, non-responsibility and/or a breach of contract, leading to the assessment of liquidated damages pursuant to Section VII of this Appendix and such other remedies are available to ESD pursuant to the Contract and applicable law.

II. Contract Goals

A. For purposes of this procurement, ESD hereby establishes an overall goal of **30% for MWBE participation**, **15% for New York State certified Minority-owned Business Enterprises ("MBE") participation and 15% for New York State certified Women-owned Business Enterprises ("WBE") participation (collectively,**

"MWBE Contract Goals") based on the current availability of qualified MBEs and WBEs. B. For purposes of providing meaningful participation by MWBEs on the Contract and achieving the MWBE Contract Goals established in Section II-A hereof, the Contractor should reference the directory of New York State Certified MWBEs found at the following internet address: <u>https://ny.newnycontracts.com</u>.

Additionally, the Contractor is encouraged to contact the Division of Minority and Women's Business Development at (212) 803-2414 to discuss additional methods of maximizing participation by MWBEs on the Contract.

C. The Contractor understands that only sums paid to MWBEs for the performance of a commercially useful function, as that term is defined in 5 NYCRR § 140.1, may be applied towards the achievement of the applicable MWBE participation goal. The portion of a contract with an MWBE serving as a supplier that shall be deemed to represent the commercially useful function performed by the MWBE shall be 60% of the total value of the contract. The portion of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function performed by the MWBE shall be deemed to represent the commercially useful function performed by the MWBE shall be deemed to represent the performance of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function performed by the MWBE shall be the monetary value for fees, or the markup percentage, charged by the MWBE.

D. The Contractor must document "good faith efforts," pursuant to 5 NYCRR § 142.8, to provide meaningful participation by MWBEs as subcontractors and suppliers in the performance of the Contract. Such documentation shall include, but not necessarily be limited to:

1. Evidence of outreach to MWBEs;

2. Any responses by MWBEs to the Contractor's outreach;

3. Copies of advertisements for participation by MWBEs in appropriate general circulation, trade, and minority or women-oriented publications;

4. The dates of attendance at any pre-bid, pre-award, or other meetings, if any, scheduled by ESD with MWBEs; and,

5. Information describing specific steps undertaken by the Contractor to reasonably structure the Contract scope of work to maximize opportunities for MWBE participation.

III. Equal Employment Opportunity (EEO)

A. The provisions of Article 15-A of the Executive Law and the rules and regulations promulgated thereunder pertaining to equal employment opportunities for minority group members and women shall apply to the Contract.

B. In performing the Contract, the Contractor shall:

1. Ensure that each contractor and subcontractor performing work on the Contract shall undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, EEO shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

2. The Contractor shall submit an EEO policy statement to ESD within seventy two (72) hours after the date of the notice by ESD to award the Contract to the Contractor.

3. If the Contractor, or Subcontractors, does not have an existing EEO policy statement, ESD may provide the Contractor or Subcontractor a model statement (see Form – OCSD-1 – Minority and Women-Owned Business Enterprises Equal Employment Opportunity Policy Statement).

4. The Contractor's EEO policy statement shall include the following language:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status, will undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force.

b. The Contractor shall state in all solicitations or advertisements for employees that, in the performance of the contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

c. The Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.

d. The Contractor will include the provisions of Subdivisions (a) through (c) of this Subsection 4 and Paragraph "E" of this Section III, which provides for relevant provisions of the Human Rights Law, in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each Subcontractor as to work in connection with the Contract.

C. Form OCSD-2 - Staffing Plan

To ensure compliance with this Section, the Contractor shall submit a staffing plan to document the composition of the proposed workforce to be utilized in the performance of the Contract by the specified categories listed, including ethnic background, gender, and Federal occupational categories. The Contractor shall complete the Staffing plan form and submit it as part of their bid or proposal or within a reasonable time, but no later than the time of award of the contract.

D. Form OCSD-3 – Workforce Utilization Report

1. The Contractor shall submit a Workforce Utilization Report, and shall require each of its Subcontractors to submit a Workforce Utilization Report, in excel format only on a monthly basis for construction contracts over \$100,000, or a quarterly basis for commodities and services contracts over \$25,000, during the term of the contract to OCSD@esd.ny.gov, by the 10th day following each end of month or quarter as applicable.

2. Separate forms shall be completed by Contractor and any Subcontractor.

3. Pursuant to Executive Order #162, contractors and subcontractors are also required to report the gross wages paid to each of their employees for the work performed by such employees on the contract on a quarterly basis. Contact OCSD for additional information.

E. The Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. The Contractor and Subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

IV. MWBE Utilization Plan

A. The Contractor represents and warrants that Contractor has submitted an MWBE Utilization Plan, by submitting evidence thereof through the New York State Contract System ("NYSCS"), which can be viewed at https://ny.newnycontracts.com, provided, however, that the Contractor may arrange to provide such evidence via a non-electronic method (Form OCSD-4) to ESD, either prior to, or at the time of, the execution of the contract.

B. The Contractor agrees to use such MWBE Utilization Plan for the performance of MWBEs on the Contract.

C. The Contractor further agrees that a failure to submit and/or use such MWBE Utilization Plan shall constitute a material breach of the terms of the Contract. Upon the occurrence of such a material breach, ESD shall be entitled to any remedy provided herein, including but not limited to, a finding of the Contractor non-responsiveness.

V. Waivers A. If the Contractor, after making good faith efforts, is unable to achieve the MWBE Contract Goals stated herein, the Contractor may submit a request for a waiver through the NYSCS, or a non-electronic method (Form OCSD-5) provided by ESD. Such waiver request must be supported by evidence of the Contractor's good faith efforts to achieve the maximum feasible MWBE participation towards the applicable MWBE Contract Goals. If the documentation included with the waiver request is complete, ESD shall SCHEDULE B evaluate the request and issue a written notice of approval or denial within twenty (20) business days of receipt.

B. If ESD, upon review of the MWBE Utilization Plan, updated Quarterly MWBE Contractor Compliance Reports described in Section VI, or any other relevant information, determines that the Contractor is failing or refusing to comply with the MWBE Contract Goals, and no waiver has been issued in regards to such non compliance, ESD may issue a notice of deficiency to the Contractor. The Contractor must respond to the notice of deficiency within seven (7) business days of receipt. Such response may include a request for partial or total waiver of MWBE Contract Goals.

VI. MWBE Contractor Compliance Report

The Contractor is required to submit a Monthly MWBE Contractor Compliance Report through the NYSCS, provided, however, that Bidder may arrange to provide such evidence via a non electronic method (Form OCSD-6), to ESD by the 10th day following each end of month over the term of the Contract documenting the progress made towards achievement of the MWBE goals of the Contract. VII. Liquidated Damages - MWBE Participation

A. Where ESD determines that the Contractor is not in compliance with the requirements of the Contract and the Contractor refuses to comply with such requirements, or if the Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals, the Contractor shall be obligated to pay to ESD liquidated damages.

B. Such liquidated damages shall be calculated as an amount equaling the difference between:

1. All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and

2. All sums actually paid to MWBEs for work performed or materials supplied under the Contract.

C. In the event a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by ESD, the Contractor shall pay such liquidated damages to ESD within sixty (60) days after they are assessed. Provided, however, that if the Contractor has filed a complaint with the

Director of the Division of Minority and Women's Business Development pursuant to 5 NYCRR § 142.12, liquidated damages shall be payable only in the event of a determination adverse to the Contractor following the complaint process

Required OSCD Forms: <u>https://esd.ny.gov/content/ocsd-forms</u>

SP 90-12 Security for construction warranty. The Contractor shall upon final acceptance of the work, furnish a bond to the Owner in a penal sum equal to five percent (5%) of the amount of the Contract price, executed by a surety company authorized by the Department of Insurance of the State of New York to execute such a bond in this State, and which bond shall be approved as to form and manner of execution by the Owner's attorney. This bond shall be conditioned for the faithful performance by the said Contractor of the conditions and stipulations of the subsection titled ACCEPTANCE AND FINAL PAYMENT of this section, thereof relating to maintenance and repair, for a period of one (1) year from the date of the final acceptance of the work. In default of the filing of such bond, a sum of money equal to said five percent (5%) may be retained out of any monies due to the Contractor and be held for one (1) year, or until the bond above described is filed.

For Contractors who have elected to set up an escrow account, they may elect to maintain the escrow account for a period of one (1) year from the date of final acceptance of the work in lieu of providing a bond for security of guarantee as described above.

SP 90-13 Lien law. If, at any time before or within thirty (30) days after the work of this Contract has been completed and accepted by the Owner, any person or persons claiming to have performed any labor or furnished any material toward the performance or completion of this Contract shall file with the RPR and with the financial officer of the Owner, or other officer or person charged with the custody and disbursement of the Owner's funds applicable to this Contract under which the claim is made, such notice as is prescribed in the Act of Legislature of the State of New York passed February 17, 1909, entitled an "Act in Relation to Liens", and the acts amendatory thereof or supplementary thereto, then and in every such case the party of the first part shall retain (anything herein contained to the contrary thereof notwithstanding) from the monies under its control and due or to grow due under this Agreement, as much of such monies as shall be sufficient to pay, satisfy and discharge the amount in such notice claimed to be due to the person or persons filing such lien, together with the reasonable cost of any actions brought to enforce such claim or the lien creating by the filing of such notice. The monies so retained shall be retained by the party of the first part until the lien thereon created by the said act and filing of said notice shall be discharged pursuant to the provisions of said act or acts.

Equal Employment Opportunity is THE LAW

Private Employers, State and Local Governments, Educational Institutions, Employment Agencies and Labor Organizations

Applicants to and employees of most private employers, state and local governments, educational institutions, Employment agencies, and labor organizations are protected under Federal law from discrimination on the following bases.

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Title VII of the Civil Rights Act of 1964, as amended, protects applicants and employees from discrimination in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment, on the basis of race, color, religion, sex (including pregnancy), or national origin. Religious discrimination includes failing to reasonably accommodate an employee's religious practices where the accommodation does not impose undue hardship.

DISABILITIES

Title I and Title V of the Americans with Disabilities Act of 1990, as amended, protect qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who's is an applicant or employee, barring undue hardship.

AGE

The Age Discrimination in Employment Act of 1967, as amended, protects applicants and employees 40 years of age or older from discrimination based on age in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment.

SEX (WAGES)

In addition to sex discrimination prohibited by Title VII of the Civil Rights Act, as amended, the Equal Pay Act of 1963, as amended, prohibits sex discrimination in payment of wages to women and men performing substantially equal work jobs that require equal skill, effort, and responsibility, under similar working conditions, in the same establishment.

GENETICS

Title II of the Genetic Information Nondiscrimination Act of 2008 protects applicants and employees from discrimination based on genetic information in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. GINA also restricts employers' acquisition of genetic information and strictly limits disclosure of genetic information. Genetic information includes information about genetic tests of applicants, employees, or their family members; the manifestation of diseases or disorders in family members (family medical history); and requests for or receipt of genetic services by applicants, employees, or their family members.

RETALIATION

All of these Federal laws prohibit covered entities from retaliating against a person who files a charge of discrimination, participates in a discrimination proceeding, or otherwise opposes an unlawful employment practice.

WHAT TO DO IF YOU BELIEVE DISCRIMINATION HAS OCCURRED

There are strict time limits for filing charges of employment discrimination. To preserve the ability of EEOC to act on your behalf and to protect your right to file a private lawsuit, should you ultimately need to, you should contact EEOC promptly when discrimination is suspected:

The U.S. Equal Employment Opportunity Commission (EEOC), 1-800-669-4000 (tollfree) or 1-800-669-6820 (toll-free TTY number for individuals with hearing empairments). EEOC field office information is available at <u>www.eeoc.gov</u> or in most telephone directories in the U.S. Government or Federal Government section. Additional information about EEOC, including information about charge filing, is available at <u>www.eeoc.gov</u>.

Employers Holding Federal Contracts or Subcontracts

Applicants to and employees of companies with a Federal government contract or subcontract, are protected under Federal law from discrimination on the following bases.

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Executive Order 11246, as amended, prohibits job discrimination on the basis of race, color, religion, sex or national origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment.

INDIVIDUALS WITH DISABILITIES

Section 503 of the Rehabilitation Act of 1973, as amended, protects qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment, Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified employee, barring undue hardship. Section 503 also requires that Federal contractors take affirmative action to employ and advance in employment qualified individuals with disabilities at all levels of employment, including the executive level.

DISABLED, RECENTLY SEPARATED, OTHER PROTECTED, AND ARMED FORCES SERVICE MEDAL VETERANS

The Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, 38 U.S.C. 4212, prohibits job discrimination and requires affirmative action to employ and advance in employment disabled veterans, recently separated veterans (within

three years of discharge or release from active duty), other protected veterans (veterans who served during a war or in a campaign or expedition for which a campaign badge has been authorized), and Armed Forces service medal veterans (veterans who, while on active duty, participated in a U.S. military operation for which an Armed Forces service medal was awarded).

RETALIATION

Retaliation is prohibited against a person who files a complaint of discrimination, participates in an OFCCP proceeding, or otherwise opposes discrimination under these Federal laws.

Any person who believes a contractor has violated its nondiscrimination or affirmative action obligations under the authorities above should contact immediately:

The Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210, 1-800-397-6251 (toll-free) or (202) 693-1337 (TTY). OFCCP may also be contacted by e-mail at <u>OFCCP-Public@dol.gov</u>, or by calling an OFCCP regional or district office, listed in most telephone directories under U.S. Government, Department of Labor.

Programs or Activities Receiving Federal Financial Assistance

RACE, COLOR, NATIONAL ORIGIN, SEX

In addition to the protections of Title VII of the Civil Rights Act of 1964, as amended, Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination on the basis of race, color or national origin in programs or activities receiving Federal financial assistance. Employment discrimination is covered by Title VI if the primary objective of the financial assistance is provision of employment, or where employment discrimination causes or may cause discrimination in providing services under such programs. Title IX of the Education Amendments of 1972 prohibits employment discrimination on the basis of sex in educational programs or activities which receive Federal financial assistance.

EEOC 9/02 and OFCCP 8/08 Versions Useable with 11/09 Supplement

INDIVIDUALS WITH DISABILITIES

Section 504 of the Rehabilitation Act of 1973, as amended, prohibits employment discrimination on the basis of disability in any program or activity which receives Federal financial assistance. Discrimination is prohibited in all aspects of employment against persons with disabilities who, with or without reasonable accommodation, can perform the essential functions of the job.

If you believe you have been discriminated against in a program of any institution which receives Federal financial assistance, you should immediately contact the Federal agency providing such assistance.

EEOC-P/E-1 (Revised 11/09)

STATE WAGE RATES

SPECIAL NOTE

NEW YORK STATE DEPARTMENT OF LABOR

PREVAILING WAGE RATES

Wage rate amendments and supplements are available on the NYSDOL web site at:

WWW.LABOR.STATE.NY.US

All changes or clarification of labor classifications and applicability of prevailing wage rates shall be obtained in writing from the Office of the Director, NYSDOL Bureau of Public Work.

The NYSDOL prevailing wage rate schedule for this contract has been determined and is available on the internet. The prevailing wage rate schedule is accessed by visiting the NYSDOL web site, navigating to the appropriate web page, and entering the Prevailing Rate Case No. (PRC#). The PRC# is provided on the following page on NYSDOL Form PW-200.

Roberta Reardon, Commissioner

Kathy Hochul, Governor



Oneida County, New York

Christopher Brubach 499 Col Eileen Collins Blvd Syracuse NY 13212

Schedule Year Date Requested 04/09/2025 PRC#

2024 through 2025 2025004301

Location **Griffiss International Airport** Proiect ID# 146.205.005 Project Type TRIANGLE AREA CIVIL SITE DEVELOPMENT

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Rate Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2024 through June 2025. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice. **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _

Date Cancelled:

Name & Title of Representative:

Phone: (518) 457-5589 Fax: (518) 485-1870 W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission: a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion online.

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12226; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.ny.gov.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.ny.gov.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemperaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment. Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed \$100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds \$25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8. Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

Withholding of Payments

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "Public Work Project" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers. compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers. Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12226 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

Discrimination

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of \$50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

Workers' Compensation

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.

Roberta Reardon, Commissioner



Oneida County, New York

Christopher Brubach 499 Col Eileen Collins Blvd Syracuse NY 13212 Schedule Year Date Requested PRC#

2024 through 2025 04/09/2025 2025004301

LocationGriffiss International AirportProject ID#146.205.005Project TypeTRIANGLE AREA CIVIL SITE DEVELOPMENT

Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

Federal Employer Identification Number:					
Name:					
Address:					
City:	State:	Zip:			
Amount of Contract:	\$	Contract Type:			
Approximate Starting Date:	/	 [] (01) General Construction [] (02) Heating/Ventilation 			
Approximate Completion Date:	/	 [] (03) Electrical [] (04) Plumbing [] (05) Other : 			

Contractor Information All information must be supplied

Phone: (518) 457-5589 Fax: (518) 485-1870 W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226

Social Security Numbers on Certified Payrolls:

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to \$1,500 for a first offense and up to \$5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, https://dol.ny.gov/public-work-and-prevailing-wage

If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: <u>dol.misclassified@labor.ny.gov</u>.

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website *www.labor.ny.gov* or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will suffice.

(12.20)

To all State Departments, Agency Heads and Public Benefit Corporations IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor Administrative Finance Bureau-PWEF Unit Building 12, Room 464 State Office Campus Albany, NY 12226

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.



Required Notice under Article 25-B of the Labor Law

Attention All Employees, Contractors and Subcontractors: You are Covered by the Construction Industry Fair Play Act

The law says that you are an employee unless:

- You are free from direction and control in performing your job, and
- You perform work that is not part of the usual work done by the business that hired you, and
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor, you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.

Penalties for paying workers off the books or improperly treating employees as independent contractors:

•	Civil Penalty	First offense: Up to \$2,500 per employee
		Subsequent offense(s): Up to \$5,000 per employee
•	Criminal Penalty	First offense: Misdemeanor - up to 30 days in jail, up to a \$25,000 fine and debarment from performing public work for up to one year.
		Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a \$50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to <u>dol.misclassified@labor.ny.gov</u>. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name: IA 999 (09/16) WE ARE YOUR DOL



New York State Department of Labor Bureau of Public Work

Attention Employees

THIS IS A:

PUBLIC WORK PROJECT

If you are employed on this project as a **worker**, **laborer**, **or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Your pay stub and wage notice received upon hire must clearly state your wage rate and supplement rate.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at: https://dol.ny.gov/bureau-public-work





please call our nearest office.* Albany (518) 457-2744 Pa

Binghamton(607) 721-8005Buffalo(716) 847-7159Garden City(516) 228-3915New York City(212) 932-2419Newburgh(845) 568-5287

Patchogue Rochester Syracuse Utica White Plains

ue (631) 687-4882 er (585) 258-4505 e (315) 428-4056 (315) 793-2314 ains (914) 997-9507

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or <u>www.comptroller.nyc.gov</u> – click on Bureau of Labor Law.

Contractor Name:

Project Location:

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is \$250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training "prior to the performing any work on the project."

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (Note: Completion cards do not have an expiration date.)
- Training roster, attendance record of other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is \$3 million in Bronx, Kings, New York, Queens and, Richmond counties; \$1.5 million in Nassau, Suffolk and Westchester counties; and \$500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirement s on projects, and may issue stopbid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a countyby-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less that six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor Bureau of Public Work State Office Campus, Bldg. 12 Albany, NY 12226

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Oneida County General Construction

Boilermaker

JOB DESCRIPTION Boilermaker

ENTIRE COUNTIES

Cayuga, Clinton, Cortland, Franklin, Jefferson, Lewis, Madison, Oneida, Onondaga, Oswego, Seneca, St. Lawrence, Tompkins **WAGES**

Per hour:	07/01/2024
Boilermaker	\$ 37.98
SUPPLEMENTAL BENEFITS Per hour:	
Journeyworker	\$ 26.62* + 1.48

*This portion of the benefits subject to the same premium rate as shown for overtime wages.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 15, 25) on HOLIDAY PAGE
NOTE: When a holiday falls	on Sunday, the day observed by the 9

NOTE: When a holiday falls on Sunday, the day observed by the State or Nation shall be observed. When Christmas Day and New Year's fall on Saturday, Friday will be observed as the holiday.

REGISTERED APPRENTICES

WAGES per hour: Six (6) month terms at the following percentage of Journeyworker's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
65%	65%	70%	75%	80%	85%	90%	95%
SUPPLEME	NTAL BENEFI	TS per hour:					
\$ 19.78*	\$ 19.78*	\$ 20.76*	\$ 21.73*	\$ 22.71*	\$ 23.69*	\$24.67*	\$ 25.64*
+ 1.48	+ 1.48	+ 1.48	+ 1.48	+ 1.48	+ 1.48	+ 1.48	+ 1.48

*This portion of the benefits subject to the same premium rate as shown for overtime wages.

Carpenter - Building	04/01/2025
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JOB DESCRIPTION Carpenter - Building

ENTIRE COUNTIES

Cayuga, Herkimer, Madison, Oneida, Seneca, Yates

WAGES

Per hour:	07/01/2024	07/01/2025 Additional
Carpenter	\$ 30.85	\$ 1.30*
Floor Coverer	30.85	1.30*
Carpet Layer	30.85	1.30*
Drywall	30.85	1.30*
Diver - Wet Day	61.25	0.00
Diver - Dry Day	31.85	1.30*
Dive Tender	31.85	1.30*

*To be allocated at a later date.

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (per hour worked):

- Pile Drivers/Dock Builders shall receive \$0.25 per hour over the Journeyworker's rate of pay when performing piledriving/dock building work.

- Certified Welders shall receive \$1.00 per hour over the Journeyworker's rate of pay when the employee is required to be certified and performs DOT or ABS specified welding work.

- When an employee performs work within a contaminated area on a State and/or Federally designated hazardous waste site, and where relevant State and/or Federal regulations require employees to be furnished and use or wear required forms of personal protection, then the employee shall receive his regular hourly rate plus \$1.50 per hour.

- Depth pay for Divers based upon deepest depth on the day of the dive (per diem payment):

DISTRICT 7

04/01/2025

7-175

0' to 80' no additional fee

81' to 100' additional \$0.50 per foot

101' to 150' additional \$0.75 per foot

151' and deeper additional \$1.25 per foot

- Penetration pay for Divers based upon deepest penetration on the day of the dive (per diem payment):

0' to 50' no additional fee

51' to 100' additional \$0.75 per foot

101' and deeper additional \$1.00 per foot

- Diver rates applies to all hours worked on dive day.

SHIFT WORK

On Agency/Owner mandated shift work, the following rates will be applicable:

1st Shift - Regular Rate

2nd Shift - Premium of 7% of base wage per hour

3rd Shift - Premium of 14% of base wage per hour

Shift work shall be defined as implementing at least two (2) shifts in a twenty-four (24) consecutive hour period. Shift work must be for a minimum of three (3) consecutive days.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$21.69

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE Overtime: See (5, 6) on HOLIDAY PAGE

NOTE: Any holiday which occurs on Sunday shall be observed the following Monday. If Christmas falls on a Saturday, it shall be observed on the prior Friday.

REGISTERED APPRENTICES

Wages per hour (1300 hour terms at the following percentage of Journeyworker's base wage):

1st	2nd	3rd	4th
65%	70%	75%	80%

Supplemental Benefits per hour:

\$ 12.60 \$ 12.61 \$ 15.21 \$ 15.21

NOTE ADDITIONAL AMOUNTS PAID TO APPRENTICES FOR THE FOLLOWING WORK LISTED BELOW (per hour worked):

Pile Driving/Dock Builder apprentices shall receive an additional \$0.25 per hour worked when performing piledriving/dock building work.
 Certified Welders shall receive \$1.00 per hour over the apprentices rate of pay when the apprentice is required to be certified and performs DOT or ABS specified welding work.

- When an apprentice performs work within a contaminated area on a State and/or Federally designated hazardous waste site, and where relevant State and/or Federal regulations require the apprentice to be furnished and use or wear required forms of personal protection, then the apprentice shall receive his regular hourly rate plus \$1.50 per hour.

6-277B-Cay

04/01/2025

Carpenter - Building / Heavy&Highway

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

PARTIAL COUNTIES

Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

Wages per hour:	07/01/2024
Carpenter - ONLY for Artificial Turf/Synthetic	
Sport Surface	\$ 36.48

Note - Does not include the operation of equipment. Please see Operating Engineers rates.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker

\$ 26.55

OVERTIME PAY See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY Overtime:

Paid:

Notes:

See (5) on HOLIDAY PAGE See (5, 6, 16) on HOLIDAY PAGE

When a holiday falls upon a Saturday, it shall be observed on the preceding Friday. Whan a holiday falls upon a Sunday, it shall be observed on the following Monday.

An employee taking an unexcused day off the regularly scheduled day before or after a paid Holiday shall not receive Holiday pay.

REGISTERED APPRENTICES

Wages per hour (1300 hour terms at the following percentage of Journeyworker's wage):

\$21.79

1st	2nd	3rd	4th
65%	70%	75%	80%
Supplemental	Benefits per h	iour:	

\$21.24

\$19.14

Carpenter - Heavy&Highway

JOB DESCRIPTION Carpenter - Heavy&Highway

ENTIRE COUNTIES

\$18.58

Chenango, Herkimer, Madison, Oneida, Otsego

WAGES	
Per hour	07/01/2024
Carpenter	\$ 42.28
Piledriver	42.28
Diver-Wet Day	67.28
Diver-Dry Day	43.28
Diver-Tender	43.28

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (per hour worked):

- State or Federal designated hazardous site, requiring protective gear shall be an additional \$2.50 per hour.

- Certified welders when required to perform welding work will receive an additional \$2.50 per hour.

ADDITIONAL NOTES PERTAINING TO DIVERS/TENDERS:

- Divers and Tenders shall receive one and one half (1 1/2) times their regular diver and tender rate of pay for Effluent and Slurry diving.

- Divers and tenders being paid at the specified rate for Effluent and Slurry diving shall have all overtime rates based on the specified rate plus the appropriate overtime rates (one and one half or two times the specified rate for Slurry and Effluent divers and tenders).

- The pilot of an ADS or submersible will receive one and one-half (1 1/2) times the Diver-Wet Day Rate for time submerged.
- All crew members aboard a submersible shall receive the Diver-Wet Day rate.

- Depth pay for Divers based upon deepest depth on the day of the dive (per diem payment):

- 0' to 50' no additional fee
- 51'to 100' additional \$.50 per foot

101'to 150' additional \$0.75 per foot

151'and deeper additional \$1.25 per foot

- Penetration pay for Divers based upon deepest penetration on the day of the dive (per diem payment):

- 0' to 50' no additional fee
- 51' to 100' additional \$.75 per foot

101' and deeper additional \$1.00 per foot

- Diver rates applies to all hours worked on dive day.

SHIFT WORK

When project owner mandates a single irregular work shift, the Journeyworkers and Apprentices will receive an additional \$3.00 per hour. A single irregular work shift can start any time from 5:00 p.m. to 1:00 a.m.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker

\$ 26.55

2-42AtSS 04/01/2025

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY	
Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE
- In the event a Holiday falls	s on a Saturday, the Friday before will be observed as a Holiday. If a Holiday falls on a Sunday, then Monday will
be observed as a Holiday.	
- The employee must work	their scheduled workday before and their scheduled workday after the holiday to receive holiday pay.

i në employee must work their scheduled workday before and their scheduled workday after the holiday to receive holiday pay.

REGISTERED APPRENTICES

CAPRENTER APPRENTICES

Wages per hour (1040 hour terms at the following percentage of journeyworker's base wage):

1st	2nd	3rd	4th	5th	-
65%	70%	75%	80%	85%	
Supplemental	Benefits per l	nour:			
\$ 18.58	\$ 19.14	\$ 21.19	\$ 21.74	\$ 22.29	

PILEDRIVER/DOCKBUILDER APPRENTICES

Wages per hour (1300 hour terms at the following percentage of journeyworker's base wage):

1st	2nd	3rd	4th
65%	70%	75%	80%
Supplemental	Benefits per h	nour:	
\$ 18.58	\$ 19.14	\$ 21.19	\$ 21.74

NOTE ADDITIONAL AMOUNTS PAID PER HOUR WORKED TO APPRENTICES FOR SPECIFIC TYPES OF WORK PERFORMED:

- State or Federal designated hazardous site, requiring protective gear shall be an additional \$2.50 per hour.

- Certified welders when required to perform welding work will receive an additional \$2.50 per hour.

2-277HH-CHMOO

DISTRICT 6

Electrician	04/01/2025

JOB DESCRIPTION Electrician

ENTIRE COUNTIES

Cortland, Herkimer, Madison, Oneida, Oswego

PARTIAL COUNTIES

Cayuga: Townships of Ira, Locke, Sempronius, Sterling, Summerhill and Victory.

Chenango: Only the Townships of Columbus, New Berlin and Sherburne.

Onondaga: Entire County except Townships of Elbridge and Skaneateles.

Otsego: Only the Townships of Plainfield, Richfield, Springfield, Cherry Valley, Roseboom, Middlefield, Otsego, Exeter, Edmeston, Burlington, Pittsfield and New Lisbon.

Tompkins: Only the Township of Groton.

Wayne: Only the Townships of Huron, Wolcott, Rose and Butler.

WAGES 07/01/2024 06/01/2026 Per hour: 06/01/2025 Additional Additional Electrician \$47.00 \$ 5.00* \$ 5.25* Teledata 47.00 Cable Splicer 51.70

* To be allocated at a later date.

NOTE: Additional premiums for the following work listed (Amounts subject to premiums):

- Additional \$2.50 per hour for work performed over 35 feet above the ground, floor, or roof levels or where work is required in tunnels, shafts, or under compressed air 35 feet below the ground level.

- Additional \$3.00 per hour for working over 50 feet above or below ground, floor, or roof level. This includes work on ladders, "toothpicks", scaffolds, boatswain chairs, towers, smokestacks or other open structures, or mechanical lifts used over 60 feet.

Occupied Conditions: When necessary to perform alteration and/or renovation work and owner mandates (due to occupied conditions) prevent the work from being performed during "normal" working hours (defined as between 6:00 a.m. and 4:30 p.m. Monday through Friday), alternate hours may be worked, provided: 1) The hours are established for a minimum of five (5) days duration or the length of the job, whichever is shorter; and 2) An entire work scope within a job-site area is performed utilizing the varied hours. If these conditions are satisfied, all hours worked Monday through Friday of a shift that starts before or ends after the "normal" hours, shall be paid at the appropriate rate plus fifteen percent (15%). However, the following restrictions shall apply:

1) "Alternate" hours shall consist of a minimum of eight (8) consecutive hours per day.

2) Hours worked in excess of eight (8) hours per day, Monday through Friday, shall be paid at a rate of one and one-half times the applicable rate (day-shift + 15%).

3) Hours worked on Saturday shall be paid at time and one-half the applicable rate.

4) Hours worked on Sundays and Holidays shall be paid at double the straight time rate.

5) Work of a new construction nature may not be worked under these conditions.

SHIFT WORK

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF EIGHT (8) HOURS FOR AT LEAST FIVE (5) DAYS DURATION WHICH MAY HAVE BEEN WORKED. WHEN TWO (2) SHIFTS OR THREE (3) SHIFTS ARE WORKED:

SUPPLEMENTAL BENEFITS

Per hour:

i el nean	
	\$ 31.92 plus
Journeyworker	3% of hourly
	wage paid*

*NOTE: The 3% is based on the hourly wage paid, straight time or premium rate.

OVERTIME PAY

See (B, *E, Q) on OVERTIME PAGE

* NOTE: On Saturday the first 8 hours worked shall be paid at a rate of one and one-half times the applicable rate. All additional hours are payable at double the straight time rate.

WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 15, 26) on HOLIDAY PAGE

NOTE: If any of the above holidays fall on Saturday, Friday shall be observed as the holiday. If any of the above holidays fall on Sunday, Monday shall be observed as the holiday.

REGISTERED APPRENTICES

WAGES per hour: Hourly terms at the following percentage of Journeyworker's wage.

1st period 40% (0-1000 hrs.)	\$ 18.80
2nd period 45% (1001-2000)	21.15
3rd period 50% (2001-3500)	23.50
4th period 60% (3501-5000)	28.20
5th period 70% (5001-6500)	32.90
6th Period 80% (6501-8000)	37.60

SUPPLEMENTAL BENEFITS per hour:

1st period	\$ 14.34*
2nd period	14.34*
3rd period	28.92*
4th period	29.52*
5th period	30.12*
6th period	30.72*

* PLUS 3% OF HOURLY WAGE PAID, STRAIGHT TIME RATE OR PREMIUM RATE.

• • •

JOB DESCRIPTION Elevator Constructor

DISTRICT 6

ENTIRE COUNTIES

Elevator Constructor

Broome, Cayuga, Chenango, Cortland, Franklin, Jefferson, Lewis, Onondaga, Oswego, St. Lawrence, Tioga, Tompkins

PARTIAL COUNTIES Delaware: Only the towns of: Tompkins, Walton, Masonville, Sidney, Franklin and Deposit. Madison: Only the towns of: Cazenovia DeRuvter Faton Fenner Georgetown Lebanon 1

Madison: Only the towns of: Cazenovia, DeRuyter, Eaton, Fenner, Georgetown, Lebanon, Lenox, Nelson and Sullivan. Oneida: Only the towns of: Camden, Florence and Vienna.

WAGES Per hour:	07/01/2024	01/01/2025	01/01/2026
Elevator Constructor	\$ 56.01	\$ 58.455	\$ 61.003
Helper	39.21	40.92	42.70

SUPPLEMENTAL BENEFITS

04/01/2025

6-43

\$ 38.985*

DISTRICT 1

Per hour:

Journeyworker

*NOTE - add 6% of regular hourly rate for all hours worked. Add 8% of regular hourly rate if more than 5 years of service.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid:See (5, 6, 15, 16) on HOLIDAY PAGEOvertime:See (5, 6, 15, 16) on HOLIDAY PAGE

NOTE: When a holiday falls on a Saturday, it shall be observed on Friday. When a holiday falls on Sunday, it shall be observed on Monday.

\$ 38.435*

REGISTERED APPRENTICES

WAGES per hour: 1 year terms at the following percentage of the Elevator Constructor wage.

\$ 37.885*

0-6	6-12	2nd	3rd	4th
months	months	year	year	year
50%	55%	65%	70%	80%

SUPPLEMENTAL BENEFITS per hour:

0-6 months: 6% of the hourly apprentice rate paid, no additional supplemental benefits.

All other terms: Same as Journeyworker

6-62.1

04/01/2025

JOB DESCRIPTION Elevator Constructor

ENTIRE COUNTIES

Elevator Constructor

Albany, Clinton, Essex, Fulton, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

PARTIAL COUNTIES

Madison: Madison Only the towns of: Brookfield, Hamilton, Lincoln, Madison, Smithfield, Stockbridge and the City of Oneida Oneida: Entire county except the towns of: Camden, Florence, and Vienna.

WAGES

Per hour		
	07/01/2024	01/01/2025
Mechanic	\$ 55.32	\$ 57.73
Helper	70% of Mechanic Wage Rate	70% of Mechanic Wage Rate
SUPPLEMENTA	L BENEFITS	
Per hour		
	07/01/2024	01/01/2025
Journeyworker/Hel	per	
	\$ 37.885*	\$ 38.435*

(*)Plus 6% of hourly rate, if less than 5 years of service. Plus 8% of hourly rate, if more than 5 years of service.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

 Paid:
 See (5, 6, 15, 16) on HOLIDAY PAGE

 Overtime:
 See (5, 6, 15, 16) on HOLIDAY PAGE

 Note:
 When a paid holiday falls on Saturday, it shall be observed on Friday. When a paid holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

wages per nour:				
0 - 6 mo*	6 -1 2 mo	2nd yr	3rd yr	4th yr
50%	55 %	65 %	70 %	80 %

(*)Plus 6% of the hourly rate, no additional supplemental benefits.

Supplemental Benefits - per hour worked:

Same as Journeyperson/Helper

Glazier

JOB DESCRIPTION Glazier

ENTIRE COUNTIES

Cayuga, Cortland, Herkimer, Madison, Oneida, Onondaga, Oswego

WAGES	
Per Hour:	07/01/2024

Glazier \$28.00

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman

OVERTIME PAY

See (B,E,E2*,Q) on OVERTIME PAGE. *Note - Or circumstances beyond the control of the employer.

\$ 26.69

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

1000 hour terms:

Appr. 1st term	\$18.00
Appr. 2nd term	19.00
Appr. 3rd term	20.00
Appr. 4th term	21.00
Appr. 5th term	22.00
Appr. 6th term	23.00
Appr. 7th term	24.00
Appr. 8th term	25.00

Supplemental Benefits per hour:

Appr. 1st term	\$ 12.87
Appr. 2nd term	12.87
Appr. 3rd term	18.87
Appr. 4th term	18.87
Appr. 5th term	19.87
Appr. 6th term	19.87
Appr. 7th term	20.87
Appr. 8th term	20.87

Insulator - Heat & Frost

JOB DESCRIPTION Insulator - Heat & Frost

ENTIRE COUNTIES

Broome, Cayuga, Chemung, Chenango, Cortland, Herkimer, Jefferson, Lewis, Madison, Oneida, Onondaga, Oswego, Otsego, Schuyler, Seneca, St. Lawrence, Tioga, Tompkins

WAGES	
Per hour:	07/01/2024
Asbestos Installer	\$ 41.50
Insulation Installer	41.50
(On mechanical systems only)	

SHIFT WORK

The following rates will apply on all contracting agency-mandated shifts worked:

1st Shift	\$ 41.50
2nd Shift	47.72

04/01/2025

1-35

DISTRICT 5

5-677.Z-2

04/01/2025

3rd Shift	49	9.80		
SUPPLEMENTAL BI Per hour:	ENEFITS			
Journeyworker	\$ 25	5.09		
OVERTIME PAY See (*B1, **K, P) on O' *NOTE: First 10 hours **NOTE: Holidays that	/ERTIME PAGE on Saturday. fall on Sunday are subjec	t to double time.		
HOLIDAY Paid: Overtime:	See (1) on HOLIDAN See (2*,4,6,28) on H *Triple time for Labo	′ PAGE IOLIDAY PAGE r Day if worked.		
REGISTERED APPR WAGES per hour: One	RENTICES (1) year terms at the follo	wing percentage of Journey	worker's wage.	
1st 60% \$ 24.90	2nd 70% \$ 29.05	3rd 80% \$ 33.20	4th 90% \$ 37.35	
SUPPLEMENTAL BEN	IEFITS per hour:			
\$ 22.59	\$ 22.59	\$ 25.09	\$ 25.09	7-30-Syracuse
Ironworker				04/01/2025

JOB DESCRIPTION Ironworker

DISTRICT 7

ENTIRE COUNTIES Franklin, Herkimer, Lewis, Oneida, St. Lawrence

PARTIAL COUNTIES

Chenango: Only the Townships of Columbus, New Berlin, North Norwich, Plymouth, Sherburne and Smyrna. Fulton: Only the Townships of Caroga, Ephratah, Oppenheim, and Stratford. Hamilton: Only the Townships of Arietta, Indian Lake, Inlet, Lake Pleasant, Long Lake and Morehouse.

Jefferson: Only the Townships of Antwerp, Champion, Philadelphia and Wila. Madison: Only the Townships of Brockfield, Eaton, Hamilton, Lebanon, Madison, Oneida and Stockbridge. Montgomery: Only the Townships of Canajoharie, Minden, Palatine and St. Johnsville. Otsego: Only the Townships of Burlington, Cherry Valley, Decatur, Edmeston, Exeter, Hartwick, Middlefield, New Lisbon, Otsego, Pittsfield, Plainfield, Richfield, Roseboom, Springfield and Westford, and the Village of Cooperstown.

WAGES

Per hour:	07/01/2024	07/01/2025	07/01/2026
		Additional	Additional
Structural/Reinforcing	\$ 33.50	\$ 2.63*	\$ 2.74*
Mach. Mover/Ornamental	33.50	2.63*	2.74*
Stone Derrickman	33.50	2.63*	2.74*
Chain Link Fence	33.50	2.63*	2.74*
Sheeter Ironworker	33.50	2.63*	2.74*
Pre-Engineered Building	33.50	2.63*	2.74*
Window Erector	33.50	2.63*	2.74*
Precast Erector	33.50	2.63*	2.74*
Welder	33.50	2.63*	2.74*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker	\$ 32.28
Journeyworker	\$ 32

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

See (1) on HOLIDAY PAGE Paid: Overtime:

See (5, 6) on HOLIDAY PAGE

NOTE: Any holiday which occurs on Sunday shall be observed the following Monday. Any holiday which occurs on Saturday shall be observed the previous Friday.

REGISTERED APPRENTICES

WAGES per hour: 1500 hour terms at the following wage.
1-1500brs	\$ 21 50
1501_3000brs	¢ 21.00 23.50
3001-4500brs	25.50
4501 6000bro	23.50
4501-0000115	27.50

SUPPLEMENTAL BENEFITS per hour:

1-1500hrs	\$ 13.69
1501-3000hrs	22.06
3001-4500hrs	23.26
4501-6000hrs	24.45

Laborer - Building

JOB DESCRIPTION Laborer - Building

ENTIRE COUNTIES

Hamilton, Herkimer, Madison, Oneida

PARTIAL COUNTIES

Fulton: Only the Townships of Stratford, Oppenheim, Caroga and Ephratah Montgomery: Only the Townships of Minden, St. Johnsville, Canajoharie, Palatine and Root

WAGES

GROUP #1: Basic

GROUP #2: Pipe Layer, Mortar Mixer, Walk behind Mortar Buggie and Power Lift

GROUP #3: Wagon Drill(Where separate air compressor unit supplies power.)

GROUP #4: Blaster, Formsetter, Riding Mortar Buggy

GROUP #5: Hazardous Waste Removal

GROUP #6: Asbestos and Lead Removal

WAGES per hour:	07/01/2024
Building Laborer:	
Group # 1	\$ 32.64
Group # 2	32.79
Group # 3	33.04
Group # 4	33.14
Group # 5	34.14
Group # 6	34.14

SUPPLEMENTAL BENEFITS

Per hour: All groups

07/01/2024 \$ 27.30

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid [.]	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour1000 Hour terms at the following percentage of Journeyperson's basic hourly wage.1st2nd65 %70 %80 %

Supplemental Benefits per hour worked

07/01/2024 Apprentices \$ 27.30

Laborer - Heavy&Highway

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 1

1-190z2B

7-440

04/01/2025

DISTRICT 1

04/01/2025

PARTIAL COUNTIES

Fulton: Only Townships of Stratford, Oppenheim, Caroga and Ephratah Montgomery: Only Townships of Minden, St. Johnsville, Canajoharie, Palatine and Root.

WAGES

GROUP # A: Basic, Drill Helper, Flagman, Outboard and Hand Boats.

GROUP # B: Bull Float, Chain Saw, Concrete Aggregate Bin, Concrete Bootmen, Gin Buggy, Hand or Machine Vibrator, Jack Hammer, Mason Tender, Mortar Mixer, Pavement Breaker, Handlers of all SteelMash, Small Generators for Laborers Tools, Installation of Bridge Drainage Pipe, Pipe Layers, Vibrator Type Rollers, Tamper, Drill Doctor, Tail or Screw Operator on Asphalt Paver, Water Pump Operators(1-1/2" and Single Diaphragm), Nozzle (Asphalt, Gunite, Seeding, and Sand Blasting), Laborers on Chain Link Fence Erection, Rock Splitter and Power Unit, Pusher Type Concrete Saw and all other Gas, Electric, Oil and Air Tool Operators, Wrecking Laborer.

GROUP # C: Rock or Drilling Machine Operators (only where a separate air compressor unit supplies power), Acetylene Torch Operators, Asphalt Raker and Powderman.

GROUP # D: Blasters, Form Setters (prefab curb radius), Stone or Granite Curb Setters.

GROUP # E: Employees performing hazardous waste removal, lead abatement and removal, or asbestos abatement and removal on a State and/or Federally designated waste site & where relevant State or Federal regulations require employees to use or wear forms of personal protection.

Per hour:	07/01/2024
Heavy/Highway Laborer:	
GROUP # A	\$ 40.65
GROUP # B	40.85
GROUP # C	41.05
GROUP # D	41.25
GROUP # E	43.15

SHIFT WORK

All employees who work a single irregular workday that starts from 5:00 pm to 1:00 am on a governmental mandated night shift shall be paid an additional \$5.00 per hour.

SUPPLEMENTAL BENEFITS

Per hour:

\$28.69

OVERTIME PAY See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: Overtime: See (5, 6) on HOLIDAY PAGE See (5, 6) on HOLIDAY PAGE

Note: If the holiday falls on Sunday, it will be celebrated on Monday. If the Monday Holiday is worked it will be paid at double time plus the Holiday pay. If the Holiday falls on a Saturday employer can choose to celebrate Saturday or give Friday off with pay. If the Saturday Holiday is worked it will be paid at double time plus the Holiday pay

REGISTERED APPRENTICES

Wages per hour

1000 hour terms at the following percentage of Journeyman's wage 4th 1st 2nd 3rd 65% 70% 80% 80%

SUPPLEMENTAL BENEFITS per hour worked

Apprentice	s
------------	---

\$28.69

Laborer - Tunnel

1-190z2H/H

04/01/2025

JOB DESCRIPTION Laborer - Tunnel

ENTIRE COUNTIES

Albany, Fulton, Hamilton, Herkimer, Madison, Montgomery, Oneida, Rensselaer, Saratoga, Schenectady, Schoharie, Washington WAGES

Class 1: All support laborers/sandhogs working above the shaft or tunnel

Class 2: All laborers/sandhogs working in the shaft or tunnel

Class 5: Site work related to Shaft/Tunnel

Per Hour

	07/01/2024
Class 1	\$ 47.20
Class 2	49.20
Class 4	51.45
Class 5	43.45

Toxic and hazardous waste, lead abatement and asbestos abatement work will be paid an additional \$ 3.00 an hour.

SUPPLEMENTAL BENEFITS

Per hour

Journeyworker \$29.15

OVERTIME PAY See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY

 Paid:
 See (5, 6, 15, 25) on HOLIDAY PAGE

 Overtime:
 See (5, 6, 15, 16, 25) on HOLIDAY PAGE

Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

REGISTERED APPRENTICES

FOR APPRENTICE RATES, refer to the appropriate Laborer Heavy & Highway wage rate contained in the wage schedule for the County and Location where the work is to be performed.

1-190/157T

04/01/2025

Lineman Electrician

JOB DESCRIPTION Lineman Electrician

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES

A Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors, assembly of all electrical materials, conduit, pipe, or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

Crane Operators: Operation of any type of crane on line projects.

Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on line projects. Digging Machine Operator: All other digging equipment and augering on line projects.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines. Also includes digging of holes for poles, anchors, footer, and foundations for electrical equipment.

Below rates applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work and the installation of fiber optic cable where no other construction trades are or have been involved. Includes access matting for line work.

Per hour:	07/01/2024
Group A:	
Lineman, Technician	\$ 58.90

Crane, Crawler Backhoe

58.90

Welder, Cable Splicer	58.90
Group B: Digging Mach. Operator Tractor Trailer Driver Groundman, Truck Driver Equipment Mechanic Flagman	53.01 50.07 47.12 47.12 35.34

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all electrical sub-stations, switching structures, fiber optic cable and all other work not defined as "Utility outside electrical work." Includes access matting for line work.

Group A:	
Lineman, Technician	\$ 58.90
Crane, Crawler Backhoe	58.90
Cable Splicer	64.79
Certified Welder,	
Pipe Type Cable	61.85
Group B:	
Digging Mach. Operator	53.01
Tractor Trailer Driver	50.07
Groundman, Truck Driver	47.12
Equipment Mechanic	47.12
Flagman	35.34

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all switching structures, maintenance projects, railroad catenary install/maintenance third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. Includes access matting for line work.

Group A:	
Lineman, Tech, Welder	\$ 60.22
Crane, Crawler Backhoe	60.22
Cable Splicer	66.24
Certified Welder,	
Pipe Type Cable	63.23
Group B:	
Digging Mach. Operator	54.20
Tractor Trailer Driver	51.19
Groundman, Truck Driver	48.18
Equipment Mechanic	48.18
Flagman	36.13

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all overhead and underground transmission line work & fiber optic cable where other construction trades are or have been involved. This applies to transmission line work only, not other construction. Includes access matting for line work.

Group A: Lineman, Tech, Welder Crane, Crawler Backhoe	\$ 61.41 61.41
Group B: Digging Mach, Operator	55 27
Tractor Trailer Driver	52.20
Groundman, Truck Driver	49.13
Equipment Mechanic	49.13
Flagman	36.85

Additional \$1.00 per hour for entire crew when a helicopter is used.

SHIFT WORK

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM to 4:30 PM	REGULAR RATE
2ND SHIFT	4:30 PM to 1:00 AM	REGULAR RATE PLUS 17.3 %
3RD SHIFT	12:30 AM to 9:00 AM	1 REGULAR RATE PLUS 31.4 %

3RD SUPPLEMENTAL BENEFITS Per hour:

	07/01/2024
Group A	\$ 30.90 *plus 7% of the hourly wage paid
Group B	\$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE. NOTE: Double time for all emergency work designated by the Dept. of Jurisdiction. WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.
Overtime	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2024 \$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

Lineman Electrician - Teledata

DISTRICT 6

6-1249a

04/01/2025

JOB DESCRIPTION Lineman Electrician - Teledata

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour:

For outside work, stopping at first point of attachment (demarcation).

	07/01/2024	01/01/2025
Cable Splicer	\$ 39.24	\$ 40.81
Installer, Repairman	\$ 37.24	\$ 38.73
Teledata Lineman	\$ 37.24	\$ 38.73
Tech., Equip. Operator	\$ 37.24	\$ 38.73
Groundman	\$ 19.74	\$ 20.53

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

SHIFT WORK

THE FOLLOWING RATES APPLY WHEN THE CONTRACTING AGENCY MANDATES MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION ARE WORKED. WHEN TWO (2) OR THREE (3) SHIFTS ARE WORKED THE FOLLOWING RATES APPLY:

1ST SHIFT 2ND SHIFT 3RD SHIFT	REGULAR RATE REGULAR RATE PLUS 10% REGULAR RATE PLUS 15%	
SUPPLEMENTAL BENEFITS Per hour:	07/01/2024	01/01/2025
Journeyworker	\$ 5.70 *plus 3% of the hour wage paid	\$ 5.70 *plus 3% of the hour wage paid

*The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 16) on HOLIDAY PAGE

6-1249LT - Teledata

DISTRICT 6

04/01/2025

Lineman Electrician - Traffic Signal, Lighting

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Warren, Washington, Wayne, Wyoming, Yates

WAGES

Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

Crane Operators: Operation of any type of crane on Traffic Signal/Lighting projects.

Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on Traffic Signal/Lighting projects. Digging Machine Operator: All other digging equipment and augering on Traffic Signal/Lighting projects.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.

Per hour:	07/01/2024
Group A:	
Lineman, Technician	\$ 50.54
Crane, Crawler Backhoe	50.54
Certified Welder	53.07
Group B:	
Digging Machine	45.49
Tractor Trailer Driver	42.96
Groundman, Truck Driver	40.43
Equipment Mechanic	40.43

Flagman

30.32

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

SHIFT WORK

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM	REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM	REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM	REGULAR RATE PLUS 31.4%

SUPPLEMENTAL BENEFITS

Per hour worked:

	07/01/2024
Group A	\$ 30.90 *plus 7% of the hourly wage paid
Group B	\$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE. NOTE: Double time for all emergency work designated by the Dept. of Jurisdiction.

WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2024

\$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249a-LT

04/01/2025

Lineman Electrician - Tree Trimmer

DISTRICT 6

JOB DESCRIPTION Lineman Electrician - Tree Trimmer

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates Applies to line clearance, tree work and right-of-way preparation on all new or existing energized overhead or underground electrical, telephone and CATV lines. This also includes stump removal near underground energized electrical lines including telephone and CATV lines.

Per hour:	07/01/2024
Tree Trimmer	\$ 31.44
Equipment Operator	27.80
Equipment Mechanic	27.80
Truck Driver	23.15
Groundman	19.07
Flag person	15.00*

*NOTE-Rate effective on 01/01/2025 - \$15.50 due to minimum wage increase.

SUPPLEMENTAL BENEFITS

Per hour:

	07/01/2024
Journeyworker	\$ 10.48 *plus 4.5% of the hourly wage paid

* The 4.5% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid:

See (5, 6, 8, 15) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE

NOTE: All paid holidays falling on a Saturday shall be observed on the preceding Friday. All paid holidays falling on a Sunday shall be observed on the following Monday. 6-1249TT

Mason - Building

JOB DESCRIPTION Mason - Building

ENTIRE COUNTIES

Herkimer, Jefferson, Lewis, Oneida, St. Lawrence

PARTIAL COUNTIES

Madison: Entire County except the Townships of Sullivan & Cazenovia

WAGES	
Per hour	

07/01/2024

Tile/Marble/Terrazzo	
Setter	\$ 35.85
Finisher	28.52

SUPPLEMENTAL BENEFITS

Per	hour	worked
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Journeyman Setters	\$ 20.01
Journeyman Finishers	19.30

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY	
Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour

Hour terms at the following percentage of journeyman's wage

DISTRICT 12

04/01/2025

Setter:

Jellei.	
1st term 500 hours	60%
2nd term 1000 hours	70%
3rd term 1000 hours	80%
4th term 1000 hours	85%
5th term 1000 hours	90%
6th term 1500 hours	95%
Finsher;	
1st term 500 HOURS	70%
2ND term 1000 HOURS	80%
3RD term 1000 HOURS	90%
4TH term 1200 HOURS	95%

Supplemental Benefits per hour worked

Setter: 1st & 2nd Term 3rd & 4th Term 5th Term 6th Term	\$ 12.41 16.21 18.11 20.01
Finishers: 1st & 2nd Term All others	\$ 11.76 15.53

Mason - Building

JOB DESCRIPTION Mason - Building

ENTIRE COUNTIES Herkimer, Oneida

PARTIAL COUNTIES

Lewis: The townships of Lewis, Leyden, Osceola, Turin and West Turin Madison: Entire County except the Townships of Sullivan and Cazenovia

WAGES

Per hour	07/01/2024		
Bricklayer/Blocker	\$ 39.24		
Cement Mason(Bldg)	39.24		
Plasterer/Fireproofing*	39.24		
Stone Mason	39.24		
Concrete Cutter	39.24		
Pointer/Caulker/Cleaner	39.24		

Additional \$.25 per hr. for work in restricted radiation area of atomic plant. Additional \$5.00 per day more for employees working on a two-point suspension scaffold (Pointer, Caulker, and Cleaner are excluded).

(*)Fireproofer on Structural only.

SUPPLEMENTAL BENEFITS

Per hour worked

Journeyman	\$ 21.63
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OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (̀5́, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour

750 hour terms at the following percentage of Journey's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
60%	60%	65%	70%	75%	80%	85%	90%

12-2TS.2

04/01/2025

Supplemental Benefits per hour worked:

Mason - Heavy&Highway

DISTRICT 12

JOB DESCRIPTION Mason - Heavy&Highway

ENTIRE COUNTIES Albany, Cayuga, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Madison, Montgomery, Oneida, Oswego, Rensselaer, Saratoga, Schenectady, Schoharie, St. Lawrence, Warren, Washington

PARTIAL COUNTIES

Onondaga: For Heavy & Highway Cement Mason or Plaster Work in Onondaga County, refer to Mason-Heavy&Highway tag 12-2h/h on. WAGES

Per hour

	07/01/2024
Mason &	
Bricklaver	\$ 42.26

Additional \$1.00 per hour for work on any swing scaffold or staging suspended by means of ropes or cables.

SUPPLEMENTAL BENEFITS

Per hour worked

Journeyman

\$22.43

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY See (1) on HOLIDAY PAGE Paid: Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour

750 HR TERMS at the following percent of Journeyman's wage

1st 2nd 3rd 4th 5th 6th 7th 8th 60% 60% 65% 70% 75% 80% 85% 90%	1st	2nd	3rd	4th	5th	6th	7th	8th
	60%	60%	65%	70%	75%	80%	85%	90%

Supplemental Benefits per hour worked

0 to 500 Hours	\$ 13.68
All Other	22.43

12-2hh.1

04/01/2025

Millwright

JOB DESCRIPTION Millwright

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES

THE FOLLOWING RATE APPLIES TO ANY GAS/STEAM TURBINE AND OR RELATED COMPONENT WORK, INCLUDING NEW INSTALLATIONS OR MAINTENANCE AND ANY/ALL WORK PERFORMED WITHIN THE PROPERTY LIMITS OF A NUCLEAR FACILITY.

Per hour:	07/01/2024	07/01/2025
		Additional
Millwright - Power Generation	\$ 45.00	\$2.50*
* To be allocated at a later date.		

NOTE: ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums): - Certified Welders shall receive an additional \$1.75 per hour provided they are directed to perform Certified Welding.

- If a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) is required, then that employee shall receive an additional \$1.50 per hour.

- An employee performing the work of a machinist shall receive an additional \$2.00 per hour. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.

- When performing work underground at 500 feet and below, the employee shall receive an additional \$1.00 per hour.

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyworker

\$ 27.95*

*NOTE: Subject to OT premium

OVERTIME PAY

See (B, E, E2, Q, V) on OVERTIME PAGE

HOLIDAY

See (1) on HOLIDAY PAGE Paid: Overtime:

See (5, 6) on HOLIDAY PAGE

NOTE: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on Saturday shall be observed the preceding Friday.

REGISTERED APPRENTICES

WAGES per hour: One year terms at the following percentage of Journeyworker's wage:

Appr. 1st year	65 %*
Appr. 2nd year	75 %*
Appr. 3rd year	80 %*
Appr. 4th year	90 %*

*NOTE: Additional premium for the following work listed below:

\$ 1.75
1.50
2.00
1.00

SUPPLEMENTAL BENEFITS per hour:

Appr. 1st year	\$ 11.89
Appr. 2nd year	23.14
Appr. 3rd year	24.74
Appr. 4th year	26.35

6-1163Power

04/01/2025

Millwright

MACES

JOB DESCRIPTION Millwright

ENTIRE COUNTIES

Clinton, Essex, Franklin, Hamilton, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence, Warren, Washington

WAGLU		
Per hour:	07/01/2024	07/01/2025
		Additional
Building	\$ 36.32	\$ 3.00*
Heavy & Highway	39.82	3.00*
*To be allocated at a later date		

l o be allocated at a later date

NOTE ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums): - Certified Welders shall receive \$1.75 per hour in addition to the current Millwrights rate provided he/she is directed to perform certified welding.

- For Building work if a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive a \$1.50 premium per hour for Building work. - For Heavy & Highway work if the work is performed at a State or Federally designated hazardous waste site where employees are required to wear protective gear, the employees performing the work shall receive an additional \$2.00 per hour over the millwright heavy and highway wage rate for all hours worked on the day protective gear was worn.

- An employee performing the work of a machinist shall receive \$2.00 per hour in addition to the current Millwrights rate. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.

- When performing work underground at 500 feet and below, the employee shall receive an additional \$1.00.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker

OVERTIME PAY See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE Overtime: See (5, 6) on HOLIDAY PAGE Note: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on Saturday shall be observed the preceding Friday.

REGISTERED APPRENTICES

Wages per hour:

(1)year terms at the following percentage of Journeyworker's rate.

1st	2nd	3rd	4th
65%	75%	80%	90%

\$ 26.59

Supplemental Benefits per hour:

Apprentices:

1st term	\$ 11.89
2nd term	22.19
3rd term	23.65
4th term	25.13

Operating Engineer - Building

JOB DESCRIPTION Operating Engineer - Building

ENTIRE COUNTIES

Cayuga, Cortland, Jefferson, Lewis, Madison, Oneida, Onondaga, Oswego, Seneca, St. Lawrence, Tompkins

WAGES

NOTE:

----If a prime contract is let for site work only, meaning no buildings are involved in their site contract, the Heavy/Highway rates would be applicable. When a prime contract is let for site work and building excavation is part of that contract, the Building rates would be applicable for the Operators classification.

---In the event that equipment listed below is operated by robotic control, the classification covering the operation will be the same as if manually operated.

---If a second employee is required by the employer for operation of any covered machine, they shall be an Engineer Class C.

CLASS A1*: All Cranes (A1 Includes Boom Trucks over 5 tons, Cableway, Cherry Picker, Derrick, Dragline, Dredge, Overhead Crane, Pile Driver, Tower Crane**, Truck Crane, Whirlies).

CLASS A: Air Plako, Asphalt & Blacktop Roller, Automated Concrete Spreader (CMI or equivalent), Automated Fine Grade Machine (CMI), Backhoe, Barrel Shredder, Belt Placer, Blacktop Spreader (such as Barber-Greene & Blaw Knox), Blacktop Plant (automated), Blast or Rotary Drill (Truck or Cat mounted), Boom Trucks 5 ton and under, Burning Plant Operator, Caisson Auger, Central Mix Plant (automated), Concrete Pump, Crusher (Rock), De-watering Press, Diesel Power Unit, Dirt Filter Press with Operation Equipment, Dredge, Dual Drum Paver, Elevating Grader (self-propelled or towed), Elevator Hoist - Two Cage, Excavator - all purpose hydraulically operated, Fork Lift (Loed/Lull and other rough terrain type), Front End Loader (4 c.y. and over), Gradall, Grader (Power), Head Tower (Saurman or equal), Hoist (2 or 3 Drum), Hydroblaster (Laser Pump), Light Plants - Compressors and Generators, Locomotive, Maintenance Engineer, Maintenance Welder, Mine Hoist, Mucking Machine or Mole, Quarry Master or Equivalent, Refrigeration Equipment (for soil stabilization), Scraper, Sea Mule, Shovel, Side Boom, Slip Form Paver, Straddle Buggy (Ross Carrier, Lumber Carrier), Tractor Drawn Belt Type Loader (Euclid Loader), Trenching Machine (digging capacity of over 4ft. depth), Truck or Trailer Mounted Log Chipper (self-feeder), Tug Operator (Manned, rented equipment excluded), Tunnel Shovel, Vibro or Sonic Hammer Controls (when not mounted in proximity to Rig Operator), Work Boat Operator including LCM's.

DISTRICT 6

04/01/2025

2-1163.2

CLASS B: "A" Frame Truck, Back Dumps, Blacktop Plant (non-automatic), Boring Machine, Bulldozer, Cage-Hoist, Central Mix Plant (nonautomated), Compressor, Pump, Generator or Welding machine (when used in battery of not more than five (5)), Concrete Paver (single drum over 16'), Core boring machine, Drill Rigs - tractor mounted, Elevator - as material hoist, Farm Tractor (with or without accessories), Fork Lift (over 10 ton with or without attachments), Front End Loader (under 4 c.y.), Grout Pump, Gunite Machine, High Pressure Boiler (15 lbs. & over), Hoist (one drum), Hydraulic Breaking Hammer (Drop Hammer), Kolman Plant Loader (screening gravel), Maintenance Grease Man, Mixer for stabilized base - self-propelled (Seaman Mixer), Monorail Machine, Parapet Concrete or Pavement Grinder, Parts Man, Post Driver (truck or tractor mounted), Post Hole Digger (truck or tractor mounted), Power Sweeper (Wayne or similar), Pump-Crete or Squeeze-Crete, Road Widener (front end of Grader or self-propelled), Roller, Self-contained hydraulic bench drill, Shell Winder (motorized), Skid steer (Bobcat type loader), Snorkel (overhead arms), Snowblower control man, Tractor (with or without accessories), Trenching Machine (digging capacity of 4 ft. or less), Tugger Hoist, Vacuum Machine (self-propelled or mounted), Vibro Tamp, Well Drill / Well Point System (Submersible pumps when used in lieu of Well Point System), Winch (Motor driven), Winch Cat, Winch Truck.

CLASS C: Compressor (up to 500 cfm), Concrete Paver or Mixer (under 16'), Concrete Pavement Spreaders & Finishers (not automated), Conveyor (over 12 ft), Electric Submersible Pump (4" and over), Fine Grade Machine (not automated), Fireman, Fork Lift ("with or without" attachments, 10 ton and under), Form Tamper, Generator (2,500 watts and over), Hydraulic Pump, Mechanical Heaters (More than two (2) Mechanical Heaters or any Mechanical Heater or Heaters whose combined output exceeds 640,000 BTU per hour (manufacturer's rating) plus one self-contained heating unit - i.e. Sundog or Air Heat type - New Holland Hay Dryer type excluded), Mulching Machine, Oiler, Power Driven Welding Machine (300 amp and over, other than all electric. One Welding Machine under 300 amp will not require an engineer unless in a battery), Power Heaterman (hay dryer), Pumps (water and trash), Revinus Widener (road widener), Single Light Plant, Steam Cleaner or Jenny.

Per hour: Building	07/01/2024	07/01/2025
Class A1*	\$ 47.62	\$ 49.61
Class A	46.12	48.11
Class B	44.00	45.99
Class C	39.78	41.77

Additional \$2.50 per hour if work requires Personal Protective Equipment for hazardous waste site activities with a level C or over rating.

(*) TONNAGE PREMIUMS:

All cranes up to 64 ton capacity - A1 rate

All cranes 65 ton to 110 ton capacity - A1 rate plus \$ 1.50 All cranes 111 ton to 199 ton capacity - A1 rate plus \$ 2.00 All cranes 200 ton to 399 ton capacity - A1 rate plus \$ 3.00 All cranes 400 ton to 599 ton capacity - A1 rate plus \$ 4.00 All cranes 600 ton to 799 ton capacity - A1 rate plus \$ 5.00 All cranes 800 ton to 999 ton capacity - A1 rate plus \$ 6.00 All cranes 1000 ton capacity and over - A1 rate plus \$ 7.00

(**) Tower Cranes - A1 rate plus \$2.50 (no tonnage premiums apply)

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 31.02	
------------------------	--

OVERTIME PAY See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE Overtime: See (5, 6) on HOLIDAY PAGE NOTE: If the holiday falls on Sunday, it will be celebrated on Monday.

REGISTERED APPRENTICES

WAGES per hour: One thousand hour terms at the following percentage of Journeyworker's CLASS A wage:

1st year	60%
2nd year	65%
3rd year	70%
4th year	80%

Additional \$2.50 per hour if work requires Personal Protective Equipment for hazardous waste site activities with a level C or over rating.

\$ 32.12

SUPPLEMENTAL BENEFITS per hour:

07/01/2024 07/01/2025

DISTRICT 6

All Terms:	\$ 30.95	\$ 32.05	6-158-545b.s
Operating Engineer - Heavy	'&Highway		04/01/2025

JOB DESCRIPTION Operating Engineer - Heavy&Highway

ENTIRE COUNTIES

Cayuga, Cortland, Jefferson, Lewis, Madison, Oneida, Onondaga, Oswego, Seneca, St. Lawrence, Tompkins

WAGES

NOTE:

---In the event that equipment listed below is operated by robotic control, the classification covering the operation will be the same as if manually operated.

---If a second employee is required by the employer for operation of any covered machine, they shall be an Engineer Class C.

CLASS A1*: All Cranes that require a NYS Crane License (Boom Truck, Cherry Picker, Derrick, Dragline, Overhead Crane (Gantry or Straddle Type), Pile Driver, Tower Cranes (including self erecting)**, Truck Crane).

CLASS A: Asphalt Curb Machine (self-propelled, slipform); Asphalt Paver; Automated Concrete Spreader (CMI type); Automatic Fine Grader; Backhoe (except tractor mounted, rubber tired); Backhoe Excavator, Full Swing (CAT 212 or similar type); Back Filling Machine; Belt Placer (CMI type); Blacktop Plant (automated);Blacktop Roller; Bull Dozer being operated with active GPS; Cableway; Caisson Auger; Central Mix Concrete Plant (automated); Concrete Curb Machine (self-propelled, slipform); Concrete Pump; Cranes - listed in A1 that do not require a NYS Crane License; Directional Boring/Drilling Machine; Dredge; Dual Drum Paver; Excavator (all purpose-hydraulic, Gradall or similar); Front End Loader (4 cu. yd. & over); Head Tower (Sauerman or equal); Hoist (two or three drum); Holland Loader; Maintenance Engineer; Mine Hoist; Mucking Machine or Mole; Pavement Breaker (SP Wertgen; PB-4 and similar type); Profiler/Milling Machine (over 105 h.p.); Power Grader; Quad 9; Quarry Master (or equivalent); Rotating Telehandler; Scraper (including challenger type); Shovel; Side Boom; Slip Form Paver; Tractor Drawn Belt-Type Loader; Truck or Trailer Mounted Chipper (self-feeder); Tug Operator (manned rented equipment excluded); Tunnel Shovel.

CLASS B: Backhoe (tractor mounted, rubber tired); Bituminous Recycler Machine; Bituminous Spreader and Mixer; Blacktop Plant (nonautomated); Blast or Rotary Drill (truck or tractor mounted); Boring Machine; Bridge Deck Finishing Machine; Brokk; Cage Hoist; Central Mix Plant (non-automated) and All Concrete Batching Plants; Concrete Paver (over 16'); Crawler Drill (self-contained); Crusher; Diesel Power Unit; Drill Rigs (truck or tractor mounted); Front End Loader (under 4 cu. yd.); Greaseman - Lubrication Engineer; HiPressure Boiler (15 lbs & over); Hoist (one drum); Hydro-Axe; Kolman Plant Loader & similar type loaders; Locomotive; Material Handling Knuckle Boom; Mini Excavators (under 18,000 lbs.); Mixer (for stabilized base, self-propelled); Monorail Machine; Profiler/Milling Machine (105 h.p. and under); Plant Engineer; Prentice Loader; Pug Mill; Pump Crete; Ready Mix Concrete Plant; Refrigeration Equipment (for soil stabilization); Road Widener; Roller (all above subgrade, See Class A for Blacktop Roller); Sea Mule; Self-contained ride-on Rock Drill (excluding Air-Track type drill); Skidder; Tractor with Dozer and/or Pusher; Trencher; Tugger Hoist; Vacuum Machine (mounted or towed); Vermeer Saws (ride-on, any size or type); Welder; Winch and Winch Cat; Work Boat Operator including L.C.M.'s.

CLASS C: "A" Frame Winch Hoist (On Truck); Aggregate Plant; Articulated Heavy Hauler; Asphalt or Concrete Grooving Machine (ride-on); Ballast Regulator (ride-on); Bituminous Heater (self-propelled); Boat (powered); Boiler (used in conjunction with production); Cement & Bin Operator; Compressors***; Concrete Pavement Spreader and Finisher; Concrete Paver or Mixer (16' & under); Concrete Saw (selfpropelled); Conveyor; Deck Hand; Directional Boring/Drilling Machine Locator; Drill (Core); Drill (Well); Dust Collectors***; Electric Pump When Used in Conjunction with Well Point System; Farm Tractor with accessories; Fine Grade Machine; Fireman; Fork Lift; Form Tamper; Generators***; Grout Pump; Gunite Machine; Hammers (hydraulic self-propelled); Heaters***; Hydra-Spiker (ride-on); Hydraulic Pump (jacking system); Hydro-Blaster (water); Light Plants***; Mulching Machine; Oiler; Parapet Concrete or Pavement Grinder; Post Hole Digger (excluding hand-held); Post Driver; Power Broom (towed); Power Heaterman; Power Sweeper; Pumps***; Revinius Widener; Roller (subgrade & fill); Scarifier (ride-on); Shell Winder; Skid Steer Loader (Bobcat or similar, including all attachments); Span Saw (ride-on); Steam Cleaner; Tamper (ride-on); Tie Extractor (ride-on); Tie Handlers (ride-on); Tie Inserters (ride-on); Tie Spacers (ride-on); Tire Repair; Track Liner (ride-on); Tractor; With towed accessories); Vacuum Machine (self-propelled); Vibratory Compactor; Vibro Tamp; Welding Machines***; Well Point.

***CLASS C NOTE: Considered Hands-Off (unmanned). Includes only operation and maintenance of the equipment.

Per hour: H/H	07/01/2024	07/01/2025
CLASS A1*	\$ 56.51	\$ 58.85
CLASS A	53.51	55.85
CLASS B	52.63	54.97
CLASS C	49.35	51.69

(*) TONNAGE PREMIUMS:

All cranes up to 64 ton capacity - A1 rate

All cranes 65 ton to 110 ton capacity - A1 rate plus \$ 1.50

All cranes 111 ton to 199 ton capacity- A1 rate plus \$ 2.00

All cranes 200 ton to 399 ton capacity - A1 rate plus 3.00

All cranes 400 ton to 599 ton capacity - A1 rate plus \$ 4.00 All cranes 600 ton to 799 ton capacity - A1 rate plus \$ 5.00 All cranes 800 ton to 999 ton capacity - A1 rate plus \$ 6.00 All cranes 1000 ton capacity and over - A1 rate plus \$ 7.00

(**) Tower Cranes - A1 rate plus \$3.00 (no tonnage premiums apply)

- Cranes in Luffer Configuration - A1 rate plus \$ 5.00

- Cranes with external ballast (Tray or Wagon) - A1 rate plus \$ 5.00

Additional \$2.50 per hour for hazardous waste removal work on a State and/or Federally designated waste site which requires employees to wear Level C or above forms of personal protection.

SHIFT WORK

SINGLE IRREGULAR WORK SHIFT: Additional \$2.50 per hour for all employees who work a single irregular work shift starting from 5:00 PM to 1:00 AM that is mandated by the Contracting Agency.

SUPPLEMENTAL BENEFITS		
Per hour:	07/01/2024	07/01/2025
Journeyworker	\$ 32.45	\$ 33.55
OVERTIME PAY		

See (B, E, Q) on OVERTIME PAGE

HOI IDAY

Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

NOTE: If a holiday falls on Sunday, it will be celebrated on Monday. If an employee works on this Monday, they shall be compensated at double time plus the holiday pay (triple time). If a holiday falls on a Saturday, employees who work a Saturday Holiday shall be paid double time plus the holiday pay.

REGISTERED APPRENTICES

WAGES per hour: One thousand hour terms at the following percentage of Journeyworker's CLASS B wage.

1st term	60%
2nd term	70%
3rd term	80%
4th Term	90%

Additional \$2.50 per hour for hazardous waste removal work on a State and/or Federally designated waste site which requires employees to wear Level C or above forms of personal protection.

SUPPLEMENTAL BENEFITS per hour: Same as Journeyworker

6-158-545h

Operating Engineer - Survey Crew 04/01/2025

JOB DESCRIPTION Operating Engineer - Survey Crew

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES

Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north. Genesee: Only the portion of the county that lies east of a line down the center of Route 98 to include all area that lies within the City of Batavia.

WAGES

These rates apply to Building, Tunnel and Heavy Highway.

Per hour SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party. Instrument Person - One who operates the surveying instruments. Rod Person - One who holds the rods and assists the Instrument Person.

07/01/2024

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyman

\$ 29.75

OVERTIME PAY

See (B, E, P, *X) on OVERTIME PAGE *Note: \$25.10/Hr. Only for "ALL" premium hours paid when worked.

Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES: 1000 hour terms based on the Percentage of Rod Persons Wage:

07/01/2024
60%
70%
80%

SUPPLEMENTAL BENEFIT per hour worked:

0-1000	\$ 21.53 /	PHP	\$18.45
1001-2000	24.55 /	"	20.45
2001-3000	27.58/	"	22.93
NOTE: PHP is premium hours paid when y	vorked.		

12-158-545 D.H.H.

Operating Engineer - Survey Crew - Consulting Engineer 04/01/2025

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES

Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north. Genesee: Only the portion of the county that lies east of a line down the center of Route 98 to include all area that lies within the City of Batavia.

WAGES

These rates apply to feasibility and preliminary design surveying, line and grade surveying for inspection or supervision of construction when performed under a Consulting Engineer Agreement.

Per hour: SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party. Instrument Person - One who operates the surveying instruments. Rod Person - One who holds the rods and assists the Instrument Person.

07/01/2024

Party Chief	\$ 50.65
Instrument Person	46.54
Rod Person	34.55

Additional \$3.00/hr. for Tunnel Work. Additional \$2.50/hr. for EPA or DEC certified toxic or hazardous waste work.

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyman

\$ 29.75

OVERTIME PAY See (B, E, Q, *X) on OVERTIME PAGE

DISTRICT 7

*Note: \$25.10/Hr. Only for "ALL" premium hours paid when worked.

HOLIDAY	
Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES: 1000 hour terms based on percentage of Rod Persons Wage:

	07/01/2024
0-1000	60%
1001-2000	70%
2001-3000	80%

SUPPLEMENTAL BENEFIT per hour worked:

0-1000	\$ 2	21.53	/ F	энр	\$18.45
1001-2000	\$ 2	24.55	1	"	20.45
2001-3000	\$ 2	26.98	1		22.93
NOTE: PHP is premium hours paid when	wo	rked.			

12-158-545 DCE

04/01/2025

JOB DESCRIPTION Operating Engineer - Tunnel

ENTIRE COUNTIES

Operating Engineer - Tunnel

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES

Dutchess: Northern part of Dutchess, to the northern boundary line of the City of Poughkeepie, then due east to Route 115 to Bedell Road, then east along Bedell Road to VanWagner Road, then north along VanWagner Road to Bower Road, then east along Bower Road to Rte. 44 east to Rte. 343, then along Rte. 343 east to the northern boundary of the Town of Dover Plains and east along the northern boundary of the Town of Dover Plains, to the borderline of the State of Connecticut.

Genesee: Only that portion of the county that lies east of a line drawn down the center of Route 98 and the entirety of the City of Batavia.

WAGES

CLASS A: Automatic Concrete Spreader (CMI Type); Automatic Fine Grader; Backhoe (except tractor mounted, rubber tired); Belt Placer (CMI Type); Blacktop Plant (automated); Cableway; Caisson Auger; Central Mix Concrete Plant (automated); Concrete Curb Machine (self-propelled slipform); Concrete Pump (8" or over); Dredge; Dual Drum Paver; Excavator; Front End Loader (4 cu. yd & over); Gradall; Head Tower (Sauerman or Equal); Hoist (shaft); Hoist (two or three Drum); Log Chipper/Loader (self-feeder); Maintenance Engineer (shaft and tunnel); any Mechanical Shaft Drill; Mine Hoist; Mining Machine(Mole and similar types); Mucking Machine or Mole; Overhead Crane (Gantry or Straddle Type); Pile Driver; Power Grader; Remote Controlled Mole or Tunnel Machine; Scraper; Shovel; Side Boom; Slip Form Paver (If a second man is needed, they shall be an Oiler); Tripper/Maintenance Engineer (shaft & tunnel); Tractor Drawn Belt-Type Loader; Tug Operator (manned rented equipment excluded); Tunnel Shovel.

CLASS B: Automated Central Mix Concrete Plant; Backhoe (topside); Backhoe (track mounted, rubber tired); Backhoe (topside); Bituminous Spreader and Mixer, Blacktop Plant (non-automated); Blast or Rotary Drill (truck or tractor mounted); Boring Machine; Cage Hoist; Central Mix Plant(non-automated); all Concrete Batching Plants; Compressors (4 or less exceeding 2,000 c.f.m. combined capacity); Concrete Pump; Crusher; Diesel Power Unit; Drill Rigs (tractor mounted); Front End Loader (under 4 cu. yd.); Grayco Epoxy Machine; Hoist (One Drum); Hoist (2 or 3 drum topside); Knuckle Boom material handler; Kolman Plant Loader & similar type Loaders (if employer requires another person to clean the screen or to maintain the equipment, they shall be an Oiler); L.C.M. Work Boat Operator; Locomotive; Maintenance Engineer (topside); Maintenance Grease Man; Mixer (for stabilized base-self-propelled); Monorail Machine; Plant Engineer; Personnel Hoist; Pump Crete; Ready Mix Concrete Plant; Refrigeration Equipment (for soil stabilization); Road Widener; Roller (all above sub-grade); Sea Mule; Shotcrete Machine; Shovel (topside); Tractor with Dozer and/or Pusher; Trencher; Tugger Hoist; Tunnel Locomotive; Vacuum Machine (mounted or towed); Welder; Winch; Winch Cat.

CLASS C: A Frame Truck; All Terrain Telescoping Material Handler; Ballast Regulator (ride-on); Compressors (4 not to exceed 2,000 c.f.m. combined capacity; or 3 or less with more than 1200 c.f.m. but not to exceed 2,000 c.f.m.); Compressors ((any size, but subject to other provisions for compressors), Dust Collectors, Generators, Pumps, Welding Machines, Light Plants (4 or any type combination)); Concrete Pavement Spreaders and Finishers; Conveyor; Drill (core); Drill (well); Electric Pump used in conjunction with Well Point System; Farm Tractor with Accessories; Fine Grade Machine; Fork Lift; Grout Pump (over 5 cu. ft.); Gunite Machine; Hammers (hydraulic-self-propelled); Hydra-Spiker (ride-on); Hydra-Blaster (water); Hydro-Blaster; Motorized Form Carrier; Post Hole Digger and Post Driver; Power Sweeper; Roller grade & fill); Scarifer (ride-on); Span-Saw (ride-on); Submersible Electric Pump (when used in lieu of well points); Tamper (ride-on); Tie-Extractor (ride-on), Tie Handler (ride-on), Tie Inserter (ride-on), Tie Spacer (ride-on); Track Liner (ride-on); Tractor with towed accessories; Vibratory Compactor; Vibro Tamp, Well Point.

CLASS D: Aggregate Plant; Cement & Bin Operator; Compressors (3 or less not to exceed 1,200 c.f.m. combined capacity); Compressors ((any size, but subject to other provisions for compressors), Dust Collectors, Generators, Pumps, Welding Machines, Light Plants (3 or less or any type or combination)); Concrete Saw (self-propelled); Form Tamper; Greaseman; Hydraulic Pump (jacking system); Junior Engineer; Light Plants; Mulching Machine; Oiler; Parapet Concrete or Pavement Grinder; Power Broom (towed); Power Heaterman (when used for production); Revinius Widener; Shell Winder; Steam Cleaner; Tractor.

Per hour:	07/01/2024	07/01/2025
CLASS A	\$ 55.91	\$ 58.44
CLASS B	54.69	57.22
CLASS C	51.90	54.43
CLASS D	48.89	51.42

Additional \$5.00 per hour for Hazardous Waste Work on a state or federally designated hazardous waste site where the Operating Engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin and eye protection.

CRANES:

Crane 1: All cranes, including self-erecting.

Crane 2: All Lattice Boom Cranes and all cranes with a manufacturer's rating of fifty (50) ton and over.

Crane 3: All hydraulic cranes and derricks with a manufacturer's rating of forty nine (49) ton and below, including boom trucks.

Crane 1	\$ 59.91	\$ 62.44
Crane 2	58.91	61.44
Crane 3	57.91	60.44

SUPPLEMENTAL BENEFITS

Per hour:

\$ 25.05	\$ 25.90
+ 9.85*	+ 10.10*

* This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY

See (B, B2, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE
NOTE: If a holiday	falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

WAGES:(1000) hours terms at the following percentage of Journeyworker's Class B wage.

1st term	60%
2nd term	65%
3rd term	70%
4th term	75%

SUPPLEMENTAL BENEFITS per hour: Same as Journeyworker

Painter

JOB DESCRIPTION Painter

DISTRICT 6

ENTIRE COUNTIES Cayuga, Herkimer, Madison, Oneida, Onondaga, Seneca

PARTIAL COUNTIES

Lewis: Only the Townships of High Market, Lewis, Leyden, Lyonsdale, Osceola, Turin and West Turin. Ontario: The City and Township of Geneva. Oswego: Only the Townships of Amboy, Constantia, Williamstown and Oneida Lake.

WAGES

Per hour:	07/01/2024
Basic Rate (Brush & Roll) Sign Painting Lead Based Paint Abatement Drywall Taper/ Finisher Wallcovering Drywall Machine Operator	\$ 27.27 27.27 27.27 28.02 28.02 28.52 27.77
opidy	=

7-158-832TL. 04/01/2025

Published by the New York State Depa	artment of Labor
PRC Number 2025004301	Oneida County

Parking Lot, Hwy Striping	27.77
Epoxy (Brush-Roller)	27.77
Epoxy (Spray)	27.77
Sandblasting (Operator)	27.77
Boatswain Chair	27.77
Swing Scaffold	27.77
Structural Steel	27.77
(except bridges,tanks,tunnel)	
Coal Tar epoxy	28.77
Asbestos Encapsulation	29.47

NOTE - SEE BRIDGE PAINTER RATES FOR BRIDGES, TANKS, OR TUNNELS.

SHIFT WORK

FOR ANY SHIFT WHICH STARTS PRIOR TO 6:00 AM OR AFTER 3:00 PM, ALL EMPLOYEES WHO WORK A SINGLE IRREGULAR WORK SHIFT ON GOVERNMENTAL MANDATED WORK SHALL BE PAID AN ADDITIONAL \$2.00 PER HOUR ABOVE THE APPLICABLE WAGE SCALE.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 26.53

Journeyworker OVERTIME PAY

See (B, *F, R) on OVERTIME PAGE

* NOTE - On exterior work only, if work was missed during the week due to inclement weather, Saturday may be worked at straight time.

HOLIDAY Paid:

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAG

Overtime: See (5, 6) on HOLIDAY PAGE NOTE: A holiday that falls on a Saturday will be celebrated on the preceding Friday. A holiday that falls on a Sunday will be celebrated on the following Monday.

REGISTERED APPRENTICES

WAGES per hour:

Painter/Decorator: 750 hour terms at the following wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th
\$ 18.00	\$ 18.50	\$ 19.00	\$ 19.50	\$ 20.00	\$ 21.00	\$ 22.00	\$ 23.00
Drywall Tape	r/ Finisher: 75) hour terms a	t the following	wage rate:			
1st	2nd	3rd	4th	5th	6th		
\$ 20.00	\$ 20.50	\$ 21.00	\$ 21.50	\$ 22.00	\$ 23.00		
SUPPLEMEN	ITAL BENEFI	TS per hour:					
Painter/Decor	rator:						
1st	2nd	3rd	4th	5th	6th	7th	8th
\$ 6.50	\$ 6.50	\$ 7.50	\$ 7.50	\$ 10.50	\$ 10.50	\$ 13.00	\$ 13.00
Drywall Tape	r/ Finisher:						
1st	2nd	3rd	4th	5th	6th		
\$ 7.50	\$ 7.50	\$ 7.50	\$ 10.00	\$ 10.00	\$ 12.00		

Painter

JOB DESCRIPTION Painter

DISTRICT 3

6-31

04/01/2025

ENTIRE COUNTIES

Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Cortland, Delaware, Erie, Genesee, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Wayne, Wyoming, Yates

WAGES

Per hour:	07/01/2024	05/01/2025	05/01/2026
		Additional	Additional
Bridge	\$ 43.81	\$ 2.50	\$ 2.50
Tunnel	43.81		
Tank*	41.81		

For Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

Tank rate applies to indoor and outdoor tanks, tank towers, standpipes, digesters, waste water treatment tanks, chlorinator tanks, etc. Covers all types of tanks including but not limited to steel tanks, concrete tanks, fiberglass tanks, etc.

SHIFT WORK

Note an additional \$1.50 per hour is required when the contracting agency or project specification requires any shift to start prior to 6:00am or after 12:00 noon.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 31.39

OVERTIME PAY

Exterior work only See (B, E4, F*, R) on OVERTIME PAGE. All other work See (B, F*, R) on OVERTIME PAGE.

*Note - Saturday is payable at straight time if the employee misses work, except where a doctor's or hospital verification of illness is produced Monday through Friday when work was available to the employee.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

750 hour terms at the following wage:

1st	2nd	3rd	4th	5th	6th
\$ 24.00	\$ 26.00	\$ 28.00	\$ 30.00	\$ 34.00	\$ 38.00
Supplemental	bonofite nor h	our:			
Supplementa	i benenits per i	iour.			
1st	2nd	3rd	4th	5th	6th
\$ 6.60	\$ 6.95	\$ 7.30	\$ 7.65	\$ 8.00	\$ 8.35

Painter - Metal Polisher

JOB DESCRIPTION Painter - Metal Polisher

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

	07/01/2024
Metal Polisher	\$ 39.33
Metal Polisher*	40.43
Metal Polisher**	43.33

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024	
Journeyworker: All classification	\$ 12.79	
OVERTIME PAY See (B, E, P, T) on OVERTIME PAGE		

HOLIDAY Paid: Overtime:

See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year term at the following wage rates:

	07/01/2024
1st year	\$ 19.67
2nd year	21.63
3rd year	23.60
1st year*	\$ 22.06

3-4-Bridge, Tunnel, Tank 04/01/2025

Prevailing Wage Rates for 07 Last Published on Apr 01 202	7/01/2024 - 06/30/2025 25	Published by the New York State Department of Labor PRC Number 2025004301 Oneida County
2nd year*	22.07	
3rd year*	24.14	
1st year**	\$ 22.17	
2nd year**	24.13	
3rd year**	26.10	
*Note: Applies on New Cor ** Note: Applies when work	nstruction & complete renovation king on scaffolds over 34 feet.	
Supplemental benefits:		
Per hour:		
1st year	\$ 8.69	
2nd year	8.69	
3rd year	8.69	
-		8-8A/28A-MP
Plumber		04/01/2025
JOB DESCRIPTION PIL	umber	DISTRICT 7
ENTIRE COUNTIES Herkimer, Oneida		

PARTIAL COUNTIES

Hamilton: Only the Town of Inlet. Lewis: Towns of Lewis, Leyden, Lyonsdale, and West Turin. Madison: Towns of Brookfield, Eaton, Fenner, Hamilton, Lebanon, Lenox, Lincoln, Madison, Nelson, Oneida, Smithfield, and Stockbridge. Otsego: Towns of Cherry Valley, Exeter, Middlefield, Otsego, Plainfield, Richfield, Roseboom, and Springfield.

V	V.	Α	C.) E	S	

Per hour:	07/01/2024	05/01/2025	05/01/2026
		Additional	Additional
Plumber	\$ 43.65	\$ 3.35*	\$ 3.45*
Steamfitter	43.65	3.35*	3.45*

*To be allocated at a later date

SHIFT WORK

Agency-mandated shift operations:

1. Shift work shall start no earlier than 6AM Monday and will conclude no later than 9AM Saturday (overtime premiums applicable after 8 hours in a shift).

2. Single irregular shiftwork, less than 3 consecutive days will be paid at the rate of time and one-half of the regular hourly rate.

3. 3 consecutive work days or more:

First Shift - Regular hourly rate. Second Shift - Regular hourly rate plus 12%. Third Shift - Regular hourly rate plus 18%.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 14.90 + 17.85**

** This portion of the benefit is subject to the SAME PREMIUM as shown for overtime on projects over \$100 million in total construction cost (including engineering & architecture).

OVERTIME PAY

See (B, E, Q, *V) on OVERTIME PAGE

*Portion of supplemental benefits subject to V code when project cost is over \$100 million (including engineering & architecture).

HOLIDAY

Paid: See (1) on HOLIDAY PAGE Overtime: See (5, 6) on HOLIDAY PAGE

NOTE: If a holiday falls on Sunday, it will be observed the following day. If a holiday falls on Saturday, it will be observed that day unless so determined by the Federal Government to be celebrated on a different day.

REGISTERED APPRENTICES

WAGES: Yearly terms at the following percentages of Journeyworker's wage.1st2nd3rd4th5th

Prevailing Wage Rates for 07/01/2024 - 06/30/2025 Last Published on Apr 01 2025					Published by the New York State Department of Labo PRC Number 2025004301 Oneida County			
50%	55%	60%	70%	85%				
SUPPLEME 1st Term:	NTAL BENEF	ITS per hour: \$ 14.90 + 8.35**						
All others:		\$ 14.90 + 13.39 [°]	**					
** This porti (including e	on of the bene ngineering & a	fit is subject to rchitecture).	the SAME	E PREMIUM	as shown for overtime on projects over \$100 million in total construction cost			
					7-112n-SF			
Rooter		<u>.</u>						
JOB DESC	CUNTIES	oofer			DISTRICT 6			
Cayuga, Co	rtland, Franklin	n, Herkimer, Je	efferson, L	ewis, Madiso	n, Oneida, Onondaga, Oswego, Seneca, St. Lawrence			
WAGES Per hour:			07/01/2	2024				
Roofer, Wat	erproofer		\$ 34.2	25				
NOTE - Doe	es not include i	metal roof flast	nings, grav	vel stop, or m	etal roofing; See Sheetmetal Worker wage schedule.			
Additional p	er hour:							
Green Roof Pitch Remo Asbestos Al	ing** val & Appl. patement		\$ 0.2 1.5 1.5	25 50 50				
** Green Ro and planting	oofing is any co js.	omponent of gr	een techn	ology or living	g roof above the roof membrane including, but not limited to, the fabric, dirt			
SHIFT WO WHEN MAN WORKED E	RK NDATED BY T BEFORE 5:30A	HE OWNER O	R CONTR R 5:30PM	ACTING AG	ENCY, THERE IS AN ADDITIONAL PREMIUM OF \$4.00/HR FOR HOURS			
SUPPLEM	ENTAL BEN	EFITS						
Per hour: Journeywor	ker		\$ 25.8	35				
Additional con any Asbe	ontribution estos Abateme	nt work	0.7	75				
OVERTIME See (B, E, E *NOTE - If a	E PAY E2*, Q) on OVE a holiday falls i	ERTIME PAGE n that week an	d 32 hours	s were worke	d, Saturday will be paid at 1 1/2 times the rate.			
HOLIDAY Paid:		See (1) on H						
NOTE: Whe	n any of these	holidays falls	on Sunda	y, the followir	ng day shall be observed as a holiday.			
REGISTER WAGES per	RED APPREN	NTICES	e following	percentage	of the Journeyworker's wage:			
1st term (0 t	o 999)		65%					
2nd term (1)	000 to 1999)		70% 75%					
4th term (30	100 to 3999)		85%					
Additional p	er hour:							
Green Roof	ing**		\$ 0.2	25				
Asbestos Al	val & Appl. patement		1.5 1.5	50 50				
SUPPLEME	NTAL BENEF	ITS per hour:						
1st term			\$ 19 4	18				
2nd term			21.4	40				

3rd term 4th term			24.85 25.85		
Additional c on any Asb	ontribution estos Abateme	ent work	\$ 0.75		
					6-195
Sheetmet	al Worker				04/01/2025
JOB DESC	CRIPTION SI	neetmetal Wor	ker		DISTRICT 6
ENTIRE C Cayuga, Ch	OUNTIES nenango, Cortla	and, Herkimer,	Jefferson, Le	wis, Madison,	Oneida, Onondaga, Oswego, St. Lawrence
WAGES			07/04/000		
Per nour: Sheetmetal	Worker:		07/01/2024	4	
**(under \$1	0 million)		\$ 35.25		
""(over \$10	million)		\$ 36.25		
**For total c	ost of Sheetm	etal contract o	nly.		
TO INCLUE	DE METAL RO	OF FLASHING	GS, GRAVEL S	STOP, AND M	ETAL STANDING SEAM ROOFING.
SUPPLEM Per hour:	IENTAL BEN	EFITS			
Journeywor	ker		\$ 22.85		
OVERTIM See (B, E, C	E PAY ຊ) on OVERTI	ME PAGE			
HOLIDAY		S_{aa} (1) on b			
Overtime:		See (1) 011 F See (5, 6) 01	n HOLIDAY PAG	AGE	
the following	g Monday shal	l be recognize	d as the legal	holiday.	y shall be recognized as the legal holiday. Any holiday failing on Sunday,
REGISTER WAGES pe	RED APPREI r hour: One ye	NTICES ar terms at the	following per	centage of Joi	ırneyworker's wage.
1st	2nd	3rd	4th	5th	
45%	55%	65%	75%	85%	
SUPPLEME	ENTAL BENEF	ITS per hour:			
1st	2nd	3rd	4th	5th	
\$13.53	\$14.60	\$15.66	\$17.77	\$18.84	6-58
Sprinkler	Fitter				04/01/2025
JOB DESC	CRIPTION S	orinkler Fitter			DISTRICT 1
ENTIRE C					
Allegany, B Fulton, Gen Ontario, Orl Yates	roome, Cattara lesee, Greene, leans, Oswego	augus, Cayuga Hamilton, Hei , Otsego, Scho	, Chautauqua kimer, Jeffers oharie, Schuyl	, Chemung, C on, Lewis, Liv ler, Seneca, S	henango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, ngston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, a. Lawrence, Steuben, Tioga, Tompkins, Washington, Wayne, Wyoming,
WAGES		0710 / 1000			
Per hour		07/01/2024	ł		
Sprinkler Fitter		\$ 42.00			
SUPPLEM Per hour	IENTAL BEN	EFITS			
Journeywor	ker	\$ 28.82			
OVERTIM	Ε ΡΔΥ				

Published by the New York State Department of Labor PRC Number 2025004301 Oneida County

OVERTIME PAY See (B, E, Q) on OVERTIME PAGE

Prevailing Wage Rates for 07/01/2024 - 06/30/2025 Last Published on Apr 01 2025

HOLIDAY

See (1) on HOLIDAY PAGE Paid: Overtime:

See (5, 6) on HOLIDAY PAGE

Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

REGISTERED APPRENTICES

Wages per hour

One Half Year terms at the following wage.

1st \$ 20.03	2nd \$ 22.26	3rd \$ 24.24	4th \$ 26.46	5th \$ 28.69	6th \$ 30.91	7th \$ 33.14	8th \$ 35.37	9th \$ 37.59	10th \$ 39.82
Supplementa	Benefits per	hour							
1st \$ 9.18	2nd \$ 9.18	3rd \$ 20.90	4th \$ 20.90	5th \$ 21.15	6th \$ 21.15	7th \$ 21.15	8th \$ 21.15	9th \$ 21.15	10th \$ 21.15 1-669
Teamster -	Building								04/01/2025

JOB DESCRIPTION Teamster - Building

DISTRICT 1

ENTIRE COUNTIES

Hamilton, Herkimer, Oneida

PARTIAL COUNTIES

Chenango: Entire county except the Townships of Afton, Bainbridge, Coventry, Greene, Guilford, Oxford and Smithville. Lewis: Only the Township of Grieg, Lewis, Leyden, Lowville, Lyonsdale, Martinsburg, Turin, West Turin and Watson. Madison: Only the Townships of Brookfield, Eaton, Hamilton, Lebanon, Lincoln, Madison, Smithfield, Stockbridge and the City of Oneida Otsego: Entire county EXCEPT Townships of Butternuts, Laurens, Maryland, Milford, Morris, Oneonta, Otego, Unidilla and Worchester.

WAGES

GROUP # A:

Straight trucks, winch, transit mix on the site, road oilers, dump trucks, pick-ups, panel, water trucks, fuel trucks on the site (including nozzle).

GROUP # B:

Low boy or Low boy trailer, Euclids or similar equipment.

WAGES per hour

	07/01/2024	07/01/2028		
Group A	\$ 31.44	\$ 34.65		
Group B	31.74	34.95		

SUPPLEMENTAL BENEFITS

Per hour

\$ 29.56 Journeyworker \$28.58

OVERTIME PAY See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

See (1) on HOLIDAY PAGE Paid: Overtime: See (5, 6) on HOLIDAY PAGE Note: Any holiday which occurs on Sunday shall be observed the following Monday.

1-294z2

04/01/2025

Teamster - Heavy&Highway

JOB DESCRIPTION Teamster - Heavy&Highway

ENTIRE COUNTIES

Albany, Columbia, Fulton, Greene, Hamilton, Herkimer, Montgomery, Oneida, Rensselaer, Saratoga, Schenectady, Schoharie, Washington

PARTIAL COUNTIES

Chenango: Entire county except the Townships of Afton, Bainbridge, Coventry, Greene, Guilford, Oxford and Smithville. Lewis: Only the Township of Grieg, Lewis, Leyden, Lowville, Lyonsdale, Martinsburg, Turin, West Turin and Watson. Madison: Only the Townships of Brookfield, Eaton, Hamilton, Lebanon, Lincoln, Madison, Smithfield, Stockbridge and the City of Oneida Otsego: Entire county EXCEPT Townships of Butternuts, Laurens, Maryland, Milford, Morris, Oneonta, Otego, Unidilla and Worchester. Warren: Only the Townships of Bolton, Warrensburg, Thurman, Stony Creek, Luzerne, Caldwell (Lake George), and Queensbury.

WAGES

GROUP #1:

Warehousemen, Yardmen, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks(straight jobs), Single Axel Dump Trucks, Dumpsters, Material Checkers and Receivers, Greasers, Truck Tiremen, Mechanics Helpers and Parts Chasers.

GROUP #2:

Tandems and Batch Trucks, Mechanics, Dispatcher.

GROUP #3:

Semi-Trailers, Low-boy Trucks, Asphalt Distributor Trucks, and Agitator, Mixer Trucks and dumpcrete type vehicles, Truck Mechanic, Fuel Trucks.

GROUP #4:

Specialized Earth Moving Equipment, Euclid type, or similar off-highway, where not self-loading, Straddle (Ross) Carrier, and self-contained concrete mobile truck.

GROUP #5:

Off-highway Tandem Back-Dump, Twin Engine Equipment and Double-Hitched Equipment where not self-loading.

WAGES per hour	07/01/2024
Group #1	\$ 39.75
Group #2	39.81
Group #3	39.90
Group #4	40.03
Group #5	40.19

Hazardous waste projects that require a Level C or greater protection shall be paid an additional \$ 1.00 per hour.

SHIFT WORK

All employees who work a single irregular work shift starting between 5pm and 1 am on governmental mandated night shifts shall be paid an additional \$1.50 per hour.

SUPPLEMENTAL BENEFITS

Per hour:

\$ 28.97 +\$1.00 per* hour worked

(*) not applicable to paid holidays

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE Overtime: See (5, 6) on HOLIDAY PAGE

1-294h/h

Welder

04/01/2025

DISTRICT 1

JOB DESCRIPTION Welder

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour 07/01/2024

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY HOLIDAY

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (A) Time and one half of the hourly rate after 7 hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
 Double the hourly rate for all additional hours
- (B2) Time and one half of the hourly rate after 40 hours per week
- (B3) Time and one half of the hourly rate after 40 straight hours per week
- (C) Double the hourly rate after 7 hours per day
- (C1) Double the hourly rate after 7 and one half hours per day
- (D) Double the hourly rate after 8 hours per day
- (D1) Double the hourly rate after 9 hours per day
- (E) Time and one half of the hourly rate on Saturday
- (E1) Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- (E4) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E5) Double time after 8 hours on Saturdays
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays

- (S) Two and one half times the hourly rate for Holidays
- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays
- (U) Four times the hourly rate for Holidays
- (V) Including benefits at SAME PREMIUM as shown for overtime
- (W) Time and one half for benefits on all overtime hours.
- (X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- (1) None
- (2) Labor Day
- (3) Memorial Day and Labor Day
- (4) Memorial Day and July 4th
- (5) Memorial Day, July 4th, and Labor Day
- (6) New Year's, Thanksgiving, and Christmas
- (7) Lincoln's Birthday, Washington's Birthday, and Veterans Day
- (8) Good Friday
- (9) Lincoln's Birthday
- (10) Washington's Birthday
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 Day on Presidential Election Day
- (15) Veterans Day
- (16) Day after Thanksgiving
- (17) July 4th
- (18) 1/2 Day before Christmas
- (19) 1/2 Day before New Years
- (20) Thanksgiving
- (21) New Year's Day
- (22) Christmas
- (23) Day before Christmas
- (24) Day before New Year's
- (25) Presidents' Day
- (26) Martin Luther King, Jr. Day
- (27) Memorial Day
- (28) Easter Sunday

(29) Juneteenth

New York State Department of Labor - Bureau of Public Work State Office Building Campus Building 12 - Room 130 Albany, New York 12226

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor L
--

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

 Submitted By:
 (Check Only One)
 Contracting Agency
 Architect or Engineering Firm
 Public Work District Office
 Date:

 A Public Work Contract to be let by:
 (Enter Data Pertaining to Contracting/Public Agency)

A. Public Work Contract to be let by: (Enter Data Pertaining to	Contracting/Public Agency)
1. Name and complete address (Check if new or change) Telephone Fax E Mail: Fax	2. NY State Units (see Item 5). 07 City 01 DOT 08 Local School District 02 OGS 09 Special Local District, i.e., 03 Dormitory Authority Fire, Sewer, Water District 04 State University 10 Village Construction Fund 11 Town 05 Mental Hygiene 12 County Facilities Corp. 13 Other Non-N.Y. State 06 OTHER N.Y. STATE UNIT (Describe)
3. SEND REPLY TO (check if new or change) Name and complete address:	4. SERVICE REQUIRED. Check appropriate box and provide project information. New Schedule of Wages and Supplements. APPROXIMATE BID DATE : Additional Occupation and/or Redetermination
Telephone Fax E-Mail:	PRC NUMBER ISSUED PREVIOUSLY FOR THIS PROJECT :
5. Project Title Description of Work Contract Identification Number Note: For NYS units, the OSC Contract No.	6. Location of Project: Location on Site
 7. Nature of Project - Check One: 1. New Building 2. Addition to Existing Structure 3. Heavy and Highway Construction (New and Repair) 4. New Sewer or Waterline 5. Other New Construction (Explain) 6. Other Reconstruction, Maintenance, Repair or Alteration 7. Demolition 8. Building Service Contract 	8. OCCUPATION FOR PROJECT : Fuel Delivery Construction (Building, Heavy Highway/Sewer/Water) Guards, Watchmen Janitors, Porters, Cleaners, Elevator Operators Tunnel Moving furniture and equipment Landscape Maintenance Trash and refuse removal Exterminators, Fumigators Window cleaners Fire Safety Director, NYC Only Other (Describe)
9. Does this project comply with the Wicks Law involving sepa	arate bidding? YES NO
10.Name and Title of Requester	Signature



NEW YORK STATE DEPARTMENT OF LABOR Bureau of Public Work - Debarment List

LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE AWARDED ANY PUBLIC WORK CONTRACT

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, <u>or</u> under NYS Workers' Compensation Law Section 141-b, access the database at this link: <u>https://apps.labor.ny.gov/EDList/searchPage.do</u>

For inquiries please call 518-457-5589.

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****5784	A.J.M. TRUCKING, INC.		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	DOL		AKHLAQ OULAKH		4307 28TH AVE ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL	*****8387	AMERICAN PAVING & MASONRY, CORP.		8 FOREST AVE GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL	*****8654	AMERICAN PAVING, INC.		8 FORREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	NYC		AMJED PARVEZ		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO STANCO		8 FOREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTHONY MONGELLI		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	DOL		B&L RENOVATION CO.		618 OCEAN PARKWAY APT A6BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****5078	BLACK RIVER TREE REMOVAL, LLC		29807 ANDREWS ROAD BLACK RIVER NY 13032	10/17/2023	10/17/2028
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****4155	CASA BUILDERS, INC.	FRIEDLANDER CONSTRUCTI ON	64 N PUTT CONNERS ROAD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG	****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC	*****2117	CHARAN ELECTRICAL ENTERPRISES		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****2281	CORRAO TRUCKING, INC.		PO BOX 393 NANUET NY 10954	09/17/2024	09/17/2029
DOL	DOL		CRAIG JOHANSEN		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL	*****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027

DOL	DOL		DARIAN L COKER	2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DARWIN PEGUESE	6400 BALTIMORE NATIONAL SUITE 602CANTONSVILLE NY 21228	10/24/2024	10/24/2029
DOL	DOL		DAVID FRIEDLANDER	64 NORTH PUTT CORNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL		DINA TAYLOR	64 N PUTT CONNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG		EDWIN HUTZLER	23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER	2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR	5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL		EMIL KISZKO	84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	*****3298	EMJACK CONSTRUCTION CORP.	84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	*****3298	EMJACK CONSTRUCTION LLC	4192 SIR ANDREW CIRCLE DOYLESTOWN PA 18902	07/18/2024	07/18/2029
DOL	DOL		EUGENIUSZ "GINO" KUCHAR	195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DA		FREDERICK HUTZLER	2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****2998	G.E.M. AMERICAN CONSTRUCTION CORP.	195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	NYC		GAYATRI MANGRU	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DA		GEORGE LUCEY	150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DA		GIOVANNA TRAVALJA	3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA		GIOVANNI NAPOLITANO	2501 BAYVIEW AVENUE WANTAGH NY 11793	02/21/2024	02/21/2029
DOL	DA	*****0213	GORILLA CONTRACTING GROUP, LLC	505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DA	*****4760	GTX CONSTRUCTION ASSOCIATES, CORP	2501 BAYVIEW AVE WANTAGH NY 11793	02/21/2024	02/21/2029
DOL	DOL		HERBERT CLEMEN	42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	DOL		HERBERT CLEMEN	42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****2397	ISLAND BREEZE MARINE, INC.	6400 BALTIMORE NATIONAL CANTONSVILLE MD 21228	10/24/2024	10/24/2029
DOL	DOL	*****9211	J. WASE CONSTRUCTION CORP.	8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		J.M.J CONSTRUCTION	151 OSTRANDER AVENUE SYRACUSE NY 13205	11/21/2022	11/21/2027
DOL	DOL		J.R. NELSON CONSTRUCTION	531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON CONSTRUCTION	531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION	531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC	531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC	531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON, LLC	531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R.N COMPANIES, LLC	531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027
DOL	DOL		J.R.N COMPANIES, LLC	531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R.N COMPANIES, LLC	531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC	531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC	531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC	531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES J. BAKER	7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026

DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****2435	JEFFEL D. JOHNSON	JMJ7 AND SON	5553 CAIRNSTRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JEFFEL JOHNSON ELITE CARPENTER REMODEL AND CONSTRUCTION		C2 EVERGREEN CIRCLE LIVERPOOL NY 13090	11/21/2022	11/21/2027
DOL	DOL	*****2435	JEFFREY M. JOHNSON	JMJ7 AND SON	5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		JMJ7 & SON CONSTRUCTION, LLC		5553 CAIRNS TRAIL LIVERPOOL NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 AND SONS CONTRACTORS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS		7014 13TH AVENUE BROOKLYN NY 11228	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS AND SONS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS, LLC		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JOSEPH HALL		937 US ROUTE 11 CENTRAL SQUARE NY 13036	10/21/2024	10/21/2029
DOL	DOL	*****2271	JOSEPH HALL COMPANIES LLC		937 US ROUTE 11 CENTRAL SQUARE NY 13036	10/21/2024	10/21/2029
DOL	DOL		JOSEPH K. SALERNO		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL		JOSEPH K. SALERNO II		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JRN CONSTRUCTION CO, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026

DOL	DOL		KEAN INDUSTRIES, LLC		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KEVIN FUNEZ URBINA A/K/A KEVIN FUNEZ		1009 LYNDALE AVE TRENTON NJ 08629	12/16/2024	12/16/2029
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	****8760	KJ&J CONSTRUCTION, LLC		1009 LYNDALE AVE TRENTON NJ 08629	12/16/2024	12/16/2029
DOL	DOL		KMA GROUP II, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL	*****1833	KMA GROUP INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KMA INSULATION, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KRIN HEINEMANN		2345 ROUTE 52, SUITE 2N HOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	NYC		KULWANT S. DEOL		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****3716	LIGHTNIN ELECTRIC INC.		3418 NORTHERN BLVD SUITE 5-27LONG ISLAND CITY NY 11101	12/13/2024	12/13/2029
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		MAQSOOD AHMAD		618 OCEAN PKWY BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****7790	NATIONAL BUILDING & RESTORATION CORP		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****1797	NATIONAL CONSTRUCTION SERVICES, INC		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NELCO CONTRACTING, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DA		NICHOLAS T. ANALITIS		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTI ON, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	DOL		NIKOLA NTONI		3418 NORTHERN BLVD SUITE 5-27LONG ISLAND CITY NY 11101	12/13/2024	12/13/2029

DOL	NYC	****5643	NYC LINE CONTRACTORS, INC.	402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		PATRICK PENNACCHIO	2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PATRICK PENNACCHIO	2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PAULINE CHAHALES	935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS	11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL		PETER STEVENS	8269 21ST ST BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL	*****4168	PHANTOM CONSTRUCTION CORP.	95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL	*****4168	PHANTOM CONSTRUCTION CORP.	95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	NYC		RASHEL CONSTRUCTION CORP	524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.	3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DA	****7559	REGAL CONTRACTING INC.	24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025
DOL	DOL		ROBBYE BISSESAR	89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROMEO WARREN	161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL	*****4772	RWLOBDELL CONSTRUCTION	635 WEST DRYDEN ROAD FREEVILLE NY 13068	01/31/2025	01/31/2030
DOL	DOL	****7172	RZ & AL INC.	198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.	1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.	(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	*****9874	SALFREE ENTERPRISES INC	P.O BOX 14 2821 GARDNER RDPOMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA	107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA	107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DA	****0476	SAMCO ELECTRIC CORP.	3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA		SILVANO TRAVALJA	3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL	****0440	SOLAR GUYS INC.	8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI	115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC	*****3661	SPANIER BUILDING MAINTENANCE CORP	200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS	485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL	*****3496	STAR INTERNATIONAL INC	89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****9528	STEEL-IT, LLC.	17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL	****3800	SUBURBAN RESTORATION CO. INC.	5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	*****9150	SURGE INC.	8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED MUHAMMAD S. JAFRI A/K/A SHARRUKH JAFRI	4307 28TH AVE ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		SYED RAZA	198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL		TARLOK SINGH	 95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	DOL		TARLOK SINGH	 95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
NYSDOL Bureau of Public Work Debarment List 04/04/2025

Article 8

DOL	DOL	****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****2426	THE MATRUKH GROUP, INC.		4307 28TH AVE PO BOX 9082ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		THOMAS LOBDELL		635 WEST DRYDEN ROAD FREEVILLE NY 13068	01/31/2025	01/31/2030
DOL	DOL		TIMOTHY PERCY		29807 ANDREWS ROAD BLACK RIVER NY 13612	10/17/2023	10/17/2028
DOL	DA	*****1050	TRI STATE CONSTRUCTION OF NY CORP.		50-39 175TH PLACE FRESH MEADOWS NY 11365	03/28/2022	03/28/2027
DOL	DA	****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VINCENT CORRAO		PO BOX 393 NANUET NY 10954	09/17/2024	09/17/2029
DOL	DOL	*****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTIN G, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026
DOL	DOL		WILLIAM SCRIVENS		4192 SIR ANDREW CIRCLE DOYELSTOWN PA 18902	07/18/2024	07/18/2029
DOL	DOL		XENOFON EFTHIMIADIS		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028

PRIME CONTRACTOR'S CERTIFICATION

NEW YORK STATE LABOR LAW, SECTION 220-a

1. mal	That I am an officer of	_ and am duly authorized to
2.	That I fully comprehend the terms and provisions of Section 220-a of the Labor Law.	
3.	That, except as herein stated, there are no amounts due and owing to or on behalf of labor by the contractor. (Set forth any unpaid wages and supplements, if none, so state).	orers employed on the project
	NAME	AMOUNT
4.	That the contractor hereby files every verified statement required to be obtained subcontractors.	by the contractor from the
5.	That, upon information and belief, except as stated herein, all laborers (exclusive	of executive or supervisory

•	That, upon information and belief, except as stated herein, all laborers (exclusive of executive or supervisory
	employees) employed on the project have been paid the prevailing wages and supplements for their services through
	, the last day worked on the project by their subcontractor. (Set forth any unpaid wages
	and supplements, if none, so state and utilize clause 5A (below).

NAME

AMOUNT

(5A) That the contractor has no knowledge of amounts owing to or on behalf of any laborers of its subcontractors.

PRIME CONTRACTOR'S CERTIFICATION

NEW YORK STATE LABOR LAW, SECTION 220-a

(continued)

6. In the event it is determined by the Commissioner of Labor that the wages or supplements or both of any such subcontractors have not been paid or provided pursuant to the appropriate schedule of wages and supplements, then the contractor shall be responsible for payment of such wages and supplements pursuant to the provision of Section 223 of the Labor Law.

	SIGNATURE
	PRINT NAME
	TITLE
ACKNOWLEDGMENT:	
STATE OF NEW YORK	
COUNTY OF }	58:
On the day of	in the year 20, before me, the undersigned, a Notary Public in and
for said State, personally appeared	, personally known to me
or proved to me on the basis of satisfacto	y evidence to be the individual(s) whose name(s) is (are) subscribed to the
within instrument and acknowledged to n	e that he/she/they executed the same in his/her/their capacity(ies), and that
by his/her/their signature(s) on the instru	nent, the individual(s), or the person upon behalf of which the individual(s)

Notary Public

acted, executed the instrument.

If this affidavit is verified by an oath administered by a notary public in a foreign country other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR Section 2309 (c); Real Property Law, Section 311, 312).

SUBCONTRACTOR'S CERTIFICATION

NEW YORK STATE LABOR LAW, SECTION 220-a

1.	That I am an officer of and I am duly aut	a subcontractor on public contract No. orized to make this affidavit on behalf of the firm.
2.	That I make this affidavit in order to con	ply with the provisions of Section 220-a of the Labor Law.
3.	That on we receive contractor, a copy of the initial/revised a specified in the specified in th	ed from, the prime chedule of wages and supplements Prevailing Rate Case Number (PRC) public improvement contract.
4.	That I have reviewed such schedule(s), a supplements specified therein.	id agree to pay the applicable prevailing wages and to pay or provide the
		SIGNATURE
		PRINT NAME
	VANNU EDOMENT.	TITLE
AC	KNOWLEDGMENI:	
ST CC	ATE OF NEW YORK	
On	the day of	in the year 20, before me, the undersigned, a Notary Public in

and for said State, personally appeared ______, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

If this affidavit is verified by an oath administered by a notary public in a foreign country other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR Section 2309 (c); Real Property Law, Section 311, 312).

END OF SPECIAL PROVISIONS

Item C-102 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control

DESCRIPTION

102-1. This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

MATERIALS

102-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-901 shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

102-2.2 Mulches. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.

102-2.3 Fertilizer. Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

102-2.4 Storm drain inlet protection. Storm drain inlet protection shall be provided and installed as shown on the details and plans.

102-2.5 Compost filter sock. Temporary compost filter sock, 12-inch diameter shall be provided and installed as shown on the plans and details. Materials shall meet the requirements of Table 5.1 and Table 5.2 of the NYSDEC Standards and Specifications for Erosion and Sediment Control – Blue Book.

102-2.6 Preformed check dam. Temporary check dams shall be triangular-shaped, having a height of at least ten inches in the center with equal sides and a sixteen- to twenty-inch base. The triangular-shaped inner material shall be urethane foam or foam rubber. The outer cover shall be a woven geotextile fabric placed around the inner material and allowed to extend beyond both sides of the triangle two to three feet. Standard length of each dike will be seven feet unless otherwise indicated on the plans. The dikes shall be attached to the ground with wire staples. The staples shall be no. 11 gauge wire and be at least six to eight inches long. Staples shall be placed as indicated by the manufacturer.

102-2.7 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project.

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The RPR shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.

102-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing

operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

METHOD OF MEASUREMENT

102-4.1 Temporary and permanent erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured as follows:

a. Measures and practices required for compliance with this specification for protection of construction areas outside the construction limits shall be measured on a lump sum basis. Measures and practices shall include, but not be limited to, air pollution prevention, water pollution prevention, concrete washout measures, temporary seeding, temporary mulching, construction road stabilization, dust control, protecting vegetation, and erosion and sediment control practices required due to the Contractor's means and methods of construction, and for borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites.

b. Installation and removal of temporary compost filter sock, 12-inch will be measured by the linear foot.

c. Installation and removal of storm drain inlet protection will be measure per each.

d. Installation and removal of preformed check dam will be measure per each.

BASIS OF PAYMENT

102-5.1 Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in paragraph 102-4.1 will be paid for under:

Item C-102-5.1	Compliance with Temporary Water Pollution, Soil Erosion & Siltation Control- per Lump Sum
Item C-102-5.2	Installation and Removal of Compost Filter Sock, 12-Inch Dia per linear foot

Item C-102-5.3 Installation and Removal of Storm Drain Inlet Protection – per each

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the RPR will be paid for in accordance with Section 90, paragraph 90-05 *Payment for Extra Work*.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports
AC 150/5370-2	Operational Safety on Airports During Construction
ASTM International (ASTM)	
ASTM D6461	Standard Specification for Silt Fence Materials

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102





ATTACHMENT "A"

ТО

ITEM C-102 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

FOR THE CONSTRUCTION OF THE

TRIANGLE AREA CIVIL SITE DEVELOPMENT PROJECT & STATE ROUTE 825 ROUNDABOUT PROJECT

AT THE

GRIFFISS INTERNATIONAL AIRPORT ROME, NEW YORK

FINAL DESIGN

MAY 2, 2025

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 - 1. Dust Control
 - 2. Compost Filter Sock
 - 3. Street Sweeping
 - 4. Storm Drain Inlet Protection
 - B. Vegetative Measures
 - 1. Mulching
 - 2. Seeding
 - 3. Topsoiling
 - 4. Protecting Vegetation
 - 3.3 Water Quality and Quantity Control
 - 3.4 Stormwater Management
 - 3.5 Post Construction Water Quality & Quantity Controls
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 - 3.7 Inspections
 - 3.8 Maintenance
 - 3.9 Contractors
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- 5.0 Notice of Termination Requirements

APPENDICES:

Appendix A	Location Plan General Plan Grading Plans Soil Erosion and Sediment Control Details
Appendix B	Weekly Soil Erosion and Siltation Control Inspection Checklist
Appendix C	Contractor's SWPPP Certification Form
Appendix D	Notice of Intent
Appendix E	Notice of Termination (sample form, NYSDEC portal submission required)
Appendix F	Hydrological Calculations

1.0 INTRODUCTION.

The Clean Water Act states that storm water discharges associated with an industrial activity from a point source, including through a separate municipal storm water sewer system, is unlawful unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. In New York State, the New York State Department of Environmental Conservation (NYSDEC) administers the NPDES through the State Pollution Discharge Elimination System (SPDES) program. According to the SPDES General Permit, construction sites or common plans of development that result in disturbance of one or more acres are subject to permitting requirements.

This plan outlines the manner in which to reduce the potential of storm water runoff pollution during construction activities and assigns responsibilities to ensure that the contractor and his subcontractors implement the requirements of the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP was developed based on the NYSDEC Stormwater Discharge Associated with Construction Activities (SPDES) General Permit #GP-0-25-001, effective January 29, 2025.

GP-0-25-001 is a five (5) year general permit for discharges of stormwater to surface waters of the State from construction activities as defined in 40 CFR 122.26(b)(14)(x) and (b)(15)(i - ii). Pursuant to Section 402 of the Clean Water Act (CWA), stormwater discharges from certain construction activities (including discharges through a municipal separate storm sewer system) are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York administers the approved SPDES program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70. An owner or operator of a construction activity must operate under an effective individual SPDES permit, which addresses the stormwater discharges, or obtain coverage under GP-0-25-001.

2.0 NOTICE OF INTENT REQUIREMENTS.

To obtain coverage under a general permit, an electronic Notice of Intent (eNOI) must be submitted by the owner at least 5 days prior to commencement of construction activities. Contractor shall not begin work on any portion of this project that requires implementation of SWPPP procedures until after the time period has elapsed following NYSDEC's receipt of the NOI.

3.0 STORM WATER POLLUTION PREVENTION PLAN.

This Storm Water Pollution Prevention Plan (SWPPP) was developed to set guidelines during construction activities to minimize erosion and sediment laden runoff. A copy of this SWPPP shall be retained at the construction site throughout the duration of this project.

The Contractor shall meet all conditions of this SWPPP and all conditions within the NYSDEC Stormwater Discharge Associated with Construction Activities (SPDES) General Permit #GP-0-25-001. The contractor shall be responsible for implementation of SWPPP procedures including being responsible for any subcontractors who are performing work that requires implementation of SWPPP procedures.

During the course of the project and upon approval by the Owner, the Contractor shall amend the plan whenever there is a change in construction operations, or site conditions which may have an effect on the potential for the discharge of pollutants.

3.1 Site Description.

A. Perimeter Road reconstruction and extension: Perimeter Road will be reconstructed from the connection with a new roundabout on State Route 825 (by others) and traversing into the proposed triangle development site. Existing asphalt and concrete pavements will be reconstructed to accommodate the new asphalt pavement section including curb and gutter, stormwater drainage and management, sidewalk and landscaping. This project includes extension of water, sanitary sewer, electrical (street lighting), and communications utility infrastructure parallel with Perimeter Road alignment and continuing north into the Triangle site. The existing airport perimeter fence will be realigned per the Triangle Development Land Release so that the proposed development is outside of the secure airport Air Operations Area.

NYS Route 825 Roundabout: This project involves the construction of a 2 lane roundabout at the intersection of NYS Route 825 and Perimeter Road in support of the Oneida County "Triangle Development" project at the Griffiss International Airport in Rome NY. The land development project will generate additional traffic at the NYS Route 825 and Perimeter Road intersection that will require further traffic control measures to mitigate the impacts of the additional traffic. The southern portion of Perimeter Road will be relocated to the east as part of the roundabout approach pavement. The existing parking lot located adjacent to the B-52 bomber memorial and just north of the Rte 825/Perimeter Road intersection will be relocated and expanded to accommodate the baseball filed parking needs. A 450 foot long 10ft tall noise wall will also be constructed along the southern Rte 825 highway boundary to mitigate the additional noise generated by the increase in traffic at the intersection.

- B. Below is a description of the intended sequence of major construction activities which involve soil disturbance:
 - Install temporary erosion and sediment controls
 - Rubbalize existing concrete pavement
 - Full depth excavation of concrete and asphalt pavement and stockpile spoils
 - General site excavation and embankment
 - Install utilities: water, sewer, electrical
 - Install light pole foundations and light structures
 - Install drainage structures and pipe
 - Install road stone subbase
 - Asphalt pavement
 - Topsoil placement
 - Seed and mulch (or hydroseed) all areas disturbed from construction activities.
 - After stabilization, remove temporary erosion and sediment controls.
- C. The total project area is approximately 215 acres of which approximately 16.36 acres are expected to be disturbed from grading/excavation operations during construction.

Existing Impervious Area within disturbance area = 10.10 acres Existing Pervious Area within disturbance area = 6.26 acres

Proposed Impervious Area within disturbance area = 6.87 acres Proposed Pervious Area within disturbance area = 9.49 acres

Impervious Area Reduction = $[(10.10 \text{ acres } -6.87 \text{ acres }) / (10.10 \text{ acres})] \times 100 = 31.98\%$ reduction

Disturbance will be limited to less than 5.0 acres at any given time during construction.

- D. The existing soil is primarily silty gravelly SAND or silty sandy GRAVEL in a medium dense to very dense condition. The soils are expected to be moderately to somewhat excessively well drained, variable and non-cohesive. The existing soils are classified as Hydrologic Soil Group (HSG) Type A or A/D. For soils that are assigned a dual HSG (A/D, B/D or C/D), the first letter is for drained areas and the second is for undrained areas. The runoff coefficient utilized for pavement is 0.90 and for turf is 0.25.
- E. A location plan, general plan, grading plans, and soil erosion and sediment control details have been included in Appendix A. The location plan shows the project location while the general plan identifies the overall project site. Project grading plans have been included to indicate grading limits, drainage patterns, grade slopes, location of erosion and sediment controls and storm water discharge locations. The soil erosion and sediment control details have been included to identify controls to be utilized on this project.
- F. The storm water runoff from this project will be discharged into the Mohawk River via an existing storm drainage system, culverts and swales. Review of the existing topography reveals that this drainage area before development discharges across this same general area and therefore, the drainage patterns have not been altered.

G. The present owner is:	Oneida County, New York Oneida County Department of Aviation Griffiss International Airport (KRME)
The contact person for the project is:	Ed Arcuri, Commissioner, 315-736-4171

- 3.2 Erosion and Sediment Control Practices. The following control practices have been incorporated into the Contract Documents. The Contractor shall be required to construct and maintain the erosion and sediment controls in accordance with this document and the associated Contract Documents for this project. If the total area of disturbed soil at any one time is greater than five acres, then the portion of the site in excess of five acres shall be temporarily or permanently stabilized. Written permission may be obtained from the NYSDEC in advance of construction to allow land disturbance greater than five acres.
 - A. Temporary Structural Measures. Temporary structural measures have been incorporated into the Contract Documents. The quantities required to complete the work have been estimated, however, there is no guarantee of the actual quantities used during construction. Other measures may be ordered by the Engineer, Owner or NYSDEC which are not listed below. Temporary structural measures not covered by contract items will be paid for in accordance with Section 90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK. The temporary structural measures included in this contract are as follows:
 - 1. Dust Control.
 - Dust resulting from land-disturbing activities shall be controlled to prevent surface and air movement of dust from disturbed soil surfaces.
 - Dust control measures shall be employed on construction roads, access points and other disturbed areas subject to dust movement.
 - On non-driving areas, measures such as vegetative cover, mulch or sprayed adhesives shall be employed.
 - On driving areas, water shall be applied by sprinkling until the surface is wet.
 - Dust control measures shall be applied constantly through dry weather until all disturbed areas are stabilized.

- 2. Compost Filter Sock.
 - Compost filter sock shall be installed to intercept sediment laden runoff from small drainage areas of disturbed soils. The silt fence also reduces runoff velocity and effects deposition of transported sediment load.
 - Compost filter sock shall be maintained to prevent sediment bypass.
 - Compost filter sock shall be removed when bulges develop, and the sock shall be repaired or replaced when needed.
- 3. Street Sweeping.
 - Since the project is interior to the airport property and not immediately adjacent to public roads, street sweeping will be applied on interior airport roads to prevent sediment migration to public roads.
 - A stabilized construction entrance is not anticipated. If deemed necessary a stabilized construction entrance shall be constructed where traffic will be entering or leaving a construction site to or from a street, alley, sidewalk or parking area.
 - Clean wheels of vehicles when necessary to remove sediment prior to entering rightof-way or street. Wheel washing shall be performed on a stabilized area which drains to an approved sediment trapping device.
 - Cleaning shall be performed in an area and in a manner that will prevent sediment from entering storm drains, ditches or watercourses.
- 4. Storm Drain Inlet Protection.
 - A storm drain inlet protection shall be installed around inlets. The purpose is to prevent sediment-laden water from entering inlets to a storm drain system.
 - Inspect the structure after every storm event.
 - Clean the structure when sediment accumulates.
 - Remove sediment when and dispose at a protected location in a manner that will prevent sediment from entering storm drains, ditches or watercourses.
 - Replace any missing stone, check for proper anchoring and secure as necessary.
- B. Vegetative Measures.
 - 1. Mulching.
 - Mulching is used to provide initial erosion control while seeding. Mulch can be used alone for temporary stabilization in non-growing months.
 - Apply mulch directly after seeding.
 - Anchor mulch where needed.
 - Re-apply mulch as needed.
 - 2. Seeding.
 - Immediately after completion of grading operations, topsoil shall be replaced and all areas disturbed from grading operations shall be seeded and mulched in an effort to stabilize the site.
 - Temporary stabilization measures (including topsoil, seed and mulch) shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after construction activity has ceased.
 - Repair areas where soil erosion occurs.
 - Re-apply seed and mulch after repairs, and in areas where grass does not begin to grow.
 - Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g. the total time period that construction activity is

temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of the site by the 14th day after construction activity temporarily ceased.

- Where snow cover precludes the initiation of stabilization measures by the 14th day after construction activity, the area shall be stabilized as soon as possible. Measures shall be taken to eliminate erosion and siltation while the area is covered with snow.
- 3. Topsoiling.
 - Topsoil is required to provide acceptable plant cover growing conditions.
 - Topsoil placed on slopes greater than 5% shall be promptly fertilized, seeded, mulched and "tracked" with suitable equipment.
- 4. Protecting Vegetation.
 - The Contractor shall make every effort to protect trees, shrubs, ground cover and any other vegetation adjacent to the work areas. The purpose of preserving existing vegetation where obtainable is to reduce soil erosion and enhance water quality.
 - Mark trees and other valuable vegetation to be protected with suitable barriers.
 - Place barriers far enough away to avoid contact with tall construction equipment.
 - Avoid hauling over or unnecessarily excavating the root system.
 - Avoid spills of oil, gas and other contaminants near the root system.
- 3.3 Water Quality & Quantity Controls. Post-construction storm water management practices have been developed with the intention of reducing the risk of increased runoff velocity, erosion and point source discharges once the project has been completed. This project is a redevelopment project with a net decrease in impervious cover of greater than 25% of the disturbed impervious area. Per Section 9.2.1.A.I of the NYSDEC Stormwater Management Design Manual (SMDM) this satisfies the water quality control criteria for redevelopment areas. As this is a redevelopment project with a net decrease in imperviousness and no changes to site hydrology or drainage patterns that will result in an increase in discharge rate or velocity from the project site, water quantity controls for CPv, 10 year, and 100 year storm are not required per Section 9.2.1.C VI and VII of the NYSDEC SWDM. Hydrologic calculations are not required for this project.
- 3.4 Storm Water Management. The best approach to storm water management for construction activities is through the use of a self-designed Storm Water Pollution Prevention Plan (SWPPP). The development of the SWPPP through the use of Best Management Practices (BMP) is to prevent erosion and pollutants from the construction materials mixing with storm water runoff and being discharged from the project site. BMP's should be designed to prevent, or at least control, the pollution of storm water before it has a chance to affect receiving waters. Using BMP's in this way improves the discharge water quality.

Specific requirements for management of storm water and maintaining water quality include, but are not limited to:

- A. There shall be no increase in turbidity that will cause a substantial visible contrast to natural condition;
- B. There shall be no suspended, colloidal, and settleable solids that will cause deposition or impair the waters for their best usages, and;
- C. There shall be no residue from oil and floating substances, visible oil film, globules or grease. In addition, local ordinances may affect these Best Management Practices. Any conditions or specific local ordinances are to be included in the development of the BMP's for the project.

The following steps will help ensure proper handling of construction wastes:

- A. Contractor shall designate a waste collection area onsite.
- B. An adequate number of containers with lids or covers shall be placed in the collection area.
- C. When required, containers shall be located in a covered area.
- D. Waste collection shall be coordinated when containers are full. If a container does overflow, cleanup shall be performed immediately.

The following steps will help ensure proper handling of hazardous construction products and materials:

- A. Check with local waste management authorities to determine what the requirements are for disposing of hazardous materials.
- B. Use all of the product before disposing of the container
- C. Do not remove the original product label from the container as it contains important information.
- D. Surplus products will not be mixed together prior to disposal unless specifically recommended by the manufacturer.
- E. The manufacturer's recommended disposal methods, printed on the label, shall be followed.
- F. Contaminated soils may be encountered onsite during earthmoving activities or during the cleanup of a spill or leak of a hazardous product. A sample of the contaminated material will require laboratory analysis. Disposal methods will be determined following the review of the analytical results. The excavated material shall be stored in a roll-off. The roll-off shall be covered to prevent precipitation from entering it.
- G. Residual concrete remaining in concrete mixing trucks may be emptied or washed onsite. Excess concrete and wash water shall be disposed of in a manner that prevents contact between these materials and storm water which will be discharged from the site. Dikes shall be constructed around the area to contain these materials until they harden, at which time they may be incorporated into the fill on site, or disposed of off-site. Excess concrete, or concrete that does not meet the project specifications shall be handled in a similar manner.

On a construction site, the material storage area can become a major source of risk due to possible mishandling of materials or accidental spills. The following steps will help ensure proper material management:

- A. Pesticides will be handled as infrequently as possible. All applicable Federal, State, and local regulations shall be observed when using, handling, or disposing of these materials.
- B. Oil, gasoline, and lubricants shall be handled carefully to minimize their exposure to stormwater.
- C. Equipment shall be available to contain and clean up petroleum spills in fuel storage areas, and shall be on board maintenance and fueling vehicles.
- D. Petroleum products shall be stored in covered areas. Dikes shall be constructed around fuel vehicle storage areas to contain spills.
- E. The application of fertilizers shall be limited to the area specified and the minimum recommended application rate.
- F. Soil erosion and sediment control practices will reduce the amount of fertilizers that can leave the site in runoff.

- G. Use of detergents onsite shall be limited to only that which is essential to perform the work. Wash water containing detergents shall not be discharged to the storm sewer system.
- H. Equipment shall be available to contain and clean up spills of hazardous materials in the areas where these materials are stored or used. Spills shall be cleaned up immediately. Materials shall be stored in a dry covered area.
- I. Store and handle material to prevent spills. Keep materials in tightly seal containers in a well ventilated area.
- J. All containers shall be clearly labeled.
- K. Exposure to storm water contact shall be reduced if there is a spill.
- L. Cleanup procedures shall be clearly posted.
- M. Personnel responsible for responding to a spill of toxic or hazardous materials shall be identified and properly trained, or a private firm that specializes in spill cleanup shall be identified.
- 3.5 Post Construction Water Quality & Quantity Controls
 - A. Chapters 3-5 of the NYSDEC Stormwater Management Design Manual (SMDM) provides a green infrastructure approach to stormwater management to reduce a site's impact on the aquatic ecosystem through the use of site planning techniques, runoff reduction techniques, and standard SMP's. Runoff Reduction Volume (RRv) is the reduction of the total Water Quality Volume (WQv) by application of green infrastructure techniques and SMP's to replicate pre-development hydrology.

Outlined below is the NYSDEC SMDM site planning flowchart in relation to this site.

- Step 1: Site Planning Green Infrastructure Method to Preserve Natural Resources and Reduce Impervious Cover
 - 1. Preservation of Undisturbed Areas
 - Site has been previously developed.
 - 2. Preservation of Buffer
 - No natural buffer project is located on fully developed site on the airport.
 - 3. Reduction of Clearing and Grading
 - N/A-Site is fully developed.
 - 4. Locating Development in Less Sensitive Areas
 - N/A-Site is fully developed.
 - 5. Open Space Design
 - The impervious cover has been reduced from existing condition.
 - 6. Soil Restoration
 - Soil restoration will be applied to all landscaped areas.
 - 7. Roadway Reduction
 - Roadway/Taxiway widths and lengths have been minimized to the maximum extent possible while still maintaining the intended use of the site.
 - 8. Sidewalk Reduction
 - There are no sidewalks on this project.
 - 9. Driveway Reduction
 - There are no driveways on this project.
 - 10. Cul-de-sac Reduction
 - This project does not include a cul-de-sac.

- 11. Building Footprint Reduction
 - Existing buildings will remain.
- 12. Parking Reduction
 - There is no automobile parking on this project.

Step 2: Water Quality Volume

- This project is a redevelopment project with a net decrease in impervious cover of greater than 25% of the disturbed impervious area. Per Section 9.2.1.A.I of the NYSDEC SWDM this satisfies the water quality control criteria for redevelopment areas.
- Step 3: Runoff Reduction by Applying Green Infrastructure Techniques and Standard SMPs with RRv Capacity:
 - Runoff Reduction is not required for this project as it is a redevelopment with no increase in impervious area.
- B. New York State Department of Environmental Conservation regulations require design of stormwater detention facilities to limit the peak discharge produced by the 10-year and 100-year storm events to the pre-developed runoff rates, as well as provide extended detention of the 1-year, 24-hour storm event (Channel Protection Volume).
 - Per the NYSDEC SMDM, Section 9.2.1.C.VI, "If redevelopment activities result in no change to hydrology that increases the discharge rate from the site, the ten-year and hundred-year criteria do not apply"
 - Additionally, per Section 9.2.1.C.VII, "Channel protection for redevelopment activities is not required if there are no changes to hydrology that increase the discharge rate from the project site"
 - Accordingly, water quantity controls are not required, nor provided for this project.

Below is a summary of the pre- versus post-development discharge rates at the four (4) discharge locations:

1P – SOUTHWEST DRAINAGE AREA TOTAL				
STORM EVENT	EXISTING RUNOFF (CFS)	PROPOSED RUNOFF (CFS)		
1-YR	9.41	6.74		
10-YR	15.72	11.27		
100-YR	23.19	16.62		

2P – SOUTHEAST DRAINAGE AREA TOTAL				
STORM EVENT	EXISTING RUNOFF (CFS)	PROPOSED RUNOFF (CFS)		
1-YR	1.41	1.41		
10-YR	2.36	2.36		
100-YR	3.49	3.48		

3P – TOTAL DOWNSTREAM 72" RCP DRAINAGE AREA				
STORM EVENT	EXISTING RUNOFF (CFS)	PROPOSED RUNOFF (CFS)		
1-YR	40.49	36.61		
10-YR	69.94	65.10		
100-YR	105.41	99.99		

	4P – TOTAL SITE DISCHAR	RGE
STORM EVENT	EXISTING RUNOFF (CFS)	PROPOSED RUNOFF (CFS)
1-YR	51.14	44.41
10-YR	87.69	78.07
100-YR	131.57	119.88

3.6 Other Requirements.

- A. Any discharges other than storm water must be in compliance with the appropriate SPDES permit (other than this permit).
- B. No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a federal or state law.
- C. All construction activities shall be in compliance with all federal, state and local laws as required.
- D. The contractor shall be responsible to insure that the plan has been approved by local officials and any other authorizing agency.
- 3.7 Inspections. Inspections are important for visually evaluating potential storm water runoff pollution sources at the facility. All projects should be inspected periodically to ensure contaminants are not present in the storm water exiting a project site. On projects which apply for coverage under the SPDES General Permit, qualified professionals of the Owner shall inspect and evaluate the site. Qualified professionals are persons knowledgeable in the principles and practices of erosion and sediment control such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or a soil scientist.

The Owner shall have a qualified professional conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the erosion and sediment controls described in the SWPPP have been installed or implemented. Following the commencement of construction, site inspections shall occur at least once every seven calendar days as well as within 24 hours of the end of a rain storm where the total rainfall is 0.5 inches or greater. Where portions of the construction area have been finally stabilized, the inspection of such portions shall be conducted at least once every month, until the entire site is finally stabilized. A copy of the erosion and sediment control inspection checklist has been included in Appendix C.

The Owner shall prepare a written summary of the project status with respect to compliance with the Permit at a minimum frequency of every three months during which coverage under the Permit exists. The summary should address the status of achieving each component of the SWPPP.

The Owner shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis.

Each inspection shall, at the minimum, include the following:

- On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period.
- Indicate on a site map all areas that have undergone temporary or permanent stabilization.
- Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period.
- Inspect all soil erosion and sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume.
- Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (silt fencing) and containment systems (sediment basins).
- Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching.
- Document any excessive deposition of sediment or ponding water along barriers or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water.
- Discharge locations shall be inspected to ensure erosion control measures are effective in preventing significant impacts to receiving waters.
- Location where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

The process for conducting the evaluation shall follow these steps:

- Review the Storm Water Pollution Prevention Plan and draw up a list of any items of concern.
- List all specified control measures and areas covered in the plan.
- Conduct inspections to determine whether all storm water pollution prevention measures are accurately identified in the plan, are in place, and working properly.
- Document findings and inspections in a site log book.
- Modify SWPPP as appropriate. (Note: The plan shall be modified by the contractor and site inspector within 7 days of the inspection).
- 3.8 Maintenance. The contractor is required to inspect and maintain all soil erosion and sediment controls throughout the duration of the project and until final stabilization of the site. "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform, perennial vegetative cover with a density of 80% has been obtained.

Maintenance shall include, but not be limited to, repair or replacement of any existing controls, removal of sediment and any other measures deemed necessary, which would reduce soil erosion and sediment runoff. Sediment shall be removed from sediment traps or sediment ponds whenever their capacity has been reduced by fifty percent from the design capacity. Refer to Section 3.2 for maintenance of individual controls.

3.9 Contractors. The Contractor must sign a SWPPP certification form before undertaking any construction activity at the site which requires implementation of the soil erosion and sediment control practices. This certification states that the Contractor has thoroughly read and understands all components of the SWPPP. The Contractor is responsible for any and all subcontractors working on the project. A copy of the Contractor's Certification Form has been included in Appendix D.

4.0 RECORD RETENTION.

A copy of the SWPPP shall be retained at the job site throughout the duration of the project. The Owner shall retain copies of the SWPPP, all reports, and records of data used to complete Notice of Intent, for three years from the date the site is finally stabilized.

5.0 NOTICE OF TERMINATION REQUIREMENTS.

Prior to filing an electronic Notice of Termination (eNOT) the Owner shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone "Final Stabilization" using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls have been removed. In addition, the qualified professional must certify that the permanent structure(s) have been constructed as described in the SWPPP.

When the project is completed and the site has been stabilized, the Owner must submit an eNOT. A sample copy of the eNOT form has been included in Appendix E. The most current version of the eNOT shall be submitted by the Engineer and uploaded via the online portal.

APPENDIX A

Perimeter Road Project:

LOCATION PLAN (See Sheet No. GI-001 of Contract Drawings)

GENERAL PLAN (See Sheet No. GC-101 of Contract Drawings)

GRADING AND EROSION CONTROL PLAN (See Sheet No's CG-101 thru CG-105 of Contract Drawings)

GRADING AND DRAINAGE DETAILS (See Sheet No. CG-501 & CU-502 of Contract Drawings)

EROSION CONTROL DETAILS (See Sheet No. CG-502 of Contract Drawings)

NYS Route 825 Roundabout Drawing Sheets

APPENDIX B

WEEKLY SOIL EROSION AND SEDIMENT CONTROL INSPECTION CHECKLIST

A. DIRECTIONS:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

- (1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
- (2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
- (3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;
- (4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);
- (5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier of diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment with containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and
- (6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

Page 1 of _____

SITE PLAN/SKETCH (Attached)

Inspector (print name)

Date of Inspection

Qualified Professional (print name)

Qualified Professional Signature The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

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Permit Identification Number: _____

Approximate Area of Disturbance: _____

Temperature: _____

Maintaining Water Quality

Yes	No	NA	
[]	[]	[]	Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[]	[]	[]	Is there residue from oil and floating substances, visible oil film, or globules or grease?
[]	[]	[]	All disturbance is within the limits of the approved plans.
[]	[]	[]	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes	No	NA	
[]	[]	[]	Is construction site litter and debris appropriately managed?
[]	[]	[]	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[]	[]	[]	Is construction impacting the adjacent property?
[]	[]	[]	Is dust adequately controlled?

2. Temporary Stream Crossing NOT USED

Runoff Control Practices

1. Excavation Dewatering

Yes	No	NA	
[]	[]	[]	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[]	[]	[]	Clean water from upstream pool is being pumped to the downstream pool.
[]	[]	[]	Sediment laden water from work area is being discharged to a silt-trapping device.
[]	[]	[]	Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

NOT USED

3. Interceptor Dikes and Swales

NOT USED

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Page 2 of _____

Runoff Control Practices (continued)

4. Preformed Check Dam NOT USED

5. Rock Outlet Protection NOT USED

Soil Stabilization

1. Toj	osoil and	d Spoil S	tockpiles
Yes	No	NA	
[]	[]	[]	Stockpiles are stabilized with vegetation and/or mulch.
[]	[]	[]	Sediment control is installed at the toe of the slope.

2. Revegetation

Yes	No	NA	
[]	[]	[]	Temporary seedings and mulch have been applied to idle areas.
[]	[]	[]	4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Stabilized Construction Entrance NOT USED

2.	Compost	Filter	Sock
<u> </u>	compose	1 11001	2001

Yes	No	NA	
[]	[]	[]	Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[]	[]	[]	Joints constructed by wrapping the two ends together for continuous support.
[]	[]	[]	Secured tight to the ground.
[]	[]	[]	Stable, sock is tight and without rips or frayed areas.

Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

3. Stor	m Draiı	n Inlet Pro	stection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)
Yes	No	NA	
[]	[]	[]	Installed concrete blocks lengthwise so open ends face outward, not upward.
[]	[]	[]	Placed wire screen between No. 3 crushed stone and concrete blocks.
[]	[]	[]	Drainage area is 1acre or less.
[]	[]	[]	Excavated area is 900 cubic feet.
[]	[]	[]	Excavated side slopes should be 2:1.
[]	[]	[]	2" x 4" frame is constructed and structurally sound.
[]	[]	[]	Posts 3-foot maximum spacing between posts.
[]	[]	[]	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with
			staples at max 8-inch spacing.
[]	[]	[]	Posts are stable, fabric is tight and without rips or frayed areas.
Sedim	ent acci	umulation	% of design capacity.

4. Temporary Sediment Trap NOT USED

5. Temporary Sediment Basin NOT USED

Notes: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
 Construction inspection checklists for post-development storm water management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

- 1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
- 2. The SWPPP proves to be ineffective in:
 - a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
 - b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
- 3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:



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III. MONTHLY SUMMARY OF SITE INSPECTION ACTIVITIES

Name of Permitted Facility:

Today's Date: _____ Reporting Month: _____

Location: _____

Permit Identification #:

Name and Telephone Number of Site Inspector: _____

Date of Inspection	Regular Inspection/ Rainfall based Inspection	Name of Inspector	Items of Concern

Owner/Operator Certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Signature of Permittee or Duly Authorized Representative Name of Permittee or Duly Authorized Representative

Date:

Duly authorized representatives must have written authorization, submitted to DEC, to sign any permit documents.

APPENDIX C

CONTRACTOR'S CERTIFICATION FORM

CONTRACTOR'S EXECUTED SWPPP CERTIFICATION TO BE INSERTED

(A copy of the certification can be found in the Proposal Section of the conformed Contract Documents)

APPENDIX D

ELECTRONIC NOTICE OF INTENT (ENOI)

FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE SPDES GENERAL PERMIT

APPENDIX E

SAMPLE ELECTRONIC NOTICE OF TERMINATION (ENOT)

FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE SPDES GENERAL PERMIT

New York State Department of Environmental Conservation Division of Water 625 Broadway, 4th Floor Albany, New York 12233-3505 *(NOTE: Submit completed form to address above)*

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

NYR

4a. Telephone:

Please indicate your permit identification number:

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:

5. Contact Person E-Mail:

II. Project Site Information

5. Project Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. 🗌	All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
	*Date final stabilization completed (month/year):
0h 🗌	Dermit accurace has been transformed to new owner/energies. Indicate new owner/energies and

9b. Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR _____ ____ _____

(Note: Permit coverage cannot be terminated by owner identified in I.1 above until new owner/operator obtains coverage under the general permit)

9c. Other (Explain on Page 2)

IV. Final Site Information

10a. Did this construction activity require the development of a SWPPP that includes post-construction
stormwater management practices? yes no (If no, go to question 10f.)
10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed?
\Box yes \Box no (If no, explain on Page 2)
10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity – continued

10d. Has the entity responsible for long-term operation and maintenance been given a comparison maintenance plan required by the general permit? \Box yes \Box no	py of the operation and
10a Indicate the method used to ensure long term energies and maintenenes of the next	aconstruction starmustar
The indicate the method used to ensure long-term operation and maintenance of the post	-construction stormwater
management practice(s):	
Post-construction storm water management practice(s) and any right-of-way(s) needed to maintain	
practice(s) have been deeded to the municipality.	
Executed maintenance agreement is in place with the municipality that will maintain the post-	
construction stormwater management practice(s).	
For post-construction stormwater management practice(s) that are privately owned, a mechanism is in	
place that requires operation and maintenance of the practice(s) in accordance with the operation and	
maintenance plan, such as a deed covenant in the owner or operator's deed of record.	
For post-construction stormwater management practices that are owned by a public or private	
institution (e.g. school, university, hospital), government agency or authority, or public utility: policy	
and procedures are in place that ensures operation and maintenance of the practice(s) in accordance	
with the exerction and maintenance rior	
101. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, et	c.) constructed within the
disturbance area? (ac	res)
11. Is this project subject to the requirements of a regulated, traditional land use control I	MS4? yes no
(If Yes, complete section VI – "MS4 Acceptance" statement	
V. Additional Information/Explanation:	
(Use this section to answer questions 9c. and 10b., if applicable)	
VI MS4 Accountoned MS4 Official (nuivering) are sufficiently and the state of the s	fisial) ou Dubu
VI. MS4 Acceptance – MS4 Official (principal executive officer or ranking elected of	official) or Duly
VI. MS4 Acceptance – MS4 Official (principal executive officer or ranking elected of Authorized Representative (Note: Not required when 9b. is checked-transfer of covera	official) or Duly
VI. MS4 Acceptance – MS4 Official (principal executive officer or ranking elected of Authorized Representative (Note: Not required when 9b. is checked-transfer of covera I have determined that it is acceptable for the owner or operator of the construction project	official) or Duly nge) ct identified in question 5
VI. MS4 Acceptance – MS4 Official (principal executive officer or ranking elected of Authorized Representative (Note: Not required when 9b. is checked-transfer of covera I have determined that it is acceptable for the owner or operator of the construction project to submit the Notice of Termination at this time.	official) or Duly age) ct identified in question 5
VI. MS4 Acceptance – MS4 Official (principal executive officer or ranking elected of Authorized Representative (Note: Not required when 9b. is checked-transfer of covera I have determined that it is acceptable for the owner or operator of the construction project to submit the Notice of Termination at this time.	official) or Duly age) et identified in question 5
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VI. MS4 Acceptance – MS4 Official (principal executive officer or ranking elected of Authorized Representative (Note: Not required when 9b. is checked-transfer of covera I have determined that it is acceptable for the owner or operator of the construction project to submit the Notice of Termination at this time. Printed Name: Title/Position:	official) or Duly age) et identified in question 5
NOTICE OF TERMINATION for Storm Water Discharges Authorized under the **SPDES General Permit for Construction Activity – continued**

VII. Qualified Inspector Certification – Final Stabilization

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

Date:

VIII. Qualified Inspector Certification – Post-construction Stormwater Management Practice(s)

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

Signature:

APPENDIX F

HYDROLOGICAL CALCULATIONS



United States Department of Agriculture



Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Oneida County, New York



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/? cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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Map Unit Descriptions	8
Oneida County, New York	10
23—Urban land	
33A—Alton-Urban land complex, 0 to 3 percent slopes	10
81A—Covert loamy sand, 0 to 3 percent slopes	12
350A—Alton gravelly loam, 0 to 3 percent slopes	13

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



	MAP L	EGEND		MAP INFORMATION
Area of In	terest (AOI)	300	Spoil Area	The soil surveys that comprise your AOI were mapped at
	Area of Interest (AOI)	۵	Stony Spot	1.24,000.
Soils	Soil Mon Linit Dolygono	0	Very Stony Spot	Warning: Soil Map may not be valid at this scale.
		Ŷ	Wet Spot	
~	Soll Map Unit Lines	Δ	Other	Enlargement of maps beyond the scale of mapping can cause
	Soil Map Unit Points		Special Line Features	line placement. The maps do not show the small areas of
Special	Point Features	Water Fea	tures	contrasting soils that could have been shown at a more detailed
<u></u>	Biowout	~	Streams and Canals	State.
X	Borrow Pit	Transport	ation	Please rely on the bar scale on each map sheet for map
×	Clay Spot	+++	Rails	measurements.
\diamond	Closed Depression	~	Interstate Highways	Source of Man: Natural Resources Conservation Service
\mathbf{X}	Gravel Pit	~	US Routes	Web Soil Survey URL:
0 0 0	Gravelly Spot	~	Major Roads	Coordinate System: Web Mercator (EPSG:3857)
٥	Landfill	-	Local Roads	Maps from the Web Soil Survey are based on the Web Mercator
A.	Lava Flow	Backgrou	nd	projection, which preserves direction and shape but distorts
عليه	Marsh or swamp	- Ing. I a	Aerial Photography	distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more
~	Mine or Quarry			accurate calculations of distance or area are required.
6	Miscellaneous Water			This product is generated from the LISDA NRCS certified data as
õ	Perennial Water			of the version date(s) listed below.
~	Rock Outcrop			
Ň	Saline Spot			Soil Survey Area: Oneida County, New York Survey Area Data: Version 27, Aug 30, 2024
÷	Sandy Spot			
°°0				Soil map units are labeled (as space allows) for map scales
-	Severely Eroded Spot			1.00,000 01 laiger.
\diamond	Sinkhole			Date(s) aerial images were photographed: Sep 15, 2022—Oct
≫	Slide or Slip			28, 2022
ø	Sodic Spot			The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
23	Urban land	14.5	47.4%
33A	Alton-Urban land complex, 0 to 3 percent slopes	1.3	4.3%
81A	Covert loamy sand, 0 to 3 percent slopes	3.6	11.7%
350A	Alton gravelly loam, 0 to 3 percent slopes	11.2	36.7%
Totals for Area of Interest		30.6	100.0%

Map Unit Legend

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Oneida County, New York

23—Urban land

Map Unit Composition

Urban land: 75 percent *Minor components:* 25 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Urban Land

Properties and qualities

Slope: 0 to 3 percent *Depth to restrictive feature:* 0 inches to manufactured layer *Runoff class:* Very high

Minor Components

Udorthents

Percent of map unit: 6 percent Hydric soil rating: No

Honeoye

Percent of map unit: 4 percent Hydric soil rating: No

Alton

Percent of map unit: 4 percent Landform: Depressions Hydric soil rating: No

Castile

Percent of map unit: 3 percent Hydric soil rating: No

Lima

Percent of map unit: 3 percent Hydric soil rating: No

Windsor

Percent of map unit: 3 percent Landform: Depressions Hydric soil rating: No

Canandaigua

Percent of map unit: 2 percent Landform: Depressions Hydric soil rating: Yes

33A—Alton-Urban land complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9v9h

Elevation: 250 to 1,000 feet *Mean annual precipitation:* 30 to 46 inches *Mean annual air temperature:* 45 to 50 degrees F *Frost-free period:* 120 to 160 days *Farmland classification:* Not prime farmland

Map Unit Composition

Alton and similar soils: 40 percent *Urban land:* 30 percent *Minor components:* 30 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Alton

Setting

Landform: Outwash plains, terraces, deltas Landform position (two-dimensional): Summit Landform position (three-dimensional): Tread Down-slope shape: Convex Across-slope shape: Convex Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from acidic rocks, with some limestone below 40 inches

Typical profile

Ap - 0 to 9 inches: gravelly loam Bw1 - 9 to 24 inches: very gravelly fine sandy loam Bw2 - 24 to 40 inches: very gravelly sandy loam BC - 40 to 58 inches: very gravelly sandy loam 2C - 58 to 72 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: A Ecological site: F101XY005NY - Dry Outwash Hydric soil rating: No

Description of Urban Land

Properties and qualities

Slope: 0 to 3 percent *Depth to restrictive feature:* 0 inches to manufactured layer

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8 Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 10 percent Hydric soil rating: No

Castile

Percent of map unit: 8 percent Hydric soil rating: No

Unnamed soils

Percent of map unit: 7 percent Hydric soil rating: No

Fredon

Percent of map unit: 5 percent *Hydric soil rating:* No

81A—Covert loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9vdn Elevation: 600 to 1,000 feet Mean annual precipitation: 30 to 40 inches Mean annual air temperature: 46 to 50 degrees F Frost-free period: 130 to 160 days Farmland classification: Farmland of statewide importance

Map Unit Composition

Covert and similar soils: 65 percent *Minor components:* 35 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Covert

Setting

Landform: Deltas, outwash plains, terraces Landform position (two-dimensional): Summit Landform position (three-dimensional): Tread Down-slope shape: Concave Across-slope shape: Convex Parent material: Sandy glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: loamy sand

Bs1 - 7 to 13 inches: sand *Bs2 - 13 to 21 inches:* sand *BC - 21 to 36 inches:* sand *C - 36 to 72 inches:* fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2w Hydrologic Soil Group: A Ecological site: F101XY006NY - Moist Outwash Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 9 percent Hydric soil rating: No

Wareham

Percent of map unit: 8 percent Hydric soil rating: No

Castile

Percent of map unit: 6 percent Hydric soil rating: No

Jebavy

Percent of map unit: 6 percent Landform: Depressions Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 6 percent Hydric soil rating: No

350A—Alton gravelly loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9v9m

Elevation: 250 to 1,000 feet *Mean annual precipitation:* 30 to 46 inches *Mean annual air temperature:* 45 to 50 degrees F *Frost-free period:* 120 to 160 days *Farmland classification:* All areas are prime farmland

Map Unit Composition

Alton and similar soils: 75 percent *Minor components:* 25 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Alton

Setting

Landform: Deltas, outwash plains, terraces Landform position (two-dimensional): Summit Landform position (three-dimensional): Tread Down-slope shape: Convex Across-slope shape: Convex Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly

glaciofluvial deposits, derived mainly from acidic rocks, with some limestone below 40 inches

Typical profile

Ap - 0 to 9 inches: gravelly loam *Bw1 - 9 to 24 inches:* very gravelly fine sandy loam *Bw2 - 24 to 40 inches:* very gravelly sandy loam *BC - 40 to 58 inches:* very gravelly sandy loam *2C - 58 to 72 inches:* very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: A Ecological site: F101XY005NY - Dry Outwash Hydric soil rating: No

Minor Components

Howard

Percent of map unit: 7 percent Hydric soil rating: No

Knickerbocker

Percent of map unit: 5 percent *Hydric soil rating:* No

Chenango

Percent of map unit: 4 percent Hydric soil rating: No

Castile

Percent of map unit: 4 percent Hydric soil rating: No

Windsor

Percent of map unit: 3 percent Hydric soil rating: No

Fredon

Percent of map unit: 2 percent Hydric soil rating: No











146205005_EXIST DRAINAGE

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E	Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
	1	1-YR	Type II 24-hr		Default	24.00	1	2.21	2
	2	10-YR	Type II 24-hr		Default	24.00	1	3.64	2
	3	100-YR	Type II 24-hr		Default	24.00	1	5.34	2

Rainfall Events Listing

146205005_EXIST DRAINAGE

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Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
10.142	39	>75% Grass cover, Good, HSG A (1S-P, 2S-P, 3S-P, 10S-P, 11S-P, 12S-P)
3.816	80	>75% Grass cover, Good, HSG D (4S-P, 5S-P, 6S-P, 8S-P)
3.770	98	Paved parking, HSG A (1S-I, 2S-I, 3S-I)
13.781	98	Paved parking, HSG D (4S-I, 5S-I, 6S-I, 7S-I, 8S-I, 9S-I)
31.509	77	TOTAL AREA

146205005_EXIST DRAINAGE

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Soil Listing (all nodes)

Ar	ea Soil	Subcatchment
(acre	es) Group	Numbers
13.9	12 HSG A	1S-I, 1S-P, 2S-I, 2S-P, 3S-I, 3S-P, 10S-P, 11S-P, 12S-P
0.0	00 HSG B	
0.0	00 HSG C	
17.5	97 HSG D	4S-I, 4S-P, 5S-I, 5S-P, 6S-I, 6S-P, 7S-I, 8S-I, 8S-P, 9S-I
0.0	00 Other	
31.5	509	TOTAL AREA

146205005_EXIST DRAINAGE	Type II 24	l-hr 1-YR Rainfall=2.21"
Prepared by C&S Engineers, Inc		Printed 4/17/2025
HydroCAD® 10.20-5c s/n 02837 © 2023 Hyd	droCAD Software Solutions LLC	Page 5
Time span=0. Runoff by SCS Reach routing by Stor-Ind+	00-24.00 hrs, dt=0.05 hrs, 481 points FR-20 method, UH=SCS, Weighted-CN Trans method - Pond routing by Stor-	Ind method
Subcatchment1S-I: SOUTHWEST	Runoff Area=3.134 ac 100.00% Imper Flow Length=967' Tc=6.0 min CN=98	vious Runoff Depth>1.98" Runoff=9.41 cfs 0.517 af
Subcatchment1S-P: SOUTHWEST (ONS	SITE) Runoff Area=8.340 ac 0.00% Imper Flow Length=778' Tc=38.9 min CN=39	vious Runoff Depth=0.00" Runoff=0.00 cfs 0.000 af
Subcatchment2S-I: SOUTHEAST	Runoff Area=0.471 ac 100.00% Imper Flow Length=410' Tc=6.0 min CN=98	vious Runoff Depth>1.98" Runoff=1.41 cfs 0.078 af
Subcatchment2S-P: SOUTHEAST(ONS	ITE) Runoff Area=0.279 ac 0.00% Imper Flow Length=380' Tc=6.5 min CN=39	vious Runoff Depth=0.00" Runoff=0.00 cfs 0.000 af
Subcatchment3S-I: 72" RCP DRAINAGE	E Runoff Area=0.165 ac 100.00% Imper Flow Length=144' Tc=22.1 min CN=98	vious Runoff Depth>1.97" Runoff=0.32 cfs 0.027 af
Subcatchment3S-P: 72" RCP DRAINAG	E Runoff Area=0.649 ac 0.00% Imper Flow Length=131' Tc=21.8 min CN=39	vious Runoff Depth=0.00" Runoff=0.00 cfs 0.000 af
Subcatchment4S-I: 30" RCP (WEST)	Runoff Area=0.661 ac 100.00% Imper Flow Length=205' Tc=6.0 min CN=98	vious Runoff Depth>1.98" Runoff=1.98 cfs 0.109 af
Subcatchment4S-P: 30" RCP (WEST) Flow Length=100	Runoff Area=0.505 ac 0.00% Imper Slope=0.0100 '/' Tc=21.0 min CN=80	vious Runoff Depth>0.69" Runoff=0.36 cfs 0.029 af
Subcatchment5S-I: 21" RCP DRAINAGE	E Runoff Area=0.990 ac 100.00% Imper Flow Length=450' Tc=6.0 min CN=98	vious Runoff Depth>1.98" Runoff=2.97 cfs 0.163 af
Subcatchment5S-P: 21" RCP DRAINAG	E Runoff Area=0.756 ac 0.00% Imper Flow Length=227' Tc=26.0 min CN=80	vious Runoff Depth>0.69" Runoff=0.46 cfs 0.043 af
Subcatchment6S-I: 42" RCP DRAINAGE	E Runoff Area=3.310 ac 100.00% Imper Flow Length=1,526' Tc=11.7 min CN=98	vious Runoff Depth>1.98" Runoff=8.42 cfs 0.546 af
Subcatchment6S-P: 42" RCP DRAINAG	E Runoff Area=1.474 ac 0.00% Imper Flow Length=936' Tc=14.4 min CN=80	vious Runoff Depth>0.69" Runoff=1.28 cfs 0.085 af
Subcatchment7S-I: 36" RCP (WEST)	Runoff Area=3.546 ac 100.00% Imper Flow Length=796' Tc=6.5 min CN=98	vious Runoff Depth>1.98" Runoff=10.45 cfs 0.585 af
Subcatchment8S-I: 30" RCP (EAST)	Runoff Area=2.488 ac 100.00% Imper Flow Length=678' Tc=7.2 min CN=98	vious Runoff Depth>1.98" Runoff=7.27 cfs 0.411 af
Subcatchment8S-P: 30" RCP (EAST)	Runoff Area=1.081 ac 0.00% Imper Flow Length=621' Tc=18.2 min CN=80	vious Runoff Depth>0.69" Runoff=0.83 cfs 0.062 af
Subcatchment9S-I: 36" RCP (EAST)	Runoff Area=2.786 ac 100.00% Imper Flow Length=911' Tc=6.9 min CN=98	vious Runoff Depth>1.98" Runoff=8.20 cfs 0.460 af

146205005_EXIST DRAINAGE Prepared by C&S Engineers, Inc HydroCAD® 10.20-5c s/n 02837 © 2023 Hydrocechecker	Type II 2 droCAD Software Solutions LLC	24-hr 1-YR Rainfall=2.21" Printed 4/17/2025 Page 6
Subcatchment10S-P: SOUTHWEST Flow Length=1	Runoff Area=0.394 ac 0.00% Impo 14' Slope=0.0175 '/' Tc=6.0 min CN=3	ervious Runoff Depth=0.00" 9 Runoff=0.00 cfs 0.000 af
Subcatchment11S-P: SOUTHEAST Flow Length=1	Runoff Area=0.194 ac 0.00% Imp 15' Slope=0.0710 '/' Tc=6.0 min CN=3	ervious Runoff Depth=0.00" 9 Runoff=0.00 cfs 0.000 af
Subcatchment12S-P: SOUTHEAST	Runoff Area=0.286 ac 0.00% Impo Flow Length=155' Tc=12.4 min CN=3	ervious Runoff Depth=0.00" 9 Runoff=0.00 cfs 0.000 af
Pond 1P: SOUTHWEST DRAINAGEARE	A-TOTAL	Inflow=9.41 cfs 0.517 af Primary=9.41 cfs 0.517 af
Pond 2P: SOUTHEASTDRAINAGEARE	A-TOTAL	Inflow=1.41 cfs 0.078 af Primary=1.41 cfs 0.078 af
Pond 3P: TOTAL DOWNSTREAM72" RC	CP DRAINAGEAREA	Inflow=40.49 cfs 2.521 af Primary=40.49 cfs 2.521 af
Pond 3S: 72" RCP DRAINAGEAREA - TO	OTAL	Inflow=0.32 cfs 0.027 af Primary=0.32 cfs 0.027 af
Pond 4P: TOTAL SITE DISCHARGE		Inflow=51.14 cfs 3.116 af Primary=51.14 cfs 3.116 af
Pond 4S: 30" RCP (WEST) DRAINAGEA	REA - TOTAL	Inflow=2.13 cfs 0.138 af Primary=2.13 cfs 0.138 af
Pond 5S: 21" RCP DRAINAGEAREA - TO	OTAL	Inflow=3.11 cfs 0.207 af Primary=3.11 cfs 0.207 af
Pond 6S: 42" RCP DRAINAGEAREA - TO	OTAL	Inflow=9.61 cfs 0.631 af Primary=9.61 cfs 0.631 af
Pond 7S: 36" RCP (WEST) DRAINAGEA	REA - TOTAL	Inflow=10.45 cfs 0.585 af Primary=10.45 cfs 0.585 af
Pond 8S: 30" RCP (EAST) DRAINAGEA	REA-TOTAL	Inflow=7.73 cfs 0.473 af Primary=7.73 cfs 0.473 af
Pond 9S: 36" RCP (EAST) DRAINAGEA	REA-TOTAL	Inflow=8.20 cfs 0.460 af Primary=8.20 cfs 0.460 af

Total Runoff Area = 31.509 acRunoff Volume = 3.116 afAverage Runoff Depth = 1.19"44.30% Pervious = 13.958 ac55.70% Impervious = 17.551 ac

146205005_EXIST DRAINAGE	Type II 24-hr 10-YR Rainfall=3.64"
Prepared by C&S Engineers, Inc	Printed 4/17/2025
HydroCAD® 10.20-5c s/n 02837 © 2023 Hy	droCAD Software Solutions LLC Page 7
Time span=0 Runoff by SCS Reach routing by Stor-Ind-	.00-24.00 hrs, dt=0.05 hrs, 481 points TR-20 method, UH=SCS, Weighted-CN +Trans method - Pond routing by Stor-Ind method
Subcatchment1S-I: SOUTHWEST	Runoff Area=3.134 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=967' Tc=6.0 min CN=98 Runoff=15.72 cfs 0.889 af
Subcatchment1S-P: SOUTHWEST (ON	SITE) Runoff Area=8.340 ac 0.00% Impervious Runoff Depth>0.01" Flow Length=778' Tc=38.9 min CN=39 Runoff=0.02 cfs 0.010 af
Subcatchment2S-I: SOUTHEAST	Runoff Area=0.471 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=410' Tc=6.0 min CN=98 Runoff=2.36 cfs 0.134 af
Subcatchment2S-P: SOUTHEAST(ONS	SITE) Runoff Area=0.279 ac 0.00% Impervious Runoff Depth>0.02" Flow Length=380' Tc=6.5 min CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment3S-I: 72" RCP DRAINAG	E Runoff Area=0.165 ac 100.00% Impervious Runoff Depth>3.39" Flow Length=144' Tc=22.1 min CN=98 Runoff=0.53 cfs 0.047 af
Subcatchment3S-P: 72" RCP DRAINAG	GE Runoff Area=0.649 ac 0.00% Impervious Runoff Depth>0.02" Flow Length=131' Tc=21.8 min CN=39 Runoff=0.00 cfs 0.001 af
Subcatchment4S-I: 30" RCP (WEST)	Runoff Area=0.661 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=205' Tc=6.0 min CN=98 Runoff=3.32 cfs 0.187 af
Subcatchment4S-P: 30" RCP (WEST) Flow Length=10	Runoff Area=0.505 ac 0.00% Impervious Runoff Depth>1.74" 0' Slope=0.0100 '/' Tc=21.0 min CN=80 Runoff=0.95 cfs 0.073 af
Subcatchment5S-I: 21" RCP DRAINAG	E Runoff Area=0.990 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=450' Tc=6.0 min CN=98 Runoff=4.97 cfs 0.281 af
Subcatchment5S-P: 21" RCP DRAINAG	SE Runoff Area=0.756 ac 0.00% Impervious Runoff Depth>1.74" Flow Length=227' Tc=26.0 min CN=80 Runoff=1.24 cfs 0.109 af
Subcatchment6S-I: 42" RCP DRAINAG F	E Runoff Area=3.310 ac 100.00% Impervious Runoff Depth>3.40" low Length=1,526' Tc=11.7 min CN=98 Runoff=14.09 cfs 0.938 af
Subcatchment6S-P: 42" RCP DRAINAG	SE Runoff Area=1.474 ac 0.00% Impervious Runoff Depth>1.74" Flow Length=936' Tc=14.4 min CN=80 Runoff=3.37 cfs 0.214 af
Subcatchment7S-I: 36" RCP (WEST)	Runoff Area=3.546 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=796' Tc=6.5 min CN=98 Runoff=17.47 cfs 1.006 af
Subcatchment8S-I: 30" RCP (EAST)	Runoff Area=2.488 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=678' Tc=7.2 min CN=98 Runoff=12.15 cfs 0.705 af
Subcatchment8S-P: 30" RCP (EAST)	Runoff Area=1.081 ac 0.00% Impervious Runoff Depth>1.74" Flow Length=621' Tc=18.2 min CN=80 Runoff=2.20 cfs 0.157 af
Subcatchment9S-I: 36" RCP (EAST)	Runoff Area=2.786 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=911' Tc=6.9 min CN=98 Runoff=13.70 cfs 0.790 af

146205005_EXIST DRAINAGE Prepared by C&S Engineers, Inc	7	Type II 24-hr 10-YR Rainfall=3.64" Printed 4/17/2025
TIYUTOOAD® 10.20-00 3/11 02001 @ 20201		
Subcatchment10S-P: SOUTHWEST Flow Length	Runoff Area=0.394 ac 0 =14' Slope=0.0175 '/' Tc=6.0 m	0.00% Impervious Runoff Depth>0.02" nin CN=39 Runoff=0.00 cfs 0.001 af
Subcatchment11S-P: SOUTHEAST Flow Length	Runoff Area=0.194 ac 0 =15' Slope=0.0710 '/' Tc=6.0 m	0.00% Impervious Runoff Depth>0.02" nin CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment12S-P: SOUTHEAST	Runoff Area=0.286 ac 0 Flow Length=155' Tc=12.4 m	0.00% Impervious Runoff Depth>0.02" nin CN=39 Runoff=0.00 cfs 0.000 af
Pond 1P: SOUTHWESTDRAINAGEAR	EA-TOTAL	Inflow=15.72 cfs 0.900 af Primary=15.72 cfs 0.900 af
Pond 2P: SOUTHEASTDRAINAGEAR	EA - TOTAL	Inflow=2.36 cfs 0.135 af Primary=2.36 cfs 0.135 af
Pond 3P: TOTAL DOWNSTREAM72" R	CP DRAINAGEAREA	Inflow=69.94 cfs 4.508 af Primary=69.94 cfs 4.508 af
Pond 3S: 72" RCP DRAINAGEAREA -	TOTAL	Inflow=0.53 cfs 0.047 af Primary=0.53 cfs 0.047 af
Pond 4P: TOTAL SITE DISCHARGE		Inflow=87.69 cfs 5.542 af Primary=87.69 cfs 5.542 af
Pond 4S: 30" RCP (WEST) DRAINAGE	AREA - TOTAL	Inflow=3.79 cfs 0.261 af Primary=3.79 cfs 0.261 af
Pond 5S: 21" RCP DRAINAGEAREA -	TOTAL	Inflow=5.46 cfs 0.390 af Primary=5.46 cfs 0.390 af
Pond 6S: 42" RCP DRAINAGEAREA -	TOTAL	Inflow=17.30 cfs 1.152 af Primary=17.30 cfs 1.152 af
Pond 7S: 36" RCP (WEST) DRAINAGE	AREA - TOTAL	Inflow=17.47 cfs 1.006 af Primary=17.47 cfs 1.006 af
Pond 8S: 30" RCP (EAST) DRAINAGE	AREA - TOTAL	Inflow=13.56 cfs 0.862 af Primary=13.56 cfs 0.862 af
Pond 9S: 36" RCP (EAST) DRAINAGE	AREA - TOTAL	Inflow=13.70 cfs 0.790 af Primary=13.70 cfs 0.790 af

Total Runoff Area = 31.509 acRunoff Volume = 5.542 afAverage Runoff Depth = 2.11"44.30% Pervious = 13.958 ac55.70% Impervious = 17.551 ac

146205005_EXIST DRAINAGE	Type II 24-hr 100	-YR Rainfall=5.34"
Prepared by C&S Engineers, Inc		Printed 4/17/2025
HydroCAD® 10.20-5c s/n 02837 © 2023 Hy	drocad Software Solutions LLC	Page 9
Time span=0 Runoff by SCS Reach routing by Stor-Ind-	.00-24.00 hrs, dt=0.05 hrs, 481 points TR-20 method, UH=SCS, Weighted-CN +Trans method - Pond routing by Stor-Ind m	ethod
Subcatchment1S-I: SOUTHWEST	Runoff Area=3.134 ac 100.00% Impervious Flow Length=967' Tc=6.0 min CN=98 Runot	Runoff Depth>5.10" f=23.18 cfs 1.332 af
Subcatchment1S-P: SOUTHWEST (ON	SITE) Runoff Area=8.340 ac 0.00% Impervious Flow Length=778' Tc=38.9 min CN=39 Rune	Runoff Depth>0.27" off=0.43 cfs_0.185 af
Subcatchment2S-I: SOUTHEAST	Runoff Area=0.471 ac 100.00% Impervious Flow Length=410' Tc=6.0 min CN=98 Rune	Runoff Depth>5.10" off=3.48 cfs_0.200 af
Subcatchment2S-P: SOUTHEAST(ONS	SITE) Runoff Area=0.279 ac 0.00% Impervious Flow Length=380' Tc=6.5 min CN=39 Rund	Runoff Depth>0.27" off=0.03 cfs_0.006 af
Subcatchment3S-I: 72" RCP DRAINAG	E Runoff Area=0.165 ac 100.00% Impervious Flow Length=144' Tc=22.1 min CN=98 Rune	Runoff Depth>5.08" off=0.78 cfs_0.070 af
Subcatchment3S-P: 72" RCP DRAINAG	GE Runoff Area=0.649 ac 0.00% Impervious Flow Length=131' Tc=21.8 min CN=39 Rune	Runoff Depth>0.27" off=0.04 cfs_0.015 af
Subcatchment4S-I: 30" RCP (WEST)	Runoff Area=0.661 ac 100.00% Impervious Flow Length=205' Tc=6.0 min CN=98 Rune	Runoff Depth>5.10" off=4.89 cfs_0.281 af
Subcatchment4S-P: 30" RCP (WEST) Flow Length=10	Runoff Area=0.505 ac 0.00% Impervious 0' Slope=0.0100 '/' Tc=21.0 min CN=80 Runo	Runoff Depth>3.18" off=1.73 cfs_0.134 af
Subcatchment5S-I: 21" RCP DRAINAG	E Runoff Area=0.990 ac 100.00% Impervious Flow Length=450' Tc=6.0 min CN=98 Rund	Runoff Depth>5.10" off=7.32 cfs_0.421 af
Subcatchment5S-P: 21" RCP DRAINAG	SE Runoff Area=0.756 ac 0.00% Impervious Flow Length=227' Tc=26.0 min CN=80 Rune	Runoff Depth>3.17" off=2.29 cfs_0.200 af
Subcatchment6S-I: 42" RCP DRAINAG F	E Runoff Area=3.310 ac 100.00% Impervious low Length=1,526' Tc=11.7 min CN=98 Runot	Runoff Depth>5.09" f=20.78 cfs 1.405 af
Subcatchment6S-P: 42" RCP DRAINAG	SE Runoff Area=1.474 ac 0.00% Impervious Flow Length=936' Tc=14.4 min CN=80 Rune	Runoff Depth>3.18" off=6.14 cfs_0.391 af
Subcatchment7S-I: 36" RCP (WEST)	Runoff Area=3.546 ac 100.00% Impervious Flow Length=796' Tc=6.5 min CN=98 Runot	Runoff Depth>5.10" f=25.75 cfs 1.507 af
Subcatchment8S-I: 30" RCP (EAST)	Runoff Area=2.488 ac 100.00% Impervious Flow Length=678' Tc=7.2 min CN=98 Runot	Runoff Depth>5.10" f=17.91 cfs 1.057 af
Subcatchment8S-P: 30" RCP (EAST)	Runoff Area=1.081 ac 0.00% Impervious Flow Length=621' Tc=18.2 min CN=80 Rune	Runoff Depth>3.18" off=4.02 cfs 0.286 af
Subcatchment9S-I: 36" RCP (EAST)	Runoff Area=2.786 ac 100.00% Impervious Flow Length=911' Tc=6.9 min CN=98 Runot	Runoff Depth>5.10" f=20.20 cfs

146205005_EXIST DRAINAGE Prepared by C&S Engineers, Inc HydroCAD® 10.20-5c s/n 02837 © 2023 Hydro	Ty DCAD Software Solutions LL	/ре II 24-hr 100- С	YR Rainfall=5.34" Printed 4/17/2025 Page 10
Subcatchment10S-P: SOUTHWEST Flow Length=14'	Runoff Area=0.394 ac 0 Slope=0.0175 '/' Tc=6.0 n).00% Impervious nin CN=39 Runot	Runoff Depth>0.27" f=0.04 cfs_0.009 af
Subcatchment11S-P: SOUTHEAST Flow Length=15'	Runoff Area=0.194 ac 0 Slope=0.0710 '/' Tc=6.0 n).00% Impervious nin CN=39 Runot	Runoff Depth>0.27" f=0.02 cfs_0.004 af
Subcatchment12S-P: SOUTHEAST F	Runoff Area=0.286 ac 0 low Length=155' Tc=12.4 n).00% Impervious nin CN=39 Runot	Runoff Depth>0.27" ff=0.02 cfs 0.006 af
Pond 1P: SOUTHWESTDRAINAGEAREA	- TOTAL	Inflow Primary	=23.19 cfs 1.526 af =23.19 cfs 1.526 af
Pond 2P: SOUTHEASTDRAINAGEAREA -	TOTAL	Inflo Primar	w=3.49 cfs 0.217 af y=3.49 cfs 0.217 af
Pond 3P: TOTAL DOWNSTREAM72" RCP	DRAINAGEAREA	Inflow= Primary=	105.41 cfs 6.948 af 105.41 cfs 6.948 af
Pond 3S: 72" RCP DRAINAGEAREA - TOT	AL	Inflo Primar	w=0.80 cfs 0.084 af y=0.80 cfs 0.084 af
Pond 4P: TOTAL SITE DISCHARGE		Inflow= Primary=	131.57 cfs 8.691 af 131.57 cfs 8.691 af
Pond 4S: 30" RCP (WEST) DRAINAGEARI	EA - TOTAL	Inflo Primar	w=5.83 cfs 0.415 af y=5.83 cfs 0.415 af
Pond 5S: 21" RCP DRAINAGEAREA - TOT	AL	Inflo Primar	w=8.32 cfs 0.620 af y=8.32 cfs 0.620 af
Pond 6S: 42" RCP DRAINAGEAREA - TOT	AL	Inflow Primary	=26.70 cfs 1.796 af =26.70 cfs 1.796 af
Pond 7S: 36" RCP (WEST) DRAINAGEARI	EA - TOTAL	Inflow Primary	=25.75 cfs 1.507 af =25.75 cfs 1.507 af
Pond 8S: 30" RCP (EAST) DRAINAGEARE	A-TOTAL	Inflow Primary	=20.63 cfs 1.343 af =20.63 cfs 1.343 af
Pond 9S: 36" RCP (EAST) DRAINAGEARE	A-TOTAL	Inflow Primary	=20.20 cfs 1.184 af =20.20 cfs 1.184 af

Total Runoff Area = 31.509 acRunoff Volume = 8.691 afAverage Runoff Depth = 3.31"44.30% Pervious = 13.958 ac55.70% Impervious = 17.551 ac



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Event#	Event	Storm Type	Curve	Mode	Duration	B/B	Depth	AMC
	Name				(hours)		(inches)	
1	1-YR	Type II 24-hr		Default	24.00	1	2.21	2
2	10-YR	Type II 24-hr		Default	24.00	1	3.64	2
3	100-YR	Type II 24-hr		Default	24.00	1	5.34	2

Rainfall Events Listing

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Area Listing (all nodes)

	Area	CN	Description
(8	acres)		(subcatchment-numbers)
	9.063	39	>75% Grass cover, Good, HSG A (1S-P, 2S-P, 3S-P)
	8.144	80	>75% Grass cover, Good, HSG D (4S-P, 5S-P, 6S-P, 7S-P, 8S-P, 9S-P)
	4.813	98	Paved parking, HSG A (1S-I, 2S-I, 3S-I)
	9.488	98	Paved parking, HSG D (4S-I, 5S-I, 6S-I, 7S-I, 8S-I, 9S-I)
3	81.508	76	TOTAL AREA

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Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
13.876	HSG A	1S-I, 1S-P, 2S-I, 2S-P, 3S-I, 3S-P
0.000	HSG B	
0.000	HSG C	
17.632	HSG D	4S-I, 4S-P, 5S-I, 5S-P, 6S-I, 6S-P, 7S-I, 7S-P, 8S-I, 8S-P, 9S-I, 9S-P
0.000	Other	
31.508		TOTAL AREA

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S-I: SOUTHWEST	Runoff Area=2.247 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=1,045' Tc=6.0 min CN=98 Runoff=6.74 cfs 0.371 af	
Subcatchment1S-P: SOUTHWEST	Runoff Area=2.071 ac 0.00% Impervious Runoff Depth=0.00" Flow Length=472' Tc=21.4 min CN=39 Runoff=0.00 cfs 0.000 af	
Subcatchment2S-I: SOUTHEAST	Runoff Area=0.471 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=352' Tc=6.0 min CN=98 Runoff=1.41 cfs 0.078 af	
Subcatchment2S-P: SOUTHEAST	Runoff Area=0.453 ac 0.00% Impervious Runoff Depth=0.00" Flow Length=386' Tc=12.6 min CN=39 Runoff=0.00 cfs 0.000 af	
Subcatchment3S-I: 72" RCP DRAINAG	E Runoff Area=2.095 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=680' Tc=6.2 min CN=98 Runoff=6.24 cfs 0.346 af	
Subcatchment3S-P: 72" RCP DRAINAG	GE Runoff Area=6.539 ac 0.00% Impervious Runoff Depth=0.00" Flow Length=874' Tc=40.0 min CN=39 Runoff=0.00 cfs 0.000 af	
Subcatchment4S-I: 30" RCP DRAINAG	E Runoff Area=0.383 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=205' Tc=6.0 min CN=98 Runoff=1.15 cfs 0.063 af	
Subcatchment4S-P: 30" RCP DRAINAG Flow Length=10	GE Runoff Area=0.713 ac 0.00% Impervious Runoff Depth>0.69" 0' Slope=0.0100 '/' Tc=21.0 min CN=80 Runoff=0.50 cfs 0.041 af	
Subcatchment5S-I: 21" RCP DRAINAG	E Runoff Area=0.662 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=552' Tc=6.0 min CN=98 Runoff=1.99 cfs 0.109 af	
Subcatchment5S-P: 21" RCP DRAINAG	SE Runoff Area=0.624 ac 0.00% Impervious Runoff Depth>0.69" Flow Length=227' Tc=26.0 min CN=80 Runoff=0.38 cfs 0.036 af	
Subcatchment6S-I: 42" RCP DRAINAG	E Runoff Area=1.345 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=609' Tc=6.5 min CN=98 Runoff=3.96 cfs 0.222 af	
Subcatchment6S-P: 42" RCP DRAINAG	GE Runoff Area=2.683 ac 0.00% Impervious Runoff Depth>0.69" Flow Length=276' Tc=20.4 min CN=80 Runoff=1.92 cfs 0.154 af	
Subcatchment7S-I: 36" RCP (WEST)	Runoff Area=3.497 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=796' Tc=6.5 min CN=98 Runoff=10.31 cfs 0.577 af	
Subcatchment7S-P: 36" RCP (WEST)	Runoff Area=1.609 ac 0.00% Impervious Runoff Depth>0.69" Flow Length=393' Tc=33.7 min CN=80 Runoff=0.83 cfs 0.092 af	
Subcatchment8S-I: 30" RCP (EAST)	Runoff Area=0.817 ac 100.00% Impervious Runoff Depth>1.98" Flow Length=546' Tc=6.0 min CN=98 Runoff=2.45 cfs 0.135 af	
Subcatchment8S-P: 30" RCP (EAST)	Runoff Area=1.619 ac 0.00% Impervious Runoff Depth>0.69" Flow Length=276' Tc=20.4 min CN=80 Runoff=1.16 cfs 0.093 af	
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Subcatchment9S-I: 36" RCP (EAST)	Runoff Area=2.784 ac 100.00 Flow Length=911' Tc=6.9 min	0% Impervious Runoff Depth>1.98" CN=98 Runoff=8.19 cfs 0.460 af
Subcatchment9S-P: 36" RCP (EAST)	Runoff Area=0.896 ac 0.00 Flow Length=915' Tc=10.1 min	0% Impervious Runoff Depth>0.69" CN=80 Runoff=0.91 cfs 0.052 af
Pond 1P: SOUTHWESTDRAINAGEAR	REA - TOTAL	Inflow=6.74 cfs 0.371 af Primary=6.74 cfs 0.371 af
Pond 2P: SOUTHEASTDRAINAGEAR	EA-TOTAL	Inflow=1.41 cfs 0.078 af Primary=1.41 cfs 0.078 af
Pond 3P: TOTAL DOWNSTREAM72" R	RCP DRAINAGEAREA	Inflow=37.12 cfs 2.380 af Primary=37.12 cfs 2.380 af
Pond 3S: 72" RCP DRAINAGEAREA -	TOTAL	Inflow=6.24 cfs 0.346 af Primary=6.24 cfs 0.346 af
Pond 4P: TOTAL SITE DISCHARGE		Inflow=44.91 cfs 2.829 af Primary=44.91 cfs 2.829 af
Pond 4S: 30" RCP DRAINAGEAREA -	TOTAL	Inflow=1.37 cfs 0.104 af Primary=1.37 cfs 0.104 af
Pond 5S: 21" RCP DRAINAGEAREA -	TOTAL	Inflow=2.10 cfs 0.145 af Primary=2.10 cfs 0.145 af
Pond 6S: 42" RCP DRAINAGEAREA -	TOTAL	Inflow=4.91 cfs 0.376 af Primary=4.91 cfs 0.376 af
Pond 7S: 36" RCP (WEST) DRAINAGE	AREA - TOTAL	Inflow=10.48 cfs 0.669 af Primary=10.48 cfs 0.669 af
Pond 8P: 30" RCP (EAST) DRAINAGE	AREA - TOTAL	Inflow=2.98 cfs 0.228 af Primary=2.98 cfs 0.228 af
Pond 9P: 36" RCP (EAST) DRAINAGE	AREA - TOTAL	Inflow=9.00 cfs 0.511 af Primary=9.00 cfs 0.511 af

Total Runoff Area = 31.508 ac Runoff Volume = 2.829 af Average Runoff Depth = 1.08" 54.61% Pervious = 17.207 ac 45.39% Impervious = 14.301 ac

146205005_PROP DRAINAGE

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S-I: SOUTHWEST	Runoff Area=2.247 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=1,045' Tc=6.0 min CN=98 Runoff=11.27 cfs 0.637 af
Subcatchment1S-P: SOUTHWEST	Runoff Area=2.071 ac 0.00% Impervious Runoff Depth>0.02" Flow Length=472' Tc=21.4 min CN=39 Runoff=0.01 cfs 0.003 af
Subcatchment2S-I: SOUTHEAST	Runoff Area=0.471 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=352' Tc=6.0 min CN=98 Runoff=2.36 cfs 0.134 af
Subcatchment2S-P: SOUTHEAST	Runoff Area=0.453 ac 0.00% Impervious Runoff Depth>0.02" Flow Length=386' Tc=12.6 min CN=39 Runoff=0.00 cfs 0.001 af
Subcatchment3S-I: 72" RCP DRAINAG	E Runoff Area=2.095 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=680' Tc=6.2 min CN=98 Runoff=10.43 cfs 0.594 af
Subcatchment3S-P: 72" RCP DRAINA	GE Runoff Area=6.539 ac 0.00% Impervious Runoff Depth>0.01" Flow Length=874' Tc=40.0 min CN=39 Runoff=0.02 cfs 0.008 af
Subcatchment4S-I: 30" RCP DRAINAG	E Runoff Area=0.383 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=205' Tc=6.0 min CN=98 Runoff=1.92 cfs 0.109 af
Subcatchment4S-P: 30" RCP DRAINA Flow Length=10	GE Runoff Area=0.713 ac 0.00% Impervious Runoff Depth>1.74" 00' Slope=0.0100 '/' Tc=21.0 min CN=80 Runoff=1.34 cfs 0.103 af
Subcatchment5S-I: 21" RCP DRAINAG	E Runoff Area=0.662 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=552' Tc=6.0 min CN=98 Runoff=3.32 cfs 0.188 af
Subcatchment5S-P: 21" RCP DRAINA	GE Runoff Area=0.624 ac 0.00% Impervious Runoff Depth>1.74" Flow Length=227' Tc=26.0 min CN=80 Runoff=1.03 cfs 0.090 af
Subcatchment6S-I: 42" RCP DRAINAG	E Runoff Area=1.345 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=609' Tc=6.5 min CN=98 Runoff=6.62 cfs 0.381 af
Subcatchment6S-P: 42" RCP DRAINA	GE Runoff Area=2.683 ac 0.00% Impervious Runoff Depth>1.74" Flow Length=276' Tc=20.4 min CN=80 Runoff=5.11 cfs 0.389 af
Subcatchment7S-I: 36" RCP (WEST)	Runoff Area=3.497 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=796' Tc=6.5 min CN=98 Runoff=17.22 cfs 0.992 af
Subcatchment7S-P: 36" RCP (WEST)	Runoff Area=1.609 ac 0.00% Impervious Runoff Depth>1.73" Flow Length=393' Tc=33.7 min CN=80 Runoff=2.23 cfs 0.232 af
Subcatchment8S-I: 30" RCP (EAST)	Runoff Area=0.817 ac 100.00% Impervious Runoff Depth>3.40" Flow Length=546' Tc=6.0 min CN=98 Runoff=4.10 cfs 0.232 af
Subcatchment8S-P: 30" RCP (EAST)	Runoff Area=1.619 ac 0.00% Impervious Runoff Depth>1.74" Flow Length=276' Tc=20.4 min CN=80 Runoff=3.08 cfs 0.235 af

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Subcatchment9S-I: 36" RCP (EAST)	Runoff Area=2.7 Flow Length=911'	84 ac 100.00 Tc=6.9 min	% Impervious CN=98 Runot	Runoff Dep ff=13.69 cfs	oth>3.40" 0.789 af
Subcatchment9S-P: 36" RCP (EAST)	Runoff Area=0 Flow Length=915').896 ac 0.00 Tc=10.1 min	% Impervious CN=80 Rune	Runoff Dep off=2.36 cfs	oth>1.74" 0.130 af
Pond 1P: SOUTHWESTDRAINAGEARE	A-TOTAL		Inflo [,] Primar	w=11.27 cfs y=11.27 cfs	0.640 af 0.640 af
Pond 2P: SOUTHEASTDRAINAGEARE	A-TOTAL		Infl Prima	ow=2.36 cfs ary=2.36 cfs	0.134 af 0.134 af
Pond 3P: TOTAL DOWNSTREAM72" RC	P DRAINAGEAR	ĒA	Inflov Primar	w=65.93 cfs ⁻y=65.93 cfs	4.472 af 4.472 af
Pond 3S: 72" RCP DRAINAGEAREA - TO	OTAL		Inflo Primar	w=10.43 cfs y=10.43 cfs	0.602 af 0.602 af
Pond 4P: TOTAL SITE DISCHARGE			Inflo Primar	w=78.90 cfs y=78.90 cfs	5.246 af 5.246 af
Pond 4S: 30" RCP DRAINAGEAREA - TO	OTAL		Infl Prima	ow=2.64 cfs ary=2.64 cfs	0.212 af 0.212 af
Pond 5S: 21" RCP DRAINAGEAREA - TO	OTAL		Infl Prima	ow=3.73 cfs ary=3.73 cfs	0.278 af 0.278 af
Pond 6S: 42" RCP DRAINAGEAREA - TO	OTAL		Infl Prima	ow=9.64 cfs ary=9.64 cfs	0.770 af 0.770 af
Pond 7S: 36" RCP (WEST) DRAINAGEA	REA - TOTAL		Inflo [,] Primar	w=17.89 cfs y=17.89 cfs	1.224 af 1.224 af
Pond 8P: 30" RCP (EAST) DRAINAGEA	REA-TOTAL		Infl Prima	ow=5.81 cfs ary=5.81 cfs	0.466 af 0.466 af
Pond 9P: 36" RCP (EAST) DRAINAGEA	REA-TOTAL		Inflo [,] Primar	w=15.87 cfs y=15.87 cfs	0.920 af 0.920 af

Total Runoff Area = 31.508 ac Runoff Volume = 5.246 af Average Runoff Depth = 2.00" 54.61% Pervious = 17.207 ac 45.39% Impervious = 14.301 ac

146205005_PROP DRAINAGE

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S-I: SOUTHWEST	Runoff Area=2.247 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=1,045' Tc=6.0 min CN=98 Runoff=16.62 cfs 0.955 af
Subcatchment1S-P: SOUTHWEST	Runoff Area=2.071 ac 0.00% Impervious Runoff Depth>0.27" Flow Length=472' Tc=21.4 min CN=39 Runoff=0.12 cfs 0.047 af
Subcatchment2S-I: SOUTHEAST	Runoff Area=0.471 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=352' Tc=6.0 min CN=98 Runoff=3.48 cfs 0.200 af
Subcatchment2S-P: SOUTHEAST	Runoff Area=0.453 ac 0.00% Impervious Runoff Depth>0.27" Flow Length=386' Tc=12.6 min CN=39 Runoff=0.03 cfs 0.010 af
Subcatchment3S-I: 72" RCP DRAINAG	SE Runoff Area=2.095 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=680' Tc=6.2 min CN=98 Runoff=15.38 cfs 0.890 af
Subcatchment3S-P: 72" RCP DRAINA	GE Runoff Area=6.539 ac 0.00% Impervious Runoff Depth>0.27" Flow Length=874' Tc=40.0 min CN=39 Runoff=0.33 cfs 0.145 af
Subcatchment4S-I: 30" RCP DRAINAC	SE Runoff Area=0.383 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=205' Tc=6.0 min CN=98 Runoff=2.83 cfs 0.163 af
Subcatchment4S-P: 30" RCP DRAINA Flow Length=10	GE Runoff Area=0.713 ac 0.00% Impervious Runoff Depth>3.18" 00' Slope=0.0100 '/' Tc=21.0 min CN=80 Runoff=2.45 cfs 0.189 af
Subcatchment5S-I: 21" RCP DRAINAC	E Runoff Area=0.662 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=552' Tc=6.0 min CN=98 Runoff=4.90 cfs 0.281 af
Subcatchment5S-P: 21" RCP DRAINA	GE Runoff Area=0.624 ac 0.00% Impervious Runoff Depth>3.17" Flow Length=227' Tc=26.0 min CN=80 Runoff=1.89 cfs 0.165 af
Subcatchment6S-I: 42" RCP DRAINAC	SE Runoff Area=1.345 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=609' Tc=6.5 min CN=98 Runoff=9.77 cfs 0.571 af
Subcatchment6S-P: 42" RCP DRAINA	GE Runoff Area=2.683 ac 0.00% Impervious Runoff Depth>3.18" Flow Length=276' Tc=20.4 min CN=80 Runoff=9.35 cfs 0.710 af
Subcatchment7S-I: 36" RCP (WEST)	Runoff Area=3.497 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=796' Tc=6.5 min CN=98 Runoff=25.40 cfs 1.486 af
Subcatchment7S-P: 36" RCP (WEST)	Runoff Area=1.609 ac 0.00% Impervious Runoff Depth>3.17" Flow Length=393' Tc=33.7 min CN=80 Runoff=4.12 cfs 0.424 af
Subcatchment8S-I: 30" RCP (EAST)	Runoff Area=0.817 ac 100.00% Impervious Runoff Depth>5.10" Flow Length=546' Tc=6.0 min CN=98 Runoff=6.04 cfs 0.347 af
Subcatchment8S-P: 30" RCP (EAST)	Runoff Area=1.619 ac 0.00% Impervious Runoff Depth>3.18" Flow Length=276' Tc=20.4 min CN=80 Runoff=5.64 cfs 0.429 af

146205005_PROP DRAINAGE Prepared by C&S Engineers, Inc HydroCAD® 10.20-5c s/n 02837 © 2023 Hy	ydroCAD Software So	Type	ll 24-hr	100-YR Rain Printed	fall=5.34" 5/1/2025 <u>Page 10</u>
Subcatchment9S-I: 36" RCP (EAST)	Runoff Area=2.78 Flow Length=911'	84 ac 100.00 ⁰ Tc=6.9 min (% Impervic CN=98 R	ous Runoff De unoff=20.19 cfs	pth>5.10" 1.183 af
Subcatchment9S-P: 36" RCP (EAST)	Runoff Area=0 Flow Length=915'	0.896 ac 0.00 Tc=10.1 min	% Impervio CN=80 F	ous Runoff De Runoff=4.28 cfs	pth>3.18" 0.238 af
Pond 1P: SOUTHWEST DRAINAGEARE	EA-TOTAL		l Pri	nflow=16.62 cfs mary=16.62 cfs	s 1.001 af s 1.001 af
Pond 2P: SOUTHEASTDRAINAGEARE	A-TOTAL		Р	Inflow=3.48 cfs rimary=3.48 cfs	s 0.210 af s 0.210 af
Pond 3P: TOTAL DOWNSTREAM72" R	CP DRAINAGEARE	ĒA	In Prin	flow=101.22 cfs nary=101.22 cfs	s 7.221 af s 7.221 af
Pond 3S: 72" RCP DRAINAGEAREA - T	OTAL		l Pri	nflow=15.38 cfs mary=15.38 cfs	s 1.035 af s 1.035 af
Pond 4P: TOTAL SITE DISCHARGE			In Prin	flow=121.12 cfs nary=121.12 cfs	s 8.432 af s 8.432 af
Pond 4S: 30" RCP DRAINAGEAREA - T	OTAL		Р	Inflow=4.25 cfs rimary=4.25 cfs	s 0.351 af s 0.351 af
Pond 5S: 21" RCP DRAINAGEAREA - T	OTAL		Р	Inflow=5.73 cfs rimary=5.73 cfs	s 0.446 af s 0.446 af
Pond 6S: 42" RCP DRAINAGEAREA - T	OTAL		l Pri	nflow=15.69 cfs mary=15.69 cfs	s 1.282 af s 1.282 af
Pond 7S: 36" RCP (WEST) DRAINAGEA	AREA - TOTAL		l Pri	nflow=26.78 cfs mary=26.78 cfs	s 1.910 af s 1.910 af
Pond 8P: 30" RCP (EAST) DRAINAGEA	REA-TOTAL		Р	Inflow=9.43 cfs rimary=9.43 cfs	s 0.776 af s 0.776 af
Pond 9P: 36" RCP (EAST) DRAINAGEA	REA - TOTAL		l Pri	nflow=24.21 cfs mary=24.21 cfs	s 1.420 af s 1.420 af

Total Runoff Area = 31.508 ac Runoff Volume = 8.432 af Average Runoff Depth = 3.21" 54.61% Pervious = 17.207 ac 45.39% Impervious = 14.301 ac Precipitation Frequency Data Server

NOAA Atlas 14, Volume 10, Version 3 Location name: Rome, New York, USA* Latitude: 43.2276°, Longitude: -75.4272° Elevation: 479 ft** * source: ESRI Maps ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-	PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹									
Duration	Average recurrence interval (years)									
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	0.297 (0.237-0.366)	0.351 (0.280-0.432)	0.439 (0.349-0.542)	0.511 (0.404-0.633)	0.611 (0.465-0.777)	0.687 (0.511-0.885)	0.765 (0.549-1.01)	0.848 (0.579-1.14)	0.961 (0.628-1.32)	1.05 (0.670-1.46)
10-min	0.421 (0.336-0.518)	0.497 (0.396-0.612)	0.621 (0.493-0.766)	0.724 (0.572-0.897)	0.866 (0.659-1.10)	0.974 (0.724-1.26)	1.08 (0.778-1.43)	1.20 (0.820-1.61)	1.36 (0.892-1.87)	1.49 (0.949-2.07)
15-min	0.495 (0.395-0.609)	0.584 (0.466-0.720)	0.730 (0.580-0.902)	0.851 (0.672-1.05)	1.02 (0.775-1.30)	1.15 (0.852-1.48)	1.28 (0.915-1.68)	1.41 (0.965-1.89)	1.60 (1.05-2.20)	1.75 (1.12-2.43)
30-min	0.677 (0.541-0.834)	0.800 (0.638-0.985)	1.00 (0.795-1.24)	1.16 (0.920-1.44)	1.39 (1.06-1.77)	1.57 (1.16-2.02)	1.74 (1.25-2.30)	1.93 (1.32-2.59)	2.19 (1.43-3.00)	2.39 (1.53-3.33)
60-min	0.860 (0.687-1.06)	1.02 (0.809-1.25)	1.27 (1.01-1.57)	1.48 (1.17-1.83)	1.77 (1.35-2.25)	1.99 (1.48-2.56)	2.21 (1.59-2.92)	2.45 (1.68-3.29)	2.78 (1.82-3.81)	3.04 (1.94-4.22)
2-hr	1.08 (0.867-1.32)	1.27 (1.02-1.55)	1.58 (1.26-1.94)	1.84 (1.46-2.26)	2.20 (1.68-2.78)	2.47 (1.85-3.16)	2.74 (1.99-3.60)	3.05 (2.10-4.06)	3.47 (2.29-4.72)	3.81 (2.45-5.26)
3-hr	1.22 (0.987-1.49)	1.44 (1.16-1.75)	1.79 (1.44-2.18)	2.08 (1.66-2.55)	2.48 (1.91-3.12)	2.78 (2.09-3.55)	3.09 (2.25-4.05)	3.44 (2.37-4.56)	3.92 (2.60-5.32)	4.31 (2.78-5.93)
6-hr	1.51 (1.22-1.82)	1.77 (1.43-2.14)	2.19 (1.77-2.66)	2.55 (2.05-3.10)	3.04 (2.35-3.80)	3.40 (2.58-4.32)	3.79 (2.78-4.92)	4.21 (2.93-5.54)	4.81 (3.21-6.48)	5.30 (3.44-7.23)
12-hr	1.84 (1.50-2.21)	2.16 (1.76-2.59)	2.67 (2.17-3.22)	3.10 (2.50-3.74)	3.68 (2.88-4.58)	4.13 (3.15-5.20)	4.59 (3.39-5.92)	5.10 (3.57-6.66)	5.81 (3.91-7.77)	6.39 (4.19-8.66)
24-hr	2.21 (1.82-2.64)	<mark>2.57</mark> (2.11-3.07)	3.16 (2.58-3.78)	3.64 (2.96-4.38)	4.31 (3.39-5.32)	4.82 (3.70-6.02)	<mark>5.34</mark> (3.97-6.83)	5.90 (4.17-7.66)	6.69 (4.53-8.88)	7.31 (4.83-9.84)
2-day	2.63 (2.18-3.12)	3.01 (2.49-3.57)	3.64 (3.00-4.32)	4.15 (3.40-4.95)	4.86 (3.84-5.95)	5.41 (4.18-6.69)	5.96 (4.45-7.53)	6.54 (4.65-8.42)	7.31 (5.00-9.64)	7.92 (5.27-10.6)
3-day	2.93 (2.43-3.46)	3.32 (2.76-3.93)	3.97 (3.29-4.71)	4.51 (3.71-5.36)	5.25 (4.17-6.39)	5.82 (4.51-7.17)	6.40 (4.78-8.03)	6.98 (5.00-8.96)	7.76 (5.33-10.2)	8.36 (5.59-11.1)
4-day	3.19 (2.66-3.75)	3.60 (2.99-4.24)	4.26 (3.54-5.04)	4.82 (3.97-5.71)	5.58 (4.44-6.77)	6.17 (4.80-7.57)	6.76 (5.07-8.45)	7.35 (5.28-9.40)	8.13 (5.61-10.6)	8.72 (5.86-11.6)
7-day	3.88 (3.25-4.54)	4.31 (3.61-5.05)	5.03 (4.19-5.90)	5.62 (4.66-6.62)	6.44 (5.15-7.75)	7.07 (5.52-8.61)	7.69 (5.79-9.54)	8.30 (6.00-10.6)	9.08 (6.30-11.8)	9.64 (6.51-12.7)
10-day	4.53 (3.81-5.28)	5.00 (4.20-5.83)	5.76 (4.82-6.74)	6.40 (5.32-7.51)	7.27 (5.84-8.72)	7.96 (6.23-9.64)	8.62 (6.50-10.6)	9.25 (6.72-11.7)	10.1 (7.01-13.0)	10.6 (7.20-14.0)
20-day	6.49 (5.50-7.53)	7.08 (5.98-8.20)	8.02 (6.76-9.33)	8.81 (7.38-10.3)	9.90 (8.00-11.8)	10.8 (8.48-12.9)	11.6 (8.79-14.1)	12.3 (9.03-15.5)	13.3 (9.33-17.1)	13.9 (9.52-18.2)
30-day	8.15 (6.93-9.41)	8.82 (7.49-10.2)	9.92 (8.39-11.5)	10.8 (9.11-12.6)	12.1 (9.81-14.3)	13.1 (10.4-15.6)	14.0 (10.7-17.0)	14.9 (10.9-18.6)	15.9 (11.3-20.4)	16.6 (11.4-21.6)
45-day	10.2 (8.73-11.8)	11.0 (9.38-12.7)	12.3 (10.4-14.1)	13.3 (11.2-15.4)	14.8 (12.0-17.4)	15.9 (12.6-18.9)	17.0 (13.0-20.5)	17.9 (13.3-22.3)	19.1 (13.6-24.3)	19.9 (13.7-25.7)
60-day	12.0 (10.3-13.7)	12.8 (11.0-14.7)	14.2 (12.1-16.3)	15.4 (13.0-17.7)	16.9 (13.9-19.9)	18.2 (14.5-21.6)	19.4 (14.9-23.3)	20.4 (15.1-25.3)	21.6 (15.4-27.5)	22.4 (15.5-28.9)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical







5-min	— 2-day
- 10-min	— 3-day
— 15-min	— 4-day
— 30-min	— 7-day
60-min	— 10-day
— 2-hr	— 20-day
— 3-hr	— 30-day
— 6-hr	45-day
12-hr	— 60-day
- 24-hr	

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Maps & aerials

Small scale terrain

Precipitation Frequency Data Server



Large scale terrain





Large scale aerial

Precipitation Frequency Data Server



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US Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Water Center 1325 East West Highway Silver Spring, MD 20910 Questions?: <u>HDSC.Questions@noaa.gov</u>

Disclaimer

Item C-105 Mobilization

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 4 percent of the total project cost.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4 Engineer/RPR field office and equipment. The Contractor shall provide dedicated space for the use of the field RPR and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity in accordance with local building codes. The Owner may have space available for rent by the contractor within an existing airport building for field office use.

105-4.1 Field Office. The Contractor shall supply for the RPR's use, a building or mobile trailer which shall be erected at the location shown on the Contract Drawings and shall be separate from any building used by the Contractor. The field office, equipment and all appurtenances shall be onsite, installed and operational at least 7 days prior to commencement of construction, and shall remain in place for a period of 30 days after the date of final acceptance of the project. The field office will be used by up to two of the Engineers Resident Project Representatives and one County representative.

The Airport may have space available on the airport property to lease at an agreed price. The contractor may discuss availability with airport management after bid, and prior to construction and establishment of the field office trailer.

The Contractor shall maintain all facilities and furnished equipment in good working condition.

The field office shall have a minimum ceiling height of 7 feet and shall be provided with six weather proof windows and two weatherproof doors, each equipped with adequate locking devices. Each window shall have a minimum area of 8 square feet, shall be screened and of a type that will open and close to provide adequate ventilation.

The field office shall have a minimum of 240 square feet of floor space. The field office shall be partitioned to provide two rooms with an adjoining door. The smaller room shall be not less than 80 square feet in floor area and shall contain two windows.

Lighting shall consist of electric non-glare type luminaries that provide a minimum level of 93 foot-candles at desk height level.

Heating and cooling units shall be capable of maintaining an ambient air temperature of 70 degrees F, +/- 5 degrees.

Hot and cold running water shall be provided. The water may be provided from a municipal water line, or from potable tanked or bottled water (with freeze protection). Potable bottled water shall utilize a dispensing unit capable of providing hot and cold water. Separate clean drinking water (water cooler) shall be provided.

The field office shall have a separately enclosed room, properly ventilated and complying with applicable sanitary codes with a flush-type toilet. Sewer waste shall be connected directly to sanitary sewer with City of Rome approval or to a collection tank. Collection tanks shall be emptied as necessary. The Contractor shall provide all lavatory amenities, necessary paper and soap products, and hot and cold running water.

The Contractor shall provide a parking area for 5 vehicles. The area shall be 45 feet wide by 18 feet long, and shall be paved, crushed stone, gravel or bank-run material. A sidewalk shall be constructed of the same material connecting the parking area to the door of the field office.

Steps shall be installed at each door to the field office and shall include a handrail. Steps shall meet the requirements of all applicable building, safety, and health regulations and laws. Portable steps, when used, shall be set level and shall be suitably anchored to the ground to prevent movement.

The office shall be cleaned at least once weekly, and at other times as directed by the RPR.

The Contractor may furnish equivalent facilities in an existing building provided such facilities and buildings are located conveniently near to the construction, and provided the building and location is acceptable to the RPR.

The field office and site shall be maintained in good condition and appearance by the Contractor for the designated period, after which the field office, utilities and appurtenances shall be removed and the site restored to a condition equal to or better than original condition. The Contractor shall be responsible, until use and occupancy of the field office is relinquished by the RPR, for any and all damage, direct or indirect, of whatever nature, occurring to the property of the Owner and RPR, including the property of other employees of the RPR assigned to the field office, which is kept in the field office. The responsibility of property shall include only those items used by appropriate personnel in the performance of project related work activities. Such property shall be replaced within 30 days of the reported damages and shall include any loss caused by, but not limited to, fire, theft, vandalism, and malicious mischief.

The RPR shall provide the Contractor with a detailed list of items, with corresponding dollar values, belonging to the RPR, and the RPR's personnel. The list shall be updated at least every three months, but not more than once a month. The Contractor shall not be responsible for items kept in the RPR's field office that are not on this list.

105-4.2 Field Office Equipment:

- **A. Desks and chairs.** The Contractor shall provide 2 office desks that are at least 2-1/2 feet by 5 feet each and 4 office chairs.
- **B.** Drafting table and stools. The Contractor shall provide 1 drafting table which is approximately 3 feet by 6 feet and 2 stools.
- C. Office table. The Contractor shall provide an office table which is at least 3 feet by 6 feet.
- **D. Network access, additional equipment and appurtenances.** The Contractor shall provide following items in the field office:
 - a. A secured wired or wireless network with ability for printing and scanning documents and access to high speed internet for multiple computers and/or devices available from the start of the project for the project duration. Internet Access shall be obtained through one of the following methods* (in order of preference):
 - 1. Cable Modem
 - 2. Wireless Broadband Access Card
 - 3. Satellite Modem

ii. *A minimum download speed of 35 Mbps is required for the accepted internet connection. Connection type shall be approved by the RPR and shall be in place prior to the NTP date.

- b. Router meeting minimum requirements of IEEE 802.11n standards
- **E.** Printer, printer paper and ink cartridges. The Contractor shall provide a printer capable of printing 8-1/2 x 11 and 11 x 17 along with a supply of 8-1/2 x 11 inch and 11 x 17 inch printer paper and spare printer ink cartridges in the field office. The supply shall be replenished as needed throughout the duration of the project.
- **F. Refrigerator.** The Contractor shall provide a standard electric cold storage type refrigerator providing a minimum storage space of 3 cubic feet.
- **G.** Fire resistant cabinet. The Contractor shall provide one fire resistant cabinet. Each cabinet shall be 2 drawer, legal size with lock and 2 keys, meeting the requirements for "Insulating Filing Devised, Class 350-1 Hour (D)" of ANSI/UL 72 or the Class D rating of Underwriters Laboratories specification for insulated filing devices.
- **H.** First aid kit. The Contractor shall provide a first aid kit properly stocked with appropriate first aid supplies.
- I. Fire extinguishers. The Contractor shall provide one fire extinguisher per room. The fire extinguisher shall be a non-toxic dry chemical, fire extinguisher meeting Underwriters Laboratories, Inc., approval for Class A, Class B and Class C fires with a minimum rating of 2A:10B:10C.
- **J. Tack boards.** The Contractor shall provide a cork tack board mounted on a wall in each room. The tack board shall be a minimum of 2 feet high by 4 feet wide.
- K. Waste paper baskets. The Contractor shall provide a metal waste basket in each room.
- L. SWPPP Mailbox. The Contractor shall provide and install a standard mailbox. The mailbox shall be installed at a location to be determined during construction. The mailbox shall be labeled "SWPPP".

METHOD OF MEASUREMENT

105-5.1 Measurement for payment of mobilization will be made on a lump sum basis. Measurement for partial payment of mobilization will be made based percentage of work completed in accordance with the schedule shown in Section 6.1.

105-5.2 Measurement for payment for the field office, and for field office equipment will be made on lump sum bases. Measurements for partial payment of each item may be made at the discretion of the RPR as the work progresses based on contract time or percent of work completed.

BASIS OF PAYMENT

105-6.1 Payment for mobilization will be made on a lump sum basis. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

- **a.** With first pay request, 25%.
- **b.** When 25% or more of the original contract is earned, an additional 25%.
- **c.** When 50% or more of the original contract is earned, an additional 40%.

d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by Section 90, paragraph 90-11, *Contractor Final Project Documentation*, the final 10%.

105-6.2 The lump sum prices bid for the field office, and for field office equipment shall include all utility charges, equipment, materials, labor and incidentals necessary to complete this item. Partial payments of the lump sum price bid may be made at the discretion of the RPR as the work progresses based on contract time or percent of work completed. No payment shall be made for items omitted by the Owner or not properly maintained by the Contractor throughout the duration of the project.

Payment will be made under:

Item C-105-6.1	Mobilization (4% max.) – per lump sum
Item C-105-6.2	Field Office – per lump sum
Item C-105-6.3	Field Office Equipment – per lump sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

Item C-106 Safety, Security and Maintenance of Traffic

DESCRIPTION

106-1.1 General. This work shall consist of maintaining aircraft and vehicular traffic and protecting the public from damage to person and property within the limits of and for the duration of the Contract, and as specified in the Construction Safety and Phasing Plan, Appendix A to Section 70.

Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

The following items are specifically included without limiting the generality implied by these Specifications and the Contract Drawings. Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

- Restoration of all surfaces disturbed as a result of the Contractor's Operations which are not otherwise paid for.
- Maintenance and repair of existing access roads, including dust control measures.
- Installation, maintenance, repair and removal of temporary security fencing.
- Security gate guard (only required when an airfield fence gate is actively used and left unlocked/open).
- Installation, maintenance, repair and removal of temporary barricades, barricade lights, barricade flags, warning signs and hazard markings.
- Installation, maintenance, repair and removal of temporary construction signs.
- Pavement marking removal associated with construction work phasing.
- Cleaning and maintenance of all paved areas.
- Public fall and trip protection around excavations.
- All OSHA safety requirements.
- Security requirements, including security badging and driver training. Airfield security requirements will only apply to the personnel establishing the new airfield security fence while operating within the existing airport security fence. Once the new fence is established, the existing fence can be demolished and the site becomes "landside" and out of the airport security environment. Working outside of the established airfield security fence does not require gate guards or security requirements.

METHOD OF MEASUREMENT

106-2.1 Measurement for payment of safety, security and maintenance of traffic will be made on a lump sum basis. Measurements for partial payment may be made at the discretion of the RPR as the work progresses based on contract time or percent of work completed.

BASIS OF PAYMENT

106-3.1 The lump sum price bid for safety, security and maintenance of traffic shall include all equipment, materials, labor and incidentals necessary to adequately and safely maintain and protect traffic.

In the event the contract completion date is extended, no additional payment will be made for safety, security and maintenance of traffic.

Partial payments of the lump sum price bid may be made for this item at the discretion of the RPR as the work progresses based on contract time or work completed, less any deductions for unsatisfactory safety, security and maintenance of traffic.

No payment will be made under safety, security and maintenance of traffic for each calendar day during which there are substantial deficiencies in compliance with the Specification requirements of any subsection of this Section as determined by the RPR.

The amount of such calendar day non-payment will be determined by dividing the lump sum amount bid for safety, security and maintenance of traffic by the number of calendar days between the date the Contractor commences work and the date of completion as designated in this proposal, without regard to any extension of time.

If the Contractor fails to maintain and protect traffic adequately and safely for a period of 24 hours, the Owner shall correct the adverse conditions by any means it deems appropriate and shall deduct the cost of the corrective work from any monies due the Contractor. The cost of this work shall be in addition to the liquidated damages and non-payment for safety, security and maintenance of traffic listed above.

However, where major nonconformance with the requirements of this Specification is noted by the RPR and prompt Contractor compliance is deemed not to be obtainable, all contract work may be stopped by direct order of the RPR regardless of whether corrections are made by the Owner as stated in the paragraph above.

Payment will be made under:

C-106-3.1 Safety, Security and Maintenance of Traffic - per lump sum

END OF ITEM C-106

Item C-107 Project Survey and Stakeout

DESCRIPTION

107-1.1 Project survey and stakeout shall be completed in accordance with this specification. The Contractor shall do all necessary surveying required to construct all elements of the Project. Project survey and stakeout shall be performed by competently qualified personnel acceptable to the Engineer. The survey and stakeout shall be progressed in advance of construction operations such that the layout does not impede the construction schedule. All survey work shall be provided under the direction of a Licensed Surveyor licensed in the State in which the project is located.

EQUIPMENT & MATERIALS

107-2.1 General. All instruments, equipment, stakes and any other material necessary to perform the work satisfactorily shall be provided by the Contractor. It shall be the Contractor's responsibility to maintain these stakes in their proper position and location at all times.

107-2.2 Equipment.

- 1. Surveying Equipment. The Surveyor shall provide all necessary survey equipment necessary and capable of achieving the required precision. All equipment shall be routinely calibrated and industry standard.
- 2. Survey Grade GPS Inspection Units.
 - a. GPS units shall be equipped to receive Global Positioning System (GPS), GLONASS and GNSS position data.
 - b. GPS units shall be equipped to receive, and be capable of utilizing, Real Time Kinematics (RTK) correctional data (current version of RTCM format) through internet protocol as provided from the Continuously Operating Reference System (CORS) Network. This shall include all necessary communication devices, repeaters and systems, data service plans and communications to meet the minimum required accuracy and not exceed a 2 second latency at the rover. Whichever communication method is utilized by the Contractor to broadcast the CORS RTK correctional data, the Contractor shall ensure that the RTK data shall be available at all locations across the entire contract site during all hours of construction and inspection operations.
 - c. GPS units shall include the capability to "localize" both the horizontal and vertical control to local project monumentation (also known as calibrate), while utilizing RTK corrections from a reference network.
 - d. GPS units shall include either an integrated or modular communication device capable of receiving RTK correctional data to satisfy the requirement of using CORS RTK corrections.
 - e. GPS units shall have the ability to display the number of satellites tracked at any one time, and indicate the accuracy quality of each measurement relative to the strength of signals, and the GDOP (Geometric Dilution of Precision).
 - f. GPS Unit shall include dual frequency receivers.

- g. Minimum Required Kinematic Accuracy relative to primary project control (CORS): Horizontal: 0.033 ft. + 1.0 ppm; Vertical: 0.065 ft. + 1.0 ppm
- h. All necessary hardware and software shall be included (including communication drivers) to connect the GPS unit to a Tablet PC and communicate/exchange positional data with CADD software.
- i. The data controller shall permit the user to program and store multiple configurations (also known as user preferences) prior to the actual field measurements. Configurations shall be capable of being stored and recalled in the field.
- j. GPS units shall include one fixed height rover rod of 6.56 feet in length, one attachable bipod which is compatible with the rover rod, and one topo shoe.
- k. A GPS unit set up to operate as a base station shall include all necessary additional cables, hardware, fasteners or accessories necessary to install it in a fixed semi-permanent location, will not be considered as a rover unit, and therefore will not require a rover rod, a bi-pod, or a topo shoe

107-2.3 Materials. Stakes used for construction layout shall be sound hardwood stakes having minimum dimensions of 1 inch by 1 inch by 4 feet in length.

CONSTRUCTION METHODS

170-3.1 General. This work shall consist of providing all necessary survey work to establish, spatially position, and verify the locations of existing and proposed features and measure quantities of items in accordance with the contract documents or as directed by the RPR. This work includes but is not limited to the establishment, reestablishment or localization of primary and secondary control, the stakeout or layout of proposed features, the initialization, calibration and navigation of automated equipment operations, the location or verification of existing or of constructed features, the verification of geospatial data for proposed construction work and the coordination and sharing of survey data with the RPR.

The Contractor shall be responsible for trimming trees, brush and other objects from survey lines in advance of all survey work to permit accurate and unimpeded work by the survey crews.

107-3.2 Layout and stakeout. The exact position of all work shall be established from control points, baseline points or other points of similar nature which are shown on the Contract Drawings. Any error, apparent discrepancy or absence in or of data shown or required for accurately accomplishing the stakeout survey shall be referred to the Engineer for interpretation or furnishing when such is observed or required. Stakes shall be clearly and legibly marked based on computations and measurements made by the Contractor. Markings shall include centerline station, offset and cut or fill marks. If markings become faded or blurred, they shall be restored by the Contractor, if requested by the Engineer. Contractor shall locate and place all cut, fill, slope, fine grade or other stakes and points for the proper progress of the work. All control points shall be properly guarded and flagged for easy identification. Reference points, baselines, stakes and benchmarks for borrow pits shall be established by the Contractor. Permanent survey marker locations shall be established and referenced by the Contractor.

The Contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc., throughout the life of the Contract. Damaged or destroyed points, benchmarks or stakes, or any reference points made inaccessible by the progress of the construction, shall be replaced or transferred by the Contractor. Any of the above points which may be destroyed or damaged shall be transferred by the Contractor before they are damaged or destroyed. All control points shall be referenced by ties to acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the Engineer immediately. All stakeout survey work shall be referenced to the centerlines shown on the Contract Drawings indicating station and offset. All computations necessary to establish the exact position

of the work from control points shall be made by the Contractor. All computations, survey notes and other records necessary to accomplish the work shall be neatly made, and shall be made available to the Engineer upon request.

The Engineer may check all or any portion of the stakeout survey work or notes made by the Contractor. Any necessary correction to the work shall be made immediately by the Contractor. Such checking by the Engineer shall not relieve the Contractor of any responsibilities for the accuracy or completeness of his work.

Upon completion of all grading and paving work, the Contractor shall re-establish baseline points, control points, and centerline points at 100 foot stations. The baseline points, control points, and centerline points to be established shall be the same as those used to develop design quantities.

Existing markers, stakes, iron pins, and survey monuments which have a high probability of being disturbed during construction shall be properly tied into fixed reference points before being disturbed and accurately reset in their proper position upon completion of the work.

107-3.3 Verification of Existing Grades. This project was developed using a 3D CADD program. The 3D CADD program created 3D surface files of the existing surfaces, finished surfaces and other various surfaces required to complete the design.

Some volumetric quantities were calculated by comparing surface files of the applicable design surfaces and generating Triangle Volume Reports.

Existing grades on the surface files, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, a Licensed Surveyor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. For this purpose, the RPR will provide the Contractor with a 3D CADD file of the topographic survey. Surveyor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the surface files. Surveyor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Surveyor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.02 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Surveyor's verification identifies discrepancies in the topographic map, Contractor shall notify RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or surface files. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

The Contractor's survey shall not exceed the following:

- Error of horizontal closure in feet shall not exceed 1 foot/5,000 feet
- Error of vertical closure in feet shall not exceed $(0.05 \text{ feet})^*(\text{bench run length in miles})^{1/2}$

A point data file of the Contractor's verification of original ground surface shall be provided in electronic format along with a printed hard copy. The point data shall be supplied in one ASCII file containing point number, northing, easting, elevation and descriptor. The data shall be left justified columns separated by commas with decimal points, but no slashes, colons and/or other separators.

107-3.4 Traditional Survey Stakeout. The Contractor shall field locate all features to be constructed from survey control points which are identified on the Plans. Any error, apparent discrepancy or absence in the data shown or required to appropriately accomplish the stakeout survey shall be referred to the RPR immediately for interpretation when such is observed or required.

The Contractor shall place two offset stakes or references points along the center line at maximum intervals of 50 feet and at such intermediate locations as required to determine location and direction. From computations and measurements made by the Contractor, these stakes shall be clearly and legibly marked with the center line station number, offset and cut or fill from which the establishment of the centerline location and elevation can be determined. If markings become illegible for any reason the markings shall be restored by the Contractor. The Contractor shall locate and place all cut, fill, slope, fine grade, or other stakes and points for the proper progress of the work with a maximum station spacing of 50 feet. All control points shall be properly protected and flagged for easy identification.

The Contractor shall be responsible for the accuracy of the work and shall maintain all applicable reference points, stakes, etc. Damaged or destroyed reference points or bench marks made inaccessible by the progress of the construction shall be replaced or transferred by the Contractor. All control points shall be referenced by ties (4 minimum) to specific points on acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the RPR. All stakeout survey work related to control shall be referenced to the control line shown in the contract documents. Computations and survey notes necessary to establish the position of the work from control points, shall be made and maintained in a neat, legible and acceptable format by the Contractor. Computations, survey notes and other survey information shall be made available to the RPR within 3 work days from the request. The RPR may check all or any portion of the stakeout survey work or notes made by the Contractor. Such checking by the RPR shall not relieve the Contractor of any responsibilities for the accuracy or completeness of the work.

107-3.5 Not Used

107-3.6 Not Used.

107-3.7 Not Used.

107-3.8 Survey Reference Points.

- 1. Existing horizontal and vertical control points for the Project are those designated on drawings or as determined from investigation of the existing conditions.
- 2. Locate and protect control points prior to starting Site Work and preserve permanent reference points during construction.
 - a. Make no changes or relocations without prior approval of the RPR.
 - b. Report to RPR when reference point is lost, destroyed or requires relocation because of necessary changes in grades or locations.
 - c. Replace Project control points, which may be lost or destroyed. Airport control points shall be replaced in accordance with their requirements.
 - d. Existing property corners, markers, stakes, iron pins, and survey monuments defining property lines which have a high probability of being disturbed during construction shall be properly tied into fixed reference points before being disturbed. If disturbed, they shall be accurately reset in their proper position upon completion of the work.

107-3.9 Project Layout Requirements.

- 1. Establish a sufficient number of permanent bench marks on Site, as may be required, referenced to data established by survey control points. Record locations of benchmarks with horizontal and vertical data on Project Record Documents.
- 2. From established control points, layout all Work by establishing all lines and grades at Site necessary to control Work. Contractor shall be responsible for all measurements that may be required for execution of Work to location and limit marks prescribed in appropriate Specification Sections or on Contract Drawings.

- 3. Furnish, at contractor expense, all such stakes, steel pins, equipment, tools and material and labor that may be required in laying out Work control points.
- 4. Establish lines and levels. Locate and layout by instrumentation and similar appropriate means:
 - a. Verify property, grades, lines, levels and dimensions indicated.
 - b. Site Improvements
 - 1) Provide stakes for grading, fill and topsoil placement.
 - 2) Layout utility slopes and invert elevations.
 - 3) Layout limits of pavement demolition and proposed pavement.
 - 4) Layout all project physical features.
- 4. Verify and coordinate in field all existing and proposed underground components including civil, structural, utilities and other components prior to initiation of the Work. Advise RPR of any conflicts or discrepancies.

107-3.10 Documents.

- 1. Submit name, address and contact information of Surveyor to RPR.
- 2. On request of the RPR, submit documentation to certify accuracy of construction survey and stakeout work and compliance with Contract Documents.
- 3. The RPR will submit a certificate signed by a licensed surveyor certifying that elevations and locations of improvements are in conformance with Contract Documents. Should any work be in non-conformance with Contract Documents, Contractor shall identify all such non-conformance in the certificate.
- 4. Standards and Availability: Data and other measurements shall be recorded in accordance with standard and approved methods. All field notes, sketches, recordings, and computations in establishing above horizontal and vertical control points shall be available at all times during progress of Work for ready examination by RPR.
- 5. Maintain complete and accurate record data on underground utilities and obstructions, new and existing, encountered in execution of Work. Record data on Project Record Documents.
- 6. On completion of major site improvements, the RPR's surveyor will prepare a certified survey showing dimensions, locations, angles, and elevations of construction.

107-3.11 Computer Aided Drafting & Design (CADD) and 3D Surface files. This project was developed using three-dimensional design software. After award and upon request, the successful bidder will be provided CADD files developed from AutoCAD Civil 3D, and 3D surface files for use. The surface files will be provided for the existing grade, finished grade, and other applicable design surface models. In addition, survey control for the project will be provided in electronic format and the alignments will be provided in XML format. The files may be used for survey and stakeout of the project, but may not be manipulated.

The following 3D surfaces will be provided:

<u>SURFACE</u>	DESCRIPTION
Overall Project Site Existing Grade	3D surface of project site overall existing grade elevations per topographic survey prior to construction.
Proposed Finished Grade	3D surface representation of the project site overall proposed finished grade elevations per project design. This surface includes pavement and turf grades.

The following 2D CADD files will be provided:

<u>FILE</u>	DESCRIPTION
Existing Base Map	Existing topographic features, limits of pavement, physical features, existing contours, equipment, structures, lights, signs, known utilities, fence, pipes, and conduits, buildings, etc.
Proposed	Proposed work including alignments, survey data, limits of demolition, limits of pavement, physical features, proposed contours, equipment, structures, pavement marking, lights, signs, utilities, pipes, and conduits.

Unless otherwise shown on the Plans, the Contractor shall assume that the origin of proposed CAD symbols is at the center of the location of the feature.

The files were developed for the design and depiction of various 2D features (existing and proposed) and 3D features of existing, proposed, and subgrade surfaces. The surface files are depicted on the Contract Drawings in the form of contours, profiles, typical sections, spot elevations, tables, and other details. The surface file of the existing surface is the database of points from the design topographic survey. The surface files of the other surfaces are the database of points for the surfaces used to design the project.

The Owner allows use of the CADD and surface files in the performance of its work and services on the project with the following terms and conditions (acknowledged with execution of the Contract Agreement):

- 1. That the Owner does not warrant or guarantee the information and data in the CADD and surface files and any accompanying documentation as a substitute for the sound judgment of the Contractor.
- 2. That the Contractor desires to make use of the CADD and surface files in conjunction with the Work to be provided to the Owner for the subject project.
- 3. That the Contractor has no rights to the information and data contained in the CADD and surface files or any translated or converted form of these files. The transfer shall not be considered to convey any proprietary interest in the information and data in the CADD and surface files or any translated or converted form of these files or subsequent version thereof.
- 4. That the information and data contained in the CADD and surface files or in any translated or converted form of these files shall not be used by the Contractor on any other project.
- 5. That the Contractor may not copy, distribute, sell, rent, sublicense or lease the CADD and surface files or any translated or converted form of these files or any accompanying documentation.
- 6. That no information or data contained in the CADD and surface files or any translated or converted form of these files shall be transferred in any electronic form without written permission of the Owner.
- 7. That after completion of the Work by the Contractor as part of this project, the Contractor shall remove the information and data contained in the CADD and surface files, or any translated or converted form of these files, from all of its electronic data processing systems. No electronic copies of the information and data contained in the CADD and surface files or any translated or converted form of these files shall be retained by the Contractor.
- 8. That the Contractor shall take all steps reasonably necessary to protect the CADD and surface files, or any translated or converted form of these files, from theft or use in a manner inconsistent with these terms and conditions.
- 9. That the Owner may terminate these terms and conditions at any time and the Contractor shall immediately remove the CADD and surface files, or any translated or converted form of these files, from their electronic data processing systems upon demand of the Owner.

- 10. That the Owner retains all rights not expressly granted. Nothing in these terms and conditions constitutes a waiver of the Owner's rights under any federal or state law.
- 11. That the Owner excludes any and all implied warranties, including warranties of merchantability and fitness for a particular purpose, and limits the Contractor's remedy to return of the CADD and surface files and documentation to the Owner for replacement.
- 12. That the Owner makes no warranty or representation, either express or implied, with respect to the CADD and surface files or accompanying documentation, including their quality, performance, merchantability, or fitness for a particular purpose. The CADD and surface files and documentation are provided "as is" and the Contractor assumes the entire risk as to their quality and performance.
- 13. That the Owner shall not be liable for any direct, indirect, special, incidental, or consequential damages arising out of the use of, inability to use, or any defect in the CADD and surface files or any translated or converted form of these files or any accompanying documentation.
- 14. That the Contractor shall indemnify and hold harmless the Owner, its officials and employees, and the RPR for any injury to the person or property of third parties arising out of the use of or any defect in the CADD and surface files or any translated or converted form of these files or any accompanying documentation.
- 15. That the Contractor shall indemnify and hold harmless the Owner, its officials and employees, and the RPR for any injury arising out of any infringement of the copyright law.
- 16. That the warranty and remedies set forth in these terms and conditions are exclusive and in lieu of all others, oral or written, express or implied.
- 17. That nothing contained in these terms and conditions shall be construed to represent or warrant that the Contractor has the right to reproduce or copy any or converted form of these files and the Contractor acknowledges that it has no right to reproduce and include copyright or trade secret notices, or patent rights on any copies, in whole or in part, in any form. All copies of each CADD and surface file remain the property of the Owner and any rights involving the copyright law as modified in 17 U.S.C. §101 et. seq. remain with the Owner.

The above listed terms and conditions are hereby accepted by the Contractor upon execution of the construction contract and transfer of the CAD files upon request.

METHOD OF MEASUREMENT

107-4.1 Measurement for payment of project survey and stakeout will be made on a lump sum basis. Measurement for partial payments, at the discretion of the Engineer, will be in proportion to the total amount of contract work completed.

BASIS OF PAYMENT

107-5.1 The lump sum price bid shall include the cost of furnishing all labor, equipment, instruments and all other material necessary to satisfactorily complete the project surveying and stakeout.

Partial payments of the lump sum price bid may be made for this item as the work progresses, at the discretion of the Engineer.

Payment will be made under:

Item C-107-5.1 Construction Survey and Stakeout – per lump sum

END OF ITEM 107

Item P-101 Preparation/Removal of Existing Pavements

DESCRIPTION

101-1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

EQUIPMENT AND MATERIALS

101-2.1 Equipment. All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement. The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement. This paragraph covers removal of existing pavement for the following purposes: reducing the limits of existing pavement; removal of existing pavement necessary to abut new pavement to existing, and; removal of existing pavement which is being reconstructed. For pavement removal associated with pavement repairs, see paragraph 101-3.4.

a. Concrete pavement removal.

The existing concrete pavement to be removed shall be rubblized in accordance with Item P-215, Base Course from Rubblized Concrete Pavements prior to removal, except in location of utility protection as shown on the plans. Full depth concrete removal over existing utilities to be protected shall be done in a controlled careful manner so as to not cause damage to the utilities being protected.

Removal of rubblized concrete to grade prior to constructing a new asphalt pavement shall be accomplished by profile milling after rubblization. The milled surface shall be smooth and suitable to receive asphalt pavement.

Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, and remove the pavement. Where required, Contractor shall install new dowels as shown on the plans and per the specifications. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. Spoil material shall be disposed of in accordance with paragraph 101-3.11. Every effort should be made by the Contactor to recycle or re-use the material in other projects. Concrete slabs that are damaged by under breaking shall be removed and replaced as directed by the RPR. Sawcutting and removal of PCC pavement shall be included in the cost of PCC pavement removal.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlaying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

b. Asphalt pavement removal.

Asphalt pavement to be removed shall be saw cut to the full depth of the asphalt pavement around the perimeter of the area to be removed if there will be no new pavement installed abutting the cut, or if new Portland cement concrete pavement will be installed abutting the cut. If there will be new asphalt pavement installed adjacent to the cut, the pavement shall be cut to the depth of the new adjacent layer/lift such that the joint for each layer/lift of pavement replacement is offset 1 foot from the joint in the preceding layer/lift. Spoil material shall be disposed of in accordance with paragraph 101-3.11. Every effort should be made by the Contactor to recycle or re-use the material in other projects.

c. Repair or removal of Base, Subbase, and/or Subgrade.

All failed granular material including base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense. The quantity of granular material excavated shall be included and paid for as Unclassified Excavation in Item P-152, Excavation, Subgrade and Embankment.

101-3.2 Preparation of joints and cracks. Not used.

101-3.3 Removal of Foreign Substances/contaminates prior to overlay, seal-coat or remarking.

Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the RPR in the field during construction.

High-pressure water, heater scarifier (asphaltic concrete only), cold milling, rotary grinding, or sandblasting may be used. If chemicals are used, they shall comply with the state's environmental protection regulations. The use of chemicals will not be permitted. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch (3 mm) deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in accordance with paragraph 101-3.11.

101-3.4 Concrete and asphaltic concrete pavement repair. Not used.

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed of in accordance with paragraph 101-3.11. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

The milling machine shall have a minimum width of 7 feet (2 m) and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch (+0 mm and -6mm) of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to either windrow the millings or cuttings, or remove the millings or cuttings from the pavement and load them into a truck.

Prior to disturbing original grade, Contractor shall verify the accuracy of existing elevations by verifying

spot elevations at the same locations where original field survey data was obtained in accordance with Section 50-07, Construction Layout and Stakes.

Should the Contractor elect to use Automated Machine Guidance (AMG), they shall do so in accordance with Item P-670, Automated Machine Guidance. The use of AMG shall be at no additional cost to the Owner.

Milled longitudinal or transverse vertical faces exceeding 1-1/2 inches in height that would be exposed to traffic shall be sloped or tapered by constructing temporary asphalt ramps, unless otherwise approved by the RPR. The maximum grade for temporary ramps shall not exceed 5 percent. The temporary ramp shall be removed prior to placement of tack coat or pavement courses. No payment will be made for placement or removal of temporary ramps.

a. Patching. Not Used.

b. Profile milling. Profile milling of existing asphalt or concrete pavement shall be performed on areas indicated by the plans and details. The slope or grade of the milled surface shall be at the same slope as finished grade. The Contractor shall establish a starting reference by survey and utilize a stringline method for grade control. Adjacent passes of the milling equipment may take their reference from preceding passes using a short ski or shoe.

c. Milling to depth. Milling existing asphalt or concrete pavement shall be performed to the depths indicated on the plans. Separate measurement for payment will be made for the each different depth of milling indicated on the plans.

d. Milling to remove delaminated pavement. Not used.

e. Crack repair after milling. Cracks in the existing pavement after milling operations shall be prepared in accordance with Section 101-3.2.b.

f. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. The Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming.

101-3.6. Not used.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Not used.

101-3.9 Not used.

101-3.10 Removal of Pipe, Structures and other Buried Items. Covered under Items D-701 and D-751.

101-3.11 Spoil. Spoil material generated from cold milling operations, asphalt pavement removal, and concrete pavement removal shall be disposed of off airport property. Every effort should be made by the Contactor to recycle or re-use the material in other projects.

Excess suitable material which cannot be incorporated in the work in accordance with Item P-152, Excavation, Subgrade and Embankment, shall be disposed of off airport property.

No direct payment will be made for spoiling operations. The cost of spoiling material off-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

METHOD OF MEASUREMENT

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the square yard. Separate measurement will be made for each type and depth of pavement removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Dowel bar installation shall be incidental to pavement removal.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P 101-1	Asphalt Pavement Removal (3" Average Thickness) - per square yard
Item P 101-2	Concrete Pavement Removal (7" Average Thickness) - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.
ASTM International (ASTM)	
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

END OF ITEM P-101

Item P-152 Excavation, Subgrade, and Embankment

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct roadways as well as other areas for drainage, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature, excluding pavement.

b. Borrow excavation (Embankment In Place). Borrow excavation or Embankment in Place shall consist of approved material required for the construction of embankments or for other portions of the work in excess of the quantity of usable material available from required excavations. Borrow material shall be obtained from areas designated by the RPR within the limits of the airport property but outside the normal limits of necessary grading, or from areas outside the airport boundaries.

Borrow material shall be of soils group GW, GP, GM, SW, SP or SM as designated by ASTM D 2487, Classification of Soils for Engineering Purposes. Maximum particle dimension shall not exceed 2/3 of the loose lift thickness and in no case will stones or rock larger than 6 inches in their greatest dimension be allowed. Soils must exhibit a California Bearing Ratio (CBR) value of at least 10 when tested in accordance with ASTM D 1883 using a surcharge load of 20 lbs. Contractor shall submit a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D698. Contractor shall submit a new Proctor for every 5,000 cubic yards of material to be taken from the borrow pit. Contractor shall also submit a new Proctor for every source change and for every soil change within the same source, or upon visual change as determined by the RPR. Proctors shall be submitted in advance of the material hauled to the site. Samples shall be obtained by combining four bags of material, representative of the material to be brought to the site, for each Proctor. In addition, Contractor shall deliver a sample to the RPR in a sealed jar. All testing costs shall be borne by the Contractor. The testing laboratory shall adhere to the practices contained in ASTM E-329.

The Contractor is responsible for obtaining Mining Permits. Contractor shall provide a copy of the borrow pit's approved mining permit. If the borrow pit does not currently have an approved mining permit, the Contractor shall apply for a permit and provide a copy of the approved permit to the RPR. No excavation at the borrow pit shall begin until the mining permit has been approved by the appropriate Federal, State, and local agencies and accepted by the RPR.

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed in accordance with paragraph 152-2.15. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used for embankment construction outside of runway and taxiway safety areas, and outside of future paved areas, when approved by the RPR, provided the material is not needed for topsoil. Material excavated which is classified as unsuitable shall be paid for as Unclassified Excavation.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of in accordance with paragraph 152-2.15. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches (100 mm), to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

a. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown

are incorrect. For this purpose, spot elevations which are within 0.1 foot (30 mm) of the stated elevations for ground surfaces, or within 0.04 foot (12 mm) for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or approved by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Undercutting shall be performed only when directed by the RPR as follows:

(1) In Excavated Areas Under Proposed Pavement: Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades under proposed pavement (runways, taxiways, aprons, roads, shoulders), shall be excavated to a minimum depth of 12 inches (300 mm) below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth directed by the RPR. Unsuitable materials shall be disposed of at the on-site spoil area. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard for unclassified excavation. The excavated area shall be backfilled with Item P-209 Crushed Aggregate Base Course and compacted to specified densities. Where rock cuts are made, any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as unclassified excavation.

(2) In Embankment Areas Under Proposed Pavement: Muck, peat, matted roots or other yielding materials unsuitable for embankment foundation shall be removed to the depths directed by the RPR. Undercut areas under proposed pavement, wherever possible, shall be graded to drain to underdrains, or weeps shall be constructed to daylight at locations as directed by the RPR. This excavated material shall be paid for at the contract unit price per cubic yard for unclassified excavation. The excavated area shall be refilled with suitable material obtained from the grading operations or borrow areas as directed by the RPR and compacted to specified densities. Where rock cuts are made, any pockets created in the rock surface shall be shaped to drain freely, or as directed by the RPR. Undercut areas, wherever possible, shall be graded to drain to underdrains, or weeps shall be constructed to daylight at locations as directed by the RPR. No payment will be

made for refilling the undercut area as it is considered an incidental and necessary part of the work involved.

(3) In Excavated Areas within Runway Safety Areas and turf areas: Rock, shale, hardpan, loose rock, boulders or other materials unsatisfactory for subgrades beneath topsoil shall be removed to a minimum depth of 12 inches below final grade, or as directed by the RPR. Muck, peat, matted roots or other yielding materials shall be removed to the depth directed by the RPR. This excavated material shall be paid for at the contract unit price per cubic yard for unclassified excavation. The excavated area shall be refilled with suitable material obtained from the grading operations or borrow areas as directed by the RPR and compacted to specified densities. Where rock cuts are made, any pockets created in the rock surface shall be shaped to drain freely, or as directed by the RPR. Undercut areas, wherever possible, shall be graded to drain to underdrains, or weeps shall be constructed to daylight at locations as directed by the RPR. No payment will be made for refilling the undercut area as it is considered an incidental and necessary part of the work involved.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor, as indicated on the plans. All existing foundations shall be excavated at least 2 feet (60 cm) below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

152-2.3 Borrow excavation. Borrow areas within the airport property are indicated on the plans. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed by the RPR. All unsuitable material shall be disposed of in accordance with paragraph 152-2.15. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant. No separate measurement for payment will be made for stripping the borrow site, nor for restoration of the borrow site.

152-2.4 Drainage excavation. Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which a subbase or base course is to be placed, the top 12 inches of subgrade shall be compacted to not less than 95% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches (150 mm) and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches (300 mm) and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches (300 mm) upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 Formation of embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches (150 mm) nor more than 12 inches (300 mm) of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within $\pm 2\%$ of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The RPR will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D698. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the RPR for every 3,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR. In no case shall less than 2 density tests be taken per lift.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top 3 inches (75 mm) which shall be prepared for a seedbed in accordance with Item T-901.

The in-place field density shall be determined in accordance with ASTM D1556, or ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The RPR shall perform all density tests. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches (100 mm) in their greatest dimensions will not be allowed in the top 12 inches (300 mm) of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet (60 cm) in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet (1.2 m) below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.9 Proof rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After compaction is completed, the subgrade area shall be proof rolled with a 20 ton (18.1 metric ton) Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to standard highway pressures in the presence of the RPR. Apply a minimum of 75% coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch (25 mm) or show permanent deformation greater than 1 inch (25 mm) shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum dry density as determined by ASTM D698. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D698.

The material to be compacted shall be within $\pm 2\%$ of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the $\frac{3}{4}$ inch (19.0 mm) sieve, follow the methods in ASTM D1557 and the procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles. Tests for moisture content and compaction will be taken at a minimum of 3,000 S.Y. of subgrade. In no case shall less than 2 density tests be taken. All quality assurance testing shall be done by the RPR.

The in-place field density shall be determined in accordance with ASTM D1556, or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, recompacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

- **a. Smoothness.** The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.
- **b.** Grade. The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +/- 0.05 feet (15 mm) of the specified grade.

On turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall first be salvaged from stripping or other grading operations and then provided from off-site sources. The topsoil shall meet the requirements of Item T-905. The topsoil shall be stockpiled at locations approved by the RPR and screened prior to replacement. Stockpiles shall not be placed on areas that subsequently will require any excavation or embankment fill. Measurement for stripping topsoil shall be included in the quantity for Unclassified Excavation.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil handling shall be considered incidental to the work involved under Item P-152.

152-2.15 Spoil. All excess material from excavation, subgrade and embankment operations shall be disposed of on airport property and shall be stockpiled at the locations shown on the plans. Excess soil and granular materials shall not be transported off former USAF base property. All removed asphalt and concrete shall be disposed of off airport property at a location determined by the Contractor and at the Contractor's expense.

No direct payment will be made for spoiling operations. The cost of spoiling material on or off-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by comparison of digital terrain model (DTM) surfaces used for the computation of neat line design quantities. The surfaces shall be the original ground line established by field cross-sections and the final theoretical surface shown on the plans, subject to verification by the RPR.

Prior to determination of final quantities, the RPR will field verify that the Contractor has met grading tolerances by means of field cross sections. Field cross sections will be taken randomly at intervals not exceeding 500 feet, however, a minimum of three sections will be taken for each baseline or centerline.

If the final grades are in tolerance and acceptable to the RPR and Owner, then no adjustments will be made to the neat line quantities.

If the final grades are not in tolerance, but the deviation is acceptable to the RPR and Owner, then adjustments will be made to the neat line quantities based on a final topographic survey or final cross sections.

If the final grades are not in tolerance and are not acceptable to the RPR and Owner, then the Contractor shall regrade the areas that are out of tolerance. Upon completion of regrading operations, RPR will field verify that the Contractor has met grading tolerances as stated above.

The quantity of unclassified excavation to be paid for shall be the number of cubic yards measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

152-3.2 The quantity of embankment in place shall be the number of cubic yards measured in its final compacted position.

BASIS OF PAYMENT

152-4.1 Unclassified excavation or embankment in place payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

All available on-site topsoil and embankment/fill material shall first be incorporated into the project before payment for off-site embankment and topsoil will be made.

Payment will be made under:

Item P-152-1	Unclassified Excavation - per cubic yard
Item P-152-2	Embankment in Place - per cubic yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a
	4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³ (600 kN-m/m ³))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
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U.S. Department of Transportation

FAA RD-76-66 Design and Construction of Airport Pavements on Expansive Soils

END OF ITEM P-152
ITEM P-215 Rubblization of Concrete Pavements

DESCRIPTION

215-1.1 Description. This work consists of rubblizing and seating (rolling) the existing Portland cement concrete (PCC) pavement prior to placing a new bituminous concrete or PCC pavement. The work shall be accomplished in accordance with the standard specifications and details shown in the plans.

MATERIALS

215-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. They may be subjected to inspection and tests at any time during the progress of their preparation or use. The source of supply of each of the materials shall be approved by the RPR before delivery or use is started. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to insure the preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed therein.

CONSTRUCTION METHODS

215-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified herein. All machinery and equipment owned or controlled by the Contractor, which he proposes to use on the work, shall be of sufficient size to meet the requirements of the work, and shall be such as to produce satisfactory work; all work shall be subject to the inspection and approval of the RPR.

215-3.2 Rubblization equipment. Rubblization shall be accomplished by the use of a pavement breaker machine that is capable of delivering sufficient energy to rubblize the pavement full-depth in a manner that completely destroys the concrete slab and all slab action. Sufficient seating equipment shall be used to thoroughly settle the rubblized concrete and to provide a smooth surface for the bituminous concrete overlay or crushed stone base course. The type of rubblization machine and the minimum types of associated rolling equipment used in the rubblization process shall be either the resonant breaker process or the multi-header breaker process. If necessary to achieve rubblization size requirements, Contractor may pre-fracture with a guillotine breaking device.

215-3.3 Resonate breaker process.

215-3.3.1 Resonant Breaker Machine. This is a self-contained, self-propelled resonant frequency breaker specifically designed for the purpose of rubblizing PCC pavement. The machine shall be capable of producing low-amplitude 1 inch maximum blows of 2000 pounds force and delivering blows to the existing PCC surface at a rate of not less than 44 cycles per second. If necessary, the breaker shall be equipped with a screen to protect nearby structures, vehicles or aircraft from flying chips during the fracturing process.

215-3.3.2 Resonant Breaker Seating Equipment. The contractor shall provide and use a smooth double steel drum vibratory roller. The roller shall have a gross weight of at least 10 tons, and be operated in the high frequency low amplitude vibratory mode, to settle and seat the rubblized

pavement and provide a smooth surface for the bituminous concrete overlay or crushed stone base course.

215-3.4 Multi-head breaker process.

215-3.4.1 Multi-Head Breaker Machine. This is a self-contained, self-propelled multi-head breaker specifically designed for the purpose of rubblizing PCC pavement. The machine shall be capable of rubblizing the pavement a minimum width of 13 feet per pass. Pavement-breaking hammers shall be mounted laterally in pairs, with half the hammers in a forward row and the remainder diagonally offset in a rear row so there is continuous breakage from side to side. The lift height of the hammers shall be independently adjustable. If necessary, the breaker shall be equipped with a screen to protect vehicles from flying chips during the fracturing process.

215-3.4.2 Multi-Head Breaker Seating Equipment.

215-3.4.2.1 The contractor shall provide and use the following seating equipment:

215-3.4.2.1.1 Z-Grid Roller. This is a vibratory steel drum roller fitted with a "Z" pattern grid on the drum face. The roller shall have a gross weight of at least 10 tons, as operated in the vibratory mode, to settle and seat the rubblized pavement, and provide a smooth surface for the bituminous concrete overlay or crushed stone base course.

215-3.4.2.1.2 Pneumatic-Tire Roller. A pneumatic-tire roller with a gross weight of at least 25 tons shall be used after the Z-grid roller to further settle and seat the rubblized pavement.

215-3.4.2.1.3 Smooth Steel Drum Vibratory Roller. The contractor shall provide and use a smooth steel drum vibratory roller. The roller shall have a gross weight of at least 10 tons as operated in the vibratory mode, to settle and seat the rubblized pavement and provide a smooth surface for the bituminous concrete overlay.

215-3.4.2.2 Rubblization machines and rollers of other design that will accomplish similar results may also be used with the approval of the RPR. All rubblization and seating equipment necessary to perform the work will be considered essential to the completion of the project, and will not be paid for separately.

215-3.5 Construction requirements.

215-3.5.1 Preparation Prior to Rubblization.

215-3.5.1.1 Drainage System Installation. Prior to rubblization operations, the existing drainage systems as specified on the plans shall be properly functioning. The existing drainage systems shall remain in place and properly functioning during rubblization.

215-3.5.1.2 Removal of Existing Asphalt Surfaces. Prior to the rubblization operations, existing asphalt overlays and patches shall be removed from the PCC pavement surfaces to be rubblized. Existing full-depth asphalt patches shall remain in place, unless directed for removal by the RPR.

215-3.5.1.3 Saw-Cut Joints. A new full-depth saw-cut joint shall be made along an existing joint at all pavements where rubblized PCC abuts pavement that will remain in place. All load transfer devices between the planned rubblization and PCC pavement remaining in place shall be severed.

Areas of full depth reconstruction over utilities shall be saw-cut prior to rubblizing. No rubblization shall be allowed over existing utilities to remain.

215-3.5.1.4 Shouldering. Shoulder adjustments and/or any pavement widening shall be completed up to the elevation of the existing pavement grade prior to beginning the rubblization operations. These areas can be used to support the rubblization machines while the existing PCC pavement is being rubblized.

215-3.5.1.5 Removal of existing joint material. Existing joint material shall be removed to the satisfaction of the RPR prior to rubblizing. No joint material shall be visible in the rubblized surface prior to the placement of bituminous concrete.

215-3.5.2 Test Strip and Test Pit to Establish Procedure.

215-3.5.2.1 Test Strip. Before the rubblization operations begin, the RPR will designate a test section of approximately 100 feet by 25 feet. The contractor shall rubblize the test section using varying degrees of energy and/or various striking heights until a procedure is established that will rubblize the pavement to the required extent as contained in these specifications.

215-3.5.2.2 Test Pit. A 4-foot square test pit shall be excavated in the middle of the test strip, at a location selected by the RPR, to determine that the breaker is producing pieces of the specified sizes as contained in these specifications. The rubblized particle sizes shall be checked throughout the entire depth of the pavement. The test pit material shall be removed from the project and the hole filled using coarse aggregate material as determined by the RPR. The replacement material shall be placed and properly compacted by the contractor and the cost shall be considered incidental to item P-215.

215-3.5.2.3 The RPR and the contractor shall mutually agree upon the rubblization procedure based upon compliance with the performance criteria contained here within. The established procedure shall be used to rubblize the remainder of the pavement. The contractor shall continuously monitor the rubblization operation, and make minor adjustments in the striking pattern, striking energy, number of passes, and other factors necessary to continually achieve acceptable breaking throughout the project. The contractor shall inform the RPR of any major adjustments that may be required in the process to provide rubblized pavement that conforms to the specification requirements contained herein. Additional test pits may be required by the RPR to confirm that the PCC pavement is adequately rubblized.

215-3.6 Rubblization criteria.

215-3.6.1 The existing concrete pavement shall be rubblized into particles with at least 75% (as determined by visual observation) of the particles smaller than: 3 inches at surface; 9 inches in the top half, and 15 inches in bottom half of the pavement. For reinforced Portland cement concrete (RPCC) pavement, the reinforcing steel shall be substantially debonded from the concrete and left in place, unless protruding above the surface. Concrete pieces below the reinforcing steel shall be reduced to the greatest possible extent, and no individual piece shall exceed 15 inches in any dimension.

The particle dimensions noted are the minimum criteria. If the Contractor deems smaller particles are necessary to meet the requirements of Section 215-3.11.1.3, then the concrete rubbilization process and effort should be adjusted accordingly.

The rubblized material shall be suitable for profile milling to establish grade and to allow for placement of the asphalt surface directly on top of the milled, rubblized concrete surface.

215-3.6.2 Due to lack of edge support, concrete pieces below the reinforcing steel up to 15 inches in any dimension will be accepted along the outside edge of the existing PCC pavement, up to 15 inches from the edge.

215-3.7 General rubblization procedures.

215-3.7.1 The rubblization shall be done in partial widths when necessary to maintain traffic as shown on the plans and contained in the contract documents.

215-3.7.2 When the rubblization process is adjacent to active pavement, measures shall be taken to prevent debris from entering the active pavement.

215-3.7.3 In areas where the pavement is to be overlaid prior to completion of the rubblization, the initial rubblization will extend a minimum of 2 feet beyond the width of the pavement to be overlaid.

215-3.7.4 For the resonant breaker process, rubblizing shall begin at a free edge or previously broken edge and progress toward the opposite shoulder or longitudinal centerline of the pavement. Continuous coverage of the entire PCC pavement surface, overlapped if necessary to achieve adequate rubblization with the breaking shoe, shall be required. Additional passes of the resonant breaker machine may be required if larger concrete pieces remain above the reinforcement.

215.3.7.5 The rubblized concrete surface shall be cold milled to proposed grade in accordance with Item P-101, Surface Preparation. Upon completion of the milling operation and prior to being overlaid, the rubblized concrete shall be seated in accordance with paragraph 3.3.2 or 3.4.2. Rubblized PCC pavement which is not being overlaid does not require seating.

215-3.8 Dust Control. The contractor shall minimize the dispersion of dust from the rubblization operation until the rubblized surface is overlaid with bituminous concrete. The contractor shall provide a water truck, operator, and all water necessary for dust-control purposes. Excessive water shall not be applied to the rubblized surface. Dust control is incidental to the rubblization process and will not be paid for separately. The RPR shall approve dust-mitigation measures.

215-3.9 Damage to base, underlying structures and other facilities. The rubblization machine and rollers shall be operated in a manner that will avoid damaging the base, underlying structures, utilities, drainage facilities, bridge approach slabs, bridge decks, and other facilities on the project. If any damage occurs, the contractor shall immediately cease his operations, notify the RPR, and repair the damage at the direction of the RPR. Repairs shall be made in a timely manner and at the expense of the contractor.

215-3.10 Removal of exposed reinforcing steel. Reinforcing steel in the rubblized pavement, if any, shall generally be left in place. Reinforcing steel that becomes exposed at the surface during the rubblization process or rolling operations shall be cut flush with the rubblized surface, or slightly below the surface, and removed from the project by the contractor. The contractor shall also remove any loose joint filler, expansion materials, or other similar items.

215-3.11 Seating procedures.

215-3.11.1 The contractor shall use the rolling equipment contained in these specifications as described below.

215-3.11.1.1 Resonant Breaker Process. The rubblized PCC pavement shall be rolled with a minimum of three passes over the entire width of the pavement with a vibratory steel drum roller.

For this operation, a pass is defined as forward and back over the entire surface area. The RPR may require additional passes to satisfactorily seat the rubblized pavement and provide a smooth surface that is ready for the bituminous concrete overlay. The roller shall be operated at a speed not to exceed 6 feet per second.

215-3.11.1.2 Multi-Head Breaker Process.

215-3.11.1.2.1 Prior to placing the bituminous concrete overlay or crushed stone base course, the entire width of the pavement shall be rolled by vibratory and pneumatic-tire rollers following the sequence contained herein. For this operation, a pass is defined as forward and back over the entire surface area.

215-3.11.1.2.1.1 After rubblizing, a minimum of two passes with the Z-grid roller shall follow the multi-head breaker machine, followed by a minimum of one pass with the pneumatic-tire roller.

215-3.11.1.2.1.2 Immediately prior to bituminous concrete overlay, roll a minimum of one pass with the vibratory steel drum roller.

215-3.11.1.2.2 The RPR may require additional passes of the rolling equipment to satisfactorily compact the rubblized pavement and provide a smooth surface that is ready for the bituminous concrete overlay. Additional rolling at the direction of the RPR shall be considered incidental to the work, and will not be paid for separately. Rolling should not be performed in wet conditions.

215-3.11.1.3 Surface Requirements. Prior to placement of the bituminous concrete overlay the surface tolerances shall meet the requirements of Item P-219, Surface tolerances for smoothness and accuracy. If fine grading is necessary, it can be accomplished with salvaged milled concrete material or P-219 aggregate.

If the Contractor elects to use salvaged milled concrete material, it shall be of a gradation that will allow the fine grade to meet specifications.

If the Contractor elects to use P-219, the minimum thickness shall be three inches and density compaction requirements apply. The Contractor shall over-mill the rubblized concrete surface to accommodate the thickness of P-219 material to be installed. All aspects of Item P-219 shall be met.

Fine grading with salvaged milled concrete material OR with additional milling depth and supplemental P-219 shall be considered incidental to the work involved and will not be paid for separately. The costs of fine grading shall be included in the unit price bid for Item P-215.

215-3.12 Unstable area patching.

215-3.12.1 If unstable areas occur because of expansion of the existing concrete pavement, they shall be removed to the dimensions directed by the RPR and replaced with crushed aggregate base course and/or bituminous concrete (patching) at the direction of the RPR. Patching procedures shall conform to the standard specifications, and shall be completed prior to placing the bituminous concrete overlay. Patching will be paid for as a separate bid item as provided in the appropriate Specification Item.

215-3.12.2 Areas of poor subgrade support that are identified during the rubblization and seating process shall be patched at the direction of the RPR. Generally, the rubblized pavement, base course, and subgrade material will be removed from unstable areas. The material will be replaced with aggregate base course or hot mix asphalt as directed and compacted in lifts as required in the standard specifications.

215-3.13 Progress of the work. In no instance shall more than 48 hours elapse between rubblizing the pavement and the placement of the bituminous concrete overlay or crushed stone base course. If rain occurs between these operations, this time limitation may be waived to allow sufficient time for the rubblized pavement to dry to the satisfaction of the RPR.

METHOD OF MEASUREMENT

215-4.1 Concrete Pavement Rubblization. Rubblization of concrete pavement shall be measured by the square yard.

BASIS OF PAYMENT

215-5.1 Concrete Pavement Rubblization. This item shall include full compensation for rubblizing the existing PCC pavement, rolling the rubblized pavement, and for all equipment, tools, labor and incidentals necessary to complete the work. In addition, this item shall include full compensation for all labor, equipment, tools, and incidentals necessary to furnish and apply water for dust control, provide test sections and test pits, saw-cut joints, cut and remove exposed concrete reinforcing material, remove joint filler and other debris, cleanup, waste removal and disposal, and preparation of the rubblized surface prior to the bituminous concrete overlay.

Payment will be made under:

Item P-215-1 Concrete Pavement Rubblization - per square yard

END OF ITEM P-215

Item P-219 Recycled Concrete Aggregate Base Course

DESCRIPTION

219-1.1 This item consists of a base course composed of recycled concrete aggregate, crushed to meet a particular gradation, constructed on a prepared course per these specifications and in conformity to the dimensions and typical cross-sections shown on the plans.

MATERIALS

219-2.1 Aggregate. Recycled concrete aggregate consists of cement concrete that was previously broken down to meet FAA P-209 crushed aggregate base course gradation requirements. Approximately 8,000 CY of this material has been stockpiled and stored adjacent to the project site and shall be used for this project. The material has been successfully used as subbase course for airport pavement sections (more stringent requirements), meeting all placement criteria specified in the contract. Laboratory test results have been included in the construction contract.

The recycled concrete material is free of reinforcing steel and expansion material.

219-2.2 Gradation requirements. Material as provided by the Owner.

219-2.3 Sampling and testing. Not required.

219-2.4 Separation Geotextile. Separation Geotextile shall be class 2, 0.02 sec⁻¹ permittivity per ASTM D4491, Apparent opening size per ASTM D4751 with 0.60 mm maximum average roll value.

CONSTRUCTION METHODS

219-3.1 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches (300 mm) upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the RPR.

219-3.2 Preparing underlying course. The underlying course shall be checked by the RPR before placing and spreading operations are started. Any ruts or soft yielding places caused by improper drainage conditions, hauling, or any other cause shall be corrected at the Contractor's expense before the base course is placed there. Material shall not be placed on frozen material.

To protect the existing layers and to ensure proper drainage, the spreading of the recycled concrete aggregate base course shall begin along the centerline of the pavement on a crowned section or on the greatest contour elevation of a pavement with a variable uniform cross slope.

219-3.3 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The subbase course shall be constructed in lifts as established in the control strip, but not less than 4 inches (100 mm) nor more than 12 inches (300 mm) of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

219-3.4 Compaction. Immediately upon completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of material shall be at least 100% of the maximum density of laboratory specimens prepared from samples of the subbase material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D698. The moisture content of the material during placing operations shall be within ± 2 percentage points of the optimum moisture content as determined by ASTM D698. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified. If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of Maximum Dry Density and Optimum Moisture for Oversized Particles.

219-3.5 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40° F (4°C) and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

219-3.6 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at their expense.

219-3.7 Surface tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch (9 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

b. Grade. The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +0 and 1/2 inch (12 mm) of the specified grade.

219-3.8 Acceptance sampling and testing for density. Recycled Concrete Aggregate base course shall be accepted for density and thickness on an area basis. Two tests shall be made for density and thickness for each 1200 square yds (1000 m²). Sampling locations will be determined on a random basis per ASTM D3665

a. Density. The RPR shall perform all density tests.

Each area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM D698. The in-place field density shall be determined per ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches (75 mm) in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch (12 mm) of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

Contractor may check thickness and grade by survey provided a survey is performed on the approved subgrade prior to placing subbase material. The survey shall be along centerline, or ridge lines at 50 foot intervals with elevations taken along sections at 50 foot intervals. In addition, elevations shall be taken at all grade breaks and vertical curves. Contractor shall survey the finished surface of the subbase course at the same locations that the survey was taken on the subgrade. Contractor shall provide an analysis of the difference in elevations between the two surveys to the RPR for approval.

Alternate methods of checking the fine grade may be used only when authorized by the RPR.

METHOD OF MEASUREMENT

219-4.1 The quantity of recycled concrete aggregate base course will be determined by measurement of the number of square yards of material actually constructed and accepted as complying with the plans and specifications.

219-4.2 Separation geotextile shall be measured by the number of square yards of materials placed and accepted by the RPR as complying with the plans and specifications excluding seam overlaps and edge anchoring.

BASIS OF PAYMENT

219-5.1 Payment shall be made at the contract unit price per square yard for recycled concrete aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

219-5.2 Payment shall be made at the contract unit price per square yard for separation geotextile. The price shall be full compensation for furnishing all labor, equipment, material, anchors, and incidentals necessary.

Payment will be made under:

Item P-219-1	Recycled Concrete Aggregate Base Course, Owner Provided Material – per cubic yard
Item P-219-2	Separation Geotextile - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregate
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³ (600 kN-m/m ³))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4643	Standard Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Heating
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

END OF ITEM P-219

NYSDOT Section 400 ASPHALT MIXTURE AND PAVEMENT

SECTION 401 - PLANT PRODUCTION

(Last Revised January 2023)

401-1 DESCRIPTION. The contractor is responsible for Quality Control (QC). QC is defined as all activities required to produce asphalt mixture that meets all specification requirements. The contractor shall incorporate a Quality Control system for all plant production of asphalt mixture and assume responsibilities for all QC activities at the production facilities.

The contractor shall produce the asphalt mixture according to the specifications herein and provide production documentation. Quality Adjustment Factors (QAFs) will be used to assess asphalt mixture production quality, and these factors will be applied to calculate a quality payment adjustment.

The Department is responsible for Quality Assurance (QA). QA is defined as all activities performed by the Department to assure that asphalt mixture production meets the specification requirements. The Department will determine quality payment adjustments for each day's production using a daily QAF obtained from the calculations of the average absolute values for volumetric and non-volumetric mixes in accordance with Materials Procedure (MP) 401, *Quality Control and Quality Assurance Procedures for Quality Control Asphalt Mixture Production*. The daily QAFs measure production variation from the mean of the specification limits.

For the purposed of this specification "Department" shall mean "Owner", "Airport" and "Oneida County".

401-2 MATERIALS. The provisions of §404-4, *Materials*, apply and are as modified herein. Produce asphalt mixture in accordance with the requirements outlined in this specification, including all applicable Test Methods and Materials Procedures. Asphalt mixture designs must be accepted by the Department prior to any asphalt production.

The Department reserves the right to suspend any mixture design when the mixture produces unacceptable paving results or exhibits properties that will affect the anticipated pavement performance.

401-2.01 Asphalt Mixture Designs. Formulate and submit an asphalt mixture design to the Engineer that satisfies all design criteria outlined in MM 5.16, *Asphalt Mixture Design and Mixture Verification Procedures.* When the submitted asphalt mixture design is assigned verification status, the design must be verified during production. Notify the RME at least 24 hours prior to the start of verification status production. When producing under verification status, make necessary adjustments to control the process. Apply daily QAFs to both verification and production status mix designs. Mixtures produced under verification status are allowed for use on State projects.

For any asphalt permeable base and shim mixtures required by the contract documents, formulate and submit to the RME a job mix formula that satisfies the General Limits imposed by Table 401-1, *Composition of Asphalt Mixtures*.

401-2.02 Aggregates. Aggregate must be from a source approved by the Department. Use fine aggregate that consists of materials conforming to the requirements of §703-01, *Fine Aggregate*. In addition, fine aggregate may consist of screenings, free from deleterious materials and manufactured from sources of stone, gravel, or slag meeting the requirements of §703-02, *Coarse Aggregate*.

Use coarse aggregate that consists either of crushed stone, crushed gravel, or crushed slag conforming to the requirements of §703-02, *Coarse Aggregate* and MM 5.16.

Use slag aggregate on State projects only when an alternate pay item which takes the mix yield

differential into account is included on the plans or in the itemized proposal.

When coarse aggregates for the mixture are from more than one source or of more than one type of material, proportion and blend them to provide a uniform mixture.

TABLE 401-1 COMPOSITION OF ASPHALT MIXTURES				
Mixture	Permeable Base		Shim	
Requirements	Type 2		Type 5	
Screen Sizes	General Limits % Passing ¹	Job Mix Tolerance %	General Limits % Passing ¹	Job Mix Tolerance %
2 in	100			
$1\frac{1}{2}$ in	75 - 100	±7		
1 in	55 - 80	±8		
1/2 in	23-42	±7		
¹ / ₄ in	5-20	±6	100	
1/8 in	2-15	±4	80 - 100	±6
No. 20			32 - 72	±7
No. 40			18 - 52	±7
No. 80			7-26	±4
No. 200			2-12	±2
Asphalt Content, %	2.5 – 4.5	NA	7.0 – 9.5	NA
Mixing and Compaction Temperature Range °F	225 - 300		250 - 325	

NOTES:

1. All aggregate percentages are based on the total weight of the aggregates.

2. The asphalt content is based on the total weight of the mix. When using slag aggregates in the mix, the asphalt content shall be increased accordingly, a minimum of 25 percent for an all slag mix.

3. Use the PG binder listed in the proposal or as designated by the Engineer following the guidance specified in the Comprehensive Pavement Design Manual, Chapter 6, Section 6.2.5 – *Performance Graded Binder Selection*.

A. Coarse Aggregate Type F1 Conditions. Use one of the following types of coarse aggregate.

I. Sandstone, granite, chert, traprock, ore tailings, slag or other similar noncarbonated materials.

2. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag or other similar materials, meeting the following requirements:

a. 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 90.0% of plus 3/8 inch particles must be non-carbonate.

b. 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must

comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 90.0% of plus No. 4 particles must be non-carbonate.

c. 6.3 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus No. 8 particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 90.0% of plus No. 4 particles must be non-carbonate.

B. Coarse Aggregate Type F2 Conditions. Use one of the following types of coarse aggregate.

I. Limestone, dolomite, or a blend of the two having an acid-insoluble residue content of not less than 20.0%.

2. Sandstone, granite, chert, traprock, ore tailings, slag or other similar noncarbonate materials.

3. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag or other similar materials, meeting the following requirements:

a. 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.

b. 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be noncarbonate.

c. 6.3 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be non-carbonate.

C. Coarse Aggregate Type F3 Conditions. Use one of the following types of coarse aggregate.

1. Limestone or a blend of limestone and dolomite having an acid-insoluble residue content of not less than 20.0%.

2. Dolomite.

3. Sandstone, granite, chert, traprock, ore tailings, slag or other similar noncarbonate materials.

4. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag or other similar materials, meeting the following requirements:

a. 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.

b. 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be noncarbonate.

c. 6.3 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be non-carbonate.

D. Coarse Aggregate Type F9 Conditions. Use coarse aggregate meeting the requirements of §703-02, Coarse Aggregate.

401-2.03 Mineral Filler. Use mineral filler conforming to the requirements of §703-08, Mineral Filler.

401-2.04 Performance-Graded Binder. Use the Performance-Graded Binder (PG Binder) in the production of these mixtures that meets Section 702 – *Bituminous Materials*.

Initial acceptance of the PG Binder is based on the primary source appearing on the Department's Approved List for Bituminous Material Primary Sources, A. Performance-Graded Binders for Paving. Acceptance of the PG Binder is contingent upon satisfactory test results from samples taken, as required by the Department's procedural directives, at the location where the material is incorporated into the work. A primary source is defined as a firm that samples, tests, and certifies by Production Lot that the PG Binder is in conformance with the specifications. The procedural directives for sampling, testing, and certifying the PG Binder, and for achieving and maintaining approved list status, are available from the Materials Bureau.

The temperature of PG Binder delivered to the Asphalt Mixture Production Facility shall not exceed 350°F, unless the PG Binder supplier recommends it.

401-2.05 Reclaimed Asphalt Pavement. Reclaimed Asphalt Pavement (RAP) shall meet the requirements of MM 5.16.

401-3 CONSTRUCTION DETAILS.

401-3.01 Quality Control. Perform all sampling and testing in accordance with Materials Procedure 401. Document all QC test results and records in a legible manner and provide them to the State at the end of each production season or when requested by the RME. Asphalt Mixture produced without the required sampling, testing and documentation may be rejected.

401-3.02 Production Facility Laboratory. Maintain an approved production facility site laboratory to perform all required asphalt mixture sampling and testing according to MP 401.

401-3.03 Plant Lots and Sublots. Determine plant lots and sublots on a daily basis in accordance with MP 401.

401-3.04 Quality Control Sampling and Testing. Obtain and test QC samples as outlined in MP 401.

401-3.05 Production Control. Produce asphalt mixture according to MP 401. Make necessary process control adjustments during production according to MP 401.

401-3.06 Production Quantities. Whenever production is made for the Department, notify the Engineer by 3:00 p.m. the business day before the day of production.

New York State Department of Transportation STANDARD SPECIFICATIONS (USC) May 1, 2025 Maintain a record of each day's production quantity for each mix design supplied to the project site daily. Retain these records at the production facility. These records must be available to the Department's representative for review. Ship all production quantities as outlined in §401-3.07 *Documentation*.

401-3.07 Documentation. Record all QC test data for each plant on the appropriate forms provided by the Department according to MP 401. Also, keep a copy of the plant automation printout at the plant facility for each mix type produced and make them available for review at all times. Transmit a summary of all test data weekly to the RME.

Provide a delivery ticket indicating the total quantity in tons being delivered with each delivery vehicle supplying asphalt mixture. The method of determining the delivered quantity is subject to the approval of the RME. Make one legible copy of the delivery ticket available to the Department's paving inspector prior to the placement of the mixture, showing the following minimum information:

A. Ticket number
B. Plant identification
C. Contract number
D. Site Manager Mix ID (as outlined in MP 401)
E. Mix Code (as outlined in MP 401)
F. Quantity of material in vehicle
G. Date and Time

The quality assurance technician (QAT) will determine the quality adjustment factor (QAF) for each day's production in accordance with MP 401.

The Engineer will use the Daily QAF to calculate the payment adjustment for each day's production according to §404-4 *Method of Measurement*.

401-3.08 Asphalt Mixing Plant. Asphalt mixing plants must meet the requirements in MP 401.

401-3.09 Asphalt Mixture Holding Bins. Asphalt mixtures may be held in holding bins which meet the requirements in MP 401.

401-3.10 Evaluation of Lots Represented by 0.85 QAF. When any material results in a QAF of 0.85, the Engineer will evaluate the subject material to determine if it will be left in place. The Engineer may require the Contractor to core the pavement to determine if the in-place density is acceptable at no additional cost to the State. When cores are required, the Engineer will divide the pavement area being

evaluated into 4 sublots in accordance with the requirements of §404-3.08, *Pavement Density Samples*. The material will be left in-place when either of the following sets of conditions is met.

A. The calculated plant air voids used for payment are greater than 5.5% and less than or equal to 7.0%, the asphalt content, based on automation, is within 0.2% of the production target, the Contractor achieved field density of 93% minimum and there are no defects such as, but not limited to, cracking, raveling, rutting, shoving, or bleeding.

B. The calculated plant air voids used for payment are greater than or equal to 1% and less than 1.5%, the validated QC and QA plant air void test results, according to MP 401, average 1.5% to 5.5%, the asphalt content, based on automation, is within 0.2% of the production target, the contractor achieved field density of 93% minimum, and there are no defects such as, but not limited to, cracking, raveling, rutting, shoving, or bleeding.

C. If the material does not meet the above conditions or it is unknown, such as for mixes accepted based on gradation or if QA testing was not required, the Engineer will determine if the material in

question may remain in-place considering, but not limited to, the following:

- *1*. Type of material produced
- 2. The layer in which the material was placed
- 3. The location and traffic volume
- 4. Laboratory test results
- 5. Field test results, such as density

If the subject material is left in-place, it will be assigned a QAF of 0.85. If determined the subject material will not be left in-place, the Contractor shall remove and replace the material at no additional cost to the State.

401-4 METHOD OF MEASUREMENT. The quantity will be the number of tons delivered as determined from the automated proportioning system, the delivery vehicle weigh system, or the asphalt mixture holding bin weigh system. The measurement or calculation will be the quantity based on the measured amount and reported to the nearest 0.01 of a ton.

SECTION 402

VACANT SECTION 403

- VACANT

SECTION 404 - ASPHALT PAVEMENTS

404-1 DESCRIPTION. These specifications apply to all plant mixed asphalt produced at a production facility under Section 401 *Plant Production*

This work will consist of providing, placing, and performing density monitoring of one or more courses of asphalt pavement constructed on the prepared foundation in accordance with the contract documents or as directed by the Engineer.

404-2 - MATERIALS.

404-2.01 General. Aggregate, Performance Graded (PG) Binder, and Warm Mix Asphalt Technology shall be from suppliers listed in the Department's Approved List for Fine and Coarse Aggregates, Performance Graded (PG) Binders and Warm Mix Asphalt Technology for Asphalt Paving, respectively. Mineral filler shall meet the requirements of §703-08.

A PG Binder grade and the mix design gyration will be specified by Special Note in the contract documents.

The use of the WMA Technology shall comply with the latest technology supplier's approved "Production, Testing, and Compaction Details".

404-2.02 Composition of Mixtures. Asphalt mixture shall meet the requirements of §401-2 of the Standard Specifications and the mixture design procedure in Materials Method (MM) 5.16, *Asphalt Mixture Design and Mixture Verification Procedures*.

The Contractor shall be responsible for the quality and performance of the mixture created from approved components.

404-3 CONSTRUCTION DETAILS.

• Mix Temperature. The desired asphalt mixture temperature shall be within the mixing and

compaction range as recommended by the WMA technology provider and shall not exceed 295°F at the point of discharge of the haul vehicle, unless a higher temperature is approved by the Engineer.

- **Pre-pave Meeting.** The Engineer will conduct a pre-pave meeting prior to any asphalt mixture placement. The attendees at this meeting will include the Engineer, Paving Superintendent, Chief Inspector or Paving Inspector(s), Asphalt Plant Representative, Density Gauge Operator (depending on the compaction method used). The participants should be prepared to discuss the steps necessary to complete the work successfully.
- Participants will review all aspects of the requirements including, but not limited to, the following:
 - Warm Mix Technology dosage rates
 - Asphalt mixture target temperatures
 - Anticipated mixture production, delivery rate, and paving speed.
 - Seasonal considerations with operations
 - Equipment and setup
 - Mix codes to assure correct mixture is delivered
 - Gauge operator certification
 - Proper construction practice to provide quality product
 - WZTC Activities
- *Certified Gauge Operator.* When a density gauge is used to monitor pavement density, the Contractor shall provide a certified operator with a current Density Gauge Inspector Certification from the AssociatedGeneral Contractors (NY Chapter), or its equivalent*, as determined by the Director of the Materials Bureau.

*Equivalence: Operators that possess a current Paving Inspector Certification from Northeast Transportation Technician Certification Program (NETTCP) and pass the current Density Gauge Inspector Certification exam shall be considered to have an equivalent certification.

404-3.01 Temperature and Seasonal Limitations.

A. Surface Temperature.

1. Surface Temperature. Asphalt mixture shall be placed only when the pavement surface temperature is equal to or greater than those specified in Table 404-1 Temperature Requirements.

TABLE 404-1 TEMPERATURE REQUIREMENTS		
Nominal CompactedSurface TemperatureLift ThicknessMinimum		
≤ 1 in	50°F	
1 in < Thickness \leq 3 in	45°F	
> 3 in	40°F	

2. *Temperature Measurement.* The Contractor shall furnish a surface thermometer capable of reading surface temperature to the nearest 1°F for the exclusive use of the Engineer. The Engineer will measure pavement surface temperatures on the surface where the mixture is to be placed. The controlling temperature will be the average of three readings taken at locations 25 feet apart utilizing a surface thermometer covered by insulation for 10 minutes or until a constant temperature

is reached.

B. Seasonal Limits. Top Course on mainline and shoulders shall be placed between April 1 and November 30 for the counties of Dutchess, Orange, Putnam, Rockland, Westchester, Nassau, Suffolk, and the City of New York. For all other counties, Top Course shall be placed between April 15 and October 31. When placing asphalt Top Course outside the seasonal limitations, the Contractor shall provide a limited warranty against defects in such work. Performance of the warranty should be in accordance with Materials Procedure (MP) 404-01, *Warranty Requirements for Asphalt Top Course*. Unless specified elsewhere in this specification or contract documents, these seasonal limits do not apply for any other asphalt pavement course placement.

C. Temporary Asphalt Placements. Asphalt mixture placement for temporary detours, which will not become part of the permanent pavement, are not subject to the temperature and seasonal limitations, but must be approved by the Engineer when placed outside temperature and seasonal limits. Any damaged areas identified by the Engineer on the temporary asphalt placements shall be repaired within one workday after the notification.

D. *Miscellaneous Asphalt Placements.* The Engineer may allow the placement of asphalt mixtures for curbs, driveways, sidewalks, gutters, and other incidental construction below the minimum temperature and outside the seasonal limits to expedite the completion of the work.

E. Scheduling Asphalt Placement. The Contractor shall schedule paving operations such that all asphalt mixture placements are completed within the temperature and seasonal limitations. Should paving operations not be completed within temperature and seasonal limitations, the Contractor shall provide all temporary materials and work necessary such as shimming of castings and protrusions, drainage of the roadway, providing acceptable rideability, and other work for adequate work zone traffic control. This shall be at no additional cost to the State.

When the approved schedule indicates that Base or Binder course, which will be permanently incorporated into the work, is to be left open to traffic over the winter, the Contractor shall apply joint adhesive to all the joints in accordance with Section 418 *Asphalt Pavement Joint Adhesive*.

When the anticipated top course is not placed within the seasonal limits as scheduled, the Contractor shall apply joint adhesive over the exposed joints in the Binder course at least 2 inches wide centered on the exposed joint at no additional cost to the State.

The Contractor shall repair damaged areas to the Base or Binder course left over the winter prior to placing subsequent course(s) at no additional cost to the State.

404-3.02 Pavers. The paver shall be capable of spreading and finishing courses of asphalt mixture in lane widths, shoulders, or similar construction applicable to the specified typical section and thicknesses shown on the plans. When a paver is found to be defective, either before or during its use, it shall be repaired or replaced immediately. The paver shall meet the following requirements:

A. Self-powered with an activated screed or strike-off assembly.

B. Capable of operating at forward speeds consistent with satisfactory placement of the mixtures.

C. Have a receiving hopper with enough capacity for uniform spreading operation and with automatic flow controls to place the mixture uniformly in front of the screed.

D. Heat the screed or strike-off assembly as necessary to produce a finished surface of the required smoothness and texture without tearing, shoving, or gouging the mixture.

E. When screed extensions are necessary for placement of mainline pavement, the extensions shall be of the same design as the main screed.

F. The auger and tunnel extensions shall be mounted on the paver when the screed is extended more than 1 foot for fixed paving widths wider than 12 feet.

G. When used for placing the initial paving course, Base, Binder, and Top Courses, the paver shall be equipped with automatic transverse slope and longitudinal grade screed controls that can be operated from either side of the paver. The controls shall automatically adjust the screed and increase or decrease the mat thickness to compensate for irregularities in the existing surface. The controls shall also be capable of maintaining the proper transverse slope and be readily adjustable so transitions and super-elevated curves can be satisfactorily paved. The controls shall be capable of operating from suitable fixed or moving references as prescribed in §404-3.06 *Spreading and Finishing*. The transverse slope and longitudinal grade screed controls of the paver may be manually adjusted according to the requirements of §404-3.06 *Spreading and Finishing*. Automatic screed controls are not required for shoulders, temporary detours, behind curbs, where existing grades at roadway intersection or drainage structure must be met, or in other areas where its use is impractical.

404-3.03 Hauling Equipment. Transport trucks shall have clean, smooth, tight metal beds with waterproof covers for transporting asphalt mixtures to the work site. A waterproof cover shall be mounted in such a manner that it covers the entire load and overlaps the vehicle's sideboards and back by a minimum of 6 inches and is fastened except for live-bottom trucks that has a channelized tarp system. The inside surface of the vehicle body may be lightly coated with a release agent listed on the Approved List for Release Agents. The use of petroleum products or solvents as release agents is prohibited. All hauling equipment is subject to the approval of the Engineer.

404-3.04 Rollers. Contractor shall use vibratory, oscillatory, static steel wheel type, or pneumatic tire rollers capable of compacting asphalt pavement and weighing at least 8 tons. The Engineer will inspect rollers prior to the start of paving operations to determine acceptability. The rollers should be in good mechanical condition, and capable of operating at speeds slow enough to avoid displacement of the mixture. Rollers that result in excessive crushing of aggregate shall not be used.

All rollers shall have either a sticker or a plate installed on the roller indicating the recommended settings for amplitude, frequency, and tire pressure (pneumatic) for the thickness of pavement being rolled. Vibratory rollers shall be set up such that they produce a minimum of 12 impacts per foot during the compaction process.

404-3.05 Conditioning of Existing Surface. The Contractor shall use the provisions of Section 633 *Conditioning Existing Pavement Prior to Asphalt Overlay* to clean the surface of the existing pavement prior to the application of new asphalt mixture or when specified in the contract documents, to fill joints and cracks, and perform repairs. Any foreign material resulting from construction operations shall be cleaned at no additional cost to the State.

For filling the wheel ruts, the Contractor shall use Shim Course or 6.3 Top Course unless a specific asphalt mixture is specified. The mixture used for filling ruts shall be compacted with a minimum of three passes of a pneumatic rubber tire roller.

If the true and leveling (T&L) course is specified in the contract documents using a specific mixture type, the Contractor shall place the course(s) with a minimum variable thickness to bring the surface of the existing pavement to the same transverse slope and longitudinal grade required for the finished pavement surface. If the mixture type is not specified, the Contractor shall use Table 404-2 *Mixture Selection for T&L Course*, to select the appropriate mixture type.

The selection of the mixture shall be such that dragging of stones at the thin edge is minimized, including when constructing wedges for super-elevation. If dragging is excessive in any T&L course, a different T&L mixture shall be selected for the application. The surface of this course will be tested in the

same manner prescribed in §404-3.10 *Surface Tolerance*, except that the allowable variation from the true surface after compaction shall not exceed ³/₈ inch.

TABLE 404-2 MIXTURE SELECTION FOR T&L COURSE		
Compacted Thickness Range (in)	Mixture Type	
Thickness ≤ 1	6.3 Top Course or Shim	
$1 \frac{1}{2} < \text{Thickness} \le 2$	9.5 Top Course	
$2 < \text{Thickness} \le 2\frac{1}{2}$	12.5 Top Course	
$2\frac{1}{2} \le \text{Thickness} \le 4$	19.0 Binder Course	
$3 < \text{Thickness} \le 5$	25.0 Binder Course	
$4 < \text{Thickness} \le 6$	37.5 Base Course	

404-3.06 Spreading and Finishing

A. Tack Coat. The Contractor shall apply tack coat, in accordance with Section 407 *Tack Coat*, between all asphalt pavement lifts regardless of the duration between the lifts. Tack coat is not required on the surface of Permeable Base courses. Paving over a tack coat should not commence until the emulsion has broken (goes from brown to black) or is tacky when touched.

B. Joint Adhesive. The Contractor shall apply joint adhesive in accordance with Section 418 Asphalt Pavement Joint Adhesive to all pavement joints butting against the new asphalt placement including curbs, median barriers or similar. The application of joint adhesive is for Top Course only unless it is specified for other courses in the contract documents or as required under §404-3.01E Scheduling Asphalt Placement.

C. Asphalt Mixture Temperature. Asphalt mixture temperature shall not exceed 295°F at the point of discharge of the haul vehicle unless a higher temperature is approved by the Engineer.

D. Asphalt Mixture from Multiple Plants. Asphalt mixture from multiple plants shall not be supplied to a single paver.

E. Reference Line. The Contractor shall erect and maintain a taut reference line positioned at or near the pavement centerline or edge to guide the paver when the initial asphalt pavement course is laid for new or reconstructed pavement. The reference line shall be supported at approximately 25-foot intervals on tangent sections and at closer intervals on curves. The line shall be tensioned sufficiently to remove any sagging.

A moving reference of at least 30 feet can be used in lieu of a reference line with approval of the Engineer. The moving reference may be a floating beam, ski, or other suitable type such that the resulting pavement course surface is even. A short ski or shoe may also be used for the initial course with the approval of the Engineer if a satisfactory fixed reference such as a curb, gutter, or other reference is adjacent to the pavement.

A short ski may be used over any course in an adjacent lane that is used as the reference. If the proposed floating beam or the short ski does not produce the results similar to those obtained using a taut reference line, the use of the devices shall be discontinued, and a taut reference line shall be erected.

F. Asphalt Mixture Placement. The paver shall be used to place the asphalt mixture either over the entire width or over a partial width that is practical. The paver speed shall be coordinated with the rate of delivery of the mixture to provide a steady and continuous placement of the mixture without interruption. The Contractor shall provide details of the anticipated mixture delivery rate and the anticipated paver speed at the pre-pave meeting.

The asphalt mixture shall be placed on a clean, dry, tack-coated surface. If the areas to be paved are less than 1,000 square feet or small and scattered, the asphalt mixture may be spread by hand or other method approved by the Engineer. For these areas, the mixture shall be dumped and spread such that the compacted thickness meets the thickness specifications located in the contract documents.

G. Top Course Texture and Color. The Top Course asphalt mixture shall be supplied from a single plant for the duration of the work such that the pavement surface has a uniform color and texture, except when a contract includes multiple paving sites, or the paving length is more than 5 miles and supply from multiple plants to either end of the paving length is practical. In that case, the above requirement will apply to each paving site and locations at either end of the paving length as approved by the Engineer. Limits of each site will be subject to approval by the Engineer. If a plant breaks down, another plant may supply mixture if the aggregate used for producing the asphalt mixture is from the same source, with the concurrence of the Engineer. When echelon paving is utilized, multiple plants may be used to supply mixture provided the aggregate used is from the same source. The provisions of §404-3.06 D *Asphalt Mixture from Multiple Plants* apply.

H. Wet Surface. Asphalt mixture shall not be placed on any wet surface. Wet surface is defined as one that is moistened, covered, or soaked with water.

404-3.07 Compaction. The Contractor shall compact the asphalt mixture sufficiently using the appropriate compaction method to achieve pavement densities of at least 93%, expressed as a percentage of the mixture's maximum theoretical density (MMTD).

The asphalt mixture shall be compacted using rollers meeting the requirements of §404-3.04 *Rollers*. A minimum of two rollers, one for breakdown and one finish roller, shall be used unless the asphalt mixture placement is on a bridge deck, bridge approaches, or other areas where one roller may be sufficient to achieve the required density. When paving multiple lanes simultaneously, the required number of rollers shall be increased proportionately for each additional full lane width unless otherwise approved by the Engineer. The asphalt mixture shall be compacted immediately after placement, and when the mixture is in the proper condition such that the rollers do not cause displacement, cracking, or shoving. Initially, all courses shall be compacted with the roller traveling parallel to the centerline of the pavement, beginning at each edge, and working toward the center. The super-elevated curves shall be compacted starting at the low-side edge and working toward the higher edge.

Any displacement caused by the roller, or any other causes, shall be corrected immediately using rakes and additional asphalt mixture as required. The roller wheels shall be properly moistened with water, water mixed with small quantities of detergent, or other approved material, to prevent adhesion of the mixture to the rollers. The use of petroleum products or solvents are not allowed to prevent adhesion.

The asphalt mixture along forms, curbs, headers, walls, and other areas not accessible to rollers shall be compacted with mechanical tampers, a trench roller, or a small vibratory roller with the approval of the Engineer.

The Contractor shall remove and replace any asphalt mixture that becomes loose and broken, mixed with dirt, or is in any way defective and the new mixture shall be compacted to conform to the surrounding area. Any areas showing an excess or deficiency of asphalt material shall be corrected immediately.

Vibratory compaction is not allowed when asphalt mixture is placed on a structural bridge deck or other structures with less than 2 feet of cover over the structure or when specified in contract documents. The Contractor shall repair all damages which may occur to the highway components and adjacent property, including buried utility and service facilities, at no additional cost to the State. Steel wheel rollers running on static mode, pneumatic rollers or oscillatory rollers shall be used on the bridge decks.

The Contractor shall monitor pavement density for 60 and 70 Series compaction using density gauges meeting the provisions of §404-3.07E *Density Gauges*. The density gauge operator shall possess a current Density Gauge Inspector Certification from The New York State Associated General Contractors, or its

equivalent, as determined by the Director, Materials Bureau. Any asphalt placement under 60 and 70 Series monitored by a gauge operator whose certification is revoked for reasons outlined in the New York State Inspector Certification Program Manual under "Decertification", shall be evaluated in accordance with §404-3.14 *Pavement Evaluation*, using the results of pavement samples taken in accordance with §404-3.08 *Pavement Density Samples*.

A. 50 Series Compaction Method. All material placed on the traveled way and ramps that are 1500 feet or greater in length, shall be subject to a pavement density Quality Adjustment Factor (QAF). A paving lot is defined as a day's placement of at least 200 tons. Each paving lot shall be equally divided into sublots in accordance with Materials Procedure (MP) 404-02 Asphalt Pavement Density Determination, based on the quantity placed. When the quantity placed is less than 200 tons in a day, pavement samples are not required and the density QAF for that day will be 1.00 provided the procedures used to obtain pavement densities in these areas are similar to the previously placed pavement sections. For quantity of more than 200 tons but less than or equal to 2000 tons in a day, the Engineer will divide the lot into 4 equal sublots. When the quantity exceeds 2000 tons, the Engineer will select one additional pavement core location for up to every 500 tons over 2000 tons, up to a maximum of 8 cores for a lot. Ramps less than 1500 feet in length and shoulders will not be considered part of the traveled way and are not subject to coring.

The Engineer will mark a pavement core location in each sublot in accordance with §404-3.08A *Pavement Cores* once the compaction operation is completed, excluding the first 300 feet of the day's placement. The Contractor shall extract pavement cores at the marked locations in each sublot and fill the pavement core holes before the road is open to traffic in accordance with §404-3.08 B *Filling Core Holes*. The pavement cores shall be extracted no later than the end of the following day's placement. The Contractor shall deliver the sealed pavement cores to the Engineers Laboratory in accordance with §404-3.08 E *Sample Delivery*. The Engineers Laboratory will test core samples and determine the percent density using the maximum theoretical density samples taken in accordance with §404-3.08 C *Loose Mix Samples*. The results of this analysis will be used to determine the pavement density Quality Adjustment Factor (QAF) in accordance with MP 404-02 and submitted to the Engineer prior to the end of the next business day upon the delivery of the samples.

The Engineer will apply the pavement density QAF to the material placed on that day in accordance with §404.4 *Method of Measurement*, Table 404-6, *Quality Adjustment Factors for 50 Series*.

When two consecutive lots are found to have a density QAF equal to or less than 0.85, the Contractor shall stop paving operations and provide a corrective action plan.

The Contractor shall compact material on shoulders, widening, crossovers, bridges, and ramps with a uniform full-width section of less than 1500 feet in length using the same roller pattern as traveled way. If the shoulder subbase is structurally insufficient to sustain the level of compaction such that the shoulder shows sign of distress during compaction, the compaction effort shall be decreased until no further damage occurs to the shoulder or subbase.

1. Multiple Paving Lots: When the work includes multiple paving operations such as simultaneous paving at different site locations and/or echelon paving, each paving operation shall be considered a lot and evaluated separately. When asphalt pavement is placed continuously during a calendar day or more, a new paving lot will be defined when the paving crew shift change occurs.

B. 60 Series Compaction Method. This method requires the Contractor to monitor pavement density using a density gauge and pavement cores. The Contractor shall construct the pavement to achieve a pavement density of at least 93% of the mixture's maximum theoretical density (MMTD).

1. First day of Paving. The Contractor shall construct the pavement using an interim Project Target Density (PTD). The interim PTD will be 94.5% of the MMTD. The first 300 feet shall be

used to adjust the paving operation. The Contractor shall take density readings at every 200 feet along the length of the pavement for each paver pass, in accordance with MP 404-02. The density gauge readings shall be recorded on the appropriate BR form based on the type of gauge used. The Contractor shall ensure the density gauge readings meet the PTD. If the density readings at two consecutive locations fall below 97% of the PTD or if the moving average of the last 10 density readings falls below 98% of the PTD, the Contractor shall adjust the PTD.

a. At the end of the first day's placement, or when the paving operation is stopped as mentioned above, the Engineer will randomly select and mark 4 pavement core locations in accordance with §404-3.08, excluding the first 300 feet.

b. The Contractor shall take density gauge readings, in accordance with MP 404-02 at each pavement core location prior to extracting the cores. The Contractor shall fill Form BR 109 with density gauge readings, gauge type, model, and the serial number.

c. The Contractor shall extract pavement cores at the marked location in each sublot and fill the core holes before the road is opened to traffic. The density gauge readings and pavement cores shall be delivered to the Engineers Laboratory in accordance with \$404-3.08 *Pavement Density Samples*.

d. The Engineers Laboratory will determine the percent density using representative samples taken in accordance with §404-3.08 C *Loose Mix Samples*. The results of this analysis will be used to determine the actual Project Target Density (PTD) and the pavement density Quality Adjustment Factor (QAF). The results will be submitted to the Engineer prior to the end of the next business day following the delivery of the samples.

e. The Engineer will apply the pavement density QAF to the material placed on that day in accordance with §404-4 *Method of Measurement*, Table 7, Quality Adjustment Factors for 60 Series. When the quantity placed is less than 200 tons in a day, the density QAF for that day will be 1.00.

2. *Routine Paving*: The Contractor shall compact the pavement using the calculated PTD. If the calculated PTD differs from the previous PTD by more than 2 lbs/ft3, the Engineer will establish a new PTD. Density readings shall be taken every 200 feet along the length of the pavement for each paver pass, in accordance with MP 404-02. The density gauge readings shall be recorded on the appropriate BR form based on the type of gauge used. The minimum density reading shall be at least 97% of the PTD at a single test location and 98% of the PTD calculated as a moving average of the last 10 test locations. If density readings over two consecutive locations fall below 97% of the PTD or if the moving average of the last ten (10) density readings falls below 98% of the PTD, the Contractor shall stop routine paving operations. The Engineer will randomly select four (4) cores over the entire day's paving. The Contractor shall take density gauge readings at each location, fill out Form BR 109, extract the cores, and deliver the cores to the Engineers Laboratory.

3. Coring Frequency: The Engineer will select 4 core locations every third day of paving after the first day of paving, in accordance with MP 404-02, excluding the first 300 feet. On non- coring days, the Engineer will request pavement samples for density verification of asphalt pavement placed under the following situations at no additional cost to the State.

a. Insufficient number of density readings recorded, either at a specific location or at the required frequency.

b. Paving completed after the only density gauge on site breaks down.

c. Gauge readings do not seem to accurately represent the asphalt pavement density.

The Contractor shall extract the cores and deliver them to the Engineers Laboratory for analysis in accordance with §404-3.08E. The Engineers Laboratory will determine the PTD and the pavement density QAF.

The Engineer will apply the QAF in accordance with §404-4 *Method of Measurement*, Table 7 to the material placed on that day.

Density on shoulders, ramps, widening and crossovers shall be monitored with the same density gauge to ensure the PTD is achieved. If the shoulder subbase is structurally insufficient to sustain the level of compaction such that they show signs of distress, the Contractor shall decrease the compaction effort until no damage occurs to the shoulder or subbase.

4. *Multiple Paving Lots:* Will be in accordance with 404-3.07A. 50 Series Compaction Method, Multiple Paving Lots.

C. 70 Series Compaction Method. The Contractor shall construct a test section in accordance with the provisions of *Test Section* below, prior to the placement of asphalt mixture. The placement of asphalt mixture, including the construction of the test section, shall not begin unless both a density gauge and a certified operator are present.

1. Test Section. On the first day of paving, the Contractor shall place and compact a test section on the mainline with a maximum of 1,500 linear feet in one lane to establish the Project Target Density (PTD)using the "peak" method. The location of the test section will be approved by the Engineer. The Contractor shall use the same equipment and procedures to be used in the construction of the remainder of the course. The first 300 feet of the test section shall be used to stabilize the paving operation. Initially, the mixture shall be compacted with a breakdown roller. The Engineer will select three random locations in accordance with MP 404-02 and mark these sites so that subsequent density testing can be performed at the same locations.

The Contractor shall make necessary vibratory and static passes to "peak" the pavement density such that the density gauge reading shall yield a density of at least 93% of the MMTD. The Contractor shall take density readings at the three selected sites after every additional machine pass until a "peak" density is achieved. A "peak" density is achieved when the increase in density is less than 2 lbs/ft³ and it typically occurs when pavement is compacted at 175°F or less. The Contractor shall stop further compaction if the pavement shows signs of distress.

The PTD is the average of the highest density readings from each of the random locations. The calculated PTD shall be used to monitor the pavement density. The Engineer may request pavement cores to verify the PTD in accordance with MP 404-02.

The Contractor shall begin routine paving only after the PTD has been established. Density readings shall be taken every 200 feet along the length of the pavement for each paver pass, at locations randomly selected by the Engineer, in accordance with MP 404-02. The readings shall be recorded on the appropriate BR form based on the type of gauge used. The minimum density reading shall be at least 97% of the PTD at a single test location and 98% of the PTD calculated as a moving average of the last 10 test locations.

If density gauge readings over two consecutive locations fall below 97% of the PTD or if the moving average of the last 10 density gauge readings falls below 98% of the PTD, stop routine paving operations and construct a new test section.

Density on shoulders, ramps, widening and crossovers shall be monitored with the same density gauge to ensure the PTD is achieved. The appropriate BR form based on the gauge shall be used to record the density readings in accordance with MP 404-02. If the shoulder subbase is structurally insufficient sustain the level of compaction such that they show signs of distress, the Contractor shall decrease the compaction effort until no damage occurs to the shoulder or subbase.

The Engineer may request pavement samples for density verification of asphalt placed under the following situations at no additional cost to the State.

a. Insufficient number of density readings recorded, either at a specific location or at the required frequency.

b. Paving completed after the only density gauge on site breaks down.

c. Gauge readings do not seem to accurately represent the asphalt pavement density.

D. 80 Series Compaction Method. The Contractor shall place and compact asphalt mixture using roller passes required in Table 404-3, *Number of Machine Passes*. The number of passes listed in Table 404-3 may be increased or decreased by the Engineer to obtain adequate density.

The Contractor shall complete all breakdown roller passes before the mat temperature falls below 230°F.

Ruts, ridges, roller marks, or other irregularities from the surface shall be removed using static rolling. All the turning of the rollers shall be performed on material which has at least one roller pass to minimize damage. The Engineer may approve alternate compaction procedures for areas where the specified procedures are not applicable. Oscillatory rollers may be used for either rolling option.

TABLE 404-3 NUMBER OF MACHINE PASSES				
Devement Courses and	Static Compaction ³		Vibratory Compaction ²	
Lift Thicknesses	Steel Wheel Rollers	Pneumatic Rollers	Vibratory Passes	Static Passes
≥3"	8	4	4	4
>1" to < 3"	6	3	3	3
≤ 1"	4	2	2	2
Type 5 Shim	2	-	-	-
Permeable Base ¹	2	-	-	-

- 1. For the Permeable Base course, compact the mixture between 140°F and 230°F.
- 2. A vibratory pass is defined as one movement of a roller over the pavement with both drums vibrating and a static pass is defined as one movement of a roller over the pavement without both drums vibrating.
- 3. Where Static Compaction is required, an Oscillatory Roller used in oscillation mode may be used in lieu of a pneumatic roller.

1. Static Compaction. The Contractor shall compact the asphalt mixture using a 3-roller train. The rollers shall make passes at a uniform speed not to exceed 3 mph. The asphalt mixture shall be compacted with steel-wheel rollers operating in a static mode with each pass overlapping the previous roller pass by one-half the width of the roller followed immediately with a pneumatic rubber-tired roller.

A steel-wheel roller shall be used for finish rolling the asphalt mixture to remove all shallow ruts, ridges, roller marks, and other irregularities from the surface.

When the compaction procedure fails to produce acceptable results, the procedure shall be

adjusted to obtain the desired results.

2. *Vibratory Compaction.* The Contractor shall compact the asphalt mixture using a minimum of two rollers, one for breakdown and one finish roller, unless the asphalt mixture placement is on a bridge deck, bridge approach, or other area where one roller may be sufficient to achieve the required density. When paving multiple lanes simultaneously, the required number of rollers shall be increased proportionally for each additional full lane width. The rollers shall make passes at a uniform speed to achieve a minimum of 12 impacts per foot. The Contractor shall furnish a vibrating reed tachometer for the exclusive use of the Engineer. The vibrating reed tachometer shall meet the following requirements:

a. A frequency range of 1,000 vpm to 4,000 vpm

b. A minimum reed interval of 50 vpm between 1,000 vpm and 2,000 vpm

c. A minimum reed interval of 100 vpm between 2,000 vpm and 4,000vpm.

The settings on the rollers shall be set to produce a minimum of 12 impacts per foot during the compaction process. Impacts are defined as the number of times a drum hits the pavement within one foot of travel. The Engineer will determine the impacts by using the following formula:

$Impacts \ per \ foot = \frac{VPM}{Speed}$

VPM = Frequency of the roller (vibration per minute) Speed = Speed of the roller (feet per minute)

When satisfactory compaction is not obtained, or damage occurs to highway components and/or adjacent property using vibratory compaction equipment, the use of the vibratory compaction method shall be ceased, and the remainder of the work shall be completed using static compaction methods in accordance with 404-3.07-D - *1. Static Compaction*. This will be at no additional cost to the State.

If the number of roller passes are not being made or the roller setup does not provide the minimum impacts per foot consistently, the Contractor shall stop the paving operation and adjust the process as necessary to meet the requirements and then restart the operation with the approval of the Engineer.

E. Density Gauges. The density gauges used for monitoring pavement density in accordance with MP 404-02 shall meet the following requirements:

1. Nuclear Density Gauge. A Safety Control plan shall be submitted at least two weeks prior to using the gauge. The nuclear density gauge shall meet the following requirements:

a. Consist of a radioactive source, scaler, and other basic components housed in a single backscatter unit.

b. Calibrated at least every two years.

c. Operated by personnel trained in the principles of nuclear testing and safety practices.

2. Non-nuclear Density Gauge. The non-nuclear density gauge shall meet the following requirements:

New York State Department of Transportation STANDARD SPECIFICATIONS (USC) May 1, 2025 *a*. Capable of functioning in the temperature and moisture levels experienced during asphalt paving.

b. Capable of determining the density of asphalt pavements by measuring changes in the electromagnetic field resulting from the asphalt compaction process.

c. Calibrated at least every two years.

404-3.08 Pavement Density Samples

A. Pavement Cores. The Engineer will select pavement core locations randomly in accordance with MP 404-02 and outline a 10-inch diameter circle. The Contractor shall extract 6-inch diameter pavement cores from within the 10-inch diameter circles outlined by the Engineer. The Engineer will not designate pavement core locations before the rolling operation is completed and all compaction equipment has moved off the sublot designated for coring. The Contractor shall notify the Engineer immediately if a pavement core is in a location that is believed to not represent the sublot. If necessary, the pavement may be cooled so that the core samples are not damaged during coring. If the pavement core sample does not de-bond during coring, the Contractor shall not attempt to separate the core sample from the underlying layers. The Engineers Laboratory will separate the pavement core shall be extracted and delivered to the Engineers Laboratory no later than the end of the following day's placement.

1. Companion Cores - Taking companion cores in the testable area is not allowed.

2. Quality Control Cores - The Contractor may take up to 2 cores within the first 300 feet at the beginning of the first day's paving. Testing these cores shall be Contractor's responsibilities and the results can be used <u>for quality control (QC) purpose only</u>. Any additional days of coring for QC must be approved by the Engineer.

B. Filling Core Holes. The Contractor shall fill the pavement core holes with a similar asphalt mixture immediately after extracting the cores or before opening the lane to traffic. Any standing water in the core holes shall be removed prior to backfilling. The core hole shall be filled in layers of 3 inches or less and each layer must be sufficiently compacted. The use of a shovel or similar method to compact the asphalt pavement is not allowed.

C. Loose Mix Samples.

1. 50 Series - The Contractor shall take two loose mix samples either at the plant or at the project site for each day of paving on the traveled way. The samples must represent each day's placement, and the mixture maximum theoretical density (MMTD) shall be determined from them. The Contractor shall provide the MMTD results determined by the plant Quality Control Technician (QCT) and Quality Assurance Technician (QAT) to the RPR with the pavement core samples. The Department may take loose mix samples from the paver using MP 404-03 and use the results to supplement the daily MMTD when the QAT is not assigned at the plant.

2. 60 Series - The Contractor shall provide the plant Quality Control Technician (QCT) and Quality Assurance Technician (QAT) MMTD results to the RPR for each day of paving on the traveled way. The Department may take loose mix samples from the paver using MP 404-03 and the results used to supplement the daily MMTD when the QAT is not assigned at the plant.

3. Joint Density - The MMTD results representing the traveled way placement for 50 or 60 Series

shall be used to determine percent density of the joint cores.

D. Securing Pavement Cores. The Contractor will secure the pavement cores in accordance with MP 404-02 once they have been extracted from the pavement.

E. Sample Delivery. The Contractor shall deliver the pavement samples to the Engineers laboratory no later than the end of the following day's placement. If these samples are not submitted for any paving lot within the required duration, a QAF of 1.00 or less will be assigned for that lot if a QAF is applicable. When, for any reason, a delay occurs in the delivery of the lot samples for three consecutive lots, the Engineer will stop paving operations until the samples are delivered and tested.

F. Unacceptable Pavement Cores. The pavement cores will not be tested by the Department if they are damaged during extraction, or during transport to the Engineers laboratory. In that case, the Engineer will select new pavement core location(s) within a foot forward of the original location(s) at the same offset. The Contractor shall extract pavement cores from the newly identified location(s).

G. Pavement Density Core Test Results. Upon receipt of test results of the pavement cores provided by the Engineers laboratory, the Contractor shall notify the Engineer within two (2) working days if the results are not representative of the pavement density. The notification shall include details as to which specific test results are not representative, and the reasons for such notification.

404-3.09 Joints. The finished pavement at all joints shall comply with the surface tolerance requirements and exhibit the same uniformity of texture and compaction as other sections of the pavement course. Rollers shall not pass over the unprotected edges of a freshly laid mixture unless approved by the Engineer.

All joints, excluding the tapered wedge joint, shall be constructed such that the exposed edge has the required lift thickness, and the alignment of the pavement course is straight, unless the exposed joint will not be part of the joint. If the edge of the newly placed pavement course is not straight or smoothly curved, the Contractor shall sawcut the edge by using a power saw or other approved tools to cut a neat straight edge.

Prior to placing the adjacent course, a joint adhesive shall be applied in accordance with §404-3.06 *Joint Adhesive*, to all pavement edges to provide bonding with the newly laid pavement.

Successive asphalt pavement courses shall be placed over an underlying course such that all longitudinal joints are offset no more than 6 inches from the longitudinal joint of the lower pavement course, unless otherwise approved by the Engineer. Pavement courses on existing PCC pavement shall be placed such that all longitudinal joints are stacked on top of the joint of the underlying PCC pavement.

A. Transverse Joints. The asphalt pavement courses shall be placed as continuously as possible to limit the number of transverse joints. The transverse joints in adjacent lanes shall be staggered at a minimum of 10 feet. The transverse joint shall be formed by cutting back the previous placement to expose the full depth of the course. The paver shall be set such that material laid overlaps the previously placed edge by 2 to 3 inches at a thickness of approximately 25% of the compacted thickness of the course. Broadcasting the overlapped material onto the fresh mat is not allowed. If the overlap is excessive, the extra material shall be trimmed uniformly along the joint. The coarse particles in the overlap material shall be removed and discarded, if necessary.

The transverse joint shall be compacted in static mode with the roller parallel to the joint and perpendicular to traffic. Boards of proper thickness shall be placed at the edge of the asphalt pavement for the off-pavement movement of the roller. The first pass shall be made with the roller operating on the previously laid material with 6 to 8 inches of its drum(s) overlapping onto the uncompacted asphalt mixture. If a vibratory roller with pneumatic drive wheels is used, the first pass with one of the pneumatic wheels shall be aligned directly on the joint and the drum operating in static mode. The successive passes shall be made with the roller drum(s) moving approximately one

foot onto the hot material per pass until half the width of the roller is on the hot mat.

B. Longitudinal Joints. The longitudinal joints in the asphalt Top Course shall correspond with the edges of the proposed traffic lanes. Other joint arrangements will require approval of the Engineer.

For 70 and 80 Series, the dual-drum vibratory roller shall be operated in a vibratory mode, unless static rolling is required, to construct the longitudinal joint. Rollers shall be as close to the paver as practical. The first pass shall be made traveling toward the paver and operating on the hot mat with 6 to 8 inches of the roller drum overlapping onto the cold mat. The second pass shall be made to the joint with the roller traveling back away from the paver along the same path.

If a single-drum vibratory roller with pneumatic drive wheels is used, the roller shall be operated in vibratory mode and following the same procedure as the dual-drum roller. The exception to this is that the roller will be aligned on the joint so that the pneumatic drive wheels travel on the joint. All turning movements of the roller shall be made on previously compacted material. After applying two roller passes on the longitudinal joint, the roller shall proceed to the low side of the lane and compact as described in §404-3.07 *Compaction*.

The longitudinal joint shall be constructed such that the compacted thickness of the newly placed mat shall not exceed ¹/₄ inch of the adjacent mat. When the joint is constructed with an overlap, the overlap shall not exceed 2 inches.

For all asphalt pavement courses other than Top Course, the longitudinal pavement joint shall not be exposed more than 100 feet at the end of the working day when traffic is maintained on the roadway during paving operations. For Top Course of 2.5 inches or less, refer to §404-3.09D *Exposed Longitudinal Joint*.

The longitudinal joint shall be constructed using one of the two options below:

1. Option A - Butt Joint. This method shall be used for the placement of all pavement courses except when the Option B – Tapered Wedge Joint requirements are met and is selected.

2. Option B - Tapered Wedge Joint. This method shall be used for 12.5 and 9.5 pavement courses with thickness of 2.5 inches or less, not to be used with a 6.3 pavement course. The asphalt mixture for the first pass shall be placed with an attachment to the paver to provide a sloping wedge with a vertical step-down of 1 inch at the longitudinal pavement joint. A wedge of material that is from the bottom of the step-down to the existing surface at a slope of 1 on 8 or flatter. The vertical step-down shall be $\frac{1}{2}$ inch minimum after compaction of the mat.



TAPERED WEDGE JOINT

C. Joint Density For 50 and 60 Series. Longitudinal joints in asphalt top course between travel lanes for 50 and 60 Series compaction methods are subject to a performance measure based on the core density testing. The Contractor shall select the joint construction method to provide optimum density at the joint.



Cores will be taken from the total length of the joint matched daily. The number of cores extracted shall be in accordance with Table 404-4 *Longitudinal Joint Cores for 50 & 60 Series*. The Engineer will randomly mark core locations centered over the constructed joint in accordance with MP 404-02 using the X coordinates only. A matched joint of 1500 feet or less is not subject to coring. The Contractor shall extract cores on the same day the joint is matched or before the completion of next day's placement. The cores shall be extracted in accordance with §404-3.08A *Pavement Density Samples* and delivered to the Engineers Laboratory. The Engineers Laboratory will determine the core density using the mixture's maximum theoretical density specified in §404-3.08C.

TABLE 404-4 LONGITUDINAL JOINT CORES FOR 50 & 60 SERIES		
Daily Joint Length (feet)	No. of Cores	
$1,500 < \text{Length} \le 10,000$	4	
$10,000 < \text{Length} \le 20,000$	6	
Length > 20,000	8	

D. Exposed Longitudinal Joint. The exposure of longitudinal joints is not allowed over the weekends, holidays, or when there are other concerns, such as pending wet weather. The joint for the Top Course with a thickness of 2.5 inches or less may be exposed to traffic for no more than 24 hours with the following conditions:

I. Tapered wedge joint shall be used for 12.5 and 9.5 asphalt pavement and a butt joint shall be used for 6.3 asphalt pavement.

2. The warning signs shall be posted in accordance with §619-3.02 Basic Work Zone Traffic Control.

3. If the exposed longitudinal pavement joint becomes damaged due to rounding of the notched wedge, the joint shall be saw-cut prior to placing the adjacent lane.

4. Joint adhesive shall be applied to the exposed joint prior to placement of the adjacent lane in accordance with §404-3.06 *Joint Adhesive*.

404-3.10 Surface Tolerance. The Contractor shall construct each pavement course to a ¹/₄ inch surface tolerance. The Engineer may test the surface with a 16-foot straight edge or string line placed parallel to the centerline of the pavement and with a 10-foot straight edge or string line placed transversely to the centerline of the pavement. Variations exceeding ¹/₄ inch shall be appropriately corrected or the pavement be removed and replaced at no additional cost to the State.

404-3.11 Thickness Tolerance. The Contractor shall construct the pavement such that the final compacted thickness is as near to the nominal thickness as is practical, and within the tolerances specified below.

The Engineer may request pavement cores to determine the thickness of the completed pavement course for final acceptance and payment. The Contractor shall provide work zone traffic control and take pavement cores in accordance with §404-3.08 *Pavement Density Sample*, at no additional cost to the State. The Engineer may use another acceptance method such as yield calculations to determine the final thickness for acceptance and payment.

Asphalt mixture placed as a Truing and Leveling (T&L) course as described in §404-3.05 *Conditioning of Existing Surface* shall not be considered in pavement thickness determinations. The allowable tolerance for asphalt mixture specified under a single pay item is as follows:

- A. Nominal pavement lift thicknesses of 4 inches or less, 1/4 inch or less.
- **B.** Nominal pavement lift thicknesses over 4 inches, 1/2 inch or less.

The tolerance for the total thickness of all asphalt pavement courses shall be 1/4 inch. When asphalt pavement is placed on newly constructed subbase material, an additional tolerance of 1/4 inch will be allowed both in the nominal thickness of the course placed directly on the subbase and the total pavement thickness. No payment shall be made for any material placed in excess of the permissible tolerance.

404-3.12 Paver and Equipment Cleaning. Tools and equipment used for asphalt placement shall not be cleaned on the pavement surface, or near streams, ponds, drainage structures or other areas that are tributaries to waterways. The designated area approved by the Engineer shall be used for cleaning all paving equipment and tools. If petroleum products are used for cleaning, the use of tarpaulins, sand pails, pails or other methods shall be used to collect all liquid product produced by cleaning operations to prevent any contaminates from spilling or being accidentally released into the environment. Hand sprayers or other similar devices may be used to minimize the amount of petroleum product applied. Any sand, soil and/or collected petroleum products from cleaning operations shall be properly disposed of as petroleum contaminated soil at no additional cost to the State.

404-3.13 Shoulder Edge Wedge. The Contractor shall construct a shoulder edge wedge as detailed in the contract documents. The asphalt mixture shall be placed on the pavement shoulders where the outside edge of Top and Binder Course consist of an angle of 35° or flatter measured from finished grade to the preceding course surface. The shoulder edge wedge shall be constructed using a device attached to the screed to minimize hand work. The top of the tapered section shall be at the end of the shoulder width such that the tapered section will be an additional width of material outside of the paved shoulder width.

404-3.14 Pavement Evaluation. The Engineer will evaluate mixtures either placed or produced outside the specification limits which results in low quality adjustment factors.

A. Plant Production. When plant production QAF is 0.85, the Engineer will evaluate the pavement section in accordance with §401-3.10 *Evaluation of Sublots Represented by 0.85 QAF* to decide whether to keep it in place or not.

B. Pavement Density. When a QAF of a paving lot for 50 Series and 60 Series compaction method is calculated to be 0.60, the Engineer will evaluate the lot to determine if it can be left in place. The type of material produced (i.e. Binder, Top) and the location of use (i.e., mainline or a non-critical area) will be primary considerations in the determination of whether the asphalt pavement can be left in place. If it is determined that the asphalt mixture can be left in place, the Engineer will apply a QAF of 0.60. If the asphalt mixture cannot be left in place, the Engineer will instruct the Contractor to remove and replace the mixture at no additional cost to the State.

404-3.15 Pavement Defects. Upon completion of the asphalt mixture placement, the Engineer will ensure there are no visible defects in the pavement, such as ruts, ridges, roller marks, cracking, tearing, segregation, bleeding, or any other irregularities. The Contractor shall correct any defects that become apparent or replace the defective pavement at no additional cost to the State.

404-4 METHOD OF MEASUREMENT

404-4.01 Asphalt. The quantity of asphalt mixture to be measured for payment will be measured in tons and rounded to the nearest 0.01 tons. Requirements of §401-4 shall apply.

404-4.02 Plant Production Quality Adjustment. Plant Production Quality Adjustments will be measured in Quality Units determined for each day's production using the daily Quality Adjustment Factor (QAF) for plant production. Also, this will be determined in accordance with §401-3.07 *Documentation*. Quality Units for plant production quality adjustments will be calculated using the formula below.

Quality Units = (Quality Adjustment Factor - 1.00) x Asphalt Placed (Tons)

No plant adjustment will be made for temporary pavement, shim, permeable base items, and other miscellaneous items.

404-4.03 Pavement Density Quality Adjustment. Pavement Density Quality Adjustments will be measured in Quality Units determined for each day's production using the daily Quality Adjustment Factor (QAF) for pavement density. The quantity of asphalt mixture subject to adjustment will be determined from quantity placed on the mainline. The pavement density QAF will not apply to asphalt mixture placed on ramps with a uniform full width section less than 1500 feet, shoulders, widening, crossovers, and bridges. Payment in these areas will be a QAF of 1.00 based on satisfactory placement and compaction. When shoulders and mainline are placed together, the mainline quantity may be determined using typical sections shown in the contract documents.

Quality Units for pavement density quality adjustments under 50 and 60 Series compaction methods will be calculated using the formula below. No pavement density quality adjustments will be made under 70 and 80 Series compaction methods.

Quality Units = (Quality Adjustment Factor - 1.00) x Asphalt Placed (Tons)

A. 50 Series Compaction QAF. The Engineer will determine the Percent Within Limits (PWL) for a paving lot in accordance with MP 404-02 and determine the QAF in accordance with Table 404-5 *Quality Adjustment Factors for 50 Series* and use the QAF to calculate the Quality Units for the accepted asphalt mixture quantity. A payment adjustment will be made using the Quality Unit Index Price to all the material placed on the traveled way for the day the pavement cores represent.

TABLE 404-5 QUALITY ADJUSTMENT FACTORS FOR 50 SERIES		
Percent Within Limits (PWL)Quality Adjustment Factor (QAF)		
$PWL_{\geq 93} > 93$	1.05	
$PWL_{\geq 93} \square 93$	\Box (PWL _{Segment} x Pay Factor _{Segment}) ¹	

1. PWL_{Segment} will be calculated for each of the density ranges in Table 404-6 *Density Segment Pay Factors*, using the standard deviation and average density for the lot.

TABLE 404-6 DENSITY SEGMENT PAY FACTORS		
Density Segment	Segment Pay Factor	
88-90	0.60	
90-91	0.70	
91 - 92	0.80	
92 - 93	0.90	
93 - 94	1.00	
94 - 100	1.05	

B. 60 Series Compaction QAF. The Engineer will determine QAF in accordance with Table 404-7 Quality Adjustment Factors for 60 Series and use the QAF to calculate the Quality Units for the accepted asphalt mixture quantity. A payment adjustment will be made using the Quality Unit Index Price to all the material placed on the traveled way for the day the pavement cores represent.

TABLE 404-7 QUALITY ADJUSTMENT FACTORS FOR 60 SERIES		
Average Pavement Core Density Quality Adjustment Factor		
Density 293.0	1.00	
$88.0 \le \text{Density} < 93.0$	$QAF = 0.08 * Avg Core Density - 6.44^{1}$	
Density < 88.0	0.60	

1. Quality Adjustment Factor rounded to two decimal places using ASTM standard.

404-4.04 Joint Density Quality Adjustment. The Engineer will determine the density of each joint core and calculate the average percent of the mixture's maximum theoretical density (%MMTD) of the longitudinal joint cores. The Engineer will measure the length of longitudinal joints, in linear feet, and determine the number of segments. A segment is defined as a 528-foot section of a joint. A partial segment of 264 feet or greater (≥ 0.5 of a segment) will be considered a full segment.

The Engineer will determine the segment Quality Units (QU) from Table 404-8 *Quality Adjustment for Longitudinal Joint Density* based on the average density of the joint cores and calculate the total Quality Units using the formula below.

Quality Units = Segment QUs X # of Segments

A payment adjustment will be made using the Quality Unit Index Price to the longitudinal joint length on the traveled way for the day the joint cores represent.

TABLE 404-8 QUALITY ADJUSTMENT FOR LONGITUDINAL JOINT DENSITY		
Average Core Density, % MMTD	Segment Quality Units (QU)	
Density \geq 93.0	4	
86.0≤ Density <93.0	$QU = 1.143$ *Avg Core Density -102.3^{1}	
Density <86	-4	

1. Quality Unit rounded to a whole number using ASTM standard.

404-5 BASIS OF PAYMENT. The unit price bid for all asphalt mixture shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work, including cleaning of pavement, extracting the pavement cores, filling, and compaction of all core holes. Application of tack coat, joint adhesive, and repairs of pavement, and filling of cracks will be paid separately except when the joint adhesive is applied under §404-3.01E.

Payment of Quality Adjustments will be made based on the number of Quality Units multiplied by the fixed index price for Quality Adjustment to asphalt Items listed in the contract documents for the quantity placed on the day the Quality Units represent.

Payment will be made under:			
Item No.	Item	Pay Unit	
404.0972	NYSDOT 9.5 F2 TOP		
	COURSE ASPHALT, 70	TON	
	SERIES COMPACTION		
404.1989	NYSDOT 19 F9 BINDER		
	COURSE ASPHALT, 80	TON	
	SERIES COMPACTION		
404.3789	NYSDOT 37.5 F9 BASE	TON	
	COURSE ASPHALT, 80		
	SERIES COMPACTION		

404.XXCF Asphalt Pavement

XX= Mixture Pavement Course		C= Compaction Series	F=Friction Type		
01 – Truing & 1	Leveling	5 – 50 Series Compaction	1 – Type 1		
02 – Type 2 As	phalt-Treated Permeable Base	6 – 60 Series Compaction	2 – Type 2		
05 - Shim		7 – 70 Series Compaction	3 – Type 3		
06 – 6.3 Top		8 – 80 Series Compaction	9 – Type 9		
09 – 9.5 Top		-			
12 – 12.5 Top o	or Binder				
19 – 19.0 Binde	er				
25 – 25.0 Binde	er				
37 – 37.5 Base					
41 – 9.5 Tempo	orary Top				
42 – 12.5 Temporary Top					
43 – 19 Temporary Binder					
44 – 25 Tempo	rary Binder				
45 – 37.5 Temp	oorary Base				
404.0001	Plant Production Quality Adjustm	nent to Asphalt Items	Quality Unit		
404.0002	Pavement Density Quality Adjust	Quality Unit			
404.0003	Longitudinal Joint Density Qualit	Quality Unit			

702 - BITUMINOUS MATERIALS

(Last Revised September, 2016)

SCOPE. These specifications cover the material requirements and testing methods of bituminous materials:

- A. Performance-Graded (PG) Binders for Paving.
- **B.** Miscellaneous Asphalt Cements.
- C. Synthetic Resins.
- **D.** Anionic and Cationic Asphalt Emulsions.

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E. Polymer-Modified Asphalt Emulsions.

F. Asphalt Emulsion Diluted Tack Coat.

G. Asphalt Emulsion Straight Tack Coat.

H. Asphalt Recycling Agent.

GENERAL. The bituminous material volume shall be measured at 60°F. The specific gravity at 60°F shall be included with each shipment of bituminous material to a plant or project site.

MATERIAL REQUIREMENTS. Bituminous materials shall meet the following requirements.

A. Performance-Graded (PG) Binders for Paving. The PG binder shall be manufactured by refining crude petroleum and blending with a modifier, if necessary, to meet the required performance grade specified in the contract documents. PG binders shall meet the requirements of Table 702-1 Performance-Graded Binders for Paving. The PG binder supplier shall:

- Certify that the PG binder meets NYSDOT requirements.
- Include type of modification and any special handling instructions in the certification if the PG binder is modified,
- Provide the design mixing and compaction temperatures on their bill of lading.
- Provide AASHTO M 332 test data and all necessary shipping documents in accordance with the Department's Materials Method 702-1 Quality Assurance Procedure for Performance-Graded (PG) Asphalt Binders.

TABLE 702-1 PERFORMANCE-GRADED BINDERS FOR PAVING							
MATERIAL	702-	702-	702-	702-	702-		
DESIGNATION	58E34	64S22	64V22	64H22	64E22		
PERFORMANCE-	PG 58E	PG 64S	PG 64V	PG 64H	PG 64E		
GRADE	-34	-22	-22	-22	-22		
Test Requirements	AASHTO	M 332					

Any PG binder previously approved that has been stored in the mixing plant tank over the winter shall be re-sampled and accepted by the Department before it is used.

B. Miscellaneous Asphalt Cements. Asphalt cements shall meet the requirements in Table 702-2 *Miscellaneous Asphalt Cements*. The asphalt cement shall be homogeneous, free from water, and shall not foam when heated to 350°F. The supplier shall provide material test results and shipping documents that state the volume of material certified.

TABLE 702-2 MISCELLANEOUS ASPHALT CEMENTS					
MATERIAL DESIGNATION	702-0700				
Test Requirements	Minimum	Maximum			
Penetration, 77°F (25°C), 100 g, 5 second (AASHTO T 49)	18	60			
Flash Point, COC, °F (AASHTO T 48)	393	-			
Solubility in trichloroethylene, % (AASHTO T 44)	99.5	-			
Softening Point, °F (AASHTO T 53)	130	167			
Loss on Heating, 325°F (163°C), 5 hour, % (AASHTO T 47)	-	1.0			
Penetration of Residue, % of Original (AASHTO T 49)	60	-			
Ductility, 77°F (25°C), 5 cm/minute, cm (AASHTO T 51)	5	-			

C. Synthetic Resins. The synthetic resins covered under these specifications are two types: synthetic resin binder and rapid curing synthetic resin liquid. The synthetic resin binder is a light insensitive liquid used in colored synthetic resin binder concrete. The rapid curing synthetic resin liquid is a tack coat for the resin binder concrete and shall be light colored and compatible with the resin binder concrete placed over it. The synthetic resin shall be homogeneous and shall meet the requirements in Table 702-3 Synthetic Resins.

TABLE 702-3 SYNTHETIC RESINS						
TYPE MATERIAL DESIGNATION		Resin Binder 702-7000		Rapid Curing Resin Liquid 702-7100		
						Test Requirements
Penetration, 77°F (25°C), 100 g, 5 second	75	100	-	-		
Viscosity, 140°F (60°C), m ² /s (x 10 ⁻⁶)	-	-	8	30		
Flash Point, COC, °F	400	-	-	-		
Solubility in trichloroethylene, %	99.5	-	99.5	-		
Loss of Heating, 325°F (163°C), 5 hr., %	-	1.0	-	-		
Water, %	-	0.0	-	0.2		
Color, (30% binder/70% toluene) Gardner Standard Color Scale, (ASTM D 1544)	-	16	-	-		
Test on Residue from Thin Film Oven Test, (AASHTO T 179)		-	-	-		
Residue from Evaporation, 221°F (105°C), 3 hr., (ASTM D 1644), %	-	-	50	-		
Suggested Spraying Temperature, °F	-	-	50	120		
Typical Uses	Hot Pla	nt Mix	Tack Co	oat		
D. Anionic and Cationic Asphalt Emulsions. The emulsion shall be homogeneous and show no separation of asphalt, after thoroughly mixing, within 30 days after delivery. The asphalt emulsion shall be agitated or circulated to ensure a homogeneous emulsion prior to sampling or application of material. Material that has separated due to freezing is unacceptable at any time.

Asphalt emulsions shall meet the requirements shown in Table 702-4 Anionic Asphalt Emulsions, or Table 702-5 Cationic Asphalt Emulsions. Test data and shipping documents shall be provided by the supplier in accordance with the Department's Materials Method 702-2 Asphalt Emulsion – Quality Assurance.

TABLE 702-4 ANIONIC ASPHALT EMULSIONS																				
ТҮРЕ			RA	PID S	SETTIN	IG					ME	DIUM	SETTI	NG		SLOW SETTING				١G
MATERIAL DESIGNATION	702-	3001	702-	3002	702-	3101	702-	3102	702-	3201	702-	3301	702-	3401	702-	3402	702-	3501	702-	3601
GRADE	RS	5-1	RS	-1h	RS	5-2	HFR	S-2	м	S-2	HFA	NS-2	HFM	S-2h	HFM	S-2s	SS	5-1	SS	-1h
Test Requirements	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max
Emulsion ⁽¹⁾ :																				
Viscosity, Saybolt Furol, 77°F (25°C), second	20	100	20	100	-	-	-	-	100	-	100	-	100	-	50	-	20	100	20	100
Viscosity, Saybolt Furol, 122°F (50°C), second	-	-	-	-	75	400	75	400	100	400	100	400	-	-	-	-	-	-	-	-
Storage Stability Test, 1 Day (Difference in % Residue)	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
Demulsibility, 35 mL, 0.02 N, CaCl2, %	60	-	60	-	60	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-
Cement Mixing Test ⁽²⁾ , %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	-	2.0
Sieve Test, %	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10
Residue by Distillation, %	55	-	55	-	63	-	63	-	65	-	65	-	65	-	65	-	57	-	57	-
Oil Distillate, Volume Total Emulsion, %	-	1.5	-	1.5	-	2.5	-	2.5	-	8	-	8	-	8	-	8		1.5	-	1.5
Residue from Distillation Test ⁽¹⁾ :																				
Penetration, 77°F (25°C), 100 g, 5 second	100	200	40	90	100	200	100	200	100	200	100	200	40	90	200	-	100	200	40	90
Ductility, 77°F (25°C), 5 cm/minute, cm	40	-	40	-	40	-	40	-	40	-	40	-	40	-	40	-	40	-	40	-
Solubility in trichloroethylene, %	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-
Float Test ⁽³⁾ , 140°F (60°C), second	-	-	-	-	-	-	1200	-	-	-	1200	-	1200	-	1200	-	-	-	-	-

1. All tests performed per AASHTO T 59 unless otherwise noted

2. The Cement Mixing test is waived if the emulsion will be used for soil stabilization.

3. Float Test AASHTO T 50, except that the residue from distillation shall be poured immediately into the float collar at 500°F (260°C)

TABLE 702-5 CATIONIC ASPH	ALT I	EMUL	SION.	IS												
ТҮРЕ		RAPID SETTING				MEDIUM SETTING			SLOW SETTING			IG	QUICK SETTING			
MATERIAL DESIGNATION	702-	702-4001 70		4002	702-	4101	702-	4201	702-	4301	702-	4401	702-4501		702-4601	
GRADE	CR	S-1	CRS	i-1h	CR	S-2	CN	NS-2	CM	S-2h	CS	S-1	CSS	5-1h	CQ	S-1h
Test Requirements	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max	Min.	Max
Emulsion ⁽¹⁾ :																
Viscosity, Saybolt Furol, 77°F (25°C), second	20	100	20	100	-	-	-	-	-	-	20	100	20	100	20	100
Viscosity, Saybolt Furol, 122°F (50°C), second	-	-	-	-	100	400	50	450	50	450	-	-	-	-	-	-
Storage Stability Test, 1 Day (Difference in % Residue)	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
Classification Test	Pas	sses	Pa	sses	Pas	sses										
Particle Charge Test ⁽²⁾	Pos	sitive	Pos	sitive	Pos	sitive	Po	sitive	Pos	sitive	Pos	sitive	Pos	sitive	Pos	sitive
Sieve Test, %	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10	-	0.10
Cement Mixing Test ⁽³⁾ , %	-	-	-	-	-	-	-	-	-	-	-	2.0	-	2.0	-	-
Residue by Distillation, %	60	-	60	-	65	-	65	-	65	-	57	-	57	-	62	-
Oil Distillate, Volume Total Emulsion, %	-	1.5	-	1.5	-	2.5	-	10	-	10	-	1.5	-	1.5	-	-
Residue from Distillation Test ⁽¹⁾ :																
Penetration, 77°F (25°C), 100 g, 5 second	100	250	40	90	100	250	100	250	40	90	100	250	40	90	40	90
Ductility, 77°F (25°C), 5 cm/minute, cm	40	-	40	-	40	-	40	-	40	-	40	-	40	-	40	-
Solubility in trichloroethylene, %	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-	97.5	-

1. All tests performed per AASHTO T 59 unless otherwise noted.

2. If the Particle Charge test is inconclusive, material having a maximum pH value of 6.7 will be accepted.

3. The Cement Mixing test is waived if the emulsion will be used for soil stabilization.

E. Polymer-Modified Asphalt Emulsions. Polymer-modified asphalt emulsions shall meet the requirements of Table 702-4 and 702-5 except as modified in Table 702-6 *Polymer Modified Asphalt Emulsions.*

The polymer modifier shall be milled or blended into the base asphalt or emulsifying agent prior to the emulsification process.

TABLE 702-6 POLYMER MODIFIED ASPHALT EMULSIONS									
MATERIAL DESIGNATION	702-XXXXP ⁽¹⁾								
Emulsion Grade	Test Requirement	Minimum							
CQS-1h-702-4601	Elastic Recovery at 50°F(10°C) ^(2,3) ,%	40							
	Softening Point, °F ⁽⁴⁾	140							
All Other Polymer Modified Emulsions	Elastic Recovery at 50°F(10°C) ^(2,3) ,%	50							

1. XXXX shall be the four digit code matching the appropriate emulsion grade listed in table 702-4 & 702-5

2. Elastic Recovery procedure: Use ASTM D 6084 Testing Procedure "A." Samples will be tested at 50°F (10°C).

3. Recover emulsion's asphalt residue according to ASTM D 6997 except as modified herein, when the lower temperature reaches approximately 275°F (135°C), move the ring burner approximately level with the bottom of the still. Increase the temperature to a maximum 350°F +/- 10°F (177°C +/- 5°C), maintaining this temperature for 15 minutes.

4. According to AASHTO T 53

F. Asphalt Emulsion – Diluted Tack Coat. Diluted tack coat emulsion shall be agitated or circulated to ensure a homogeneous emulsion prior to sampling or application of material. The consistency of the diluted tack coat shall be appropriate for pumping and uniform application.

Only the grades of emulsions meeting the requirements of Table 702-7 *Diluted Tack Coat* shall be allowed. These diluted tack coats may be produced by diluting the base asphalt emulsion grade with an emulsifier and/or water and thoroughly mixing into a homogeneous liquid.

TABLE 702-7 DILUTED TACK COAT								
MATERIAL DESIGN	ATION	702-XXXXT ⁽¹⁾						
Emulsion Grades	Min.	Max.						
	Sieve Test	-	0.10					
702-3401	Residue by Distillation, %	38	50					
702-3601	Oil Distillate, Volume of Total Emulsion, %	-	2					
702-4501	Test on Residue from Distillation:							
	Penetration, 77°F (25°C), 100 g, 5 seconds	40	90					

1. XXXX = 3401, 3601 or 4501

2. All tests performed per AASTHO T59

G. Asphalt Emulsion – Straight Tack Coat. Straight tack coat emulsion shall be agitated or circulated to ensure a homogeneous emulsion prior to sampling or application of material. The consistency of the straight tack coat shall be appropriate for pumping and uniform application.

Only the grades of emulsions meeting the requirements of Table 702-8 *Straight Tack Coat* shall be allowed in straight tack coat applications. These tack coats shall not be further diluted with water.

TABLE 702-8 STRAIGHT TACK COAT									
MATERIAL DESIG	IATERIAL DESIGNATION 702-XXXXT ⁽¹⁾								
Emulsion Grades	Test Requirements ⁽²⁾	Min.	Max.						
	Sieve Test, %	-	0.10						
	Residue by Distillation – Grade 702-3002, %	55	-						

702 2002	Residue by Distillation – Grade 702-4002, %	60	-						
702-3002	Oil Distillate, Volume of Total Emulsion, %	-	2						
702 1002	Test on Residue from Distillation:								
	Penetration, 77°F (25°C), 100 g, 5 seconds	40	90						

1. XXXX = 3002 or 4002

2. All tests performed per AASTHO T59

H. Asphalt Recycling Agent – Asphalt Recycling agents are used for heater scarification or hot in- place recycling projects.

Use ASTM D 4552, *Standard Practice for Classifying Hot-Mix Recycling Agents*, grades RA25 and RA75 petroleum-based recycling agents specifically designed as a rejuvenator meeting the requirements in Table 702-9 *Recycling Agent*. Use *Emulsified Recycling Agents*, grades ERA25 (an emulsified RA25) and ERA75 (an emulsified RA75) petroleum-based recycling agents specifically designed as a rejuvenator meeting the requirements in Table 702-10 *Emulsified Recycling Agent*.

FABLE 702-9 RECYCLING AGENT										
MATERIAL DESIGNATION	N (GRADE)	702-	5030 (RA25)	702-	5050 (RA75)					
Test Requirements	Test Method	Min	Max	Min	Max					
Tests on Residue from Distillation: Viscosity, 140°F (60°C), cSt Flash										
Point, CSC, °F	T 201	901	4500	4501	12500					
	T48	426		426						
Test on Residue from RTFO,										
325°F (163°C):										
Viscosity Ratio	T 240		3		3					
Weight Change, ±, %			3		3					
Specific Gravity	T 228	Report	÷	Report						

TABLE 702-10 EMULSIFIED	RECYCLING	G AGENT				
MATERIAL DESIGNATION	N (GRADE)	702-50	31 (ERA25)	702-5051 (ERA75)		
Test Requirements	Test Method	Min	Max	Min	Max	
Tests on Residue from Distillation: Viscosity, 140°F (60°C), cSt						
Flash Point, CSC, °F	T 201 T 48	901 426	4500 	4501 426	12500	
Test on Residue from RTFO, 325°F (163°C):						
Viscosity Ratio Weight Change, ±, %	T 240		3 4		3 4	
Specific Gravity	T 228	Report		Report		
Saybolt Furol Viscosity @ 77°F (25°C), sec.		20	100	20	100	
Storage Stability, 24 hrs, %	Т 59		1.5		1.5	
Sieve, %			0.1		0.1	
Residue, by distillation, %		65		65		

BASIS OF APPROVAL. The procedural directives for sampling, testing, and certifying the bituminous

material, and for achieving and maintaining Approved List status, are available from the Materials Bureau.

BASIS OF ACCEPTANCE. PG binder will be accepted based on the Primary Source appearing on the approved list and the source's certification and satisfactory test results from samples taken where the material is incorporated into the work.

Miscellaneous asphalt cements and synthetic resins will be accepted based on the manufacturer's certification.

Asphalt Emulsions, including Tack Coat, will be accepted based on the Primary Source appearing on the approved list, the source's certification, and satisfactory test results from samples taken where the material is incorporated into the work.

Asphalt Rejuvenating Agent will be accepted based on the manufacturer's certification. The use of any other grade of recycling agent requires prior approval from the Director, Materials Bureau.

703-01 FINE AGGREGATE

SCOPE. The specification covers the material details, quality requirements and policies for sampling and testing fine aggregate generally used in portland cement concrete and asphalt mixtures.

SAMPLING. Samples of fine aggregates will be obtained and submitted to the Materials Bureau by a representative of the Department under the following conditions:

A. Sampling Approved Sources. All approved sources will be sampled when:

- The latest test for a source is two (2) or more years old.
- A change in the character of the raw or processed fine aggregate occurs.
- Considered necessary by the Department.

B. Sampling Non-approved Sources. Non-approved or rejected sources, equipped with adequate processing facilities, may be sampled upon favorable recommendation by a Regional Director and approved by the Engineer. Approval action on such sources may be conditioned on the results obtained by periodic sampling and testing as prescribed by the Materials Bureau and described in Material Method 29, "Aggregate Source Acceptance Procedures" (MM 29). MM 29 is available on the NYSDOT public website here: https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.

Sampling Proposed Unopened Sources of Material. Proposed unopened sources of material may be sampled upon the favorable recommendation of a Regional Director and approved by the Engineer. The results of tests on such samples will be for information only and will be indicative of the potential quality of the source. Action regarding acceptance of a source is described in MM 29.

GEOLOGIC SOURCE REPORTS AND QUALITY CONTROL PLANS. As part of the source approval requirements, the following information shall be submitted to the Department for each source, according to the requirements in MM 29:

A. Geologic Source Report (Static Module). The Static Module contains basic geology and mining information. It includes all relevant information about an aggregate source that is not likely to change over the lifetime of a mine. It is required to be submitted for the initial approval of an aggregate source. The requirements are detailed in MM 29.

B. Geologic Source Report (Cyclic Module). The Cyclic Module contains geologic information such as maps and cross-sections that may change as a mining operation advances laterally or vertically and must

be updated according to the schedule and requirements in MM 29.

C. Quality Control Plan (Annual Module). The Annual Module contains the Quality Control Plan (QCP) and procedures for mining and processing aggregates; the plan must be submitted at least annually, or whenever changes occur.

Details of these requirements may be obtained from MM 29. These reports will be received and reviewed by the Department according to the schedules contained in MM 29.

The submittal and/or Department acceptance of a report does not relieve the supplier of its responsibility to provide a uniform product meeting the additional requirements described herein.

MATERIAL REQUIREMENTS. Fine aggregate shall consist of natural sand or manufactured sand, or other engineered aggregate conforming to the requirements of these specifications. All fine aggregate shall consist of hard, strong, durable particles meeting the requirements of Table 703-1, Fine Aggregate Requirements (Testing). In addition, such particles must be free from coatings or any injurious materials and/or injurious amounts of clay, loam, or other deleterious substances. Engineered aggregate includes any other materials that are inert, non-reactive, and meet all relevant specifications described herein. In addition, the fine aggregate shall not contain substances, which, when mixed in portland cement concrete, produce an unacceptable level of chloride ions in the final product. Substances that produce chloride ions will be considered deleterious material. Any fine aggregate may be rejected if it is determined by the Department to contain unacceptable amounts of unsound or deleterious material that is harmful or detrimental to an end-use product.

Fine aggregates from more than one approved aggregate source or of more than one type of material may be blended and stockpiled to meet gradation requirements or improve aggregate quality for any end-use. All blending procedures and proportions must be approved by the Department, and all resulting blends require a new source designation. Producers of blended fine aggregates are subject to all requirements of §703-01, including testing and Quality Control Plans.

C. Fine aggregates meeting the physical testing requirements of Table 703-1, "Fine Aggregate Requirements (Testing)" may be accepted for the indicated use, unless service records indicate that it is unsound, or that the material is otherwise determined to be unsatisfactory by the Director, Materials Bureau.

TABLE 703-1 FINE AGGREGATE REQUIREMENTS (TESTING)										
Test Method	For use in Portland Cement Concrete (PCC)	For use in Asphalt Mixtures								
Magnesium Sulfate Soundness (NY 703-06P,G) Max. percent loss by weight at 5 cycles	30	45								
Organic Impurities (NY 703-03P,G, AASHTO T-21) Organic Plate, Lighter Than or Equal to	3	-								
Gardner Color (AASHTO T-21), Lighter Than Or Equal to	14	-								

Fine aggregate not meeting the requirement of Table 703-1 may be further evaluated by additional testing, petrographic examination, geologic studies, review of plant flow information, or investigation of performance history. If the results of the evaluation indicate that the aggregate should perform satisfactorily, the source may be accepted by the Director, Materials Bureau.

If fine aggregate is found unsatisfactory when examined for organic impurities, it will be rejected unless it passes the mortar strength test for compression (NY 703-04P). Fine aggregates so tested shall achieve a compressive strength of at least one hundred percent of the matching washed fine aggregate.

FRICTION. Fine aggregate for use in wearing surfaces of portland cement concrete pavement must meet the friction aggregate requirements of §501, Portland Cement Concrete.

TESTS. The details of all test methods for fine aggregates may be obtained from ASTM, AASHTO, or the NYSDOT public website here: *https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.*

BASIS OF APPROVAL. Approval of the source is determined based on tests performed by the Materials Bureau on samples representing the source; review of Geologic Source Reports and Quality Control Plans; petrographic examination and other geologic studies; and performance histories where applicable.

BASIS OF ACCEPTANCE. The material is incorporated into the work on the basis that it is from an approved source conforming to procedural directives of the Department and the aggregate shall meet the gradation requirement at the point of use.

Aggregate for use in the manufacture of precast concrete units may be accepted based on stockpile approval at a location acceptable to the Department on a per job basis. Requests for stockpile approval shall be made in writing to the Materials Bureau. The manufacturer shall allow at least ninety (90) days for the testing and evaluation of the aggregate.

703-02 COARSE AGGREGATE

SCOPE. This specification covers the material details, requirements and methods for sampling and testing coarse aggregate generally used in portland cement concrete, asphalt mixtures and surface treatments. This specification does not cover those aggregates used solely as part of certain proprietary non-structural overlays or surface treatment systems.

SAMPLING. Samples of coarse aggregates will be obtained by and submitted to the Materials Bureau by a representative of the Department under the following conditions:

A. Sampling Approved Sources. All approved sources will be sampled when:

- The latest test for a source is two (2) or more years old.
- A change in the character of raw or processed coarse aggregate occurs.
- Considered necessary by the Department.

B. Sampling Non-approved Sources. Non-approved or rejected sources, equipped with adequate processing facilities, may be sampled upon favorable recommendation by a Regional Director and approval by the Engineer. Approval action on such sources may be conditioned on the results obtained by periodic sampling and testing as prescribed by the Materials Bureau and described in MM 29.

C. Sampling Proposed Unopened Sources of Material. Proposed unopened sources of material may be sampled upon the favorable recommendation of a Regional Director and approval by the Engineer. The results of tests on such samples will be for information only and will be interpreted as indicative of the potential quality of the source. Action regarding acceptance of a source is described in MM 29. MM 29 is available on the NYSDOT public website here: *https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.*

GEOLOGIC SOURCE REPORTS AND QUALITY CONTROL PLANS. As part of the acceptance

requirements, the following information shall be submitted to the Department for each operating source, according to the requirements in MM 29:

A. Geologic Source Report (Static Module). The Static Module contains basic geology and mining information. It includes all relevant information about an aggregate source that is not likely to change over the lifetime of a mine. It is required to be submitted for the initial approval of an aggregate source. The requirements are detailed in MM 29.

B. Geologic Source Report (Cyclic Module). The Cyclic Module contains geologic information such as maps and cross-sections that may change as a mining operation advances laterally or vertically and must be updated according to the schedule and requirements in MM 29.

C. Quality Control Plan (Annual Module). The Annual Module contains the Quality Control Plan (QCP) and procedures for mining and processing aggregates; the plan must be submitted at least annually, or whenever changes occur.

Details of these report requirements may be obtained from MM 29. These reports will be received and reviewed by the Department according to the schedules contained in MM 29.

The submittal and/or Department acceptance of a report does not relieve the supplier of its responsibility to provide a uniform product meeting the additional requirements described herein.

TABLE 703-2 COARSE AGGREGATI	TABLE 703-2 COARSE AGGREGATE PHYSICAL REQUIREMENTS (TESTING)										
		Material D	esignation								
Test Designation	Gradation/ Particle Size	Crushed Bedrock 703-0201	Crushed Gravel 703-0202	Crushed Slag 703-0204							
	1	1	T	ī							
Magnesium Sulfate Soundness (NY 703-07P,G)	No. 2	18 18		6							
Max. % loss by weight at 10 cycles ⁽¹⁾	No. 1	32	32	6							
Freezing and Thawing Test (NY 703-08P,G)	P.G) No. 2 20		20	-							
Max. % loss by weight at 25 cycles ⁽²⁾	No. 1	25	25	-							
Flat Particles, Elongated Particles, or Flat and El Particles (ASTM D4791) Max. % by weight Flat and Elongated to the Deg	10	10	-								
Crushed particles in any primary size	$+\frac{1}{2}$ inch with 1 fractured face	-	75 (4)								
(ASTM D5821) Min. % by weight	- ¹ / ₂ inch with 2 fractured faces		85 (4)]-							
Minimum unit weight (NY 703-10P,G) lbs/cu. ft.	-	-	70								

1. The loss on either size fraction may be used for acceptance if they are of similar composition.

2. The freeze-thaw requirement applies only to aggregate used in Portland cement concrete. The loss on either size fraction may be used for acceptance if they are of similar composition.

3. Requirement applies to coarse aggregate for use in asphalt mixtures with design ESALs of 0.3 million or greater.

4. Gravel which has not been processed through a crusher shall not be combined with crushed gravel.

MATERIAL REQUIREMENTS. Coarse aggregates shall consist of crushed bedrock, crushed gravel, crushed air-cooled blast furnace slag, or other engineered aggregate conforming to the requirements of these specifications. All coarse aggregates shall meet the requirements in Tables 703-2 Coarse Aggregate Physical Requirements (Testing), 703-3 Coarse Aggregate Physical Requirements (Deleterious Materials), and 703-4 Size of Crushed Bedrock, Gravel and Slag. Engineered aggregate includes any other materials that are inert, non-reactive, and meet all relevant specifications described herein.

Coarse aggregates from more than one approved aggregate source or of more than one type of material may be blended and stockpiled to meet gradation requirements or improve aggregate quality for any end-use. All blending procedures and proportions must be approved by the Department, and all resulting blends require a new source designation. Producers of blended coarse aggregates are subject to all requirements of §703-02, including testing and Quality Control Plans.

TABLE 703-3 COARSE AGGREGATE PHYSICAL REQUIREMENTS (DELETERIOUS MATERIALS)										
Maximum percent by weight in any primary size ⁽¹⁾										
Material Designation	Crushed Bedrock 703-0201	Crushed Gravel 703-0202	Crushed Slag 703-0204							
Shale and shale-like materials ⁽²⁾	3.0	3.0	-							
Coal/Lignite/Sulfides ⁽³⁾	1.0	1.0	-							
Clay lumps or Wood	0.2	0.2	-							
Metal Ore ⁽⁴⁾	3.0	3.0	3.0							
Other Deleterious Materials ⁽⁵⁾	3.0	3.0	3.0							
Total Deleterious Materials	5.0	5.0	5.0							

1. Coarse aggregates containing more than the specified maximum amounts of deleterious materials may be washed or otherwise processed until such specifications are satisfied.

2. Shale, slate, phyllite, argillite, schist, and similar shale-like fissile rocks that have been identified by performance or by test to be unsound and deleterious. Such shale-like fissile rocks may be tested separately from the rest of the aggregate by freezing and thawing according to Test Method NY 703-08P,G. If the loss is 20% or greater, that material will be designated as deleterious shale or shale-like material.

3. Pyrite, marcasite, pyrrhotite, bog iron, and similar material.

4. Magnetite, illmenite, etc. Percentages above 3.0% may be accepted by the Director, Materials Bureau, when appropriate adjustments to yield have been made.

5. Cemented clusters, weathered particles, and similar material.

Coarse aggregate meeting the physical requirements of Tables 703-2, and 703-3 may be accepted unless service records indicate that it is unsound or that the material is otherwise determined to be unsatisfactory by the Director, Materials Bureau. Coarse aggregate not meeting the requirements of these tables may be further evaluated by additional testing, petrographic examination, geologic studies, review of Plant Flow Information and performance history. If the results of the evaluation indicate that the aggregate should perform satisfactorily, the source may be accepted by the Director, Materials Bureau.

A. Crushed Bedrock. Crushed bedrock will be Material Designation 703-0201 and shall consist of clean, durable, sharp-angled fragments of rock of uniform quality.

B. Crushed Gravel. Crushed Gravel will be Material Designation 703-0202 and shall consist of clean, durable, sharp-angled fragments of gravel that are free from coatings. A crushed particle is defined as

one in which the total area of face fracture exceeds 25% of the maximum cross-sectional area of the particle. When two fractured faces are designated, the total area of each fractured face shall exceed 25% of the maximum cross-sectional area of the particle. A naturally fractured face will be acceptable providing that the sharp angular portion of the particle consists of sound material and is free from unsound or injurious coatings.

C. Crushed Slag. Crushed slag particles will be Material Designation 703-0204 and shall consist of hard, durable, angular fragments which are reasonably uniform in density and quality; free from injurious amounts of sulfur; and reasonably free from thin, elongated pieces, dirt, or other objectional matter.

TABLE 703-4 SIZES OF CRUSHED BEDROCK, GRAVEL AND SLAG												
	Screen	Sizes (%	% Passin	ig by W	eight)							
Size	4 in	3 in	2 ½ in	2 in	1 ½ in	1 in	¹ / ₂ in	¹ ⁄ ₄ in	1/8 in	#80	#200 ⁽²)	
Screenings ⁽¹⁾	-	-	-	-	-	-	100	90- 100	-	-	0-1.0	
1B	-	-	-	-	-	-	-	100	90- 100	0-15	0-1.0	
1A	-	-	-	-	-	-	100	90- 100	0-15	-	0-1.0	
1ST	-	-	-	-	-	-	100	0-15	-	-	0-1.0	
1	-	-	-	-	-	100	90- 100	0-15	-	-	0-1.0	
2	-	-	-	-	100	90- 100	0-15	-	-	-	0-1.0	
3A	-	-	-	100	90- 100	0-15	-	-	-	-	0-0.7	
3	-	-	100	90- 100	35-70	0-15	-	-	-	-	0-0.7	
4A	-	100	90- 100	-	0-20	-	-	-	-	-	0-0.7	
4	100	90- 100	-	0-15	-	-	-	-	-	-	0-0.7	
5	90-100	0-15	-	-	-	-	-	-	-	-	0-0.7	

1. Screenings shall include all the material passing a 1/4 in. screen.

2. The minus No. 200 material requirements apply only to aggregate for use in portland cement concrete, chip seal, cold mix asphalt pavements and underdrain filter material. The test (AASHTO T11) will be performed on the entire sample of the designated size aggregate. Primary size does not apply in the determination of the minus No. 200 material.

TABLE 703-5 SIZES OF CRUSHED BEDROCK, GRAVEL, AND SLAG FOR MICROSURFACING AND SLURRY SURFACING

	Screen Sizes (% Passing by Weight)							
Size Designation	3/8 in	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200 ⁽¹⁾
2MS	100	90-100	65-90	45-70	30-50	18-30	10-22	5-15
3MS	100	70-90	45-70	28-50	19-34	12-25	7-20	5-15

1. Determine percent passing No. 200 sieve according to AASHTO T 11, Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.

TABLE 703-6 PRIMARY SIZES					
Size	Primary Screen Sizes		Size	Primary Sc	reen Sizes
Designation	Passing	Retained	Designation	Passing	Retained
1B	1/8 in	No. 80	3A	1 1/2 in	1 in
1A	1/4 in	1/8 in	3	2 in	1 in
1ST	1/2 in	1/4 in	4A	2 1/2 in	1 1/2 in
1	1/2 in	1/4 in	4	3 in	2 in
2	1 in	1/2 in	5	4 in	3 in

D. Gradation. The gradation ranges for each nominal NYSDOT Size Designation of crushed bedrock, gravel or slag used under these specifications shall conform to the gradation requirements for the various Size Designations tabulated in Table703-4 or Table 703-5. Alternate gradation size designations such as AASHTO or ASTM may be used to produce asphalt or concrete mixtures, or any other end products used in construction projects, if the end product gradation targets are met.

E. Primary Size. For the purposes of this specification, the term "Primary Size" is defined for each size designation as all of the material passing and retained on the screens specified in Table 703-6 "Primary Sizes."

FRICTION. Coarse aggregate for use in wearing surfaces of portland cement concrete pavement must meet the friction aggregate requirements of §501, Portland Cement Concrete. Coarse aggregate for use in top courses of asphalt pavements must meet the friction aggregate requirements of §401, Asphalt Production.

TESTS. The details of test methods for coarse aggregate may be obtained from ASTM, AASHTO, or the NYSDOT public website here: *https://www.dot.ny.gov/divisions/engineering/technical- services/materials-bureau/forms-manuals*.

BASIS OF APPROVAL. Approval of the source is determined based on tests performed by the Materials Bureau on samples representing the source; review of Geologic Source Reports and Quality Control Plans; petrographic examination and other geologic studies; and performance history where applicable.

BASIS OF ACCEPTANCE. The material is incorporated into the work on the basis that it is from an approved source conforming to procedural requirements of the Department and that the aggregate shall meet gradation at the point of use.

Aggregate for use in the manufacture of precast concrete units may be accepted based on stockpile approval at a location acceptable to the Department on a per job basis. Requests for stockpile approval shall be made in writing to the Materials Bureau. The manufacturer shall allow at least ninety (90) days for the testing and evaluation of the aggregate.

703-08 MINERAL FILLER

SCOPE. This specification contains the requirements for mineral filler used in asphalt concrete mixtures.

MATERIAL REQUIREMENTS. Mineral filler shall conform to the requirements of the standard specification for Mineral Filler for Asphalt Mixtures, ASTM D242. When dry, the mineral filler shall meet the following gradation requirements:

Table 703-11 Mineral Filler Gradation				
Sieve Size	Percent Passing by Weight			
No. 30	100			
No. 50	95-100			
No. 200	70-100			

BASIS OF ACCEPTANCE. Acceptance of this material will be based on the producer's certification of compliance with these specification requirements.

End of Item 400

SECTION 608 - SIDEWALKS, DRIVEWAYS, BICYCLE PATHS, AND VEGETATION CONTROL STRIPS (Last Revised May, 2024)

608-1 DESCRIPTION. This work shall consist of the construction of portland cement concrete or asphalt sidewalks and driveways; asphalt bicycle paths and vegetation control strips; precast concrete paving, brick paving, grouted stone block paving, and detectable warnings on pedestrian facilities in accordance the contract documents and as directed by the Engineer.

608-2 MATERIALS. Provide materials meeting the requirements specified in the following subsections of Section 700 - *Materials and Manufacturing*:

Portland Cement	701-01
Bituminous Materials	702-00
Fine Aggregates	703-01
Coarse Aggregates	703-02
Mortar Sand	703-03
Cushion Sand	703-06
Concrete Sand	703-07
Mineral Filler	703-08
Caulking Compound for Structures	705-06
Premolded Resilient Joint Filler	705-07
Masonry Mortar	705-21
Wire Fabric for Concrete Reinforcement	709-02
Fibers for Concrete Reinforcement	711-01
Membrane Curing Compound	711-05
Form Insulating Materials for Winter Concrete	711-07
Admixtures	711-08
Water	712-01
Surface-applied Detectable Warning Units	726-01
Embedded Detectable Warning Units	726-02

608-2.01 Portland Cement Concrete Sidewalks and Driveways.

A. Conventionally Formed Sidewalks and Driveways. Provide Performance Engineered Mixture (PEM) Portland Cement Concrete that meets the appropriate mix design requirements specified in Table 2 of Materials Procedure (MP) 501-2 *Mix Design and Approval Procedure for Performance Engineered Mixtures - Structural Concrete.* Provide concrete that contains an ASTM Type A water-reducing admixture meeting the requirements of §711-08 *Admixtures.*

B. Machine Formed Sidewalks. Provide Performance Engineered Mixture (PEM) Portland Cement Concrete that meets the appropriate mix design requirements specified in Table 2 of MP 501-2 with the exception that the mix incorporates fibers for concrete reinforcement meeting the requirements of §711-01 Fibers for Concrete Reinforcement.

C. Accelerated Cure Sidewalks and Driveways. Submit a concrete mix design that achieves a compressive strength of 2,000 psi in less than 24 hours to the Materials Bureau for approval a minimum of 14 days prior to starting the work. Supply test data indicating that the concrete mix will have a scaling rating of one or less when tested in accordance with ASTM C672.

D. Reinforcement. Provide welded wire fabric reinforcement made of W2.9 or W3 wire at 6 inch

centers transversely and longitudinally meeting the requirements of §709-02 *Wire Fabric for Concrete Reinforcement*. Provide fiber reinforcement meeting the requirements of §711-01 *Fibers for Concrete Reinforcement*. Add fiber reinforcement during batching at a rate of 1.5 pounds of fibers per cubic yard of concrete, using a method approved by the Regional Materials Engineer. Batch a volume of concrete such that whole standard size bags or packages of fibers are used. Indicate on each delivery ticket the amount of fibers added to the concrete.

608-2.02 Asphalt Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. Not used.

608-2.03 Brick Paved Sidewalks and Driveways. Not used.

608-2.04 Grouted Stone Block Paved Sidewalks and Driveways. Not used.

608-2.05 Precast Concrete Block Paved Sidewalks and Driveways. Not used.

608-2.06 Surface-Applied Detectable Warning Units. Provide surface-applied detectable warning units meeting the requirements of §726-01 Surface-applied Detectable Warning Units of the color specified in the contract documents. If no color is specified, the color must be an approximate visual match to the Red color of SAE Standard AMS-STD-595 #31350. Provide setting bed material and/or surface preparation materials in accordance with the manufacturer's recommendations.

608-2.07 Embedded Detectable Warning Units. Provide embedded detectable warning units meeting the requirements of §726-02 Embedded Detectable Warning Units of the color specified in the contract documents. If no color is specified, the color must be an approximate visual match to the Red color of SAE Standard AMS-STD-595 #31350. Provide setting bed material and/or surface preparation materials in accordance with the manufacturer's recommendations. Provide embedded detectable warning units meeting the requirements of §726-02 *Embedded Detectable Warning Units* of the color specified in the contract documents. Provide setting bed material and/or surface preparation materials in accordance with the manufacturer's recommendations was a provide and the color specified in the contract documents. Provide setting bed material and/or surface preparation materials in accordance with the manufacturer's recommendations.

608-3 CONSTRUCTION DETAILS. Construct all pedestrian facilities in accordance with the requirements of the *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right Of Way* (PROWAG). Not all facilities can be designed to meet the current PROWAG design standards. Features that do not meet PROWAG requirements must be approved by the Department and noted as non standard features in the contract documents. Chapter 2 of the NYSDOT Highway Design Manual provides direction. For facilities that cannot meet the current PROWAG design standards, construct facilities to meet the standards to the greatest extent practicable. Install all work in accordance with the Standard Sheets and the lines and grades shown in the contract documents. Dimensions shown on the Standard Sheets are the minimum values in order to be compliant with the PROWAG requirements and for acceptance of the work. Slopes shown on the Standard Sheets are maximum values for design and layout. Ensure constructed facilities do not have construction tolerances that result in work that does not meet the PROWAG requirements.

608-3.01 Portland Cement Concrete Sidewalks and Driveways. Install concrete sidewalks and driveways in accordance with Section 501 *Portland Cement Concrete- General* and the contract documents. Start concrete placement operations when the ambient air temperature is 40°F or higher, when measured in the shade, within an accuracy of $\pm 2^{\circ}$ F. Discontinue placement if the ambient air temperature falls below 40°F. Ensure the surface temperature of the base material is 40°F or higher and that the surface does not have any snow, ice, frost, or standing water on it. Do not place concrete in the rain. Use insulating materials or heating equipment if necessary to prepare base material before placement begins. Form sidewalks and driveways conventionally or by machine. Install a premolded resilient joint filler at all joints between

sidewalk and curb, pavement, buildings, or other vertical surfaces, and at all transverse construction joints. Fill any transverse gaps from ½ inch to 1 inch in width with Caulking Compound for Structures.

Ensure workers installing pedestrian facilities are familiar with the requirements for those facilities under the Americans with Disabilities Act. Provide an American Concrete Institute (ACI) Certified Concrete Flatwork Finisher or an ACI Certified Concrete Flatwork Associate directly supervised by an (ACI) Certified Concrete Flatwork Finisher to perform all finishing work.- Provide proof of ACI flatwork certification to the Engineer prior to concrete placement.

A. Conventionally Formed Sidewalks and Driveways. Use concrete forms free from warp and that extend to the full depth of the sidewalk or driveway. Ensure forms are secured so no displacement will occur during the placement of concrete.

Use welded wire fabric or fiber reinforcement. At commercial driveways, use welded wire fabric for both the sidewalk and the driveway, additional fiber reinforcement will be allowed at the Contractor's option. When using wire fabric for concrete reinforcement, embed it at mid-depth in the slab.

Place the concrete in one course to the full depth shown in the contract documents. Immediately after placement of the concrete, thoroughly compact the concrete with internal mechanical vibrating equipment. Use internal mechanical vibrators that are adequately powered, capable of transmitting vibration to the concrete in frequencies of not less than 5,000 vibrations per minute while inserted in concrete and produce a vibration of sufficient intensity to consolidate the concrete into place without separation of the ingredients. Insert the vibrating element vertically into the concrete mass at a depth sufficient to vibrate the entire depth and then withdraw it completely from the concrete before advancing to the next point of application. Vibrate at evenly spaced intervals not farther apart than the radius over which the vibration is visibly effective and at a distance close enough to the forms to effectively vibrate the surface concrete. Vibrate for a sufficient time duration to accomplish thorough consolidation and produce dense, smooth surfaces free from aggregate pockets, honeycombing, and air bubbles. Work the concrete into all angles and corners of the forms, however, avoid over-vibration. Continue vibration in one place until the concrete has become uniformly plastic, but not to the extent that pools of laitance are formed. Supplement vibration by working or spading by hand in the corners and angles of forms and along form surfaces while the concrete is plastic. Do not use vibrators to push or distribute the concrete laterally.

Use only hand screeding and finishing, do not use mechanical screeding or finishing equipment.

B. Machine Formed Sidewalks. Provide machine forming equipment consisting of a single selfpropelled paver capable of placing, spreading, consolidating, screeding, and finishing the concrete such that hand finishing is kept to a minimum. Provide equipment guided by a reference system that ensures the pavement is placed to the specified line, grade, and cross section. Provide a paver equipped with rigid side forms that laterally support the concrete and minimize edge slumping, a full-width finishing pan, and attached internal vibrators capable of consolidating the entire concrete placement.

Apply the provisions of §569-3.05 E. *Central and Transit Mixed Concrete* to maintain desired slump during the concrete placement. Use fiber reinforcement only, do not use welded wire fabric reinforcement. Make water additions at the point of deposition in accordance with §569-3.05 E.

C. Accelerated Cure Sidewalks and Driveways. Use concrete forms free from warp and that extend to the full depth of the sidewalk or driveway. Ensure forms are secured so no displacement will occur during the placement of concrete. Use only conventional forming with welded wire fabric reinforcement embedded at mid-depth in the slab.

Place the concrete in one course to the full depth shown in the contract documents. Immediately after placement of the concrete, thoroughly compact the concrete with internal mechanical vibrating equipment. Use internal mechanical vibrators that are adequately powered, capable of transmitting vibration to the concrete in frequencies of not less than 5,000 vibrations per minute while inserted in

concrete and produce a vibration of sufficient intensity to consolidate the concrete into place without separation of the ingredients. Insert the vibrating element vertically into the concrete mass at a depth sufficient to vibrate the entire depth, and then withdraw it completely from the concrete before advancing to the next point of application. Vibrate at evenly spaced intervals not farther apart than the radius over which the vibration is visibly effective and at a distance close enough to the forms to effectively vibrate the surface concrete. Vibrate for a sufficient time duration to accomplish thorough consolidation and produce dense, smooth surfaces free from aggregate pockets, honeycombing, and air bubbles. Work the concrete into all angles and corners of the forms, however, avoid over-vibration. Continue vibration in one place until the concrete has become uniformly plastic, but not to the extent that pools of laitance are formed. Supplement vibration by working or spading by hand in the corners and angles of forms and along form surfaces while the concrete is plastic. Do not use vibrators to push or distribute the concrete laterally.

Use only hand screeding and finishing, do not use mechanical screeding or finishing equipment.

To reduce the time needed to reach the required opening compressive strength, cover the concrete with form insulating materials such that the concrete curing temperature reaches a minimum of 25°F above ambient air temperature. Secure the insulation tight to the concrete surface to prevent air intrusion beneath the insulation. Extend these materials a minimum of 12 inches beyond the edge of the concrete to prevent air intrusion beneath the insulation. Apply external heat meeting the requirements of §555-3.08C.2. *Provision of External Heat* to the concrete at the Contractor's option.

Cast compressive strength cylinders for determining strength gain at the time of placement. Keep these cylinders insulated with the placement. Break cylinders at times requested by the Contractor until the minimum compressive strength of 2,000 psi is reached. Submit requests for alternate means to determine concrete maturity by coordinating cylinder compressive strengths to concrete curing temperature a minimum of 60 days prior to placement for approval by the Director, Materials Bureau.

D. *Finishing.* Use only magnesium floats and finishing tools, do not use aluminum or steel. Finish the concrete to produce a smooth surface and then broom the surface to a uniform slip-resistant texture. Tool the edges and scored joints of all sidewalk slabs with an edging tool having a 1/4 inch radius.

Score and tool the concrete surface at intervals of 5 feet, a minimum 1/8 inch to a maximum 1/4 inch in width, and to a minimum depth of one-third the total thickness.

E. Curing. Immediately after finishing, and not more than 30 minutes after concrete placement, apply a clear membrane curing compound that includes a fugitive dye at a rate of 1 gallon per 150 square feet. Do not apply curing compound in the rain. If rain damages the curing compound before it sets, reapply curing compound promptly after the concrete surface dries.

Submit requests for alternate means to determine concrete maturity by coordinating cylinder compressive strengths to concrete curing temperature a minimum of 60 days prior to placement for approval by the Director, Materials Bureau. If the ambient air temperature is expected to fall below 40°F anytime during the curing period, provide a supply of form insulating materials capable of maintaining a surface temperature of 55°F at the work site sufficient to cover all concrete placed.

Cure all driveways and sidewalks at driveways for a minimum of 3 days prior to opening to vehicle traffic. Place form insulating materials as necessary to prevent the newly placed concrete from being exposed to ambient air temperatures at the concrete surface below 36°F during the curing period. Secure and overlap the form insulating materials tight to the concrete surface extending a minimum of 12 inches beyond the edge of the concrete to prevent air intrusion beneath the insulation. Maintain form insulating materials in place for the curing period. If the ambient air temperature falls below 40°F anytime during the curing period, cure conventionally formed sidewalks and driveways and machine formed sidewalks for a minimum of 6 days. If the concrete temperature falls below 32°F or the concrete is damaged by cold weather, remove and replace it at no additional cost to the State.

Place 4 equally spaced recording surface thermometers between the concrete surface and the insulating material and 12 inch from the outside edge of concrete for each day's placement. Do not

subject the concrete to a temperature drop in excess of 50°F during the first 24 hours after removing the insulation.

If saw cutting is necessary, use diamond blade saws equipped with cutting guides, blade guards, water cooling systems, dust controls, and cut depth control capable of making straight cuts to the dimensions required.

608-3.02 Asphalt Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. Not used.

608-3.03 Brick Paved Sidewalks and Driveways. Not used.

608-3.04 Grouted Stone Block Paved Sidewalks and Driveways. Not used.

608-3.05 Precast Concrete Block Paved Sidewalks and Driveways. Not used.

608-3.06 Surface-Applied Detectable Warning Units. Install surface-applied detectable warning units on existing curb ramps in accordance with the contract documents and the manufacturer's recommendations for environmental conditions, surface preparation, installation procedures, curing procedures, and-materials compatibility. If no color is specified in the contract documents, the color must be an approximate visual match to the Red color of SAE Standard AMS-STD-595 #31350. Ensure the detectable warning units provide the required contrast, light-on-dark or dark-on-light, with the adjacent sidewalk or ramp.

608-3.07 Embedded Detectable Warning Units. Install embedded detectable warning units in plastic concrete, directly on existing subbase prior to placing concrete, or inlaid on prepared concrete surfaces in accordance with the contract documents and as directed by the manufacturer. If no color is specified in the contract documents, the color must be an approximate visual match to the Red color of SAE Standard AMS-STD-595 #31350. Ensure the detectable warning units provide the required contrast, light-on-dark or dark-on-light, with the adjacent sidewalk or ramp. Follow all applicable manufacturers' recommendations for environmental conditions, surface preparation, installation procedures, curing procedures, and materials compatibility.

608-4 METHOD OF MEASUREMENT

608-4.01 Portland Cement Concrete Sidewalks and Driveways. The quantity to be measured for payment will be in cubic yards to the nearest 0.1 cubic yard of concrete installed. All embedded items, including warning devices shall be included.

608-5 BASIS OF PAYMENT

608-5.01 Portland Cement Concrete Sidewalks and Driveways. The unit price bid for concrete sidewalks and driveways shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including preparing the subgrade, saw cutting and wire fabric reinforcement. Excavation and subbase course will be paid for separately.

Payment will be made under:

Item No.	Item
608.0101	Concrete Sidewalk

Pay Unit Cubic Yard

701-01 PORTLAND CEMENT

SCOPE. This specification covers non-air entrained cements defined by AASHTO M 85.

For uniformity with recognized industry terminology, Types I, II, II(MH) III, IV, V and VI may also be designated as Types 1, 2, 2(MH), 3, 4, 5 and 6 respectively. Any cement designated with a combined classification, such as Type I/II, must meet the requirements of both types being offered. The type of cement to be used will be as shown in the plans or specifications for each contract. When specified in the contract documents, Type VI cement shall meet the requirements of AASHTO M 85-Type I cement, and the cement color shall be white.

MATERIAL REQUIREMENTS. All types of cement shall conform to the chemical and physical requirements of those respective types as contained in AASHTO M 85 with the following:

Any cement possessing equivalent alkali contents (Na2O + 0.658 K2O) in excess of 0.70% will be considered "high alkali" cement, and will be restricted for use as per the requirements of Section 501. The Department reserves the right to impose the "Optional Chemical and Physical Requirements" of AASHTO M 85 such as *Equivalent Alkalies* (AASHTO T-105) and *False Set* (AASHTO T-186). The temperature of the cement, measured immediately prior to entering the mixing unit at a batching facility, shall not exceed 170° F.

MANUFACTURER. The manufacturer shall declare the commercial name of the additions used and the amount thereof in writing to the Materials Bureau.

STORAGE. The cement shall be stored at its source of supply in approved weather-tight silos. Facilities shall be provided for maintaining such silos under Department seal control when and as directed by the Materials Bureau. All silos shall be completely empty and clean before cement is deposited therein unless the silo contains Department approved cement of the same type.

Cement remaining in bulk storage at the mill and/or distribution terminal for a period greater than one year after completion of tests shall be re-sampled and retested before shipment. However, cement which has been in bulk storage at mills and/or distribution terminals more than two years from the time of original manufacture shall not be used. No cement stored by the Contractor over the winter shall be used until retested by the Materials Bureau. Bagged cement shall not be stored at mill or terminal locations for a period longer 2 calendar years from the date of manufacture when preparing an order for shipment.

SHIPMENT. All shipments of cement shall be made in accordance with Materials Method (MM) 10 or other procedural directives issued by the Materials Bureau. Conveyances for bulk cement shipment shall be of a type approved by the Department. The compartments of all such conveyances shall be completely empty and clean before any cement is loaded therein. Cement may be shipped in paper bags which conform to industry standards which have the manufacturer's brand name, type of cement, and the date of manufacture clearly printed on the outside of the package.

INSPECTION AND TESTING. All inspection and testing shall be in accordance with MM 10 or other procedural directives issued by the Materials Bureau. When required by the Materials Bureau, cement shall be sampled by means of an automatic sampling device constructed so as to obtain continuous samples across the full stream of cement and deliver such samples into a sealed container approved by the Materials Bureau. Tests for chemical and physical properties shall be in accordance with test methods stipulated by AASHTO M 85.

BASIS OF ACCEPTANCE. Portland cement will be considered for acceptance at mill or terminal locations in accordance with MM 10 or other procedural directives issued by the Materials Bureau.

702 - BITUMINOUS MATERIALS – Not used.

New York State Department of Transportation STANDARD SPECIFICATIONS (USC) May 1, 2025

703-01 FINE AGGREGATE

SCOPE. The specification covers the material details, quality requirements and policies for sampling and testing fine aggregate generally used in portland cement concrete and asphalt mixtures.

SAMPLING. Samples of fine aggregates will be obtained and submitted to the Materials Bureau by a representative of the Department under the following conditions:

A. Sampling Approved Sources. All approved sources will be sampled when:

- The latest test for a source is two (2) or more years old.
- A change in the character of the raw or processed fine aggregate occurs.
- Considered necessary by the Department.

B. Sampling Non-approved Sources. Non-approved or rejected sources, equipped with adequate processing facilities, may be sampled upon favorable recommendation by a Regional Director and approved by the Director, Materials Bureau. Approval action on such sources may be conditioned on the results obtained by periodic sampling and testing as prescribed by the Materials Bureau and described in Material Method 29, "Aggregate Source Acceptance Procedures" (MM 29). MM 29 is available on the NYSDOT public website here: https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.

Sampling Proposed Unopened Sources of Material. Proposed unopened sources of material may be sampled upon the favorable recommendation of a Regional Director and approved by the Director, Materials Bureau. The results of tests on such samples will be for information only and will be indicative of the potential quality of the source. Action regarding acceptance of a source is described in MM 29.

GEOLOGIC SOURCE REPORTS AND QUALITY CONTROL PLANS. As part of the source approval requirements, the following information shall be submitted to the Department for each source, according to the requirements in MM 29:

A. Geologic Source Report (Static Module). The Static Module contains basic geology and mining information. It includes all relevant information about an aggregate source that is not likely to change over the lifetime of a mine. It is required to be submitted for the initial approval of an aggregate source. The requirements are detailed in MM 29.

B. Geologic Source Report (Cyclic Module). The Cyclic Module contains geologic information such as maps and cross-sections that may change as a mining operation advances laterally or vertically and must be updated according to the schedule and requirements in MM 29.

C. Quality Control Plan (Annual Module). The Annual Module contains the Quality Control Plan (QCP) and procedures for mining and processing aggregates; the plan must be submitted at least annually, or whenever changes occur.

Details of these requirements may be obtained from MM 29. These reports will be received and reviewed by the Department according to the schedules contained in MM 29.

The submittal and/or Department acceptance of a report does not relieve the supplier of its responsibility to provide a uniform product meeting the additional requirements described herein.

MATERIAL REQUIREMENTS. Fine aggregate shall consist of natural sand or manufactured sand, or

other engineered aggregate conforming to the requirements of these specifications. All fine aggregate shall consist of hard, strong, durable particles meeting the requirements of Table 703-1, Fine Aggregate Requirements (Testing). In addition, such particles must be free from coatings or any injurious materials and/or injurious amounts of clay, loam, or other deleterious substances. Engineered aggregate includes any other materials that are inert, non-reactive, and meet all relevant specifications described herein. In addition, the fine aggregate shall not contain substances, which, when mixed in portland cement concrete, produce an unacceptable level of chloride ions in the final product. Substances that produce chloride ions will be considered deleterious material. Any fine aggregate may be rejected if it is determined by the Department to contain unacceptable amounts of unsound or deleterious material that is harmful or detrimental to an end-use product.

Fine aggregates from more than one approved aggregate source or of more than one type of material may be blended and stockpiled to meet gradation requirements or improve aggregate quality for any enduse. All blending procedures and proportions must be approved by the Department, and all resulting blends require a new source designation. Producers of blended fine aggregates are subject to all requirements of §703-01, including testing and Quality Control Plans.

C. Fine aggregates meeting the physical testing requirements of Table 703-1, "Fine Aggregate Requirements (Testing)" may be accepted for the indicated use, unless service records indicate that it is unsound, or that the material is otherwise determined to be unsatisfactory by the Director, Materials Bureau.

TABLE 703-1 FINE AGGREGATE REQUIREMENTS (TESTING)					
Test Method	For use in Portland Cement Concrete (PCC)	For use in Asphalt Mixtures			
Magnesium Sulfate Soundness (NY 703-06P,G) Max. percent loss by weight at 5 cycles	30	45			
Organic Impurities (NY 703-03P,G, AASHTO T-21) Organic Plate, Lighter Than or Equal to	3	-			
Gardner Color (AASHTO T-21), Lighter Than Or Equal to	14	-			

Fine aggregate not meeting the requirement of Table 703-1 may be further evaluated by additional testing, petrographic examination, geologic studies, review of plant flow information, or investigation of performance history. If the results of the evaluation indicate that the aggregate should perform satisfactorily, the source may be accepted by the Director, Materials Bureau.

If fine aggregate is found unsatisfactory when examined for organic impurities, it will be rejected unless it passes the mortar strength test for compression (NY 703-04P). Fine aggregates so tested shall achieve a compressive strength of at least one hundred percent of the matching washed fine aggregate.

FRICTION. Fine aggregate for use in wearing surfaces of portland cement concrete pavement must meet the friction aggregate requirements of §501, Portland Cement Concrete.

TESTS. The details of all test methods for fine aggregates may be obtained from ASTM, AASHTO, or the NYSDOT public website here: *https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.*

BASIS OF APPROVAL. Approval of the source is determined based on tests performed by the Materials Bureau on samples representing the source; review of Geologic Source Reports and Quality Control Plans; petrographic examination and other geologic studies; and performance histories where

applicable.

BASIS OF ACCEPTANCE. The material is incorporated into the work on the basis that it is from an approved source conforming to procedural directives of the Department and the aggregate shall meet the gradation requirement at the point of use.

Aggregate for use in the manufacture of precast concrete units may be accepted based on stockpile approval at a location acceptable to the Department on a per job basis. Requests for stockpile approval shall be made in writing to the Materials Bureau. The manufacturer shall allow at least ninety (90) days for the testing and evaluation of the aggregate.

703-02 COARSE AGGREGATE

SCOPE. This specification covers the material details, requirements and methods for sampling and testing coarse aggregate generally used in portland cement concrete, asphalt mixtures and surface treatments. This specification does not cover those aggregates used solely as part of certain proprietary non-structural overlays or surface treatment systems.

SAMPLING. Samples of coarse aggregates will be obtained by and submitted to the Materials Bureau by a representative of the Department under the following conditions:

A. Sampling Approved Sources. All approved sources will be sampled when:

- The latest test for a source is two (2) or more years old.
- A change in the character of raw or processed coarse aggregate occurs.
- Considered necessary by the Department.

B. Sampling Non-approved Sources. Non-approved or rejected sources, equipped with adequate processing facilities, may be sampled upon favorable recommendation by a Regional Director and approval by the Director, Materials Bureau. Approval action on such sources may be conditioned on the results obtained by periodic sampling and testing as prescribed by the Materials Bureau and described in MM 29.

C. Sampling Proposed Unopened Sources of Material. Proposed unopened sources of material may be sampled upon the favorable recommendation of a Regional Director and approval by the Director, Materials Bureau. The results of tests on such samples will be for information only and will be interpreted as indicative of the potential quality of the source. Action regarding acceptance of a source is described in MM 29. MM 29 is available on the NYSDOT public website here: https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.

GEOLOGIC SOURCE REPORTS AND QUALITY CONTROL PLANS. As part of the acceptance requirements, the following information shall be submitted to the Department for each operating source, according to the requirements in MM 29:

A. Geologic Source Report (Static Module). The Static Module contains basic geology and mining information. It includes all relevant information about an aggregate source that is not likely to change over the lifetime of a mine. It is required to be submitted for the initial approval of an aggregate source. The requirements are detailed in MM 29.

B. Geologic Source Report (Cyclic Module). The Cyclic Module contains geologic information such as maps and cross-sections that may change as a mining operation advances laterally or vertically and must be updated according to the schedule and requirements in MM 29.

C. Quality Control Plan (Annual Module). The Annual Module contains the Quality Control Plan (QCP) and procedures for mining and processing aggregates; the plan must be submitted at least annually, or whenever changes occur.

Details of these report requirements may be obtained from MM 29. These reports will be received and reviewed by the Department according to the schedules contained in MM 29.

The submittal and/or Department acceptance of a report does not relieve the supplier of its responsibility to provide a uniform product meeting the additional requirements described herein.

TABLE 703-2 COARSE AGGREGATI	E PHYSICAL	REQUIREM	IENTS (TESI	TING)	
	Material D	Material Designation			
Test Designation	Gradation/ Particle Size	Crushed Bedrock 703-0201	Crushed Gravel 703-0202	Crushed Slag 703-0204	
Magnesium Sulfate Soundness (NY 703-07P,G)	No. 2	18	18	6	
Max. % loss by weight at 10 cycles ⁽¹⁾	No. 1	32	32	6	
Freezing and Thawing Test (NY 703-08P,G)	No. 2	20	20	-	
Max. % loss by weight at 25 cycles ⁽²⁾	No. 1	25	25	-	
Flat Particles, Elongated Particles, or Flat and Ele Particles (ASTM D4791) Max. % by weight Flat and Elongated to the Deg	10	10	-		
Crushed particles in any primary size	$+\frac{1}{2}$ inch with 1 fractured face	-	75 (4)		
(AS1M D5821) Min. % by weight	-1/2 inch with 2 fractured faces		85 (4)	- 	
Minimum unit weight (NY 703-10P,G) lbs/cu. ft.	-	-	70		

1. The loss on either size fraction may be used for acceptance if they are of similar composition.

2. The freeze-thaw requirement applies only to aggregate used in Portland cement concrete. The loss on either size fraction may be used for acceptance if they are of similar composition.

3. Requirement applies to coarse aggregate for use in asphalt mixtures with design ESALs of 0.3 million or greater.

4. Gravel which has not been processed through a crusher shall not be combined with crushed gravel.

MATERIAL REQUIREMENTS. Coarse aggregates shall consist of crushed bedrock, crushed gravel, crushed air-cooled blast furnace slag, or other engineered aggregate conforming to the requirements of these specifications. All coarse aggregates shall meet the requirements in Tables 703-2 Coarse Aggregate Physical Requirements (Testing), 703-3 Coarse Aggregate Physical Requirements (Deleterious Materials), and 703-4 Size of Crushed Bedrock, Gravel and Slag. Engineered aggregate includes any other materials that are inert, non-reactive, and meet all relevant specifications described herein.

Coarse aggregates from more than one approved aggregate source or of more than one type of material may be blended and stockpiled to meet gradation requirements or improve aggregate quality for any enduse. All blending procedures and proportions must be approved by the Department, and all resulting blends require a new source designation. Producers of blended coarse aggregates are subject to all requirements of §703-02, including testing and Quality Control Plans.

TABLE 703-3 COARSE AGGREGATE PHYSICAL REQUIREMENTS (DELETERIOUS MATERIALS)					
Maximum percent by weight in any primary size ⁽¹⁾					
Material Designation	Crushed Bedrock 703-0201	Crushed Gravel 703-0202	Crushed Slag 703-0204		
Shale and shale-like materials ⁽²⁾	3.0	3.0	-		
Coal/Lignite/Sulfides ⁽³⁾	1.0	1.0	-		
Clay lumps or Wood	0.2	0.2	-		
Metal Ore ⁽⁴⁾	3.0	3.0	3.0		
Other Deleterious Materials ⁽⁵⁾	3.0	3.0	3.0		
Total Deleterious Materials	5.0	5.0	5.0		

1. Coarse aggregates containing more than the specified maximum amounts of deleterious materials may be washed or otherwise processed until such specifications are satisfied.

2. Shale, slate, phyllite, argillite, schist, and similar shale-like fissile rocks that have been identified by performance or by test to be unsound and deleterious. Such shale-like fissile rocks may be tested separately from the rest of the aggregate by freezing and thawing according to Test Method NY 703-08P,G. If the loss is 20% or greater, that material will be designated as deleterious shale or shale-like material.

3. Pyrite, marcasite, pyrrhotite, bog iron, and similar material.

4. Magnetite, illmenite, etc. Percentages above 3.0% may be accepted by the Director, Materials Bureau, when appropriate adjustments to yield have been made.

5. Cemented clusters, weathered particles, and similar material.

Coarse aggregate meeting the physical requirements of Tables 703-2, and 703-3 may be accepted unless service records indicate that it is unsound or that the material is otherwise determined to be unsatisfactory by the Director, Materials Bureau. Coarse aggregate not meeting the requirements of these tables may be further evaluated by additional testing, petrographic examination, geologic studies, review of Plant Flow Information and performance history. If the results of the evaluation indicate that the aggregate should perform satisfactorily, the source may be accepted by the Director, Materials Bureau.

A. Crushed Bedrock. Crushed bedrock will be Material Designation 703-0201 and shall consist of clean, durable, sharp-angled fragments of rock of uniform quality.

B. Crushed Gravel. Crushed Gravel will be Material Designation 703-0202 and shall consist of clean, durable, sharp-angled fragments of gravel that are free from coatings. A crushed particle is defined as one in which the total area of face fracture exceeds 25% of the maximum cross-sectional area of the particle. When two fractured faces are designated, the total area of each fractured face shall exceed 25% of the maximum cross-sectional area of the particle. A naturally fractured face will be acceptable providing that the sharp angular portion of the particle consists of sound material and is free from unsound or injurious coatings.

C. Crushed Slag. Crushed slag particles will be Material Designation 703-0204 and shall consist of hard, durable, angular fragments which are reasonably uniform in density and quality; free from injurious amounts of sulfur; and reasonably free from thin, elongated pieces, dirt, or other objectional matter.

TABLE 703-4 SIZES OF CRUSHED BEDROCK, GRAVEL AND SLAG											
	Screen	Screen Sizes (% Passing by Weight)									
Size	4 in	3 in	2 ½ in	2 in	1 ½ in	1 in	½ in	¼ in	1/8 in	#80	#200 ⁽²⁾
Screenings ⁽¹⁾	-	-	-	-	-	-	100	90-100	-	-	0-1.0
1B	-	-	-	-	-	-	-	100	90-100	0-15	0-1.0
1A	-	-	-	-	-	-	100	90-100	0-15	-	0-1.0
1ST	-	-	-	-	-	-	100	0-15	-	-	0-1.0
1	-	-	-	-	-	100	90-100	0-15	-	-	0-1.0
2	-	-	-	-	100	90-100	0-15	-	-	-	0-1.0
3A	-	-	-	100	90-100	0-15	-	-	-	-	0-0.7
3	-	-	100	90-100	35-70	0-15	-	-	-	-	0-0.7
4A	-	100	90-100	-	0-20	-	-	-	-	-	0-0.7
4	100	90-100	-	0-15	-	-	-	-	-	-	0-0.7
5	90-100	0-15	-	-	-	-	-	-	-	-	0-0.7

1. Screenings shall include all the material passing a 1/4 in. screen.

2. The minus No. 200 material requirements apply only to aggregate for use in portland cement concrete, chip seal, cold mix asphalt pavements and underdrain filter material. The test (AASHTO T11) will be performed on the entire sample of the designated size aggregate. Primary size does not apply in the determination of the minus No. 200 material.

TABLE 703-5 SIZES OF CRUSHED BEDROCK, GRAVEL, AND SLAG FORMICROSURFACING AND SLURRY SURFACING

	Screen S	izes (% Pa	assing by	Weight)				
Size Designation	3/8 in	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200 ⁽¹⁾
2MS	100	90-100	65-90	45-70	30-50	18-30	10-22	5-15
3MS	100	70-90	45-70	28-50	19-34	12-25	7-20	5-15

1. Determine percent passing No. 200 sieve according to AASHTO T 11, Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.

TABLE 703-6 PRIMARY SIZES						
Size	Primary Screen Sizes		Size	Primary Screen Sizes		
Designation	Passing	Retained	Designation	Passing	Retained	
1B	1/8 in	No. 80	3A	1 1/2 in	1 in	
1A	1/4 in	1/8 in	3	2 in	1 in	
1ST	1/2 in	1/4 in	4A	2 1/2 in	1 1/2 in	
1	1/2 in	1/4 in	4	3 in	2 in	
2	1 in	1/2 in	5	4 in	3 in	

D. Gradation. The gradation ranges for each nominal NYSDOT Size Designation of crushed bedrock, gravel or slag used under these specifications shall conform to the gradation requirements for the various Size Designations tabulated in Table703-4 or Table 703-5. Alternate gradation size designations such as AASHTO or ASTM may be used to produce asphalt or concrete mixtures, or any other end products used in construction projects, if the end product gradation targets are met.

E. Primary Size. For the purposes of this specification, the term "Primary Size" is defined for each size

designation as all of the material passing and retained on the screens specified in Table 703-6 "Primary Sizes."

FRICTION. Coarse aggregate for use in wearing surfaces of portland cement concrete pavement must meet the friction aggregate requirements of §501, Portland Cement Concrete. Coarse aggregate for use in top courses of asphalt pavements must meet the friction aggregate requirements of §401, Asphalt Production.

TESTS. The details of test methods for coarse aggregate may be obtained from ASTM, AASHTO, or the NYSDOT public website here: *https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.*

BASIS OF APPROVAL. Approval of the source is determined based on tests performed by the Materials Bureau on samples representing the source; review of Geologic Source Reports and Quality Control Plans; petrographic examination and other geologic studies; and performance history where applicable.

BASIS OF ACCEPTANCE. The material is incorporated into the work on the basis that it is from an approved source conforming to procedural requirements of the Department and that the aggregate shall meet gradation at the point of use.

Aggregate for use in the manufacture of precast concrete units may be accepted based on stockpile approval at a location acceptable to the Department on a per job basis. Requests for stockpile approval shall be made in writing to the Materials Bureau. The manufacturer shall allow at least ninety (90) days for the testing and evaluation of the aggregate.

703-03 MORTAR SAND

SCOPE. This specification contains the requirements for sand used in mortar.

GENERAL. §703-01, Fine Aggregate requirements for use in Portland cement concrete shall apply except as modified herein.

MATERIAL REQUIREMENTS. When dry, mortar sand shall meet the following gradation requirements:

 Table 703-7 Mortar Sand Gradation

Sieve Size	Percent Passing by
	Weight
No. 4	100
No. 8	95-100
No. 50	10-40
No. 100	0-15

703-06 CUSHION SAND

SCOPE. This specification contains the requirements for cushion sand used for concrete block slope paving.

GENERAL. Material for cushion sand shall meet the requirements specified herein.

MATERIAL REQUIREMENTS. Cushion sand shall consist of clean, hard, durable, uncoated particles, free from lumps of clay and all deleterious substances.

When dry, the cushion sand shall meet the following gradation requirements:

Table 703-9 Cu	ishion Sand
Gradation	
Sieve Size	Percent Passing
	by Weight
¹ / ₄ in	100
No. 50	0-35
No. 100	0-10

TEST. Test methods may be obtained from ASTM, AASHTO, or the NYSDOT public website here: https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.

BASIS OF ACCEPTANCE. The cushion sand is accepted based on gradation tests and visual inspection, unless otherwise specified, at the point of use.

703-08 MINERAL FILLER

SCOPE. This specification contains the requirements for mineral filler used in asphalt concrete mixtures. **MATERIAL REQUIREMENTS.** Mineral filler shall conform to the requirements of the standard specification for Mineral Filler for Asphalt Mixtures, ASTM D242. When dry, the mineral filler shall meet the following gradation requirements:

Table 703-11 Mineral Filler Gradation			
Sieve Size	eve Size Percent Passing by Weight		
No. 30	100		
No. 50	95-100		
No. 200	70-100		

BASIS OF ACCEPTANCE. Acceptance of this material will be based on the producer's certification of compliance with these specification requirements.

704-08 BRICK SIDEWALK AND DRIVEWAY PAVERS - Not used.

704-09 STONE BLOCKS - Not used.

705-06 CAULKING COMPOUND FOR STRUCTURES

SCOPE. This specification covers the material requirements for caulking compound for structures.

GENERAL. Caulking compound shall be applied with either a pneumatic or ratchet hand gun.

MATERIAL REQUIREMENTS. Caulking compound shall be a material which complies with Federal Specification TT-S-230 Sealing Compound, Synthetic-Rubber Base, Single Component, Chemically Curing. The color of the compound shall be cement mortar grey when tested in the manner described in TT-S-230 and compared against a color standard in possession of the Materials Bureau. This standard will be made available upon written request.

BASIS OF ACCEPTANCE. Acceptance of this material will be based on the manufacturer's certification of compliance with these specification requirements.

705-07 PREMOLDED RESILIENT JOINT FILLER

SCOPE. This specification contains the material requirements for premolded resilient joint filler.

GENERAL. The joint filler shall be of the dimensions shown on the plans or listed in the specifications. When the material is delivered cut to dimension, it shall be banded in bundles of convenient size.

MATERIAL REQUIREMENTS. The premolded resilient joint filler shall conform to the requirements of ASTM D1751. The asphalt content requirement may be waived if the material meets other requirements of D1751 based on supplementary testing performed by the Materials Bureau.

BASIS OF ACCEPTANCE. Application for approval of premolded resilient joint filler shall be submitted to the Director, Materials Bureau. Upon approval, the product name and its manufacturer will be placed on the Department's Approved List. Each lift or bundle of joint filler shall be tagged by the manufacturer; the product will be accepted at the work site on the basis of the name and manufacturer of the product appearing on the tag and the Approved List.

The Department reserves the right to sample and test the material after delivery at the project site.

709-02 WIRE FABRIC FOR CONCRETE REINFORCEMENT

SCOPE. This specification covers the material requirements for wire fabric reinforcement used in portland cement concrete pavement, precast concrete products and other concrete construction.

MATERIALS REQUIREMENTS. Wire fabric reinforcement shall conform to the requirements of ASTM A1064, exclusive of the portions pertaining to rejection, retests and rehearing, except as indicated on the plans, in the proposal or as modified herein.

The weld shear test will not be required for acceptance of wire fabric for concrete pipe.

BASIS OF ACCEPTANCE. Welded wire fabric for concrete reinforcement will be accepted on the basis of the manufacturer's name and location appearing on the Department's Approved List and a material certification that specifies the product conforms to this specification. *Buy America requirements apply.*

711-01 FIBERS FOR CONCRETE REINFORCEMENT

SCOPE. This specification covers the material requirements for fibers for concrete reinforcement.

MATERIAL REQUIREMENTS. Synthetic, fibrillated fibers, specifically engineered and manufactured for use as secondary concrete reinforcement meeting ASTM C1116 Type III.

BASIS OF ACCEPTANCE. Acceptance will be based on the product name and manufacturer appearing on the Department's Approved List and material certification that states the product conforms to this specification.

711-05 MEMBRANE CURING COMPOUND

SCOPE. This specification covers white-pigmented and clear membrane curing compound material and quality requirements for spray application on surfaces of newly placed Portland Cement concrete.

GENERAL. Samples of membrane curing compound shall be submitted to the Materials Bureau by the manufacturer upon application for approval. Approved material shall be delivered to the work site in clean containers. The curing compound shall be agitated mechanically to a uniform consistency throughout the container immediately before use.

MATERIAL REQUIREMENTS

A. White Pigmented. The compound shall consist of finely ground white pigment and wax-free vehicle,

ready mixed for immediate use without alteration. When applied to freshly placed damp concrete at the rate of one gallon per 150 square feet, the compound shall adhere and present a uniform white appearance and effectively obscure the original color of the concrete. The compound applied at the specified rate shall provide a curing compound displaying the following properties:

1. Drying. The compound shall produce a uniform coating at a minimum temperature of 40OF and shall dry track-free within 4 hours.

2. *Permeability.* The moisture loss through the membrane shall be no more than 0.04 grams per square centimeter of surface area after three days.

3. *Reflectivity.* The membrane shall have a reflectance value of 60 percent, minimum based on Magnesium Oxide as a standard.

4. *Durability*. The membrane shall remain intact for at least seven days before becoming powdery and non-adherent due to weathering.

B. Clear. The compound shall consist of a wax-free vehicle, ready mixed for immediate use without alteration containing a fugitive dye that will fade uniformly. When applied to freshly placed, damp concrete, at the rate of 1 gallon per 150 square feet, it shall provide a curing membrane displaying the following properties :

1. Drying. The compound shall produce a uniform coating at a minimum temperature of 40OF and shall dry tack-free within 4 hours.

2. *Permeability.* The moisture loss through the membrane shall be no more than 0.04 grams per square centimeter of surface after three days.

3. Durability. The membrane shall remain intact for at least 7 days.

4. *Fugitive Dye.* The membrane-forming compounds with fugitive dye shall be readily distinguishable upon the concrete surface for at least 4 hours after application but shall become inconspicuous within 7 days after application.

TESTS. The properties of a membrane curing compound shall be tested on laboratory specimens. Details of the tests may be obtained from the Materials Bureau.

BASIS OF ACCEPTANCE. The approval of the membrane curing compound shall be based upon tests performed by the Materials Bureau. Upon approval by the Materials Bureau, the name of the product will be placed on an Approved List. Such products shall then be accepted on the basis of the brand name labeled on the container.

711-07 FORM INSULATING MATERIALS FOR COLD WEATHER CONCRETING

SCOPE. This specification covers the material requirements for form insulating materials used for cold weather concreting operations.

GENERAL. Insulating materials shall be:

- Impervious to moisture penetration and absorption
- Uniform in thickness
- Durable
- Easy to apply
- Capable of maintaining consistent concrete temperature
- Be in good condition with no ragged or open edges, cracks or holes

MATERIAL REQUIREMENTS.

A. Insulation Blankets. Shall be clearly labeled with the manufacturer's name and the material's thermal resistivity (R value).

B. Foam Boards. Boards must be made of Expanded Polystyrene and shall be clearly labeled with the manufacturer's name and the material's thermal resistivity (R value).

New York State Department of Transportation STANDARD SPECIFICATIONS (USC) May 1, 2025 C. Sprayed Foam. This product must meet the requirements of ASTM C1029.

BASIS OF ACCEPTANCE. The Contractor shall provide a material certification from the manufacturer that the insulating material meets the requirements of this specification and that the product R value is the same as labeled on the product.

711-08 ADMIXTURES

SCOPE. These specifications cover the material requirements for air-entraining, water-reducing and retarding, water-reducing (normal range and high range), and non-chloride accelerating admixtures used in the manufacture of Portland Cement concrete.

GENERAL. All admixtures shall be in liquid form having a consistency that flows readily. The admixtures shall not contain chemicals which, when mixed with concrete, produce a condition that is injurious to the quality and durability of the concrete or reinforcing steel. This applies specifically to compounds which, when used in manufacturing process, produce a significant amount of chloride ions in the final product. (Total chloride ion content shall be less than 1000 ppm.) Admixtures manufactured from carbohydrates such as sucrose (table sugar), glucose, and maltose when used alone will not be permitted.

MATERIAL REQUIREMENTS

A. Air-Entraining. The air-entraining agent shall entrain air in the concrete and the concrete containing an air-entraining agent shall conform to the following requirements:

1. Bleeding. The bleeding of the concrete made with the admixture under test shall not exceed that of concrete made with the reference admixture by more than 2 percentage points, the bleeding being computed as a percentage of the net amount of mixing water in each concrete. The net mixing water is the water in excess of that present as absorbed water in the aggregate.

2. *Time of Setting.* The initial time of setting of concrete containing the admixture under test shall not deviate

from that of the concrete made with the reference admixture by more than ± 1 hour and 15 minutes.

3. Compressive Strength. The compressive strength of concrete containing the admixture under test shall be not less than 90 percent of the control concrete, at the same air content, containing the reference admixture at 48 hours, 7 days and 28 days.

4. Resistance to Freezing and Thawing. The hardened concrete containing the admixture under test shall not exceed a weight loss of 4.0 percent in 25 cycles in a 10% NaC1 solution.

5. Length Change. Length changes shall be based on initial measurements taken at the time of removal of the specimens from the molds and final measurements taken at the end of 14 days of air drying. The specimens shall be moist-cured for 14 days followed by 14 days of air drying. Length change shall not be greater than $\pm 20\%$ of similar concrete containing the reference admixture.

B. Non-Chloride Accelerating Admixtures. Non-chloride accelerating admixtures shall conform to the requirements outlined in ASTM C494 for Type C or Type E admixtures.

C. Water-Reducing and Retarding Admixtures (ASTM TYPE D). The water-reducing and retarding admixtures shall reduce the quantity of mixing water required to produce concrete of a given consistency and retard the setting of concrete. Concrete containing this admixture shall conform to the following requirements:

1. *Water Reduction.* The mixing water required for concrete containing the admixture under test shall be reduced at least 5.0 percent when compared to that of the reference concrete without the admixture under test.

2. *Time of Setting.* The initial set time of the concrete containing the admixture under test shall be increased by at least 50 percent when compared to that of the reference concrete without the admixture under test.

3. Compressive Strength. The compressive strength of the concrete containing the

admixture under test, when compared to concrete without the admixture under test, shall be equal or greater at 48 hours, 7 days and 28 days.

4. Resistance to Freezing and Thawing. The hardened concrete containing the admixture under test shall not exceed a weight loss of 4.0 percent, in 25 cycles in a 10% NaC1 solution.

5. Length Change. Length changes shall be based on initial measurements taken at the time of removal of the specimens from the molds and final measurements taken at the end of 14 days of air drying. The specimens shall be moist-cured for 14 days followed by 14 days of air drying. Length change shall not be greater than \pm 35% of similar concrete containing the reference admixture.

D. Water-Reducing Admixtures (ASTM TYPE A). The water-reducing admixtures shall reduce the quantity of mixing water required to produce concrete of a given consistency. Concrete containing this admixture shall meet the requirements of the water reducing and retarding admixtures above except that the time of setting of the concrete containing the admixture under test shall not deviate from that of similar concrete without the admixture under test used as a reference by more than ± 1 hour and 15 minutes.

E. Water-Reducing (High Range) Admixtures (ASTM TYPE F). The water-reducing (High Range) admixture shall reduce the quantity of mixing water required to produce concrete of a given consistency. Concrete containing this admixture shall conform to the following requirements:

1. *Water Reduction.* The mixing water required for concrete containing the admixture under test shall be reduced at least 12.0 percent when compared to that of the reference concrete without the admixture under test.

2. *Time of Setting.* The initial set time of the concrete containing the admixture under test when compared to that of the reference concrete shall not be more than 1 hour earlier nor 1 hour, 30 minutes later.

3. Compressive Strength. The compressive strength of the concrete containing the admixture under test when compared to concrete without the admixture under test shall be as follows:

Compressive Strength, minimum percent of control:

1 day, 140%

3 days, 125%

7 days, 115%

28 days, 110%

The compressive strength of the concrete containing the admixture under test at any test age shall be not less than 100% of that attained at any previous age.

4. Resistance to Freezing and Thawing. The hardened concrete containing the admixture under test shall not exceed a weight loss of 4.0 percent in 25 cycles in a 10% NaC1 solution.

5. Length Change. Length changes shall be based on initial measurements taken at the time of removal of the specimens from the molds and final measurements taken at the end of 14 days of air drying. The specimens shall be moist-cured for 14 days followed by 14 days of air drying. Length change shall not be greater than \pm 35% of similar concrete containing the reference admixture.

SAMPLING AND TESTING. A one quart sample of admixture shall be submitted to the Materials Bureau by the manufacturer applying for approval, except that for Water-reducing (High Range) admixtures, two quarts will be required. The manufacturer shall submit information on the formulation of the product including the raw materials from which it is compounded, data from tests performed in accordance with these specifications and a description of the manufacturing process. Data from tests

performed in accordance with ASTM C260 for air-entraining agents and ASTM C494 for water-reducing and retarding, water-reducing (normal range and high range), and non-chloride accelerating admixtures may be substituted.

The Department will test the submitted admixture sample according to written Department instructions. The test procedures are available from the Materials Bureau upon request.

The Department reserves the right to monitor the performance of any previously approved admixture. Samples of admixture may be taken from actual concrete operations and retested by the Materials Bureau.

BASIS OF APPROVAL. The approval of the admixture shall be based upon the submitted information and tests performed by the Materials Bureau. Upon approval by the Materials Bureau, the name of the product will be placed on the Approved List.

BASIS OF ACCEPTANCE. Admixtures will be accepted on the basis of the brand name appearing on the Approved List and the product containers plainly labeled with the brand name.

Any admixtures sampled from actual concrete operations and retested in the Materials Bureau shall give substantially the same results, at the same dosage rate, as the original tests. Any significant change will be cause for rejection of that material and may require a resubmission of the admixture by the manufacturer for a complete retest to determine specification compliance. The admixture may be withdrawn from the Approved List during the retest period.

712-01 WATER

SCOPE. This specification contains the requirements for water used in Portland Cement concrete, mortar, concrete curing, treated subgrade, soil cement and for application to plants, seeded or sodded areas and planted areas.

MATERIAL REQUIREMENTS. Water used for mixing and curing Portland Cement concrete, mortar, treated subgrade and soil cement shall meet the requirements indicated in Table 712-1, Water. NYSDOT Test Method No. 712-01P shall apply to all Physical tests.

Water for curing concrete shall not contain any impurities in sufficient amount to cause discoloration or surface deterioration.

Water applied to seeded or sodded areas, plants or planted areas shall be free from oil, have a pH not less than 6.0 nor greater than 8.0 and shall be free from impurities injurious to vegetation.

BASIS OF ACCEPTANCE. Municipal water supplies are considered acceptable sources. Acceptance of questionable sources of water, as determined by the Regional Director or his/her representative, shall be determined by the Materials Bureau on samples taken by Department representatives.

TABLE 712-1 WATER		
Air Content of Mortar, percent by volume	12.0 Max.	
Soundness, Autoclave Expansion, percent	0.50 Max.	
Compressive Strength,	90 Min.	
7 day, 28 day (optional) percent of compressive strength of		
mortar cubes made with standard water		
Time of Setting, Vicat Test,		
Initial Set, minutes	45 Min.	
Final Set, hours	8 Max.	
Presence of Oil	None	
pH, AASHTO T26	5.0 - 8.5	
Organic Solids, AASHTO T26, ppm	200 Max.	
Total Inorganic Solids, AASHTO T26, ppm	2000 Max.	
Chloride Ion Content, ppm	500 Max.	
Sulphate Ion Content, ppm	1000 Max.	

SECTION 726 - DETECTABLE WARNING UNITS

726-01 SURFACE-APPLIED DETECTABLE WARNING UNITS

SCOPE. This specification covers the material and quality requirements for surface-applied detectable warning units.

MATERIAL REQUIREMENTS. Surface-applied detectable warning units shall conform to the dimensions shown on the current standard sheet for detectable warnings.

Units shall be composed of cementitious materials, steel, iron, plastics, polymeric materials, resins, pigments, or as approved by the Director, Materials Bureau. The units shall be an approximate visual match to the color specified in the Contract Documents. Units shall provide the required contrast (light-on-dark or dark-on-light) with the adjacent curb ramp or other applicable walkway. The units shall be uniform in color and texture, be free of cracks or other defects, and have clean-cut and well-defined edges.

Units shall adhere to asphalt or Portland cement concrete (PCC) surfaces at a minimum air temperature of 60°F, and a minimum surface substrate temperature of 70°F. They shall be weather resistant and durable to normal pedestrian wear and maintenance activities, and show no appreciable fading, lifting, or shrinkage. The units shall be capable of molding or fitting itself to the contours, breaks, and faults of asphalt or PCC surfaces, and show no significant tearing, rollback, lifting, or other signs of poor adhesion. The units shall have friction characteristics similar to a broomed PCC surface.

The detectable warning units shall meet the following physical properties:

Standard	Property	Results
ASTM C501	Wear Resistance	Wear Index: >15
ASTM C1028	Slip Resistance	Dry Coefficient of friction 0.8 minimum
ASTM E96	Water Vapor Transmission	10 grams/square foot/24 hours
Various	Adhesion/Bonding Strength	See Note*

*Note: Due to the various types of materials available, the Manufacturer shall certify, through independent laboratory testing, that the type of material used for detectable warnings will bond to a prepared surface.

PACKAGING AND SHIPMENT. Preformed, surface-applied, detectable warning units shall be shipped and packaged in accordance with commercially accepted standards. The following information shall be marked on each package or on the shipping invoice: the name of the product, the name and address of the manufacturer, and the quantity of material.

BASIS OF ACCEPTANCE. Acceptance of this material for placement on the Approved List will be based on the manufacturer's certification of compliance with these requirements and in accordance with procedural directives of the Materials Bureau. Contract acceptance will be based on the manufacturer's name appearing on the Department's Approved List.

726-02 EMBEDDED DETECTABLE WARNING UNITS

SCOPE. This specification covers the material and quality requirements for embedded detectable warning units.

MATERIAL REQUIREMENTS. Embedded detectable warning units shall conform to the dimensions shown on the current standard sheet for detectable warnings.

Units shall be composed of cementitious materials, steel, iron, clay, shale, plastics, polymeric materials, resins, pigments, or as approved by the Director, Materials Bureau. The units shall be an approximate visual match to the color specified in the Contract Documents. Units shall provide the required contrast (light-on-dark or dark-on-light) with the adjacent curb ramp or other applicable walkway. The units shall be uniform in color and texture, be free of cracks or other defects, and have clean-cut and well-defined edges.

Where applicable, the units shall adhere to asphalt or Portland cement concrete (PCC) surfaces at a

minimum air temperature of 60°F, and a minimum surface substrate temperature of 70°F. They shall be weather resistant and durable to normal pedestrian wear and maintenance activities, and show no appreciable fading, lifting, or shrinkage. The units shall have friction characteristics similar to a broomed PCC surface.

The detectable warning units shall meet the following physical properties:

Property	Results
Compressive Strength, Min., 28 days	8000 psi Minimum
Freeze-thaw Loss (25 Cycles, one per day, 10% NaCl	1.0.% Movimum
in accordance with NY Test Method 502-3P	

PACKAGING AND SHIPMENT. Embedded detectable warning units shall be shipped and packaged in accordance with commercially accepted standards. The following information shall be marked on each package or on the shipping invoice: the name of the product, the name and address of the manufacturer, and the quantity of material.

BASIS OF ACCEPTANCE. Acceptance of this material for placement on the Approved List will be based on the manufacturer's certification of compliance with these requirements and in accordance with procedural directives of the Materials Bureau. Contract acceptance will be based on the manufacturer's name appearing on the Department's Approved List.

End of Item 608

SECTION 609 - CURB AND CURB & GUTTER (Last Revised May, 2024)

Last Revised May, 2024)

609-1 DESCRIPTION. Construct and place curb, and curb & gutter, and/or reset curb as indicated in the Contract Documents or established by the Engineer.

609-2 MATERIALS. The materials shall meet the requirements of the following subsections of Section 700 - Materials and Manufacturing.

Portland Cement, Type II	701-01	
Concrete Repair Material	701-04	
Concrete Grouting Material	701-05	
Anchoring Material - Chemically Curing		701-07
Concrete Repair Material - High Early Str	ength	701-12
Coarse Aggregate		703-02
Concrete Sand		703-07
Premolded Resilient Joint Filler		705-07
Masonry Mortar		705-21
Stone Curb Anchor Bars		709-07
Quilted Covers (for Curing)		711-02
Plastic Coated Fiber Blankets (for Curing))	711-03
Polyethylene Curing Covers (White Opaq	ue)	711-04
Membrane Curing Compound		711-05
Precast Concrete Curb		714-04

609-2.01 (Vacant)

609-2.02 Concrete for Cast-in-Place Concrete Curb and Curb & Gutter.

- A. Conventionally Formed Curb and Curb & Gutter. Provide Performance Engineered Mixture (PEM) Portland Cement Concrete that meets the appropriate mix design requirements specified in Table 2 of Materials Procedure (MP) 501-2 Mix Design and Approval Procedure for Performance Engineered Mixtures Structural Concrete. Provide concrete that contains an ASTM Type A water-reducing admixture meeting the requirements of §711-08 Admixtures.
- **B.** Machine-Formed Concrete Curb and Curb & Gutter. Provide Performance Engineered Mixture (PEM) Portland Cement Concrete that meets the appropriate mix design requirements specified in Table 2 of MP 501-2.

609-2.03 Stone Curb. Not used.

609-2.04 Curb Anchors. Curb anchors for cast-in-place concrete curb, and curb & gutter shall be fabricated from material conforming to the requirements for Longitudinal Joint Ties §705-14 and to the details shown on the Standard Sheet for concrete curb or as indicated in the Contract Documents.

609-2.05 Concrete for Backing and Bedding Precast Concrete Curb and Stone Curb. The Contractor shall use Performance Engineered Mixture (PEM) Portland Cement Concrete that meets the appropriate mix design requirements specified in Table 2 of Materials Procedure (MP) 501-2 *Mix Design and Approval Procedure for Performance Engineered Mixtures – Structural Concrete* or Table 609-1, proportioned as follows:

TABLE 609-1 POUNDS OF AGGREGATE PER BAG OF CEMENT				
Specific Gravity of Aggregate	2.60	2.70	2.80	2.90
Concrete Sand	326	337	350	364
Coarse Aggregate, MP 501-2, 3	536	556	558	597

609-3 CONSTRUCTION DETAILS

609-3.01 General. Curb or curb & gutter found to be dirty, damaged, or out of alignment shall be cleaned, repaired, or replaced as necessary by the Contractor to the satisfaction of the Engineer prior to final acceptance of the work. When the Contract Documents have no reference to placing curb across driveway entrances, no curb shall be placed across driveway entrances.

609-3.02 Setting Precast Concrete Curb or Stone Curb. At the Contractor's option, all precast concrete curb and stone curb, excluding stone traversable sloped (TRS) curb, shall be set on:

A. A 3-inch thick continuous bed of dry concrete mix; or

B. A 3 inch thick dry concrete mix bed at the joints as shown on the Standard Sheets and wet concrete mix between the joints; or

C. A 3-inch minimum thickness continuous bed of compacted granular material.

Precast concrete curb and stone curb, excluding stone traversable sloped curb and Lean Back curb, shall be backed up with concrete using one of the following methods depending on the type of pavement:

A. Portland Cement Concrete (Rigid) Pavement. The Contractor shall place concrete backing behind the curb at each joint. The backing shall extend a minimum of 12 inch on both sides of the joint. The minimum height of the concrete backing shall be 6 inches and shall be measured from the bottom of the curb.

B. Asphalt (Flexible) Pavement. The Contractor shall place a continuous concrete backing behind the curb. The minimum height of the concrete backing shall be 10 inches or to the top of the asphalt pavement, whichever is greater, measured from the bottom of the curb.

Lean Back (LB) curbs are not allowed for installation with Portland Cement Concrete (Rigid) Pavement and shall be backed up as shown on the standard sheets for Asphalt (Flexible) Pavement.

Precast curb and stone curb, excluding stone traversable sloped curb, with and without sawed ends, not on a structure, shall be butted together with no mortar between the joints.

When the curb is set next to a concrete (rigid) pavement, grout conforming to §701-04 Concrete Repair Material, §701-12 Concrete Repair Material - High Early Strength, or §705-21 Masonry Mortar shall be placed in the joint formed between the curb and the pavement. The grout shall extend from the bottom to the top of the pavement slab.

Before proceeding with any further work adjacent to the curb, the curb shall be backfilled with material approved by the Engineer and the backfill material shall be thoroughly tamped as per contract documents.

609-3.03 Stone Curb - Bridge Type. The requirements of §609-3.02 shall apply with the following modifications:

A. Unless special construction details are called for in the Contract Documents, Type A bridge curbs, when on a structures approach, shall be set true to line and grade on a concrete bedding.

B. Type F1 bridge curbs shall be set in full mortar beds on structures. Excess mortar which extrudes around the curb shall be struck off flush with the front face of the curb and the top surface of the roadway.

C. Anchor bars for stone bridge curb shall be installed where and as indicated in the Contract Documents.

All curb on structures shall be fitted together allowing ¹/₄-inch full mortared joints finished flush with exposed curb surfaces. Curb surfaces shall be cleaned of excess mortar to the satisfaction of the Engineer. Mortar used for bedding and filling of joints shall conform to §705-21 Masonry Mortar, §701-04 Concrete Repair Material or §701-12 Concrete Repair Material - High Early Strength.

609-3.04 Cast-In-Place Concrete Curb and Curb & Gutter. Cast-in-place concrete curb and curb & gutter shall either be conventionally formed or machine formed to the size and shape shown on the Standard Sheets or as indicated in the Contract Documents. If no width is indicated in the Contract Documents, the width shall be the minimum shown on the Standard Sheet.

Curb anchors, as required on the Standard Sheets or the Contract Documents, shall not be coated with materials which impair bonding. Curb anchors shall be installed a minimum of 12 inches from the ends of a pavement slab. Curb anchors for new concrete pavement, when placed simultaneously with pavement concrete, shall be placed by equipment which can demonstrate to the satisfaction of the Engineer placement of the anchors in accordance with these specifications. Curb anchors, when not placed simultaneously with pavement concrete, shall be placed rigidly secured by chairs or other supports to prevent displacement of the anchors when pavement concrete is placed. Curb anchors for existing concrete pavement shall be inserted into holes drilled in the side of the existing concrete pavement. The holes shall be thoroughly cleaned and filled with Concrete Grouting Material §701-05 or Anchoring Materials - Chemically Curing §701-07 immediately before placing the curb anchor. The curb anchor shall be securely supported in position until the grout has hardened.

Curing of the curb and curb & gutter shall comply with the requirements of §502-3.11 Curing, except that a clear membrane curing compound with fugitive dye conforming to the requirements of Membrane Curing Compound §711-05 may be used in lieu of the white pigmented membrane curing compound.

A. Conventionally Formed Curb and Curb & Gutter

1. Forms. Forms shall be free from warp and of such construction that there will be no interference to inspection for grade and alignment. All forms shall extend to the full curb depth and be secured so no displacement will occur during the placement of concrete.

2. Casting Segments. Curb and curb & gutter shall be cast in segments having a uniform length of approximately 10 feet. The joints between segments shall not exceed 1/4 inch in width. When curb and curb & gutter is constructed next to concrete pavement, the curb and curb & gutter joints shall line up with the pavement joints or additional joints shall be provided in the curb and curb & gutter which line up with the pavement joints.

3. Expansion Joints. Expansion joints shall be 3/4 inches wide and contain Premolded Resilient Joint Filler §705-07. The filler shall be cut to conform to the cross section of the curb and curb & gutter.

Expansion joints shall be located at all immovable objects (bridge structures, etc.), adjacent to expansion joints in the pavement, and where shown in the Contract Documents or directed by the Engineer. Expansion joints will not be required at regular intervals unless otherwise shown in the Contract Documents.

4. Concrete Placing and Vibrating. Concrete shall be placed in the forms in accordance with the applicable requirements of §555-3.04 and shall be compacted with an immersion type mechanical vibrator. The vibrator shall be of a size and weight capable of thoroughly vibrating the concrete without damaging or misaligning the forms. The forms shall be left in place until the concrete has

hardened sufficiently to permit removal without damage to the curb and curb & gutter. The front form may be removed before the other forms to facilitate finishing the curb and removal of the joint dividers. After removal of the forms, the exposed faces of the curb and curb & gutter shall be immediately rubbed to a uniform surface. No plastering will be permitted.

B. Machine Formed Concrete Curb and Curb & Gutter. The equipment proposed for use by the Contractor shall demonstrate, to the satisfaction of the Engineer, the capability of placing the concrete in accordance with these specifications.

When machine forming, the Contractor may provide additional width of curb above the minimum on the Standard Sheets or above the width indicated in the Contract Documents without any other change in shape or dimension. If additional width is provided by the Contractor, there shall be no additional cost to the State for the additional width. If the Contract Documents or the Engineer do not require curb be placed across driveway entrances or there is no reference in the Contract Documents to placing curb across driveway entrances, the Contractor may continue placing curb across driveway entrances but the curb placed, excluding transitions, must be cut out and the concrete disposed in a manner approved by the Engineer.

Any curb and curb & gutter placed outside the tolerance of 1/2 inch of the established line or 1/4 inch of the established grade shall be removed and replaced by the Contractor.

1. Crack Control Joints. Crack control joints shall be formed or saw cut to a width of 1/8 inch minimum, 1/4 inch maximum and to a depth of 1 1/2 inch. The cut or formed joints shall extend slightly below the surface of the adjacent pavement and shall be spaced at 10 feet intervals. When the curb, and curb & gutter is constructed next to concrete pavement, the curb and curb & gutter joints shall line up with the pavement joints or additional joints shall be provided in the curb and curb & gutter which line up with the pavement joints. The saw cut or formed joints shall be left unfilled.

2. *Expansion Joints.* Expansion joints shall be 11/16 inches wide and contain Premolded Resilient Joint Filler §705-07. The filler shall be cut to conform to the cross section of the curb and curb & gutter.

The expansion joints shall be located at all immovable objects (bridge structures, etc.), adjacent to expansion joints in the pavement, where shown in the Contract Documents, or directed by the Engineer. Expansion joints shall not be required at regular intervals unless otherwise shown in the Contract Documents.

609-3.05 Setting Stone Traversable Sloped Curb. Stone traversable sloped curb (TRS) shall be set on a continuous trapezoidal shaped wedge bed of dry concrete mix, with 12 inches of wet concrete mix at the front base and 6 inches at the back top as shown on the Standard Sheets. Stone traversable curb shall be set such that the front bottom arris line is at the top of pavement and is on a 1 on 3 slope.

A. Portland Cement Concrete (Rigid) Pavement.

1. Existing Pavement. The Contractor shall place the stone traversable sloped curb on a wedge bed of dry concrete mix, as above, on the edge of the existing pavement. The wet concrete mix backing shall be continuous. The minimum height of the concrete backing shall be 2 inches below top of curb, top front arris line, to allow topsoil and seeding or as shown on the plans. There shall be no wet concrete mix base.

2. New Pavement. The Contractor shall place the stone traversable sloped curb after paving. The stone traversable sloped curb shall be placed on a wedge bed of dry concrete mix, as above, on the edge of the new pavement. The wet concrete mix backing shall be continuous. The minimum height
of the concrete backing shall be 2 inches below top of curb, top front arris line, to allow topsoil and seeding or as shown on the plans. There shall be no wet concrete mix base.

B. Asphalt (Flexible) Pavement.

1. Existing Pavement. The Contractor shall sawcut 12 inches of the pavement and place the stone traversable sloped curb. The wet concrete mix backing shall be continuous. The minimum height of the concrete backing shall be 2 inches below top of curb, top front arris line, to allow topsoil and seeding or as shown on the plans. The wet concrete mix base shall be placed on the subbase course and finished flush with the top of the binder allowing the top course to be place over the concrete base. The wet concrete mix base shall be cured before placing of top course.

2. *New Pavement.* The Contractor shall place the stone traversable sloped curb after paving, decreasing the paving width, excluding the top course, by one foot where the stone traversable sloped curb is to be placed. The wet concrete mix backing shall be continuous. The minimum height of the concrete backing shall be 2 inches below top of curb, top front arris line, to allow topsoil and seeding or as shown on the plans. The wet concrete mix base shall be placed on the subbase course and finished flush with the top of the binder course allowing the top course to be placed over the concrete base. The wet concrete mix base shall be cured before placing of top course.

Stone traversable sloped curb, with and without sawed ends, not on structure, shall be placed with joints of 1/4 inch to 3/4 inch but with a consistent joint width throughout. Grout conforming to §701-04 Concrete Repair Material or §705-21 Type M Masonry Mortar shall be placed in the joint formed between the curb lengths. The grout shall extend from the bottom to the top of the curb section completely filling the joint and struck flush with curb surface. Curb surfaces shall be cleaned of excess mortar to the satisfaction of the Engineer.

Before proceeding with any further work adjacent to the curb, the curb shall be backfilled with material approved by the Engineer and the backfill material shall be thoroughly tamped.

609-3.06 Optional Curb. Under Optional Curb, the Contractor shall have the option of placing precast concrete curb, or cast-in-place concrete curb, or stone curb. Precast concrete curb or stone curb shall be placed in accordance with the requirements of §609-3.02. Cast-in-place curb shall be placed in accordance with the requirements of stone curb will be allowed without the Engineer's written permission. Optional Lean Back Stone Curb shall be at the contractor's option.

609-3.07 Resetting Curb. Care shall be taken in removing the curb to be reset so that there will be no unnecessary breakage. All curb damaged in removing, hauling, storing, or resetting shall be replaced by the Contractor.

The curb shall be reset, in accordance with the requirements of §609-3.02 or §609-3.03 for resetting bridge type curbs, to the lines and grades specified in the Contract Documents.

609-4 METHOD OF MEASUREMENT. All curb and curb & gutter placed, and curb reset under these specifications will be measured by the number of linear feet, rounded to the nearest foot. The measurement will be taken along the top front arris line of full height, transition and terminal sections.

The measurement will be taken along the top front arris line of curb reveals across driveway entrances only when placed and not removed.

609-5 BASIS OF PAYMENT

609-5.01 Concrete Curb, Curb & Gutter, Stone Curb, Optional Curb. The unit price bid per foot shall include the cost of all labor, materials, equipment, curb anchors, saw-cutting and excavation to place,

backfill, concrete, grouting and caulking, curb & gutter in accordance with these specifications. When select backfill is specified, the select backfill will be paid under its respective item. No additional payment will be made to the Contractor when more than the minimum width of curb is placed. No additional payment will be made to the Contractor when curb (including bedding) is removed and replaced across driveway entrances to facilitate concrete machine forming operations.

Payment will be made under:Item No.Item

609.04 Cast In Place Concrete Curb

701-01 PORTLAND CEMENT

SCOPE. This specification covers non-air entrained cements defined by AASHTO M 85.

For uniformity with recognized industry terminology, Types I, II, II(MH) III, IV, V and VI may also be designated as Types 1, 2, 2(MH), 3, 4, 5 and 6 respectively. Any cement designated with a combined classification, such as Type I/II, must meet the requirements of both types being offered. The type of cement to be used will be as shown in the plans or specifications for each contract. When specified in the contract documents, Type VI cement shall meet the requirements of AASHTO M 85-Type I cement, and the cement color shall be white.

MATERIAL REQUIREMENTS. All types of cement shall conform to the chemical and physical requirements of those respective types as contained in AASHTO M 85 with the following:

Any cement possessing equivalent alkali contents (Na2O + 0.658 K2O) in excess of 0.70% will be considered "high alkali" cement and will be restricted for use as per the requirements of Section 501. The Department reserves the right to impose the "Optional Chemical and Physical Requirements" of AASHTO M 85 such as *Equivalent Alkalies* (AASHTO T-105) and *False Set* (AASHTO T-186). The temperature of the cement, measured immediately prior to entering the mixing unit at a batching facility, shall not exceed 170°F.

MANUFACTURER. The manufacturer shall declare the commercial name of the additions used and the amount thereof in writing to the Materials Bureau.

STORAGE. The cement shall be stored at its source of supply in approved weather-tight silos. Facilities shall be provided for maintaining such silos under Department seal control when and as directed by the Materials Bureau. All silos shall be completely empty and clean before cement is deposited therein unless the silo contains Department approved cement of the same type.

Cement remaining in bulk storage at the mill and/or distribution terminal for a period greater than one year after completion of tests shall be re-sampled and retested before shipment. However, cement which has been in bulk storage at mills and/or distribution terminals more than two years from the time of original manufacture shall not be used. No cement stored by the Contractor over the winter shall be used until retested by the Materials Bureau. Bagged cement shall not be stored at mill or terminal locations for a period longer 2 calendar years from the date of manufacture when preparing an order for shipment.

SHIPMENT. All shipments of cement shall be made in accordance with Materials Method (MM) 10 or other procedural directives issued by the Materials Bureau. Conveyances for bulk cement shipment shall be of a type approved by the Department. The compartments of all such conveyances shall be completely empty and clean before any cement is loaded therein. Cement may be shipped in paper bags which conform to industry standards which have the manufacturer's brand name, type of cement, and the date of manufacture clearly printed on the outside of the package.

Pay Unit

Foot

INSPECTION AND TESTING. All inspection and testing shall be in accordance with MM 10 or other procedural directives issued by the Materials Bureau. When required by the Materials Bureau, cement shall be sampled by means of an automatic sampling device constructed so as to obtain continuous samples across the full stream of cement and deliver such samples into a sealed container approved by the Materials Bureau. Tests for chemical and physical properties shall be in accordance with test methods stipulated by AASHTO M 85.

701-04 CONCRETE REPAIR MATERIAL

SCOPE. The material covered in this specification is generally used for shallow repairs of portland cement concrete, including repair of precast concrete products, such as pipe, cribbing, manholes, etc.

GENERAL. The use of this material is limited to repair areas smaller than 5 ft² and not deeper than 2 in. This material is meant to be applied and finished with a trowel in a horizontal position. The Department will test the material in accordance with Test Method NY 701-13P,C following the manufacturer's proportioning and mixing instructions printed on the package. Material meeting the requirements of this specification will be placed on the Approved List. For field use, follow the manufacturers mixing and curing recommendations.

MATERIAL REQUIREMENTS. The material shall be a prepackaged dry component: to which water or emulsified compound is added, used for concrete repair, containing no metallic expansion aides, to which no aggregate may be added, meeting the requirements of Table 701-04. When being used for aesthetic purposes the material's color shall be within the Munsell Neutral Scale range stated in Table 701-04.

TABLE 701-04 CONCRETE REPAIR MATERIAL				
TEST REQUIREMENT	Min.	Max.		
Initial Set (minutes)	10	60		
Expansion (%)	-	0.4		
Contraction (%)	-	0.0		
1 Day Compressive Strength (psi)	3000	-		
7 Day Compressive Strength (psi)	5000	-		
28 Day Compressive Strength (psi)	6000	-		
1 Day Bond Strength (psi)	200	-		
Freeze/Thaw Loss % (25 cycles)	-	1.0		
Total Chloride Content (% by weight)	-	0.05		
Total Sulfate Content (% by weight)	-	5.0		
Color, Munsell Neutral Scale	4.0	8.5		

BASIS OF APPROVAL. Application for material approval shall be submitted to the Materials Bureau by the manufacturer. The application shall be accompanied by a labeled 50 lb. production sample of the product; however, the Materials Bureau will approve other packaging quantities on a case-by-case basis. The Department will test the material according to Test Method NY 701-13P,C following the manufacturer's

proportioning and mixing instructions printed on the package. Upon approval, the product brand name, manufacturing location and shelf life will be placed on the Approved List. The Department must receive a letter from the manufacturer annually certifying that no changes have been made in the formulation, manufacturing process, or manufacturing location. In the event that a letter is not received, the product may be removed from the Approved List. Furthermore, the material may be removed from the Approved List at any time if the Department is not notified in writing of any material changes as stated above. The Department reserves the right to sample and test the material at any time.

BASIS OF ACCEPTANCE. Products will be accepted on the basis of the brand name and manufacturing location appearing on the Approved List. Such products will then be accepted on the basis of the brand name and manufacturing location printed on the sealed, non reusable container along with the month and year (i.e. 05/2011) of when the material was manufactured. The manufacturer is required to print the shelf life on the container if it is less than 12 months. The expiration date of acceptance for this material shall be one calendar year from the date of manufacture or as stated in the Approved List, whichever is less.

701-05 CONCRETE GROUTING AND ANCHORING MATERIAL

SCOPE. This specification covers the requirements for grouting material used to grout anchor bolts, dowels and other items in portland cement concrete. This material can also be used for forming mortar pads under bridge rail supports.

GENERAL. This material should not be used in layers thicker than 2 in. The Department will test the material according to Test Method NY 701-11P,C following the manufacturer's proportioning and mixing instructions printed on the package. Material meeting the requirements of this specification will be placed on the Approved List. For field use, follow the manufacturers mixing and curing recommendations.

MATERIAL REQUIREMENTS. The material shall be a prepackaged, dry component: to which water or emulsified compound is added, used for concrete repair, containing no metallic expansion aides, to which no aggregate may be added, meeting the requirements of Table 701-05.

TABLE 701-05 CONCRETE GROUTING AND ANCHORING MATERIAL					
TEST REQUIREMENT	Min.	Max.			
Initial Set (minutes)	30	-			
Expansion (%)	-	0.4			
Contraction (%)	-	0.0			
1 Day Compressive Strength (psi)	3000	-			
7 Day Compressive Strength (psi)	6000	-			
Pullout Strength (lbs)	10000	-			
Freeze-Thaw Loss % (25 cycles)	-	1.0			
Total Chloride Content (% by weight)	-	0.05			
Total Sulfate Content (% by weight)	-	5.0			

BASIS OF APPROVAL. Application for material approval shall be submitted to the Materials Bureau by the manufacturer. The application shall be accompanied by a labeled 50 lb production sample of the product; however, the Materials Bureau will approve other packaging quantities on a case-by-case basis. The

Department will test the material according to Test Method NY 701-11P,C following the manufacturer's proportioning and mixing instructions printed on the package. Upon approval, the product brand name, manufacturing location and shelf life will be placed on the Approved List. The Department must receive a letter from the manufacturer annually certifying that no changes have been made in the formulation, manufacturing process, or manufacturing location. In the event that a letter is not received, the product may be removed from the Approved List. Furthermore, the material may be removed from the Approved List at any time if the Department is not notified in writing of any material changes as stated above. The Department reserves the right to sample and test the material at any time.

BASIS OF ACCEPTANCE. Products will be accepted on the basis of the brand name and manufacturing location appearing on the Approved List. Such products will then be accepted on the basis of the brand name and manufacturing location printed on the sealed, non reusable container along with the month and year (i.e. 05/2011) of when the material was manufactured. The manufacturer is required to print the shelf life on the container if it is less than 12 months. The expiration date of acceptance for this material shall be one calendar year from the date of manufacture or as stated in the Approved List, whichever is less.

701-07 ANCHORING MATERIALS - CHEMICALLY CURING

SCOPE. This specification applies to chemically curing polymer anchoring materials used for installing steel elements such as threaded rods, deformed reinforcing bars and internally threaded steel sleeves with external deformations into concrete.

GENERAL. The material must be suitable for use in outdoor conditions and shall be a non-metallic, nonshrink polymer resin supplied in prepackaged and/or premeasured containers. It shall contain no rust or corrosion promoting agents and shall be moisture insensitive. For purposes of this specification, "manufacturer/supplier" is defined as "the entity whose brand name is listed on the adhesive container" and the term "unexpired" as it relates to the evaluation report, is defined as "currently valid, as determined by the authoring evaluation service"

MATERIAL REQUIREMENTS. Chemically curing anchoring materials shall meet the following material requirements:

A. Evaluation Report: Manufacturer/supplier shall submit to the Materials Bureau an unexpired evaluation report published by an evaluation service that is accredited per ISO/IEC 17065 and approved by the Materials Bureau. The report shall demonstrate that the adhesive anchor system is qualified in accordance with the current edition of ACI 355.4 for cracked and uncracked concrete. An approved product whose evaluation report is no longer considered valid by the evaluation service will be subject to removal from the Approved List.

B. Manufacturer's Printed Installation Instructions (MPII): Manufacturer/supplier shall submit to the Materials Bureau a copy of the MPII as supplied in the packaging for the adhesive anchor system. The MPII shall comply with the requirements established in the current edition of ACI 355.4 and contain all the necessary instructions to install the adhesive anchor system correctly, including (but not limited to): gel/cure time, threaded rod/rebar sizes with corresponding drill-bit diameters, min/max embedment, storage information and applicable installation procedures (drilling, cleaning, and adhesive material conditioning). Changes to the MPII must be reported to the Materials Bureau. Any changes to the MPII of an Approved List product that results in the MPII no longer meeting the requirements of this specification will result in the product being considered for removal from the Approved List.

BASIS OF APPROVAL. Application for approval of Anchoring Materials - Chemically Curing shall be made by the manufacturer or supplier to the Materials Bureau and shall include the following:

- A copy of an unexpired evaluation report showing qualification per current edition of ACI 355.4.
- Manufacturer's Printed Installation Instructions (MPII) as supplied in the packaging.
- Safety Data Sheet.
- Product Label.

Once the submitted materials are reviewed and deemed acceptable by the Department's Materials Bureau, the applicant shall supply six 5/8-inch diameter fully threaded steel rods, 10 inches long having a minimum tensile strength of 120 ksi along with sufficient adhesive material for testing. A manufacturer's or supplier's representative shall be present to perform the installation of the adhesive anchors. The Department shall perform tensile pullout testing on the 5/8-inch diameter rods embedded 4 inches deep in unreinforced concrete. Two sets of three tests (damp /dry) shall be performed in accordance with Test Method NY 701-14E, and each test shall meet the minimum required load. The minimum required pullout values for various concrete strengths are shown below:

MINIMUM REQUIRED PULI	LOUT LOAD F	FOR 4 INCH E	MBEDMENT	DEPTH
Concrete Compressive Strength (psi)	4000	4500	5000	5500
Minimum Pullout Load (lb.)	12,042	12,772	13,463	14,120

Upon test performance that meets or exceeds the requirements specified above, the Materials Bureau shall approve the product for use. After such approval, the name of the product and its manufacturer/supplier shall appear on the Approved List.

BASIS OF ACCEPTANCE. Products proposed for use shall be accepted on the basis of the brand and product name appearing on the Approved List, the brand and product name clearly printed on the sealed, non-reusable, unexpired container bearing the expiration-date of the material and a Material Certification stating that the material (1) is the same as that appearing on the Approved List and (2) meets these specifications.

701-12 CONCRETE REPAIR MATERIAL - HIGH EARLY STRENGTH

SCOPE. This specification covers a high early strength repair material, consisting of a dry component made up of cementing medium and fine aggregate to which water or an emulsified compound is added. The resulting mixture is generally used in repair of portland cement concrete pavement.

GENERAL. This material is intended for partial or full depth repairs, can be extended with dried, Department approved aggregate having a Nominal Maximum Aggregate Size (as defined in ASTM C125) of 1/2 inch and provide at least 30 minutes of working time.

This product must provide the ability to accept traffic loads within 3 hours of placement. For field use, follow the manufacturer's mixing and curing recommendations. Material meeting the requirements of this specification when tested (neat and extended), will be placed on the Approved List.

MATERIAL REQUIREMENTS. The material shall be a prepackaged, multi-component powdered material, used for concrete repair, containing no metallic expansion aides. The product must remain workable when extended with up to 60% by weight with coarse aggregate, and meet the requirements of Table 701-12. When being used for aesthetic purposes the material's color shall be within the Munsell Neutral Scale range stated in Table 701-12.

TABLE 701-12		
CONCRETE REPAIR	R MATERIAL -	HIGH EARLY STRENGTH
TEST	Min.	Max.
REQUIREMENT		
Initial Set (minutes)	30	-
Expansion (%)	-	0.4
Contraction (%)	-	0.0
3 Hour Compressive	2000	-
Strength (psi) **		
7 Day Compressive	6000	-
Strength (psi) **		
1 Day Bond Strength	200	-
(psi)		
Freeze-Thaw Loss %	-	1.0
(25 cycles)		
Total Chloride	-	0.05
Content (% by weight)		
Total Sulfate Content	-	5.0
(% by weight)		
Color, Munsell	4.0	8.5
Neutral Scale		

BASIS OF APPROVAL. Application for material approval shall be submitted to the Materials Bureau by the manufacturer. The application shall be accompanied by a labeled 50 lb. production sample of the product; however, the Materials Bureau will approve other packaging quantities on a case-by-case basis. The Department will test the material according to Test Method NY 701-21P,C following the manufacturer's proportioning and mixing instructions printed on the package. Upon approval, the product brand name, manufacturing location and shelf life will be placed on the Approved List. The Department must receive a letter from the manufacturer annually certifying that no changes have been made in the formulation, manufacturing process, or manufacturing location. In the event that a letter is not received, the product may be removed from the Approved List. Furthermore, the material may be removed from the Approved List at any time if the Department is not notified in writing of any material changes as stated above. The Department reserves the right to sample and test the material at any time.

BASIS OF ACCEPTANCE. Products will be accepted on the basis of the brand name and manufacturing location appearing on the Approved List. Such products will then be accepted on the basis of the brand name and manufacturing location printed on the sealed, non reusable container along with the month and year (i.e. 05/2011) of when the material was manufactured. The manufacturer is required to print the shelf life on the container if it is less than 12 months. The expiration date of acceptance for this material shall be one calendar year from the date of manufacture or as stated in the Approved List, whichever is less.

703-01 COARSE AGGREGATE

SCOPE. This specification covers the material details, requirements and methods for sampling and testing coarse aggregate generally used in portland cement concrete, asphalt mixtures and surface treatments. This specification does not cover those aggregates used solely as part of certain proprietary non-structural overlays or surface treatment systems.

SAMPLING. Samples of coarse aggregates will be obtained by and submitted to the Materials Bureau by a representative of the Department under the following conditions:

A. Sampling Approved Sources. All approved sources will be sampled when:

- The latest test for a source is two (2) or more years old.
- A change in the character of raw or processed coarse aggregate occurs.
- Considered necessary by the Department.

B. Sampling Non-approved Sources. Non-approved or rejected sources, equipped with adequate processing facilities, may be sampled upon favorable recommendation by a Regional Director and approval by the Director, Materials Bureau. Approval action on such sources may be conditioned on the results obtained by periodic sampling and testing as prescribed by the Materials Bureau and described in MM 29.

C. Sampling Proposed Unopened Sources of Material. Proposed unopened sources of material may be sampled upon the favorable recommendation of a Regional Director and approval by the Director, Materials Bureau. The results of tests on such samples will be for information only and will be interpreted as indicative of the potential quality of the source. Action regarding acceptance of a source is described in MM 29. MM 29 is available on the NYSDOT public website here: https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.

GEOLOGIC SOURCE REPORTS AND QUALITY CONTROL PLANS. As part of the acceptance requirements, the following information shall be submitted to the Department for each operating source, according to the requirements in MM 29:

A. Geologic Source Report (Static Module). The Static Module contains basic geology and mining information. It includes all relevant information about an aggregate source that is not likely to change over the lifetime of a mine. It is required to be submitted for the initial approval of an aggregate source. The requirements are detailed in MM 29.

B. Geologic Source Report (Cyclic Module). The Cyclic Module contains geologic information such as maps and cross-sections that may change as a mining operation advances laterally or vertically and must be updated according to the schedule and requirements in MM 29.

C. Quality Control Plan (Annual Module). The Annual Module contains the Quality Control Plan (QCP) and procedures for mining and processing aggregates; the plan must be submitted at least annually, or whenever changes occur.

Details of these report requirements may be obtained from MM 29. These reports will be received and reviewed by the Department according to the schedules contained in MM 29.

The submittal and/or Department acceptance of a report does not relieve the supplier of its responsibility to provide a uniform product meeting the additional requirements described herein.

TABLE 703-2 COARSE AGGREGATE PHYSICAL REQUIREMENTS (TESTING)						
	Material Designation					
Test Designation	Gradation/ Particle Size	Crushed Bedrock 703-0201	Crushed Gravel 703-0202	Crushed Slag 703-0204		
	No 2	10	10	6		
Magnesium Sulfate Soundness (NY 703-07P,G)	INO. 2	18	18	0		
Max. % loss by weight at 10 cycles ()	No. 1	32	32	6		
Freezing and Thawing Test (NY 703-08P,G)	No. 2	20	20	-		
Max. % loss by weight at 25 cycles ⁽²⁾	No. 1	25	25	-		
Flat Particles, Elongated Particles, or Flat and El Particles (ASTM D4791) Max. % by weight Flat and Elongated to the Deg	10	10	-			
Crushed particles in any primary size (ASTM D5821) Min. % by weight	+1/2 inch with 1 fractured face -1/2 inch with 2 fractured	-	75 (4)			
	faces		85 (4)			
Minimum unit weight (NY 703-10P,G) lbs/cu. ft.		-	-	70		

1. The loss on either size fraction may be used for acceptance if they are of similar composition.

2. The freeze-thaw requirement applies only to aggregate used in Portland cement concrete. The loss on either size fraction may be used for acceptance if they are of similar composition.

3. Requirement applies to coarse aggregate for use in asphalt mixtures with design ESALs of 0.3 million or greater.

4. Gravel which has not been processed through a crusher shall not be combined with crushed gravel.

MATERIAL REQUIREMENTS. Coarse aggregates shall consist of crushed bedrock, crushed gravel, crushed air-cooled blast furnace slag, or other engineered aggregate conforming to the requirements of these specifications. All coarse aggregates shall meet the requirements in Tables 703-2 Coarse Aggregate Physical Requirements (Testing), 703-3 Coarse Aggregate Physical Requirements (Deleterious Materials), and 703-4 Size of Crushed Bedrock, Gravel and Slag. Engineered aggregate includes any other materials that are inert, non-reactive, and meet all relevant specifications described herein.

Coarse aggregates from more than one approved aggregate source or of more than one type of material may be blended and stockpiled to meet gradation requirements or improve aggregate quality for any enduse. All blending procedures and proportions must be approved by the Department, and all resulting blends require a new source designation. Producers of blended coarse aggregates are subject to all requirements of §703-02, including testing and Quality Control Plans.

TABLE 703-3 COARSE AGGREGATE PHYSICAL REQUIREMENTS(DELETERIOUS MATERIALS)

Maximum percent by weight in any primary size							
Material Designation	Crushed Bedrock 703-0201	Crushed Gravel 703-0202	Crushed Slag 703-0204				
Shale and shale-like materials (2)	3.0	3.0	-				
Coal/Lignite/Sulfides ⁽³⁾	1.0	1.0	-				
Clay lumps or Wood	0.2	0.2	-				
Metal Ore ⁽⁴⁾	3.0	3.0	3.0				
Other Deleterious Materials ⁽⁵⁾	3.0	3.0	3.0				
Total Deleterious Materials	5.0	5.0	5.0				

Maximum percent by weight in any primary size ⁽¹⁾

1. Coarse aggregates containing more than the specified maximum amounts of deleterious materials may be washed or otherwise processed until such specifications are satisfied.

2. Shale, slate, phyllite, argillite, schist, and similar shale-like fissile rocks that have been identified by performance or by test to be unsound and deleterious. Such shale-like fissile rocks may be tested separately from the rest of the aggregate by freezing and thawing according to Test Method NY 703-08P,G. If the loss is 20% or greater, that material will be designated as deleterious shale or shale-like material.

3. Pyrite, marcasite, pyrrhotite, bog iron, and similar material.

4. Magnetite, illmenite, etc. Percentages above 3.0% may be accepted by the Director, Materials Bureau, when appropriate adjustments to yield have been made.

5. Cemented clusters, weathered particles, and similar material.

Coarse aggregate meeting the physical requirements of Tables 703-2, and 703-3 may be accepted unless service records indicate that it is unsound or that the material is otherwise determined to be unsatisfactory by the Director, Materials Bureau. Coarse aggregate not meeting the requirements of these tables may be further evaluated by additional testing, petrographic examination, geologic studies, review of Plant Flow Information and performance history. If the results of the evaluation indicate that the aggregate should perform satisfactorily, the source may be accepted by the Director, Materials Bureau.

A. Crushed Bedrock. Crushed bedrock will be Material Designation 703-0201 and shall consist of clean, durable, sharp-angled fragments of rock of uniform quality.

B. Crushed Gravel. Crushed Gravel will be Material Designation 703-0202 and shall consist of clean, durable, sharp-angled fragments of gravel that are free from coatings. A crushed particle is defined as one in which the total area of face fracture exceeds 25% of the maximum cross-sectional area of the particle. When two fractured faces are designated, the total area of each fractured face shall exceed 25% of the maximum cross-sectional area of the particle. A naturally fractured face will be acceptable providing that the sharp angular portion of the particle consists of sound material and is free from unsound or injurious coatings.

C. Crushed Slag. Crushed slag particles will be Material Designation 703-0204 and shall consist of hard, durable, angular fragments which are reasonably uniform in density and quality; free from injurious amounts of sulfur; and reasonably free from thin, elongated pieces, dirt, or other objectional matter.

TABLE 703-4 SIZES OF CRUSHED BEDROCK, GRAVEL AND SLAG											
	Screen Sizes (% Passing by Weight)										
Size	4 in	3 in	2 ½ in	2 in	1 ½ in	1 in	½ in	¼ in	1/8 in	#80	#200 ⁽²⁾
Screenings ⁽¹⁾	-	-	-	-	-	-	100	90-100	-	-	0-1.0
1B	-	-	-	-	-	-	-	100	90-100	0-15	0-1.0
1A	-	-	-	-	-	-	100	90-100	0-15	-	0-1.0
1ST	-	-	-	-	-	-	100	0-15	-	-	0-1.0
1	-	-	-	-	-	100	90-100	0-15	-	-	0-1.0
2	-	-	-	-	100	90-100	0-15	-	-	-	0-1.0
3A	-	-	-	100	90-100	0-15	-	-	-	-	0-0.7
3	-	-	100	90-100	35-70	0-15	-	-	-	-	0-0.7
4A	-	100	90-100	-	0-20	-	-	-	-	-	0-0.7
4	100	90-100	-	0-15	-	-	-	-	-	-	0-0.7
5	90-100	0-15	-	-	-	-	-	-	-	-	0-0.7

1. Screenings shall include all the material passing a 1/4 in. screen.

2. The minus No. 200 material requirements apply only to aggregate for use in portland cement concrete, chip seal, cold mix asphalt pavements and underdrain filter material. The test (AASHTO T11) will be performed on the entire sample of the designated size aggregate. Primary size does not apply in the determination of the minus No. 200 material.

TABLE 703-5 SIZES OF CRUSHED BEDROCK, GRAVEL, AND SLAG FOR MICROSURFACING AND SLURRY SURFACING

Screen Sizes (% Passing by Weight)								
Size Designation	3/8 in	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200 ⁽¹⁾
2MS	100	90-100	65-90	45-70	30-50	18-30	10-22	5-15
3MS	100	70-90	45-70	28-50	19-34	12-25	7-20	5-15

1. Determine percent passing No. 200 sieve according to AASHTO T 11, Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.

TABLE 703-6 PRIMARY SIZES							
Size	Primary Screen Sizes		y Screen Sizes Size		Primary Screen Sizes		
Designation	Passing	Retained	Designation	Passing	Retained		
1B	1/8 in	No. 80	3A	1 1/2 in	1 in		
1A	1/4 in	1/8 in	3	2 in	1 in		
1ST	1/2 in	1/4 in	4A	2 1/2 in	1 1/2 in		
1	1/2 in	1/4 in	4	3 in	2 in		
2	1 in	1/2 in	5	4 in	3 in		

D. Gradation. The gradation ranges for each nominal NYSDOT Size Designation of crushed bedrock, gravel or slag used under these specifications shall conform to the gradation requirements for the various Size Designations tabulated in Table703-4 or Table 703-5. Alternate gradation size designations such as AASHTO or ASTM may be used to produce asphalt or concrete mixtures, or any other end products used in construction projects, if the end product gradation targets are met.

E. Primary Size. For the purposes of this specification, the term "Primary Size" is defined for each size

designation as all of the material passing and retained on the screens specified in Table 703-6 "Primary Sizes."

FRICTION. Coarse aggregate for use in wearing surfaces of portland cement concrete pavement must meet the friction aggregate requirements of §501, Portland Cement Concrete. Coarse aggregate for use in top courses of asphalt pavements must meet the friction aggregate requirements of §401, Asphalt Production.

TESTS. The details of test methods for coarse aggregate may be obtained from ASTM, AASHTO, or the NYSDOT public website here: *https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.*

BASIS OF APPROVAL. Approval of the source is determined based on tests performed by the Materials Bureau on samples representing the source; review of Geologic Source Reports and Quality Control Plans; petrographic examination and other geologic studies; and performance history where applicable.

BASIS OF ACCEPTANCE. The material is incorporated into the work on the basis that it is from an approved source conforming to procedural requirements of the Department and that the aggregate shall meet gradation at the point of use.

Aggregate for use in the manufacture of precast concrete units may be accepted based on stockpile approval at a location acceptable to the Department on a per job basis. Requests for stockpile approval shall be made in writing to the Materials Bureau. The manufacturer shall allow at least ninety (90) days for the testing and evaluation of the aggregate.

703-07 CONCRETE SAND

SCOPE. This specification contains the requirements for sand used in portland cement concrete.

GENERAL. §703-01, Fine Aggregate requirements for use in Portland cement concrete, shall apply except as modified herein.

MATERIAL REQUIREMENTS. When dry, the fine aggregate for portland cement concrete shall conform to the following gradation requirements:

Table 703-10 C	oncrete	Sand Gradation			
Sieve Size		Percent Passing by			
		Weight			
Minimum	Maximum				
3/8 in	100	-			
No. 4	90	100			
No. 8	75	100			
No. 16	50	85			
No. 30	25	60			
No. 50	10	30			
No. 100	1	10			
No. 200 (Wet)	0	3			

TEST. Test methods may be obtained from ASTM, AASHTO, or the NYSDOT public website here: *https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals.*

FRICTION. Sand for use in wearing surfaces of portland cement concrete pavement (including bridge deck

New York State Department of Transportation STANDARD SPECIFICATIONS (USC) May 1, 2025 and approach slab wearing surfaces) must meet the friction aggregate requirements of §501, Portland Cement Concrete.

BASIS OF ACCEPTANCE. The provisions of 703-01, Fine Aggregates, shall apply.

705-07 PREMOLDED RESILIENT JOINT FILLER

SCOPE. This specification contains the material requirements for premolded resilient joint filler.

GENERAL. The joint filler shall be of the dimensions shown on the plans or listed in the specifications. When the material is delivered cut to dimension, it shall be banded in bundles of convenient size.

MATERIAL REQUIREMENTS. The premolded resilient joint filler shall conform to the requirements of ASTM D1751. The asphalt content requirement may be waived if the material meets other requirements of D1751 based on supplementary testing performed by the Materials Bureau.

BASIS OF ACCEPTANCE. Application for approval of premolded resilient joint filler shall be submitted to the Director, Materials Bureau. Upon approval, the product name and its manufacturer will be placed on the Department's Approved List. Each lift or bundle of joint filler shall be tagged by the manufacturer; the product will be accepted at the work site on the basis of the name and manufacturer of the product appearing on the tag and the Approved List.

The Department reserves the right to sample and test the material after delivery at the project site.

705-21 MASONRY MORTAR

SCOPE. Requirements for the 3 common types of masonry mortar (N, S and M - increasing in strength, respectively). Use these mortars to bind masonry units together to construct masonry structures, repair masonry structures (tuck pointing), or bed and bond masonry or concrete units together. For historic masonry structures made with soft hydrated lime mortars, use a specially designed lime mortar as shown in the Contract Documents or as approved by the Engineer.

Type N Masonry Mortar- for tuck pointing repair of structures made with fired clay bricks

Type S Masonry Mortar- for new structures made with all types of masonry, including brick

Type S Masonry Mortar- for tuck pointing repair of structures made with masonry other than clay brick Type M Masonry Mortar- for new and tuck pointing repair of rigid masonry riding surfaces, such as bridge decks, pavements, sidewalks, and other roadway areas subject to severe weathering and abrasion conditions

MATERIAL REQUIREMENTS

Portland Cement, Type II or VI	701-01
Masonry or Mortar Cement, Type N, S or M	701-02
Blended Portland Cement	701-03
Mortar Sand	703-03
Concrete Sand	703-07
Water	712-01

Proportion the N, S or M mortar type by loose volume parts as follows:

BLENDED PORTLAND	MASONRY OR MORTAR	SAND
CEMENT	CEMENT	
Type N Mortar (make with	Type N Masonry or Mortar Cen	nent)
0	1 (Type N)	2 1/4 to 3

Type S Mortar (make with Type S or N Masonry or Mortar Cement)

0	1 (Type S)	2 1/4 to 3
1/2	1 (Type N)	3 3/8 to 4 1/2
Type M Mortar (m	ake with Type M or N Masonry or	· Mortar Cement)
0	1 (Type M)	2 1/4 to 3
1	1 (Type N)	4 1/2 to 6

After adding all ingredients (including water) to a mechanical mixer, mix for 3 to 5 minutes to entrain air and produce a workable and uniform consistency. Discard all unused mortar 2 1/2 hours after initial mixing. Mortar that has stiffened may be re-tempered up to 2 1/2 hours after initial mixing by adding water to restore the original workable consistency.

Use a uniform layer of mortar, 1/4 to 3/4 inch thick, for joints between uniform masonry units.

For a tuck pointing (raking out and repointing) mortar, add the minimum water to the dry ingredients to produce a mortar that retains its form when hand squeezed and released. Allow this mortar to stand covered (prehydrate) for 1 to 1 1/2 hours to greatly reduce shrinkage. Then mix with sufficient water to produce a stiff, but workable consistency, and use within 2 1/2 hours of initial mixing.

Avoid re-tempering the mortar when tuck pointing, matching a color, or to avoid color variations between batches (mix smaller quantities, if needed).

No admixtures, except for mortar coloring agents made from light-fast, durable, alkali-resistant minerals, will be permitted without written permission of the Director, Materials Bureau. If colored mortar is specified, submit samples of hardened mortar to the Engineer. Upon approval, use the same, uniform, mortar color throughout the work.

BASIS OF ACCEPTANCE. Inspection and approval by the Engineer.

709-07 STONE CURB ANCHOR BARS - Not used.

709-08 EPOXY COATED WIRE FABRIC REINFORCEMENT

SCOPE. This specification covers sheets of wire fabric reinforcement with protective epoxy coatings that are applied by the electrostatic spray method or electrostatic fluidized bed method.

MATERIAL REQUIREMENTS

A. Wire Fabric Reinforcement. Wire fabric reinforcement shall conform to the requirements of 709-02.

B. Epoxy Coating Material

1. The epoxy coating material shall be an organic, powered epoxy resin that is applied by electrostatic methods. Epoxy coating materials shall be approved by the Materials Bureau.

Detailed requirements and procedures for the acceptance of epoxy coating materials are available from the Materials Bureau. Upon approval of the product, the epoxy coating will be placed on a Department Approved List of materials.

2. The epoxy coating manufacturer shall supply written certification to the coating applicator that the coating material is the same as that approved by the Materials Bureau.

C. Patching Material. Patching or repair materials shall be supplied by the epoxy coating manufacturer. The patching material shall be compatible with the epoxy coating, inert in concrete, and shall be suitable for use in making field repairs.

D. Coating Application

1. Coating Applicator. The coating applicator's facilities shall be approved by the Materials Bureau. Applications for approval of facilities shall be made to the Materials Bureau by the coating applicator. Upon approval, they will be placed on the Department's list of "Approved Applicators For Epoxy Coated Wire Fabric Reinforcement."

2. Surface Preparation.

a. The surface wire fabric to be coated shall be blast cleaned in accordance with the Steel Structures Paint Council - Surface Preparation Specification No. 10 (SSPC-SP10), near White Blast Cleaning. After blasting, the cleaned surface of the bar shall be defined by SSPC-Vis 1-89, Pictorial Standards A SP 10, B SP 10, or C SP 10, as applicable.

b. The powdered epoxy resin coating shall be applied to the cleaned surface as soon as possible after cleaning and before visible oxidation occurs. In no case shall more than 8 hours elapse between cleaning and coating.

3. *Coating Application.* The powdered epoxy resin coating shall be electrostatically applied in accordance with the recommendations of the coating manufacturer.

4. *Coating Thickness.* The epoxy coating shall be applied as a smooth, uniform coat. After curing, the coating thickness shall be a minimum of 4 mils. Coating thickness shall be controlled by taking measurements on a representative sample from each production lot. Coating thickness measurements shall be conducted by the method outlined in ASTM B499.

5. Continuity of Coating

a. The coating shall be checked visually after cure for continuity. It shall be free from holes, voids, contamination, cracks and damaged areas.

b. The coating shall not have more than two holidays (pinholes visible to the naked eye) in any 1 foot length of a coated single wire. A holiday detector shall be used, in accordance with the manufacturer's instructions, to check the coating for holidays. Sharp edges at the welded intersection of the wires shall not be considered to be holidays.

6. Coating Cure. The coating applicator shall check each production lot to determine that the entire production lot of coated fabric is in a fully-cured condition.

7. Flexibility of Coating

a. The flexibility of the coating shall be evaluated on two representative sections of wire fabric from each production lot or two #16, Grade 60 reinforcing bars that have been coated simultaneously with the wire fabric. A representative wire from the wire fabric shall be bent 120 degrees (after rebound) around a pin or mandrel of 10 diameters or alternately, a reinforcing bar shall be bent 120 degrees around a 6 inch diameter pin or mandrel. Bending shall be done at a minimum rate and may take up to one minute to complete. The test specimens shall be a thermal equilibrium between 680 and 860F at the time of testing. b. When examined by the naked eye, the outside radius of the bent wire or bar shall be free of cracks in the coating.

TESTING AND SAMPLING

A. Lot Size. For test purposes a production lot is the smallest number of sheets of wire fabric of the same style (gauge, spacing size) from a given manufacturer as determined by the following requirements:

1. A lot shall not exceed a single order, or delivered load of 1500 sheets, whichever is smaller.

2. A lot shall consist of the number of sheets as defined by the coating applicator except that it shall not exceed the number of sheets coated within a single working shift.

3. A lot shall consist of the number of sheets of mesh coated with the same batch or lot of epoxy.

B. Quality Control. The coating applicator shall be responsible for performing quality control and tests. This will include inspection for compliance with the requirements of Coating Thickness, Continuity of Coating and Coating Cure and the testing required under Flexibility of Coating.

C. Plant Inspection.

I. The Department reserves the right to have its authorized representative observe the preparation, coating and testing of wire fabric. The representative shall have free access to the plant. Any work done while access was denied will be rejected.

2. If the representative elects, samples of coated fabric may be taken from the production run, on a random basis, for test, evaluation and check purposes by the Materials Bureau.

REPAIR. Epoxy coated wire fabric reinforcement which does not meet the requirements of Coating Thickness, Continuity of Coating, Coating Cure or Flexibility of Coating shall not be repaired.

Reinforcement with these defects shall be replaced or stripped of epoxy coating, recleaned and recoated in accordance with the requirements of this specification.

Any damage to the coated reinforcement, occurring at the coating applicator's facility shall be cleaned and repaired with patching material. The cleaning shall remove loose or deleterious material or both. If rust is present, it shall be removed by blast cleaning prior to patching.

HANDLING. All systems for coated wire fabric shall have padded contact areas, wherever possible. All bundling bands shall be padded and all bundles shall be lifted with a strong back, multiple supports or a platform bridge so as to prevent sheet to sheet abrasion from sags in the bundle. The sheets or bundles shall not be dropped or dragged.

BASIS OF ACCEPTANCE. Epoxy-coated wire fabric will be accepted on the basis of the names and locations of the welded wire fabric manufacturer and the epoxy applicator appearing on the Department's Approved List and a material certification from the epoxy applicator that specifies the product conforms to this specification. *Buy America requirements apply*.

711-02 QUILTED COVERS (FOR CURING)

SCOPE. These specifications cover cotton mats to be used for curing Portland Cement concrete pavements and bases, and concrete structures.

GENERAL. The mats shall consist of a filling material of cotton "bat" or "bats" covered with unsized cloth, and tufted or stitched to maintain the shape and stability of the unit under job conditions of handling.

MATERIALS REQUIREMENTS

A. Cotton. Cotton cloth covering shall weigh not less than 6.3 ounces per square yard and shall have an average of not less than 32 threads in warp and not less than 28 threads in filling, having a minimum average breaking strength (grab method) of 60 pounds in the warp and of 60 pounds in the filling.

The weight of the cotton cloth covering shall not fall below the specified weight by more than 5 percent. The raw materials used in the manufacture of the cotton cloth shall be raw cotton, cotton comber waste, cotton

card strip waste, or combination thereof. The other physical characteristics of the cloth shall be equal to those in such material for industrial purposes.

B. Burlap or Jute. Burlap or jute covering for cotton mats shall weigh not less than 6.7 ounces per square yard and shall have not less than 8 threads per 1 inch of warp and not less than 8 threads per 1 inch of filing. It shall be the grade known commercially as "firsts" and shall be free from avoidable imperfections in manufacture and from defects or blemishes affecting the serviceability. A tolerance in weight of minus 5 percent will be permitted.

C. Filling Material. The filling material for the mats shall be cotton bat, or bats, made of raw cotton, cotton waste, cotton linters, or combinations thereof, and shall weigh not less than 12 ounces per square yard. The batting used shall not be lower in quality than a batting made of U. S. Standard Grade No. 3 Linters.

D. Thread

1. Tufting. The cotton thread for tufting shall be not less than 4-cord number 12's.

2. Sewing or Stitching. The thread used for all sewing or stitching shall be at least equivalent in size and strength to standard 3-cord number 30 cotton thread.

DIMENSIONS

A. Mats. Mats shall have a filler of 5 feet 9 inches in width and shall have a flap 6 inches or more in width, consisting of an extension of two thicknesses of the covering material, extending along one longitudinal edge of the mat. The length of the mats shall be 2 feet 6 inches greater than the width of pavement slab to be cured.

B. Tolerance. The length or width of the mats shall not be less than that specified by more than 2 percent.

FABRICATION

A. Covering Material. The covering material for each surface of the mat shall consist of two widths of cloth joined by a lapped seam or by a seam formed by superimposing the two widths and uniting them by one row of stitches. If the seam of the latter type, the edges shall be on the inside of the finished mat.

B. *Filling.* The cotton filling materials in the form of a bat or bats shall be held in place between the coverings by sewing or tufting all around the periphery of the mat within 1 inch of each of the four edges of the filler, and by sewing or quilting longitudinally at intervals not greater than 4 inches, or by tufting at intervals both longitudinally and transversely, not greater than 3 inches. The sewing or tufting shall be sufficiently loose to permit substantially all of the surface of the mat to come in contact with a flat surface when in use, but not so loose as to permit the filling material to shift.

C. Flap and Ends. The flap shall be constructed by sewing the upper and lower covering together longitudinally within 1 inch of the outer edges of the flap. Along the edge of the mat opposite the flap, the filling materials shall be within 1 inch of the edges of the covering material, and the covering material shall be sewn together so as to enclose the filling material. The ends of the mats shall be finished by running an additional seam (i.e., a seam in addition to the seam holding the filling material in place) across the mats. This seam shall not be closer to the seam holding the filling material in place than 1/4 inch and not closer to the end of either covering than 1/2 inch, unless the ends of the mat are finished with an overlying or whip stitch, or in a manner which will not leave a raw edge.

D. Stitching. All longitudinal sewing or quilting shall average at least three stitches per 1 inch and shall have not less than five stitches in any 2 inches. All other sewing shall average six stitches per 1 inch and shall have not less than nine stitches in any 2 inches.

BASIS OF ACCEPTANCE. Quilted covers (for curing) will be accepted on the basis of a material certification that specifies the product conforms to this specification.

711-03 PLASTIC COATED FIBER BLANKETS (FOR CURING)

SCOPE. These specifications cover white plastic coated fiber blankets or white plastic coated absorbent synthetic fabric blankets.

MATERIAL REQUIREMENTS. The blankets shall conform to the test requirements of A.S.T.M. C171, for White burlap - polyethylene sheets, for Moisture Loss and Reflectance.

BASIS OF ACCEPTANCE. Application for approval of plastic fiber blankets shall be submitted to the Director, Materials Bureau. Upon approval, the name and manufacturer of the product will be placed on the Department's Approved List. Each roll of the blankets shall be marked with an indelible marking, every 10 feet, with the following.

- Manufacturer's name and/or logo
- Product name
- Meet ASTM C171, White Burlap Polyethylene Sheets, for Moisture Loss and Reflectance

The product shall be accepted at the work site on the basis of the appearance of the name and manufacturer of the product on the Approved List and marking as required herein.

711-04 POLYETHYLENE CURING COVER (WHITE OPAQUE)

SCOPE. This specification covers the material requirements for polyethylene curing covers (white opaque) to be used for curing of Portland Cement concrete.

MATERIAL REQUIREMENTS. The blankets shall conform to the material requirements of AASHTO M171 (ASTM C171) for Polyethylene Film: White Opaque. Rolls shall be wound on serviceable handling members which extend beyond the edges of the roll, forming handles to facilitate applying the covers over concrete.

BASIS OF ACCEPTANCE. Each shipment shall be accompanied by the manufacturer's certificate attesting to the fact that the shipment meets the specified standards. Upon request, the manufacturer shall supply a record of the results of the prescribed tests as made on the samples.

711-05 MEMBRANE CURING COMPOUND

SCOPE. This specification covers white-pigmented and clear membrane curing compound material and quality requirements for spray application on surfaces of newly placed Portland Cement concrete.

GENERAL. Samples of membrane curing compound shall be submitted to the Materials Bureau by the manufacturer upon application for approval. Approved material shall be delivered to the work site in clean containers. The curing compound shall be agitated mechanically to a uniform consistency throughout the container immediately before use.

MATERIAL REQUIREMENTS

A. White Pigmented. The compound shall consist of finely ground white pigment and wax-free vehicle, ready mixed for immediate use without alteration. When applied to freshly placed damp concrete at the rate of one

gallon per 150 square feet, the compound shall adhere and present a uniform white appearance and effectively obscure the original color of the concrete. The compound applied at the specified rate shall provide a curing compound displaying the following properties:

1. Drying. The compound shall produce a uniform coating at a minimum temperature of 40OF and shall dry track-free within 4 hours.

2. *Permeability.* The moisture loss through the membrane shall be no more than 0.04 grams per square centimeter of surface area after three days.

3. *Reflectivity.* The membrane shall have a reflectance value of 60 percent, minimum based on Magnesium Oxide as a standard.

4. *Durability*. The membrane shall remain intact for at least seven days before becoming powdery and non-adherent due to weathering.

B. Clear. The compound shall consist of a wax-free vehicle, ready mixed for immediate use without alteration containing a fugitive dye that will fade uniformly. When applied to freshly placed, damp concrete, at the rate of 1 gallon per 150 square feet, it shall provide a curing membrane displaying the following properties:

1. Drying. The compound shall produce a uniform coating at a minimum temperature of 400F and shall dry tack-free within 4 hours.

2. *Permeability*. The moisture loss through the membrane shall be no more than 0.04 grams per square centimeter of surface after three days.

3. Durability. The membrane shall remain intact for at least 7 days.

4. Fugitive Dye. The membrane-forming compounds with fugitive dye shall be readily distinguishable upon the concrete surface for at least 4 hours after application but shall become inconspicuous within 7 days after application.

TESTS. The properties of a membrane curing compound shall be tested on laboratory specimens. Details of the tests may be obtained from the Materials Bureau.

BASIS OF ACCEPTANCE. The approval of the membrane curing compound shall be based upon tests performed by the Materials Bureau. Upon approval by the Materials Bureau, the name of the product will be placed on an Approved List. Such products shall then be accepted on the basis of the brand name labeled on the container.

714-01 STONE CURB - Not used.

714-04 PRECAST CONCRETE CURB - Not used.

End of Item 609

Item P-603 Emulsified Asphalt Tack Coat

DESCRIPTION

603-1.1 This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Asphalt materials. The asphalt material shall be an emulsified asphalt as specified in ASTM D3628, shown in Table 1, as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Resident Project Representative (RPR) before the asphalt material is applied for review and acceptance. The furnishing of COA for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

Type and		Application Temperatures				
Grade	Specification	Deg. F	Deg. C			
	Emulsified	Asphalt				
MS-1	ASTM D 977	70-160	20-70			
HFMS-1	ASTM D 977	70-160	20-70			
SS-1	ASTM D 977	70-160	20-70			
SS-1h	ASTM D 977	70-160	20-70			
CSS-1	ASTM D 2397	70-160	20-70			
CSS-1h	ASTM D 2397	70-160	20-70			

Table	1	Bituminous	Material
1		Dicaminous	TARGET THE

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50° F (10° C) or above; the temperature has not been below 35° F (2° C) for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour (13 km per hour) or seven (700) feet per minute (213 m per minute).

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-

bar height and pressure and pump speed, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a minimum 12-foot (3.7-m) spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR.

A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

603-3.3 Application of emulsified asphalt material. The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Surface Type	Residual Rate, gal/SY (L/square meter)	Emulsion Application Bar Rate, gal/SY (L/square meter)
New asphalt	0.02-0.05 (0.09-0.23)	0.03-0.07 (0.13-0.32)
Existing asphalt	0.04-0.07 (0.18-0.32)	0.06-0.11 (0.27-0.50)
Milled Surface	0.04-0.08 (0.18-0.36)	.0.06-0.12 (0.27-0.54)
Concrete	0.03-0.05 (0.13-0.23)	0.05-0.08 (0.23-0.36)

Emulsified Asphalt

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the RPR. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

603-3.4 Freight and waybills The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 The emulsified asphalt material for tack coat shall be measured by the gallon. Volume shall be corrected to the volume at 60°F (16°C) in accordance with ASTM D1250. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.

BASIS OF PAYMENT

603.5-1 Payment shall be made at the contract unit price per gallon of emulsified asphalt material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-603-1 Emulsified Asphalt Tack Coat - per gallon

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

TABLE IV-3 TEMPERATURE-VOLUME CORRECTIONS FOR EMULSIFIED ASPHALTS														
°C	°F	*M	°C	٥F	*M	°C	٥F	*M	°C	٥F	*M	°C	٥F	*M
10.0	50	1.00250	20.0	68	0.99800	30.0	86	0.99350	40.0	104	0.98900	50.0	122	0.98450
10.6	51	1.00225	20.6	69	0.99775	30.6	87	0.99325	40.6	105	0.98875	50.6	123	0.98425
11.1	52	1.00200	21.1	70	0.99750	31.1	88	0.99300	41.1	106	0.98850	51.1	124	0.98400
11.7	53	1.00175	21.7	71	0.99725	31.7	89	0.99275	41.7	107	0.98825	51.7	125	0.98375
12.2	54	1.00150	22.2	72	0.99700	32.2	90	0.99250	42.2	108	0.98800	52.2	126	0.98350
12.8	55	1.00125	22.8	73	0.99675	32.8	91	0.99225	42.8	109	0.98775	52.8	127	0.98325
13.3	56	1.00100	23.3	74	0.99650	33.3	92	0.99200	43.3	110	0.98750	53.3	128	0.98300
13.9	57	1.00075	23.9	75	0.99625	33.9	93	0.99175	43.9	111	0.98725	53.9	129	0.98275
14.4	58	1.00050	24.4	76	0.99600	34.4	94	0.99150	44.4	112	0.98700	54.4	130	0.98250
15.0	59	1.00025	25.0	77	0.99575	35.0	95	0.99125	45.0	113	0.98675	55.0	131	0.98225
15.6	60	1.00000	25.6	78	0.99550	35.6	96	0.99100	45.6	114	0.98650	55.6	132	0.98200
16.1	61	0.99975	26.1	79	0.99525	36.1	97	0.99075	46.1	115	0.98625	56.1	133	0.98175
16.7	62	0.99950	26.7	80	0.99500	36.7	98	0.99050	46.7	116	0.98600	56.7	134	0.98150
17.2	63	0.99925	27.2	81	0.99475	37.2	99	0.99025	47.2	117	0.98575	57.2	135	0.98125
17.8	64	0.99900	27.8	82	0.99450	37.8	100	0.99000	47.8	118	0.98550	57.8	136	0.98100
18.3	65	0.99875	28.3	83	0.99425	38.3	101	0.98975	48.3	119	0.98525	58.3	137	0.98075
18.9	66	0.99850	28.9	84	0.99400	38.9	102	0.98950	48.9	120	0.98500	58.9	138	0.98050
19.4	67	0.99825	29.4	85	0.99375	39.4	103	0.98925	49.4	121	0.98475	59.4	139	0.98025

	TABLE IV-3 TEMPERATURE-VOLUME CORRECTIONS FOR EMULSIFIED ASPHALTS													
°C	°F	*М	°C	°F	*М	°C	٥F	*М	°C	°F	*М	°C	°F	*M
60.0	140	0.98000	68.3	155	0.97625	76.7	170	0.97250						
60.6	141	0.97975	68.9	156	0.97600	77.2	171	0.97225						
61.1	142	0.97950	69.4	157	0.97575	77.8	172	0.97200						
61.7	143	0.97925	70.0	158	0.97550	78.3	173	0.97175						
62.2	144	0.97900	70.6	159	0.97525	78.9	174	0.97150						
62.8	145	0.97875	71.1	160	0.97500	79.4	175	0.97125						
63.3	146	0.97850	71.7	161	0.97475	80.0	176	0.97100						
63.9	147	0.97825	72.2	162	0.97450	80.6	177	0.97075						
64.4	148	0.97800	72.8	163	0.97425	81.1	178	0.97050						
65.0	149	0.97775	73.3	164	0.97400	81.7	179	0.97025						
65.6	150	0.97750	73.9	165	0.97375	82.2	180	0.97000						
66.1	151	0.97725	74.4	166	0.97350	82.8	181	0.96975						
66.7	152	0.97700	75.0	167	0.97325	83.3	182	0.96950						
67.2	153	0.97675	75.6	168	0.97300	83.9	183	0.96925						
67.8	154	0.97650	76.1	169	0.97275	84.4	184	0.96900						

°C = Observed Temperature in Degrees Celsius.

^oF = Temperature in Degrees Fahrenheit.

*M = Multiplier for correcting volumes to the basis of 15.6 °C (60° F).

END ITEM P-603

Item P-605 Joint Sealants for Pavements

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

MATERIALS

605-2.1 Joint sealants. Joint sealant materials shall meet the requirements of the following types as indicated on the Contract Drawings:

ASTM D6690 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Pavement Joint Adhesive. Joint adhesive materials shall meet the requirements of the following types as indicated on the Contract Drawings:

ASTM D5329 Standard Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphalt Pavements and Portland Cement Concrete Pavements

Each lot or batch of adhesive shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F (10° C) and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, 30 days prior to use on the project.

a. Tractor-mounted routing tool. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices may be used to clean and enlarge random cracks.

b. Concrete saw. Provide a self-propelled power saw, with water-cooled diamond or abrasive saw blades, for cutting joints to the depths and widths specified.

c. Sandblasting equipment. The Contractor must demonstrate sandblasting equipment including the air compressor, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the Resident Project Representative (RPR), that the method cleans the joint and does not damage the joint.

d. Waterblasting equipment. The Contractor must demonstrate waterblasting equipment including the pumps, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

e. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

f. Hot-poured sealing equipment. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

g. Cold-applied, single-component sealing equipment. Not used.

605-3.3 Preparation of joints. Pavement joints for application of material in this specification must be dry, clean of all scale, dirt, dust, curing compound, and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint. All existing joint sealant in joints designated to be sealed shall be removed

a. Sawing. All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

b. Sealing. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, filler, protrusions of hardened concrete, old sealant and other foreign material from the sides and upper edges of the joint space to be sealed. Cleaning shall be accomplished by sandblasting, tractor-mounted routing equipment, concrete saw or waterblaster as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of 1/2 inch (12 mm) from the joint edge shall be sandblasted clean. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches (75 mm) from it. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the seal is applied.

605-3.4 Installation of sealants. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the RPR before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet (15 m) ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch (6 mm) $\pm 1/16$ inch (2 mm) below the top of pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install

the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

METHOD OF MEASUREMENT

605-4.1 Joint sealing material shall be measured by the linear foot of sealant in place, completed, and accepted.

BASIS OF PAYMENT

605-5.1 Payment for joint sealing material shall be made at the contract unit price per linear foot. The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-605-1 Joint Sealing Filler- per linear 100

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D789	Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt

END ITEM P-605

Item P-610 Concrete for Miscellaneous Structures

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch (37.5 mm)	467 or 4 and 67
1 inch (25 mm)	57
³ / ₄ inch (19 mm)	67
¹ / ₂ inch (12.5 mm)	7

Coarse Aggregate Grading Requirements

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking.

Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150, Types I, II, or V; OR ASTM C595, Types IS, IP, IL, or IT. The chemical requirements for all cement types specified should meet suitable criteria for deleterious activity. Low alkali cements shall be less than 0.6% equivalent alkalis. Total alkalis (Na2O and K2O) of the cement secured for the production of concrete shall be independently verified in accordance with ASTM C114 or ASTM C1365.

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from

the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751.

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of reinforcing steel conforming to the requirements of ASTM A615, Grade 60.

610-2.11 Materials for curing concrete. Curing materials shall conform to one of the following:

Waterproof paper	ASTM C171
Clear or white Polyethylene Sheeting	ASTM C171
White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B	ASTM C309

Materials for Curing

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard (280 kg per cubic meter). The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches (100 mm) as determined by ASTM C143.

In proportioning aggregates and mixing water, compensation shall be made for the weight of moisture in the aggregates, and shall be determined on a daily basis. The net mixing water shall be adjusted for the moisture contained in the aggregates, and for the moisture which they will absorb, in order to determine the amount of water to be added at the mixer. The absorption of the coarse and fine aggregates shall be determined by ASTM C 127 and ASTM C 128.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F (4°C) without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F (10°C) nor more than 100°F (38°C). The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed. Embedded items shall be covered, or otherwise protected during placement of concrete, to prevent concrete from splashing onto the exposed portions. Contractor shall clean the exposed surfaces of embedded items of concrete prior to drying or hardening.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet (1.5 m). Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation. The maximum interval between successive truckloads of concrete discharged onto previously place fresh concrete shall not exceed 30 minutes at any one location.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance. Curing compound, if used, shall not cause discoloration of the concrete and shall be applied in accordance with manufacturer's directions. Curing compounds shall not be used on any surface against which additional concrete or other cementitious finishing materials are to be bonded, or on any surface which a waterproofing membrane is to be applied.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F (4°C), follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85°F (30 °C), follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

610-6.1.Concrete shall be considered incidental and no separate payment shall be made.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184

Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
on Concrete Institute (A	CI

American Concrete Institute (ACI)

ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

Item P-620 Pavement Marking

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of stripes on the surface of roadways, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms "paint" and "marking material" as well as "painting" and "application of markings" are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer's certified test reports for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer's surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 Marking materials.

a. Paint. Paint shall be waterborne, Type I, II or III in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Paint Color	Fed Std. No 595 Color Number	
White	37925	
Yellow	33538 or 33655	
Black	37038	

Waterborne or solvent base black paint should be used to outline a border at least 6 inches (150 mm) wide around markings on all light-colored pavements.

Paint ²		Glass Beads ³		
Туре	Application Rate Maximum	Type I, Gradation A Minimum	Type III Minimum	Type IV Minimum
Waterborne Type I or II	115 ft ² /gal (2.8 m ² /l)	7 lb/gal (0.85 kg/l)	10 lb/gal (1.2 kg/l)	
Waterborne Type III	90 ft²/gal (2.2 m²/l)	7 lb/gal (0.85 kg/l)	8 lb/gal (1.0 kg/l)	
Waterborne Type III	55 ft²/gal (1.4 m²/l)		6 lb/gal (.8 kg/l)	5 lb/gal (.7 kg/l)
Temporary Marking Waterborne Type I or II	230 ft²/gal (5.6 m²/l)	No beads	No beads	No beads

Application Rates for Paint and Glass Beads for Table 1

² See paint type(s) specified below.

³ See paragraph 620-2.2b.

Waterborne paint. Waterborne paint shall meet the requirements of Federal Specification TT-P-1952F, Type I, Type II, or Type III. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis. The acrylic resin used for Type III shall be 100% cross linking acrylic as evidenced by infrared peaks at wavelengths 1568, 1624, and 1672 cm-l with intensities equal to those produced by an acrylic resin known to be 100% cross linking.

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A, Type III, or Type IV, Gradation A.

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black paint.

CONSTRUCTION METHODS

620-3.1 Weather limitations. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

620-3.2 Equipment. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings
of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 Preparation of surfaces. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

a. Preparation of new pavement surfaces. The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

b. Preparation of pavement to remove existing markings. Existing pavement markings shall be removed by water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. Rotary grinding shall not be used on concrete pavement. The removal area may need to be larger than the area of the markings to eliminate ghost markings. Markings which are shown to be removed shall be blocked out into rectangular shapes. Markings within the rectangular shapes shall be removed such that 90% of all paint is removed to the satisfaction of the RPR. Shotblasting shall not be used on grooved pavements. The remaining pavement area within the rectangular shape shall be treated with the same removal process such that the entire rectangular shape is uniform in appearance. After removal of markings on asphalt pavements, apply a surface treatment or seal coat to the 'block out' areas to eliminate 'ghost' markings. Black paint may be used to temporarily cover existing markings which will be restored upon completion of construction only when approved by the RPR. Prior to repainting the original markings, the Contractor shall remove the black paint and the original markings as described above. The removal area may be limited to the existing markings only if there is no impact to the adjacent pavement surface. If the removal impacts the adjacent surface, the Contractor shall perform the removal process in the rectangular shapes prescribed above. Otherwise, black paint shall not be used to cover markings.

c. Preparation of pavement markings prior to remarking. Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

d. Preparation of temporary markings prior to marking permanent markings. Prior to applying permanent markings over temporary markings, loose temporary markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

The Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the permanent markings to the existing temporary markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

The cost of preparation of temporary markings prior to marking permanent markings will not be measured separately. The cost of preparation of temporary markings prior to application of permanent markings shall be included in the cost of Surface Preparation.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

620-3.5 Application. A period of 30 days shall elapse between placement of surface course or seal coat and application of the permanent paint markings. Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the RPR.

The edges of the markings shall not vary from a straight line more than 1/2 inch (12 mm) in 50 feet (15 m), and marking dimensions and spacing shall be within the following tolerances:

Dimension and Spacing	Tolerance
36 inch (910 mm) or less	$\pm 1/2$ inch (12 mm)
greater than 36 inch to 6 feet (910 mm to 1.85 m)	±1 inch (25 mm)
greater than 6 feet to 60 feet (1.85 m to 18.3 m)	±2 inch (50 mm)
greater than 60 feet (18.3 m)	±3 inch (76 mm)

Marking Dimensions and Spacing Tolerance

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

620-3.6 Application--preformed thermoplastic airport pavement markings.

Preformed thermoplastic pavement markings not used.

620-3.7 Control strip. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 Retro-reflectance. Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction. The average shall be equal to or above the minimum levels of all readings which are within 30% of each other. Testing for retro-reflectance shall be performed at least twice per day.

Material	Retro-reflectance mcd/m ² /lux		
	White	Yellow	Red
Initial Type I	300	175	35
Initial Type III	600	300	35
All materials, remark when less than ¹	100	75	10

Minimum Retro-Reflectance Values

¹ 'Prior to remarking determine if removal of contaminants on markings will restore retroreflectance

620-3.9 Protection and cleanup. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

METHOD OF MEASUREMENT

620-4.1 The quantity of markings shall be measured by the number of square feet of painting. Markings shall include the cost of reflective media.

620-4.2 The quantity of interim markings shall be measured by the number of square feet of painting.

BASIS OF PAYMENT

620-5.1 This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications.

Payment will be made under:

Item P-620-1	Pavement Markings - per square foot
Item P-620-2	Interim Pavement Markings - per square foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive

ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E303	Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR Part 60, Appendix A-7, Method 24

Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings

29 CFR Part 1910.1200 Hazard Communication

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
FED SPEC TT-P-1952F	Paint, Traffic and Airfield Marking, Waterborne
FED STD 595	Colors used in Government Procurement

Commercial Item Description

A-A-2886B

Paint, Traffic, Solvent Based

END OF ITEM P-620

Item P-670 Automated Machine Guidance

DESCRIPTION

670-1.1 The Contractor may elect to utilize automated machine guidance (AMG) to determine threedimensional locations for earth work activities and material placement. AMG is the process of automatically adjusting the motion of a machine with an onboard computer that obtains its position from global positioning systems, robotic total stations, lasers, or combinations of these methods while referencing the Contractor's model developed for the project. This procedure can be used in operations such as earth excavation, material placement, grading, trimming, and/or paving.

CONSTRUCTION METHODS

670-2.1 Work Plan. Provide a work plan to the RPR stating whether or not AMG will be used on the project at the preconstruction meeting or prior. Each Contractor using AMG will provide a work plan to indicate the items of work covered within the specifications, type of AMG procedure, anticipated accuracy of each operation, and any areas where AMG operations need to be supplemented with conventional staking. The work plan must identify the Contractor's past experience with AMG operations, description of AMG equipment, equipment calibration procedures, equipment calibration frequency, and a description of the control necessary to support the proposed AMG operation(s). The work plan must designate a primary AMG contact. The RPR reserves the right to request additional information or clarification prior to review of the work plan.

670-2.2 Survey meeting. A meeting with the Contractor and other involved parties (FAA, State DOT, Owner, RPR, AMG contact, Contractor's model creator, surveyors, inspectors, etc.) shall be held prior to field operations. The purpose of the meeting is to discuss the implementation of the work plan and exchange of electronic data between both parties. The Contractor must explain the operations and procedures for the AMG technology, discuss the development of the Contractor's model, and present their survey control plan. The meeting attendees would also discuss the workflow for field verification, steps to be taken to resolve concerns with the Contractor's model, and compliance of AMG operations with the contract.

670-2.3 Contractor's model. Contractor shall employ a third party to verify model is accurate. Transmit, to the RPR a certification statement which states in part the following: "The Contractor's model(s) developed for the project is an accurate representation of the contract, submittal of this certification is in accordance with the Contractor's obligations and requirements within the Contractor Staking Quality Control Plan, AMG Work Plan and applicable statutory requirements for construction layout."

- A. Contract and Reference Information Documents (RID). The model must be created based upon the contract. RID reference documents for the project may be used for creation of the model at the Contractor's discretion, provided use is consistent with the terms and conditions of the Owner disclaimer and the use does not form the basis for a claim. Bring any conflicts identified between the contract and RID documents to the attention of the RPR as soon as possible. If the Contractor determines a need for additional data or requires electronic formatting of files different than provided, it is the responsibility of the Contractor to prepare such files prior to commencement of the AMG operation without additional costs to the Owner.
- **B.** Liability and verification. The contract plans will govern construction activities. The RPR will not approve the Contractor's model(s). The Contractor accepts all liability associated with the creation and use of the Contractor's model. Field verify existing project features to determine the suitability of any provided contract information. Features to be verified include, but are not limited to, ties at project limits, existing pavement grades and limits, existing turf grades, control points, benchmarks, section corners, monuments, and other critical locations.

670-2.4 Control. The Contractor shall verify horizontal and vertical control points shown on the plans prior to the commencement of any AMG operations. The tolerance for horizontal control points shall be within 0.04 foot (northing and/or easting) of established location. The tolerance for vertical control points shall be within 0.02 foot of established elevation. Notify the RPR if any control points exceed the established tolerances.

If the Contractor's AMG operation requires a greater density of control than that provided from the RPR, the Contractor is responsible for densification of the AMG control. The additional AMG control will be established with sufficient frequency and precision to adequately support the AMG operation being performed. Ensure the control points are stable and properly marked to allow verification activities to be performed by the RPR. Submit initial AMG control information (Point, Northing, Easting, Elevation, and Description) to the RPR at least 2 calendar days prior to AMG operations. Ensure any subsequent AMG control information is provided in the same format and time consideration.

670-2.5 Contractor responsibility. The Contractor's AMG operation can only eliminate required staking if the Contractor's AMG operation meets the requirements and tolerances defined in these contract documents. The Contractor is responsible for all quality control necessary for their AMG operations to meet the prescribed tolerances for each associated specification. If prescribed tolerances are not met, the Contractor will either proceed with regular operations without the use of AMG or suspend operations to evaluate and address the AMG operations deficiencies. Once the cause of the inaccuracies is determined, the Contractor must provide the RPR with a written corrective action plan addressing the concerns for the RPR's approval. The Contractor may only resume AMG operations with the approval of the RPR. If subsequent failures to meet specifications and accuracies are experienced, the Contractor will be suspended from AMG operations and conventional staking operations must be provided at no cost to the Owner.

Notify the RPR at least 24 hours prior to commencement of AMG operations.

670-2.6 Quality Assurance. The RPR will perform continuous and independent quality assurance for AMG operations to ensure compliance of the finished surfaces with corresponding specifications for the material being placed or removed. The RPR will use equipment and methods that adequately support the precision level of the verification. The RPR is prohibited from using the Contractor's equipment in the quality assurance verification process. Acceptance of the results of AMG operations will be based upon quality assurance results falling within prescribed tolerances for each associated pay item. If the RPR determines that the prescribed tolerances are not being met, the Contractor must suspend AMG operations and follow direction specified for corrective action in subsection 670-2.5.

METHOD OF MEASUREMENT

670-3.1 No separate measurement for payment shall be made for automated machine guidance. Automated machine guidance shall be considered necessary and incidental to the work of this Contract.

BASIS OF PAYMENT

670-4.1 No payment will be made separately or directly for automated machine guidance. Automated machine guidance shall be considered necessary and incidental to the work of this Contract and the costs shall be included in the various pay items involved.

END OF ITEM P-670

Item D-701 Pipe for Storm Drains and Culverts

DESCRIPTION

701-1.1 This item shall consist of the construction of pipe culverts and storm drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans.

MATERIALS

701-2.1 Materials shall meet the requirements shown on the plans and specified below. Underground piping and components used in drainage systems for terminal and aircraft fueling ramp drainage shall be noncombustible and inert to fuel in accordance with National Fire Protection Association (NFPA) 415.

701-2.2 Pipe. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements:

AASHTO M252	Standard Specification for Corrugated Polyethylene Drainage Pipe
AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500- mm (12, to 60 in) Diameter
	mm (12- to 00-m.) Diameter

701-2.3 Concrete. Not Used.

701-2.4 Rubber gaskets. Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443. Rubber gaskets for PVC pipe, polyethylene, and polypropylene pipe shall conform to the requirements of ASTM F477. Rubber gaskets for zinc-coated steel pipe and precoated galvanized pipe shall conform to the requirements of ASTM D1056, for the "RE" closed cell grades. Rubber gaskets for steel reinforced thermoplastic ribbed pipe shall conform to the requirements of ASTM F477.

701-2.5 Joint mortar. Pipe joint mortar shall consist of one part Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

701-2.6 Joint fillers. Not used.

701-2.7 Plastic gaskets. Plastic gaskets shall conform to the requirements of ASTM C990.

701-2.8. Controlled low-strength material (CLSM). Not used.

701-2.9 Precast box culverts. Not used.

701-2.10 Precast concrete pipe. Not used.

701-2.11 Bedding/special backfill. Bedding or special backfill shall conform to the requirements of Item D-711 - Lining, unless otherwise shown on the plans

701-2.12 Separation Geotextile. Separation geotextile shall be Class 2; 0.02 sec⁻¹ permittivity per ASTM D4491; Apparent opening size per ASTM D4751 with 0.60 mm maximum average roll value. The cost of separation fabric used for the placement of structures shall be included in the cost of the concrete structures.

CONSTRUCTION METHODS

701-3.1 Excavation. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus 12 inches (300 mm) on each side. The trench walls shall be approximately vertical.

The Contractor shall comply with all current federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inch (200 mm) or 1/2 inch (12 mm) for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The excavation below grade should be filled with granular material to form a uniform foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The RPR shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

The excavation for pipes placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans.

All required excavation shall be included in the unit price bid per lineal foot for the pipe, including rock excavation, if encountered.

The Contractor shall do such trench bracing, sheeting or shoring necessary to perform and protect the excavation as required for safety and conformance to governing laws. The bracing, sheeting or shoring shall not be removed in one operation, but shall be done in successive stages as determined by the RPR to prevent overloading of the pipe during backfilling operations. The cost of the bracing, sheeting or shoring and the removal of same shall be considered as a subsidiary obligation of the Contractor and included in the contract price for the pay items of work involved.

The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring and the removal of the same shall be included in the unit price bid for the structure.

All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor. Removal shall not disturb or damage finished masonry. The bracing, sheeting or shoring shall not be removed in one operation, but shall be done in successive stages as determined by the RPR to prevent overloading of the pipe and structures during backfilling operations. That portion of the sheeting extending below the top of the pipe shall be withdrawn, unless otherwise directed, before more than six inches of backfill material is placed and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose, or otherwise as may be approved. The RPR may order the Contractor to delay the removal of sheeting and bracing, if, in his judgement, the installed work has not attained the necessary strength to permit placing of backfill. The cost of removal shall be included in the unit price bid for the structure.

701-3.2 Bedding. The bedding surface for the pipe shall provide a foundation of uniform density to support the pipe throughout its entire length.

a. Rigid pipe. The pipe bedding shall be constructed uniformly for the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 in when the bedding thickness is less than 6 inches, and 1-1/2 in when the bedding thickness is greater than 6 inches. Bedding shall be loosely placed uncompacted material under the middle third of the pipe prior to placement of the pipe.

b. Flexible pipe. For flexible pipe, the bed shall be roughly shaped to fit the pipe, and a bedding blanket of sand or fine granular material shall be provided as follows:

Pipe Corrugation Depth		Minimum Bedding Depth	
inch	mm	inch	mm
1/2	12	1	25
1	25	2	50
2	50	3	75
2-1/2	60	3-1/2	90

Flexible Pipe Bedding

c. Other pipe materials. For PVC, polyethylene, polypropylene, or fiberglass pipe, the bedding material shall consist of coarse sands and gravels with a maximum particle size of 3/4 inches (19 mm). For pipes installed under paved areas, no more than 12% of the material shall pass the No. 200 (0.075 mm) sieve. For all other areas, no more than 50% of the material shall pass the No. 200 (0.075 mm) sieve. The bedding shall have a thickness of at least 6 inches (150 mm) below the bottom of the pipe and extend up around the pipe for a depth of not less than 50% of the pipe's vertical outside diameter.

701-3.3 Laying pipe. The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segment of the pipe shall be in contact with the bedding throughout its full length. Bell or groove ends of rigid pipes and outside circumferential laps of flexible pipes shall be placed facing upgrade.

The Contractor's facilities for lowering the pipe into the trench shall be such that neither the pipe nor the trench will be damaged or disturbed. The RPR shall inspect all pipe before it is laid and reject any section that is damaged by handling or is defective to a degree which will materially affect the function and service of the pipe.

The grade and alignment of each pipe shall be determined and maintained by the use of an approved laser system or approved batter boards (over the trench or parallel lines).

The laser system shall be operated according to the manufacturer's recommendations and safety standards. The line and grade of the laser shall be checked at not more than 50-feet away from the starting point and then periodically throughout the course of the working day. Any variation from the line and grade shall be immediately reported to the RPR.

When the line parallel to the grade of the sewer is used, this line is to be supported above the ground surface on batter boards spaced not to exceed 40-feet apart and rigidly anchored to and supported by substantial posts driven into the ground on each side of the trench. Not less than 3 batter boards shall be installed and maintained in proper position at all times as a check on the accuracy of the grade lines. The RPR shall be immediately notified of any misalignment of batter boards set in accordance with established cuts or elevations. The elevations of batter boards and the alignment of the grade line shall be determined from the elevations and alignment of the offset points located alongside the trench except where established directly by means of surveying instruments. The pipe shall be firmly and accurately set to line and grade so that the invert will be smooth and uniform. The pipe shall be protected from water during placement and until the mortar in the joints has thoroughly set. Contractor shall scoop out areas to accommodate bell ends of pipe. Pipe shall not be laid on frozen ground.

The upgrade end of pipelines not terminating in a structure shall be plugged or capped as approved by the RPR. Pipe which is not true in alignment or which shows any settlement after laying shall be taken up and relaid without extra compensation.

The Contractor shall provide, as may be necessary, for the temporary diversion of stream flow in order to permit the installation of the pipe under dry conditions.

Paved or partially lined pipe shall be placed so that the longitudinal center line of the paved segment coincides with the flow line.

Elliptical and elliptically reinforced concrete pipes shall be placed with the manufacturer's reference lines designating the top of the pipe within five degrees of a vertical plane through the longitudinal axis of the pipe.

701-3.4 Joining pipe. Joints shall be made with (1) cement mortar, (2) cement grout, (3) rubber gaskets, (4) plastic gaskets, (5) coupling bands.

Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

a. Concrete pipe. Concrete pipe may be either bell and spigot or tongue and groove. Pipe sections at joints shall be fully seated and the inner surfaces flush and even. Concrete pipe joints shall be sealed with rubber gaskets meeting ASTM C443 when leak resistant joints are required.

b. Metal pipe. Note Used.

c. PVC, Polyethylene, or Polypropylene pipe. Joints for PVC, Polyethylene, or Polypropylene pipe shall conform to the requirements of ASTM D3212 when leak resistant joints are required. Joints for PVC and Polyethylene pipe shall conform to the requirements of AASHTO M304 when soil tight joints are required. Fittings for polyethylene pipe shall conform to the requirements of AASHTO M252 or ASTM M294. Fittings for polypropylene pipe shall conform to ASTM F2881, ASTM F2736, or ASTM F2764.

d. Fiberglass pipe. Not Used.

701-3.5 Embedment and Overfill. Pipes shall be inspected before any fill material is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and re-laid or replaced at the Contractor's expense.

701-3.5-1 Embedment Material Requirements

a. Concrete Pipe. Embedment material and compaction requirements shall be in accordance with the applicable Type of Standard Installation (Types 1, 2, 3, or 4) per ASTM C1479. If a concrete cradle or CLSM embedment material is used, it shall conform to the plan details.

b. Plastic and fiberglass Pipe. Embedment material shall meet the requirements of ASTM D3282, A-1, A-2-4, A-2-5, or A-3. Embedment material shall be free of organic material, stones larger than 1.5 inches in the greatest dimension, or frozen lumps. Embedment material shall extend to 12 inches above the top of the pipe.

c. Metal Pipe. Not Used.

701-3.5-2 Placement of Embedment Material

The embedment material shall be compacted in layers not exceeding 6 inches (150 mm) on each side of the pipe and shall be brought up one foot (30 cm) above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the embedment material shall be compacted in layers not exceeding 6 inches (150 mm) and shall be brought up evenly on each side of the pipe to one foot (30 cm) above the top of the pipe. All embedment material shall be compacted to a density required under Item P-152.

Concrete cradles and flowable fills, such as controlled low strength material (CLSM) or controlled density fill (CDF), may be used for embedment provided adequate flotation resistance can be achieved by restraints, weighing, or placement technique.

It shall be the Contractor's responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

701-3.6 Overfill

Pipes shall be inspected before any overfill is in place. Any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be place and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D698. The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

701-3.7 Inspection Requirements

An initial post installation inspection shall be performed by the RPR no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection.

Reinforced concrete pipe shall be inspected, evaluated, and reported on in accordance with ASTM C1840, "Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe." Any issues reported shall include still photo and video documentation. The zoom ratio shall be provided for all still or video images that document any issues of concern by the inspection firm.

Flexible pipes shall be inspected for rips, tears, joint separations, soil migration, cracks, localized buckling, settlement, alignment, and deflection. Determine whether the allowable deflection has been exceeded by use of a laser profiler for internal pipe diameters of 48 inches or less, or direct measurement for internal pipe diameters greater than 48 inches. Laser profile equipment shall utilize low barrel distortion video equipment. Deflection of installed pipe shall not exceed the limits provided in the table below, as a percentage of the average inside diameter of the pipe.

Maximum Allowable Pipe Deflection

Type of Pipe	Maximum Allowable Deflection (%)
Thermoplastic Pipe	5

If deflection readings in excess of the allowable deflection are obtained, remove the pipe with excessive deflection and replace with new pipe. Repair or replace any pipe with cracks exhibiting displacement across the crack, bulges, creases, tears, spalls, or delamination. The report for flexible pipe shall include as a

minimum, the deflection results and final post installation inspection report. The inspection report shall include: a copy of all video taken, pipe location identification, equipment used for inspection, inspector name, deviation from design line and grade, and inspector's notes.

701-3.8 Connections. Where the Contract Drawings call for connections to existing or proposed structures, these connections shall be watertight and made so that a smooth uniform flow line will be obtained throughout the drainage system.

701-3.9 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. Suitable material may be deposited in embankment or shoulders areas. Unsuitable material shall be disposed of on airport property or as ordered by the RPR. Removed pipe shall be disposed of off airport property.

Areas disturbed by the Contractor's operation shall be restored to their original condition. Restoration of surfaces shall be performed in accordance with the details shown on the plans.

Where pipes are installed or removed outside of the general grading limits, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items for pipe installation or pipe removal.

Where pipes are installed or removed within the general grading limits, restoration of the area will not be necessary as payment for establishment of turf or pavement will be included in the various pay items of work involved.

The Contractor shall be responsible for maintaining all disturbed surfaces and restorations until final acceptance.

701-3.10 Removal of Pipe, Structures and other Buried Items. Remove the types of pipe as indicated on the plans. The pipe material shall be disposed of in accordance with paragraph 701-3.9. Trenches shall be backfilled with material equal to or better in quality than adjacent embankment, unless otherwise indicated on the plans. Trenches must be compacted in accordance with Item P-152, Excavation, Embankment and Subgrade.

METHOD OF MEASUREMENT

701-4.1 The length of pipe shall be measured in linear feet of pipe in place, completed, and accepted. It shall be measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. Each class, types and size of pipe shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

All trenching, excavation, pipe removals in the same trench, backfill, sheeting and bracing, restoration of surfaces, dewatering, structure modifications, connections, fittings and pressure tests shall be included in the footage as typical pipe sections in the pipe being measured.

BASIS OF PAYMENT

701-5.0 These prices shall fully compensate the Contractor for furnishing all materials and for all preparation, excavation, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item.

701-5.1 Payment will be made at the contract unit price per linear foot for each class, type and size of pipe.

Payment will be made under:

Item D-701-1 15-Inch Corrugated Polyethylene Pipe (HDPE), Type S - per linear foot

Item D-701-2	18-inch corrugated polyethylene pipe (HDPE), Type S - per linear foot
Item D-701-3	24-inch corrugated polyethylene pipe (HDPE), Type S - per linear foot
Item D-701-4	Removal of existing pipe, all types and sizes - per linear foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M252	Standard Specification for Corrugated Polyethylene Drainage Pipe
AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500- mm (12- to 60-in.) Diameter
AASHTO M306	Standard Specification for Drainage, Sewer, Utility, and Related Castings
ASTM International (ASTM)	
ASTM A36	Standard Specification for Structural Steel
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM C94	Standard Specification for Ready Mixed Concrete
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM D3282	Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

END ITEM D-701

Item D-705 Pipe Underdrains

DESCRIPTION

705-1.1 This item shall consist of the construction of pipe drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans. Weeps shall be constructed at locations determined by the RPR during construction.

The work of this item shall include excavation, backfill, special porous backfill, filter fabric, restoration of surfaces, the cost of furnishing and installing all trench bracing, removal of water, all pipe, fittings and rodent screens required to complete the underdrain as shown on the plans, and the material for the making of all joints including all connections to existing drainage pipes and structures.

MATERIALS

705-2.1 General. Materials shall meet the requirements shown on the plans and specified below.

705-2.2 Pipe. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements.

AASHTO M252 Standard Specification for Corrugated Polyethylene Drainage Pipe

705-2.3 Joint mortar. Not used.

705-2.4 Elastomeric seals. Elastomeric seals shall conform to the requirements of ASTM F477.

705-2.5 Porous backfill. Porous backfill shall be free of clay, humus, or other objectionable matter, and shall conform to the gradation in Table 1 when tested in accordance with ASTM C136.

Sieve Designation	Percentage by Weight Passing Sieves	
(square openings)	Porous Material No. 1	Porous Material No. 2
1-1/2 inch (37.5 mm)		100
1 inch (25.0 mm)		90 - 100
3/8 inch (9.5 mm)	100	25 - 60
No. 4 (4.75 mm)	95 - 100	5 - 40
No. 8 (2.36 mm)		0 - 20
No. 16 (1.18 mm)	45 - 80	
No. 50 (300 μm)	10 - 30	
No. 100 (150 μm)	0-10	

 Table 1. Gradation of Porous Backfill

When two courses of porous backfill are specified in the plans, the finer of the materials shall conform to particle size tabulated herein for porous material No. 1. The coarser granular material shall meet the gradation given in the tabulation for porous material No. 2.

705-2.6 Granular material. Granular material used for backfilling shall conform to the requirements of ASTM D2321 for Class IA, IB, or II materials.

705-2.7 Filter fabric. The filter fabric shall conform to the requirements of AASHTO M288 Class 2 or equivalent.

Fabric Property	Test Method	Test Requirement
Grab Tensile Strength, lbs	ASTM D4632	125 min
Grab Tensile Elongation %	ASTM D4632	50 min
Burst Strength, psi	ASTM D3785	125 min
Trapezoid Tear Strength, lbs	ASTM D4533	55 min
Puncture Strength, lbs	ASTM D4833	40 min
Abrasion, lbs	ASTM D4886	15 max loss
Equivalent Opening Size	ASTM D4751	0.25 mm (No. 60)
Permittivity sec ⁻¹	ASTM D4491	0.20 sec-1 (Min.)
Accelerated Weathering (UV Stability) (Strength Retained - %)	ASTM D4355 *(500 hrs exposure)	70

Table 2. Fabric Properties

705-2.8 Controlled low-strength material (CLSM). CLSM is not used.

705-2.9 Cleanouts. Not used.

705-2.10 Rodent screen. Rodent screens shall be in accordance with the details shown on the Contract Drawings. The Contractor shall furnish screens of #2 or #3 welded wire mesh, 16 gauge or heavier, made of Type 304 stainless steel wire or hot dipped galvanized carbon steel wire.

705-2.11 Concrete. Concrete shall conform to the requirements of Item P-610, Structural Portland Cement Concrete.

705-2.12 Concrete underdrain outlet headwall. Note Used.

705-2.13 Reinforcing steel. Reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A 615, Grade 60. Reinforcing steel shall be hot dipped galvanized in accordance with ASTM A-123, or epoxy coated.

CONSTRUCTION METHODS

705-3.1 Equipment. All equipment required for the construction of pipe underdrains shall be on the project, in good working condition, and approved by the RPR before construction is permitted to start.

705-3.2 Excavation. Underdrains shall be installed after excavation to subgrade. Porous backfill around the underdrains shall be placed in lifts prior to placing the adjacent subbase and base materials. The Contractor is responsible for removal of water regardless of its source. Measures shall be taken to protect the excavation from surface water runoff as well as for dewatering the excavation from any water which has entered the excavation. The cost of the removal of water shall be considered as a subsidiary obligation of the Contractor and included in the contract price for the pay items of work involved.

The Contractor shall do all necessary excavation to the depth shown on the Contract Drawings. The excavation shall be unclassified and shall be performed regardless of the material encountered. The cost of all excavation shall be included under the unit price bid per foot for the pipe.

The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but shall not be less than the external diameter of the pipe plus 6 inches (150 mm) on each side of the pipe. The trench walls shall be approximately vertical.

Where rock, hardpan, or other unyielding material is encountered, it shall be removed below the foundation grade for a depth of at least 4 inches (100 mm). The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 6 inches (150 mm) in uncompacted depth to form a uniform but yielding foundation. The cost of furnishing and placing this material shall be included in the bid price per linear foot of pipe.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The RPR shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

Excavated material not required or acceptable for backfill shall be disposed of by the Contractor as directed by the RPR. The excavation shall not be carried below the required depth; if this occurs, the trench shall be backfilled at the Contractor's expense with material approved by the RPR and compacted to the density of the surrounding material.

The pipe bedding shall be constructed uniformly over the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 inch when the bedding thickness is less than 6 inches, and 1-1/2 inch when the bedding thickness is greater than 6 inches. Bedding shall be loosely placed, uncompacted material under the middle third of the pipe prior to placement of the pipe.

The Contractor shall do trench bracing, sheathing, or shoring necessary to perform and protect the excavation as required for safety and conformance to federal, state and local laws. Unless otherwise provided, the bracing, sheathing, or shoring shall be removed by the Contractor after the backfill has reached at least 12 inches (300 mm) over the top of the pipe. The sheathing or shoring shall be pulled as the granular backfill is placed and compacted to avoid any unfilled spaces between the trench wall and the backfill material. The cost of bracing, sheathing, or shoring, and the removal of same, shall be included in the unit price bid per foot (meter) for the pipe.

705-3.3 Laying and installing pipe.

- a. Concrete pipe. Not used.
- b. Metal pipe. Not used.

c. PVC, fiberglass, or polyethylene pipe. PVC or polyethylene pipe shall be installed in accordance with the requirements of ASTM D2321. Perforations shall meet the requirements of AASHTO M252 or AASHTO M294 Class 2, unless otherwise indicated on the plans. The pipe shall be laid accurately to line and grade. Fiberglass per ASTM D3839 Standard Guide for Underground Installation of "Fiberglass" (Glass-Fiber Reinforced Thermosetting-Resin) Pipe.

d. All types of pipe. The upgrade end of pipelines, not terminating in a structure, shall be plugged or capped as approved by the RPR.

Unless otherwise shown on the plans, a 4-inch (100 mm) bed of granular backfill material shall be spread in the bottom of the trench throughout the entire length under all perforated pipe underdrains.

Pipe outlets for the underdrains shall be constructed when required or shown on the plans. The pipe shall be laid with tight-fitting joints. Porous backfill is not required around or over pipe outlets for underdrains. All connections to other drainage pipes or structures shall be made as required and in a

satisfactory manner. If connections are not made to other pipes or structures, the outlets shall be protected and constructed as shown on the plans.

e. Filter fabric. The filter fabric shall be installed in accordance with the manufacturer's recommendations, or in accordance with the AASHTO M288 Appendix, unless otherwise shown on the plans.

705-3.4 Mortar. The mortar shall be of the desired consistency for caulking and filling the joints of the pipe and for making connections to other pipes or to structures. Mortar that is not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted.

705-3.5 Joints in concrete pipe. Not used.

705-3.6 Embedment and Backfill

a. Earth. All trenches and excavations shall be backfilled soon after the pipes are installed, unless additional protection of the pipe is directed. The embedment material shall be select material from excavation or borrow and shall be approved by the RPR. The select material shall be placed on each side of the pipe out to a distance of the nominal pipe diameter and one foot (30 cm) over the top of the pipe and shall be readily compacted. It shall not contain stones 3 inches (75 mm) or larger in size, frozen lumps, chunks of highly plastic clay, or any other material that is objectionable to the RPR. The material shall be moistened or dried, as required to aid compaction. Placement of the embedment material shall not cause displacement of the pipe. Thorough compaction under the haunches and along the sides to the top of the pipe shall be obtained.

The embedment material shall be placed in loose layers not exceeding 6 inches (150 mm) in depth under and around the pipe. Backfill material over the pipe shall be placed in lifts not exceeding 8 inches (200 mm). Successive layers shall be added and thoroughly compacted by hand and pneumatic tampers, approved by the RPR, until the trench is completely filled and brought to the planned elevation. Embedment and backfilling shall be done to avoid damaging top or side of the pipe.

In embankments and other unpaved areas, the backfill shall be compacted per Item P-152 to the density required for embankments in unpaved areas. Under paved areas, the subgrade and any backfill shall be compacted per Item P-152 to the density required for embankments for paved areas.

b. Granular backfill. When granular backfill is required, placement in the trench and about the pipe shall be as shown on the plans. The granular backfill shall not contain an excessive amount of foreign matter, nor shall soil from the sides of the trench or from the soil excavated from the trench be allowed to filter into the granular backfill. When required by the RPR, a template shall be used to properly place and separate the two sizes of backfill. The backfill shall be placed in loose layers not exceeding 6 inches (150 mm) in depth. The granular backfill shall be compacted by hand and pneumatic tampers to the requirements as given for embankment. Backfilling shall be done to avoid damaging top or side pressure on the pipe. The granular backfill shall extend to the elevation of the trench or as shown on the plans.

When perforated pipe is specified, granular backfill material shall be placed along the full length of the pipe. The position of the granular material shall be as shown on the plans. If the original material excavated from the trench is pervious and suitable, it shall be used in lieu of porous backfill No. 1.

If porous backfill is placed in paved or adjacent to paved areas before grading or subgrade operations is completed, the backfill material shall be placed immediately after laying the pipe. The depth of the granular backfill shall be not less than 12 inches (300 mm), measured from the top of the underdrain. During subsequent construction operations, a minimum depth of 12 inches (300 mm) of backfill shall be maintained over the underdrains. When the underdrains are to be completed, any unsuitable material shall be removed exposing the porous backfill. Porous backfill containing objectionable material shall be removed and replaced with suitable material. The cost of removing and replacing any unsuitable material shall be at the Contractor's expense.

If a granular subbase blanket course is used which extends several feet beyond the edge of paving to the outside edge of the underdrain trench, the granular backfill material over the underdrains shall be placed in the trench up to an elevation of 2 inches (50 mm) above the bottom surface of the granular subbase blanket course. Immediately prior to the placing of the granular subbase blanket course, the Contractor shall blade this excess trench backfill from the top of the trench onto the adjacent subgrade where it can be incorporated into the granular subbase blanket course. Any unsuitable material that remains over the underdrain trench shall be removed and replaced. The subbase material shall be placed to provide clean contact between the subbase material and the underdrain granular backfill material for the full width of the underdrain trench.

c. Controlled low-strength material (CLSM). CLSM is not used.

705-3.7 Flexible Pipe Ring Deflection. The flexible pipe shall be inspected by the Contractor during and after installation to ensure that the internal diameter of the pipe barrel has not been reduced by more than 5 percent. For guidance on properly sizing mandrels, refer to ASTM D3034 and ASTM F679 appendices.

705-3.8 Connections. When the plans call for connections to existing or proposed pipe or structures, these connections shall be watertight and made to obtain a smooth uniform flow line throughout the drainage system.

705-3.9 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, soil, and rubbish from the site. Surplus soil may be deposited in embankments, shoulders, or as directed by the RPR. Except for paved areas of the airport, the Contractor shall restore all disturbed areas to their original condition. Unsuitable material shall be disposed of on airport property, or as ordered by the RPR.

Areas disturbed by the Contractor's operation shall be restored to their original condition. Restoration of surfaces shall be performed in accordance with the details of the Contract Drawings.

Where pipes are installed or removed outside of the general grading limits, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items for pipe installation or pipe removal.

Where pipes are installed or removed within the general limits of excavation and embankment, restoration of the area will not be necessary as payment for turf or pavement will be included in the various pay items of work involved.

The Contractor shall be responsible for maintaining all disturbed surfaces and restorations until final acceptance.

METHOD OF MEASUREMENT

705-4.1. The quantity of pipe underdrains shall be made at the contract unit price per linear foot completed, and approved; measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable, including porous backfill and filter fabric. The several classes, types, and sizes shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipeline being measured.

BASIS OF PAYMENT

705-5.1 Pipe underdrains, Complete. Payment for pipe underdrains shall be made at the contract unit price per linear foot complete (including porous backfill and filter fabric).

Payment will be made under:

Item D-705-1 4-inch Perforated Corrugated PE Drainage Pipe Underdrain, Type CP - per linear foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM D2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F758	Standard Specification for Smooth Wall Poly (Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport, and Similar Drainage
ASTM F794	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter
ASTM F949	Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M252	Standard Specification for Corrugated Polyethylene Drainage Pipe
AASHTO M288	Standard Specification for Geotextile Specification for Highway Applications
AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500- mm (12- to 60-in.) Diameter
AASHTO M304	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter
AASHTO	Standard Specifications for Highway Bridges

END OF ITEM D-705

Item D 711 Lining

DESCRIPTION

711-1.1 This item shall consist of a graded aggregate material to be used as a foundation under structures and for special backfill around structures, pipes and duct banks. Lining shall be placed in accordance with these Specifications and shall conform to the dimensions shown on the Contract Drawings and as established by the RPR.

MATERIALS

711-2.1 Lining material shall consist of clean, sound, durable particles of crushed ledgerock meeting the requirements of New York State Department of Transportation Standard Specifications, latest issue plus all revisions and addenda pertaining thereto, Section 304-2 Type 2 subbase course. P-219 Crushed Aggregate Base Course sourced from on site can be used as Lining.

CONSTRUCTION METHODS

711-3.1 Placing. Lining shall be placed in layers of uniform thickness. The maximum depth of a compacted layer shall be 6 inches unless otherwise directed by the RPR. In multi-layer construction, lining shall be placed in approximately equal-depth layers. The previously constructed layer should be cleaned of loose and foreign material prior to placing the next layer. The surface of the compacted material shall be kept moist until covered with the next layer.

711-3.2 Compaction. Immediately upon completion of the spreading operations, lining shall be thoroughly compacted to a density of 95% in accordance with ASTM D698, unless otherwise specified. The moisture content of the material during placing operations shall not be below nor more than 2 percentage points above the optimum moisture. The number, type, and weight of rollers shall be sufficient to compact the material to the required density.

METHOD OF MEASUREMENT

711-4.1 No measurement will be made for direct payment of lining as the cost of furnishing and installing shall be considered as a subsidiary obligation in the completion of the work.

BASIS OF PAYMENT

711-5.1 No payment will be made separately or directly for this item on any part of the work unless otherwise listed in the various pay items. All lining shall be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the Contract price for the pay items of work involved.

END OF ITEM D-711

Item D-751 Manholes, Catch Basins, Inlets and Inspection Holes

DESCRIPTION

751-1.1 This item shall consist of construction of manholes, catch basins, inlets, and inspection holes, in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

This item shall also include all associated excavation, backfilling with on-site materials, modification of existing manholes or catch basins, sheeting and bracing, concrete, reinforcing steel, steps, frames and covers, appurtenances, dewatering and restoration of surfaces to the satisfaction of the RPR.

This item shall also include removal of existing drainage structures and backfill in accordance with item P-152.

MATERIALS

751-2.1 Brick. The brick shall conform to the requirements of ASTM C32, Grade MS.

751-2.2 Mortar. Mortar shall consist of one part Portland cement and two parts sand. The cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

751-2.3 Concrete. Plain and reinforced concrete used in structures, connections of pipes with structures, and the support of structures or frames shall conform to the requirements of Item P-610.

751-2.4 Precast concrete pipe manhole rings. Precast concrete pipe manhole rings shall conform to the requirements of ASTM C478. Unless otherwise specified, the risers and offset cone sections shall have an inside diameter of not less than 36 inches (90 cm) nor more than 48 inches (120 cm). There shall be a gasket between individual sections and sections cemented together with mortar on the inside of the manhole. Gaskets shall conform to the requirements of ASTM C443.

751-2.5 Corrugated metal. Not used.

751-2.6 Frames, covers, and grates. The castings shall conform to one of the following requirements:

a. ASTM A48, Class 35B: Gray iron castings

b. ASTM A47: Malleable iron castings

c. ASTM A27: Steel castings

d. ASTM A283, Grade D: Structural steel for grates and frames

e. ASTM A536, Grade 65-45-12: Ductile iron castings

f. ASTM A897: Austempered ductile iron castings

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings, aircraft gear configuration and/or direct loading, specified.

Each frame and cover or grate unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

751-2.7 Steps. The steps or ladder bars shall be gray or malleable cast iron or galvanized steel. The steps shall be the size, length, and shape shown on the plans and those steps that are not galvanized shall be given a coat of asphalt paint, when directed.

751-2.8 Precast concrete structures. Provide precast concrete structures where shown on the plans. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program, or another engineer approved third party certification program and shall be manufactured in accordance with and conforming to ASTM C913 and ASTM C478. Precast structures shall have bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand AASHTO HS-25 (min.) loads, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans. Precast structures with multiple sections shall have bitumastic sealer placed between all joints to make them watertight.

Any precast structure submitted is considered a delegated design and shall be accompanied by the design calculations showing that structure is designed to withstand vehicle loads based on AASHTO HS-25 loading. Design calculations shall be performed by a professional engineer licensed in the state in which the project is located and shall be submitted with the shop drawing.

CONSTRUCTION METHODS

751-3.1 Unclassified excavation.

a. The Contractor shall excavate for structures and footings to the lines and grades or elevations, shown on the plans, or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximately only; and the RPR may direct, in writing, changes in dimensions or elevations of footings necessary for a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. Where concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for the structure.

d. All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall not disturb, or damage finished masonry. The bracing, sheeting or shoring shall not be removed in one operation but shall be done in successive stages as determined by the RPR to prevent overloading of the structure during backfilling operations. That portion of the sheeting extending below the top of the structure bed shall be withdrawn, unless otherwise directed, before more than six inches of backfill material is placed and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose, or otherwise as may be approved. The RPR may order the Contractor to delay the removal of sheeting and bracing, if, in his judgement, the installed work has not attained the necessary strength to permit placing of backfill. The cost of removal shall be included in the unit price bid for the structure.

e. After excavation is completed for each structure, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

f. Where structures are to be connected to existing pipes, Contractor shall maintain flow in the sewer system. This work shall be accomplished by pumping around the structure, pumping aboveground from upstream structure to downstream structure, or by other methods acceptable to the RPR. Contractor shall make pipe connections using materials matching the existing pipes. Connections to existing pipes shall be watertight and made so that a smooth uniform flow line will be obtained throughout the drainage system.

g. The Contractor is responsible for removal of water regardless of its source. Measures shall be taken to protect the excavation from surface water runoff as well as for dewatering the excavation from any water which has entered the excavation. The cost for removal of water shall be considered a subsidiary obligation of the Contractor and included in the contract price for the pay items of work involved.

751-3.2 Brick structures.

a. Foundations. A prepared foundation shall be placed for all brick structures after the foundation excavation is completed and accepted. Unless otherwise specified, the base shall consist of reinforced concrete mixed, prepared, and placed in accordance with the requirements of Item P-610.

b. Laying brick. All brick shall be clean and thoroughly wet before laying so that they will not absorb any appreciable amount of additional water at the time they are laid. All brick shall be laid in freshly made mortar. Mortar not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted. An ample layer of mortar shall be spread on the beds and a shallow furrow shall be made in it that can be readily closed by the laying of the brick. All bed and head joints shall be filled solid with mortar. End joints of stretchers and side or cross joints of headers shall be fully buttered with mortar and a shoved joint made to squeeze out mortar at the top of the joint. Any bricks that may be loosened after the mortar has taken its set, shall be removed, cleaned, and re-laid with fresh mortar. No broken or chipped brick shall be used in the face, and no spalls or bats shall be used except where necessary to shape around irregular openings or edges; in which case, full bricks shall be placed at ends or corners where possible, and the bats shall be used in the interior of the course. In making closures, no piece of brick shorter than the width of a whole brick shall be used; and wherever practicable, whole brick shall be used and laid as headers.

c. Joints. All joints shall be filled with mortar at every course Exterior faces shall be laid up in advance of backing. Exterior faces shall be plastered or parged with a coat of mortar not less than 3/8 inch (9 mm) thick before the backing is laid up. Prior to parging, all joints on the back of face courses shall be cut flush. Unless otherwise noted, joints shall be not less than 1/4 inch (6 mm) nor more than 1/2 inch (12 mm) wide and the selected joint width shall be maintained uniform throughout the work.

d. Pointing. Face joints shall be neatly struck, using the weather-struck joint. All joints shall be finished properly as the laying of the brick progresses. When nails or line pins are used, the holes shall be immediately plugged with mortar and pointed when the nail or pin is removed.

e. Cleaning. Upon completion of the work all exterior surfaces shall be thoroughly cleaned by scrubbing and washing with water. If necessary to produce satisfactory results, cleaning shall be done with a 5% solution of muriatic acid which shall then be rinsed off with liberal quantities of water.

f. Curing and cold weather protection. The brick masonry shall be protected and kept moist for at least 48 hours after laying the brick. Brick masonry work or pointing shall not be done when there is frost on the brick or when the air temperature is below 50°F (10° C) unless the Contractor has, on the project ready to use, suitable covering and artificial heating devices necessary to keep the atmosphere surrounding the masonry at a temperature of not less than 60° F (16° C) for the duration of the curing period.

751-3.3 Note Used.

751-3.4 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program.

Precast concrete structures shall conform to ASTM C478. Precast concrete structures shall be constructed on prepared or previously placed slab foundations conforming to the dimensions and locations shown on the plans. All precast concrete sections necessary to build a completed structure shall be furnished. The different sections shall fit together readily. Joints between precast concrete risers and tops shall be full bedded in cement mortar and shall: (1) be smoothed to a uniform surface on both interior and exterior of the structure or (2) utilize a rubber gasket per ASTM C443. The top of the upper precast concrete section shall be made for any connections for lateral pipe, including drops and leads that may be installed in the structure. The flow lines shall be smooth, uniform, and cause minimum resistance to flow. The metal or metal encapsulated steps that are embedded or built into the side walls shall be aligned and placed in accordance with ASTM C478. When a metal ladder replaces the steps, it shall be securely fastened into position.

751-3.5 Corrugated metal structures. Not used.

751-3.6 Inlet and outlet pipes. Inlet and outlet pipes shall extend through the walls of the structures a sufficient distance beyond the outside surface to allow for connections. They shall be cut off flush with the wall on the inside surface of the structure, unless otherwise directed. For concrete or brick structures, mortar shall be placed around these pipes to form a tight, neat connection.

751-3.7 Placement and treatment of castings, frames, and fittings. All castings, frames, and fittings shall be placed in the positions indicated on the plans or as directed by the RPR and shall be set true to line and elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

When frames or fittings are placed on previously constructed masonry, the bearing surface of the masonry shall be brought true to line and grade and shall present an even bearing surface so the entire face or back of the unit will come in contact with the masonry. The unit shall be set in mortar beds and anchored to the masonry as indicated on the plans or as directed by the RPR. All units shall set firm and secure.

After the frames or fittings have been set in final position, the concrete or mortar shall be allowed to harden for seven (7) days before the grates or covers are placed and fastened down.

751-3.8 Installation of steps. The steps shall be installed as indicated on the plans or as directed by the RPR. When the steps are to be set in concrete, they shall be placed and secured in position before the concrete is placed. When the steps are installed in brick masonry, they shall be placed as the masonry is being built. The steps shall not be disturbed or used until the concrete or mortar has hardened for at least seven (7) days. After seven (7) days, the steps shall be cleaned and painted, unless they have been galvanized.

When steps are required with precast concrete structures, they shall meet the requirements of ASTM C478. The steps shall be cast into the side of the sections at the time the sections are manufactured or set in place after the structure is erected by drilling holes in the concrete and cementing the steps in place.

Instead of steps, prefabricated ladders may be installed. For brick or concrete structures, the ladder shall be held in place by grouting the supports in drilled holes. For metal structures, the ladder shall be secured by welding the top support to the structure and grouting the bottom support into drilled holes in the foundation or as directed by the RPR.

751-3.9 Backfilling.

a. After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches (200 mm) in loose depth and compacted to the density required in Item P-152. Each layer shall be deposited evenly around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

b. Backfill shall not be placed against any structure until approved by the RPR. For concrete structures, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill and placing methods.

c. Backfill shall not be measured for direct payment. Performance of this work shall be considered an obligation of the Contractor covered under the contract unit price for the structure involved.

751-3.10 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankments, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition. Where no other work or soil disturbance is required, restoration shall be considered incidental to the respective D-751 pay item.

Manholes and catch basins in areas of existing special surface treatment, such as aprons, taxiways, runways, shoulders, roads, sidewalks, or similar stabilized surfaces shall be restored using materials comparable to original materials, and at depths matching existing layers. Payment for restoration shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs associated with restoration in the various pay items involved.

Manholes and catch basins in proposed turf areas shall be restored in accordance with the topsoil, seeding and mulching specifications of this contract. Topsoil, seeding and mulching will be paid for at the contract unit price for the pay items involved. All other work associated with restoration shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include the costs associated with restoration in the various pay items involved.

Manholes and catch basins in areas of proposed pavement such as aprons, taxiways, runways, shoulders, roads, sidewalks, or other similar stabilized surfaces shall be restored using the materials specified or as shown on the plans. Payment for restoration up to the bottom of the proposed pavement section shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs associated with restoration in the various pay items involved.

After all work is completed, the Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

751-3.11 Inspection. Prior to final approval, each structure shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship or obstruction to flow in the structure or pipe system shall be further investigated and corrected. Defects shall be corrected by the Contractor as directed by the RPR, and without additional compensation.

751-3.12 Modification of existing structures. The Contractor shall modify structures at locations designated on the plans to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise the top of each structure to the new elevations. The existing top elevation of each structure to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation. Extensions provided for structure modification shall meet the strength requirements of Section 2.7 above. Modification of existing structures shall be performed in accordance with details shown on the plans.

751-3.13 Removal of Structures and other Buried Items.

a. Removal of Inlets/Manholes.

Where indicated on the plans or as directed by the RPR, inlets and/or manholes shall be removed and disposed of in accordance with paragraph 751-3.10 and 101-3.11. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment, unless otherwise noted on the plans. Backfill must be compacted in accordance with Item P-152, Excavation, Embankment and Subgrade.

METHOD OF MEASUREMENT

751-4.1 Manholes, catch basins, inlets, inspection holes, drywells, and modification of structures shall be measured by each unit completed and accepted including all required excavation, dewatering, sheeting & bracing, backfill, restoration, and connections.

BASIS OF PAYMENT

751-5.1 The accepted quantities of manholes, catch basins, inlets, inspection holes, drywells, and modification of structures will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item D-751-1	Stormwater Catch Basin - per each
Item D-751-2	Sanitary Sewer Manhole, 4-Foot Diameter - per each
Item D-751-3	Removal of Existing Stormwater Structure - per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A897	Standard Specification for Austempered Ductile Iron Castings

ASTM C32	Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)	
ASTM C144	Standard Specification for Aggregate for Masonry Mortar	
ASTM C150	Standard Specification for Portland Cement	
ASTM C443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.	
ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections	
ASTM C913	Standard Specification for Precast Concrete Water and Wastewater Structures.	
American Association of State Highway and Transportation Officials (AASHTO)		

AASHTO M36 Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for

Sewers and Drains

END OF ITEM D-751

SECTION 331000- WATER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Contractor for this work shall be held to have read all of the Bidding Requirements, the Proposal Forms, the General Conditions of the Contract, the Supplementary General Conditions and Division 1, and in the execution of the work, he will be bound by all of the conditions and requirements therein.

1.2 SUMMARY

- A. The work specified shall include all labor, material, equipment, services and incidentals necessary to furnish and install water pipeline, fittings, specials and all appurtenances and to perform interconnections and abandonments as shown on the plans and specified therein.
- B. Related Sections, specified elsewhere, include the following:
 - 1. Earthwork, Section 31 2001.

1.3 SUBMITTALS:

- A. Shop drawings and Product data on pipe and all appurtenances (i.e. joints, fittings, hydrants, etc.). Contractor shall also submit a materials list providing full information for all components of the system, including the materials of construction.
- B. Manufacturer's descriptive literature, recommendations for installation and Operation and Maintenance information.
- C. Manufacturer's certification that products meet specification requirements and are required for each shipment.
- D. Certified copies of all test and disinfection reports.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING:

- A. Unload at the point of delivery, haul to and distribute at the site all pipe and accessories. Equipment for unloading shall be utilized so as to avoid damage to material. Material is not to be dropped, bumped, or damaged. During delivery, handling and storage, all materials shall be braced and protected from any distortion or damage in accordance with the manufacturer's requirements. Any distortion or damage shall be basis for rejection of materials.
- B. The Contractor will replace, at his expense, all material found defective in manufacture or during handling.
- C. Keep the interior of all pipes and appurtenances free from dirt and foreign matter at all times.
- D. All pipe and appurtenances shall be stored in accordance with the manufacturer's recommendations and off the ground unless otherwise stated by the Engineer. Store to prevent distortion of pipe, both linear and round.
- E. Store materials in locations that do not cause interference or safety hazards with private or public access traffic.

1.5 JOB CONDITIONS

A. Protection:

1. At the end of each day or when pipe laying is not in progress, place watertight plugs in the ends of all pipelines and appurtenances to keep dirt and other substances from entering the pipe.

1.6 QUALITY ASSURANCE

- A. Reference Standards (Latest Revisions)
 - 1. AWWA
 - 2. ASTM
 - 3. Other agency or local standards applicable to water distribution systems.
- B. Parts Interchangeability
 - 1. Components (pipe and appurtenances) provided under this section shall be the standard product in regular production by manufacturers whose products have proven reliable in similar services for at least two (2) years.
 - 2. In so far as possible, components shall be product of the same manufacturer.

1.7 REGULATORY REQUIREMENTS

A. Sequence, coordinate and perform all work in accordance with applicable codes and regulations, including those of government and/or local agencies of authority and jurisdiction for all related activity. Any conflict arising from differences between the plans, specifications and applicable codes and regulations shall be immediately brought to the attention of the Engineer and shall be resolved prior to construction.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Pipe (Ductile Iron)

- 1. Material shall conform to AWWA C151, Class 52 Ductile Iron Pipe (DIP); Push-on joint per AWWA C111; interior coating of double thickness cement lining per AWWA C104; exterior bituminous coating (standard).
- B. Fittings
 - 1. Material shall be ductile iron mechanical joint type conforming to AWWA C110, AWWA C111 and AWWA C153; interior coating of double thickness cement lining per AWWA C104; exterior bituminous coating (standard). All fittings to be furnished with sufficient accessory quantities.
 - 2. Hydrant tees shall be anchoring type; Acceptable manufacturers Mueller Company or approved equal.

- C. Tapping Sleeve and Valve
 - 1. Conforming to AWWA C500
 - 2. Tapping sleeves and valves shall be designed and size in accordance with the recommendations of the manufacturer.
 - 3. Service clamps shall be designed for use on the type of pipe to which the connection is being made. All bolts and nuts shall be fluorocarbon coated stainless steel or high strength corrosion resistant alloy steel unless otherwise stated.
 - 4. The sleeve shall be fabricated in two halves, for assembly around the water main by means of bolts and gaskets to form a watertight mechanical joint. Outlet side of the tapping sleeve shall be flange or mechanical end for attachment to the tapping valve.
 - 5. Working pressure shall be a minimum of 250 pounds per square inch (psi).
 - 6. Valves for tapping sleeves shall be designed for the intended service.
 - 7. Acceptable manufacturers Mueller Company or approved equal.
 - D. Gate Valves (Resilient Seat)
 - 1. Conforming to AWWA C509 and AWWA C111, including working and test pressures for applicable valve sizes
 - 2. Valves shall have mechanical joint ends. Suitable steel rods shall be installed between the main mechanical joint bell outlet and the valve (and/or fittings) to resist movement under pressure when the valve is closed. All bolts and nuts shall be fluorocarbon coated stainless steel or high strength corrosion resistant alloy steel unless otherwise stated.
 - 3. The body, bonnet, seal plate, discs and hub nuts shall be iron. Ends shall conform to applicable standards for ductile iron pipe fittings.
 - 4. Valve shall have non-rising stem. The non-rising valve stem, stem nuts, glands and bushings shall be bronze.
 - 5. Shaft "O-ring" seals shall be synthetic rubber or Buna-N.
 - 6. "O-ring" seals and non-rising stems shall withstand a minimum working pressure of 250 psi and a minimum test pressure of 500 psi.
 - 7. All internal parts shall be accessible without removing the main body from the pressure line.
 - 8. Operators shall be as specified in AWWA C509 for submerged, buried or in-plant service. Operators shall be equipped with a 2-inch square operating nut and shall be fully gasketed and grease packed for buried service. Operating nuts shall turn counterclockwise to close the valve. Buried operators with the operating nut greater than 8 feet below finished grade will be furnished an extension stem, centering device and operating nut. The extension stem shall come within 3 feet of the finished grade.
 - 9. Acceptable manufacturers Mueller Company or approved equal.
 - 10. Valve shall open in a counter-clockwise direction.
 - E. Valve Boxes
 - 1. Adjustable screw type valve box; 2 or 3 piece model with minimum 1 foot adjustment.
 - 2. Valve box shall have a barrel not less than 5-1/4" inches in diameter with a base to fit the valve on which is to be installed.
 - 3. The word "WATER" shall be cast in the cover.
 - 4. Acceptable Manufacturers Mueller Company or approved equal.
 - F. Hydrant Assemblies
 - 1. Conforming to AWWA C502 and AWWA C111.
 - 2. General Hydrants shall have manufacturer's name cast in raised letters on hydrant body.

- 3. All bolts required to connect buried valves shall be Type 304 Stainless Steel or fluorocarbon coated, high strength corrosion resistant alloy steel. All other bolts, nuts and studs shall conform to ASTM A 307, Grade B; or ASTM A 354 unless otherwise specified. Bolts and nuts shall have hexagon heads. Gasket material shall conform to manufacturer's recommendations. Hydrant shut-off gate valve shall be resilient seat.
- 4. Hydrant shall be cast iron body, break-away type barrel, "O-ring" operating stem seal and suitable for 250 psi maximum working pressure and 500 psi minimum test pressure. All operating parts, including brass valve seat, shall remove through the barrel without excavation. Operating nuts and caps shall be 1-1/2" pentagon and shall turn clockwise to close.
- 5. Hydrant shall be compression type, with valve opening not less than 5-¹/₄ inches and nonrising stems. Valve shall open against pressure and shall close with pressure.
- 6. Hydrant shall have two 2 National Standard hose connections and one 5-inch pumper connection with National Standard threads and operating nuts.
- 7. Barrel length shall provide for a minimum of 6 foot bury (extensions to be provided if required by finish grade).
- 8. Inlet shall be 6-inch mechanical joint unless otherwise specified.
- 9. Weep holes shall be provided for drainage.
- 10. Acceptable manufacturers Mueller Company 5-1/4" barrel or approved equal.
- 11. Hydrant shall open in a counter-clockwise direction.
- F. Freeze Proof Yard Hydrant
 - 1. Shall be of the self-draining sanitary type.
 - 2. 1" standard hose connection with vacuum breaker.
 - 3. Woodford model S4H or equal.

2.2 STONE BEDDING

A. NYSDOT No. 1 Stone. Refer to section 31 2001.

2.3 LOCATOR TAPE

A. Mylar encased aluminum foil tape suitable for direct burial. Minimum width of 2 inches with lettering "CAUTION BURIED WATER LINE BELOW."

PART 3 – EXECUTION

3.1 INSPECTION

- A. Pipe and Appurtenances
 - 1. All pipe and appurtenances will be inspected by the Engineer prior to installation. Carefully inspect all pipe prior to installation.
 - 2. Do not use damaged components. Remove defective components from site.
 - 4. Any pipe or appurtenance found to be broken or defective after it has been installed, shall be removed and replaced at the Contractor's expense.
 - 5. Pipe to be straight to within 3/8" per length.

B. Trench:

- 1. Prior to work in this section, the Contractor shall inspect the installation area to determine if the work of other trades has progressed to the point where the installation may properly commence.
- 2. Contractor shall verify that the installation can proceed in accordance with all pertinent codes and regulations, the original design and referenced standards. The Contractor shall immediately notify the Engineer of any discrepancies. The Contractor shall not proceed with the installation in areas of discrepancy until the discrepancy has been resolved.
- 3. Ensure that trench bottom is to proper line and grade.

3.2 PREPARATION

A. Trench:

- 1. Bed all pipe in stone as shown on the drawings.
- 2. Dig bell holes sufficiently large to ensure proper mating, checking and bedding of joints.
- B. Location, Grade and Cover
 - 1. Pipelines and appurtenances shall be located as shown on the Contract Drawings or as directed and established from the control survey in accordance with general project requirements. Alignments and grades shall be determined and maintained by methods acceptable to the Engineer. Any section of pipe or appurtenance found to be laid at the wrong grade or to have settled shall be dug up and re-laid to the satisfaction of the Engineer at the Contractor's expense.
 - 2. Pipeline and appurtenances shall be installed with no less than the minimum cover indicated by the Contract drawings and governing authority. No pipe or appurtenance shall be laid upon a foundation in which frost may exist or develop.
- C. Pipe and Appurtenances
 - 1. Clean pipe and appurtenances thoroughly.
 - 2. As applicable, apply proper lubricant in accordance with the manufacturer's written instruction.
 - 3. Insert gasket and seal it if required, in accordance with the manufacturer's written directions.
 - 4. If field cutting of pipe is necessary, leave a smooth end in accordance with the manufacturer's written instructions.

3.3 EXECUTION

A. General

- 1. Excavation, subgrade preparation, pipe bedding and backfilling shall be in accordance with the Contract drawings and Earthwork Specification 312001.
- 2. Blocking will not be permitted under pipe or appurtenances, except where the pipe or appurtenance is to be laid with concrete cradle or encasement.
- 3. Pipe and appurtenance shall be laid upon a foundation of select material, unless otherwise specified. The top of this layer shall be considered to be the bottom of the trench.
- 4. Temporary bulkheads shall be placed in all open ends of the installation (i.e. pipe) whenever installation activities are not actively in progress. The bulkheads shall be designed to prevent the entrance of dirt, debris or water.
- 5. Precautions shall be taken to prevent flotation or movement.

- 6. Installation shall include thrust restraints in the form of thrust blocks, tie rods, anchors, etc. of the size and type specified by the Contract drawings or as required by the pressure and stability of the supporting surface. Thrust restraints shall be installed at all changes in direction, changes in size, dead ends or other locations as shown. Thrust restraints shall be in place and concrete shall have developed the required strength prior to testing.
- B. Interconnections and Abandonments
 - 1. No work shall begin on the interconnections until the Engineer and governing water utility authorize the work. The Contractor shall not operate existing valves. Existing valves will be operated by the governing water utility only. The Contractor is advised that watertight conditions may not exist when existing valves are closed. The Contractor shall consider this in the bid. The maximum allowable shutdown of any existing water system shall be as per the requirements of the governing water utility. The work shall be scheduled through the Engineer and governing water utility to provide a minimum of three (3) days advance notice prior to the work.
 - 2. Caps (or plugs) on iron pipe shall be mechanically restrained watertight caps (or plugs) compatible with the pipe being capped and suitable to resist thrusts due to operating pressures.
 - 3. The Contractor shall perform test pits at existing pipes, valves, etc. to assess conditions and determine requirements for construction activity and interconnections.
 - 4. Removal and/or abandonment of existing pipelines or appurtenances will be carried out as per the requirements of the Engineer and governing water utility.
- C. Pipe Installation
 - 1. Except as otherwise specified, all pipe shall be installed in accordance with the requirements of the governing water utility, AWWA C600 and applicable codes and regulations.
 - 2. Carefully handle and lower pipe into the trench so as not to damage pipe or coatings.
 - 3. Lay pipe with bell end facing upstream in respect to design flow direction.
 - 4. Properly bed and secure each length of pipe prior to bringing next length of pipe into position.
 - 5. Firmly bed and backfill each pipe for the full length of the barrel, on a solid stone bed as shown on the drawings.
 - 6. Abut each length against the next in such a manner that there is no shoulder or unevenness of any kind along the inside of the bottom of the pipe.
 - 7. All joint surfaces shall be clean prior to connection. Use a method to push or pull the joints home appropriate for size of pipe. Joints shall be assembled using gaskets, lubricants, etc. as furnished by the pipe manufacturer and in accordance with the manufacturer's recommendations.
 - 8. Take appropriate precautions when pushing or pulling the joints home to prevent damage to the pipe or joint. Keep joints straight while pushing home.
 - 9. Check the position of the gasket in each joint carefully.
 - 10. Do not walk on the pipe until at least 12 inches of backfill is properly placed over the pipe.
 - 11. Install pipe with manufacturer's lettering up.
- D. Fittings Installation
 - 1. Installation of fittings shall be in accordance with Section 3.3C Pipe Installation, Contract drawings, approved shop drawings and the manufacturer's recommendations.

E. Tapping Sleeves and Valves

1. Installation of Tapping Sleeves and Valves shall be to the configuration shown on the Contract drawings, approved shop drawings and in accordance with the manufacturer's recommendations. All activities involving taps of existing mains are to be carried out as per 3.3B Interconnections and Abandonments and coordinated with governing authorities.

F. Gate Valves

- 1. Installation of valves shall be to the configuration shown on the Contract drawings, approved shop drawings and in accordance with the manufacturer's recommendations.
- 2. Valves shall be installed between the hydrant and the main line at each hydrant installation as shown on the Contract drawings.
- 3. Valves shall be set on solid bearing, installed plumb and in a closed position unless otherwise specified.

G. Valve Boxes

- 1. Installation of valve boxes shall be to the configuration shown on the Contract drawings, approved shop drawings, in accordance with the manufacturer's recommendations and requirements of the governing water authority.
- 2. Valve boxes shall be set plumb, centered over the valve and shall be independently supported so no weight is transmitted to the valve or carrier pipe.

3.4 DISINFECTION AND TESTING

- A. The Contractor shall disinfect and perform pressure/leakage tests in the new water distribution system elements in accordance with the AWWA C651 and requirements of governing agencies (i.e. governing water utility, health department, etc.). Related activity will be carried out prior to connection to existing watermains, unless otherwise specified, and witnessed by applicable representatives.
- B. Contractor shall obtain permission from the water system owner or governing agency before using water from any existing system. The Contractor shall conform to the requirements of the owner/agency, pay all costs with the taking or use of water for any purpose and provide sufficient advance notice (at least 24 hours) before the use of water for any reason.
- C. Upon completion of each disinfection activity, the Contractor will be required to empty and flush the system. Contractor shall adhere to the requirements of governing agencies for disposition of the system contents resulting from disinfection and flushing.
- D. After disinfection and flushing, the Contractor shall collect and submit Bacteriological samples for testing by an approved laboratory as per Health Department requirements. Contractor shall repeat the disinfection procedure, at his expense, until safe results are obtained. The Contractor shall submit the test reports directly to the Health Department, Engineer and governing water utility.
- E. Contractor shall demonstrate to the satisfaction of the Engineer and governing water utility that all system components operate properly, both individually and as a system, and satisfy related pressure/leakage tests. The Contractor shall provide all testing equipment and material required to perform the tests. Contractor shall, at his expense, correct any component or system deficiencies and repeat the related tests as required. The Contractor shall submit the test reports directly to the Engineer, governing water utility and other agencies as may be required.

END OF SECTION 33 10 00

SECTION 333000 – SANITARY SEWER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Contractor for this work shall be held to have read all of the Bidding Requirements, the Proposal Forms, the General Conditions of the Contract, the Supplementary General Conditions and Division 1, and in the execution of the work, he will be bound by all of the conditions and requirements therein.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Excavation for Sanitary Sewer Work: Section 31 2001.
- B. Backfill Above Bedding Material at Sanitary sewers: Section 31 2001.
- C. Backfill Around Sanitary Structures: Section 31 2001.

1.3 DESCRIPTION

- A. Construct all gravity sanitary sewers as shown on the plans.
- B. Coordinate work in this Contract with utility and local and State Highway authorities as applicable.

1.4 SUBMITTALS

- A. Product data on pipe, joints, and fittings.
- B. Manufacturer's descriptive literature and recommendations for installation.
- C. Manufacturer's certification that products meet specification requirements. Required for each shipment.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Unload at the point of delivery, haul to and distribute at the site all pipe and accessories. Material is not to be dropped, bumped, or damaged.
- B. The Contractor will replace, at his expense, all material found defective in manufacturer or damage handling.
- C. Keep the interior of all pipe free from dirt and foreign matter at all times.

SANITARY SEWER UTILITIES

- D. Drainage and storage of materials is required to prevent damage due to freezing of trapped water.
- E. Store to prevent distortion of pipe, both linear and round.
- F. Store materials in locations which do not cause interference or safety hazards with private or public access traffic.

1.6 JOB CONDITIONS

- A. Protection:
 - 1. At the end of each day or when pipe laying is not in progress, place watertight plugs in the ends of all pipelines to keep dirt and other substances from entering the pipe.

PART 2 - PRODUCTS

2.1 PVC PIPE

- A. Gravity Sewers:
 - 1. Material shall conform to ASTM D-3034, SDR 35 PVC as shown on plans.
 - 2. Joints shall be bell and spigot with o-ring gaskets.
 - 3. NSF approved, Type 1, Grade 1 PVC meeting ASTM D-1784.

B. Fittings:

- 1. Meet ASTM D-3034 or D-2241 as appropriate.
- 2. Joints shall be bell and spigot with o-ring gaskets.

C. Wyes:

- 1. Meet B above.
- 2. Be of the 45 degree wye type.
- 3. Saddle types are not allowed.

2.2 HIGH DENSITY POLYETHYLENE (HDPE) PRESSURE PIPE

- A. Force Mains:
 - 1. Material shall conform to ASTM D-3350, PE4710, minimum cell classification 445574C.
 - 2. Pressure pipe shall be DR 11 HDPE as shown on plans and have a minimum pressure rating of 200 psi.
 - 3. Joints shall be thermal butt fusion in accordance with ASTM D-3261.
- B. Fittings
 - 1. Meet ASTM D-3261 or ASTM F-1055 as appropriate.
 - 2. Mechanical joint fittings will not be allowed.

SANITARY SEWER UTILITIES
2.3 STONE BEDDING

A. NYSDOT No. 1 stone. Refer to section 31 2001.

2.4 LOCATOR TAPE

- A. Mylar encased aluminum foil tape, orange color.
- B. Suitable for direct burial, minimum width -2 inches.
- C. Lettering: CAUTION BURIED SEWER LINE BELOW.

2.5 CLEANOUTS

- A. Cast-Iron Cleanouts: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.
 - 1. Top-Loading Classification(s): Heavy Duty
 - 2. Sewer Pipe Fitting and Riser to Cleanout: ASTM D-3034 PVC

2.5 MANHOLES

- A. Standard Precast Concrete Manholes:
 - 1. Description: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints. Concrete strength shall reach 4,000 psi @ 28 days. Manholes shall be able to support HS-20 loads.
 - 2. Diameter: 48 inches minimum unless otherwise indicated.
 - 3. Ballast: Increase thickness of precast concrete sections or add concrete to base section as required to prevent flotation.
 - 4. Base Section: 6-inch minimum thickness for floor slab and 5-inch minimum thickness for walls and base riser section, and separate base slab or base section with integral floor.
 - 5. Riser Sections: 5-inch minimum thickness, and lengths to provide depth indicated.
 - 6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated, and top of cone of size that matches grade rings.
 - 7. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
 - 8. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
 - 9. Steps: Steel reinforced copolymer polypropylene plastic step (conforming to latest ASTM C478), wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.
 - 10. Adjusting Rings: Interlocking HDPE rings with level or sloped edge in thickness and diameter matching manhole frame and cover, and of height required to adjust manhole frame and cover to indicated elevation and slope. Include sealant recommended by ring manufacturer.

- 11. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover, and height as required to adjust manhole frame and cover to indicated elevation and slope.
- B. Manhole Frames and Covers:
 - 1. Description: ASTM A 536, Grade 60-40-18, ductile iron designed for A-16, structural loading. Include 24-inch ID by 7- to 9-inch riser with 4-inch minimum width flange, and 26-inch-diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "SANITARY SEWER."

PART 3 - EXECUTION

3.1 INSPECTION

- A. Pipe:
 - 1. Carefully inspect all pipe prior to installation.
 - 2. Do not use damaged pipe.
 - 3. Remove defective pipe from site.
 - 4. Any pipe found to be broken or defective after it has been installed, shall be removed and replaced at the Contractor's expense.
 - 5. Pipe to be straight to within 3/8" per length.
- B. B. Trench:
 - 1. Ensure that trench bottom is to proper line and grade.
 - 2. Dig bell holes sufficiently large to insure making and checking of joints properly.

3.2 PREPARATION

- A. Trench:
 - 1. Bed all pipe in stone as shown on the drawings.
 - 2. Dig bell holes sufficiently large to insure making and checking of joints properly.
- B. Any section of pipe found to be laid at the wrong grade or to have settled, shall be dug up and relaid to the satisfaction of the Engineer at the Contractor's expense.
- C. Pipe:
 - 1. Clean pipe thoroughly.
 - 2. Apply proper lubricant in accordance with the manufacturer's written instruction.
 - 3. Insert gasket and seal it if required, in accordance with the manufacturer's written directions.
 - 4. If field cutting of pipe is necessary, leave a smooth end in accordance with the manufacturer's written instructions.

3.3 INSTALLATION

- A. Laying pipe: lay pipe in accordance with the following specifications, the manufacturer's instructions and ASTM D 2321.
 - 1. Carefully handle and lower pipe into the trench so as not to damage pipe or coatings.
 - 2. Lay pipe with bell end facing upstream in respect to design flow direction.
 - 3. Properly bed and secure each length of pipe prior to bringing next length of pipe into position.
 - 4. Firmly bed and backfill each pipe for the full length of the barrel, on a solid stone bed as shown on the drawings.
 - 5. Abut each length against the next in such a manner that there is no shoulder or unevenness of any kind along the inside of the bottom of the pipe.
 - 6. Use a method to push or pull the joints home appropriate for size of pipe.
 - 7. Take appropriate precautions when pushing or pulling the joints home to prevent damage to the pipe or joint.
 - 8. Keep joints straight while pushing home.
 - 9. Check the position of the gasket in each joint carefully.
 - 10. Do not walk on the pipe until at least 12 inches of backfill is properly placed over the pipe.
 - 11. Install pipe with manufacturer's lettering up.
 - 12. Maintain specified pipe grade unless otherwise directed by the Engineer.
- B. Temporary plug:
 - 1. At the end of each day, or when pipe laying is not in progress, plugs shall be carefully fitted in or over the ends of all pipelines so as to keep dirt and other substances from entering. Water entry is allowable, if properly filtered, to facilitate dewatering.

3.4 CONNECTIONS TO EXISTING STRUCTURE

- A. Pipes and Structures:
 - 1. Where pipes are to be connected to existing manholes or other structures, and where no stub or opening has been provided for the connection, core drill an opening of minimum diameter through the side wall if the structure for inserting the pipe.
 - 2. After inserting the pipe, place standard manhole pipe gasket around pipe and completely fill the space remaining outside the pipe with a non-shrink mortar.
 - 3. Make watertight to prevent leakage of water into the manhole or structure.
 - 4. Alter concrete paved inserts in existing structures to form a trough, so that new connections enter the existing pipe smoothly and in the direction of flow.
 - 5. Make connections to existing manholes or structures carefully to avoid damage to the manhole or structure.
 - 6. Repair any damage resulting from carelessness.
 - 7. Prevent debris from entering existing pipes or structures.

3.5 TESTING

A. Required Tests:

SANITARY SEWER UTILITIES

- 1. After backfilling and prior to the final acceptance of the project, perform the following tests on all sewers to be built under this project.
 - a. Inspection (lamping and internal).
 - b. Infiltration or exfiltration.
- 2. No more than 1,000 linear feet of installed sewer shall be allowed to remain untested, unless otherwise approved by the Engineer.
- 3. Perform the appropriate tests as specified below on all new gravity sewers and manholes.
- 4. Prior to making tests, submit details of testing procedures with description of methods and equipment proposed to be used for approval.
- 5. Furnish all necessary labor, equipment, water, watertight bulkheads, weirs, rodding machine, closed circuit television equipment, generator pumps, and all else necessary to carry out the required tests.
- 6. If the leakage in the section tested exceeds the specified amount, make necessary repairs to reduce the leakage to within the specified limits and repeat the test until the leakage requirement is achieved.
- 7. Conduct tests under the observation of and subject to the approval of the Engineer.
- B. Infiltration Test:
 - 1. Use the infiltration test when groundwater levels are at least two feet above the top of the highest pipe section to be tested, including laterals.
 - 2. After the pipe is laid and backfilled, isolate section to be tested with temporary dams or bulkheads.
 - 3. Install sharp-edged weir or other approved measuring device at a lower end of the section being tested.
 - 4. Test for a minimum period of 24 hours; measure leakage at the end of 6 hours and at the end of 24 hours.
 - 5. Where test section was installed through wet ground, allow sufficient time to elapse after stopping dewatering to permit the groundwater table to return to its natural level prior to test.
 - 6. Total leakage shall not exceed 100 gallons per inch diameter of sewer per mile, per 24 hours.
 - 7. Maximum allowable leakage in accordance with above specification is:

<u>Pipe Diameter</u>	<u>Gal/Min/100 FT</u>
4"	0.005
6"	0.008
8"	0.010
10"	0.013
12"	0.016
15"	0.020

- 8. Include lengths of main sewer, laterals, and manholes in test computations.
- C. Exfiltration test for gravity sewers, laterals, and manholes:
 - 1. Use the exfiltration test if the groundwater levels are not two feet above the top of the highest pipe section to be tested, including laterals.
 - 2. Insert test plugs to isolate section to be tested; test no more than one pipe section and the upstream manhole at a time, unless otherwise approved by the Engineer.

- 3. The downstream manhole shall be fitted with a plug into which a water connection can be made for fitting the pipe.
- 4. Fill sewer from downstream end, allowing air to escape from upper portion until upstream end of section under test is completely filled.
- 5. Continue to fill the pipe and manholes with water to a point two feet above the top of the highest point of the pipeline under test, or two feet higher than the groundwater, whichever is greater.
- 6. Allow filled sewer to stand for at least four hours or longer if deemed necessary by the Engineer, before measuring is begun to allow for absorption of water into pipe manholes.
- 7. Begin test by adding water to sewer, if necessary, such that the head of not less than four feet is established.
- 8. The amount of water added to maintain this head shall be leakage.
- 9. Test for a period of at least four hours.
- 10. Total leakage of any section tested shall not exceed the rate of 100 gallons per mile of pipe per 24 hours, per inch of nominal internal diameter.
- D. Leakage Testing for Pressure Pipe
 - 1. HDPE Pipe and fittings shall be subjected to pressure testing in accordance with ASTM F-2164.
 - 2. All HDPE pressure pipe shall be watertight and free from leaks. Each leak that is discovered during testing shall be repaired by the Contractor at his expense.

3.6 FINAL INSPECTION

- A. Engineer will conduct visual inspection of each section of pipe, between each pair of manholes for final acceptance.
- B. Engineer will visually check that the pipe is:
 - 1. Straight and true to line and grade.
 - 2. Leak and crack free.
 - 3. Free of obstructions of projections from connecting pipes or joint material.
 - 4. Free from deposits of sand, dirt, or other materials which in any way diminish the full cross sectional area.
- C. Engineer will visually check that the manhole wall joints are tight and leak free.
- D. Contractor to furnish necessary stoppers or bulkheads.
- E. Contractor to remedy any defects or clean any deposits found during the Engineer's inspection.

END OF SECTION 33 30 00

Item T-901 Seeding

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding, fertilizing and liming the areas shown on the plans or as directed by the RPR in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied as follows:

Seed Properties and Rate of Application

Percent		Percent	Percent
By Weight	<u>Variety</u>	Purity	Germination
45	Kentucky Blue Grass	90	80
15	Perennial Rye Grass	95	85
20	Tall Fescue	95	80
20	Fine Fescues ¹	95	80

¹ Fine fescues include creeping red fescue, chewings fescue, hard fescue, and sheep fescue.

NOTE: Alternative seed mixtures will be considered if they have proven growth success in the airport's climate.

Seeding shall be performed during the period between May and September inclusive, unless otherwise approved by the RPR.

901-2.2 Lime. Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 μ m) mesh sieve and 50% will pass through a No. 100 (150 μ m) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate necessary to obtain the soil pH range specified in Item T-905. All liming materials shall conform to the requirements of ASTM C602.

901-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be commercial fertilizer and shall be spread at the rate of 20 pounds per 1,000 square feet. Fertilizers shall contain the following compounds by weight:

Nitrogen	10%
Phosphorous	0% ¹
Potash	4%

¹ Fertilizers which contain up to 0.67% phosphorous are allowed

901-2.4 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches (125 mm) as a result of grading operations and, if immediately prior to seeding, the top 3 inches (75 mm) of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches (125 mm). Clods shall be broken and the top 3 inches (75 mm) of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method. Not used.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons (190 liters) over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons (380 liters) per minute at a pressure of 100 lb / sq inches (690 kPa). The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch (16 mm) solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet (6 to 30 m). One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For case of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet (15 m) in length shall be provided to which the nozzles may be connected.

c. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds (100 kg) of lime shall be added to and mixed with each 100 gallons (380 liters) of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds (100 kg) of these combined solids shall be added to and mixed with each 100 gallons (380 liters) of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed or they shall be wasted and disposed of at approved locations.

d. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches (75 mm), after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the RPR, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot (0.01 sq m) or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1The quantity of seeding to be paid for shall be the number of units of square yards measured on the ground surface, completed and accepted.

BASIS OF PAYMENT

901-5.1Payment shall be made at the contract unit price per square yards or fraction thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item 901-1 Seeding, Wet Applied - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM) ASTM C602 Standard Specification for Agricultural Liming Materials Federal Specifications (FED SPEC)

FED SPEC JJJ-S-181, Federal Specification, Seeds, Agricultural

END OF ITEM T-901

Item T-905 Topsoil

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

905-2.1 Topsoil. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones 1 inch or more in diameter), and clay lumps or similar objects. **Topsoil shall be screened prior to placement.** Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed.

The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the loss on ignition or dry combustion method in accordance with ASTM D2974. There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 μ m) sieve as determined by the wash test in accordance with ASTM C117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 Inspection and tests. Within 10 days following acceptance of the bid, the RPR shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the existing stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the RPR before the various operations are started.

905-3.2 Preparing the ground surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the RPR,

to a minimum depth of 2 inches (50 mm) to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches (50 mm) in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

905-3.3 Obtaining topsoil. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the RPR. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the RPR. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the RPR. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil stockpiled by the Contractor that is required for topsoil purposes, shall be removed from the stockpile and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

After all topsoil operations are complete, excess topsoil which has been stockpiled by the Contractor shall be spoiled on-site at a location selected by the Owner. No direct payment will be made for spoiling operations. The cost of spoiling material on-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

905-3.4 Placing topsoil. The topsoil shall be evenly spread on the prepared areas to the uniform depth shown on the plans or stated in the special provisions after compaction. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks 1 inch or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the RPR. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

905-3.5 Spoil. All excess topsoil material shall be disposed of on airport property, and shall be stockpiled at the locations shown on the plans.

No direct payment will be made for spoiling operations. The cost of spoiling material shall be considered incidental to this Contract and the costs shall be included in the various pay items involved. Refer to specification C-106 Safety, Security and Maintenance of Traffic for additional information.

METHOD OF MEASUREMENT

905-4.1 Topsoil obtained on the site shall be measured by the number of cubic yards of topsoil measured in its final position. Topsoil shall be measured by volume in cubic yards computed by the method of end areas.

BASIS OF PAYMENT

905-5.1 Payment will be made at the contract unit price per cubic yard for topsoil. This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-905-1 Topsoil, Furnished from off site - per cubic yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C117

Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing

END OF ITEM T-905

Item T-908 Mulching

DESCRIPTION

908-1.1 This item shall consist of furnishing, hauling, placing, and securing mulch on surfaces indicated on the plans or designated by the RPR. Hydro-seeding and related operations, including liming and fertilizing, shall be performed in all areas outside the limits of the pavement where existing growth has been covered or removed or disturbed by stripping, grading, ditching or other construction operations as shown on the Plans or as directed by the Engineer in accordance with these Specifications.

MATERIALS

908-2.1 Mulch material. Mulching shall be wood fiber processed so that the fibers will remain in uniform suspension in water under agitation and will blend with grass seed, fertilizer and other additives to form a homogenous slurry. It shall have the characteristics which, upon hydraulic application, shall form a blotter-like ground coating with moisture absorption and percolation properties and the ability to cover and hold grass seed in intimate contact with the soil.

Wood fiber shall contain no growth or germination inhibiting factors, and shall be dyed green. Wood fibers shall be supplied in the manufacturer's standard containers weighing not over 100 pounds each, with the name of the material, net weight of contents, the manufacturer's name and the air dry weight of fiber (equivalent to 10% moisture) appearing on each container.

Mulching shall have the following properties:

1.	Percent Moisture Content:	10%
2.	Percent Organic Matter (Wood Fiber):	99.2%
3.	Percent Ash Content:	0.8%
4.	pH:	4.8
5.	Water Holding Capacity:	2.2 lbs. water (min.)/0.22 lbs. fiber

Hay and other loose materials are not allowed as they become dislodged and create FOD for aircraft.

908-2.2 Inspection. The RPR shall be notified of sources and quantities of mulch materials available and the Contractor shall furnish him with representative samples of the materials to be used 30 days before delivery to the project. These samples may be used as standards with the approval of the RPR and any materials brought on the site that do not meet these standards shall be rejected.

CONSTRUCTION METHODS

908-3.1 Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch <u>shall be by mechanical spraying wet applied methods</u>, provided a uniform covering is obtained.

Mulch material shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the RPR. Organic material shall be spread at the rate directed by the manufacturer and approved by the RPR.

908-3.2 Application Method. Particular care shall be exercised to insure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area. Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

908-3.3 Care and repair.

a. The Contractor shall care for the mulched areas until final acceptance of the project. Care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the RPR, and erecting any barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

b. The Contractor shall be required to repair or replace any mulch that is defective or becomes damaged until the project is finally accepted. When, in the judgment of the RPR, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor.

METHOD OF MEASUREMENT

908-4.1 Mulching shall be measured in square yards on the basis of the actual surface area acceptably mulched.

BASIS OF PAYMENT

908-5.1 Payment will be made at the contract unit price per square yard for mulching. The price shall be full compensation for furnishing all materials and for placing and anchoring the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-908-1 Mulching - per square yard

END OF ITEM T-908

Item F-162 Chain-Link Fence

DESCRIPTION

162-1.1 This item shall consist of furnishing and erecting a chain-link fence in accordance with these specifications, the details shown on the plans, and in conformity with the lines and grades shown on the plans or established by the RPR. This item shall also include restoration of turf, pavement and any earthwork required to complete the installations.

MATERIALS

162-2.1 Fabric.

- a. The fabric shall be woven with a 9-gauge core hot dipped aluminized steel wire in a 2-inch (50 mm) mesh and shall meet the requirements of ASTM A 491, AASHTO M181 type II, Federal Spec RR-F-00191/1D type 2. The aluminum coating process shall occur prior to weaving the wire into fence fabric. Top and bottom selvages shall be twisted and barbed. Metallic-coated fabric shall have a clear acrylic coating applied to the selvage area after weaving.
- b. Polyvinyl chloride shall be extruded over 9 gage core zinc-coated steel wire (Class 1), before weaving into a 2" mesh. The PVC coated wire shall be woven into fabric without tears or cuts which reveal the substrate. The final thickness of the PVC coated wire shall be 6 gauge which accounts for the 9 gauge wire and PVC coating. The PVC Coated Steel Chain Link fence fabric shall conform to ASTM Standard F 668. The color shall be BLACK and conform to ASTM 934 (Standard PVC Colors), matching the existing fence line. The PVC coated wire shall be capable of being woven into fabric without the PVC coating cracking or peeling. PVC shall be plasticized and mixed completely, and coating shall be without voids. The minimum thickness of PVC coating at any point shall be 0.015", and the maximum thickness shall be 0.025". Top and bottom selvages shall be loop/ knuckle.

162-2.2 Barbed wire. Barbed wire shall be 2-strand 12-1/2 gauge aluminum-coated wire with 4-point, 14-gauge barbs spaced at 5 inches on center. The wire shall conform to the requirements of ASTM A121-22, coating type A. The aluminum coating process shall occur prior to weaving the wire into barbed wire. Match coating to that of the fence fabric.

162-2.3 Posts, rails, and braces. Line posts, rails, and braces shall be HF40 and conform to the requirements of ASTM F1043 or ASTM F1083 (high strength grade) as follows:

- Hot dipped galvanized zinc tubular steel pipe shall conform to the requirements of Group IA, (Schedule 40) coatings conforming to Type A; or Group IC (High Strength Pipe), External coating Type B, and internal coating Type B or D.
- Vinyl or polyester coated steel shall conform to the requirements of ASTM F1043, Paragraph 7.3, Optional Supplemental Color Coating.

Posts, rails, and braces, with the exception of galvanized steel conforming to ASTM F1043 or ASTM F1083, Group 1A, Type A, or aluminum alloy, shall demonstrate the ability to withstand testing in salt spray in accordance with ASTM B117 as follows:

• External: 1,000 hours with a maximum of 5% red rust.

• Internal: 650 hours with a maximum of 5% red rust.

The dimensions of the posts, rails, and braces shall be in accordance with Tables I through VI of Federal Specification RR-F-191/3, as shown below.

<u>Fabric</u>	Height	0	ver 6' up to 8'	Over 8'
Termina	ıl Post	2.8	875 x 0.160	2.875 x 0.160
Line Pos	st	2.3	375 x 0.130	2.875 x 0.160
Top Rai	ls & Braces	1.6	660 x 0.111	1.660 x 0.111
Gate Leaf Widths	Up to 6'	Over 6' up to 13'	Over 13' up t	<u>o 18' Over 18' up to 24'</u>
Gate Post	2.875 x 0.160	4.00 x 0.226	6.625 x 0.280	8.625 x 0.322

GALVANIZED STEEL PIPE

Post dimensions are expressed in inches OD by minimum wall thickness in inches.

162-2.4 Gates. No gap shall exceed 2-inches on any closed gates. Gap protectors shall be provided and installed, compliant with ASTM F 2200.

a. Swing gates. Gate frames shall consist of 1.9-inch minimum diameter galvanized steel pipe or PVC coated galvanized steel pipe and shall conform to the specifications for the same material under paragraph 162-2.3 and ASTM F900. Frame members shall be spaced no greater than 8-feet apart, vertically and horizontally. Welded joints shall be protected with zinc rich paint. The fabric shall be of the same type material as used in the fence. The color of the PVC coating for the pipe and the fabric shall be as specified above in paragraph 162-2.1.

- b. Cantilever gates. Applicable standards:
 - -ASTM F 2200 Standard Specification for Automated Vehicular Gate Construction.
 - -ASTM F 1184 Standard Specification for Industrial and Commercial Horizontal Slide Gates, Type II, Class 2.
 - -American Welding Society AWS D1.2 Structural Welding Code.

Cantilever gates shall be aluminum and of structural class. Gate frames shall be made of 2-inch square aluminum tubing, alloy 6063-T61, weighing .94 pounds per lineal foot and shall be welded at all corners so as to form a rigid one-piece unit. Fabric shall be stretched and securely held on all four sides to the 2-inch square tubing by use of hook bolts and tension rods. Gate fabric shall match fence fabric. Gate shall have a minimum counterbalance length of 50% opening width. Entire gate frame (including counterbalance section) shall include 2 adjustable stainless or galvanized steel cables (minimum 3/16") per bay to allow complete gate frame adjustment (maintaining strongest structural square and level orientation).

The dual top enclosed tracks (one on each side, two required) shall be a combined track and rail aluminum extrusion having a total weight of 3.72 pounds per foot and designed to withstand a reaction load of 1,200 pounds. The gate frame shall have separate semi-enclosed "keyed" tracks, extruded from 6005A-T61 or 6105-T5 aluminum alloy, weighing not less than 2.9 lb./lf. Track members are to be located on each side of the top member. When interlocked and welded to the "keyed" top member, it forms a composite structure with the top of the gate frame.

Four swivel type zinc die cast trucks having four stainless steel sealed lubricant ball bearing wheels, 2 inches in diameter by 9/16 inch in width, with two side rolling wheels to insure alignment of truck in track

shall be provided for each gate leaf. Trucks shall be held to post brackets by 7/8 inch diameter ball bolts with 1/2 inch shank. Truck assembly shall be designed to take the same reaction load as the track.

Guide wheel assemblies shall be provided for each supporting post. Each assembly shall consist of two rubber wheels 4 inches in diameter with oil impregnated bearings and shall be attached to the post so that the bottom horizontal member will roll between the wheels which can be adjusted to maintain the gate frames plumb and in proper alignment.

Cantilever slide gates shall either be mill finished aluminum, or power coated green to match the existing adjacent fence line.

162-2.5 Wire ties and tension wires. Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall be 7-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A824.

All material shall conform to Federal Specification RR-F-191/4.

162-2.6 Miscellaneous fittings and hardware. Miscellaneous steel fittings and hardware for use with aluminum-coated steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires of the quality specified herein. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A153 and meet ASTM F626, Specification for fence fittings. Barbed wire support arms shall withstand a load of 250 pounds applied vertically to the outermost end of the arm.

162-2.7 Concrete. Concrete shall be in accordance with the New York State Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 555-2. Unless otherwise shown on the plans, the concrete shall have maximum permissible slump of 3-1/2 inches. Cement shall be Portland Cement Type I or Type II, minimum compressive strength of 3,500 psi.

162-2.8 Marking. Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

162-2.9 Yoke assemblies. Contractor shall provide a yoke assembly for cantilever gates attached to the gate post. The yoke assembly shall be installed for the purpose of aligning the gate upon closure such that there is no more than a 2-inch space between the gate and gate post. The yoke assembly shall not allow the gate to be torqued out shape or pulled away from the gate post.

162-2.10 Pad locks. The Contractor shall furnish and install one corrosion resistant padlock on each swing gate and cantilever gate. Padlocks shall meet the requirements of a Master Lock, Marine Brass Padlock, No. 4BD-MAR, or approved equal. All padlocks shall be keyed the same and the Contractor shall provide 10 keys to the Owner.

162-2.11 Mortise locks. The Contractor shall furnish and install a corrosion resistant mortise lock on each pedestrian gate. The locks shall meet the requirements of Sargents, No. 7826, or approved equal. All mortise locks shall be keyed the same and the Contractor shall provide 10 keys to the Owner.

162-2.13 Signs. Signs shall be provided in accordance with the details shown on the Contract Drawings.

Traffic sign posts, panels and footings shall be in accordance with the New York State Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 645-2 Guide Signs, Traffic Signs, and Special Devices. The Sign Face Layout shall be in accordance with Title 17, Official Compilation of Codes, Rules, Regulations of the State of New York (NYCRAA) and New York State Standard Sheets M 645.

162-2.14 Wildlife Barrier. Wildlife barrier shall be provided and installed in accordance with the details

shown on the Contract Drawings.

CONSTRUCTION METHODS

162-3.1 General. The fence shall be constructed in accordance with the details on the plans and as specified here using new materials. All work shall be performed in a workmanlike manner satisfactory to the RPR. The Contractor shall layout the fence line based on the plans. The Contractor shall span the opening below the fence with barbed wire at all locations where it is not practical to conform the fence to the general contour of the ground surface because of natural or manmade features such as drainage ditches. The new fence shall be permanently tied to the terminals of existing fences as shown on the plans. The Contractor shall stake down the woven wire fence at several points between posts as shown on the plans.

The work shall progress in this manner and at the close of the working day the newly constructed fence shall be tied to the existing fence.

162-3.2 Clearing and Grading fence and gate line. Clearing shall consist of the removal of all stumps, brush, rocks, trees, or other obstructions that will interfere with proper construction of the fence to the dimensions shown on the plans. Stumps within the cleared area of the fence shall be grubbed or excavated. The bottom of the fence shall be placed a uniform distance above ground, as specified in the plans. When shown on the plans or as directed by the RPR, the existing fences which interfere with the new fence location shall be removed by the Contractor as a part of the construction work unless such removal is listed as a separate item in the bid schedule. All holes remaining after post and stump removal shall be refilled with suitable soil, gravel, or other suitable material and compacted with tampers. Sand and earth build-up shall be excavated and restored with topsoil, seed and mulch.

The cost of all necessary earthwork, removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

162-3.3 Installing posts. All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans, unless otherwise specified.

All augured post holes shall have vertical sides to ensure concrete does not mushroom out towards the surface (allowing frost heave). If the soil does not accommodate near vertical holes and stable soil, sonotube paper forms shall be used to ensure uniform diameter concrete post encasements. Soil shall be used to fill the resulting voids and thoroughly compacted to avoid future settlement.

The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within seven (7) days after the individual post footing is completed. This timeframe can be shortened if compressive strength test results are provided by the concrete supplier showing that a minimum strength of 3,000 psi can be normally achieved in less duration.

Should rock be encountered at a depth less than the planned footing depth, a hole 2 inches (50 mm) larger than the greatest dimension of the posts shall be drilled to a depth of 12 inches (300 mm). After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.

In lieu of drilling, the rock may be excavated to the required footing depth. No extra compensation shall be made for rock excavation.

Terminal posts shall be installed at fence ends, corners, angle points, and at intervals not exceeding 500 feet along straight sections of fence. Gate posts shall be installed on each side of each gate and at other locations recommended by the gate manufacturer. All other posts shall be line posts.

Where shown on the plans, posts which are to be installed within wetland areas, or other soft, yielding soils as determined by the Engineer during construction, shall be installed by driving the post in the ground and securing them with drive anchors.

162-3.4 Installing top and bottom rails. The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion. Bottom rails shall be incorporated.

162-3.5 Installing braces. Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts. Horizontal brace rails, with diagonal truss rods and turnbuckles, shall also be installed at all gate posts (both sides of the gate where possible).

162-3.6 Installing fabric. The wire fabric shall be firmly attached to the posts and braced as shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no more than one inch (25 mm) from the ground surface. Grading shall be performed where necessary to provide a neat appearance and to eliminate all gaps.

At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched to span the opening below the fence. The vertical clearance between strands of barbed wire shall be 6 inches (150 mm) or less.

Contractor shall install bottom tension wire within 6 inches of the bottom of the fabric and shall be at a consistent height throughout the length of fence.

162-3.7 Electrical grounds. Not used.

162-3.8 Cleaning up. After installation of fence is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. Suitable material may be deposited in embankment or shoulders areas. Unsuitable material shall be disposed off airport property.

Areas disturbed by the Contractor's operation shall be restored to their original condition. Restoration of surfaces shall be performed in accordance with the details of the Contract Drawings. Restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items for fence installation or fence removal. The Contractor shall be responsible for maintaining all disturbed surfaces and restorations until final acceptance. The Contractor shall remove from the vicinity of the completed work all tools, buildings, equipment, etc., used during construction.

162-3.9 Installing tension wires. The bottom tension wire shall be installed as required for proper fence fabric support.

162-3.10 Installing signs. Signs shall be installed on the fence and on gates at the locations shown and in accordance with the details shown on the Contract Drawings. The final location of signs on the gates shall be determined by the Owner during construction. The mounting system for signs on gates shall be such that signs do not interfere with operation of the gate.

162-3.11 Removal of existing fence. Existing fence locations and quantities shall be field verified by the Contractor and approved by the Engineer prior to removal. Fence removal shall include removal of the entire fence regardless of its size, including fabric, posts, foundations, gates and all appurtenances. Holes left after fence removal shall be restored to a condition equal to or better that the surrounding area. No separate measurement for payment shall be made for restoration after fence removal. Restoration after fence removal shall be considered incidental to the work involved and the costs shall be included in the various pay items involved.

162-3.12 Spoil material. The owner has first rights to salvage any equipment scheduled for demolition. The Contractor shall coordinate with the Owner prior to construction to confirm they have marked all items

they desire. The material to be salvaged shall be stockpiled at a location on airport property designated by the owner in good condition. All other materials shall be spoiled off airport property at a proper disposal site. The Contractor shall assume any combination of salvage and off-site spoil in their bid – no adjustments for payment shall be made based upon the degree of salvageable materials are selected.

METHOD OF MEASUREMENT

162-4.1 Chain-link fence will be measured for payment by the linear foot for each type and size of fence installed. Measurement will be along the bottom of the fence from center to center of end posts, excluding the length occupied by gate openings.

162-4.2 New gates will be measured as complete units. The quantity of gates to be measured shall be the number of each type and size installed or reset as complete units in place, ready for operation and accepted by the RPR.

162-4.3 Removal of chain link fence and gates will be measured for payment by the linear foot. Measurement will be along the top of existing fence from center to center of end posts prior to removal and will include the openings occupied by gates, if gates are present.

BASIS OF PAYMENT

162-5.1 Payment for chain-link fence will be made at the contract unit price per linear foot for each type and size of fence installed.

162-5.2 Payment for new vehicle gates will be made at the contract unit price for each type and size of gate.

162-5.3 Payment will be made at the contract unit price per linear foot for removal of existing chain link fence and gates.

The price shall be full compensation for furnishing all materials, and for all preparation, erection, and installation of these materials, and for all labor equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item F-162-5.1	8-Foot Chain Link Fence with Barbed Wire - per linear foot
Item F-162-5.2	8-Foot Chain Link Fence, PVC Coated Black - per linear foot
Item F-162-5.3	Pneumatically Driven Wildlife Barrier - per linear foot
Item F-162-5.4	4-Foot by 8-Foot Single Swing Pedestrian Gate, PVC Coated Black - per each
Item F-162-5.5	12-Foot by 8-Foot Double Swing Gate, PVC Coated - per each
Item F-162-5.6	24-Foot by 8-Foot Double Swing Gate, PVC Coated - per each
Item F-162-5.7	30-Foot by 8-Foot Single Slide Cantilever Gate - per each
Item F-162-5.8	Remove Chain Link Fence and Gates Including Posts and Foundations, All Types - per linear foot

SUBMITTALS AND CERTIFICATIONS.

Submittals of "Shop and Setting Drawings," Working Drawings," "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and certifications required are as follows:

- Catalogue data and certification that fence fabric meets the requirements specified.
- Certification that barbed wire meets the requirements specified.
- Catalogue data and certification showing that posts, rails and braces meet the requirements specified.
- Catalogue data and certification showing that gates meet the requirements specified.
- Certification that wire ties and tension wires meet the requirements specified.
- Certification that miscellaneous fittings and hardware meet the requirements specified.
- NYSDOT approved Concrete Mix Design.
- Catalog data for signs

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A121	Standard Specification for Metallic-Coated Carbon Steel Barbed Wire		
ASTM A153	Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware		
ASTM A491	Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric		
ASTM A824	Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use with Chain Link Fence		
ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus		
ASTM F668	Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and other Organic Polymer Coated Steel Chain-Link Fence Fabric		
ASTM F1043	Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework		
ASTM F1083	Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures		
ASTM F1183	Standard Specification for Aluminum Alloy Chain Link Fence Fabric		
ASTM F1345	Standard Specification for Zinc 5% Aluminum-Mischmetal Alloy Coated Steel Chain-Link Fence Fabric		
ASTM G152	Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials		
ASTM G153	Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials		

ASTM G154Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp
Apparatus for Exposure of Nonmetallic MaterialsASTM G155Standard Practice for Operating Xenon Arc Light Apparatus for Exposure
of Nonmetallic Materials

Federal Specifications (FED SPEC)

FED SPEC RR-F-191/3 Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces)

FED SPEC RR-F-191/4 Fencing, Wire and Post, Metal (Chain-Link Fence Accessories)

END OF ITEM F-162

Item L-100 Roadway Lighting

DESCRIPTION

100-1.1 This item shall consist of the furnishing and installing of all new roadway lighting, lighting controls, and distribution equipment, as well as associated materials such as wiring, cable, conduit, poles, foundations, above-ground pull boxes and grounding systems, as shown on the Contract Drawings or specified herein. This item shall also include marking and labeling of equipment, labeling or tagging of wire, the testing of the installations and furnishing all incidentals necessary to place all equipment in operating condition as a completed unit to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

100-2.1 Lighting equipment (poles and fixtures). Lighting equipment shall be as scheduled and shown on the Contract Drawings.

Roadway lighting shall be in accordance with all Divion 26 electrical technical specifications.

INSTALLATION OF LIGHTING EQUIPMENT

100-3.1 General. The Contractor shall furnish, install and connect all new equipment, poles, lights, conduit, cables, wires, buses, grounds, control devices and supports necessary to insure a complete and operable roadway lighting system as specified herein and as shown on the Contract Drawings.

Equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction.

Roadway lighting installation shall be in accordance with all Divion 26 electrical technical specifications.

METHOD OF MEASUREMENT

100-4.1 Measurement for payment will be made for each new roadway area lighting unit installed. Each roadway area light unit installation shall include construction of the light pole foundation, installation of the pole and fixture mounting bar, installation of light fixtures, all conduit, wiring, grounding, connections and aiming required to complete the unit.

Separate payment shall be made for conduit and cable between the units as well as the power and control distribution rack.

BASIS OF PAYMENT

100-5.1 Payment will be made at the contract unit price per each for installation of roadway area lighting units. The unit prices provided shall be full compensation for furnishing all materials and for all preparation and installation of these materials and for all labor, equipment, tools and incidentals necessary to provide a complete and fully operation system.

Payment will be made under:

Item L-100-1	-	Roadway Area Lighting Unit - per each
Item L-100-2	-	Roadway Area Lighting Power Distribution Rack Assembly - per lump sum
Item L-100-3	-	NO. 1/0 AWG, 600V, Type THWN-2 1/C Power Cable – per linear foot
Item L-100-4	-	NO. 6 AWG, 600V, Type THWN-2 1/C Power Cable – per linear foot
Item L-100-5	-	Concrete Encased Electrical Conduit, 1 way - 2 inch, Sch. 40 PVC Conduit Pavement – per linear foot
Item L-100-6	-	Non-Encased Electrical Conduit, 1 way – 2 inch, Sch. 80 PVC Conduit in Turf – per linear foot
Item L-100-7	-	Concrete Encased Electrical Conduit, 1 way – 1 inch, Sch. 40 PVC Conduit Pavement – per linear foot
Item L-100-8	-	Non-Encased Electrical Conduit, 1 way – 1 inch, Sch. 80 PVC Conduit in Turf – per linear foot
Item L-100-9	-	Non-Encased Electrical Conduit with 3-cell Innerduct, 2 way – 4 inch, Sch. 80 PVC Conduit in Turf – per linear foot
Item L-100-10	-	Non-Encased Electrical Conduit, 2 way – 3 inch, Sch. 80 PVC Conduit in Turf – per linear foot
Item L-100-11	-	Electrical Hand Hole, Heavy Duty Polymer Concrete, Tier 22 - per each
Item L-100-12	-	Telecommunications Hand Hole, Heavy Duty Precast Concrete, H-20 – per each

END OF ITEM L-100

ITEM L-102 Utility Coordination

102-1 DESCRIPTION.

102-1.1 This item shall include the relocation and/or installation of electrical utility services as shown on the Contract Drawings including coordination, scheduling, permits, inspections, incidental items required to complete the relocations and all incidentals as required by the utility companies including payment of all utility fees. The Contractor shall engage in an agreement with the respective utility companies to perform this work.

102-2 INSTALLATION OF EQUIPMENT.

102-2.1 Griffiss Utility Services Corporation Utility Coordination (GUSC). The Contractor shall coordinate with GUSC to:

• Provide and connect a new electrical service for the street lighting.

GUSC will generally be responsible for the primary electrical service, including primary electric cables, transformers, meters, and primary electrical connections. Unless otherwise noted on the Contract Drawings, light poles and fixtures, conduits, secondary cables and conduit, meter pans, switches and hand holes shall be provided and installed by the Contractor. All remaining work items associated with the utility relocation shall be performed by the Contractor and included in the various items of the Contract.

Contact:	Michael P. Davis II, PE
	Vice President, Operations
	Griffiss Utility Services Corporation
	410 Phoenix Drive, Rome, NY 13441
	P: 315-838-4872; C: 315-727-7477
	mdavis@gusc.net

102-2.4 UTILITY ALLOWANCE. Construction allowances have been included with this work as the utility companies have not been able to determine exact costs at this time. Costs will only be paid for upon receipt of invoices submitted from the utility company after work is performed. This allowance covers utility company costs and their subcontractors only. The following utility allowances have been included in this Contract:

Electric Utility Allowance: \$25,000.00

102-3 METHOD OF MEASUREMENT.

102-3.1 The utility allowance price and the utility coordination shall be measured on a lump sum basis.

102-4 BASIS OF PAYMENT.

102-4.1 Payment will be made at the lump sum allowance for utility coordination and installation completed, installed and operational. This price shall include the cost of all labor, material, equipment, utility service charges and all incidentals necessary to complete this item in accordance with all requirements of the utility company.

The utility relocation allowance price may be paid as a percentage of utility relocation allowance completed. The percentage shall be computed by dividing the total of utility company invoices by the total price included in this bid for utility relocation allowance. Payments will be made based on actual utility service invoices, with no contractor markup allowed.

102-4.2 Payment will be made on a lump sum basis for utility coordination. This price shall include the cost of all labor, materials, and incidentals necessary to coordinate the relocation of the utility with the utility companies.

Payment will be made under:

Item L-102-4.1	-	Electric Utility Allowance - Lump Sum
Item L-102-4.2	-	Utility Coordination - Lump Sum

END OF ITEM L-102

Item L-127 Traffic Signs and Barriers

DESCRIPTION

127-1.1 This item shall consist of providing and installing, relocating or removing traffic signs and concrete barriers in accordance with these specifications and as indicated on the Contract Drawings.

MATERIALS

127-2.1 Sign assemblies. Traffic sign posts, panels and footings shall be in accordance with the New York State Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 645-2 Guide Signs, Traffic Signs, and Special Devices. The Sign Face Layout shall be in accordance with Title 17, Official Compilation of Codes, Rules, Regulations of the State of New York (NYCRAA) and New York State Standard Sheets M 645.

127-2.2 Concrete. Concrete shall conform to the requirements of Item P-610, Structural Portland Cement Concrete with the exception that the minimum compressive strength shall be 3000 psi at 28 days

127-2.3 Yield device. Each sign, when specified, shall have a yield point near where the sign post attaches to the footing. The yield point shall withstand a bending moment of design parameters-wind load 33 lb./sf without failure, but shall separate cleanly from the mounting system before the bending moment reaches design parameters-36 lb./sf. The yield point shall be no more than 1-1/2 inch above grade, and shall give way before any other part of the sign is damaged. The yield device shall be telescopic type tubing and shall be easily replaceable after breakage.

127-2.4 Concrete Highway Barriers. Permanent concrete jersey style barriers shall be in accordance with the New York State Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto.

CONSTRUCTION METHODS

127-3.1 Sign assemblies. Construction methods shall be in accordance with the New York State Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 645-3.

127-3.2 Concrete highway barriers. Construction methods shall be in accordance with the New York State Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto.

125-3.3 Concrete. Concrete handling and placement shall be in accordance with Item P-610, Structural Portland Cement Concrete.

METHOD OF MEASUREMENT

127-4.1 The quantity of traffic signs to be paid for under this item shall be the actual number of complete traffic signs, sign panels, post and footing, and appurtenances, installed relocated or removed in accordance with the Contract Drawings and Specifications and accepted by the RPR.

No separate measurement and payment shall be made for temporary signs associated with construction work phasing as those costs are included in item C-106.

127-4.2 The quantity of concrete highway barriers to be paid for under this item shall be the actual linear footage of concrete barrier installed in accordance with the Contract Drawings and Specifications and accepted by the RPR.

No separate measurement and payment shall be made for temporary concrete jersey barriers associated with construction work phasing as those costs are included in item C-106.

BASIS OF PAYMENT

127-5.1 Payment shall be made at the contract unit price for each complete traffic sign installed, relocated or removed in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools and incidentals necessary to complete the item.

127-5.2 Payment shall be made at the contract unit price per liner foot of concrete highway barriers installed, relocated or removed in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools and incidentals necessary to complete the item.

Payment will be made under:

Item L-127-1	Traffic Sign Assembly - per each
Item L-127-2	Concrete Highway Jersey Barrier - per linear foot

END OF ITEM L-127

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Thermoplastic-insulated wire.
 - 2. Thermoset-insulated wire.
 - 3. Connectors and splices.

1.2 DEFINITIONS

A. NICET: National Institute for Certification in Engineering Technologies; a division of the National Society of Professional Engineers (NSPE).

1.3 ACTION SUBMITTALS

- A. Product Schedule: Indicate type, use, location, and termination locations.
- B. Product Data: For each type of product.
- C. Field quality-control reports.

1.4 INFORMATIONAL SUBMITTALS

- A. Manufacturer's published instructions.
- B. Field Reports:
 - 1. Field reports for infrared scanning.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

2.2 THERMOPLASTIC-INSULATED WIRE

- A. Description: Thermoplastic-insulated wire for use in accordance with Article 310 of NFPA 70.
- B. UL ZLGR Type THWN-2 Insulated Wire :
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Belden Inc.
 - b. Okonite Company (The)
 - c. Southwire Company, LLC
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Thermoplastic-Insulated Wire: UL CCN ZLGR, including UL 83.
 - 3. Standard Features:
 - a. Referenced Standard: Article 310 of NFPA 70.
 - b. Insulation Voltage Rating: 600 V.
 - c. Insulation Temperature Rating: 90 deg C.
 - d. Conductor Material: Copper.
 - e. Conductor Size: As indicated on the Drawings.
 - 1) Minimum Conductor Size: 12 AWG.

2.3 THERMOSET-INSULATED WIRE

- A. Description: Thermoset-insulated wire for use in accordance with Article 310 of NFPA 70.
- B. UL ZKST Type XHHW-2 Insulated Wire:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Belden Inc.
 - b. Okonite Company (The)
 - c. Southwire Company, LLC
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Thermoset-Insulated Wire: UL CCN ZKST, including UL 44.
 - 3. Standard Features:

- a. Referenced Standard: Article 310 of NFPA 70.
- b. Insulation Voltage Rating: 600 V.
- c. Insulation Temperature Rating: 90 deg C.
- d. Conductor Material: Copper.
- e. Conductor Size: As indicated on the Drawings.
 - 1) Minimum Conductor Size: 12 AWG.

2.4 CONNECTORS AND SPLICES

- A. UL ZMVV Wire Connectors and Soldering Lugs:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABB, Installation Products
 - b. Burndy; brand of Hubbell Electrical Solutions; Hubbell Incorporated
 - c. Eaton
 - d. Panduit Corp
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Wire Connectors and Soldering Lugs: UL CCN ZMVV, including UL 486A-486B or UL 486C.
 - 3. Standard Features:
 - a. One piece, seamless, designed to terminate conductors specified in this Section.
 - b. Material: Copper.
 - c. Type: One hole with standard barrels.
 - d. Termination: Compression.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders:
 - 1. Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits:
 - 1. Material: Copper.
 - a. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type XHHW-2, single conductors in raceway.
- B. Exposed Feeders: Type XHHW-2, single conductors in raceway.
- C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.
- D. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.
- E. Exposed Branch Circuits: Type THWN-2, single conductors in raceway.

3.3 INSTALLATION OF LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in the Contract Documents or manufacturer's published instructions, comply with the following:
 - 1. Electrical Construction: ICC IBC, ICC IFC, NFPA 1, NFPA 70, and NECA NEIS 1.
 - 2. Electrical Maintenance: NFPA 70B.
 - 3. Electrical Safety: NFPA 70E.
 - 4. Temporary Electric Power Work: NECA NEIS 200.
 - 5. Grounding and Bonding: NECA NEIS 331 and Article 250 of NFPA 70.
 - 6. Work in Confined Spaces: NFPA 350.
 - 7. Consult Architect for resolution of conflicting requirements.
- C. Special Installation Techniques:
 - 1. Complete raceway installation between conductor and cable termination points prior to pulling conductors and cables.
 - 2. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
 - 3. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
 - 4. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
 - 5. Provide support for cables.
 - 6. Complete cable tray systems installation prior to installing conductors and cables.
 - 7. Connections:
 - a. Tighten electrical connectors and terminals in accordance with manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

- b. Make splices, terminations, and taps that are compatible with conductor material.
- D. Interfaces with Other Work:
 - 1. Identification:
 - a. Identify and color-code conductors and cables.
 - b. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.4 FIELD QUALITY CONTROL

- A. Administrant for Electrical Power Tests and Inspections:
 - 1. Administer and perform tests and inspections.
- B. Tests and Inspections:
 - 1. Perform manufacturer's recommended tests and inspections.
 - 2. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 - 3. Perform each of the following visual and electrical tests:
 - a. Inspect exposed sections of conductor and cable for physical damage and correct connection in accordance with the single-line diagram.
 - b. Test bolted connections for high resistance using one or more of the following:
 - 1) A low-resistance ohmmeter.
 - 2) Calibrated torque wrench.
 - 3) Thermographic survey.
 - c. Inspect compression-applied connectors for correct cable match and indentation.
 - d. Inspect for correct identification.
 - e. Inspect cable jacket and condition.
 - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500 V(dc) for 300 V rated cable and 1000 V(dc) for 600 V rated cable for a one-minute duration.
 - g. Continuity test on each conductor and cable.
 - h. Uniform resistance of parallel conductors.
- C. Nonconforming Work:
 - 1. Wire or cable assembly will be considered defective if it does not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- D. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Grounding and bonding conductors.
 - 2. Grounding and bonding clamps.
 - 3. Grounding and bonding bushings.
 - 4. Grounding and bonding hubs.
 - 5. Grounding (earthing) electrodes.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Product Listing: Include copy of unexpired approval letter, on letterhead of qualified electrical testing agency, certifying product's compliance with specified listing criteria.
 - a. If listed manufacturer differs from selling manufacturer, indicate relationship between entities on submittal. Clearly indicate which entity warrants product performance and fitness for purpose.
 - b. Listing criteria identified in approval letter must match specified listing criteria. UL label indicating approval of equipment's enclosure is not considered approval of equipment for intended application.
 - c. Product identification in approval letter must match product branding and model numbers in submittal. Approval letters for discontinued or superseded products are unacceptable for submitted product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

2.2 GROUNDING AND BONDING CONDUCTORS

- A. Equipment Grounding Conductor:
 - 1. Standard Features: 600 V, THHN/THWN-2, copper wire or cable, green color, in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and

Cables."

- B. ASTM Bare Copper Grounding and Bonding Conductor:
 - 1. Standard Features: Complying with one or more of the following:
 - a. Soft or Annealed Copper Wire: ASTM B3.
 - b. Concentric-Lay Stranded Copper Conductor: ASTM B8.
 - c. Tin-Coated Soft or Annealed Copper Wire: ASTM B33.
 - d. 19-Wire Combination Unilay-Stranded Copper Conductor: ASTM B787/B787M.

2.3 GROUNDING AND BONDING CLAMPS

- A. Description: Clamps suitable for attachment of grounding and bonding conductors to grounding electrodes, pipes, tubing, and rebar. Grounding and bonding clamps specified in this article are also suitable for use with communications applications.
- B. UL KDER and KDSH Hex-Fitting-Type Pipe and Rod Grounding and Bonding Clamp :
 - 1. Source Limitations: Obtain products from single manufacturer.
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - b. Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
 - 3. Standard Features:
 - a. Two pieces with zinc-plated bolts.
 - b. Clamp Material: Brass.
 - c. Listed for outdoor use.
- C. UL KDER and KDSH U-Bolt-Type Pipe and Rod Grounding and Bonding Clamp :
 - 1. Source Limitations: Obtain products from single manufacturer.
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - b. Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
 - 3. Standard Features:
 - a. Clamp Material: Brass.
 - b. Listed for outdoor use.
- D. UL KDER and KDSH Strap-Type Pipe and Rod Grounding and Bonding Clamp :

- 1. Source Limitations: Obtain products from single manufacturer.
- 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - b. Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
- 3. Standard Features:
 - a. Clamp Material: Copper.
 - b. Listed for outdoor use.
- E. UL KDER Exothermically Welded Connection :
 - 1. Source Limitations: Obtain products from single manufacturer.
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - b. Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
 - 3. Standard Features: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.4 GROUNDING AND BONDING BUSHINGS

- A. Description: Bonding bushings connect conduit fittings, tubing fittings, threaded metal conduit, and unthreaded metal conduit to metal boxes and equipment enclosures, and have one or more bonding screws intended to provide electrical continuity between bushing and enclosure. Grounding bushings have provision for connection of bonding or grounding conductor and may or may not also have bonding screws.
- B. UL KDER Bonding Bushing :
 - 1. Source Limitations: Obtain products from single manufacturer.
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - 3. Standard Features: Threaded bushing with insulated throat.
- C. UL KDER Grounding Bushing :
 - 1. Source Limitations: Obtain products from single manufacturer.
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing
laboratory in accordance with guide information and standards specified for the following UL product categories:

- a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
- 3. Standard Features: Threaded bushing with insulated throat and mechanical-type wire terminal.

2.5 GROUNDING AND BONDING HUBS

- A. UL KDER Grounding and Bonding Hub :
 - 1. Source Limitations: Obtain products from single manufacturer.
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - 3. Standard Features: Insulated, gasketed, watertight hub with mechanical-type wire terminal.

2.6 GROUNDING (EARTHING) ELECTRODES

- A. UL KDER Rod Electrode :
 - 1. Source Limitations: Obtain products from single manufacturer.
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - 3. Standard Features: Copper-clad steel; 3/4 inch by 10 ft (19 mm by 3 m).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine facility's grounding electrode system and equipment grounding for compliance with requirements for maximum ground-resistance level and other conditions affecting performance of grounding and bonding of electrical system.
- B. Inspect test results of grounding system measured at point of electrical service equipment connection.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with connection of electrical service equipment only after unsatisfactory conditions have been corrected.

3.2 SELECTION OF GROUNDING AND BONDING PRODUCTS

- A. Grounding and Bonding Conductors:
 - 1. Provide solid conductor for 8 AWG and smaller, and stranded conductors for 6 AWG and larger unless otherwise indicated.
 - 2. Custom-Length Insulated Equipment Bonding Jumpers: 6 AWG, 19-strand, Type THHN.
 - 3. Bonding Cable: 28 kcmil, 14 strands of 17 AWG conductor, 1/4 inch (6 mm) in diameter.
 - 4. Bonding Conductor: 4 AWG or 6 AWG, stranded conductor.
 - 5. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inch (41 mm) wide and 1/16 inch (1.6 mm) thick.
 - 6. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inch (41 mm) wide and 1/16 inch (1.6 mm) thick.
 - 7. Underground Grounding Conductors: Install bare copper conductor, 2/0 AWG minimum.

3.3 INSTALLATION OF GROUNDING AND BONDING

- A. Comply with manufacturer's published instructions.
- B. Reference Standards:
 - 1. Electrical Construction: ICC IBC, ICC IFC, NFPA 1, NFPA 70, and NECA NEIS 1.
 - 2. Electrical Maintenance: NFPA 70B.
 - 3. Electrical Safety: NFPA 70E.
 - 4. Grounding and Bonding: NECA NEIS 331 and Article 250 of NFPA 70.
 - 5. Communications Work: BICSI N1.
 - 6. Work in ITE Rooms: NFPA 75.
 - 7. Work in Health Care Facilities: NFPA 99 and Article 517 of NFPA 70.
 - 8. Emergency and Standby Power Work: NFPA 110, NFPA 111, and NECA NEIS 416.
 - 9. Work in Confined Spaces: NFPA 350.
 - 10. Work in Basements and Other Developed Subterranean Spaces: NFPA 520.
 - 11. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.
 - 12. Consult Architect for resolution of conflicting requirements.
- C. Special Techniques:
 - 1. Grounding and Bonding Conductors:
 - a. Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
 - b. Underground Grounding Conductors:

- 1) Bury at least 30 inch (750 mm) below grade.
- 2) Duct-Bank Grounding Conductor: Bury 12 inch (300 mm) above duct bank when indicated as part of duct-bank installation.
- 2. Grounding and Bonding Connectors: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
 - a. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 - b. Make connections with clean, bare metal at points of contact.
 - c. Make aluminum-to-steel connections with stainless steel separators and mechanical clamps.
 - d. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
 - e. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
 - f. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1) Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate adjacent parts.
 - 2) Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
 - 3) Use exothermic-welded connectors for outdoor locations; if disconnect-type connection is required, use bolted clamp.
- 3. Electrodes:
 - a. Ground Rods: Drive rods until tops are 2 inch (50 mm) below final grade unless otherwise indicated.
 - 1) Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
 - 2) Use exothermic welds for below-grade connections.
 - b. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least same distance from other grounding electrodes, and connect to service grounding electrode conductor.
- 4. Grounding at Service:
 - a. Equipment grounding conductors and grounding electrode conductors must be connected to ground busbar. Install main bonding jumper between neutral and ground buses.
- 5. Grounding Underground Distribution System Components:
 - a. Comply with IEEE C2 grounding requirements.

- b. Grounding Handholes: Install driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inch (100 mm) will extend above finished floor. If necessary, install ground rod before manhole is placed and provide 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inch (50 mm) above to 6 inch (150 mm) below concrete. Seal floor opening with waterproof, nonshrink grout.
- c. Pad-Mounted Transformers and Switches: Install two ground rods and ring electrode around pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than 2 AWG for ring electrode and for taps to equipment grounding terminals. Bury ring electrode not less than 6 inch (150 mm) from foundation.
- 6. Equipment Grounding and Bonding:
 - a. Install insulated equipment grounding conductors with feeders and branch circuits.
 - b. Poles Supporting Outdoor Lighting Fixtures: Bond insulated equipment grounding conductor to equipment grounding terminal inside pole base.
 - c. Metallic Fences: Comply with requirements of IEEE C2.
 - 1) Grounding Conductor: Bare copper, not less than 8 AWG.
 - 2) Gates: Must be bonded to grounding conductor with flexible bonding jumper.
 - 3) Barbed Wire: Strands must be bonded to grounding conductor.
- 7. Fence Grounding:
 - a. Grounding Method: At each grounding location, drive grounding rod vertically until top is 6 inch (150 mm) below finished grade. Connect rod to fence with 6 AWG conductor. Connect conductor to each fence component at grounding location.
 - b. Fences greater than 100 ft (30 m) of Buildings, Structures, Walkways, and Roadways: Ground fence at maximum intervals of 1500 ft (450 m).
 - c. Fences within 100 ft (30 m) of Buildings, Structures, Walkways, and Roadways: Ground fence at maximum intervals of 750 ft (225 m).
 - 1) Gates and Other Fence Openings: Ground fence on each side of opening.
 - a) Bond metal gates to gate posts by connecting bonding jumper between gate post and gate frame.
 - b) Bond across openings, with and without gates, except at openings indicated as intentional fence discontinuities. Use 2 AWG wire and bury it at least 18 inch (460 mm) below finished grade.
 - d. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of power line crossing and at maximum distance of 150 ft (45 m) on each side of crossing.

3.4 FIELD QUALITY CONTROL FOR GROUNDING AND BONDING

- A. Administrant for Electrical Power Tests and Inspections:
 - 1. Administer and perform tests and inspections.
- B. Tests and Inspections:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with calibrated torque wrench in accordance with manufacturer's published instructions.
 - 3. Test completed grounding system at each location where maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal. Make tests at ground rods before conductors are connected.
 - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method in accordance with IEEE Std 81.
 - c. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.
- C. Nonconforming Work:
 - 1. Grounding system will be considered defective if it does not pass tests and inspections.
 - 2. Remove and replace defective components and retest.
- D. Collect, assemble, and submit test and inspection reports.
 - 1. Report measured ground resistances that exceed the following values:
 - a. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 Ω .
 - b. Substations and Pad-Mounted Equipment: 5 Ω .

3.5 **PROTECTION**

A. After installation, protect grounding and bonding cables and equipment from construction activities. Remove and replace items that are contaminated, defaced, damaged, or otherwise caused to be unfit for use prior to acceptance by Owner.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Support systems.
 - 2. Mounting, anchoring, and attachment components.
 - 3. Installation of fabricated metal supports.
 - 4. Installation of concrete bases.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Slotted support systems, hardware, and accessories.
 - b. Clamps.
 - c. Hangers.
 - d. Sockets.
 - e. Eye nuts.
 - f. Fasteners.
 - g. Anchors.
 - h. Saddles.
 - i. Brackets.
 - 2. Include rated capacities and furnished specialties and accessories.

PART 2 - PRODUCTS

2.1 SUPPORT SYSTEMS

- A. Steel Slotted Support Systems :
 - 1. Standard Features: Preformed steel channels and angles with minimum 13/32 inch (10 mm) diameter holes at a maximum of 8 inch (200 mm) on center in at least one surface.
 - a. Referenced Standard: MFMA-4 factory-fabricated components for field assembly.
 - b. Material for Channel, Fittings, and Accessories: Stainless steel, Type 304.
 - c. Channel Width: Selected for applicable load criteria.
 - d. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to

MFMA-4.

- B. Conduit and Cable Support Devices:
 - 1. Standard Features: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

2.2 MOUNTING, ANCHORING, AND ATTACHMENT COMPONENTS

- A. Powder-Actuated Fasteners :
 - 1. Standard Features: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
- B. Mechanical-Expansion Anchors :
 - 1. Standard Features: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
- C. Concrete Inserts:
 - 1. Standard Features: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
- D. Through Bolts:
 - 1. Standard Features: Structural type, hex head, and high strength. Comply with ASTM F3125/F3125M, Grade A325 (Grade A325M).
- E. Toggle Bolts:
 - 1. Standard Features: All steel springhead type.

PART 3 - EXECUTION

3.1 INSTALLATION OF HANGERS AND SUPPORTS

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in the Contract Documents or manufacturer's published instructions, comply with the following:
 - 1. Electrical Construction: ICC IBC, ICC IFC, NFPA 1, NFPA 70, and NECA NEIS 1.
 - 2. Hot Work: NFPA 51B.
 - 3. Work in Confined Spaces: NFPA 350.
 - 4. Work in Basements and Other Developed Subterranean Spaces: NFPA 520.

- 5. Installation of Steel Conduit: NECA NEIS 101.
- 6. Installation of Aluminum Conduit: NECA NEIS 102.
- 7. Installation of Metal Cable Tray Systems: NECA NEIS 105.
- 8. Installation of Nonmetallic Cable Tray Systems: NECA NEIS 111.
- 9. Consult Architect for resolution of conflicting requirements.
- C. Special Installation Techniques:
 - 1. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - a. To New Concrete: Bolt to concrete inserts.
 - b. To Existing Concrete: Expansion anchor fasteners.
 - c. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inch (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inch (100 mm) thick.
 - 2. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.
- D. Interfaces with Other Work:
 - 1. Touchup Finishes:
 - a. Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1) Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
 - b. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
 - c. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780.
 - 2. Installation of Fabricated Metal Supports:
 - a. Provide site-fabricated metal supports.
 - b. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
 - c. Field Welding: Comply with AWS D1.1/D1.1M. Submit welding certificates.
 - 3. Installation of Concrete Bases:
 - a. Provide concrete bases of dimensions indicated, but not less than 4 inch (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

- b. Use 4000 psi (20.7 MPa), 28-day compressive-strength concrete.
- c. Anchor equipment to concrete base as follows:
 - 1) Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2) Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 3) Install anchor bolts according to anchor-bolt manufacturer's written instructions.

END OF SECTION 260529

SECTION 260533.13 - CONDUITS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Type ERMC duct raceways, elbows, couplings, and nipples.
 - 2. Type PVC duct raceways and fittings.
 - 3. Fittings for conduit, tubing, and cable.
 - 4. Joint compounds.
 - 5. Solvent cements.

1.2 **REFERENCES**

- A. Abbreviations and Acronyms for Electrical Raceway Types:
 - 1. EMT: Electrical metallic tubing.
 - 2. EMT-A: Aluminum electrical metallic tubing.
 - 3. EMT-S: Steel electrical metallic tubing.
 - 4. EMT-SS: Stainless steel electrical metallic tubing.
 - 5. ENT: Electrical nonmetallic tubing.
 - 6. EPEC: Electrical HDPE underground conduit (thin wall).
 - 7. EPEC-A: Type A electrical HDPE underground conduit.
 - 8. EPEC-B: Type B electrical HDPE underground conduit.
 - 9. ERMC: Electrical rigid metal conduit.
 - 10. ERMC-A: Aluminum electrical rigid metal conduit.
 - 11. ERMC-S: Steel electrical rigid metal conduit.
 - 12. ERMC-S-G: Galvanized-steel electrical rigid metal conduit.
 - 13. ERMC-S-PVC: PVC-coated-steel electrical rigid metal conduit.
 - 14. ERMC-SS: Stainless steel electrical rigid metal conduit.
 - 15. FMC: Flexible metal conduit.
 - 16. FMC-A: Aluminum flexible metal conduit.
 - 17. FMC-S: Steel flexible metal conduit.
 - 18. FMT: Steel flexible metallic tubing.
 - 19. FNMC: Flexible nonmetallic conduit. See "LFNC."
 - 20. HDPE: HDPE underground conduit (thick wall).
 - 21. HDPE-40: Schedule 40 HDPE underground conduit.
 - 22. HDPE-80: Schedule 80 HDPE underground conduit.
 - 23. IMC: Steel electrical intermediate metal conduit.
 - 24. LFMC: Liquidtight flexible metal conduit.
 - 25. LFMC-A: Aluminum liquidtight flexible metal conduit.
 - 26. LFMC-S: Steel liquidtight flexible metal conduit.
 - 27. LFMC-SS: Stainless steel liquidtight flexible metal conduit.
 - 28. LFNC: Liquidtight flexible nonmetallic conduit.
 - 29. LFNC-A: Layered (Type A) liquidtight flexible nonmetallic conduit.

- 30. LFNC-B: Integral (Type B) liquidtight flexible nonmetallic conduit.
- 31. LFNC-C: Corrugated (Type C) liquidtight flexible nonmetallic conduit.
- 32. PVC: Rigid PVC conduit.
- 33. PVC-40: Schedule 40 rigid PVC conduit.
- 34. PVC-80: Schedule 80 rigid PVC Conduit.
- 35. PVC-A: Type A rigid PVC concrete-encased conduit.
- 36. PVC-EB: Type EB rigid PVC concrete-encased underground conduit.
- 37. RGS: See ERMC-S-G.
- 38. RMC: See ERMC.
- 39. RTRC: Reinforced thermosetting resin conduit.
- 40. RTRC-AG: Low-halogen, aboveground reinforced thermosetting resin conduit.
- 41. RTRC-AG-HW: Heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
- 42. RTRC-AG-SW: Standard wall, low-halogen, aboveground reinforced thermosetting resin conduit.
- 43. RTRC-AG-XW: Extra heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
- 44. RTRC-BG: Low-halogen, belowground reinforced thermosetting resin conduit.
- B. Definitions:
 - 1. Conduit: A structure containing one or more duct raceways.
 - 2. Direct Buried: Installed underground without encasement in concrete or other protective material.
 - 3. Duct Bank: An arrangement of conduit providing one or more continuous duct raceways between two points.
 - 4. Duct Raceway: A single enclosed raceway for conductors or cable.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Manufacturer's published instructions.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

 Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

2.2 TYPE ERMC DUCT RACEWAYS, ELBOWS, COUPLINGS, AND NIPPLES

A. UL DYIX - Galvanized-Steel Electrical Rigid Metal Conduit (ERMC-S-G), Elbows, Couplings,

CONDUITS FOR ELECTRICAL SYSTEMS

and Nipples:

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Allied Tube & Conduit; Atkore International
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector
 - c. Wheatland Tube; Zekelman Industries
- 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DYIX; including UL 6.
- 3. Standard Features:
 - a. Exterior Coating: Zinc.
 - b. Interior Coating: Zinc with organic top coating.
 - c. Minimum Trade Size: Metric designator 21 (trade size 3/4).

2.3 TYPE PVC DUCT RACEWAYS AND FITTINGS

- A. UL DZYR Schedule 80 Rigid PVC Conduit (PVC-80) and Fittings:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABB, Electrification Business
 - b. Calconduit; Atkore International
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DZYR; including UL 651.
 - 3. Standard Features:
 - a. Dimensional Specifications: Schedule 80.
 - b. Minimum Trade Size: Metric designator 21 (trade size 3/4).

2.4 FITTINGS FOR CONDUIT, TUBING, AND CABLE

- A. UL DWTT Fittings for Type ERMC and Type PVC Duct Raceways:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to,

the following:

- a. ABB, Electrification Business
- b. Crouse-Hinds; brand of Eaton, Electrical Sector
- c. Southwire Company, LLC
- 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DWTT; including UL 514B.
- 3. Standard Features:
 - a. Material: Steel.
 - b. Coupling Method: Compression coupling.
 - c. Expansion and Deflection Fittings: UL 651 with flexible bonding jumper.

2.5 SOLVENT CEMENTS

- A. UL VBEW Solvent Cements for Nonmetallic Duct Raceways and Fittings:
 - 1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Solvent Cements: UL CCN VBEW; including UL 340.
 - b. Solvent Cement Compatibility with PVC Conduit Fittings: UL CCN DWTT; including UL 514B. Follow solvent manufacturer's published instructions.
 - c. Solvent Cement Compatibility with Rigid PVC Conduit: UL CCN DZYR; including UL 651. Follow solvent manufacturer's published instructions.

PART 3 - EXECUTION

3.1 SELECTION OF CONDUITS FOR ELECTRICAL SYSTEMS

- A. Unless more stringent requirements are specified in the Contract Documents or manufacturer's published instructions, comply with NFPA 70 for selection of duct raceways. Consult Architect for resolution of conflicting requirements.
- B. Outdoors:
 - 1. Exposed and Subject to Severe Physical Damage: ERMC.
 - 2. Exposed and Subject to Physical Damage: ERMC.
 - 3. Exposed and Not Subject to Physical Damage: ERMC.
 - 4. Concealed Aboveground: ERMC.
 - 5. Direct Buried: PVC-80.
 - 6. Concrete Encased Not in Trench: PVC-80.
 - 7. Concrete Encased in Trench: PVC-80.

- C. Duct Fittings: Select fittings in accordance with NEMA FB 2.10 guidelines.
 - 1. ERMC: Provide threaded-type fittings unless otherwise indicated.

3.2 INSTALLATION OF CONDUITS FOR ELECTRICAL SYSTEMS

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in the Contract Documents or manufacturer's published instructions, comply with the following:
 - 1. Electrical Construction: ICC IBC, ICC IFC, NFPA 1, NFPA 70, and NECA NEIS 1.
 - 2. Electrical Safety: NFPA 70E.
 - 3. Commissioning of Active and Passive Fire Protection Features: NFPA 3 and NFPA 4.
 - 4. Grounding and Bonding: NECA NEIS 331 and Article 250 of NFPA 70.
 - 5. Communications Work: BICSI N1.
 - 6. Life Safety and Means of Egress Work: NFPA 101.
 - 7. Emergency and Standby Power Work: NFPA 110, NFPA 111, and NECA NEIS 416.
 - 8. Work in Confined Spaces: NFPA 350.
 - 9. Work in Basements and Other Developed Subterranean Spaces: NFPA 520.
 - 10. Type EMT-A: Article 358 of NFPA 70 and NECA NEIS 102.
 - 11. Type EMT-SS: Article 358 of NFPA 70 and NECA NEIS 101.
 - 12. Type EMT-S: Article 358 of NFPA 70 and NECA NEIS 101.
 - 13. Type ENT: Article 362 of NFPA 70 and NECA NEIS 102.
 - 14. Type HDPE and Type EPEC: Article 353 of NFPA 70 and NECA NEIS 111.
 - 15. Type ERMC-A: Article 344 of NFPA 70 and NECA NEIS 102.
 - 16. Type ERMC-SS: Article 344 of NFPA 70 and NECA NEIS 101.
 - 17. Type ERMC-S: Article 344 of NFPA 70 and NECA NEIS 101.
 - 18. Type FMC-S: Article 348 of NFPA 70 and NECA NEIS 101.
 - 19. Type FMC-A: Article 348 of NFPA 70 and NECA NEIS 102.
 - 20. Type FMT: Article 360 of NFPA 70 and NECA NEIS 101.
 - 21. Type IMC: Article 342 of NFPA 70 and NECA NEIS 101.
 - 22. Type LFMC: Article 350 of NFPA 70 and NECA NEIS 101.
 - 23. Type LFNC: Article 342 of NFPA 70 and NECA NEIS 111.
 - 24. Type PVC: Article 356 of NFPA 70 and NECA NEIS 111.
 - 25. Type RTRC: Article 355 of NFPA 70 and NECA NEIS 111.
 - 26. Expansion Fittings: NEMA FB 2.40.
 - 27. Consult Architect for resolution of conflicting requirements.
- C. Special Installation Techniques:
 - 1. General Requirements for Installation of Duct Raceways:
 - a. Complete duct raceway installation before starting conductor installation.
 - b. Install no more than equivalent of three 90-degree bends in conduit run. Support within 12 inch (300 mm) of changes in direction.
 - c. Make bends in duct raceway using large-radius preformed ells except for parallel bends. Field bending must be in accordance with NFPA 70 minimum radii requirements. Provide only equipment specifically designed for material and size

involved.

- d. Support conduit within 12 inch (300 mm) of enclosures to which attached.
- e. Install duct sealing fittings at accessible locations in accordance with NFPA 70 and fill them with listed sealing compound. For concealed duct raceways, install fitting in flush steel box with blank cover plate having finish similar to that of adjacent plates or surfaces. Install duct sealing fittings in accordance with NFPA 70.
- f. Install devices to seal duct raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal interior of duct raceways at the following points:
 - 1) Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2) Where an underground service duct raceway enters a building or structure.
 - 3) Conduit extending from interior to exterior of building.
 - 4) Conduit extending into pressurized duct raceway and equipment.
 - 5) Conduit extending into pressurized zones that are automatically controlled to maintain different pressure set points.
 - 6) Where otherwise required by NFPA 70.
- g. Cut conduit perpendicular to the length. For conduits metric designator 53 (trade size 2) and larger, use roll cutter or a guide to make cut straight and perpendicular to the length. Ream inside of conduit to remove burrs.
- h. Install pull wires in empty duct raceways. Provide polypropylene or monofilament plastic line with not less than 200 lb. (90 kg) tensile strength. Leave at least 12 inch (300 mm) of slack at both ends of pull wire. Cap underground duct raceways designated as spare above grade alongside duct raceways in use.
- i. Install duct raceways square to the enclosure and terminate at enclosures without hubs with locknuts on both sides of enclosure wall. Install locknuts hand tight, plus one-quarter turn more.
 - 1) Termination fittings with shoulders do not require two locknuts.
- j. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to metric designator 35 (trade size 1-1/4) and insulated throat metal bushings on metric designator 41 (trade size 1-1/2) and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- 2. Types ERMC:
 - a. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound that maintains electrical conductivity to threads of duct raceway and fittings before making up joints. Follow compound manufacturer's published instructions.
- 3. Types PVC:
 - a. Do not install Type PVC conduit where ambient temperature exceeds 122 deg F (50 deg C). Conductor ratings must be limited to 75 deg C except where installed in a trench outside buildings with concrete encasement, where 90 deg C conductors are permitted.

- b. Comply with manufacturer's published instructions for solvent welding and fittings.
- c. Join joints with solvent cement in accordance with manufacturer's published instructions and allowed to cure before handling. Joints to be bent, pushed, or pulled must set for minimum 24 h after joining.
- 4. Identification: Provide labels for conduit assemblies, duct raceways, and associated electrical equipment.
 - a. Provide warning signs.
- D. Interfaces with Other Work:
 - 1. Provide conduit hangers and supports.

3.3 FIELD QUALITY CONTROL OF CONDUITS FOR ELECTRICAL SYSTEMS

- A. Administrant for Electrical Power Tests and Inspections:
 - 1. Administer and perform tests and inspections.
- B. Tests and Inspections:
 - 1. Perform manufacturer's recommended tests and inspections.
 - 2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide minimum 12 inch (300 mm) long mandrel equal to duct size minus 1/4 inch (6 mm). If obstructions are indicated, remove obstructions and retest.
 - 3. Conduit Placement:
 - a. Verify that center-line location and offsets are in accordance with the Drawings.
 - b. Verify that nuts on bolts or hanger rods are secure.
 - c. Verify that ends are cut square to provide flush-butting surfaces when spliced and inside edges are free of burrs that could impede installation of cables.
 - d. Verify minimum separation of utilities, or that approved mechanical protection has been provided to surrounding conduit(s) where minimum separation cannot be achieved.
 - 4. Document all changes on Record Drawings.
- C. Nonconforming Work:
 - 1. Conduit will be considered defective if it does not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- D. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.

3.4 CLEANING

A. Verify that bentonite or other drilling fluids are contained and removed, and site is restored to

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its original or improved condition.

3.5 **PROTECTION**

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

END OF SECTION 260533.13

SECTION 260533.16 - BOXES AND COVERS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

- 1. Metallic outlet boxes, device boxes, rings, and covers.
- 2. Junction boxes and pull boxes.

1.2 DEFINITIONS

- A. Enclosure: The case or housing of an apparatus, or the fence or wall(s) surrounding an installation, to prevent personnel from accidentally contacting energized parts or to protect the equipment from physical damage. Types of enclosures and enclosure covers include the following:
 - 1. Cabinet: An enclosure that is designed for either surface mounting or flush mounting and is provided with a frame, mat, or trim in which a swinging door or doors are or can be hung.
 - 2. Concrete Box: A box intended for use in poured concrete.
 - 3. Conduit Body: A means for providing access to the interior of a conduit or tubing system through one or more removable covers at a junction or terminal point. In the United States, conduit bodies are listed in accordance with outlet box requirements.
 - 4. Conduit Box: A box having threaded openings or knockouts for conduit, EMT, or fittings.
 - 5. Cover Plate: A cover designed for protecting wiring devices installed in flush-mounted device boxes while permitting their safe operation; also called a faceplate or wallplate.
 - 6. Cutout Box: An enclosure designed for surface mounting that has swinging doors or covers secured directly to and telescoping with the walls of the enclosure.
 - 7. Device Box: A box with provisions for mounting a wiring device directly to the box.
 - 8. Extension Ring: A ring intended to extend the sides of an outlet box or device box to increase the box depth, volume, or both.
 - 9. Floor Box: A box mounted in the floor intended for use with a floor box cover and other components to complete the floor box enclosure.
 - 10. Floor-Mounted Enclosure: A floor box and floor box cover assembly with means to mount in the floor that is sealed against the entrance of scrub water at the floor level.
 - 11. Floor Nozzle: An enclosure used on a wiring system, intended primarily as a housing for a receptacle, provided with a means, such as a collar, for surface-mounting on a floor, which may or may not include a stem to support it above the floor level, and is sealed against the entrance of scrub water at the floor level.
 - 12. Junction Box: A box with a blank cover that joins different runs of raceway or cable and provides space for connection and branching of the enclosed conductors.
 - 13. Outlet Box: A box that provides access to a wiring system having pryout openings, knockouts, threaded entries, or hubs in either the sides or the back, or both, for the entrance of conduit, conduit or cable fittings, or cables, with provisions for mounting an outlet box cover, but without provisions for mounting a wiring device directly to the box.
 - 14. Pedestal Floor Box Cover: A floor box cover that, when installed as intended, provides a means for typically vertical or near-vertical mounting of receptacle outlets above the floor's finished surface.

- 15. Pull Box: A box with a blank cover that joins different runs of raceway and provides access for pulling or replacing the enclosed cables or conductors.
- 16. Raised-Floor Box: A floor box intended for use in raised floors.
- 17. Recessed Access Floor Box: A floor box with provisions for mounting wiring devices below the floor surface.
- 18. Recessed Access Floor Box Cover: A floor box cover with provisions for passage of cords to recessed wiring devices mounted within a recessed floor box.
- 19. Ring: A sleeve, which is not necessarily round, used for positioning a recessed wiring device flush with the plaster, concrete, drywall, or other wall surface.
- 20. Ring Cover: A box cover, with raised center portion to accommodate a specific wall or ceiling thickness, for mounting wiring devices or luminaires flush with the surface.
- 21. Termination Box: An enclosure designed for installation of termination base assemblies consisting of bus bars, terminal strips, or terminal blocks with provision for wire connectors to accommodate incoming or outgoing conductors, or both.
- B. Receptacle: A fixed connecting device arranged for insertion of a power cord plug. Also called a power jack.
- C. Receptacle Outlet: One or more receptacles mounted in a box with a suitable protective cover.
- 1.3 ACTION SUBMITTALS
 - A. Product Data: For each type of product.
- 1.4 INFORMATIONAL SUBMITTALS
 - A. Manufacturer's published instructions.

PART 2 - PRODUCTS

- 2.1 PERFORMANCE REQUIREMENTS
 - A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
- 2.2 METALLIC OUTLET BOXES, DEVICE BOXES, RINGS, AND COVERS
 - A. UL QCIT Metallic Outlet Boxes and Covers:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crouse-Hinds; brand of Eaton, Electrical Sector
 - b. Pass & Seymour; Legrand North America, LLC
 - c. Wiremold; Legrand North America, LLC
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:

- a. UL CCN QCIT; including UL 514A.
- 3. Standard Features:
 - a. Box having pryout openings, knockouts, threaded entries, or hubs in either the sides or the back, or both, for entrance of conduit, conduit or cable fittings, or cables, with provisions for mounting outlet box cover, but without provisions for mounting wiring device directly to box.
 - b. Material: Sheet steel.
- B. UL QCIT Metallic Conduit Bodies:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crouse-Hinds; brand of Eaton, Electrical Sector
 - b. Pass & Seymour; Legrand North America, LLC
 - c. Wiremold; Legrand North America, LLC
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN QCIT; including UL 514A.
 - 3. Standard Features: Means for providing access to interior of conduit or tubing system through one or more removable covers at junction or terminal point. In the United States, conduit bodies are listed in accordance with outlet box requirements.
- C. UL QCIT Metallic Device Boxes:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crouse-Hinds; brand of Eaton, Electrical Sector
 - b. Pass & Seymour; Legrand North America, LLC
 - c. Wiremold; Legrand North America, LLC
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN QCIT; including UL 514A.
 - 3. Standard Features:
 - a. Box with provisions for mounting wiring device directly to box.
 - b. Material: Sheet steel.
- D. UL QCIT Metallic Concrete Boxes and Covers:

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABB, Electrification Business
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector
 - c. Wiremold; Legrand North America, LLC
- 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN QCIT; including UL 514A.

2.3 JUNCTION BOXES AND PULL BOXES

- A. UL BGUZ Outdoor Sheet Metal Junction and Pull Boxes:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-line; brand of Eaton, Electrical Sector
 - b. Hoffman; brand of nVent Electrical plc
 - c. Square D; Schneider Electric USA
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN BGUZ; including UL 50 and UL 50E.
 - 3. Standard Features:
 - a. Box with a blank cover that serves the purpose of joining different runs of raceway or cable.
 - b. Degree of Protection: Type 3R.
- B. UL BGUZ Outdoor Cast-Metal Junction and Pull Boxes:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crouse-Hinds; brand of Eaton, Electrical Sector
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN BGUZ; including UL 50 and UL 50E.

- 3. Standard Features:
 - a. Box with a blank cover that serves the purpose of joining different runs of raceway or cable.
 - b. Degree of Protection: Type 3R.

PART 3 - EXECUTION

3.1 SELECTION OF BOXES AND COVERS FOR ELECTRICAL SYSTEMS

- A. Unless more stringent requirements are specified in Contract Documents or manufacturers' published instructions, comply with NFPA 70 for selection of boxes and enclosures. Consult Architect for resolution of conflicting requirements.
- B. Degree of Protection:
 - 1. Outdoors:
 - a. Type 3R unless otherwise indicated.

3.2 INSTALLATION OF BOXES AND COVERS FOR ELECTRICAL SYSTEMS

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in Contract Documents or manufacturers' published instructions, comply with the following:
 - 1. Electrical Construction: ICC IBC, ICC IFC, NFPA 1, NFPA 70, and NECA NEIS 1.
 - 2. Electrical Safety: NFPA 70E.
 - 3. Commissioning of Active and Passive Fire Protection Features: NFPA 3 and NFPA 4.
 - 4. Grounding and Bonding: NECA NEIS 331 and Article 250 of NFPA 70.
 - 5. Communications Work: BICSI N1.
 - 6. Life Safety and Means of Egress Work: NFPA 101.
 - 7. Emergency and Standby Power Work: NFPA 110, NFPA 111, and NECA NEIS 416.
 - 8. Work in Confined Spaces: NFPA 350.
 - 9. Work in Basements and Other Developed Subterranean Spaces: NFPA 520.
 - 10. Outlet, Device, Pull, and Junction Boxes: Article 314 of NFPA 70.
 - 11. Consult Architect for resolution of conflicting requirements.
- C. Special Installation Techniques:
 - 1. Provide boxes in wiring and raceway systems wherever required for pulling of wires, making connections, and mounting of devices or fixtures.
 - 2. Install boxes with height measured to center of box unless otherwise indicated.
 - 3. Do not install aluminum boxes, enclosures, or fittings in contact with concrete or earth.
 - 4. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to ensure a continuous ground path.
- D. Interfaces with Other Work:

- 1. Identification: Provide labels for boxes and associated electrical equipment.
 - a. Identify field-installed conductors, interconnecting wiring, and components.
 - b. Label each enclosure with engraved metal or laminated-plastic nameplate.
 - c. Provide warning signs and arc-flash hazard warning labels for electrical equipment.

3.3 FIELD QUALITY CONTROL OF BOXES AND COVERS

- A. Administrant for Electrical Power Tests and Inspections:
 - 1. Administer and perform tests and inspections.
- B. Tests and Inspections:
 - 1. Perform manufacturer's recommended tests and inspections.
 - 2. Perform tests and inspections recommended by standards listed in "Reference Standards for Installation" Paragraph.
- C. Nonconforming Work:
 - 1. Boxes and covers will be considered defective if they do not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- D. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.

3.4 CLEANING

A. Remove construction dust and debris from boxes before installing cover plates, covers, and hoods.

3.5 **PROTECTION**

A. After installation, protect boxes from construction activities. Remove and replace items that are contaminated, defaced, damaged, or otherwise caused to be unfit for use prior to acceptance by Owner.

END OF SECTION 260533.16

SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Type ERMC-S raceways, elbows, couplings, and nipples.
 - 2. Type PVC raceways and fittings.
 - 3. Fittings for conduit, tubing, and cable.
 - 4. Electrically conductive corrosion-resistant compounds for threaded conduit.
 - 5. Solvent cements.
 - 6. Duct accessories.
 - 7. Handholes and boxes for exterior underground wiring.
 - 8. Manholes for exterior underground wiring.
 - 9. Utility structure accessories.
 - 10. Duct sealing.

1.2 DEFINITIONS

- A. Duct: A single raceway or multiple raceways, installed singly or as components of a duct bank.
- B. Duct Bank: Two or more ducts installed in parallel, direct buried or with additional casing materials such as concrete.
- C. Handhole: An underground chamber containing electrical cables, sized such that personnel are not required to enter in order to access the cables.
- D. Manhole: An underground chamber containing electrical cables and equipment, sized to provide access with working space clearances.
- E. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For concrete and steel used in precast concrete manholes and handholes, also include product certificates as required by ASTM C858.
- B. Shop Drawings:
 - 1. Electric Utility Duct Banks and Structures:
 - a. Include plans, elevations, sections, and details, including attachments to other Work.
 - b. Indicate locations of private property boundaries and utility easements.
 - c. Include information required for approval by electric utility and for obtaining public space utility work permits.
 - 2. Precast or Factory-Fabricated Concrete Structures:

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

- a. Include plans, elevations, sections, and details, including attachments to other Work.
- b. Include duct entry provisions, including locations and duct sizes, and methods and materials for waterproofing duct entry locations.
- c. Include reinforcement details.
- d. Include frame and cover design and manhole chimneys.
- e. Include grounding details.
- f. Include dimensioned locations of cable rack inserts, pulling-in and lifting irons, sumps, and other accessories.
- g. Include joint details.
- 3. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:
 - a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
 - b. Include duct entry provisions, including locations and duct sizes, and methods and materials for waterproofing duct entry locations.
 - c. Include cover design.
 - d. Include grounding details.
 - e. Include dimensioned locations of cable rack inserts, pulling-in and lifting irons, and other accessories.
- C. Field quality-control reports.

1.4 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Published Instructions: Prepare and submit installation, testing, and operating instructions for product.
- B. Field Reports:
 - 1. Factory Test Reports: For handholes and boxes.
 - 2. Manufacturer's field reports for field quality-control support.

PART 2 - PRODUCTS

2.1 TYPE ERMC-S RACEWAYS, ELBOWS, COUPLINGS, AND NIPPLES

- A. Performance Criteria:
 - 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
 - 2. General Characteristics: UL 6 and UL CCN DYIX.
- B. Galvanized-Steel Electrical Rigid Metal Conduit (ERMC-S-G), Elbows, Couplings, and Nipples:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Allied Tube & Conduit; Atkore International
- b. Crouse-Hinds; brand of Eaton, Electrical Sector
- c. Wheatland Tube; Zekelman Industries
- 2. Exterior Coating: Zinc.
- 3. Options:
 - a. Interior Coating: Zinc with organic top coating.
 - b. Minimum Trade Size: Metric designator 21 (trade size 3/4).

2.2 TYPE PVC RACEWAYS AND FITTINGS

- A. Performance Criteria:
 - 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
 - 2. General Characteristics: UL 651 and UL CCN DZYR.
- B. Schedule 40 Rigid PVC Conduit (PVC-40) and Fittings:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABB, Electrification Business
 - b. Calconduit; Atkore International
 - c. NAPCO; Westlake Chemical Corp.
 - 2. Dimensional Specifications: Schedule 40.
 - 3. Options:
 - a. Minimum Trade Size: Metric designator 21 (trade size 3/4).
- C. Schedule 80 Rigid PVC Conduit (PVC-80) and Fittings:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABB, Electrification Business
 - b. Calconduit; Atkore International
 - 2. Dimensional Specifications: Schedule 80.
 - 3. Options:
 - a. Minimum Trade Size: Metric designator 21 (trade size 3/4).

2.3 FITTINGS FOR CONDUIT, TUBING, AND CABLE

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS for intended location and use.

- B. Metallic Fittings for Type ERMC and Type PVC Raceways:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABB, Electrification Business
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector
 - c. Southwire Company, LLC
 - 2. General Characteristics: UL 514B and UL CCN DWTT.
 - 3. Options:
 - a. Material: Steel.
 - b. Coupling Method: Compression coupling.
 - c. Expansion and Deflection Fittings: UL 651 with flexible bonding jumper.

2.4 SOLVENT CEMENTS

- A. UL VBEW Solvent Cements for Nonmetallic Duct Raceways and Fittings:
 - 1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Solvent Cements: UL CCN VBEW; including UL 340.
 - b. Solvent Cement Compatibility with PVC Conduit Fittings: UL CCN DWTT; including UL 514B. Follow solvent manufacturer's published instructions.
 - c. Solvent Cement Compatibility with Rigid PVC Conduit: UL CCN DZYR; including UL 651. Follow solvent manufacturer's published instructions.

2.5 DUCT ACCESSORIES

- A. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABB, Electrification Business
 - b. Allied Tube & Conduit; Atkore International
 - c. PenCell Plastics; brand of Hubbell Utility Solutions; Hubbell Incorporated

2.6 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. Performance Criteria:

1.Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and markedUNDERGROUND DUCTS AND RACEWAYS260543 - 4FOR ELECTRICAL SYSTEMS260543 - 4

for intended location and use.

- 2. General Characteristics:
 - a. ASTM C858 for design and manufacturing processes.
 - b. SCTE 77.
- B. Precast Concrete Handholes and Boxes :
 - 1. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover must form top of enclosure and must have load rating consistent with that of handhole or box.
 - 2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Oldcastle Infrastructure Inc.; CRH Americas
 - b. Utility Concrete Products, LLC
 - c. Utility Vault Co
 - 3. Configuration: Units must be designed for flush burial and have integral closed bottom unless otherwise indicated.
 - 4. Frame and Cover:
 - a. Weatherproof steel frame, with concealed-hinge steel access door assembly; tamper-resistant, captive, cover-securing bolts; hold-open ratchet assembly; and recessed cover handle.
 - b. Cover Finish: Nonskid finish must have minimum coefficient of friction of 0.50.
 - c. Cover Legend: Molded lettering, "ELECTRIC" or "STREET LIGHTING".
 - 5. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
 - a. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.
 - 6. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at installation location with ground-water level at grade.
 - 7. Knockout Panels: Precast openings in walls, arranged to match dimensions and elevations of approaching duct, plus additional 12 inch (300 mm) vertically and horizontally to accommodate alignment variations.
 - a. Center window location.
 - b. Knockout panels must be located no less than 6 inch (150 mm) from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.
 - c. Knockout panel opening must have cast-in-place, welded-wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct.
 - d. Knockout panels must be framed with at least two additional No. 3 steel reinforcing bars in concrete around each opening.
 - e. Knockout panels must be 1-1/2 to 2 inch (38 to 50 mm) thick.

- 8. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
 - a. Type and size: Match fittings to duct to be terminated.
 - b. Fittings must align with elevations of approaching duct and be located near interior corners of handholes to facilitate racking of cable.
 - c. Provide minimum of one cast end-bell or duct-terminating fitting of each size provided in each wall.
- 9. Handholes 12 inch wide by 24 inch long (300 mm wide by 600 mm long) and larger must have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.7 MANHOLES FOR EXTERIOR UNDERGROUND WIRING

- A. Performance Criteria:
 - 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
 - 2. General Characteristics:
 - a. ASTM C858 for design and manufacturing processes.
 - b. SCTE 77.
- B. Precast Concrete Manholes:
 - 1. Description: One-piece units and units with interlocking mating sections, complete with accessories, hardware, and features.
 - 2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Oldcastle Infrastructure Inc.; CRH Americas
 - b. Utility Concrete Products, LLC
 - c. Utility Vault Co
 - 3. Knockout Panels: Precast openings in walls, arranged to match dimensions and elevations of approaching duct, plus additional 12 inch (300 mm) vertically and horizontally to accommodate alignment variations.
 - a. Center window location.
 - b. Knockout panels must be located no less than 6 inch (150 mm) from interior surfaces of walls, floors, or roofs of manholes, but close enough to corners to facilitate racking of cables on walls.
 - c. Knockout panel opening must have cast-in-place, welded-wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct.
 - d. Knockout panel must be framed with at least two additional No. 3 steel reinforcing bars in concrete around each opening.
 - e. Knockout panels must be 1-1/2 to 2 inch (38 to 50 mm) thick.
 - 4. Duct Entrances in Manhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.

- a. Type and size: Match fittings to duct to be terminated.
- b. Fittings must align with elevations of approaching duct and be located near interior corners of manholes to facilitate racking of cable.
- c. Provide minimum of one cast end-bell or duct-terminating fitting of each size provided in each wall.
- 5. Ground Rod Sleeve: Provide 3 inch (75 mm) PVC sleeve in manhole floors 2 inch (50 mm) from wall adjacent to, but not underneath, duct entering structure.
- 6. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at installation location with ground-water level at grade.
- 7. Source Quality Control: Test and inspect in accordance with ASTM C1037.

2.8 UTILITY STRUCTURE ACCESSORIES

- A. Description: Utility equipment and accessory items used for utility structure access and utility support, listed and labeled for intended use and application.
- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. BILCO Company (The)
 - 2. EJ Group, Inc.
 - 3. Quazite; brand of Hubbell Utility Solutions; Hubbell Incorporated
 - 4. Utility Concrete Products, LLC
 - 5. Utility Vault Co
- C. Manhole Frames, Covers, and Chimney Components: Comply with structural design loading specified for manhole.
 - 1. Frame and Cover: Weatherproof, gray cast iron complying with ASTM A48/A48M, Class 30B with milled cover-to-frame bearing surfaces; diameter, 26 inch (660 mm).
 - a. Cover Finish: Nonskid finish must have minimum coefficient of friction of 0.50.
 - b. Special Covers: Recess in face of cover designed to accept finish material in paved areas.
 - 2. Cover Legend: Cast in; selected to suit system.
 - a. Legend:
 - 1) "ELECTRIC-LV" for duct systems with power wires and cables for systems operating at 600 V and less.
 - 2) "ELECTRIC-HV" for duct systems with medium-voltage cables.
 - 3. Manhole Chimney Components: Precast concrete rings with dimensions matched to those of roof opening.
 - a. Seal joints watertight using preformed plastic or rubber complying with ASTM C990. Install sealing material in accordance with sealant manufacturers' published instructions.

- D. Manhole Sump Frame and Grate: ASTM A48/A48M, Class 30B, gray cast iron.
- E. Pulling Eyes in Concrete Walls: Eyebolt with reinforcing-bar fastening insert, 2 inch (50 mm) diameter eye, and 1-by-4 inch (25-by-100 mm) bolt.
 - 1. Working Load Embedded in 6 inch (150 mm), 4000 psi (27.6 MPa) Concrete: 13,000 lbf (58 kN) minimum tension.
- F. Pulling-in and Lifting Irons in Concrete Floors: 7/8 inch (22 mm) diameter, hot-dip galvanized, bent steel rod; stress relieved after forming; fastened to reinforcing rod; and with exposed triangular opening.
 - 1. Ultimate Yield Strength: 40,000 lbf (180 kN) shear and 60,000 lbf (270 kN) tension.
- G. Bolting Inserts for Concrete Utility Structure Cable Racks and Other Attachments: Flared, threaded inserts of noncorrosive, chemical-resistant, nonconductive thermoplastic material; 1/2 inch (13 mm) ID by 2-3/4 inch (69 mm) deep, flared to 1-1/4 inch (31 mm) minimum at base.
 - 1. Tested Ultimate Pullout Strength: 12,000 lbf (53 kN) minimum.
- H. Ground Rod Sleeve: 3 inch (75 mm) PVC sleeve in manhole floors 2 inch (50 mm) from wall adjacent to, but not underneath, ducts routed from facility.
- I. Expansion Anchors for Installation after Concrete Is Cast: Zinc-plated, carbon-steel-wedge type with stainless steel expander clip with 1/2 inch (13 mm) bolt, 5300 lbf (24 kN) rated pullout strength, and minimum 6800 lbf (30 kN) rated shear strength.
- J. Steel Cable Rack Assembly: Hot-dip galvanized, except insulators.
 - 1. Stanchions: T-section or channel with provisions to connect to other sections or channels to form continuous unit; 1-1/2 inch (38 mm) in width by nominal 24 inch (600 mm) long; punched with 14 hook holes on 1-1/2 inch (38 mm) centers for cable-arm attachment.
 - 2. Arms: 1-1/2 inch (38 mm) wide, lengths ranging from 3 inch (75 mm) with 450 lb (204 kg) minimum capacity to 18 inch (450 mm) with 250 lb (114 kg) minimum capacity. Arms must have slots along full length for cable ties and be arranged for secure mounting in horizontal position at vertical locations on stanchions.
 - 3. Insulators: High-glaze, wet-process porcelain arranged for mounting on cable arms.

2.9 DUCT SEALING

- A. Duct-Sealing Compound: Nonhardening, safe for contact with human skin, not deleterious to cable insulation, and workable at temperatures as low as 35 deg F (2 deg C). Compound must be capable of withstanding temperature of 300 deg F (150 deg C) without slump and adhering to clean surfaces of plastic ducts, metallic conduit, conduit and duct coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals. Duct sealing compound must be removable without damaging ducts or cables.
- B. Inflatable Duct-Sealing System: Wraparound inflatable bladder that seals ducts that are empty or containing conductors against air and water infiltration. System is suitable for use in steel, plastic, or concrete ducts and penetrations.

2.10 SOURCE QUALITY CONTROL

- A. Factory Tests for Handholes and Boxes:
 - 1. Factory Tests and Inspections: Perform the following tests and inspections on handholes and boxes, by, or under supervision of, qualified electrical testing laboratory recognized by authorities having jurisdiction, before delivering to site. Affix label with name and date of manufacturer's certification of system compliance.
 - a. Precast Concrete Utility Structures: Test and inspect in accordance with ASTM C1037.
 - 2. Nonconforming Work:
 - a. Equipment that does not pass tests and inspections will be considered defective.
 - 3. Factory Test Reports: Prepare and submit factory test and inspection reports.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate layout and installation of duct, duct bank, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in field. Notify Architect if there is conflict between areas of excavation and existing structures or archaeological sites to remain.
- B. Coordinate elevations of duct and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to manholes and handholes, and as approved by Architect.
- C. Clear and grub vegetation to be removed, and protect vegetation to remain.

3.2 SELECTION OF UNDERGROUND DUCTS

- A. Duct for Electrical Cables More Than 600 V: PVC-40, concrete encased unless otherwise indicated.
- B. Duct for Electrical Feeders 600 V and Less: PVC-80, direct buried unless otherwise indicated.
- C. Duct for Electrical Branch Circuits: PVC-80, direct buried unless otherwise indicated.
- D. Underground Ducts Crossing Paved Paths Walks and Driveways: PVC-40, encased in reinforced concrete.
- E. Underground Ducts Crossing Roadways and Railroads: PVC-40, encased in reinforced concrete.
- F. Stub-ups: Concrete encased, PVC-80.

3.3 SELECTION OF UNDERGROUND ENCLOSURES

- A. Handholes and Boxes:
 - 1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete, AASHTO HB 17, H-20 structural load rating.
 - 2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Precast concrete, AASHTO HB 17, H-20 structural load rating.
 - 3. Units in Sidewalk and Similar Applications with Safety Factor for Nondeliberate Loading by Vehicles: Precast concrete, AASHTO HB 17, H-20 structural load rating.
 - 4. Units Subject to Light-Duty Pedestrian Traffic Only: Precast concrete, AASHTO HB 17, H-20, structurally tested in accordance with SCTE 77 with 3000 lbf (13 345 N) vertical loading.
 - 5. Cover design load must not exceed load rating of handhole or box.
- B. Manholes: Precast concrete.
 - 1. H-20 structural load rating in accordance with AASHTO HB 17.

3.4 EARTHWORK

- A. Excavation and Backfill: Comply with Section 312000 "Earth Moving," but do not use heavyduty, hydraulic-operated, compaction equipment.
- B. Restoration: Restore area after construction vehicle traffic in immediate area is complete.
- C. Restore surface features at areas disturbed by excavation, and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- D. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with Section 329200 "Turf and Grasses" and Section 329300 "Plants."
- E. Cut and patch existing pavement in path of underground duct, duct bank, and underground structures in accordance with "Cutting and Patching" Article in Section 017300 "Execution."

3.5 INSTALLATION OF DUCTS AND DUCT BANKS

- A. Reference Standards:
 - 1. Unless more stringent requirements are specified in Contract Documents or manufacturers' published instructions, comply with NEMA TCB 2 for installation of underground ducts and duct banks.
 - 2. Consult Architect for resolution of conflicting requirements.
- B. Special Techniques:
 - 1. Where indicated on Drawings, install duct, spacers, and accessories into duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.

- 2. Steel raceway, bends, and fittings in on Project must be of same type.
- 3. Slope: Pitch duct minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope duct from high point between two manholes to drain in both directions.
- 4. Expansion and Deflection Fittings: Install expansion and deflection fitting in each duct in area of disturbed earth adjacent to manhole or handhole.
- 5. Install expansion fitting near center of straight line duct with calculated expansion of more than 3/4 inch (19 mm).
- 6. Curves and Bends:
 - a. Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with minimum radius of 48 inch (1200 mm), both horizontally and vertically, at other locations unless otherwise indicated.
 - b. Field bending must be in accordance with NFPA 70 minimum radii requirements, except bends over 45 degrees must be made with minimum radius of 48 inch (1200 mm). Use only equipment specifically designed for material and size involved. Use PVC heating bender for bending PVC conduit.
 - c. Duct must have maximum of 180 degrees of bends between pull points.
- 7. Joints: Use solvent-cemented joints in nonmetallic duct and fittings and make watertight in accordance with manufacturer's published instructions. Stagger couplings so those of adjacent duct do not lie in same plane. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with minimum 3 inch (75 mm) of concrete for minimum of 12 inch (300 mm) on each side of coupling.
 - a. Install insulated grounding bushings on steel raceway terminations that are less than 12 inch (300 mm) below grade or floor level and do not terminate in hubs.
- 8. End Bell Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inch (250 mm) o.c. for 5 inch (125 mm) duct, and vary proportionately for other duct sizes.
 - a. Begin change from regular spacing to end-bell spacing 10 ft (3 m) from end bell, without reducing duct slope and without forming trap in line.
 - b. Grout end bells into structure walls from both sides to provide watertight entrances.
- 9. Duct Terminators for Entrances to Cast-in-Place Manholes and Concrete Handholes: Use manufactured, cast-in-place duct terminators, with entrances into structure spaced approximately 6 inch (150 mm) o.c. for 4 inch (100 mm) duct, and vary proportionately for other duct sizes.
 - a. Begin change from regular spacing to terminator spacing 10 ft (3 m) from terminator, without reducing duct line slope and without forming trap in line.
- 10. Install manufactured steel raceway elbows for stub-ups at poles unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
 - a. Couple steel elbows to ducts with adapters designed for this purpose, and encase coupling with minimum 3 inch (75 mm) of concrete for minimum of 12 inch (300 mm) on each side of coupling.

- 11. Sealing: Provide temporary closure at terminations of duct with pulled cables. Seal spare duct at terminations. Use sealing compound and plugs to withstand at least 15 psig (1.03 MPa) hydrostatic pressure.
- 12. Pulling Cord: Install 200 lbf (1000 N) test nylon cord in empty ducts.
- 13. Concrete-Encased Ducts and Duct Bank:
 - a. Excavate trench bottom to provide firm and uniform support for duct. Prepare trench bottoms as specified in Section 312000 "Earth Moving" for pipes 6 inch (150 mm) or less in nominal diameter.
 - b. Width: Excavate trench 3 inch (75 mm) wider than duct on each side.
 - c. Depth: Install so top of duct envelope is at least 24 inch (600 mm) below finished grade in areas not subject to deliberate traffic, and at least 30 inch (750 mm) below finished grade in deliberate traffic paths for vehicles unless otherwise indicated. Install so top of duct envelope is below local frost line.
 - d. Support duct on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
 - e. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than four spacers per 20 ft (6 m) of duct. Place spacers within 24 inch (600 mm) of duct ends. Stagger spacers approximately 6 inch (150 mm) between tiers. Secure spacers to earth and to duct to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
 - f. Minimum Space between Ducts: 3 inch (75 mm) between edge of duct and exterior envelope wall, 2 inch (50 mm) between ducts for like services, and 12 inch (100 mm) between power and communications ducts.
 - g. Elbows:
 - 1) Use manufactured duct elbows for stub-ups and at changes of direction in duct unless otherwise indicated. Extend encasement throughout length of elbow.
 - 2) Use manufactured steel elbows for stub-ups, at building entrances, and at changes of direction in duct run.
 - h. Stub-ups to Outdoor Equipment: Extend concrete-encased steel raceway horizontally minimum of 60 inch (1500 mm) from edge of equipment base.
 - 1) Stub-ups must be minimum 4 inch (100 mm)above finished floor and minimum 3 inch (75 mm) from conduit side to edge of slab.
 - i. Reinforcement: Reinforce concrete-encased duct where crossing disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.
 - j. Forms: Use walls of trench to form side walls of duct bank where soil is selfsupporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
 - k. Concrete Cover: Install minimum of 3 inch (75 mm) of concrete cover between edge of duct to exterior envelope wall, 2 inch (50 mm) between duct of like services, and 4 inch (100 mm) between power and communications ducts.
 - 1. Place minimum 6 inch (150 mm) of engineered fill above concrete encasement of duct.

- m. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.
 - 1) Start at one end and finish at other, allowing for expansion and contraction of duct as its temperature changes during and after pour. Use expansion fittings installed in accordance with manufacturer's published instructions, or use other specific measures to prevent expansion-contraction damage.
 - 2) If more than one pour is necessary, terminate each pour in vertical plane and install 3/4 inch (15 mm) reinforcing-rod dowels extending minimum of 18 inch (450 mm) into concrete on both sides of joint near corners of envelope.
- n. Pouring Concrete: Comply with requirements in "Concrete Placement" Article in Section 033000 "Cast-in-Place Concrete." Place concrete carefully during pours to prevent voids under and between duct and at exterior surface of envelope. Do not allow heavy mass of concrete to fall directly onto ducts. Allow concrete to flow around duct and rise up in middle, uniformly filling open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-installation application.
- 14. Direct-Buried Duct and Duct Bank:
 - a. Excavate trench bottom to provide firm and uniform support for duct. Comply with requirements in Section 312000 "Earth Moving" for preparation of trench bottoms for pipes less than 6 inch (150 mm) in nominal diameter.
 - b. Width: Excavate trench 3 inch (75 mm) wider than duct on each side.
 - c. Depth: Install top of duct at least 36 inch (900 mm) below finished grade unless otherwise indicated.
 - d. Set elevation of top of duct bank below frost line.
 - e. Place minimum 3 inch (75 mm) of sand as bed for duct. Place sand to minimum of 6 inch (150 mm) above top level of duct.
 - f. Support ducts on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
 - g. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than four spacers per 20 ft (6 m) of duct. Place spacers within 24 inch (600 mm) of duct ends. Stagger spacers approximately 6 inch (150 mm) between tiers. Secure spacers to earth and to ducts to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
 - h. Install duct with minimum of 3 inch (75 mm) between ducts for like services and 12 inch (150 mm) between power and communications duct.
 - i. Install manufactured steel elbows for stub-ups and at changes of direction in duct.
 - 1) Couple RNC duct to steel raceway with adapters designed for this purpose, and encase coupling with minimum 3 inch (75 mm) of concrete.
 - 2) Stub-ups to Outdoor Equipment: Extend concrete-encased steel raceway horizontally minimum of 60 inch (1500 mm) from edge of base. Install insulated grounding bushings on terminations at equipment.
 - a) Stub-ups must be minimum 4 inch (100 mm) above finished base and
minimum 3 inch (75 mm) from conduit side to edge of base.

- j. After installing first tier of duct, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inch (100 mm) over duct and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction. Comply with requirements in Section 312000 "Earth Moving" for installation of backfill materials.
- 15. Underground-Line Warning Tape: Bury conducting underground line specified in Section 260553 "Identification for Electrical Systems" no less than 12 inch (300 mm) above concrete-encased duct and duct banks and approximately 12 inch (300 mm) below grade. Align tape parallel to and within 3 inch (75 mm) of centerline of duct bank. Provide additional warning tape for each 12 inch (300 mm) increment of duct-bank width over nominal 18 inch (450 mm). Space additional tapes 12 inch (300 mm) apart, horizontally across width of ducts.
- 16. Ground ducts and duct banks in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."

3.6 INSTALLATION OF CONCRETE MANHOLES, HANDHOLES, AND BOXES

- A. Reference Standards:
 - 1. Precast Concrete Handholes: Comply with ASTM C891 unless otherwise indicated.
 - 2. Consult Architect for resolution of conflicting requirements.
- B. Special Techniques:
 - 1. Precast Concrete Handholes and Manholes:
 - a. Install units level and plumb and with orientation and depth coordinated with connecting duct to minimize bends and deflections required for proper entrances.
 - b. Unless otherwise indicated, support units on level bed of crushed stone or gravel graded from 1 inch (25 mm) sieve to No. 4 (4.75 mm) sieve and compacted to same density as adjacent undisturbed earth.
 - c. Field-cut openings for conduits in accordance with enclosure manufacturer's published instructions. Cut wall of enclosure with tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.
 - 2. Elevations:
 - a. Manhole Roof: Install with rooftop at least 15 inch (375 mm) below finished grade.
 - b. Manhole Frame: In paved areas and trafficways, set frames flush with finished grade. Set other manhole frames 1 inch (25 mm) above finished grade.
 - c. Install handholes with bottom below frost line.
 - d. Handhole Covers: In paved areas and trafficways, set surface flush with finished

grade. Set covers of other handholes 1 inch (25 mm) above finished grade.

- e. Where indicated, cast handhole cover frame integrally with handhole structure.
- 3. Drainage: Install drains in bottom of manholes where indicated. Coordinate with drainage provisions indicated.
- 4. Manhole Access: Circular opening in manhole roof; sized to match cover size.
 - a. Manholes with Fixed Ladders: Offset access opening from manhole centerlines to align with ladder.
 - b. Install chimney, constructed of precast concrete collars and rings, and cast-iron frame to connect cover with manhole roof opening. Provide moisture-tight joints and waterproof grouting for frame and chimney.
- 5. Waterproofing: Apply waterproofing to exterior surfaces of manholes and handholes after concrete has cured at least three days. After duct has been connected and grouted, and before backfilling, waterproof joints and connections, and touch up abrasions and scars. Waterproof exterior of manhole chimneys after mortar has cured at least three days.
- 6. Dampproofing: Apply dampproofing to exterior surfaces of manholes and handholes after concrete has cured at least three days. After ducts are connected and grouted, and before backfilling, dampproof joints and connections, and touch up abrasions and scars. Dampproof exterior of manhole chimneys after mortar has cured at least three days.
- 7. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, as required for installation and support of cables and conductors and as indicated.
- 8. Field-Installed Bolting Anchors in Manholes and Concrete Handholes: Do not drill deeper than 3-7/8 inch (97 mm) for manholes and 2 inch (50 mm) for handholes, for anchor bolts installed in field. Use minimum of two anchors for each cable stanchion.
- 9. Ground manholes, handholes, and boxes in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."

3.7 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 - 1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.
 - 2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide minimum 12 inch (300 mm) long mandrel equal to duct size minus 1/4 inch (6 mm). If obstructions are indicated, remove obstructions and retest.
 - 3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."
- B. Nonconforming Work:
 - 1. Underground ducts, raceways, and structures will be considered defective if they do not pass tests and inspections.
 - 2. Correct deficiencies and retest as specified above to demonstrate compliance.
- C. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

3.8 CLEANING

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.
- B. Clean internal surfaces of manholes, including sump, affected by Work.
 - 1. Sweep floor, removing dirt and debris.
 - 2. Remove foreign material.

END OF SECTION 260543

SECTION 260546 - POLES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

- 1. Lighting standards.
- 2. Lighting standard accessories.

1.2 DEFINITIONS

- A. Bonding: The electrical interconnecting of conductive parts, designed to maintain a common electrical potential.
- B. EPA: Equivalent projected area.
- C. Grounding (Earthing): Electrically connecting, whether intentional or accidental, an electrical circuit or equipment to the earth, or to some conducting body that serves in place of the earth.
- D. Lighting Standard: An upright pole or beam used to support luminaires and used as a raceway to enclose supply conductors. Lighting standards frequently include provisions for supporting and supplying decorative items such as holiday decorations, flags, or banners.
- E. Pole: A column of wood or steel, or some other material, supporting overhead conductors, usually by means of arms or brackets.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include data on construction details, profiles, EPA, cable entrances, materials, dimensions, weight, rated design load, and ultimate strength of individual components.
 - 2. Include finishes for lighting poles and luminaire-supporting devices.
 - 3. Anchor bolts.
 - 4. Manufactured pole foundations.
- B. Shop Drawings: Prepare and submit the following:
 - 1. Plans, elevations, sections, and mounting details.
 - 2. Details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Details of fabrication and assembly of poles.
 - 4. Foundation construction details, including material descriptions, dimensions, anchor bolts, support devices, and calculations, signed and sealed by a professional engineer licensed in the state of installation.
 - 5. Anchor bolt templates keyed to specific poles and certified by manufacturer.
 - 6. Method and procedure of pole installation. Include manufacturer's published installations.
- C. Field quality-control reports.

POLES FOR ELECTRICAL SYSTEMS

1.4 CLOSEOUT SUBMITTALS

- A. Warranty documentation.
- 1.5 MAINTENANCE MATERIAL SUBMITTALS
 - A. Spare parts.
 - B. Special tools.
- 1.6 DELIVERY, STORAGE, AND HANDLING
 - A. Package aluminum poles for shipping in accordance with ASTM B660.
 - B. Store poles on decay-resistant skids at least 12 inch (300 mm) above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.
 - C. Retain factory-applied pole wrappings on metal poles until immediately before pole installation. Handle poles with web fabric straps.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Performance Criteria:
 - 1. Regulatory Requirements:
 - a. Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Approval: Comply with City of Rome requirements.
 - 3. General Characteristics:
 - a. Structural Characteristics: Comply with AASHTO LTS-6-M.
 - b. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, applied in accordance with AASHTO LTS-6-M.
 - c. Live Load: Single load of 500 lb (2200 N) distributed in accordance with AASHTO LTS-6-M.
 - d. Ice Load: Load of 3 lb/ft2 (145 Pa), applied in accordance with AASHTO LTS-6-M for applicable areas on the Ice Load Map.
 - e. Wind Load for Poles Not Exceeding 50 ft (15 m) Height:
 - 1) Basic Wind Speed: 100 mile/h (45 m/s).
 - 2) Wind Importance Factor: 1.0.
 - 3) Minimum Design Life: 25 years.
 - 4) Velocity Conversion Factor: 1.0.
 - f. Strength Analysis: For each pole, multiply the actual EPA of luminaires and brackets by a factor of 1.1 to obtain the EPA used in pole selection strength analysis.

- g. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless steel fasteners and mounting bolts unless otherwise indicated.
- h. General Finish Requirements:
 - 1) Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
 - 2) Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.2 LIGHTING STANDARDS

- A. Aluminum Lighting Standard:
 - 1. Source Limitations: Obtain lighting standards from single manufacturer or producer.
 - 2. Standard Features:
 - a. Comply with requirements in Article 410 of NFPA 70 for luminaire supports.
 - b. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless steel fasteners and mounting bolts unless otherwise indicated.
 - c. General Finish Requirements:
 - 1) Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
 - 2) Appearance of the Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
 - d. Seamed, extruded structural tube complying with ASTM B221, Alloy 6063-T6, with access handhole in in lighting standard wall.
 - 1) Shape: Round, tapered.
 - 2) Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.
 - e. Mast Arms: Aluminum type, continuously welded to lighting standard attachment plate. Material and finish same as plate.
 - f. Brackets for Luminaires: Detachable, cantilever, without underbrace.
 - 1) Adaptor fitting welded to lighting standard, allowing the bracket to be bolted to the lighting standard-mounted adapter, then bolted together with stainless steel bolts.
 - 2) Cross Section: Tapered oval, with straight tubular end section to accommodate luminaire. Match lighting standard material and finish.
 - g. Grounding and Bonding Lugs: Bolted 1/2 inch (13 mm) threaded lug, listed for attaching grounding and bonding conductors of type and size listed in that Section,

and accessible through handhole.

- h. Prime-Coat Finish: Manufacturer's standard prime-coat finish ready for field painting.
- i. Aluminum Finish: Comply with NAAMM/NOMMA AMP 500 recommendations for applying and designating finishes.
 - 1) Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
 - Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20 requirements; and seal aluminum surfaces with clear, hard-coat wax.
- j. Factory-Painted Finish: Comply with NAAMM/NOMMA AMP 500 recommendations for applying and designating finishes.
 - 1) Surface Preparation: Clean surfaces to comply with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, in accordance with SSPC-SP 5/NACE No. 1 or SSPC-SP 8.
 - 2) Interior Surfaces of Pole: One coat of bituminous paint, or otherwise treat for equal corrosion protection.
 - 3) Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.
 - a) Color: As indicated by manufacturer's designations.
- 3. Other Available Features Required by the Project:
 - a. Fasteners: Stainless steel, size and type as determined by manufacturer. Corrosion-resistant items compatible with support components.
 - 1) Materials: Compatible with lighting standards as well as to substrates to which lighting standards are fastened and may not cause galvanic action at contact points.
 - 2) Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.

2.3 LIGHTING STANDARD ACCESSORIES

- A. Transformer-Type Base: Same material and color as pole. Coordinate dimensions to suit pole's base flange. Include removable flanged access cover secured with bolts or screws.
- B. Mounting Hardware:
 - 1. Anchor Bolts: Manufactured to AASHTO M314-90, Grade 55, with a minimum yield strength of 55,000 psi (380 000 kPa).
 - a. Galvanizing: Hot-dip galvanized in accordance with ASTM A153/A153M, Class C.

- b. Bent rods.
- c. Threading: Uniform National Coarse, Class 2A.
- 2. Nuts: ASTM A563/A563M, Grade A, Heavy-Hex.
 - a. Galvanizing: Hot-dip galvanized in accordance with ASTM A153/A153M, Class C.
 - b. Four nuts provided per anchor bolt, shipped with nuts preassembled to the anchor bolts.
- 3. Washers: ASTM F436/F436M, Type 1.
 - a. Galvanizing: Hot-dip galvanized in accordance with ASTM A153/A153M, Class C.
 - b. One washer(s) provided per anchor bolt.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine poles and pole accessories before installation. Components that are scratched, dented, marred, wet, moisture damaged, or visibly damaged are considered defective.
- C. Examine roughing-in for foundation and conduit to verify actual locations of installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.2 INSTALLATION OF FOUNDATIONS FOR POLES AND LIGHTING STANDARDS
 - A. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Structural steel complying with ASTM A36/A36M and hot-dip galvanized in accordance with ASTM A123/A123M; and with top-plate and mounting bolts to match pole-base flange and strength required to support pole, luminaire, and accessories.
 - B. Precast Foundations: Factory fabricated, with structural steel complying with ASTM A36/A36M and hot-dip galvanized in accordance with ASTM A123/A123M; and with top-plate and mounting bolts to match pole-base flange and strength required to support pole, luminaire, and accessories.
 - C. Anchor Bolts: Install plumb using manufacturer-supplied plywood template, uniformly spaced.

3.3 INSTALLATION OF LIGHTING STANDARDS

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in the Contract Documents or manufacturers' published instructions, comply with the following:

- 1. Electrical Construction: NFPA 1, NFPA 70, and NECA NEIS 1.
- 2. Electrical Safety: NFPA 70E.
- 3. Hot Work: NFPA 51B.
- 4. Grounding and Bonding: NECA NEIS 331 and Article 250 of NFPA 70.
- 5. Consult Architect for resolution of conflicting requirements.
- C. Special Installation Techniques:
 - 1. Alignment: Align foundations and lighting standards for optimum directional alignment of luminaires and their mounting provisions on lighting standards.
 - 2. Clearances: Maintain the following minimum horizontal distances of lighting standards from surface and underground features unless otherwise indicated on the Drawings:
 - a. Fire Hydrants and Water Piping: 60 inch (1520 mm).
 - b. Water, Gas, Electric, Communications, and Sewer Lines: 10 ft (3 m).
 - c. Trees: 15 ft (5 m) from tree trunk.
 - 3. Concrete Lighting Standard Foundations: Set anchor bolts in accordance with anchor-bolt templates furnished by manufacturer.."
 - a. Grout void between lighting standard base and foundation. Use nonshrink or expanding concrete grout firmly packed to fill space.
 - b. Install base covers unless otherwise indicated.
 - c. Use a short piece of 1/2 inch (13 mm) diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of lighting standard.
 - 4. Raise and set lighting standard using web fabric slings (not chain or cable) at locations indicated by manufacturer.
 - 5. Corrosion Prevention:
 - a. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum using insulating fittings or treatment.
 - b. Steel Conduits: Comply with requirements in Section 260533.13 "Conduits for Electrical Systems." In concrete foundations, wrap conduit with 0.010 inch (0.254 mm) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.
- D. Interfaces with Other Work:
 - 1. Grounding and Bonding: Bond metallic components of lighting standards and support structures as follows:
 - a. Provide insulated equipment grounding conductors with supply feeders for bonding luminaires and other pole-mounted electrical or electronic equipment to ground terminals of their supplying power sources in accordance with Article 250 of NFPA 70.
 - b. Bond metallic components of luminaires, pole accessories, and foundation to insulated equipment grounding conductor.
 - 2. Identification: Provide labels for lighting standards, components, wiring, cabling, terminals, and associated electrical equipment.

- a. Identify field-installed conductors, interconnecting wiring, and components.
- b. Label each enclosure with engraved metal or laminated-plastic nameplate.
- c. Provide warning signs and arc-flash hazard warning labels for electrical equipment.

3.4 FIELD QUALITY CONTROL

- A. Administrant for Electrical Power Tests and Inspections:
 - 1. Administer and perform tests and inspections.
- B. Tests and Inspections:
 - 1. Inspect poles for nicks, mars, dents, scratches, and other damage.
 - 2. System function tests.
 - 3. Pole Ground Resistance: Measure resistance of each separate grounding electrode, including pole grounds. Also measure resistance of separate grounding electrode systems before bonding together.
 - a. Perform tests and obtain acceptable results before energizing any portion of overhead electrical distribution system.
 - b. Results and Follow-up: If ground resistance for a single ground electrode or pole ground, tested individually, exceeds 25 Ω , add a ground electrode not less than 10 ft (3 m) away and interconnect with 2 AWG, minimum, bare conductor buried at least 12 inch (300 mm) below furnished grade.
- C. Nonconforming Work:
 - 1. Unit will be considered defective if it does not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- D. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.

END OF SECTION 260546

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Labels.
 - 2. Bands.
 - 3. Tapes and stencils.
 - 4. Tags.
 - 5. Signs.
 - 6. Cable ties.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 LABELS

- A. Performance Criteria:
 - 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Listing Criteria: UL CCN PGDQ2 for components; including UL 969.
- B. UL PGDQ2 Vinyl Wraparound Labels: Preprinted, flexible labels laminated with clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.
- C. UL PGDQ2 Self-Adhesive Wraparound Labels: Preprinted, 3 mil (0.08 mm) thick, polyester flexible label with acrylic pressure-sensitive adhesive.
 - 1. Self-Lamination: Clear; UV-, weather-, and chemical-resistant; self-laminating, with protective shield over legend. Size labels such that clear shield overlaps entire printed legend.
 - 2. Marker for Labels:
 - a. manufacturer.
 - b. Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- D. UL PGDQ2 Self-Adhesive Labels: Polyester, thermal, transfer-printed, 3 mil (0.08 mm) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
 - 1. Minimum Nominal Size:

- a. 1-1/2 by 6 inch (37 by 150 mm) for raceway and conductors.
- b. 3-1/2 by 5 inch (76 by 127 mm) for equipment.
- c. As required by authorities having jurisdiction.

2.2 BANDS

A. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.

2.3 TAPES AND STENCILS

- A. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- B. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mil (0.08 mm) thick by 1 to 2 inch (25 to 50 mm) wide; compounded for outdoor use.
- C. Underground-Line Warning Tape:
 - 1. Tape:
 - a. Recommended by manufacturer for method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - b. Printing on tape must be permanent and may not be damaged by burial operations.
 - c. Tape material and ink must be chemically inert and not be subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.
 - 2. Color and Printing:
 - a. Comply with APWA Uniform Color Code using NEMA Z535.1 safety colors.
 - b. Inscriptions for Red Tapes: "CAUTION BURIED ELECTRIC LINE BELOW".
 - c. Inscriptions for Orange Tapes: "CAUTION BURIED FIBER OPTIC LINE BELOW".
 - 3. Detectable Line-Warning Tape:
 - a. Detectable three-layer laminate, consisting of printed pigmented polyolefin film, solid aluminum-foil core, and clear protective film that allows inspection of continuity of conductive core; bright colored, continuous-printed on one side with inscription of utility, compounded for direct-burial service.
 - b. Width: 3 inch (75 mm).
 - c. Overall Thickness: 5 mil (0.125 mm).
 - d. Foil Core Thickness: 0.35 mil (8.9 m).
 - e. Weight: 28 lb/1000 sq. ft (13.7 kg/100 sq. m).
 - f. Tensile in accordance with ASTM D882: 70 lbf (311.3 N) and 4600 psi (31.7 MPa).

2.4 TAGS

A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch (50 by 50 by 1.3 mm), with stamped

legend, punched for use with self-locking cable tie fastener.

B. Nonmetallic Preprinted Tags: Polyethylene tags, 0.015 inch (0.38 mm) thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.

2.5 SIGNS

- A. Laminated Acrylic or Melamine Plastic Signs:
 - 1. Engraved legend.
 - 2. Thickness:
 - a. For signs up to 20 sq. inch (129 sq. cm), minimum 1/16 inch (1.6 mm) thick.
 - b. For signs larger than 20 sq. inch (129 sq. cm), 1/8 inch (3.2 mm) thick.
 - c. Engraved legend with black letters on white face.
 - d. Punched or drilled for mechanical fasteners with 1/4 inch (6.4 mm) grommets in corners for mounting.
 - e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.6 CABLE TIES

- A. Performance Criteria:
 - 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - 2. Listing Criteria: UL CCN ZODZ; including UL 1565 or UL 62275.
- B. UL ZODZ UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 - 1. Minimum Width: 3/16 inch (5 mm).
 - 2. Tensile Strength at 73 deg F (23 deg C) in accordance with ASTM D638: 12,000 psi (82.7 MPa).
 - 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 - 4. Color: Black.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.
- 3.2 SELECTION OF COLORS AND IDENTIFICATION MARKINGS
 - A. Pipe and Conduit Labeling: Comply with ASME A13.1 and IEEE C2.

B. Color-Coding for Phase- and Voltage-Level Identification, 1000 V or Less: Use colors listed
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below for ungrounded service, feeder, and branch-circuit conductors.

- 1. Color must be factory applied.
- 2. Colors for 208Y/120 V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
- 3. Colors for 240 V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
- 4. Colors for 480Y/277 V Circuits:
 - a. Phase A: Brown.
 - b. Phase B: Orange.
 - c. Phase C: Yellow.
- 5. Color for Neutral (Grounded Conductor): White.
- 6. Color for Equipment Ground: Bare copper.
- 7. Color for Isolated Ground: Green with two or more yellow stripes.
- C. Color-Coding Raceways, Cable Trays, Junction Boxes, and Conductors for Intrinsically-Safe Circuits: Light blue. When used to identify intrinsically-safe circuits, Article 504 of NFPA 70 requires that the color light blue not be used for any other purpose.
- D. Color-Coding Instructional Signs: Self-adhesive labels, including color code for grounded and ungrounded conductors.
- E. Accessible Fittings for Raceways: Identify cover of junction and pull box of the following systems with wiring system legend and system voltage. System legends must be as follows:
 - 1. "POWER."
- F. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- G. Locations of Underground Lines: Underground-line warning tape for power and lighting.
- H. Handholes, and Pull and Junction Boxes, More Than 1000 V: For conductors in vaults, pull and junction boxes, manholes, and handholes, nonmetallic preprinted tags colored and marked to indicate phase, and separate tag with circuit designation.
- I. Handholes, and Pull and Junction Boxes, 1000 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use wraparound labels to identify phase.
- J. Accessible Raceways, 1000 V or Less, for Service, Feeder, and Branch Circuits, More Than 30 A and 120 V to Ground: Identify with self-adhesive raceway labels.
- K. Equipment Identification Labels:

- 1. Black letters on white field.
- 2. Outdoor Equipment: Laminated acrylic or melamine sign.
- 3. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in location provided by panelboard manufacturer. Panelboard identification must be in form of self-adhesive, engraved, laminated acrylic or melamine label.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Switchgear.
 - e. Transformers: Label that includes tag designation indicated on Drawings for transformer, feeder, and panelboards or equipment supplied by secondary.
 - f. Emergency system boxes and enclosures.
 - g. Enclosed switches.
 - h. Enclosed circuit breakers.
 - i. Enclosed controllers.
 - j. Push-button stations.
 - k. Contactors.
 - 1. Power-generating units.
 - m. Monitoring and control equipment.
- L. Cable Ties: General purpose, for attaching tags, except as listed below:
 - 1. Outdoors: UV-stabilized nylon.
- 3.3 SELECTION OF SIGNS AND HAZARD MARKINGS
 - A. Comply with 29 CFR 1910.145 for danger, caution, warning, and safety instruction signs.
 - B. Signs, labels, and tags required for personnel safety must comply with the following standards:
 - 1. Safety Colors: NEMA Z535.1.
 - 2. Facility Safety Signs: NEMA Z535.2.
 - 3. Safety Symbols: NEMA Z535.3.
 - 4. Product Safety Signs and Labels: NEMA Z535.4.
 - 5. Safety Tags and Barricade Tapes for Temporary Hazards: NEMA Z535.5.
 - C. Electrical Hazard Warnings:
 - 1. Raceways and Cables Carrying Circuits at More Than 1000 V:
 - a. Black letters on orange field.
 - b. Legend: "DANGER CONCEALED HIGH VOLTAGE WIRING."
 - 2. Multiple Power Sources Warning Legend: "DANGER ELECTRICAL SHOCK HAZARD EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 3. OSHA Workspace Clearance Warning Legend: "WARNING OSHA REGULATION -AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 3 FEET MINIMUM."

D. Operating Instruction Signs: Self-adhesive.

3.4 INSTALLATION

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Fasteners for Labels and Signs: Self-tapping, stainless steel screws or stainless steel machine screws with nuts and flat and lock washers.
- C. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.
- E. Verify identity of item before installing identification products.
- F. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- G. Apply identification devices to surfaces that require finish after completing finish work.
- H. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- I. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from floor.
- J. Vinyl Wraparound Labels:
 - 1. Secure tight to surface of raceway or cable at location with high visibility and accessibility.
 - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to location and substrate.
- K. Snap-Around Labels: Secure tight to surface at location with high visibility and accessibility.
- L. Self-Adhesive Wraparound Labels: Secure tight to surface at location with high visibility and accessibility.
- M. Heat-Shrink, Preprinted Tubes: Secure tight to surface at location with high visibility and accessibility.
- N. Tape and Stencil: Comply with requirements in painting Sections for surface preparation and paint application.
- O. Underground Line Warning Tape:

1.During backfilling of trenches, install continuous underground-line warning tape not lessIDENTIFICATION FOR ELECTRICAL260553 - 6SYSTEMS260553 - 6

than 12 inch (300 mm) directly above cables or raceways buried 18 inch (450 mm) or more below grade. Use multiple tapes where width of multiple lines installed in common trench exceeds 16 inch (400 mm) overall.

- 2. Install underground-line warning tape for direct-buried cables and cables in raceways.
- P. Metal Tags:
 - 1. Place in location with high visibility and accessibility.
 - 2. Secure using UV-stabilized cable ties.
- Q. Nonmetallic Preprinted Tags:
 - 1. Place in location with high visibility and accessibility.
 - 2. Secure using UV-stabilized cable ties.
- R. Laminated Acrylic or Melamine Plastic Signs: Attach signs that are not self-adhesive type with mechanical fasteners appropriate to location and substrate.

END OF SECTION 260553

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Panelboards.

1.2 DEFINITIONS

- A. MCCB: Molded-case circuit breaker.
- B. VPR: Voltage protection rating.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Submit the following:
 - 1. Product Listing: Include copy of unexpired approval letter, on letterhead of qualified electrical testing agency, certifying product's compliance with specified listing criteria.
 - 2. Include manufacturer's sample extended warranty language.
- B. Shop Drawings: For each panelboard and related equipment:
 - 1. Include dimensioned plans, elevations, sections, and details.
 - 2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
 - 3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
 - 4. Detail bus configuration, current, and voltage ratings.
 - 5. Short-circuit current rating of panelboards and overcurrent protective devices.
 - 6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
 - 7. Include wiring diagrams for power, signal, and control wiring.
 - 8. Key interlock scheme drawing and sequence of operations.
- C. Field quality-control reports.

1.4 INFORMATIONAL SUBMITTALS

- A. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.
- B. Manufacturer's published instructions.
- C. Field Reports:
 - 1. Manufacturer's field reports for field quality-control support.
 - 2. Field reports for voltage monitoring and adjusting.
 - 3. Field reports for infrared scanning.

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1.5 CLOSEOUT SUBMITTALS

- A. Warranty documentation.
- 1.6 DELIVERY, STORAGE, AND HANDLING
 - A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.
- 1.7 WARRANTY
 - A. Special Installer Extended Warranty: Installer warrants that fabricated and installed panelboards perform in accordance with specified requirements and agrees to repair or replace components or products that fail to perform as specified within extended-warranty period.
 - 1. Extended-Warranty Period: Two years from date of Substantial Completion; full coverage for labor, materials, and equipment.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
- B. Comply with NEMA PB 1.
- C. Enclosures: Surface-mounted, dead-front cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Outdoor Locations: UL 50E, Type 3R.
 - 2. Height: 7 ft (2.13 m) maximum.
 - 3. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Trims must cover live parts and may have no exposed hardware.
 - 4. Finishes:
 - a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
 - b. Back Boxes: Same finish as panels and trim.
- D. Phase, Neutral, and Ground Buses:
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - a. Plating must run entire length of bus.
 - b. Bus must be fully rated for entire length.

- 2. Interiors must be factory assembled into unit. Replacing switching and protective devices may not disturb adjacent units or require removing main bus connectors.
- 3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
- E. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - 2. Terminations must allow use of 75 deg C rated conductors without derating.
 - 3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
 - 4. Main and Neutral Lugs: Mechanical type, with lug on neutral bar for each pole in panelboard.
 - 5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with lug on bar for each pole in panelboard.
- F. Future Devices: Panelboards or load centers must have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- G. Panelboard Short-Circuit Current Rating:
 - 1. Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by qualified electrical testing laboratory recognized by authorities having jurisdiction. Include label or manual with size and type of allowable upstream and branch devices listed and labeled, by qualified electrical testing laboratory recognized by authorities having jurisdiction, for series-connected short-circuit rating.
 - a. Panelboards rated 240 V or less must have short-circuit ratings as shown on Drawings, but not less than 10 000 A(rms) symmetrical.
 - b. Panelboards rated above 240 V and less than 600 V must have short-circuit ratings as shown on Drawings, but not less than 14 000 A(rms) symmetrical.
 - 2. Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed, by qualified electrical testing laboratory recognized by authorities having jurisdiction, for 100 percent interrupting capacity.
 - a. Panelboards and overcurrent protective devices rated 240 V or less must have short-circuit ratings as shown on Drawings, but not less than 10 000 A(rms) symmetrical.
 - b. Panelboards and overcurrent protective devices rated above 240 V and less than 600 V must have short-circuit ratings as shown on Drawings, but not less than 14 000 A(rms) symmetrical.

2.2 PANELBOARDS

- A. UL QEUY Load Center:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Eaton
- b. Siemens Industry, Inc., Energy Management Division
- c. Square D; Schneider Electric USA
- 2. Source Limitations: Obtain products from single manufacturer.
- 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
- 4. Standard Features:
 - a. Mains: Circuit breaker or lugs only.
 - b. Branch Overcurrent Protective Devices: Plug-in circuit breakers, replaceable without disturbing adjacent units.
 - c. Doors: Concealed hinges secured with flush latch with tumbler lock; keyed alike.
 - d. Conductor Connectors: Mechanical type for main, neutral, and ground lugs and buses.

2.3 MAINTENANCE MATERIAL ITEMS

- A. Spare Parts: Furnish to Owner spare parts, for repairing panelboards and related equipment, that are packaged with protective covering for storage on-site and identified with labels describing contents. Include the following:
 - 1. Keys: Two spares for each type of panelboard cabinet lock.
- B. Special Tools: Furnish to Owner proprietary equipment, keys, and software required to operate, maintain, repair, adjust, or implement future changes to panelboards and related equipment, that are packaged with protective covering for storage on-site and identified with labels describing contents. Include the following:
 - 1. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.
- B. Receive, inspect, handle, and store panelboards in accordance with NECA 407.
- C. Examine panelboards before installation. Reject panelboards that are damaged, rusted, or have been subjected to water saturation.
- D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's published instructions.
- B. Reference Standards:
 - 1. Panelboards: Unless more stringent requirements are specified in Contract Documents or manufacturers' published instructions, comply with NECA 407.
 - 2. Consult Architect for resolution of conflicting requirements.
- C. Special Techniques:
 - 1. Equipment Mounting:
 - a. Mount surface-mounted panelboards to steel slotted channels. Orient steel slotted supports vertically.
 - 2. Mount panelboard cabinet plumb and rigid without distortion of box.
 - 3. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
 - 4. Install overcurrent protective devices and controllers not already factory installed.
 - a. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver in accordance with manufacturer's published instructions.
 - 5. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.
 - 6. Install filler plates in unused spaces.
 - 7. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.
 - 8. Mount spare fuse cabinet in accessible location.
- D. Interfaces with Other Work:
 - 1. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components.
- B. Install warning signs.
- C. Panelboard Nameplates: Label each panelboard with nameplate.
- D. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles must be located on interior of panelboard door.

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- E. Breaker Labels: Faceplate must list current rating, UL and IEC certification standards, and AIC rating.
- F. Circuit Directory:
 - 1. Provide computer-generated circuit directory mounted inside panelboard door with transparent plastic protective cover.
 - a. Circuit directory must identify specific purpose with detail sufficient to distinguish it from other circuits.
 - 2. Create directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.

3.4 FIELD QUALITY CONTROL

- A. Administrant for Low-Voltage Electrical Tests and Inspections:
 - 1. Administer and perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Nonconforming Work:
 - 1. Panelboards will be considered defective if they do not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- E. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.
 - 1. Include certified report that identifies panelboards included and that describes scanning results, with comparisons of two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.
- B. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes. Prior to making circuit changes to achieve load balancing, inform Architect of effect on phase color coding.

- 1. Measure loads during period of normal facility operations.
- 2. Perform circuit changes to achieve load balancing outside normal facility operation schedule or at times directed by Architect. Avoid disrupting services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
- 3. After changing circuits to achieve load balancing, recheck loads during normal facility operations. Record load readings before and after changing circuits to achieve load balancing.
- 4. Tolerance: Maximum difference between phase loads, within panelboard, may not exceed 20 percent.

3.6 **PROTECTION**

A. Temporary Heating: Prior to energizing panelboards, apply temporary heat to maintain temperature in accordance with manufacturer's published instructions.

END OF SECTION 262416

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Nonrenewable cartridge fuses.
 - 2. Spare-fuse cabinets.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include the following for each fuse type indicated:
 - 1. Ambient Temperature Adjustment Information: If ratings of fuses have been adjusted to accommodate ambient temperatures, provide list of fuses with adjusted ratings.
 - a. For each fuse having adjusted ratings, include location of fuse, original fuse rating, local ambient temperature, and adjusted fuse rating.
 - b. Provide manufacturer's technical data on which ambient temperature adjustment calculations are based.
 - 2. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.
 - 3. Current-limitation curves for fuses with current-limiting characteristics.
 - 4. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse. Submit in electronic format suitable for use in coordination software.
 - 5. Coordination charts and tables and related data.

1.3 FIELD CONDITIONS

A. Where ambient temperature to which fuses are directly exposed is less than 40 deg F (5 deg C) or more than 100 deg F (38 deg C), apply manufacturer's ambient temperature adjustment factors to fuse ratings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by a qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

2.2 NONRENEWABLE CARTRIDGE FUSES

- A. Class CC Nonrenewable Cartridge Fuse:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Bussmann, an Eaton business
- b. Littelfuse, Inc.
- c. Mersen USA
- 2. Source Limitations: Obtain products from single manufacturer.
- 3. Listing Criteria: Investigated, labeled, and marked by a qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Cartridge Fuses, Nonrenewable: UL CCN JDDZ, including UL 248-1 and UL 248-4 (Class CC).
- 4. Standard Features:
 - a. NEMA FU 1, Class CC, 200 kA(sym) interrupt rating, current limiting, sizes up to 30 A, 600 V(ac), non-time-delay, with rejection feature.
- B. Class CD Nonrenewable Cartridge Fuse:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Littelfuse, Inc.
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by a qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Cartridge Fuses, Nonrenewable: UL CCN JDDZ, including UL 248-1 and UL 248-18 (Class CD).
 - 4. Standard Features:
 - a. UL 248-18, Class CD, 200 kA(sym) interrupt rating, current limiting, sizes 31 to 60 A, 600 V(ac), non-time-delay, with rejection feature.
- C. Class J Nonrenewable Cartridge Fuse:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bussmann, an Eaton business
 - b. Littelfuse, Inc.
 - c. Mersen USA
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by a qualified electrical testing laboratory in accordance with guide information and standards specified for the following

UL product categories:

- a. Cartridge Fuses, Nonrenewable: UL CCN JDDZ, including UL 248-1 and UL 248-8 (Class J).
- 4. Standard Features:
 - a. NEMA FU 1, Class J, 200 kA(sym) interrupt rating, current limiting, sizes up to 600 A, 600 V(ac), non-time-delay, with rejection feature.
- D. Class L Nonrenewable Cartridge Fuse:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bussmann, an Eaton business
 - b. Littelfuse, Inc.
 - c. Mersen USA
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by a qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Cartridge Fuses, Nonrenewable: UL CCN JDDZ, including UL 248-1 and UL 248-10 (Class L).
 - 4. Standard Features:
 - a. NEMA FU 1, Class L, 300 kA(sym) interrupt rating, current limiting, sizes 100 to 6000 A, 600 V(ac), non-time-delay, with rejection feature, with bolt-on terminals.
- E. Class RK1 Nonrenewable Cartridge Fuse:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bussmann, an Eaton business
 - b. Littelfuse, Inc.
 - c. Mersen USA
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by a qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Cartridge Fuses, Nonrenewable: UL CCN JDDZ, including UL 248-1 and UL 248-12 (Class R).
 - 4. Standard Features:

- a. NEMA FU 1, Class RK1, 200 kA(sym) interrupt rating, current limiting, sizes up to 600 A, non-time-delay, with rejection feature.
 - 1) Select ferrule terminals or knife blade terminals to match equipment where fuse is installed.
- F. Class RK5 Nonrenewable Cartridge Fuse:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bussmann, an Eaton business
 - b. Littelfuse, Inc.
 - c. Mersen USA
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by a qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Cartridge Fuses, Nonrenewable: UL CCN JDDZ, including UL 248-1 and UL 248-12 (Class R).
 - 4. Standard Features:
 - NEMA FU 1, Class RK5, 200 kA(sym) interrupt rating, current limiting, sizes up to 600 A, 600 V(ac), non-time-delay, with rejection feature.
 - 1) Select ferrule terminals or knife blade terminals to match equipment where fuse is installed.
- G. Class T Nonrenewable Cartridge Fuse:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bussmann, an Eaton business
 - b. Littelfuse, Inc.
 - c. Mersen USA
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by a qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Cartridge Fuses, Nonrenewable: UL CCN JDDZ, including UL 248-1 and UL 248-15 (Class T).
 - 4. Standard Features:

- a. NEMA FU 1, Class T, 200 kA(sym) interrupt rating, current limiting, sizes up to 1200 A, 600 V(ac), -time-delay, with rejection feature.
 - 1) Select ferrule terminals or knife blade terminals to match equipment where fuse is installed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.
- B. Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.
- C. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.
- D. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF FUSES

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in the Contract Documents or manufacturer's published instructions, comply with the following:
 - 1. Electrical Construction: ICC IBC, ICC IFC, NFPA 1, NFPA 70, and NECA NEIS 1.
 - 2. Electrical Maintenance: NFPA 70B.
 - 3. Electrical Safety: NFPA 70E.
 - 4. Work in Confined Spaces: NFPA 350.
 - 5. Work in Basements and Other Developed Subterranean Spaces: NFPA 520.
 - 6. Fuse Applications: NECA NEIS 420.
 - 7. Work with Fuses in Motor Control Centers: NECA NEIS 402.
- C. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.
- D. Interfaces with Other Work:
 - 1. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with results of coordination study and arc-flash hazard analysis.

END OF SECTION 262813

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fusible switches.
 - 2. Enclosures.
- B. Related Requirements:

1.2 DEFINITIONS

- A. GFEP: Ground-fault circuit-interrupter for equipment protection.
- B. GFLS: Ground-fault circuit-interrupter for life safety.
- C. SPDT: Single pole, double throw.
- 1.3 ACTION SUBMITTALS
 - A. Product Data:
 - 1. For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
 - 2. Enclosure types and details for types other than UL 50E, Type 1.
 - 3. Current and voltage ratings.
 - 4. Short-circuit current ratings (interrupting and withstand, as appropriate).
 - 5. Include evidence of qualified electrical testing laboratory listing for series rating of installed devices.
 - 6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
 - 7. Include time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in PDF electronic format.
 - B. Shop Drawings: For enclosed switches and circuit breakers.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Include wiring diagrams for power, signal, and control wiring.
 - C. Field Quality-Control Submittals:
 - 1. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Warranty documentation.

1.5 WARRANTY

- A. Special Installer Extended Warranty: Installer warrants that fabricated and installed enclosed switches and circuit breakers perform in accordance with specified requirements and agrees to repair or replace components or products that fail to perform as specified within extended-warranty period.
 - 1. Extended-Warranty Period: Two years from date of Substantial Completion; full coverage for labor, materials, and equipment.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Source Limitations: Obtain products from single manufacturer.

2.2 FUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Eaton
 - 2. Siemens Industry, Inc., Energy Management Division
 - 3. Square D; Schneider Electric USA

B. Type HD, Heavy Duty:

- 1. Single throw.
- 2. Three pole.
- 3. 600 V(ac).
- 4. 200 A and smaller.
- 5. UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate specified fuses.
- 6. Lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- C. Accessories:
 - 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
 - 3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
 - 4. Service-Rated Switches: Labeled for use as service equipment.
 - 5. Lugs: Mechanical type, suitable for number, size, and conductor material.

2.3 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: UL 489, NEMA KS 1, UL 50E, and UL 50, to comply with environmental conditions at installed location.

- B. Enclosure Finish: Enclosure must be gray baked enamel paint, electrodeposited on cleaned, phosphatized galvannealed steel (UL 50E Types 3R, 12).
- C. Conduit Entry: UL 50E Types 4, 4X, and 12 enclosures may not contain knockouts. UL 50E Types 7 and 9 enclosures must be provided with threaded conduit openings in both endwalls.
- D. Enclosures designated as UL 50E Type 4, 4X stainless steel, 12, or 12K must have dual cover interlock mechanism to prevent unintentional opening of enclosure cover when circuit breaker is ON and to prevent turning circuit breaker ON when enclosure cover is open.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Commencement of work will indicate Installer's acceptance of areas and conditions as satisfactory.
- 3.2 SELECTION OF ENCLOSURES
 - A. Outdoor Locations: UL 50E, Type 3R.
- 3.3 INSTALLATION
 - A. Comply with manufacturer's published instructions.

NFPA 70 and NECA NEIS 1 are already specified in Section 260010 "Supplemental Requirements for Electrical."

- B. Special Techniques:
 - 1. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
 - 2. Install individual wall-mounted switches with tops at uniform height unless otherwise indicated.
 - 3. Install fuses in fusible devices.

3.4 IDENTIFICATION

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems."
 - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
 - 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.5 FIELD QUALITY CONTROL

- A. Tests and Inspections for Switches:
 - 1. Visual and Mechanical Inspection:
 - a. Inspect physical and mechanical condition.
 - b. Inspect anchorage, alignment, grounding, and clearances.
 - c. Verify that unit is clean.
 - d. Verify blade alignment, blade penetration, travel stops, and mechanical operation.
 - e. Verify that fuse sizes and types match the Specifications and Drawings.
 - f. Verify that each fuse has adequate mechanical support and contact integrity.
 - g. Inspect bolted electrical connections for high resistance using one of the following methods:
 - 1) Use low-resistance ohmmeter.
 - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of lowest value.
 - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
 - a) Bolt-torque levels must be in accordance with manufacturer's published data. In absence of manufacturer's published data, use NETA ATS Table 100.12.
 - h. Verify that operation and sequencing of interlocking systems is as described in the Specifications and shown on Drawings.
 - i. Verify correct phase barrier installation.
 - j. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.
 - 2. Electrical Tests:
 - a. Perform resistance measurements through bolted connections with low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of lowest value.
 - b. Measure contact resistance across each switchblade fuseholder. Drop values may not exceed high level of manufacturer's published data. If manufacturer's published data are not available, investigate values that deviate from adjacent poles or similar switches by more than 50 percent of lowest value.
 - c. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with switch closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In absence of manufacturer's published data, use Table 100.1 from NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.

- d. Measure fuse resistance. Investigate fuse-resistance values that deviate from each other by more than 15 percent.
- e. Perform ground fault test in accordance with NETA ATS Section 7.14 "Ground Fault Protection Systems, Low-Voltage."
- B. Nonconforming Work:
 - 1. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- C. Collect, assemble, and submit test and inspection reports.
 - 1. Test procedures used.
 - 2. Include identification of each enclosed switch and circuit breaker tested and describe test results.
 - 3. List deficiencies detected, remedial action taken, and observations after remedial action.

3.6 ADJUSTING

A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.

3.7 **PROTECTION**

A. After installation, protect enclosed switches and circuit breakers from construction activities. Remove and replace items that are contaminated, defaced, damaged, or otherwise caused to be unfit for use prior to acceptance by Owner.

END OF SECTION 262816

SECTION 265000 - LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

- 1. Luminaires.
- 2. Luminaire fittings.

1.2 DEFINITIONS

- A. BUG Rating: Backlight, uplight, and glare rating for light pollution from exterior luminaires.
- B. Correlated Color Temperature (CCT): The absolute temperature (in kelvins) of a blackbody whose chromaticity (color quality) most nearly resembles that of the light source.
- C. Color Rendering Index (CRI): The measure of the degree of color shift objects undergo when illuminated by the light source as compared with the color of those same objects when illuminated by a reference light source. The lower the CRI of a light source, the more difficult it is to identify colors and stripes on electronic components and wiring.
- D. IDA: International Dark-Sky Association.
- E. IES: Illuminating Engineering Society.
- F. LPD: Lighting power density.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Luminaires: Include the following additional information:
 - a. Product Listing: Include copy of unexpired approval letter, on letterhead of qualified electrical testing agency, certifying product's compliance with specified listing criteria.
 - 1) If listed manufacturer differs from selling manufacturer, indicate relationship between entities on submittal. Clearly indicate which entity warrants product performance and fitness for purpose.
 - 2) Listing criteria identified in approval letter must match specified listing criteria. Approval of only equipment's enclosure is not considered approval of equipment for intended application.
 - 3) Product identification in approval letter must match product branding and model numbers in submittal. Approval letters for similar products are not acceptable.
 - b. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - c. Include operating characteristics, electrical characteristics, and furnished

accessories.

- d. Include life, output (lumens, CCT, and CRI), and energy-efficiency data.
- e. Include photometric data and adjustment factors obtained from qualified laboratory tests.
- f. Include manufacturer's sample warranty language.
- 2. Luminaire Fittings: Include the following additional information:
 - a. Product Listing: Include copy of unexpired approval letter, on letterhead of qualified electrical testing agency, certifying product's compliance with specified listing criteria.
 - 1) If listed manufacturer differs from selling manufacturer, indicate relationship between entities on submittal. Clearly indicate which entity warrants product performance and fitness for purpose.
 - 2) Listing criteria identified in approval letter must match specified listing criteria. Approval of only equipment's enclosure is not considered approval of equipment for intended application.
 - 3) Product identification in approval letter must match product branding and model numbers in submittal. Approval letters for similar products are not acceptable.
 - b. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - c. Include operating characteristics, electrical characteristics, and furnished accessories.
 - d. Include schedule of submitted lighting products. Arrange schedule and accompanying product data in order by luminaire and lamp designations indicated on the Drawings.
 - e. Include manufacturer's sample warranty language.
- B. Shop Drawings: Prepare and submit the following:
 - 1. Drawings, Diagrams, and Supporting Documents for Custom Luminaires:
 - a. Include plans, elevations, sections, and mounting and attachment details.
 - b. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - c. Include diagrams for power, signal, and control wiring.
- C. Field quality-control reports.

1.4 INFORMATIONAL SUBMITTALS

- A. Manufacturers' published instructions.
- B. Field Reports:
 - 1. Manufacturer's field reports for field quality-control support.
 - 2. Manufacturer's field reports for system startup support.

LIGHTING
1.5 CLOSEOUT SUBMITTALS

- A. Warranty documentation.
- 1.6 MAINTENANCE MATERIAL SUBMITTALS
 - A. Spare parts.
 - B. Extra stock material.
- 1.7 DELIVERY, STORAGE, AND HANDLING
 - A. Protect exposed surface finishes on lighting equipment by applying strippable, temporary protective covering before shipping.
- 1.8 WARRANTY FOR LUMINAIRES
 - A. Special Installer Extended Warranty: Installer warrants that fabricated and installed luminaires perform in accordance with specified requirements and agrees to repair or replace products that fail to perform as specified within extended-warranty period. Warranty must convey to Owner upon acceptance of the Work.
 - 1. Extended-Warranty Period: Two years from date of Substantial Completion; full coverage for labor, materials, and equipment.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
- 2.2 LUMINAIRES
 - A. Site Lighting:
 - 1. Manufacturers: Subject to compliance with requirements, provide product(s) as shown on the Drawings
 - 2. Source Limitations: Obtain products from single manufacturer.

2.3 LUMINAIRE FITTINGS

- A. Luminaire Support Accessories:
 - 1. Standard Features:
 - a. Sized and rated for luminaire weight.
 - b. Capable of maintaining luminaire position after cleaning and relamping.
 - c. Capable of supporting luminaire without causing deflection of ceiling or wall.
 - d. Capable of supporting horizontal force equal to 100 percent of luminaire weight and vertical force equal to 400 percent of luminaire weight.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF LIGHTING

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in Contract Documents or manufacturers' published instructions, comply with the following:
 - 1. Electrical Construction: ICC IBC, ICC IFC, NFPA 1, NFPA 70, and NECA NEIS 1.
 - 2. Grounding and Bonding: NECA NEIS 331 and Article 250 of NFPA 70.
 - 3. Work in Confined Spaces: NFPA 350.
 - 4. Work in Basements and Other Developed Subterranean Spaces: NFPA 520.
 - 5. Installation of Indoor Lighting Systems: NECA NEIS 500.
 - 6. Installation of Exterior Lighting Systems: NECA NEIS 501.
 - 7. Installation of Industrial Lighting Systems: NECA NEIS 502.
 - 8. Installation of Luminaires, Lampholders, and Lamps: Article 410 of NFPA 70.
 - 9. Installation of Extra-Low-Voltage Lighting: Article 411 of NFPA 70.
 - 10. Installation of Lighting for Sensitive Electronic Equipment: Article 647 of NFPA 70.
 - 11. Installation of Emergency Lighting and Exit Signs: ICC IBC, NFPA 101, and Parts IV and V in Article 700 of NFPA 70.
 - 12. Consult Architect for resolution of conflicting requirements.
- C. Special Installation Techniques:
 - 1. Install luminaires level, plumb, and square with finished floor or grade unless otherwise indicated.
 - 2. Install luminaires at height and aiming angle as indicated on the Drawings.
 - 3. Coordinate layout and installation of luminaires with other construction.
 - 4. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.
 - 5. Exterior Corrosion Prevention:
 - a. Do not use aluminum in contact with earth or concrete. When in direct contact with dissimilar metals, protect aluminum with insulating fittings or treatment.
 - b. When embedding steel conduits in concrete, wrap conduit with 10 mil (0.254 mm) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.
 - 6. Install wiring connections for luminaires.

- 7. Identification: Provide labels for luminaires and associated electrical equipment.
 - a. Identify field-installed conductors, interconnecting wiring, and components.
 - b. Provide warning signs.
 - c. Label each enclosure with engraved metal or laminated-plastic nameplate.
- D. Systems Integration: Integrate lighting control devices and equipment with electrical power connections for operation of luminaires as specified.

3.3 FIELD QUALITY CONTROL OF LIGHTING

- A. Administrant for Electrical Power Tests and Inspections:
 - 1. Administer and perform tests and inspections.
- B. Administrant for Field Tests and Inspections of Lighting Installations:
 - 1. Administer and perform tests and inspections.
- C. Tests and Inspections:
 - 1. Perform manufacturer's recommended tests and inspections.
 - 2. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 - 3. Verify operation of photoelectric controls.
 - 4. Exterior Illumination Tests:
 - a. Measure light intensities at night. Use photometers with calibration referenced to NIST standards.
- D. Nonconforming Work:
 - 1. Luminaire will be considered defective if it does not pass tests and inspections.
 - 2. Remove and replace defective units and retest.
- E. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.

3.4 SYSTEM STARTUP

- A. Perform startup service.
 - 1. Complete installation and startup checks in accordance with manufacturer's published instructions.

3.5 ADJUSTING

- A. Luminaire Aiming Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting aiming direction of luminaires to suit occupied conditions. Some of the Work may be required during hours of darkness.
 - 1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.

- 2. Parts and supplies must be manufacturer's authorized replacement parts and supplies.
- 3. Adjust aim of luminaires in presence of Architect.

3.6 **PROTECTION**

A. After installation, protect lighting equipment from construction activities. Remove and replace items that are contaminated, defaced, damaged, or otherwise caused to be unfit for use prior to acceptance by Owner.

END OF SECTION 265000

GEOTECHNICAL INFORMATION

CME Project No.: 28212-05 GPS Coordinates and Elevations Table Griffiss Air Force Base Triangle Parcel Development Rome, New York

TABLE 1											
Boring ID	Latitude	Longitude	Elevation (FT.)								
B-5	43.22592261	-75.42781582	478.3								
B-6	43.22609607	-75.42639315	480.3								
B-7	43.22616544	-75.42462283	481.5								
B-8	43.22695421	-75.42699936	476.9								
B-9	43.22771204	-75.42747939	479.1								
B-10	43.22871291	-75.42760452	480.2								
B-11	43.22968985	-75.42767287	480.8								
B-12	43.23062661	-75.42682775	480.9								
B-13	43.23017767	-75.42352092	479.3								
B-14	43.23217639	-75.42430291	483.3								
B-15	43.23218961	-75.42337435	482.3								
B-16	43.23411954	-75.42173000	484.2								
B-17	43.23570458	-75.41912787	484.4								
IT-1	43.22688151	-75.42698051	476.4								
IT-2	43.22576643	-75.42632579	478.6								
Reference 1	43.23255029	-75.42326058	483.2								

Notes:

AMSL: Above Mean Sea Level

1. GPS coordinates and elevations were obtained utilizing GPS equipment.

2. NYSDOT CORS positions are based on North American Datum of 1983 (NAD 83).

3. Elevations are based on the North American Vertical Datum of 1988 (NAVD 88).

4. Reference 1 refers to survey control point #16015 located just north of Test Boring B-15.

CME EXPLORATION LOCATION PLAN - ELP-2 CME Project No. 28212-05 Griffiss Air Force Base Triangle Parcel Development Rome, New York

Legend

- Approximate Pavement/Concrete Core and Test Boring Location
- Approximate Reference Point Location
- Approximate Test Boring Location



	C	R/	F	6035 C	orporate Drive	SU	J BSURF A	ACE EX	KPLORATION	Boring No.	B-9	
				East Sy	racuse, NY 13057		TEST	BORI	NGLOG	Page No.	1 of 1	
	Ass	ociates	s, Inc.	Phone:	315-701-0522		12.01	DOM		Project No.	28212-05	
Project	Name:	Griffis	s Air Fo	orce Base	e Triangle Parcel Develo	opment, I	Rome, New Y	ork		Date Started	12/30/24	
Client:		C&S F	Enginee	rs, Inc.						Date Finished	12/30/24	
Locatio	n:	See Ex	ploratio	on Locat	ion Plan ELP-1	N.T.			CDOLINIDU/ATEL	Surf. Elev. (ft)	479.1	
D 111		ME	THO	DS OF	INVESTIGATIO	N	H.G. A		GROUNDWATE	COBSERVAT	IONS	
Driller:		Beau F	letcher		Casing:	3 ¼" ID	H.S.A.	Date	Time	Depth (ft)	Casing At (ft	t)
Driller:	or.	Kyan (asaten	1	Casing Hammer:			12/20/24	While Drilling	None Noted	8.2	
Drill Ri	σ.	CME 4	550X		Soil Sampler	2" OD 5	Solit Barrel	12/30/24	Before Casing Removed	None Noted	8.3	
Type:	5.	ATV	5071		Hammer Wt:	140 lbs.	pin Duiter	12/30/24	After Casing Removed	None Noted	out	
Rod Siz	æ:	AWJ			Hammer Fall:	30 in.		12/30/24	After Casing Removed	caved @ 3.5	out	
	LO	GOF	BOR	ING SA	AMPLES		VI	SUAL C	LASSIFICATION (OF MATERIA	L	
Depth		Sample	e Depth		Blows on		0	coarca			SDT "	'N''
Scale	Sample	(1	ft)	Type / Sample	Sampler	Depth of Change	m -	medium	and - 35 to 5	0% / some - 20 to 35	% or	1
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	- fine	little - 10 to 2	20% / trace - 0 to 109	% RQD	%
0						0.3	Asphalt					
	1A	0.3	1.3	SS/18	11-30-19-12		Subbase; E	Brown mf	gravel and cmf sand, sil	t (moist)	49	1
1	1B	1.3	2.3				FILL; Darl	c Brown c	emf sand, silt, mf gravel	, clay (moist)		
2	2	2.3	4.3	SS/2	6-12-12-12		Brown mf compact)	GRAVEL	and cmf SAND, trace	SILT (wet, medi	um 24	
3												
4	3	4.3	6.3	SS/12	9-8-7-6		Brown mf compact)	GRAVEL	and cmf SAND, some	SILT (moist, me	dium 15	
5	4	()	0.2	SS/10	8 20 10 0		D			он т (20	
0	4	0.3	8.3	55/10	8-20-10-9		Brown mi	GKAVEL	and cmi SAND, trace	SIL1 (moist, con	npact) 30	1
8	5	8.3	10.3	SS/14	6-9-13-13		Similar as	above (m	oist. medium compact)		22	
9								Ň	, , ,			
10	+						Bottom of	Boring @	2 10.3'			
11												
12												
13												
14												
15	1											
16												
17												
18												
19												
20	<u> </u>	L		L			L					

Bast Syracuse, NY 13057 Phone: 315-701-0522 TEST BORING LOG Page No. Project Name: Griffiss Air Force Base Triangle Parcel Development, Rome, New York Date Started Client: C&S Engineers, Inc. Date Finished Location: See Exploration Location Plan ELP-1 Surf. Elev. (ft) METHODS OF INVESTIGATION GROUNDWATER OBSERVATION Driller: John Winks Casing: 3 ¼" ID H.S.A. Driller: John Winks Casing Hammer: 12/10/24 While Drilling None Noted Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Type: ATV Hammer Wt: 140 lbs. 12/10/24 After Casing Removed None Noted Rod Size: AWJ Hammer Fall: 30 in. 12/10/24 After Casing Removed caved @ 2.9 LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Grift Sample Sampler Depth of Change c - coarse m - medium and - 35 to 50% / some - 20 to 35%	B-10
Associates, Inc. Phone: 315-701-0522 Project No. Project Name: Griffiss Air Force Base Triangle Parcel Development, Rome, New York Date Started Client: C&S Engineers, Inc. Date Finished Location: See Exploration Location Plan ELP-1 Surf. Elev. (ft) METHODS OF INVESTIGATION GROUNDWATER OBSERVATION Driller: Al Linstruth Casing: 3 ¼" ID H.S.A. Driller: John Winks Casing Hammer: Date Time Depth (ft) Inspector: Chris O'Hara Other: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Type: ATV Hammer Wt: 140 lbs. 12/10/24 After Casing Removed None Noted LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth of Change C - coarse m - medium and - 35 to 50% / some - 20 to 35%	1 of 1
Project Name: Griffiss Air Force Base Triangle Parcel Development, Rome, New York Date Started Client: C&S Engineers, Inc. Date Finished Location: See Exploration Location Plan ELP-1 Surf. Elev. (ft) METHODS OF INVESTIGATION GROUNDWATER OBSERVATION Driller: Al Linstruth Casing: 3 ¼" ID H.S.A. Driller: John Winks Casing Hammer: 12/10/24 While Drilling None Noted Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Type: ATV Hammer Wt: 140 lbs. 12/10/24 After Casing Removed None Noted LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Sample Depth Type / Sample Blows on Depth of Change C - coarse m - medium and - 35 to 50% / some - 20 to 35%	28212-05
Client: C&S Engineers, Inc. Date Finished Location: See Exploration Location Plan ELP-1 Surf. Elev. (ft) METHODS OF INVESTIGATION GROUNDWATER OBSERVATION Driller: Al Linstruth Casing: 3 ¼" ID H.S.A. Driller: John Winks Casing Hammer: Date Time Depth (ft) Inspector: Chris O'Hara Other: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel 12/10/24 After Casing Removed None Noted Rod Size: AWJ Hammer Fall: 30 in. 12/10/24 After Casing Removed None Noted Depth Sample Blows on Sampler Depth of C hange C - coarse m - medium and - 35 to 50% / some - 20 to 35%	12/10/24
Location: See Exploration Location Plan ELP-1 Surf. Elev. (ft) METHODS OF INVESTIGATION GROUNDWATER OBSERVATION Driller: Al Linstruth Casing: 3 ¼" ID H.S.A. Driller: John Winks Casing Hammer: Date Time Depth (ft) Inspector: Chris O'Hara Other: 2" OD Split Barrel 12/10/24 While Drilling None Noted Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Type: ATV Hammer Wt: 140 lbs. 12/10/24 After Casing Removed None Noted Rod Size: AWJ Hammer Fall: 30 in. 12/10/24 After Casing Removed caved @ 2.9 LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Sample Blows on Sampler Depth of Change c - coarse m - medium and - 35 to 50% / some - 20 to 35%	12/10/24
METHODS OF INVESTIGATION GROUNDWATER OBSERVATION Driller: Al Linstruth Casing: 3 ¼" ID H.S.A. Driller: John Winks Casing Hammer: Date Time Depth (ft) Inspector: Chris O'Hara Other: 12/10/24 While Drilling None Noted Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Type: ATV Hammer Wt: 140 lbs. 12/10/24 After Casing Removed None Noted Rod Size: AWJ Hammer Fall: 30 in. 12/10/24 After Casing Removed caved @ 2.9 LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth (ft) Sample Blows on Depth of c - coarse and - 35 to 50% / some - 20 to 35%	480.2
Driller: Al Linstruth Casing: 3 ¼" ID H.S.A. Driller: John Winks Casing Hammer: Date Time Depth (ft) Inspector: Chris O'Hara Other: 12/10/24 While Drilling None Noted Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Type: ATV Hammer Wt: 140 lbs. 12/10/24 After Casing Removed None Noted Rod Size: AWJ Hammer Fall: 30 in. 12/10/24 After Casing Removed Caved @ 2.9 LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth (ft) Blows on Depth of c - coarse and - 35 to 50% / some - 20 to 35%	DNS
Driller: John Winks Casing Hammer: Inspector: Chris O'Hara Other: Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel Type: ATV Hammer Wt: 140 lbs. Rod Size: AWJ Hammer Fall: 30 in. LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Sample Depth Type / Sampler Scale Sample Depth Type / Sampler Blows on Depth of Change c - coarse m - medium and - 35 to 50% / some - 20 to 35%	Casing At (ft)
Inspector: Chirs O Hata Other: 12/10/24 While Drilling None Noted Drill Rig: CME 550X Soil Sampler: 2" OD Split Barrel 12/10/24 Before Casing Removed None Noted Type: ATV Hammer Wt: 140 lbs. 12/10/24 After Casing Removed None Noted Rod Size: AWJ Hammer Fall: 30 in. 12/10/24 After Casing Removed None Noted LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Sample Depth Type / Sample Blows on Depth of Change c - coarse and - 35 to 50% / some - 20 to 35%	<u> </u>
Type: ATV Hammer Wt: 140 lbs. Rod Size: AWJ Hammer Fall: 30 in. LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Sample Sample Scale Sample Mathematical Scale Sample Sample State Sample Depth of Change C - coarse m - medium and - 35 to 50% / some - 20 to 35%	8.5
Rod Size: AWJ Hammer Fall: 30 in. LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Sample Blows on (ft) Depth of Sample c - coarse m - medium and - 35 to 50% / some - 20 to 35%	0.1
LOG OF BORING SAMPLES VISUAL CLASSIFICATION OF MATERIAL Depth Sample Depth Type / Sample Blows on Sampler Depth of Change c - coarse and - 35 to 50% / some - 20 to 35%	out
Depth Sample Depth Type / Blows on Depth of c - coarse Scale Sample (ft) Sample Sample Sample Depth of c - coarse	
Depth Sample Sample Blows on Depth of C - coarse Scale Sample (ft) Sample Sample m - medium and - 35 to 50% / some - 20 to 35%	SDT "N"
Sample	or
(ft) No. From To Rec. (in) Per 6 Inches (ft) f - fine little - 10 to 20% / trace - 0 to 10%	RQD %
0 0.3 Asphalt	
$1 \qquad 0.5 \qquad 2.5 \qquad \text{SS/16} \qquad 23-23-25 \qquad \text{FILL; Brown cmf gravel, cmf sand, silt, clay (wet)}$	46
2 2.5 4.5 SS/14 13-13-15-16 Brown mf GRAVEL and cmf SAND, trace SILT (moist, medi	ım 28
3 compact)	
$\begin{array}{ c c c c c c } 4 \\ 3 \\ 4 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5$	44
5 4.5 0.5 35/8 15-27-17-15 Similar as above (moist, compact)	
6	
4 6.5 8.5 SS/9 16-17-10-10 Brown cmf GRAVEL and cmf SAND, trace SILT (moist, med	ium 27
7 compact)	
o 5 8 5 10 5 SS/11 10-12-16-10 Brown cmf GRAVEL some cmf SAND trace SILT (moist m	edium 28
9 9 1010 1012 10 10 10 10 10 10 10 10 10 10 10 10 10	20
10	
Bottom of Boring @ 10.5'	
13	
15	
19	
20	

		M	E	6035 C	orporate Drive	SU	UBSURF	ACE EX	XPLORATION	Boring No.	B -	·11
	Ass	nciate	s Inc.	East Sy	racuse, NY 13057		TEST	BORI	NG LOG	Page No.	2021	DI I
	N		, mo.	Phone:	315-701-0522			7 1		Project No.	2821	0/24
Project Client:	Name:	C & S E	s Air Fo	orce Base	e Triangle Parcel Develo	opment, i	come, New Y	Ork		Date Started	12/1	0/24
Logotio		Cas I	mlorati	n Logati	ion Dion ELD 1					Surf Flow (ft)	12/1	0/24
Locatio	11.	MF	THO	DS OF		N			GROUNDWATER	ORSERVAT		0.8
Drillor			etruth	DSOF	Casing:	3 1/" ID	нел		GROUNDWATER	ODSERVAT	10115	
Driller.		John V	Vinks		Casing Hammer	574 ID	п.э.д.	Date	Time	Depth (ft)	Casing	g At (ft)
Inspect	or:	Chris (O'Hara		Other:			12/10/24	While Drilling	None Noted	8	.6
Drill Ri	g:	CME f	550X		Soil Sampler:	2" OD S	Split Barrel	12/10/24	Before Casing Removed	None Noted	8	.6
Type:	8.	ATV			Hammer Wt:	140 lbs.	· · · · · · · · · · · · · · · · · · ·	12/10/24	After Casing Removed	None Noted	0	ut
Rod Siz	æ:	AWJ			Hammer Fall:	30 in.		12/10/24	After Casing Removed	caved @ 5.0	0	ut
	LO	G OF	BOR	ING SA	AMPLES		VI	SUAL C	LASSIFICATION (DF MATERIA	L	
Donth		Sample	e Denth		Playe on			000***00				SDT "NI"
Scale	Sample	(1	ft)	Type / Sample	Sampler	Depth of Change	m -	medium	and - 35 to 50)% / some - 20 to 35	%	or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	- fine	little - 10 to 2	20% / trace - 0 to 109	6	RQD %
0						0.6	Asphalt					
1	1	0.6	2.6	SS/17	6-9-9-11		Subbase; E	Brown cm	f gravel and cmf sand, t	race silt, trace cl	ay (wet)	18
2	2	26	46	<u>SS/14</u>	5-29-12-10		Brown cm	fgrave		le SILT (moist		41
3				22/11			compact)		2, 20110 0111 21 11 (2), 110			
4	3	4.6	6.6	SS/9	10-10-18-18		Brown cm	f GRAVE	L, some cmf SAND, litt	tle CLAY, trace	SILT	28
5							(moist, me	dium com	pact)			
6	4	6.6	8.6	SS/4	26-6-5-4		Brown mf	GRAVEL	and cmf SAND, little S	SILT (moist, med	lium	11
8							compact)					
9	5	8.6	10.6	SS/10	10-14-8-10		Brown cm compact)	f GRAVE	L, some cmf SAND, tra	ce SILT (moist,	medium	22
10	+						2					
11							Bottom of	Boring @	2 10.6'			
12												
13												
14												
15												
16												
17												
18												
20	ļ											
<u> </u>	<u> </u>	<u> </u>	L	L	l	L	L					

	C	M	F	6035 C	orporate Drive	SU	JBSURF	ACE EX	KPLORATION	Boring No.	B-	-12
	Ass	nciate	s Inc	East Sy	racuse, NY 13057		TEST	F BORI	NG LOG	Page No.	2821	of I
	ASS		s, mc.	Phone:	315-701-0522			7 1		Project No.	282	12-05
Project	Name:	Griffis	$\frac{s \operatorname{Air} F}{\cdot}$	orce Base	e Triangle Parcel Develo	opment, I	Kome, New Y	ork		Date Started	12/1	1/24
Chent:		Case	inginee	rs, Inc.						Date Finished	12/1	1/24
Locatio	n:	See Ex	TUO	on Locat	ION PIAN ELP-I	N			CDOUNDWATER	Surf. Elev. (ft)	48 10NS	0.9
Drillor			atmith	DSOF	Casing	2 1/" ID	U S A		GROUNDWATER	UDSERVAI	IUNS	
Driller		John V	Vinks		Casing Hammer	5 /4 ID	11.5.A.	Date	Time	Depth (ft)	Casing	g At (ft)
Inspect	or:	Chris ()'Hara		Other:			12/11/24	While Drilling	None Noted	8	.1
Drill Ri	g:	CME 5	550X		Soil Sampler:	2" OD S	Split Barrel	12/11/24	Before Casing Removed	None Noted	8	.1
Type:	8	ATV			Hammer Wt:	140 lbs.	1	12/11/24	After Casing Removed	None Noted	0	out
Rod Siz	e:	AWJ			Hammer Fall:	30 in.		12/11/24	After Casing Removed	caved @ 3.1	0	ut
	LO	G OF	BOR	ING SA	AMPLES		VI	SUAL C	LASSIFICATION (DF MATERIA	L	
Depth		Sample	e Depth	 (Blows on		C.	- coarse				SPT "N"
Scale	Sample	(t	ft)	Type / Sample	Sampler	Depth of Change	m -	medium	and - 35 to 50	% / some - 20 to 35	%	or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	f - fine	little - 10 to 2	20% / trace - 0 to 109	%	RQD %
0						0.1	Asphalt					
	1A	0.1	0.7	SS/15	7-13-60-22		Subbase; E	Brown mf	gravel, cmf sand, silt (w	vet)		73
1							L					
	1B	0.7	2.1				Brown mf	GRAVEL	and cmf SAND, little S	SILT (wet, very o	compact)	
2	2	2.1	4 1	00/12	0 11 0 12		D C			V (4	20	
2	2	2.1	4.1	55/12	9-11-9-13		Brown mi	GRAVEL	SIL1, trace CLA	Y (wet,	20	
5								inipact)				
4	3	41	61	SS/10	7-11-6-7		Brown cm	f GR AVE	SILT (moist m	edium	17	
-	5	7.1	0.1	55/10	/ 11 0 /		compact)	I GIUTTE			curum	17
5							compact)					
6	4	6.1	8.1	SS/6	3-3-4-7		Brown mf	GRAVEL	and cmf SAND, little (CLAY, trace SIL	T (wet,	7
							loose)					
7												
8	5	8.1	10.1	SS/5	11-8-14-14		Brown mf	GRAVEL	and cmf SAND, little S	SILT (moist, med	lium	22
0							compact)					
9												
10							Pottom of	Doring @	10.11			
10							Bottom of	Boring @	, 10.1			
11												
12												
13												
14												
	ļ											
15												
16												
17												
1/												
18												
10												
19												
20												
							0					

	C	M	F	6035 C	orporate Drive	SU	JBSURF	ACE EX	TION	Boring No.	B- 1	13	
	Ass	nciate	s Inc.	East Sy	racuse, NY 13057		TEST	BORI	NG LOG	T T	Page No.	1 01	05
	ASS		s, me.	Phone:	315-701-0522			7 1			Project No.	28212	2-05
Project	Name:	Griffis	$\frac{s}{r}$ Air Fo	orce Base	e Triangle Parcel Develo	opment, F	kome, New Y	Ork			Date Started	12/11	/24
Client:		Case		rs, Inc.							Date Finished	12/11	/24
Locatio	n:	See Ex	TUO	DS OF	INVESTICATIO	N			CDOU	NDWATED	Surf. Elev. (II)	4/9 10NS	.3
Drillor			otruth	DSOF	Casing:	3 1/" ID	нел		GROUI	UWAIL	ODSERVAI	IUNS	
Drillor.		Iohn V	Vinke		Casing Hammer	5 /4 ID	11.5.A.	Date	Т	ime	Depth (ft)	Casing .	At (ft)
Inspect	or:	Chris (O'Hara		Other:			12/11/24	While	Drilling	None Noted	8 ()
Drill Ri	σ:	CME ⁴	550X		Soil Sampler:	2" OD S	Split Barrel	12/11/24	Before Cas	sing Removed	None Noted	8.0)
Type:	8.	ATV			Hammer Wt:	140 lbs.		12/11/24	After Casi	ng Removed	None Noted	ou	t
Rod Siz	æ:	AWJ			Hammer Fall:	30 in.		12/11/24	After Casi	ing Removed	caved @ 1.7	ou	t
	LO	G OF	BOR	ING SA	AMPLES		VI	SUAL C	LASSIFI	CATION (DF MATERIA	L	
Depth		Sample	e Depth		Blows on		0	coarca					SDT "NI"
Scale	Sample	· (1	ft)	Type / Sample	Sampler	Depth of Change	m -	medium		and - 35 to 50)% / some - 20 to 35	%	or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	- fine		little - 10 to 2	20% / trace - 0 to 109	%	RQD %
0	1A	0.0	0.2	SS/13	5-10-8-8		Topsoil an	d Organic	Material (moist)			18
1	1B	0.2	2.0			Brown mf GRAVEL and cmf SAND, trace compact)					SILT (moist, med	dium	
2						Similar as above (moist, medium compact)							
3	2	2.0	4.0	SS/5	5-7-8-14	Similar as above (moist, medium compact) Coarse GRAVEL lodged in tip of spoon (m							15
4	3	4.0	6.0	SS/2	5-7-7-5	Coarse GRAVEL lodged in tip of spoon (n					oist, medium con	npact)	14
5	1												
6	4	6.0	8.0	SS/12	4-5-3-2		Brown mf	GRAVEL	and cmf S	AND, trace S	SILT (moist, loos	se)	8
7	_		10.0	0.016	4.5.0.0		a. 11			Ň			10
8	5	8.0	10.0	55/6	4-5-8-8		Similar as	above (mo	oist, mediu	m compact)			13
9													
10							Bottom of	Boring @	2 10.0'				
11													
12													
13													
14													
15													
16													
17													
19	ļ												
20		<u> </u>				<u> </u>	L						

	C		F	6035 C	orporate Drive	SU	J BSURF A	ACE EX	CPLORATION	Boring No.	B	-14
⋛			a lua	East Sy	racuse, NY 13057		TEST	BORI	NG LOG	Page No.	1	of 1
	Ass	ociate	s, inc.	Phone:	315-701-0522		1201	2011		Project No.	282	12-05
Project	Name:	Griffis	s Air Fo	orce Base	e Triangle Parcel Develo	opment, F	Rome, New Y	'ork		Date Started	12/2	11/24
Client:		C&S E	Enginee	rs, Inc.						Date Finished	12/2	11/24
Locatio	n:	See Ex	ploration	on Locat	ion Plan ELP-1					Surf. Elev. (ft)	48	33.3
		ME	ТНО	DS OF	INVESTIGATIO	N			GROUNDWATER	R OBSERVAT	IONS	
Driller: Driller:		Al Lin John V	struth Vinks		Casing: Casing Hammer:	3 ¼" ID	H.S.A.	Date	Time	Depth (ft)	Casing	g At (ft)
Inspect	or:	Chris (D'Hara		Other:			12/11/24	While Drilling	None Noted	8	3.6
Drill Ri	g:	CME :	550X		Soil Sampler:	2" OD S	Split Barrel	12/11/24	Before Casing Removed	None Noted	8	3.6
Type:	8.	ATV			Hammer Wt:	140 lbs.		12/11/24	After Casing Removed	None Noted		out
Rod Siz	e:	AWJ			Hammer Fall:	30 in.		12/11/24	After Casing Removed	caved @ 2.6	C	out
	LO	G OF	BOR	ING S	AMPLES	[VI	SUAL C	LASSIFICATION ()F MATERIA	L	
D 1		Somul	o Donth				,					
Depth	Samula	Sample	ff)	Type /	Blows on	Depth of	c -	· coarse	and 25 to 50	$\frac{10}{2}$)/	SPT "N"
(ft)	No.	From	То	Rec (in)	Per 6 Inches	Change (ff)	f f	'- fine	little - 10 to 2	$20\% / \text{ trace} - 0 \text{ to } 10^{\circ}$	/0	ROD %
0	1101	110111	10	reee (m)		0.7	Asphalt		1000		0	ngo //
Ů	1	0.6	2.6	SS/6	12-24-56-28	017	Subbase; E	Brown cm	f gravel, cmf sand, silt (v	wet)		80
1												
2	2	2.6		00/10								1.4
3	2	2.6	4.6	SS /12	9-8-6-6		Brown cm compact)	GRAVE	L and cmf SAND, trace	SIL1 (moist, mo	edium	14
4												
4	3	4.6	6.6	SS/11	6-8-8-6		Brown mf	GRAVEL	and cmf SAND, little S	SILT (moist, med	lium	16
5							compact)					
6												
_	4	6.6	8.6	SS/2	7-5-6-7		Brown mf	GRAVEL	., little cmf SAND, trace	e SILT (wet, med	lium	11
1							compact)					
8	5	0 <i>C</i>	10.6	SS/15	5 7 15 0		Duoum mf	CDAVEL	and and SAND the	a SII T (maint m	dina	22
9	3	8.0	10.0	55/15	5-7-15-9		compact)	GRAVEL	, some chii SAND, trac	e SILT (moist, n	lealum	22
10												
11							Bottom of	Boring @	10.6'			
12												
12												
13												
14												
15												
16												
17												
18												
19												
20	+											
20		L	L	L			L					<u> </u>

		M	F	6035 C	orporate Drive	SU	JBSURF	ACE EX	ORATION	Boring No.	B-	-15	
	Acc	nciate	s Inc	East Sy	racuse, NY 13057		TEST	F BORI	NG]	LOG	Page No.	1 0	of I
	MSS		s, mc.	Phone:	315-701-0522						Project No.	282	12-05
Project	Name:	Griffis	s Air Fo	orce Base	e Triangle Parcel Develo	opment, I	Rome, New Y	ork			Date Started	12/1	1/24
Client:		C&S E	inginee	rs, Inc.							Date Finished	12/1	1/24
Locatio	n:	See Ex	ploration the second	on Locat	ION Plan ELP-1	NT			СП		Surf. Elev. (ft)	48 IONS	2.3
Duillou			atmath	DS OF	INVESTIGATIO.	2 1/11 10	ILCA		GR	CUNDWATER	UDSERVAI	IUNS	
Driller:		AI LIII John V	Strutti Vinke		Casing Hommor:	5 1/4 ID	п.з.а.	Date		Time	Depth (ft)	Casing	g At (ft)
Inspect	or•	Chris (VIIIKS O'Hara		Other:			12/11/24		While Drilling	None Noted	8	0
Drill Ri	σ·	CME 4	550X		Soil Sampler	2" OD 5	Solit Barrel	12/11/24	Befo	while Drining	None Noted	8	0
Type:	5.	ATV	00011		Hammer Wt:	140 lbs.	pin Builer	12/11/24	Afte	er Casing Removed	None Noted	0	nit
Rod Siz	e:	AWJ			Hammer Fall:	30 in.		12/11/24	Afte	er Casing Removed	caved @ 2.5	0	out
	LO	GOF	BOR	ING SA	AMPLES		VI	SUAL C	LAS	SIFICATION O	DF MATERIA	L	
Douth		Sample	e Denth		Diawa an						-		ODT "NI"
Scale	Sample	jumpk (1	ft)	Type /	Sampler	Depth of	с - т -	- coarse medium		and - 35 to 50)% / some - 20 to 35	%	or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	fine		little - 10 to 2	20% / trace - 0 to 109	6	RQD %
0	1A	0.0	0.4	SS/16	3-6-10-11		Topsoil an	d Organic	Mate	erial (moist)			16
	1B	0.4	2.0				Brown mf	GRAVEL	and	cmf SAND, trace S	SILT (moist, mee	lium	
1							compact)						
						Brown cmf GRAVEL and cmf SAND, trac							
2	2	2.0	4.0	SS/13	7-8-7-7		Brown cm	l cmf SAND, trace	SILT (moist, mo	edium	15		
							compact)						
3													
		4.0	6.0				D						
4	3	4.0	6.0	SS/9	11-8-6-5		Brown cm	ce SILT (moist,	medium	14			
	ł						compact)						
5													
6	1	6.0	8.0	55/3	1.1.6.9		Brown mf	GRAVEI	and	cmf SAND trace	SII T (moist me	tium	10
0	-	0.0	0.0	33/3	4-4-0-9		compact)	UKAVEL	anu	chii SAND, trace		.114111	10
7							compact)						
,													
8	5	8.0	10.0	SS/13	6-6-7-11		Brown cm	f GRAVE	L and	l cmf SAND, trace	SILT (moist, mo	edium	13
							compact)			,			
9													
10	Ĭ						Bottom of	Boring @) 10.0	'			
11													
12													
10													
13													
14													
14													
15	1												
15													
16													
_													
17													
18													
19													
	ļ												
20					L								

	C	V	E	6035 C	orporate Drive	SU	JBSURF	ACE EX	KPLORATION	Boring No.	B-1	6
	Ass	ociate	s, Inc.	Phone:	315-701-0522		TEST	F BORI	NG LOG	Project No.	28212-	-05
Project	Nomo	Griffie	o Air F	Thome.	Triangle Parcel Develo	nment I	Dome New V	⁷ ork		Data Startad	12/11/	-05 '24
Client:	Ivanic.	C&S F	S All TV	rs Inc		pment, r	Come, New 1	UIK		Date Started	12/11/	2 4 '74
Locatio	n۰	See Ex	nlorati	on Locati	ion Plan FLP-1					Surf Elev (ft)	484 0	21
Locatio		MF	THO	DS OF		N			GROUNDWATER	OBSERVAT	IONS	2
Driller:		Al Lin	struth	0001	Casing:	3 ¼" ID	H.S.A.	Date	Time	Depth (ft)	Casing A	At (ft)
Inspect	or•	Chris (VIIIKS 'Hara		Other:			12/11/24	While Drilling	None Noted	8.6	
Drill Ri	σ.	CME 4	550X		Soil Sampler:	2" OD 5	Solit Barrel	12/11/24	Before Casing Removed	None Noted	8.6	
Type:	5.	ATV	00011		Hammer Wt:	140 lbs.	pin Duiter	12/11/24	After Casing Removed	None Noted	out	
Rod Siz	æ:	AWJ			Hammer Fall:	30 in.		12/11/24	After Casing Removed	caved @ 1.9	out	
	LO	G OF	BOR	ING SA	AMPLES		VI	SUAL C	LASSIFICATION (DF MATERIA	L	
Denth		Sample	e Denth	[Diama an					-	c	
Scale	Sample	(i	ft)	Type /	Sampler	Depth of	c - m -	- coarse medium	and - 35 to 50)% / some - 20 to 35	%	or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	fine	little - 10 to 2	20% / trace - 0 to 109	% F	RQD %
0						0.6	Asphalt					
1	1	0.6	2.6	SS/15	6-15-16-14		Subbase; E	Brown cm	f gravel, cmf sand, silt (wet)		31
2				00/10				C			10	
3	2	2.6	4.6	SS/13	4-7-5-6		FILL; Brov	wn mf gra	st)		12	
4	3	4.6	6.6	SS/6	6-8-8-6		Miscellane	ous FILL	sand, concrete, s	silt (wet)	14	
5	1											
6						[Τ					
7	4	6.6	8.6	SS/3	7-11-13-12		Brown mf compact)	GRAVEL	, some cmf SAND, trac	e SILT (wet, me	dium	24
8												
9	5	8.6	10.6	SS/14	4-6-9-11		Brown mf compact)	GRAVEL	and cmf SAND, little S	SILT (moist, med	lium	15
10	+						Bottom of	Boring @	10.6'			
11							20000000	2011. g (e)	, 1010			
12												
13												
14												
15												
16												
17												
18												
19												
20	<u> </u>		<u> </u>	L			L					

			F	6035 C	orporate Drive	SU	JBSURF	ACE EX	KPLORATION	Boring No.	B-	-17
				East Sy	racuse, NY 13057		TEST	BORI	NG LOG	Page No.	1 c	of 1
	ASS	ociaces	s, mc.	Phone:	315-701-0522					Project No.	2821	2-05
Project	Name:	Griffis	s Air Fo	orce Base	e Triangle Parcel Develo	pment, F	Rome, New Y	ork		Date Started	12/1	1/24
Chent:		C&S E	inginee	rs, Inc.	D1 ELD 1					Date Finished	12/1	1/24
Locatio	n:	See Ex	THO	DS OF		N			CROUNDWATER	ORSERVAT	40 10NS	4.4
Driller:		Al Lin	struth	DSOF	Casing:	3 ¼" ID	H.S.A.	Date	Time	Denth (ft)	Casing	At (ft)
Driller:		John V	Vinks		Casing Hammer:			Dute			Cusing	-
Inspect	or:	Chris (J'Hara		Other:	211 0 D S		12/11/24	While Drilling	None Noted	8	.2
Drill Ki	g:	ATV	550X		Soli Sampler: Hommor Wt:	2" OD S	spiit Barrei	12/11/24	After Casing Removed	None Noted	8	.2
Rod Siz	e:	AWJ			Hammer Fall:	30 in.		12/11/24	After Casing Removed	caved @ 1.2	0	ut
	LO	GOF	BOR	ING S	AMPLES		VI	SUAL C	LASSIFICATION (DF MATERIA	L	
Douth		Sample	e Denth		Diawa an							CDT "NI"
Scale	Sample	(1	ft)	Type / Sample	Sampler	Depth of Change	m -	medium	and - 35 to 50)% / some - 20 to 35	%	or or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	- fine	little - 10 to 2	20% / trace - 0 to 109	/ ₀	RQD %
0						0.2	Asphalt					
1	1A 1B	0.2 0.4	0.4 2.2	SS/13	11-17-23-16		Subbase; C FILL: Broy	<u>Brey mf gr</u> wn cmf gr	avel, cmf sand, silt (wet avel, cmf sand, silt (wet	t) ;)		40
							́					
2	2	2.2	4.2	SS/4	4-7-7-7		Miscellane	ous FILL	; Brown mf gravel, cmf	sand, asphalt pie	eces,	14
3												
4	3	4.2	6.2	SS/11	7-6-3-6		Brown cm	f GRAVE	L. some cmf SAND. tra	ce SILT (wet, lo	ose)	9
									, , , ,		,	
5												
6	4	6.2	8.2	SS/10	7-6-8-9		Brown mf	GRAVEL	and cmf SAND, trace S	SILT (wet, medi	um	14
7							compact)					
8	5	82	10.2	55/8	5613		Brown mf	GRAVEI	and cmf SAND trace	SILT trace CLA	V (wet	10
0	5	0.2	10.2	55/0	5-0-4-5		medium co	onca v EL	and chill SAND, trace		I (wei,	10
9												
10							Bottom of	Boring @	2 10.2'			
11												
12												
13												
14												
15												
16												
17												
18												
10												
19												
20		L					L					

	C	R/	F	6035 Co	orporate Drive	SU	JBSURF	ACE EX	ORATION	Boring No.	IJ	[-1	
				East Sy	racuse, NY 13057		TEST	BORI	NG	LOG	Page No.	1 0	of 1
	Ass	ociates	s, Inc.	Phone:	315-701-0522		1101	DOM		LOG	Project No.	2821	12-05
Project	Name:	Griffis	s Air Fo	orce Base	e Triangle Parcel Develo	opment, F	Rome, New Y	'ork			Date Started	12/1	2/24
Client:		C&S E	Enginee	rs, Inc.							Date Finished	12/1	2/24
Locatio	n:	See Ex	ploratio	on Locati	ion Plan ELP-1	N.T.		1	CD		Surf. Elev. (ft)	47	6.4
D 11		ME	THO	DS OF	INVESTIGATIO	N	ILC A		GR	KOUNDWATER	OBSERVAT	IONS	
Driller:		Al Lin	struth		Casing:	3 ¼" ID	H.S.A.	Date		Time	Depth (ft)	Casing	g At (ft)
Inspect	or•	Chris (viliks D'Hara		Other			12/12/24		While Drilling	None Noted	5	5
Drill Ri	σ.	CMF 4	550X		Soil Sampler	2" OD S	Solit Barrel	12/12/24	Befo	while Drining	None Noted	5	.5
Type:	5.	ATV	00011		Hammer Wt:	140 lbs.	pin Duiter	12/12/24	Afte	er Casing Removed	None Noted	0	ut
Rod Siz	æ:	AWJ			Hammer Fall:	30 in.		12/12/24	Afte	er Casing Removed	caved @ 2.0	0	ut
	LO	GOF	BOR	ING SA	AMPLES		VI	SUAL C	LAS	SIFICATION C	DF MATERIA	L	
Depth		Sample	e Depth		Blows on		6.	coarse					SPT "N"
Scale	Sample	(t	ft)	Type / Sample	Sampler	Depth of Change	m -	medium		and - 35 to 50	% / some - 20 to 35	%	or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	- fine		little - 10 to 2	20% / trace - 0 to 109	6	RQD %
0	1A	0.0	0.3	SS/15	3-2-3-4		Topsoil an	d Organic	Mate	erial (moist)			5
1	1B	0.3	2.0			Brown cmf GRAVEL and SILT, some cm Brown cmf GRAVEL and cmf SAND, litt					SAND (moist, lo	ose)	
2	2	2.0	4.0	SS/13	5-5-7-7	Brown cmf GRAVEL and cmf SAND, lin (wet, medium compact)					SILT, trace ROO	OTS	12
3						Brown cmf GRAVEL, trace cmf SAND,							
4	3	4.0	5.5	SS/2	9-7-6	Brown cmf GRAVEL, trace cmf SAND (moist, medium compact)					ce SILT, trace R	OOTS	13
5	4	5.5	7.0	SS/2	2-3-5		Limited Re Brown cm	<i>covery</i> f GRAVE	L, litt	tle cmf SAND, trac	e SILT (moist, l	oose)	8
6							Limited Re	covery				,	
7							Bottom of	Boring @	2.0'				
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

			F	6035 C	orporate Drive	SU	JBSURF	ACE EX	RATION	Boring No.	IT-2		
				East Sy	racuse, NY 13057		TEST	BORI	NGL	OG	Page No.	1 of 1	
	Ass	ociates	s, Inc.	Phone:	315-701-0522		12.01	DOM		00	Project No.	28212-05	
Project	Name:	Griffis	s Air Fo	orce Base	e Triangle Parcel Develo	opment, F	Rome, New Y	ork			Date Started	12/13/24	
Client:		C&S E	Enginee	rs, Inc.							Date Finished	12/13/24	
Locatio	n:	See Ex	ploratio	on Locat	ion Plan ELP-1	N.T.			CDO		Surf. Elev. (ft)	478.6	
D		ME	THO	DS OF	INVESTIGATIO	N	ILC A		GRO	DUNDWATER	COBSERVAT	IONS	
Driller:		Al Lin	struth		Casing:	3 ¼" ID	H.S.A.	Date		Time	Depth (ft)	Casing At (f	ft)
Driller:		John V Chris (VIIIKS 'Hara		Other:			12/13/24	11/	hile Drilling	None Noted	5.5	
Drill Ri	σ:	CME 4	550X		Soil Sampler:	2" OD 5	Solit Barrel	12/13/24	Before	Casing Removed	None Noted	5.5	
Type:	8.	ATV			Hammer Wt:	140 lbs.	-p-10 2 411 41	12/13/24	After (Casing Removed	None Noted	out	
Rod Siz	e:	AWJ			Hammer Fall:	30 in.		12/13/24	After (Casing Removed	caved @ 3.4	out	
	LO	G OF	BOR	ING SA	AMPLES		VI	SUAL C	LASS	FICATION O	DF MATERIA	L	
Depth		Sample	e Depth		Blows on		C.	coarse				SPT	"N"
Scale	Sample	(1	ft)	Type / Sample	Sampler	Depth of Change	m -	medium		and - 35 to 50	% / some - 20 to 35	% 01	or
(ft)	No.	From	То	Rec. (in)	Per 6 Inches	(ft)	f	- fine		little - 10 to 2	20% / trace - 0 to 109	% RQE	D %
0	1A	0.0	0.3	SS/14	5-8-7-6		Topsoil an	d Organic	e Materi	al (moist)		1:	5
	1B	0.3	2.0				FILL; Brov	wn/Grey r	nf grave	el, cmf sand, silt,	, roots (moist)		
1							+						
2	2	2.0	4.0	SS/13	7-7-6-6	Brown mf GRAVEL and cmf SAND, trace					SII T (wet medi	ım 12	3
2	2	2.0	7.0	55/15	1100		compact)	GIUTVEL					5
3													
						Similar as above (wet medium compact)							
4	3	4.0	5.5	SS/9	8-6-10	Similar as above (wet, medium compact)						10	6
						Similar as above (wet, medium compact)							
5			7.0	00/5			D		T				2
6	4	5.5	7.0	SS/5	4-5-4		Brown cm	t GRAVE	L, some	e cmf SAND, tra	ce SILT (moist,	loose) 9)
0													
7							Bottom of	Boring @	2, 7.0'				
								00	/				
8													
9													
10													
10													
11													
12													
13													
14													
14													
15	t												
16													
17													
10													
18													
19													
20	[ļ						

Pavement and Concrete Core Summary Table

CME Project Number: 28212-05

Project Name:	Griffiss Air Force Base Triangle Parcel Development
2	Rome, New York

Page 1 of 1



Prepared By: Bryan Reles Date: 1/16/2025

Core ID	Total Concrete Thickness (in.)	Total Asphalt Thickness (in.)	Thickness of Top Course (in.)	Thickness of Binder Course (in.)	Total Core Thickness (in.)	Number of Layers	Layer #	Top Depth (in.)	Bottom Depth (in.)	Thickness (in.)	Grain Size	Thickness (in.) (2)	Subbase Course Material Visual Soil Classification (3)	Geotextile Fabric Present Below Subbase?	Visual Subgrade Soil Classification (3)	Notes
							1	0	1 7/8	1 7/8	f					
							2	1 7/8	4 1/4	2 3/8	mt		Conv/Brown out one and out to a silt to a			
B-5	0	11.7/8	1.7/8	10	11.7/8	4	5	4 1/4	/ 1/8	2 //8	cmf	12	Grey/Brown mi gravel and cmi sand, trace slit, trace	No	See Test Boring Log	
B-5	0	11 //0	1 //0	10	11 // 0	7	1	0	1 3/8	1 3/8	f	12	1003	110	See Test Boning Edg.	
							2	1 3/8	3	1 5/8	mf					
							3	3	7 1/8	4 1/8	cmf					
B-6	0	11 3/8	1 3/8	10	11 3/8	4	4	7 1/8	11 3/8	4 1/4	cmf	13	Grey/Brown mf gravel and cmf sand, trace silt	No	See Test Boring Log.	
							1	0	1 1/8	1 1/8	f					
							2	1 1/8	3 1/8	2	mf					
							3	3 1/8	7 1/8	4	cmf					
B-7	0	10 3/4	1 1/8	9 5/8	10 3/4	4	4	7 1/8	10 3/4	3 5/8	cmf	12	Grey/Brown mf gravel and cmf sand, trace silt	No	See Test Boring Log.	
B-8	0	4	1 3/8	2 5/8	4	2	2	1 3/8	1 5/8	2 5/8	I	0	Not Observed	No	See Test Boring Log	
D-0	0	-	1 5/0	2 5/0		2	1	0	1 1/8	1 1/8	f	0	not observed	110	See Test Boning Edg.	
B-9	0	2 7/8	1 1/8	1 3/4	2 7/8	2	2	1 1/8	2 7/8	1 3/4	mf	8	Brown mf gravel and cmf sand, little silt	No	See Test Boring Log.	
							1	0	1 3/8	1 3/8	f					
B-10	0	3 7/8	1 3/8	2 1/2	3 7/8	2	2	1 3/8	3 7/8	2 1/2	mf	8	Not Observed	No	See Test Boring Log.	
B-11	6 7/8	0	0	0	6 7/8	1	1	0	6 7/8	6 7/8	cmf	17	Brown cmf gravel and cmf sand, trace silt, trace clay	No	See Test Boring Log.	
B-12	0	5/8	5/8	0	5/8	1	1	0	5/8	5/8	mf	7	Brown mf gravel, some cmf sand, trace silt	No	See Test Boring Log.	
B-14	7 7/8	0	0	0	7 7/8	1	1	0	7 7/8	7 7/8	cmf	6	Brown cmf gravel, some cmf sand, trace silt	No	See Test Boring Log.	
B-16	6 3/4	0	0	0	6 3/4	1	1	0	6 3/4	6 3/4	cmf	15	Brown cmf gravel and cmf sand, trace silt	No	See Test Boring Log.	
B-17	0	2 1/4	2 1/4	0	2 1/4	1	1	0	2 1/4	2 1/4	mf	2	Grey mf gravel and cmf sand, trace silt	No	See Test Boring Log.	

 Notes:

 1) See attached Pavement Core Photographs.

 2) Grain size abreviations: f - fine, m - medium, c - coarse

3) Approximate thickness estimated using sample recovery in split-spoon and/or change of material depth. Actual thickness may vary.
 4) See "General Information & Key to Test Boring Log" for methods used in visual classification.

CME Project No.: 28253-05 Pavement and Concrete Core Photographs

Page 1 of 3



CME Project No.: 28253-05 Pavement and Concrete Core Photographs

Page 2 of 3



CME Project No.: 28253-05 Pavement and Concrete Core Photographs



Photograph 9: Core B-14

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			ЛС	6035 Co	orporate D	rive						Test ID:	IT-1
	() L			East Syr	racuse, NY	7 13057	IN	FILTF	RATION TE	EST LO	OG	Project No.:	28212-05
	As As	sociat	tes, Inc.	Phone:	315-701-0	522						Date:	12/19/24
Project:	Griffiss	s Air For	ce Base Triang	gle Parce	el Devel	opment			Technician:	Bryan F	Reles		
	Rome,	New Yo	ork						Location:	See Exp	oloratio	n Location Pla	n, ELP-1
Client:	C&S Ei	ngineers	s, Inc.					Su	rface Elev. (ft)	476.4			
						TEST INFO	RMAT	TION					
	(Casing	Installed in:		Test P	it		\checkmark	Borehole				
	Casing	Diamet	er and Type:	4	inch I.	D. PVC							
	A Existin	ng Grad	e Elevation (f	t):							476.4	±	
]	B Casing	, Sticku	p Length Abc	ove Gra	de (ft):						1.00	-	
	C Top of	Casing	g Elevation (ft	i):	·····				(A+B)=		477.4	_±	
	D Depth	to Bott	om of Test Ho	ole, Bel	low Top	p of Casing (f	t):	•••••			6.00	-	
	E Bollon	n of Tes stor Cla	st Hole Eleval	Soil at	Rottor	of Hole	Drown	omf GP	(C-D)=	mfSAN	$\frac{4/1.4}{D}$ troop	-	OOTS
	Thickn	ness/Tvi	be of Scour/S	edimen	t Protec	tion Laver In	stalled.		3" of Pe	a Grav	el	JILI, HACE K	.0013
	THICKI	1000/17]		cannen	1110100	tion Luyer m	stanea.		5 0110			-	
	Date a	nd Tim	e Pre-Soaked				. 12/1	8/24	Time:	8:	00		
	Depth	to Wate	er Level, Belo	w Top	of Casi	ng			•			-	
	-	Just	After Pre-So	ak Filli	ng (ft):	3.85	_						
		Just Pi	rior to First To	est Filli	ng (ft):	5.70		Date:	12/19/2024		Time:	8:27	
					Г	TEST OBSE	RVAT	TIONS					
		Ru	n 1		Ru	n 2		Ru	n 3		Ru	n 4	
		0	er g		0	cer g		0	er g		0	g	
	e	Lime	Wat elow asin	e	Lime	Wat elow asin	e	Lime	Wat elow asin	e	Lime	Wat elow asin	
	Tim 1m)	n)	n to I, Be	Tim 1m)	n)	n to I, Be	Tim 1m)	n)	n to l, Be	Tim 1m)	n)	n to l, Be of C	
	teal hh:n	laps h:mi)eptl)eve)op (teal hh:n	laps h:mi)eptl)eve)op (teal hh:n	laps h:mi	beptl eve op (teal hh:n	laps h:mi	beptl eve op (
	8:31	0:00	3.85	9:33	<u>ш</u> 0:00	3.85	10:24	<u>ш</u> 0:00	3.85	11:35	<u>ш</u> 0:00	3.85	
	8:32	0:01	4.25	9:34	0:01	4.25	10:25	0:01	4.05	11:36	0:01	4.10	
	8:33	0:02	4.30	9:35	0:02	4.25	10:26	0:02	4.20	11:37	0:02	4.20	
	8:34	0:03	4.30	9:36	0:03	4.25	10:27	0:03	4.20	11:38	0:03	4.20	
	8:36	0:05	4.35	9:38	0:05	4.25	10:29	0:05	4.25	11:40	0:05	4.25	
	8:41	0:10	4.40	9:43	0:10	4.30	10:34	0:10	4.30	11:45	0:10	4.30	
	8:46	0:15	4.45	9:48	0:15	4.35	10:39	0:15	4.40	11:50	0:15	4.40	
	9:01	0:30	4.65	10:03	0:30	4.60	10:54	0:30	4.65	12:05	0:30	4.70	
	9:16	0:45	4.80	10:18	0:45	4.80	11:09	0:45	4.85	12:20	0:45	4.85	
	9:31	1:00	4.90	10:33	1:00	4.90	11:24	1:00	4.95	12:35	1:00	4.95	
						TEST R	ESULT	<u>'S</u>					
	Run:						Ru	n 2	Run 3	Ru	n 4		
•	Infiltration Rate (feet/hour):					1.05	1	05	1 10	1	10		
]	Infiltration Ra	te (feet	/hour):	1.05	1.	05	1.10	1.	10		
		Infi	Infiltration Ra iltration Rate	te (feet) (inches	/hour): /hour):	1.05	1.	.60	13.20	13	.20		
	Fina	l Infi I Infilt	Infiltration Ra iltration Rate ration Rate (ite (feet) (inches) inches/	/hour): /hour): / hour):	12.60 12.90	1.	.60	13.20 Based on ave	13 rage of	.20 Fall fou	ır runs	
	Fina	l Infi Il Infilt	Infiltration Ra iltration Rate ration Rate (inches	/hour): /hour): /hour):	1.05 12.60 12.90	12	.60	1.1013.20Based on aveBased on rest	13 prage of ult of la	.20 fall fou	ır runs	

3/

Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
 IT-1 test pipe installed adjacent to Test Boring IT-1.
 Area was wet and had standing water upon arrival. By 3rd round, standing water had drained away,

				6035 Cc	orporate D	rive						Test ID:	IT-2
	() y			East Syr	racuse, NY	/ 13057	IN	FILTF	RATION TE	EST LO	JG	Project No.:	28212-05
	As As	sociat	es, Inc.	Phone: ?	315-701-0	522						Date:	12/19/24
Project:	Griffiss	Air For	ce Base Triang	le Parce;	el Develo	opment		ļ	Technician:	Bryan F	Reles		
	Rome,	New Yo	rk						Location:	See Exp	oloration	n Location Pla	n, ELP-1
Client:	C&S Ei	ngineers	, Inc.					Su	rface Elev. (tt)	478.6			
						TEST INFO	RMAT	ION					
	(Casing	Installed in:		Test Pi	.t		\checkmark	Borehole				
	Casing I	Diamete	er and Type:	4	inch I.	D. PVC	-						
-	A Existin	ig Grad	e Elevation (f	t):				•••••			478.6	±	
	B Casing	, Sticku	p Length Abo	ve Gra	de (ft):	•••••		•••••			1.10	-	
	C Top of	Casing	; Elevation (It):	 ! Tor	-f Casing (f	·····	•••••	(A+B)=		4/9.7	±	
	D Depun	to Bom	om of Test ric at Hole Flevat)le, Dei	ow top) of Casing (ii	t):		(C D)=		473.6	-	
l	Burmis	eter Cla	esification of	Soil at	Rottorr	of Hole	Brown	mf GR	AVEL and cr	mfSAN	$\frac{473.0}{\text{JD}}$ trac	± ∽e SILT	
	Thickn	iess/Ty	be of Scour/S	edimen	t Protec	tion Layer In	stalled:		3" of Pe	a Grav	el		
					•	····				u 011	<u> </u>	•	
	Date a	nd Tim	e Pre-Soaked:				12/1	8/24	Time:	8:	15		
	Depth	to Wate	er Level, Belo	w Top	of Casi	ng						•	
		Just	After Pre-So	ak Filli [.]	ng (ft):	3.80	_						
l		Just Pr	tior to First Te	est Filli	ng (ft):	Dry @ 5.80	-	Date:	12/19/2024		Time:	12:46	
					<u> </u>	<u>EST OBSE</u>	RVAT	IONS	<u></u>				
		Ru	n 1		Ru	n 2		Ru	n 3		Rur	n 4	
			5 50	i T					1. 50			5 50	
	0	ime	Vaté low sing		ime	Vate low sing	.	ime	Vaté low sing	0	ime	Vate low sing	
	Lime m)	ed T (n	f Ca f Ca	m) (im	ed T (r	to Be	Tim€	ed T (n	to Be f Ca	Tim€ m)	ed T (r	to Be f Ca	
l	eal] h:m	laps(epth evel, op o eet)	eal] h:m	aps(epth svel, op o eet)	eal] h:m	laps(epth svel, op o eet)	eal] h:m	laps(1:mn	epth svel, op o eet)	
	2 E			<u>2</u> 5 12.04		<u> </u>	<u>2</u> 2 2 1 2 2 2 2		D J F U 2 00	2 ÷		D J F Y 2 90	
	12:47	0:00	3.80	13:04	0:00	5.80 4.50	13:23	0:00	5.80 4.45	13:43	0:00	5.80 4.45	1
l	12.40	0.01	4.70	13.05	0.01	4.50	13.20	0.01	4.45	13.40	0.01	4.45	
	12:19	0.02	4 90	13.00	0.02	4 75	13.27	0.02	4 75	13.48	0.02	4 70	
	12:52	0:05	5.20	13:09	0:05	4.90	13:30	0:05	4.95	13:50	0:05	4.85	
	12:57	0:10	5.45	13:14	0:10	5.30	13:35	0:10	5.30	13:55	0:10	5.30	
	13:02	0:15	Dry @ 5.80'	13:19	0:15	5.60	13:40	0:15	5.60	14:00	0:15	5.60	
		0:30		13:24	0:30	Dry @ 5.80'	13:44	0:30	Dry @ 5.80'	14:15	0:30	Dry @ 5.80'	
1		0:45	1	i I	0:45			0:45	. ~		0:45	. ~	
l		1:00	1	i [†]	1:00	1		1:00			1:00		
						TEST R	ESULT	<u>'S</u>					·
					Run:	Run 1	Ru	n 2	Run 3	Ru	n 4	1	
		I	Infiltration Ra	te (feet	/hour):	> 2.00	> 2	.00	> 2.00	> 2	.00	1	
		Infi	iltration Rate	(inches	/hour):	> 24.00	> 24	4.00	> 24.00	> 24	4.00		
	T *	11 614							D 1			1	
	Fina	• Infilf	rotion Rate (,	inches/	'hour):	> 74 00		PC 1	Rased on ave	rage of	ян юп	ir runs	
	Fina	l Infilt	ration Rate (inches/	hour):	> 24.00			Based on ave	rage of ult of la	st run	ir runs	

Test performed in general conformance with NYS Stormwater Management Design Manual, Appendix D: Infiltration Testing Requirements.
 IT-2 test pipe installed adjacent to Test Boring IT-2.



GENERAL INFORMATION & KEY TO TEST BORING LOGS

The **Subsurface Exploration – Test Boring Logs** produced **by CME Associates, Inc.** (CME) present observations and mechanical data collected by the CME Drill Crew while at the site, supplemented, at times, by classification of the materials removed from the borings determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface conditions between adjacent borings or between the sampled intervals. The data presented on the Exploration Logs together with the recovered samples will provide a basis for evaluating the character of the subsurface conditions relative to the proposed construction. The evaluation must consider all the recorded details and their significance relative to each other. Often, analyses of standard boring data indicate the need for additional testing and sampling procedures to more accurately evaluate the subsurface conditions. Any evaluations of the contents of CME's report and the recovered samples must be performed by Licensed Professionals having experience in Soil Mechanics, Geological Sciences and Geotechnical Engineering. The information presented in this Key defines some of the methods, procedures and terms used on the CME Exploration Logs to describe the conditions encountered. Refer to the Log on page 4 for key number.

Key No.

Description

- 1. The figures in the **DEPTH SCALE** column define the vertical scale of the Boring Log.
- 2. The **SAMPLE NO.** is used for identification on the sample containers and in the Laboratory Test Report or Summary.
- 3. The SAMPLE DEPTH column gives the depth range from which a sample was recovered.
- 4. The **TYPE / SAMPLE RECOVERY** column is used to signify the various types of samples. "SS is Split Spoon, "U" is Undisturbed Tube, and "C" is Rock Core. For soil and rock samples, the recovered length of the sample is recorded in inches.
- 5. BLOWS ON SAMPLER This column shows the results of the "Standard Penetration Test (SPT) ASTM D1586", recording the number of blows required to drive a 2-inch outside diameter (O.D.) split spoon sampler into the ground beneath the casing. The number of blows required for each six inches of penetration is recorded. The total number of blows required for the 6-inch to 18-inch interval is summarized in the SPT "N" column and represents the "Standard Penetration Number". The outside diameter of the sampler, the hammer weight and the length of drop are noted in the Methods of Investigation portion of the log. A "WH" or "WR" in this column indicates that the sample spoon advanced a 6-inch interval under the Weight of Hammer + Rod or Weight of Rod, respectively. If a rock core sample is taken, the core bit size designation is given here.
- 6. The **DEPTH OF CHANGE** column designates the depth (in feet) that the driller noted a compactness or stratum change. In soft materials or soil strata exhibiting a consistent relative density, it is difficult for the driller to determine the exact change from one stratum to the next. In addition, a grading or gradual change may exist. In such cases the depth noted is approximate or estimated only and may be represented by a dashed line. When continuous split spoon sampling is not employed, or an interval of several feet exists between samplings, the Depth of Change may not be indicated at all.
- 7. VISUAL CLASSIFICATION OF MATERIAL Soil materials sampled and recovered are described by the Driller or Geotechnical Representative on the original field log. Notes of the Drillers observations are also placed in this column. Recovered samples may also be visually classified by a Geologist, Engineer, or Soil Technician. Visual soil classifications are made using a modified Burmister System as practiced by CME and as generally described in this Key and abbreviated on the Test Boring Log. This modified Burmister System is a type of visual-manual textural classification estimated by the Driller, Geologist, Engineer, or Technician on the basis of weight-fraction of the recovered material and estimated plasticity, among other characteristics. See Table 1 "Classification of Materials". The description of the relative compactness or consistency is based upon the standard penetration number as defined in Table 2. The description of the recovered sample moisture condition is described as dry, moist, wet, or saturated. Water used to advance the boring may affect the moisture content of the recovered sample. Special terms may be used to describe recovered materials in greater detail, such terms are listed in ASTM D653. When sampling gravelly soils with a standard two-inch O.D. Split Spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders, cobbles, and large gravel is sometimes, but not necessarily, detected by observation of the casing advancement and sampler blows and/or through the "action" of the drill rig, sampler and/or casing as reported by the Driller.

The description of **Rock** is based upon the recovered rock core. Terms frequently used in the description are included in Tables 3, 4 and 5. The length of core run is defined as length of penetration between retrievals of the core barrel from the bore hole, expressed in inches. The core recovery expresses the length of core recovered from the core barrel per core run, in percent. The size core barrel used is noted in Column 5. An "N" size core, being larger in diameter than "A" size core, often produces better recovery, and is frequently utilized where accurate information regarding the geologic conditions and engineering properties is needed. An estimate of in-situ rock quality is provided by a modified core recovery ratio known as the "**Rock Quality Designation**" (**RQD**). This ratio is determined by considering only pieces of core that are at least 4 inches long and are hard and sound. Breaks obviously caused by drilling are ignored. The percentage ratio between the total length of such core recovered and the length of core drilled on a given run is the RQD. Table 4 indicates in-situ rock quality as related to the **RQD**.



- 8. The SPT "N" or RQD is given in this column as applicable to the specific sample taken. In Very Compact coarse-grained soils and in Hard fine-grained soils the N-value may be indicated as 50+ or 100+. This typically means that the blow count was achieved prior to driving the sampler the entire 6-inch interval or the sampler refused further penetration. For an "N"size rock core, the RQD is reported here, expressed in percent (%).
- **9. GROUNDWATER OBSERVATIONS** and timing noted by the Drill Crew are shown in this section. It is important to realize that the reliability of the water level observations depend upon the soil type (e.g. water does not readily stabilize in a hole through fine grained soils), and that drill water used to advance the boring may have influenced the observations. Groundwater levels typically fluctuate seasonally so those noted on the log are only representative of that exhibited during the period of time noted on the log. One or more perched or trapped water levels may exist in the ground seasonally. All the available resources and data should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or through groundwater observation well installations.
- **10. METHODS of INVESTIGATION** provides pertinent information regarding the identity of the Drill Crew members, inspector (if any), drill rig make and model, drill rig mount vehicle, casing and type of advancement, soil and rock sampling tools and appurtenances used in the installation of the Test Boring.

TABLE 1 - CLASSIFICATION OF MATERIALS								
GROUP	GROUP COARSE GRAINED SOILS TEXTURAL SIZES							
BOULDERS	larger than 12" diameter							
COBBLES	12" diameter to 3" sieve							
GRAVEL	3" - coarse - 1" - medium - 1/2" - fine - #4 sieve							
SAND	#4 - coarse - #10 - medium - #40 - fine - #200 sieve							
GROUP	FINE GRAINED SOILS SIZE (PLASTICITY*)							
SILT	#200 sieve (0.074mm) to 0.005mm size (see below *)							
CLAY	0.005mm size to 0.001 mm size (see below *)							
GROUP	ORGANIC SOILS, PEAT, MUCK, MARL							
ORGANIC	Based on smell, visual-manual and laboratory testing							

ABBREVIATIONS	TERM	ESTIMATED PERCENT OF TOTAL SAMPLE BY WEIGHT
f - fine	and	35 to 50%
m - medium	some	20 to 35%
c - coarse	little	10 to 20%
	trace	0 to 10%

*PI	*PLASTICITY DESCRIPTIONS and INDICATOR FIELD TESTS								
]	DRY STRENGTH TEST						
TERM	PLASTICITY INDEX	INDICATION	FIELD TEST RESULT						
non-plastic	0 - 3	Very low	falls apart easily						
slightly plastic	4 - 15	Slight	easily crushed by fingers						
plastic	15 - 30	Medium	difficult to crush						
highly plastic	31 or more	High	impossible to crush with fingers						
	Other Field Tests include: Dilatancy, Thread and Shine Testing								



Primary Soil Type	Descriptive Term of Compactness	Range of Standard Penetration Resistance (N)
COARSE GRAINED SOILS	Very Loose	less than 4 blows per foot
	Loose	4 to 10
(More than half of Material	Medium Compact	10 to 30
is larger than No. 200 sieve size)	Compact	30 to 50
	Very Compact	Greater than 50
FINE GRAINED SOILS	Descriptive Term of Consistency	Range of Standard Penetratio Resistance (N)
	Very Soft	less than 2 blows per foot
(More than half of material is	Soft	2 to 4
smaller than No. 200 sieve size)	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	Greater than 30

*The number of blows of 140-pound weight falling 30 inches to drive a 2-inch O.D., 1-3/8 inch I.D. sampler 12 inches is defined as the Standard Penetration Resistance, designated "N".

	TABLE 3 - ROCK CLASSIFICATION TERMS									
Rock Classificatio	n Terms	Field Test or Meaning of Term								
Hardness	Soft	Scratched by fingernail. Crumbles under firm blows with a geologic pick.								
	Medium Soft	Shallow indentations (1 to 3 mm) can be made by firm blows of a geologic pick. Can be peeled with a pocketknife with difficulty.								
	Medium Hard	Scratched distinctly by penknife or steel nail. Can't be peeled or scraped with knife.								
	Hard	Scratched with difficulty by penknife or steel nail. Requires more than one blow with a geologic hammer to break it								
	Very Hard	Cannot be scratched by penknife or steel nail. Breaks only by repeated heavy blows with a geologic hammer.								
Bedding	Thinly Laminated	less than 1/8 th inch								
	Laminated	$1/8^{\text{th}}$ to 1 inch								
(Divisional planes	Thinly Bedded	1 inch to 4 inches								
and/or surfaces	Medium Bedded	4 inches to 12 inches								
separating it from layers	Thickly Bedded	12 inches to 48 inches								
above and below)	Massive	greater than 48 inches								

TABLE 4 Relation of Rock Quality Designation (RQD) and in-situ Rock Quality								
RQD %	Rock Quality Term Used							
90 to 100	Excellent							
75 to 90	Good							
50 to 75	Fair							
25 to 50	Poor							
0 to 25	Very Poor							



	TABLE 5 – BEDROCK WEATHERING CLASSIFICATION								
Classification	Diagnostic Features								
Fresh	No visible sign of decomposition or discoloration. Rings under hammer impact.								
Slightly Weathered	Slight discoloration inwards from open fractures, otherwise similar to Fresh.								
Moderately Weathered	Discoloration throughout. Strength somewhat less than fresh rock but cores cannot be broken by hand or scraped with knife. Texture observed.								
Highly Weathered	Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming indistinct but fabric preserved.								
Completely Weathered	Minerals decomposed to soil, but fabric and structure preserved (e.g. Saprolite). Specimens easily crumbled or penetrated.								
Residual Soil	Advanced state of decomposition resulting in plastic soils. Rock fabric and structure completely destroyed. Large volume change.								

TT	6035 Corporate Drive					SUB	SURFACEES	Boring No.	B-2		
			E	East Syra	icuse, NY 13057	JOD	TEST DODI	NCLOC	Page No.	1 of 1	
V-CC	Associates, Inc. Phone: 315-701-0522						TEST BORI	NG LUG	Report No.		
Project 1	Name:								Date Started		
Client:									Date Finished		
Location				10,000				A first first and	Surface Elev.		
		ME	THO	DS OF I	INVESTIGATI	ON		GROUNDWATER	R OBSERVAT	IONS	
Driller: Driller:		10			Casing: Casing Hammer:	10	Date	Time	Depth (Ft.)	Casing At (Fi	t.)
Inspecto	r:				Other:		1. 1 Prove 194	While Drilling	9	9	
Drill Rig	ç			1	Soil Sampler:			Before Casing Removed			
Type:				1	Hammer Wt:		1. (1997)	After Casing Removed	(
Rod Size	:				Hammer Fall:		and the state	After Casing Removed			
	LO	GOF	BOR	ING SA	MPLES		VISUAL C	CLASSIFICATION C)F MATERIA	L	
Depth Scale (Feet)	Sample No.	Sample (F From	: Depth t.) To	Type/ Sample Rec. (in.)	Blows on Sampler Per 6 Inches	Depth of Change (Ft.)	c - coarse m - medium and - 3: f - fine little - j)% / some - 20 to 35' 20% / trace - 0 to 109	% or % RQD	'N")%
1	2	3	3	4	5	6		7		8	

RECYCLED CONCRETE AGGREGATE BASE COURSE STOCKPILE TEST RESULTS



March 1, 2024

Mr. Kurt Harvey Harvey Materials Corp. 7825 New Floyd Road Rome, New York 13440

Re: L-24013 Laboratory Testing Griffiss International Airport

Dear Mr. Harvey [harveymaterialscorp@verizon.net]:

Enclosed are the results of laboratory testing performed at your request on **one (1)** Bulk Item P-219 Crushed Concrete sample obtained by a technician of *PW Laboratories, Inc.* from an **on-site stockpile** on 2/21/2023 for the above referenced project. Results include:

 Sieve Analysis – Washed (ASTM C117 & C136) Laboratory I.D. #44803

1 Each

All requested tests have been completed on the previously received sample(s) for the above project. All sample remains are scheduled to be disposed of on 4/1/2024. Please notify *PW Laboratories, Inc.* prior to 4/1/2024 if you would prefer to pick up the sample(s) or that the sample(s) be retained by *PW Laboratories, Inc.* for an additional period.

Thank you for this opportunity to work with you.

PW Laboratories, Inc.

Elevetto

Patrick J. Edmiston Laboratory Manager PJE/bll



Sieve Analysis of Soil/Aggregate

Project Title:

Laboratory Testing Griffiss International Airport

 Project #:
 L-24013

 Test Method:
 ASTM C117 & C136

Report #: 1

Report Date: March 1, 2024

		Sieve Size - Percent Passing Sieve														
Lab I.D. #	Sample I.D.	2"	1%"	1"	3/4"	#4	#30	#200								
44803	Item P-219 Crushed Concrete	100	100	92	77	35	14	3.6								
	Project Specifications Item P-219 Design Range	100	95-100	70-95	55-85	30-60	12-30	0-10								
Sample mass, as received, meets minimum mass requirements of test method: Yes X No Prewashed																
Performed By:	Edward Schley Ch	ecked By:	Patrick Ec	dmiston		-								Ent	ire Sample	X
Note:	STM C136 states that percentages are to be reported to the nearest whole number, except when the percentage passing the #200 is less than 10% Mass Retained on #200 Only															

Not Prewashed:



March 14, 2024

Mr. Darren Cooper Rifenburg Construction Inc. 129 Defreest Dr. Troy, NY 12180

Re: L-24027

Laboratory Testing Griffiss International Airport Apron 1 & 2 Reconstruction

Dear Mr. Cooper [dcooper@rifenburg.com]:

Enclosed are the results of laboratory testing performed at your request **one (1)** Bulk Item P-219 Crushed Concrete sample obtained by a technician of *PW Laboratories, Inc.* from an on-site stockpile on 3/12/2024 for the above-referenced project. Results include:

 Sieve Analysis – Washed (ASTM C117 & C136) Laboratory I.D. #44968

1 Each

All requested tests have been completed on the previously received sample(s) for the above project. All sample remains are scheduled to be disposed of on **4/14/2024**. Please notify *PW Laboratories, Inc.* before **4/14/2024** if you would prefer to pick up the sample(s) or that the sample(s) be retained by *PW Laboratories, Inc.* for an additional period.

Respectfully,

PW Laboratories, Inc.

Patrick J. Edmiston Laboratory Manager PJE/bll Cc: <u>spardee@cscos.com</u>



Sieve Analysis of Soil/Aggregate

Project Title:

Laboratory Testing Griffiss International Airport - Apron 1 & 2 Reconstruction

 Project #:
 L-24027

 Test Method:
 ASTM C117 & C136

Report #: 1

Report Date: March 14, 2024

		Sieve Size - Percent Passing Sieve														
Lab I.D. #	Sample I.D.	2"	1½"	1"	3/4"	#4	#30	#200								
44968	Item P-219 Crushed Concrete Pile #2	100	100	92	79	40	16	4.9								
	Project Specifications Item P-219 Design Range	100	95-100	70-95	55-85	30-60	12-30	0-10								
Sample mass, as received, meets minimum mass requirements of test method: Yes X No Prewashed																
Performed By:	Edward Schley Ch	ecked By:	Patrick Ed	dmiston		-								Ent	ire Sample	X
Note:	ASTM C136 states that percentages are to be reported to the nearest whole number, except when the percentage passing the #200 is less than 10% Mass Retained on #200 Only															

Not Prewashed:



March 1, 2024

Mr. Steven Pardee C & S Companies 499 Col. Eileen Collins Boulevard North Syracuse, New York 13212

Re: L-24007 Griffiss International Airport - Apron 1 & 2 Reconstruction - Phase I Oneida County, New York Engineer Project No.: 231.027

Dear Mr. Pardee [spardee@cscos.com]:

Enclosed are the results of laboratory testing performed at your request on **one (1)** Bulk Item P-219 Crushed Concrete sample obtained by a technician of *PW Laboratories, Inc.* from an **on-site stockpile** on 2/21/2024 for the above-referenced project. Results include:

1.]	Modified Compaction Test [ASTM D1557 & D4718] Laboratory I.D. #44805	1 Each
2.]	Atterberg Limits [ASTM D4318] Laboratory I.D. #44805	1 Each
3.]	Specific Gravity [ASTM C127] Laboratory I.D. #44805	1 Each
4.]	Specific Gravity [ASTM D854] Laboratory I.D. #44805	1 Each
5.]	Clay Lumps and Friable Particles in Aggregate [ASTM C142] Laboratory I.D. #44805	1 Each
6.]	Flat or Elongated Particles in Coarse Aggregate [ASTM D4791] Laboratory I.D. #44805	1 Each
7.]	LA Abrasion - Grading A [ASTM C131] Laboratory I.D. #44805	1 Each



March 1, 2024 C & S Companies

Re:	L-24007
	Griffiss International Airport - Apron 1 & 2 Reconstruction - Phase I
	Oneida County, New York
	Engineer Project No.: 231.027

8.]	Total of Deleterious Materials - Visual Identification of Brick, Mica & Schist Laboratory I.D. #44805	1 Each
9.]	Total of Deleterious Materials - Visual Identification of Wood Laboratory I.D. #44805	1 Each
10.]	Total of Deleterious Materials - Visual Identification of Asphalt & Concrete Laboratory I.D. #44805	1 Each

All requested tests have been completed on the previously received sample(s) for the above project. All sample remains are scheduled to be disposed of on **4/1/2024**. Please notify *PW Laboratories, Inc.* before **4/1/2024**, if you would prefer to pick up the sample(s) or that the sample(s) be retained by *PW Laboratories, Inc.* for an additional period.

PW Laboratories, Inc.

INT

Patrick J. Edmiston Laboratory Manager PJE/bll

Standard	Modified	X			Compact	ion Test Renort				
Due es luma A					compact					
Procedure A	В		F							
С	X									
Preparation M	lethod:									
Moist	T Drv									
-		ł								
Rammer Used	:		133							
Manua	l Mechanical	x								
	·		cted		#######################################					
			1 29							
ΜΑΣ	KIMUM DRY DENSITY (P.C.F.)		. (C							
Col	rrected: 131.9		P.C.I							
OPTI		A	Ϋ́Ε							
UPIII	MUM MUISTUKE CUNTENT (70	,)	EN 125							
Con Uncon	rrected: 8.8 rrected: 10.8		Ω X D							
			ä							
			121							
			141							
Performed in	accordance with:									
ASTM D1557 6 22.7% retained	& D4718 l on the 3/4" sieve									
	•••••••									
Bull Specific (Cuartiture	2 58		3	5 7	11 15				
Apparent Specific Spe	cific Gravity:	2.60		<u> </u>	ATER CONTENT, 9	6 OF DRY WEIGHT (Corrected)				
·····										
SAMPLE #	і е меюцт	1 23 55	2	3 23.00	4 23.78					
MOLD + SAW		13.72	13.72	13.72	13.72					
WET SAMPLE	WEIGHT	9.83	10.18	10.27	10.06					
WET DENSITY	, P.C.F.	132.8	137.5	138.7	135.9					
MOISTURE CO	NTENT ⁽¹⁾	8.7	10.1	11.5	12.7					
DRY DENSITY,	, P.C.F. ⁽¹⁾	122.2	124.9	124.4	120.6					
⁽¹⁾ Actual test dat	ta shown in uncorrected form									
<u>Material</u>	CNOX				Test Data	Fabricani 26 2021				
Classification:	N/A				Tested By	Fdward Schlev				
Sample I.D.:	P-219 Crushed Concrete		Checked By: Patrick Edmiston							
Source:	On-Site Stockpile		Project #: L-24007							
Depth (Feet):	N/A				Report #:	3				
Lab I.D. #:	44805									
Client:	C&S Companies					p-w				
Project Title:	Griffiss International Airport					lads				
	Apron 1 & 2 Reconstruction - P	hase I			PW Labor 6544 Fremon	ratories, Inc. t Road - East Svracuse. N.Y. 13057				
	Oneida County, New York				Office (315) 4	37-1420 ♦ www.pwlabsinc.com ♦ pwlabsinc@hotmail.com				
	Engineer Project No.: 231.027									


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Report Date: 3/1/2024

L-24007 Griffiss International Airport Apron 1 & 2 Reconstruction - Phase I Oneida County, New York Engineer Project No.: 231.027

Atterberg Limits [ASTM D4318]

Lab. I.D.#	Sample I.D.	Plastic Limit	Liquid Limit	Project Specification	Plasticity Index	Project Specification
44805	P-219 Crushed Concrete (On-Site Stockpile)	Non-Plastic	-	< 25	-	< 4



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Specific Gravity and Absorption of Coarse Aggregate (ASTM C127) & Specific Gravity of Soils (ASTM D854)

Lab. I.D.#	Sample I.D.	Apparent Specific Gravity	Specific Gravity of Solids (G)	Weighted Average Specific Gravity	Bulk Specific Gravity
44805	P-219 Crushed Concrete (On-Site Stockpile)	2.58	2.64	2.60	2.58



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Clay Lumps and Friable Particles in Aggregate [ASTM C142]

Lab. I.D.#	Sample I.D.	Clay Lumps and Friable Particles in Aggregate (%)	Project Specification (Percent Loss)
	P-219 Crushed Concrete		
44805	(On-Site Stockpile)	0.0	≤ 3.0%

Note: Test was performed on the Minus 1%" material



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Flat or Elongated Particles in Coarse Aggregate [ASTM D4791]

Lab. I.D.#	Sample I.D.	Flat and/or Elongated Percent by Weight	Project Specification (Percent Loss)
	P-219 Crushed Concrete		
44805	(On-Site Stockpile)	0.0	≤ 10%

Note: Test performed on the Plus #4 material



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Resistance to Degradation of Small Size Coarse Aggregate by Abrasion & Impact in The Los Angeles Machine - Grading A [ASTM C131]

Lab. I.D.#	Sample I.D.	Wear (Loss) after 500 Revolutions (as a Percent of Original Weight)	Project Specification (Percent Loss)
44805	P-219 Crushed Concrete (On-Site Stockpile)	31.2	≤ 45%



Report Date: 3/1/2024

L-24007 Griffiss International Airport Apron 1 & 2 Reconstruction - Phase I Oneida County, New York Engineer Project No.: 231.027

Total of Deleterious Materials - Visual Identification of Brick, Mica & Schist

Lab. I.D.#	Sample I.D.	Percent by Weight	Project Specification
	P-219 Crushed Concrete		
44805	(On-Site Stockpile)	0.0%	4.0%



Report Date: 3/1/2024

L-24007 Griffiss International Airport Apron 1 & 2 Reconstruction - Phase I Oneida County, New York Engineer Project No.: 231.027

Total of Deleterious Materials - Visual Identification of Wood

Lab. I.D.#	Sample I.D.	Percent by Weight	Project Specification
	P-219 Crushed Concrete		
44805	(On-Site Stockpile)	0.0%	0.1%



Report Date: 3/1/2024

L-24007 Griffiss International Airport Apron 1 & 2 Reconstruction - Phase I Oneida County, New York Engineer Project No.: 231.027

Total of Deleterious Materials - Visual Identification of Asphalt & Concrete

Lab. I.D.#	Sample I.D.	Percent by Weight	Project Specification
	P-219 Crushed Concrete		
44805	(On-Site Stockpile)	0.0%	10.0%