SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Work of the Contract is shown and described in Drawings and Specifications entitled:

Town of Longmeadow, Massachusetts

Plan of

Willow Brook Road

Storm Drain Rehabilitation
July 2020

B. No materials, labor or equipment shall be furnished by the Owner under this Contract.

C. Obtain all local permits and licenses necessary for the contemplated Work.

D. Comply with the requirements of all permits issued for all portions of the Work under this Contract. Copies of permits, order of conditions, etc. appended to the document shall become part of this Contract.

E. All Work shall be completed within the contract time as set forth in the Agreement Section 00500.

1.2 PROJECT SUMMARY

A. The Work of this Contract includes but is not limited to the following:

1. Construction of new catch basins, sewer manhole, cast in place pipe, road resurfacing, and appurtenant work on Willow Brook Road in Longmeadow as shown on the drawings. Full restoration of other items within the project limits disturbed by construction activities is required.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01140

WORK RESTRICTIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Project Management

2. Work Hours

3. Coordination

4. Project meetings

1.2 PROJECT MANAGEMENT

A. Retain on the Site, a competent, full time Superintendent, satisfactory to the Owner. The Superintendent shall not be changed, except with the consent of the Owner and shall be in full charge of the work. All instructions given to this person by the Engineer or the Owner shall be binding.

B. The work must be completed in a continuous uninterrupted operation. Use sufficient personnel and adequate equipment to complete all the necessary work requirements within the period of time required by the Agreement.

1.3 WORK HOURS

A. Unless specifically authorized by the Owner, the Work must be conducted during daylight hours on Monday through Friday, and within the time between 7:00 a.m. and 4:00 p.m. No work is to be done on holidays, Saturdays, Sundays or outside of the work hours described above, without prior written permission of the Owner.

1.4 COORDINATION

A. Supply to the Owner the telephone/beeper number of a responsible person who may be contacted during off-hours for emergencies 24 hours a day, seven days a week.

B. Prepare a contact list of phone numbers for all project personnel. Project list should include the Contractor, Engineer, Owner and local personnel including police, fire and ambulance.

C. All utility shutdowns shall be coordinated with the Owner and the affected utility. No shutdown is to occur without authorization.

1.5 PROJECT MEETINGS

A. Subject to the Owner's discretion, project meetings will be held on a weekly basis.

B. Scheduling shall be discussed with all parties to be affected by upcoming work.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 DIVISION 0 AND DIVISION 1 WORK INCIDENTAL TO THE CONTRACT PRICE

A. No separate measurement or payment will be made for work called for in Division 0 or Division 1 of the Contract Specifications, unless specifically covered under the Bid Items listed below. All costs associated with this work shall be considered incidental to the Contract Bid Price.

B. Division 2 through Division 16 work will be measured and paid for at the Contractor's unit bid price or lump sum item cost as indicated on the Bid Form. Those payable work items, and related prices as bid, shall be the basis for all compensation to the Contractor for work performed under this Contract. Work not specifically included as a bid item, but which is required to properly and satisfactorily complete the work is considered ancillary and incidental to the bid item work, and payment for such work is considered to be included in the values as bid for payable items. Compensation for all work shall be made as a measured quantity of work under the appropriate bid items.

1.2 CURED-IN-PLACE PIPE (12" ITEM 1) (15" ITEM 2) (18" ITEM 3)

A. Measurement

1. Measurement for mainline storm drain pipe lining shall be on a linear foot basis and shall be along the ground surface above and parallel to the pipeline from and to the inside face of structures.

2. Bypass pumping of the main line storm drain flow, if required, in order to maintain drainage service while the pipe is being lined shall be included as part of the pipe lining cost.

3. Coring and buffing of pipe liner at each pipe connection to provide a minimum 80 percent of the original pipe opening for pipe penetrations to the storm drain.

4. Television inspection and cleaning of all storm drain pipe segments within the project area before and after pipe lining shall be included as part of the pipe lining cost.

B. Payment

1. Payment of the bid price for storm drain pipe lining shall be full compensation for providing and cleaning, testing of the lining, lateral coring and buffing, TV inspection of pipes before and after pipe lining, , and all labor, equipment and materials required for or incidental to the work.

1.3 SEALING OF STORM DRAIN PIPE PENETRATIONS TO STORM SEWER (ITEM 4).

A. Measurement

1. Measurement for cutting protruding penetrations before lining, hydraulic cement mortar grouting of lateral pipe penetrations at storm sewer, providing top hat liners, shall be a count of the number of storm drain piping penetrations to the storm sewer. Grouting and top hat liner shall extend 18- inches to 24-inches into the lateral pipe.

B. Payment

1. Payment of the bid price for cutting protruding penetrations before lining, hydraulic cement mortar grouting of lateral pipe penetrations at storm sewer, providing top hat liners, shall be full compensation for all labor, equipment, bypass pumping, if necessary, cleaning, and materials required for or incidental to the work.

1.4 BITUMINOUS CONCRETE EXCAVATOIN BY COLD PLANER (ITEM 129)

Work done under this item shall conform to the relevant provisions of the Standard Specifications for Highways and Bridges, Section 100, Section 400 and the following.

This work shall consist of coldplaning or milling and removal of existing asphalt pavement courses from the project by the Contractor. Coldplaning shall be performed in conformity with the limits, line, grade, and typical cross-section shown in the Detail Sheets. Unless otherwise specified, the milled material shall become the property of the Contractor.

Control Strip

The Contractor shall coldplane a control strip to the nominal depth with a uniformly textured surface for approval by the Engineer. The coldplaned surface shall be tested transversely and longitudinally with a 10-foot straightedge furnished by the Contractor. The variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/2 inch. The center to center spacing of adjacent grooves shall be no greater than 5/8” and the difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 3/8”. Any surface not meeting these requirements for a uniform textured surface shall be corrected with a ±1/2” adjustment to the coldplaning equipment and operations before continuing. The depth of coldplaning will be adjusted as necessary to provide a planed surface free of delamination or un-milled surfaces.

Equipment

The coldplaning equipment shall be self-propelled with sufficient power, traction, and stability to remove the existing HMA pavement to the specified depth and cross-slope. The milling machine shall be capable of operating at a minimum speed of 10 feet per minute, designed so that the operator can at all times observe the milling operation without leaving the control area of the machine, and equipped with the following:

a) A built in automatic grade control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results.

b) Longitudinal controls capable of operating from any longitudinal grade reference, including string line, 30-foot ski minimum, 30-foot mobile string line minimum, or a matching shoe.

c) The transverse controls shall have an automatic system for controlling cross-slope at a given rate.

d) Cutting heads able to provide a minimum 6 foot cutting width and a 0- to 4-inch deep cut in one pass. The teeth on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

e) An integral pickup and conveying device to immediately remove milled material from the roadway and discharge the millings into a truck, all in one operation.

f) All necessary safety devices such as reflectors, headlights, taillights, flashing lights and back up signals so as to operate safely in both day and night.

g) A means of effectively limiting the amount of dust escaping from the milling and removal operation in accordance with local, State, and Federal air pollution control laws and regulations.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a smaller or lesser-equipped milling machine may be permitted when approved by the Engineer.

Sweeper Equipment

The Contractor shall provide a mechanical sweeper equipped with a water tank, spray assembly to control dust, a pick-up broom, a dual gutter broom, and a dirt hopper. The sweeper shall be capable of removing millings and loose debris from the textured pavement.

Coldplaning Operations

The coldplaning operations shall be scheduled to minimize the duration and placement of traffic on the milled surface. The milling operations shall not proceed more than 3 miles ahead of the paving operations. Under no circumstances shall the milled surface be left exposed to traffic for a period exceeding five days. The Engineer may allow the Contractor to adjust the limits of milling production when necessary.

The Contractor shall be responsible for removing any existing raised pavement markers with the cold planing limits. The cost of removing and discarding the pavement markers shall be included in the payment for Item 129.

The existing pavement shall be removed to the average depth shown in the Detail Sheets, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. The longitudinal profile of the milled surface shall be established using a 30-foot mobile ski, mobile string line, or stationary string line. The cross-slope of the milled surface shall be established by a second sensing device or by an automatic cross-slope control mechanism. The Contractor will be responsible for providing all grades necessary to remove the material to the proper line, grade, and typical cross-section shown in the Detail Sheets. The requirement for automatic grade or slope controls may be waived by the Engineer in locations warranted by the situation, including intersections and closely confined areas.

The Engineer may adjust the average milling depth specified in the Detail Sheets by ± 1/2” during each milling pass at no additional payment to minimize delamination of the underlying pavement course or to otherwise provide a more stable surface. If delamination or exposure of concrete occurs when milling a HMA pavement course from an underlying Portland Cement Concrete (PCC) pavement, the Contractor shall cease milling operations and consult the Engineer to determine whether to reduce the milling depth or make other adjustments to the operation.

Protection of Cast Iron Inlets and Utilities

Throughout the milling operation, protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor's responsibility and shall be repaired at the Contractor's expense. To prevent the infiltration of milled material into the storm sewer system, the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that falls into inlet openings or inlet grates shall be removed at the Contractor's expense.

Vertical Faces

All permanent limits of the milled area shall be saw cut or otherwise neatly cut by mechanical means to provide a clean and sound vertical face. Each vertical face shall be thoroughly coated with a hot poured rubberized asphalt sealant meeting the requirements of ASTM D3405 immediately prior to placing new HMA mixture adjacent to the vertical face. No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic, a temporary paved transition with a maximum 12:1 slope shall be established. If the milling machine is used to temporarily transition the milled pavement surface to the existing pavement surface, the temporary transition shall be constructed at a maximum 12:1 slope.

Opening to Traffic

Prior to opening a milled area to traffic, the milled surface shall be thoroughly swept with a mechanical sweeper to remove all remaining millings and dust. This operation shall be conducted in a manner so as to minimize the potential for creation of a traffic hazard and to comply with local, State, and Federal air pollution control laws and regulations. Any damage to vehicular traffic as a result of milled material becoming airborne is the responsibility of the Contractor and shall be repaired at the Contractor's expense. Temporary pavement markings shall be placed in accordance with the provisions of Subsection 850.64.

Inspection

The milled surface shall be same texture and quality as the approved control strip. The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, non-uniform milling teeth, improper use of equipment, or otherwise poor workmanship. Any unsatisfactory surfaces produced shall be corrected by re-milling at the Contractor's expense and to the satisfaction of the Engineer.

The variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/2 inch. The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 3/8". The center to center spacing of adjacent grooves shall be no greater than 5/8". Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.

In isolated areas where surface delamination between existing asphalt concrete layers or a surface delamination of asphalt concrete on Portland Cement Concrete causes a non-uniform texture to occur, the straightedge surface measurement requirements stated in the preceding paragraph may be waived, subject to the approval of the Engineer.

Method of Measurement

Pavement Milling will be measured for payment by the number of square yards of area completed and the work accepted. No area deductions will be made for minor un-milled areas such as catchbasin inlets, manholes, utility boxes and any similar utility structures.

Basis of Payment

Coldplaning, removal and disposal of existing asphalt concrete pavement will be paid for at the Contract unit price per square yard. This price shall include all equipment, tools, labor, and materials incidental thereto. No additional payments will be made for multiple passes with the milling machine to remove the existing asphalt concrete surface to the grade specified.

No separate payments will be made for: cleaning the pavement prior to paving; performing handwork removal of existing pavement and providing protection around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractor's negligence; providing protection to underground utilities from the vibration of the milling operation; sawcutting milled limits; removing existing raised pavement markers; installing and removing any temporary transition; removing and disposing of millings; furnishing a sweeper and sweeping after milling.

1.5 GRAVEL BORROW (ITEM #151)

A. Work to be performed under this item shall be limited to furnishing, installing, compacting and grading for the gravel used throughout the project as specified and approved by the Engineer.

B. All gravel borrow shall be used in the work shall comply with Materials Specification M1.03.0, Type b, unless otherwise specified on the Drawings or directed.

C. Gravel borrow shall be measured by the cubic yard of volume computed to the payment lines indicated on the Drawings, in the specifications, or as directed.

D.

1.6 48" CATCH BASIN (ITEM #201)

A. Measurement

1. Catch basins will be measured by each regardless of depth.

B. Payment

1. This item will be paid for at the contract unit price per each complete in-place regardless of depth, including pipes and fittings to connect to existing lines, backfill compacted to subgrade elevation and accepted.

1.7 CATCH BASIN REMOVED (ITEM #201.02)

A. Measurement

1. Catch basins Removed will be measured by each regardless of depth.

B. Payment

1. Removal of catch basins will be paid for at the contract unit price per each. Payment of the bid price shall be full compensation for all excavation, removal and disposal of structure, cutting and removal of existing pipes, and backfill compacted to subgrade elevation. Such price shall include all labor, equipment, and materials required for or incidental to the work.

1.8 48” SANITARY SEWER MANHOLE WITH INVERT (ITEM #210)

A. Measurement

1. Sanitary Manholes will be measured by each regardless of depth.

B. Payment

1. This item will be paid for at the contract unit price per each complete in-place regardless of depth, including pipes and fittings to connect to existing lines, brick invert, backfill compacted to subgrade elevation and accepted. This item will also include all work necessary, and materials required, for adequately maintaining existing sanitary sewer flow throughout the project duration.

1.9 SANITARY SEWER MANHOLE REMOVED (ITEM #210.02)

A. Measurement

1. Sanitary Sewer Manholes Removed will be measured by each regardless of depth.

B. Payment

1. Removal of sanitary sewer manhole will be paid for at the contract unit price per each. Payment of the bid price shall be full compensation for all excavation, removal and disposal of structure, capping of existing pipes, and backfill compacted to subgrade elevation. Such price shall include all labor, equipment, and materials required for or incidental to the work. This item will also include all work necessary, and materials required, for adequately maintaining existing sanitary sewer flow throughout the project duration.

1.10 SANITARY STRUCTURE ADJUSTED (ITEM 220.7)

A. The work under this Item shall conform to the relevant provisions of Section 201, 220 and the following:

B. All concrete, concrete blocks, clay bricks, gravel or other construction materials dislodged inside structure during construction to be removed and discarded by contractor.

C. Basis For Payment

1. Item 220.7 will be paid for at the Contract unit price per Each, installed and set to finish grade. Payment shall constitute full compensation for excavation, backfill, concrete collars, and all other, tools, equipment, labor and incidentals necessary to complete the work as specified on the plans or as required by the Engineer to a depth of 6” below structure frame.

1.11 REMOVE & RESET FRAME & COVER (ITEM 221.1)

A. Measurement

1. The work to be done under this item consists of the removal of frame and cover from sanitary sewer manhole removed, and installation of frame and cover to new sewer manhole as shown on the plans, and as directed by the engineer.

B. Payment

1. Item 221.1 will be paid for at the Contract unit price per each, installed and set to finish grade. Payment shall constitute full compensation for excavation, removal and resetting of old frame and cover, backfill, concrete collars, and all other, tools, equipment, labor and incidentals necessary to complete the work as specified on the plans or as required by the engineer.

1.12 FRAME AND GRATE PRECAST CONCRETE CURB INLET (ITEM 222.1) , FRAME AND GRATE PRECAST CONCRETE FLAT NO CURB INLET (ITEM 222.2)

A. Measurement

1. The work under this Item shall conform to the relevant provisions of Section 201 and the following:

2. The work to be done under this Item consists of the furnishing, delivering, and installation of Frame and Grate to the site as shown on the Plans, and as directed by the Engineer.

3. Work under this item shall also include the adjustment of structure when the elevation change of its top of frame or rim elevation is 6 inches or less. Structure shall be arrow type c top special and arrow type c-l catch basin top or approved other.

4. All concrete, concrete blocks, clay bricks, gravel or other construction materials dislodged inside structure during construction to be removed and discarded by contractor.

B. Payment

1. Item 222.1 will be paid for at the Contract unit price per Each, installed and set to finish grade. Payment shall constitute full compensation for excavation, removal and disposal of old frame and grate precast, backfill, concrete collars, and all other, tools, equipment, labor and incidentals necessary to complete the work as specified on the Plans or as required by the Engineer.

2. No additional payment for ‘Drainage Structure Adjusted’ will be made for any Frame and Grate structure that is subject to Item 222.1 Frame and Grate Precast Concrete.

1.13 IRRIGATION CONDUIT REPAIR (ITEM 346.05)

A. This work shall include the repair and/or replacement of lawn irrigation conduit damaged during construction. Repair and replacement of subsurface irrigation conduit clearly marked prior to construction shall be the sole responsibility of the contractor without additional compensation from the Town.

B. Method of measurement: The quantity of irrigation repair shall be the actual number of feet of replaced and/or repaired irrigation conduit damaged as a result of the construction effort.

C. Basis of Payment: This work will be paid for at the contract unit price per foot for 'Irrigation Conduit Repair' which price shall include all materials, equipment, tools, and labor incidental thereto.

1.14 IRRIGATION HEAD REPLACEMENT (ITEM 346.06)

A. This work shall include the replacement of lawn irrigation heads damaged during construction. The same model and type damaged shall be replaced at the unit price each. Repair and replacement of irrigation heads clearly marked prior to construction shall be the sole responsibility of the contractor without additional compensation from the Town.

B. Method of measurement: The quantity of repair shall be the actual number of heads replaced each as a result of the restoration effort.

C. Basis of Payment: This work will be paid for at the contract unit price per each for 'Irrigation Head Replacement' regardless of model or type which unit price shall include all materials, equipment, tools, and labor incidental thereto.

1.15 GATE BOX ADJUSTED (ITEM 358)

A. Boxes shall be adjusted flush with the required finished grade or minus 1/8 of one inch, with concrete collars. Boxes shall not settle after paving and rolling are completed beyond the 1/8" below finished road grade level described above. If settling does occur, the Contractor shall repair the situation to the satisfaction of the Engineer without additional compensation from the Town.

B. Measurement of this item shall be by each unit adjusted as designated by the Engineer and payment shall be based upon the unit bid price.

1.16 REPLACE WATER GATE BOX TOP (ITEM 358.1)

A. Each water get box top supplied shall be adjusted flush with the required finished grade or minus 1/8 of one inch, with concrete collars. Boxes shall not settle after paving and rolling are completed beyond the 1/8" below finished road grade level described above. If settling does occur, the Contractor shall repair the situation to the satisfaction of the Engineer without additional compensation from the Town.

B. Measurement of this item shall be by each unit supplied as designated by the Engineer and payment shall be based upon the unit bid price.

1.17 REPLACE WATER GATE BOTTOM (ITEM 358.2)

A. Each water get box bottom supplied shall be installed in place to the water main. Installation shall constitute full compensation for excavation, removal and disposal of old box, and all other, tools, equipment, labor and incidentals necessary to complete the work as specified on the plans or as required by the Engineer. If settling does occur, the contractor shall repair the situation to the satisfaction of the Engineer without additional compensation from the Town.

B. Measurement of this item shall be by each unit supplied as designated by the Engineer and payment shall be based upon the unit bid price.

1.18 BITUMEN FOR TACK COAT (ITEM #452)

A. Measurement

1. Bitumen used as tack coat will be measured by the methods specified in the Mass Highway Standard Specifications for Highways and Bridges Section 452

B. Payment

1. Bitumen for Tack Coat shall be paid for at the contract unit price per gallon, complete in place.

1.19 SUPERPAVE SURFACE COURSE – 9.5 (SSC – 9.5) (ITEM 460)

A. Work under these Items shall conform to the relevant provisions of Document MassDOT 2019 Supplemental Specifications to the 1988 English and the 1995 Metric Standard Specifications for Highways and Bridges Section 450 Hot Mix Asphalt Pavement

SUPERPAVE REQUIREMENTS contained herein and the following:

The Equivalent Single Axle Loads (ESALs) for the design travel lane over a 10-year period is 1.85 Million 18-kip (80-kn) ESALs.

The PGAB Grade selected for this Contract is PG 64-28.

The emulsion under this specification shall be Grade RS-1H. The emulsion shall meet the requirements of AASHTO M 140 for Grade RS-1, except the 16 penetration of residue shall be at least 50 and no more than 100.

B. Payment

1. Hot Mix Asphalt shall be paid for at the contract unit price per ton, complete in place.

2. Sweeping of the Underlying Surface prior to paving, as required by the plans or these specifications, incidental to item 460.

1.20 HOT MIX ASPHALT BERM REMOVED AND REPLACED – TYPE 2 (ITEM #470)

A. This item shall be provided by the Contractor in accordance with Section 500 of the Standard Specifications manual and shall be placed in the designated areas described by the Engineer. All work shall be done to the satisfaction of the Engineer.

B. The hot mix asphalt berm shall be place directly over one and one half inch berm pad surface. The total reveal of the berm shall be six inches, as measured from the new paved surface to the top of berm.

C. If at any time before the acceptance of the work any soft or imperfect spots develop in the exposed surface of the curb, such material placed shall be removed and replaced with new material and compacted, without additional compensation.

D. Payment

1. Hot Mix Asphalt Berm Remove and Replace - Type 2 will be measured by the actual number of linear feet of berm installed as accepted.

2. Payment shall constitute full compensation for excavation and removal of existing berm, installation of one and one half inch berm pad (if required), installation of bituminous concrete berm, and all other materials, tools, equipment, labor and incidentals necessary to complete berm removal and replacement as specified on the plans or as required by the engineer.

1.21 HOT MIX ASPHALT FOR PATCHING (ITEM #472)

1.22 SAW CUT ASPHALT PAVEMENT / CONCRETE SIDEWALK (ITEM #482)

A. Measurement

1. Saw Cutting Asphalt Pavement and or Concrete Sidewalk will be measured along the actual saw cut as shown on the drawings or as ordered by the Engineer.

B. Payment

1. This item will be paid for at the contract unit price per linear foot, and shall be full compensation for all labor, equipment, and materials incidental to this work.

1.23 GRANITE CURB REMOVED AND RESET (ITEM #580)

A. Measurement

1. Granite Curb Removed and Reset will be measured along the actual linear feet of granite curb removed and reset as shown on the drawings or as ordered by the Engineer.

B. Payment

1. This item will be paid for at the contract unit price per linear foot, and shall be full compensation for all labor, equipment, and materials incidental to this work.

1.24 CEMENT CONCRETE WHEELCHAIR RAMP (ITEM #701.2)

A. This work shall include the construction of concrete wheelchair ramps as indicated by plan or as authorized by the Engineer. This work shall consist of removal / disposal of existing wheelchair ramps, installation of 6" concrete wheelchair ramps with welded wire fabric placed 1-1/2 inches above the compacted gravel base in conformance with the details shown on the Drawings. Line and grade shall conform to the finished walk so as to provide sufficient pitch not to exceed Americans with Disabilities Act requirements (Reference wheelchair ramp notes and specifications).

B. Payment

1. Removal / disposal of existing wheelchair ramps shall <u>not</u> be paid for separately but included as part of this item regardless of walk thickness or steel content.

2. Welded wire fabric shall not be paid for separately but included as part of this item.

3. All sidewalks to be edged and jointed with broom finish.

4. The pay limits shall be the area in square yards based upon the width and length of the new ramp. This item shall also include furnishing and installation of tactile warning panels as required. The cost associated with removal of sidewalk ramps that are not being replaced will be paid for under the item "Sidewalk Removed and Not Replaced".

1.25 CEMENT CONCRETE SIDEWALK REMOVED & NOT REPLACED (ITEM #701.3)

A. This work shall consist of removal / disposal of existing concrete sidewalk and wheelchair ramps regardless of walk thickness or steel content.

B. Payment

1. The pay limits shall be the area in square yards based upon the width and length of the sidewalk remove

1.26 HOT MIX ASPHALT DRIVEWAY (ITEM #703)

A. Work under this Item shall conform to the relevant provisions of Section 701 of the Standard Specifications manual and shall include resurfacing aprons of existing asphalt driveways with hot mix asphalt, reconstruction of existing driveways, and construction of new aprons at existing gravel driveways.

B. Construction of aprons shall include saw cutting, removal and disposal of existing driveway and placement of 3" Class I Bituminous Concrete Type I-1 placed in two layers, 1.5" top course material over 1.5" of binder course material. Binder course mix shall be placed on the existing gravel, if suitable. If the existing foundation material is determined to be unsuitable by the Engineer, the material shall be excavated and replaced with 6" compacted gravel (M1.03.0).

C. Payment

1. Removal and disposal of existing driveway or unsuitable material paid under Item 703

2. Saw cutting of existing driveway paid under Item 482.3

3. Compacted gravel to be paid under Item 151

4. Hot Mix Asphalt shall be paid for at the contract unit price per ton, complete in place Item 703

1.27 REMOVE & RESET COBBLE STONE / BRICK / CONCRETE PAVER DRIVEWAYS (ITEM 706)

A. Remove and reset cobble stone / brick/ concrete pavers shall be paid for at the contract unit price per square yard, complete in place Item 706

1.28 MOBILIZATION AND DEMOBILIZATION (ITEM #748)

A. Measurement

1. There shall be no measurement for the mobilization and demobilization to the project locations as this work shall be paid for on a lump sum basis.

B. Payment

1. Payment of the lump sum bid price shall be paid in two equal installments. The first installment will occur at the time the first pay requisition is submitted when the Contractor has initiated full-time construction activity. This payment will be 80% of the item's bid price. The second installation will be paid when the Contractor has completed all construction activity including final cleanup and punch list items. The second payment will be 20% of the item's bid price. In no case shall the total of both installments exceed 5 percent of the base bid price.

1.29 LOAM BORROW (ITEM #751)

A. Measurement

1. ‘Loam Borrow’ shall be measured by weight slips delivered to the site, countersigned by the Engineer. The conversion from tonnage to cubic yards shall be 1.8 tons per cubic yard regardless of actual volume placed. Should the delivery slips read by volume, the measurement will be taken by the delivery slips.

B. Payment

1. Payment ‘Loam Borrow’ will be paid for at the contract unit price per cubic yard. Price shall include material, placement, and raking, complete in place.

1.30 SEEDING (ITEM #765)

A. Measurement

1. This work will be measured for payment by the number of square yards of surface area accepted established perennial grass as specified.

SEED	PROPORTION	GERMINATION MINIIMUM	PURITY MINIMUM
Creeping Red Fescue	50%	85%	95%
Kentucky Blue	25%	85%	90%
Domestic Rye	10%	90%	98%
Red Top	10%	85%	92%
Ladino Clover	5%	85%	96%

2. This work will be measured for payment by the number of square yards of surface area accepted established fertilizer as specified.

	10-20-10
Nitrogen (N)	10% Minimum
Available Phosphoric Acid	20% Minimum
Water Soluble Potash	10% Minimum

B. Payment

1. This work will be paid for at the Contract unit price per square yard for ‘Seeding’ including “Fertilizer” which price shall include all materials, mowing, maintenance, equipment, tools, labor, and work incidental thereto.

1.31 STOP SIGN INCLUDING POST (ITEM #832)

A. Stop sign including post shall be paid for at the contract unit price each, complete in place Item 832

1.32 12 INCH REFLECTORIZED WHITE LINE THERMOPLASTIC (ITEM # 866.112)

A. 12 inch reflectorized white line thermoplastic shall be paid for at the contract unit price per linear foot, complete in place Item 866.112

1.33 FIELD STENCIL NO DUMPING DRAINS TO RIVER REFLECTORIZED WHITE (PAINTED) (ITEM #864.1)

A. Measurement

1. Furnishing labor, equipment and materials for the application by stencil of NO DUMPING (INCLUED FISH SYMBOL) DRAINS TO RIVER reflectorized painted pavement markings in various locations.

B. Payment

1. Furnishing labor, equipment and materials for the application by stencil of reflectorized painted pavement markings is per each location.

2. Two stencils used to paint pavement markings to be provided to DPW upon completion of work. Each stencil to be of 1/16" inch Industrial grade thickness and to have 3 inch letters including fish symbol with a sheet size of 18 inches by 30 inches. The two stencils to be provided are incidental to the item # 864.1 see detail sheet.

1.34 SECTOR SPECIFIC WORKPLACE SAFETY STANDARDS FOR CONSTRUCTION SITES TO ADDRESS COVID-19 (ITEM #999)

Enforcement and Oversight

- A site-specific COVID-19 Officer (who may also be the Health and Safety Officer) shall be designated for every site except as provided below for construction and remodeling in 1-3 family residences
- Except as provided below for construction and remodeling in 1-3 family residences, the Contractor's site-specific project COVID-19 Officer shall submit a written daily report to the Owner's Representative. The COVID-19 Officer shall certify that the contractor and all subcontractors are in full compliance with sections B to D, inclusive (the "COVID-19 Construction Safety Guidance")
- For large, complicated construction projects a city or town may additionally require the Owner to develop and submit a site-specific risk analysis and enhanced COVID-19 safety plan, which may include additional requirements to address risks specific to the project or

type of project. The city or town shall review and approve such plan and may require such projects to pause construction until such a risk analysis and plan is submitted and approved. Once such an enhanced COVID-19 safety plan is approved, a violation of the plan shall be treated the same as a violation of the COVID-19 Construction Safety Guidance

- For all projects undertaken, managed or funded by a state agency or authority there shall be joint enforcement responsibility between the project's public Owner and the city or town where
  the project is located. The Owner of a public project has the lead responsibility for compliance and enforcement including frequent on-site inspections by an employee or contractor of the state agency or authority who is familiar with the COVID-19 Construction Safety Guidance and is authorized to enforce that guidance and shut down work at the site if violations are found. The Owner of the project is required to notify the municipality where the work is taking place whenever a site is shut down or of any violations of the COVID-19 Construction Safety Guidance and the resulting corrective action plan, as well as to provide copies of the COVID-19 Officer's written daily reports upon request. While the public Owner has the lead responsibility for enforcement, cities and towns retain the authority to take enforcement action against public projects found not in compliance with the COVID-19 Construction Safety Guidance, including the authority to order the project to shut down until a corrective action plan is developed, approved and implemented

  - Cities and towns are authorized to enforce the COVID-19 Construction Safety Guidance using their public health staff, building inspectors or any other appropriate official or contractor

  - Cities and towns may enforce the safety and distance protocols including, if multiple violations are found, requiring the Owner and / or Contractor to safely secure the site and pause construction activities until a corrective action plan is prepared, submitted and approved by the city or town

  - The city or town may require the Owner of a large, complicated private project to pay for an independent, third party inspector or inspection firm (or to pay into a pool to pay for such inspections). The third party inspector shall be accountable solely to the city or town and shall
    be responsible for enforcement on behalf of the city or town. A city or town may require private projects to pause construction until such a third-party inspector has been secured

B. Employee Health Protection – ZERO Tolerance

- ZERO TOLERANCE FOR SICK WORKERS REPORTING TO WORK. IF YOU ARE SICK, STAY HOME! IF YOU FEEL SICK, GO HOME! IF YOU SEE SOMEONE SICK, SEND THEM HOME!

- If you are exhibiting any of the symptoms below, you are to report this to your supervisor (via phone, text or email) right away, and head home from the job site or stay home if already there

- If you notice a co-worker showing signs or complaining about such symptoms, he or she should be directed to their supervisor (via phone, text or email) and asked to leave the project site immediately

COVID-19 Typical Symptoms:

- Fever
- Cough
- Shortness of Breath
- Sore Throat

Self-certify prior to shift

Prior to starting a shift, each employee will self-certify to their supervisor that they:

- Have no signs of a fever or a measured temperature above 100.3 degrees or greater, a cough or trouble breathing within the past 24 hours
- Have not had "close contact" with an individual diagnosed with COVID-19. "Close contact" means living in the same household as a person who has tested positive for COVID-19, caring for a person who has tested positive for COVID-19, being within 6 feet of a person who has tested positive for COVID-19 for about 15 minutes, or coming in direct contact with secretions (e.g., sharing utensils, being coughed on) from a person who has tested positive for COVID-19, while that person was symptomatic
- Have not been asked to self-isolate or quarantine by their doctor or a local public health official

Employees exhibiting symptoms or unable to self-certify should be directed to leave the work site and seek medical attention and applicable testing by their health care provider. They are not to return to the work site until cleared by a medical professional

General On-the-Job Guidance to Prevent Exposure & Limit the Transmission of the Virus

- No handshaking
- Wash hands often with soap for at least 20 seconds or use an alcohol-based hand sanitizer with at least 60% ethanol or 70% isopropanol
- Contractor and State Agency Field Offices are locked down to all but authorized personnel
- Each jobsite should develop cleaning and decontamination procedures that are posted and shared. These Procedures must cover all areas including trailers, gates, equipment, vehicles, etc. and shall be posted at all entry points to the sites, and throughout the project site.
- A "No Congregation" policy is in effect, individuals must implement social distancing by maintaining a minimum distance of 6-feet from other individuals
- Avoid face to face meetings – critical situations requiring in-person discussion must follow social distancing
- Conduct all meetings via conference calls, if possible. Do not convene meetings of more than 10 people. Recommend use of cell phones, texting, web meeting sites and conference calls for project discussion

- All individual work crew meetings / tailgate talks should be held outside and follow social distancing
- Please keep all crews a minimum of 6 feet apart at all times to eliminate the potential of cross contamination
- At each job briefing / tool box talk, employees are asked if they are experiencing any symptoms, and are sent home if they are
- Each jobsite should have laminated COVID-19 safety guidelines and handwashing instructions
- All restroom facilities / porta-potties should be cleaned and handwashing stations must be provided with soap, hand sanitizer and paper towels
- All surfaces should be regularly cleaned, including surfaces, door handles, laptops, etc.
- All common areas and meeting areas are to be regularly cleaned and disinfected at least once a day but preferably twice a day
- Be sure to use your own water bottle, and do not share
- To avoid external contamination, we recommend everyone bring food from home
- Please maintain Social Distancing separation during breaks and lunch
- Cover coughing or sneezing with a tissue, then throw the tissue in the trash and wash hands, if no tissue is available then cough into your elbow
- Avoid touching eyes, nose, and mouth with your hands
- To avoid sharing germs, please clean up after Yourself. DO NOT make others responsible for moving, unpacking and packing up your personal belongings
- If you or a family member is feeling ill, stay home!

Work Site Risk Prevention Practices

- At the start of each shift, confirm with all employees that they are healthy
- We will have a 100% glove policy from today going forward. All construction workers will be required to wear cut-resistant gloves or the equivalent
- Use of eye protection (safety goggles / face shields) is recommended
- In work conditions where required social distancing is impossible to achieve affected employees shall be supplied PPE including as appropriate a standard face mask, gloves, and eye protection
- All employees should drive to work site / parking area in a single occupant vehicle. Contractors / State staff should not ride together in the same vehicle
- When entering a machine or vehicle which you are not sure you were the last person to enter, make sure that you wipe down the interior and door handles with disinfectant prior to entry
- In instances where it is possible, workers should maintain separation of 6 feet from each other per CDC guidelines
- Multi person activities will be limited where feasible (two person lifting activities)

- Large gathering places on the site such as shacks and break areas will be eliminated and instead small break areas will be used with seating limited to ensure social distancing.
- Contact the cleaning person for your office trailer or office space and ensure they have proper COVID- 19 sanitation processes. Increase their cleaning visits to daily
- Clean all high contact surfaces a minimum of twice a day in order to minimize the spread of germs in areas that people touch frequently. This includes but is not limited to desks, laptops and vehicles

Wash Stations
All site-specific projects with outside construction sites without ready access to an indoor bathroom
MUST Install Wash Stations.

- Install hand wash stations with hot water, if possible, and soap at fire hydrants or other water sources to be used for frequent handwashing for all onsite employees
- All onsite workers must help to maintain and keep stations clean
- If a worker notices soap or towels are running low or out, immediately notify supervisors
- Garbage barrels will be placed next to the hand wash station for disposal of tissues / towels

Do all you can to maintain your good health by: getting adequate sleep; eating a balanced, healthy diet, avoid alcohol; and consume plenty of fluids.

Please Note: This document is not intended to replace any formalized procedures currently in place with the General Contractor.

Where these guidance does not meet or exceed the standards put forth by the General Contractor, everyone shall abide by the most stringent procedure available.

A site-specific COVID-19 Officer (who may also be the Health and Safety Officer) shall be designated for every site.

The Contractor's site specific project COVID-19 Officer shall submit a written daily report to the Owner's Representative. The COVID-19 Officer shall certify that the contractor and all subcontractors are in full compliance with these guidelines.

Any issue of non-compliance with these guidelines shall be a basis for the suspension of work. The contractor will be required to submit a corrective action plan detailing each issue of non-conformance and a plan to rectify the issue(s). The contractor will not be allowed to resume work until the plan is approved by the Owner. Any additional issues of non-conformance may be subject to action against the contractor's prequalification and certification status.

Limiting Exposures
Workers should follow the General On-the-Job Guidance to Prevent Exposure & Limit the Transmission of the Virus of the COVID-19 Employee Health, protection, guidance and prevention guide.

In addition, Contractors should advise workers of best practice to limit exposures off the construction site.

When leaving a construction site for breaks, lunch, or other reasons are required to wash hands with soap for at least 20 seconds or use an alcohol-based hand sanitizer with at least 60% ethanol or 70% isopropanol before leaving the site and must maintain social distancing and wear face coverings if traveling to other locations off the construction site. Frequent use of handwashing or alcohol-based hand sanitizers should be encouraged and handwashing facilities and / or alcohol-based hand sanitizers should be made readily available at work sites.

C. Construction and Remodeling in 1-3 Family Residences

For construction and remodeling work in 1-3 family residential constructions, section B shall be modified as follows:

- The contractor does not need to designate a site-specific COVID-19 Officer (who may also be the Health and Safety Officer) for every site if there are 5 or less workers at the site at any given time. Instead, the contractor may designate a COVID-19 Officer for all such small sites in a given city or town who shall be in daily contact with each of the sites to ensure that the contractor and all subcontractors are in full compliance with this safety guidance. This COVID-19 safety officer shall prepare a written daily report covering all the small sites in each city or town and make a copy of that report available to a municipal official and / or the owner of the residence upon request

- If the project has restroom facilities / porta-potties they must be cleaned and handwashing stations must be provided with soap, hand sanitizer and paper towels. For outside construction sites without ready access to an indoor bathroom, the contractors must either install Wash Stations with hot water, if possible, and soap at fire hydrants or other water sources to be used for frequent handwashing for all onsite employees <u>or</u> provide each employee and subcontractor with a sufficient quantity of hand sanitizer to allow for frequent handwashing

D. Worker Infection Protocol

As stated above, there is a zero tolerance for sick workers reporting to work. Employees should be instructed that even those with mild symptoms of respiratory infection (cough, shortness of breath, sore throat) or fever should stay off work. Contractors shall take immediate steps to limit infections at the
job site in the event that a worker discovered to have tested positive for COVID-19 or has COVID-19 related symptoms.

Although it is understood that contractors are enforcing Work Site Risk Prevention Practices including social distancing rules and use of PPE, consistent with guidelines it is also recognized that there may be occasions where someone who has tested positive for COVID-19 or who has COVID-19 symptoms has been present in a work area.

Prompt identification and isolation of potentially infectious individuals is a critical step in protecting workers, vendors, visitors, and others at a worksite.

Identification of Exposure

The Contractor shall direct workers with COVID-19 related symptoms to leave the jobsite immediately and contact their healthcare provider. The Massachusetts Department of Health (DPH) or a local board
of health will make appropriate notifications to those who had direct prolonged contact with the COVID-
19 positive workers.

The Contractor shall work with the local board of health to identify any potential job site exposures, including:

- Other workers, vendors, inspectors, or visitors to the work site with close contact to the individual
- Work areas such as supply cabinets and designated work stations or rooms
- Work tools and equipment
- Common areas such as break rooms and tables, vending machines, and sanitary facilities

Notification and Quarantine Requirements
As provided by law, the identity of the worker must be kept confidential

Upon learning of an infection, the contractor must immediately notify the designated COVID-19 safety officer, the site safety officer, and the owner

Sanitation Requirements
After a worker with COVID-19 related symptoms has been asked to leave the job site, the contractor shall take immediate steps to sanitize common areas and direct work places. This includes all on-site bathrooms facilities, any break facilities, and any other common areas on the job site that may have been in close contact with the infected worker.

Sanitation will be conducted with personnel, equipment, and material approved for COVID-19 sanitization.

Identified areas should remain isolated from workers until sanitation process has been completed and area is deemed safe for use.

Returning to Work
All impacted workers should follow CDC and DPH recommended steps concerning return to work. Workers who are considered close contacts to a COVID-19 case by public health authorities should not return for 14 days and are subject quarantine by public health.

Workers who leave during the work day due to COVID-19 symptoms and develop COVID-19 as confirmed by laboratory testing or diagnosis by a healthcare provider shall not return to the site until either released from isolation by healthcare provider or public health official.

In All Cases

- Keep all employee names confidential as required by law

- Other employees may be sent home while a workspace is being cleaned but will return to work after cleaning unless advised otherwise by a health care provider
- Other employees should be asked to contact their health provider if they have any questions
- Remind other employees to continue to practice proper sanitation and monitor for flu like symptoms

END OF SECTION

SECTION 01310

COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Coordinate progress of the Work to minimize interference with the operation of the existing facilities and other utilities in the roadway.

2. Perform all coordination necessary to complete tie-ins to the existing water main.

B. Related Sections

1. Section 01325 – Scheduling of Construction

C. Related Work Not Included

1. Operation of existing facilities will be performed by the Owner unless otherwise specified. The Owner will assist in arranging operation of any existing valves and pipelines required by the Contractor to connect to existing pipelines, and no existing valves shall be operated without the Owner's knowledge.

1.2 SUBMITTALS

A. Submit to the Owner and Engineer all requests for temporary shutdowns of facilities or interruption of operations at least 7 days prior to the beginning of any shutdown. No shutdown shall occur without the approval of the Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 GENERAL

A. Owner will perform all operations of the existing water distribution system. Owner will assist in arranging operation of any existing facilities or equipment required by the Contractor to connect to existing facilities, and no existing equipment shall be operated without the Owner's knowledge.

B. Maintain existing facilities in operation unless otherwise specifically permitted in these Specifications or approved by the Owner.

C. Perform all construction activities so as to avoid interference with operations of the facility and the work of others.

D. The Owner shall have the authority to order work stopped or prohibited, which would in his opinion, unreasonably result in stopping the necessary functions of the water distribution system. Any costs and/or delays associated with Owner authorized work stoppages due to the Contractor's operation shall be borne by the Contractor.

E. Owner and Engineer shall be kept fully informed at least one week before the beginning of all work by Contractor which may affect Owner's operations.

3.2 SEQUENCE OF CONSTRUCTION

A. Constructing the proposed improvements while maintaining existing operations will require a specific sequence of constructing portions of this project. The Contractor will be allowed as much flexibility as possible in scheduling the details of the project. The Contractor shall provide a detailed schedule as required in Section 01325.

B. The Contractor shall incorporate the following project scheduling requirements into development of the schedule submitted as required in Section 01325:

1. All components of the existing sanitary system must remain in operation throughout construction of the new mains unless otherwise specified herein.

END OF SECTION

SECTION 01325

SCHEDULING OF CONSTRUCTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Before starting work, Contractor shall submit to Engineer a Schedule of Operations and Construction within ten days after the date of the Notice to Proceed, and no later than one week before the start of construction. No work shall be started without approval of the schedule. When working on the project, Contractor must carry on his activities with full crews and in an efficient manner, so as to cause the minimum inconvenience to the public.

   a. The schedule shall reflect the proposed methods, the sequence of work, and the time of completion of various phases of the work within the completion time specified in the Contract.

   b. The schedule shall be detailed with daily activities and milestone completion dates.

   c. The schedule shall reflect the completion of all work including punch list work and clean-up.

   d. The work shall be rescheduled by Contractor if changes in the work scope alter the original schedule or he fails to comply with the original schedule. The revised schedule shall be submitted within 7 days of the receipt of Engineer's request.

   e. Contractor shall inform Engineer at least two weeks in advance of commencing work under this Contract.

2. Before starting work, Contractor shall submit to Engineer an estimate of rate of contract payments for the project on a monthly basis. If, in the opinion of Engineer, Contractor has deviated significantly from this projection during the course of the project, Contractor shall submit a revised rate of expenditure schedule to Engineer.

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Product Data

2. Shop Drawings

3. Product Listing and Manufacturers Qualifications

4. Samples

5. Certificates of Compliance

1.2 SUBMITTALS

A. Product Data

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing, and printed product warranties, as applicable to the Work.

B. Shop Drawings

1. Shop Drawings include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation drawings, schedule information, piece part drawings, actual shopwork manufacturing instructions, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certification, as applicable to the Work.

2. Submit Shop Drawings at the proper time so as to prevent delays in delivery of materials. Coordinate submittals for related or interdependent equipment; fragmented submittals will not be accepted for review by the Engineer. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents.

3. Check all Shop Drawings regarding measurements, size of members, materials, and details to determine if they conform to the Contract Documents. Drawings found to be inaccurate, not in compliance, or otherwise in error shall be returned to the subcontractors for correction before submission to the Engineer. Drawings that are current shall be marked with the date, name, and approval stamp of the Contractor.

4. All details on Shop Drawings submitted for approval shall show clearly the relation of the various parts to the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the Shop Drawings before being submitted for approval.

5. No material or equipment shall be purchased or fabricated until the required Shop Drawings have been submitted and approved. Materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by the Shop Drawings.

6. Until the necessary approval has been given, do not proceed with any portion of the work, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which approval is required.

7. The Engineer's review and approval of Shop Drawings shall not be construed as a complete check nor does it relieve the Contractor from responsibility for any departures or deviations from the requirements of the Contract Documents unless he has, in writing, called the Engineer's attention to such deviations at the time of submission. The Engineer's review of the shop drawings shall not relieve the Contractor from the responsibility for proper fitting of the Work, or the responsibility of furnishing any work required by the Contract Documents which may not be indicated on the Shop Drawings. The Contractor shall be solely responsible for any quantities shown on the Shop Drawings.

8. Should the Contractor submit for approval equipment that requires modifications to the structures, piping, layout, or other details shown on the Drawings, he shall also submit for approval details of the proposed modifications. If such equipment and modifications are approved, perform all work necessary to make such modifications at no additional cost to the Owner.

C. Product Listing and Manufacturers Qualifications

1. Within 7 calendar days after execution of the Notice to Proceed, submit to the Engineer the names and addresses of the manufacturers and suppliers of materials and equipment to be incorporated into the Work.

2. Within 30 days after Notice to Proceed, submit complete list of major products proposed for use, with specification section number, name of manufacturer, trade name, and model number of each product. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation and reference standards. Specifically identify the products, the anticipated schedule for delivery and storage, and the estimated value thereof for materials which the Contractor intends to request approval for off-site storage.

D. Contractor's Responsibilities

1. Review Shop Drawings, product data, and samples prior to submission and verify and determine:

a. Field measurements

b. Conformance with the Contract Documents. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents.

2. Provide submittal identification and information including:

   The date of submission and dates of previous submissions, project title, Contractor identification, Specification section, manufacturer and supplier, identified field dimensions, applicable standards and identification of deviations from Contract Documents.

3. Provide 2 sets of submittals, 1 of which will be retained by the Engineer. A maximum of 3 sets will be returned by the Engineer with notations to the Contractor.

4. Apply the Contractor's stamp, initials, or signature certifying that the submission has been thoroughly reviewed for completeness, compliance with the Contract Documents, coordination with adjacent construction and dimensional compatibility. Items submitted without the stamp or that are incomplete will be returned by the Engineer for rework and resubmission.

5. Provide space for the Engineer's review stamps and comments. The Engineer will review Shop Drawings for design, general methods of construction and detailing.

6. Submissions shall be accompanied by a transmittal form referencing the project name and applicable Specification section. Submittals shall be referenced with consecutive numbering. Resubmittals shall bear the same transmittal number with a sequential letter suffix commencing with "A".

7. Revise and resubmit submittals as required, identify all changes made since last submittal.

8. Distribute copies of reviewed submittals to concerned parties with instructions to promptly report any inability to comply with the provisions or integrate the requirements with interfacing work.

1.3 REVIEW OF SHOP DRAWINGS

A. Submittals will be returned under one of the following codes:

1. APP – "Approved" is assigned when there are no notations or comments on the submittal. Equipment or materials may be released for manufacture.

2. AAN – "Approved as Noted" is assigned when there are notations or comments on the submittal, but the equipment or materials may still be released for manufacture. All notations and comments must be incorporated in the final product.

3. R&R – "Revise and Resubmit" is assigned when there are extensive notations and comments requiring a resubmittal of the package. It may also be assigned when there is a significant amount of missing material required for the Engineer to perform a complete review.

4. NA – "Not Approved" is assigned when the submittal does not meet the requirements of the Contract Documents. The entire package must be

resubmitted, revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the requirements of the Contract Documents.

5. REV – "Reviewed – No Action Taken" is assigned to submittals that are reviewed but for which there is no approval required by the Engineer. Examples of the type of submittals that receive this stamp include, but are not limited to, design calculations stamped by another Professional Engineer and submittals of the Contractor's means and methods that have not been expressly specified.

1.4 QUALITY ASSURANCE

A. Certificates of Compliance

1. Provide sworn certificates from the manufacturer or material supplier that the materials and fabrications provided under the Specification section conform to the Contract Documents.

2. Submit Certificates of Compliance in triplicate.

3. Certificates shall be signed by an officer of the manufacturer's corporation and witnessed by a Notary Public.

1.5 SEQUENCING

A. General Procedures for Submission and Resubmission of Shop Drawings, Product Data, and Samples

1. Coordination

a. Prepare and submit documentation in advance of fabrication and product manufacturer, so that the installation will not be delayed, other related work can be properly coordinated, and there is adequate time for review and resubmission, if required.

b. No extension of time will be authorized due to failure to provide approvable submittals sufficiently in advance of the Work.

2. Resubmission

a. Make corrections and modifications required by the Engineer and resubmit until approved.

b. Clearly identify changes made to Shop Drawings and product data and indicate other changes that have been made other than those requested by the Engineer.

3. Distribution

a. Distribute approved Shop Drawings and approved product data to the Project Site and elsewhere as required to communicate the information to Suppliers, Subcontractors, and field personnel.

B. Samples will be retained by the Engineer on the Site.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01550

TRAFFIC CONTROL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Traffic requirements

2. Traffic officers

B. Payment

1. OWNER is responsible for paying for traffic officers, in the event they are required. CONTRACTOR is responsible for scheduling the traffic officers, with OWNER's approval, and for providing all documentation.

2. OWNER will deduct from monies due CONTRACTOR for the following abnormal and unreasonable expenses:

a. CONTRACTOR caused delays in the prosecution of work that result in hiring traffic officers for more hours than would have been required during normal prosecution of work.

b. Reconstruction and/or reinstallation of any portions of the work, as a result of improper initial installation, for which traffic officers are required.

c. Traffic officers required at a site where CONTRACTOR is not working or outside of CONTRACTOR's standard work day as a result of obstructions to traffic that remain in the traveled way.

d. All other incidents resulting from CONTRACTOR'S operations requiring traffic officers that would not normally be encountered during the progress of a well-organized project employing proper construction methods.

e. When traffic officers are requested for the convenience of CONTRACTOR and are not otherwise considered necessary to the work.

1.2 REFERENCES

A. Manual of Uniform Traffic Control Devices, U.S. Department of Transportation

1.3 TRAFFIC REQUIREMENTS

A. Arrange construction activity so that all streets shall remain open to at least one-way traffic during periods of actual work, and to unimpeded, two-way traffic during all other periods. Temporary total road closures can only be approved by the Owner.

B. Provide a traffic control plan to ENGINEER for approval showing traffic control signs, barrels, cones, traffic officers, including detour signs, meeting the approval of ENGINEER, OWNER and local Police Departments in accordance with the Manual of Uniform Traffic Control Devices.

C. Determine the location of each day's work and implement the approved traffic control plan. If the plan requires the use of traffic officers, notify the Police Department.

D. CONTRACTOR shall have no claim of delay if he does not notify the Police Department of his scheduled location in time to arrange for traffic officers.

E. Hand deliver written notice to individual houses affected by driveway and side road closings or detours a minimum 24 hours in advance. A recommended parking area outside the work limits shall be included in the notice.

F. No separate payment will be made for traffic control. Contractor shall be responsible for scheduling Police Details should they be required as determined by the Owner. The Town of Longmeadow will make payment for all Police Details approved by the Owner.

1.4 TRAFFIC OFFICERS

A. Uniformed traffic officers shall be required at locations deemed necessary by OWNER, working in conjunction with local Police and Fire Departments, for the protection of the public.

B. The Police Chief or his representative, in consultation with OWNER's representative, will determine the number of officers required for the work.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01570

TEMPORARY EROSION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Dust control

2. Drainage and erosion control

3. Haybales and siltation fence

B. Related Sections

1. Section 02920 – Lawns and Grasses

1.2 TEMPORARY DUST CONTROL

A. Exercise particular care to control dust both during and after construction. A mechanical street sweeper shall be used as needed.

B. Prevent dust from becoming a nuisance or hazard. During construction, excavated material and open or stripped areas are to be properly policed and controlled so as to prevent spreading of the material.

C. Control dust during and after construction using calcium chloride and/or salt. The Engineer may direct the Contractor to employ sprinkling of water in lieu of calcium chloride for dust control.

D. During and after construction, all paved road and driveway surfaces are to be scraped and broomed free of excavated materials on a daily basis. The surfaces are to be hosed down or otherwise treated to eliminate active or potential dust conditions and the natural road or wearing surface is to be exposed.

1.3 DRAINAGE AND EROSION CONTROL

A. Install and maintain sediment trapping systems at all catchbasins within the project limits.

B. Discharge surface runoff from any disturbances to the site into silt containment basins. Siltation prevention measures utilizing haybale and geotextile fences for containment shall be taken before discharge to drainage systems.

C. Provide additional work if necessary to control erosion and siltation throughout the duration of construction activities.

PART 2 PRODUCTS

2.1 HAYBALES

A. Bales of hay required for siltation control shall be wire tied bales of the type normally used for siltation or erosion control or construction projects.

2.2 FILTER FABRIC

A. Filter fabric siltation fencing shall be a woven filter fabric having a weight of at least 2.5 ounces per square yard, a thickness of at least 17 mils, a coefficient of permeability of not less than 0.0009 centimeters per second and allows a water flow rate of a minimum 40 gallons per minute per square yard. The material shall have a high sediment filtration capacity, high slurry flow and minimum clogging characteristics. The material shall be equal to 100x as manufactured by Mirafi, Inc., Charlotte, North Carolina.

PART 3 EXECUTION

3.1 EXECUTION

A. Control of erosion and siltation during the construction is expected to require mulching, haybales, siltation fencing, diversion and control of storm water run-off, ponding areas and similar methods.

B. Place filtration fabric under catchbasin grates.

C. Control surface waters within the construction area through the use of temporary culverts or other means.

D. Salvage existing loam and topsoil and stockpile this material for re-spreading where originally removed. On backfilling, grading shall be returned to preconstruction contours as much as possible and the stockpile of loam shall be spread over areas disturbed during construction activities.

E. Maintain the restored areas until such time as the Work is accepted by the Owner. Maintenance shall include all grading, refertilizing, reseeding, remulching and/or netting which may be necessary.

F. Seed shall be as specified under Section 02920.

3.2 CLEANING

A. Remove any sediment that builds up around the haybales or catchbasins.

B. Catchbasins that collect sediment as a result of the Work shall be thoroughly cleaned.

3.3 PAYMENT

A. All work associated with temporary erosion controls will <u>not</u> be paid for separately, but included under the general cost of the work, unless otherwise specified.

END OF SECTION

SECTION 01580

TEMPORARY BYPASS PUMPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Temporary bypass pumping

B. Related Requirements

1.2 SUBMITTALS

A. Informational Submittals

1. Submit a specific, detailed description of the proposed pumping system.

2. Submit references for prior projects.

3. Submit qualifications of bypass pumping company.

4. Submit detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to ensure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements specified in the Contract Documents. No construction shall begin until all provisions and requirements have been approved.

5. The drawings shall include but not be limited to details of the following:

a. Staging areas for pumps

b. Pipe plugging method and types of plugs

c. Number, size, material, location and method of installation of suction piping

d. Number, size, material, method of installation and location of installation of discharge piping

e. Bypass pump sizes, capacity, number of each, and size to be on site and fuel/power requirements

f. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted)

g. System curve with suction lift performance h.

Standby power generator size, location

i. Downstream discharge plan

j. Method of protecting discharge manholes or structures from erosion and damage

k. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill

l. Method of noise control for each pump and/or generator m.

Any temporary pipe supports and anchoring required

n. Design plans and computation for access to bypass pumping locations indicated on the drawings

o. Calculations for selection of bypass pumping pipe size

p. Schedule for installation of and maintenance of bypass pumping lines

q. A plan showing the location of bypass pumping equipment, and suction and discharge piping

1.3 QUALITY ASSURANCE

A. Employ the services of a company that specializes in the design and operation of temporary bypass pumping systems. Demonstrate that the bypass pumping equipment is automated and is capable of functioning without the assistance of an operator.

B. Provide at least 5 references of projects of similar size and complexity in wastewater applications performed within the past three years within New England.

C. The bypass pumping company shall have a minimum experience of 15 years designing and supplying wastewater bypass systems.

D. Demonstrate sufficient inventory to perform normal rentals, including this project, and maintain at least 100% reserve equipment for this project for immediate delivery.

E. Demonstrate sufficient service and repair parts in stock to fulfill any service or repair of all rental equipment within 3 hours of any service call.

F. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

G. Obtain required approvals for placement of the temporary pumping equipment and piping system adjacent to the existing main.

H. No construction shall begin until the related project submittals are approved and all provisions of the work have been coordinated with the Owner and Engineer.

1.4 SYSTEM REQUIREMENTS

A. Design, install, operate, and subsequently remove a temporary bypass pumping system to divert the existing sewage or storm flow around the work area for the duration of the project.

B. Bypass pumping equipment shall be automated and capable of functioning without the assistance of an operator.

C. Pumping equipment shall be capable of operating for an extended period of time running dry. After this period of time, the pump shall have the capability of pulling a 25 inch Hg vacuum without adjustment or repair.

D. The entire bypass system including all pumps, pipe, hose, valves, and fittings shall be provided by one bypass pumping company who is responsible for the operation of the entire system.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Pumps shall be centrifugal, end suction, fully automatic self-priming low noise pumps that do not require the use of foot-valves, vacuum pumps, diaphragm pumps, or isolation valves in the priming system. Pumps must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flow pumps and shall immediately develop 25 inch Hg vacuum without adjustment or repair or employ level control devices to regulate on/off or variable speed of the pump. Hydraulic, submersible, electric, or wellpoint type pumps are prohibited. Pumps shall be low noise sound attenuated, critically silenced units.

B. Seals shall be high pressure, mechanical self-adjusting type with silicon carbide faces capable of withstanding suction pressures to 100 psi running. The mechanical seal shall be cooled and lubricated in an oil bath reservoir, requiring no maintenance or adjustment. Pump shall be capable of running dry, with no damage, for extended periods of time. All metal parts shall be of stainless steel. Elastomers shall be Viton. Pump end shall be manufactured to meet ISO 9002 certifications.

C. The primary pumps shall be electric/diesel powered via a temporary electrical service. Temporary electrical service to be provided by the Contractor at his expense.

D. Back-up pumps and/or standby electric generator system may be fossil fuel engine driven.

E. Provide the necessary start/stop controls for each pump.

F. Include one stand-by pump of each size to be maintained on site and a standby power source.

G. Back-up pumps shall be on-line, isolated from the primary system by a valve. H.

Pump shall not be connected by a common suction manifold. The use of PVC or Steel Pipe with Dresser Couplings will not be accepted. All pipe or hose will be rated for 25 inch Hg Vacuum.

I. In order to prevent the accidental spillage of flows, all discharge systems must be constructed of high density polyethylene pipe with fused joints or quick disconnect pipe with positive restrained joints, and leak proof connections. Discharge hose will only be allowed by specific permission of the engineer. PVC pipe with glued joints, aluminum “irrigation pipe”, steel pipe or PVC pipe with Dresser couplings will not be accepted. All joints must be 100%

restrained. All discharge pipe must have a minimum working pressure of 50 psi. All force main connections shall be made by using flanged composite hose with a working pressure of 150 psi.

J. Allowable piping materials will be fused, high density polyethylene pipe, acceptable disconnect pipe, or flanged composite pressure class hose. SDR of discharge piping shall be suitable for the calculated discharge pressures. The vendor fusing the pipe must have a minimum of 5 years experience fusing HDPE pipe of the same diameter required for the project.

2.2 SYSTEM DESCRIPTION

A. Design Requirements:

1. Bypass pumping systems shall have sufficient capacity to pump a peak flow equal to the capacity of the existing storm drain pipe.

2. Provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the section to be repaired. Bypass pumping systems will be required to be operated during television and pipe lining operations.

3. Have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure. Also, a back-up power supply source shall be provided.

4. Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performance of work.

5. Make all arrangements for bypass pumping during the time when the pump station is shut down for any reason. System must overcome any line pressure on discharge.

B. Performance Requirements:

1. There must be no interruption in the flow of sewage throughout the duration of the Project. Provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with the Work, carry it past the Work and return it to the existing pipe downstream of this work.

2. Provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.

3. Maintain flow around the work area in a manner that will not cause surcharging of pipes, damage to pipes and that will protect public and private property from damage and flooding.

4. The bypass system shall not require excavation to reduce the suction lift without the specific approval of the engineer prior to the bid.

5. Protect water resources, wetlands, and other natural resources in accordance with the appropriate project permits.

6. Meet noise limits of 69dbA @ 30 feet. All diesel driven standby pumps and/or back-up power supplies shall be sound attenuated. The use of Critical Silenced Canopy pumps or acoustical enclosures for sound attenuation is required.

7. The pumps shall not be benched down to make the suction lift unless approved by the Engineer prior to bid.

PART 3 EXECUTION

3.1 PREPARATION A.

Precautions

1. Locating existing utilities in the area where the Contractor selects to locate the bypass pipelines. Locate bypass pipelines to minimize any disturbances to existing utilities and obtain approval of the pipeline locations from the Owner, Engineer, and property owners. Pay all costs associated with relocating utilities and obtaining all approvals.

2. During all bypass pumping operation, protect the existing pipes, pump station, force main, and all pipelines from damage inflicted by any equipment. Be responsible for all physical damage to the existing facilities caused by human or mechanical failure.

3.2 FIELD QUALITY CONTROL AND MAINTENANCE

A. Test:

1. Perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. Give the Engineer 24 hour notice prior to testing.

B. Inspection:

1. Inspect the bypass pumping system regularly (every 2 hours) to ensure that the system is working correctly.

C. Maintenance Service:

1. Ensure that the temporary pumping system is properly maintained and a responsible operator is on hand at all times when pumps are operating.

D. Extra Materials:

1. Keep spare parts for pumps and piping on site as required.

2. Maintain adequate hoisting equipment for each pump and accessories on the site.

E. INSTALLATION AND REMOVAL

1. Make connections to the existing pipes and construct temporary bypass pumping structures only at locations approved by the submittals.

2. Plugging or blocking of sewage flows shall incorporate primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance or work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

3. When working inside manhole or force main, exercise caution and comply with OSHA requirements when working in the presence of harmful gases, combustible oxygen-deficient atmospheres, and confined spaces.

4. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the contractor must place the bypass pipelines in trenches and cover with temporary pavement. Adhere to any and all applicable project permits.

5. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, remove all the piping, restore all structures, pipelines and property to pre-construction condition, and restore all pavement surfaces. Adhere to any and all applicable project permits.

END OF
SECTION

SECTION 01600

CONTROL OF MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Products and Material

2. Packaging, Handling and Storage of Materials

3. Inspection of Offsite Work

1.2 QUALITY ASSURANCE

A. Review all contract Drawings and Specifications with respect to specific system characteristics, applicability of materials and equipment for the intended purposes, sizes, orientation, and interface with other systems, both existing and proposed, and certify that the materials and equipment proposed will perform as specified prior to submitting shop drawings.

B. Provide sworn certificates as to quality and quantity of materials where specified or requested by the Engineer.

C. Obtain concurrence of the Engineer prior to processing, fabricating, or delivering material or equipment.

1.3 PRODUCTS AND MATERIAL

A. Use in the Work only new and first quality material, conforming to the requirements of these Specifications and approved by the Engineer. If, after trial, it is found that sources of supply that have been approved do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved materials from other approved sources.

B. Immediately remove defective materials and equipment from the site.

1.4 PACKAGING, HANDLING, AND STORAGE OF MATERIALS

A. Progressively deliver materials and equipment to the Site so there will be neither delay in progress of the Work nor an accumulation of material that is not to be used within a reasonable time.

B. Deliver products to the Site in their manufacturer's original container, with labels intact and legible.

1. Maintain packaged materials with seals unbroken and labels intact until time of use.

2. The Engineer may reject as non-complying such material and products that do not bear identification satisfactory to the Engineer as to the manufacturer, grade, quality, source, and other pertinent information.

C. Except as otherwise approved by the Engineer, determine and comply with the manufacturer's recommendations on product storage, handling, and protection.

Provide manufacturer's documentation on recommended storage procedures when requested by the Engineer.

D. Familiarize workmen and subcontractors with hazards associated with materials, equipment, and chemicals specified herein and take all necessary safety precautions.

E. Areas available on the construction site for storage of material and equipment is very limited. Any such proposed locations shall be approved in advance by the Engineer.

F. Store mechanical equipment subject to corrosive damage by the outdoor atmosphere (covered or not) in a heated, secured, insured commercial warehouse facility satisfactory to the Engineer. Equip drive motors with thermostatically controlled strip heaters.

G. Outdoor storage with plastic, canvas, plywood or other cover will not be allowed except where specific approval for designated items not containing electrical components or bearings is obtained from the Engineer.

H. No item judged rusty, corroded or otherwise damaged during storage will be accepted. Any electrical or instrumentation item determined by the Engineer to be damaged shall be removed from the Site and replaced by a completely new item in first class condition. Items not properly stored shall not be considered for any partial payment.

I. Do not store material or equipment in any wetland or environmentally sensitive area. Stockpile sites shall be level, devoid of mature stands of natural vegetation, and removed from drainage facilities and features, wetlands, and stream corridors.

J. Provide protective and preventive maintenance during storage consisting of manually exercising equipment where required, inspecting mechanical surfaces for signs of corrosion or other damage, lubricating, applying any coatings as recommended by the equipment manufacturer as necessary for its protection and other precautions as necessary to assure proper protection of equipment stored.

K. Treat ferrous surfaces not receiving finish coats of paint with rust preventive coating, and protect non-ferrous metal work and devices with suitable wrappings.

1.5 INSPECTION OF OFFSITE WORK

A. Work to be done away from the construction site is subject to inspection on behalf of the Owner during its fabrication, manufacture, testing, or before shipment. Notify the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01630

PRODUCT SUBSTITUTION DURING CONSTRUCTION

1.1 SUMMARY

A. Section Includes

1. Procedures for requesting product, material or construction method substitution.

1.2 CONTRACTOR'S OPTIONS

A. For materials or equipment (hereinafter products) specified only by performance or reference standard, select product meeting that standard, by any manufacturer, fabricator, supplier or distributor (hereinafter manufacturer). To the maximum extent possible, provide products of the same generic kind from a single source.

B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which fully complies with the Drawings and Specifications.

C. For products specified by naming one or more products or manufacturers and stating "or equal", submit a request for a substitution of any product or manufacturer that is not specifically named.

D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is permitted, there is no option and no substitution will be allowed.

E. Where more than one choice is available as a Contractor's option, select product that is compatible with other products already selected or specified.

1.3 SUBSTITUTIONS

A. If in the Engineer’s sole discretion, a product proposed by the Contractor is not functionally equal to that named and is not sufficiently similar so that no change in related Work will be required, it will not be considered a proposed substitute item.

B. During a period of 15 days after date of commencement of Contract Time, the Engineer will consider written requests from the Contractor for substitution of products or manufacturers, and construction methods (if specified).

1. After the end of specified period, request will be considered only in case of unavailability of product or other conditions beyond control of the Contractor.

C. Submit 2 copies of request for substitution. Submit separate request for each substitution. Include in request the following:

1. For products or manufacturers:

a. Product identification, including manufacturer's name and address.

b. Manufacturer's literature with product description, performance and test data, and reference standards.

c. Samples, if appropriate.

d. Name and address of similar projects on which product was used, and date of installation.

2. For construction methods (if specified):

a. Detailed description of proposed method.

b. Drawings illustrating method.

3. Such other data as the Engineer may require to determine that the proposed substitution is equal to the product, manufacturer or method specified.

D. In making request for substitution, the Contractor represents that:

1. The proposed substitution has been investigated, and determined that it is equal to or superior in all respects to the product, performance, manufacturer or method specified.

2. The same or better guarantees, warranties or bonds for proposed substitution as for product, manufacturer or method specified will be provided.

3. All claims for additional costs, either to the Contractor or Subcontractors, or extension of time related to proposed substitution will be waived.

E. A proposed substitution will not be accepted if:

1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.

2. It will delay completion of the Work.

3. It is intended or implied on a Shop Drawing and is not accompanied by a formal request for substitution from the Contractor.

F. If the Engineer determines that a proposed substitute is not equal to that specified, the Contractor shall furnish the product, manufacturer or method specified at no additional cost to Owner.

G. Approval of a substitution will not relieve the Contractor from the requirement for submission of Shop Drawings as set forth in the Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01720

FIELD ENGINEERING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Establishment of lines, benchmarks, and elevations required to layout and construct the Work

2. Property line survey and delineation

1.2 SUBMITTALS

A. Submit the qualifications of the Registered Professional Engineer and/or Registered Land surveyor to be hired to perform various portions of the Work, if applicable.

B. Provide documentation verifying the accuracy of field engineering work.

C. Submit 2 copies of final record drawings of field engineering layouts and as-built survey.

1.3 RECORDS

A. Maintain a complete, accurate log of control and survey work as it progresses.

1.4 QUALITY ASSURANCE

A. Employ competent person skilled in construction staking and field measurement, as required for the particular characteristics of the work being performed.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PROCEDURES

A. The competent employee in charge of field engineering/stakeout shall establish and maintain lines, elevations and reference marks needed during the progress of the Work and shall re-establish stakes and marks that are lost or destroyed through the course of the Work. Verify such work by instrument or other appropriate means.

B. The Engineer shall be permitted at all times to check the lines, elevations, and reference marks, set by the Contractor, who shall correct any errors disclosed by such check. Such a check shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish the responsibility of the Contractor for the accurate and satisfactory construction and completion of the entire Work.

C. Make, check, and be responsible for measurements and dimensions necessary for the proper construction of and the prevention of misfittings in the Work.

D. Furnish all protective stakes and temporary structures for marking and maintaining points and lines for the building of the Work, and give the Engineer such facilities and materials for verifying said lines and points as he may require.

E. Revisions to the layout and elevations of the Work as defined by the Contract Documents shall be approved by the Engineer.

F. Maintain and prepare final record drawings of field engineering layouts and as-built survey conducted after completion of the Work.

G. All work associated with field engineering will not be paid for separately, but included in the general cost of the work.

END OF SECTION

SECTION 01725

PRESERVATION AND RESTORATION OF PROJECT FEATURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Protection and replacement of trees, shrubs, signs, property markers, fences, and related project features.

2. Taking precautions, providing programs, and taking actions necessary to protect public and private property and facilities.

1.2 DEFINITIONS

A. Underground Structures

1. Underground structures are defined to include, but not be limited to, sewer, water, gas, and other piping, and manholes, chambers, electrical and signal conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.

2. Underground structures known to the Engineer are shown on the Drawings to the extent that locations are available. This information is shown for the assistance of the Contractor in accordance with the best information available, but is not guaranteed to be correct or complete. The Contractor shall be responsible for checking on the actual locations of water, sewer, gas electric and telephone service connection lines to avoid potential interferences. The project site has not been surveyed.

B. Surface Structures

1. Surface structures are defined as existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 REPAIR/RESTORATION

A. Trees, shrubs, and similar items shall not be removed except where necessary, as approved by the Engineer. Items to be removed shall be clearly marked as directed by the Engineer. If objects not to be removed are damaged or removed, they shall be repaired or replaced to their original condition.

B. Trees and shrubs on private property, which are removed or damaged by the Contractor shall be replaced in kind.

C. Signs, fences, property markers, walls, guardrails and other public or private property shall be replaced in kind if damaged. Supports and protective devices required shall be provided.

D. Underground and Surface Structures

1. In the event of damage, injury or loss to existing utilities and, whether shown on the Drawings or not, make all reasonable efforts to facilitate repairs and to mitigate the impact of such events upon the utility or structure owner's normal operations. Restore the existing utility or structure to the condition required by the owner of the utility or structure or at least to the condition found immediately prior to the Work. In the event that the utility owner elects to make the repairs, provide all reasonable access and assistance, and reimburse the utility owner for the cost of repairs. If utility service is interrupted due to damage to facilities, alternate facilities shall be provided.

2. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers and curbs which are temporarily removed to facilitate the Work shall be replaced and restored to their original condition at the Contractor's expense unless otherwise indicated in other sections of these specifications.

3. Wherever water, sewer, gas or petroleum mains, electric or telephone lines, cables or other utilities and structures are encountered and may be in any way interfered with, inform the Engineer and the appropriate utility company. Cooperate with the Engineer and utility company in the protection, removal, relocation, and replacement of structures and facilities.

4. Prior to proceeding with any construction, notify in writing owners of utilities and structures within the vicinity of the proposed Work.

5. Work affecting water distribution systems, which will take fire hydrants out of service, must be coordinated with the local fire department. The Contractor shall be prepared to restore fire flows in the event of an emergency or to provide for temporary fire flow service in accordance with the requirements of the local fire department.

6. Materials used for relocation or replacement of utilities and structures shall be of an equivalent material, type, class, grade and construction as the existing or as approved by the respective owners thereof, unless otherwise shown or specified.

7. When any survey monument or property marker, whether of stone, concrete, wood or metal, is in the line of any trench or other construction work and may have to be removed, notify the Engineer in advance of removal. Under no circumstances shall any monument or marker be removed or disturbed by the Contractor or by any of his Subcontractors, employees or agents, without the permission of the Engineer. Monuments or markers removed or disturbed shall be reset by a land surveyor licensed in the State where the Work is located at the Contractor's expense. Should any monuments or markers be destroyed through accident, neglect or as a result of the Work under this Contract, the Contractor shall, at his own expense, employ a land surveyor licensed in the State where the Work is located to re-establish the monument or marker.

3.2 PROTECTION

A. The construction of certain portions of the project may require excavation within the root systems of trees. Roots with a diameter of 2 inches or more within the excavation shall not be cut. If necessary, excavation shall be made with small powered equipment or by hand to comply with this requirement. It may be necessary to excavate from more than one direction to avoid damage to the roots.

B. The trunks of trees that are to remain and are within the swing radius of the excavating machine bucket when fully extended shall be wrapped with burlap and 2 inch by 4 inch protective wood slats (8 inch spacing maximum) wired around the circumference of the trees to protect them from damage. No separate payment for this work will be provided, but included in the general cost of the work.

C. Tree limbs shall not be cut except upon written approval of the Owner and the Engineer. Tree limbs cut shall be painted with approved forestry paint manufactured specifically for that purpose.

D. Underground and Surface Structures

1. Sustain in their places and protect from direct or indirect injury underground and surface structures within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, satisfy the Engineer that the methods and procedures to be used have been approved by the party owning same.

2. Pay utility service company charges related to the temporary support of utility poles if required to complete the Work.

3. Assume risks associated with the presence of underground and surface structures within or adjacent to the limits of the Work. The Contractor shall be responsible for damage and expense for direct or indirect injury caused by his Work to any structure. Immediately repair damage caused by the Work to the satisfaction of the owner of the damaged structure.

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Documentation for Completed Work

2. Final Clean-up

1.2 SUBMITTALS

A. Closeout Submittals

1. The closeout submittals include but are not necessarily limited to

a. Evidence of payment and release of liens.

1.3 SEQUENCING

A. Substantial Completion

1. Prior to requesting final inspection and project close-out, the Contractor shall assure that the work is completed in accordance with the specified requirements and is ready for the requested inspection.

2. Within a reasonable period of time after receipt of the request, the Engineer will inspect the work to review compliance, completeness, and issue a listing of unsatisfactory work. The Contractor shall remedy the deficiencies and the work will be reinspected.

B. Completion

1. The Contract shall be considered complete and final payment made, only when:

a. All provisions of the Contract Documents have been strictly adhered to.

b. The project and premises have been left in good order, including removal of all temporary construction, Contractor-owned and extraneous materials as required.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 CLEANING

A. Where material or debris has washed, flowed, or has been placed in existing watercourses, ditches, gutters, drains, pipe, or structures, for work done under the Contract work limits or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the Work, and the ditches, channels, drains, pipes, structures, and

watercourses shall, upon completion of the Work, be left in a clean and neat condition.

B. Restore or replace, when and as directed, any public or private property damaged or removed by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end, complete as required all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment and methods shall be used for such restoration. The restoration of existing property, signs or structures shall be done as promptly as practicable, as work progresses, and shall not be left until the end of the contract period.

END OF SECTION