

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN, that the Undersigned, on behalf of the Essex County Board of Supervisors, will accept sealed bids until 2:00 PM on March 17, 2021 for the following:

HWAY 21-08 Bridge Deck Sealant

DUE TO THE STATE OF EMERGENCY, bids may be live-streamed. There WILL NOT be a public opening. The bids shall be opened on March 17, 2021 at the Office of the Purchasing Agent, 7551 Court Street, Elizabethtown, New York, at 2:00 P.M. If additional information concerning the bidding is required, please call (518) 873-3330.

PLEASE NOTE ESSEX COUNTY HAS PARTNERED WITH THE EMPIRE STATE PURCHASING GROUP. WE URGE VENDORS TO SUBMIT RESPONSES ELECTRONICALLY **ON BIDNETDIRECT**. PLEASE GO TO: www.bidnetdirect.com/essexcounty.

Specifications and standard proposals for the proposed work may be obtained at the above address, or on the County's website at: <https://www.co.essex.ny.us/bidders/publicbids.aspx>.

All bids submitted in response to this notice shall be marked "**SEALED BID – HWAY 21-08 BRIDGE DECK SEALANT**" clearly on the outside of the envelope with the name and address of the bidder.

Essex County affirmatively states that in regard to any contract entered into pursuant to these instructions, without regard to race, color, sex, religion, age, national origin, disability, sexual preference or Vietnam Era veteran status, disadvantaged and minority or women-owned business enterprises will be afforded equal opportunity to submit bids in response hereto.

Dated: March 3, 2021

Linda M. Wolf, CPA
Purchasing Agent
Essex County Government Center
7551 Court Street – PO Box 217
Elizabethtown, New York 12932
(518) 873-3332

INSTRUCTIONS TO BIDDERS

Attention of the bidders is particularly called to the requirements as to the conditions of employment to be observed and minimum wage rates under the Contract.

All bids shall be submitted on the bid sheets included in the package, and no other forms shall be accepted.

Essex County reserves the right to reject any and all bids not considered to be in the best interest of Essex County, and to waive any technical or formal defect in the bids which is considered by Essex County to be merely irregular, immaterial, or unsubstantial.

In addition to bid sheets, the bidder shall submit executed non-collusion bid certificates signed by the bidder or one of its officers as required by the General Municipal Law Sec. 103d. The bidder shall also submit an executed certificate of compliance with the Iran Divestment Act signed by the bidder or one of its officers as required by the General Municipal Law Sec. 103g.

Bids can be submitted one of two ways, either:

- 1) Electronically through BidNetDirect; or
- 2) Hard Copies sent or hand delivered to the Purchasing Office.

A Contract awarded pursuant to this notice shall be subject to the provisions of Sections 103-1, 103-b, 103-d and 103-g of the General Municipal Law.

The contract shall be for a term of one year with the option to renew for two additional years upon mutual consent of the parties.

Questions will be received until six (6) days before the opening date. Please address all questions, in writing, to: donna.thompson@essexcountyny.gov or linda.wolf@essexcountyny.gov.

Addenda will be posted on the Essex County Website and the BidNetDirect website, interested vendors are urged to check before submitting their bid.

Each bidder will need to complete, sign, have notarized and return the following documents with their Bid:

- 1) Vendor Responsibility Questionnaire
- 2) Certification of Compliance With Iran Divestment Act
- 3) Non-Collusive Bidding Certification

Payment will be made within 30 days of receipt of Invoice and Certified Payroll (if required).

**SPECIFICATIONS and PROPOSAL
for
BRIDGE DECK SEALANT**

SPECIFICATIONS

DESCRIPTION:

Item 559.1760008 – Protective Sealing of Structural Concrete for existing Bridge Decks (no abrasive blasting allowed).

Under this work the Contractor shall furnish and apply, in accordance with this specification, a protective sealer to concrete surfaces, at locations indicated on the plans or proposal booklet or where directed by the Engineer.

MATERIALS:

The protective sealer shall be a non-water based sealer appearing on the Department's Approved List for Section 717-03- Penetrating Type Protective Sealers.

CONSTRUCTION DETAILS:

- A. General. The Contractor shall provide the Engineer with the sealer Manufacturer's written instructions for application and use, at least five (5) working days before the start of work. Only one (1) brand and specific type of sealer will be allowed for use on each individual deck.
- B. Surface Preparation.
 - 1. Existing Concrete. Concrete surfaces to be sealed shall be thoroughly cleaned by pressurized water. The surface shall be allowed to air dry for a minimum of twenty-four (24) hours and then be vacuum cleaned to remove loose particles immediately before the sealer is applied. If the concrete is subjected to rain or moisture from other project operations, the surface shall be allowed to air dry for a minimum of twenty-four (24) hours before the sealer is applied. In the early A.M. the Engineer may direct a waiting period for drying by the sun on the surfaces to be sealed. If the surfaces are not sealed within seven (7) calendar days after the pressure wash the Engineer, due to debris, may direct a rewashing of the total or partial surface to be sealed at the Contractors expense.
 - 2. Care shall be taken while cleaning that all dirt is removed with minimal exposure of coarse aggregate. After cleaning, no laitance, standing water, dirt or other foreign particles shall be present which may prevent penetration or adhesion of the sealer. All surface preparation work shall be completed and approved by the Engineer, before sealer application can commence.
- C. Weather Limitations. Sealer materials shall not be applied during wet weather conditions or, if in the opinion of the Engineer, adverse weather conditions are anticipated within six

(6) hours of the completion of sealer application. Ambient and surface temperatures shall be a minimum of 50° F during application and until the sealed concrete is dry to the touch. Application by spray methods will not be permitted during windy conditions, if in the opinion of the Engineer unsatisfactory results will be obtained.

D. Sealer Application.

1. The sealer shall be used as supplied by the manufacturer without the use of any thinning alterations, or additives unless specifically required in the manufacturer's instructions. Thorough mixing of the sealer before and during its use shall be accomplished as recommended by the manufacturer. The Engineer will view any mixing of all materials. The equipment for all sealing operations will be clean of foreign materials and in good working order for the application rate, it will be approved by the Engineer. If in the opinion of the Engineer the application equipment becomes nonfunctional it will be rejected.
2. When using the penetration sealer, the contractor will observe the number of coats with the application rate using the application equipment as recommended by the manufacturer. The contractor will achieve the total coating as stated in the approved material list of the NYSDOT Materials Bureau of gallons per square foot. Care shall be exercised with each coat that running or puddling does not occur. No sealer shall be allowed to run over the sides of the bridge surface. If more than one coat is required each successive coat shall be allowed to dry according to the manufacturer's instructions, before the removal of maintenance and protection of traffic. No artificial means to accelerate the drying of the sealer shall be allowed.
3. On sloping and vertical concrete surfaces, sealer application shall progress from bottom to top. Care shall be taken to ensure that the entire surface of the concrete is covered and all pores filled.

METHOD OF MEASUREMENT:

Payment will be made at the unit price bid per square foot for the number of square feet of structural concrete to be sealed, stated in the Estimate of Quantities shown on the Contract Plans.

BASIS OF PAYMENT:

The unit price bid per square foot shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work. Payment shall be based on actual area of concrete sealed.

PROPOSAL

Proposal of: _____

Unit Price per Square Foot: _____ \$ _____
IN WORDS IN NUMBERS

The undersigned further understands that the contract will be awarded to the competent, qualified bidder submitting the lowest bid.

ADDENDA ACKNOWLEDGEMENT

<u>Addendum No.</u>	<u>Date Received</u>
_____	_____
_____	_____
_____	_____

Payment will be made within 30 days of receipt of invoice and certified payroll if necessary.

NAME: _____

ADDRESS: _____
_____SIGNATURE OF AUTHORIZED REPRESENTATIVE:

TITLE: _____

TELEPHONE: _____

FAX NUMBER: _____

DATE: _____

SOCIAL SECURITY/FEDERAL ID NO: _____

E-MAIL _____



**Department of
Transportation**

STANDARD SPECIFICATIONS

(US CUSTOMARY UNITS)

VOLUME 3 SECTION 600

**CONSTRUCTION
AND
MATERIALS**

January 1, 2021

50 Wolf Road
Albany, New York 12232

www.dot.ny.gov

INTRODUCTION

This publication has been prepared to provide a compilation of standard requirements, called Specifications, used by the New York State Department of Transportation for construction contracts. These specifications are written to the Contractor. They define the Contractor's responsibility in meeting each specification, enumerate the Department's expectations and how they are going to measure and pay, and explain what the Contractor is expected to provide.

When this publication, entitled Standard Specifications (USC) and dated as shown on the Title Page, is incorporated by reference into the Department's construction contracts, it is made a part of that contract. The requirements stated herein may be revised or amended from time to time by notes or special specifications or documents of any description that would be furnished as part of a construction contract.

STATE OF NEW YORK

DEPARTMENT OF TRANSPORTATION

ENGINEERING DIVISION

Contained herein are:

General Provisions of Contract;

Contract forms of Proposal, Agreement and Bonds;

General Construction Specifications;

Materials of Construction;

Payment Items

Adopted

by

The Commissioner of Transportation

and Short Titled

"STANDARD SPECIFICATIONS" (USC)

Note: While these specifications may be used for general construction work, they have been compiled in US customary units with particular emphasis placed upon their use for highways, parkways, bridges and similar work. Necessary modifications of the contents hereof will be incorporated in the "Contract Documents" covering dissimilar work.

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Section 600

INCIDENTAL CONSTRUCTION

SECTION 601 - ARCHITECTURAL PAVEMENTS AND TREATMENTS (Last Revised September 2016)

601-1 DESCRIPTION. This work shall consist of the construction, placing, or applying of architectural pavements and treatments in accordance with the Contract Documents or as directed by the Engineer.

601-2 MATERIALS. Materials shall conform to the following subsections.

Bituminous Materials	702
Bituminous Tack Coat (SS-1h or CSS-1h)	702-3601
Fine Aggregates	703-01
Mineral Filler	703-08
Precast Concrete Street Pavers	704-23
Water	712-01

601-2.01 Precast Concrete Street Paving.

A. Neoprene-Modified Asphalt Adhesive. Neoprene-Modified Asphalt Adhesive shall consist of 2% neoprene, grade WM1, oxidized asphalt with a R & B softening point of 154° F minimum and a penetration of 80, and 10% asbestos-free fibers.

B. Polymeric Sand. Polymer modified graded sand designed specifically for filling joints between pavers. Polymeric sand shall be supplied in clearly labeled sealed packages.

601-3 CONSTRUCTION.

601-3.01 Precast Concrete Street Paving

A. The provisions under §401-3, Construction Details for Plant Mix Pavements - General, shall apply.

B. The Contractor shall construct the subbase according to the current 601 Standard Sheet(s). Prior to placing the setting bed, the Contractor shall prepare the subbase surface according to §402-3.05a.

The bituminous setting bed shall consist of PG binder 64S-22 mixed with fine aggregate meeting the requirements of §703-01. Alternate PG binder grades may be allowed by the RME in lieu of PG 64S-22. The PG binder will meet the requirements outlined in Section 702 *Bituminous Materials*, Table 702-1 *Performance-Graded Binders for Paving*. The PG binder shall be 7.0% of the total batch weight. The mix shall be heated to approximately 325° F. The compacted thickness of the bituminous setting bed shall be ¾ inch.

A coating of neoprene-modified asphalt adhesive shall be applied by mopping, squeegeeing or troweling over the top surface of the setting bed to provide bond under the bricks.

Precast concrete street pavers shall be laid in a 90° herringbone pattern according to the current 601 Standard Sheet(s) to provide a uniformly even surface, with no more than ¼" variation. Joints shall be 1/8 inch wide ($\pm 1/16$ inch). No precast concrete street pavers shall be laid when the air temperature is below 40° F. Joint lines shall not deviate more than $\pm 1/2$ " over 50 feet from string lines.

The Contractor shall fill gaps at the edges of the paved area with cut pavers or edge units. The Contractor shall adjust pattern at pavement edges such that cutting of edge pavers is minimized. All cut pavers subject to tire traffic shall be no less than one-third (1/3) of a whole unit. After pavers are placed on the adhesive, set them in it with at least one pass of a minimum 300 pound hand roller. Replace any cracked units with whole units and set them with the hand roller.

Polymeric sand shall be swept over the precast concrete street pavers until the joints are completely filled. The paver surface shall be swept clean and the joints lightly wetted with water. This joint filling operation shall not be performed if the air temperature is expected to fall below 40°F, or there is an expectation of rain within 4 hours of the completion.

601-4 METHOD OF MEASUREMENT. Architectural pavements and treatments will be measured by the number of square yards placed.

601-5 BASIS OF PAYMENT. The unit price bid per square yard shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including setting bed material, except that any sawcutting of existing pavement, excavation, concrete base, curb, curb and gutter, and subbase course will be paid for separately.

Payment will be made under:

Item No.	Item	Pay Unit
601.01	Precast Concrete Street Paving (Bituminous Setting Bed)	Square Yard

SECTION 602 - REHABILITATION OF CULVERT AND STORM DRAIN PIPE

(Last Revised January 2019)

602-1 DESCRIPTION. Rehabilitate culvert and storm drain pipe in accordance with these specifications, the contract documents, and as directed by the Engineer.

602-2 MATERIAL REQUIREMENTS.

602-2.01 General. Materials requirements are specified in the following subsections:

Portland Cement Concrete	501
Shotcrete	583
Concrete Repair Material	701-04
Vertical and Overhead Patching Material	701-08
Concrete Repair Material - High Early Strength	701-12
Grout Sand	703-04
Cured in Place Pipe (CIPP) Liner	706-09
Polyvinyl Chloride Pipe (relining)	706-10
(Profile Wall)	
(Corrugated)	
High Density Polyethylene Pipe (HDPE) (relining)	706-11
(Profile Wall)	
(Smooth Wall)	
Corrugated Steel Pipe	707-02
(Polymer Coated)	
Tunnel Liner Plate (relining)	707-05
Corrugated Structural Steel Plate for Pipe and Pipe Arches and Underpasses	707-09
Anchor Bolts for Corrugated Culverts	707-20
Zinc Chromate Primer	708-04
Bar Reinforcement, Grade 60	709-01

Wire Fabric for Concrete Reinforcement	709-02
Stud Shear Connectors	709-05
Membrane Curing Compound	711-05

602-2.02 Grout for Annular Space. Design the grout for the annular space between the existing pipe and new liner pipe in accordance with the pipe Manufacturer's recommendations. Calculate the required volume of grout based on the existing culvert/storm drain internal diameter (minus deformations) and the external diameter of liner pipe. All grout components must appear on the Approved List unless approved by the Director, Materials Bureau.

602-3 CONSTRUCTION DETAILS. Provide the Engineer, a minimum of 10 days prior to starting of the work, a written proposal of how the work will be progressed. The proposal shall include dewatering of the pipe; procedures for maintaining line and grade of the lining pipe, pipe manufacturer's recommendations for the assembly of preapproved joints, or joint fusion methods; bracing methods; grout mix design; and void filling techniques. Such proposals are also required, regardless of the rehabilitation method, for shotcreting, concrete, and void filling methods.

602-3.01 Existing Pipe Preparation. Dewater, clean and inspect the existing pipe. Determine the location of and remove obstructions that may prevent proper installation of the paving or lining material. Inspect small inaccessible pipes, generally less than 48 inches in diameter, using a closed circuit television and camera to provide a visual inspection. Provide strutting and bracing as required to ensure stability of the pipe.

602-3.02 Handling & Installing Lining Materials

A. General. Install each run of lining pipe with the same material for the entire run unless otherwise identified in the contract documents or approved by the Engineer. Do not allow water to flow along the invert during concrete or fill material placement.

B. Structural Paving of Inverts with Concrete. Apply §603-3.07 Concrete Paving for Corrugated Structural Plate Pipe with the exception of the following:

- Pave the area along the invert's periphery, providing concrete cover thickness over the crests of the corrugations and concrete reinforcement details as indicated on the plans. If welding has been used to anchor the reinforcement or studs on a galvanized section of the pipe then upon completion of the anchoring, restore the coating in accordance with §702-02 Corrugated Steel Pipe, E. Coating Repair. Coating restoration is not required where mechanical anchoring of the reinforcement has been utilized.
- Use Class D, Class H or Class J concrete for paving of the invert.

C. Lining with Shotcrete. Apply all requirements of Section 583, Shotcrete with the exception of the following:

- Shotcrete may be used to line concrete pipe, stone arches, and corrugated metal pipes.
- All reinforcement design and details (e.g. spacing, anchoring, etc.) must be indicated on the plans. If welding has been used to anchor the reinforcement or studs on a galvanized section of the pipe then upon completion of the anchoring, restore the coating in accordance with §702-02 Corrugated Steel Pipe, E. Coating restoration is not required where mechanical anchoring of the reinforcement has been utilized.

- Apply a minimum 2 inch thick shotcrete layer over the crests of the corrugations. The shotcrete layer limits along the periphery will be indicated on the plans.

D. Lining with Cured in Place Pipe (CIPP) Liner. The CIPP manufacturer's / installer's name shall appear on the Department's Approved List of Materials and Equipment, Rehabilitation of Culverts and Storm Drains section.

The CIPP contractor shall provide the Engineer a report with design details and calculations for determining the minimum required thickness of the cured-in-place-pipe (CIPP) liner, the minimum internal pressure required to hold the wetted liner tight against the host pipe, and the maximum allowable internal pressure so as not to damage the wetted liner. All design calculations shall assume a fully deteriorated host pipe, unless Item 602.37xx, Lining Concrete pipe with Cured in Place Pipe (CIPP), is specified. All liner installations require the excavation of a resin containment pit to facilitate the installer's collection and subsequent disposal of any waste (styrene or non-styrene) and / or curing water from the jobsite. When the liner curing is completed, the installer will remove all waste prior to the lined pipe being put back in service. The plans will indicate the size of the excavation for the resin containment pit. The excavation, temporary storage of the fill and restoration of the downstream channel will be performed under Section 206-1.02, measured under 206-4.04 and paid under 206.0201 *Trench, Culvert and Structure Excavation – O.G.*

Use a resin / liner system meeting the following criteria:

- System consists of one or more layers of flexible needled felt or an equivalent material as approved by the Materials Bureau.
- Liner is flexible enough to fit irregular pipe sections and able to negotiate pipe bends.

Liner's surface must be coated with a plastic material compatible with the proposed resin. All liners containing styrene based resins require the use of a pre liner, to be inserted into the existing pipe before insertion of the CIPP liner. In addition to the pre liner, single or double sided liners may be specified in the contract plans, depending on the environmental setting of a particular application.

A thermoset resin and catalyst or an epoxy resin and hardener system, compatible with the proposed inversion system shall be used. If indicated in the contract documents, a resin containing less than five percent volatile organic compounds (VOCs) with less than 0.1 percent hazardous air pollutants (HAPs) and less than 0.1 percent of water quality pollutants as listed in 6 NYCRR Parts 700-705 shall be supplied. If the resin type (styrene or non-styrene) is not specified on the plans, the installer has the option to select the resin type. Proposed resin shall be compatible with the proposed inversion process.

Vacuum impregnate the liner with resin. Use a volume of resin capable of filling all voids in the liner material at nominal thickness and diameter. Adjust this resin volume by adding a minimum of 5% excess resin to allow for changes in resin volume due to polymerization and for any resin migration into the cracks and joints of the original pipe.

1. Installation. A cured-in-place-pipe (CIPP) liner may be installed into the host pipe by hydrostatic head, air pressure inversion, or a combination of the two. Do not exceed the manufacturer recommended maximum pressure to the liner felt fiber during the inversion process. Pulled in place installations may be allowed if it is indicated on the contract documents or if the installer is given prior approval by the Director, Materials Bureau.

- a. Hydrostatic Head.** The standpipe height must be sufficient to maintain at least the minimum required pressure between the CIPP liner and the existing (host) pipe. The lower end of the liner must extend beyond the outlet end whenever possible. Where changes in elevation may create excessive stresses on the liner felt, the use of bulkheads

may be necessary. Alternative installation methods using a hydrostatic head will be subject to approval by the Director, Materials Bureau.

- b. Air Pressure.** The liner may be inverted using air pressure to extend it to the termination point. The air pressure needs to be adjusted and sustained to a level capable of holding the liner against the host pipe regardless of the curing method proposed to be used.

2. Curing. Cure the liner by circulating heated water throughout the section. Uniformly raise the temperature of the water above the level required to cure the resin. Monitor and record both the temperature of the curing water exiting the heating source and the temperature of the curing water returning to the heating source. Monitor and record the observed temperatures by the remote sensors on the liner-host pipe interfaces, located in the upstream and downstream area of the pipe. The remote temperature sensors readings will be used for monitoring the progress of curing and its duration. The minimum curing time is the sum of the minimum recommended initial and post-curing times as per the liner resin supplier's recommendations. The onset of the initial curing approximately occurs when all remote temperature sensors register a temperature consistent with the "exotherm", which shall be included in the Manufacturer's recommendations. Post-cure the liner at least for the minimum post-curing time *and at the minimum post-curing* temperature level, as per the liner Manufacturer's recommendations. Add post-curing time for any deviations from the recommended post-curing temperature levels. All resin Manufacturers' curing proposals require approval by the Director of Materials Bureau prior to its initial use by the Department. Also, a new curing proposal submission for approval is required if an already approved liner Manufacturer introduces a new resin formulation and/or a new liner curing method to a Department contract.

3. Water and Material Management. After post-curing is completed, manage the curing water so that it does not cause or contribute to a violation of water quality standards to receiving waters or groundwater 6 NYCRR Part 700-704. In particular, the CIPP Contractor shall note the surface water quality and groundwater standards at 6 NYCRR Part 703 for pollutants such as styrene and thermal discharges. The CIPP Contractor shall enquire as to the classification of potential receiving surface waters in the project location if this information is not provided in the contract documents.

A. Handling of curing water used in a styrene based thermoset resin liner installation:

1. Collect and transport curing water from the site for reuse within another CIPP location; and/or
2. Collect the water and dispose or treat at off site facilities. Transport wastewaters within vehicles that have a waste transporter permit 6NYCRR 364. Off-site disposal shall be at a publicly owned treatment works or at a disposal facility permitted to accept the wastewater. The Contractor shall conduct off site treatment to reduce styrene concentrations to acceptable levels to meet water quality standards prior to discharge to the receiving waters; and/or
3. Treat wastewater on-site to acceptable styrene and thermal loading and discharge to receiving waters in accordance with agreements received from the Regional NYSDEC Office.

B. For curing water from non-styrene based processes, collect water for disposal off-site as described in A1 and A2 above or discharge on site if it does not contain pollutants that could cause or contribute to a violation of water quality standards. Reduce temperature to prevent a violation of the thermal standards to the receiving waters.

- C. Collect any excess resin and any curing materials at the upstream and downstream ends of the installation for disposal.
- D. Record and document quantities of curing water removed from the site. Provide record/documentation of the reuse and/or disposal facility and quantity disposed of curing water leaving the site.

After post-curing is completed, cool the liner to a temperature of 100° F prior to relieving the static head in the inversion standpipe. Cool-down may be accomplished by adding cool water into the inversion standpipe to replace warm curing water being removed from the liner. Contract documents may contain restrictions on the temperature of the released curing water or whether the curing water needs to be removed and treated. Any other proposed liner curing methods will be subject to the approval of the Director, Materials Bureau.

4. Workmanship / Damage / Defects. The finished pipe liner shall be continuous over the entire length of an inversion run and be free of dry spots, lifts and delaminations. If any dry spots, lifts and delaminations exist, remove the liner in those areas. Mark a line 3 feet from both ends of the distressed area, cut the distressed area out, and replace it at no cost to the Department. If the Cured-In Place-Pipe (CIPP) liner does not fit against its termination point, seal the space between the pipe and liner with a resin mixture compatible with the CIPP. The liner may be sampled and tested for tensile and flexural properties in accordance with ASTM F 1216 at the discretion of the Department. Failure to meet the designed properties will be a cause for liner rejection.

5. Storm Drain Lateral Connections. Reconnect the existing storm drain lateral connections after the liner has been cured in place. Use robotic cutting devices to reestablish tie-ins in non-man accessible pipes.

E. Lining with a new Liner Pipe-General. Before lining, pull or push a single piece of liner pipe through the existing pipe to verify liner clearance. The liner must be positioned and secured to facilitate its complete encapsulation by grout.

Follow the Manufacturer's recommendations for handling and assembling the pipe and all provisions included in the approved written proposal.

When required, reconnect existing storm drain lateral connections by utilizing an open cut excavation, internal connection or remote installation using robotics. Prior to filling the annular space, connect and seal all laterals between the new liner pipe and the existing lateral.

Grout the entire annular space. Provide a minimum annular space of 1 inch for grouting between the new and existing pipes. Provide details on how to hold the liner pipe to line and grade until the grout has set.

If the volume of the grout used is less than the anticipated (calculated) volume, or an inspection of the relined culvert indicates that there are voids in the annular space, the Contractor must provide the EIC with a plan to rehabilitate all identified voids. Depending on the location and size of the voids, additional grouting may be required in these areas. This may be accomplished by re-grouting in those areas from within the culvert. The voids must be filled to the satisfaction of the Engineer at no additional cost to the state. Grout that fills invert and connected voids is covered in the cost for these items.

1. Lining with High Density Polyethylene Pipe. Prior to lining, follow in its entirety all provisions of §602-3.02 E. Lining with a new Liner Pipe – General.

Reline with Smooth Wall Polyethylene Pipe or Profile Wall Polyethylene Pipe, as indicated in the contract documents.

Install all pipe, fittings, adapters and appurtenances according to the Manufacturer's recommendations. Limit joint separations to less than ½ inch between adjoining sections. Field cuts will be permitted only at the terminal ends. No HDPE pipe sections less than 3 feet long will be allowed in any lining projects.

Perform all butt fusion, welding and extrusion welding of HDPE pipe in accordance with the Manufacturer's recommendation. A Manufacturer's representative – or an individual trained by the manufacturer – must be present at all times during any fusion or welding operations. Alternate joining methods will be subject to approval by the Director, Materials Bureau.

2. Lining with Polyvinyl Chloride Pipe. Prior to lining, follow in its entirety all provisions of §602-3.02 E. Lining with a new Liner Pipe – General.

Reline with a Profile Wall PVC Pipe or Corrugated Wall PVC Pipe with integral bell and spigot joints.

The installation proposal for this item to be submitted by the contractor for Departmental approval should in addition address the following PVC specific issues prior to any work approval is granted; Whether the PVC liner will be pulled or pushed through the culvert and the type of pushing or pulling ring/plate to be used; Whether a nose cone or a different device will be used in this process and how the jacking, pulling or pushing loads on the liner will be monitored in order to conform to the PVC liner's Manufacturer's specifications and guidelines. Include PVC liner's Manufacturer's specifications and guidelines in the submitted for approval proposal. Follow all Manufacturer's recommendations during joint assembly operations.

3. Lining with Corrugated Metal Pipe. Reline with Polymer Coated Corrugated Steel Pipe.

Prior to lining, follow in its entirety all provisions of §602-3.02 E. Lining with a new Liner Pipe – General.

Insert and brace the liner pipe to the specified line and grade, and align adjacent pipe sections such that port holes, if used, are placed as detailed in the contract plans (Alignment bolts are not adequate bracing by themselves). Sever all alignment bolts not fully turned out and grind them flush to the new pipe interior. If port holes are used, provide fittings and plugs compatible with the delivery equipment. Insert the plugs into the fittings as the operation is completed. Limit joint separations to ½ inch between adjoining sections. To ensure that grout remains in the annular space, place internal expanding joint bands with annular corrugations and foam gaskets at each joint. Before grouting the annular space, brace and strut the bands. Do not obstruct with any bracing material the flow of grout into the annular space. Remove the bracing, struts and bands upon completion of this work.

4. Lining with Corrugated Steel Structural Plate Pipe and Pipe Arches with PCC Paved Invert. Prior to lining, follow in its entirety all provisions of §602-3.02 E. Lining with a new Liner Pipe – General.

Align adjacent pipe sections such that port holes, if used, are placed as detailed in the contract plans. If port holes are used, provide port hole fittings and plugs compatible with the delivery equipment. Insert the plugs into the fittings as the grouting operation is completed. Alignment bolts are not adequate bracing by themselves. Sever all alignment bolts not fully turned out and grind them flush to the new pipe interior. Do not obstruct with any bracing material the flow of grout into the annular space. Once lining with this item has been completed, apply §603-3.07 Concrete Paving for Corrugated Structural Plate Pipe and as indicated in the contract documents.

5. Lining with Steel Tunnel Liner Plate. Prior to lining, follow in its entirety all provisions of §602-3.02 E. Lining with a new Liner Pipe - General.

Line with tunnel liner plates (double flange). Use a lap type longitudinal seam. Fabricate the lap to allow a continuous cross section of the plates through the seam. Use an offset depth equal

to the metal thickness for the full width of plate, including flanges. Drilling, punching or drifting to correct defects in manufacturing will not be permitted. Plates with improperly punched holes will be rejected.

Use 5 bolts per 18 inch width of plate in each lapped longitudinal joint and stagger the bolts in the ridges and valleys. Follow the Manufacturer's recommendation for circumferential and longitudinal bolt spacing.

602-3.03 Damaged Pipe and Repair. Repair all damage to the existing host pipe caused that is strictly obstructing the progress of the relining operation. Repair any damage to the newly installed liner caused during construction, consistent with recommendations of Section 603- 3.04 Damaged Pipe and Repair.

602-4 METHOD OF MEASUREMENT

602-4.01 Lining with new pipe. This work will be measured as the number of feet along the bottom centerline, measured to the nearest foot.

602-4.02 Paving inverts. This work shall be measured as the number of square feet determined by the paved width measured along the pipes interior circumference at the top of the corrugations and the length along the centerline of the pipe measured to the nearest square foot.

602-4.03 Shotcreting. This work shall be measured as the number of square feet determined by the shotcreted width measured along the pipes interior circumference at the top of the corrugations and the length along the centerline of the pipe measured to the nearest square foot.

602-5 BASIS OF PAYMENT. Include the cost of furnishing all labor, materials, and equipment necessary to complete the work in the unit price bid. Include the cost of all fill material needed to fill the annular space between the existing pipe and the liner pipe, dewatering and cleaning of existing pipe, and the removal of any obstructions, intrusions or damaged pipe prior to lining.

For Paving Inverts and Shotcreting, include the cost of furnishing all labor, materials and equipment necessary to complete the work for the unit price bid and include all necessary preparations such as dewatering and cleaning to the existing pipe.

For Cured in Place Pipe, include the cost of furnishing all labor, materials and equipment necessary to complete the work for the price unit bid and include all necessary preparations such as dewatering and cleaning to the existing pipe, all activities involving water treatment as well as water and waste transportation and disposal. The excavation for the resin containment pit, temporary storage of the fill and restoration of the downstream channel will be paid for under *206.04 Trench and Culvert Excavation – O.G.*

Payment will be made under:

Item No.	Item	Pay Unit
602.2002	Structural Paving of Inverts with Portland Cement Concrete	Square Feet
602.2101	Lining Culvert with Shotcrete	Square Feet
602.25xx	Lining with High Density Polyethylene Pipe	Feet
602.26xx	Lining with Smooth Wall High Density Polyethylene Pipe	Feet
602.27xx	Lining with Profile Wall High Density Polyethylene Pipe	Feet
602.30xx	Lining with Polyvinyl Chloride Pipe	Feet
602.36xx	Lining with Cured in Place Pipe (CIPP)	Feet
602.37xx	Lining Concrete pipe with Cured in Place Pipe (CIPP)	Feet
602.51xxxx	Lining with Corrugated Steel Structural Plate Pipe with PCC Paved invert	Feet
602.53xxxx	Lining with Corrugated Steel Structural Plate Pipe Arch	

	with PCC Paved invert	Feet
602.550101	Lining with Steel Tunnel Liner Plate 10ga	Square Feet
602.550102	Lining with Steel Tunnel Liner Plate 8ga	Square Feet
602.550103	Lining with Steel Tunnel Liner Plate 7ga	Square Feet
602.550104	Lining with Steel Tunnel Liner Plate 5ga	Square Feet
602.550105	Lining with Steel Tunnel Liner Plate 3ga	Square Feet
602.75xx	Lining with Polymer Coated CSP 12ga, (2- 2/3"x1/2")	Feet
602.80xx	Lining with Polymer Coated CSP 12ga, (3"x1") or (5"x1")	Feet

Refer to Contract Proposal for full Item Number and full description.

SECTION 603 - CULVERTS AND STORM DRAINS

603-1 DESCRIPTION. Construct culverts and storm drains in accordance with these specifications, the contract plans, and the appropriate standard sheets.

603-2 MATERIALS

603-2.01 General. Materials requirements are specified in the following subsections:

Geotextile	207	Corrugated Structural Steel Plate for Pipe,	
Portland Cement Concrete	501	Pipe-Arches and Underpasses	707-09
Portland Cement	701-01	Galvanized Steel End Sections	707-10
Masonry Cement	701-02	Aluminum End Sections	707-11
Concrete Repair Material	701-04	Corrugated Aluminum Pipe	707-13
Concrete Repair Material – High Early Strength	701-12	Corrugated Aluminum Structural Plate for Pipe and Pipe-Arches	707-14
Mortar Sand	703-03	Anchor Bolts for Corrugated Culverts	707-20
Non-Reinforced Concrete Pipe	706-01	Zinc Chromate Primer	708-04
Reinforced Concrete Pipe	706-02	Bar Reinforcement, Grade 60	709-01
Reinforced Concrete Elliptical Pipe	706-03	Wire Fabric for Concrete Reinforcement	709-02
Reinforced Concrete End Sections	706-07	Plastic Coated Fiber Blankets (For Curing)	711-03
Polypropylene Pipe	706-08		
Smooth Interior Corrugated Polyethylene Pipe	706-12	Membrane Curing Compound	711-05
Corrugated Steel Pipe	707-02	Water	712-01
Ductile Iron Pipe (Non-Pressure)	707-03	Galvanized Coatings and Repair Methods	719-01

603-3 CONSTRUCTION DETAILS

603-3.01 Excavation. Apply the requirements specified in Section 206, Trench, Culvert and Structure Excavation, except as modified by the Contract Documents or as directed by the Engineer.

603-3.02 Laying Pipe

A. General. Lay all pipe in close conformity to line and grade having a full, firm and even bearing at each joint and along the entire length of pipe. Lay all pipe beginning at the downstream end and progress upstream. Use the same material in each run of pipe unless otherwise directed by the Engineer.

B. Handling and Assembly of Pipe. Follow the Manufacturer's instructions or approved Materials Details except as modified on the Contract Plans or as directed by the Engineer.

C. Bell and Spigot Type Pipe. Lay all pipe with the bells upstream. Where the spigot end of an existing pipe does not fit the bell end of a new pipe, construct a concrete collar as shown on the Standard Sheets. Fill the bottom half of the space on the inside of the pipe between the existing spigot and the new bell with an approved concrete repair material (§701-04 or §701-12). Alternate designs may be submitted to the Director, Materials Bureau, for approval.

Where the spigot end fits into the bell end and the clearance is so great as to render the elastomeric gasket or preformed sealer ineffective, join the pipe by caulking a gasket of jute or oakum into the joint space and then fill with mortar of equal parts of Portland Cement and Mortar Sand or a preformed or poured caulking compound of a type approved by the Engineer.

D. Round Corrugated Metal Pipe and Pipe-Arches. Place steel or aluminum pipe with longitudinal seams located at the sides. Place circumferential seams with laps in the downstream direction so flow of water is directed over instead of under each succeeding downstream section.

E. Corrugated Structural Plate Pipe and Pipe-Arches. Assemble the plates for corrugated steel or aluminum structural plate pipe and pipe-arches to form the circular pipe or pipe-arch cross section as defined by the pipe manufacturer.

For metal pipe arches, install the bolts nearest the visible edge of the lapped joint in the valley at the top of the corner plate of the corrugations. Cover the joint with the top of the corner plate on the outside of the structure with a geotextile conforming to Geotextile Underdrain from the Department's Materials Bureau Approved List. Extend the covering a minimum of 12 inches beyond each side of the joint for its entire length. A minimum of 12 inches is required for any longitudinal lap.

F. Polyethylene and Polypropylene Pipe. Handle, store and assemble all pipe in accordance with the Approved Materials Details except as modified in the Contract Documents or by the Engineer. Joint misalignment resulting in offsets greater than 1/4 inch or joint separations greater than 1/2 between adjoining sections of pipe will not be allowed. Field cuts are permitted only at the terminal ends and with a minimum pipe length of 40 inches.

G. Corrugated Metal End Sections. Assemble all pipe end sections in accordance with the Contract Documents or as approved by the Engineer.

H. Thickness Measuring Equipment. Prior to laying any pipe, provide the Engineer with equipment to measure gauge and steel coating thickness. Gauge shall be measured with a micrometer caliper. Measure steel coating thickness with a Type II Fixed Probe Magnetic Gauge meeting the requirements of Steel Structures Painting Council Specification SSPC-PA2. When the Engineer verifies the required gauge and coating thickness the pipe may be laid. Micrometer calipers and Type II probes shall remain the property of the Contractor.

603-3.03 Bedding and Backfilling Pipe. Apply the standards of Section 203, *Select Granular Fill* and the appropriate NYSDOT Standard Sheets. Select Granular Fill used to backfill around aluminum or aluminum coated pipes will be free of portland cement unless the pipe sections are thoroughly coated with Zinc Chromate Primer, §708-04 or an equivalent alternative as approved by the Materials Bureau. 100% of the Select Granular Fill used around Type IR and IIR corrugated aluminum pipe must pass a 2 inch sieve.

603-3.04 Damaged Pipe and Repair

A. General. Repair, realign or replace pipe that is damaged or disturbed through any cause occurring prior to acceptance of the contract. Pipe which is defective, and determined by the Engineer as unrepairable, will be unacceptable for installation and shall be replaced as directed by the Engineer at no cost to the State.

B. Concrete Pipe. Repair concrete pipe in accordance with the requirements set forth in §706-02 Reinforced Concrete Pipe. The repairs will be acceptable if they are sound, properly finished and cured, as determined by the Engineer, and the repaired pipe conforms to the requirements of the Contract Documents.

C. Damaged Bituminous Coating and Paving. Damage to bituminous coating shall be repaired with asphalt repair material. The repair material shall appear on the Department's Approved List. Damage to bituminous paving shall be repaired by an application of the original hot material for areas 2 square feet or less in each pipe section. Damage to bituminous paving in areas greater than 2 square feet in a pipe section will be cause for rejection of that section.

D. Polyethylene and Polypropylene Pipe. Polyethylene pipe with damaged ends may be incorporated into the work at terminal locations provided the damaged portion is totally removed by the field cut. Repair or replacement of pipe that is disturbed, damaged or misaligned must provide the same product as a new pipe installation, as determined by the Engineer. After backfilling operations are complete, inspect the pipe for deflection. No more than 5% deflection of the internal diameter will be allowed. If this is exceeded, the pipe will be rejected and removed at the Contractors expense.

603-3.05 Field Strutting of Corrugated and Structural Plate Pipe. Field strutting of corrugated metal pipe and structural plate pipe may be done at the Contractor's option and expense to provide added protection from construction equipment and other loads during installation, backfilling and filling above the pipe. The method and scheduling of installation and removal of strutting, must be approved by the Engineer. Field strutting shall constitute installation of structurally sound timber sills, compression caps and struts.

603-3.06 Joints

A. Corrugated Metal Pipe. Use corrugated band field connections for corrugated metal pipe and pipe arch connections. Lap the band on equal portions of each culvert section to be connected. All connections shall be an approved type, fabricated and installed so that a secure and firm pipe connection may be readily made in the field. Thoroughly coat all aluminum or aluminum coated field connections in contact with concrete with Zinc Chromate Primer §708-04 or an equivalent alternative as approved by the Materials Bureau and permit to dry prior to concrete placement.

B. Structural Plate Pipe. Assemble plates for structural plate pipe and pipe arches with joints staggered such that not more than three (3) plates come together at any one point. Tighten all nuts for field or shop assembled plates to at least 150 but not more than 300 ft-lbs of torque, before filling and backfilling are commenced. Supply the Engineer-in-Charge with an approved torque wrench.

C. Concrete Pipe. For round concrete pipe, use flexible water-tight elastomeric gaskets. For elliptical pipe and cattle pass use concrete pipe joint sealing compound meeting the requirements of §705-16. Install all sealants at the time the pipe is being laid to line and grade.

To detect leakage in the finished installation, internal pressure tests will be required in concrete pipe only when specified in the Contract Documents. If a leakage test is required, use an exfiltration test between consecutive manholes. Perform the test by filling the pipe with water to a height 24 inches above the top of the pipe at the upstream manhole and allowing the pipe to remain saturated

for a period of 72 hours prior to checking for leakage. No more than 250 gallons per inch of pipe diameter per mile in a 24 hour period will be allowed.

Where a culvert or a storm drain system is open at either one or both ends, with or without end sections, use a minimum of 90 inches. Round pipe less than 24 inches in diameter, elliptical pipe, and larger diameter round pipe beginning with 66 inch diameter where the weight of the pipe section requires a shorter length shall have a minimum length of 72 inch.

Shorter sections will be permitted where they are required to obtain an exact length of culvert. Use of shorter sections requires approval by the Engineer. For closed storm drain systems, drains having structures such as drop inlets on each end, the length of sections is unspecified.

Connect the first three full sections at the open end(s) of a culvert or storm drain system together to restrain movement of the sections. A full section is defined as a section with a minimum laying length of 90 or 72 inches as defined in the preceding paragraph. An end section is considered as the first section. If a short section is used at the end or within the first three full sections of a culvert, connect it together with the first three full sections.

Use a device at the springline on each side of the pipe to restrain the sections from movement. Use a device at least 12 feet in length when using 90 inch minimum length pipe sections and at least 120 inches in length when used with 72 inch minimum length sections. Securely anchor the devices to the pipe, with minimum slack in the device and the joints. Locate anchoring points a minimum of 18 inches from the end of the pipe sections and the flared end sections. Anchor each end of the device with a 1 inch diameter bolt with a nut and washer, or its equivalent, through the section wall. Apply ANSI B 18.2.1, ANSI B 18.2.2 and ANSI B 27.2, Grade A or B respectively for all nuts, bolts, and washers. For all round pipe 48 inches in diameter and smaller, and/or equivalent diameter elliptical pipe use a steel strap for the restraining device conforming to ASTM A36 with a minimum width of 2 1/4 inches, 1/4 inch minimum thickness with 1 1/4 inch maximum diameter holes centered 1 1/2 inch from each end. For pipe larger than 48 inches in diameter and for cattle pass, the requirements for the restraining devices will be shown on the contract plans. Apply the requirements of §719-01, Galvanized Coatings and Repair Methods: Type I for straps and Type II for nuts, bolts, and washers for the steel strap and anchoring hardware.

Alternative designs of the restraining device and anchoring hardware will be considered for approval by the Director of the Materials Bureau if they provide equivalent restraining properties and durability.

Restraining devices may be placed on either the inside or outside of the pipe. If placed on the inside, the device shall not protrude from the wall to the degree where flow would be obstructed. Only cold bending of the restraining device is allowed. Holes in the pipe and end sections required for the anchor bolts may be drilled in the field.

D. Ductile Iron Pipes. Form joints by caulking a gasket of jute or oakum into the hubs and then filling with mortar consisting of equal parts of Portland Cement Type I or Type II, Mortar Sand, or at the Contractor's option, a preformed or poured caulking compound of a type approved by the Engineer. For sanitary sewer systems, apply the joint requirements of ASTM C425.

E. Polyethylene and Polypropylene Pipe Connections. Manufactured ends shall be used for joint assemblies; no field cuts are permitted unless approved by the Engineer. No separations greater than 1/2 inch are permitted between adjoining sections of pipe. Use only appropriate fittings for lateral connections supplied by the pipe manufacturer and shown on the standard sheet, except that the pipe shall protrude 2 inches into the basin to provide a 45° battered grout seal. Apply the battered grout seal to both the interior and exterior faces of the basin.

F. Dissimilar Metal Pipe Connections. Use a sleeve gasket when joining corrugated pipe or end sections to pipes or end sections fabricated of dissimilar metals between the pipe(s) and the coupling

band. Keep the ends apart, to prevent electrical contact between the dissimilar metals. Apply the requirements of ASTM A36/A36M for all gaskets.

G. Breaking into Existing Drainage Structures. When breaking into existing drainage structures to make a pipe connection, remove only the minimum amount of material from the wall of the structure. After inserting the pipe, fill the cavity between the pipe exterior and the wall of the drainage structure in accordance with the drainage structure Standard Sheets. Large spaces may be chinked with 704-13 Precast Concrete Driveway and Sidewalk Pavers.

H. Tolerance. A 1/2 inch difference in diameter is allowed when joining round pipes or the spans or rises of pipe-arches. A 1 1/2 inch difference is allowed in the perimeters. These tolerances may be attained by proper production control or by match-marking pipe ends.

603-3.07 Concrete Paving for Corrugated Structural Plate Pipe. Place reinforced Portland Cement Concrete over the inverts of corrugated structural plate pipe where specified and indicated on the Contract Documents, so as to form a smooth interior. Do not place pavement until the embankment has been completed over the pipe and settlement has been completed to the satisfaction of the Engineer.

Pave the bottom 25 percent of the inside circumference for round pipe, the bottom 30 percent of the inside periphery for arch spans of 10 feet 3 inches and shorter and the bottom 35 percent of the inside periphery for arch spans longer than 10 feet 3 inches unless otherwise specified by the Engineer. A minimum cover of 4 inches is required over all corrugations. Schedule and conduct the diversion of water operations prior to and during the placement of pavement in a manner satisfactory to the Engineer. Prior to placing pavement clean and dry the surfaces to be in contact with concrete to the satisfaction of the Engineer.

Place the steel fabric reinforcement on the crests of corrugations and securely fasten to the pipe or pipe-arch by welding or by other methods acceptable to the Engineer. Place the reinforcement to provide a 4 inch minimum clearance from the edges of concrete and lap 6 inch minimum. Unless otherwise shown on the plans, the steel fabric reinforcement shall consist of No. 6 gauge wire at 6 inch centers transversely and longitudinally.

Finish the pavement to a smooth surface acceptable to the Engineer. Within 18 hours after completion of finishing, protect the surface by either an approved curing cover or an approved membrane curing compound applied at a minimum rate of 1 gallon per 150 square feet. However, any concrete in the invert that would be exposed to sunlight must be cured immediately after the finishing operations have been completed and the surface water has evaporated.

Cure the concrete for a minimum period of 48 hours before water is permitted to flow on the invert. If the atmospheric temperature is below 45°F, the requirements of 555-3.08C, Provisions for Concreting in Cold Weather, shall apply.

603-3.08 Relaying Pipe. Carefully remove, clean, preserve, haul and relay pipe as directed by the Engineer or as called for in the Contract Documents. The relaid pipe shall be true to line and grade, and have a full, firm, even bearing and be comparable to newly laid pipe. Construct joints of relayed pipe as specified in §603-3.06. When existing pipe is damaged during removal or relaying, rendering it unfunctional, replace it with new pipe at no additional cost to the State. Existing pipe which is determined by the Engineer to be unfit for relaying may be destroyed before removal.

Apply the requirements of §603-3.03 for backfill and placement.

603-3.09 Anchor Bolts. Unless instructed otherwise, use anchor bolts, as specified in §707-20 to anchor the ends of corrugated metal pipes, and sectional plate arches to either reinforced or plain concrete headwalls.

603-3.10 Culvert-End Safety Grates. Culvert-end safety grates shall be fabricated in accordance with the Standard Sheets.

The grate shall lay flat on the embankment slope, overlap the opening equally on each side, and at the top as indicated in the contract documents. The Contractor shall perform any necessary excavation, backfill, and final slope shaping and grading to ensure proper grate support and smooth uniform slopes in the area surrounding the grate. All disturbed areas will be reestablished to the satisfaction of the Engineer.

603-4 METHOD OF MEASUREMENT

603-4.01 Pipe. The Engineer will measure the pipe, in feet along the bottom centerline, furnished and incorporated into the work in accordance with the Contract Documents.

603-4.02 End Sections. The Engineer will count the number of units of each size or diameter furnished and incorporated into the work in accordance with the Contract Documents.

603-4.03 Relaying Pipe. The Engineer will measure the existing pipe relayed and any new pipe laid and furnished to replace existing pipe, in feet along the bottom centerline, incorporated into the work in accordance with the Contract Documents.

603-4.04 Concrete Collars. The Engineer will count the number of concrete collars furnished and incorporated into the work in accordance with the Contract Documents.

603-4.05 Culvert-End Safety Grates. Culvert-end safety grates will be measured in square feet to the nearest 0.1 square foot of safety-grate installed, using payment areas shown on the Standard Sheet. For sizes that are not shown on the Standard Sheet, the area will be computed as the product of the overall length and width.

603-5 BASIS OF PAYMENT

603-5.01 General. The accepted quantities of all pipe construction and reconstruction will be paid for at the contract price bid which will include the cost of furnishing all labor, materials and equipment necessary to complete the work including those joints made with oakum, portland cement and mortar or poured caulking compounds.

For concrete end sections include the cost of the restraining devices and their installation. If no end sections are specified and restraining devices are required, include the cost of the restraining devices in the unit price bid for the pipe. Include the cost of bituminous coating or concrete paving including steel wire fabric reinforcement, when specified in the unit price bid for the respective pipe items. Include the cost of breaking into existing drainage structures to connect new pipe in the unit bid price for the respective pipe items. Include the cost of anchor bolts, when required, in the unit bid price for pipe items.

Progress payment may be made to the extent of 80% of the price bid for pipe items requiring concrete invert paving when the installation is substantially completed and backfilled to a minimum of 24 inch over the top of the pipe plus whatever additional cover is necessary to protect the installation from construction traffic. The remaining 20% will be paid upon completion of the invert paving.

Excavation, granular fill and backfill will be paid for separately under their appropriate items in Sections 203 and 206, as applicable except include the additional costs necessary for the special gradation for Backfill Material for Corrugated Aluminum Pipe-Type IR and the additional cost necessary to assure the backfill material be free of portland cement in the unit bid price for these pipes.

Include the cost of adding water for compaction in the price bid, unless items for furnishing water equipment and applying water are included in the proposal.

Payment for the geotextile material and its installation is included under the structural pipe arch item.

603-5.02 End Sections. Include the cost of all labor, materials and equipment necessary to complete the work as specified in the contract documents. The cost of the restraining devices and their installation, required for concrete pipe, shall be included in the unit price bid for the end sections.

603-5.03 Concrete Collars. Include the cost of all labor, materials (including concrete repair material) and equipment necessary to complete the work as specified in the contract documents.

603-5.04 Culvert-End Safety Grates. The unit price bid shall include the cost of all labor, materials, and equipment necessary to complete the work, including excavation, topsoil, seeding and mulching.

Payment will be made under:

Item No.	Item	Pay Unit
603.0101	Culvert-End Safety Grate	Square Foot
603.0102	Culvert-End Safety Grate (Heavy-Duty)	Square Foot
603.02xx	Non-Reinforced Concrete Pipe	Foot
603.05xxxx	Corrugated Steel Pipe (2 2/3 x 1/2)	Foot
603.06xxxx	Corrugated Steel Pipe Paved Invert (2 2/3 x 1/2)	Foot
603.07xxxx	Corrugated Steel Pipe Fully Paved (2 2/3 x 1/2)	Foot
603.08xxxx	Corrugated Steel Pipe Arch (2 2/3 x 1/2)	Foot
603.09xxxx	Corrugated Steel Pipe Arch, Paved Invert (2 2/3 x 1/2)	Foot
603.10xxxx	Corrugated Steel Pipe Arch, Fully Paved (2 2/3 x 1/2)	Foot
603.11xxxx	Corrugated Steel Pipe (3 x 1) or (5 x 1)	Foot
603.12xxxx	Corrugated Steel Pipe Paved Invert (3 x 1) or (5 x 1)	Foot
603.13xxxx	Corrugated Steel Pipe Fully Paved (3 x 1) or (5 x 1)	Foot
603.14xxxx	Corrugated Steel Pipe Arch (3 x 1) or (5 x 1)	Foot
603.15xxxx	Corrugated Steel Pipe Arch Paved Invert (3 x 1) or (5 x 1)	Foot
603.17xxxx	Galvanized Steel End Sections Pipe (2 2/3 x 1/2)	Each
603.18xxxx	Galvanized Steel End Sections Pipe Arch (2 2/3 x 1/2)	Each
603.20xxxx	Galvanized Steel End Sections Pipe Arch (3 x 1) or (5 x 1)	Each
603.23xx	Corrugated Structural Steel Plate Pipe (60 - 108 Diam.)	Foot
603.24xx	Corrugated Structural Steel Plate Pipe (114 - 162 Diam.)	Foot
603.25xx	Corrugated Structural Steel Plate Pipe (168 - 216 Diam.)	Foot
603.26xx	Corrugated Structural Steel Plate Pipe (222- 252 Diam.)	Foot
603.27xx	Corrugated Structural Steel Plate Pipe PCC Paved Invert (60 - 108 Diam.)	Foot
603.28xx	Corrugated Structural Steel Plate Pipe PCC Paved Invert (114 - 162 Diam.)	Foot
603.29xx	Corrugated Structural Steel Plate Pipe PCC Paved Invert (168 - 216 Diam.)	Foot
603.30xx	Corrugated Structural Steel Plate Pipe PCC Paved Invert (222 - 252 Diam.)	Foot
603.31xx	Corrugated Structural Steel Plate Pipe Arch (6 feet 1 inch - 20 feet 7 inch span, 9PI, Corner Plate)	Foot
603.32xx	Corrugated Structural Steel Plate Pipe Arch, PCC Paved Invert (6 feet 1 inch - 19 feet 8 inch span, 9PI, Corner Plate)	Foot
603.35xx	Corrugated Structural Steel Plate Underpass	Foot
603.40xxxx	Round Corrugated Aluminum Pipe (2 2/3 x 1/2) (12 - 30 Diam.)	Foot
603.41xxxx	Round Corrugated Aluminum Pipe (3 x 1) (36 - 96 Diam.)	Foot
603.44xxxx	Corrugated Aluminum Structural Plate Pipe (9 x 2 1/2)(60 - 114 Diam.)	Foot
603.46xxxx	Corrugated Aluminum Structural Plate Pipe (9 x 2 1/2)(120- 180 Diam.)	Foot
603.48xxxx	Corrugated Aluminum Pipe-Arch (2 2/3 x 1/2)(17 Span, 13 Rise) to (57 Span, 38 Rise), and (3 x 1) (60 span, 46 Rise to 95 Span, 67 Rise)	Foot
603.50xxxx	Corrugated Aluminum Structural Plate Pipe-Arch (9 x 2 1/2)	

	(6 ft 1 in Span, 5 ft Rise to 11 ft 5 in Span, 7 ft Rise)	Foot
603.52xxxx	Corrugated Aluminum Structural Plate Pipe-Arch (9 x 2 1/2)	
	(12 feet 3 inch Span, 7 feet 3 inch Rise to 19 feet 5 inch Span, 11 feet 11 inch Rise)	Foot
603.53xxxx	Corrugated Aluminum Pipe, Type IIR	Foot
603.54xxxx	Corrugated Aluminum End Sections Pipe	Each
603.55xxxx	Corrugated Aluminum End Sections, Pipe Arch	Each
603.56xxxx	Corrugated Steel Pipe- Type IR	Foot
603.58xxxx	Corrugated Aluminum Pipe- Type IR	Foot
603.59xxxx	Corrugated Steel Pipe- Type IIR	Foot
603.60xx	Reinforced Concrete Pipe Class III	Foot
603.61xx	Reinforced Concrete Pipe Class IV	Foot
603.62xx	Reinforced Concrete Pipe Class V	Foot
603.66xx	Reinforced Concrete Horizontal Elliptical Pipe Class HE II	Foot
603.67xx	Reinforced Concrete Horizontal Elliptical Pipe, Class HE III	Foot
603.68xx	Reinforced Concrete Horizontal Elliptical Pipe, Class HE IV	Foot
603.69xx	Reinforced Concrete Vertical Elliptical Pipe, Class VE IV	Foot
603.70xx	Reinforced Concrete Vertical Elliptical Pipe, Class VE V	Foot
603.71xx	Reinforced Concrete Vertical Elliptical Pipe, Class VE VI	Foot
603.72xx	Reinforced Concrete Cattle Pass	Foot
603.73xx	Reinforced Concrete Pipe End Sections	Each
603.74xx	Reinforced Concrete Pipe Class II	Foot
603.77	Concrete Collars	Each
603.7802xx	Polypropylene Pipe (Optional) -Type S, or Type D	Foot
	xx= 12, 15, 18, 24, 30, 36, 42, 48, 60 (denoting pipe diameter in inches)	
603.80xxxx	Corrugated Steel Pipe-Polymer Coated (2 2/3 x 1/2)	Foot
603.81xxxx	Corrugated Steel Pipe-Polymer Coated Paved Invert (2 2/3 x 1/2)	Foot
603.82xxxx	Corrugated Steel Pipe-Arch Polymer Coated (2 2/3 x 1/2)	Foot
603.83xxxx	Corrugated Steel Pipe-Arch Polymer Coated Paved Invert (2 2/3 x 1/2)	Foot
603.84xxxx	Corrugated Steel Pipe-Polymer Coated (3x1) or (5x1)	Foot
603.85xxxx	Corrugated Steel Pipe-Polymer Coated Paved Invert (3x1) or (5x1)	Foot
603.86xxxx	Corrugated Steel Pipe-Arch Polymer Coated (3x1) or (5x1)	Foot
603.87xxxx	Corrugated Steel Pipe-Arch Polymer Coated Paved Invert (3x1) or (5x1)	Foot
603.88xxxx	Corrugated Steel Pipe-Aluminum Coated (Type II) (2 2/3 x 1/2)	Foot
603.89xxxx	Corrugated Steel Pipe-Arch Aluminum Coated (Type II) (2 2/3 x 1/2)	Foot
603.90xxxx	Corrugated Steel Pipe-Aluminum Coated (Type II) (3x1) or (5x1)	Foot
603.91xxxx	Corrugated Steel Pipe-Arch Aluminum Coated (Type II) (3x1) or (5x1)	Foot
603.92xxxx	Corrugated Steel Pipe-Aluminum Coated (Type 2) Type IR	Foot
603.93xxxx	Corrugated Steel Pipe-Arch Aluminum Coated (Type 2) Type IIR	Foot
603.95xx	Ductile Iron Pipe	Foot
603.96xxxx	Smooth Lined Corrugated Aluminum Pipe (2 2/3 x 1/2)	Foot
603.97xxxx	Smooth Lined Corrugated Aluminum Pipe (3 x 1)	Foot
603.98xx	Smooth Interior Corrugated Polyethylene Culvert and Storm Drain Pipe	Foot
603.99	Relaying Pipe	Foot

Refer to Standard Contract Pay Item Catalog for full Item Number and full Description. Numbers in parentheses (without denotation) are spacing and depth of corrugations in inches.

SECTION 604 - DRAINAGE STRUCTURES

604-1 DESCRIPTION

604-1.01 General. This work shall consist of the construction or alteration of drainage structures, manholes, leaching basins and transverse drainage interceptors in accordance with these specifications, the contract plans and the standard sheets.

604-1.02 Adjustment Rings and Frames for Drainage Structures and Manholes. The Contractor shall furnish and install prefabricated adjustment rings and frames for drainage structures and manholes. The extensions shall elevate and support drainage structure grates or manhole covers without the necessity of removing the original drainage structure frame or manhole casting, when the roadway is resurfaced.

604-2 MATERIALS

604-2.01 Drainage Structures and Manholes. Materials used for the construction of drainage structures and manholes shall be as indicated on the plans, and/or Standard Sheets, and shall conform to the requirements of the following:

Cast-in-Place Concrete - Class A	501
Frames and Grates	655
Concrete Repair Material	701-04
Concrete Grouting Material	701-05
Concrete Repair Material - High Early Strength	701-12
Precast Concrete Driveway and Sidewalk Pavers.	704-13
Premolded Resilient Joint Filler	705-07
Masonry Mortar	705-21
Reinforced Concrete Pipe	706 02
Precast Concrete Drainage Units	706-04
Bar Reinforcement, Grade 60	709-01
Wire Fabric for Concrete Reinforcement	709-02
Cold Drawn Wire for Concrete Reinforcement	709-09
Steps for Manholes	725-02

604-2.02 Transverse Drainage Interceptors. Materials used for the construction of transverse drainage interceptors shall meet the requirements of §604-2.01, except that bar reinforcement shall meet the requirements of §709-04, Epoxy Coated Bar Reinforcement, Grade 60.

Transverse drainage interceptors, if precast, shall meet the requirements of §706-04, Precast Concrete Drainage Units.

Dowels shall be fabricated from epoxy coated bar reinforcement conforming to §709-04.

604-2.03 Leaching Basins. Materials used for the construction of leaching basins shall conform to the requirements of §604-2.01 and shall be as indicated on the plans. Concrete for precast units shall conform to the requirements of §706-04, Precast Concrete Drainage Units.

604-2.04 Adjustment Rings and Frames for Drainage Structures and Manholes. Materials for prefabricated adjustment rings and frames for drainage structures and manholes shall conform to the following:

Prefabricated Adjustment Rings & Frames for Drainage Units & Manholes	715-13
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604-2.05 Altering Drainage Structures, Leaching Basins and Manholes. Materials for the repair and alteration of existing structures shall meet the requirements of §604-2.01 and shall be as indicated on the contract plans. Structures originally constructed with concrete block, common brick or concrete brick shall be altered with Precast Concrete Driveway and Sidewalk Pavers, §704-13, unless indicated otherwise on the contract plans.

604-3 CONSTRUCTION DETAILS

604-3.01 Excavation. Excavation shall be in conformance with the Construction Details of §206-3 Trench, Culvert and Structure Excavation.

604-3.02 Concrete Drainage Structures and Manholes. Concrete drainage structures and manholes shall be constructed in accordance with the requirements of these specifications, the Standard Sheets and plans. The Contractor shall have the option of erecting either cast-in-place or precast drainage structures unless specified otherwise. Cast-in-place drainage structures shall be constructed of Class A concrete and to the requirements of Section 555 Structural Concrete.

The Contractor shall have the option of constructing either a rectangular or circular drainage structure when such option is specified and allowed in the contract documents. When the circular structure is selected, it shall conform to the requirements of §706-04 and will require submission of complete working drawings to the Engineer for review and approval.

Contractor proposed changes to drainage structures shown on the Standard Sheets or on the plans, other than minor changes approved by the Engineer, shall require submission of complete working drawings to the Engineer for review and approval.

Unless prohibited in the contract documents, the Contractor shall have the option of reducing the size of the drainage structure riser above the uppermost pipe entry in accordance with the requirements of the Standard Sheets. Flat slab reducer designs proposed by the Contractor shall be subject to the review and approval of the Engineer and shall be accompanied by the following:

1. Working drawings prepared by a Professional Engineer licensed to practice in New York State.
2. The design calculations used in the preparation of the working drawings.

Acceptance of flat slab tops or platforms for flat slab reducer designs will be on the Basis of Proof-of-Design Test or on the Basis of Rational Design as required by ASTM C478.

604-3.03 Masonry Construction. Masonry construction, when indicated on the plans or standard sheets, shall consist of concrete pavers laid in full mortar beds. All joints shall be full mortar joints not greater than 1/2 inch wide. When specified, the outside of the masonry construction shall be plastered with 1/2 inch thick mortar coat.

604-3.04 Leaching Basins. Leaching basins shall be constructed in accordance with these specifications and the contract plans.

604-3.05 Pipe Entries. All pipe(s) built into the wall(s) of a drainage structure shall be flush with the inside face of the drainage structure wall and shall project outside a sufficient distance to allow connection with the adjoining section. The wall knockouts and sealing the space around the pipe shall be in accordance with the Standard Sheets. The bell of concrete pipe shall be cut off at every pipe entry where the bell enters the drainage structure.

604-3.06 Steps. Drainage structures steps may be cast or bolted in place during construction, mortared with a concrete grouting material after the structure is completed or attached by friction locking into preformed or drilled holes. The steps shall clear all pipes. Steps in risers and conical top sections shall be

aligned to form a continuous ladder with rungs equally spaced vertically in the completed structure at a maximum distance of 16 inches. Steps shall be embedded into the walls of the riser or conical top section a minimum of 3 inches. The rung shall project a minimum clear distance of 4 inches from the walls of the riser or conical sections measured from the point of embedment.

604-3.07 Frames and Grates. Frames and grates shall be as specified in the contract documents. Frames located in the top slab or top of the uppermost riser shall be secured and held in place by a minimum of 4 stirrups or studs per frame, welded to the frame near the corners. Parallel bar frames shall contain shear stud anchors, for the purpose of transferring loads, as required and detailed on the standard sheet for parallel bar grates and frames. Shear stud anchors, when required, shall replace the frame securing stirrups or studs.

604-3.08 Altering Drainage Structures, Leaching Basins and Manholes. Reconstruction and adjustment of existing drainage structures shall be as detailed and specified on the contract plans. Construction with cast-in-place concrete shall conform to the requirements of Section 555, Structural Concrete.

Frames, grates and covers to be reused shall be removed, cleaned and reset at the required elevations. New frames, grates and manhole covers shall be installed when specified. Upon completion, each structure shall be cleaned of any accumulation of silt, debris or foreign matter of any kind and shall be kept clear of such accumulation until final acceptance of the work.

604-3.09 Adjustment Rings and Frames for Drainage Structures and Manholes. Prior to the placement of the surface course and after the placement of the binder course, when required, the Contractor shall install adjustment rings and frames for manholes and drainage units. The adjustment ring or frame shall be placed so the manhole cover or drainage unit grate will not protrude above the finished surface of the pavement.

To assure a firm and secure fit with the adjustment ring or frame, the seat of the existing manhole casting or drainage unit frame shall be free of all foreign material at the time of installation. The entire assembly shall be set on the seat of the existing manhole casting or drainage unit frame and the locking devices shall be tightened evenly. The manhole cover or drainage unit grate shall then be set upon the seat of the adjustment ring or frame.

The Contractor shall be responsible for insuring that the adjustment rings and frames are compatible with the existing manhole castings and covers or drainage frames and grates.

All rings or frames shall be protected from displacement caused by traffic maintained on the roadway or equipment used in the paving operation.

The Contractor shall have the option of removing and resetting the existing manhole casting or drainage unit frames to the required grade where shown on the plans or approved by the Engineer.

604-3.10 Transverse Drainage Interceptors. This work shall consist of the construction of reinforced concrete transverse drainage interceptors with frames and grates, and dowels as shown on the plans or Standard Sheets. Unless specifically designated on the plans and/or in the proposal, the Contractor shall have the option of constructing cast-in-place or precast transverse drainage interceptors.

A. Cast-in-Place. Cast-in-place transverse drainage interceptors shall conform to the requirements of Section 555 Structural Concrete. The cast-in-place interceptors shall be constructed so that they have construction joints at a maximum spacing of 24 feet, unless the Engineer gives written directions otherwise or a longer length is specified on the plans.

B. Precast Interceptors. Precast interceptors shall be laid in reasonably close conformity to line and grade and shall have a full, firm and even bearing at each joint and along their entire length.

They shall be handled and assembled in accordance with the manufacturer's instructions, except as modified on the plans or by the Engineer's written directions. Six (6) ¼ inch thick Premolded Resilient Joint Filler shall be placed in the joint between the units, and the lifting hole and dowels shall be grouted with material conforming to §701-04, §701-05 or §701-12. Underdrain and Underdrain Filter shall be installed when shown on the plans or directed by the Engineer.

The underdrain pipe shall be installed in accordance with §605-3.01, and the underdrain filter shall be placed in accordance with §605-3.02 except when the details of either or both are modified on the plans or by the Engineer's written order.

604-3.11 Backfill. No structure shall be backfilled until all the mortar has completely set. The requirements of Section 203, *Select Granular Fill*, shall apply.

604-4 METHOD OF MEASUREMENT

604-4.01 Drainage Structures, Leaching Basins and Manholes. Drainage structures, leaching basins and manholes will be measured for payment by the number of linear feet of height measured to the nearest tenth of a foot from the bottom of the base to the top of the masonry, including the top slab.

604-4.02 Transverse Drainage Interceptors

A. Cast-In-Place. Cast-in-place transverse drainage interceptors will be measured by the actual length of interceptor placed.

B. Precast. Precast transverse drainage interceptors will be measured by multiplying the number of whole units by the nominal length of each unit and adding thereto the length of any fractional units incorporated in the work. The nominal length of the units shall be indicated on the Standard Sheet.

604-4.03 Altering Drainage Structures, Leaching Basins and Manholes. Altering drainage structures, leaching basins and manholes will be measured by the number of structures altered.

604-4.04 Adjustment Rings and Frames for Drainage Structures and Manholes. This work will be measured by the number of prefabricated adjustment rings or frames furnished and installed.

604-5 BASIS OF PAYMENT

604-5.01 Drainage Structures, Leaching Basins and Manholes. The unit price bid per linear foot shall include the cost of all labor, equipment and materials, including bar reinforcement and welded wire fabric, necessary to complete the work, except the following:

A. Excavation . Excavation will be paid for under Trench and Culvert Excavation.

B. Backfill. Backfill of drainage structures and leaching basins will be paid for under the item(s) shown in the contract documents.

C. Frames, Covers and Grates. Frames, covers and grates will be paid for under the appropriate payment items for Frames and Grates in Section 655.

604-5.02 Contractor Options. When the specifications allow the Contractor to substitute a precast circular drainage unit in lieu of a rectangular drainage unit or the Contractor constructs a flat slab reducer design under the provisions of §604-3.02, the following basis of payment provisions will apply.

1. §604-5.01 will apply.
2. Payment for excavation and backfill will be for those quantities determined for the original structure.
3. No adjustments will be made to the unit price bid for the original structure.

604-5.03 Altering Drainage Structures, Leaching Basins and Manholes. The unit price bid for each shall include the cost of all materials, labor and equipment necessary to satisfactorily complete the work including all necessary cleaning, excavation, backfill, and replacement of any pavement, shoulder and sidewalk courses, subcourses, curbs, drives, lawns and any other surface. Frames, covers or grates to be reused that are broken by the Contractor's operations shall be replaced at the Contractor's expense. New frames, covers and grates will be paid for under the appropriate payment items for Frames and Grates in Section 655.

604-5.04 Adjustment Rings and Frames for Drainage Structures and Manholes. The unit price bid for each adjustment ring or frame shall include the cost of all material, labor and equipment necessary to satisfactorily install the adjustment rings and frames. If the Contractor elects to reset the existing casting or frames, the costs of the work involved in the removal and replacement of existing disturbed pavement shall be included in the price bid for the adjustment rings and frames.

604-5.05 Transverse Drainage Interceptors. The price per linear foot bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to complete the work, except the excavation will be paid for under Trench and Culvert Excavation, and the Underdrain and Underdrain Filter will be paid for under their respective items.

Payment will be made under:

Item No.	Item	Pay Unit
604.01	Leaching Basin	Foot
604.06	Transverse Drainage Interceptors	Foot
604.07XXYY	Altering Drainage Structures, Leaching Basins and Manholes XX = Region (01 through 11) YY = Serialized 01 to 99 *	Each
604.10	Prefabricated Adjustment Rings for Manholes	Each
604.11	Prefabricated Adjustment Frames for Drainage Structures	Each
604.30XXYY	Rectangular Drainage Structure XX = Structure Type ** YY = Frame No. **	Foot
604.31XXYY	Rectangular Drainage Structure with Round Option XX = Structure Type ** YY = Frame No. **	Foot
604.32XXYY	Rectangular Drainage Structure with Concrete Cap XX = Structure Type ** YY = Frame No. **	Foot
604.40XX	Round Precast Manhole XX = Type **	Foot
604.50XXYY	Special Drainage Structure XX = Region (01 through 11) YY = Serialized 01 to 99 *	Foot

* Serialized number identified structure detailed on the plans.

** Structure type and frame number are as defined on the Drainage Structure Details Standard Sheets and the Grate and Frame Standard Sheets.

SECTION 605 - UNDERDRAINS

605-1 DESCRIPTION. The work shall consist of constructing underdrain installations in accordance with these specifications and in conformity with the lines, grades, and cross-sections shown in the contract documents.

605-2 MATERIALS

605-2.01 Underdrain Pipe. Underdrain pipe shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing* for the type of pipe specified in the contract documents:

Corrugated Steel Pipe - Type III, 16 gage	707-02
Porous Concrete Pipe Underdrain	706-05
Extra Strength Porous Concrete Pipe Underdrain	706-05
Perforated Corrugated Polyethylene Underdrain Tubing	706-13
Corrugated Aluminum Pipe - Type III, 16 gage	707-13
Perforated Polyvinyl Chloride Underdrain Pipe	706-18

Optional underdrain pipe shall meet the requirements of any of the above at the Contractors option except that porous concrete pipe shall not be used in an edge of pavement underdrain installation.

605-2.02 Underdrain Filter. The requirements for Underdrain Filter materials are described below. The procedure for acceptance or rejection of Underdrain Filter materials shall be in conformance with the procedures contained in the geotechnical control procedure “*Procedure for the Control and Quality Assurance of Granular Materials*”. Underdrain Filter material shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing* for the type of underdrain filter material specified in the contract documents:

A. Underdrain Filter Type I. Provide material meeting the requirements of §733-20 *Underdrain Filter, Type 1*.

B. Underdrain Filter Type II. Provide material meeting the requirements of §733-20 *Underdrain Filter, Type 2*.

C. Underdrain Filter Type III. Provide material meeting the requirements of §703-07 *Concrete Sand*.

605-3 CONSTRUCTION DETAILS

605-3.01 Underdrain Pipe. The construction details of Section 603 *Culverts and Storm Drains* shall apply. The type of filter material to be used at any location will be as shown in the contract documents. A carefully leveled and compacted bed of this material shall be prepared just prior to the placement of the underdrain pipe. The upgrade end of corrugated polyethylene underdrain pipe shall be closed with a solid plastic cap; the upgrade end of all other types of underdrain pipe shall be closed with a suitable plug. Unless otherwise shown in the contract documents, the underdrain pipe shall be placed with the perforations down. In the event that the semi-circular option of the Steel Pipe underdrain is utilized, the pipe shall be placed such that the flat surface is on the top.

A. Perforated Corrugated Polyethylene Underdrain Tubing and Perforated Polyvinyl Chloride (PVC) Underdrain Pipe. When these underdrains are daylighted through the side slope they shall be protected from sunlight by shielding with a minimum 3 ft. long section of corrugated steel or aluminum pipe at the outlet. The metal pipe for shielding the underdrain shall be of such internal

diameter to easily slip over the underdrain. For 4 in. and 6 in. diameter underdrains, the metal pipe shielding the underdrain shall extend a minimum of 6 in. into the ground and overlap the underdrain by 6 in. For underdrains from 8 in. through 12 in. in diameter, the metal shielding pipe shall extend at least 12 in. into the ground and overlap the underdrain by 12 in. In no case shall the outlet end of the underdrain be exposed or extend beyond the end of the metal pipe shielding it. To prevent intrusion of the filter material into the joint between the metal and underdrains, a reducer fitting shall be placed over the joint, roofing felt shall be wrapped around the joint, or another method shall be approved by the Engineer.

Perforated corrugated polyethylene underdrain tubing and perforated PVC underdrain pipe will melt and burn when exposed to flame. Flame damage or damage by deterioration, crushing or stretching will be cause for rejection.

B. Corrugated Aluminum Pipe. Do not place grout in contact with aluminum pipe, such as at drainage inlet structures, including connections, fixtures, etc., unless the aluminum has been thoroughly coated with Zinc Chromate Primer, §708-04 *Zinc Chromate Primer* or an equivalent alternative as approved by the Materials Bureau.

C. Optional Underdrain Pipe. The Contractor shall not intermix types of underdrain in the same run of pipe.

605-3.02 Underdrain Filter. After the pipe installation has been inspected and approved, Underdrain Filter shall be loosely placed around and over the pipe to such a depth that, after compaction, Underdrain Filter shall extend to a level 6 in. above the underdrain pipe or to the next course, whichever is less. Subsequent lifts of Underdrain Filter shall be no more than 6 in. thick prior to compaction and shall be compacted by two passes of a vibrating pad or drum type compactor. The remainder of the installation shall be in accordance with the applicable standard sheet or as indicated in the contract documents.

If the excavation for the underdrain extends outside the payment lines, it shall be backfilled with Underdrain Filter material installed at the Contractor's expense.

Any contaminated underdrain filter material shall be replaced by the Contractor at no additional cost to the State.

For corrugated polyethylene underdrain tubing, the filter material shall be placed around and over the tubing to such a depth that, after compaction, the underdrain filter material shall extend to a level 12 in. above the underdrain tubing or to the next course, whichever is less. After placement, the surface of the filter material shall be compacted by three passes of a vibrating pad or drum type compactor. The remainder of the backfill shall be placed in maximum 2 ft. loose lift thicknesses and compacted by three passes of a vibrating pad or drum type compactor after the placement of each lift.

In the event that a pipe is not included in this installation, the filter shall be placed in horizontal layers not exceeding 6 in. in thickness prior to compacting. Each lift shall be compacted by two passes of a vibrating pad or drum type compactor.

No compaction control tests will be required.

A. Underdrain Filter at Structures. Underdrain filter at structures denotes the installation of Underdrain Filter, Type I placed behind bridge abutments, walls, and other major structures requiring positive drainage to relieve large lateral pressures resulting from a saturated backfill. Underdrain Filter, Type I material shall be placed adjacent to structures in accordance with the contract documents. The lift thickness for the loose Type I material shall not exceed 6 in. and shall precede the placement of each lift of the adjacent backfill material. A physical barrier may be used to facilitate placement of the Underdrain Filter and adjacent backfill. This barrier shall not be left in place and shall be removed prior to compaction of the material. Each lift of filter material and backfill material located within a minimum distance of the footing heel projection plus 3 ft. shall be compacted simultaneously. Compactive effort for this material shall be provided by two passes of a vibratory or

drum type compactor. Placement and compaction operations shall be conducted in a manner so as to ensure that the top surface of each lift of Type I filter material shall not be contaminated by the adjacent backfill materials. No compaction control tests will be required for the Type I filter material.

605-4 METHOD OF MEASUREMENT

605-4.01 Underdrain Pipe. Underdrain pipe will be measured in feet, measured to the nearest whole foot, installed in accordance with the contract documents.

605-4.02 Underdrain Filter. Underdrain filter material will be measured in cubic yards, measured to the nearest whole cubic yard, installed between the payment lines shown in the contract documents. A deduction to the cross sectional area of the underdrain trench will be made for the pipes (based on nominal diameters) when the combined cross-sectional area exceeds 1.0 sq. ft. No deduction will be made for the cross-sectional area of an existing facility.

A. Underdrain Filter at Structures. Underdrain filter, Type I material at structures will be measured in cubic yards, measured to the nearest whole cubic yard, installed between the payment lines shown in the contract documents. No deduction will be made for the volume occupied by the underdrain pipe.

605-5 BASIS OF PAYMENT

605-5.01 Underdrain Pipe. The unit price bid per foot shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work. The unit price bid per foot for perforated corrugated polyethylene underdrain tubing and perforated PVC underdrain pipe installations that are daylighted through the side slope shall include the shield pipe. Excavation, granular fill and backfill will be paid for separately.

605-5.02 Underdrain Filter. The unit price bid per cubic yard shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work. Excavation, granular fill and backfill will be paid for separately.

Payment will be made under:

Item No.	Item	Pay Unit
605.04xx	Porous Concrete Pipe Underdrain	Foot
605.05xx	Extra Strength Porous Concrete Pipe Underdrain	Foot
605.07xx	Corrugated Steel Pipe - Type III	Foot
605.08xx	Corrugated Aluminum Pipe - Type III	Foot
605.0901	Underdrain Filter, Type I	Cubic Yard
605.1001	Underdrain Filter, Type II	Cubic Yard
605.1101	Underdrain Filter, Type III	Cubic Yard
605.15xx	Perforated Corrugated Polyethylene Underdrain Tubing	Foot
605.16xx	Perforated Polyvinyl Chloride Underdrain Pipe	Foot
605.17xx	Optional Underdrain Pipe	Foot

Refer to the Standard Contract Pay Item Catalog for full Item Number and full Description.

SECTION 606 - GUIDE RAILING, MEDIAN BARRIER, AND CONCRETE BARRIER (Last Revised January 1, 2021)

606-1 DESCRIPTION. This work shall consist of the construction, reconstruction, removal, disposal, storage, and resetting of highway barrier systems and component parts in accordance with the specifications, standard sheets, manufacturer's drawings, manufacturer's directions and contract documents to the lines and grades shown on the plans or established by the Engineer.

The types of barrier systems are designated as follows:

Cable Guide Railing and Median Barrier.
 Corrugated Beam Guide Railing and Median Barrier
 Modified Heavy Post Blocked-Out (HPBO (Mod.)) Corrugated Beam Guide Railing and Median Barrier
 Box Beam Guide Railing and Median Barrier
 Concrete Barrier

606-1.01 I-Beam Posts for Existing Highway Barrier. Under this work the Contractor shall furnish and install I-beam posts and necessary hardware for existing highway barriers in accordance with the plans, specifications, and as directed by the Engineer.

606-1.02 Guide Railing with Extra Long Posts. Under this work the Contractor shall furnish and install guide railing of the type specified with extra long (7 foot) posts in accordance with the contract documents, and as directed by the Engineer.

606-1.03 Retensioning Existing Cable Guide Railing And Median Barrier. Under this work the Contractor shall retension existing guide rail and median barrier cables in accordance with the Contract Documents.

606-2 MATERIALS. Materials shall meet the requirements specified in the following subsections of Section 700-- Materials and Manufacturing and ASTM Specifications:

Concrete Grouting Material	701-05
Anchoring Materials-Chemically Curing	701-07
Precast Concrete Barrier	704-05
Premolded Resilient Joint Filler	705-07
Joint Filler	ASTM D1056
Wire Fabric For Concrete Reinforcement	709-02
Epoxy Coated Bar Reinforcement, Grade 60	709-04
Wood and Timber Posts and Timber Blockouts	710-13
Galvanized Steel Barrier Posts	710-14
Corrugated Beam Guide Railing End Terminal (Energy-Absorbing)	710-17
HPBO (Mod.) Corrugated Beam Guide Railing End Terminal (Energy-Absorbing)	710-18
HPBO (Mod.) Corrugated Beam Median Barrier End Terminal (Energy-Absorbing)	710-19
Corrugated Beam Guide Railing and Median Barrier	710-20
Box Beam Guide Railing and Median Barrier	710-21
Cable Guide Railing and Median Barrier.	710-22
Box Beam End Assembly Type III and Box Beam Median Barrier End Assembly, Type C	710-24
Plastic and Synthetic Block-Outs for Heavy Post Guiderail Systems	710-26

Anchor Bolts for Guide Railing	710-28
Galvanized Coatings And Repair Methods	719-01
Reflective Sheeting	730-05 (Materials Designation 730-05.02)
Paint for Galvanized Surfaces	708-06
Rolled Steel Channels for Continuity Connections	ASTM A36
Steel Plates for Continuity Connections	ASTM A36

606-2.01 Steel Hardware. Steel posts, plates, channels, stiffeners, block-outs, angles, brackets, slipbases and other miscellaneous steel hardware not referenced to or specified by §710-14, §710-20, §710-21, §710-22, §710-24 or other sections of this specification shall be fabricated as shown in the contract plans and documents from steel meeting the requirements of ASTM A36 unless specified otherwise. All components shall be galvanized in accordance with §719-01, Type I or II. Components shall be fabricated prior to galvanizing.

606-2.02 Anchor Bolts. For the purpose of the guide railing specifications, the term anchor bolt will be used when referring to anchor rods, hooks, or studs.

Unless otherwise specified, anchor bolts embedded or grouted in concrete for securing post and railing base plates, or transitioning to concrete walls, parapets, and barriers shall meet the requirements of §710-28.

Anchor bolts embedded in concrete anchorage units for terminating guide rail and median barrier systems shall have minimum yield and tensile strength meeting the requirements of ASTM F1554 Grade 36.

Anchor bolts, nuts, and washers shall be galvanized in accordance with §719-01, Galvanized Coatings and Repair Methods, Type II, unless indicated otherwise on the plans or Standard Sheets.

Grout for anchor bolts shall conform to the requirements of §701-07 or §701-05.

606-2.03 Fasteners. Bolts, nuts and washers shall conform to the following, unless specified otherwise on the plans, standard sheets, manufacturer's drawings', or in the contract documents.

Bolts	Bolts ASTM A307 Grade A	Nuts	ASTM A563 Grade A or Better
Washers	ASTM F436		

Bolts, nuts and washers shall be galvanized in accordance with the provisions of §719-01 Galvanized Coatings and Repair Methods, Type II.

606-2.04 I-Beam Posts for Existing Highway Barrier. I-beam posts for existing highway barrier shall conform to the requirements of §710-14 Galvanized Steel Barrier Posts. Posts shall conform to the details shown on the plans or the latest edition of the standard sheet for the guide railing or median barrier affected. Hardware (nuts, bolts, "J" bolts, offset beams or block-outs, back up plates, washers, and shelf angles) necessary shall conform to the requirements of the current specifications and standard sheets for the highway barrier affected.

606-2.05 Extra Long Guide Rail Posts. Extra long Guide Rail Posts shall conform to the requirements of §710-14 Galvanized Steel Barrier Posts. The posts shall conform to the details for extra long posts shown on the standard sheets or plans.

606-2.06 Concrete for End Assembly Anchorage Units. Cast-in-place concrete shall meet the requirements of Class A Concrete in Section 501 Portland Cement Concrete-General. The Contractor may submit, for approval by the Director of the Materials Bureau, a mix at least equivalent to the specified Class A Concrete, with a minimum cement content of 575 lb/cu yd.

Precast concrete anchorage units, when selected as an alternate to cast-in-place units by the Contractor, shall meet the requirements of Section 704-03 Precast Concrete-General.

606-2.07 Concrete Barrier

A. Precast Concrete Barrier. The requirements of §704-05 shall apply

B. Cast-in-Place Concrete Barrier. Concrete shall meet the requirements specified for Class A Concrete in §501, Portland Cement Concrete--General. Reinforcement shall meet the material requirements §606-2 and be of the type and sizes as indicated on the standard sheets and plans.

C. Machine Formed Concrete Barrier. The concrete shall meet the requirements specified for Class I Concrete in §501, Portland Cement Concrete--General. Reinforcement shall meet the material requirements of §606-2 and shall be of the type and sizes as indicated on the standard sheets and plans.

606-2.08 Resetting Guide Railing, Median Barrier, Anchorage Unit Assemblies and End Assemblies. The materials comprising the existing system shall be used if they conform to the materials requirements specified for new guide rail systems and are found to be in satisfactory condition as determined by the Engineer. The Contractor shall supply all new hardware (splice tongues, plates, nuts, bolts, washer, etc.) Replacement materials shall meet the material requirements specified for new guide rail systems. Galvanizing of railing and posts may be repaired in accordance with §719-01, Galvanized Coatings and Repair Methods. HPBO guide railing and median barrier (pre-2013 design) shall be reset as detailed in the current standard sheets, including 12 inch block-outs.

606-2.09 HPBO (Mod.) Corrugated Beam Guide Railing and Median Barrier. The material requirements of §710-20 Corrugated Beam Guide Railing and Median Barrier shall apply except that posts, block-outs, soil plates, anchor bolts, hardware, and fasteners shall be as detailed on the Standard Sheets. The Wood and Timber Posts and Timber Block-Outs shall conform to §710-13. The Plastic and Synthetic Block-Outs for Heavy Post Guiderail Systems shall conform to §710-26.

606-2.10 Corrugated Beam Guide Rail Transition To Bridge Rail, Concrete Barrier and Concrete Parapets. Corrugated beam rail sections shall conform to the requirements of §710-20 and as detailed on the Standard Sheets or Bridge Detail Sheets. Thrie beam shall conform to the material specifications of 710-20 and shall be as detailed on the Standard Sheets.. All remaining material shall conform to the requirements of §710-23 except that:

- A. Steel tubular block-outs and stiffening channels, where specified, shall conform to ASTM A36.
- B. All components shall be galvanized in accordance with §719-01 *Galvanized Coating and Repair Methods*, Type I or Type II. If required by the plans, the components shall be painted to match the existing railing. Painting shall be done in accordance with Section 657 except that:
 - 1. Painting with rollers will not be permitted.
 - 2. Spray painting will be allowed only if the components are painted at a location, away from the work site, acceptable to the Engineer.
- C. Shop drawings will not be required. Approval of the system will be made by the Engineer.

606-2.11 Vacant.

606-2.12 Vacant

606-2.13 (Vacant)

606-2.14 Transitions Constructed of, or with, Concrete. Concrete transition between concrete barriers of different shapes and the concrete elements of transitions between metal barriers and concrete

barriers shall conform to §606-2.07 Concrete Barrier, A. Precast Concrete Barrier or, with the permission of the Engineer, B. Cast-in-Place Concrete Barrier.

606-3 CONSTRUCTION DETAILS

606-3.01 General. All barrier systems and transitions described by these specifications shall be subject to the following requirements.

A. Inspection of Rail Elements. Immediately prior to erection, the rail elements shall be inspected for damage. Bends or kinks in the railing, not specifically required by the contract documents, shall constitute sufficient cause for rejection. Straightening of such bends or kinks will not be allowed.

Erection of all guide rail, median barrier, transitions and connections shall be subject to the inspection of the Engineer who shall be given all facilities required for a visual inspection of workmanship and materials.

B. Field Galvanizing For Repair. Field galvanizing repair shall be allowed only when the total damaged area on each piece or component is less than 2 percent of the coated surface, or 16 square inches, whichever is less. Any single piece or component with total damaged area greater than the amount specified above shall be rejected and replaced by the Contractor. Field galvanizing repair shall be done in accordance with the requirements of the Repair section of §719-01 Galvanized Coating And Repair Methods.

C. Field Welding. Field welding shall not be permitted unless noted in the contract documents. When specified, welding shall comply with the requirements of the SCM.

D. Erection. Posts, railing, barrier systems, rail transitions, end assemblies, and anchorage units shall be erected as specified in the contract plans or manufacturer's drawings. Where drilling and grouting is required, Section 586 – *Miscellaneous Structural Reconstruction* shall apply, unless otherwise approved. Rail mounting height shall be within +/- 1/4 inch of that indicated on the Standard Sheets and plans.

Prior to installing guide rail, median barrier, transitions, or end terminals, the Contractor shall determine the locations of all structures, including underground structures, that may be affected by the installation. If there are conflicts between the proposed installation and other structures, the Contractor shall discuss with and recommend to the Engineer alternative locations or types of barrier, transitions, or end terminals that will not be in conflict with the structure.

Posts and foundation tube(s) shall be driven unless otherwise specified by the Engineer. The driving shall be accomplished with approved equipment and methods that will leave the posts and foundation tube(s) in their final position, free of any distortion, burring or other damage. When posts and foundation tube(s) are driven through asphalt concrete or a bituminous treated material, the Contractor shall take care to prevent damage to the paved or treated areas. Large holes and voids caused by driving the posts and foundation tube(s) shall be filled and compacted with a bituminous treated material or asphalt concrete similar to that damaged. The small area adjacent to the post and foundation tube(s) disturbed during installation or where gaps exist at the post and foundation tube(s) after pavement repairs shall be sealed with a bituminous material approved by the Engineer.

As an alternate to driving posts and foundation tube(s) on unpaved medians and where site conditions are such that driving is not possible, the Contractor shall carefully excavate for all post and foundation tube(s) holes. Post and foundation tube(s) holes and post and foundation tube(s) foundation structures shall be backfilled and backfilled material compacted in accordance with Section 203, *Select Granular Fill*.

On structures, concrete anchors, and paved medians, base plates for posts shall be anchored as shown in the Contract Documents. Alternate construction methods and equipment for drilling and

grouting of holes shall be submitted to the Engineer for approval before operations begin. The work of installing the guide railing system when it abuts stabilized shoulder courses shall be coordinated and progressed to provide the least disturbance between the two phases of the work.

All posts shall be aligned to a tolerance of 1/4 inch for plumb and grade line.

Box beam to be installed on a curved alignment shall be shop bent or shop curved in accordance with Table 606-1.

TABLE 606-1 SHOP BENDING AND SHOP MITERING OF BOX BEAM GUIDE RAILING AND MEDIAN BARRIER		
Barrier Type	Shop Bending Required	Shop Mitering Required
Box Beam Guide Railing	Radius over 20 ft and less than 720 ft	Radius of 20 ft or less
Box Beam Median Barrier	Radius over 30 ft and less than 1525 ft	Radius of 30 ft or less

When shop bending or shop mitering of box beam guide railing or box beam median barrier is required, the rail element shall be shop-worked to the radius that the barrier will be installed on.

Corrugated beam guide railing and median barrier shall require shop curving if the radius is equal to or less than 150 feet. When shop curving of corrugated beam is required, the rail element shall be shop-worked to the radius that the barrier will be installed on.

E. Concrete Anchorage Units. Concrete anchors shall be constructed as detailed on the standard sheets. Excavation shall meet the requirements of §206-3 of the Standard Specifications. The bottom of the anchor shall have a full and even bearing on the surface under it. After the concrete anchor is in place, the excavation shall be backfilled in accordance with Section 203, *Select Granular Fill*.

F. End Terminals and Assemblies. Installation of all proprietary products shall follow the manufacturer's instructions. The following shall apply to end terminals or assemblies to be installed under this section.

1. Drawings. For end terminals and end assemblies not shown on standard sheets or detailed in the plans, the Contractor shall submit two copies of the manufacturer's drawings, modified as necessary to reflect site conditions, to the Engineer for approval prior to ordering any materials required under this section. Drawings of parts not detailed on the plans, but which are necessary to develop the full performance of the end assemblies or terminals shall also be provided. The Contractor shall commence work of installation of end assemblies or terminals only after approval of the above mentioned drawings and authorization from the Engineer to do so.

2. Manuals. In addition to the drawings mentioned above, the Contractor shall deliver to the Engineer two (2) copies of design manuals, installation manuals, parts lists, and maintenance manuals prepared for each type end terminal or assembly being installed but not shown on the standard sheet.

3. Coordination with Other Work. The work of furnishing and installing all types of end assemblies shall be coordinated with the removal of existing impact attenuators or end assemblies, the installation of guide railing or median barrier, or the installation of the object to be shielded, so as to minimize the time that motorists are exposed to the possibility of collision with the shielded object, unprotected ends of barriers, or incomplete end terminals or assemblies. Also, the contractor shall minimize exposure of approaching vehicular traffic to the possibility of impact on the back of the end assembly. Unless modified in the Contract Documents, minimization shall mean seven (7) or fewer calendar days.

4. Traffic Protection. Traffic protection shall be provided as specified in Section 619 *Work Zone Traffic Control*.

5. Reflective Sheeting. End terminals and assemblies which have a vertical face towards approaching traffic and are located on or closely adjacent to the shoulder shall be provided with reflective sheeting in accordance with Section 2C.65 of the MUTCD. The yellow and black stripe widths shall be 4 inches.

606-3.02 Cable Guide Railing and Median Barrier. Beginning with the first post where the rail is parallel to the edge of pavement, every sixth post in the line of guide rail shall be reflectorized (96 foot spacing for reflectors) except those posts in the approach terminal and intermediate anchorage area, which curve away from the shoulder, or used in a median barrier. The reflector and method of attachment shall be as indicated on the standard sheet.

A. Anchorage Unit Assemblies. After the posts are driven to the specified line and grade, anchor angles and anchor posts shall be adjusted in the field to provide a full and even bearing on the underlying surface.

B. Cable Tensioning. The Contractor shall install and tension the cable of guide railing and median barrier as follows: Properly seat the spring compensation device and then permanently mark the unloaded position. Complete the assembly of the guide railing and set the compensating devices to a spring compression of 3 1/2 inches. Leave the springs at this setting for at least 2 weeks, then set them to the proper setting according to temperature from the data in the table on the standard sheets.

C. Cable Splicing. The Contractor shall install cable splices in the following manner: Place a splice end over the cable. Twist the cable to separate the three strands. Insert the wedge into the center of the strands, leaving at least one inch of excess cable, and pull the cable back until the wedge is snug to the splice. Pound the wedge into the splice. Crimp at least one wire of the cable over the wedge. Repeat the procedure for the other cable. Connect the two splice ends together.

606-3.03 Box Beam Guide Railing and Median Barrier. Rail sections for tangent runs shall be at least 18 feet long. Rail splices shall be a minimum of 18 inches from the centerline of any post.

606-3.04 Weak Post and HPBO (Mod.) Corrugated Beam Guide Railing and Median Barrier In the erection procedures, the free end of the rail element shall not be allowed to swing free and cantilever around the mounting bolt. The free end shall be supported in a manner approved by the Engineer while the splice bolts and mounting bolts are fastened. Rail splicing shall be as shown on the Standard Sheets.

A. Weak Post Corrugated Beam Guide Railing and Median Barrier. The rail elements shall be installed so the weight of the beam rests on the double nutted support bolt before the 5/16 inch mounting bolts are torqued. Before the final torquing, six of the 5/16 inch mounting bolts in the installation shall be selected at random and with a suitable torque wrench tightened to failure. The six readings shall be averaged, the six failed bolts replaced and all the mounting bolts in the installation torqued to 50% of the average value.

Support bolts shall be installed on all the guide rail posts except the three posts adjacent to the anchors.

B. HPBO (Mod.) Corrugated Beam Guide Railing and Median Barrier. HPBO (Mod.) guide railing shall be erected from the approach-end anchorage unit and downstream along the flow of traffic.

HPBO (Mod.) median barrier shall be erected from one of the anchorage sections and shall be completed as the work progresses.

HPBO (Mod.) guide railing and median barrier connections to walls or Concrete Barriers shall be as specified on the plans or the Standard Sheets.

During non-working hours, no uncompleted anchorage units or heavy posts without rail will be permitted to be exposed to traffic on either guide railing or median barrier.

606-3.05 Concrete Barrier. Unless specified otherwise in the contract documents the Contractor shall have the option of providing precast concrete barrier, cast-in-place concrete barrier, or machine formed barrier. No intermixing in any run of barrier will be permitted unless shown otherwise in the contract documents except that precast transition sections and ends may be used with cast-in-place or machine formed concrete barriers.

Unless otherwise specified, excavation shall be performed in accordance with §206-3. Granular back fill shall conform to Section 304 and shall match the subbase course type used on the adjacent roadway.

Half section concrete barrier shall be erected with the appropriate back-up posts and continuity plates as shown on the Standard Sheets and plans.

A. Precast Concrete Barrier

1. Placement. Immediately prior to installation, the Engineer shall inspect the sections for manufacturing defects or shipment damage. Damaged or defective sections shall be rejected or repaired in accordance with §704-05. Precast Concrete Barrier, Repair. The sections shall be placed in accordance with the contract plans and proposals.

2. Vertical Expansion Joint. Sections shall be separated by 1/2 inch nominal joint openings. The joint opening, at any point in the plane of the joint, shall not vary by more than 1/4 inch. Premolded Resilient Joint Filler conforming to the requirements of §705-07 or Joint Filler conforming to the requirements of ASTM D1056 class 2B1 or 2B2 shall be placed in the joint as shown on the plans, standard sheet or as directed by the Engineer.

3. Dimensional Tolerance.

- a. Cross-sectional dimensions shall not vary from the dimensions shown by more than 1/4 inch.
- b. The barrier shall not be out of plumb by more than 1/4 inch.
- c. Longitudinal dimensions shall not vary from the dimensions shown by more than 1/4 inch per 10 foot of the barrier.
- d. When checked with a 10 foot straight edge, irregularities shall not exceed 1/4 inch.

4. Placement Adjacent to Cement Concrete. The barrier shall be separated from cement concrete pavement or shoulders by a 1/2" thick ($\pm 1/8$ ") premolded resilient joint filler meeting §705-07. The joint filler shall cover the entire pavement/shoulder face. A joint sealant reservoir 1/4" - 1/2" deep shall be formed or routed in the joint filler. The Contractor shall abrasive blast the barrier and pavement/shoulder in the reservoir, and seal the joint using material meeting §705-02, Highway Joint Sealant, Type IV. Sealing shall be done in accordance with the manufacturer's instructions, a copy of which shall be provided to the Engineer prior to commencement of work.

B. Cast-in-Place Concrete Barrier

1. Placing. Cast-in-place concrete barriers and footings shall not extend more than 200 feet without an expansion joint. The Contractor shall have the option of placing the cast-in-place concrete barrier with a monolithic cross-section or with a horizontal construction joint at the top of the footing. When the Contractor elects to cast a separate footing, the horizontal joint details must conform to those on the Standard Sheets or in the plans, or the Contractor must prepare joint details and submit them to the Regional Director for approval.

2. Joints

- a. **Contraction Joints.** Cast-in-place concrete barrier shall have contraction joints every 20 feet in both the footing and the stem. When cast separately, the joints in the stem shall line up with the joints in the footing. Contraction joints shall be formed in or saw cut normal to the pavement. The joints shall conform to the dimensions as shown on the plans or Standard Sheets. If the joints are saw cut, they shall be saw cut as soon as no damage to the concrete will result, with a maximum time of 2 hours after the forms are removed to avoid early formation of uncontrolled shrinkage cracks. Clear curing compound shall be promptly applied to the saw cut.
- b. **Expansion Joints.** Expansion joints shall be formed normal to the pavement with Premolded Resilient Joint Filler meeting the requirements of §705-07 and shall provide for expansion of ½ inch. The filler material shall be cut to fully cover and conform to the cross section of the barrier, or to the footer and stem separately if they are cast separately.

In addition to the maximum separation of 200 feet, expansion joints shall be located at all immovable objects (bridge substructures, etc.), where shown on the plans, and/or as directed by the Engineer.
- c. **Construction Joints.** When the Contractor's operations require the use of a construction joint, one of the two following procedures may be used. However, if operations will not resume within 24 hours, only method A may be used.

Method A. Construct an expansion joint as detailed in the preceding section.

Method B. After initial set has taken place, remove the end form to expose the concrete. Roughen the surface to achieve a good interlock and increased bond area when the concrete operations are resumed. A one-inch strip around the periphery of the end surface should remain undisturbed to serve as a neat, linear contraction joint. The end surface shall be covered with several layers of wetted burlap to prevent drying. All reinforcing steel shall extend beyond the face to provide adequate lapping.

3. Forms. Forms shall be metal and of such construction that there will be minimum interference to inspection for grade and alignment. Forms shall be braced and secured adequately so that no discernible displacement from alignment or grade will occur during placement of concrete.

4. Concrete Placing and Vibrating. Concrete shall be placed in the barrier forms in accordance with the requirements of §555-3.04 Handling and Placing Concrete. Concrete shall be compacted by means of immersion type mechanical vibrators approved by the Engineer. The vibrator shall be inserted into the concrete at one foot intervals. The vibrators shall be of size and weight sufficient to thoroughly vibrate the entire concrete mass without damaging or misaligning the forms or reinforcement.

5. Removal of Forms and Finishing Surfaces. Forms shall be left in place for 24 hours or until, in the judgment of the Engineer, the concrete has sufficiently set so that the forms may be removed without injury to the barrier. Immediately after the forms have been removed, surfaces

exposed to view shall have all projections and irregularities carefully removed and all cavities neatly filled with mortar of the proportion used in the concrete. The same brand of cement and the same kind of fine aggregate shall be used for filling cavities as was used in the original concrete mix. Surfaces repaired by plastering will not be allowed.

6. Curing. The median barrier shall be cured using a clear curing compound meeting the requirements of §711-05. The compound shall be sprayed on the concrete surfaces at a rate of 1 gal/ 150 sf within one hour of form removal.**7. Reinforcement.** The Contractor shall incorporate reinforcement as indicated on the standard sheets and plans. All reinforcing steel shall be epoxy coated meeting the requirements of §709-04.

8. Placement Adjacent to Cement Concrete Pavement or Shoulders. The barrier shall be separated from the cement concrete pavement or shoulder by a 1/2 inch wide vertical joint extending down to the bottom of the pavement or shoulder. The joint shall be formed with and contain Premolded Resilient Joint Filler conforming to the requirements of §705-07. A recess of approximately one inch shall be provided at the top of the joint for installation of a backer rod and joint sealant. The joint sealant shall be a silicone sealant appearing on the Department's Approved List and shall be applied in accordance with the manufacturer's instructions.

9. Dimensional Tolerance

- a. Cross-sectional dimensions shall not vary from the dimensions shown by more than 1/4 inch.
- b. The barrier shall not be out of plumb by more than 1/4 inch.
- c. Longitudinal dimensions shall not vary from the dimensions shown by more than 1/4 inch per 10 foot of the barrier.
- d. When checked with a 10 foot straight edge, irregularities shall not exceed 1/4 inch.

C. Machine Formed Concrete Barrier

1. Weather Limitations. The requirements of §502-3.01 shall apply.

2. Equipment. The slipforming equipment shall be self-propelled and shall be capable of placing, consolidating and finishing concrete to the proper line and grade. The Engineer may require the Contractor to demonstrate that the specific equipment proposed for use is capable of satisfactorily placing the concrete mix. The Contractor shall furnish the manufacturer's data regarding machine operation to the Engineer.

3. Preparation of the Subbase Course. Before any concrete may be placed, the subbase course shall be compacted and fine graded to a tolerance of $\pm 1/2$ inch of the true grade at any location under the barrier. Whenever possible, as determined by the Engineer, concrete placing operations shall not begin until the subbase course has been fine graded ahead at least 1000 feet.

4. Reinforcement. The Contractor shall incorporate reinforcement as indicated on the standard sheets and plans. All reinforcing steel shall be epoxy coated meeting the requirements of §709-04.

5. Placing Operations

- a. **Central and Transit Mixed Concrete.** The provisions of §501-3.03 C and D shall apply for Central Mixed and Transit Mixed Concrete respectively, except that water may be added at the point of deposition to maintain the desired slump. The water addition may be made at any time after the beginning of the discharge until approximately two-thirds (2/3) of the load, as

determined by the Engineer, has been discharged. After the water addition the concrete shall be mixed at least 30 revolutions in the mixing range. When the water additions made after discharge the total number of revolutions shall not be more than 190.

b. Truck Mixed Concrete. The provisions of §501-3.03 E shall apply except that after the initial slump has been achieved, water may be added to the mixture one additional time to maintain the desired slump. The water addition may be made anytime after the beginning of discharge until approximately two-thirds (2/3) of the load, as determined by the Engineer, has been discharged. After the water addition, the concrete shall be mixed at least 30 revolutions in the mixing range.

The slipforming equipment shall have as nearly a continuous forward movement as possible to provide uniform progress with stopping and starting of the equipment held to a minimum. Any edge slump resulting from slipforming operations in excess of 1/4 inch, as measured from the top surface of the median barrier, exclusive of edge rounding, shall be corrected before the concrete has hardened.

Concrete supply shall be sufficient to produce a continuous, completely shaped barrier. If concrete placement is interrupted for a period of time where the delay will affect the quality and structural integrity of the barrier, the contractor shall terminate his operations by one of the following procedures. The Engineer shall determine when the slipform operation is to be terminated.

Method A. Construct a cast in place expansion joint system as detailed on the standard sheets.

Method B. Remove existing unset concrete to a vertical score line with hand tools. The vertical surface resulting from the removed concrete shall remain reasonably rough and unfinished to facilitate interlock and increased bond area when concrete operations are to be resumed. The vertical surface shall be touched up with hand tools, as directed by the Engineer, to correct unacceptable voids, tears and lack of consolidation resulting from the concrete removal. The surface shall be covered with several layers of wet burlap to prevent drying. All reinforcing steel shall extend beyond the face to provide adequate lapping.

Concreting operations may resume at the terminated face when the terminated portion has achieved enough rigidity to withstand the sequence of operations it will be subjected to without sustaining damage. All loose or unacceptable concrete and material shall be removed from the terminated face as directed by the Engineer. Concrete barrier damaged as a result of the contractor's operations shall be repaired to the satisfaction of the Engineer.

Termination of slipform operations at the end of the day for an uncompleted run shall be by method A or B above.

6. Curing. The median barrier shall be cured using a clear curing compound meeting the requirements of §711-05. The compound shall be sprayed on the concrete surface immediately following the placing operation at a rate of 1 gal/ 150 sf.

7. Placement Adjacent to Cement Concrete Pavement or Shoulders. The barrier shall be separated from the cement concrete pavement or shoulder by a 1/2 inch wide vertical joint extending down to the bottom of the pavement or shoulder. The joint shall be formed with and contain Premolded Resilient Joint Filler conforming to the requirements of §705-07. A recess of approximately one inch shall be provided at the top of the joint for installation of a backer rod and joint sealant. The joint sealant shall be a silicone sealant appearing on the Department's Approved List and shall be applied in accordance with the manufacturer's instructions.

8. Contraction Joints. Contraction joints shall be formed or saw cut normal to the pavement. The spacing shall be every 20 feet, as shown on the plans or as ordered by the Engineer. The joints shall conform to the dimensions as shown on the plans or standard sheets. If the joints are saw cut, they shall be saw cut as soon as no damage to the concrete will result, with a maximum time of 8 hours. The clear curing compound shall be reapplied at the saw cut.

9. Expansion Joints. Machine formed concrete barriers shall not extend more than 400 feet without an expansion joint. Expansion joints shall be formed normal to the pavement with Premolded Resilient Joint Filler meeting the requirements of §705-07 and shall provide for expansion of 1/2 inch. The filler material shall be cut to conform to the cross section of the barrier.

The expansion joints shall be located at all immovable objects (bridge substructures, etc.), where shown on the plans, and/or as directed by the Engineer. Expansion joints shall not be required at regular intervals unless shown on the plans.

10. Tolerances. All concrete barrier produced by this method shall conform to the following tolerances:

a. Placing Tolerances

- (1) Bar Reinforcement Cover 0 to + 1/2 inch.
- (2) Width (top) 0 to + 1/4 inch.
- (3) Width (base) 0 to + 1/2 inch.

b. Dimensional Tolerance

- (1) Cross-sectional dimensions shall not vary from the dimensions shown by more than 1/4 inch.
- (2) The barrier shall not be out of plumb by more than 1/4 inch.
- (3) Longitudinal dimensions shall not vary from the dimensions shown by more than 1/4 inch per 10 foot of the barrier.
- (4) When checked with a 10 foot straight edge, irregularities shall not exceed 1/4 inch.

11. Defects. Defects are divided into two categories Minor defects and major defects. Minor defects in the barrier may be repaired in the field. Major defects shall be cause for rejection of the section, or the section shall be repaired in the manner directed by the Engineer.

a. Minor Defects. Minor defects are defined as holes, honeycombing or spalls which are 6 inches or less, in diameter, and which do not expose the outermost surface of the steel reinforcement. Surface voids 5/8 inch, or less, in diameter and 1/4 inch, or less, in depth are not considered defects and they do not require repair.

b. Major Defects. Major defects are defined as:

- (1) Any defect which does not meet the definition of a minor defect.
- (2) Minor defects which, in aggregate, comprise more than five percent (5%) of the surface area of the barrier section.

12. Repair. Repair of hardened concrete shall be as follows:

a. Minor Defect Repair. Repair shall be made with a material meeting the requirements of §701-04 or §701-12. Methods of repair shall be acceptable to the Engineer. The color of the repaired portion shall match as nearly as practicable, the color of the surrounding concrete. Repaired portions shall exactly match shape requirements. The repaired portion shall withstand a moderate blow from a 16 ounce hammer.

b. Major Defect Repair. Major defect repair shall be preapproved by the Engineer.

13. Hand Finishing. The Contractor shall make provisions to allow hand finishing, when directed by the Engineer, on all surfaces. Hand finishing, if done shall be done immediately after the passage of the slipforming equipment. Curing compound shall be applied only after hand finishing has been completed at any particular location.

14. Transitions and Tapered End Sections. Transitions and tapered end sections shall be either cast-in-place or precast, at the Contractor's option."

606-3.06 Resetting Guide Railing, Median Barrier and Precast Concrete Barrier. The Contractor shall remove, store, clean and reset railing, posts, and precast concrete barrier as shown on the plans or as directed by the Engineer. The Contractor shall remove designated existing guide railing, median barrier and precast concrete barrier and neatly store them at locations approved by the Engineer. The work shall be done in a workmanlike manner so as to salvage all usable parts. The reset guide railing and/or median barrier shall be placed in accordance with the requirements of §606-3.01 General and the subsection for each specific system. Unless otherwise specified by the designer, all existing hardware, i.e., post bolts, J-bolts, splice bolts, etc., shall be replaced with new hardware.

Cable systems shall be retensioned and all existing splice couplings and wedges shall be replaced. HPBO guide railing and median barrier (pre-2013 design) shall be reset as detailed in the current standard sheets, including 12 inch block-outs. The existing block-outs shall become the property of the Contractor.

606-3.07 Resetting Guide Railing and Median Barrier (New Posts). The construction details of §606-3.06 shall apply, except that the Contractor shall furnish and install new posts and remove the old posts from the site.

606-3.08 Removing and Storing Guide Railing, Median Barrier, and Precast Concrete Barrier. The Contractor shall remove designated existing guide railing, median barrier and precast concrete barrier and neatly store the component parts in separate piles at locations designated for future pick up by Department forces, or its designee. The work shall be done in a workmanlike manner so as to salvage all usable parts. Unusable material shall be disposed of by the Contractor.

606-3.09 Removing and Disposing of Guide Railing, Median Barrier, Concrete Barrier, Guide Posts, Guide Rail Posts, and Median Barrier Posts. The Contractor shall remove designated existing guide railing, median barrier, concrete barrier, guide posts, guide rail posts, and median barrier posts and remove them from the site of work. Holes shall be backfilled with a suitable material and compacted in a manner approved by the Engineer.

606-3.10 I-Beam Posts for Existing Highway Barrier. I-beam posts for existing highway barrier shall be installed at the locations indicated in the contract documents or where directed by the Engineer. The driving shall be in accordance with the requirements of §606-3.01 and the applicable standard sheet(s). All hardware necessary for mounting the rail elements or cable to the post shall be supplied by the Contractor. New heavy post block-outs shall be supplied to replace damaged or unusable block-outs. S3x5.7 posts installed as intermediate posts to reduce post spacing on weak post corrugated beam guide railing and median barrier and on box beam guide railing shall not be attached to the rail element.

All reflectors, delineators, reference markers, or other items, which are to remain in place, that are damaged by or during the Contractor's operations shall be replaced by the Contractor.

606-3.11 Retensioning Existing Cable Guide Railing and Median Barrier. Cable guide rail and median barrier shall be retensioned in accordance with the cable tensioning requirements of §606-3.02.

606-3.12 Resetting Anchorage Unit Assemblies and End Assemblies for Guide Rail and Median Barrier. The Contractor shall remove, store, clean and reset existing anchorage units and terminals for Guide Railing and Median Barrier as shown on the plans or as directed by the Engineer. The anchorage units and terminals shall be reset and placed in accordance with the requirements of §606-3.01 General.

Any anchor blocks that will not remain in use in their existing location are to be removed and the holes backfilled as detailed in §606-3.13

The Contractor shall take care so reusable parts are not damaged by their operations. Any parts damaged in handling and placing shall be replaced by the Contractor. Unusable material shall be disposed of by the Contractor.

Surface areas disturbed during the removal operations shall be reestablished, as nearly as possible, to match the adjacent surfaces to remain.

606-3.13 Removing and Storing Anchorage Unit Assemblies and End Assemblies for Guide Railing and Median Barriers The construction details of §606-3.08 shall apply. However, concrete anchor blocks shall be completely removed, and the resulting holes backfilled.

If the center of the anchor block is inboard from a line six feet beyond the theoretical shoulder break, the Contractor shall backfill with material meeting the requirements of §733-04 compacted in 6-inch lifts.

If the center of the anchor block is more than six feet past the shoulder break, the backfill material and compaction shall be replaced in kind, character and condition, compacted in 6-inch lifts.

Other excavation and backfill shall conform to the requirements outlined in §606-3.01E.

Roadway edge drains damaged due to the Contractor's operations shall be repaired or replaced at no additional cost to the State.

606-3.14 Removing and Disposing Anchorage Unit Assemblies and End Assemblies for Guide Railing and Median Barriers. The construction details of §606-3.13 shall apply except the anchor blocks and terminals become the property of the Contractor and shall be removed from the project.

606-3.15 Box Beam Guide Rail Transition to Concrete Barrier. The contractor shall construct a guide rail transition from concrete barrier to box beam guide rail at the locations indicated and as detailed on the contract plans. The work shall conform to the requirements of §606-3.01.

606-3.16 Corrugated Beam Guide Rail Transition to Bridge Rail, Concrete Barrier and Concrete Parapets. The contractor shall construct corrugated beam guide transitions to bridge rail, concrete barrier and/or concrete parapets at the locations and as detailed on the contract plans. The requirements of §606-3.01 shall apply together with the following: Railing shall be erected so that the rails are parallel to the roadway, except in those sections where it is necessary to vertically transition the highway barrier to the bridge railing, or barrier. Bending or curving of rail elements in order to fit alignment requirements in the field shall not be permitted. The Engineer may order some bending or curving to allow for necessary minor adjustments. The Contractor shall exercise care in attaching the guide rail to the bridge rail so as not to damage the rails, posts, or joints, or splices. Any damage to the material attributable to the

Contractor's operation shall require that the material be repaired, or replaced. The decision to repair, or replace, shall rest solely with the Engineer.

606-3.17 Vacant.

606-3.18 Vacant

606-3.19 Transitions Constructed of, or with, Concrete. Transitions constructed of concrete and the concrete elements of transitions constructed of metal components and concrete elements shall be constructed at the locations indicated in the contract documents, or those indicated by the Engineer, in accordance with these specifications, the contract documents, and the directions of the Engineer. The shapes indicated on the Standard Sheets are standard. The Deputy Chief Engineer (Design) will consider other shapes for approval.

§606-3.05 Concrete Barrier, A. Precast Concrete Barrier and B. Cast-in-Place Concrete Barrier shall apply.

606-4 METHOD OF MEASUREMENT

606-4.01 Cable, Corrugated Beam or Box Beam Guide Railing and Median Barrier. The quantity to be measured for payment will be in feet to the nearest foot of guide railing or median barrier installed, measured along the axis of the railing and between its pay limits as shown on the plans and/or standard sheets. The quantity to be measured for payment will be in feet to the nearest foot of shop bent or shop mitered guide railing or median barrier installed. If the guide railing does not terminate at an anchorage unit, end assembly, or transition to another type of barrier, but is anchored to a structure, the railing will be measured up to the structure.

606-4.02 Anchorage Units, End Assemblies and Transitions for Guide Railing or Median Barrier. Anchorage units, end assembly units and transitions between various highway guide railing and median barrier systems will be measured by the actual number of units installed in accordance with the plans, standard sheets, manufacturer's drawings', manufacturer's directions and/or as directed by the Engineer.

The payment limits for the Box Beam Guide Rail End Assembly Type III and Box Beam Median Barrier End Assembly, Type C will be separated by a distance of 50 feet extending along the end assembly from the front of the Nose Assembly to a point 50 feet removed. These payment limits apply regardless of whether the Type III End Assembly or Type C End Assembly employs crushable fiberglass elements or beam bursting type mandrels to absorb the energy of the impacting vehicle.

The limits of payment for the Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) will extend a distance of 100 feet from the outer end of the terminal. At that point, payment will begin for corrugated beam guide railing.

The limits of payment for HPBO (Mod.) Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) will extend a distance of 50 feet from the outer end of the terminal. At that point, payment will begin for heavy post blocked-out corrugated beam guide railing.

The limits of payment for HPBO (Mod.) Corrugated Beam Median Barrier End Terminal (Energy-Absorbing) will extend a distance of 50 feet from the outer end of the terminal. At that point, payment will begin for heavy post blocked-out corrugated beam median barrier.

606-4.03 Concrete Barrier and Terminal Sections. The quantity of concrete barrier and terminal sections measured for payment will be the number of feet placed in accordance with the plans and specifications, measured along the axis of the barrier and between its extreme outer limits, unless otherwise indicated on the plans or in the proposal.

606-4.04 Resetting Guide Railing, Median Barrier and Precast Concrete Barrier. The quantity of reset guide railing or median barrier measured for payment will be the number of feet reset in accordance with the specifications, plans and as directed by the Engineer, exclusive of anchorage units and end assemblies. If the guide railing is anchored to a structure instead of an anchorage unit or end assembly, measurement will be made up to the structure. The quantity of reset precast concrete barrier measured for payment will be the number of feet placed in accordance with the plans and specifications measured along the axis of the barrier between its extreme outer limits.

606-4.05 Resetting Guide Railing and Median Barrier (New Posts). The Method of Measurement of §606-4.04 will apply.

606-4.06 Removing and Storing Guide Railing, Median Barrier and Precast Concrete Barrier. The quantity of removed and stored guide rail and median barrier measured for payment will be the number of feet removed in accordance with the specifications, plans, and as directed by the Engineer, exclusive of anchorage units and end assemblies. If the guide rail or median barrier is anchored to a structure, measurement will be made up to the structure. The quantity of removed and stored precast concrete barrier measured for payment will be the number of feet removed in accordance with the specifications and plans, measured along the axis of the barrier between its extreme outer limits.

606-4.07 Removing and Disposing of Guide Railing, Median Barrier and Concrete Barrier. The quantity of guide rail and median barrier measured for payment will be the number of feet of railing and posts removed and disposed of in accordance with the specifications and plans, exclusive of anchorage units and end assembly components that would not be used in the middle of a continuous run. The quantity of concrete barrier measured for payment will be the number of feet removed and disposed of in accordance with the specifications and plans measured along the axis of the barrier between its extreme outer limits and including any backup posts.

606-4.08 Removing and Disposing of Guide Posts, Guide Rail Posts, and Median Barrier Posts. The quantity to be measured for payment will be the number of posts removed and disposed of in accordance with the specifications and plans and as directed by the Engineer.

606-4.09 Resetting Anchorage Unit Assemblies and End Assemblies for Guide Railing and Median Barrier This work shall be measured by the number of anchorage units and/or terminals reset in accordance with the requirements of the contract documents.

606-4.10 Removing and Storing or Disposing of Anchorage Unit Assemblies and End Assemblies for Guide Railing and Median Barrier. This work shall be measured by the number of Anchorage Units or End Assemblies properly removed and stored for pick up by others or removed and disposed of in accordance with the contract documents and to the satisfaction of the Engineer

606-4.11 Retensioning Existing Cable Guide Railing and Median Barrier. Quantity measured for payment will be the number of sections retensioned. A section shall consist of the length of cable guide rail or median barrier running between two concrete anchorage units.

606-4.12 Vacant.

606-4.13 Corrugated Beam Guide Rail Transition to Bridge Rail, Concrete Barrier and Concrete Parapets. Measurement will be taken as the actual number of transition units installed in accordance with the plans and specifications.

606-4.14 Box Beam Guide Rail Transition to Concrete Barrier. Measurement will be taken as the actual number of transition units installed in accordance with the specifications, plans and standard sheets.

606-4.15 Vacant

606-4.16 I-Beam Posts for Existing Highway Barrier. I-beam posts for existing highway barrier will be measured by the actual number of posts installed in accordance with the contract documents and as directed by the Engineer.

606-4.17 Transition between Concrete Sections. Transitions will be measured by the actual number of units installed in accordance with the plans, standard sheets and/or as directed by the Engineer.

TABLE 606-2 PAYMENT FACTORS FOR GUIDE RAIL AND MEDIAN BARRIER POST SPACING							
Payment Factor	1.0	1.1	1.3	1.4	1.6	1.8	1.9
Rail Type	Post Spacing Center to Center in Feet & Inches						
Cable*	16'	12'	---	8'	---	---	4'
Box Beam	6'	---	3'	---	---	---	---
Corrugated Beam	12'6"	---	---	6'3"	4'2"	---	3' 1 1/2"
HPBO (Mod.) Corrugated Beam	6'3"	---	---	---	---	3' 1 1/2"	---
* For cable guide rail, the post spacing in the typical approach, terminal sections and typical intermediate anchorage sections as indicated on the standard sheets, shall have payment factors of 1.0.							

606-5 BASIS OF PAYMENT

606-5.01 Guide Railing, Median Barrier, Concrete Barrier and Terminal Sections; Various Types.

The unit price bid per foot for the above work shall include the cost of all labor, equipment and material necessary to complete the work, including the cost of any repairs required, and the costs of bending any rail element to the required curvature.

Payment for corrugated guide rail and median barrier, or bent box beam guide rail, will be determined using the payment factors for the various typical post spacings listed in Table 606-2. Payment will be the sum of the products obtained by multiplying the unit price bid for a rail or median barrier by the payment factors listed in Table 606-2 for the relevant post spacings and multiplying each of those products by the length of rail having that given post spacing.

Payment for mitered box beam and median barrier with 6 foot post spacings will be made at the unit prices bid. If a reduced post spacing of 3 feet is used for mitered box beam guide rail, the payment will be determined by multiplying the unit price bid by a payment factor of 1.1 for the length installed.

When posts are driven through asphalt concrete or bituminous treated material, any repairs to damage paved or treated areas shall be at the Contractor's expense. Progress payments will be made when the metal railing and/or metal barrier is erected in the position and manner indicated on the standard sheets and in a manner approved by the Engineer, exclusive of bituminous repair and final alignment. Payment will be made, at the unit price bid, for 90% of the measured quantity erected. The balance of the quantity erected will be paid for upon proper repair to the bituminous surfaces and alignment of the metal railing and/or metal barrier to the specified tolerances.

606-5.02 End Assembly, End Anchorage Units and Transitions for Guide Railing and Median Barrier. The unit price bid for each end assembly, end anchorage unit or transition shall include the cost of furnishing all labor, materials and equipment necessary to complete the work, including the necessary concrete, excavation, backfill, reflectorization, object markers when required at driveways and vehicle

openings, and spring cable assembly (compensating device) and/or steel turnbuckle cable end assembly required for cable guide rail.

606-5.03 Resetting; Removing and Storing; Removing and Disposing; of Guide Railing, Median Barrier and Concrete Barrier. The unit price bid per foot for the above work items shall include the cost of furnishing all labor, equipment and materials necessary to complete the work and restore the system to full operating capacity.

Any materials damaged due to Contractor's operation shall be replaced by him and the cost shall be included in the price bid for this item.

Payment for resetting guide rail and median barrier shall include the unit price bid multiplied by the measured quantity multiplied by the payment factor for the various typical post spacings listed in Table 606-2, except that posts required to reduce the post spacing from the original post spacing shall be paid for under the appropriate I-beam post for existing highway barrier item.

A. Progress payments for resetting guide rail, median barrier and precast concrete barrier will be made as follows:

1. 25% of the unit price bid for the quantity of guide rail, median barrier or precast concrete barrier removed and stored in accordance with the provisions of §606.3-06 Resetting Guide Railing, Median Barrier and Precast Concrete Barrier.
2. 65% of the unit price bid for the measured quantity of guide railing, median barrier or precast concrete barrier cleaned and reset in accordance with the provisions of §606-3.06.
3. The balance of the unit price bid for the quantity of the guide railing, median barrier or concrete barrier will be paid upon repair to the bituminous surfaces damaged by the resetting operations.

B. Progress payments for removing and disposing or storing of guide railing, median barrier or concrete barrier will be made as follows:

1. 75% of the unit price bid for the measured quantity of guide railing, median barrier or concrete barrier removed and stored or disposed of as specified.
2. The balance of the unit price bid for the measured quantity of guide railing and/or median barrier removed and stored or disposed of as specified will be paid when any voids have been backfilled and disturbed areas are reestablished to the satisfaction of the Engineer.

606-5.04 Removing and Disposing of Guide Posts, Guide Rail Posts and Median Barrier Posts. The unit price bid per post for the above work items shall include the cost of furnishing all labor, equipment and material necessary to complete the work.

606-5.05 Resetting; Removing and Storing; Removing and Disposing; of Anchorage Unit Assemblies and End Assemblies for Guide Railing and Median Barrier. The unit price bid for each of these items shall include the cost of furnishing all labor, equipment and material necessary to complete the work including excavation and backfill.

If the Contractor elects to install new concrete anchors, in lieu of removing and resetting the existing ones, the cost of furnishing and installing the new anchor as well as the cost for necessary adjustments to the existing one shall be included in the price bid for these items.

A. Progress payments for resetting anchorage units and terminals for guide rail and median barrier will be made as follows:

1. 25% of the unit price bid for the quantity of anchorage units and/or terminals removed and stored in accordance with the provisions of §606-3.12 Resetting Anchorage Units and Terminals for Guide Rail and Median Barrier.
2. 65% of the unit price bid for the quantity of anchorage units and/or terminals cleaned and reset in accordance with the provisions of §606-3.12 Resetting Anchorage Units and Terminals for Guide Rail and Median Barrier.

3. The balance of the unit bid price for the quantity of anchorage units reset upon the reestablishment of surface areas disturbed.

B. Progress payments for removing and storing or removing and disposing of anchorage units and/or terminals for guide railing and/or median barriers will be made as follows:

1. 75% of the unit price bid for the quantity of anchorage units and/or terminals removed and stored or disposed of as specified.
2. The balance of the unit price bid for the quantity of anchorage units and/or terminals removed and stored or disposed of as specified will be paid upon the establishment of surface areas disturbed.

606-5.06 Vacant 606-5.07 Corrugated Beam Guide Rail Transition to Bridge Rail, Concrete Barrier and Concrete Parapets. The unit price bid per guide rail transition shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work, including back-up posts, connections and hardware.

606-5.08 Box Beam Guide Rail Transition to Concrete Barrier. The unit price bid per guide rail transition shall include the cost of all labor, equipment, and material necessary to satisfactorily complete the work, including back-up posts, necessary rail curvature, splices, connections and hardware.

606-5.09 Vacant

606-5.10 I-Beam Posts for Existing Highway Barrier. The unit price bid for I-beam posts for existing highway barrier shall include the cost of furnishing all labor equipment and material necessary to complete the work. Removal of damaged posts and hardware is included in other items of work.

When posts are driven through asphalt concrete or bituminous treated material, any repairs to damaged paved or treated areas shall be at the Contractor's expense.

606-5.11 Retensioning Existing Gable Guide Railing and Median Barrier. The unit price bid for retensioning a section of cable guide railing or median barrier shall include the cost of all labor, materials and equipment necessary to complete the work.

606-5.12 Transition between Concrete Sections. The unit price bid per concrete transition shall include the cost of all labor, equipment, and material necessary to satisfactorily complete the work, including back-up posts, connections and hardware.

Payment will be made under:

Item No.	Item	Pay Unit
606.01	Cable Guide Railing	Foot
606.0101	Cable Guide Railing With Extra Long Posts	Foot
606.0201	Anchorage Units for Cable Guide Railing	Each
606.03	Cable Median Barrier	Foot
606.0310	Anchorage Units for Cable Median Barrier	Each
606.10	Box Beam Guide Railing	Foot
606.100002	Box Beam Guide Railing (Shop Bent or Shop Mitered)	Foot
606.100003	Box Beam Guide Railing (Shop Mitered)	Foot
606.1001	Box Beam Guide Railing With Extra Long Posts	Foot
606.100102	Box Beam Guide Railing with Extra Long Posts (Shop Bent or Shop Mitered)	Foot
606.100103	Box Beam Guide Railing with Extra Long Posts (Shop Mitered)	Foot
606.11	Box Beam Median Barrier	Foot
606.110002	Box Beam Median Barrier (Shop Bent or Shop Mitered)	Foot
606.110003	Box Beam Median Barrier (Shop Mitered)	Foot

606.120101	Box Beam End Piece	Each
606.120102	Box Beam Guide Railing End Assembly Type I	Each
606.120103	Box Beam Guide Railing End Assembly Type I with 18 ft Extension	Each
606.120201	Box Beam Guide Railing End Assembly Type IIA	Each
606.1203	Box Beam End Assembly Type III	Each
606.1401	Box Beam Median Barrier End Assembly, Type A	Each
606.1402	Box Beam Median Barrier End Assembly, Type B	Each
606.1403	Box Beam Median Barrier End Assembly, Type C	Each
606.17	Corrugated Beam Median Barrier	Foot
606.170001	Corrugated Beam Median Barrier (Shop Curved)	Foot
606.18	Weak-Post, Corrugated Beam Guide Rail	Foot
606.180001	Weak-Post, Corrugated Beam Guide Rail (Shop Curved)	Foot
606.1801	Weak-Post, Corrugated Beam Guide Rail With Extra Long Posts	Foot
606.180101	Weak-Post, Corrugated Beam Guide Rail With Extra Long Posts (Shop Curved)	Foot
606.22	Anchorage Units for Corrugated Beam Guide Railing	Each
606.2201	Anchorage Units for Corrugated Beam Guide Railing Buried In Back Slope	Each
606.23	Anchorage Units for Corrugated Beam Guide Railing (Driveways, Walkways, and Other Openings)	Each
606.24	Anchorage Units for Corrugated Beam Median Barrier	Each
606.26	Corrugated Beam Guide Railing End Terminal (Energy-Absorbing)	Each
606.27	HPBO (Mod.) Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) Each	Each
606.2701	HPBO (Mod.) Corrugated Beam Guide Railing	Foot
606.270101	HPBO (Mod.) Corrugated Beam Guide Railing (Shop Curved)	Foot
606.2702	HPBO (Mod.) Corrugated Beam Guide Railing with Extra Long Posts	Foot
606.270201	HPBO (Mod.) Corrugated Beam Guide Railing with Extra Long Posts (Shop Curved)	Foot
606.2703	Anchorage Units for HPBO (Mod.) Corrugated Beam Guide Railing	Each
606.2704	Anchorage Units for HPBO (Mod.) Corrugated Beam Guide Railing Buried in Back Slope	Each
606.28	HPBO (Mod.) Corrugated Beam Median Barrier End Terminal (Energy-Absorbing) Each	Each
606.2801	HPBO (Mod.) Corrugated Beam Median Barrier	Foot
606.280101	HPBO (Mod.) Corrugated Beam Median Barrier (Shop Curved)	Foot
606.2802	Anchorage Units for HPBO (Mod.) Corrugated Beam Median Barrier	Each
606.3001	Concrete Barrier Type A (Optional)	Foot
606.3002	Concrete Barrier Type B (Optional)	Foot
606.3003	Concrete Barrier Type C (Optional)	Foot
606.3004	Half Section Concrete Barrier (Optional)	Foot
606.3011	Concrete Barrier Type A (Precast)	Foot
606.3012	Concrete Barrier Type B (Precast)	Foot
606.3013	Concrete Barrier Type C (Precast)	Foot
606.3014	Half Section Concrete Barrier (Precast)	Foot
606.3021	Concrete Barrier Type A (Cast-in-Place)	Foot
606.3022	Concrete Barrier Type B (Cast-in Place)	Foot
606.3023	Concrete Barrier Type C (Cast-in Place)	Foot
606.3024	Half Section Concrete Barrier (Cast-in Place)	Foot

606.3031	Concrete Barrier Type A (Machine Formed)	Foot
606.3032	Concrete Barrier Type B (Machine Formed)	Foot
606.3033	Concrete Barrier Type C (Machine Formed)	Foot
606.3034	Half Section Barrier (Machined Formed)	Foot
606.3041	Single-Slope Concrete Median Barrier (Optional)	Foot
606.3042	Single-Slope Concrete Median Barrier (Precast)	Foot
606.3043	Single-Slope Concrete Median Barrier (Cast-in-Place)	Foot
606.3044	Single-Slope Concrete Median Barrier (Machine Formed)	Foot
606.3051	Single-Slope Concrete Median Barrier - Wide (Optional)	Foot
606.3052	Single-Slope Concrete Median Barrier - Wide (Precast)	Foot
606.3053	Single-Slope Concrete Median Barrier - Wide (Cast-in-Place)	Foot
606.3054	Single-Slope Concrete Median Barrier - Wide (Machine Formed)	Foot
606.3061	Single-Slope Concrete Half Section Barrier (Optional)	Foot
606.3062	Single-Slope Concrete Half Section Barrier (Precast)	Foot
606.3063	Single-Slope Concrete Half Section Barrier (Cast-in-Place)	Foot
606.3064	Single-Slope Concrete Half Section Barrier (Machine Formed)	Foot
606.4701	I-Beam Posts for Existing Cable Median Barrier	Each
606.48	Retensioning Existing Cable Guide railing or Median Barrier	Each
606.4801	I-Beam Posts for Existing Cable Guide Railing	Each
606.4803	Extra Long I-Beam Posts for Existing Cable Guide Railing	Each
606.4805	I-Beam Posts for Existing Corrugated Beam Guide Railing	Each
606.4807	Extra Long I-Beam Posts for Existing Corrugated Beam Guide Railing	Each
606.4809	I-Beam Posts for Existing Box Beam Guide Railing	Each
606.4811	Extra Long I-Beam Posts for Existing Box Beam Guide Railing	Each
606.4813	I-Beam Posts for Existing Corrugated Beam Median Barrier	Each
606.4815	I-Beam Posts for Existing Box Beam Median Barrier	Each
606.4818	I-Beam posts for Existing HPBO (Mod.) Corrugated Beam Guide Railing	Each
606.4820	Extra Long I-Beam Posts for Existing HPBO (Mod.) Corrugated Beam Guide Railing	Each
606.4822	I-Beam Posts for Existing HPBO (Mod.) Corrugated Beam Median Barrier	Each
606.4824	Extra Long I-Beam Posts for Existing HPBO (Mod.) Corrugated Beam Median Barrier	Each
606.50	Resetting Cable Guide Railing	Foot
606.5010	Resetting Cable Median Barrier	Foot
606.5048	Resetting Cable Guide Railing (New Posts)	Foot
606.5049	Resetting Cable Median Barrier (New Posts)	Foot
606.51	Resetting Corrugated Beam Guide Railing	Foot
606.5148	Resetting Corrugated Beam Guide Railing (New Posts)	Foot
606.52	Resetting Corrugated Beam Median Barrier	Foot
606.5248	Resetting Corrugated Beam Median Barrier (New Posts)	Foot
606.53	Resetting Box Beam Guide Railing	Foot
606.5348	Resetting Box Beam Guide Railing (New Posts)	Foot
606.54	Resetting Box Beam Median Barrier	Foot
606.5448	Resetting Box Beam Median Barrier (New Posts)	Foot
606.5501	Resetting HPBO Corrugated Beam Guide Railing (New 12 in. Blockouts)	Foot
606.5601	Resetting HPBO Corrugated Beam Median Barrier (New 12 in. Blockouts)	Foot
606.57	Resetting Precast Concrete Barrier	Foot
606.5710	Resetting Precast Concrete Barrier- Half Section	Foot
606.58	Resetting HPBO (Mod.) Corrugated Beam Guide Railing	Foot
606.5801	Resetting HPBO (Mod.) Corrugated Beam Guide Railing (New Posts)	Foot
606.5810	Resetting HPBO (Mod.) Corrugated Beam Median Barrier	Foot

606.581001	Resetting HPBO (Mod.) Corrugated Beam Median Barrier (New Posts)	Foot
606.5901	Resetting Anchorage Units for Cable Guide railing or Median Barrier	Each
606.5910	Resetting Anchorage Units for Corrugated Beam Guide Railing or Median Barrier	Each
606.5920	Resetting Box Beam Guide Rail Turned-Down Terminal	Each
606.5921	Resetting Box Beam Guide Rail Energy-Absorbing Terminal	Each
606.5930	Resetting Box Beam Median Barrier End Assembly--Type A	Each
606.5931	Resetting Box Beam Median Barrier End Assembly--Type B	Each
606.5941	Resetting Anchorage Units for HPBO (Mod.) Corrugated Beam Guide Railing	Each
606.5946	Resetting Anchorage Units for HPBO (Mod.) Corrugated Beam Median Barrier	Each
606.60	Removing and Storing Cable Guide Railing	Foot
606.6010	Removing and Storing Cable Median Barrier	Foot
606.61	Removing and Storing Corrugated Beam Guide Railing	Foot
606.62	Removing and Storing Corrugated Beam Median Barrier	Foot
606.63	Removing and Storing Box Beam Guide Railing	Foot
606.64	Removing and Storing Box Beam Median Barrier	Foot
606.65	Removing and Storing Precast Concrete Barrier	Foot
606.6510	Removing and Storing Precast Concrete Barrier-Half Section	Foot
606.66	Removing and Storing HPBO (Mod.) Corrugated Beam Guide Railing	Foot
606.67	Removing and Storing HPBO (Mod.) Corrugated Beam Median Barrier	Foot
606.6910	Removing and Storing Anchorage Units for Corrugated Beam Guide Railing and Median Barriers	Each
606.6911	Removing and Storing Weak- and Heavy-Post Corrugated Beam Terminals	Each
606.6920	Removing and Storing Box Beam Guide Railing End Assembly	Each
606.6932	Removing and Storing Box Beam Median Barrier End Assembly-Type C	Each
606.6941	Removing and Storing Anchorage Units for HPBO (Mod.) Corrugated Beam Guide Railing	Each
606.6946	Removing and Storing Anchorage Units for HPBO(Mod) Corrugated Beam Median Barrier	Each
606.70	Removing and Disposing Cable Guide Railing	Foot
606.7010	Removing and Disposing Cable Median Barrier	Foot
606.71	Removing and Disposing Corrugated Beam Guide Railing	Foot
606.7101	Removing and Disposing HPBO (Mod.) Corrugated Beam Guide Railing	Foot
606.72	Removing and Disposing Corrugated Beam Median Barrier	Foot
606.7201	Removing and Disposing HPBO (Mod.) Corrugated Beam Median Barrier	Foot
606.73	Removing and Disposing Box Beam Guide Railing	Foot
606.74	Removing and Disposing Box Beam Median Barrier	Foot
606.75	Removing and Disposing Concrete Barrier	Foot
606.7510	Removing and Disposing Concrete Barrier-Half Section	Foot
606.76	Removing and Disposing of Guide Posts, Guide Rail Posts, and Median Barrier Posts	Each
606.79	Removing and Disposing Anchorage Units for Cable Guide railing or Median Barrier	Each
606.7910	Removing and Disposing Anchorage Units for Corrugated Beam Guide Railing and Median Barrier	Each
606.7911	Removing and Disposing Weak- and Heavy-Post Corrugated Beam Energy-Absorbing Terminals	Each

606.7920	Removing and Disposing Box Beam Guide Rail Turned-Down Terminal	Each
606.7921	Removing and Disposing Box Beam Energy-Absorbing Terminal	Each
606.7930	Removing and Disposing Box Beam Median Barrier End Assembly-Type A	Each
606.7931	Removing and Disposing Box Beam Median Barrier End Assembly--Type B	Each
606.7932	Removing and Disposing Box Beam Median Barrier End Assembly-Type C	Each
606.7941	Removing and Disposing Anchorage Units for HPBO(Mod) Corrugated Beam Guide Railing	Each
606.7946	Removing and Disposing Anchorage Units for HPBO(Mod) Corrugated Beam Median Barrier	Each
606.8101	Guide Rail Transition Weak-Post Corrugated Beam to Box Beam Guide Rail (One or Two Way Operation)	Each
606.8201	Guide Rail Transition Box Beam to Weak-Post Corrugated Beam Guide Rail (One Way Only)	Each
606.83	Guide Rail Transition Cable to Box Beam (One or Two Way Operation)	Each
606.84	Guide Rail Transition Box Beam to Cable (One Way Only)	Each
606.8501	Median Barrier Transition Weak-Post Corrugated Beam to Box Beam	Each
606.86	Guide Rail Transition Corrugated Beam to Thrie Beam	Each
606.8701	Corrugated Beam Guide Railing Transition Assembly Two Rail Steel Bridge Railing	Each
606.8702	Corrugated Beam Guide Railing Transition Assembly Four Rail Steel Bridge Railing	Each
606.8703	Corrugated Beam Guide Railing Transition Assembly Discontinuous Steel Bridge Railing	Each
606.8704	Corrugated Beam Guide Railing Transition Assembly Concrete Parapets, or Concrete Barrier	Each
606.8801	Box Beam Guide Rail Transition to Concrete Barrier (One or Two Way Operation)	Each
606.8802	Box Beam Guide Rail Transition to Concrete Barrier (One Way-Trailing End)	Each
606.8803	Transition Between Box Beam Guide Rail and Single Slope Half Section Concrete Barrier (One or Two Way Operation)	Each
606.8804	Transition Between Single Slope Half Section Concrete Barrier and Box Beam Guide Rail (One Way - Trailing End of Barrier)	Each
606.8805	Transition Between Box Beam Median Barrier and Single Slope Concrete Median Barrier	Each
606.8901	Transition: HPBO (Mod.) Corrugated Guide Railing to Beam Box Beam Guide Railing	Each
606.8902	Transition: HPBO (Mod.) Corrugated Beam Guide Railing to Weak Post Corrugated Beam Guide Railing	Each
606.8903	Transition: HPBO (Mod.) Corrugated Beam Guide Railing to Single Slope Concrete Half Section Barrier	Each
606.8904	Transition: HPBO (Mod.) Corrugated Beam Median Barrier to Beam Box Beam Median Barrier	Each
606.8905	Transition: HPBO (Mod.) Corrugated Beam Median Barrier to Weak Post Corrugated Beam Median Barrier	Each
606.8906	Transition: HPBO (Mod.) Corrugated Beam Median Barrier to Single Slope Concrete Median Barrier	Each
606.9001	Transition between Standard (NJ) Concrete Barrier and Single-Slope Concrete Barrier	Each

606.9002	Transition between Wide and Normal Single Slope Concrete Median Barrier	Each
606.9003	Transition between Half-Section and Full-Section Single Slope Concrete Barrier (Left Pocket)	Each
606.9004	Transition between Half-Section and Full-Section Single Slope Concrete Barrier (Right Pocket)	Each

SECTION 607 - FENCES

607-1 DESCRIPTION. This work shall consist of furnishing and erecting fencing and metal fence gates of the type and size, and at the locations shown on the plans or as directed by the Engineer. Construction of fencing and gates shall be done in accordance with the specifications, the standard sheets, and the plans, and in reasonable close conformity with the lines and grades shown on the plans or established by the Engineer.

607-1.01 Fence Types. The fence shall be designated as follows:

Optional Chain Link Fence Type I
Optional Chain Link Fence Type II
Vinyl Coated Chain Link Fence on Plastic Coated Frame
Right-of-Way Fencing

The options for Type I and Type II chain link fences shall be as follows:

TYPE I

Fabric Options

Coated Steel Fence Fabric
(95% Zinc 5% Aluminum- Mischmetal Alloy)
Galvanized Steel
Aluminum
Aluminum Coated Steel

Frame Options

Mischmetal Alloy Coating
(95% Zinc 5% Aluminum)
Galvanized Steel
Combined Coating on Steel
Aluminum
Aluminum Coated Steel

TYPE II

Fabric Options

Coated Steel Fence Fabric
(95% Zinc 5% Aluminum- Mischmetal Alloy)
Galvanized Steel
Vinyl Coated Steel
Aluminum
Aluminum Coated Steel

Frame Options

Mischmetal Alloy Coating
(95% Zinc 5% Aluminum)
Galvanized Steel
Combined Coating on Steel
Plastic on Steel
Aluminum
Aluminum Coated Steel

Fence gates for Type I and Type II optional fences shall be consistent with the fabric and frame option selected for the contract. Fence frame and fabric selected shall be consistent throughout the contract except where intermixing is permitted by the Engineer.

607-2 MATERIALS. Materials shall conform to the requirements specified in the following subsections of Section 700 - Materials and Manufacturing:

Zinc Chromate Primer	708-04
Aluminum Fence Fabric	710-01
Galvanized Steel Fence Fabric	710-02
Vinyl Coated Steel Fence Fabric	710-03
Aluminum Coated Steel Fence Fabric	710-04
Coated Steel Fence Fabric (95% Zinc 5% Aluminum-Mischmetal Alloy)	710-05
Steel and Iron Posts, Rails, Braces and Fittings for Chain-Link Fence	710-10
Aluminum Posts, Rails, Braces and Fittings for Chain-Link Fence	710-11
Plastic Coated Posts, Rails, Braces and Fittings for Chain-Link Fence	710-12
Right-of-Way Fencing	710-30

607-2.01 Portland Cement Concrete for Bases. Portland Cement concrete used for bases shall be Class A or C conforming to the requirements of Section 501 Portland Cement Concrete--General except that requirements for automated batching shall not apply.

607-2.02 Right-of-Way Fencing. The Contractor has the option of using posts and braces fabricated from either high carbon shapes of steel or pressure treated wood meeting the requirements of §710-30 Right-of-Way Fencing.

607-2.03 Fence Gates. Fence gates for Right-of-Way Fencing shall Conform to the requirements for Right-of-Way Fence Gates of §710-30. Fence gates for Chain-Link Fence shall conform to the following:

A. Gate Frames. Frames shall be constructed of tubular members welded at all corners or assembled with corner fittings. Where corner fittings are used gates shall have 3/8 inch nominal diameter truss rods to prevent sag or twist. Gate leaves shall have vertical intermediate bracing so that no vertical members are more than 8 feet apart. Gate leaves over 10 feet long shall have a horizontal brace or a 3/8 inch nominal diameter diagonal truss rod. Gate leaves over 16 feet shall have both a horizontal brace and a 3/8 inch nominal diameter truss rod.

B. Gate Fabric. Gate fabric shall conform to the requirements of the fabric used in the fence construction.

C. Gate Hinges. Hinges shall be weldable steel, cast steel or malleable iron 180° offset industrial type. The hinges shall not twist or turn under the action of the gate. The gates shall be capable of being opened and closed easily by one person. Hinges shall be galvanized in accordance with §719-01 Type I.

D. Gate Latches. Latches, stops and keepers shall be provided for all gates. Latches shall have a plungerbar arranged to engage the center stop, except that single left gate openings with an opening of less than 10 feet may use a forked latch. Latches shall be arranged for locking and the Contractor shall provide a lock with triplicate keys for each gate. Center stops shall consist of a device arranged to be set in concrete and to engage a plunger-bar of the latch of double leaf gates. No stop is required for single leaf gates. Keepers shall consist of a mechanical device for securing the free end of the gate when in the full open position.

607-3 CONSTRUCTION DETAILS

607-3.01 General. The Contractor shall perform such clearing and grubbing as may be necessary to construct the fence to the required grade and alignment.

At locations where breaks in a run of fencing are required, or at intersections with existing fences, appropriate adjustment in post spacing shall be made to conform to the requirements for the type of closure indicated.

When the plans require that the posts, braces, or anchors be embedded in concrete, the Contractor shall install temporary guys or braces as may be required to hold the posts in proper position until such time as the concrete has set sufficiently to hold the posts. Unless otherwise permitted, no materials shall be installed on posts or strain placed on guys and bracing set in concrete until seven days have elapsed from the time of placing the concrete.

All posts shall be set vertically and to the required grade and alignment. Cutting of the tops of the posts will be allowed only with the approval of the Engineer and under the Engineer's specified conditions.

Wire or fencing of the size and type required shall be firmly attached to the posts and braces in the manner indicated. All wire shall be stretched taut and be installed to the required elevations.

At each location where an electric transmission, distribution or secondary line crosses any of the types of fences covered by these specifications, the Contractor shall furnish and install a ground conforming to the requirements of Subsection 9 of the National Electric Safety Code.

Fence shall generally follow the contour of the ground, with the bottom of fence fabric no less than 1 inch nor more than 6 inch from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

Line posts shall be spaced equidistant in the fence line at the spacing shown on the plans, standard sheets or as directed by the Engineer. End, corner, and intermediate posts shall be placed at the locations indicated on the plans, standard sheets or as directed by the Engineer, and shall be braced as shown on the plans or standard sheets. When chain link fence is on a long curve intermediate posts shall be evenly spaced so that the strain of the fence will not bend the line posts.

All end, corner, and intermediate posts shall be set plumb in concrete bases of the depth and diameter shown on the plans or standard sheets. The Contractor shall have the option of setting the line posts in concrete bases or using methods of driving and anchoring specified by the fence manufacturer and approved by the Engineer.

The concrete bases shall be rough cast in the ground around the posts. The top surfaces shall be domed to shed water and provide a neat workmanlike appearance when completed. Extensions of up 45 minutes for the allowed time for pouring the concrete will be permitted.

607-3.02 Chain-Link Fencing with Top Rail. Posts shall be set so they are equidistant with a maximum of 10 foot centers.

All top rails shall pass through the base of the post caps and shall form a continuous brace from end to end of each stretch of fence. Top rail lengths shall be joined with sleeve couplings with expansion sleeves provided at 100 foot intervals. Top rails shall be securely fastened to end posts by means of approved rail end connectors. Horizontal braces shall be provided at all intermediate posts, midway between the top rail and ground as shown on the plans or standard sheets.

Diagonal truss rods shall be installed with the horizontal braces as indicated on the plans or standard sheets.

Fence fabric shall be installed approximately 2 inch above the ground level and securely fastened along the bottom, and to all braces, top rails, line and pull posts, at the intervals indicated on the standard sheets by approved methods. The fabric shall be secured to all end, corner and gate posts with stretcher bars fastened to the posts, with stretcher bands spaced at a maximum of 14 inches and in a manner permitting adjustment of the fabric tension.

If the Contractor elects the option of using one piece roll-formed sections, the fence fabric shall be integrally woven into the fabric loops on the end, corner, pull and gate posts. The fabric shall be attached to the top braces and line posts as shown on the standard sheets.

607-3.03 Chain-Link Fencing with Top Tension Wire. The construction details specified in §607-3.02 Chain Link Fencing with Top Rail shall apply with the following modifications:

- A. Top tension wire shall be installed as shown on the plans, standard sheets, or as directed by the Engineer.
- B. All posts shall be spaced equidistant in the fence line on a maximum of 8 foot centers.
- C. Additional pull posts shall be placed at locations indicated on the plans or standard sheets. Brace assemblies shall be installed at each intermediate post as indicated on the plans or standard sheets.

607-3.04 Vinyl Coated Chain-Link Fencing on Plastic Coated Frame. The construction details specified in §607-3.02 Chain-Link Fencing with Top Rail or §607-3.03 Chain-Link Fencing with Top Tension Wire shall apply with the following addition:

If any of the resin clad material specified under this item has the protective resin coating damaged so its effectiveness to prevent corrosion of the base material is impaired, the Contractor shall repair such parts by applying one coat of an approved compound of a color to match original material.

607-3.05 Aluminum Posts. Aluminum posts shall be set in accordance with requirements pertaining to fence posts of §607-3.01 General, and §607-3.02 Chain-Link Fencing with Top Rail or §607-3.03 Chain-Link Fencing with Top Tension Wire and with the following additional requirement: The portions of aluminum posts that will be in contact with the concrete bases shall be coated with Zinc Chromate Primer conforming to the requirements of §708-04. The primer shall be thoroughly dry before setting of the post in the concrete.

607-3.06 Right-of-Way. Fencing posts shall be set plumb and firm to the satisfaction of the Engineer in properly prepared post holes, as indicated on the plans or standard sheet. The concrete for post holes where required shall be placed in accordance with the requirements of §607-3.01 General.

All line posts of the type and size shown on the plans or standard sheets shall be placed equidistant in the fence line. Wood line posts shall be placed on a maximum of 15 foot centers and metal line posts shall be placed on a maximum of 10 foot centers.

Intermediate posts and post assemblies, end posts, corner posts, approach spans, and bracing shall be as shown on the plans or standard sheets.

The woven wire fencing shall be fastened to all steel line posts with at least 5 galvanized wire fasteners or clamps and to all steel end, intermediate and corner posts with aluminum wire not less than 5/32 inch diameter.

The woven wire fencing shall be fastened to all wood posts with either 1 1/2 inch galvanized or aluminum staples. The top and bottom wires and every other in-between wires shall be stapled, alternating the stapling of the in-between wires on successive posts.

607-3.07 Fence Gates. The Contractor shall construct metal fence gates of the type and size as indicated on the plans or standard sheets, and in the location shown or ordered by the Engineer.

607-4 METHOD OF MEASUREMENT

607-4.01 General. The quantity to be paid for all fencing exclusive of fence gates and fencing of the types listed in subsequent subsections, will be the number of linear feet of chain-link fencing measured along the top of fencing, center to center of end posts, properly furnished and installed in accordance with the plans, specifications, standard sheets and directions of the Engineer. An allowance of 10 feet will be added for each end post, corner post and pull post installed in accordance with the plans, specifications, standard sheets and directions of the Engineer.

607-4.02 Right-of-Way Fencing. Right-of-Way Fencing shall be measured as the number of feet along the top of the fencing from center to center of the end posts, properly furnished and installed in accordance with the plans, specifications, standard sheets and directions of the Engineer. An allowance of 20 feet will be added for each end post, corner post, intermediate post, and approach post installed in accordance with the plans, specifications, standard sheets and directions of the Engineer.

607-4.03 Fence Gates. Fence gates shall be measured as the number of complete gates furnished and erected in accordance with the specifications, plans, standard sheets and directions of the Engineer.

607-5 BASIS OF PAYMENT

607-5.01 General. The unit price bid per linear foot of fencing shall include the cost of furnishing all labor, materials, tools and equipment necessary to satisfactorily complete the work.

607-5.02 Fence Gates. The unit price bid for each size gate shall cover the cost of furnishing all labor, materials, tools and equipment necessary to satisfactorily complete the work and shall include all necessary clearing, grubbing, excavation and disposal, fill, concrete, gates, gate posts, lock, bracing and all other necessary materials.

Payment will be made under:

Item No.	Item	Pay Unit
607.051X	Vinyl Coated Steel Chain-Link Fencing on Plastic Coated Frame with Top Rail	Foot
607.052X	Vinyl Coated Steel Chain-Link Fencing on Plastic Coated Frame with Top Tension Wire	Foot
607.16xx	Fence Gate with Vinyl Coated Steel Chain-Link Fencing on Plastic Coated Frame	Each
607.19	Right-of Way Fencing	Foot
607.20xx	Right-of Way Fence Gates	Each
607.30xx	Optional Chain-Link Fence, Type I, with Top Rail	Foot
607.31xx	Optional Chain-Link Fence, Type I, with Top Tension Wire	Foot
607.32xx	Optional Chain-Link Fence, Type II, with Top Rail	Foot
607.33xx	Optional Chain-Link Fence, Type II with Top Tension Wire	Foot
607.40xx	Optional Fence Gates	Each

Refer to the Standard Contract Pay Item Catalog for full Item Number and full Description.

SECTION 608 - SIDEWALKS, DRIVEWAYS, BICYCLE PATHS, AND VEGETATION CONTROL STRIPS

(Last Revised January, 2017)

608-1 DESCRIPTION. This work shall consist of the construction of portland cement concrete or hot mix asphalt sidewalks and driveways; hot mix 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
Brick Sidewalk and Driveway Pavers	704-08
Stone Blocks	704-09
Precast Concrete Driveway and Sidewalk Pavers	704-13
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 concrete meeting the requirements for Class D in accordance with Section 501 *Portland Cement Concrete-General*. Provide concrete that contains an ASTM Type A water-reducing admixture meeting the requirements of §711-08 *Admixtures* and provides a minimum of 10% reduction of the design water content from the target mix design for Class D.

B. Machine Formed Sidewalks. Provide concrete meeting the requirements for Class J in accordance with Section 501 *Portland Cement Concrete-General* 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 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. Provide a 9.5 mixture for surface course or 19.0 mixture for any course below the surface designed

for < 0.3 million ESALs and produced in accordance with Section 401 using coarse aggregate Type F9. Use a PG 64S-22 binder to produce the hot mix asphalt. Alternate PG binder grades may be allowed with the approval of the Regional Materials Engineer.

Do not use polyphosphoric acid (PPA) downstate to modify the PG binder properties for mixtures containing limestone, limestone as an aggregate blend component, limestone as a constituent in crushed gravel aggregate, or recycled asphalt pavement (RAP) that includes any limestone. Do not use PPA downstate as a cross-linking agent for polymer modification of mixtures containing limestone, limestone as an aggregate blend component, limestone as a constituent in crushed gravel aggregate, or recycled asphalt pavement (RAP) that includes any limestone. Downstate, as it relates to PG binder is defined as Orange, Putnam, Rockland, Westchester, Nassau, Suffolk Counties and the City of New York.

Do not use polyphosphoric acid (PPA) upstate to modify the PG binder properties or as a cross-linking agent for polymer modification, regardless of the type of aggregate. Upstate is defined as all counties not designated as downstate.

608-2.03 Brick Paved Sidewalks and Driveways. Provide brick pavers meeting the requirements of §704-08 *Brick Pavers*, of the size, shape and color specified in the contract documents.

A. Sand Setting Bed. Provide sand for setting bed meet the requirements of §703-06 *Cushion Sand*.

B. Mortar Setting Bed. Provide mortar for setting bed meeting the requirements of §705-21 *Masonry Mortar*.

C. Bituminous Setting Bed. Provide hot mix asphalt for bituminous setting bed consisting of PG 64S-22 binder mixed with fine aggregate. Use PG binder meeting the requirements of Section 702 *Bituminous Materials*, Table 702-1 *Performance-Graded Binders for Paving*. Use a minimum of 7.0% PGB by batch weight. Alternate PG binder grades may be allowed with the approval of the Regional Materials Engineer. Heat the mix to approximately 325°F.

Provide neoprene-modified asphalt adhesive consisting of 2% neoprene, grade WM1, oxidized asphalt with an R & B softening point of 155°F minimum and a penetration of 80, and 10% asbestos-free fibers.

D. Sand-Cement Setting Bed. Provide sand-cement mixture for setting bed consisting of 1 part Portland Cement Type 2 and 6 parts Fine Aggregate, by volume.

608-2.04 Grouted Stone Block Paved Sidewalks and Driveways. Provide stone blocks meeting the requirements of §704-09 *Stone Blocks* of the size, shape and color specified in the contract documents.

A. Sand Setting Bed. Provide sand for setting bed meet the requirements of §703-06 *Cushion Sand*.

B. Mortar Setting Bed. Provide mortar for setting bed meeting the requirements of §705-21 *Masonry Mortar*.

C. Sand-Cement Setting Bed. Provide sand-cement mixture for setting bed consisting of 1 part Portland Cement Type 2 and 6 parts Fine Aggregate, by volume.

608-2.05 Precast Concrete Block Paved Sidewalks and Driveways. Provide precast concrete driveway and sidewalk pavers meeting the requirements of §704-13 *Precast Concrete Driveway and Sidewalk Pavers* of the size, shape and color specified in the contract documents. Provide granular setting bed material consisting of hard, durable; uncoated particles of soil or rock, free from lumps of clay and all deleterious substances in accordance with Table 608-1 *Granular Material Setting Bed Gradation*.

TABLE 608-1 GRANULAR MATERIAL SETTING BED GRADATION	
Sieve Size	Percent Passing by Weight
1/4 inch	100
# 10	50-85
# 40	20-45
# 200	3-10

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. 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. 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 $\pm 2^\circ\text{F}$. 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 1/2 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 Technician to perform all finishing. When the contract includes 10 cubic yards or more of sidewalk and driveway concrete, provide an ACI Certified Concrete Flatwork Finisher to directly supervise all finishing. 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 self-propelled 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 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. Install hot mix asphalt sidewalks, driveways, bicycle paths and vegetation control strips in accordance with the provisions Section 402 *Hot Mix Asphalt (HMA) Pavements*, the Standard Sheets, and the contract documents. Place the number of courses and course thicknesses in accordance with Table 608-

2 Hot Mix Asphalt Composition. Place vegetation control strips using a 9.5 mix with a minimum thickness of 3 inches in one course. Compact hot mix asphalt in accordance with the requirements of §402-3.07D. *80 Series Compaction Method.*

TABLE 608-2 HOT MIX ASPHALT COMPOSITION			
Total Placed Thickness	9.5 Mix	19.0 Mix	Number of Courses
1 1/2 inch	1 1/2 inch		1
2 inch	2 inch		1
3 + inch	1 1/2 inch	1 1/2 + inch	2+

NOTES:

1. For the 19.0 mixture, place a maximum thickness of 3 inches in one pass.
2. A course consists of one or more separate lifts of a hot mix asphalt mixture to attain the indicated thickness.

608-3.03 Brick Paved Sidewalks and Driveways. Install brick pavers to the lines and grades and in the pattern shown in the contract documents to provide a uniform, even surface. Ensure joints between bricks are hand tight. Do not install or grout brick pavers in freezing weather. After installation, sweep a dry mixture of masonry mortar over the brick pavers until the joints are completely filled, and then lightly wet the joints with water. Clean brick pavers of excess mortar, and finish joints prior to the mortar setting up. Keep brick paving moist for 4 days after filling the joints with mortar. After the 4 day curing period, remove remaining mortar film using a light acid wash (10% solution of hydrochloric or muriatic acid) followed by flushing clean with water or as approved by the Engineer. Avoid the use of acid in areas where runoff could damage trees or other vegetation.

A. Brick Paved Sidewalks and Driveways (Sand Setting Bed). Lay brick pavers in a properly compacted 2 inch bed of cushion sand over the subbase or subgrade.

When used over tree pits, install bricks pavers in a 3 inch bed of cushion sand. After installation, sweep dry cushion sand over the brick pavers until the joints are completely filled. Do not use mortar to seal brick paver joints in tree pits.

B. Brick Paved Sidewalks and Driveways (Mortar Setting Bed). Lay brick pavers in a mortar setting bed, a minimum of 1 inch thick over the concrete or bituminous subbase.

C. Brick Paved Sidewalks and Driveways (Bituminous Setting Bed). Lay brick pavers in a 3/4 inch thick bituminous setting bed, over a concrete or bituminous subbase. Apply a coating of neoprene-modified asphalt adhesive by mopping, squeegeeing or troweling over the top surface of the bituminous setting bed to bond the bricks to the setting bed.

D. Brick Paved Sidewalks and Driveways (Sand-Cement Setting Bed). Lay brick pavers on a 2 inch thick setting bed of sand-cement over the subbase. Place the sand-cement setting bed not more than 4 hours prior to installing the brick pavers.

E. Brick Paved Sidewalks and Driveways (Optional Concrete Setting Bed). Install brick paver sidewalks and driveways using one of the following methods, at the Contractor's option:

1. Lay bricks on a setting bed of portland cement concrete while it is still fresh and firmly position bricks to provide a solid bedding under each brick.
2. Lay bricks in accordance with B. *Brick Paved Sidewalks and Driveways (Mortar Setting Bed).*

608-3.04 Grouted Stone Block Paved Sidewalks and Driveways. Install grouted stone blocks in the pattern shown in the contract documents to provide a uniform, even surface. Ensure joints between blocks

are a maximum of 1-1/4 inch. Do not lay or grout blocks in freezing weather. After installation, sweep a dry mixture of masonry mortar over the stone blocks until the joints are completely filled and then lightly wet the joints with water. Clean stone blocks of excess mortar, and finish joints prior to the mortar setting up. Keep grouted stone block paving moist for 4 days after filling the joints with mortar. After the four day curing period, remove remaining mortar film using a light acid wash (10% ± solution of hydrochloric or muriatic acid) followed by flushing clean with water, or as approved by the Engineer. Avoid the use of acid in areas where runoff could damage trees or other vegetation.

A. Grouted Stone Block Paved Sidewalks and Driveways (Sand Setting Bed). Lay blocks in a bed of cushion sand, 3 inch thick over the subbase or subgrade.

When used over tree pits, install stone blocks in a 1 inch bed of cushion sand. After placement of blocks, sweep dry cushion sand over the stone blocks until the joints are completely filled. Do not use mortar to seal stone block joints in tree pits.

B. Grouted Stone Block Paved Sidewalks and Driveways (Mortar Setting Bed). Lay stone blocks in a mortar setting bed, a minimum of 1 inch thick over the concrete or bituminous subbase.

C. Grouted Stone Block Paved Sidewalks and Driveways (Sand-Cement Setting Bed). Lay stone blocks on a 2 inch thick setting bed of sand-cement over the subbase. Place the sand-cement setting bed not more than 4 hours prior to installing the block paving.

D. Grouted Stone Block Paved Sidewalks and Driveways (Optional Concrete Setting Bed). Install grouted stone block paved sidewalks and driveways using one of the following methods, at the Contractor's option:

1. Lay stone blocks on a bed of portland cement concrete as specified in the contract documents while it is still fresh and firmly position blocks to provide a solid bedding under each block.
2. Lay stone blocks in accordance with *B. Grouted Stone Block Paved Sidewalks and Driveways (Mortar Setting Bed)*.

608-3.05 Precast Concrete Block Paved Sidewalks and Driveways. Install precast concrete driveway and sidewalk pavers, in the pattern shown in the contract documents to provide a uniform, even surface. Lay blocks on a setting bed not to exceed 2 inches of uniformly compacted material placed over the specified subbase. Install the pavers in accordance with the manufacturer's recommended procedures. Ensure joints are hand tight unless otherwise specified. Do not lay pavers in freezing weather. After the pavers are in place, sweep sand joint filler over the pavers until the joints are completely filled.

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, provide dark gray Federal Standard #36081 or darker. 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, provide dark gray Federal Standard #36081 or darker. 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.

608-4.02 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. The quantity to be measured for payment will be in tons to the nearest 0.01 tons of HMA installed. 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, determined in accordance with §401-3.07 *Documentation*.

608-4.03 Brick Paved Sidewalks and Driveways. The quantity to be measured for payment will be in square yards to the nearest 0.1 square yard of brick paving installed.

608-4.04 Grouted Stone Block Paved Sidewalks and Driveways. The quantity to be measured for payment will be in square yards to the nearest 0.1 square yard of stone block paving installed.

608-4.05 Precast Concrete Block Paved Sidewalks and Driveways. The quantity to be measured for payment will be in square yards to the nearest 0.1 square yard of precast concrete paving installed.

608-4.06 Surface-Applied Detectable Warning Units. The quantity to be measured for payment will be in square yards to the nearest 0.1 square yard of surface-applied detectable warning units installed.

608-4.07 Embedded Detectable Warning Units. The quantity to be measured for payment will be in square yards to the nearest 0.1 square yard of embedded detectable warning units installed.

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.

608-5.02 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. The unit price bid for HMA sidewalks, driveways and paths shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including preparing the subgrade, milling, cleaning surfaces, tack coat, saw cut, truing and leveling courses. Excavation and subbase course will be paid for separately.

Payment of Quality Adjustments will be made based on the number of Quality Units multiplied by the fixed index price for Quality Adjustment to HMA Items listed in the contract documents for the quantity placed on the day the Quality Units represent.

608-5.03 Brick Paved Sidewalks and Driveways. The price bid for brick paved sidewalks and driveways shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including setting bed material. Excavation and subbase course will be paid for separately.

608-5.04 Grouted Stone Block Paved Sidewalks and Driveways. The unit bid for grouted stone block paved sidewalks and driveways shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including setting bed material. Excavation and subbase course will be paid for separately.

608-5.05 Precast Concrete Block Paved Sidewalks and Driveways. The unit price bid for precast concrete block paved sidewalks and driveways shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including setting bed material. Excavation and subbase course will be paid for separately.

608-5.06 Surface-Applied Detectable Warning Units. The unit price bid for surface-applied detectable warning units shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including surface preparation.

608-5.07 Embedded Detectable Warning Units. The unit price bid for embedded detectable warning units shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including bedding material. No adjustment will be made for concrete removed to accommodate embedded units.

Payment will be made under:

Item No.	Item	Pay Unit
608.0101	Concrete Sidewalks and Driveways	Cubic Yard
608.0102	Accelerated Cure Sidewalks and Driveways	Cubic Yard
608.020102	Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips	Ton
608.000013	Plant Production Quality Adjustment to HMA Sidewalk Items	Quality Unit
608.03	Brick Paved Sidewalks and Driveways (Sand Setting Bed)	Square Yard
608.04	Brick Paved Sidewalks and Driveways (Mortar Setting Bed)	Square Yard
608.05	Brick Paved Sidewalks and Driveways (Bituminous Setting Bed)	Square Yard
608.06	Brick Paved Sidewalks and Driveways (Sand-Cement Setting Bed)	Square Yard
608.07	Brick Paved Sidewalks and Driveways (Optional Concrete Setting Bed)	Square Yard
608.08	Grouted Stone Block Paved Sidewalks and Driveways (Sand Setting Bed)	Square Yard
608.09	Grouted Stone Block Paved Sidewalks and Driveways (Mortar Setting Bed)	Square Yard
608.10	Grouted Stone Block Paved Sidewalks and Driveways (Sand-Cement Setting Bed)	Square Yard
608.11	Grouted Stone Block Paved Sidewalks and Driveways (Optional Concrete Setting Bed)	Square Yard
608.12	Precast Concrete Block Paved Sidewalks and Driveways (Granular Material Setting Bed)	Square Yard
608.20	Surface-Applied Detectable Warning Units	Square Yard
608.21	Embedded Detectable Warning Units	Square Yard

SECTION 609 - CURB AND CURB & GUTTER

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 Strength	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 Opaque)	711-04
Membrane Curing Compound	711-05
Stone Curb	714-01
Precast Concrete Curb	714-04
Hot Mix Asphalt Curb	714-06

White and Yellow Pavement Marking Paints shall meet the requirements of Section 640 - Reflectorized Pavement Marking Paints.

609-2.01 (Vacant)

609-2.02 Concrete for Cast-in-Place Concrete Curb and Curb & Gutter.

A. Conventionally Formed Curb and Curb & Gutter. The material requirements, mix preparation and manufacturing of the concrete shall conform to the requirements for Class A Concrete as specified in Section 501, Portland Cement Concrete - General.

B. Machine Formed Concrete Curb and Curb & Gutter. Use Class J Concrete as specified in Section 501, Portland Cement Concrete - General.

609-2.03 Stone Curb and Granite Curb. Stone curb shall conform to §714-01 and shall be either sandstone or bluestone. Granite curb shall conform to the requirements for granite under Stone Curb §714-01.

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, Stone Curb, and Granite Curb. The Contractor shall use any Class Concrete or a concrete mix 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, CA 2 Gradation	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 Precast Concrete Curb, Stone Curb, and Granite Curb. All precast concrete curb, stone curb, and granite curb, excluding granite traversable sloped curb, shall be set on a 3 inch thick continuous bed of dry concrete mix, or on 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 on a 3 inch minimum thick continuous bed of compacted granular material, at the Contractor's option.

Precast concrete curb, stone curb, and granite curb, excluding granite traversable sloped 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 one half of the concrete pavement thickness and shall be measured from the bottom of the curb.

B. Hot Mix 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 hot mix asphalt pavement, whichever is greater, measured from the bottom of the curb.

Precast curb, stone curb, and granite curb, excluding granite traversable sloped curb, with and without sawed ends, not on 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.

609-3.03 Stone Curb and Granite 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 and Type T2 curbs, when on a structures approach, shall be set true to line and grade on a concrete bedding.

B. Types F1, G1, M, R1, R2, S and T1 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 and granite 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 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.

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 Granite Traversable Sloped Curb. Granite traversable sloped curb 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. Granite traversable sloped 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 granite 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 granite traversable sloped curb after paving. The granite 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. Hot Mix Asphalt (Flexible) Pavement.

1. Existing Pavement. The Contractor shall sawcut 12 inches of the pavement and place the granite traversable sloped curb as above. 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 placed 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 granite traversable sloped curb after paving, decreasing the paving width, excluding the top course, by one foot where the granite 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.

Granite 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 granite curb. Precast concrete curb or granite 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 §609-3.04. No intermixing of curb will be allowed without the Engineer's written permission.

609-3.07 Hot Mix Asphalt Curb. Hot mix asphalt curb shall conform to the construction requirements of §402-3, except as follows:

A. Preparation of Mixture. The hot mix asphalt for curb, in accordance to 714-06 Hot Mix Asphalt Curb, shall be mixed in a batch type bituminous concrete mixing plant. The dry mixing time shall be a minimum of 15 seconds after the complete introduction of aggregates into the pugmill. The wet mix time shall be a minimum of 45 seconds.

B. Preparation of Surface. When hot mix asphalt curb is constructed on a freshly laid hot mix asphalt surface, the surface shall be clean. When curb is to be laid on a cured or aged concrete base, hot mix asphalt pavement, or performance graded binder treated base, the surface shall be thoroughly swept and cleaned by compressed air.

The surface shall be thoroughly dried and, immediately prior to placing of the hot mix asphalt mixture, shall receive a tack coat meeting the requirements of Table 702-8. The tack coat shall be applied at a rate of 0.05 to 0.15 gallons per square yard. The tack coat shall be prevented from spreading to areas outside of the area to be occupied by the curb.

C. Placing. Hot mix asphalt curb shall be constructed by machine to the size and shape shown on the Standard Sheets.

The machine shall be capable of placing the hot mix asphalt in accordance with these specifications to the satisfaction of the Engineer. Prior to placement, the Contractor shall demonstrate to the satisfaction of the Engineer the machine meets the following requirements:

1. The machine shall be self propelled and capable of forming curb which is uniform in texture, shape, and density.

2. The weight and the material extrusion rate of the machine shall be such that the required compaction is obtained without the machine riding above the bed on which curbing is constructed.

When short sections of hot mix asphalt curb or sections with short radii are required, the Engineer may permit construction by other means, as long as the resulting curb conforms to the curb produced by machine.

D. Painted Hot Mix Asphalt Curb. When painted hot mix asphalt curb is specified, it shall be painted yellow or white in accordance with the MUTCD. The paint shall be placed in accordance with the following:

1. After a curing period of not less than 72 hours, exposed surfaces of the curbing shall be sprayed or hand brushed with two coats of pavement marking paint, yellow or white as required. Each coat of paint shall be applied at the rate of 1 gallon per 200 linear feet of curb.
2. The curb shall be clean and free of all foreign matter before painting. Paint shall be applied only when the air temperature is above 50°F and rising. Paint shall not be applied when there is reasonable expectation of rain. In the event the first or final coat of paint is rain damaged, as determined by the Engineer, the Contractor shall clean and repaint the curb at no additional cost to the State.

609-3.08 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, Granite Curb, Optional Curb. The unit price bid per foot shall include the cost of all labor, materials, curb anchors, equipment, sawcutting and excavation to, in accordance with these specifications, place, backfill, concrete, grout and caulk the curb, curb & gutter. When select backfill is specified, the select backfill shall be paid under its respective items. 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 is placed across driveway entrance, to facilitate concrete machine forming operations, and removed.

609-5.02 Stone Curb and Granite Curb - Bridge Type. The unit price bid per foot shall include the cost of furnishing all labor, equipment, and materials including concrete bedding, mortar for stone and granite curbs, chemically curing anchoring materials, and stone and granite curb anchors required to bed and place stone and granite bridge curb, in accordance with these specifications.

609-5.03 Hot Mix Asphalt Curb. The unit price bid per foot shall include the cost of furnishing all labor, materials, and equipment to prepare the surface for curb placement, and place the curb. If painted hot mix asphalt curb is specified, the Contractor shall also include the cost of preparing the curb for painting, furnishing the paint, and applying the paint.

Progress payments will be made after the curb has been constructed to the shape and size shown on the Standard Sheet and/or plans. Payment will be made, at the unit price bid, for 90% of the quantity properly constructed exclusive of painting. The balance of the quantity will be paid for upon completion of the work.

609-5.04 (Vacant)

609-5.05 Resetting Curb. The unit price bid per foot shall include the cost of furnishing all labor, equipment, and materials to remove, haul, store and reset curb, in accordance with these specifications. In addition, the unit price shall also include any re-dressing of tops and joints of bridge type curb, as directed by the Engineer, and replacement of curb damaged by the Contractor's operations.

Payment will be made under:

Item No.	Item	Pay Unit
609.01	Stone Curb (As Detailed)	Foot
609.01XX	Stone Curb* (Various Types as indicated)	Foot
609.02XX	Granite Curb* (Various Types as indicated)	Foot
609.03	Granite Bridge Curb (As Detailed)	Foot
609.03XX	Granite Bridge Curb* (Various Types as indicated)	Foot
609.035X	Stone Bridge Curb* (Various Types as indicated)	Foot
609.04	Cast-in-Place Concrete Curb (As Detailed)	Foot
609.04XX	Cast-in-Place Concrete Curb* (Various Types as indicated)	Foot
609.05	Cast-in-Place Concrete Curb & Gutter (As Detailed)	Foot
609.05XX	Cast-in-Place Concrete Curb & Gutter* (Various Types as indicated)	Foot
609.08XX	Precast Concrete Curb* (Various Types as indicated)	Foot
609.0901	Optional Curb (Precast Concrete Type PVF150 or Cast-In-Place Concrete Type VF150 or Granite Type C)	Foot
609.0902	Optional Curb (Precast Concrete Type PM100 or Cast-In-Place Concrete Type M100 or Granite Type E100)	Foot
609.0903	Optional Curb (Precast Concrete Type PT100 or Cast-In-Place Concrete Type T100)	Foot
609.15	Resetting Existing Curb	Foot
609.21	Painted Hot Mix Asphalt Curb (As Detailed)	Foot
609.21XX	Painted Hot Mix Asphalt Curb* (Various Types as indicated)	Foot
609.22	Unpainted Hot Mix Asphalt Curb (As Detailed)	Foot
609.22XX	Unpainted Hot Mix Asphalt Curb* (Various Types as indicated)	Foot

* Refer to Standard Pay Item Catalog for full Item Number and Description.

SECTION 610 - GROUND VEGETATION - PREPARATION, ESTABLISHMENT AND MANAGEMENT

610-1 DESCRIPTION.

610-1.01 Topsoil. This work shall consist of furnishing, screening, storing, stockpiling and placing topsoil in accordance with the contract documents and as directed by the Engineer.

610-1.02 Preparation of Subsoil for Turf Establishment. This work shall consist of ground preparation when topsoil is not included in the work prior to establishment of turf in accordance with the contract documents and as directed by the Engineer.

610-1.03 Turf Establishment. The work shall consist of ground preparation and establishing turf in accordance with the contract documents and as directed by the Engineer.

610-1.04 Wildflower Seeding. The work shall consist of ground preparation, furnishing and placing wildflower seeding materials and caring for wildflower areas in accordance with the contract documents and as directed by the Engineer.

610-1.05 Sod. The work shall consist of ground preparation, furnishing, installing and caring for sod in accordance with the contract documents and as directed by the Engineer.

610-1.06 Soil Amendments. The work consists of furnishing and placing soil amendments in accordance with the contract documents and as directed by the Engineer.

610-1.07 Compost. The work consists of furnishing, placing and incorporating compost in accordance with the contract documents and as directed by the Engineer.

610-1.08 Mulch for Planting. The work consists of furnishing and placing mulch, in accordance with the contract documents and as directed by the Engineer.

610-1.09 Permeable Weed Control Landscape Fabric. The work consists of furnishing and placing permeable landscape fabric for weed control, in accordance with the contract documents and as directed by the Engineer.

610-1.10 Watering Vegetation. This work shall include watering turf, sod, wildflower seeding, trees, shrubs, ground covers, vines, other plants, and filling portable drip irrigation systems in accordance with the contract documents and as directed by the Engineer.

610-1.11 Weed Removal. This work shall consist of removal and disposal of all native and non-native weeds including roots from newly established turf and sod areas, wildflower seeded areas, tree and shrub pits and plant beds in accordance with the contract documents and as directed by the Engineer.

610-1.12 Mowing. This work shall consist of mowing newly established seeded or sodded areas including the removal and disposal of any debris and litter which has accumulated prior to or between mowings, in accordance with the contract documents and as directed by the Engineer.

610-1.13 Mowing Limits Markers. This work consists of furnishing and installing mowing limit markers in accordance with the contract documents and as directed by the Engineer.

610-2 MATERIALS

610-2.01 Topsoil. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*. Excavated material from earthwork operations defined in Section 203 *Excavation and Embankment* that is unsuitable for embankments but conforms to §713-01 *Topsoil* is acceptable.

Topsoil

713-01

610-2.02 Preparation of Subsoil for Turf Establishment. None specified.

610-2.03 Turf Establishment. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water

712-01

Seeds	713-04
Mulch For Turf Establishment and Erosion Control	713-11
Mulch anchorage	713-12
Straw	713-19

610-2.04 Wildflower Seeding. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
Seeds	713-04
Mulch For Turf Establishment and Erosion Control	713-11
Mulch anchorage	713-12
Straw	713-19

610-2.05 Sod. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
Topsoil	713-01
Sod	713-14

610-2.06 Soil Amendment. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
Limestone	713-02
Fertilizer	713-03
Mycorrhizal Fungi	713-09
Moisture Retention Additive	713-10
Sulfur	713-17

610-2.07 Compost. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Compost	713-15
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610-2.08 Mulch for Planting. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Mulch for Planting	713-05
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610-2.09 Permeable Weed Control Landscape Fabric. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Weed Control Barriers	713-18
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610-2.10 Watering Vegetation. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
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610-2.11 Weed Removal. None specified.

610-2.12 Mowing. None specified.

610-2.13 Mowing Limits Markers. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Materials for the Protection of Plants	713-08
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610-3 CONSTRUCTION DETAILS

610-3.01 Topsoil.

A. General. The subsoil within the areas to be covered by topsoil shall be graded so that the completed work after the topsoil is placed shall conform to the specified lines and grades. The Contractor shall scarify or till the surface of the subsoil to a depth of 6 inches before the topsoil is placed to permit bonding the topsoil with the subsoil. Tillage by disking, harrowing, raking or other approved methods shall be accomplished in such a manner that depressions and ridges formed by tillage shall be parallel to the contours.

Topsoil in an unworkable condition due to excessive moisture, frost, or other conditions shall not be placed until its consistency is workable for spreading. Topsoil shall be placed on the designated area and spread to the depth specified in the contract documents or a minimum of 4 inches for turf areas and 3 inches for sod areas.

The finished surface shall be maintained for subsequent contract work such as seeding, sodding, mulching or planting.

The sites of all stockpiles shall be graded and maintained for subsequent contract work. Surplus topsoil will become the property of the Contractor.

Roots and top growth of non-native weeds or invasive species that emerge from topsoil stockpiles or after placement of the topsoil shall be eradicated and disposed of in accordance with §610-3.11 *Weed Removal* immediately upon emergence. Weed removal, treatment and disposal of invasive species will be paid for separately.

B. Topsoil – Reuse On-Site Materials. Topsoil stripping shall be completed prior to starting the general excavation in an area. The Contractor shall take reasonable care that the topsoil is not contaminated during the stripping and other handling operations.

Topsoil identified for reuse that has a known, established population of invasive species shall be treated to eliminate the presence of invasive species per §610-3.11 *Weed Removal*. The invasive species material shall be disposed appropriately and then the resulting topsoil may be used within the limits. Treatment and disposal of invasive species will be paid for separately.

C. Topsoil – Roadside, Lawn, Special Planting Mix and Acidic. The Contractor shall place topsoil only from approved stockpiles.

D. Topsoil – On-Site Wetland and Wetland Off-Site or Manufactured. The Contractor shall not use topsoil wetlands materials which exhibit the presence of invasive species. Care shall be taken not to impact wetland areas remaining.

On-site wetland topsoil stripping shall be completed prior to starting the general excavation in an area. After stripping, on-site wetland topsoil shall be placed within 24 hours or stored within the contract limits at a location approved by the Engineer.

610-3.02 Preparation of Subsoil for Turf Establishment. Prior to establishment of turf in areas that are not to receive topsoil or other permanent erosion control measures, the Contractor shall remove all loose stones and other objects over 2 inches in size to a 4 inch depth. The Contractor shall mix compost with subsoil in accordance with §610-3.07 B. *Turf Establishment With No Topsoil/ On Subsoil* within the areas to be seeded and grade the surface so that the completed work shall conform to the specified finished lines and grades. Compost will be paid for separately.

610-3.03 Turf Establishment. The Contractor shall coordinate establishment of turf with other site and construction activities.

The Contractor shall clean all equipment involved in turf establishment to remove plants, seeds and propagules prior to commencement of work. Any work to clean equipment shall be at no additional cost to the State.

The Contractor shall apply the seed mix at one and one half to two times the manufacturer's recommended rate. Any method of sowing that does not injure the seeds and achieves even coverage in the process of spreading will be acceptable.

The Contractor shall perform the initial watering and shall spread straw uniformly in a continuous blanket to hide the soil from view or mulch Types I – V as specified in the contract documents. Rolled Erosion Control products shall be installed according to manufacturer's recommendations and paid for separately. Mulch anchorage shall be applied.

The Contractor shall water, mow, and weed the turf establishment areas for the duration of the contract or until turf areas are accepted. Watering, mowing, and weeding to care for the turf will be paid for separately. Any work required to correct initial seeding (installation) shall be done at no additional cost to the State.

A. Turf Establishment – Roadside. Areas will be accepted when:

- free from thin or bare ground greater than one foot in diameter;
- at least 80 percent of the ground surface is covered with established specified permanent turf grass species;
- they have had one mowing cycle in accordance with §610-3.12 unless conditions prevent mowing, in which case turf grass shall be an average minimum height of 5 inches; and
- they exhibit healthy green color.

B. Turf Establishment- Lawns. Areas will be accepted when:

- free from thin or bare spots greater than six inches in diameter;
- at least 90 percent of the ground surface is covered with established specified permanent turf grass species;
- they have had one mowing cycle in accordance with §610-3.12 unless conditions prevent mowing, in which case turf grass shall be an average minimum height of 3 inches; and
- they exhibit healthy green color.

610-3.04 Wildflower Seeding. The Contractor shall clean all equipment involved in wildflower seeding to remove plants, seeds and propagules prior to commencement of work at no additional cost to the State.

The Contractor shall install wildflower seeding materials in accordance with the contract documents. Any method of sowing that does not injure the seeds and provides soil contact in the process of spreading will be acceptable. The Contractor shall apply the seed mix at twice the seed supplier's recommended rate.

The Contractor shall perform the initial watering and spread straw or mulch Types I – V as specified in the contract documents, uniformly at a rate consistent with seed supplier recommendations. Mulch anchorage is required unless otherwise specified in the contract documents. Wildflower seeding areas will be accepted after the seeding operation is complete. Any work required to correct initial seeding (installation) shall be done at no additional cost to the State.

The Contractor shall water the wildflower seeding areas for the duration of the contract. Watering to care for the wildflower seeding areas will be paid for separately.

610-3.05 Sod. The Contractor shall generally place sod during the seasons identified in Table 610-1 *Sodding Seasons*. The Contractor may request extension of seasons, provided the other conditions are met.

TABLE 610-1 SODDING SEASONS		
Geographic locations	Spring	Fall
R1-Essex, Warren (north of towns of Bolton & Warrensburg), R2-Hamilton, Herkimer (towns of Ohio and Webb) R7-Lewis, St. Lawrence, Franklin, Clinton, Jefferson (east of Rte 81)	4/15-6/30	8/15-10/15
R1- Greene, Rensselaer, Schenectady, Saratoga, Washington, Albany, Warren (towns of Bolton & Warrensburg & south) R2- Montgomery, Fulton, Oneida, Madison, Herkimer (south of town of Ohio) R3,6,9 – All counties R7- Jefferson (west of Route 81)	4/1-6/15	8/15-10/31
R4, 5 & 8- All counties	4/1 – 5/31	8/15 – 10/31
R10, 11- All counties	3/1-4/30	8/21-11/15

The subgrade of areas to be sodded shall be excavated and firmed to a sufficient depth below the finished grade of the sod to accommodate the tamped or rolled thickness of topsoil and sod. No frozen sod shall be placed nor shall sod be placed on frozen ground surface.

The Contractor shall exercise care to retain the soil existing on the roots of the sod during transporting, handling and transplanting operations.

Sod shall be placed on a minimum of 3 inches of moist topsoil. The topsoil will be paid for separately.

The finished sod soil surface shall be flush with surface of the adjacent soil and adjacent structures. It shall meet the finished grades as shown in the contract documents.

Sod will be accepted when:

- It has been in place a minimum of 60 days after installation,
- It is 95 percent covered with permanent grass species,
- It has had one mowing cycle in accordance with §610-3.12 *Mowing*,
- It exhibits healthy green color,
- It is free from thin, bare or brown spots greater than 6 inches in diameter, and
- It is firmly rooted in the soil.

Sod not meeting the standards for acceptance, shall be re-sodded until a satisfactory turf has been established, at no additional expense to the State.

The Contractor shall water, mow and weed the sodded areas as necessary until contract final acceptance. These items will be paid for separately.

610-3.06 Soil Amendments. The Contractor shall place, apply or incorporate fertilizer, limestone, mycorrhizal fungi, sulfur and/or moisture retention additive where shown in the contract documents.

When mycorrhizal fungi are specified, application rates for turf shall ensure an even distribution of 100,000 propagules minimum per acre for drill seeding and 1,000,000 propagules minimum per acre for hydroseeding. Application rates for planting and Tree Root Zone Treatment, as well as any other aspects of distributing and/or incorporating mycorrhizal fungi, shall be in accordance with the manufacturer's recommendations.

All other amendments shall be mixed with topsoil prior to placing, spread evenly over the surface of turf, wildflower or sod areas, applied within shrub saucers or applied over the plant beds as appropriate, at the rates recommended by the manufacturer or as specified in the contract documents. The method of application shall ensure an even distribution. When hydraulic application is used, the minimum rate of water application shall be in accordance with manufacturer's recommendation.

Trees shall be fertilized using Method No. 1, No. 2 or No. 3 in accordance with the contract documents.

A. Method No. 1. Holes shall be made in the earth about 18 inches deep and 18 inches apart, and located in the outer two-thirds (as measured on the radius) of the circular area lying under the limits of the tree branches. The holes shall be made with a crowbar, soil auger, pneumatic equipment or other approved tools and care shall be taken to avoid injury to the roots. Fertilizer shall be applied at the rate specified; placing equal amounts of fertilizer in the lower 12 inches of each hole.

B. Method No. 2. Fertilizer shall be applied to soil's surface hydraulically at the rate specified with sufficient water to saturate the soil for the area and depth of the tree roots without creating air pockets.

C. Method No. 3. Fertilizer rate and method of application shall be as specified in the contract documents.

610-3.07 Compost.

A. Existing Soil: The Contractor shall spread 2 inches of Compost Type A or E within the limits shown in the contract documents and tilled into existing soil to a total depth of six inches.

B. Turf Establishment With No Topsoil/ On Subsoil. The Contractor shall spread 2 inches of Compost Type A, D or E within the limits shown in the contract documents and tilled into subsoil to a minimum depth of four inches.

C. Turf Establishment With Topsoil. The Contractor shall mix Compost Type A, D or E with topsoil as specified in the contract documents.

D. Plant Pits or Beds: Compost Type A, D or E shall be applied at a ratio of 1 part compost to 5 parts existing soil.

610-3.08 Mulch for Planting. The Contractor shall apply mulch consisting of wood chips, pine nuggets or shredded bark to the surface of the beds and tree pit areas in accordance with the contract documents. The Contractor shall apply mulch to a uniform depth of 3 inches over the shrub bed and tree pit areas and 2 inches over groundcover beds. The mulch shall be distributed so as to create a smooth, level cover over the exposed soil. Mulch shall not cover plants or be in contact with tree root flare, tree trunks, and plant stems.

610-3.09 Permeable Weed Control Landscape Fabric. Areas where landscape fabric is to be installed shall be smooth, firm, stable and free of rocks, clods, foliage, roots, trash, debris or other material that will prevent the matting from lying in direct contact with the soil surface.

The landscape fabric shall be placed where shown in the contract documents and as required by the manufacturer.

610-3.10 Watering Vegetation. The Contractor shall provide water without damage to plants, mulch, stakes, plant saucers, sod or other areas to be watered. Damage resulting from watering operations shall be repaired at no additional cost to the State.

Watering shall be applied in accordance with §610-3.03 *Turf Establishment*, §610-3.04 *Wildflower Seeding*, §610-3.05 *Sod* or §611-3.01 *General*. Watering for existing vegetation shall be as specified in the contract documents.

Watering shall be applied at the following rates:

A. Turf, Wildflowers, Sod, Planting Beds. In the absence of 1 inch of rainfall within 5 consecutive calendar days the Contractor shall water all turf, wildflowers, sod and planting beds once a week to a depth of 1 inch.

B. Trees and Planting Pits. Between April 1st and November 15th, in the absence of 1 inch of rainfall within 5 consecutive calendar days, the Contractor shall apply water to trees and planting pits once per week, except during July and August, when water shall be applied twice per week, with a minimum of 2 days between applications. Soil saucers or portable drip irrigation systems shall be filled once per watering.

610-3.11 Weed Removal. The Contractor shall perform weed removal in accordance with the contract documents. The Contractor shall remove and dispose of weeds including roots prior to flowering and seed formation by manual, chemical or mechanical means. Any method of weed removal that leaves live roots in the soil will not be permitted. An appropriately licensed applicator is required for chemical weed control methods. The Contractor shall ensure the preservation of desirable vegetation. Treatment and removal of invasive species will be paid for separately.

610-3.12 Mowing. The schedule may be modified to accommodate prevailing or forecast weather conditions. The Contractor shall be responsible, prior to each mowing, for the removal and disposal of any debris and litter which has accumulated since the last mowing. Care shall be taken to avoid damage to existing plant materials.

A. Roadside. The Contractor shall mow all turf establishment areas to a height of 5 inches whenever growth reaches 8 inches for the duration of the contract. Clippings shall be left in place.

B. Lawns. The Contractor shall mow all turf establishment areas to a height of 3 inches after initial growth reaches 5 inches, and then mowed to a height of 3 inches whenever a 5 inch height is reached thereafter for the duration of the contract. Clippings shall be mulched in place.

C. Sod. The Contractor shall mow all sodded areas to a height of 3 inches after initial growth reaches 5 inches, and then mowed to a height of 3 inches whenever a 5 inch height is reached thereafter for the duration of the contract. Clippings shall be mulched in place.

610-3.13 Mowing Limits Markers. The Contractor shall install mowing limit markers plumb to a depth in accordance with the manufacturer's instruction.

610-4 METHOD OF MEASUREMENT

610-4.01 Topsoil. The quantity to be measured for payment will be in cubic yards of each type of topsoil measured to the nearest whole cubic yard of topsoil placed, from payment lines shown in the contract documents.

Cross sectioning, for the purpose of determining quantities for payment, will be employed only where payment lines are not shown on the Plans and cannot be reasonably established by the Engineer.

610-4.02 Preparation of Subsoil for Turf Establishment. The quantity to be measured for payment will be in square yards on slope to the nearest whole square yard of subsoil area prepared for turf establishment.

610-4.03 Turf Establishment. The quantity to be measured for payment will be in square yards on slope to the nearest whole square yard of turf established.

610-4.04 Wildflower Seeding. The quantity to be measured for payment will be in square yards on slope to the nearest whole square yard of wildflower seeding.

610-4.05 Sod. The quantity to be measured for payment will be in square yards on slope to the nearest whole square yard of sod placed.

610-4.06 Soil Amendments. The quantity to be measured for payment will be in pounds to the nearest whole pound or in gallons to the nearest whole gallon of soil amendments (fertilizer, limestone, mycorrhizal fungi, sulfur and/or moisture retention additive) applied.

610-4.07 Compost. The quantity to be measured for payment will be in cubic yards to the nearest whole cubic yard of compost placed or incorporated.

610-4.08 Mulch for Planting. The quantity to be measured for payment will be in cubic yards to the nearest whole cubic yard of mulch placed.

610-4.09 Permeable Weed Control Landscape Fabric. The quantity to be measured for payment will be in square yards on slope to the nearest whole square yard.

610-4.10 Watering Vegetation. The quantity to be measured for payment will be in 1000 gallons (MGal) to the nearest MGal of water applied, determined from approved measuring devices, or by measurement in tanks or containers of known capacity.

610-4.11 Weed Removal. The quantity to be measured for payment will be in square yards on slope weeded per occurrence to the nearest whole square yard.

610-4.12 Mowing. The quantity to be measured for payment will be the number of square yards on slope mowed per occurrence to the nearest whole square yard.

610-4.13 Mowing Limits Markers. The quantity to be measured for payment will be by the number of complete markers satisfactorily installed.

610-5 BASIS OF PAYMENT

610-5.01 Topsoil. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including the handling, storing, stockpiling, and placement.

610-5.02 Preparation of Subsoil for Turf Establishment. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work

610-5.03 Turf Establishment. The unit price bid shall include the cost of all labor, materials and equipment including initial water, mulch and mulch anchorage as necessary to satisfactorily complete the work.

610-5.04 Wildflower Seeding. The unit price bid shall include the cost of all labor, materials and equipment including initial water, mulch and mulch anchorage necessary to satisfactorily complete the work.

610-5.05 Sod. The unit price bid shall include the cost of all labor, materials and equipment including initial water, necessary to complete the work. Topsoil bed placed under the sod shall be paid for separately.

610-5.06 Soil Amendments. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including water for hydraulic application.

610-5.07 Compost. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work

610-5.08 Mulch for Planting. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work.

610-5.09 Permeable Weed Control Landscape Fabric. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

610-5.10 Watering Vegetation. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work.

610-5.11 Weed Removal. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

610-5.12 Mowing. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

610-5.13 Mowing Limits Markers. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
610.0501	Fertilizer	Pound
610.0502	Fertilizer	Gallon
610.06	Limestone	Pound
610.0701	Mycorrhizal Fungi	Pound
610.0702	Mycorrhizal Fungi	Gallon
610.08	Moisture Retention Additive	Pound
610.0901	Sulfur	Pound
610.0902	Sulfur	Gallon
610.10	Compost	Cubic Yard
610.1101	Mulch for Planting Type A, B & D – Wood Chips and Shredded Bark	Cubic Yard
610.1102	Mulch for Planting Type C – USDA-APHIS Protocol Wood Chips	Cubic Yard
610.1103	Mulch for Planting Type E – Pine Nugget	Cubic Yard
610.1201	Permeable Weed Control Landscape Fabric	Square Yard
610.1202	Permeable Weed Control Landscape Fabric with Herbicide	Square Yard
610.13	Weed Removal	Square Yard
610.1401	Topsoil – Reuse On-Site Materials	Cubic Yard
610.1402	Topsoil - Roadside	Cubic Yard
610.1403	Topsoil - Lawns	Cubic Yard
610.1404	Topsoil - Special Planting Mix	Cubic Yard
610.1405	Topsoil – Acidic	Cubic Yard
610.1406	Topsoil – On-Site Wetland Materials	Cubic Yard

610.1407	Topsoil – Wetland Materials	Cubic Yard
610.15	Preparation of Subsoil for Turf Establishment	Square Yard
610.1601	Turf Establishment - Roadside	Square Yard
610.1602	Turf Establishment -Lawns	Square Yard
610.17	Wildflower Seeding	Square Yard
610.18	Sodding	Square Yard
610.19	Watering Vegetation	1,000 Gallons
610.21	Mowing	Square Yard
610.22	Mowing Limits Markers	Each

SECTION 611 - PLANTING, TRANSPLANTING AND POST PLANTING CARE

611-1 DESCRIPTION.

611-1.01 General. Vacant

611-1.02 Planting. This work consists of furnishing, and planting trees, shrubs, vines, groundcovers and other plants in accordance with the contract documents and as directed by the Engineer.

611-1.03 Transplanting. This work consists of transplanting existing plants from existing locations to new locations in accordance with the contract documents and as directed by the Engineer.

610-1.04 Portable Drip Irrigation System. This work shall consist of furnishing, delivering, placing and removing Portable Drip Irrigation System (PDIS) for watering around newly planted trees and other vegetation in accordance with the contract documents and as directed by the Engineer.

611-1.05 Post-Planting Care. This work consists of the care of newly planted and transplanted trees, shrubs, vines, groundcovers and other plants in accordance with the contract documents and as directed by the Engineer.

611-1.06 Rodent Guards. This work shall consist of furnishing, delivering and placing rodent guards around newly planted trees and other vegetation in accordance with the contract documents and as directed by the Engineer.

611-2 MATERIALS

611-2.01 General. Materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
Topsoil	713-01
Mulch for Landscape Bedding	713-05
Materials for the Protection of Plants	713-08
Compost	713-15

611-2.02 Planting. Trees, shrubs, vines, groundcovers and other plants shall be as specified under '713-06 and as further specified in the contract documents.

611-2.03 Transplanting. Plants shall be existing plants in accordance with '713-06.

611-2.04 Portable Drip Irrigation System. The materials shall meet the requirements of the following subsections of *Section 700 Materials and Manufacturing*. Materials may be new or previously used that meet the following material requirements.

Materials for the Protection of Plants 713-08

611-2.05 Post Planting Care. Materials shall meet the requirements of the following subsections of *Section 700 Materials and Manufacturing*.

Pesticides 713-13

611-2.06 Rodent Guards. Materials shall meet the requirements of the following subsections of *Section 700 Materials and Manufacturing*.

Materials for the Protection of Plants 713-08

611-3 CONSTRUCTION

611-3.01 General. Locations for plants shall be as specified in the contract documents. All plants for planting and transplanting shall be protected from damage and drying out, including during transportation, handling or while in temporary storage. No planting or transplanting shall be done when the soil is frozen, saturated (except in wetland conditions) or otherwise in an unsatisfactory condition for working. Planting seasons represent average times of suitable conditions between weather extremes. In general, planting or transplanting shall occur during these seasons. The Contractor may request an extension of the planting seasons.

TABLE 611-1 PLANTING SEASONS					
Planting Seasons	Spring		Fall		
Geographic locations (NYSDOT Regions and Counties)	Deciduous & Evergreen B&B	Deciduous & Evergreen Container Grown	Evergreen B&B	Deciduous B&B	Deciduous & Evergreen Container Grown
(USDA 3b-4a) R1- Essex, Warren (north of towns of Warrensburg & Bolton) R2-Hamilton, Herkimer (towns of Ohio & Webb) R7-Lewis, St. Lawrence, Franklin, Clinton, Jefferson (east of Route 81)	4/15-5/31	4/15-5/31	8/15-9/30	9/15-10/31	8/15 - 10/31
(USDA 4a-5a) R1-Greene, Rensselaer, Schenectady, Saratoga, Washington, Albany, Warren (towns of Bolton & Warrensburg & south) R2- Montgomery, Fulton, Oneida, Madison, Herkimer (south of town of Ohio) R3,6,9 – All counties R7- Jefferson (west of Route 81)	4/1-5/15	4/1 – 5/31	8/15-9/30	9/15-11/15	8/15-11/15

(USDA 5a-6a) R4, 5 & 8- All counties	3/15-5/15	3/15 – 5/31	8/15-10/15	9/15-11/30	8/15-11/30
(USDA 6b-7a) R10, 11- All counties	3/1-5/15	3/1 – 5/31	8/15-10/31	10/1-12/15	8/15-12/15
All Locations	Bare Root stock shall be planted while dormant				

Locations for plants and outlines of areas to be planted shall be staked or marked out on the ground by the Contractor and approved by the Engineer before any plant pits or plant beds are dug. Where non-movable underground obstructions are encountered, the plant pits shall be relocated as approved by the Engineer.

Existing vegetation shall be removed from all new planting beds.

Where an impervious layer of soil (hardpan, fragipan and soils with greater than 20% clay content) is encountered during the excavation of plant pits or beds, all such soil shall be removed up to a depth of one foot beyond required plant pit depth in order to provide adequate drainage for the plant. The pits or beds shall be backfilled with topsoil. Any additional excavation required to properly plant or transplant in impervious soils will be considered extra work.

Planting soil shall be unamended existing soil excavated from the plant pit unless otherwise specified. Watering shall accompany backfilling of plant. The Contractor shall perform the initial watering for backfilling plant so that no voids occur in the plant pit.

No tree shall be staked, guyed or anchored unless otherwise specified in the contract documents.

Mulch shall Type A or B unless otherwise specified in the contract documents and shall be placed at the time of planting or transplanting.

The Contractor shall water, weed and maintain mulch at no cost to the state until the newly planted or transplanted material is accepted.

Plants will be accepted when all specified plants meet the following conditions:

- Species has been verified and plant is in its designated location
- Planted or transplanted in accordance with ANSI A 300, Part 1, 2 , 3 and 6 *Standard Practices*
- Planted or transplanted in accordance with 611 Standard sheets
- living, healthy, unimpaired and in an undamaged condition

Watering, if specified, shall begin upon acceptance of the planting or transplanting and unless otherwise specified continue for one year or the duration of the contract, which ever is later. Watering after acceptance shall be performed as required in Section 610-3.09 *Watering Vegetation* and paid for separately. Installation of rodent guards if specified are paid for separately.

Plants that die after acceptance at any time during the contract duration shall be removed and unless otherwise specified, the surface area shall be restored to the condition of the adjacent surface at no additional cost to the state.

611-3.02 Planting. The Contractor shall notify the Engineer at least four calendar days before intended delivery of plants or planting materials to the site. The Contractor shall furnish the Engineer legible copies of the certificates of inspection of plant materials and documentation for each shipment showing point of origin, sizes, scientific names, quantities, and kinds of materials supplied.

Planting shall be in accordance with ANSI A300 Part 1, 2 and 3 *Standard Practices*.

Pruning at the time of planting shall be limited to the removal of dead, conflicting and broken branches; and to other pruning consistent with good horticultural practice in accordance with ANSI A300 Part 1 *Standard Practices*.

611-3.03 Transplanting. Transplanting shall be in accordance with ANSI A300 Part 1, 2, 3 and 6 *Standard Practices* and accomplished by a digging method intended to preserve the root system intact to

the extent practicable. Planting soil shall be unamended existing soil excavated from the plant pit unless otherwise specified. Transplanted stock shall be pruned prior to transplanting in accordance with ANSI A300 Part 1 *Standard Practices*.

The Contractor shall take appropriate measures to avoid damage to plant during the transplanting operation including:

1. Provide trunk and branch Protection.
2. Treat plant with an anti-desiccant prior to being dug up
3. Protect all roots from drying out.
4. Prune damaged plant roots greater than 1 inch in diameter

Plants shall be set in a vertical position.

Where the contract duration allows plants greater than 6 inch DBH shall be root pruned up to one year prior to transplanting.

611-3.04 Portable Drip Irrigation System (PDIS). After the requirements for planting under Section 611 *Planting, Transplanting and Post Planting Care* are completed; the Contractor shall supply and install the required number and size of PDIS as recommended by the manufacturer for the trees planted. Watering shall be performed as required in Section 610-3.09 *Watering Vegetation* and paid for separately. All PDIS that are damaged and or missing shall be replaced at no added cost to the State.

The Contractor shall remove PDIS in the fall prior to the first frost. The PDIS shall remain the property of the Contractor.

611-3.05 Post-Planting Care. If specified, the Contractor shall care for planting as needed for one year following the satisfactory completion of all of the planting and/or transplanting or for the duration of the contract, which ever is later. The contractor shall prepare and submit a post-planting care work schedule for approval.

Post-planting care shall consist of:

1. Mulching – with materials to match those used in initial planting, twice to maintain a depth of 3 inches.
2. Weeding - twice
3. Integrated vegetation and pest management- in the event of threat of serious damage from insects or diseases the plants shall be treated by preventative or remedial measures.
4. Pruning (ANSI A300 Part 1) - once to prune dead or damaged branches.
5. Maintenance/Replacement/of tree support system if present – once every six months
6. Removal of tree support system if present at the end of the post-planting care period.
7. Removal of rodent guards if present at the end of the post-planting care period

611-3.06 Rodent Guards. Vacant

611-4 METHOD OF MEASUREMENT.

611-4.01 Planting. The quantity to be measured for payment will be the number of plants placed.

611-4.02 Transplanting. The quantity to be measured for payment will be the number of plants placed.

611-4.03 Portable Drip Irrigation System (PDIS). The quantity of PDIS to be measured for payment will be the number of PDIS placed.

The quantity of Removal of Portable Drip Irrigation System to be measured for payment will be the number of PDIS removed.

611-4.04 Post-Planting Care. The quantity to be measured for payment will be the number of plants cared for or nearest whole square yard on slope of plants cared for.

611-4.05 Rodent Guards. The quantity to be measured for payment will be the number of rodent guards placed.

611-5 BASIS OF PAYMENT.

611-5.01 Planting. The unit price bid for each plant shall include the cost of all labor, materials, and equipment, including initial watering and mulch, compost, plants and plant protection materials and topsoil necessary to satisfactorily complete the work.

611-5.02 Transplanting. The unit price bid for each plant shall include the cost of all labor, materials, and equipment, including initial watering, mulch, compost, plant and plant protection materials and topsoil necessary to satisfactorily complete the work.

611-5.03 Portable Drip Irrigation System. The unit price bid shall include the cost of all labor, materials, and equipment, necessary to satisfactorily complete the work.

611-5.04 Post-Planting Care. The unit price bid for each plant shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work. Progress payments for work satisfactorily performed may be paid at the mid point of the post-planting care in amounts not to exceed forty percent (40%) of the unit price bid for the respective work.

611-5.05 Rodent Guards. The unit price bid shall include the cost of all labor, materials, and equipment, necessary to satisfactorily complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
611.011x	Planting - Major Deciduous Trees – size as specified	Each
611.012x	Planting - Major Deciduous Trees – 1 ¼ inch Caliper	Each
611.013x	Planting - Major Deciduous Trees – 1 ½ inch Caliper	Each
611.014x	Planting - Major Deciduous Trees – 1 ¾ inch Caliper	Each
611.015x	Planting - Major Deciduous Trees – 2 inch Caliper	Each
611.016x	Planting - Major Deciduous Trees – 2 ½ inch Caliper	Each
611.017x	Planting - Major Deciduous Trees – 3 inch Caliper	Each
611.018x	Planting - Major Deciduous Trees – 3 ½ inch Caliper	Each
611.019x	Planting - Major Deciduous Trees – 4 inch Caliper	Each
611.021x	Planting - Minor Deciduous Trees – size as specified	Each
611.022x	Planting - Minor Deciduous Trees – 3 foot height	Each
611.023x	Planting - Minor Deciduous Trees – 4 foot height	Each
611.024x	Planting - Minor Deciduous Trees – 5 foot height	Each
611.025x	Planting - Minor Deciduous Trees – ¾ inch Caliper	Each
611.026x	Planting - Minor Deciduous Trees – 1 inch Caliper	Each
611.027x	Planting - Minor Deciduous Trees – 1 ¼ inch Caliper	Each
611.028x	Planting - Minor Deciduous Trees – 1 ½ inch Caliper	Each
611.029x	Planting - Minor Deciduous Trees – 1 ¾ inch Caliper	Each
611.020x	Planting - Minor Deciduous Trees – 2 inch Caliper	Each
611.031x	Planting - Coniferous Trees – size as specified	Each
611.032x	Planting - Coniferous Trees – 2 ½ foot height	Each
611.033x	Planting - Coniferous Trees – 3 foot height	Each

611.034x	Planting - Coniferous Trees – 4 foot height	Each
611.035x	Planting - Coniferous Trees – 5 foot height	Each
611.036x	Planting - Coniferous Trees – 6 foot height	Each
611.037x	Planting - Coniferous Trees – 7 foot height	Each
611.038x	Planting - Coniferous Trees – 8 foot height	Each
611.039x	Planting - Coniferous Trees – 9 foot height	Each
611.041x	Planting - Deciduous Shrubs – As Specified	Each
611.042x	Planting - Deciduous Shrubs – 15 inch Height/Spread	Each
611.043x	Planting - Deciduous Shrubs – 18 inch Height/Spread	Each
611.044x	Planting - Deciduous Shrubs – 2 foot Height/Spread	Each
611.045x	Planting - Deciduous Shrubs – 3 foot Height/Spread	Each
611.046x	Planting - Deciduous Shrubs – 4 foot Height/Spread	Each
611.047x	Planting - Deciduous Shrubs – 5 foot Height/Spread	Each
611.048x	Planting - Deciduous Shrubs – 6 foot Height/Spread	Each
611.051x	Planting - Evergreen Shrubs – As Specified	Each
611.052x	Planting - Evergreen Shrubs – 15 inch Height/Spread	Each
611.053x	Planting - Evergreen Shrubs – 18 inch Height/Spread	Each
611.054x	Planting - Evergreen Shrubs – 2 foot Height/Spread	Each
611.055x	Planting - Evergreen Shrubs – 2 ½ foot Height/Spread	Each
611.056x	Planting - Evergreen Shrubs – 3 foot Height/Spread	Each
611.057x	Planting - Evergreen Shrubs – 3 ½ foot Height/Spread	Each
611.058x	Planting - Evergreen Shrubs – 4 foot Height/Spread	Each
611.059x	Planting - Evergreen Shrubs – 5 foot Height/Spread	Each

x = Root Specification

1 = Ball & Burlap, Field Potted or Field Boxed,
3 = Bare Root,

2 = Container or Box Grown,
4 = In Ground Fabric Bag Grown

611.061y	Planting – Vines, Groundcovers – As Specified	Each
611.062y	Planting – Vines, Groundcovers – Number SP3 Container	Each
611.063y	Planting – Vines, Groundcovers – Number SP4 Container	Each
611.064y	Planting – Vines, Groundcovers – Number SP5 Container	Each
611.065y	Planting – Vines, Groundcovers – Number 1 Container	Each
611.066y	Planting – Vines, Groundcovers – Number 2 Container	Each
611.071y	Planting - Herbaceous Plants – As Specified	Each
611.072y	Planting - Herbaceous Plants – Number SP4 Container	Each
611.073y	Planting - Herbaceous Plants – Number SP5 Container	Each
611.074y	Planting - Herbaceous Plants – Number 1 Container	Each
611.075y	Planting - Herbaceous Plants – Number 2 Container	Each

y = Type Specification

1 = Container Grown, 2 = Bare Root
3 = Field Potted,

611.10	Transplanting 0 to 48 inch in height	Each
611.11	Transplanting over 48 inch to 72 inches in height	Each
611.12	Transplanting, over ¾ inch to 3 inches Diameter at Breast Height	Each
611.13	Transplanting, over 3 inches to 6 inches Diameter at Breast Height	Each
611.14	Transplanting over 6 inches to 12 inches Diameter at Breast Height	Each
611.15	Transplanting Vines, Groundcovers,	Each
611.16	Transplanting Herbaceous Plants	Each

611.17	Portable Drip Irrigation System	Each
611.18	Removal of Portable Drip Irrigation System	Each
611.19	Post-Planting Care	Each
611.20	Post-Planting Care	Square yard
611.21	Rodent Guard	Each
Refer to the Contract Proposal for full item number and full description		

SECTION 612 (VACANT)

SECTION 613 - WILDLIFE AND ECOLOGY

613-1 DESCRIPTION.

613-1.01 Terrestrial Habitat. This work shall consist of the protection, preservation, restoration and management of terrestrial habitat.

613-1.02 Aquatic Habitat. This work shall consist of the protection, preservation, restoration and management of aquatic habitat.

613-1.04 Wetlands. This work shall consist of the protection, preservation, restoration and management of wetlands.

613-1.06 Streams and Riparian Zones. This work shall consist of the protection, preservation, restoration and management of rivers, streams and riparian zones.

613-2 MATERIALS. As specified in the special specifications.

613-3 CONSTRUCTION DETAILS. As specified in the special specifications.

613-4 METHOD OF MEASUREMENT. As specified in the special specifications.

613-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 614 - PRUNING, IMPROVING AND REMOVING EXISTING VEGETATION

614-1 DESCRIPTION.

614-1.01 Pruning Existing Trees. This work shall consist of pruning existing trees as shown in the contract documents and as directed by the Engineer.

614-1.02 Improvement of Vegetated Areas. This work shall consist of cutting, disposing of all wood and debris, stump removal, or mechanical or chemical treatment of specified trees and woody vegetation within the area shown in the contract documents and as directed by the Engineer.

614-1.03 Tree Removal. The work shall consist of felling trees over 4 inch in diameter at breast height, disposing of all wood and debris, and may require topping, stump removal and other work as shown in the contract documents and as directed by the Engineer.

614-1.04 Existing Stump Removal. The work shall consist of removing existing stumps, disposing of all wood and debris, as shown in the contract documents and as directed by the Engineer.

614-1.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). This work shall consist of treating the root zone of trees through aeration and/or mulching of the roots as shown in the contract documents and as directed by the Engineer.

614-1.06 Tree Root Pruning. This work shall consist of cleanly pruning, existing tree roots severed during construction operations, typically related to linear excavation, as shown in the contract documents and as directed by the Engineer.

614-2 MATERIALS

614-2.01 Pruning Existing Trees. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
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614-2.02 Improvement of Vegetated Areas. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Topsoil	713-01
Pesticides	713-13

614-2.03 Tree Removal. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Topsoil	713-01
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614-2.04 Existing Stump Removal. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Topsoil	713-01
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614-2.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Mortar Sand	703-03
Mycorrhizal Fungi	713-09
Compost	713-15

614-2.06 Tree Root Pruning. The materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
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614-3 CONSTRUCTION DETAILS

614-3.01 Pruning Existing Trees

A. Equipment. Workers shall employ accepted tree climbing methods, and shall not climb trees with climbing spurs. All tools used and methods employed in accordance ANSI A300 Part 1 *Standard Practices*, except that no anvil type pruners will be permitted. The cutting surfaces of all tools, ladders, ropes, soles of workers shoes and other objects coming into contact with the tree shall be disinfected with a 2% bleach solution and dried completely prior to the start of any work on a tree to prevent the spread of plant diseases.

B. Pruning. Pruning shall be in accordance ANSI A300 Part 1 *Standard Practices*. When specified the quantity of trees as shown in the contract documents shall be pruned so the resulting crown retains the growth habit of the tree species. Any and all branches interfering with or hindering the healthy growth of the tree shall be removed. All diseased branches and all dead branches 1 inch or more in diameter shall be removed. Any branch which may be partly dead, yet has a healthy lateral branch at least one-third the diameter of the parent branch shall be removed beyond the healthy branch. All stubs or improper cuts resulting from former pruning shall be removed. All cuts shall be cleanly made with sharp tools as close to the parent trunk or limb as possible without disturbing the branch bark ridge or callus collar. All existing nails, spikes, wire, plastic or other materials found driven into or fastened to the trunk or branches shall be removed or if approved they shall be cut flush in a manner to permit complete healing over.

614-3.02 Improvement of Vegetated Areas. All trees and shrubs specified for removal will be designated by the Engineer either by separate marking, marking in sample areas, or otherwise. Unless otherwise specified, all stumps shall be cut to a height of about 6 inches above the ground. Unless otherwise specified, an approved herbicide shall be applied to all live stumps in accordance with the manufacturer's recommendations. An approved dye shall be added to the herbicide mixture to identify treated stumps and stubble. Where stump removal is specified, all stump holes shall be backfilled with topsoil, unless otherwise specified in the contract documents, and backfill shall be compacted. Unless otherwise specified in the contract documents, grass shall be established on stump holes and will be paid for separately.

Care shall be taken in the felling of trees and the operation of equipment to prevent injury to trees and shrubs which are to be preserved. All injuries to the limbs, bark and roots of such plants shall be repaired in accordance with ANSI A300 Part 1 *Standard Practices Pruning* and ANSI Z133.1 *Arboricultural Operations Safety*.

Improvement of vegetated areas shall be completed in any area before any planting, seeding or other landscape work is begun in that area unless otherwise approved.

All wood, stumps, brush and other debris resulting from the work shall be disposed of as specified in Section 201 *Clearing and Grubbing*.

614-3.03 Tree Removal. No tree shown in the contract documents or listed for removal shall be cut until it is approved by the Engineer. The contractor shall be responsible to coordinate all work involving utilities with the respective utility company. All trees shall be topped and limbed before felling unless otherwise approved. All injuries to the limbs, bark and roots of plants to remain shall be repaired in accordance with ANSI A300 *Standard Practices Pruning* and ANSI Z133.1 *Arboricultural Operations Safety*.

The Contractor shall field measure all trees at 4 ½ feet above the ground, commonly referred to as Diameter Breast Height (DBH) before they are cut.

Stumps of trees removed under this item for removal shall be grubbed, cut, ground to the depth of six inches below grade or as specified in the contract documents. All stump holes shall be backfilled with topsoil, unless otherwise specified in the contract documents and backfill shall be compacted. Unless otherwise specified in the contract documents, grass shall be established on stump holes and will be paid for separately.

614-3.04 Existing Stump Removal. Existing stumps listed for removal in the contract documents shall be ground to the depth of 6 inches below grade unless otherwise specified in the contract documents. Stumps shall include all visible wood and roots. Backfill to finished grade with topsoil, unless otherwise specified in the contract documents. The backfill shall be compacted. Unless otherwise specified in the contract documents, grass shall be established on stump holes and will be paid for separately.

614-3.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). Locations of work shall include areas within the dripline or wider root zone of existing trees to be preserved as shown on the contract documents.

Appropriate drilling tools shall be used for drilling of holes for root zone restoration. Drilling equipment shall be hand held or light weight devices (no heavy machinery) so as to avoid further impact to tree roots through compaction.

Holes shall be drilled and existing soil removed within a zone beginning 3 feet from the trunk of the specified tree and extending to its dripline on an approximately 2 foot x 2 foot grid. Dimensions of holes or drill size shall be approximately 2 inches in diameter and a minimum of 12 inches deep. Efforts should be made to minimize drilling through large tree roots (especially near the trunk). When woody roots are encountered, the drill hole shall be moved to avoid root damage.

The hole shall be completely filled to original grade as follows:

Method 1: with mortar sand

Method 2: with mortar sand amended with Mycorrhizal Fungi.

Method 3: with compost.

Method 4: with compost amended with Mycorrhizal Fungi.

When mycorrhizal fungi are specified, they shall be a dry granular powder specifically designed for vertical mulching applications. Apply in accordance with the manufacturer's recommendations at a rate of 3 ounces per hole or when pre-mixed in bulk 5 pounds per cubic yard of sand or compost.

614-3.06 Tree Root Pruning. Existing tree roots greater than 1 inch in diameter, measured at the edge of excavation, shall be pruned within 24 hours of the time they have been damaged by construction activity. The severed root shall be pruned at the edge of excavation, or 1 inch beyond the entire damaged portion of the tree root if damaged root extends beyond the edge of excavation into undisturbed soil. Pruning shall be in accordance with ANSI A300 Part 1 *Standard Practices Pruning* and ANSI Z133.1 *Arboricultural Operations Safety*. All cuts shall be cleanly made with sharp tools. The cutting surfaces of all tools, ladders, ropes, soles of workers shoes and other objects coming into contact with the tree roots shall be washed with a disinfectant at the start of any work on a tree to prevent the spread of plant diseases.

The excavated area around the existing tree roots shall be backfilled as soon as construction activities permit with the specified or approved materials. If the excavated area around the existing tree roots is not backfilled within 24 hours, all roots shall be kept moist, to prevent dessication.

614-4 METHOD OF MEASUREMENT

614-4.01 Pruning Existing Trees. The quantity to be measured for payment will be the number of trees pruned.

614-4.02 Improvement of Vegetated Areas. The quantity to be measured for payment will be in square yards measured to the nearest whole square yard of area improved.

614-4.03 Tree Removal. The quantity to be measured for payment will be the number of trees, including their stumps if specified.

614-4.04 Pre-Existing Stump Removal. The quantity to be measured for payment will be the number of pre-existing stumps removed.

614-4.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). The quantity to be measured for payment will be in square yards treated within the zone, measured to the nearest square yard.

614-4.06 Tree Root Pruning. The quantity to be measured for payment will be in feet to the nearest whole foot, along excavation line.

614-5 BASIS OF PAYMENT

614-5.01 Pruning Existing Trees. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

614-5.02 Improvement of Vegetated Areas. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

614-5.03 Tree Removal. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

When trees are specified in the contract documents for removal, payment for each tree removal will include removal of the stump.

614-5.04 Existing Stump Removal. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

614-5.05 Tree Root Zone Treatment. The unit price bid shall include the cost of labor, materials, equipment and incidentals necessary to complete the work. Mycorrhizal Fungi and mulch will be paid for separately.

614-5.06 Tree Root Pruning. The unit price bid shall include the cost of labor, materials, equipment and incidentals necessary to complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
614.0411	Care of Trees up to 12" Diam. at Breast Height – Pruning	Each
614.0421	Care of Trees Over 12" to 24" Diam. at Breast Height - Pruning	Each
614.0431	Care of Trees Over 24" to 36" Diam. at Breast Height - Pruning	Each
614.0441	Care of Trees Over 36" to 48" Diam. at Breast Height – Pruning	Each
614.0451	Care of Trees Over 48" to 60" Diam. at Breast Height – Pruning	Each
614.0461	Care of Trees Over 60" Diam. at Breast Height – Pruning	Each
614.05	Improvement of Vegetated Areas	Square Yard
614.0601nn	Tree Removal Over 4" to 6" Diam. Breast Height	Each
614.0602nn	Tree Removal Over 6" to 12" at Breast Height	Each
614.0603nn	Tree Removal Over 12" to 18" at Breast Height	Each
614.0604nn	Tree Removal Over 18" to 24" at Breast Height	Each
614.0605nn	Tree Removal Over 24" to 36" at Breast Height	Each
614.0606nn	Tree Removal Over 36" to 48" at Breast Height	Each
614.0607nn	Tree Removal Over 48" to 60" at Breast Height	Each
614.0608nn	Tree Removal Over 60" to 72" at Breast Height	Each

nn = Stump Treatment

01 = Stumps Cut to Above Grade, 02 = Stumps Cut Flush,

03 = Stumps Cut to Below Grade, 04 = Stumps Grubbed

614.0701	Pre-Existing Stump Removal up to 24" diameter at 6 inches above grade	Each
614.0702	Pre-Existing Stump Removal over 24" to 48" diameter at 6 inches above grade	Each
614.0703	Pre-Existing Stump Removal over 48" diameter at 6 inches above grade	Each

614.08	Tree Root Zone Treatment (Vertical Mulching/Aeration)	Square Yard
614.09	Tree Root Pruning	Feet

SECTION 615 - LANDSCAPE APPURTENANCES

615-1 DESCRIPTION. The work in this section shall include all work required for furnishing, placing, and/or special construction of landscape appurtenances.

615-2 MATERIALS. As specified in the special specifications.

615-3 CONSTRUCTION DETAILS. As specified in the special specifications.

615-4 METHOD OF MEASUREMENT. As specified in the special specifications.

615-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 616 - SOIL BIOENGINEERING

616-1 DESCRIPTION. This section shall include work required for soil bioengineering

616-2 MATERIALS. As specified in the special specifications.

616-3 CONSTRUCTION DETAILS. As specified in the special specifications.

616-4 METHOD OF MEASUREMENT. As specified in the special specifications.

616-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 617 - INVASIVE SPECIES MANAGEMENT

617-1 DESCRIPTION. This work shall consist of the control, eradication and management of invasive species.

617-2 MATERIALS. As specified in the special specifications.

617-3 CONSTRUCTION DETAILS. As specified in the special specifications.

617-4 METHOD OF MEASUREMENT. As specified in the special specifications.

617-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 618 (VACANT)

SECTION 619 - WORK ZONE TRAFFIC CONTROL

(Last Revised September, 2020)

619-1 DESCRIPTION

619-1.01 General. Work zone traffic control shall consist of all work necessary to provide for the safe and efficient movement of traffic through or around work zones, and to protect workers and the public from damage to person and property which may result, directly or indirectly, from any construction operations. Work zone traffic control shall be completed under the direction of a trained, competent person, as shown in the contract documents, the MUTCD and as directed by the Engineer. The duration of this work shall be from the date any work is started on the contract site, including mobilization of equipment, signs, offices, and shops until the date of contract final acceptance. Temporary materials and components that are furnished by the Contractor shall remain the property of the Contractor.

See Figure 619-1 *Component Parts of a Typical Highway Work Zone* for definitions of terms.

619-1.02 Basic Work Zone Traffic Control. Work shall consist of controlling traffic over a reasonably smooth traveled way which shall be marked by signs, delineators, channelizing devices, pavement markings, and other devices as shown in the contract documents or as directed by the Engineer. Work after sunset and before sunrise shall include additional requirements for nighttime operations including, but not limited to, a written plan for nighttime operations, additional worker and equipment protection, additional channelizing devices and contract site patrol.

The Contractor shall conduct its operations to ensure the safety and convenience of travelers and abutting property owners as well as the safety of all workers on the contract. Travelers include, but may not be limited to motorists, motorcyclists, bicyclists and pedestrians.

Work shall be scheduled to keep the time and distance that existing pavement is removed or substantially disturbed to a minimum and consistent with the physical requirements of the contract. Unless otherwise indicated in the contract documents, the distance over which traffic is maintained on an unpaved surface shall not exceed 1/2 mile at any one time. During seasonal shutdown periods, no part of the highway shall be closed to traffic unless provided for in the contract documents, or the Contractor has submitted and the Engineer has approved a detailed schedule of operations reflecting a proposal to close the highway to traffic.

Basic work zone traffic control shall include the following:

A. Surface Condition, Debris, Drainage and Dust Control. Work shall consist of maintaining the surface condition of the traveled way, including detours, consistent with the preconstruction posted speed limit; including maintaining positive drainage, dust control and keeping the roadway free from debris and materials spilled from or tracked by vehicles or equipment. Debris and dust shall be controlled on all operations.

B. Seasonal Operations and Snow and Ice Control. Work shall consist of maintaining the traveled way to facilitate safe, efficient travel and permit snow and ice control by others during winter months and during any period that work is suspended.

C. Maintain Public Access. Work shall consist of maintaining public access to intersecting roads, residences, business establishments, adjacent property, bus stops and transportation facilities for vehicles, pedestrians, and bicyclists.

D. Maintain Existing Roadside Signs, Delineators and Markers. Work shall consist of maintaining, in their existing condition, existing highway signs, delineators, and markers within the contract limits.

E. Maintain Existing Guide Rail, Median Barrier and Bridge Rail. Work shall consist of maintaining existing traffic barriers and other safety devices, in their existing condition, within the contract limits.

F. Construction Vehicles and Equipment. Work shall consist of equipping construction vehicles and equipment with warning lights and reflective markings; and maintenance of vehicles and equipment in safe operating condition.

G. Barrier/Shadow Vehicles.

1. Barrier Vehicles. Work shall consist of furnishing barrier vehicles to guide traffic and protect workers in stationary lane and shoulder closures and other stationary temporary traffic control zones, as shown in the contract documents or as directed by the Engineer.

2. Shadow Vehicles. Work shall consist of furnishing shadow vehicles to guide traffic and to protect workers in mobile or short duration work zones not protected by stationary lane or shoulder closures, as shown in the contract documents or as directed by the Engineer.

H. Construction Signs. Work shall consist of furnishing, installing, moving, maintaining, deactivating, and removing construction signs, including warning lights, as shown in the contract documents or as directed by the Engineer.

I. Arrow Panels. Work shall consist of furnishing, installing, maintaining, and removing arrow panels as shown in the contract documents or as directed by the Engineer. Arrow panels are used to warn and guide traffic when travel lanes are temporarily closed by construction activities.

J. Channelizing Devices. Work shall consist of furnishing, placing, maintaining and removing channelizing devices, with warning lights where required, including drums, vertical panels, construction barricades, cones, and temporary tubular markers. Type III construction barricades and interim tubular markers may be specified under separate pay items.

K. Pavement Edge Drop-Off Protection. Work shall consist of furnishing and maintaining protection for edge drop-offs adjacent to the pavement or shoulder.

L. Flagging and Traffic Control. Work shall consist of furnishing the necessary traffic control equipment and flaggers for adequate traffic control. Portable traffic signal systems authorized by the Engineer may be utilized only on a highway designated as a Restricted Highway.

M. Maintain Existing Mailboxes. Work shall consist of maintaining postal route mailboxes serviced from vehicles, in a useable condition and location consistent with U.S. Postal Service requirements.

N. Contract Site Patrol. Work shall consist of furnishing personnel to patrol the contract area as necessary to ensure conditions on the site are adequate for public safety and convenience at all times.

619-1.03 Basic Work Zone Traffic Control (Daily Operations). Work shall consist of controlling and protecting traffic during a single work shift as shown in the contract documents, or as directed by the Engineer. The Contractor will not be required to repair or maintain the surface of the traveled way and other roadway features not part of the work, except to repair damage resulting from the Contractor's operations.

619-1.04 Temporary Business Signs. Work shall consist of furnishing, installing, moving, covering, maintaining, and removing temporary business signs as shown in the contract documents or as directed by the Engineer.

619-1.05 Covering or Removal of Pavement Markings. Work shall consist of removing or covering existing permanent pavement markings, interim pavement markings, and temporary pavement markings including, but not limited to: edge lines, lane lines, center lines, crosswalks, stop bars, arrows, symbols, and diagonal markings in gores and medians as shown in the contract documents or as directed by the Engineer.

619-1.06 Temporary Pavement Markings. Work shall consist of furnishing and applying temporary pavement markings as shown in the contract documents or as directed by the Engineer. The work for removable pavement tape, removable wet-night reflective tape, temporary overlay markers and removable raised pavement markers shall include removal. Temporary pavement markings are intended for use on any new pavement or milled surface until the subsequent course is placed or interim pavement markings or final pavement markings are installed.

619-1.07 Interim Pavement Markings. Work shall consist of furnishing, applying, and maintaining, interim pavement markings as shown in the contract documents or as directed by the Engineer. Interim pavement markings are intended for use in diversions, temporary pavement realignments and crossovers, lane shifts and closures, and other traffic patterns associated with construction activities. Interim pavement markings are intended for use for a given phase or season, for a maximum of 1 year.

619-1.08 Temporary Rumble Strips. Work shall consist of installing, maintaining, and removing temporary rumble strips at the locations shown in the contract documents or as directed by the Engineer.

619-1.09 Interim Tubular Markers. Work shall consist of furnishing, installing, moving, and maintaining interim tubular markers attached to the pavement as shown in the contract documents or as directed by the Engineer. Interim tubular markers are typically used for 2-way, 2-lane freeway work zones and long-term closures where available width is limited.

619-1.10 Portable Variable Message Signs (PVMS) and Truck Mounted Variable Message Signs (TMVMS).

A. Portable Variable Message Signs (PVMS). Work shall consist of furnishing, installing, operating, maintaining, relocating, and removing PVMS as shown in the contract documents or as directed by the Engineer. PVMS with a pay unit of each shall be provided for the duration of the contract at the general locations specified in the contract documents and in accordance with the *Special Note Requirements for Portable Variable Message Signs (PVMS)*. PVMS with a pay unit of weeks shall be provided at general locations and durations in accordance with the *Special Note Requirements for Portable Variable Message Signs (PVMS)* and the contract documents.

PVMS are intended to supplement other traffic control devices by displaying symbolic or word messages, but are not to be used alone to replace conventional traffic control devices.

B. Truck Mounted Variable Message Signs (TMVMS). Work shall consist of furnishing, installing, operating, maintaining and relocating TMVMS as shown in the contract documents or as directed by the Engineer. TMVMS with a pay unit of each shall be provided for the duration of the contract at the general locations specified in the contract documents. TMVMS with a pay unit of *weeks* shall be provided at general locations and durations in accordance with the *Special Note Requirements for Truck Mounted Variable Message Signs* and the contract documents. TMVMS are intended to supplement other traffic control devices by displaying symbolic or word messages. They may only be used alone to replace conventional traffic control devices in mobile and short duration work zones or situations of limited duration.

619-1.11 Type III Construction Barricades. Work shall consist of furnishing, installing, moving, maintaining, and removing Type III construction barricades, with warning lights where specified, as shown in the contract documents or as directed by the Engineer.

619-1.12 Temporary Positive Barrier. Work shall consist of furnishing, installing, moving, maintaining, and removing approved temporary positive barrier (concrete or steel), including barrier warning lights and transitions to and from guide rail where specified, as shown in the contract documents or as directed by the Engineer.

619-1.13 Temporary Glare Screen. Work shall consist of furnishing, installing, moving, maintaining, and removing glare screen mounted on a concrete barrier as shown in the contract documents or as directed by the Engineer.

619-1.14 Temporary Impact Attenuator. Work shall consist of furnishing, installing, maintaining, repairing, moving and removing temporary impact attenuators as shown in the contract documents or as directed by the Engineer.

619-1.15 Temporary Sand Barrel Arrays. Work shall consist of furnishing, installing, maintaining, relocating and removing temporary sand barrel arrays as shown in the contract documents or as directed by the Engineer.

619-1.16 Vehicle Arresting Barrier. Work shall consist of providing vehicle arresting barriers (net-type) and their anchorages as shown on the Standard Sheets to prevent errant vehicles from entering a closed work area as shown in the contract documents or as directed by the Engineer.

619-1.17 Maintain or Modify Traffic Signal Equipment. Work shall consist of modifying or maintaining in proper operation, existing, relocated, modified, or newly installed traffic signals as shown in the contract documents or as directed by the Engineer.

619-1.18 Temporary Traffic Signals. Work shall consist of furnishing, installing, moving, maintaining, and removing temporary traffic signals and necessary components as shown in the contract documents or as directed by the Engineer. Temporary signals shall be installed only on a highway designated as a Restricted Highway.

619-1.19 Nighttime Operations. Work shall consist of developing a Nighttime Operations and Lighting Plan, and furnishing, installing, operating, maintaining, moving and removing lighting equipment for nighttime construction operations as shown in the contract documents or as directed by the Engineer.

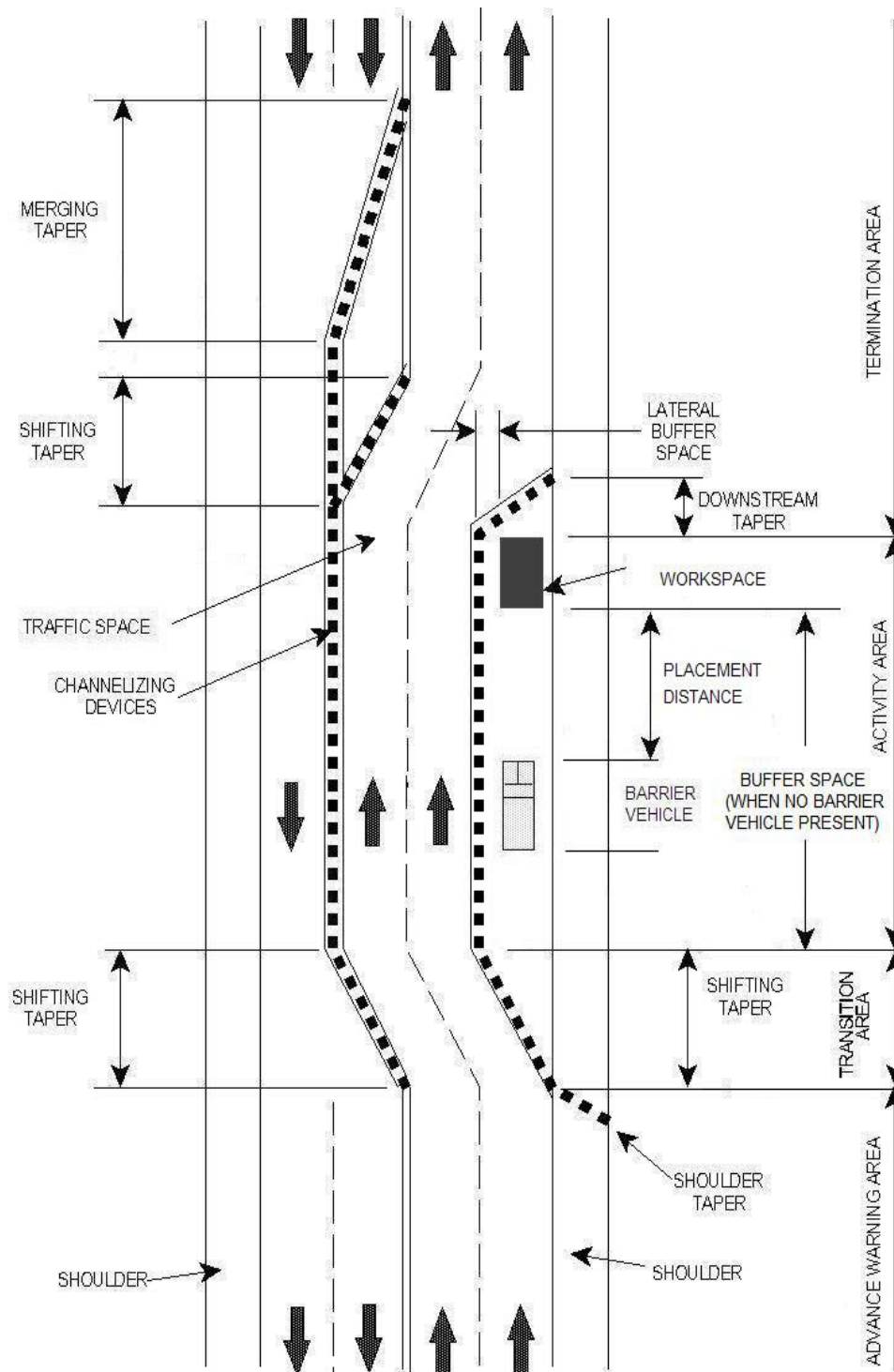
619-1.20 Traffic Control Supervisor. Work shall consist of providing a full-time traffic control supervisor having adequate training, experience, and authority to implement and maintain all traffic control operations, as shown in the contract documents or as directed by the Engineer.

619-1.21 Temporary Structures and Approaches. Work shall consist of designing, constructing, moving, maintaining, and removing temporary structures, and necessary appurtenances, as shown in the contract documents or as directed by the Engineer. Temporary structures may also include temporary structural elements added to an existing structure to allow temporary use, or staged removal, of the structure.

619-1.22 Pavement Patching. Work shall consist of providing and installing pavement patching materials to maintain pavements open to traffic in acceptable condition as shown in the contract documents or as directed by the Engineer.

619-1.23 Mailboxes. Work shall consist of relocating or replacing postal route mailboxes and/or mailbox supports consistent with U.S. Postal Service requirements, as shown in the contract documents or as directed by the Engineer.

FIGURE 619-1 COMPONENT PARTS OF A TYPICAL HIGHWAY WORK ZONE



619-2 MATERIALS.

619-2.01 General. All materials used shall comply with the requirements of the following subsections of Section 700 *Materials and Manufacturing*, or as established by this section, the applicable Standard Sheets, and the contract documents.

Concrete Grouting Material	701-05
Precast Concrete Barrier	704-05
Epoxy Polysulfide Grout	721-03
Traffic Signal Heads	724-04
Removable Raised Pavement Markers	727-02
Epoxy Paint	727-03
Permanent Tape	727-04
Glass Beads for Pavement Markings	727-05
Removable Pavement Tape	727-06
Removable Wet-Night Reflective Tape	727-07
Permanent Wet-Night Reflective Tape	727-08
Traffic Paint	727-09
Drums	729-01
Cones	729-02
Temporary Tubular Markers	729-03
Vertical Panels	729-04
Stop/Slow Paddles	729-05
Type II Construction Barricades	729-07
Type III Construction Barricades	729-08
Temporary Sign Supports	729-09
Temporary Impact Attenuators - Redirective	729-10
Temporary Impact Attenuators - Gating	729-11
Truck-Mounted Impact Attenuators	729-12
Temporary Sand Barrels	729-13
Vehicle Arresting Systems	729-14
Arrow Panels	729-15
Portable Variable-Message Signs	729-16
Temporary Glare Screens	729-17
Warning Lights	729-18
Automated Flagging Assistance Devices	729-19
Portable Traffic Signals	729-20
Temporary Overlay Markers	729-21
Truck Mounted Variable Message Signs	729-22
Aluminum Sign Panels	730-01
Temporary Plywood Sign Panels	730-02
Temporary Rigid Lightweight Sign Panels	730-03
Reflective Sheeting	730-05
Reflectorized Sheeting Sign Characters (Type IV)	730-12
Reflectorized Sheeting Sign Characters (Type V)	730-13
Temporary Wooden Sign Posts	730-19
Stiffeners, Overhead Brackets and Miscellaneous Hardware	730-22
Fiberglass Reinforced Plastic Sign Panels	730-23
Type A Sign Supports	730-24
Type B Sign Supports	730-25

619-2.02 Basic Work Zone Traffic Control.

A. Surface Condition, Debris, Drainage and Dust Control. Materials used to repair pavement surfaces shall be compatible with the pavement. In general, plant-mixed hot mix asphalt is suitable for all pavement surfaces to be repaired. Material other than plant-mixed hot mix asphalt may be used if approved by the Engineer.

Environmentally compatible, approved dust palliatives may be used in conformance with any conditions placed on their use.

B. Seasonal Operations and Snow and Ice Control. (None Specified)

C. Maintain Public Access. (None Specified)

D. Maintain Existing Roadside Signs, Delineators and Markers. All materials used to maintain existing roadside appurtenances shall be consistent with the features to be maintained.

E. Maintain Existing Guide Rail, Median Barrier and Bridge Rail. All materials used to maintain existing roadside appurtenances shall be consistent with the features to be maintained.

F. Construction Vehicles and Equipment. All vehicles with a GVWR greater than 10,000 lbs and with restricted visibility to the rear shall be equipped with an operational audible backup alarm. Any vehicle with a non-operational backup alarm shall be taken out of service until the alarm is repaired.

All vehicles and equipment within the contract limits and on the roadway shall be equipped with a rotating amber or flashing Light Emitting Diode (LED) beacon visible from all directions for a minimum of 1,000 feet during daylight. Flashing LED beacons shall meet the requirements of SAE J845 Class 2. Strobe lights shall not be used.

All trucks with a GVWR greater than 10,000 lbs shall display a minimum 2 inch wide band of reflective sheeting on the front, rear and each side. The sheeting need not be continuous, but the sum of the length of the segments shall be at least one-half the length of the body or trailer. The centerline of the sheeting shall be between 15 inches and 60 inches above the ground. All other construction equipment shall display a minimum 2 inch wide band of reflective sheeting on the front and rear (100 square inches per end minimum) as practicable. Reflective markings on construction vehicles and equipment shall conform to §730-05 *Reflective Sheeting* ASTM Type III, Type VII or Type IX.

G. Barrier/Shadow Vehicles. Barrier/Shadow vehicles shall weigh a minimum of 18,000 lb and shall be equipped with a Type B or Type C Arrow Panel. Ballast may be used to bring a lighter vehicle up to the indicated weight provided the ballast is securely contained within an enclosed body or otherwise securely fastened to the vehicle such that the ballast will not separate from the vehicle upon impact. Where the preconstruction posted speed limit is 55 mph or less, barrier/shadow vehicles shall be equipped with a Test Level-2 truck mounted or trailer mounted impact attenuator. Where the preconstruction posted speed limit is more than 55 mph, barrier/shadow vehicles shall be equipped with a Test Level-3 truck mounted or trailer mounted impact attenuator. Impact attenuators meeting the requirements of NCHRP 350 Test Level 3 are also acceptable as Test Level 2 devices.

Where a barrier vehicle remains stationary for extended periods of time, the Contractor may utilize a barrier trailer in lieu of a barrier vehicle. A barrier trailer is a trailer that may be detached from the tow vehicle and that meets barrier vehicle weight, arrow board, attenuator and placement distance requirements.

H. Construction Signs. Fabrication of all components shall produce a finished sign panel. Holes may be punched or drilled. Edges shall be smooth and true and free from burrs or ragged breaks. Sign panels, including face shape, color, dimensions, and characters shall be fabricated using colors, character series, character sizes, symbols, route shields and borders as shown in the MUTCD or in the contract documents.

1. Sign Panels. Modification of sign legends by overlaying an existing legend with a revised legend, changing a single word or distance, such as changing LEFT to RIGHT or 1000 to 1500 will be permitted if the overlay is a match to the rest of the sign in terms of legend size and type, sheeting color and reflectivity. The overlay shall be firmly adhered to the underlying panel. Any such overlays shall provide a visual match to the rest of the sign when viewed from a distance of 100 feet or greater during all periods in which the sign will be used.

a. Rigid Sign Panels. Rigid sign panels shall be aluminum, fiberglass, plywood, or lightweight plastic. Orange signs on rigid panels shall conform to §730-05 *Reflective Sheeting* fluorescent-orange ASTM Type IX (Class E) sheeting. All other colors of construction sign faces on rigid panels shall conform to §730-05 *Reflective Sheeting* ASTM Type III (Class B) sheeting. White characters and borders shall conform to §730-12 *Reflectorized Sheeting Sign Characters (Type IV)* or §730-13 *Reflectorized Sheeting Sign Characters (Type V)*. Shields shall be either demountable or directly applied panels and shall conform to §730-13 *Reflectorized Sheeting Sign Characters (Type V)*. Black sign characters and background shall be non-reflective and shall conform to §730-13 *Reflectorized Sheeting Sign Characters (Type V)*.

b. Flexible Sign Panels. Flexible sign panels shall be a solid, fluorescent-orange, durable elastomeric material. Flexible panels fabricated from mesh will not be allowed. Flexible sign panels shall be mounted on supports with adequate bracing, so as to minimize flutter and to support the intended shape of the sign.

2. Mounting Temporary Signs. Temporary sign supports, except those located beyond the deflection distances of guide rail or temporary barrier as given in Table 619-6 *Guide Rail & Concrete Barrier Standard Deflection Distances* or otherwise protected against impact by errant vehicles, shall meet the following requirements for portable or fixed supports. If rigid diagonal bracing is used, the high end of the bracing shall face away from approaching traffic. All wood supports shall be painted white.

a. Portable Temporary Sign Supports. Ballast used to stabilize supports shall be bagged sand or other suitable material, and shall be located at ground level. Portable supports shall be a configuration which is NCHRP 350 approved, or be constructed in accordance with a Standard Sheet(s).

b. Fixed Temporary Sign Supports. The Contractor shall provide NCHRP 350 approved Type A, Type B or wooden sign posts in accordance with §730-19 *Temporary Wooden Sign Posts*, §730-24 *Type A Sign Supports*, or §730-25 *Type B Sign Supports* as appropriate.

3. Sign Covers. Covers used to inactivate unneeded construction signs shall be a single dark color, opaque material containing no wording or images. Rigid covers shall match the size and shape of the sign panel(s). Fabric sign covers may require more than one layer of fabric to prevent legibility of the sign being covered. Rigid Lightweight panels used as covers shall meet the requirements §730-03 *Temporary Rigid Lightweight Sign*. Signs hinged on the back side of the sign face to fold at the center and completely cover the sign face may be used.

I. Arrow Panels. Arrow panels shall be in accordance with §729-15 *Arrow Panels*.

J. Channelizing Devices. Drums shall be in accordance with §729-01 *Drums*. Standard cones, tall cones and extra tall cones shall be in accordance with §729-02 *Cones*. Temporary tubular markers shall be in accordance with §729-03 *Temporary Tubular Markers*. Standard and oversized vertical panels shall be in accordance with §729-04 *Vertical Panels*. Type II construction barricades shall be in accordance with §729-07 *Type II Construction Barricades*.

Drums, cones, temporary tubular markers, and Type II Construction Barricades provided before January 1, 2022 may be fabricated with ASTM Type I or Type III reflective sheeting.

K. Pavement Edge Drop-off Protection. (None Specified)

L. Flagging and Traffic Control. Hand signaling devices used to control traffic shall meet the requirements of the MUTCD. The standard signaling device shall be STOP/SLOW signal paddles in accordance with §729-05 *Stop/Slow Paddles*. Red signal flags shall be a minimum of 24 inches x 24 inches. Automated Flagging Assistance Devices shall be in accordance with §729-19 *Automated Flagging Assistance Devices*. Portable traffic signals shall be in accordance with §729-20 *Portable Traffic Signals*.

M. Maintain Existing Mailboxes. (None Specified)

N. Contract Site Patrol. (None Specified)

619-2.03 Basic Work Zone Traffic Control (Daily Operations). (None Specified)

619-2.04 Temporary Business Signs. Temporary business signs shall conform to the MUTCD. Sign panels shall be in accordance with '619-2.02H.1. *Sign Panels*, except that the panels shall be white on a blue background. Supplemental arrows, as required, shall be white on a blue background (M5-1 to M6-2). Temporary business signs shall be mounted on temporary sign supports.

619-2.05 Covering or Removal of Pavement Markings. Tape used to cover existing pavement markings shall be non-reflective, pavement marking masking tape, substantially similar in color to the pavement surface, in accordance with §727-06 *Removable Pavement Tape*.

619-2.06 Temporary Pavement Markings. Temporary pavement markings shall consist of removable raised pavement markers in accordance with §727-02 *Removable Raised Pavement Markers*, or removable pavement tape in accordance with §727-06 *Removable Pavement Tape*, or removable wet-night reflective tape in accordance with §727-07 *Removable Wet-Night Reflective Tape*, or traffic paint in accordance with §727-09 *Traffic Paint* and §727-05 *Glass Beads for Pavement Markings*, or temporary overlay markers in accordance with §729-21 *Temporary Overlay Markers*.

619-2.07 Interim Pavement Markings. Interim pavement markings shall consist of traffic paint in accordance with §727-09 *Traffic Paint* and §727-05 *Glass Beads for Pavement Markings*, epoxy paint in accordance with §727-03 *Epoxy Paint* and §727-05 *Glass Beads for Pavement Markings*, removable pavement tape in accordance with §727-06 *Removable Pavement Tape*, removable wet-night reflective tape in accordance with §727-07 *Removable Wet-Night Reflective Tape*. Interim pavement markings shall be supplemented, where specified, with removable raised pavement markers in accordance with §727-02 *Removable Raised Pavement Markers*.

619-2.08 Temporary Rumble Strips.

A. Raised Asphalt Rumble Strips. Raised asphalt rumble strips shall be formed from 6.3 or 9.5 hot mix asphalt. Asphalt Emulsion Tack Coat shall be used to adhere the rumble strip to the existing pavement.

B. Raised, Removable-Tape Rumble Strips. Removable-tape rumble strips shall be formed from black, non-reflectorized, removable pavement-marking tape. Raised, removable-tape rumble strips shall have a minimum width of 6 inches, measured in the direction of traffic, with sufficient layers of tape such that each finished rumble strip has a thickness of $3/8$ inches \pm $1/8$ inch.

C. Raised, Preformed Rumble Strips. Raised, preformed rumble strips shall be manufactured specifically as temporary rumble strips. Raised, preformed rumble strips shall have a minimum width of 4 inches, measured in the direction of traffic, with a thickness of between $1/4$ inch and $1/2$ inch.

D. Saw-Cut Rumble Strips. Saw-cut rumble strips shall have a width of 4 inches \pm $1/2$ inch measured in the direction of traffic. The depressions shall have a rectangular cross section with a depth of $3/8$ inches \pm $1/8$ inch.

E. Milled-in Rumble Strips. Milled-in rumble strips shall have a nominal width of 6 inches measured in the direction of traffic. The depressions shall have a semicircular, concave cross section with a depth of $3/8$ inches \pm $1/8$ inch.

F. Removing Temporary Rumble Strips. Rumble strip depressions shall be filled in with a 6.3 or a 9.5 hot mix asphalt meeting the requirements of Section 402, Hot Mix Asphalt (HMA) Pavements.

619-2.09 Interim Tubular Markers. Interim tubular markers shall be in accordance with §729-03 *Temporary Tubular Markers*. Interim tubular markers provided before January 1, 2022 may be fabricated with ASTM Type I or Type III reflective sheeting.

619-2.10 Portable Variable-Message Signs (PVMS) & Truck Mounted Variable Message Signs (TMVMS). Portable Variable-Message Signs shall be in accordance with §729-16 *Portable Variable-Message Signs (PVMS)*. Truck Mounted Variable Message Signs (TMVMS) shall be in accordance with §729-22 *Truck Mounted Variable Message Signs*. When a TMVMS is used as an arrow board, it shall comply with 729-15 *Arrow Panels*.

619-2.11 Type III Construction Barricades. Type III construction barricades shall be fabricated in accordance with §729-08 *Type III Construction Barricades*. All barricades used at night shall be equipped with warning lights in accordance with §729-18 *Warning Lights*. Type III Construction Barricades provided before January 1, 2022 may be fabricated with ASTM Type I or Type III reflective sheeting.

619-2.12 Temporary Positive Barrier. Temporary positive barrier segments shall be precast concrete units in accordance with the Standard Sheets or steel or concrete barrier meeting the approved Materials Details of the products on the Department's Approved List. All temporary concrete barrier supplied after January 1, 2015 shall be produced in accordance with the requirements of §704-05 *Precast Concrete Barrier* and shall have a legible permanent marking. Temporary concrete barrier supplied prior to January 1, 2015 which was not produced in accordance with the requirements of §704-05 *Precast Concrete Barrier*, shall be material certified in accordance with specific Standard Sheets or Materials Details used for fabrication.

Warning lights for temporary barrier shall be in accordance with §729-18 *Warning Lights*. Where warning lights are not required, temporary barrier segments shall be delineated using reflective panels

covered with ASTM Type IX sheeting, approximately 3 x 6 inch, having a minimum area of 18 square inches. Where warning lights are required, barrier need not be delineated with panels. Reflective pavement marking material applied to the face of the barrier shall not, by itself, be considered acceptable delineation. Where transitions between Temporary Concrete Barrier and box beam are required, the box beam shall be in accordance with the requirements of §710-21 *Box Beam Guide Railing and Median Barrier*. Where required, the Transition End Pieces shall be precast concrete units in accordance with the Standard Sheets and shall be produced in accordance with the requirements of §704-05 *Precast Concrete Barrier* with a legible permanent marking.

619-2.13 Temporary Glare Screen. Temporary glare screen shall be in accordance with §729-17 *Temporary Glare Screens*.

619-2.14 Temporary Impact Attenuator. Temporary impact attenuators shall be in accordance with §729-10 *Temporary Impact Attenuators - Redirective* or §729-11 *Temporary Impact Attenuators - Gating*.

619-2.15 Temporary Sand Barrel Arrays. Temporary sand barrels shall meet the requirements of §729-13 *Temporary Sand Barrels*. Sand fill shall meet the material requirements of §703-06 *Cushion Sand* or §203-2.02I. *Sand Backfill*. Deicing material shall meet the requirements of §712-03 *Sodium Chloride*.

619-2.16 Vehicle Arresting Barrier (VAB). Vehicle arresting barriers shall meet the requirements of §729-14 *Vehicle Arresting Systems*. Portland Cement Concrete used for bases shall be Class A or C, except that requirements for automated batching shall not apply.

619-2.17 Maintain or Modify Traffic Signal Equipment. All traffic signal hardware, including but not limited to wire, cable, conduit, pull boxes, switch packs, modules and relays, detectors, signal heads, poles, and pedestrian push buttons used to maintain proper operation, shall meet the applicable requirements of Section 680 *Traffic Signals*. Materials which will be permanently incorporated into the work shall be in accordance with Section 680 *Traffic Signals*.

619-2.18 Temporary Traffic Signals. Equipment for temporary traffic signals shall meet the requirements of Section 680 *Traffic Signals*, except that used equipment in good operating condition may be furnished, and for which material certifications are not required. All span wire, inductance-loop wire, shielded lead-in cable, traffic signal cable, and other wire used for temporary traffic signals shall be new material. Portable traffic signals shall be in accordance with §729-20 *Portable Traffic Signals*.

All other equipment for temporary traffic signals shall meet the requirements of Section 680 *Traffic Signals* except for the following modifications:

A. Temporary Poles. Temporary timber poles shall be ANSI O5.1, Class 2, treated with an appropriate waterborne wood preservative. Preservative retention shall be appropriate for the species when used in ground-contact application.

B. Signal Controller. The signal controller may be either solid-state or electro-mechanical.

C. Traffic Signal Heads. The materials and painting requirements of §724-04 *Traffic Signal Heads* shall not apply except that the signal head housing shall be dark green.

D. Conflict Monitor. Means shall be provided to prevent the signal from displaying indications which will result in two or more conflicting traffic movements being permitted simultaneously.

619-2.19 Nighttime Operations. (None Specified)

619-2.20 Traffic Control Supervisor. (None Specified)

619-2.21 Temporary Structures and Approaches. When specific details and materials are shown in the contract documents for temporary structures, substitutions or alterations may be permitted if approved by Deputy Chief Engineer (Structures) (DCES).

When specific details are not shown in the contract documents, the Contractor shall assume all liability and responsibility for determining that all materials required conform to the AASHTO Standard Specifications for Highway Bridges or AASHTO LRFD Bridge Design Specifications, unless otherwise approved by the DCES. Used material shall not be furnished for fracture-critical members. Mill certifications shall be provided for all fracture critical material. Excluded from this provision are pedestrian and pre-engineered (fabricated) proprietary structures.

619-2.22 Pavement Patching. In general, hot mix asphalt (HMA) is suitable for all pavement surfaces. During winter months when HMA is not available, a bituminous cold-patch material shall be used.

619-2.23 Mailboxes. Materials used shall meet the requirements of the U.S. Postal Service.

619-3 CONSTRUCTION DETAILS

619-3.01 General. The Contractor shall designate a work zone traffic control competent person who has the primary responsibility and sufficient authority for implementing the work zone traffic control plan and other safety and mobility aspects as necessary. The Contractor's work zone traffic control competent person shall be appropriately experienced and adequately trained in traffic control operations by recognized training programs, including the American Traffic Safety Services Association (ATSSA) "Traffic Control Supervisor", the National Safety Council, unions, or construction industry associations, or by an individual instructor from such a program in accordance with the level of decisions that the individual will be required to make, reflecting current industry practices and Department requirements.

The Contractor shall generally maintain a traveled way suitable for moving traffic, in accordance with the contract documents and ensure construction equipment, vehicles, and materials are safely stored beyond the clear zone or behind protective barrier during non-working hours so as not to constitute a hazard to vehicles, bicycles and pedestrians. Construction operations shall be conducted to ensure a minimum of delay to traffic. Stopping traffic for more than 5 minutes shall not be permitted unless specifically authorized in the contract documents or in writing by the Engineer. All operations shall be carried out in a manner that provides workers with safe access to the worksite and protects workers from moving traffic. The work zone traffic control competent person shall routinely inspect all work zone traffic control equipment and devices to make sure they are in a safe operating condition in accordance with §619-3.02N *Contract Site Patrol*. Unless otherwise noted, temporary items supplied in accordance with this section shall remain the property of the Contractor.

Where pedestrians are not prohibited from the street or highway, pedestrian traffic shall be maintained to allow their safe passage as shown in the contract documents. Where sidewalks, walkways, or shoulders must be temporarily closed to facilitate construction operations, safe pedestrian passage shall be maintained on at least one side of the roadway at all times, unless other temporary pedestrian accommodations are provided in the contract documents or are approved by the Engineer. Where pedestrian access is prohibited, workers shall not cross or enter travel lanes open to traffic.

The requirements in this section refer to posted speed limits. If prevailing or operating speeds for a highway exceed the preconstruction posted limits, the contract documents may direct the Contractor to assume that the preconstruction posted speed limits are different than posted.

619-3.02 Basic Work Zone Traffic Control. The Contractor shall control traffic so that a person who has no knowledge of conditions may safely and with a minimum of discomfort and inconvenience ride,

drive, or walk, day or night, over all or any portion of the highway and/or structure under construction where traffic is to be maintained.

The Contractor shall cease operations and restore the traveled way to safe operating condition during any specific periods listed in the contract documents, at such times as traffic renders conditions unsafe to continue work, and during periods of darkness (before sunrise or after sunset), fog, snow or rain, high winds, or other inclement weather that renders conditions unsafe to continue work, for either the traveling public or the workers. The Engineer will determine when traffic or weather conditions render work operations unsafe.

A. Surface Condition, Debris, Drainage and Dust Control. The traveled way, sidewalks and pedestrian walkways shall be kept reasonably smooth and hard at all times, and shall be well drained and free of potholes, bumps, irregularities, and depressions that hold water. Except when construction operations necessitate disturbance of the normal surface, the Contractor shall maintain the pavement surface in such a condition as to permit the safe, comfortable passage of vehicles at the posted speed limit. A satisfactory riding surface shall be maintained both when work is underway, and when work is inactive. Special attention shall be given to maintenance of the traveled surface during hours of inactivity, including nights, weekends, holidays, and the winter season.

Milling operations shall be conducted to prevent pavement runoff from collecting along milled joints. Bumps and transverse irregularities shall be eliminated to the extent practical. Pavement joints and milling rebates resulting in longitudinal or transverse vertical faces exceeding 1 inch in height that would be exposed to traffic during non-work hours shall be sloped or tapered with temporary patches or shims providing a taper rate in accordance with Table 619-1 *Required Treatment for Transverse Bumps*.

Where longitudinal tapered wedge paving joints are used, temporary pavement markings shall be provided prior to reopening lanes to traffic. The joints may be left open to traffic provided traffic is not expected to frequently change lanes, and UNEVEN LANES (W8-11) signs are posted in advance of the condition, posted at each ramp and roadway intersection and repeated every ½ mile, supplemented with NEXT [X] MILES (W7-3aP) auxiliary signs.

Transverse bumps or vertical faces, unpaved surfaces, milled or grooved pavement, rough pavement, and other surface irregularities 1 inch or more in height shall be adequately sloped or tapered, or BUMP (W8-1) or other appropriate warning signs shall be posted in advance of the condition. A Type 1 Object Marker (OM1-3) or a drum with a flashing warning light shall be installed on the right side of the roadway at the bump or other condition. On expressways and freeways, an object marker or a drum with a flashing warning light shall be installed on both sides of the roadway.

Where traffic will be riding on milled pavement, the Contractor shall install GROOVED PAVEMENT (W8-15) signs on the approaches. On multilane highways where only one lane in a direction is milled and multiple lanes are open to traffic, the Contractor shall supplement the GROOVED PAVEMENT sign with a black on orange LEFT LANE (M5-4), CENTER LANE (M5-5) or RIGHT LANE (M5-6) panel below the warning sign. Where only an entrance or exit ramp is milled, the Contractor shall sign the mainline with a GROOVED PAVEMENT sign and a supplemental ON RAMP (W13-4) panel.

Where both BUMP and GROOVED PAVEMENT signs are warranted, the GROOVED PAVEMENT sign shall be installed 500 feet upstream of the BUMP sign in non-urban areas, and 300 feet upstream in urban areas. Where the posted speed limit is 45 mph or higher, the Contractor shall place a portable variable message sign (PVMS) in advance of pavement that has been milled or grooved and is open to traffic, warning motorcycle riders to use caution. The PVMS will be paid for separately.

For expressways where the posted speed limit is 45 mph or higher, the Contractor shall not leave milled or grooved pavement for more than 7 calendar days before placement of the next pavement course.

The Contractor shall keep the traveled way, sidewalks, and walkways free of construction materials and foreign objects that fall from vehicles or equipment. Materials spilled by, dropped from, or tracked by traffic or by any vehicle used in the Contractor's operations along or across any public traveled way shall be removed immediately.

The Contractor shall keep all surface drainage facilities operative at all times. Positive drainage shall be provided at all times, even during grading operations and periods of accumulated plowed snow, to adequately drain the traveled way and the remainder of the right-of-way areas. Maintaining positive drainage shall include cleaning of drainage grates on roadway pavements. Cleaning of drainage structures and drainage pipes of material not deposited due to the Contractor's operations will be paid for separately. Repair of drainage structures will be paid for separately.

Dust control measures shall be applied to control dust resulting from traffic on unpaved surfaces and from Contractor operations on or adjacent to the roadway. Dust control shall be adequate to prevent dust which hinders driver visibility or which creates a nuisance condition for property owners and residents adjacent to the contract. Dusty conditions resulting from the Contractor's operations may be corrected by the use of calcium chloride and/or water. If used, water shall be distributed uniformly using a suitable spray head or spray bar.

TABLE 619-1 REQUIRED TREATMENT FOR TRANSVERSE BUMPS

Height of Bump (in)	Anticipated Exposure Time (Calendar Days)	Posted Speed ≤ 45 mph	Posted Speed > 45 mph
1 to 6	≤ 7	6:1	10:1
	> 7	15:1	30:1

B. Seasonal Operations and Snow and Ice Control. The Contractor shall maintain the traveled way in such a condition and conduct operations in such a manner that snow and ice may readily be controlled by others as and when necessary, and in such a manner that proper drainage is provided for the melting of snow banks resulting from normal plowing. The Contractor will not be responsible for snow and ice control on the pavement, shoulder, or sidewalks which are not restricted by construction operations and open to the public

During periods of seasonal shutdown, the traveled way shall be maintained in an acceptable manner for travel, and all traffic control devices and safety features maintained in a safe, operable condition. All construction signs and temporary traffic control devices that are not needed during shutdown periods shall be covered or removed.

C. Maintain Public Access. The Contractor shall provide and maintain at all times safe and adequate ingress and egress for intersecting roads, residences, business establishments, adjacent properties, bus stops and other transportation facilities for vehicles, pedestrians and bicycles; at existing or at new access points, consistent with the work, unless otherwise authorized by the Engineer. Whenever construction operations disrupt or interfere with normal traffic patterns, intersections, business establishment access points, and driveways shall be clearly marked using channelizing devices.

A ROAD CLOSED (R11-2) sign on a temporary sign support and Type III construction barricades with warning lights shall be used whenever an entire roadway or ramp is closed to traffic.

Where pedestrian facilities exist, or where pedestrian traffic is reasonably anticipated, the Contractor shall maintain pedestrian access on at least one side of the highway or street at all times, in accordance with the contract documents and the MUTCD. Where an existing pedestrian facility is disrupted, closed or relocated, the temporary facility shall include accessibility features consistent with the features in the existing pedestrian facility. Pedestrian access may be provided using existing pedestrian facilities, temporary sidewalks or walkways, or alternate paths. Where a sidewalk is closed, it shall be marked with a Type II or Type III construction barricade and a SIDEWALK CLOSED (R9-9) sign. Advance warning signs and directional guidance shall be provided to direct

pedestrians to alternate paths and crosswalks and to alert motorists. Where bus service is maintained, the Contractor shall provide suitable areas or locations for the loading and unloading of passengers.

Potentially hazardous areas adjacent to sidewalks, walkways, or other areas used by pedestrians shall be protected to prevent pedestrian intrusion in accordance with ' 107-05F. *Restricted Areas*.

Open sidewalks and walkways shall be maintained and kept smooth and free from holes, obstructions, and tripping hazards. Surfaces shall consist of pavement, firmly compacted granular material, or other surfaces noted in the contract documents or approved by the Engineer. The width of the temporary facility shall match that of the existing facility where practicable. When it is not possible to meet the minimum width of 5 ft. for the entire length of the facility, a 5 ft. by 5 ft. passing space should be provided every 200 ft. Construction materials, vehicles, equipment, debris, temporary sign supports or other materials shall not be placed or stored on open sidewalks or walkways unless expressly shown in the contract documents or approved by the Engineer.

Where bicycles are not prohibited from the highway, adequate accommodations for bicyclists shall be maintained in the travel lanes, on the shoulder, or on alternate paths or facilities.

D. Maintain Existing Roadside Signs, Delineators and Markers. Existing Department authorized signs, delineators, markers and their supports within the contract limits shall remain under the control and jurisdiction of the Engineer. Signs not authorized by the Department shall be removed from the right of way, as directed by the Engineer, in accordance with Section 647 *Removing, Storing and Relocating Signs*.

1. Maintenance. Existing signs, delineators, markers and their supports shall be maintained by the Contractor. Adequate visibility of route markers and directional signing shall be provided for drivers at all times. If relocation of route markers and directional signing is necessary to accommodate construction operations, the temporary or new locations shall be subject to approval by the Engineer. Existing roadside delineators shall be removed or relocated only to the minimum extent necessary to accommodate the work under the contract. Where contract operations require the temporary removal of existing delineators to facilitate work operations, temporary roadside delineation consisting of the existing delineators, temporary delineators, or channelizing devices shall be in place each night and at any time work operations at that location are suspended. Temporary devices shall be placed at the outer edge of the shoulder at a spacing similar to the existing delineator spacing.

2. Storage. Existing signs, delineators, markers, and their supports which directly interfere with the construction operations shall be removed, stored, protected, cleaned and replaced in accordance with the contract documents and the provisions of Section 647 *Removing, Storing and Relocating Signs* and will be paid for separately. Existing signs, delineators and markers removed for the Contractor's convenience shall be stored, cleaned and replaced at no additional cost to the State. Existing signs, delineators and markers lost or damaged due to negligence of the Contractor shall be replaced at no additional cost to the State.

E. Maintain Existing Guide Rail, Median Barrier, and Bridge Rail. When construction operations require the temporary removal of existing bridge rail, guide rail or median barrier; or when existing rail will be removed and replaced with new rail, the Contractor shall schedule operations to minimize the time period that rail is not installed. Unless otherwise specified in the contract documents, guide rail or median barrier shall be replaced or the location otherwise protected within 14 calendar days.

Bridge rail systems shall be maintained in service at all times on any structure on which vehicle or pedestrian traffic is maintained, unless a temporary barrier is installed, or other means are used to ensure that vehicles, bicyclists and pedestrians are not exposed to the unprotected edge of a bridge.

During non-work hours when traffic is being maintained on the facility, all temporary ends (free ends) of guide rail, median barrier and bridge rail shall be temporarily terminated and marked with a

channelizing drum or object marker equipped with a Type A flashing warning light. Corrugated beam guide rail and median barrier, and heavy-post, blocked-out, corrugated beam guide rail and median barrier shall be temporarily terminated by having the exposed ends (free ends) dropped to the ground and pinned. The approach ends of box beam guide rail, median barrier and bridge rail shall be temporarily terminated with box beam guide rail end assemblies utilizing two splice plates and the proper number of bolts per connection. No posts for anchorages will be required. Special temporary splice plates are required to adapt box beam guide rail end assemblies to box beam median barriers.

During any overnight period when existing guide rail or median barrier is temporarily removed, the Contractor shall install channelizing devices in the location where the guide rail or median barrier was removed in accordance with §619-3.02J.6. *Removed Existing Guide Rail or Median Barrier.*

F. Construction Vehicles and Equipment. All construction vehicles and equipment operating within the contract limits, whether in the work space, in the traffic space, in spoil areas, in storage areas, or any other areas under the contract, shall be operated at all times with due consideration for the safety of the public and workers.

All vehicles and equipment within the contract limits and on the roadway shall operate a rotating or flashing amber beacon. If visibility of the beacon is blocked by a portion of the vehicle or equipment, additional beacons shall be provided. Beacons shall be mounted in a manner which does not cause glare for the driver or operator. Short-term delivery vehicles not equipped with rotating or flashing amber beacon shall display four-way emergency flashers when in the temporary traffic control zone.

Other than vehicles registered and meeting all applicable requirements of the NYS Vehicle and Traffic Law, no construction vehicle or equipment used in the performance of the work shall be permitted to operate in travel lanes or shoulders open to traffic unless proper traffic control devices and other safety measures are in place to warn drivers of the presence of the equipment.

On any highway where the posted speed limit is 45 mph or higher, no construction vehicle or equipment shall operate in a travel lane or shoulder open to and unimpeded by traffic at a speed less than 15 mph slower than the posted speed limit unless followed by a vehicle equipped with flashing warning lights and *SLOW MOVING VEHICLE* (W21-4) sign on the rear.

The Contractor shall ensure that all construction vehicles and equipment are safely stored beyond the clear zone during non-working hours so as not to constitute a hazard to vehicles and pedestrians, unless protected by traffic barrier.

G. Barrier Vehicles/Barrier Trailers/Shadow Vehicles.

1. Barrier Vehicles. The Contractor shall provide barrier vehicles to guide traffic and protect workers at the beginning of stationary shoulder closures, lane closures and other stationary work zones in accordance with the contract documents.

When located in the taper of a lane closure and another arrow panel is not present, arrow panels on barrier vehicles shall be operated in the appropriate flashing arrow mode. For all other applications, arrow panels shall either display the four-corner flashing caution mode, or shall be turned off. Barrier vehicles should normally be unoccupied, with transmission in gear, parking brakes set and wheels straight, except when being moved. Barrier trailers should have parking brakes set and arrow panels shall be operated in the appropriate flashing arrow mode.

Barrier vehicles and barrier trailers shall be moved if necessary as the work progresses. The placement distance (distance a barrier vehicle or barrier trailer is located in advance of the first workers or hazard) shall be based on Table 619-2 *Placement Distance for Barrier/Shadow Vehicles.*

TABLE 619-2 PLACEMENT DISTANCE FOR BARRIER/SHADOW VEHICLES

Posted Speed Limit (mph)	Placement Distance (ft)			
	Barrier Vehicles			
	18,000 lb		24,000 lb	
	Minimum	Maximum	Minimum	Maximum
> 55	100	200	100	200
45- 55	100	200	80	160
<45	80	160	50	100
Shadow Vehicles				
> 55	230	325	180	280
50 - 55	180	280	150	250
≤ 45	100	200	100	200

2. Shadow Vehicles. For posted speed limits of 30 mph or higher, the Contractor shall provide shadow vehicles to guide traffic and protect workers conducting mobile or short duration work operations except where the travel lane is closed to traffic by traffic barriers or by channelizing devices., including, but not limited to, pavement marking application, pavement marking removal and sweeping

When located in an open travel lane of a multilane roadway, the shadow vehicle shall display the flashing arrow panel in the appropriate mode. When located in a travel lane closed by barrier or channelizing devices, on a shoulder, otherwise not in an open travel lane, or on a two-lane, two-way roadway, the arrow panel shall either display the four-corner flashing caution mode or be turned off.

The shadow vehicle shall be moved as necessary to keep pace with the work operations. The placement distance (distance the shadow vehicle is in advance of the first workers or hazard) shall be as shown in Table 619-2 *Placement Distance for Barrier/Shadow Vehicles*.

When mobile or short duration work operations occupy a long distance of a travel lane not closed to traffic by barrier or channelizing devices, such that traffic may reenter the lane between work operations, the Contractor shall provide additional shadow vehicles for any gaps in the operation of 500 ft or more.

H. Construction Signs. The Contractor shall install and maintain construction signs in good condition to adequately and safely inform and direct motorists, bicyclists and pedestrians. Existing and construction signs shall indicate actual roadway conditions, and shall be covered, uncovered, changed, relocated, or removed immediately to reflect current conditions. Construction signs shall be covered or removed when they no longer indicate actual conditions.

The Contractor shall provide measures to protect workers during placement and removal of construction signs adequate for the prevailing speed, volume of traffic and roadway geometry where the work is to occur. Such protection may include, but is not limited to, the use of flaggers, spotters, and shadow vehicles equipped with truck-mounted or trailer mounted attenuators. Where pedestrian access is prohibited, workers shall not cross or enter travel lanes open to traffic.

All signs shall be kept clean, mounted at the required height on acceptable supports, and installed in the proper position, alignment and orientation so as to give maximum visibility. Construction signs will be evaluated for acceptability in accordance with the American Traffic Safety Services Association (ATSSA) *Quality Guidelines for Work Zone Traffic Control Devices*. When auxiliary panels are mounted above or below a warning or regulatory sign, they shall not cover any part of the warning or regulatory sign. Signs shall be placed so that each sign is visible at night, at the desired distance, without being obscured by another sign, existing features on the highway, or foliage. The faces of stored signs shall not be visible to traffic in any direction, regardless of the orientation of the sign.

1. Sign Panels. Panels shall be flat and shall not be bowed or warped. Panel shapes shall not be altered, such as trimming corners of diamond shaped panels. If insufficient clearance exists, rectangular and/or smaller signs shall be used to obtain proper clearance. Panels with any wrinkling, delamination, or lack of adhesion of the reflective sheeting or legend will be evaluated for acceptability in accordance with the American Traffic Safety Services Association (ATSSA) *Quality Guidelines for Work Zone Traffic Control Devices*. Signs shall not bear any advertising message or any other message. A nonretroreflective logo or identifying information of the owner may be located on the back of the sign. The logo shall not exceed 1 square foot. The owner information shall not exceed 2 inches in height.

Flexible, or roll-up, sign panels shall only be used for short-term, daytime use. All flexible sign panels shall be mounted on supports with adequate bracing, so as to minimize flutter and to support the intended shape of the sign. Fluorescent-orange colored flexible sign panels shall be approved by the Engineer prior to and for the duration of their use.

2. Mounting Temporary Signs. Unless otherwise noted in the contract documents or in the MUTCD, construction signs shall be mounted on a separate support. In cases where construction signs on an existing support will replace or supplement existing sign(s), they shall be mounted in accordance with the Standard Sheet(s). The type of temporary sign supports used shall be selected by the Contractor. Signs that are erected and removed or relocated on a daily basis, or that must be frequently relocated to adjust to the location of construction operations, may be mounted on portable temporary sign supports. If rigid diagonal bracing is used, the high end of the bracing shall face away from approaching traffic. Signs that are to remain at one location may be supported on fixed temporary sign supports.

Supports for construction signs shielded by barrier or guide rail, and located beyond the deflection distance described in Table 619-6 *Guide Rail and Temporary Concrete Barrier Standard Deflection Distances* are not required to be NCHRP 350 approved.

When not in service, temporary signs mounted on portable temporary sign supports shall be stored in such a manner and location that they do not interfere with or present a hazard to vehicular, bicycle or pedestrian traffic. No signs or supports shall be stored on the traveled way, shoulders or sidewalks during non-working hours. Portable temporary sign supports stored within the clear zone shall be laid flat such that no part of the support is more than 4 inches above the ground. No portable temporary sign supports shall be leaned against or overhang the traffic side of traffic barrier.

All mounting heights are measured from the bottom of the lower sign panel to the nearest edge of pavement or to the ground directly below the sign, whichever results in a higher mounting. Rigid sign panels shall have a minimum mounting height of 5 feet, or a minimum mounting height of 7 feet, where pedestrians or parked vehicles are present. For signs incorporating an auxiliary panel below the primary panel, the minimum mounting heights shall be 4 feet and 6 feet, respectively. For pedestrian regulatory and guide signs the minimum mounting height shall be 4 feet.

Flexible panel and lightweight rigid panel signs shall be mounted at the same height as rigid panel signs, except they may be mounted, when approved by the Engineer, as low as 1 foot when all the following conditions are met:

- a. 1. On two-lane, two-way roadways, or;
2. When signs are placed on the left and right sides of expressways and freeways.
- b. Where there will be no parked vehicles to obstruct the view.
- c. Where the first warning sign(s) of a work zone warning sign sequence is mounted at a height of 5 feet or higher, and is located in advance of any flexible signs to alert motorists that they are entering a temporary traffic control zone.

d. When the lower mounting height does not adversely affect visibility of the sign by motorists.

3. Sign Covers. Covers for unneeded construction and/or permanent signs shall be attached in such a manner to cover the entire sign face including auxiliary panels above or below the main sign panel. The cover shall be firmly attached to the sign in a secure manner using straps, small hand clamps, small brackets or other means to prevent dislodging. Sign covers shall be maintained in good condition to present a neat appearance and minimize distraction to motorists. Damaged covers which are no longer effective shall be promptly replaced.

Sign covers for permanent signs that are unrelated to work zone traffic control operations will be paid for separately.

4. State Law Signs. Signs advising motorists of increased fines or license suspension for speeding within the work zone shall be installed in accordance with the contract documents. The LICENSE SUSPENDED AFTER TWO WORK ZONE SPEEDING TICKETS (NYR9-11) or the FINES DOUBLED FOR SPEEDING IN WORK ZONES (NYR9-12) sign shall be posted in advance of work zones not having a reduced regulatory speed limit. The FINES DOUBLED FOR SPEEDING IN WORK ZONES (NYR9-12) sign shall be posted in advance of work zones having a reduced regulatory speed limit. The state law sign shall be installed approximately 1,000 feet upstream of the first construction warning sign on highways with preconstruction posted speed limits equal to or greater than 45 mph and 300-500 feet upstream of the first construction warning sign on highways with preconstruction posted speed limits of less than 45 mph. For contracts with multiple work zones, the state law sign shall be installed at the aforementioned distances upstream of the ROAD WORK NEXT XX MILES (G20-1) sign or at the contract limits and need not be installed prior to each activity area. If any of the individual activity areas have a reduced regulatory speed limit, the FINES DOUBLED FOR SPEEDING IN WORK ZONES shall be used.

5. Special Use Work Zone Signs. Special use work zone signs shall be installed in accordance with the contract documents.

Reduced regulatory speed limits in work zones shall be posted in accordance with contract documents with SPEED LIMIT signs (R2-1) supplemented with WORK ZONE plaques (G20-5aP) of the same width mounted above the speed limit signs. The work zone plaques shall be placed on the same post and as the speed limit signs. REDUCED SPEED LIMIT AHEAD sign(s) (W3-5) shall be posted in advance of the first speed limit sign reducing the speed limit in a work zone.

All reduced regulatory speed limit signs shall be installed on both sides of expressways and freeways. When traffic is reduced to a single lane, reduced regulatory speed limit signs should be installed only on the right side of the highway. Reduced regulatory speed limit signs shall be placed within the work zone activity area at a maximum spacing of ½ mile. Reduced regulatory speed limit signs shall be completely covered or removed, and preconstruction posted speed limit signs shall be uncovered or replaced, after a work zone activity area is restored. A work zone plaque shall not be mounted above preconstruction posted speed limit signs within a work zone.

The END WORK ZONE SPEED LIMIT signs (R2-12) or the preconstruction posted speed limit sign (R2-1) shall be posted 100 ft beyond the end of a work zone activity area having a reduced regulatory speed limit. An END HIGHER FINES sign (R2-11) shall be placed 200 feet beyond the END WORK ZONE SPEED LIMIT sign.

Where shown in the contract documents, the Contractor shall install BE PREPARED TO STOP (W3-4) signs to inform oncoming traffic of potential stopped, queued or very slow conditions upstream of advanced warning signs. Multiple signs may be installed and covered for later use. A PVMS may be used for the sign or as a supplement.

Each BE PREPARED TO STOP sign shall be mounted on a temporary sign support, and shall be equipped with a pair of orange warning flags. For approaches on expressways and freeways with three lanes or more, both sides of the approach shall be signed unless the median is too narrow to fit the sign and the support.

The BE PREPARED TO STOP signs shall be posted approximately ½ mile in advance of the anticipated end of the queue. If the end of the queue is beyond the sign, the sign location shall be adjusted for the subsequent work day until the desired advance warning reflects typical conditions for that location. If the resulting adjustment places the sign in advance of the first warning sign, the Contractor shall also furnish and place a ROAD WORK (W20-1) sign approximately 1,000 feet in advance of the BE PREPARED TO STOP signs.

I. Arrow Panels. The Contractor shall provide, operate and maintain arrow panels, also known as arrow boards, on highways having two or more travel lanes in the same direction, where the posted speed limit is 40 mph or higher, whenever a lane or lanes are closed to traffic and vehicles are required to merge with traffic in adjacent lanes. One arrow panel shall be provided for each lane closed to traffic regardless of the duration. Arrow panels shall be mounted so that the base of the panel is at least 7 feet above the pavement surface. Arrow panels shall be legible continuously from any point within the roadway (inclusive of shoulders) from 1,500 feet in advance of the lane closure taper to the beginning of the lane closure taper. Any arrow panel which cannot provide a sufficiently bright and clearly legible arrow display at any point within the roadway within the above distance shall be immediately repaired or replaced.

Arrow panels shall not be used where they would interfere with the operation of a traffic signal or flasher or where there is an operation controlled by a signal or flagger(s). Arrow panels will not be permitted for alignment changes or lane diversions where the number of through traffic lanes is not reduced, or for any application on two-lane, two-way roadways except in the caution mode.

J. Channelizing Devices. Where construction operations obliterate pavement markings, or otherwise change or disrupt the normal traffic pattern, the Contractor shall use channelizing devices to physically separate traffic from portions of the roadway not available for travel; to separate traffic from hazards adjacent to the roadway; to separate opposing or adjacent travel lanes; to mark the location of hazards within or adjacent to the roadway; and to clearly define the intended travel path for vehicles, bicycles, and pedestrians. Spacing of devices shall be sufficiently close at all times to provide clear and adequate guidance to ensure that vehicles, bicycles, and pedestrians follow the intended travel path. Channelizing device spacing requirements are stated in center-to-center distances.

Channelizing devices shall be maintained upright, at proper spacing, in proper alignment and orientation, and kept clean. Channelizing devices used at night shall be retroreflective. Channelizing devices shall not bear any advertising or other message. A non-retroreflective logo or identifying information of the owner may be located on the back, base or top of channelizing devices where it does not obstruct the face, color, or reflectivity. The logo shall not exceed 1 square foot. The owner information shall not exceed 2 inches in height. The Contractor shall make frequent checks commensurate with traffic conditions to identify and reset channelizing devices dislodged by traffic. Deformed or damaged devices and devices that do not maintain appearance, color, and reflectivity will be evaluated for acceptability in accordance with the American Traffic Safety Services Association (ATSSA) *Quality Guidelines for Work Zone Traffic Control Devices*. Ballast and/or mailboxes shall not be placed on top of a device or at any point above ground level. Ballast rings may be added to traffic cones, or traffic cones may be doubled, with one cone on top of the other, to serve as ballast.

One Type A flashing warning light shall be installed on the first channelizing device in each series of a nightwork shoulder or travel lane closure. One Type A flashing warning light shall be installed on channelizing devices used to mark the location of hazards in or adjacent to the travel lane,

including, but not limited to, pavement discontinuities, drainage structures, excavations, fixed objects, and other obstructions and potential hazards remaining at the end of the work shift. Where the placement of numerous Type A flashing warning lights may present a distraction to motorists, flashing warning lights may be eliminated at intermediate locations such as driveway entrances or intersections.

Cones may be used in work zones where workers are not exposed to traffic, where the cones are placed to protect the work, and the placement does not create a hazard for traffic. In this application, cones are not considered channelizing devices.

Channelizing device application is summarized in Table 619-3A *Channelizing Device Application for Short-Term Stationary Work Zones* and Table 619-3B *Channelizing Device Application for Intermediate-Term and Long-Term Stationary Work Zones*. Where permitted, the Contractor may opt to substitute interim tubular markers or Type III construction barricades for other channelizing devices at no additional cost to the State.

1. Tapers. Tapers are defined as a transition area where motorists are redirected out of their normal path to a new path, including the tapered portion of lane closures, lane shifts, transitions, crossovers, ramps, intersections, or interchanges. The Contractor shall use drums, oversized vertical panels, or Type II construction barricades to delineate tapers. The Contractor may also use standard cones, tall cones, extra tall cones, and vertical panels for short term work zones during daylight hours only. At stationary work zones where workers are exposed to traffic and the posted speed limit is 40 mph or more, the spacing between channelizing devices shall not exceed 40 feet. Where the posted speed limit is less than 40 mph, the spacing between channelizing devices shall not exceed 20 feet.

2. Traveled Way (Including Lane and Shoulder Closures). The Contractor shall use drums, tall cones, extra tall cones, vertical panels, oversized vertical panels, or Type II construction barricades to delineate the traveled way. The Contractor may also use standard cones and vertical panels for short term work zones during daylight hours only. At stationary work zones, where no workers are exposed to traffic or no workers are present, the spacing between channelizing devices shall not exceed 80 feet. At stationary work zones, where workers are exposed to traffic, the spacing between channelizing devices shall not exceed 40 feet. Where necessary to permit ingress or egress by construction vehicles, wider gaps may be provided between channelizing devices, not to exceed the deletion of every fifth device.

At expressway gores, the Contractor shall use drums, tall cones, extra tall cones, oversized vertical panels, or Type II construction barricades. The Contractor may also use standard cones and vertical panels for short term work zones (during daylight hours) only. The Contractor may opt to substitute Type III construction barricades except in locations where they restrict driver vision. The spacing between channelizing devices shall not exceed 20 feet.

At transverse bumps and other hazards on roadways where the posted speed limit is 40 mph or less, the Contractor shall use drums, extra tall cones or oversized vertical panels.

Along lane or shoulder closures, where traffic will be traveling adjacent to the closures, two channelizing devices consisting of tall cones, extra tall cones, drums, vertical panels, oversized vertical panels or Type II construction barricades shall be placed transversely across each closed lane and shoulder at maximum 800 foot intervals except in locations where it would interfere with milling, paving or other ongoing work, to discourage traffic from driving through the closed lane. The Contractor may also use standard cones for short term work zones (during daytime hours) only. The Contractor may opt to substitute one Type III construction barricade for two transverse devices. These transverse devices may be relocated or adjusted as necessary to permit passage of construction vehicles.

3. Roadway or Pavement Edge. The Contractor shall use drums, tall cones, extra tall cones, vertical panels, oversized vertical panels, or Type II construction barricades where the work introduces or exposes hazards within the roadway or at the outside edge of the roadway, and pavement edge markings or permanent delineators are not installed. The Contractor may opt to substitute Type III construction barricades. The spacing between channelizing devices shall not exceed 200 feet. If barrier is within 4 feet of the nearest travel lane, barrier delineation at a spacing not exceed 20 feet may be provided in place of channelizing devices.

4. Roadway Intersections and Commercial Driveway Radii. The Contractor shall use drums, or extra tall cones to delineate roadway intersections and commercial driveways. The Contractor may also use standard cones, tall cones, and temporary tubular markers for short term work zones during daylight hours only. The spacing between channelizing devices shall not exceed 6 feet. Reduced spacing near roadway intersections and commercial driveways may be necessary to provide clear guidance. Vertical panels, oversized vertical panels, Type II barricades and Type III barricades shall not be used.

A non-signalized intersecting roadway shall be delineated by a new series of channelizing devices, and the series will start with one drum equipped with a Type A flashing warning light, placed along the primary roadway after the intersection.

5. Residential Driveway Radii. The Contractor shall use drums, or extra tall cones to delineate residential driveways. The Contractor may also use standard cones, tall cones, and temporary tubular markers for short term work zones during daylight hours only. The spacing between channelizing devices shall not exceed 6 feet. Reduced spacing near residential driveways may be necessary to provide clear guidance. Vertical panels, oversized vertical panels, Type II barricades and Type III barricades shall not be used.

6. Removed Existing Guide Rail or Median Barrier. The Contractor shall use drums, tall cones, extra tall cones, temporary tubular markers, vertical panels, oversized vertical panels, Type II construction barricades, Type III construction barricades to delineate the edge of the shoulder or median in locations where guide rail or median barrier was removed. The spacing between channelizing devices shall not exceed 80 feet where the shoulder width is 4 feet or greater, and shall not exceed 40 feet where the shoulder width is less than 4 feet. A minimum of three devices shall be provided for each individual run of guide rail or median barrier that has been removed.

7. Placing, Maintaining and Removing Channelizing Devices. The Contractor shall take all necessary precautions to protect the public and workers during the placement, maintenance, and removal of channelizing devices. Warning signs shall be in place in advance of and prior to the start of channelizing device placement, and shall remain in place until after the channelizing devices have been removed.

Channelizing devices shall be set up and removed by properly trained worker(s). The Contractor shall protect workers during placement and removal of channelizing devices, using measures adequate for the prevailing speed, volume of traffic and roadway geometry where the work is to occur. Protection shall include the use of automatic devices or from protected areas of a vehicle where practicable. Such protection may include, but is not limited to, the use of cone-setting equipment, cone baskets mounted on work vehicles, flaggers, spotters, and shadow vehicles equipped with impact attenuators. Workers placing or removing traffic control channelizing devices onto/from the roadway from the back or side of a moving vehicle shall be protected by a fall restraint system consisting of side racks, harness and lanyard and/or cone basket so that a worker cannot fall off the vehicle and strike the pavement. Workers shall be seated in seats having seatbelts on moving work vehicles when not in the process of placing or removing channelizing devices.

A shadow vehicle shall protect the channelizing device placement or removal operation on multi-lane highways, or a vehicle with a side or front cone basket shall meet the requirements of a shadow vehicle. Vehicles with front mounted cone baskets shall be used only on expressways and freeways traveling in the same direction as traffic.

TABLE 619-3A CHANNELIZING DEVICE APPLICATION FOR SHORT-TERM STATIONARY WORK ZONES												
Work Zone Provisions		Maximum Device Spacing (center to center)	Channelizing Device									
			Drums	Standard Cones	Tall Cones	Extra Tall Cones	Temporary Tubular Markers	Interim Tubular Markers	Vertical Panels	Oversized Vertical Panels	Type II Barricades	Type III Barricades
Short-Term Stationary Work Zones involve daytime work that occupies a location for more than one hour and up to a single daylight period												
Shoulder/Merging/Shifting Tapers	< 40 mph	20 ft.	X	X	X	X			X	X	X	
	≥ 40 mph	40 ft.	X	X	X	X			X	X	X	
One-Lane Taper for Alternating Two-Way Traffic		20 ft.	X	X	X	X			X	X	X	
Longitudinal Lane or Shoulder Closure w/Workers		40 ft.	X	X	X	X			X	X	X	
Longitudinal Lane or Shoulder Closure w/No Workers		80 ft.	X	X	X	X			X	X	X	
Freeway / Expressway Gores		20 ft.	X	X	X	X			X	X	X	O
Marking for Transverse Bumps ¹		N/A	X ²			X ²				X ²		
Transverse Device within Closed Traffic Lane and/or		800 ft	X	X	X	X			X	X	X	O
Roadway edge exposed with no Edgeline or Permanent Delineators		200 ft.	X		X	X			X	X	X	O
Roadway Intersection or Commercial Driveway Radii		6 ft.	X	X	X	X	X					
Residential Driveway Radii		6 ft	X	X	X	X	X					
Removal of existing guide rail	Shoulder width ≥ 4 ft.	80 ft.	X		X	X	X		X	X	X	O
	Shoulder width < 4 ft.	40 ft.										
Pavement Drop offs > 2 in. and < 24 in.		See Table 619-4										
Drop off ≥ 24 in. within 10 ft. of active travel way; Posted speed ≤ 45 mph; Drop off Length ≤ 100 ft.; Not to last longer than 1 work shift		20 ft.	X			X				X		
Closed Roads		N/A										X
Closed Sidewalks		N/A									X	X

NOTES: X = Allowed Blank = Not Allowed O = Optional at Contractor's expense

1 - A Type 1 Object Marker may be used in lieu of channelizing device

2 - Channelizing devices shall be equipped with a flashing warning light

TABLE 619-3B CHANNELIZING DEVICE APPLICATION FOR INTERMEDIATE-TERM AND LONG-TERM STATIONARY WORK ZONES

Work Zone Provisions		Maximum Device Spacing (center to center)	Channelizing Device									
			Drums	Standard Cones	Tall Cones	Extra Tall Cones	Temporary Tubular Markers	Interim Tubular Markers	Vertical Panels	Oversized Vertical Panels	Type II Barricades	Type III Barricades
Intermediate-term and Long-Term Stationary Work Zones involve work that occupies a location for more than 1 daylight period or nighttime work that occupies a location for more than 1 hour												
Shoulder/Merging/Shifting Tapers	<40 mph	20 ft.	X							X	X	
	≥ 40 mph	40 ft.	X							X	X	
One-Lane Taper for Alternating Two-Way Traffic		20 ft.	X							X	X	
Longitudinal Lane or Shoulder Closure w/Workers		40 ft.	X		X	X				X	X	
Longitudinal Lane or Shoulder Closure w/No Workers		80 ft.	X		X	X				X	X	
Freeway / Expressway Gores		20 ft.	X		X	X				X	X	O
Marking for Transverse Bumps ¹		N/A	X ²			X ²				X ²		
Transverse Device within Closed Traffic Lane and/or		800	X		X	X			X	X	X	O
Roadway edge exposed with no Edgeline or Permanent Delineators		200 ft.	X		X	X			X	X	X	O
Roadway Intersection or Commercial Driveway Radii		6 ft.	X			X						
Residential Driveway Radii		6 ft.	X			X						
Removal of existing guide rail	shoulder width ≥ 4	80 ft.	X		X	X	X		X	X	X	O
	shoulder width < 4	40 ft.										
Pavement Drop offs > 2 in. and < 24 in.		See Table 619-4										
Drop off ≥ 24 in. within 10 ft. of active travel way; Posted speed ≤45 mph; Drop off Length ≤ 100 ft.; Not to last longer than 1 work shift		20 ft.	X			X				X		
Two-Lane Two-Way Operations on expressways and freeways at	along curves	20 ft.	X							X	X	O
	along tangents	40 ft.										
Two-Lane Two-Way Operations on expressways and freeways between Crossovers		40 ft.	X		X	X		X	X	X		
Closed Roads		N/A										X
Closed Sidewalks		N/A									X	X

NOTES: X = Allowed Blank = Not Allowed O = Optional at Contractor's expense

1 - A Type 1 Object Marker may be used in lieu of channelizing device.

2 - Channelizing devices shall be equipped with a flashing warning light.

K. Pavement Edge Drop-Off Protection. A drop-off is an abrupt difference in surface elevation of more than 2 inches at approximately 1V:3H or steeper. In the absence of adequate Traffic Control Plans in the contract documents, the Contractor shall submit alternate Traffic Control Plans to the Engineer for approval at least 30 calendar days prior to proposed work which will create a drop-off of over 24 inches within 10 feet from the edge of the traveled way for durations longer than one shift.

The Contractor shall provide pavement edge drop-off protection in accordance with Table 619-4 *Pavement Edge Drop-Off Protection*. Channelizing devices used to mark drop-offs shall be placed, as practicable, to not reduce the available travel lane width, at the elevation of the open travel lane in order to provide maximum target value and visibility for motorists.

A drop-off of greater than 24 inches within 10 feet from the edge of the traveled way to remain at the end of the work shift shall be separated from traffic with temporary or permanent barrier. For posted speed limit of 45 mph and less, a drop-off of greater than 24 inches within 10 feet from the edge of the traveled way that is 100 feet or less in length will be allowed with channelizing devices consisting of drums, extra tall cones or oversized vertical panels only at a maximum spacing of 20 feet for short durations not to exceed one work shift.

Unless otherwise noted in the contract documents, the Contractor shall begin work to eliminate unprotected drop-offs created by contract work within 7 calendar days of the completion of the work creating the drop-off. Work shall continue in a timely manner until such time as the unprotected drop-off condition is eliminated.

Where pavement edge lines are not provided, channelizing devices shall be preceded by a NO SHOULDER (W8-23) sign, repeated at all ramps and roadway intersections. Signs shall be repeated every ½ mile and supplemented with a NEXT [X] MILES (W7-3aP) plaque where applicable.

Where pavement edge lines are provided, channelizing devices shall be preceded by SHOULDER DROP-OFF (W8-17) signs, repeated at all ramps and roadway intersections. Signing shall be repeated every ½ mile and supplemented with NEXT [X] MILES (W7-3aP) plaque where applicable.

TABLE 619-4 PAVEMENT EDGE DROP-OFF PROTECTION						
Drop-Off Height	Edge Line Pavement Markings	Drum Spacing (feet)	Vertical Panel Spacing (feet)	Tubular Marker Spacing (feet)	Tall Cone Spacing (feet)	Signs
DROP-OFF AT OR WITHIN SHOULDER AREA						
Within 4 ft. from Travel Lane						
2 – 6 in.	Yes	100	100	N/A	N/A	Shoulder Drop-off
	No	40	40	N/A	N/A	No Shoulder
6 - 24 in.	Yes	40	40	N/A	N/A	Shoulder Drop-off
	No	20	20	N/A	N/A	No Shoulder
More than 4 ft. from Travel Lane						
2 – 6 in.	Yes	200	200	100	100	Shoulder Drop-off
	No	100	100	40	40	No Shoulder
6 - 24 in.	Yes	40	40	N/A	N/A	Shoulder Drop-off
	No	40	40	N/A	N/A	No Shoulder
DROP-OFF OUTSIDE OF SHOULDER EDGE						
Shoulder width ≤ 4 ft.						
2 – 6 in.	Yes	100	100	N/A	N/A	Shoulder Drop-off
	No	100	100	N/A	N/A	No Shoulder
6 - 24 in.	Yes	40	40	N/A	N/A	Shoulder Drop-off

	No	40	40	N/A	N/A	No Shoulder
Shoulder width > 4 ft.						
2 – 6 in.	Yes	200	200	100	100	Shoulder Drop-off
	No	100	100	40	40	No Shoulder
6 - 24 in.	Yes	100	100	40	40	Shoulder Drop-off
	No	40	40	N/A	N/A	No Shoulder

L. Flagging and Traffic Control. The Contractor shall provide an adequate number of competent flaggers to control traffic when it is necessary to maintain alternating one-way traffic in one lane of a two-lane, two-way roadway, and at all other locations where construction operations, construction vehicles and equipment, and temporary traffic patterns related to the construction operations require positive temporary traffic control for safe, efficient traffic operations. These locations include, but are not limited to, locations where construction traffic enters, exits, or crosses open traffic lanes, locations of temporary stoppage of traffic for work operations, rail crossings, locations requiring slowing of traffic adjacent to work operations, on-ramps with restricted site distance, pedestrian crossings, intersections, and other locations where traffic needs to be alerted to unexpected conditions ahead.

Multiple lane approaches shall be reduced to a single lane prior to a flagger station. Automated flagger assistance devices (AFAD), portable traffic signals, and temporary traffic signals used to control traffic at the Contractor's option in lieu of flaggers shall be at no additional expense to the State.

1. Flagger Training. All flaggers shall be adequately trained in flagging operations by recognized training programs, including the American Traffic Safety Services Association, the National Safety Council, unions, or construction industry associations, or by an individual who holds a current certification as a flagger training instructor from such a program. Prior to the start of flagging operations, the Contractor shall provide to the Engineer a list of certified flaggers to be used in the operation, identifying the source of flagger training for each individual. When requested by the Engineer, flaggers shall demonstrate their competency in flagging procedures. Flaggers not competent in flagging procedures shall be retrained or replaced at once.

2. Flagger Equipment. Flaggers shall wear orange protective helmets and traffic control apparel in accordance with ' 107-05A. *High Visibility Apparel*. Flaggers shall be appropriately dressed, including apparel that covers the legs, torso and arms with sleeves a minimum of 4 inches long and appropriate footwear. Immodest or sloppy dress will not be permitted. Flaggers shall be equipped with an emergency air horn to alert workers of errant vehicles or other dangerous situations. Where flaggers are not within sight of each other, each flagger shall be equipped with a communication device, such as portable phone or two-way radio. The communication device shall only be used to communicate with other flaggers, other workers, or supervisor(s) regarding the flagging operations. Where the distance between flaggers is more than ½ mile or where shown in the contract documents, the Contractor shall use pilot cars to lead lines of vehicles through the work zone.

The standard signaling device for flagging operations, where one or more flaggers are controlling a single stream of traffic or two alternating streams of traffic in opposite directions, shall be STOP/SLOW signal paddles. Red signal flags may be used where display of the STOP and SLOW faces in opposite directions may be inappropriate or misleading.

3. Operational Control. Flaggers shall be located in a position clearly visible to, but not in the path of, approaching traffic, with an available escape path to avoid an oncoming errant vehicle. The number of flaggers to be furnished for each operation shall be sufficient to provide safe,

efficient flow of vehicle and pedestrian traffic. A spotter is not a flagger, and shall only direct construction vehicles or equipment, and shall not direct traffic in any manner.

Work zones utilizing flaggers shall comply with the Standard Sheet for flagger operation and a Flagger symbol (W20-7) sign shall be provided in advance of each flagger.

For control of alternating one-way traffic, one flagger shall be provided at each end of the one-way section, with additional flaggers provided to control traffic entering the one-way section from intermediate intersections and major commercial driveways. Where the length of the one-way section is less than 150 feet, the posted speed limit is less than 40 mph, traffic volumes are such that queues do not develop, and sight distances are adequate, the Contractor may request approval from the Engineer to use a single flagger.

For intersection control, at least one flagger shall be provided for each intersection approach. Where traffic speeds and/or volumes are unusually low, and adequate sight distance is available, such that safe operations can be ensured with fewer flaggers, the Contractor may request approval from the Engineer to use fewer flaggers. When flagging at an intersection with a traffic signal, the signal shall be turned off unless directed otherwise by the Engineer.

The Contractor shall provide enhanced flagger stations consisting of a Flag Tree (6F.57) and additional cones at all approaches to flaggers, in accordance with the Standard Sheet, in order to provide effective advanced warning to motorists. Flag Trees shall display a minimum of 3 orange warning flags, with the flags mounted such that the lowest corners of the flags are at a minimum height of 8 feet. On roadways with posted speed limits less than 40 mph, in locations having obstructed traffic flow, such as those having controlled intersections along the approach or approaches, where conditions do not permit placing the devices in a manner that will provide effective advanced warning to motorists, enhanced flagger stations need not be provided.

Flaggers shall be alert at all times, and shall not stand with their backs to approaching traffic. Flaggers shall only direct traffic to stop, to slow or to proceed, using hand signals to supplement the signaling device in accordance with the flagging procedures shown in the MUTCD. Flaggers shall be provided periodic breaks (minimum 15 minutes every 4 hours) throughout the work day, with competent substitutes provided during breaks to maintain continuous coverage of the flagging operation.

A spotter shall be provided at all locations where construction vehicles or equipment must back across or into open travel lanes, sidewalks, or pedestrian walkways. A spotter shall only direct construction vehicles or equipment, and shall not direct traffic in any manner.

For ongoing flagging operations at a specific location, the Contractor may request approval from the Engineer to substitute portable traffic signals in lieu of flaggers.

4. Automated Flagging Assistance Devices (AFAD). AFADs are devices to control traffic through work zones remotely by a single flagger at a central location or at one end of the work zone.

A minimum of 7 calendar days prior to initial deployment of the AFAD system, the Contractor shall submit a traffic control plan to the Engineer, for review and approval, detailing AFAD operation including a list of competent flaggers trained to operate the AFAD. AFADs shall be used only on two-lane two-way or single lane one-way roadways. AFADs shall not be used where there are intersections and/or commercial driveways or where construction operations within the controlled highway segment frequently disrupt traffic flow. Appropriate flagger apparel and equipment shall be maintained near each AFAD to facilitate flagging in the event of a malfunction or operational need due to frequent disruptions of traffic flow. The Contractor shall immediately provide traffic control with flaggers if a AFAD malfunctions; fails to properly or adequately control traffic; creates congestion, queues or gridlock which cannot be remedied by timely on-site adjustments to the signal operation; or is otherwise inadequate.

A competent flagger, who has been trained on the operation of the AFAD, shall operate and not leave the AFAD(s) unattended at any time. The flagger shall have an unobstructed view of

the AFAD(s) and approaching traffic in both directions at all times. The distance between AFADs shall not exceed ½ mile. Work zones utilizing AFADs shall comply with the Standard Sheet for flagger operation on a 2-lane 2-way roadway, where the AFAD is used in lieu of a flagger and a BE PREPARED TO STOP sign (W3-4) is to be used in lieu of the Flagger symbol sign. Red/Yellow lens AFAD shall have a STOP HERE ON RED (R10-6) sign installed on the right-hand shoulder at least 8 ft in advance of the AFAD where vehicles are expected to stop.

A portable traffic signal may be used, at the Contractor's option, as an AFAD. A Signal Ahead symbol (W3-3) sign shall replace the Flagger symbol sign. An 18 inch wide removable stop line with a STOP HERE ON RED (R10-6) sign shall be installed at intended stopping point. The Engineer may waive the requirement for a stop line if the roadway is unpaved or it is otherwise impractical to install a stop line and the STOP HERE ON RED sign is in place.

When the work no longer necessitates use of the AFAD or portable traffic signal, the units shall be removed or turned off and moved out of view from the traveled way.

M. Maintain Existing Mailboxes. The Contractor shall not move any mailbox which contains mail. The Contractor will advise the owner to remove mail before the box is moved. Mailboxes shall be mounted, either permanently or temporarily, on a post. Before acceptance of the work, any mailbox which has been disturbed or moved shall be restored by the Contractor at a location consistent with the requirements of the U.S. Postal Service and the contract documents.

N. Contract Site Patrol. The Contractor shall provide adequate personnel and supervision to conduct operations and patrol the contract site to ensure that conditions are adequate for public safety and convenience at all times. The Contractor shall patrol the site as often as necessary during working and non-working hours to adjust and maintain signs, channelizing devices, and other traffic control devices and safety features.

619-3.03 Basic Work Zone Traffic Control (Daily Operations). The Contractor shall control traffic in accordance with §619-3.02 *Basic Work Zone Traffic Control* paragraphs A. *Surface Condition*; C. *Maintain Public Access*; D. *Maintain Existing Roadside Signs*; F. *Construction Vehicles*; G. *Barrier/Shadow Vehicles*; H. *Construction Signs*; I. *Arrow Panels*; J. *Channelizing Devices*; L. *Flagging*; M. *Maintaining Existing Mailboxes*; and O. *Portable Traffic Signals* so that a person who has no knowledge of conditions may safely and with a minimum of discomfort and inconvenience drive, ride, or walk, during the day or at night, over all or any portion of the highway and/or structure under construction where traffic is to be maintained. The Contractor will not be required to repair or maintain the roadway except to repair any damages resulting from its operations.

The Contractor shall cease operations and clear the traveled way, shoulders, and clear zones of all obstructions including traffic control devices, construction equipment, and materials at the end of each work shift.

619-3.04 Temporary Business Signs. The Contractor shall provide temporary business signs (NYI8-4) mounted on temporary sign supports to identify business entrances in accordance with the contract documents. Entrances shall be identified by only a single sign. Temporary business signs shall be mounted at a minimum height of 7 feet, and at a location that will guide traffic seeking access to the business, but where they will not interfere with traffic flow or other traffic control devices.

619-3.05 Covering or Removal of Pavement Markings. The Contractor shall remove or cover existing permanent pavement markings, interim pavement markings and temporary pavement markings, as indicated in the contract documents or directed by the Engineer, to accommodate traffic pattern changes by covering the markings with preformed removable pavement marking masking tape, or by removing the markings. Masking tape shall be placed in blocks to prevent the underlying shape of pavement marking symbols or letters from being confused with existing markings.

A. Removal of Pavement Markings. The removal method will be at the Contractor's option, subject to its ability to achieve satisfactory results. Removal shall be completed prior to the installation of temporary pavement markings or interim pavement markings. Grinding to remove pavement markings will typically remove 1/8 to 1/4 inch of pavement surface. Prior to installation, the existing marking and adjacent pavement shall be cleaned of debris by compressed air or sweeping.

B. Masking Pavement Markings. Removable pavement marking masking tape shall be installed in accordance with the manufacturer's written instructions. Prior to installation, the existing pavement marking and adjacent pavement shall be cleaned by compressed air, sweeping, or other means adequate to remove debris, but that does not result in damage to the existing pavement marking. The width of the removable pavement marking masking tape shall be sufficient to completely cover the existing pavement marking.

The masking tape shall firmly adhere to the entire length and width of the existing pavement marking to be covered. The Contractor shall maintain the tape for the duration of its use. Any tape that is loosened, removed, or that fails to retain its original matte finish, or that for any other reason fails to obliterate the existing pavement marking shall be replaced immediately, at no additional expense to the State.

When the covered pavement markings are to be restored to service, masking tape shall be removed. Temporary adhesive residues will be allowed to remain, providing that the existing pavement marking visibility is not impaired.

Any damage to the existing pavement markings or to the pavement surface that results from the removal of the masking tape shall be repaired at no additional cost to the State. If the existing marking cannot be repaired satisfactorily, the Contractor shall remove damaged pavement markings completely and/or replace the pavement section at no additional cost to the State.

619-3.06 Temporary Pavement Markings. The Contractor shall install and maintain temporary pavement markings in accordance with the contract documents, using patterns and colors shown in the MUTCD to establish temporary traffic pattern(s) during construction on any pavement, including milled or grooved surface, resurfaced, new pavement, or other paved surface without pavement markings, for a maximum of 14 calendar days.

Within 14 calendar days after placement, the Contractor shall either (1) install the succeeding pavement course or (2) install the remaining temporary pavement markings including edge lines, stop bars, and simple crosswalks, with no hatching. Pavements which will be open to traffic shall be properly marked before being opened, before nightfall, or before the end of the work day, whichever is soonest, except areas that are open during the work shift and delineated with channelizing devices or flaggers.

Traffic paint need not be removed before placing a subsequent course. Removable pavement tape, removable wet-night reflective tape, temporary overlay markers and removable raised pavement markers shall be removed before placing a subsequent course at no additional cost to the State.

Temporary pavement marking stripes shall be a minimum of 4 inches in width. Temporary pavement markings shall be applied to a clean, dry pavement in accordance with the manufacturer's recommendations. Hatch lines and symbols will not be required as temporary pavement markings unless required by the contract documents.

Traffic paint pavement markings shall be applied at a minimum wet film thickness of 20 mil, immediately followed by an application of glass beads, at a rate of 6 lb/gal of paint.

Where specified, removable raised pavement markers shall be used to supplement line pavement markings. The raised markers shall not be a substitute for line pavement markings, letters or symbols. Removable raised pavement markers spaced every 5 feet may be used to supplement line pavement markings. Two removable raised pavement markers spaced at each end of the 2 foot marking may be used to supplement a 2 foot broken line pavement marking.

If unanticipated weather or other conditions prevent the application of temporary pavement markings, the Contractor shall apply 2 foot removable pavement tape markings or temporary overlay markers at 40 foot spaces at no additional cost to the State, for a maximum of 3 days until such time as temporary pavement markings may be applied, or the next pavement course is installed.

A. Divided Highways. On freeways, expressways and parkways, the Contractor shall install broken lines a minimum of 2 feet long at 40 foot spacing to separate traffic lanes in the same direction. The Contractor shall install solid edge lines for a minimum of 100 feet on either side of the apex of a gore.

B. Undivided Multilane Highways. On three or more lane highways, and two or more lane highways with center two way left turn lanes, the Contractor shall install white broken lines a minimum of 2 feet long at 40 foot spacing to separate traffic flows in the same direction, and partial barrier or full barrier centerline to separate traffic flows in opposite directions.

C. Two-Lane, Two-Way Highways. For two-lane, two-way highways, the Contractor shall install a temporary pavement markings consisting of full barrier centerline markings in no passing zones and 2 foot broken line markings at 40 foot spacing in passing zones.

Two-lane, two-way highways may for a maximum of 3 days have the centerline marked with yellow 2 foot by 4 inch removable pavement tape or yellow temporary overlay markers at 40 foot spaces with NO CENTER STRIPE (W8-12) signs and DO NOT PASS (R4-1) signs at no additional cost to the State. A NO CENTER STRIPE sign shall be installed in advance of the area marked with yellow 2 foot removable pavement tape markings or temporary overlay markers, as well as after major intersections and after major traffic generators within the area marked with the removable pavement tape markings or temporary overlay markings. A DO NOT PASS sign shall be installed within 100 feet of the beginning of the area with the removable pavement tape markings or temporary overlay markers, and a second DO NOT PASS sign shall be installed within 1,100 feet of the first DO NOT PASS sign and subsequent DO NOT PASS sign(s) shall not exceed 3,000 feet spacing. On an approach without centerline pavement markings where passing will not be permitted, a black on orange NO PASSING ZONE (W14-3) pennant shaped sign shall be installed on that approach. Full barrier, partial barrier or broken line temporary centerline pavement markings shall be placed within three calendar days.

619-3.07 Interim Pavement Markings. Work shall consist of furnishing, applying, and maintaining interim pavement markings as shown in the contract documents or as directed by the Engineer. The work for removable tape, removable wet-night reflective tape, temporary overlay markers and removable raised pavement markers shall include removal. Interim pavement markings are intended for use in diversions, temporary pavement realignments and crossovers, lane shifts and closures, and other traffic patterns associated with construction activities. Interim pavement markings are intended for use for a given phase or season, for a maximum of 1 year.

A. Installation. Interim pavement markings shall be applied to a clean, dry pavement in accordance with the manufacturer's recommendations. Interim pavement markings on roadways open to traffic shall be applied in the direction of traffic. Traffic paint and epoxy paint pavement markings shall be applied at a minimum wet film thickness of 20 mils, immediately followed by an application of glass beads at a rate of 6 lb/gal of paint.

Painted markings may be supplemented with removable raised pavement markers. Removable raised pavement markers shall be spaced at 5 feet to supplement a solid line, and 4 markers spaced shall be used to supplement a 10 foot segment of broken line. When used to supplement a solid or broken line, markers shall be spaced a maximum of 80 feet on tangents and a maximum of 40 feet for curves with a radius less than 2,800 feet. Removable raised pavement markers shall not be used alone to simulate interim pavement markings.

B. Maintenance/Replacement. Traffic paint or removable tape shall be replaced upon (1) abrasion of the line such that more than 10 percent of the underlying pavement is visible within any 300 feet segment of line or (2) loss of more than 2 consecutive skip lines or (3) loss of more than 50 feet of continuous line or (4) failure of any line to be clearly visible at night under low-beam headlamp illumination when viewed from a distance of 200 feet.

Missing removable raised pavement markers shall be replaced upon (1) loss of more than 10 percent of the markers within a 300 feet long segment of line or (2) loss of more than 3 consecutive markers or (3) failure of any line to be clearly visible at night under low-beam headlamp illumination when viewed from a distance of 200 feet.

The Contractor will not be responsible for damage or loss caused by snowplowing. In the event that such pavement markings are damaged or lost, the Engineer will determine whether to replace the lost pavement markings in kind or with other marking materials. Separate payment will be made for pavement markings replaced, or installed due to damage or loss caused by snowplowing.

619-3.08 Temporary Rumble Strips. The Contractor shall install temporary rumble strips in three sets of 6-strip patterns with 10 foot between individual strips. The type of strip installed will be at the Contractor's option, except that sawcut or milled-in strips shall not be installed on new top course surfaces or existing surfaces that will not be paved over. Where there is no usable shoulder, or the shoulder is less than 3 feet wide, the rumble strips should be ended 3 feet short of the edge of usable pavement. On curbed roadways, rumble strips should end a minimum of 3 feet from the curb in order not to interfere with drainage. Rumble strips shall typically be placed in advance of each of the last three long-term advance warning signs such that drivers are alerted in time to see and read the signs. Rumble strips will typically be installed for a minimum of one week.

A. Raised Asphalt Rumble Strips. The roadway surface on which the rumble strips are to be attached shall be dry, free of surface contaminants such as dust or oil, and thoroughly swept with a stiff broom. The surface temperature of the pavement shall be 45°F or greater unless otherwise authorized by the Engineer. The pavement surface shall be cleaned with compressed air just prior to tack coating and subsequent installation of the rumble strips. The strips shall be formed using a rumble strip paver (drag box) pulled transversely across the pavement, or by hand placement between forms fixed to the pavement. If forms are used, they shall be removed prior to compaction of the asphalt mixture. Compaction shall be accomplished using a plate tamper or a static roller. Raised asphalt rumble strips shall have a width of 6 to 9 inches, measured in the direction of traffic, and have a final compacted thickness of 3/8 inch \pm 1/8 inch.

B. Raised Removable Tape Rumble Strips. Raised removable tape rumble strips shall be formed by applying one or more layers of removable preformed pavement marking masking tape. The tape shall be applied to a clean, dry pavement surface in accordance with the manufacturer's recommendations. The pavement surface shall be swept or cleaned with compressed air just prior to application of the tape.

C. Raised, Preformed Rumble Strips. Raised preformed rumble strips shall be applied to a clean, dry pavement surface in accordance with the manufacturer's recommendations. The pavement surface shall be swept or cleaned with compressed air just prior to application of the strip.

D. Saw-cut Rumble Strips. Saw-cut rumble strips shall be saw cut into existing pavement using wet cutting methods. The blade or blades shall be of such configuration that the desired dimensions of the saw cut can be made with one pass. No spacers between blades will be allowed.

Before a travel lane with saw-cut rumble strips is reopened to traffic, the pavement shall be cleaned by sweeping, flushing, or with a stream of compressed air. Sawing slurry from the wet-sawing process shall be flushed from the pavement surface immediately.

E. Milled-in Rumble Strips. Milled-in rumble strips shall be milled into existing pavement using a rotary-type cutting head with a maximum nominal outside diameter of 24 inches. The cutting head shall be on its own suspension system, independent from that of the power unit, to allow the head to align itself with the slope of the pavement and/or any irregularities in the pavement surface. The pattern of cutting tips on the head shall be arranged to produce a relatively smooth cut with no more than 3/32 inches between peaks and valleys. Prior to beginning work, the Contractor shall demonstrate to the Engineer the ability to achieve the desired surface without tearing or snagging the pavement.

Before a travel lane with milled-in rumble strips is reopened to traffic, the pavement shall be cleaned by sweeping, flushing, or with a stream of compressed air.

F. Removing Temporary Rumble Strips. The Contractor shall either completely remove raised rumble strips from the pavement or fill in the depressions from saw-cut or milled-in rumble strips prior to the start of the winter plowing season, prior to the placement of successive pavement courses, or as directed by the Engineer. Any damage to the pavement surface resulting from the removal of raised rumble strips shall be repaired at no additional cost to the State.

Rumble strip depressions shall be filled in with hot mix asphalt. Before they are filled, the depressions shall be cleaned by sweeping, flushing, or with a stream of compressed air, and coated with Asphalt Emulsion Tack Coat. The rumble strips shall be overfilled slightly and compacted using a plate tamper or static roller so that the final compacted surface is flush with the existing pavement.

619-3.09 Interim Tubular Markers. The Contractor shall install interim tubular markers in accordance with the contract documents. The Contractor shall attach interim tubular markers to the pavement in a manner that prevents them from being moved or dislodged by traffic. Interim tubular markers shall be installed on pavement that has been cleaned to remove pavement markings, oil, dirt, or other debris or substances that may interfere with a proper bond. Attachment to the pavement shall be by mechanical fastener or by adhesive, in accordance with the manufacturer's recommendations. Bonding agents shall be of sufficient amount or size to ensure proper bonding of the base to the pavement.

Interim tubular markers removed or damaged by the Contractor's operations or by traffic shall be replaced immediately, so that positive separation is maintained between opposing lanes of traffic at all times. Damaged reflective sheeting on interim tubular markers shall be replaced before nightfall as necessary to maintain adequate visibility of the markers. In cases where only isolated individual markers are lost or damaged, and adequate visibility is maintained by the remaining markers, replacement will not be required until more than 3 consecutive markers, or 25 percent of all markers within ½ mile have been damaged or lost. The replacement of markers damaged or lost by traffic, where the Contractor has demonstrated reasonable effort to collect the costs from the person(s) responsible for damage will be considered extra work.

619-3.10 Portable Variable Message Signs (PVMS) and Truck Mounted Variable Message Signs (TMVMS). The Contractor shall provide, operate and maintain PVMS & TMVMS as indicated in the contract documents until the progress of work no longer requires their use. The Contractor shall relocate or reorient PVMS with a pay unit of each, if necessary, up to 4 times per year as conditions dictate, at no additional cost to the State. The Contractor shall provide, operate and maintain PVMS with a pay unit of weeks at the general locations and duration stated in the contract documents and in accordance with the Special Note *Requirements for Portable Variable Message Signs (PVMS)*. There shall be no extra payment due for each relocation or reorientation of TMVMS. On the PVMS & TMVMS, the message to be displayed shall be as required by the contract documents and may change on a daily basis or more frequently as

conditions dictate. NYSDOT's *Variable Message Sign Guidelines* shall be reviewed to ensure compliance with Chapter 5 - *Messages*.

If the contract requires a NTCIP compliant PVMS, the Contractor shall provide the Engineer with the model, manufacture date and manufacturer of the NTCIP compliant PVMS the Contractor plans to use from the Approved List. After delivery to the work site, the Contractor shall allow the Regional Transportation Management Center (TMC) to conduct operations and communications tests on one or more samples supplied by the Contractor. The testing will determine if the proposed PVMS meets the TMC's operational requirements by demonstrating remote communications to and from the TMC using NTCIP compliant operating software. TMVMS do not require NTCIP compliant communications. The message to be displayed shall be as required by the contract documents or as directed by the Engineer.

PVMS specified with cellular communications shall be equipped with control software compatible with the current computer operating system used in the Engineer's Field Office. PVMS with Cellular Communications Option shall have cellular telephone service provided by the Contractor. The Contractor shall supply the Engineer with two copies of operating instructions for the PVMS and the control software. The Contractor shall supply the Engineer with a copy of control software a minimum of 14 calendar days prior to installation of the first unit. Electronic copies of software instructions are acceptable.

PVMS shall be placed so that the base of the message panel is at least 7 feet above the adjacent pavement surface and aligned to provide optimum viewing by approaching motorists. The Contractor shall supply the Engineer with an accurate log of the text of all messages and times messages were displayed monthly, not later than the 15th of the following month. The log of messages may be either a listing in a manual register or printouts from the control software. The Contractor shall inform the Engineer of PVMS and TMVMS locations and update as they are relocated and removed.

The PVMS shall be protected from unauthorized use. All cabinet doors shall be secured and/or padlocked, and default manufacturer's passwords shall be changed. Additional security measures shall be implemented as needed.

619-3.11 Type III Construction Barricades. Type III construction barricades shall be installed at all locations where a highway, bridge, ramp, or other segment of the roadway is closed to traffic. Type III construction barricades shall be maintained upright, in proper alignment and orientation. If ballast is used to maintain alignment and position of the barricade, it shall consist of dry sand contained in a closed waterproof bag, and shall be placed at ground level.

Barricade rails shall be oriented such that the stripes slope downward toward the side on which traffic is to pass. If traffic may pass to either side, adjacent barricades shall be arranged such that the stripes slope downward toward each side starting at the center. Where no passage is intended or permitted, the stripes shall slope downward toward the center of the barricade or barricades.

At night, each Type III construction barricade used to close a roadway, a segment of a roadway or a sidewalk shall be equipped with one flashing warning light.

619-3.12 Temporary Positive Barrier. Temporary Positive Barriers are categorized by their standard MASH TL-3 (pickup truck) deflection and their deflection reduction measures (pinning and or box-beam-stiffening). The barriers that satisfy a given deflection category are shown on the Department's Approved List for Temporary Positive Barriers. The system chosen and the segment length used must be capable of meeting the curvatures indicated in the Plans.

The Engineer will inspect temporary barrier segments upon delivery. Any barrier segment having damage and/or defects in the segment and/or joint connections will be rejected if the performance of the barrier may be affected.

Temporary positive barrier segments shall be fastened together to form a continuous string. When joined together, the barrier segments shall form a smooth and continuous barrier. Any segments damaged or misaligned shall be corrected or replaced. The connections shall conform to the approved details for the particular barrier.

Tapered end sections shall not be used in traversable medians, gores, or other areas where impacts on a tapered end section could allow vehicles to penetrate opposing or adjacent lanes of traffic. Where the posted speed limit is 45 mph or higher, a temporary impact attenuator or temporary sand barrel array shall be provided on approach ends of temporary positive barrier when the offset from the edge of the traveled way to end of the barrier is less than 12 feet and will be paid for separately.

Where space is available, approach ends of the barrier string shall be flared away from the traveled way at the taper rate shown in Table 619-5 *Flare Rates for Positive Barrier* and terminated in a tapered end section, embedded in a slope, or otherwise protected against impact by errant vehicles.

The Contractor shall install temporary barrier where indicated, and of the deflection Category indicated in the contract documents. Where pinning is indicated for the given barrier, the pinning shall be in conformance with the pinning requirements indicated in the Approved List. Where pins extend above the top surface of the barrier anchor recess, they shall be covered with plastic or rubber.

TABLE 619-5 FLARE RATES FOR TEMPORARY POSITIVE BARRIER					
POSTED PRECONSTRUCTION SPEED LIMIT (mph)	30	40	50	55	65
TEMPORARY POSITIVE BARRIER	8:1	11:1	14:1	16:1	20:1
BOX BEAM OR HEAVY POST CORRUGATED BEAM	7:1	9:1	11:1	12:1	15:1

TABLE 619-6 GUIDE RAIL AND NYSDOT TEMPORARY CONCRETE BARRIER STANDARD** DEFLECTION DISTANCES		
BARRIER TYPE	POST SPACING (ft)	DEFLECTION DISTANCE (ft)
CABLE GUIDE RAIL	16	11.0*
	12	9.5*
	8	8.0*
	4	7.0*
CORRUGATED W-BEAM (WEAK POST) GUIDE RAIL	12.5	8.0
	6.25	6.0
	4.16	5.0
CORRUGATED W-BEAM (HEAVY POST BLOCKED OUT)	6.25	4.0
	3.12	2.0
BOX BEAM GUIDE RAIL	6.0	5.0
	3.0	4.0
CORRUGATED W-BEAM (WEAK POST) MEDIAN BARRIER	12.5	7.0
	6.25	5.0
CORRUGATED W-BEAM (HEAVY POST) MEDIAN BARRIER	6.25	2.0
BOX BEAM MEDIAN BARRIER	6.0	3.0
NYSDOT TEMPORARY CONCRETE BARRIER	Unpinned	3.25**
	Box-Beam-Stiffened	2.2**
	Pinned	0.8**

* Note: NCHRP 350 Standard Deflection caused by a 4,400-lb test vehicle traveling 62 mph impacting the barrier at a 25° angle

****Note:** Standard Deflections are those assumed to occur with a Standard TL-3 Impact. MASH Standard Impact is produced by a 5,000-lb test pickup traveling 62 mph impacting the barrier at a 25° angle.

The temporary concrete barrier stiffened with box beam shall be installed at least 50 feet prior to, be continuous through, and extend at least 50 feet beyond the area requiring limited deflection, wherever practicable. Where space limits extending the string of barrier stiffened with box beam, one segment at either end of the string shall be pinned with 4 pins on the construction, or non-traffic, side.

At any transition between pinned and unpinned portions of a temporary positive barrier run, to provide a gradual change in fixity, one piece of barrier shall be partially pinned using 2 pins on the construction side of the barrier. The partially pinned piece shall be included in the measurement of pinned barrier.

Pins shall have the following minimum embedment lengths:

- | | |
|---|--------|
| • Bridge Decks and Cement Concrete Pavement | 5 in. |
| • Flexible Pavement | 18 in. |
| • Unpaved Areas | 30 in. |

After removal of the barrier, pin holes created in the surface shall be filled, unless that area will be further disturbed. Holes in flexible pavement shall be filled with warm or cold mix top course asphalt material rodded in 3" lifts. Holes in portland cement concrete pavement or structural decks shall be filled with material meeting the requirements of §701-05 *Concrete Grout Material* or §721-03 *Epoxy Polysulfide Grout*. Holes in unpaved area shall be filled with sand backfill.

A. Temporary Barrier Without Warning Lights. Where warning lights for temporary positive barrier are not required, the Contractor shall provide and maintain delineation on the temporary barrier in accordance with Section 619-2.12. The delineation shall be visible and free of dirt and snow, including during shutdown periods. The maximum spacing of delineation shall be 20 feet.

B. Temporary Barrier With Warning Lights. Where warning lights are specified, Type C warning lights shall be provided on temporary barrier. The maximum spacing of warning lights shall be 40 feet in tangents and 20 feet in curves with radii less than 2,800 feet. Warning lights shall be attached to the barrier so that the lights remain securely in place and so that the attachment minimizes damage to the barrier.

All warning lights shall be kept clean, properly aligned, and in operating condition. Batteries shall be replaced as necessary.

Where channelizing devices with Type A flashing warning lights are not provided immediately preceding a run of barrier to be marked with warning lights, the first warning light on that run of barrier shall be a Type A warning light.

C. Box Beam Guide Rail to Temporary Positive Barrier (Concrete) Transition. Where required, the Contractor shall install the Transition from Box Beam to Flared Temporary Concrete Barrier or the Transition from Box Beam to Unflared Temporary Concrete Barrier in accordance with the details shown on the Standard Sheets. With the approval of the Engineer, the Contractor may choose to switch options, at no additional cost to the State.

Where the Contractor elects or is required to bolt the box beam to the face of the Temporary Concrete Barrier, the pieces of box beam thus bolted shall be removed and become the Contractor's property when the Temporary Concrete Barrier is removed. After removal of the Temporary Concrete Barrier, any rail and posts removed to facilitate placement of the Temporary Concrete Barrier transition shall be promptly replaced with new posts and new or acceptable reset box beam guide rail.

When an unflared Box to Temporary Concrete Barrier transition is removed, the heavy posts, blockouts, rub rail, and Transition End Piece and associated hardware shall become the property of the Contractor and shall be removed from the project before its completion.

D. Temporary Positive Barrier (Concrete) to Box Beam Guide Rail Transition. Where required, the Contractor shall install “Temporary Concrete Barrier Face to Box Beam Transition” or “Temporary Concrete Barrier Back to Box Beam Transition” in accordance with the details shown on the Standard Sheets. When the box beam is mounted to the traffic-side face, a tapered box beam end piece shall be used. When the box beam is behind the Temporary Concrete Barrier, the Contractor shall bolt to the Temporary Concrete Barrier or shall provide an overlap of box beam extending upstream past four segments of the downstream end of the Temporary Concrete Barrier.

When box beam is required to be bolted to the Temporary Concrete Barrier, or the Contractor elects to do so, the necessary positions for the bolts shall be located on the Temporary Concrete Barrier and drilled in the field. The pieces of box beam thus bolted shall be removed and become the Contractor’s property when the Temporary Concrete Barrier is removed. After removal of the Temporary Concrete Barrier, any rail and posts removed to facilitate placement of the Temporary Concrete Barrier transition shall be promptly replaced with new posts and new or acceptable reset box beam guide rail.

619-3.13 Temporary Glare Screen. Temporary glare screen shall be installed in accordance with the manufacturer’s instructions. All components of the glare screen shall be maintained in a safe and functional condition. Damaged components shall be repaired or replaced.

If blades are utilized, the blades shall be spaced and angled to provide approximately a 22E headlight cutoff angle. The screen shall not overhang the face of the barrier and shall not cover delineation or lights. The screen shall be kept plumb and properly positioned on the barrier, with reflectorization securely affixed to the screen. Cleaning of the reflectorization shall be by a method that does not damage the paddles, reflectorization or barrier, and is not hazardous to traffic.

The Contractor shall remove and dispose of the temporary glare screen upon completion of the contract or when it is no longer required. Upon removal of the temporary glare screen, there shall be no protrusions remaining on the top face of the barrier. Bolt holes or other damage to permanent barrier from glare screen installation shall be repaired by the Contractor at no additional cost to the State.

619-3.14 Temporary Impact Attenuator. The Contractor shall install temporary impact attenuators in accordance with the contract documents, the manufacturer’s instructions and materials details. The Contractor shall provide the Engineer a copy of the manufacturer’s materials details and installation instructions a minimum of 7 calendar days prior to use, to allow verification of the attenuator supplied and proper installation. The selection of the manufacturer and model of temporary impact attenuator shall be at the Contractor’s option, provided the attenuator supplied is of the type indicated, gating or redirective; shields the hazard; and fits in the location without encroachment into travel lanes or required offsets.

The Contractor shall maintain temporary impact attenuators for continuous operation. If an attenuator is out of operation, the Contractor shall immediately mark the hazard with drums, vertical panels and or extra tall cones until repairs are made or a new attenuator is installed. The Contractor shall promptly begin repairs to damaged attenuators, and shall complete repairs to a damaged attenuator or mitigate the hazard within 1 work day. Attenuators damaged beyond repair shall be replaced within 3 work days.

When temporary impact attenuators are removed or moved to another location, the Contractor shall restore the location to match the surrounding area.

619-3.15 Temporary Sand Barrel Arrays. The Contractor shall install sand barrel arrays in accordance with the patterns shown on the Standard Sheet or a NCHRP 350 approved pattern and fill the barrels with sand to provide the desired module weight, plus or minus 5 percent. Units that will be in use between

November 1 and March 31 shall have sodium chloride, as dry rock salt, equal to 3% - 5% by weight of the sand, thoroughly mixed into the sand to prevent freezing. The sand shall be placed in the modules loose, not in bags or sacks. If the contract documents indicate that the site necessitates securing of the modules, the work shall be performed as recommended by the manufacturer.

The Contractor shall maintain sand barrel arrays for continuous 24 hour operation. If an array is out of operation, the Contractor shall immediately mark the hazard with drums, vertical panels and or extra tall cones until repairs are made or new module(s) are installed. The Contractor shall promptly begin repairs to damaged arrays, and shall complete repairs to a damaged array or mitigate the hazard within one work day.

619-3.16 Vehicle Arresting Barrier (VAB). Vehicle arresting barriers (VAB) shall be installed in accordance with the contract documents and the manufacturer's instructions and materials details. The Contractor shall provide the Engineer a copy of the manufacturer's materials details and installation instructions a minimum of 5 work days prior to use, to allow verification of the barrier supplied and proper installation. The deceleration area behind the VAB shall be kept clear of workers, vehicles or stored materials. The Contractor shall provide for periodic surveillance of each VAB by workers or by electronic device.

The Contractor shall maintain vehicle arresting barrier for continuous operation. If a barrier is out of operation, the entire barrier shall be restored within 4 hours after the incident, or prior to the next shift the barrier will be used. No work may be progressed in an unprotected area, and the hazard shall be eliminated or minimized, until restorations have been completed.

The VAB, except anchorages, shall be dismantled and removed prior to reopening the road to traffic. After the last day of use, if directed by the Engineer, temporary anchorages shall be removed and disturbed areas shall be restored to match the surrounding area.

619-3.17 Maintain or Modify Traffic Signal Equipment. Traffic signals shall be maintained in proper operation, including the maintenance of all features of the traffic signal operation in effect and operating at the time any work begins on the contract. Traffic-actuated phases shall remain actuated, and signals operating within signal systems shall remain coordinated with the remainder of the system unless otherwise approved by the Engineer. Except for emergencies, no changes in the signal operation or timing shall be made without prior approval by the Engineer. If emergency conditions dictate a change in the operation, the Engineer shall be notified by the start of the next work day. Unless otherwise approved by the Engineer, an altered signal operation must be returned to the original signal operation within 24 hours.

The Contractor shall maintain in operation all equipment including signal heads, supports, cable, wiring, span-wire-mounted signing, controllers, master controllers, detector systems, conflict and current monitors, relays, switch packs, and all other accessory and necessary equipment. Maintenance shall also include the repair and replacement of existing detector loops, paid for separately.

The Contractor shall have capable traffic signal repair personnel on call 24 hours a day, seven days a week, and shall provide to the Engineer a single telephone number for contacting them. If for any reason a signal is not functioning properly, the Contractor shall commence work on the signal within 2 hours of notification. If directed by the Engineer, the Contractor shall notify the appropriate police agency for traffic control operations. If the police agency cannot or will not provide traffic control, the Contractor shall provide flaggers at locations specified by the Engineer within the 2-hour time period. The Contractor shall continue the flagger services until the signal is in proper operation. A flagger warning (W20-7 or W20-7a) sign shall be used on all approaches to an intersection controlled by flaggers.

If the malfunction is in the equipment supplied by the State, due to an area wide power outage, or due to a localized power outage beyond the Contractor's control, the Contractor shall notify the Engineer and, if directed by the Engineer, provide flaggers until the malfunction is corrected or State personnel take over. Such flagging operations in excess of 4 hours for the first call and for any subsequent call will be considered extra work.

The Contractor shall provide the Engineer, on a monthly basis, with a record of all maintenance calls received and responded to, as well as a record of all corrective action taken by the Contractor.

A. Requirement A. The Contractor shall maintain in proper operation the indicated existing, relocated, modified, and newly installed signals in accordance with the contract documents. If such signals are to be removed, the Contractor shall be responsible for operation and maintenance until the signals are removed. The Contractor shall be responsible for their continuous operation except for reasonable shutdown periods authorized by the Engineer during relocation and transfer operations.

B. Requirement B. The State shall assume operation and maintenance responsibility for the signal from the Contractor following successful completion by the Contractor of the installation /modification testing as required by Section 680 *Traffic Signals*. The six month warranty/guarantee period shall be measured from the day the State assumes maintenance responsibility.

C. Requirement C. At relocated, modified or newly installed signals, the Department will assume responsibility for the following items after successful testing as required by Section 680 *Traffic Signals* has been completed. Assumption of the below listed responsibilities by the State will not relieve the Contractor of the responsibility for operation and maintenance of the signal. At existing microcomputer controlled traffic signals, the Department will be responsible for the following items:

1. Supply and maintenance of the microcomputer assembly and software.
2. Programming of the microcomputer furnished by the State.
3. Operation or timing changes directed by the Engineer.
4. Normal (no abuse or vandalism) equipment failures of existing, relocated, modified or new traffic signal equipment furnished by the State.

D. Modify Traffic Signal Equipment. Where the Contractor is required to temporarily modify or relocate existing traffic signals because of construction operations, all existing equipment, fittings, wire, cable, conduit, and related materials shall be reinstalled and extended where necessary. Temporary timber poles, guys, and related material shall be furnished and installed where necessary.

619-3.18 Temporary Traffic Signals. The Contractor shall install temporary traffic signals in accordance with the contract documents and the MUTCD. The Contractor shall maintain traffic signal systems, including traffic detectors, in proper operation until approved removal, and be responsible for its continuous 24-hour operation except for reasonable shutdown during relocation and transfer operations. Substitution of temporary traffic signals for flaggers shall be at no additional cost to the State.

If for any reason a signal does not function as required, the Contractor shall commence repair work on this signal within 2 hours after notification of a malfunction. In the event flashing operation occurs, all signal faces shall show flashing red indications. Flashing operation of a signal is considered a malfunction. The Contractor shall provide an adequate number of flaggers to control traffic at each malfunctioning traffic signal, in accordance with '619-3.02L. *Flagging and Traffic Control* until the signal is restored to proper operation.

If the malfunction is due to an area wide power outage or due to a localized power outage beyond the Contractor's control, the Contractor shall notify the Engineer and, if directed by the Engineer, provide flaggers until the malfunction is corrected or State personnel take over. Flagging operations in excess of 4 hours for the first maintenance call shall be paid for as extra work.

619-3.19 Nighttime Operations. Work occurring after sunset and before sunrise will be considered nighttime operations. All workers involved in nighttime operations shall wear protective helmets and nighttime apparel in accordance with §107-05A. *High Visibility Apparel* at all times.

Vehicles operating on the pavement of a closed roadway or travel lane shall display four-way flashers or rotating amber beacons at all times. Vehicles using headlights, except for rollers and vehicles retrieving channelizing devices, shall travel facing in the same direction as adjacent traffic in order to avoid glare and confusion to drivers.

The Contractor shall meet the following additional requirements for work zone traffic control during nighttime operations.

A. Nighttime Operations and Lighting Plan. Thirty days prior to the start of nighttime operations, the Contractor shall submit a written Nighttime Operations and Lighting Plan to the Engineer for approval. The plan shall detail all aspects of the traffic control setup, the functions, responsibilities and identities of the nighttime traffic control competent person and other details as necessary. It shall include a contingency plan identifying foreseeable problems and emergencies that may arise, and the approach that will be used to address them. This plan shall be revised and updated by the Contractor as necessary during the progress of the work to accommodate conditions on the contract.

The Contractor shall submit a Nighttime Operations and Lighting Plan to the Engineer, at a scale and printed size similar to the contract plans and appropriate to adequately describe the work, including the following:

- Layout showing location of light towers, including typical spacing, lateral placement and mounting height, and clearly show the location of all lights necessary for all work to be done at night.
- Description of light towers to be used and electrical power source.
- Specific technical details on all lighting equipment, including brand names, model numbers, power rating and photometric data.
- Details of any hoods, louvers, shields or other means to be used to control glare.
- Attachment and mounting details for lights to be attached to equipment.
- Lighting calculations confirming that the illumination requirements will be met by the layout.

The Contractor shall maintain a supply of emergency flares for use in the event of unanticipated situations such as traffic accidents, equipment breakdowns, failure of lighting equipment, etc.

B. Lighting for Nighttime Operations. Prior to the first night of nighttime operations, the Contractor shall set up and operate the lighting equipment at night as a trial run to demonstrate its ability to establish a safe, properly illuminated, nighttime operation. The Contractor shall furnish the Engineer with a photometer, capable of measuring the level of illumination, for use as necessary to check the adequacy of illumination throughout nighttime operations.

1. Equipment. The Contractor shall supply all lighting equipment required to provide a work zone safe for the workers and traffic. Material and/or equipment shall be in good operating condition and in compliance with applicable safety and design codes.

a. Light Towers. Light towers shall be provided as a primary means of illumination, and shall provide Level I illumination throughout the work space. They may be supplemented to the extent necessary by lighting fixtures mounted on construction equipment to provide Level II or Level III illumination where required for paving, milling and similar moving operations. Light towers shall be sturdy and free-standing without the aid of guy wires or bracing, and shall be capable of being moved as necessary to keep pace with construction operations. Light towers shall be positioned to minimize the risk of being impacted by traffic on the roadway or by construction traffic or equipment.

b. Light Towers on Paving, Milling, and Finishing Machines. If needed to supplement portable and/or trailer-mounted light towers, towers shall be affixed to paving, milling, and finishing machines to provide the required level of illumination for the specified distance in front of and behind the machine. Luminaires shall be aimed and adjusted to provide uniform illumination with a maximum uniformity ratio of 5:1. The hopper, auger, and screed areas of pavers and the operator's controls on all machines shall be uniformly illuminated.

c. Construction Equipment Lights. All construction equipment, including rollers, backhoes, loaders, and other equipment operating in areas not illuminated to a minimum of Level I Illumination, shall be equipped with a minimum of two 500 watt flood lights facing in each direction to provide a minimum of 1 foot-candle of horizontal illumination measured 60 feet in front of and behind the equipment. In areas illuminated to a minimum of Level I, construction equipment may move unescorted. In non-illuminated areas, construction equipment shall be equipped with conventional vehicle headlights, shall be illuminated with flood lights on the vehicle, or shall be escorted to permit safe movement. Headlights shall not be permitted as the sole means of illumination while working.

d. Equipment Mounting. The Contractor shall provide suitable brackets and hardware to mount lighting fixtures and generators on machines and equipment. Mountings shall be designed so that light fixtures can be aimed and positioned as necessary to reduce glare and to provide the required illumination. Mounting brackets and fixtures shall not interfere with the equipment operator or any overhead structures, and shall provide for secure connection of the fixtures with minimum vibration.

e. Portable Generators. The Contractor shall provide portable generators to furnish adequate power to operate all required lighting equipment. Fuel tank capacity and availability of fuel on site shall be sufficient to permit uninterrupted operation throughout the planned shift. Adequate switches shall be provided to control the various lights. All wiring shall be weatherproof and installed in accordance with 29 CFR 1926 Subpart K. All power sources shall be equipped with a Ground-Fault Circuit Interrupter.

2. Illumination Requirements. Tower-mounted luminaires, whether fixed, portable, trailer-mounted, or equipment-mounted, shall be of sufficient wattage and/or quantity to provide the required level of illumination and uniformity over the area of operation while minimizing glare.

The uniformity of illumination, defined as the ratio of the average illumination to the minimum illumination over an area requiring an indicated illumination level, shall not exceed 5:1. Illumination levels on approach roadways should be increased sequentially to prevent motorists from becoming disoriented by rapid changes from full dark to very bright conditions.

Existing street and highway lighting shall not eliminate the need for the Contractor to provide lighting. Consideration will be given to the amount of illumination provided by existing lights in determining the wattage and/or quantity of lights to be provided. Such consideration shall be presented in the Contractor's lighting plan. In the event of any failure of the lighting system, nighttime operation(s) shall be discontinued until the required level of illumination is restored.

a. Level I (5 foot-candles). Level I illumination shall be provided for all areas of general construction operations to include all work operations by Contractors personnel, including work zone traffic control set-up and operations, staging, excavation, cleaning and sweeping, pavement marking, spoil disposal, landscaping, planting and seeding, layout and measurements ahead of the actual work, borrow areas, spoil areas, and truck cleanout areas. Level I illumination shall be provided near the beginning of lane closure tapers and at road closures for nighttime work zones, including the setup and removal of the closure tapers.

Level I illumination shall be provided a minimum of 400 feet ahead and 800 feet behind a paving or milling machine, or for the entire area of concrete placement or pavement work if less than this distance. This area shall be extended as necessary to incorporate all vehicle and equipment operations associated with the paving operation.

The only exception to the requirement for Level I illumination throughout the area of construction operations is that finish rollers can work beyond the area of Level I illumination using floodlights mounted on the roller.

b. Level II (10 foot-candles). Level II illumination shall be provided for flagging stations, asphalt paving, milling, and concrete placement and/or removal operations, including bridge decks, 50 feet ahead of and 100 feet behind a paving or milling machine.

c. Level III (20 foot-candles). Level III illumination shall be provided for pavement or structural crack filling, joint repair, pavement patching and repairs, installation of signal equipment or other electrical/mechanical equipment, and other tasks involving fine details or intricate parts and equipment.

3. Glare Control. All lighting shall be designed, installed, and operated to avoid glare that affects traffic on the roadway or that causes annoyance or discomfort for residences adjoining the roadway. The Contractor shall locate and aim lighting fixtures to provide the required level of illumination and uniformity in the work zone without the creation of objectionable glare. The Engineer will determine when glare exceeds acceptable levels, either for traffic or for adjoining residences.

The Contractor shall provide shields, visors or louvers on luminaires as necessary to reduce objectionable levels of glare. As a minimum, the following requirements shall be met to avoid objectionable glare on roadways open to traffic in either direction:

- Tower-mounted luminaires shall be aimed either generally parallel or perpendicular to the roadway.
- Luminaires shall be aimed such that the angle between the center of the beam axis and the vertical mounting pole is no greater than 45°.
- No luminaires shall be permitted that provide a luminous intensity greater than 20,000 candelas at an angle of 72° above the vertical.
- Except where prevented by overhead utilities or structures, towers shall be extended to their full working height when in use to reduce glare and provide uniform illumination.

619-3.20 Traffic Control Supervisor. When indicated in the contract documents, the Contractor shall provide a dedicated traffic control supervisor having adequate training, experience, and authority to implement and maintain all traffic control operations. The traffic control supervisor shall not be assigned other duties that interfere with performance as a traffic control supervisor.

The traffic control supervisor shall be adequately trained in traffic control operations by recognized training programs, including the American Traffic Safety Services Association “Traffic Control Supervisor”, the National Safety Council, unions, or construction industry associations, or by an individual instructor from such a program. Traffic control supervisors not competent to the satisfaction of the Engineer shall be replaced immediately.

During setup and removal of lane closures and other traffic control setups, the traffic control supervisor shall be assisted by additional workers as necessary. The traffic control supervisor shall patrol the contract area to ensure that conditions on the site are adequate for public safety and convenience at all times, to monitor worker safety from intrusions into the work area, and to ensure that the work adheres to the provisions for work zone traffic control. The traffic control supervisor shall ensure signs, channelizing devices, barricades, barrier, impact attenuators and other traffic control devices are adjusted and

maintained as necessary. The Contractor shall provide workers to install, maintain, adjust, and remove traffic control devices as required by the work operations.

When the work does not require closure of an active lane, roadway, or ramp; when no construction operations occur within 30 feet of active traffic lanes; and when there is no delivery of materials or equipment; the Engineer may waive the requirements for a traffic control supervisor.

619-3.21 Temporary Structures and Approaches. The Contractor shall design, construct, maintain and remove temporary structures and their approaches, or move and remove existing structures to provide temporary structures along with their temporary approaches. The Contractor shall install temporary approaches, including necessary earth support structures, in such a manner and sequence that interference with and inconvenience to the traveling public and the abutting owners is kept to a minimum. The Contractor shall be responsible for the workmanship, upkeep, and safety of all temporary structures and approaches. All fabrication shall conform to the AASHTO Standard Specifications for Highway Bridges, Division II or AASHTO LRFD Bridge Construction Specifications, except as modified herein. Fabrication shall be performed by an AISC Category III-Certified Fabricator. Plans and design computations shall bear the stamp and signature of a Professional Engineer.

When specific details are not included in the contract documents, or when the Contractor receives approval to vary from the contract documents, the Contractor shall design all elements of the temporary structure and approaches including the railing system. Design shall be done in conformance with the NYSDOT Load and Resistance Factor Design (LRFD) Bridge Design Specifications, except that the only design live load shall be HL-93. Alternatively, the design shall be in conformance with the NYSDOT Standard Specifications for Highway Bridges, except that the minimum design live load shall be HS 20. The bridge rail shall be designed for a minimum of TL-2.

Any structure that is expected to be in service for more than 5 years, shall be designed as a permanent structure according to the NYSDOT Load and Resistance Factor Design (LRFD) Bridge Design Specifications, including the Permit Vehicle and seismic loading.

Load rating calculations for the temporary structure shall be submitted to the DCES. Load ratings shall be computed based on Load Factor Design (LFD) or Allowable Stress Design (ASD), and shall be based on an HS-20 loading. Additionally, if the structure is designed using the NYSDOT LRFD specifications, load ratings shall also be computed by the Load and Resistance Factor Rating (LRFR) method. LRFR ratings shall be shown at the Inventory and Operating levels as rating factors of the AASHTO HL-93 live load. All Load Ratings shall be calculated in accordance with the AASHTO Manual for Bridge Evaluation.

Prior to beginning construction of any temporary structure designed by the Contractor, the Contractor shall submit detailed plans and calculations to the DCES for review and approval in accordance with §585-3.02 *Working Drawings*. Such review, however, shall not relieve the Contractor of the responsibility for the adequacy and design of such temporary structures and approaches. If the Contractor proposes to construct with used materials, the Contractor's Professional Engineer shall submit with the plans the method for documenting that all primary member material meets the physical properties required by the design. In the absence of record plans or other valid documentation for the used materials, physical testing shall be performed. Excluded from this provision are proprietary structures. All welding required for the fabrication of temporary steel structures shall be performed in accordance with the provisions of the NYS Steel Construction Manual. Complete penetration groove welds in primary members shall be radiographed as described therein. The DCES reserves the right to perform in-process fabrication inspection. The Contractor shall notify the DCES of the fabrication schedule 7 calendar days prior to commencement of fabrication.

Prior to opening a temporary structure to traffic, the structure shall be inspected by a Professional Engineer who shall certify in writing to the Engineer that the structure was constructed in accordance with the design. The Contractor shall have the temporary structure inspected, under the direction of a Professional Engineer, by a person familiar with bridge construction at least once a month. On or before

each anniversary of the opening of a temporary structure that has been open to traffic for one year or more, the structure shall be inspected by a Professional Engineer, who shall certify in writing that:

1. The plans of the structure, including its foundations, have been reviewed.
2. A hands-on inspection of the structure has been performed in accordance with the latest edition of the NYSDOT Bridge Inspection Manual by an inspection team whose leader is a Professional Engineer and who was present for the inspection.
3. A detailed inspection of those areas of the structure critical to its integrity has been performed.
4. The structure is currently adequate for its design loads.

A signed and stamped copy of the inspection results shall be provided to the Engineer within one week of the inspection.

619-3.22 Pavement Patching. The Contractor shall place paving materials suitable to provide temporary pavement patches on paved surfaces where vehicular, bicycle or pedestrian traffic is to be maintained, including the traveled way, shoulders, sidewalks, and other paved surfaces damaged by traffic or environmental factors and not by Contractor operations. During periods of active work on the contract, the Contractor shall complete needed patches on a daily basis. During periods of winter shutdown, the Engineer will inspect the pavement on frequent and regular intervals and will notify the Contractor of areas to be patched. The Contractor shall install pavement patching, at locations identified by the Engineer, within 24 hours of notification.

The Contractor shall place pavement patches to provide a relatively smooth, uniform driving surface suitable for safe travel at the posted speed limit. Pavement patches shall be placed to repair surface irregularities including, but not limited to, holes, depressions, cracks and uneven joints. Areas to be patched shall be adequately cleaned and tack-coated if necessary, and patching material shall be thoroughly compacted by hand or by roller.

619-3.23 Mailboxes. In the event the original mounting post has been lost, damaged, is unusable, or is not consistent with U.S. Postal Service requirements, the Contractor shall furnish and install a new mounting post and/or mailbox with mounting post at the designated location and at the proper height in accordance with the requirements of the U.S. Postal Service.

619-4 METHOD OF MEASUREMENT

619-4.01 General. (None Specified.)

619-4.02 Basic Work Zone Traffic Control. The work under basic work zone traffic control will be measured for payment on a lump sum basis.

619-4.03 Basic Work Zone Traffic Control (Daily Operations). The work under basic work zone traffic control (daily operations) will be measured for payment on a lump sum basis.

619-4.04 Temporary Business Signs. The quantity to be measured for payment will be in square feet to the nearest 0.1 square feet of business signs installed.

619-4.05 Covering or Removal of Pavement Markings. The quantity to be measured for payment will be in feet to the nearest whole foot along the centerline of the pavement stripes covered or removed. No measurement will be made for the gaps between broken and dotted line segments. If preformed tape is used to cover an existing line, payment will be based on the width of the line covered. Measurement for covering or removal of striping with a width greater than 4 inches will be made by the following method:

Width of Striping (in) x Number of Feet

4 (in)

Letters and symbols will be measured by each unit covered or removed. A unit will consist of one letter or one symbol except that a double-headed arrow will be measured as two units and triple headed arrow will be measured as three units. Example: "SCHOOL" would be measured as six units. Each R in a railroad crossing marking will be measured as a single unit, but the "X" will be measured by the number of feet of 4 inch stripe.

619-4.06 Temporary Pavement Markings. The quantity to be measured for payment will be in feet to the nearest whole foot along the centerline of the pavement stripes installed, and will be based on a 4 inch wide stripe. No measurement will be made for the length of skips in the dashed line. Measurement for installation of striping with a width greater than 4 inches will be made by the following method:

$$\frac{\text{Width of Striping (in)} \times \text{Number of Feet}}{4 \text{ (in)}}$$

619-4.07 Interim Pavement Markings. The quantity to be measured for payment will be in feet to the nearest whole foot along the centerline of the pavement stripes installed, and will be based on a 4 inch wide stripe. No measurement will be made for the length of skips in the dashed line. Measurement for installation of striping with a width greater than 4 inches will be made by the following method:

$$\frac{\text{Width of Striping (in)} \times \text{Number of Feet}}{4 \text{ (in)}}$$

Letters and symbols will be measured by each unit installed. A unit will consist of one letter or one symbol except that a double-headed arrow will be measured as two units and triple headed arrow will be measured as three units. Example: "SCHOOL" would be measured as six units. Each R in a railroad crossing marking will be measured as a single unit, but the "X" will be measured by the number of feet of 4 inch stripe.

619-4.08 Temporary Rumble Strips. The quantity to be measured for payment will be in feet to the nearest whole foot of individual temporary rumble strip installed, measured transverse to the direction of traffic flow.

619-4.09 Interim Tubular Markers. The quantity to be measured for payment will be the number of interim tubular markers installed.

619-4.10 Portable Variable-Message Signs (PVMS) and Truck Mounted Variable Message Signs (TMVMS). The quantity of PVMS or TMVMS with a pay unit of each to be measured for payment will be the number of signs provided. The quantity of PVMS or TMVMS with a pay unit of weeks to be measured for payment will be in weeks to the nearest whole week.

619-4.11 Type III Construction Barricades. The quantity to be measured for payment will be the number of barricade units installed.

619-4.12 Temporary Positive Barrier. The quantity to be measured for payment of temporary positive barrier will be in feet to the nearest foot along the centerline of temporary positive barrier installed.

619-4.13 Temporary Glare Screen. The quantity to be measured for payment will be in feet to the nearest whole foot along the length of the temporary glare screen installed.

619-4.14 Temporary Impact Attenuator. The quantity to be measured for payment will be the number of temporary impact attenuators installed.

619-4.15 Temporary Sand Barrel Arrays. The quantity to be measured for payment will be the number of individual sand barrel modules installed.

619-4.16 Vehicle Arresting Barrier. The quantity to be measured for payment will be the number of barriers installed.

619-4.17 Maintain or Modify Traffic Signal Equipment. The quantity of signalized intersections maintained to be measured for payment will be in months to the nearest 1/4 month. The quantity of traffic signal equipment modified to be measured for payment will be on an each location basis.

619-4.18 Temporary Traffic Signals. The work under temporary traffic signals will be measured for payment on an each location basis.

619-4.19 Nighttime Operations. The work under nighttime operations will be measured for payment on a lump sum basis.

619-4.20 Traffic Control Supervisor. The work under traffic control supervisor will be measured for payment on a monthly basis to the nearest 1/4 month.

619-4.21 Temporary Structures and Approaches. The quantity to be measured for payment will be the number of temporary structures and approaches installed.

619-4.22 Pavement Patching. The work under Pavement Patching, Winter will be measured for payment on a Dollars-Cents basis.

619-4.23 Mailboxes. The quantity to be measured for payment will be the number of mailboxes installed.

619-5 BASIS OF PAYMENT

619-5.01 General. The price bid shall include all labor, materials and equipment necessary to complete the work. No payment will be made for damage caused by vehicle accidents, vandalism, or any other similar causes.

A. Non-Payment. For each calendar day during which there are substantial deficiencies in compliance with the requirements of this section, no payment will be made under basic work zone traffic control. The amount of such calendar day nonpayment will be deducted from monies due the Contractor in accordance with Table 619-7 *Basic Work Zone Traffic Control Nonpayment*.

TABLE 619-7 BASIC WORK ZONE TRAFFIC CONTROL NON-PAYMENT		
Original Contract Amount		Nonpayment Amount
From More Than	To and Including	
\$ 0	\$ 500,000	\$ 200
\$ 500,000	\$ 2,000,000	\$ 400
\$ 2,000,000	\$ 5,000,000	\$ 500
\$ 5,000,000	\$ 10,000,000	\$ 750
\$ 10,000,000	\$ 20,000,000	\$ 1,000

\$ 20,000,000	-----	\$ 3,000
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B. Liquidated Damages. If the Contractor fails to adequately correct substantial cited deficiencies within 24 hours of notification by the Engineer for any item under this section, or those deficiencies reoccur on a subsequent, but not necessarily concurrent calendar day, liquidated damages will be assessed for each calendar day or part thereof in addition to non-payment for deficiencies.

C. Major Non-Conformance. Where major non-conformance with the requirements of this specification is noted by the Engineer, and prompt Contractor compliance is deemed not to be obtainable, the Engineer may stop contract work.

Where major non-conformance with the requirements of this specification is noted by the Engineer, and the Contractor fails to correct deficiencies for a period of 24 hours, the Department may correct the adverse conditions by any means deemed appropriate, and will deduct the cost of the corrective work from any monies due the Contractor. The cost of this corrective work will be in addition to the non-payment for basic work zone traffic control, non-payment of any other items of work under this section and liquidated damages assessed.

619-5.02 Basic Work Zone Traffic Control. The lump sum price bid for basic work zone traffic control shall include all labor, materials and equipment necessary to complete the work. Construction signs; arrow panels; warning lights on signs, barricades and channelizing devices; the cost of temporarily terminating guide rail, median barrier, or bridge rail during non-work hours; work required to maintain drainage facilities during construction operations; and dust control shall be included in the lump sum price bid for basic work zone traffic control. Removal of debris from drainage features that was present at the time of contract award shall be paid for separately.

Progress payments will be made at 20 percent of the lump sum price bid when 10 percent of the contract work, excluding basic work zone traffic control, contingency items and mobilization, has been completed. The remaining 80 percent will be paid in subsequent contract payments, in proportion to the amount of other contract work completed, less any non-payment for deficient work zone traffic control. If the contract completion date is extended, no additional payment will be made for basic work zone traffic control.

619-5.03 Basic Work Zone Traffic Control (Daily Operations). The lump sum price bid for basic work zone traffic control (daily operations) shall include all labor, materials and equipment necessary to complete the work. Construction signs; arrow panels; warning lights on signs, barricades and channelizing devices; and the cost of temporarily terminating guide rail, median barrier, or bridge rail during non-work hours; shall be included in the lump sum price bid for basic work zone traffic control (daily operations).

Progress payments will be made at 20 percent of the lump sum price bid when 10 percent of the contract work, excluding basic work zone traffic control, contingency items and mobilization, has been completed. The remaining 80 percent will be paid in subsequent contract payments, in proportion to the amount of other contract work completed, less any non-payment for deficient work zone traffic control. If the contract completion date is extended, no additional payment will be made for basic work zone traffic control.

619-5.04 Business Signs. The unit price bid for temporary business signs shall include the cost of labor, materials and equipment necessary to complete the work, including sign supports.

619-5.05 Covering or Removal of Pavement Markings. The unit price bid for the covering or removal of pavement markings shall include the cost of all labor, materials and equipment necessary to complete

the work, including the costs of any repairs or replacement of damaged pavement or existing pavement markings resulting from pavement marking removal operations.

619-5.06 Temporary Pavement Markings. The unit price bid for temporary pavement markings shall include the cost of furnishing all labor, materials and equipment necessary to complete the work. Payment shall be provided each time temporary pavement markings are first applied on a pavement course in accordance with the contract requirements.

No additional payment shall be provided for the installation of construction signs, temporary delineators, and channelizing devices necessitated by the Contractor's failure to place temporary pavement markings before the pavement is opened to traffic, or for temporary roadside pavement channelization, until edge lines are placed. No additional payment shall be provided for markings required because the Contractor failed to place the next pavement course or the final pavement markings within 14 calendar days.

619-5.07 Interim Pavement Markings. The unit price bid for interim pavement markings shall include the cost of furnishing all labor, materials and equipment necessary to complete the work. The work to remove traffic paint or epoxy paint will be paid for separately.

619-5.08 Temporary Rumble Strips. The unit price bid for temporary rumble strips shall include the cost of all labor, materials and equipment necessary to complete the work. Payment will include the cost of pavement cleaning, asphalt concrete, and other materials used to form or fill in the rumble strips, and tack coat. On multiyear contracts where it is desired to have rumble strips in place for more than one construction season, the rumble strips will be paid for separately each year they are installed.

619-5.09 Interim Tubular Markers. The unit price bid for interim tubular markers shall include the cost of furnishing all labor, materials and equipment necessary to complete the work, including removal and the cost of replacing damaged markers. Interim tubular markers that are in satisfactory condition may be relocated. When interim tubular markers are relocated, payment will be made for another interim tubular marker.

619-5.10 Portable Variable-Message Signs (PVMS) and Truck Mounted Variable Message Signs (TMVMS). The unit price bid for PVMS or TMVMS shall include the cost of all labor, materials, testing and equipment necessary to complete the work, including cellular telephone service initial start-up and monthly charges for the cellular communications option. The TMVMS does not require cellular communications service.

Progress payments for PVMS or TMVMS with a pay unit of each will be made for 90 percent of the unit price bid when each unit has been satisfactorily installed and is operational at the first location. The remaining 10 percent will be paid upon removal.

619-5.11 Type III Construction Barricades. The unit price bid for Type III construction barricades shall include all labor, materials and equipment necessary to complete the work, including lighting when required. When barricades are relocated or the diagonal stripes are changed to allow traffic to pass on the other side of the barricade, additional payment will be made for another barricade. Movements of the barricade from one side of the roadway to the other side, movements within 100 feet of the initial location, or daily replacement to approximately the same location, not requiring any change in the diagonal stripes, will not be considered as relocation and will not be paid for as additional barricades.

No payment will be made for Type III construction barricades used at the option of the Contractor in lieu of channelizing devices.

619-5.12 Temporary Concrete Barrier. The unit price bid for temporary concrete barrier shall include all labor, materials and equipment necessary to satisfactorily complete the work, including any required connection devices, end treatments, end section pinning, temporary delineation and repair of pavement

after removal of temporary concrete barrier. Temporary impact attenuators, if required, will be paid for separately. When temporary concrete barriers are relocated, except movements necessary to maintain, realign, or replace damaged units and daily relocation of segments to allow access to the work area which are restored at the end of the work shift, additional payment will be made for additional length of temporary concrete barrier.

The unit price bid for pinned temporary concrete barrier shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including pinning.

The unit price bid for temporary concrete barrier stiffened with box beam shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including the box beam.

The unit price bid for temporary concrete barrier with warning lights shall include the cost of furnishing all labor, materials, equipment, and electrical power necessary to complete the work. Should a barrier that is equipped with warning lights be moved to a new location where temporary concrete barrier with warning lights is required, payment will be made for additional length of temporary concrete barrier with warning lights.

The unit price bid for Box Beam to Flared Temporary Concrete Barrier Transition shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including removal and replacement or resetting of existing rail; placement and removal of the temporary berm; seeding of the disturbed area; and replacement of rail with holes in its face. No separate payment will be made for box beam used to provide an overlap.

The unit price bid for Box Beam to Unflared Temporary Concrete Barrier Transition shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including removal and replacement or resetting of existing rail; furnishing of Transition End Pieces, rub rail heavy posts and blockouts; and replacement of rail with holes in its face.

The unit price bid for Temporary Concrete Barrier Face to Box Beam Transition shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including removal and replacement or resetting of existing rail and furnishing of box beam tapered end piece. The unit price bid for Temporary Concrete Barrier Back to Box Beam Transition shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work, including removal and replacement or resetting of existing rail and replacement of rail with holes in its face. No separate payment will be made for box beam used to provide an overlap.

Progress payments will be made at the unit price bid for 90 percent of the quantity, after placement and demonstration of satisfactory operation. The remaining 10 percent will be paid upon removal. No payment will be made for temporary concrete barrier installed at the Contractor's option, required solely due to a delay caused by the Contractor's operations, or installed to protect pavement edge drop-offs, unless required in the contract documents.

619-5.13 Temporary Glare Screen. The unit price bid for temporary glare screen shall include all labor, materials and equipment necessary to complete the work. When glare screens are relocated, except movements necessary to maintain, realign, or replace damaged units and daily relocation of temporary concrete barrier segments with glare screen attached to allow access to the work area which are restored at the end of the work shift, additional payment will be made for the length of glare screen relocated. No payment will be made for repair or replacement of damaged components.

619-5.14 Temporary Impact Attenuator. The unit price bid shall include the cost of all labor, materials, and equipment necessary to complete the work, including the connection to temporary or existing barrier, the back-up system, the pad, if indicated, and any excavation or backfill. When attenuators are relocated, payment will be made for a new temporary impact attenuator, except minor movements within a site, such as movements to maintain, realign, or adjust an attenuator. No payment will be made to repair, restore or replace an attenuator damaged by public traffic or by the Contractor's operations.

619-5.15 Temporary Sand Barrel Arrays. The unit price bid for temporary sand barrel arrays shall include the cost of all labor, materials and equipment necessary to complete the work, including the cost of the sand fill and salt additive. Replacement of individual modules damaged by public traffic will be paid for at the unit price bid for each temporary sand barrel. Relocation of barrels to a new location will be paid for as a new installation.

619-5.16 Vehicle Arresting Barrier. The unit price bid for vehicle arresting barrier shall include the cost of all labor, materials and equipment necessary to complete the work. No payment will be made to repair, restore or replace an attenuator damaged by public traffic or by the Contractor's operations.

619-5.17 Maintain or Modify Traffic Signal Equipment. The unit price bid for maintaining traffic signal equipment shall include the cost of all labor, materials and equipment necessary to perform the work, with the exception of inductance loop replacement, if necessary, which will be paid for separately. The cost of the electric power shall be the responsibility of the original maintaining agency. No payment will be made during any period for which the Contractor has been granted an extension of time with engineering charges.

The unit price bid for modifying traffic signal equipment per location shall include the cost of all labor, materials and equipment necessary to perform the work.

619-5.18 Temporary Traffic Signals. The unit price bid for temporary traffic signals per location shall include the cost of all labor, materials and equipment necessary to complete the work, including the cost of electric power necessary to operate the signal until its removal is approved or directed by the Engineer. A location may be an intersection, a work zone with two or more signal faces interconnected and operating together, or other limits as defined in the contract documents. Portable or temporary traffic signals used at the Contractor's option in lieu of flaggers shall be included in the lump sum price bid for basic work zone traffic control.

Progress payments will be made at 50 percent of the unit price bid for each location after installation and demonstration of satisfactory operation. The remaining 50 percent will be paid in progress payments per week of temporary traffic signal provided. The amount of such weekly payment will be determined by dividing 50 percent of the unit price bid by the number of weeks the temporary traffic signal is to remain in operation, as shown on the approved progress schedule.

619-5.19 Nighttime Operations. The lump sum price bid for portable lighting shall include all labor, materials and equipment necessary to complete the work.

Progress payments will be made based on the lump sum price bid as follows: 20 percent when the Nighttime Operations and Lighting Plan has been accepted and satisfactory lighting of nighttime operations has begun; the remaining 80 percent will be paid in progress payments per week of nighttime operations completed. The amount of such weekly payment will be determined by dividing 80 percent of the lump sum amount bid by the number of weeks of nighttime operations in the approved Nighttime Operations and Lighting Plan.

619-5.20 Traffic Control Supervisor. The unit price bid for traffic control supervisor shall include the cost of furnishing all labor, materials, equipment, training and direct supervision necessary to provide and support the activities of a traffic control supervisor.

619-5.21 Temporary Structures and Approaches. The unit price bid for temporary structures and approaches shall include the cost of all labor, materials and equipment necessary to complete the work including design preparation. Two temporary structures separated by a portion of an existing structure greater than 3 feet in length will be paid for as two separate structures.

Progress payments will be made at the unit price bid for 90 percent of the quantity after the temporary structures and approaches are complete and operable. The remaining 10 percent will be paid upon removal.

619-5.22 Pavement Patching. Payment shall include the cost of furnishing all labor, materials and equipment necessary to patch pavement during periods of winter shutdown when work on the contract is inactive, or when hot mix asphalt material is not available, including mobilization of work crews and work zone traffic control. The cost of all work associated with providing and installing suitable pavement patching materials to maintain pavements open to traffic in acceptable condition when work on the contract is active, or when hot mix asphalt material is available, will be paid under a hot mix asphalt sidewalk item if that item is in the contract, or alternatively, under a top course paving item, regardless of the material actually used. Payment for winter patching will be based on force account records submitted to the Engineer, plus 10% overhead and 10% profit in accordance with §109-05.

619-5.23 Mailboxes. The unit price bid for mailboxes shall include all labor, materials and equipment necessary to complete the work. Only one payment for each mailbox will be made regardless of the number of times it is moved or replaced and shall be made when the mailbox has been placed in its final location. Where multiple mailboxes are installed on a single post, payment will be based upon the number of individual mailboxes so installed.

Payment will be made under:

Item No.	Item	Pay Unit
619.01	Basic Work Zone Traffic Control	Lump Sum
619.0101	Basic Work Zone Traffic Control (Daily Operations)	Lump Sum
619.04	Type III Construction Barricades	Each
619.06nn	Temporary Structures and Approaches	Each
619.0701	Temporary Business Signs	Square Feet
619.0801xx	Remove Pavement Marking Stripes	Feet
619.0802xx	Remove Pavement Marking Letters or Symbols	Each
	<i>xx = Material</i>	
	<i>01 = Traffic Paint,</i>	
	<i>02 = Epoxy Paint,</i>	
	<i>06 = Permanent Pavement Tape</i>	
619.0803	Cover Existing Pavement Marking Stripes (Removable Tape)	Feet
619.0804	Cover Existing Pavement Marking Letters or Symbols (Removable Tape)	Each
619.09xx	Temporary Pavement Markings, Stripes	Feet
	<i>xx = Material</i>	
	<i>01 = Traffic Paint,</i>	
	<i>03 = Removable Tape,</i>	
	<i>04 = Removable Wet Reflective Tape,</i>	
619.1001xx	Interim Pavement Markings, Stripes	Feet
619.1002xx	Interim Pavement Markings, Symbols	Each
619.1003xx	Interim Pavement Markings, Letters	Each
	<i>xx = Material</i>	
	<i>01 = Traffic Paint,</i>	
	<i>02 = Epoxy Paint,</i>	
	<i>03 = Removable Tape,</i>	
	<i>04 = Removable Wet Reflective Tape,</i>	
	<i>05 = Traffic Paint Supplemented with Raised Markers</i>	
619.1105XY	Portable Variable Message Sign (PVMS) Standard size - Full Matrix (LED)	Each

619.1106XY	Portable Variable Message Sign (PVMS) Standard size - Full Matrix (LED)	Week
619.1107XY	Portable Variable Message Sign (PVMS) Large size - Full Matrix (LED)	Each
619.1108XY	Portable Variable Message Sign (PVMS) Large size - Full Matrix (LED)	Week
619.1109XY	Portable Variable Message Sign (PVMS) Small size - Full Matrix (LED)	Each
619.1110XY	Portable Variable Message Sign (PVMS) Small size - Full Matrix (LED)	Week
619.1111XY	Portable Variable Message Sign (PVMS) Standard size – Line or character matrix (LED)	Each
619.1112XY	Portable Variable Message Sign (PVMS) Standard size – Line or character matrix (LED)	Week

XY = Options

X= Equipment Options

1 = No optional equipment specified

2= Radar

3= CCTV Camera

4= Radar & CCTV Camera

Y= Cellular Communication Options

1 = No Cellular Communications required

2 = Cellular Communications

3 = Cellular Communication with NTCIP compliance

619.1113	Truck Mounted Variable Message Signs (TMVMS)	Each
619.1114	Truck Mounted Variable Message Signs (TMVMS)	Week

619.12	Temporary Glare Screen	Feet
619.13nn	Temporary Traffic Signals	Each Location
619.1611	Maintain Traffic Signal Equipment (Requirement A)	Intersection Month
619.1612	Maintain Traffic Signal Equipment (Requirement B)	Intersection Month
619.1613	Maintain Traffic Signal Equipment (Requirement C)	Intersection Month
619.1614nn	Modify Existing Traffic Signal Equipment (Temporary)	Each Location
619.1711	Temporary Positive Barrier – Category 1 (Pinning Prohibited)	Feet
619.1712	Temporary Positive Barrier – Category 2 (Pinning Permitted)	Feet
619.1713	Temporary Positive Barrier – Category 3 (Pinning Prohibited)	Feet
619.1714	Temporary Positive Barrier – Category 4 (Pinning Permitted)	Feet
619.1715	Temporary Positive Barrier – Category 5 (Pinning Prohibited)	Feet
619.1716	Temporary Positive Barrier – Category 6 (Pinning Required)	Feet
619.1717	Temporary Positive Barrier – Category 7 (Pinning and Box-Beam-Stiffening Required)	Feet
619.1719	Warning Lights on Temporary Positive Barriers	Each
619.1720	Box Beam to Flared Temporary Concrete Barrier Transition	Each
619.1721	Box Beam to Unflared Temporary Concrete Barrier Transition	Each
619.1722	Temporary Concrete Barrier Face to Box Beam Transition	Each
619.1723	Temporary Concrete Barrier Back to Box Beam Transition	Each
619.1802	Temporary Impact Attenuator - Redirective (Test Level 2)	Each
619.1803	Temporary Impact Attenuator - Redirective (Test Level 3)	Each
619.1812	Temporary Impact Attenuator - Gating (Test Level 2)	Each
619.1813	Temporary Impact Attenuator - Gating (Test Level 3)	Each
619.20	Interim Tubular Markers	Each
619.21	Temporary Sand Barrel Module	Each
619.22	Temporary Rumble Strips	Feet
619.23	Vehicle Arresting Barrier	Each
619.24	Nighttime Operations	Lump Sum
619.25	Traffic Control Supervisor	Month

619.2601 Pavement Patching, Winter
619.27 Mailboxes

Dollars-Cents
Each

SECTION 620 - BANK AND CHANNEL PROTECTION

(Last Revised May 1, 2019)

620-1 DESCRIPTION. This work shall consist of furnishing all labor, equipment, and materials to place a protective covering of erosion-resistant material in the locations indicated in the contract documents or as directed by the Engineer. The work shall be done in accordance with these specifications and in conformity with the lines, grades, thicknesses, and typical sections shown in the contract documents or established by the Engineer.

620-1.01 Vacant.

620-1.02 Stone Filling. Stone filling shall consist of a layer of well graded stone.

620-1.03 Dry Rip-Rap. Dry rip-rap shall consist of a fitted layer of shaped and graded stone.

620-1.04 Grouted Rip-Rap. Grouted rip-rap shall consist of a layer of stone, similar to dry rip-rap, with the spaces between the stones filled with cement grout.

620-1.05 Bedding Material. Bedding material shall consist of a layer of granular material placed to prevent underlying finer material from passing into and through the stone filling or rip-rap.

620-1.06 Concrete Block Paving. Concrete block paving shall consist of concrete blocks placed on embankment slopes under structures as protection against erosion.

620-1.07 Gabions. Gabions shall consist of open wire mesh baskets, filled with stones.

620-2 MATERIALS

620-2.01 General. The requirements for bank and channel protection materials are described below. The procedure for acceptance or rejection of stone filling and rip-rap materials shall be in conformance with the procedures contained in the geotechnical control procedure "*Procedure for the Control of Stone Filling and Rip-Rap Items*".

620-2.02 Stone Filling. Provide material meeting the requirements of §733-21 *Stone Filling* for the type of stone filling specified in the contract documents.

620-2.03 Dry Rip-Rap. Provide material meeting the requirements of §733-22 *Rip-Rap*, except for §733-22D *Grout*.

620-2.04 Grouted Rip-Rap. Provide material meeting the requirements of §733-22 *Rip-Rap*.

620-2.05 Bedding Material. Bedding material shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing* for the type of bedding material specified in the contract documents:

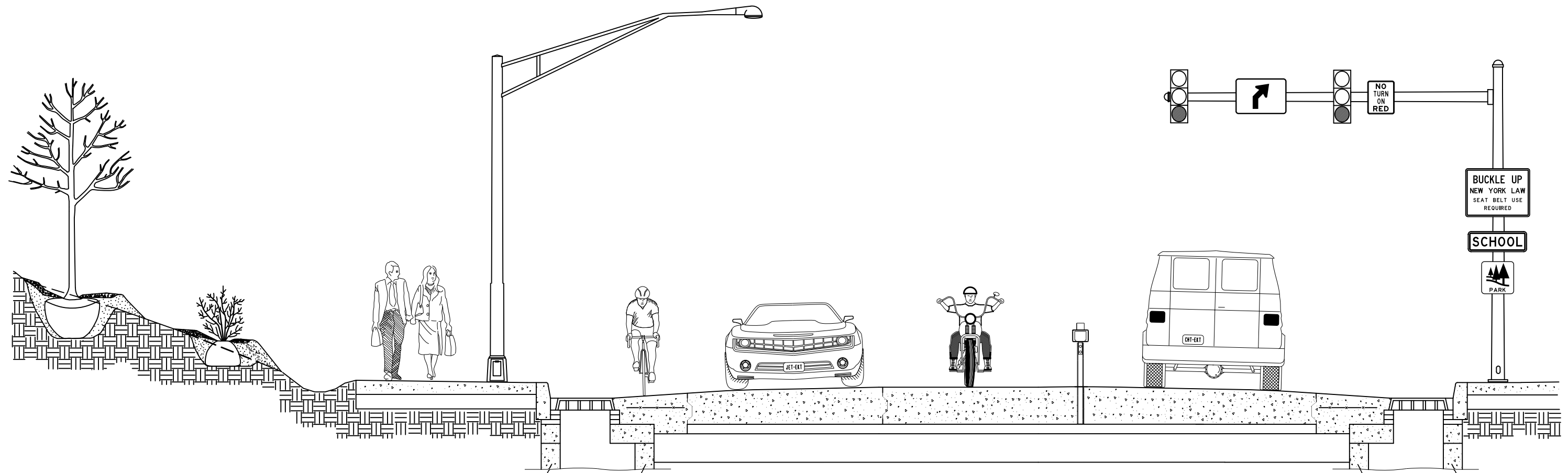
A. Bedding Material Type 1. Provide material meeting the requirements of §733-23 *Bedding Material Type 1*.

B. Bedding Material Type 2. Provide material meeting the requirements of §733-23 *Bedding Material Type 2*.

NEW YORK STATE STANDARD SHEETS

BOOK 3 of 4

SHEETS 608-01 THRU 632-01



**Department of
Transportation**

U.S. CUSTOMARY UNITS
ENGINEERING DIVISION, OFFICE OF DESIGN

JANUARY 01, 2021

NOTE: INDIVIDUAL STANDARD SHEETS IN THIS BOOK BECOME PART OF A CONTRACT BY REFERENCE TO THE SHEET NUMBER IN THE PROJECT PLANS OR PROPOSAL. THIS ENTIRE SET OF 4 BOOKS IS OFFICIALLY FINALIZED AND ADOPTED AS OF THE DATE SHOWN ON THIS COVER.

FILE NAME = IP_PWP-jd109553\619-10.dgn
DATE/TIME = 20-NOV-2008 14:06
USER = jtur-lej

STANDARD SHEETS (USC), January 01, 2021

GENERAL NOTES

1. THE TYPICAL DETAILS DEPICTED ON THE STANDARD SHEETS AND IN THE MUTCD, REFLECT THE MINIMUM REQUIREMENTS.
2. THE CONTRACTOR MUST SUBMIT TO THE ENGINEER, IN WRITING, PROPOSED REVISIONS TO THE TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE FIVE (5) WORK DAYS PRIOR TO THE PLANNED IMPLEMENTATION OF SUCH PROPOSED REVISIONS, EXCEPT FOR CHANGES THAT ALTER THE SCOPE OF THE TRAFFIC CONTROL PLAN. SUCH CHANGES IN SCOPE MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE THIRTY (30) WORKING DAYS PRIOR TO IMPLEMENTATION OF SUCH REVISIONS.
3. THE CONTRACTOR SHALL PROVIDE THE ENGINEER, IN WRITING, WITH THE NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF STAFF WHO ARE AUTHORIZED TO SECURE LABOR, MATERIALS, AND EQUIPMENT FOR EMERGENCY REPAIRS OUTSIDE NORMAL WORKING HOURS. THE ENGINEER WILL PROVIDE THE SUBMITTED INFORMATION TO REGIONAL MANAGEMENT, THE NEW YORK STATE POLICE, THE RESIDENT ENGINEER, AND THE LOCAL POLICE.

ACTIVITY AREA

1. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 500' LONGITUDINAL DISTANCE BETWEEN CONSTRUCTION OPERATIONS ON ALTERNATE SIDES OF THE ROADWAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. WHEN TWO OR MORE AREAS ARE ADJACENT, OVERLAP, OR ARE IN CLOSE PROXIMITY, THE CONTRACTOR SHALL ENSURE THERE ARE NO CONFLICTING SIGNS AND THAT LANE CONTINUITY IS MAINTAINED THROUGHOUT ALL WORK AREAS.

SIGNS

1. THE LOCATIONS OF THE SIGNS SHOWN ON THE WORK ZONE TRAFFIC CONTROL PLANS AND DETAILS MAY BE ADJUSTED BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS. THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.
2. ANY EXISTING SIGNS, INCLUDING OVERHEAD SIGNS, WHICH CONFLICT WITH THE TEMPORARY TRAFFIC CONTROL SIGN LAYOUT SHALL BE COVERED, REMOVED, STORED OR RESET, AS APPROVED BY THE ENGINEER. ALL APPROPRIATE EXISTING SIGNS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND/OR LOCATION UNLESS OTHERWISE REPLACED IN THIS CONTRACT.
3. SIGNS AT OR NEAR INTERSECTIONS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT A MOTORIST'S LINE OF SIGHT.
4. ALL WARNING AND REGULATORY SIGNS SHALL BE POSTED ON BOTH SIDES OF MULTI-LANE DIVIDED HIGHWAYS, MULTI-LANE RAMPS, AND ONE-WAY STREETS. IN CASES WHERE LANE RESTRICTIONS REDUCE THE TRAVEL LANE TO ONE LANE, SIGNS SHALL BE POSTED ON THE RIGHT SIDE OF THE ACTIVE TRAVEL LANE, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.
5. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET. LAYING THE SIGN DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.
6. THE DIMENSIONS OF WORK ZONE TRAFFIC CONTROL SIGNS ARE DESCRIBED IN THE MUTCD. ANY CHANGES TO THE DIMENSIONS SHALL BE APPROVED BY THE REGIONAL DIRECTOR OR BY HIS/HER DESIGNEE.
7. NYR9-12 MAY BE USED IN PLACE OF NYR9-11.

CHANNELIZING DEVICES

1. WHERE POSSIBLE ALL CHANNELIZING AND GUIDING DEVICES ARE TO BE PLACED SO AS TO PROVIDE A MINIMUM 2' LATERAL CLEARANCE TO THE TRAVELED WAY.

PUBLIC ACCESS

1. PROPERTY OWNERS WHOSE DRIVEWAYS WILL BE MADE INACCESSIBLE SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 24 HOURS PRIOR TO RESTRICTING USE OF THE DRIVEWAY. FOR MULTIPLE ACCESS PROPERTIES, AT LEAST ONE DRIVEWAY SHALL BE OPEN AT ALL TIMES. ACCESS SHALL BE RESTORED TO ALL DRIVEWAYS AS SOON AS POSSIBLE.
2. SUITABLE RAMPS SHALL BE INSTALLED TO MAINTAIN SMOOTH TRANSITIONS FROM RESIDENTIAL AND COMMERCIAL DRIVEWAYS TO AND FROM THE WORK AREA.

LANE CLOSURES


1. THE CONTRACTOR SHALL LOCATE LANE CLOSURES TO PROVIDE OPTIMUM VISIBILITY, I.E. BEFORE CURVES AND CRESTS, TO THE EXTENT CONDITIONS PERMIT.
2. THE ENGINEER MAY REQUIRE THAT ALL LANES BE RE-OPENED AT ANY TIME IF THE ROUTE IS NEEDED FOR EMERGENCY PURPOSES. THIS COULD INCLUDE INCIDENTS AT LOCATIONS OUTSIDE THE CONTRACT LIMITS.

LANE WIDTHS

1. UNLESS AUTHORIZED BY THE ENGINEER, THE MINIMUM LANE WIDTHS FOR WORK ZONE TRAVEL LANES SHALL BE AS FOLLOWS: FREEWAYS AND/OR EXPRESSWAYS IS 11'. THE MINIMUM LANE WIDTH FOR ALL OTHER TYPES OF ROADWAYS IS 10'.
2. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE ENGINEER, A MINIMUM OF 21 CALENDAR DAYS IN ADVANCE OF PERFORMING ANY WORK THAT RESULTS IN THE REDUCED WIDTH OF AN EXISTING ROADWAY, SO THAT THE ENGINEER MAY NOTIFY THE REGIONAL PERMIT ENGINEER IN A TIMELY MANNER.

BARRIER/SHADOW VEHICLES

1. BARRIER AND SHADOW VEHICLES SHALL BE REQUIRED AS PER STANDARD SHEET TITLED "WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES".
2. NO WORK ACTIVITY, EQUIPMENT, VEHICLES AND/OR MATERIALS SHALL BE LOCATED BETWEEN THE BARRIER OR SHADOW VEHICLE AND THE ACTIVE WORK AREA (ROLL AHEAD DISTANCE).
3. THE CONTRACTOR MAY BE REQUIRED TO PROVIDE A BARRIER VEHICLE IN CONJUNCTION WITH POLICE PRESENCE IN THE WORK ZONE, TO BE INCLUDED IN THE UNIT BID PRICE FOR BASIC WORK ZONE TRAFFIC CONTROL.

	STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION	
U.S. CUSTOMARY STANDARD SHEET		
WORK ZONE TRAFFIC CONTROL GENERAL NOTES		
APPROVED SEPTEMBER 18, 2008	ISSUED UNDER EB 08-036	
/S/ DAVID J. CLEMENTS, P.E. DIRECTOR, OFFICE OF TRAFFIC SAFETY AND MOBILITY	619-10	

EFFECTIVE DATE: 01/08/09

TABLE NY1-A BARRIER VEHICLE USE REQUIREMENTS (LONG TERM, INTERMEDIATE TERM, AND SHORT TERM STATIONARY CLOSURES)					
CLOSURE TYPE	EXPOSURE CONDITION ¹	USE REQUIREMENTS ^{4,5}			
		FREEWAY	NON-FREEWAY (PRECONSTRUCTION POSTED SPEED LIMIT)		
			≥ 45 MPH	35-40 MPH	≤ 30 MPH
LANE CLOSURE	WORKERS ON FOOT OR IN VEHICLES EXPOSED TO TRAFFIC	REQUIRED ³	REQUIRED ³	REQUIRED ³	OPTIONAL ²
	NON-TRAVERSABLE HAZARD (IE. EQUIPMENT, MATERIALS, EXCAVATION) ONLY NO WORKERS EXPOSED	REQUIRED ³	REQUIRED ³	OPTIONAL ²	OPTIONAL ²
SHOULDER CLOSURE	WORKERS ON FOOT OR IN VEHICLES EXPOSED TO TRAFFIC	REQUIRED ³	REQUIRED ³	OPTIONAL ²	OPTIONAL ²
	NON-TRAVERSABLE HAZARD (IE. EQUIPMENT, MATERIALS, EXCAVATION) ONLY NO WORKERS EXPOSED	REQUIRED ³	OPTIONAL ²	OPTIONAL ²	OPTIONAL ²

1. THE EXPOSURE CONDITIONS DESCRIBED IN TABLE NY1-A ASSUMES THERE IS NO POSITIVE PROTECTION (TEMPORARY TRAFFIC BARRIER) PRESENT. WHERE WORKERS OR HAZARDS ARE PROTECTED BY A TEMPORARY TRAFFIC BARRIER, BARRIER VEHICLES ARE NOT REQUIRED.
2. WHERE THE REQUIREMENT IS "OPTIONAL", EITHER A BARRIER VEHICLE OR THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE 6C-2) SHALL BE PROVIDED.
3. REQUIREMENTS SHALL INCLUDE PROVIDING A SEPARATE BARRIER VEHICLE FOR EACH CLOSED LANE AND EACH CLOSED PAVED SHOULDER 8' OR GREATER IN WIDTH. IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE BARRIER VEHICLE SHALL BE REPOSITIONED ACCORDINGLY. BARRIER VEHICLES PROTECTING NON-TRANSVERSABLE HAZARDS SHALL REMAIN IN PLACE DURING BOTH WORKING AND NON-WORKING HOURS UNTIL THE HAZARD NO LONGER EXISTS. EXCEPTIONS TO THESE REQUIREMENTS MAY BE MADE, AS APPROVED BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE WHERE BARRIER VEHICLE PLACEMENT WOULD BE INEFFECTIVE OR WOULD INTERFERE WITH THE SAFE OPERATION OF TRAFFIC.
4. BARRIER VEHICLES ARE NOT REQUIRED FOR MILLING AND/OR PAVING OPERATIONS, BUT THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE 6C-2) SHALL BE PROVIDED.
5. BARRIER VEHICLES ARE NOT REQUIRED FOR FLAGGING OPERATIONS, BUT THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE6C-2) SHALL BE PROVIDED.

TABLE NY1-B SHADOW VEHICLE USE REQUIREMENTS (MOBILE CLOSURES)					
CLOSURE TYPE	EXPOSURE CONDITION	USE REQUIREMENTS			
		FREEWAY	NON-FREEWAY (PRECONSTRUCTION POSTED SPEED LIMIT)		
			≥ 45 MPH	35-40 MPH	≤ 30 MPH
LANE CLOSURE	WHEN ANY WORKER, VEHICLE, OR OTHER HAZARD IS EXPOSED TO TRAFFIC	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}
SHOULDER CLOSURE	WHEN ANY WORKER, VEHICLE, OR OTHER HAZARD IS EXPOSED TO TRAFFIC	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}

1. A MOBILE CLOSURE SHALL BE USED FOR ANY WORK ACTIVITY THAT MOVES CONTINUOUSLY OR INTERMITTENTLY ALONG THE TRAVELED WAY OR SHOULDER SLOWER THAN THE PREVAILING SPEED OF TRAFFIC. CHANNELIZING DEVICES ARE NOT USED FOR MOBILE CLOSURES.
2. SHADOW VEHICLES SHALL BE EQUIPPED WITH AN APPROVED REAR MOUNTED ATTENUATOR (TRUCK MOUNTED OR TRAILER MOUNTED) FOR THE FOLLOWING MOBILE CLOSURES: LANE CLOSURES ON FREEWAYS, LANE CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION POSTED SPEED LIMIT OF 35 MPH OR MORE, SHOULDER CLOSURES ON FREEWAYS, AND SHOULDER CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE.
3. FOR MOBILE LANE CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION POSTED SPEED LIMIT OF 30 MPH OR LESS AND MOBILE SHOULDER CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION SPEED LIMIT OF 40 MPH OR LESS, SHADOW VEHICLES ARE NOT REQUIRED TO BE EQUIPPED WITH A REAR MOUNTED ATTENUATOR.
4. A SHADOW VEHICLE IS USED TO PROTECT EXPOSED WORKERS (ON FOOT OR IN A VEHICLE) AND SHALL BE REQUIRED FOR ALL MOBILE CLOSURES. SHADOW VEHICLE REQUIREMENTS SHALL INCLUDE PROVIDING A SEPARATE SHADOW VEHICLE FOR EACH CLOSED LANE AND EACH CLOSED PAVED SHOULDER 8' OR GREATER IN WIDTH. ADDITIONAL SHADOW VEHICLES MAY BE REQUIRED TO PROMOTE THE SAFE OPERATION OF TRAFFIC AND THE INCREASED PROTECTION OF EXPOSED WORKERS, AS DIRECTED BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE.

TABLE 6H-4 FORMULAS FOR DETERMINING TAPER LENGTHS										
SPEED LIMIT (S) (MPH)		TAPER LENGTH (L) (FT.)		L = TAPER LENGTH W = WIDTH OF OFFSET (FT.) S = PRECONSTRUCTION POSTED SPEED LIMIT (MPH)						
(40 MPH) OR LESS		L = WS ² /60								
(45 MPH) OR MORE		L = WS								
STANDARD TAPER LENGTHS										
LATERAL SHIFT OF TRAFFIC FLOW PATH	TEMPORARY TRAFFIC CONTROL ZONE POSTED SPEED LIMIT									
	(25 MPH)	(30 MPH)	(35 MPH)	(40 MPH)	(45 MPH)	(50 MPH)	(55 MPH)	(60 MPH)	(65 MPH)	(70 MPH)
4	45	60	85	110	180	200	220	240	260	280
5	55	75	105	135	225	250	275	300	325	350
6	65	90	125	160	270	300	330	360	390	420
7	75	105	145	190	315	350	385	420	455	490
8	85	120	165	215	360	400	440	480	520	560
9	95	135	185	240	405	450	495	540	585	630
10	105	150	205	270	450	500	550	600	650	700
11	115	165	225	295	495	550	605	660	715	770
12	125	180	245	320	540	600	660	720	780	840

TABLE 6C-2 LONGITUDINAL BUFFER SPACE	
PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	DISTANCE
25	155 FT.
30	200 FT.
35	250 FT.
40	305 FT.
45	360 FT.
50	425 FT.
55	495 FT.
60	570 FT.
65	645 FT.

TABLE NY2-A PLACEMENT DISTANCE FOR BARRIER VEHICLES					
PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	PLACEMENT DISTANCE (FT.)				
	BARRIER VEHICLES*				
	(18000 LBS.)		(24000 LBS.)		
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	
> 55	100 FT.	200 FT.	100 FT.	200 FT.	
45 - 55	100 FT.	200 FT.	85 FT.	165 FT.	
< 45	85 FT.	165 FT.	50 FT.	100 FT.	

* AS DEFINED IN NYSDOT STANDARD SPECIFICATION 619:

BARRIER VEHICLE - VEHICLE USED FOR STATIONARY SHOULDER CLOSURES, LANE CLOSURES, AND OTHER STATIONARY WORK ZONES.

MINIMUM DISTANCE SHOWN REFLECTS THE ACTUAL ROLL AHEAD DISTANCE FROM MANUFACTURER.

TABLE NY2-B PLACEMENT DISTANCE FOR SHADOW VEHICLES					
PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	PLACEMENT DISTANCE (FT.)				
	SHADOW VEHICLES**				
	(18000 LBS.)		(24000 LBS.)		
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	
> 55	230 FT.	330 FT.	180 FT.	280 FT.	
45 - 55	180 FT.	280 FT.	150 FT.	250 FT.	
< 45	100 FT.	200 FT.	100 FT.	200 FT.	

* AS DEFINED IN NYSDOT STANDARD SPECIFICATION 619:

SHADOW VEHICLE - VEHICLE USED FOR MOBILE OR SHORT DURATION WORK OPERATIONS.

MINIMUM DISTANCE SHOWN REFLECTS THE ACTUAL ROLL AHEAD DISTANCE FROM MANUFACTURER.

TABLE 6C-3 TAPER LENGTH FOR TEMPORARY TRAFFIC CONTROL ZONES	
TYPE OF TAPER	TAPER LENGTH (L)
MERGING TAPER	L
SHIFTING TAPER	L/2
SHOULDER TAPER	L/3
ONE-LANE, TWO-WAY TRAFFIC TAPER	100 FT. MAXIMUM
DOWNSTREAM TAPER	100 FT. PER LANE

TABLE 619-4 FLARE RATES FOR POSITIVE BARRIER					
TYPE OF POSITIVE BARRIER	POSTED SPEED LIMIT				
	30 MPH	40 MPH	50 MPH	55 MPH	65 MPH
TEMPORARY CONCRETE BARRIER	8:1	11:1	14:1	16:1	20:1
BOX BEAM OR HEAVY POST CORRUGATED BEAM	7:1	9:1	11:1	12:1	15:1

TABLE NY6H-3 ADVANCE WARNING SIGN SPACING					
ROAD TYPE	DISTANCE BETWEEN SIGNS			SIGN LEGEND	
	A (FT.)	B (FT.)	C (FT.)	XX	YY
URBAN (≤ 30 MPH*)	100	100	100	AHEAD	AHEAD
URBAN (35-40 MPH*)	200	200	200	AHEAD	AHEAD
URBAN (≥ 45 MPH*)	350	350	350	1000 FT.	AHEAD
RURAL	500	500	500	1500 FT.	1000 FT.
EXPRESSWAY / FREEWAY	1000	1500	2640	1 MILE	½ MILE

* PRECONSTRUCTION POSTED SPEED LIMIT

URBAN: (MEETS MORE THAN 1 OF THE FOLLOWING CRITERIA) SIDEWALKS, BICYCLE USAGE, CURBING, CLOSED DRAINAGE SYSTEMS, DRIVEWAY DENSITIES GREATER THAN 24 DRIVEWAYS PER MILE, MINOR COMMERCIAL DRIVEWAY DENSITIES OF 10 DRIVEWAYS PER MILE OR GREATER, MAJOR COMMERCIAL DRIVEWAYS, NUMEROUS RIGHT OF WAY CONSTRAINTS, HIGH DENSITY OF CROSS STREETS, 85TH PERCENTILE SPEEDS OF 45 MPH OR LESS.


RURAL: ANY AREA NOT EXHIBITING MORE THAN ONE OF THE ABOVE CHARACTERISTICS.

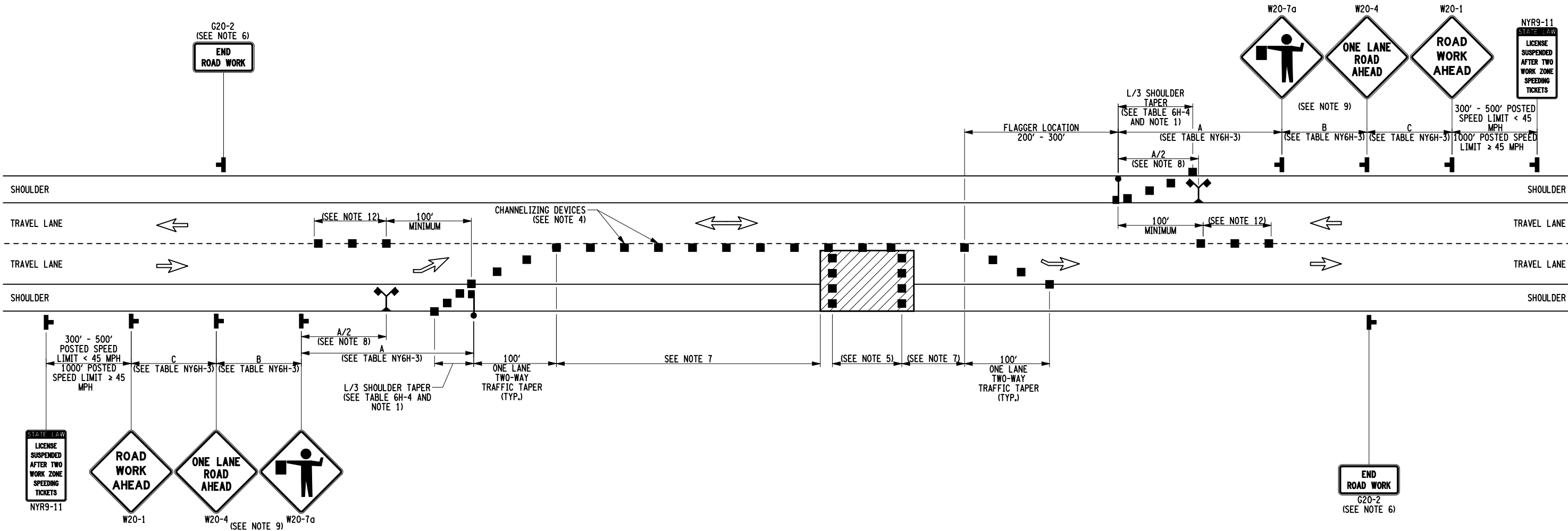
EXPRESSWAY: DIVIDED HIGHWAYS FOR TRAFFIC WITH FULL OR PARTIAL CONTROL OF ACCESS AND GENERALLY WITH GRADE SEPARATIONS AT MAJOR CROSSROADS.

FREEWAYS/INTERSTATE: LOCAL OR INTER REGIONAL HIGH-SPEED, DIVIDED, HIGH-VOLUME FACILITIES WITH FULL OR PARTIAL CONTROL OF ACCESS.

WORK DURATION DEFINITIONS
LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 CONSECUTIVE DAYS.
INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.
SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

WORK ZONE TRAFFIC CONTROL LEGEND	
SYMBOL	DESCRIPTION
	ARROW PANEL
	ARROW PANEL, CAUTION MODE
	ARROW PANEL TRAILER OR SUPPORT
	CHANGEABLE MESSAGE SIGN (PVMS)
	CHANNELIZING DEVICE
	CRASH CUSHION/TEMPORARY IMPACT ATTENUATOR
	DIRECTION OF TEMPORARY TRAFFIC DETOUR
	DIRECTION OF TRAFFIC
	FLAGGER
	FLAG TREE
	LUMINAIRE
	PAVEMENT MARKINGS THAT SHALL BE REMOVED FOR A LONG TERM PROJECT
	SIGN, TEMPORARY
	TEMPORARY BARRIER
	TEMPORARY BARRIER WITH WARNING LIGHTS
	TRAFFIC OR PEDESTRIAN SIGNAL
	TYPE III BARRICADE
	WARNING LIGHTS
	WORK SPACE
	WORK VEHICLE
	WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR

	STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION	
U.S. CUSTOMARY STANDARD SHEET		
WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES		
APPROVED SEPTEMBER 18, 2008	ISSUED UNDER EB 08-036	
/S/ DAVID J. CLEMENTS, P.E. DIRECTOR, OFFICE OF TRAFFIC SAFETY AND MOBILITY	619-11	



NOTES:

1. WHEN PAVED SHOULDERS HAVING A WIDTH OF 8' OR MORE ARE CLOSED, CHANNELIZING DEVICES SHALL BE USED TO CLOSE THE SHOULDER IN ADVANCE TO DELINEATE THE BEGINNING OF THE WORK AREA AND DIRECT VEHICULAR TRAFFIC TO REMAIN IN THE TRAVEL WAY.
2. WHEN A SIDE ROAD OR DRIVEWAY INTERSECTS THE ROADWAY WITHIN A WORK ZONE TRAFFIC CONTROL AREA, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES AND/OR FLAGGERS SHALL BE PLACED AS NEEDED. ADDITIONAL FLAGGERS SHALL BE LOCATED AT ALL INTERSECTIONS AND COMMERCIAL DRIVEWAYS LOCATED WITHIN OR NEAR THE ACTIVE WORK SPACE.
3. NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.
4. CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL NOT EXCEED 40' IN THE ACTIVE WORK SPACE.
5. TRANSVERSE DEVICES SHALL BE REQUIRED (AS PER 619 STANDARD SPECIFICATIONS) WHEN A PAVED SHOULDER HAVING A WIDTH OF 8' OR GREATER IS CLOSED FOR A DISTANCE GREATER THAN 1500'.
6. THE END ROAD WORK SIGN (G20-2) SHALL BE PLACED A MAXIMUM OF 500' PAST THE END OF THE WORK SPACE.
7. WHERE DIRECTED BY THE ENGINEER, A BUFFER SPACE SHALL BE PROVIDED IN ORDER TO LOCATE THE ONE-LANE, TWO-WAY TRAFFIC TAPER PRIOR TO ANY HORIZONTAL OR VERTICAL CURVE, IN ORDER TO PROVIDE ADEQUATE SIGHT DISTANCE FOR THE FLAGGERS AND/OR A QUEUE OF STOPPED VEHICLES.
8. THE FLAG TREE SHALL BE LOCATED ON THE SHOULDER, AT APPROXIMATELY 1/2 THE DISTANCE BETWEEN THE FLAGGER SIGN (W20-7a) AND THE FLAGGER.
9. FLAGGER SIGN (W20-7a) AND ONE LANE ROAD AHEAD SIGN (W20-4) SHALL BE REMOVED, COVERED OR TURNED AWAY FROM ROAD USERS WHEN FLAGGING OPERATIONS ARE NOT OCCURRING.
10. FLAGGER AND FLAG TREE SHALL BE ILLUMINATED TO LEVEL II ILLUMINATION DURING NIGHT TIME OPERATIONS.
11. ALL FLAGGERS SHALL USE 24" (MIN.) OCTAGON SHAPED STOP/SLOW PADDLES HAVING 6' STAFF.
12. CENTERLINE CHANNELIZING DEVICES ARE OPTIONAL AND MAY BE ELIMINATED WHERE SPACE CONSTRAINTS EXIST.

NOTE: SEE STANDARD SHEET TITLED "WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES" FOR LEGEND OF SYMBOLS AND/OR LETTER CODES USED IN THIS DRAWING.

	STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION
U.S. CUSTOMARY STANDARD SHEET	
FLAGGING OPERATION 2-LANE 2-WAY ROADWAY	
APPROVED SEPTEMBER 15, 2009 /S/ DAVID J. CLEMENTS, P.E. DIRECTOR, OFFICE OF TRAFFIC SAFETY AND MOBILITY	ISSUED UNDER EB 09-025 619-60

EFFECTIVE DATE: 01/07/10

PROPOSAL DOCUMENTS REQUIRED TO BE SUBMITTED

DESCRIPTION

Proposal Page(s)

Certification of Experience

Vendor Responsibility Questionnaire

[Have Notarized]

Certification of Compliance With Iran Divestment Act

[Have Notarized]

Non-Collusive Bidding Certification

[Have Notarized]

W-9 Request for Taxpayer Identification Number
And Certification

CERTIFICATION OF EXPERIENCE

BIDDER: _____

I, _____ HEREBY CERTIFY THAT (COMPANY _____
_____ HAS PERFORMED THE FOLLOWING WORK WITHING THE LAST
THREE YEARS **UNLESS SPECIFIED DIFFERENTLY IN THE SPECIFICATION:**

NAMES OF BUSINESS: _____ CONTACT NAME: _____

ADDRESS: _____

AMOUNT OF CONTRACT: _____ TELEPHONE NO.: _____

TYPE OF WORK: _____ FAX NO.: _____

NAMES OF BUSINESS: _____ CONTACT NAME: _____

ADDRESS: _____

AMOUNT OF CONTRACT: _____ TELEPHONE NO.: _____

TYPE OF WORK: _____ FAX NO.: _____

NAMES OF BUSINESS: _____ CONTACT NAME: _____

ADDRESS: _____

AMOUNT OF CONTRACT: _____ TELEPHONE NO.: _____

TYPE OF WORK: _____ FAX NO.: _____

NAMES OF BUSINESS: _____ CONTACT NAME: _____

ADDRESS: _____

AMOUNT OF CONTRACT: _____ TELEPHONE NO.: _____

TYPE OF WORK: _____ FAX NO.: _____

NAMES OF BUSINESS: _____ CONTACT NAME: _____

ADDRESS: _____

AMOUNT OF CONTRACT: _____ TELEPHONE NO.: _____

TYPE OF WORK: _____ FAX NO.: _____

NAMES OF BUSINESS: _____ CONTACT NAME: _____

ADDRESS: _____

AMOUNT OF CONTRACT: _____ TELEPHONE NO.: _____

TYPE OF WORK: _____ FAX NO.: _____

ESSEX COUNTY VENDOR RESPONSIBILITY QUESTIONNAIRE

1. VENDOR IS: _____PRIME CONTRACTOR			
2. VENDOR'S LEGAL BUSINESS NAME		3. IDENTIFICATION NUMBERS A) FEIN # B) DUNS #	
4. D/B/A – Doing Business As (if applicable) & COUNTY FIELD		5. WEBSITE ADDRESS (if applicable)	
6. ADDRESS OF PRIMARY PLACE OF BUSINESS/EXECUTIVE OFFICE		7. TELEPHONE NUMBER	8. FAX NUMBER
9. ADDRESS OF PRIMARY PLACE OF BUSINESS/EXECUTIVE OFFICE <i>IN NEW YORK STATE, if different from above</i>		10. TELEPHONE NUMBER	11. FAX NUMBER
12. AUTHORIZED CONTACT FOR THIS QUESTIONNAIRE Name Title Telephone Number Fax Number Email			
13. LIST ALL OF THE VENDOR'S PRINCIPAL OWNERS			
A) NAME	TITLE	B) NAME	TITLE
C) NAME	TITLE	D) NAME	TITLE
A DETAILED EXPLANATION IS REQUIRED FOR EACH QUESTION ANSWERED WITH A "YES," AND MUST BE PROVIDED AS AN ATTACHMENT TO THE COMPLETED QUESTIONNAIRE. YOU MUST PROVIDE ADEQUATE DETAILS OR DOCUMENTS TO AID THE COUNTY IN MAKE A DETERMINATION OF VENDOR RESPONSIBILITY. PLEASE NUMBER EACH RESPONSE TO MATCH THE QUESTION NUMBER.			
14. DOES THE VENDOR USE, OR HAS IT USED IN THE PAST FIVE (5) YEARS, ANY OTHER BUSINESS NAME, FEIN, or D/B/A OTHER THAN THOSE LISTED IN ITEMS 2-4 ABOVE? List all other business name(s), Federal Employer Identification Number(s) or any D/B/A names and the dates that these names or numbers were/are in use. Explain the relationship to the vendor _____ YES _____ NO			
15. ARE THERE ANY INDIVIDUALS NOW SERVING IN A MANAGERIAL OR CONSULTING CAPACITY TO THE VENDOR, INCLUDING PRINCIPAL OWNERS AND OFFICERS, WHO NOW SERVE OR IN THE PAST ONE (1) YEARS HAVE SERVED AS: a) An elected or appointed public official or officer? <i>List each individual's name, business title, the name of the organization and position elected or appointed to, and dates of service</i> _____ YES _____ NO b) An officer of any political party organization in Essex County, whether paid or unpaid? <i>List each individuals name, business title or consulting capacity and the official political position held with applicable service dates.</i> _____ YES _____ NO			

16. WITHIN THE PAST (5) YEARS, HAS THE VENDOR, ANY INDIVIDUALS SERVING IN MANAGERIAL OR CONSULTING CAPACITY, PRINCIPAL, OWNERS, OFFICERS, MAJOR STOCKHOLDER(S) (10% OR MORE OF THE VOTING SHARES FOR PUBLICLY TRADED COMPANIES, 25% OR MORE OF THE SHARES FOR ALL OTHER COMPANIES), AFFILIATE OR ANY PERSON INVOLVED IN THE BIDDING OR CONTRACTING PROCESS:

- a) 1. been suspended, debarred or terminated by a local, state or federal authority in connection with a contract or contracting process; _____ YES _____ NO
2. been disqualified for cause as a bidder on any permit, license, concession, franchise or lease;
3. entered into an agreement to a voluntary exclusion from bidding/contracting;
4. had a bid rejected on an Essex County contract for failure to comply with the MacBride Fair Employment Principles;
5. had a low bid rejected on a local, state or federal contract for failure to meet statutory affirmative action or M/WBE requirements on a previously held contract;
6. had a status as a Women's Business Enterprise, Minority Business Enterprise or Disadvantaged Business Enterprise, de-certified, revoked or forfeited;
7. been subject to an administrative proceeding or civil action seeking specific performance or restitution in connection with any local, state or federal government contract;
8. been denied an award of a local, state or federal government contract, had a contract suspended or had a contract terminated for non-responsibility; or
9. had a local, state or federal government contract suspended or terminated for cause prior to the completion of the term of the contract.
- b) been indicted, convicted, received a judgment against them or a grant of immunity for any business-related conduct constituting a crime under local, state or federal law including but not limited to, fraud, extortion, bribery, racketeering, price-fixing, bid collusion or any crime related to truthfulness and/or business conduct? _____ YES _____ NO
- c) been issued a citation, notice, violation order, or are pending an administrative hearing or proceeding or determination of violations of: _____ YES _____ NO
1. federal, state or local health laws, rules or regulations

17. IN THE PAST THREE (3) YEARS, HAS THE VENDOR OR ITS AFFILIATES' HAD ANY CLAIMS, JUDGMENTS, INJUNCTIONS, LIENS, FINES OR PENALTIES SECURED BY ANY GOVERNMENTAL AGENCY? _____ YES _____ NO
Indicate if this is applicable to the submitting vendor or affiliate. State whether the situation(s) was a claim, judgment, injunction, lien or other with an explanation. Provide the name(s) and address(es) of the agency, the amount of the original obligation and outstanding balance. If any of these items are open, unsatisfied, indicate the status of each items as "open" or "unsatisfied".

18. DURING THE PAST THREE (3) YEARS, HAS THE VENDOR FAILED TO:

- a) file returns or pay any applicable federal, state or city taxes? _____ YES _____ NO
Identify the taxing jurisdiction, type of tax, liability year(s), and tax liability amount the vendor failed to file/pay and the current status of the liability.
- b) file returns or pay New York State unemployment insurance? _____ YES _____ NO
Indicate the years the vendor failed to file/pay the insurance and the current status of the liability.
- c) Property Tax _____ YES _____ NO
Indicate the years the vendor failed to file.

19. HAVE ANY BANKRUPTCY PROCEEDINGS BEEN INITIATED BY OR AGAINST THE VENDOR OR ITS AFFILIATES' WITHIN THE PAST SEVEN (7) YEARS (WHETHER OR NOT CLOSED) OR IS ANY BANKRUPTCY PROCEEDING PENDING BY OR AGAINST THE VENDOR OR ITS AFFILIATES REGARDLESS OF THE DATE OF FILING? _____ YES _____ NO

Indicate if this is applicable to the submitting vendor or affiliate. If it is an affiliate, include the affiliate's name and FEIN. Provide the court name, address and docket number. Indicate if the proceedings have been initiated, remain pending or have been closed. If closed, provide the date closed.

20. IS THE VENDOR CURRENTLY INSOLVENT, OR DOES VENDOR CURRENTLY HAVE REASON TO BELIEVE THAT AN INVOLUNTARY BANKRUPTCY PROCEEDING MAY BE BROUGHT AGAINST IT?

Provide financial information to support the vendor's current position, for example, Current Ratio, Debt Ratio, Age of Accounts Payable, Cash Flow and any documents that will provide the agency with an understanding of the vendor's situation.

___ YES ___ NO

21. IN THE PAST FIVE (5) YEARS, HAS THE VENDOR OR ANY AFFILIATES:

- a) defaulted or been terminated on, or had its surety called upon to complete, any contract (public or private) awarded;

___ YES ___ NO

Indicate if this is applicable to the submitting vendor or affiliate. Detail the situation(s) that gave rise to the negative action, any corrective action taken by the vendor and the name of the contracting agency.

¹ "Affiliate" meaning: (a) any entity in which the vendor owns more than 50% of the voting stock; (b) any individual, entity or group of principal owners or officers who own more than 50% of the voting stock of the vendor; or (c) any entity whose voting stock is more than 50% owned by the same individual, entity or group described in clause (b). In addition, if a vendor owns less than 50% of the voting stock of another entity, but directs or has the right to direct such entity's daily operations, that entity will be an "affiliate" for purposes of this questionnaire.

**ESSEX COUNTY
VENDOR RESPONSIBILITY QUESTIONNAIRE**

FEIN # _____

State of:)
) ss:
County of:)

CERTIFICATION:

The undersigned: recognizes that this questionnaire is submitted for the express purpose of assisting the County of Essex in making a determination regarding an award of contract or approval of a subcontract; acknowledges that the County may in its discretion, by means which it may choose, verify the truth and accuracy of all statements made herein; acknowledges that intentional submission of false or misleading information may constitute a felony under Penal Law Section 210.40 or a misdemeanor under Penal Law Section 210.35 or Section 210.45, and may also be punishable by a fine and/or imprisonment of up to five years under 18 USC Section 1001 and may result in contract termination; and states that the information submitted in this questionnaire and any attached pages is true, accurate and complete.

The undersigned certifies that he/she:

- Has not altered the content of the questions in the questionnaire in any manner;
- Has read and understands all of the items contained in the questionnaire and any pages attached by the submitting vendor;
- Has supplied full and complete responses to each item therein to the best of his/her knowledge, information and belief;
- Is knowledgeable about the submitting vendor's business and operations;
- Understands that Essex County will rely on the information supplied in the questionnaire when entering into a contract with the vendor;
- Is under duty to notify the Essex County Purchasing Officer of any changes to the vendor's responses.

Name of Business: _____

Signature of Owner: _____

Printed Name of Signatory: _____

Title: _____

Address: _____ City, State, Zip: _____

Date: _____

Sworn before me this _____ day of

_____, 20____

Notary Public

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

As a result of the Iran Divestment Act of 2012 (the "Act"), Chapter 1 of the 2012 Laws of New York, a new provision has been added to State Finance Law (SFL) § 165-a and New York General Municipal Law § 103-g, both effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list of "persons" who are engaged in "investment activities in Iran" (both are defined terms in the law) (the "Prohibited Entities List"). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act's effective date at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, each Bidder/Contractor, any person signing on behalf of any Bidder/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 OGS website, that to the best of its knowledge and belief, that each Bidder/Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to SFL § 165-a(3)(b).

Additionally, Bidder/Contractor is advised that once the Prohibited Entities List is posted on the OGS Website, any Bidder/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/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/it has ceased engagement in the investment which is in violation of the Act within 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/Contractor in default.

The County reserves the right to reject any bid or request for assignment for a Bidder/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/Contractor that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, _____, being duly sworn, deposes and says that he/she is the
_____ of the _____ Corporation and
that neither the Bidder/Contractor nor any proposed subcontractor is identified on the Prohibited Entities List.

SIGNED

SWORN to before me this _____
day of _____, 20__

Notary Public

NON-COLLUSIVE BIDDING CERTIFICATION

1. By submission of this bid, the undersigned bidder and each person signing on behalf of such bidder certifies and in the case of a joint bid each party thereto certifies as to its own organization — UNDER PENALTY OF PERJURY, that to the best of the undersigned's knowledge and belief:

(a) 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;

(b) 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

(c) 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.

2. The undersigned acknowledges and agrees that a bid shall not be considered for award nor shall any award be made where any of the above have not been complied with; provided however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. Where one or more of the above has/have not been complied with, the bid shall not be considered for award nor shall any award be made unless the political subdivision, public department, agency or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

3. The undersigned also acknowledges and agrees that the fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of paragraph 1 above.

4. The undersigned further acknowledges and agrees that any bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a bidder which is a corporation or a limited liability company for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certification referred to in paragraph 1 of this certificate, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation or limited liability company.

Name of Bidder: _____
(print full legal name)

Date Signed: _____ Signature: _____

Name of Person Signing Certificate: _____
(print full legal name of signer)

Bidder is (check one): ☐ an individual, ☐ a limited liability partnership, ☐ a limited liability company,
☐ other entity (specify): _____

CONTRACTOR'S ACKNOWLEDGEMENT

(If Corporation)

STATE OF NEW YORK) SS:
COUNTY OF ESSEX)

On this _____ day of _____ 20____, before me personally came _____
_____ to me known, and known to me to be the _____ of
the Corporation described in and which executed the within instrument, who being duly sworn did depose and say
that he, the said _____ reside at _____ and that he is
_____ of said corporation and knows the corporate seal of the said corporation; that the
seal affixed to the within instrument is such corporate seal and that it was so affixed by order of the Board of
Directors of said corporation, and that he signed his name thereto by like order.

Notary Public

CONTRACTOR'S ACKNOWLEDGEMENT

(If Individual)

STATE OF NEW YORK) SS:
COUNTY OF ESSEX)

On this _____ day of _____ 20____, before me personally came
_____ to me known, and known to me to be the same
person described in and who executed the within instrument and he duly acknowledged to me that he executed the
same for the purpose herein mentioned and, if operating under and trade name, that the certificate required by the
New York State Penal Law, Sections 440 and 440-b has been filed with the County Clerk of Essex County.

Notary Public

CONTRACTOR'S ACKNOWLEDGEMENT

(If Co-Partnership)

STATE OF NEW YORK) SS:
COUNTY OF ESSEX)

On this _____ day of _____ 20____, before me personally came
_____ to me known, and known to me to be a member of the firm of and
the person described in, and who executed the within instrument in behalf of said firm for the purposes herein
mentioned and that the certificate required by the New York State Penal Law, Sections 440 and 440-b has been
filed with the County Clerk of Essex County.

Notary Public

Request for Taxpayer Identification Number and Certification

Give Form to the
requester. Do not
send to the IRS.

Print or type
See Specific Instructions on page 2.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
2 Business name/disregarded entity name, if different from above	
3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <div><input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) * <input type="checkbox"/> Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) *</div>	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>
5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
6 City, state, and ZIP code	
7 List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number								
				-				
or								
Employer identification number								
				-				

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	Signature of U.S. person *	Date *
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.

By signing the filled-out form, you:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
- Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)

2—The United States or any of its agencies or instrumentalities

3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

4—A foreign government or any of its political subdivisions, agencies, or instrumentalities

5—A corporation

6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

7—A futures commission merchant registered with the Commodity Futures Trading Commission

8—A real estate investment trust

9—An entity registered at all times during the tax year under the Investment Company Act of 1940

10—A common trust fund operated by a bank under section 584(a)

11—A financial institution

12—A middleman known in the investment community as a nominee or custodian

13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor ²
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee ¹ The actual owner ¹
5. Sole proprietorship or disregarded entity owned by an individual	The owner ³
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity ⁴
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

*Note. Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.ftc.gov/idtheft or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

EXHIBIT C

INSURANCE REQUIREMENTS – PUBLIC WORKS CONTRACTORS

I. The Contractor and each of its subcontractors shall procure and maintain during the entire term of the contract the following required insurance:

- **Commercial General Liability Insurance**
\$1,000,000 per occurrence / \$2,000,000 aggregate, including coverage for liability assumed by contract, completed operations, explosion, collapse, underground hazard and products liability.
- **Automobile Liability**
\$1,000,000 combined single limit for owned, hired and borrowed and non-owned motor vehicles.
- **Workers' Compensation**
Statutory Workers' Compensation and Employers' Liability Insurance for all employees.
- **Owners & Contractors Protective Liability Insurance**
\$2,000,000 per occurrence / \$2,000,000 aggregate.
- **Excess/Umbrella Liability Insurance**
\$1,000,000 per occurrence / \$2,000,000 aggregate.

II. Notwithstanding any terms, conditions or provisions, in any other writing between the parties, the Contractor hereby agrees to name the County as:

- (a) an additional insured on the Contractor's Commercial General Liability, Automobile Liability and Excess/Umbrella Liability insurance policies, and
- (b) a named insured on the Owners & Contractors Protective Liability Insurance Policy.

III. The policy/policies of insurance furnished by the Contractor shall:

- be from an A.M. Best rated "A" New York State licensed insurer; and
- contain a 30-day notice of cancellation

IV. The Contractor agrees to indemnify the County for any applicable deductibles.

V. Contractor acknowledges that failure to obtain such insurance on behalf of the County constitutes a material breach of contract and subjects it to liability for damages, indemnification and all other legal remedies available to the County. Prior to commencement of work or use of facilities, the Contractor shall provide to the County proof that such requirements have been met by furnishing certificate(s) of such insurance, and the declarations pages from the policies of such insurance. The failure of the County to object to the contents of the certificate(s) and/or declarations pages, or the absence of same, shall not be deemed a waiver of any and all rights held by the County.

VI. All certificates of insurance will provide 30 days notice to the county of cancellation or non-renewal.

VII. Contractor and subcontractor waives all rights of subrogation against the owner and will have the General Liability, Umbrella Liability Workers' Compensation policies endorsed setting forth this Waiver of Subrogation.

VIII. All policies will also contain no exclusions with respect to Section 240 and 241 of the NYS Labor Law.

IX. The County shall be listed as an additional insured on a primary and non-contributory basis.

X. All Contractors Subcontractors shall comply with these provisions and shall list the County as additional insured on a primary and non-contributory basis.

APPENDIX D - STANDARD CLAUSES FOR ESSEX COUNTY CONTRACTS

1. Independent Contractor Status

The parties each acknowledge, covenant and agree that the relationship of the Contractor to the County shall be that of an independent contractor. The Contractor, in accordance with its status as an independent contractor, further covenants and agrees that it:

- (a) will conduct itself in accordance with its status as an independent contractor;
- (b) will neither hold itself out as nor claim to be an officer or employee of the County; and
- (c) will not make any claim, demand or application for any right or privilege applicable to an officer or employee of the County, including but not limited to workers' compensation benefits, unemployment insurance benefits, social security coverage or retirement membership or credits.

2. Contractor To Comply With Laws/Regulations

The Contractor shall at all times comply with all applicable state and federal laws, rules and regulations governing the performance and rendition of the services to be furnished under this agreement.

3. Licenses, Permits, Etc.

The Contractor shall, during the term of this agreement, obtain and keep in full force and effect any and all licenses, permits and certificates required by any governmental authority having jurisdiction over the rendition and performance of the services to be furnished by the Contractor under this agreement.

4. Termination

This agreement may be terminated without cause by either party upon 30 days prior written notice, and upon such termination neither party shall have any claim or cause of action against the other except for services actually performed and mileage expenses actually incurred prior to such termination. Notwithstanding the foregoing, this agreement may be immediately terminated by the County:

- (a) for the Contractor's breach of this agreement, by serving written notice of such termination stating the nature of the breach upon the Contractor by personal delivery or by certified mail, return receipt requested, and upon such termination either party shall have such rights and remedies against the other as provided by law; or
- (b) upon the reduction or discontinuance of funding by the State or Federal governments to be used in furnishing some or all of the work, labor and/or services provided for under this agreement, and upon such termination neither party shall have any claim or cause of action against the other except for services actually performed and expenses (if the same are to be paid under this agreement) actually incurred prior to such termination.

5. Defense & Indemnification

The Contractor shall defend, indemnify and hold harmless the County to the fullest extent allowed by law, and notwithstanding any insurance requirements, from and against any and all liability, losses, claims, actions, demands, damages, expenses, suits, judgments, orders, causes of action and claims, including but not limited to attorney's fees, legal costs, and all other costs of defense, by reason of any liability whatsoever imposed by law or otherwise upon the County for damages to person, property or of any other kind in nature, including but not limited to those for bodily injury, property damage, death arising out of or in connection with its officers, employees, agents, contractors, sub-contractors, guests or invitees negligence or its/their performance or failure to perform this agreement. This language shall

be inserted by Contractor in all agreements between Contractor and its subcontractors and subcontractors will indemnify and hold harmless the County pursuant to its terms.

6. **Discrimination Prohibited**

The services to be furnished and rendered under this agreement by the Contractor shall be available to any and all residents of Essex County without regard to race, color, creed, sex, religion, national or ethnic origin, handicap, or source of payment; and under no circumstances shall a resident's financial ability to pay for the services provided be considered unless such consideration is allowed by State and/or Federal law, rule or regulation.

7. **Non-Discrimination In Employment**

The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, age, disability or marital status. In the event that this is a contract to be performed in whole or in part within the State of New York for (a) the construction, alteration or repair of any public building or public work, (b) for the manufacture, sale or distribution of materials, equipment or supplies, (c) for building service, the Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex or national origin:

- (1) discriminate in hiring against any citizen who is qualified and available to perform the work; or
- (2) discriminate against or intimidate any employee hired for the performance of work under this contract.

The Contractor agrees to be subject to fines of \$50.00 per person per day for any violation of this paragraph, as well as to possible termination of this contract or forfeiture of all moneys due hereunder for a second or subsequent violation.

8. **Damage/Injury To Persons & Property**

The Contractor shall promptly advise the County of all damages to property of the County or of others, or of injuries incurred by persons other than employees of the Contractor, in any manner relating, either directly or indirectly, to the performance of this agreement.

9. **Records**

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") in accordance with the following requirements:

- (a) the Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter;
- (b) the County Auditor, State Comptroller, the Attorney General or 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 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: (i) the Contractor shall timely inform an appropriate County official, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified and 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.

10. **Claims For Payment**

All invoices or claims for which payment is sought from the County must be submitted in accordance with the following:

- (a) each claim for payment must include
 - (1) an invoice detailing the claim,
 - (2) copies of all documentation supporting the claim,
 - (3) a properly completed County standard voucher, which includes
 - (i) the County contract number under which payment is being claimed, **AND**
 - (ii) the payee's Federal employer identification number or Federal social security number, or both such numbers when the payee has both such numbers. *[Failure to include this number or numbers will prevent and preclude payment by the County; except that where the payee does not have such number or numbers, the payee, on the invoice or County voucher, must give the reason or reasons why the payee does not have such number or numbers and such reasons constitute a valid excuse under law.]*
- (b) Unless otherwise provided in this agreement, each claim for payment must be submitted to the County no later than 30 days after the work, labor, materials, and/or services for which payment is claimed were rendered or furnished.
- (c) Notwithstanding any other provision of this agreement, no claim for payment shall be valid, and the County shall not be liable for payment thereof, unless it is submitted to the County within 30 days of the close of the calendar year in which the work, labor, materials, and/or services for which payment is claimed were rendered or furnished.
- (d) Unless otherwise provided in this agreement, the requirements of this paragraph 10, and/or of any other provisions of this agreement which supersede the same, shall constitute conditions precedent to the County's payment obligation, and failure to comply with any or all of said requirements shall entitle the County to deny payment.
- (e) As a further condition of payment, each claim of payment shall be accompanied by a Contractor and Sub-Contractor Progress Payment Waiver, Release and Discharge, and each Final Payment shall be accompanied by a Contractor and Sub-Contractor Final Payment, Waiver and Release form. As well as a Contractor Affidavit relative to Final Payment. Copies of these forms are attached and made a part hereof. (Please disregard if these forms do not pertain).

11. **Consent**

In the event that State or Federal law requires the recipient of services to be furnished and rendered under this agreement to give his/her prior consent thereto, the contractor shall obtain such person's consent and furnish proof thereof to the County.

12. **Executory Clause**

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

13. **Public Work & Building Service Contract Requirements**

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:

- (a) 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

- 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; and
- (b) 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.

14. **Public Work Contracts – Hazardous Substances**

If this is a contract for public work, the Contractor agrees as follows:

- (a) the Contractor acknowledges that the County uses and/or produces various substances which may be classified as hazardous under OSHA's Hazard Communication Standard;
- (b) the Contractor recognizes the use of said substances by the County and acknowledges that the County has provided, or upon request will provide, the Contractor with a description of such substances which may be present in the area of the County's facility/facilities to which the Contractor may have accessed during the performance of this contract;
- (c) the Contractor acknowledges that the County has provided, or upon request will provide, suggestions for appropriate protective measures which should be observed when the Contractor is in the area of any such hazardous substances;
- (d) the Contractor agrees to be solely responsible for providing training and information to its employees regarding any such hazardous substances, as well as of any protective measures suggested by the County;
- (e) the Contractor agrees to be solely responsible to ensure that the Contractor's employees observe protective measures during the performance of their duties in the performance of the contract, and that all such protective measures will be at least as stringent as those suggested or which would have been suggested by the County;
- (f) in the event that the Contractor's performance of the work under this contract requires the use of any hazardous substances, the Contractor shall notify the County in advance of bringing in and/or using such substances in or upon County property and suggest to the County appropriate measures to be observed by the County, its officers and employees, and/or the public; and
- (g) in the event the Contractor fails in whole or in part to comply with the terms of this paragraph, the County shall have the right to interrupt the Contractor's work and/or terminate this contract, and the Contractor shall be prohibited from renewing such work until all applicable safety and health procedures and practices are implemented by the Contractor.

15. **Disputes**

Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration, but must, instead, be heard in the Essex County Supreme Court or any other court of competent jurisdiction within Essex County, New York.

16. **Non-Assignment**

This agreement may not be assigned, subcontracted, transferred, conveyed, sublet or otherwise disposed of in whole or in part, by the Contractor, without the prior written consent of the County, and any attempts to assign the contract without the County's written consent are null and void.

17. **No Collusion**

If this contract was awarded based upon the submission of bids, the Contractor warrants, under penalty of perjury, that:

- (a) its bid was arrived at independently and without collusion aimed at restricting competition; and
- (b) at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the County a non-collusive bidding certification on Contractor's behalf.

18. **International Boycott**

In accordance with Section 220-f of the Labor Law, if this contract exceeds \$5,000.00, 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, 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 County Manager within five (5) business days of such conviction, determination or disposition of appeal.

19. **County's Rights of Set-Off**

The County shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the County's option to withhold for the purposes of set-off any moneys due to the Contractor under this agreement up to any amounts due and owing to the County with regard to this contract, any other contract with any County 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 County for any other reason, including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The County shall exercise its set-off rights in accordance with normal County practices, including, in cases of set-off pursuant to an audit, the acceptance of such audit by the County Board of Supervisors or its designated representative.

20. **Contractor Defined**

Whenever the term "Contractor" is used in this agreement, such term shall include and apply to all employees, all officers, directors and agents, if any, of the Contractor.

21. **Amendment**

This agreement may not be amended, modified or renewed except by written agreement signed by the Contractor and the County.

22. **Ownership Of Work Products**

All final and written or tangible work products completed by the Contractor shall belong to the County. In the event of premature discontinuance of performance, the Contractor agrees to deliver all existing products and data files to the County.

23. **Executive Order Debarment/Suspension**

In the event that this contract involves the Contractor furnishing goods and services in excess of \$100,000.00, or constitutes a subaward to subrecipients, under any Federal program, grant or other funding source, then by executing this agreement the Contractor certifies that neither it nor any of its principals are suspended or debarred within the scope or meaning of Executive Orders 12549 and 12689, any Federal or State regulation implementing or codifying the same, or any other Federal or State law, rule or regulation.

24. **Health Insurance Portability and Accountability Act of 1996 (HIPAA)**

In the event that this contract involves the use or disclosure of protected health information within the meaning or application of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), and the regulations thereunder, the following provisions of this paragraph shall apply.

- (a) **Definitions.** The terms used, but not otherwise defined, in this Agreement shall have the same meaning as given such terms in 45 CFR §160.103 and §164.501, as the same may be amended from time to time, including but not limited to the following.
- (1) "Business Associate" shall mean the Contractor, its officers, employees, agents and subcontractors.
 - (2) "Covered Entity" shall mean Essex County (the "County"), its departments, agencies, officers and employees.
 - (3) "Individual" shall have the same meaning as given such term in 45 CFR §164.501 and shall also include a person who qualifies as a personal representative in accordance with 45 CFR §164.502(g).
 - (4) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 CFR Part 160 and Part 164, subparts A and E.
 - (5) "Protected Health Information" shall have the same meaning as given such term in 45 CFR §164.501, limited to the information created or received by Contractor from or on behalf of the County.
 - (6) "Required by law" shall have the same meaning as given such term in 45 CFR §164.501.
 - (7) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his/her designee.
- (b) **Obligations and Activities of Contractor.**
Contractor agrees to:
- (1) not use or disclose Protected Health Information other than as permitted or required by this Agreement or as required by law;
 - (2) use appropriate safeguards to prevent use or disclosure of the Protected Health Information other than as provided for by this Agreement;
 - (3) mitigate, to the extent practicable, any harmful effect that is known, should have been known, and/or discovered to/by Contractor of a use or disclosure of Protected Health Information by Contractor in violation of the requirements of this Agreement;
 - (4) report to the County any use or disclosure of the Protected Health Information not provided for by this Agreement of which it becomes aware;
 - (5) ensure that any agent, including a subcontractor, to whom it provides Protected Health Information received from, or created or received by Contractor on behalf of the County agrees to the same restrictions and conditions that apply through this Agreement to Contractor with respect to such information;
 - (6) provide access, at the request of the County, and in the time and manner designated by the County or the Secretary, to Protected Health Information in a Designated Record Set, to the County or, as directed by the County, to an Individual in order to meet the requirements under 45 CFR §164.524;
 - (7) make any amendment(s) to Protected Health Information in a Designated Record Set that the County directs or agrees to pursuant to 45 CFR §164.526 at the request of the County or an Individual, and in the time and manner designated by the County or the Secretary;

- (8) make internal practices, books, and records, including policies and procedures and Protected Health Information, relating to the use and disclosure of Protected Health Information received from, or created or received by Contractor on behalf of, the County available to the County, and/or to the Secretary, in a time and manner designated by the County or by the Secretary, for purposes of the Secretary determining the County's compliance with the Privacy Rule;
- (9) document such disclosures of Protected Health Information and information related to such disclosures as would be required for the County to respond to a request by an Individual for an accounting of disclosures of Protected Health Information in accordance with 45 CFR §164.528;
- (10) provide to the County or an Individual, in time and manner designated by the County or the Secretary, information collected in accordance with the above subparagraph (b)(9) of this Agreement, to permit the County to respond to a request by an Individual for an accounting of disclosures of Protected Health Information in accordance with 45 CFR §164.528.

(c) Permitted Uses and Disclosures by Contractor.

Except as otherwise limited in this Agreement, Contractor may use or disclose Protected Health Information on behalf of, or to provide services to, the persons entitled to services under this Agreement:

- (1) solely for the purposes of performing Contractor's obligations under this Agreement, if such use or disclosure of Protected Health Information would not violate the Privacy Rule if done by the County or the minimum necessary policies and procedures of the County; or
- (2) provided that such use or disclosures are required by law; or
- (3) Contractor
 - (A) obtains written authorization(s) from the individual to which the information pertains permitting the specific uses or disclosures of such information to third persons,
 - (B) represents and agrees in writing with such individual that the information to be used and/or disclosed will remain confidential and used or further disclosed only as required by law or for the purposes specified in the written authorization(s), and
 - (C) such third persons agree in writing to notify the County as soon as practicable and in writing of any instances of which such third person(s) is/are aware in which the confidentiality of the information has been breached; or
- (4) provide Data Aggregation services to the County as permitted by 42 CFR §164.504(e)(2)(i)(B); or
- (5) report violations of law to appropriate Federal and State authorities, consistent with §164.502(j)(1).

(d) County To Inform Contractor of Privacy Practices and Restrictions.

The County agrees to notify the Contractor of any

- (1) limitation(s) in its notice of privacy practices of the County in accordance with 45 CFR §164.520, to the extent that such limitation may affect the Contractor's use or disclosure of Protected Health Information;
- (2) changes in, or revocation of, permission by Individual to use or disclose Protected Health Information, to the extent that such changes may affect the Contractor's use or disclosure of Protected Health Information; and/or
- (3) restriction to the use or disclosure of Protected Health Information that the

County has agreed to in accordance with 45 CFR §164.522, to the extent that such restriction may affect Contractor's use or disclosure of Protected Health Information.

(e) Permissible Requests by County.

The County shall not request Contractor to use or disclose Protected Health Information in any manner that would not be permissible under the Privacy Rule if done by the County; except that in the event that the services to be furnished by the Contractor under this Agreement requires data aggregation by the Contractor, the Contractor may use or disclose protected health information for such data aggregation or management and administrative activities of Contractor.

(f) Survival of Provisions.

The obligations of the Contractor under this paragraph 24 shall survive the expiration of the term of this Agreement and/or the termination of this Agreement, and said obligations shall remain effective and shall not terminate until all of the Protected Health Information provided by the County to Contractor, or created or received by Contractor on behalf of the County, is destroyed or returned to the County, or, if it is infeasible to return or destroy Protected Health Information, protections are extended to such information, in accordance with the termination provisions in subparagraph (g) below.

(g) Return or Destruction of Protected Health Information.

Except as otherwise provided below, upon termination of this Agreement for any reason, Contractor shall return or destroy all Protected Health Information received from the County, or created or received by Contractor on behalf of the County. This provision shall apply to Protected Health Information that is in the possession of subcontractors or agents of Contractor. Contractor shall retain no copies of the Protected Health Information.

In the event that Contractor determines that returning or destroying the Protected Health Information is infeasible, Contractor shall provide to the County notification of the conditions that make return or destruction infeasible. Upon determination by the County that return or destruction of Protected Health Information is infeasible, Contractor shall extend the protections of this Agreement to such Protected Health Information and limit further uses and disclosures of such Protected Health Information to those purposes that make the return or destruction infeasible, for so long as Contractor maintains such Protected Health Information.

(h) Termination for Cause.

Upon the County's knowledge of a material breach of this paragraph by Contractor, the County shall:

- (1) either:
 - (A) provide an opportunity for Contractor to cure the breach or end the violation and terminate this Agreement within the time specified by the County, or
 - (B) immediately terminate this Agreement if cure is not possible; and
- (2) report the violation to the Secretary.

(i) Miscellaneous.

- (1) Regulatory References. A reference in this Agreement to a section in the Privacy Rule means the section as in effect or as amended.
- (2) Amendment. The Parties agree to take such action as is necessary to amend this Agreement from time to time as is necessary for the County to comply with the requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.

- (3) Survival. The respective rights and obligations of Contractor under this paragraph 24 of this Agreement shall survive the termination of this Agreement.
- (4) Interpretation. Any ambiguity in this Agreement shall be resolved to permit the County to comply with the Privacy Rule.

25. **Severability**

If any term or provision of this agreement or the application thereof to any person or circumstance shall to any extent be held invalid or unenforceable, the remainder of this agreement or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby and every other term and provision of this agreement shall be valid and be enforced to the fullest extent permitted by law.

26. **Entire Agreement**

This agreement is the entire agreement between the parties, and the same shall be construed in accordance with the laws of the State of New York.

27. **For Medicaid/Federal Health Care Related Work**

Excluded/Debarred Party Clause

The Vendor/Contractor represents and warrants that it, nor its employees or contractors, are not excluded from participation, and is not otherwise ineligible to participate, in a "federal health care program" as defined in 42 U.S.C. § 1320a-7b(f) or in any other government payment program.

In the event Vendor/Contractor, or one of its employees or contractors, is excluded from participation, or becomes otherwise ineligible to participate in any such program during the Term, Vendor/Contractor will notify Essex County in writing within three (3) days after such event. Upon the occurrence of such event, whether or not such notice is given to the Vendor/Contractor, Essex County reserves the right to immediately cease contracting with the Vendor/Contractor.

If Vendor/Contractor is an Employment Agency, the Vendor/Contractor represents and warrants that its employees and contractors are not excluded from participation in a "federal health care program" as defined in 42 U.S.C. § 1320a-7b(f) or debarred from participation in any federal or other program.

- The Vendor/Contractor further represents and warrants it will, at a minimum, check monthly all of its employees and subcontractors against:
- The General Services Administration's Federal Excluded Party List System (or any successor system),
- The United States Department of Health and Human Services' Office of the Inspector General's Lists of Excluded Individuals and Entities or any successor list,

The New York State Department of Health's Office of the Medicaid Inspector General's list of Restricted, Terminated or Excluded Individuals or Entities.

In the event an excluded party is discovered the Vendor/Contractor will notify Essex County in writing within three (3) days after such event. Upon the occurrence of such event, whether or not such notice is given to the Vendor/Contractor, Essex County reserves the right to immediately cease contracting with the Vendor/Contractor.

28. **Cooperative Purchasing (Piggybacking)**

Pursuant to General Municipal Law §103 and County Law §408-a, any political sub-

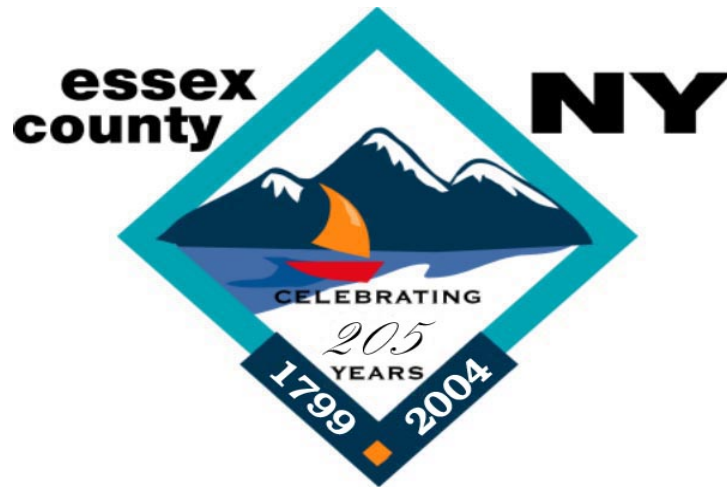
division or fire company (as both are defined in Section 100 of the GML) or district authorized to make purchases of apparatus, materials, equipment or supplies, or to contract for services related to the installation, maintenance or repair of apparatus, materials, equipment and supplies may make said purchases under this existing contract (Piggyback) provided, and on condition that this present contract was **LET TO THE LOWEST RESPONSIBLE BIDDER**. Therefore all terms and conditions under this contract are extended to other political subdivisions and governmental entities.

Purchases under this contract by any other political sub-division other than Essex County shall be pursuant to the terms and conditions of Resolution No. 207 of 2013 dated July 1, 2013.

29. **New York State Sexual Harassment Laws**

Contractor certifies as to its self or its own organization, under penalty of perjury, that Contractor has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of Section 201-g of the New York State Labor Law. A model policy and training has been created by the New York State Department of Labor and can be found here:
<https://www.ny.gov/programs/combating-sexual-harassment-workplace>.

APPENDIX E



ESSEX COUNTY

Office of the Purchasing Agent

7551 Court Street, P.O. Box 217

Elizabethtown, NY 12932

518-873-3330/Fax 518-873-3339

GENERAL SPECIFICATIONS FOR PROCUREMENT CONTRACTS

Adopted May 20, 1999.

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PART I
General Provisions

1. APPLICABILITY The terms and conditions set forth herein are expressly incorporated in and applicable to all procurements and resulting procurement contracts let by the Office of the Essex County Purchasing Agent where incorporated by reference in its Bid Documents. The provisions herein shall govern such procurement or contract unless expressly modified or amended by the terms of a Bid Specifications, or a negotiated Contract/Clarification document, if any. Captions are intended as descriptive and are not intended to limit or otherwise restrict the terms and conditions set forth herein.

2. GOVERNING LAW The laws of the State of New York shall govern and apply to the procurement, any resulting contract and for determinations in a court of competent jurisdiction in New York of any and all disputes, litigation or interpretations arising from or connected with the procurement or contract, except where expressly superseded in a specific contract letting or where the Federal supremacy clause requires otherwise. These specifications are modeled after and upon the specifications developed and used by the New York State Office of General Services for procurements by New York State.

3. APPENDIX A / INSURANCE The mandatory terms for all Essex County contracts are expressly incorporated herein and in all bid documents and/or resulting contracts, such terms being set forth in Appendix A (*Standard Clauses for Essex County Contracts*). Insurance requirements are also attached and incorporated herein.

4. ETHICS COMPLIANCE All Bidders/Contractors and their employees must comply with the requirements of the *General Municipal Law*, the *Public Officers Law*, and other State codes, rules and regulations establishing ethical standards for the conduct of business with New York State and/or municipalities. In signing the bid, Bidder certifies full compliance with those provisions for any present or future dealings, transactions, sales, contracts, services, offers, relationships, etc., involving Essex County and/or its employees. Failure to comply with those provisions may result in disqualification from the bidding process, termination of contract, and/or other civil or criminal proceedings as required by law.

5. CONFLICT OF CLAUSES Conflicts between procurement or contract documents shall be resolved in the following order of precedence:

(a) **Appendix A** (*Standard Clauses for Essex County Contracts*)

(b) **Contract/Clarification Documents** Writing(s) setting forth the final agreements, clarifications, terms, statement of work and/or modifications between the Bid Documents and Contractors Bid or Mini-bid.

(c) **Bid Documents** - Bid Specifications prepared by Essex County

(d) **Contractors Bid or Proposal**

6. DEFINITIONS

Terms used in this document shall have the following meanings:

AGENCY OR AGENCIES Essex County, New York, acting by or through one or more departments, boards, commissions, offices or institutions of Essex County.

ANCILLARY PRODUCT: Product which is purchased or licensed on a restricted use basis in conjunction with the principal manufacturers Product being acquired (e.g. may be used only in combination, or by educational institutions for research use).

AUTHORIZED USER(S) Agencies, or any other entity authorized by Essex County to participate in Essex County procurement contracts (including but not limited to political subdivisions, public authorities, school districts and public benefit corporations), provided that each such Agency or other entity shall be held solely responsible for liabilities or payments due as a result of its participation. The term "Authorized User" shall include "Licensees."

BID OR BID PROPOSAL An offer or proposal submitted by a Bidder to furnish a described product or a solution or means of achieving a practical end, at a stated price for the stated contract term.

BIDDER Any individual or other legal entity, (including but not limited to partnership, firm or corporation) which submits a bid in response to a Bid Solicitation. The term Bidder shall also include "offeror" and/or "contractor".

BID DOCUMENTS Writings setting forth the scope, terms, conditions and technical specifications for a procurement of Product. Such writings typically include, but are not limited to: Invitation for Bids (IFB), Request for Quotation (RFQ), Request for Proposals (RFP), addenda or amendments thereto, and terms and conditions which are incorporated by reference, e.g. Appendix A (*Standard Clauses for NYS Contracts*), Appendix B, (*General Specifications*). Where these General Specifications are incorporated in negotiated contracts which have not been competitively bid, the term "Bid Documents" shall be deemed to refer to the terms and conditions set forth in the negotiated contract.

BID SOLICITATION The notice or advertisement of an intent to purchase a specified Product by or on behalf of Authorized User(s).

BID SPECIFICATION A written description drafted by Essex County or an authorized user setting forth the specific terms of the intended procurement, which may include: physical or functional characteristics, the nature of a commodity or construction item, any description of the work to be performed, Products to be provided, the necessary qualifications of the Bidder, the capacity and capability of the Bidder to successfully carry out the proposed contract, or the process for achieving specific results and/or anticipated outcomes or any other requirement necessary to perform work. Where these *General Specifications* are incorporated in negotiated contracts which have not been competitively bid, the term "Bid Specifications" shall be deemed to refer to the terms and conditions set forth in the negotiated contract.

CONTRACT The writing(s) which contain the agreement of the Commissioner and the Bidder/Contractor setting forth the total legal obligation between the parties as determined by applicable rules of law.

CONTRACT AWARD NOTIFICATION An announcement to Authorized Users that a contract has been established.

CONTRACTOR Any successful Bidder(s) to whom a contract has been awarded by the Purchasing Agent. The term "Contractor" includes Licensors.

COUNTY Essex County, New York.

EMERGENCY An urgent and unexpected requirement where health and public safety or the conservation of public resources is at risk.

ERROR CORRECTIONS Machine executable software code furnished by Contractor which corrects the Product so as to conform to the applicable warranties, performance standards and/or obligations of the Contractor.

GROUP A classification of Product (commodities, services or technology).

INVITATION FOR BIDS (IFB) A type of Bid Document which is most typically used where requirements can be stated and award will be made to the lowest responsive bid submitted by the most responsible Bidder(s).

LATE BID For purposes of bid openings held and conducted by the Essex County Purchasing Agent, a bid not received in such place as may be designated on the Bid Specifications or in the Office of the Essex County Purchasing Agent, at or before the date and time established in the Bid Specifications for the bid opening.

LETTER OF ACCEPTANCE A letter to the successful Bidder(s) indicating acceptance of its bid in response to a solicitation. Unless otherwise specified, the issuance of a Letter of Acceptance forms a contract but is not an order for Product, and Contractor should not take any action with respect to actual contract deliveries except on the basis of Purchase Orders sent from Authorized User(s).

LICENSED SOFTWARE Software transferred upon the terms and conditions set forth in the Contract. "Licensed Software" includes ancillary products, error corrections, upgrades, enhancements or new releases, and any deliverables due under a maintenance or service contract (e.g. patches, fixes, PTFs, programs, code or data conversion, or custom programming).

LICENSEE The County, or one or more Agencies or Authorized Users who acquire Product from Contractor by execution of a license in accordance with the terms and conditions of the Contract; provided that, for purposes of compliance with an individual license, the term "Licensee" shall be deemed to refer separately to the individual Authorized User(s) on whose behalf the license was executed who took receipt of the Product, and who shall be solely responsible for performance and liabilities incurred.

LICENSOR A Contractor who transfers rights in proprietary Product to Authorized Users in accordance with the rights and obligations specified in the Contract.

MULTIPLE AWARD A determination and award of a contract in the discretion of the Purchasing Agent to more than one responsive and responsible Bidder who meets the requirements of a specification, where the multiple award is made on the grounds set forth in the Bid Document in order to satisfy multiple factors and needs of Authorized Users (e.g., complexity of items, various manufacturers, differences in performance required to accomplish or produce required end results, production and distribution facilities, price, compliance with delivery requirements, geographic location or other pertinent factors).

NEW PRODUCT RELEASES (Product Revisions) Any commercially released revisions to the version of a Product as may be generally offered and available to Authorized Users. New releases involve a substantial revision of functionality from a previously released version of the Product.

PROCUREMENT RECORD Documentation by the Essex County Purchasing Agent of the decisions made and approach taken during the procurement process.

PRODUCT A deliverable under any Bid or Contract which may include commodities (including printing), services and/or technology. The term "Product" includes Licensed Software.

PURCHASE ORDER The County's fiscal form or format which is used when making a purchase.

REQUEST FOR PROPOSALS (RFP) A type of Bid Document which is used for procurements where factors in addition to cost are considered and weighted in awarding the contract and where the method of award is "best value", as defined by the County's Procurement Policy and New York Law.

REQUEST FOR QUOTATION (RFQ) A type of Bid Document which can be used when a formal bid opening is not required (e.g. discretionary, sole source, single source or emergency purchases).

RESPONSIBLE BIDDER A Bidder that is determined to have skill, judgment and integrity, and that is found to be competent, reliable, experienced and qualified financially, as determined by the Purchasing Agent.

RESPONSIVE BIDDER A Bidder meeting the specifications or requirements prescribed in the Bid Document or solicitation, as determined by the Purchasing Agent.

SINGLE SOURCE A procurement where two or more offerors can supply the required Product, and the Purchasing Agent may award the contract to one Bidder over the other.

SOLE SOURCE A procurement where only one offeror is capable of supplying the required Product.

Bid Submission

7. BID LANGUAGE & CURRENCY All offers (tenders), and all information and Product documentation required by the solicitation or provided as explanation thereof, shall be submitted in English. All prices shall be expressed, and all payments shall be made, in United States Dollars (\$ US). Any offers (tenders) submitted which do not meet the above criteria will be rejected.

8. BID OPENING Bids may, as applicable, be opened publicly. The Purchasing Agent reserves the right at anytime to postpone or cancel a scheduled bid opening.

9. BID SUBMISSION The submission of a bid will be construed to mean that the bidder is fully informed as to the extent and character of the supplies, material, or equipment required and a representation that the bidder can furnish the supplies, materials, or equipment satisfactorily in complete compliance with the specifications.

All bids shall comply with the following:

(a) Bids are to be packaged, sealed and submitted to the location stated in the Bid Specifications. Bidders are solely responsible for timely delivery of their bids to the location set forth in the Bid Specifications prior to the stated bid opening date/time.

(b) A bid return envelope, if provided with the Bid Specifications, should be used with the bid sealed inside. If the bid response does not fit into the envelope, the bid envelope should be taped onto the outside of the sealed box or package with the bid inside. If using a commercial delivery company which requires use of their shipping package or envelope, Bidders sealed bid, labeled as detailed below, should be placed within the shippers sealed envelope to ensure that the bid is not prematurely opened. All bids must have a label on the outside of the package or shipping container outlining the following information:

“BID ENCLOSED” (bold print, all capitals)
IFB or RFP Number
Bid Submission date and time

In the event that a Bidder fails to provide such information on the return bid envelope or shipping material, the County reserves the right to open the shipping package or envelope to determine the proper bid number or Product group, and the date and time of bid opening. Bidder shall have no claim against the receiving entity arising from such opening and such opening shall not affect the validity of the bid or the procurement. Notwithstanding the County's right to open a bid to ascertain the foregoing information, Bidder assumes all risk of late delivery associated with the bid not being identified, packaged or labeled in accordance with the foregoing requirements.

10. FACSIMILE SUBMISSIONS Unless specifically authorized by the terms of the Bid Specifications,

facsimile bids ARE PROHIBITED AND SHALL NOT BE ACCEPTED. Where the bid specifications are silent as to the submission of bids by facsimile, no fax bids shall be permitted or accepted. Where specifically authorized, the following rules and conditions apply:

- (a) FAX number(s) indicated in the Bid Specifications must be used.
- (b) Access to the facsimile machine(s) is on a "first come, first serve" basis, and the Purchasing Agent bears no liability or responsibility and makes no guarantee whatsoever with respect to the Bidders access to such equipment at any specific time.
- (c) Bidders are solely responsible for submission and receipt of the entire facsimile bid by the Essex County Purchasing Agent prior to bid opening and must include on the first page of the transmission the total number of pages transmitted in the bid, including the cover page. Incomplete, ambiguous or unreadable transmissions in whole or in part may be rejected at the sole discretion of the Purchasing Agent.
- (d) Facsimile bids are fully governed by all conditions outlined in the Bid Documents and must be submitted on forms or in the format required in the Bid Specifications, including the executed signature page and acknowledgment.

11. AUTHENTICATION OF FACSIMILE BIDS The act of submitting a bid by facsimile transmission, when, as and if specifically authorized, including an executed signature page, shall be deemed a confirming act by Bidder which authenticates the signing of the bid.

12. LATE BIDS Any bid received at the specified location after the time specified will be considered a late bid. A late bid shall not be considered for award unless acceptance of the late bid is in the best interests of Essex County and either (a) no timely bids meeting the requirements of the Bid Documents are received, or (b) in the case of a multiple award, an insufficient number of timely bids were received to satisfy the multiple award. Delays in United States mail deliveries or any other means of transmittal, including couriers or agents of Essex County, shall not excuse late bid submissions. Otherwise, all late bids will not be considered and will be returned unopened to the bidder. The bidder assumes the risk of any delay in the mail or in the handling of the mail by employees of the County. Whether sent by mail or by means of personal delivery, the bidder assumes responsibility for having his bid deposited on time at the place specified.

13. BID CONTENTS Bids must be complete and legible. All bids must be signed. All information required by the Bid Specifications must be supplied by the Bidder on the forms or in the format specified in the Bid Specifications. No alteration, erasure or addition is to be made to the Bid Documents. Changes may be ignored by the Purchasing Agent or may be grounds for rejection of the bid. Changes, corrections and/or use of white-out in the bid or Bidders response portion of the Bid Document must be initialed by an authorized representative of the Bidder. Bidders are cautioned to verify their bids before submission, as amendments to bids or requests for withdrawal of bids received by the Purchasing Agent after the time specified for the bid opening, may not be considered. All lines must have an indication of bidders response whether it be "o", "N/A" or a dollar figure. All lines must be filled in to indicate bidder acknowledgment of the request. Bids that do not have all applicable lines filled in on bid sheet may be disqualified as a non-responsive bid. The Purchasing Agent shall not assume there is "no charge" when lines are left empty.

Bidders must submit with bid detailed specifications, circulars, warranties and all necessary data on items he proposes to furnish. This information must show clearly that the item offered meets all detailed specifications herein. The Purchasing Agent reserves the right to reject any bid if its compliance with the specifications is not clearly evident. If item offered differs from the provisions contained in these specifications such differences must be explained in detail, and bid will receive careful consideration if such deviations do not depart from the intent of these specifications and are to the best interests of Essex County as interpreted by the Purchasing Agent of Essex County.

It is the responsibility of the bidder to offer a product that meets the specifications of the manufacturer model as listed.

All stock electrical items must be listed and approved by Underwriters' Laboratories, Inc.

14. EXTRANEOUS TERMS Bids must conform to the terms set forth in the Bid Documents, as extraneous terms or material deviations (including additional, inconsistent, conflicting or alternative terms) may render the bid non-responsive and may result in rejection of the bid.

Extraneous term(s) submitted on standard, pre-printed forms (including but not limited to: product literature, order forms, license agreements, contracts or other documents) which are attached or referenced with the submission shall not be considered part of the bid, but shall be deemed included for informational or promotional purposes only.

Only those extraneous terms which meet all the following requirements will be considered as having been submitted as part of the Bid:

- (a) Each proposed extraneous term (addition, counter-offer, deviation, or modification) must be specifically enumerated in a writing which is not part of a pre-printed form; and
- (b) The writing must identify the particular specification requirement (if any) which Bidder rejects or proposes to modify by inclusion of the extraneous term; and
- (c) The Bidder shall enumerate the proposed addition, counteroffer, modification or deviation from the Bid Document, and the reasons therefore.

No extraneous term(s), whether or not deemed "material," shall be incorporated into a contract unless the Purchasing Agent expressly accepts each such term(s) in writing. Acceptance and/or processing of the Bid shall not constitute such written acceptance of Extraneous Term(s).

15. CONFIDENTIAL / TRADE SECRET MATERIALS Confidential, trade secret or proprietary materials as defined by the laws of the State of New York must be clearly marked and identified as such upon submission. Bidders/Contractors intending to seek an exemption from disclosure of these materials under the *Freedom of Information Law* must request the exemption in writing, setting forth the reasons for the claimed exemption, at the time of submission. Acceptance of the claimed materials does not constitute a determination on the exemption request, which determination will be made in accordance with statutory procedures.

16. PREVAILING WAGE RATES - Public Works and Building Services Contracts If any portion of work being bid is subject to the prevailing wage rate provisions of Labor Law, the following shall apply:

(a) "Public Works" and "Building Services" – Definitions

i. Public Works *Labor Law* Article 8 applies to contracts for public improvement in which laborers, workers or mechanics are employed on a "public works" project (distinguished from public "procurement" or "service" contracts). The State, a public benefit corporation, a municipal corporation (including a school district), or a commission appointed by law must be a party to the contract. The wage and hours provision applies to any work performed by contractor or subcontractors.

ii. Building Services *Labor Law* Article 9 applies to contracts for building service work over \$1,500 with a public agency, which 1) involve the care or maintenance of an existing building, or 2) involve the transportation of office furniture or equipment to or from such building, or 3) involve the transportation and delivery of fossil fuel to such building, and 4) the principal purpose of which is to furnish services through use of building service employees.

(b) Prevailing Wage Rate Applicable to Bid Submissions A copy of the applicable prevailing wage rates to be paid or provided are attached to this solicitation. Bidders must submit bids which are based upon the prevailing hourly wages, and supplements in cash or equivalent benefits (i.e., fringe benefits and any cash or non-cash compensation which are not wages, as defined by law) that equal or exceed the applicable prevailing wage rate(s) for the location where the work is to be performed. Where the Bid Documents require the Bidder to enumerate hourly wage rates in the bid, Bidders may not submit bids based upon hourly wage rates and supplements below the applicable prevailing wage rates as established by the New York State Department of Labor. **Bids which fail to comply with this requirement will be disqualified.**

(c) Wage Rate Payments / Changes During Contract Term The wages to be paid under any resulting contract shall not be less than the prevailing rate of wages and supplements as set forth by law. It is required that the Contractor keep informed of all changes in the Prevailing Wage Rates during the contract term that apply to the classes of individuals supplied by the contractor on any projects which result from this contract which are subject to the provisions of the *Labor Law*. Contractor is solely liable for and must pay such required prevailing wage adjustments during the contract term as required by law.

(d) Public Posting & Certified Payroll Records In compliance with Article 8, Section 220 of the *Labor Law*, as amended by Chapter 565 of the Laws of 1997:

i. Posting The Contractor must publicly post on the work site, in a prominent and accessible place, a legible schedule of the prevailing wage rates and supplements.

ii. Payroll Records Contractors and sub-contractors must keep original payrolls or transcripts subscribed and affirmed as true under the penalties of perjury as required by law. For public works contracts over \$25,000 where the contractor maintains no regular place of business in New York State, such records must be kept at the work site. For building services contracts, such records must be kept at the work site while work is being performed.

iii. Submission of Certified Payroll Transcripts for Public Works Contracts Only Contractors and sub-contractors on public works projects must submit monthly payroll transcripts to Essex County which has prepared or directs the preparation of the plans and specifications for a public works project, as set forth in the Bid Specifications. For mini-bid solicitations, the payroll records must be submitted to the entity preparing the agency mini-bid project specification. For "agency specific" bids, the payroll records should be submitted to the entity issuing the purchase order. For all other Essex County procurement contracts, such records should be submitted to the individual agency issuing the purchase order(s) for the work. Upon mutual agreement of the Contractor and Essex County, the form of submission may be submitted in a specified disk format acceptable to the Department of Labor so long as: 1) the contractor/subcontractor retains the original records; and, (2) an original signed letter by a duly authorized individual of the contractor or subcontractor attesting to the truth and accuracy of the records accompanies the disk. **This provision does not apply to building services contracts.**

iv. Records Retention Contractors and subcontractors must preserve such certified transcripts for a period of three years from the date of completion of work on the awarded contract.

(e) Days Labor - Defined for Article 8, Public Works (For Purposes of Article 8 of the Labor Law) No laborer, worker or mechanic in the employ of the contractor, subcontractor or other person doing or contracting to do all or part of the work contemplated by the contract shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any one week except in cases of extraordinary emergency including fire, flood or danger to life or property. "Extraordinary emergency" shall be deemed to include situations in which sufficient laborers, workers and mechanics cannot be employed to carry on public work expeditiously as a result of such

restrictions upon the number of hours and days of labor and the immediate commencement or prosecution or completion without undue delay of the public work is necessary in the judgment of the Essex County Purchasing Agent for the preservation of the contract site or for the protection of the life and limb of the persons using the contract site.

17. TAXES

(a) Unless otherwise specified in the Bid Specifications or set forth in this clause, the quoted bid price includes all taxes applicable to the transaction.

(b) Purchases made by Essex County and certain non-County Authorized Users are exempt from New York State and local sales taxes and, with certain exceptions, federal excise taxes. To satisfy the requirements of the New York State Sales tax exemption, either the Purchase Order issued by a County Agency or the invoice forwarded to authorize payment for such items will be sufficient evidence that the sale by the Contractor was made to the County, an exempt organization under Section 1116 (a) (1) of the *Tax Law*. Non-County Authorized Users must offer their own proof of exemption where required. No person, firm or corporation is, however, exempt from paying the State Truck Mileage and Unemployment Insurance or Federal Social Security taxes, which remain the sole responsibility of the Bidder/Contractor. For tax free transactions under the Internal Revenue Code, the Essex County Registration Number is 14 6002889.

(c) Purchases by Authorized Users other than Essex County may be subject to such taxes, and in those instances the tax should be computed based on the bid price and added to the invoice submitted to such entity for payment.

18. EXPENSES PRIOR TO AWARD Essex County is not liable for any costs incurred by a Bidder in the preparation and production of a bid or for any work performed prior to contract award and/or issuance of an approved Purchase Order.

19. ADVERTISING BID RESULTS A Bidder in submitting a bid agrees not to use the results therefrom as a part of any commercial advertising without the prior written approval of the Purchasing Agent. In addition to any other sanctions or remedies available to it in law or equity, the Purchasing Agent may suspend from bidding on its requirements or terminate a contract of any Bidder/Contractor who violates the terms of this clause.

20. PRODUCT REFERENCES

(a) **“Or Equal”** On all Bid Specifications the words “or equal” are understood to apply where a copyright brand name, trade name, catalog reference, or patented Product is referenced. References to such specific Product are intended as descriptive, not restrictive, unless otherwise stated. Comparable Product will be considered if proof of compatibility is provided, including appropriate catalog excerpts, descriptive literature, specifications and test data, etc. The Purchasing Agents decision as to acceptance of the Product as equal shall be final.

(b) **Discrepancies in References** In the event of a discrepancy between the model number referenced in the Bid Specifications and the written description of the Products therein which cannot be reconciled, with respect to such discrepancy, then the written description shall prevail.

21. RECYCLED OR RECOVERED MATERIALS Upon the conditions specified in the Bid Specifications and in accordance with the laws of the State of New York, Contractors are encouraged to use recycled or recovered materials in the manufacture of Products and packaging to the maximum extent practicable without jeopardizing the performance or intended end use of the Product or packaging unless such use is precluded due to health, welfare, safety requirements or in the Bid

Specifications. Where such use is not practical, suitable, or permitted by the Bid Specifications, Contractor shall deliver new materials in accordance with the "Warranties & Guaranties" set forth below.

Refurbished or remanufactured components or items may only be accepted at the discretion of the Purchasing Agent, or upon the conditions set forth in the Bid Specifications.

Items with recycled, recovered, refurbished or remanufactured content must be identified in the bid or will be deemed new Product.

22. PRODUCTS MANUFACTURED IN PUBLIC INSTITUTIONS Bids offering Products which are manufactured or produced in public institutions will be rejected.

23. PRICING

(a) Unit Pricing If required by the Bid Specifications, the Bidder should insert the price per unit specified and the price extensions in decimals, not to exceed four places for each item, in the bid. In the event of a discrepancy between the unit price and the extension, the unit price shall govern unless, in the sole judgment of the Purchasing Agent, such unit pricing is obviously erroneous.

(b) Net Pricing Prices must be net, including transportation, customs, tariff, delivery and other charges fully prepaid by the Contractor to the destination(s) indicated in the Bid Specifications, subject only to the cash discount. If the award is to be made on another basis, transportation and other charges must be prepaid by the Contractor and added to the invoice as a separate item, unless otherwise required in the Bid Specifications.

(c) "No Charge" Bid When bids are requested on a number of Products as a group or Lot, a Bidder desiring to bid "no charge" on a Product in the grouping or Lot must clearly indicate such. Otherwise, such bid may be considered incomplete and be rejected, in whole or in part, at the discretion of the Purchasing Agent.

If a price is written in numbers and alpha, the alpha will govern.

Prices shall be net FOB any point in Essex County, New York. Price quoted shall include all delivery costs. Prices shall be net, including transportation and delivery charges fully prepaid by the successful bidder to destination indicated in the proposal. If award is made on any other basis, transportation charges must be prepaid by the successful bidder and added to the invoice as a separate item. In any case, title shall not pass until items have been delivered and accepted by the County.

24. DRAWINGS

(a) Drawings Submitted With Bid When the Bid Specifications require the Bidder to furnish drawings and/or plans, such drawings and/or plans shall conform to the mandates of the Bid Documents and shall, when approved by the Purchasing Agent, be considered a part of the bid and of any resulting contract. All symbols and other representations appearing on the drawings shall be considered a part of the drawing.

(b) Drawings Submitted During the Contract Term Where required by the Bid Specifications to develop, maintain and deliver diagrams or other technical schematics regarding the scope of work, Contractor shall be required to develop, maintain, deliver and update such drawings on an ongoing basis at no additional charge. Contractor shall be responsible for updating drawings and plans during the contract term to reflect additions, alterations, and deletions. Such drawings and diagrams shall be delivered to the Authorized

Users representative as required by the Bid Specifications. Where required, Contractor shall furnish to Authorized User in a timely manner the required drawings representing the then current, "as modified" condition of all product included in the scope of work.

(c) Accuracy of Drawings Submitted All drawings shall be neat and professional in manner and shall be clearly labeled as to locations and type of product, connections and components. Drawings and diagrams are to be in compliance with accepted drafting standards. Acceptance or approval of such plans shall not relieve the Contractor from responsibility for design or other errors of any sort in the drawings or plans, or from its responsibility for performing as required, furnishing product, services or installation, or carrying out any other requirements of the intended scope of work.

25. SITE INSPECTION Where Bidder is required by the Bid Specifications to deliver or install Product, or to service installed product(s) or equipment, Bidder shall be given an opportunity and shall be required to inspect the site prior to submission of the Bid, including environmental or other conditions or pre-existing deficiencies in the installed product, equipment or environment, which may affect Bidders ability to deliver, install or otherwise provide the required product. All inquiries regarding such conditions may only be made in writing. Bidder shall be deemed to have knowledge of any deficiencies or conditions which such inspection or inquiry might have disclosed, and to have included the costs of repair in its bid. Bidder must provide a detailed explanation of work intended to be performed under this clause. Bidder shall be required to remedy any pre-existing deficiencies or conditions at the commencement of the contract term. Reimbursement for the cost of repairing the conditions or deficiencies shall be separately enumerated in the bid.

26. SAMPLES

(a) Standard Samples Bid Specifications may indicate that the Product to be purchased must be equal to a standard sample on display in a place designated by the Purchasing Agent and such sample will be made available to the Bidder for examination prior to the opening date. Failure by the Bidder to examine such sample shall not entitle the Bidder to any relief from the conditions imposed by the Bid Documents.

(b) Bidder Supplied Samples The Purchasing Agent reserves the right to request from the Bidder/Contractor a representative sample(s) of the Product offered at any time prior to or after award of a contract. Unless otherwise instructed, samples shall be furnished within the time specified in the request. Untimely submission of a sample may constitute grounds for rejection of bid or cancellation of the Contract. Samples must be submitted free of charge and be accompanied by the Bidders name and address, any descriptive literature relating to the Product and a statement indicating how and where the sample is to be returned. Where applicable, samples must be properly labeled with the appropriate bid or Essex County contract reference.

A sample may be held by the Purchasing Agent during the entire term of the contract and for a reasonable period thereafter for comparison with deliveries. At the conclusion of the holding period the sample, where feasible, will be returned as instructed by the Bidder, at the Bidders expense and risk. Where the Bidder has failed to fully instruct the Purchasing Agent as to the return of the sample (i.e. mode and place of return, etc.) or refuses to bear the cost of its return, the sample shall become the sole property of the receiving entity at the conclusion of the holding period.

(c) Enhanced Samples When an approved sample exceeds the minimum specifications, all Product delivered must be of the same enhanced quality and identity as the sample. Thereafter, in the event of a Contractors default, the Purchasing Agent may procure a commodity substantially equal to the enhanced sample from other sources, charging the Contractor for any additional costs incurred.

(d) **Conformance with Sample(s)** Submission of a sample (whether or not such sample is tested by, or for, the Purchasing Agent) and approval thereof shall not relieve the Contractor from full compliance with all conditions and terms, performance related and otherwise, specified in the Bid Documents. If in the judgment of the Purchasing Agent the sample or product submitted is not in accordance with the specifications or testing requirements prescribed in the Bid Documents, the Purchasing Agent may reject the bid. If an award has been made, the Purchasing Agent may cancel the contract at the expense of the Contractor.

(e) **Testing** All samples are subject to tests in the manner and place designated by the Purchasing Agent, either prior to or after contract award. Unless otherwise stated in the Bid Specifications, Bidder Samples consumed or rendered useless by testing will not be returned to the Bidder.

27. ADDENDA / INTERPRETATION No verbal interpretation of the intent of any of the specifications or other Contract Documents will be made before receipt of bids. Requests for interpretations prior to receipt of bids must be presented, in writing, to the Purchasing Agent, 100 Court Street, P.O. Box 217, Elizabethtown, NY 12932, and to be given consideration must be received by the Purchasing Agent at least seven (7) days prior to the date set for the opening of bids.

Any interpretation, and any additional information or instruction will, if issued, be in the form of a written Addendum or Addenda sent to all holders of Contract Documents at the addresses furnished therefor, at least five (5) days prior to the date of the opening of bids.

Failure of any bidder to receive any Addenda shall not relieve such bidder from any obligation under this bid as submitted. All Addenda so issued shall become a part of the Contract Documents.

Bid Evaluation

28. BID EVALUATION The Purchasing Agent reserves the right to accept or reject any and all bids, or separable portions of offers, and waive technicalities, irregularities, and omissions if the Purchasing Agent determines the best interests of the County will be served. The Purchasing Agent, in his/her sole discretion, may accept or reject illegible, incomplete or vague bids and his/her decision shall be final. A conditional or revocable bid which clearly communicates the terms or limitations of acceptance may be considered and contract award may be made in compliance with the Bidders conditional or revocable terms in the offer.

Where a bidder is requested to submit a bid on individual items and/or on a total sum or sums, the right is reserved to award bids on individual items or on total sums. The County reserves the right to award in whole or in part based on the lowest responsible bid.

The following three items will automatically render a bid unacceptable to Essex County:

- a. Failure to sign bid proposal page.
- b. Failure to include necessary bid deposit (as required).
- c. Failure to sign and submit non-collusive bidding certificate.

It shall be fully understood that any deviations from the inclusion of the above items will be grounds to see the bid as non-compliant and will not be considered for award.

The Purchasing Agent reserves the right to reject such bids, as in his opinion, are incomplete, conditional, obscure, or which contain irregularities of any kind including unbalanced bids. One in which the amount bid for one or more separate items is substantially out of line with the current market prices for the materials and/or work covered thereby.

29. CONDITIONAL BID Unless the Bid Specifications provides otherwise, a bid is not rendered non-responsive if the Bidder specifies that the award will be accepted only on all or a specified group of items or Product included in the specification. It is understood that nothing herein shall be deemed to change or alter the method of award contained in the Bid Documents.

30. CLARIFICATIONS / REVISIONS Prior to award, the Purchasing Agent reserves the right to seek clarifications, request bid revisions, or to request any information deemed necessary for proper evaluation of bids from all Bidders deemed to be eligible for contract award. Failure to provide requested information may result in rejection of the bid.

31. PROMPT PAYMENT DISCOUNTS While prompt payment discounts will not be considered in determining the low bid, the Purchasing Agent may consider any prompt payment discount in resolving bids which are otherwise tied. However, any notation indicating that the price is net, (e.g. net 30 days), shall be understood to mean only that no prompt payment discount is offered by the Bidder. The imposition of service, interest, or other charges, except pursuant to the provisions of Article 11_A of the *State Finance Law*, which are applicable in any case, may render the bid non-responsive and may be cause for its rejection.

32. EQUIVALENT OR IDENTICAL BIDS In the event two offers are found to be substantially equivalent, price shall be the basis for determining the award recipient. If two or more Bidders submit substantially equivalent bids as to pricing or other factors, the decision of the Purchasing Agent to award a contract to one or more of such Bidders shall be final.

33. PERFORMANCE QUALIFICATIONS The Purchasing Agent reserves the right to investigate or inspect at any time whether or not the Product, qualifications or facilities offered by the Bidder/Contractor meet the requirements set forth in the Bid Documents. Contractor shall at all times during the contract term remain responsible and responsive. A Bidder/Contractor must be prepared, if requested by the Purchasing Agent, to present evidence of experience, ability and financial standing, as well as a statement as to plant, machinery and capacity of the manufacturer for the production, distribution and servicing of the Product bid. If the Purchasing Agent determines that the conditions and terms of the Bid Documents or Contract are not complied with, or that items or Product proposed to be furnished do not meet the specified requirements, or that the qualifications, financial standing or facilities are not satisfactory, or that performance is untimely, the Purchasing Agent may reject such bid or terminate the contract. Nothing in the foregoing shall mean or imply that it is obligatory upon the Purchasing Agent to make an investigation either before or after award of a contract, but should such investigation be made, it in no way relieves the Bidder/Contractor from fulfilling all requirements and conditions of the contract.

34. DISQUALIFICATION FOR PAST PERFORMANCE Bidder may be disqualified from receiving awards if Bidder, or anyone in Bidders employment, has previously failed to perform satisfactorily in connection with public bidding or contracts.

35. QUANTITY CHANGES PRIOR TO AWARD The Purchasing Agent reserves the right, at any time prior to the award of a specific quantity contract, to alter in good faith the quantities listed in the Bid Specifications to conform with requirements. In the event such right is exercised, the lowest responsible Bidder meeting specifications will be advised of the revised requirements and afforded an opportunity to extend or reduce its bid price in relation to the changed quantities. Refusal by the low Bidder to so extend or reduce its bid price may result in the rejection of its bid and the award of such contract to the lowest responsible Bidder who accepts the revised requirements.

36. RELEASE OF BID EVALUATION MATERIALS Requests concerning the evaluation of bids may be submitted under the *Freedom of Information Law*. Information, other than the Bid Tabulation, shall be released as required by law after contract award. Written requests should be directed to the Purchasing Agent.

37. TIME FRAME FOR OFFERS The Purchasing Agent reserves the right to make awards within sixty (60) days after the date of the bid opening, during which period, bids must remain firm and cannot be withdrawn. If, however, an award is not made within the sixty (60) day period, bids shall remain firm until such later time as either a contract is awarded or the Bidder delivers to the Purchasing Agent written notice of the withdrawal of its bid. Any bid which expressly states therein that acceptance must be made within a shorter specified time, may at the sole discretion of the Purchasing Agent, be accepted or rejected.

TERMS & CONDITIONS

38. CONTRACT CREATION / EXECUTION Except as may be otherwise provided by law or by the Purchasing Agent, upon receipt of all required approvals a Contract shall be deemed executed and created with the successful Bidder(s) upon the Purchasing Agent's mailing or electronic communication to the address on the bid of (a) a Letter of Acceptance and (b) a fully executed contract, or (c) a Purchase Order authorized by the Purchasing Agent.

39. COMPLIANCE WITH LAWS, ETC. The Bidder shall comply with all the provisions of the laws of the State of New York and of the United States of America which affect municipalities and municipal contracts, and any and all State and Federal rules and regulation, and of amendments and additions thereto, insofar as the same shall be applicable to any contract awarded hereunder with the same force and effect as if set forth at length herein. The Bidder's special attention is called to the following laws: *General Municipal Law* Section 1-03-d, *State Finance Law* Section 167-b prohibiting the purchase of tropical hardwood products, and the New York State Public Employee Safety & Health Act of 1980.

40. MODIFICATION OF TERMS The terms and conditions set forth in the Contract shall govern all transactions by Authorized User(s) under this Contract. The Contract may only be modified or amended upon mutual written agreement of the Purchasing Agent and Contractor.

The Contractor may, however, offer Authorized User(s) more advantageous pricing, payment, or other terms and conditions than those set forth in the Contract. In such event, a copy of such terms shall be furnished to the Authorized User(s) and Purchasing Agent by the Contractor.

Other than where such terms are more advantageous for the Authorized User(s) than those set forth in the Contract, no alteration or modification of the terms of the Contract, including substitution of Product, shall be valid or binding against Authorized User(s) unless authorized by the Purchasing Agent or specified in the Contract Award Notification. No such alteration or modification shall be made by unilaterally affixing such terms to Product upon delivery (including, but not limited to, attachment or inclusion of standard pre-printed order forms, product literature, "shrink wrap" terms accompanying software upon delivery, or other documents) or by incorporating such terms onto order forms, purchase orders or other documents forwarded by the Contractor for payment, notwithstanding Authorized Users subsequent acceptance of Product, or that Authorized User has subsequently processed such document for approval or payment.

41. SCOPE CHANGES The Purchasing Agent reserves the right, unilaterally, to require, by written order, changes by altering, adding to or deducting from the contract specifications, such changes to be within the general scope of the contract. The Purchasing Agent may make an equitable adjustment in the contract price or delivery date if the change affects the cost or time of performance.

With respect to any specific quantity stated in the contract, the Purchasing Agent reserves the right after award to order up to 20% more or less (rounded to the next highest whole number) than the specific quantities called for in the contract. Notwithstanding the foregoing, the Purchasing Agent may purchase greater or lesser percentages of contract quantities should the Purchasing Agent and Contractor so agree.

42. ESTIMATED QUANTITY CONTRACTS Estimated quantity contracts are expressly agreed and

understood to be made for only the quantities, if any, actually ordered during the contract term. No guarantee of any estimated quantity(s) is implied or given. Unless otherwise set forth in the Bid Specifications, contracts for services and technology are completely voluntary as to use, and therefore no quantities are guaranteed.

43. BEST PRICING OFFER During the contract term, if substantially the same or a smaller quantity of a Product is sold by the Contractor outside of this contract vehicle upon the same or similar terms and conditions as that of this contract at a lower price, the price under this contract shall be immediately reduced to the lower price.

44. PURCHASE ORDERS Unless otherwise authorized in writing by the Purchasing Agent, no Products are to be delivered or furnished by Contractor until transmittal of an official Purchase Order from the Authorized User requiring the Product. Unless terminated or canceled pursuant to the authority vested in the Purchasing Agent, Purchase Orders shall be effective and binding upon the Contractor when placed in the mail or electronically transmitted prior to the termination of the contract period, addressed to the Contractor at the address set forth in the Contract for receipt of orders, or in the Contract Award Notification.

All Purchase Orders issued pursuant to contracts let by the Purchasing Agent must bear the appropriate contract number and, if necessary, required State approvals. Unless otherwise specified, all Purchase Orders against centralized contracts will be placed by Authorized Users directly with the Contractor and any discrepancy between the terms stated on the vendors order form, confirmation or acknowledgment, and the contract terms shall be resolved in favor of the terms most favorable to the Authorized User.

If, with respect to an agency specific contract, a Purchase Order is not received within two weeks after the issuance of a Contract Award Notification, it is the responsibility of the Contractor to request in writing that the appropriate Authorized User forward a Purchase Order. If, thereafter, a Purchase Order is not received within a reasonable period of time, the Contractor shall promptly notify the appropriate purchasing officer in Essex County. Failure to timely notify such officer may, in the discretion of the Purchasing Agent and without cost to the State, result in the canceling of such requirement by the Purchasing Agent with, at the Purchasing Agents discretion, a corresponding reduction in the contract quantity and price.

45. PRODUCT DELIVERY It shall be understood that with respect to contract deliveries, time is of the essence. Delivery must be made as ordered and in accordance with the terms of the contract. Unless otherwise specified in the Bid Specifications, delivery shall be made within thirty calendar days after receipt of a purchase order by the Contractor. The decision of the Purchasing Agent as to compliance with delivery terms shall be final. The burden of proof for delay in receipt of Purchase Order shall rest with the Contractor. In all instances of a potential or actual delay in delivery, the Contractor shall immediately notify the Purchasing Agent and the Authorized User, and confirm in writing the explanation of the delay, and take appropriate action to avoid any subsequent late deliveries. Any extension of the time for delivery must be requested in writing by the Contractor and approved in writing by the Purchasing Agent. Failure to meet such time schedule may be grounds for cancellation of the order or, in the Purchasing Agents discretion, the Contract.

The County must be notified twenty-four (24) hours in advance of delivery. The County reserves the right to deny acceptance of delivery if this notice is not given, at no cost to the County.

The successful bidder shall be responsible for delivery of items in good condition at point of destination, and shall file with the carrier all claims for breakage, imperfections, and other losses, which will be deducted from invoices. The Purchasing Agent will note for the benefit of successful bidder when packages are not received in good condition. Carton shall be labeled with purchase order or contract number, successful bidders name and general statement of contents. Failure to comply with this condition shall be considered sufficient reason for refusal to accept the goods.

Unless otherwise stated in the specifications, all items must be delivered into and placed at a point within the building as directed by the shipping instructions or the Purchasing Agent. The successful bidder will be required to furnish proof of delivery in every instance.

Unloading and placing of equipment and furniture is the responsibility of the successful bidder, and the County accepts no responsibility for unloading and placing of equipment. Any costs incurred due to the failure of the successful bidder to comply with this requirement will be charged to him. No help for unloading will be provided by the County, and suppliers should notify their truckers accordingly.

All deliveries shall be accompanied by delivery tickets or packing slips. Ticket shall contain the following information for each item delivered:

Contract Number and/or Purchase Order Number
Name of Article
Item Number (if applicable)
Quantity
Name of the Successful Bidder

46. SATURDAY & HOLIDAY DELIVERIES Unless otherwise specified in the Bid Specifications or by an Authorized User, deliveries will not be scheduled for Saturdays, Sundays or legal holidays observed by the State of New York except of Product for daily consumption or where an emergency exists or the delivery is a replacement or is late, in which event the convenience of the Authorized User shall govern.

47. SHIPPING / RECEIPT OF PRODUCT

(a) **Packaging** Tangible Product shall be securely and properly packed for shipment, storage and stocking in appropriate, clearly labeled shipping containers and according to accepted commercial practice, without extra charge for packing materials, cases or other types of containers. The container shall become and remain the property of the receiving entity unless otherwise specified in the contract documents.

(b) **Shipping Charges** Contractor shall be responsible for insuring that the Bill of Lading states "charges prepaid" for all shipments. Unless otherwise stated in the Bid Specifications, all deliveries shall be deemed to be FOB Destination tailgate delivery at the dock of the Authorized User. Unless otherwise agreed, items purchased at a price F.O.B. Shipping point plus transportation charges are understood to not relieve the contractor from responsibility for safe and proper delivery notwithstanding the Authorized Users payment of transportation charges.

(c) **Receipt of Product** The Contractor shall be solely responsible for assuring that deliveries are made to personnel authorized to accept delivery on behalf of the Authorized User. Any losses resulting from the Contractors failure to deliver Product to authorized personnel shall be borne exclusively by the Contractor.

48. TITLE AND RISK OF LOSS Notwithstanding the form of shipment, title and risk of loss shall not pass from the Contractor to the Authorized User until the Products have been received, inspected and accepted by the receiving entity. Acceptance shall occur within a reasonable time or in accordance with such other defined acceptance period as may be specified in the Bid Specifications. Mere acknowledgment by Authorized User personnel of the delivery or receipt of goods (e.g. signed bill of lading) shall not be deemed or construed as acceptance of the Products received. Any delivery of Product which is substandard or does not comply with the Contract terms, may be rejected or accepted on an adjusted price basis, as determined by the Purchasing Agent.

49. RE-WEIGHING PRODUCT Deliveries are subject to re-weighing at the point of destination by the receiving entity. If shrinkage occurs which exceeds that normally allowable in the trade, the receiving

entity shall have the option to require delivery of the difference in quantity, or to reduce the payment accordingly.

50. PRODUCT SUBSTITUTION In the event a specified manufacturers Product listed in the Contractors Bid becomes unavailable or cannot be supplied by the Contractor for any reason (except as provided for in the Force Majeure Clause below) a Product deemed by the Purchasing Agent to be the equal or better of the specified commodity or service must be substituted by the Contractor at no additional cost or expense to the Authorized User. Unless otherwise specified, any substitution of Product prior to the Purchasing Agents approval may be cause for cancellation of contract.

51. REJECTED PRODUCT When Products are rejected, they must be removed by the Contractor from the premises of the receiving entity within ten days of notification of rejection by Authorized User. Upon rejection notification, risk of loss of rejected or non-conforming Product shall remain on Contractor. Rejected items not removed by the Contractor within ten days of notification shall be regarded as abandoned by the Contractor, and the Authorized User shall have the right to dispose of the items as its own property. The Contractor shall promptly reimburse the Authorized User for any and all costs and expenses incurred in storage or effecting removal or disposition.

52. INSTALLATION Where installation is required, Bidder shall be responsible for placing and installing the equipment in the required locations. All materials used in the installation shall be of good quality and shall be free from any and all defects which would mar the appearance of the equipment or render it structurally unsound. Installation includes the furnishing of any equipment, rigging and materials required to install or replace the Product in the proper location. The Contractor shall protect the site from damage for all its work and shall repair damages or injury of any kind caused by the Contractor, its employees, officers or agents. If any alteration, dismantling or excavation, etc. is required to effect installation, the Contractor shall thereafter promptly restore the structure or site to its original condition. Work shall be performed so as to cause the least inconvenience to the Authorized User(s) and with proper consideration for the rights of other contractors or workers. The Contractor shall promptly perform its work and shall coordinate its activities with those of other contractors. The Contractor shall clean up and remove all debris and rubbish from its work as required or directed. Upon completion of the work, the building and surrounding area of work shall be left clean and in a neat, unobstructed condition, and everything in satisfactory repair and order.

53. REPAIRED OR REPLACED PRODUCT / COMPONENTS Where the Contractor is required to repair, replace or substitute Product or components under the Contract, the repaired, replaced or substituted Product shall be subject to all terms and conditions for new Product set forth in the contract, including product warranties.

54. ON-SITE STORAGE Materials, equipment or supplies may be stored at the County/s or Authorized User's site at the Contractors sole risk and only with the approval of, as the case may be, the County or the Authorized User.

55. EMPLOYEES / SUBCONTRACTORS / AGENTS All employees, subcontractors or agents performing work under the contract must be trained technicians who meet or exceed the technical and training qualifications set forth in the Bid Specifications or the Bid, whichever is greater, and must comply with all rules and requirements of the Contract. The Purchasing Agent reserves the right to conduct a security background check or otherwise approve any employee or agent furnished by Contractor and to refuse access to or require replacement of any personnel for cause, including but not limited to, technical or training qualifications, quality of work or change in security status or non-compliance with Authorized Users security or other requirements. Such approval shall not relieve the Contractor of the obligation to perform all work in compliance with the contract terms. The Purchasing Agent reserves the right to reject and/or bar from the facility for cause any employee, subcontractor, or agents of the Contractor.

56. ASSIGNMENT / SUBCONTRACTORS The Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of the contract or its right, title or interest therein, or its power to execute such contract to any other person, company, firm or corporation in performance of the contract, other than the assignment of the right to receive moneys due, without the prior written consent of Essex County. Prior to an assignment of the right to receive moneys becoming effective, Contractor shall file a written notice of such assignment simultaneously with Essex County and participating Authorized User(s).

The Purchasing Agent reserves the right to reject any proposed subcontractor, assignee or supplier for bona fide business reasons, which may include, but are not limited to: that the proposed transferee is on the Department of Labors list of companies with which New York State cannot do business; the Purchasing Agent determines that the company is not qualified; unsatisfactory contract performance or service has been previously provided; or attempts were not made to solicit minority and womens business enterprises (M/WBE) bidders for the subcontract.

57. PERFORMANCE / BID BOND Essex County reserves the right to require the Bidder/Contractor to furnish without additional cost, a performance, payment or bid bond or negotiable irrevocable letter of credit or other form of security for the faithful performance of the contract, whenever the Purchasing Agent in his/her sole discretion deems such bond or security to be in Essex County's best interest. Where required, such bond or other security shall be in the form prescribed by the Purchasing Agent.

58. STOP / SUSPENSION OF WORK

(a) **Stop Work Order** The Purchasing Agent reserves the right to stop the work covered by this contract at any time that the successful Contractor becomes unable or incapable of performing the work or meeting any requirements or qualifications set forth in the contract. In the event of such stopping, the Purchasing Agent shall have the right to arrange for the completion of the work in such manner as it may deem advisable and if the cost thereof exceeds the amount of the bid, the successful Contractor shall be liable for any such cost on account thereof.

(b) **Suspension of Work Order** The Purchasing Agent, in his/her sole discretion, reserves the right to suspend any or all activities under this contract, at anytime, in the best interests of the State or Issuing Entity. In the event of such suspension, the contractor will be given a formal written notice outlining the particulars of such suspension. Examples of the reason for such suspension include, but are not limited to, a budget freeze on County spending, declaration of emergency, or other such circumstances. Upon issuance of such suspension of work, the Contractor is not to accept any purchase orders, as specified in the Suspension Order. Activity may resume at such time as the Purchasing Agent issues a formal written notice authorizing a resumption of work.

59. CANCELLATION A contract may be canceled by the Purchasing Agent, and/or an Authorized User may cancel its participation, license or service order under the contract, at the Contractors expense upon non-performance, or upon a determination that Contractor is non-responsive, or non-responsible.

60. FORCE MAJEURE The Contractor shall not be responsible for delay resulting from its failure to perform if neither the fault nor negligence of the Contractor, its officers, employees or agents contributed to such delay and the delay is due directly to acts of God, wars, acts of public enemies, strikes, fires or floods, or other similar cause beyond the control of the Contractor, or for any of the foregoing which affect subcontractors or suppliers and no alternate source of supply is available to the Contractor. In such event, Contractor shall notify the Purchasing Agent, by certified or registered mail, of the delay or potential delay and the cause(s) thereof either (a) within ten (10) calendar days after the cause which creates or will create the delay first arose if the Contractor could reasonably foresee that a delay could occur by reason thereof, or (b), if delay is not reasonably foreseeable, within five (5) calendar days after the date the Contractor first had reason to believe a delay could result. The foregoing shall constitute the Contractors sole remedy or excuse with respect to such delay. In the

event performance is suspended or delayed, in whole or in part, by reason of any of the aforesaid causes or occurrences and proper notification is given the Purchasing Agent, any performance so suspended or delayed shall be performed by the Contractor at no increased cost, promptly after such disabilities have ceased to exist unless it is determined in the sole discretion of the Purchasing Agent that the delay will significantly impair the value of the contract to the County or to Authorized Users, whereupon the Purchasing Agent may:

- (a) Accept allocated performance or deliveries from the Contractor. The Contractor, however, hereby agrees to grant preferential treatment to County Agencies with respect to Product subjected to allocation; and/or
- (b) Purchase from other sources (without recourse to and by the Contractor for the costs and expenses thereof) to replace all or part of the Products which are the subject of the delay, which purchases may be deducted from the contract quantity; or
- (c) Terminate the contract or the portion thereof which is subject to delivery delays, and thereby discharge any unexecuted portion of the contract or the relative part thereof.

61. CONTRACT BILLINGS Contractor shall provide complete and accurate billing invoices to each Authorized User in order to receive payment. Billings for Agencies must contain all information required by the County Treasurer and/or Auditor. The County Treasurer shall render payment for Agency purchases, and such payment shall be made in accordance with ordinary County procedures and practices. Payment of contract purchases made by Authorized Users other than Agencies shall be billed directly by Contractor on invoices/vouchers, together with complete and accurate supporting documentation as required by the Authorized User.

Submission of an invoice and payment thereof shall not preclude the Purchasing Agent from reimbursement or demanding a price adjustment in any case where the Product delivered is found to deviate from the terms and conditions of the bid and award documents.

62. DEFAULT - AUTHORIZED USER An Authorized Users breach shall not be deemed a breach of the centralized contract. In the event a participating Authorized User fails to make payment to the Contractor for Products delivered, accepted and properly invoiced, within 60 days of such delivery and acceptance, the Contractor may, upon 10 days advance written notice to both the Purchasing Agent and the Authorized Users purchasing official, suspend additional shipments of Product or provision of services to such entity until such time as reasonable arrangements have been made and assurances given by such entity for current and future contract payments.

Notwithstanding the foregoing, the Contractor shall, at least 10 days prior to declaring a breach of contract by any Authorized User, by certified or registered mail, notify both the Purchasing Agent and the purchasing official of the breaching Authorized User of the specific facts, circumstances and grounds upon which a breach will be declared. It is understood, however, that if the Contractors basis for declaring a breach is insufficient, the Contractors declaration of breach and failure to service an Authorized User shall constitute a breach of its contract and the County or Authorized User may thereafter utilize any remedy available at law or equity.

63. INTEREST ON LATE PAYMENTS

- (a) **County Agencies** The payment of interest on certain payments due and owed by a County agency may be made in accordance with Section 3-a of the *General Municipal Law* at the rate of three percent (3%) per annum.
- (b) **By Non-County Agencies** The terms of Article 11-A apply only to procurements by and the consequent payment obligations of the County. Neither expressly nor by any implication is the County responsible for payments on any purchases made by a Non-County Agency

Authorized User.

(c) By Contractor Should the Contractor be liable for any payments to the County hereunder, interest, late payment charges and collection fee charges will be determined and assessed pursuant to Section 18 of the *State Finance Law* to the same extent as though the contract was with the State of New York rather than the County.

64. REMEDIES FOR BREACH It is understood and agreed that all rights and remedies afforded below shall be in addition to all remedies or actions otherwise authorized or permitted by law:

(a) Cover / Substitute Performance Upon the failure of the Contractor to properly perform within the time specified, failure to provide acceptable service, to make immediate replacement of rejected Product when so requested, or upon the revocation of the Contract by the Purchasing Agent for cause, or upon repudiation of the contract by the Contractor, the Purchasing Agent may, with or without formally bidding same:

i. Purchase from other sources to replace the Product rejected, revoked, not timely delivered or repudiated; or

ii. If after making reasonable attempts, under the circumstances then existing, to timely provide acceptable service or acquire replacement product of equal or comparable quality, the Purchasing Agent is unsuccessful, the Purchasing Agent may acquire acceptable service or replacement product of lesser or greater quality.

Such purchases may, in the discretion of the Purchasing Agent, be deducted from the contract quantity.

(b) Withhold Payment In any case where a question of non-performance by Contractor arises, payment may be withheld in whole or in part at the discretion of the Purchasing Agent. Should the amount withheld be finally paid, a cash discount originally offered may be taken as if no delay in payment had occurred.

(c) Reimbursement of Costs Incurred The Contractor agrees to reimburse the County and/or Authorized User promptly for any and all additional costs and expenses incurred for acquiring acceptable services, and/or replacement Product. Should the cost of cover be less than the contract price, the Contractor shall have no claim to the difference. The Contractor covenants and agrees that in the event suit is successfully prosecuted for any default on the part of the Contractor, all costs and expenses expended or incurred by the County or Authorized User in connection therewith, including reasonable attorneys fees, shall be paid by the Contractor.

Where the Contractor fails to timely deliver pursuant to the guaranteed delivery terms of the contract, the Purchasing Agent may authorize an ordering Authorized User to rent substitute equipment temporarily. Any sums expended for such rental shall, upon demand, be reimbursed to the Authorized User promptly by the Contractor or deducted by the Authorized User from payments due or to become due the Contractor on the same or another transaction.

(d) Deduction / Credit Sums due as a result of these remedies may be deducted or offset by the County or Authorized User from payments due, or to become due, the Contractor on the same or another transaction. If no deduction or only a partial deduction is made in such fashion the Contractor shall pay to the County or Authorized User the amount of such claim or portion of the claim still outstanding, on demand. The Purchasing Agent reserves the right to determine the disposition of any rebates, settlements, restitution, liquidated damages, etc. which arise from the administration of the contract.

65. ASSIGNMENT OF CLAIM Contractor hereby assigns to the County any and all its claims for overcharges associated with this contract which may arise under the antitrust laws of the United States, 15 U.S.C. Section 1, *et seq.* and the antitrust laws of the State of New York, *General Business Law* Section 340, *et seq.*

66. TOXIC SUBSTANCES Each Contractor furnishing a toxic substance as defined by Section 875 of the *Labor Law*, shall provide such Authorized User with not less than two copies of a material safety data sheet, which sheet shall include for each such substance the information outlined in Section 876 of the *Labor Law*.

Before any chemical product is used or applied on or in any building, a copy of the product label and Material Safety Data Sheet must be provided to and approved by the user agency representative.

67. INDEPENDENT CONTRACTOR It is understood and agreed that the legal status of the Contractor, its agents, officers and employees under this Contract is that of an independent contractor, and in no manner shall they be deemed employees of the County or Authorized User, and therefore are not entitled to any of the benefits associated with such employment. The Contractor agrees, during the term of this contract, to maintain at Contractors expense those benefits to which its employees would otherwise be entitled by law, including health benefits, and all necessary insurance for its employees, including workers compensation, disability and unemployment insurance, and to provide the Authorized User with certification of such insurance upon request. The Contractor remains responsible for all applicable federal, state and local taxes, and all FICA contributions.

68. SECURITY / CONFIDENTIALITY Contractor warrants, covenants and represents that it will comply fully with all security procedures of the County and any Authorized User(s) in performance of the Contract.

Contractor further warrants, covenants and represents that any confidential information obtained by Contractor, its agents, subcontractors, officers, or employees in the course of performing its obligations, including without limitation, security procedures, business operations information, or commercial proprietary information in the possession of the County or any Authorized User hereunder or received from another third party, will not be divulged to any third parties. Contractor shall not be required to keep confidential any such confidential material which is publicly available through no fault of Contractor, independently developed by Contractor without reliance on confidential information of the County or Authorized User, or otherwise obtained under the Freedom of Information Act or other applicable New York State Laws and Regulations. This warranty shall survive termination of this Contract for a period of five (5) years. Contractor further agrees to take appropriate steps to instruct its personnel, agents, officers and any subcontractors regarding the obligations arising under this clause to insure such confidentiality.

69. COOPERATION WITH THIRD PARTIES The Contractor shall be responsible for fully cooperating with any third party agents, including but not limited to subcontractors of the Authorized User, relating to delivery of product or coordination of services.

70. CONTRACT TERM - EXTENSION In addition to any stated renewal periods in the Contract, any contract or unit portion thereof let by the Purchasing Agent may be extended by the Purchasing Agent for an additional period(s) of up to one year (cumulatively) with the written concurrence of the Contractor.

71. WARRANTIES & GUARANTEES Contractor hereby warrants and guarantees:

- (a) To fully defend, indemnify and save harmless the County, Authorized Users and their respective officers, agents and employees from suits, actions, damages and costs of every name and description arising out of the acts or omissions of Contractor, its officers, employees,

subcontractors, partners, or agents, in any performance under this contract including: i) personal injury, damage to real or personal tangible or intangible property, without limitation; ii) negligence, either active or passive, without limitation, or iii) infringement of any law or of a United States Letter Patent with respect to the Products furnished, or of any copyright, trademark, trade secret or other third party intellectual proprietary rights, without limitation, provided that the County or Authorized User shall give Contractor: (a) prompt written notice of any action, claim or threat of infringement suit, or other suit, promptness of which shall be established by Authorized User upon the furnishing of written notice and verified receipt, (b) the opportunity to take over, settle or defend such action, claim or suit at Bidders sole expense, and (c) assistance in the defense of any such action at the expense of Contractor. Where a dispute or claim arises relative to a real or anticipated infringement, the County or Authorized User may require Bidder/Contractor, at its sole expense, to submit such information and documentation, including formal patent attorney opinions, as the Purchasing Agent shall require.

(b) Contractor warrants full ownership, clear title free of all liens, or perpetual license rights to any Products transferred to Authorized User under this Contract, and Contractor shall be solely liable for any costs of acquisition associated therewith without limitation. Contractor warrants that Authorized User will have undisturbed, peaceful use of the Products, including, without limitation, software, object or source codes, custom programming or third party intellectual property rights incorporated or embedded therein, and training modules or Documentation. Contractor fully indemnifies the County and Authorized User for any loss, damages or actions arising from a breach of said warranty without limitation.

(c) To pay, at its sole expense, all applicable permits, licenses, tariffs, tolls and fees and give all notices and comply with all laws, ordinances, rules and regulations of any governmental entity in conjunction with the performance of obligations under the contract.

(d) Unless recycled or recovered materials are available in accordance with the "Recycled & Recovered Materials" clause, Product offered shall be standard new equipment, current model of regular stock product with all parts regularly used with the type of equipment offered; and no attachment or part has been substituted or applied contrary to the manufacturers recommendations and standard practice. Every Product, including any substituted or replacement unit delivered, must be guaranteed against faulty material and workmanship for a period of one year from and after the date the unit is accepted unless otherwise specified by the County or Authorized User. Notwithstanding the foregoing, when the manufacturers standard guarantee for Product or any component thereof exceeds one year, the longer guarantee period shall apply to such unit or component thereof delivered under this contract. Furthermore, the Contractor agrees to extend its warranty period with regard to any Product delivered by the cumulative periods of time, after notification, during which the Product requires servicing or replacement (down time) or is in the possession of the Contractor, its agents, officers or employees. If during the regular or extended warranty periods faults develop, the Contractor shall promptly repair or, upon demand, replace the defective unit or component part affected. All costs for labor and material and transportation incurred to repair or replace defective goods during the warranty periods shall be borne solely by the Contractor, and the County or Authorized User shall in no event be liable or responsible therefore. This warranty shall survive any termination of the contract in accordance with the warranty term.

(e) Where the provision of services requires the replacement or repair of Product, any replaced or repaired component, part or Product shall be new and shall, if available, be replaced by the original manufacturers component, part or Product. All proposed substitutes for the original manufacturers installed Product must be approved by the Authorized User before installation. The Product or part shall be equal to or of better quality than the original Product being replaced. Any Product replaced by the Contractor under the contract shall be guaranteed for one (1) year from the date of replacement and replaced at no cost to the Authorized User if found defective during that time.

(f) Prior to award and during the Contract term and any renewals thereof, Contractor must establish to the satisfaction of the Purchasing Agent that it meets or exceeds all requirements of the bid and any applicable laws, including but not limited to, permits, insurance coverage, licensing, proof of coverage for workman's compensation, and shall provide such proof as required by the Purchasing Agent. Failure to do so may constitute grounds for the County to cancel or suspend this contract, in whole or in part, or to take any other action deemed necessary by the Purchasing Agent.

The Contractor further warrants and guarantees:

- i. His/Her/Its products against defective material or workmanship and to repair or replace any damages or marring occasioned in transit.
- ii. To furnish adequate protection from damage for all work and repair damages of any kind for which he or his workmen are responsible, to the building or equipment, to his own work, or to the work of other successful bidders.
- iii. To carry adequate insurance to protect the County from loss in case of accident, fire, theft, etc.
- iv. That all deliveries will be equal to the accepted bid sample.
- v. That the equipment delivered is standard, new, latest model of regular stock product or as required by the specifications; also that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice. Every unit delivered must be guaranteed against faulty material and workmanship for a period of at least one year from date of delivery. If during this period such faults develop, the successful bidder agrees to replace the unit or the part affected without cost to the County. Any merchandise provided under the contract which is or becomes defective during the guarantee period shall be replaced by the successful bidder free of charge with the specific understanding that all replacements shall carry the same guarantee as the original equipment. The successful bidder shall make any such replacement immediately upon receiving notice from the County.
- vi. That all manufacturers product warranties and guarantees shall be furnished to the County, and that the County's rights thereunder shall not be in any way impaired or limited.

GENERAL

72. APPLICABILITY In addition to the terms contained in **Part I (General - All Procurements)**, the terms contained in **Part II (Software & Technology Procurements)** apply to software and technology procurements.

73. DEFINITIONS - Part II

DOCUMENTATION The complete set of manuals (e.g. user, installation, instruction or diagnostic manuals) in either hard or electronic copy, necessary to enable an Authorized User to properly test, install, operate and enjoy full use of the Product in accordance with the license rights.

ENTERPRISE The business operations in the United States of a Licensee or Enterprise Participant, without regard to geographic location where such operations are performed or the entity actually performing such operations on behalf of Licensee or Enterprise Participant. For the County of New York, "business operations" shall be defined as the business operations of all Agencies, as defined in Part I.

ENTERPRISE LICENSE A contract which grants Enterprise Participants unlimited license rights to access, use and/or execute Product within the Enterprise.

ENTERPRISE PARTICIPANTS One or more Licensees, as defined in Part I, participating in an Enterprise License.

LICENSE EFFECTIVE DATE The date Product is delivered to an Authorized User. Where a License involves Licensees right to copy a previously licensed and delivered Master Copy of a Program, the license effective date for additional copies shall be deemed to be the date on which the Purchase Order is executed.

LOGICAL PARTITION A subset of the processing power within a CEC which has been divided through hardware and/or software means (i.e. *Processor Resources/System Manager* [PR/SM]) so as to limit the total processing power which is accessible by an operating system image by individual users or individual software products.

OBJECT CODE The machine executable code that can be directly executed by a computers central processing unit(s).

PHYSICAL PARTITION A subset of the processing power within a CEC which has been derived through hardware means so as to limit the total processing power accessible by an operating system image by individual users or individual Products.

SITE The location (street address) where Product will be executed.

SOURCE CODE The programming statements or instructions written and expressed in any language understandable by a human being skilled in the art which are translated by a language compiler to produce executable machine Object Code.

TERMS OF LICENSE The terms and conditions set forth in the Contract which are in effect and applicable to a Product order at the time of order placement, and only such additional terms as are consistent therewith or more advantageous to the Authorized User as are set forth on the individual Product order form executed and approved by both Authorized User and Contractor.

VIRUS Any computer code, whether or not written or conceived by Contractor, which disrupts, disables, harms, or otherwise impedes in any manner the operation of the Product, or any other associated software, firmware, hardware, or computer system (such as local area or wide-area networks), including aesthetic disruptions or distortions, but does not include security keys or other such devices installed by Product manufacturer.

TERMS AND CONDITIONS

74. SOFTWARE LICENSE GRANT *Unless otherwise set forth in the Bid Specifications or Contract, where Product is acquired on a licensed basis the following shall constitute the license grant:*

(a) **License Scope** Licensee is granted a non-exclusive, perpetual license to use, execute, reproduce, display, perform, or merge the Product with other product within its business enterprise in the United States. Licensee shall have the right to use and distribute modifications or customizations of the Product to and for use by any Authorized Users otherwise licensed to use the product, provided that any modifications, however extensive, shall not diminish manufacturers proprietary title or interest. No license, right or interest in any trademark, trade name, or service mark is granted hereunder.

(b) **License Term** The license term shall commence upon the License Effective Date. Where the terms of license permit licensing on a non-perpetual basis, the license term stated in

the Contract shall be extended by the time periods allowed for testing and acceptance.

(c) Licensed Documentation Contractor hereby grants to Licensee a perpetual license right to make, reproduce (including downloading electronic copies of the Product) and distribute, either electronically or otherwise, copies of Product Documentation as necessary to enjoy full use of the Product. If commercially available, Licensee shall have the option to require the Contractor to deliver, at Contractors expense: a) One (1) hard copy and One (1) Master Electronic Copy of the Documentation in diskette or CD-ROM format; or b) hard copies of the Product Documentation by type of license in the following amounts, unless otherwise mutually agreed:

- Individual/Named User License – 1 copy per License
- Concurrent Users – 8 copies per site
- Processing Capacity – 8 copies per site

(d) Product Use Product may be accessed, used, executed, reproduced, displayed, performed by Licensee to service all Authorized Users of the machine on which Product is installed, up to the capacity measured by the applicable licensing unit stated in the terms of license (i.e. payroll size, number of employees, CPU, MIPS, MSU, concurrent user, workstation).

(e) Permitted License Transfers As Licensee's business operations may be altered, expanded or diminished, licenses granted hereunder may be transferred or combined for use at an alternative or consolidated Authorized User site not originally specified in the license, including transfers between Agencies ("permitted license transfers"). Licensee(s) do not have to obtain the approval of Contractor for permitted license transfers, but must give thirty (30) days prior written notice to Contractor of such move(s) and certify in writing that the Product is not in use at the prior site. There shall be no additional license or other transfer fees due Contractor, provided that: i) the maximum capacity of the consolidated machine is equal to the combined individual license capacity of all licenses running at the consolidated or transferred site. (e.g., named users, seats, or MIPS); and ii) that, if the maximum capacity of the consolidated machine is greater than the individual license capacity being transferred, a logical or physical partition or other means of restricting access will be maintained within the computer system so as to restrict use and access to the Product to that unit of licensed capacity solely dedicated to beneficial use for Licensee.

(f) Restricted Use By Outsourcers / Facilities Management, Service Bureaus / or Other Third Parties Outsourcers, facilities management or service bureaus retained by Licensee shall have the right to use the Product to maintain Licensee's business operations, including data processing, for the time period that they are engaged in such activities, provided that: 1) Licensee gives notice to Contractor of such party, site of intended use of the Product, and means of access; and 2) such party has executed, or agrees to execute, the Product manufacturers standard nondisclosure or restricted use agreement which executed agreement shall be accepted by the Contractor ("NonDisclosure Agreement"); and 3) if such party is engaged in the business of facility management, outsourcing, service bureau or other services, such third party will maintain a logical or physical partition within its computer system so as to restrict use and access to the program to that portion solely dedicated to beneficial use for Licensee. In no event shall Licensee assume any liability for third partys compliance with the terms of the Non-Disclosure Agreement, nor shall the Non-Disclosure Agreement create or impose any liabilities on the County or Licensee.

Any third party with whom a Licensee has a relationship for a state function or business operation, shall have the temporary right to use Product (using, for example, but not limited to, JAVA Applets), provided that such use shall be limited to the time period during which the third party is using the Product for the stated function or business activity.

(g) Archival Back-Up and Disaster Recovery Licensee may use and copy the Product and related Documentation in connection with: 1) reproducing a reasonable number of copies of the Product for archival backup and disaster recovery procedures in the event of destruction or corruption of the Product or disasters or emergencies which require Licensee to restore backup(s) or to initiate disaster recovery procedures for its platform or operating systems; 2) reproducing a reasonable number of copies of the Product and related documentation for cold site storage. "Cold Site" storage shall be defined as a restorable back-up copy of the Product not to be installed until and after the declaration by the Licensee of a disaster; 3) reproducing a back-up copy of the Product to run for a reasonable period of time in conjunction with a documented consolidation or transfer otherwise allowed under paragraph (F) above. "Disaster Recovery" shall be defined as the installation and storage of Product in ready-to-execute, back-up computer systems prior to disaster or breakdown which is not used for active production or development.

(h) Confidentiality Restrictions The Product is a trade secret and proprietary product. Licensee and its employees will keep the Product strictly confidential, and Licensee will not disclose or otherwise distribute or reproduce any Product to anyone other than as authorized under the terms of license. Licensee will not remove or destroy any proprietary markings of Contractor.

(i) Restricted Use by Licensee Except as expressly authorized by the terms of license, Licensee shall not:

- a. Copy the Product;
- b. Cause or permit reverse compilation or reverse assembly of all or any portion of the Product;
- c. Distribute, disclose, market, rent, lease or transfer to any third party any portion of the Product or the Documentation, or use the Product or Documentation in any service bureau arrangement;
- d. Disclose the results of Product performance benchmarks to any third party who is not an Authorized User without prior notice to Contractor;
- e. Export the Licensed Software in violation of any U.S. Department of Commerce export administration regulations.

75. ENTERPRISE LICENSE OPTION FOR SOFTWARE Multiple Authorized Users may license any Product offered under the Contract on behalf of their collective business operations. An Enterprise License shall incorporate the terms set forth in this Part II and the pricing set forth in the Contract, and additionally the following terms:

(a) Enterprise – Defined Any Authorized User may be an Enterprise Participant. Enterprise Participants will be enumerated in the Enterprise License, including: i) contact name, ship to and main billing address of each Enterprise Participant, ii) street address of the included End User sites of each Enterprise Participant. The originally defined Enterprise may be modified at any time thereafter, including deletion or addition of Enterprise Participants, sites ownership to locations, provided that Contractor is given written notice and that any additional capacity required by such addition is licensed in accordance with the Enterprise License terms.

(b) Product Use Product licensed under this Enterprise Option shall be licensed with the rights set forth in this Part II, without reference to a specific designated system or Licensee, up to the maximum licensed capacity. Product may be used and freely transferable anywhere

within the defined Enterprise, including higher or lower performance machines, and Enterprise Participants will not incur an increase in license, support or other charges provided that the aggregate utilization of the Product does not exceed the aggregate Enterprise Licensed capacity.

(c) Submission of Orders, Billing and Usage Reporting An Enterprise may be established for order placement and billing as either a “single” or “multiple” point of contact, at Licensees option. Where designated as a “single”, one Enterprise Participant shall be designated as the lead agency and central point for submission of Purchase Orders, usage reporting and billing. Where designated as “multiple” point of contact, each designated Enterprise Participant shall be responsible for submission of Purchase Orders, reporting and billing with regard to its use of Enterprise Licensed Product. For either single or multiple point of contact Enterprises, a) Contractor agrees to hold each Enterprise Participant solely responsible for payment and performance; and b) Contractor shall be responsible for furnishing an annual report to each designated point of contact summarizing overall Enterprise License activity for the preceding twelve months.

(d) Shipping / Delivery Contractor shall be responsible for delivery of Master Copies of Enterprise Licensed Product and documentation to Enterprise Participants. Within either “Single” or “Multiple” Enterprise Licenses, shipping and delivery of Master Copies of Product and Documentation shall be the responsibility of Contractor to each “ship to” location specified on the Purchase Order(s). Distribution and installation of Enterprise Licensed Product to End Users at a site shall be the responsibility of the Licensee.

(e) Enterprise Operating Systems Unless otherwise specified by the parties, up to ten (10) hardware/operating system combinations for Product shall be included at no additional charge. The initial ten hardware/operating systems may be specified at any time within five (5) years of the Enterprise License effective date. Additional hardware/operating systems beyond the initial ten (10) may be specified at anytime by the Enterprise, however if additional copies of Product are required for hardware/operating systems beyond the initial ten, the cost for such systems will be as mutually agreed between the parties.

(f) Product Acceptance Each Enterprise Participant shall have a right of acceptance, as set forth above in this Part II, only for the first copy of Product for its site(s).

(g) Enterprise Fees Enterprise License Fees shall be set forth in the Contract. Notwithstanding the foregoing, the Product license fees for additional copies or units of capacity for Enterprise licensed Product shall not increase by more than six percent (6%) annually each year during the Enterprise License term. Contractor may offer additional discounts/incentives for Enterprise Participants as may be mutually agreed between the parties. Enterprise Participants shall be entitled to aggregate the volume of all Enterprise Participants for purposes of establishing any applicable discounts under the Contract, and Enterprise Licensed Volume shall be aggregated with volume of non-Enterprise Licensed Product otherwise purchased under the centralized Contract. Upon termination of the Enterprise, Enterprise Participants have the right to acquire additional capacity or users at the Enterprise License price for twelve months after the termination of the Enterprise License.

(h) Technical Support Unless otherwise mutually agreed, technical support is optional and may be elected individually by Product by each Enterprise Participant. Where an Enterprise Participant is under a current maintenance or technical support contract, such Enterprise Participant shall be entitled to credit any support paid covering any portion of the Enterprise License Term to the fees due under the Enterprise license.

Enterprise Participants shall have the right to partially or wholly de-support a subset of unused Enterprise licensed capacity upon written notice to Contractor at the end of any then -

current technical support term without penalty or charge. The capacity for a Program license which has been de-supported must remain inactive and may not be used within the Enterprise unless technical support for such capacity has been reinstated. In the event of de-support, Contractor reserves the right to reasonably determine compatibility of future releases or new programs prior to shipment.

(i) Merger of Two or More Enterprises Two or more Enterprises may be merged to form a larger Enterprise for the purpose of sharing and exchanging data at no additional license fee provided that participants give Contractor notice of such merger and that the combined capacity does not exceed the maximum capacity of the individual licenses.

(j) "Nested" Enterprises Individual Enterprise License participant(s) may license additional capacity or products for the specific use of a subset of the larger enterprise. Said participant(s) must certify in writing to Contractor that such use is only by the enumerated subset of participants.

(k) Default A default by any Enterprise Participant shall entitle the Contractor to the remedies against such participant under the Contract, but shall not be deemed a default by the remaining non-defaulting Enterprise Participants.

76. PRODUCT ACCEPTANCE Unless otherwise provided in the Bid Specifications, the County and/or Authorized User(s) shall have sixty (60) days from delivery to accept Product. Failure to provide notice of acceptance or rejection by the end of the period provided for under this clause would constitute acceptance by the County or Authorized User(s) as of the expiration of that period.

Unless otherwise provided in the Bid Specifications, The County or Authorized User shall have the option to run acceptance testing on the Product prior to acceptance, such tests and data sets to be specified by User. Where using its own data or tests, The County or Authorized User must have the tests or representative set of data available upon delivery. This demonstration will take the form of a documented installation test, capable of observation by the County or Authorized User, and shall be made part of the Contractors standard documentation. The test data shall remain accessible to the County or Authorized User after completion of the test.

In the event that the documented installation test cannot be completed successfully within sixty (60) days from delivery, and the Contractor or Product is responsible for the delay, The County or Authorized User shall have the option to cancel the order in whole or in part, or to extend the testing period for another sixty (60) day increment. The County or Authorized User shall notify Contractor of acceptance upon successful completion of the documented installation test. Such cancellation shall not give rise to any cause of action against the County or Authorized User for damages, loss of profits, expenses, or other remuneration of any kind.

Costs and liabilities associated with a failure of the Product to perform in accordance with the functionality tests or product specifications during the acceptance period shall be borne fully by Contractor to the extent that said costs or liabilities shall not have been caused by negligent or willful acts or omissions of the The County or Authorized Users agents or employees. Said costs shall be limited to fees paid to Contractor, if any, or any liability for costs incurred at the direction or recommendation of Contractor.

77. AUDIT OF LICENSED PRODUCT USAGE Contractor shall have the right to periodically audit, at its expense, use of licensed Product at any site where a copy of the Product resides provided that: i) Contractor gives Licensee or Enterprise Participants at least thirty (30) days advance notice, ii) such audit is conducted during such party's normal business hours iii) each Licensee or Enterprise Participant is entitled to designate a representative who shall be entitled to participant and simultaneously review all information obtained by the audit, and shall be entitled to copies of all reports, data or information obtained by the Contractor; and iv) if the audit shows that such party is not in

compliance such party shall be liable for the unlicensed capacity and shall be required to purchase the additional units or rights necessary to bring it into compliance.

78. OWNERSHIP / TITLE TO CUSTOM PRODUCTS OR PROGRAMMING Where contract deliverables include custom products or programming, title, rights and interests to such Product(s) shall be determined as follows:

(a) Definitions

Product For purposes of this section, the term "Product" shall have the meaning set forth in Part I of these *General Specifications*, which includes, but is not limited to: software applications or programming, programming tools, documentation (including user or training manuals), modules, interfaces, templates, and other elements such as utilities, subroutines, algorithms, formulas, source code, object code, reports, drawings, or data.

"Existing Product" is defined as any proprietary material(s) existing or developed independently and not at the expense of Licensee.

"Custom Product" is defined as any material(s), exclusive of Existing Product, created, prepared, written, compiled or developed by Contractor, or anyone acting on his behalf for The County or Authorized User pursuant to the Contract.

(b) Contractor or Third Party Manufacturers Title to Existing Product Title to Existing Product(s) does not transfer. With respect to such Existing Product(s), whether embedded in or operating in conjunction with Custom Product, Contractor warrants: a) all right, title and interest in Contractor's Existing Product(s); or b) all license rights, title and interest in third party Existing Product(s), which include the right to grant to The County or Authorized User an irrevocable, non-exclusive, worldwide, paid-up license to use, execute, reproduce, display, perform, and distribute Existing Product(s). Contractor hereby grants a irrevocable, non-exclusive, worldwide, paid-up license to use, execute, reproduce, display, perform, and distribute Existing Product(s) embedded in or transferred for use in conjunction with Custom Product(s). The Licensee agrees to reproduce the copyright notice and any other legend of ownership on any copies made under the license granted under this paragraph prior to distribution or use.

(c) Title to Custom Product Title to Custom Product(s), excluding Existing Product, shall be deemed the sole and exclusive property of the County or Authorized User, who shall have all right, title and interest (including ownership and copyrights). For the purposes of the federal copyright law, execution of this contract shall constitute an assignment of all right, title and interest in the Custom Product(s) by Contractor to the County or Authorized User. The County or Authorized User, in its sole discretion, reserves the right to sell Custom Product or to license them on an exclusive or non-exclusive basis to Contractor or other Third Parties. Contractor hereby agrees to take all necessary and appropriate steps to ensure that Custom Product is protected against unauthorized use, execution, reproduction, display, performance, or distribution by or through Contractor, its partners or agents. Notwithstanding this reservation of title, Contractor shall not be precluded from using the related or underlying general knowledge, skills and experience developed in the course of providing the Custom Product in the course of Contractor's business.

(d) Acquisitions Funded By Tax Exempt Financing In addition to the foregoing rights under a, b and c, the sale or licensing of Custom Product or rights therein shall not occur until such Product or rights are or become useable, and shall be at fair market value which shall be determined at the time of sale or licensing. Any such transfer shall be pursuant to a separate written agreement. If the Contract deliverables are to be funded through tax exempt financing, the County or Authorized User may assign to a Trustee or other entity for security purposes County or Authorized Users ownership and license rights in Custom and Existing Products. Contractor will cooperate with the County or Authorized User to execute such other documents as may be appropriate to achieve the objectives of

this paragraph.

(e) Other Acquisitions (Not Funded by Tax Exempt Financing) In addition to the rights set forth above (paragraphs “a”, “b” and “c”), the County or Authorized User reserves the right to transfer any or all rights to Custom Materials on an exclusive or non-exclusive basis. Where such transfer (sale or licensing) is provided in the Bid Specifications, Contractor shall include a purchase price for such rights in its bid. Such price shall be offered as a deduction from Contractor’s overall Bid or Project Bid price, and shall be weighted as set forth in the bid evaluation criteria, if any. Such rights shall transfer to the successful Bidder/Contractor upon successful completion and acceptance by the County or Authorized User of all contract deliverables. Contractor will cooperate with the County or Authorized User to execute such other documents as may be appropriate to achieve the objectives of this paragraph.

79. PROOF OF LICENSE The Contractor must provide to each Licensee who places a Product order either: a) the Product manufacturer’s certified License Confirmation Certificates in the name of each such Licensee; or b) a written confirmation from the Product manufacturer accepting Contractors Product invoice as proof of license. Bidder or Contractor shall submit a sample manufacturers certificate, or alternatively such written confirmation from the manufacturer, with the Bid or Contract. Such certificates must be in a form acceptable to the Licensee.

80. PRODUCT VERSION Product orders shall be deemed to reference Manufacturers most recently released model or version of the Product at time of delivery, unless an earlier model or version is specifically requested in writing by the County or Authorized User and Contractor is willing to provide such version.

81. MIGRATION TO CENTRALIZED CONTRACT The County or Authorized User may obtain additional Product authorized under this contract, (e.g., licensed capacity upgrades, new releases, documentation, maintenance, consulting or training) whether or not Product was initially obtained independently of this contract. The County or Authorized Users election to obtain additional Product shall not operate to diminish, alter or extinguish rights previously granted.

82. NOTICE OF PRODUCT DISCONTINUANCE In the event that a Product manufacturer proposes to discontinue maintenance or support for Product, Contractor shall (1) notify the County and each Authorized User in writing of the intended discontinuance, and (2) continue to provide maintenance and support for the greater of: a) the best terms offered by Contractor to any other customer, or b) not less than eighteen (18) months from the date of notice, and (3) at The County or Authorized Users option, either a) provided that the County or Authorized User is under maintenance, provide the County or Authorized User with either a Product replacement with equivalent functionality at no additional charge, or b) provide County or Authorized User with the source code for Licensed Product at no additional charge to enable it to continue use and maintenance of the Product.

83. REINSTATEMENT OF MAINTENANCE The County or Authorized User shall not be required to purchase maintenance for use of Product, and may discontinue maintenance at the end of any current maintenance term upon written notice to Contractor. In the event that The County or Authorized User discontinues maintenance of licensed Product, it may, at any time thereafter, reinstate maintenance for Product without any additional penalties or other charges, by paying Contractor at rates which would have been due under the contract for the period of time that such maintenance had lapsed, or for twelve months, whichever is less.

84. NO HARDSTOP / PASSIVE LICENSE MONITORING Contractor hereby represents, warrants and covenants that the Product and all Upgrades do not and will not contain any computer code that would disable the Product or Upgrades or impair in any way its operation based on the elapsing of a period of time, exceeding an authorized number of copies, advancement to a particular date or other numeral, or other similar self-destruct mechanisms (sometimes referred to as “time bombs”, “time locks”, or “drop dead” devices) or that would permit Contractor to access the Product to cause such disablement or

impairment (sometimes referred to as a “trap door” device). Contractor agrees that in the event of a breach or alleged breach of this provision that The County or Authorized User shall not have an adequate remedy at law, including monetary damages, and that The County or Authorized User shall consequently be entitled to seek a temporary restraining order, injunction, or other form of equitable relief against the continuance of such breach, in addition to any and all remedies to which The County or Authorized User shall be entitled.

85. ADDITIONAL WARRANTIES / GUARANTEES Where Contractor or Product manufacturer offers additional or more advantageous warranties than set forth herein, Contractor shall offer or pass through any additional or more advantageous warranties to The County or Authorized Users. In addition to the ‘Warranties/Guarantees’ set forth in Part I, Contractor makes the following warranties.

(a) Product Performance Warranty Contractor represents and warrants that the Products delivered pursuant to this contract conform to the manufacturers specifications, performance standards, and documentation and that the documentation fully describes the proper procedure for using the Products in an efficient manner. Contractor does not warrant that software is error-free.

In the event that Contractor does not remedy a substantial breach of this warranty within the cure period, Licensee shall also have the right to terminate any payments due Contractor, with a refund of the any fees prospectively paid from the date of breach.

(b) Year 2000 Warranty For all procurements of Product, Contractor must furnish a warranty statement in accordance with the NYS Standard Year 2000 Warranty Compliance Statement set forth in Part I at the time of bid for agency specific contracts or product order for centralized contracts.

(c) Virus Warranty Contractor represents and warrants that Licensed Software contains no known viruses. Bidder is not responsible for viruses introduced at Licensees site. For purposes of this provision, “Virus” shall have the meaning set forth in Part II, “Definitions”.

A breach of any of the foregoing shall be deemed a material breach of the Contract or any License granted thereunder. The defaulting party shall be given written notice of a warranty breach under this section and shall have a thirty (30) day period to cure such breach.

86. INDEMINIFICATION THE WARRANTIES SET FORTH IN THESE GENERAL SPECIFICATIONS (PARTS I and II) ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Contractor shall defend, indemnify and save harmless the County and Authorized Users from suits, actions, claims, damages and costs arising under or connected to Contractors actions, and except where express loss liabilities set forth elsewhere in the Contract provide for a higher loss limitation liability than as set forth in this paragraph, or where such express provisions impose Contractor liability on “without limitation”, the total liability of Contractor for such claim(s), regardless of the nature and basis for the claim, shall not exceed two (2) times the fees paid for the applicable Product. For any suit, action, claim, damages or costs arising under or are connected to personal injury or property damage, or breach of the title, patent and copyright warranties, Contractor shall be fully liable without limitation.

The County or Authorized User may retain such moneys from the amount due Contractor as may be necessary to satisfy any claim for damages, costs and the like asserted by or against the County or Authorized User, provided however, that Contractor shall not indemnify each such entity to the extent that any claim, loss or damages arising hereunder is caused by the negligence act or failure to act of said entity.

87. SOURCE CODE ESCROW FOR LICENSED PRODUCTS If source code or source code escrow is offered by either Contractor or Product manufacturer/developer to any other commercial customers, Contractor either: i) will provide Licensee with the Source Code for the Product; or ii) place the Source Code in a third party escrow arrangement with a designated escrow agent who shall be named and identified to the County, and who shall be directed to release the deposited Source Code in accordance with a standard escrow agreement acceptable to the County, or iii) will certify to the County that the Product manufacturer/developer has named the County, and the Licensee, as a named beneficiary of an established escrow arrangement with its designated escrow agent who shall be named and identified to the County and Licensee, and who shall be directed to release the deposited Source Code in accordance with the terms of escrow. Source Code, as well as any corrections or enhancements to such source code, shall be updated for each new release of the Product in the same manner as provided above. Contractor shall identify the escrow agent upon commencement of the contract term and shall certify annually that the escrow remains in effect in compliance with the terms of this paragraph.

The County may release the Source Code to Licensees under this Contract who have licensed Product or obtained services, who may use such copy of the Source Code to maintain the Product.



Andrew M. Cuomo, Governor

Roberta Reardon, Commissioner

Essex County

Donna Thompson, Asst Purchasing Agent
7551 Court St
Elizabethtown NY 12932

Schedule Year 2020 through 2021
Date Requested 03/02/2021
PRC# 2021002012

Location varies
Project ID# HWAY 21-08
Project Type Provide Deck Sealant on various Bridges

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 Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2020 through June 2021. 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.

There are very few exceptions to this rule. Complete information regarding these exceptions is available on the ["Request for a dispensation to work overtime" form \(PW30\)](#) and ["4 Day / 10 Hour Work Schedule" form \(PW 30.1\)](#).

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 12240; 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, contemporaneous, 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 12240 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.



Andrew M. Cuomo, Governor

Roberta Reardon, Commissioner

Essex County

Donna Thompson, Asst Purchasing Agent
7551 Court St
Elizabethtown NY 12932

Schedule Year 2020 through 2021
Date Requested 03/02/2021
PRC# 2021002012

Location varies
Project ID# HWAY 21-08
Project Type Provide Deck Sealant on various Bridges

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.

Contractor Information

All information must be supplied

Federal Employer Identification Number: _____		
Name: _____		
Address: _____ _____		
City: _____	State: _____	Zip: _____
Amount of Contract: \$ _____	Contract Type:	
Approximate Starting Date: ____/____/____	<input type="checkbox"/> (01) General Construction	
Approximate Completion Date: ____/____/____	<input type="checkbox"/> (02) Heating/Ventilation	
	<input type="checkbox"/> (03) Electrical	
	<input type="checkbox"/> (04) Plumbing	
	<input type="checkbox"/> (05) Other : _____	

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

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, www.labor.ny.gov. <https://labor.ny.gov/formsdocs/ui/IA999.pdf>

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: dol.misclassified@labor.ny.gov.

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 not fit on the pay stub, an accompanying sheet or attachment of the 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 12240

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 dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

IA 999 (09/16)

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.

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:
www.labor.ny.gov

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5156		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – 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 or 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 requirements on projects, and may issue stop-bid 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 county-by-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 than 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 12240

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

Essex County General Construction

Boilermaker

03/01/2021

JOB DESCRIPTION Boilermaker

DISTRICT 1

ENTIRE COUNTIES

Albany, Broome, Chenango, Columbia, Delaware, Essex, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Tioga, Warren, Washington

WAGES

Per hour

07/01/2020

Boilermaker

\$ 38.59

SUPPLEMENTAL BENEFITS

Per hour

07/01/2020

Journeyman

\$ 24.81

+ 1.24*

* This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

OVERTIME PAY

See (B, E, Q, V) 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 State or Nation shall be observed, and when Christmas Day and New Year's fall on Saturday, Friday will be observed as the holiday.

REGISTERED APPRENTICES

Wages per hour

(1/2) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
65%	65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits per hour

07/01/2020

1st	2nd	3rd	4th	5th	6th	7th	8th
18.60	18.60	19.50	20.37	21.26	22.15	23.04	23.92
+1.24*	+1.24*	+1.24*	+1.24*	+1.24*	+1.24*	+1.24*	+1.24*

* This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

1-197

Carpenter - Building

03/01/2021

JOB DESCRIPTION Carpenter - Building

DISTRICT 2

ENTIRE COUNTIES

Clinton, Essex, Franklin

WAGES

Per hour:

07/01/2020

Carpenter	\$ 27.57
Floor Coverer	27.57
Carpet Layer	27.57
Dry-Wall	27.57
Diver-Wet Day	61.25
Diver-Dry Day	28.57
Diver Tender	28.57

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 journeyman's rate of pay when performing piling/dock building work.

- Certified welders shall receive \$1.00 per hour over the journeyman'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):
 - 0' to 80' no additional fee
 - 81' 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.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 21.49

OVERTIME PAY

See (B, E, *E2, Q) 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

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

ALL APPRENTICES indentured prior to 01/01/2016

Wages per hour (One year terms at the following percentage of journeyman's base wage):

1st	2nd	3rd	4th
50%	60%	70%	80%

Supplemental Benefits per hour:

\$ 11.71	\$ 11.71	\$ 14.31	\$ 14.31
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CARPENTER APPRENTICES indentured after 01/01/2016

Wages per hour (1300 hour terms at the following percentage of journeyman's base wage):

1st	2nd	3rd	4th	5th
50%	60%	65%	70%	80%

Supplemental Benefits per hour:

\$ 11.71	\$ 11.71	\$ 14.31	\$ 14.31	\$ 14.31
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PILEDRIIVER/DOCK BUILDER APPRENTICES indentured after 01/01/2016

Wages per hour (1300 hour terms at the following percentage of journeyman's base wage):

1st	2nd	3rd	4th
50%*	60%*	70%*	80%*

*Pile Driver/Dock Builder apprentices shall receive an additional \$0.25 per hour worked when performing piledriving/dock building work.

Supplemental Benefits per hour:

\$ 11.71	\$ 11.71	\$ 14.31	\$ 14.31
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LINOLEUM, RESILIENT TILE, AND CARPET LAYER APPRENTICES indentured after 01/01/2016

Wages per hour (1300 hour terms at the following percentage of journeyman's base wage):

1st	2nd	3rd	4th
50%	60%	70%	80%

Supplemental Benefits per hour:

\$ 11.71	\$ 11.71	\$ 14.31	\$ 14.31
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ADDITIONAL AMOUNTS PAID PER HOUR WORKED TO APPRENTICES FOR SPECIFIC TYPES OF WORK PERFORMED:

- 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.

2-291B-Cli

Carpenter - Building / Heavy&Highway

03/01/2021

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 2

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:	07/01/2020	07/01/2021
		Additional
Carpenter - ONLY for Artificial Turf/Synthetic Sport Surface	\$ 31.48	\$ 1.15

Note - Does not include the operation of equipment. Please see Operating Engineers rates.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 23.65

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE

Notes:

When a holiday falls upon a Saturday, it shall be observed on the preceding Friday. When 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:

One year terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
55%	60%	70%	80%

Supplemental Benefits per hour:

1st year term	\$ 11.80
2nd year term	11.80
3rd year term	14.45
4th year term	14.45

2-42AtSS

Carpenter - Heavy&Highway

03/01/2021

JOB DESCRIPTION Carpenter - Heavy&Highway

DISTRICT 2

ENTIRE COUNTIES

Albany, Clinton, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

Per hour	07/01/2020	07/01/2021
		Additional
Carpenter	\$ 33.82	\$ 1.40

Piledriver	33.82	1.40
Diver-Wet Day	58.82	1.40
Diver-Dry Day	34.82	1.40
Diver-Tender	34.82	1.40

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (per hour worked):

- When project owner mandates a single irregular work shift, the employee will receive an additional \$2.00 per hour. A single irregular work shift can start any time from 5:00 p.m. to 1:00 a.m.
- State or Federal designated hazardous site, requiring protective gear shall be an additional \$2.00 per hour.
- Certified welders when required to perform welding work will receive an additional \$1.50 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.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Friday, provided the project duration is more than forty (40) hours.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 23.10

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 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. Employee must work scheduled work day before and after the Holiday.

REGISTERED APPRENTICES

ALL APPRENTICES indentured prior to 01/01/2016

Wages per hour (One year terms at the following percentage of journeyman's base wage):

1st	2nd	3rd	4th
55%	60%	70%	80%

Supplemental Benefits per hour:

\$ 11.67	\$ 11.67	\$ 14.27	\$ 14.27
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CAPRENTER APPRENTICES indentured after 01/01/2016

Wages per hour (1300 hour terms at the following percentage of journeyman's base wage):

1st	2nd	3rd	4th	5th
55%	60%	65%	70%	80%

Supplemental Benefits per hour:

\$ 11.67	\$ 11.67	\$ 14.27	\$ 14.27	\$ 14.27
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PILEDRIIVER/DOCKBUILDER APPRENTICES indentured after 01/01/2016

Wages per hour (1300 hour terms at the following percentage of journeyman's base wage):

1st	2nd	3rd	4th
55%	60%	70%	80%

Supplemental Benefits per hour:

\$ 11.67	\$ 11.67	\$ 14.27	\$ 14.27
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NOTE ADDITIONAL AMOUNTS PAID PER HOUR WORKED TO APPRENTICES FOR SPECIFIC TYPES OF WORK PERFORMED:

- When project owner mandates a single irregular work shift, the employee will receive an additional \$2.00 per hour. A single irregular work shift can start any time from 5:00 p.m. to 1:00 a.m.
- State or Federal designated hazardous site, requiring protective gear shall be an additional \$2.00 per hour.
- Certified welders when required to perform welding work will receive an additional \$1.50 per hour.

2-291HH-Alb

Electrician

03/01/2021

JOB DESCRIPTION Electrician

DISTRICT 6

ENTIRE COUNTIES

Clinton, Essex, Franklin, Jefferson, Lewis, St. Lawrence

WAGES

Per hour:	07/01/2020	04/01/2021 Additional	04/01/2022 Additional
Electrician	\$ 36.00	\$ 1.60	\$ 1.65
Teledata	36.00		
Welder	38.00		

NOTE: Additional premiums for the following work listed:

- Additional \$1.50 per hour for work performed underground such as tunnels and mine shafts. Excludes manholes and walkway tunnels between buildings.
- Additional \$1.50 per hour for working 35 feet or more on scaffolds, ladders, towers, steeples, structural steel, or mechanical lifts over 65 feet.

Shift Work: The following rates will apply on all Contracting Agency mandated shifts worked between the hours listed below. The employer may be permitted to adjust the starting hours of the shift by up to two (2) hours if required by the agency. If a shift begins outside of the stated shift hours, the rate paid would be determined by what shift the majority of the hours were worked.

1st shift:	8:00 AM to 4:30 PM regular wage rate
2nd shift:	4:30 PM to 1:00 AM regular wage rate plus 17.3%
3rd shift:	12:30 AM to 9:00 AM regular wage rate plus 31.4%

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:
\$ 21.23
*plus 5.75% of
gross wage.

* NOTE: THE 5.75% IS BASED ON THE HOURLY WAGE PAID, STRAIGHT TIME RATE OR PREMIUM TIME RATE.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: 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) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES per hour: Hourly terms at the following percentage of Journeyman's wage.

	1-1000 45%	to 2000 50%	to 3500 55%	to 5000 60%	to 6500 70%	to 8000 80%
Electrician	\$16.20	\$18.00	\$19.80	\$21.60	\$25.20	\$28.80
Tunnel	\$17.70	\$19.50	\$21.30	\$23.10	\$26.70	\$30.30

SUPPLEMENTAL BENEFITS per hour:

07/01/2020

Appr 1st & 2nd term
\$ 10.27
* plus 5.75% of
gross wage

Appr All other terms
\$ 21.23
* plus 5.75% of

gross wage

* NOTE: THE 5.75% IS BASED ON THE HOURLY WAGE PAID, STRAIGHT TIME RATE OR PREMIUM TIME RATE.

6-910

Elevator Constructor	03/01/2021
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JOB DESCRIPTION Elevator Constructor

DISTRICT 1

ENTIRE COUNTIES

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

07/01/2020

01/01/2021

Mechanic

\$ 47.51

\$49.10

Helper

70% of Mechanic
Wage Rate

70% of Mechanic
Wage Rate

Four (4), ten (10) hour days may be worked for New Construction and Modernization Work at straight time during a week, Monday thru Thursday or Tuesday thru Friday.

***Four (4), ten (10) hour days are not permitted for Contract Work/Repair Work

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour

07/01/2020

01/01/2021

Journeyman/Helper

\$ 34.765*

\$ 35.825*

(*)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 hour:

0-6 mo*	6-12 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 Journeyman/Helper

1-35

Glazier	03/01/2021
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JOB DESCRIPTION Glazier

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

Per hour

	07/01/2020	5/01/2021 Additional
Glazier Base Wage	\$ 30.75	\$ 1.75
	+ additional \$2.20 per hour for all hours worked	
High Work Base Wage*	32.65	
	+ additional \$3.55 per hour for all hours worked	

(*)When working on Swing Stage or Lift 100 feet or more in height, measured from the ground level up.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.
NOTE - In order to use the 4 Day/10 Hour Work schedule, as your normal schedule, you must submit an Employer Registration for Use of 4 Day/10 Hour Work Schedule, form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour

Journeyman	\$ 20.21
Journeyman	
High Work	25.51

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

Premium is applied to the respective base wage only.

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED SHIFT WORK OR SINGLE IRREGULAR SHIFTS STARTING BETWEEN THE HOURS LISTED BELOW:

4:00pm to 6:30am:	ADDITIONAL 12.5% TO APPLICABLE WAGE RATE AND SUPPLEMENTAL BENEFIT**
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**SHIFT RATE STOPS AFTER 6:30AM

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

Note: If any of the holidays are designated by federal law to be celebrated on a day other than that on which they regularly fall, then the holiday shall be celebrated on the day set by said federal law as if the day on which the holiday is celebrated was actually the holiday date.

REGISTERED APPRENTICES

Wages per hour

Apprentice Glazier One Year and 1500 hr. terms at the following percentage of Journeymans base wage.

1st	2nd	3rd	4th
50%	65%	75%	90%
+ additional \$2.20 per hour for all hours worked for all terms			

Apprentice Glazier Hi-Work One Year and 1500 hr. terms at the following percentage of Journeymans Hi-Work base wage.

1st	2nd	3rd	4th
50%	65%	75%	90%
+ additional \$3.55 per hour for all hours worked for all terms			

Supplemental Benefits per hour worked

Apprentice	
1st term	\$ 16.54
2nd-4th term	20.21
Apprentice High Work	
1st term	19.49
2nd-4th term	25.51

1-201

Insulator - Heat & Frost

03/01/2021

JOB DESCRIPTION Insulator - Heat & Frost
ENTIRE COUNTIES

DISTRICT 1

Albany, Columbia, Delaware, Essex, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Sullivan, Ulster, Warren, Washington

WAGES

Wages per hour 07/01/2020

Asbestos Worker*	\$ 36.36
Insulator*	36.36
Firestopping Worker*	30.91

(*)On Mechanical Systems only.

On government mandated shift work additional 12% of wage for all shifts starting after 3:30 P.M.

SUPPLEMENTAL BENEFITS

Per hour

Journey person \$ 22.78

OVERTIME PAY

See (*B1, **Q) on OVERTIME PAGE

*B1=Double time begins after 10 hours on Saturday

**Q=Triple time on Labor Day if worked.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

When a holiday falls on Sunday the following Monday shall be observed as the holiday.

REGISTERED APPRENTICES

Wages per hour

one year terms at the following percentage of Journey person's wage.

1st	2nd	3rd	4th
60 %	70 %	80 %	90 %

Supplemental Benefits per hour worked:

Apprentices \$ 22.78

1-40

Ironworker

03/01/2021

JOB DESCRIPTION Ironworker

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Delaware, Essex, Greene, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

PARTIAL COUNTIES

Fulton: Only the Townships of Broadalbin, Mayfield, Northampton, Perth, Bleecker and Johnstown.

Hamilton: Only the Townships of Hope, Benson and Wells.

Montgomery: Only the Townships of Florida, Amsterdam, Charleston, Glen, Mohawk and Root.

Otsego: Only the Towns of Unadilla, Butternuts, Morris, Otego, Oneonta, Laurens, Millford, Maryland and Worcester.

WAGES

Wages 07/01/2020
Per hour

Ornamental	\$ 32.10
Reinforcing	32.10
Rodman	32.10
Structural & Precast	32.10
Mover/Rigger	32.10
Fence Erector	32.10
Stone Derrickman	32.10
Sheeter	32.35
Curtain Wall Installer	32.10
Metal Window Installer	32.10

SUPPLEMENTAL BENEFITS

Per hour

JOURNEYPERSON \$ 29.51

OVERTIME PAY

See (B, E, 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.

REGISTERED APPRENTICES

Wages per hour

ONE YEAR TERMS AT THE FOLLOWING WAGE RATES:

	07/01/2020
1st year	\$ 16.50
2nd year	18.50
3rd year	20.50
4th year	22.50
Supplemental Benefits per hour worked	
1st year	\$ 11.50
2nd year	22.92
3rd year	24.54
4th year	26.18

1-12

Laborer - Building

03/01/2021

JOB DESCRIPTION Laborer - Building

DISTRICT 7

ENTIRE COUNTIES

Clinton, Essex, Warren

WAGES

GROUP A: All Laborers (except as noted)

GROUP B: Asbestos & Hazardous Waste Work.

GROUP C: Solar/Wind projects*

Per hour:	07/01/2020	07/01/2021 Additional	07/01/2022 Additional	07/01/2023 Additional
Group A	\$ 24.73	\$ 1.10	\$ 1.15	\$ 1.25
Group B	26.23	1.10	1.15	1.25
Group C	25.23	1.10	1.15	1.25

* Applies when performing delivery handling and site readiness for all solar panel and wind turbine projects, whether on land or water.

IMPORTANT NOTE: Wage and supplement rates for the operation of forklift and skid steer may be found under the classification "Operating Engineer".

SUPPLEMENTAL BENEFITS

Per hour:

Journeymen \$ 23.09

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:

Terms are at the following percentage of Group Rate A.

0-1,000 Hrs	1,001-2,000 Hrs	2,001-3,000 Hrs	3,001-4,000 Hrs
60%	70%	80%	90%

SUPPLEMENTAL BENEFITS per hour:

All Terms: Same as Journeyman

7-1822ew

Laborer - Heavy&Highway

03/01/2021

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 7

ENTIRE COUNTIES

Clinton, Essex, Warren

WAGES

GROUP A: Drill Helper, Flagmen, Outboard and Hand Boats.

GROUP B: BASIC RATE: Bull Float (where used for strike off only), Chain Saw, Concrete Aggregate Bin, Concrete Bootman, Gin Buggy, Hand or Machine Vibrator, Jack Hammer, Mason Tender, Mortar Mixer, Pavement Breaker, Handlers of All Steel Mesh, Small Generators for Laborers' Tools, Installation of Bridge Drainage Pipe, Pipe Layers, Vibrator Type Rollers, Tamper, Drill Doctor, Water Pump Operator (1-1/2" and Single Diaphragm) Nozzle (Asphalt, Guniting, Seeding, and Sand Blasting), Laborers on Chain Link Fence Erection, Rock Splitter & Power Unit, Pusher Type Concrete Saw and All Other Gas, Electric, Oil, and Air Tool Operators, Wrecking Laborer.

GROUP C: Drilling Equipment - only where a separate air compressor unit supplies power, Acetylene Torch Operators, Asphalt Raker, Powder Man, Tail or Screw Operator on Asphalt Paver.

GROUP D: Blasters, Form Setters, Stone or Granite Curb Setters.

GROUP E: Hazardous Waste Removal Work when designated by State/Federal as hazardous waste site and regulations require employees wear required personal protection.

Per hour:	07/01/2020	07/01/2021
		Additional
GROUP A	\$ 26.67	\$ 1.60
GROUP B	26.87	1.60
GROUP C	27.07	1.60
GROUP D	27.27	1.60
GROUP E	29.37	1.60

NOTE: A single irregular work shift starting any time between 5:00 PM and 1:00 AM on governmental mandated night work shall be paid an additional \$2.50 per hour.

IMPORTANT NOTE: Wage and supplement rates for the operation of forklift and skid steer may be found under the classification "Operating Engineer".

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 25.85

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 a holiday falls on Sunday, it will be celebrated on Monday. In the event that men work on this Sunday holiday, they shall be paid double time. In the event that men work on Monday, they shall be compensated at double time plus the holiday pay. Accordingly, the Monday following the Sunday is treated as the holiday.

REGISTERED APPRENTICES

WAGES: 1000 hour terms at the following percentage of Journeyman's GROUP B wage.

1st	2nd	3rd	4th
60%	70%	80%	90%

SUPPLEMENTAL BENEFITS per hour:

All Terms: Same as Journeyman

7-1822/2h

Laborer - Tunnel

03/01/2021

JOB DESCRIPTION Laborer - Tunnel

DISTRICT 7

ENTIRE COUNTIES

Clinton, Essex, Warren

WAGES

There shall be a twelve (12) month carryover from the bid date of the posted proposal wage and fringe benefit rates. However, if the project documents contain multiyear wage rate schedules, the Employer shall be obligated to pay the wage rates therein as they become effective.

GROUP A: General Laborer

GROUP B: Change Houseman, Miners and all Machine Men, Safety Miner, all Shaft-work, Caisson work, Drilling, Blow Pipe, all Air Tools, Tugger, Scaling, Nipper, Guniting pot to nozzle, Bit Grinder, Signal Man (top and bottom), Concrete Men, Shield driven tunnels, mixed face and soft ground, liner plate tunnels in free air.

GROUP C: Hazardous/Waste Work. Work site required to be designated by State/Federal as hazardous waste site and relevant regulations require employees to use personal protection.

Per hour:	07/01/2020	07/01/2021 Additional
GROUP A	\$ 29.85	\$ 1.60
GROUP B	30.05	1.60
GROUP C	32.35	1.60

NOTE: A single irregular work shift shall be paid an additional \$2.50 per hour.

IMPORTANT NOTE: Wage and supplement rates for the operation of forklift and skid steer may be found under the classification "Operating Engineer".

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 25.85

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 a holiday falls on Saturday, it will be celebrated on Friday. If a holiday falls on Sunday, it will be celebrated on Monday. In the event that men work on this Sunday holiday, they shall be paid double time. In the event that men work on Monday, they shall be compensated at double time plus the holiday pay. Accordingly, the Monday following the Sunday is treated as the holiday.

REGISTERED APPRENTICES

WAGES per hour:

Terms are at the following percentage of GROUP B rate.

0-1000 Hrs	1001-2000 Hrs	2001-3000 Hrs	3001-4000 Hrs
60%	70%	80%	90%

SUPPLEMENTAL BENEFITS per hour:

All Terms: Same as Journeyman

7-1822T

Lineman Electrician

03/01/2021

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

Per hour:

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines

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. (Ref #14.01.01)

07/01/2020

Lineman, Technician \$ 53.50

Crane, Crawler Backhoe	53.50
Welder, Cable Splicer	53.50
Digging Mach. Operator	48.15
Tractor Trailer Driver	45.48
Groundman, Truck Driver	42.80
Equipment Mechanic	42.80
Flagman	32.10

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". (Ref #14.02.01-A)

Lineman, Technician	\$ 53.50
Crane, Crawler Backhoe	53.50
Cable Splicer	58.85
Certified Welder -	
Pipe Type Cable	56.18
Digging Mach. Operator	48.15
Tractor Trailer Driver	45.48
Groundman, Truck Driver	42.80
Equipment Mechanic	42.80
Flagman	32.10

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates apply on switching structures, maintenance projects, railroad catenary install/maintenance third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. (Ref #14.02.01-B)

Lineman, Tech, Welder	\$ 54.82
Crane, Crawler Backhoe	54.82
Cable Splicer	60.30
Certified Welder -	
Pipe Type Cable	57.56
Digging Mach. Operator	49.34
Tractor Trailer Driver	46.60
Groundman, Truck Driver	43.86
Equipment Mechanic	43.86
Flagman	32.89

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. (Ref #14.03.01)

Lineman, Tech, Welder	\$ 56.01
Crane, Crawler Backhoe	56.01
Cable Splicer	56.01
Digging Mach. Operator	50.41
Tractor Trailer Driver	47.61
Groundman, Truck Driver	44.81
Equipment Mechanic	44.81
Flagman	33.61

Additional \$1.00 per hour for entire crew when a helicopter is used.

NOTE: 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 %

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (also required on non-worked holidays):

The following SUPPLEMENTAL BENEFITS apply to all classification categories of CONSTRUCTION, TRANSMISSION and DISTRIBUTION.

Journeyman \$ 24.90
*plus 6.75% of
hourly wage

*The 6.75% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q,) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: 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 Journeyman Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

6-1249a

Lineman Electrician - Teledata

03/01/2021

JOB DESCRIPTION Lineman Electrician - Teledata

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, Westchester, Wyoming, Yates

WAGES

Per hour:

For outside work, stopping at first point of attachment (demarcation).

	07/01/2020	01/01/2021
Cable Splicer	\$ 33.77	\$ 34.78
Installer, Repairman	\$ 32.05	\$ 33.01
Teledata Lineman	\$ 32.05	\$ 33.01
Tech., Equip. Operator	\$ 32.05	\$ 33.01
Groundman	\$ 16.99	\$ 17.50

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED:

1ST SHIFT	REGULAR RATE
2ND SHIFT	REGULAR RATE PLUS 10%
3RD SHIFT	REGULAR RATE PLUS 15%

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman

\$ 5.06
*plus 3% of
wage paid

\$ 5.06
*plus 3% of
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

NOTE: 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

Lineman Electrician - Traffic Signal, Lighting

03/01/2021

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting

DISTRICT 6

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.

A Groundman/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/groundman truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.

(Ref #14.01.01)

Per hour: 07/01/2020

Lineman, Technician	\$ 46.20
Crane, Crawler Backhoe	46.20
Certified Welder	48.51
Digging Machine	41.58
Tractor Trailer Driver	39.27
Groundman, Truck Driver	36.96
Equipment Mechanic	36.96
Flagman	27.72

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.

NOTE: 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%

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

Journeyman \$ 24.90
*plus 6.75% of
hourly wage

*The 6.75% is based on the hourly wage paid, straight time rate or premium rate.
Supplements paid at STRAIGHT TIME rate for holidays.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: 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.

	07/01/2020
1st term	\$ 27.72
2nd term	30.03
3rd term	32.34
4th term	34.65
5th term	36.96
6th term	39.27
7th term	41.58

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

6-1249a-LT

Lineman Electrician - Tree Trimmer

03/01/2021

JOB DESCRIPTION Lineman Electrician - Tree Trimmer

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

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 would include stump removal near underground energized electrical lines, including telephone and CATV lines.

Per hour:	07/01/2020	01/03/21	01/02/22	01/01/23
Tree Trimmer	\$ 26.56	\$ 27.36	\$ 28.25	\$ 29.59
Equipment Operator	23.49	24.19	24.98	26.17
Equipment Mechanic	23.49	24.19	24.98	26.17
Truck Driver	19.56	20.15	20.80	21.79
Groundman	16.11	16.59	17.13	17.94
Flag person	11.80	12.50*	12.50	12.94

*RATE GOES INTO EFFECT 12/31/2020

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

Journeyman \$ 9.98 \$ 9.98 \$ 10.23 \$ 10.48
*plus 3% of *plus 3% of *plus 3% of *plus 3% of

hourly wage

hourly wage

hourly wage

hourly wage

* The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: 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, 16, 25) 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

03/01/2021

JOB DESCRIPTION Mason - Building

DISTRICT 12

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

Per hour 07/01/2020

Tile/Marble/Terrazzo

Setter \$ 36.06

Finisher 28.16

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked

Journeyman Setter \$ 20.78

Journeyman Finisher 17.93

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

Setter:

1st term 0-500 hrs 60%

2nd term 501-1500 hrs 70%

3rd term 1501-2500 hrs 80%

4th term 2501-3500 hrs 85%

5th term 3501-4500 hrs 90%

6th term 4501-6000 hrs 95%

Finisher:

1st term 0-500 hrs 70%

2nd term 501-1500 hrs 80%

3rd term 1501-2500 hrs 90%

4th term 2501-3700 hrs 95%

Supplemental Benefits per hour worked

07/01/2020

Setter:

1st term 0-500 hrs	\$ 12.23
2nd term 501-1500 hrs	12.23
3rd term 1501-2500 hrs	16.51
4th term 2501-3500 hrs	16.51
5th term 3501-4500 hrs	18.64
6th term 4501-6000 hrs	20.78

Finisher:

1st term 0-500 hrs	\$ 11.58
2nd term 501-1500 hrs	11.58
3rd term 1501-2500 hrs	14.76
4th term 2501-3700 hrs	14.76

12-2TS.1

Mason - Building

03/01/2021

JOB DESCRIPTION Mason - Building

DISTRICT 12

ENTIRE COUNTIES

Clinton, Essex, Franklin

PARTIAL COUNTIES

Warren: Only the Townships of Chester, Hague, Horicon and Johnsburg.

WAGES

Per hour 07/01/2020

Bricklayer	\$ 33.50
Cement Finisher	33.50
Plasterer/Fireproofers*	33.50
Pointer/Caulker/Cleaner	33.50
Stone Mason	33.50
Acid Brick	34.00

(*)Fireproofers on Structural only.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked

Journeyman \$ 20.41

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.

REGISTERED APPRENTICES

Wages per hour

750 hr terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
55%	60%	65%	70%	75%	80%	85%	90%

Supplemental Benefits per hour worked

0-500 Hours	\$ 12.46
All others	\$ 20.41

12-2b.8

Mason - Heavy&Highway

03/01/2021

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 12

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 1-2h/h on.

WAGES

Per hour

07/01/2020

Mason &
Bricklayer

\$38.95

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

\$ 20.79

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: If a holiday falls on Sunday, the Monday following shall constitute the day of the legal holiday.

REGISTERED APPRENTICES

Wages per hour

750 HR TERMS at the following percent of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
55%	60%	65%	70%	75%	80%	85%	90%

Supplemental Benefits per hour worked

\$ 20.79

12-2hh.1

Millwright

03/01/2021

JOB DESCRIPTION Millwright

DISTRICT 2

ENTIRE COUNTIES

Clinton, Essex, Franklin, Hamilton, Jefferson, Lewis, Oneida, Onondaga, Oswego, St. Lawrence, Warren, Washington

WAGES

Per hour:

07/01/2020

Building
Heavy & Highway

\$ 29.25
31.25

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:

Journeyman

\$ 23.89

OVERTIME PAY

See (B, E, *E2, Q) on OVERTIME PAGE

*Note - Saturday may be used as a make-up day and worked at the straight time rate of pay during a work week when conditions such as weather, power failure, fire, or natural disaster prevent the performance of work on a regular scheduled work day.

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 journeymans rate.

1st	2nd	3rd	4th
60%	70%	80%	90%

Supplemental Benefits per hour:

Apprentices:

1st term	\$ 11.00
2nd term	20.02
3rd term	21.31
4th term	22.60

2-1163.2

Operating Engineer - Building

03/01/2021

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

PARTIAL COUNTIES

Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedelt Road then east along Bedelt Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 44 east to Route 343 then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to Connecticut.

WAGES

CLASS A1:

Crane, hydraulic cranes, tower crane, locomotive crane, piledriver, cableway, derricks, whirllies, dragline, boom trucks over 5 tons.

CLASS A:

Shovel, all Excavators (including rubber tire full swing), Gradalls, power road grader, all CMI equipment, front-end rubber tire loader, tractor-mounted drill (quarry master), mucking machine, concrete central mix plant, concrete pump, belcrete system, automated asphalt concrete plant, and tractor road paver, boom trucks 5 tons and under, maintenance engineer, self-contained crawler drill-hydraulic rock drill.

CLASS B:

Backhoes (rubber tired backhoe/loader combination), bulldozer, pushcat, tractor, traxcavator, scraper, LeTourneau grader, form fine grader, self-propelled soil compactor (fill roller), asphalt roller, blacktop spreader, power brooms, sweepers, trenching machine, Barber Green loader, side booms, hydro hammer, concrete spreader, concrete finishing machine, one drum hoist, power hoisting (single drum), hoist two drum or more, three drum engine, power hoisting (two drum and over), two drum and swinging engine, three drum swinging engine, hod hoist, A-L frame winches, core and well drillers (one drum), post hole digger, model CHB Vibro-Tamp or similar machine, batch bin and plant operator, dinky locomotive, skid steer loader, track excavator 5/8 cubic yard or smaller, front end rubber tired loader under four cubic yards, vacuum machine (mounted or towed).

CLASS C:

Fork lift, high lift, all terrain fork lift: or similar, oiler, fireman and heavy-duty greaser, boilers and steam generators, pump, vibrator, motor mixer, air compressor, dust collector, welding machine, well point, mechanical heater, generators, temporary light plants, electric submersible pumps 4" and over, murphy type diesel generator, conveyor, elevators, concrete mixer, belcrete power pack (belcrete system), seeding, and mulching machines, pumps.

* In the event that equipment listed above is operated by robotic control, the classification covering the operation will be the same as if manually operated.

WAGES per hour

	07/01/2020	07/01/2021
Class # A1	\$ 45.67	46.71

Class # A	45.18	46.22
Class # B	44.16	45.20
Class # C	41.26	42.30

Additional \$0.50 per hr for Tower Cranes.

Additional \$1.25 per hr for Cranes with Boom length & jib 150ft. and over.

Additional \$2.25 per hr for Cranes with Boom length & jib 200ft. and over.

Additional \$2.50 per hr over B rate for Nuclear Leader work.

Additional \$0.40 per hr for tunnel or excavation of shaft 40' or more deep.

Additional \$2.50 per hour if work requires Personal Protective Equipment for hazardous waste site activities with a level C or over rating.

SUPPLEMENTAL BENEFITS

Per hour

07/01/2020	07/01/2021
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Journeyman	\$ 28.25	29.40
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OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: If a holiday falls on Sunday, it will be celebrated on Monday. If the holiday falls on Saturday, it will be celebrated on Friday.

Employees who work a Saturday holiday shall be paid double time plus 8 hours of straight time.

REGISTERED APPRENTICES

Wages per hour

1000 hours terms at the following percentage of Journeyperson's wage Class B

1st	2nd	3rd	4th
60%	70%	80%	90%

Supplemental Benefits per hour worked

07/01/2020	07/01/2021
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All terms	\$ 23.55	24.70
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1-158 Alb

Operating Engineer - Heavy&Highway

03/01/2021

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 1

ENTIRE COUNTIES

Albany, Broome, Chenango, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Tioga, Warren, Washington

PARTIAL COUNTIES

Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedelt Road then east along Bedelt Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 44 east to Route 343 then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to Connecticut.

WAGES

CLASSIFICATION 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), Boom truck, GPS operated Bull Dozer, Cableway, Caisson Auger, Central Mix Concrete Plant (Automated), Concrete Curb Machine (Self Propelled, Slipform), Concrete Pump, Crane, Cherry Picker, Derricks (steel erection), Dragline, Overhead Crane (Gantry or Straddle type), Pile Driver, Truck Crane, Directional Drilling Machine, Dredge, Dual Drum Paver, Excavator (All PurposeHydraulically Operated) (Gradall or Similar), Front End Loader (4 cu. yd. and 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, Power Grader, Profiler (over 105 H.P.), Quad 9, Quarry Master (or equivalent), Scraper, Shovel, Side Boom, Slip Form Paver (If a second man is needed, he shall be an Oiler), Tractor Drawn BeltType Loader, Truck or Trailer Mounted Log Chipper (Self Feeder), Tug Operator (Manned Rented Equipment Excluded), Tunnel Shovel

CLASSIFICATION B:

Backhoe (Tractor Mounted, Rubber Tired), Bituminous Recycler Machine, Bituminous Spreader and Mixer, Blacktop Plant (NonAutomated), Blast or Rotary Drill (Truck or Tractor Mounted), Brokk, Boring Machine, Cage Hoist, Central Mix Plant [(NonAutomated) and All Concrete Batching Plants], Concrete Paver (Over 16S), Crawler Drill (Self-contained), Crusher, Diesel Power Unit, Drill Rigs, Tractor Mounted, Front End Loader (Under 4 cu. yd.), Greaseman/Lubrication Engineer, HiPressure Boiler (15 lbs. and over), Hoist (One Drum), Hydro-Axe, Kolman Plant Loader and Similar Type Loaders (If Employer requires another man to clean the screen or to maintain the equipment, he shall be an Oiler), L.C.M. Work Boat Operator, Locomotive, Material handling knuckle boom, Mini Excavator (under 18,000 lbs.), Mixer (for stabilized base selfpropelled), Monorail Machine, Plant Engineer, Prentice Loader, Profiler (105 H.P. and under), Pug Mill, Pump Crete, Ready Mix Concrete Plant, Refrigeration Equipment (for soil stabilization), Road Widener, Roller (all above subgrade), 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 saw (ride on, any size or type), Welder

CLASSIFICATION C:

A Frame Winch Hoist on Truck, Articulated Heavy Hauler, Aggregate Plant, Asphalt or Concrete Grooving Machine (ride on), Ballast Regulator(Ride-on), Boiler (used in conjunction with production), Bituminous Heater (self-propelled), Boat (powered), Cement and Bin Operator, Concrete Pavement Spreader and Finisher Concrete Paver or Mixer (16' and under), Concrete Saw (self-propelled), Conveyor, Deck Hand, Directional Drill Machine Locator, Drill (Core and Well), Farm Tractor with accessories, Fine Grade Machine, Fireman, Fork Lift, Form Tamper, Grout Pump, Gunit Machine, Hammers (Hydraulic self-propelled), Hydra-Spiker (ride-on), Hydraulic Pump (jacking system), Hydro-Blaster (Water), Mulching Machine, Oiler, Parapet Concrete or Pavement Grinder, Post Hole Digger and Post Driver, Power Broom (towed), Power Heaterman, Power Sweeper, Revinus Widener, Roller (Grade and Fill), Scarifier (ride-on), Shell Winder, Skid steer loader (Bobcat or similar), Span-Saw (ride-on), Steam Cleaner, Tamper (ride-on), Tie Extractor (ride-on), Tie Handler (ride-on), Tie Inserter (ride-on), Tie Spacer (ride-on), Tire Repair, Track Liner (ride-on), Tractor, Tractor (with towed accessories), Vibratory Compactor, Vibro Tamp, Well Point, and the following hands-off equipment: Compressors, Dust Collectors, Generators, Pumps, Welding Machines, Light Plants and Heaters

- Note for all above classifications of Operating Engineer - In the event that equipment listed above is operated by robotic control, the classification covering the operation will be the same as if manually operated.

WAGES per hour

	07/01/2020	07/01/2021
Master Mechanic	\$ 47.88	\$ 49.43
Class A*	46.27	47.82
Class B	45.36	46.91
Class C	42.79	44.34

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.

Additional \$2.50 per hr. for hazardous waste removal work on State and/or Federally designated waste site which require employees to wear Level C or above forms of personal protection.

(*) Premiums for CRANES is based upon Class A rates with the following premiums:

- Additional \$4.00 per hr for Tower Cranes, including self erecting.
- Additional \$3.00 per hr for Lattice Boom Cranes and all other cranes with a manufacturers rating of fifty (50) tons and over.
- Additional \$2.00 per hr for all Hydraulic Cranes and Derricks with a manufacturer's rating of 49 ton and below, including boom trucks.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour

Journey person	\$ 28.45	\$ 29.60
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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. If the Holiday falls on a Saturday employer can choose to celebrate Saturday or give Friday off with pay.

REGISTERED APPRENTICES

Wages per hour

1000 hours terms at the following percentage of Journey person's wage Class B

1st 60%	2nd 70%	3rd 80%	4th 90%
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Supplemental Benefits per hour worked

	07/01/2020	07/01/2021
All Terms	\$ 23.85	\$ 25.00

1-158H/H Alb

Operating Engineer - Marine Dredging	03/01/2021
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JOB DESCRIPTION Operating Engineer - Marine Dredging

DISTRICT 4

ENTIRE COUNTIES

Albany, Bronx, Cayuga, Chautauqua, Clinton, Columbia, Dutchess, Erie, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Niagara, Orange, Orleans, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES

These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.

Per Hour:	07/01/2020	10/01/2020
CLASS A1 Deck Captain, Leverman Mechanical Dredge Operator Licensed Tug Operator 1000HP or more.	\$ 40.31	\$ 41.42
CLASS A2 Crane Operator (360 swing)	35.92	36.91
CLASS B Dozer, Front Loader Operator on Land	To conform to Operating Engineer Prevailing Wage in locality where work is being performed including benefits.	
CLASS B1 Derrick Operator (180 swing) Spider/Spill Barge Operator Operator II, Fill Placer, Engineer, Chief Mate, Electrician, Chief Welder, Maintenance Engineer Licensed Boat, Crew Boat Operator	34.86	35.82
CLASS B2 Certified Welder	32.82	33.72
CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer	31.92	32.80
CLASS C2 Boat Operator	30.89	31.74
CLASS D Shoreman, Deckhand, Oiler, Rodman, Scowman, Cook, Messman, Porter/Janitor	25.66	26.37

SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

	07/01/2020	10/01/2020
All Classes A & B	\$11.58 plus 7.5% of straight time wage, Overtime hours	\$11.98 plus 8% of straight time wage, Overtime hours

	add \$ 0.63	add \$ 0.63
All Class C	\$11.28 plus 7.5% of straight time wage, Overtime hours add \$ 0.48	11.68 plus 8% of straight time wage, Overtime hours add \$ 0.48
All Class D	\$10.98 plus 7.5% of straight time wage, Overtime hours add \$ 0.33	11.38 plus 8% of straight time wage, Overtime hours add \$ 0.33

OVERTIME PAY

See (B2, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew

03/01/2021

JOB DESCRIPTION Operating Engineer - Survey Crew

DISTRICT 12

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schoenectady, 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.

07/01/2020

Party Chief	\$ 44.39
Instrument Person	40.78
Rod Person	30.22

Additional \$3.00/hr. for Tunnel Work

Additional \$2.50/hr. for Hazardous Work Site

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyman	\$ 26.30
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OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

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:

07/01/2020

0-1000	60%
1001-2000	70%
2001-3000	80%

SUPPLEMENTAL BENEFIT per hour worked:

0-1000	\$ 18.08
1001-2000	21.10
2001-3000	24.13

12-158-545 D.H.H.

Operating Engineer - Survey Crew - Consulting Engineer

03/01/2021

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer

DISTRICT 12

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schoenectady, 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.

07/01/2020

Party Chief	\$ 44.39
Instrument Person	40.78
Rod Person	30.22

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	\$ 26.30
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OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES: 1000 hour terms based on percentage of Rod Persons Wage:

07/01/2020

0-1000	60%
1001-2000	70%
2001-3000	80%

SUPPLEMENTAL BENEFIT per hour worked:

0-1000	\$ 18.08
1001-2000	\$ 21.10
2001-3000	\$ 24.13

12-158-545 DCE

Operating Engineer - Tunnel

03/01/2021

JOB DESCRIPTION Operating Engineer - Tunnel

DISTRICT 7

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: 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; 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 Insertor (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:	07/01/2020	07/01/2021	07/01/2022
Master Mechanic	\$ 49.45	\$ 51.00	\$ 52.60
CLASS A	47.04	48.59	50.19
CLASS B	45.82	47.37	48.97
CLASS C	43.03	44.58	46.18
CLASS D	40.02	41.57	43.17

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. Fringe benefits will be paid at the hourly wage premium.

CRANES:

Crane 1: All cranes, including self-erecting to be paid \$4.00 per hour over the Class A rate.

Crane 2: All Lattice Boom Cranes and all cranes with a manufacturer's rating of fifty (50) ton and over to be paid \$3.00 per hour over Class A rate.

Crane 3: All hydraulic cranes and derricks with a manufacturer's rating of forty nine (49) ton and below, including boom trucks, to be paid \$2.00 per hour over Class A rate.

Crane 1	\$ 51.04	\$ 52.59	\$ 54.19
Crane 2	50.04	51.59	53.19
Crane 3	49.04	50.59	52.19

SUPPLEMENTAL BENEFITS

Per hour:

\$ 21.90	\$ 22.80	\$ 23.70
+ 8.85*	+ 9.10*	+ 9.35*

* 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

If a holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

WAGES:(1000) hours terms at the following percentage of Journeyman's Class B wage.

1st term	60%
2nd term	65%
3rd term	70%
4th term	75%

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

7-158-832TL.

Painter

03/01/2021

JOB DESCRIPTION Painter

DISTRICT 1

ENTIRE COUNTIES

Albany, Essex, Fulton, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

Per hour

07/01/2020

Painter\Wallcover	\$ 30.49
Drywall Finishers	30.49
Spray Rate	30.49
Structural Steel*	31.49
Lead Abatement	31.49
Lead Abatement on	
Structural Steel	32.49

(*)Employees working on objects with the use of swing stage, boatswain chair, pick and cables only will be paid at Structural Steel rate.

Bridge Painter

See Bridge Painter rates for the following work:

All Bridges and Tanks

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 16.95

OVERTIME PAY

See (B, E2, H) on OVERTIME PAGE

THE FOLLOWING ADDITIONAL HOURLY RATE WILL APPLY ON ALL CONTRACTING AGENCY MANDATED SHIFT(S) OR SINGULAR IRREGULAR SHIFT WHEN THE SHIFT STARTS BETWEEN THE HOURS LISTED BELOW:

2:30 PM to 6:30 AM PLUS \$1.00 TO APPLICABLE RATE**

**SHIFT RATE STOPS AFTER 6:30AM

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: If the holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

Wages per hour

1000 hour terms at the following percentage of Journeyperson's base wage

1st	2nd	3rd	4th	5th	6th
45%	50%	60%	70%	80%	90%

Supplemental Benefits per hour

All Terms \$ 16.95

1-201-P

Painter - Bridge & Structural Steel

03/01/2021

JOB DESCRIPTION Painter - Bridge & Structural Steel

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per Hour:

STEEL:

Bridge Painting:	07/01/2020	10/01/2020	10/01/2021
	\$ 50.25	\$ 51.50	\$ 53.00
	+ 7.88*	+ 8.63*	+ 9.63*

ADDITIONAL \$6.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

NOTE: All premium wages are to be calculated on base rate per hour only.

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

NOTE: Generally, 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.

SHIFT WORK:

When directly specified in public agency or authority contract documents for an employer to work a second shift and works the second shift with employees other than from the first shift, all employees who work the second shift will be paid 10% of the base wage shift differential in lieu of overtime for the first eight (8) hours worked after which the employees shall be paid at time and one half of the regular wage rate. When a single irregular work shift is mandated in the job specifications or by the contracting agency, wages shall be paid at time and one half for single shifts between the hours of 3pm-11pm or 11pm-7am.

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker:	07/01/2020	10/01/2020	10/01/2021
	\$ 10.20	\$ 10.90	\$ 10.90
	+ 29.65*	+ 30.00*	+ 30.60*

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage - Per hour:

Apprentices: (1) year terms	07/01/2020	10/01/2020	10/01/2021
1st year	\$ 20.10	\$ 20.60	\$ 21.20
	+ 3.15*	+ 3.45*	+ 3.86*

2nd year	\$ 30.15 + 4.73*	\$ 30.90 + 5.18*	\$ 31.80 + 5.78*
3rd year	\$ 40.20 + 6.30*	\$ 41.20 + 6.90*	\$ 42.40 + 7.71*
Supplemental Benefits - Per hour:			
1st year	\$.25 + 11.86*	\$.25 + 12.00*	\$.25 + 12.24*
2nd year	\$ 10.20 + 17.79*	\$ 10.90 + 18.00*	\$ 10.90 + 18.36*
3rd year	\$ 10.20 + 23.72*	\$ 10.90 + 24.00*	\$ 10.90 + 24.48*

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

Painter - Line Striping	03/01/2021
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JOB DESCRIPTION Painter - Line Striping

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per hour:

Painter (Striping-Highway):	07/01/2020	07/01/2021	07/01/2022
Striping-Machine Operator*	\$ 30.10	\$ 30.32	\$ 31.53
Linerman Thermoplastic	\$ 36.53	\$ 36.93	\$ 38.34

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour paid:	07/01/2020	07/01/2021	07/01/2022
Journeyworker:			
Striping Machine Operator:	\$ 9.16	\$ 10.03	\$ 10.03
Linerman Thermoplastic:	\$ 9.16	\$ 10.03	\$ 10.03

OVERTIME PAY

See (B, B2, E2, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 20) on HOLIDAY PAGE
Overtime: See (5, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES

One (1) year terms at the following wage rates:

	07/01/2020	12/31/2020
1st Term:	\$ 12.04	\$ 12.50
2nd Term:	\$ 18.06	\$ 18.19
3rd Term:	\$ 24.08	\$ 24.26

Supplemental Benefits per hour:

1st term:	\$ 9.16	\$ 10.03
2nd Term:	\$ 9.16	\$ 10.03
3rd Term:	\$ 9.16	\$ 10.03

8-1456-LS

Painter - Metal Polisher

03/01/2021

JOB DESCRIPTION Painter - Metal Polisher

DISTRICT 8

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

	07/01/2020
Metal Polisher	\$ 36.33
Metal Polisher*	37.43
Metal Polisher**	40.33

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2020

Journeyworker:

All classification \$ 9.94

OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 6, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year term at the following wage rates:

	07/01/2020
1st year	\$ 16.00
2nd year	17.00
3rd year	18.00
1st year*	\$ 16.39
2nd year*	17.44
3rd year*	18.54
1st year**	\$ 18.50
2nd year**	19.50
3rd year**	20.50

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:

Per hour:

1st year	\$ 6.69
2nd year	6.69
3rd year	6.69

8-8A/28A-MP

Plumber

03/01/2021

JOB DESCRIPTION Plumber

DISTRICT 1

ENTIRE COUNTIES

Essex

PARTIAL COUNTIES

Franklin: Entire County except for the Village of Hogansburg and the St. Regis Indian Reservation.

Hamilton: The Townships of Long Lake and Indian Lake

WAGES

Per hour

	07/01/2020	05/01/2021
Plumber & Steamfitter	\$ 39.30	Additional \$1.30

SUPPLEMENTAL BENEFITS

Per hour

Journey person	\$ 20.85 +10.63*
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* This portion of the benefit is subject to the SAME PREMIUM as shown for overtime and applicable to paid Holidays.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (22) on HOLIDAY PAGE

Overtime: See (5, 6, 23) on HOLIDAY PAGE

Note: For the paid Christmas Holiday the employee must have worked 20 regular working days in the calendar year with contractor to qualify

Note: Whenever a Holiday falls on a Saturday, the preceding day, Friday, shall be observed as the Holiday. If a Holiday falls on a Sunday, the following day, Monday shall be observed as the Holiday.

REGISTERED APPRENTICES

Wages per hour

One year terms at the following percentage of Journey person's wage

1st yr	50%
2nd yr	60%
3rd yr	70%
4th yr	80%
5th yr	90%

Supplemental Benefits per hour worked

1st yr	\$ 17.93 + 5.32*
2nd yr	18.51 + 6.38*
3rd yr	19.10 + 7.44*
4th yr	19.68 + 8.50*
5th yr	20.27 + 9.57*

* This portion of the benefit is subject to the SAME PREMIUM as shown for overtime.

* This portion per hour paid.

1-773EF-SF

Roofer

03/01/2021

JOB DESCRIPTION Roofer

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Warren, Washington

WAGES

Per hour

	07/01/2020	07/01/2021
Roofer/Waterproofer	\$ 32.05	Additional \$1.50
Asphalt Cold Process	32.55	
Fluid Applied Roof	32.55	
Pitch & Asbestos	34.05	

Shift Work:

On government mandated shift work starting after 12:00pm and before 4:00am workers shall be paid \$4.00 additional per hour

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 20.27

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: When any Holiday falls on Saturday, the Friday before such Holiday shall be recognized as the legal Holiday. When a Holiday falls on Sunday, it shall be observed the following Monday.

REGISTERED APPRENTICES

Wages per hour

Apprentice terms at the following per cent of the Roofer/Waterproofer rate. For Pitch & Asbestos work, an additional \$2.00 must be paid in wages. For Asphalt Cold Process work and Fluid Applied Roof coating, an additional \$0.50 must be paid in the wages.

1st Term 58%
1500 hrs.

2nd Term 74%
1 yr. and 1500 hrs. as 1st term.

3rd Term 90%
1 yr. and 1500 hrs. as 2nd term.

3rd Term complete at 1 yr and 1050 hrs. as 3rd term

Supplemental Benefits per hour worked

1st Term \$ 18.69
2nd Term 19.12
3rd Term 19.60

1-241

Sheetmetal Worker

03/01/2021

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

Per hour

	07/01/2020	06/01/2021
Sheetmetal Worker	\$34.02	Additional \$ 1.75

All work requiring HAZWOPER Training additional \$1.00 per hour

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.
NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$33.94

OVERTIME PAY

See (B,E,E5,Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

When any holiday falls on Saturday, the Friday before such holiday shall be recognized as the legal holiday. Any holiday falling on Sunday, the following Monday shall be recognized as the legal holiday.

REGISTERED APPRENTICES

Wages per hour

6 Month Terms at the following rate:

1st term	\$18.89
2nd term	\$20.48
3rd term	\$21.28
4th term	\$22.08
5th term	\$20.86
6th term	\$21.90
7th term	\$23.63
8th term	\$25.36
9th term	\$27.09
10th term	\$28.83

Supplemental Benefits per hour

1st term	\$20.91
2nd term	21.55
3rd term	21.84
4th term	22.27
5th term	28.46
6th term	28.89
7th term	29.62
8th term	30.34
9th term	31.06
10th term	31.78

1-83

Sprinkler Fitter

03/01/2021

JOB DESCRIPTION Sprinkler Fitter

DISTRICT 1

ENTIRE COUNTIES

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, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Washington, Wayne, Wyoming, Yates

WAGES

Per hour	07/01/2020
Sprinkler	\$ 35.01
Fitter	

SUPPLEMENTAL BENEFITS

Per hour

Journey person	\$ 26.62
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OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
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 percentage of journey person's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 16.94	\$ 18.82	\$ 20.44	\$ 22.31	\$ 24.18	\$ 26.05	\$ 27.92	\$ 29.79	\$ 31.67	\$ 33.54

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 8.27	\$ 8.27	\$ 18.70	\$ 18.70	\$ 18.95	\$ 18.95	\$ 18.95	\$ 18.95	\$ 18.95	\$ 18.95

1-669

Teamster - Building**03/01/2021**

JOB DESCRIPTION Teamster - Building**DISTRICT 7****ENTIRE COUNTIES**

Clinton, Essex, Franklin, Jefferson, St. Lawrence

PARTIAL COUNTIES

Lewis: Only the Townships of Croghan, Denmark, Diana, New Bremen, Harrisburg, Montague, Osceola and Pinckney.

Oswego: Only the Towns of Boylston, Redfield, and Sandy Creek.

Warren: Only the Townships of Hague, Horicon, Chester and Johnsburg.

WAGES

GROUP #1: Fuel Trucks, Fork Lift* (Warehouse Area Only), Warehouse*, Yardman*, Truck Helper, Pickups, Panel Truck, Flatbody Material Trucks (straight jobs), Single axle Dump Trucks, Dumpsters, Material Checkers/Receivers*, Greasers, Tiremen, Mechanic Helpers/Parts Chasers, Bus.

GROUP #2: Tandems, Mechanics & Batch Trucks.

GROUP #3: Semi Trailers, Low Boys, Asphalt Distributor Trucks, and Agitator Mixer Truck, Dump Crete Type Vehicles and 3 axle Dump trucks.

GROUP #4: Asbestos Removal, Special earth moving Euclid type or similar off highway equip. (non self load.) Articulated and all-track dump trucks.

*NOTE - Applies when a temporary warehouse structure is built/utilized specifically for a public work project.

Per hour: 07/01/2020

GROUP #1	\$ 26.50
GROUP #2	27.50
GROUP #3	27.60
GROUP #4	26.76

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 21.16

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

7-687B

Teamster - Heavy&Highway**03/01/2021**

JOB DESCRIPTION Teamster - Heavy&Highway**DISTRICT 7****ENTIRE COUNTIES**

Clinton, Essex, Franklin, Jefferson, St. Lawrence

PARTIAL COUNTIES

Lewis: Only the Townships of Croghan, Denmark, Diana, New Bremen, Harrisburg, Montague, Osceola and Pinckney.

Oswego: Only the Towns of Boylston, Redfield, and Sandy Creek.

Warren: Only the Townships of Hague, Horicon, Chester and Johnsburg.

WAGES

There shall be a twelve (12) month carryover of the negotiated rate in effect at the time of the bid.

GROUP #1: Warehousemen*, Yardmen*, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks (straight jobs), Single Axle Dump Trucks, Dumpsters, Material Checkers/Receivers*, Greasers, Truck Tiremen, Mechanics Helpers/Parts Chasers, Fork Lift* (Warehouse Area Only), Tandems and Batch Trucks, Mechanics. Semi-Trailers, Low-Boy Trucks, Asphalt Distributor Trucks, and Agitator, Mixer Trucks and Dumpcrete type vehicles, Truck Mechanic, Fuel Truck.

GROUP #2: Specialized Earth Moving Equipment, Euclid type, or similar off-highway where not self-loading, Straddle (Ross) Carrier, and self-contained concrete mobile truck. Off-highway Tandem Back-Dump, Twin Engine Equipment and Double-Hitched Equipment where not self-loading.

*NOTE - Applies when a temporary warehouse structure is built/utilized specifically for a public work project.

Per hour: 07/01/2020

GROUP #1	\$ 28.59
GROUP #2	28.81

Additional \$1.50 per hour for hazardous waste removal work on a City, County, State and/or Federal Designated waste site and regulations require employee to use or wear respiratory protection.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 23.39

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 a holiday falls on a Sunday, it will be celebrated on Monday.

7-687

Welder

03/01/2021

JOB DESCRIPTION Welder

DISTRICT 1

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 07/01/2020

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

1-As Per Trade

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
- (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



New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12240

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

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)

1. Name and complete address ☐ (Check if new or change)

Telephone: ()

Fax: ()

E-Mail:

2. NY State Units (see Item 5)

☐ 01 DOT

☐ 02 OGS

☐ 03 Dormitory Authority

☐ 04 State University
Construction Fund

☐ 05 Mental Hygiene
Facilities Corp.

☐ 06 OTHER N.Y. STATE UNIT

☐ 07 City

☐ 08 Local School District

☐ 09 Special Local District, i.e.,
Fire, Sewer, Water District

☐ 10 Village

☐ 11 Town

☐ 12 County

☐ 13 Other Non-N.Y. State
(Describe)

3. SEND REPLY TO ☐ (check if new or change)
Name and complete address:

Telephone:()

Fax: ()

E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR
THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

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 :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Has this project been reviewed for compliance with the Wicks Law involving separate 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, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: <https://applications.labor.ny.gov/EDList/searchPage.do>

For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	NYC	*****9839	A.J.S. PROJECT MANAGEMENT, INC.		149 FIFTH AVENUE NEW YORK NY 10010	12/29/2016	12/29/2021
DOL	DOL	*****4018	ADIRONDACK BUILDING RESTORATION INC.		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	DOL	*****1687	ADVANCED SAFETY SPRINKLER INC		261 MILL ROAD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	NYC	*****6775	ADVENTURE MASONRY CORP.		1535 RICHMOND AVENUE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	NYC		AGOSTINHO TOME		405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
DOL	DOL		AJ TORCHIA		10153 ROBERTS RD SAUQUOIT NY 13456	08/09/2016	08/09/2021
DOL	DOL		AMADEO J TORCHIA	TORCHIA'S HOME IMPROVEMENT	10153 ROBERTS RD SAUQUOIT NY 13456	08/09/2016	08/09/2021
DOL	NYC		AMJAD NAZIR		2366 61ST ST BROOKLYN NY 11204	12/15/2016	12/15/2021
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL		ANITA SALERNO		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	NYC		ANTHONY J SCLAFANI		149 FIFTH AVE NEW YORK NY 10010	12/29/2016	12/29/2021
DOL	DOL		ANTHONY PERGOLA		3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10323	01/23/2017	01/23/2022
DOL	DOL		ANTONIO ESTIVEZ		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
DOL	DOL		ARVINDER ATWAL		65 KENNETH PLACE NEW HYDE PARK NY 11040	07/19/2017	07/19/2022
DOL	NYC	*****6683	ATLAS RESTORATION CORP.		35-12 19TH AVENUE ASTORIA NY 11105	08/02/2017	08/02/2022
DOL	NYC	*****5532	ATWAL MECHANICALS, INC		65 KENNETH PLACE NEW HYDE PARK NY 11040	07/19/2017	07/19/2022
DOL	NYC	*****2591	AVI 212 INC.		260 CROPSEY AVENUE APT 11GBROOKLYN NY 11214	10/30/2018	10/30/2023
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC		BALWINDER SINGH		421 HUDSON ST SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	NYC	*****3915	BEACON RESTORATION INC		SUITE B-8 782 PELHAM PARKWAY SOUTHBRONX NY 10462	04/21/2016	04/21/2021
DOL	NYC	*****8416	BEAM CONSTRUCTION, INC.		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	DOL		BIAGIO CANTISANI			06/12/2018	06/12/2023
DOL	DOL	*****4512	BOB BRUNO EXCAVATING, INC		5 MORNINGSIDE DR AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		BOGDAN MARKOVSKI		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL	*****8551	BRANDY'S MASONRY		216 WESTBROOK STREET P O BOX 304SAYRE PA 18840	08/09/2016	08/09/2021
DOL	DOL	*****1449	BRRESTORATION NY INC		140 ARCADIA AVENUE OSWEGO NY 13126	09/12/2016	09/12/2021
DOL	DOL		BRUCE MORSEY		C/O KENT HOLLOW SIDING LL 29A BRIDGE STREETNEW MILFORD CT 06776	01/15/2016	01/15/2021
DOL	DOL		BRUCE P. NASH JR.		5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	DOL	*****0225	C&D LAFACE CONSTRUCTION, INC.		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****8809	C.B.E. CONTRACTING CORPORATION		310 MCGUINESS BLVD GREENPOINT NY 11222	03/07/2017	03/07/2022

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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	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	NYC		CALVIN WALTERS		465 EAST THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL		CANTISANI & ASSOCIATES LTD		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CANTISANI HOLDING LLC			06/12/2018	06/12/2023
DOL	DOL		CARIBBEAN POOLS		C/O DOUGLAS L MALARKEY 64 VICTORIA DRIVEBINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL		CARMEN RACHETTA		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	02/03/2025
DOL	DOL		CARMENA RACHETTA		8531 OSWEGO ROAD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****3812	CARMODY "2" INC			06/12/2018	06/12/2023
DOL	DOL	*****1143	CARMODY BUILDING CORP	CARMODY CONTRACTING AND CARMODY CONTRACTING CORP.	442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY CONCRETE CORPORATION			06/12/2018	06/12/2023
DOL	DOL		CARMODY ENTERPRISES, LTD.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY INC		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****3812	CARMODY INDUSTRIES INC			06/12/2018	06/12/2023
DOL	DOL		CARMODY MAINTENANCE CORPORATION		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY MASONRY CORP		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****8809	CBE CONTRACTING CORP		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	AG		CESAR J. AGUDELO		81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372	02/07/2018	02/07/2023
DOL	DOL		CHARLES ZIMMER JR		216 WESTBROOK STREET P O BOX 304SAYRE PA 18840	08/09/2016	08/09/2021
DOL	DOL		CHRISTOPHER J MAINI		19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL		CHRISTOPHER PAPASTEFANOU A/K/A CHRIS PAPASTEFANOU		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****1927	CONSTRUCTION PARTS WAREHOUSE, INC.	CPW	5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	NYC	*****2164	CREATIVE TRUCKING INC		58-83 54TH STREET MASPETH NY 11378	02/26/2016	02/26/2021
DOL	DOL	*****2524	CSI ELECTRICAL & MECHANICAL INC		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
DOL	DOL	*****7761	D L MALARKEY CONSTRUCTION		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL	*****7888	D L MALARKEY CONSTRUCTION INC		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL	*****5629	DAKA PLUMBING AND HEATING LLC		2561 ROUTE 55 POUGHQUAG NY 12570	02/19/2016	02/19/2021
DOL	NYC		DALJIT KAUR BOPARAI		185-06 56TH AVE FRESH MEADOW NY 11365	10/17/2017	10/17/2022
DOL	DOL		DANICA IVANOSKI		61 WILLETT ST. PASSAIC NJ 07503	10/26/2016	10/26/2021
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL		DAVID MARTINEZ		C/O EMPIRE TILE INC 6 TREMONT COURTHUNTINGTON STATION NY 11746	03/08/2016	03/08/2021
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024

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DOL	DOL		DEBBIE STURDEVANT		29 MAPLEWOOD DRIVE BINGHAMTON NY 13901	02/21/2017	02/21/2022
DOL	AG		DEBRA MARTINEZ		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL		DEDA GAZIVODAN		C/O DAKA PLUMBING AND H 2561 ROUTE 55POUGHQUAG NY 12570	02/19/2016	02/19/2021
DOL	DOL		DELPHI PAINTING & DECORATING CO INC		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		DENNIS SCHWANDTNER		C/O YES SERVICE AND REPAI 145 LODGE AVEHUNTINGTON STATION NY 11476	08/09/2016	08/09/2021
DOL	DOL		DF CONTRACTORS OF ROCHESTER, INC.		1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	DOL		DF CONTRACTORS, INC.		1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	NYC		DIMITRIOS TSOUMAS		35-12 19TH AVENUE ASTORIA NY 11105	08/02/2017	08/02/2022
DOL	DOL		DOMENICO LAFACE		8531 OSWEGO RD BALDWINSVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****3242	DONALD R. FORSAY	DF LAWN SERVICE	1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	DOL		DONALD R. FORSAY		1835 DAANSEN RD. PALMYRA NY 14522	05/16/2017	05/16/2022
DOL	NYC	*****7404	DOSANJH CONSTRUCTION CORP		9439 212TH STREET QUEENS VILLAGE NY 11428	02/25/2016	02/25/2021
DOL	DOL		DOUGLAS L MALARKEY	MALARKEY CONSTRUCTI ON	64 VICTORIA DRIVE B INGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	NYC		DUARTE LOPES		66-05 WOODHAVEN BLVD. STE 2REGO PARK NY 11374	04/20/2017	04/20/2022
DOL	DOL	*****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL		EAST COAST PAVING		2238 BAKER RD GILLET PA 16923	03/12/2018	03/12/2023
DOL	NYC	*****4269	EAST PORT EXCAVATION & UTILITIES		601 PORTION RD RONKONKOMA NY 11779	11/18/2016	11/18/2021
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL	*****3270	EMPIRE TILE INC		6 TREMONT COURT HUNTINGTON STATION NY 11746	03/08/2016	03/08/2021
DOL	NYC	*****5917	EPOCH ELECTRICAL, INC		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2024
DOL	DOL	*****7403	F & B PAINTING CONTRACTING INC		2 PARKVIEW AVENUE HARRISON NY 10604	09/26/2016	09/26/2021
DOL	DOL		FAIGY LOWINGER		11 MOUNTAIN RD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL		FRANK BENEDETTO		19 CATLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL		FRANK BENEDETTO		C/O F & B PAINTING CONTRA 2 PARKVIEW AVENUEHARRISON NY 10604	09/26/2016	09/26/2021
DOL	DOL	*****4722	FRANK BENEDETTO AND CHRISTOPHER J MAINI	B & M CONCRETE	19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	NYC		FRANK MAINI		1766 FRONT ST YORKTOWN HEIGHTS NY 10598	01/17/2018	01/17/2023
DOL	NYC	*****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		GABRIEL FRASSETTI			04/10/2019	04/10/2024
DOL	DOL		GALINDA ROTENBERG		C/O GMDV TRANS INC 67-48 182ND STREETFRESH MEADOWS NY 11365	06/24/2016	06/24/2021
DOL	DOL		GEOFF CORLETT		415 FLAGGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DOL		GIGI SCHNECKENBURGER		261 MILL RD EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		GIOVANNI LAFACE		8531 OSWEGO RD BALDWINSVILLE NY 13027	02/03/2020	01/09/2023

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DOL	NYC	*****3164	GLOBE GATES INC	GLOBAL OVERHEAD DOORS	405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
DOL	DOL	*****5674	GMDV TRANS INC		67-48 182ND STREET FRESH MEADOWS NY 11365	06/24/2016	06/24/2021
DOL	NYC		GREAT ESTATE CONSTRUCTION, INC.		327 STAGG ST BROOKLYN NY 11206	10/10/2017	10/10/2022
DOL	DOL		GREGORY S. OLSON		P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC		HARMEL SINGH		15 CLINTON LANE HICKSVILLE NY 11801	02/25/2016	02/25/2021
DOL	NYC		HAROLD KUEMMEL		58-83 54TH STREET MASPETH NY 11378	02/26/2016	02/26/2021
DOL	NYC	*****3228	HEIGHTS ELEVATOR CORP.		1766 FRONT ST YORKTOWN HEIGHTS NY 10598	01/17/2018	01/17/2023
DOL	DOL	*****5131	INTEGRITY MASONRY, INC.	M&R CONCRETE	722 8TH AVE WATERVLIT NY 12189	06/05/2018	06/05/2023
DOL	DOL		IRENE KASELIS		32 PENNINGTON AVE WALDWICK NJ 07463	05/30/2019	05/30/2024
DOL	AG		J A M CONSTRUCTION CORP		SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457	04/07/2016	04/07/2021
DOL	DOL		J.A. HIRES CADWALLADER		P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		JAMES C. DELGIACCO		722 8TH AVE WATERVLIT NY 12189	06/05/2018	06/05/2023
DOL	AG		JAMES FALCONE		SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457	04/07/2016	04/07/2021
DOL	DOL		JAMES LIACONE		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JAMES RACHEL		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JASON W MILLIMAN		C/O ROCHESTER ACOUSTICAL P O BOX 799HILTON NY 14468	02/19/2016	02/19/2021
DOL	DOL	*****5368	JCH MASONRY & LANDSCAPING INC.		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		JESSICA WHITESIDE		C/O BRRESTORATION NY INC 140 ARCADIA AVENUEOSWEGO NY 13126	09/12/2016	09/12/2021
DOL	AG		JOHN ANTHONY MASSINO		36-49 204TH STREET BAYSIDE NY 11372	02/07/2018	02/07/2023
DOL	DOL		JOHN F. CADWALLADER		200 LATTA BROOK PARK HORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL	*****4612	JOHN F. CADWALLADER, INC.	THE GLASS COMPANY	P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		JOHN GOCEK		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	AG	*****0600	JOHNCO CONTRACTING, INC.		36-49 204TH STREET BAYSIDE NY 11372	02/07/2018	02/07/2023
DOL	DOL		JON E DEYOUNG		261 MILL RD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		JORI PEDERSEN		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL		JOSE CHUCHUCA		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	AG		JOSEPH FALCONE		SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457	04/07/2016	04/07/2021
DOL	NYC		JOSEPH FOLEY		66-05 WOODHAVEN BLVD. STE 2REGO PARK NY 11374	04/20/2017	04/20/2022
DOL	DOL	*****9273	JOSEPH M LOVETRO		P O BOX 812 BUFFALO NY 14220	08/09/2016	08/09/2021

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DOL	NYC		JOSEPH MARTINO		1535 RICHMOND AVENUE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	DOL		JOY MARTIN		2404 DELAWARE AVE NIGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL	*****5062	K R F SITE DEVELOPMENT INC		375 LAKE SHORE DRIVE PUTNAM VALLEY NY 10579	01/23/2017	01/23/2022
DOL	NYC		K.S. CONTRACTING CORP.		29 PHILLIP DRIVE PARSIPPANY NJ 07054	02/13/2017	02/13/2022
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATIE BURDICK		2238 BAKER RD GILLETT PA 16923	03/12/2018	03/12/2023
DOL	DOL		KENNETH FIORENTINO		375 LAKE SHORE DRIVE PUTNAM VALLEY NY 10579	01/23/2017	01/23/2022
DOL	DOL	*****9732	KENT HOLLOW SIDING LLC		29A BRIDGE STREET NEW MILFORD CT 06776	01/15/2016	01/15/2021
DOL	DOL	*****3490	L & M CONSTRUCTION/DRYWALL INC.		1079 YONKERS AVE YONKERS NY 10704	08/07/2018	08/07/2023
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	AG	*****4643	LALO DRYWALL, INC.		221 OLD FORD ROAD NEW PLATZ NY 12561	05/20/2016	05/20/2021
DOL	DOL	*****4505	LARAPINTA ASSOCIATES INC		29 MAPLEWOOD DRIVE BINGHAMTON NY 13901	02/21/2017	02/21/2022
DOL	DOL		LAVERN GLAVE		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	06/24/2016	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	06/24/2016	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	01/17/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL	*****4388	LEN.J CONSTRUCTION, LLC		PO BOX 10007 ALBANY NY 12201	08/14/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	09/19/2017	09/19/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	08/14/2017	08/14/2022
DOL	DOL		LEROY NELSON JR		PO BOX 10007 ALBANY NY 12201	01/17/2017	09/19/2022
DOL	DA	*****4460	LONG ISLAND GLASS & STOREFRONTS, LLC		4 MANHASSET TRL RIDGE NY 11961	09/06/2018	09/06/2023
DOL	AG	*****4216	LOTUS-C CORP.		81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372	02/07/2018	02/07/2023
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	AG		LUIS MARTINEZ	LALO DRYWALL	211 MAIN ST. NEW PALTZ NY 12561	05/20/2016	05/20/2021
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL		M ANVER BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	DOL		M. ANVER BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	DOL	*****1784	MADISON AVE CONSTRUCTION CORP		39 PENNY STREET WEST ISLIP NY 11795	11/02/2016	11/02/2021

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DOL	DOL		MALARKEY'S BAR & GRILL LLC		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	DOL	*****0705	MALARKEY'S PUB & GRUB LLC		64 VICTORIA DRIVE BINGHAMTON NY 13904	02/04/2016	02/04/2021
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	NYC		MAREK FABIJANOWSKI		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	DOL		MARIACHI'S PIZZERIA		C/O DOUGLAS L MALARKEY 64 VICTORIA DRIVEBINGHAMTON NY 13904	02/04/2016	02/04/2021
DOL	NYC		MARTINE ALTER		1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	DOL		MARVIN A STURDEVANT		29 MAPLEWOOD DRIVE BINGHAMTON NY 13901	02/21/2017	02/21/2022
DOL	DOL		MASONRY CONSTRUCTION, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****3333	MASONRY INDUSTRIES, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	NYC		MATINA KARAGIANNIS		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2023
DOL	DOL		MATTHEW P. KILGORE		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	DOL		MAURICE GAWENO		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****6416	MCCALL MASONRY		P O BOX 304 SAYRE PA 18840	08/09/2016	08/09/2021
DOL	DOL		MCLEAN "MIKKI BEANE"		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL		MCLEAN "MIKKI" DRAKE		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL		MCLEAN M DRAKE-BEANE		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL	*****9445	MCLEAN M WALSH	ELITE PROFESSIONAL PAINTING OF CNY	1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL	*****9445	MCLEAN M WALSH	ELITE PROFESSIONAL PAINTING OF CNY	1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	NYC		MICHAEL HIRSCH		C/O MZM CORP 163 S MAIN STREETNEW CITY NY 10956	01/28/2016	01/28/2021
DOL	DOL		MICHAEL LENIHAN		1079 YONKERS AVE UNIT 4YONKERS NY 10704	08/07/2018	08/07/2023
DOL	AG		MICHAEL RIGLIETTI		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL	*****4829	MILESTONE ENVIRONMENTAL CORPORATION		704 GINESI DRIVE SUITE 29MORGANVILLE NJ 07751	04/10/2019	04/10/2024
DOL	NYC	*****9926	MILLENNIUM FIRE PROTECTION, LLC		325 W. 38TH STREET SUITE 204NEW YORK NY 10018	11/14/2019	11/14/2024
DOL	NYC	*****0627	MILLENNIUM FIRE SERVICES, LLC		14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	NYC	*****3826	MOVING MAVEN OF NY, INC.		1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	NYC	*****3550	MOVING MAVEN, INC		1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	AG		MSR ELECTRICAL CONSTRUCTION CORP.		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL		MUHAMMAD BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	DOL		MUHAMMAD BEIG		142 EAST MARKET STREET LONG BEACH NY 11561	03/07/2017	03/07/2022
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC	*****3613	MZM CORP		163 S MAIN STREET NEW CITY NY 10956	01/28/2016	01/28/2021
DOL	DA	*****9786	NATIONAL INSULATION & GC CORP		180 MILLER PLACE HICKSVILLE NY 11801	12/12/2018	12/12/2023

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DOL	NYC	*****4839	NEW YORK RIGGING CORP		58-83 54TH STREET MASPETH NY 11378	02/26/2016	02/26/2021
DOL	NYC		NICHOLAS FILIPAKIS		7113 FORT HAMILTON PARKWA BROOKLYN NY 11228	12/09/2016	12/09/2021
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTI ON, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	DOL	*****6966	NORTH COUNTRY DRYWALL AND PAINT		23167 COUNTY ROUTE 59 DEXTER NY 13634	10/24/2016	10/24/2021
DOL	DOL	*****0065	NORTHEAST LANDSCAPE AND MASONRY ASSOC		3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10523	01/23/2017	01/23/2022
DOL	DOL	*****1845	OC ERECTERS, LLC A/K/A OC ERECTERS OF NY INC.		1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442	01/16/2018	01/16/2023
DOL	NYC	*****0818	ONE TEN RESTORATION, INC.		2366 61ST ST BROOKLYN NY 11204	12/15/2016	12/15/2021
DOL	NYC		PARESH SHAH		29 PHILLIP DRIVE PARSIPPANY NJ 07054	02/13/2017	02/13/2022
DOL	NYC	*****9422	PELIUM CONSTRUCTION, INC.		22-33 35TH ST. ASTORIA NY 11105	12/30/2016	12/30/2021
DOL	DOL		PETER M PERGOLA		3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10523	01/23/2017	01/23/2022
DOL	DOL		PIERRE LAPORT		224 COUNTY HIGHWAY 138 BROADALBIN NY 12025	03/07/2017	03/07/2022
DOL	DOL	*****1543	PJ LAPORT FLOORING INC		224 COUNTY HIGHWAY 138 BROADALBIN NY 12025	03/07/2017	03/07/2022
DOL	NYC	*****5771	PMJ ELECTRICAL CORP		7113 FORT HAMILTON PARKWA BROOKLYN NY 11228	12/09/2016	12/09/2021
DOL	DOL	*****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC	*****4532	PROFESSIONAL PAVERS CORP.		66-05 WOODHAVEN BLVD. REGO PARK NY 11374	04/20/2017	04/20/2022
DOL	DA	*****6817	QUADRANT METAL BUILDINGS LLC		2740 SW MARTIN DOWNS BLVD PALM CITY FL 34990	08/25/2016	08/25/2021
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP		3 PARK CIRCLE MIDDLETOWN NY 10940	01/30/2018	01/30/2023
DOL	AG	*****7015	RCM PAINTING INC.		69-06 GRAND AVENUE 2ND FLOORMASPETH NY 11378	02/07/2018	02/07/2023
DOL	DOL		REGINALD WARREN		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DA		RIANN MULLER		2740 SW MARTIN DOWNS BLVD PALM CITY FL 34990	08/25/2016	08/25/2021
DOL	DOL	*****9148	RICH T CONSTRUCTION		107 WILLOW WOOD LANE CAMILLUS NY 13031	11/13/2018	11/13/2023
DOL	DOL		RICHARD MACONE		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL	*****9148	RICHARD TIMIAN	RICH T CONSTRUCTI ON	108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	11/13/2018	11/13/2023
DOL	DOL		ROBBYE BISSESAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROBERT A. VALERINO		3841 LANYARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		ROBERT BRUNO		3 GAYLORD ST AUBURN NY 13021	11/15/2016	11/15/2021
DOL	DOL		ROBERT BRUNO		5 MORNINGSIDE DRIVE AUBURN NY 13021	05/28/2019	05/28/2024
DOL	NYC		ROBERT HOHMAN		149 FIFTH AVE NEW YORK NY 10010	12/29/2016	12/29/2021
DOL	DOL	*****3859	ROCHESTER ACOUSTICAL CORP		P O BOX 799 HILTON NY 14468	02/19/2016	02/19/2021

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DOL	DOL		RODERICK PUGH		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL	*****4880	RODERICK PUGH CONSTRUCTION INC.		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DOL		RONALD MESSEN		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		ROSEANNE CANTISANI			06/12/2018	06/12/2023
DOL	DOL		RYAN ALBIE		21 S HOWELLS POINT ROAD BELLPORT NY 11713	02/21/2017	02/21/2022
DOL	DOL	*****3347	RYAN ALBIE CONTRACTING INC		21 S HOWELLS POINT ROAD BELLPORT NY 11713	02/21/2017	02/21/2022
DOL	DOL	*****1365	S & L PAINTING, INC.		11 MOUNTAIN ROAD P.O BOX 408MONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL	*****7730	S C MARTIN GROUP INC.		2404 DELAWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	NYC		SABIR MUHAMMED		SUITE B-8 782 PELHAM PARKWAY SOUTHBRONX NY 10462	04/21/2016	04/21/2021
DOL	DOL		SALVATORE A FRESINA			08/26/2016	08/26/2021
DOL	DOL		SAM FRESINA			08/26/2016	08/26/2021
DOL	NYC	*****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC		SANDEEP BOPARAI		185-06 56TH AVE FRESH MEADOW NY 11365	10/17/2017	10/17/2022
DOL	DOL	*****9751	SCW CONSTRUCTION		544 OLD ROUTE 23 ACRE NY 12405	02/14/2017	02/14/2022
DOL	AG		SERGIO RAYMUNDO		109 DUBOIS RD. NEW PALTZ NY 12561	05/20/2016	05/20/2021
DOL	NYC	*****6597	SHAIRA CONSTRUCTION CORP.		421 HUDSON STREET SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	DOL	*****1961	SHANE BURDICK	CENTRAL TRAFFIC CONTROL, LLC.	2238 BAKER ROAD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL		SHANE BURDICK		2238 BAKER ROAD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL		SHANE NOLAN		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		SHULEM LOWINGER		11 MOUNTAIN ROAD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL	*****0816	SOLAR ARRAY SOLUTIONS, LLC		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	DOL	*****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****6844	STEAM PLANT AND CHX SYSTEMS INC.		14B COMMERCIAL AVENUE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****9933	STEED GENERAL CONTRACTORS, INC.		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		STEFANOS PAPASTEFANOU, JR. A/K/A STEVE PAPASTEFANOU, JR.		256 WEST SADDLE RIVER RD UPPER SADDLE RIVER NJ 07458	05/30/2019	05/30/2024
DOL	DOL	*****9751	STEPHEN C WAGAR		544 OLD ROUTE 23 ACRE NY 12405	02/14/2017	02/14/2022
DOL	DOL		STEVE TATE		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	NYC		STEVEN GOVERNALE		601 PORTION RD RONKONKOMA NY 11779	11/18/2016	11/18/2021
DOL	DOL		STEVEN MARTIN		2404 DELWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL		STEVEN P SUCATO		15-68 208TH STREET BAYSIDE NY 11360	06/23/2016	06/23/2021
DOL	DOL		STEVEN TESTA		50 SALEM STREET - BLDG B LYNNFIELD MA 01940	01/23/2017	01/23/2022
DOL	NYC	*****5863	SUKHMANY CONSTRUCTION, INC.		185-06 56TH AVE FRESH MEADOW NY 11365	10/17/2017	10/17/2022

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DOL	DOL	*****1060	SUNN ENTERPRISES GROUP, LLC		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL	*****8209	SYRACUSE SCALES, INC.		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	DOL		TALAILA OCAMPA		1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442	01/16/2018	01/16/2023
DOL	DOL	*****9852	TAP STEEL INC		ROUTE 26 3101 P O BOX 457CONSTABLEVILLE NY 13325	01/28/2016	01/28/2021
DOL	DOL		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL		TEST		P.O BOX 123 ALBANY NY 12204	05/20/2020	05/20/2025
DOL	DOL	*****5570	TESTA CORP		50 SALEM STREET - BLDG B LYNNFIELD MA 01940	01/23/2017	01/23/2022
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
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		TIMOTHY A PALUCK		C/O TAP STEEL INC RTE 26 3101/ P O BOX 457CONSTABLEVILLE NY 13325	01/28/2016	01/28/2021
DOL	DOL	*****3453	TORCHIA'S HOME IMPROVEMENT		10153 ROBERTS RD SAUQUOIT NY 13456	08/09/2016	08/09/2021
DOL	DOL	*****8311	TRIPLE B FABRICATING, INC.		61 WILLETT ST. PASSAIC NJ 07503	10/26/2016	10/26/2021
DOL	DOL	*****9407	TURBO GROUP INC		15-68 208TH STREET BAYSIDE NY 11360	06/23/2016	06/23/2021
DOL	DOL	*****6392	V.M.K CORP.		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHELEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****7361	VIALE HOLDINGS, INC.	MOVING MAVEN	1010 NORTHERN BLVD. GREAT NECK NY 11021	03/09/2017	03/09/2022
DOL	DOL		VICTOR ALICANTI		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
DOL	DOL		VICTOR ROTENBERG		C/O GMDV TRANS INC 67048 182ND STREETFRESH MEADOWS NY 11365	06/24/2016	06/24/2021
DOL	NYC		VIKTAR PATONICH		2630 CROPEY AVE BROOKLYN NY 11214	10/30/2018	10/30/2023
DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC		VITO GARGANO		1535 RICHMOND AVE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	NYC	*****3673	WALTERS AND WALTERS, INC.		465 EAST AND THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL		WAYNE LIVINGSTON JR	NORTH COUNTRY DRYWALL AND PAINT	23167 COUNTY ROUTE 59 DEXTER NY 13634	10/24/2016	10/24/2021
DOL	DOL	*****3296	WESTERN NEW YORK CONTRACTORS, INC.		3841 LAYNARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		WHITE PLAINS CARPENTRY CORP		442 ARMONK RD	06/12/2018	06/12/2023
DOL	DOL		WILLIAM C WATKINS		1229 JAMES STREET SYRACUSE NY 13203	05/02/2017	05/02/2022
DOL	DOL		WILLIAM DEAK		C/O MADISON AVE CONSTR CO 39 PENNY STREETWEST ISLIP NY 11795	11/02/2016	11/02/2021
DOL	DOL	*****4043	WINDSHIELD INSTALLATION NETWORK, INC.		200 LATTA BROOK PARK HORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL	*****4730	XGD SYSTEMS, LLC	TDI GOLF	415 GLAGE AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL	*****7345	YES SERVICE AND REPAIRS CORPORATION		145 LODGE AVE HUNTINGTON STATION NY 11476	08/09/2016	08/09/2021
DOL	NYC		ZAKIR NASEEM		30 MEADOW ST BROOKLYN NY 11206	10/10/2017	10/10/2022
DOL	NYC	*****8277	ZHN CONTRACTING CORP		30 MEADOW ST BROOKLYN NY 11206	10/10/2017	10/10/2022