SPECIAL PROVISIONS – Addendum #1

All work under this contract shall be done in conformance with the Massachusetts Department of Transportation (MassDOT) *Standard Specifications for Highways and Bridges* dated 2024 (and latest supplements); the October *2017 Construction Standard Details*, the *1996 Construction and Traffic Standard Details* (as relates to traffic standard details only); the *2009 Manual on Uniform Traffic Control Devices (MUTCD)* with *Massachusetts Amendments* and the *Standard Municipal Traffic Code*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; the latest edition of *American Standard for Nursery Stock*; the Plans and these Special Provisions.

Plans and Specifications for the work on this improvement project refer to those drawings and documents prepared by the design engineer, Fuss & O'Neill, Inc., Consulting Engineers, 1550 Main Street Suite 400 Springfield, MA 01103, Tel. 413 452-0445.

The Department (or Owner) in these Special Provisions refers to the City of Pittsfield, in part being the Department of Public Works, the public body or authority, corporation, association, firm or person with whom the Contractor has entered into an agreement and for whom the work is to be provided.

The Engineer referred to in these Special Provisions shall mean the engineer employed at the site by The Owner, or other duly authorized engineer representing The Owner.

Any City of Pittsfield General Conditions, Supplementary Conditions and Special Provisions shall take precedence over the General Requirements of Division 1 of the Standard Specifications of the MassDOT.

PROSECUTION OF WORK AND PROVISIONS FOR TRAVEL

Before starting any work under this contract, the Contractor shall submit to the Engineer for approval a Schedule of Operations as provided in Section 8.02. The work schedule shall include a plan of his construction procedures and the safety measures he will use during the prosecution of the work as set forth in Section 850 of the Standard Specifications for Highways and Bridges.

The proposed safety measures shall include the temporary barricades, signs, cones, drums and other safety and traffic control devices to be employed during each stage and time period of the work to maintain and protect traffic and access to abutting properties. These measures may also include removal and resetting of these devices.

As necessary and/or as directed by the Engineer, uniformed traffic police shall be employed for the protection and maintenance of traffic. Reasonable facilities shall be provided by the Contractor for the convenient and safe passage of pedestrians and vehicles through the project and also to and from properties abutting the site of improvement.

The Contractor shall schedule his operations to minimize interruption to the normal flow of traffic at all times during the period of time required for the completion of the work. Only one-half of the roadway may be closed to traffic at any given time unless directed by the Engineer.

Attention is further directed to the following provisions unless otherwise directed by the Engineer.

1. Alternate one-way traffic will be permitted only during working hours with traffic officers present and off hours with temporary signals in place.
2. Pedestrian access to all buildings shall be maintained at all times.

3. No detouring of traffic shall be allowed without written permission of the City. Trucks shall not be excluded from any detour roadway.
4. The Fire Department and Police Department shall be notified 48 hours prior to the start of any work that will affect the operations of their departments (e.g. the partial street closures, trenching, etc.).

Particular care should be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Work areas on this project shall not be left overnight without adequate safety precautions. A sufficient number of traffic cones, drums, barricades, temporary signals and hazard warning light devices shall be placed and maintained as necessary and as directed by the Engineer.

Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

PROCEDURES FOR SHOP DRAWINGS SUBMITTAL

The following procedures shall be followed when making Shop Drawings submittals for this Project:

1. The Prime Contractor shall submit electronically all drawings directly to the Department's field representative to be forwarded to the appropriate parties for preliminary review.
2. A written reply will be forwarded to the Prime Contractor, within 14 days of receipt.
3. If the reply indicates rejection or advice corrections or additions to the drawings, Steps 1 and 2 are repeated until the approval will be given.
4. The Contractor shall take care that every separate document in each set of every submittal shall carry the following identifying information:

   Information Required
   a) Community name of Project.
   b) Federal or State Aid Project Number, if applicable.
   c) Identifying item number from proposal, if applicable.
   d) Locations where material is proposed to be used, if applicable.
   e) Name of submitting Contractor.
   f) Personal signature and title of an official of the Prime Contractor
   g) Authorized to make shop drawing submittals.
   h) Date of signature or submittal.

The Contractor shall not receive payment for, nor shall he be allowed to install any item or materials that require shop drawings approval unless and until he receives shop drawing approval for that item as detailed above.

STEEL PLATES IN CONSTRUCTION ZONES

At the end of each working day where trenches in areas of public travel are covered with steel plates, each edge of such plates shall either be beveled or protected by a slope of 2-feet horizontally to 1-inch vertically. Any temporary patching materials and their maintenance and removal will be considered incidental to the Item involved with no separate payment.

PLANS

The Contractor shall furnish all changes made during the construction period to the Design Engineer prior to the date of final acceptance for incorporation into "AS BUILT" plans and signal permits.

COOPERATION OF THE CONTRACTOR

Agents of various public service agencies, municipal and State departments may be entering on the work site to remove existing facilities, to construct or place new facilities or to make alterations to existing facilities.

The Contractor shall perform the work in cooperation with the various agencies in a manner which causes the least interference with the operations of the aforementioned agencies and shall have no claim for delay which may be due, or result, from said work of these agents.

PROTECTION OF UNDERGROUND FACILITIES

The Contractor shall make his own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, and other utilities will occur as a result of his operations.

The Contractor shall notify "Mass. DIG SAFE" and procure a DIG SAFE number of each location prior to disturbing ground in any way.

"DIG-SAFE" Call Center: Telephone 1-888-DIG-SAFE (l-888-344-7233)

PROTECTION OF UTILITIES AND PROPERTY

The Contractor, in constructing or installing facilities alongside or near sanitary sewers, storm drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls or other structures, shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained. He shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect, and shall leave them in the same condition as they existed prior to the commencement of work.

In case of damage to utilities, the Contractor shall promptly notify the Owner and shall, if requested by the Engineer, furnish laborers to work temporarily under the Owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the utility company that suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation therefore.

If, as the work progresses, it is found that any of the utility structures are so placed as to render it impracticable in the judgment of the Engineer, to do the work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the

Department will, as soon thereafter as it reasonably can, cause the position of the utilities to be changed or take such other action as it deems suitable and proper.

If live service connections are to be interrupted by excavation of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall also be plugged off or otherwise made secure by the utility company involved.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore

PREVENTION OF WATER POLLUTION - SANITARY PROVISIONS
(Supplementing Subsection 7.02)

During the performance of all Work done under this contract, the Contractor shall adopt such precautions in the conduct of his operations as may be necessary to avoid contaminating water in adjacent streams, pond or channel areas. All moving of equipment and other operations likely to create silting, shall be so planned and conducted as to minimize pollution in adjacent streams, pond or channel areas. Water used for any purpose by the Contractor, which has been contaminated with soil, bitumen, salt or other pollutants shall be so discharged as to avoid affecting nearby waters. Under no circumstances shall the Contractor discharge pollutants directly into any stream or pond area.

When the Contractor uses water from natural sources for any of his operations, intake methods shall be such as to avoid contaminating the source of supply and maintain adequate downstream flow when the source is a stream.

SAWCUTS

Sawcuts shall be made in the existing pavement at areas of new or reset curb, limits of full depth pavement construction, limits of new sidewalk, limits of existing HMA and new HMA driveways and as specified or shown anywhere else on the contract plans or documents and as directed by the Engineer.
Payment for this work shall be included in the unit price under the applicable items for which the sawcut is associated with. No separate payment shall be made individually for sawcutting.

SHEETING AND BRACING

The Contractor shall furnish, place, and remove (unless otherwise noted) all sheeting and bracing required to support the sides of all trenches or other excavations for this Project.

The Contractor shall be solely responsible for the safety of the workmen and the adjacent facilities from danger of caving and sliding. All work to be done shall be in strict accordance with the Department of Labor, Occupational Safety and Health Administration regulations and suggested practices for construction excavations and/or other applicable codes and regulations. Special precautions shall be taken to guard against any damage to or settlement of pavements, buildings, walls, pipes, ducts or other structures and facilities which are adjacent to the work. The cost of providing and removing sheeting, shoring and bracing shall be included in the cost of the various items of work under this Contract and no additional compensation will be allowed therefore.

EXCAVATION AND PATCHING OF TRENCHES ON PAVED SURFACES
(Supplementing Subsection 801.60)

Whenever the existing pavement or sidewalk is to be disturbed, the existing surface shall be cut in neat true lines by mechanical means along the length of the trench, equally spaced from the center line of the trench and not more than one and one-half (1.50 ft) feet apart. The trench shall then be excavated, conduit placed and backfilled in accordance with MassDOT Specifications and Standard Drawings, to a compacted depth of one and one-half (1.5 in) inches below the existing surface. The trench will then be patched temporarily with one and one-half (1.5 in) inches of hot mix asphalt placed in one course, unless otherwise approved by the Engineer.

Permanent patching will not begin until, in the Engineer's judgment, final compaction and settlement of the trench area has taken place.

All abutting edges of existing pavement shall be painted with Bitumen (RS-1), immediately prior to placement of permanent patch. All trenches shall be maintained at all times from inception until final acceptance of the project.

MATERIAL REMOVED AND STACKED

Material to be stacked, as designated by the Engineer, shall remain the property of the City of Pittsfield and its disposition will be at the sole discretion of the City of Pittsfield's representative.

DISPOSAL OF EXCAVATION MATERIAL

Surplus materials obtained from any type of excavation, and not needed for further use as determined by the Engineer shall become the property of the Contractor and shall be disposed of by him outside the location subject to the regulations and requirements of local authorities governing the disposal of such materials, at no additional compensation.

DISPOSAL OF SURPLUS MATERIALS

All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the Contractor and shall be removed from the site during the construction period and legally disposed of. No separate payment will be made for this work, but all costs in connection there with shall be included in the prices bid for various contract items.

MATERIAL OPTIONS

In the case of all option items, as listed in the proposal, the Contractor shall inform the Engineer of his option prior to the installation of the material. Once the option is designated, all material for a particular item shall remain the same throughout the job.

MAINTENANCE AND CLEANING OF ROADS

Existing roadways intended to be used for hauling earth and rock excavated materials shall be cleaned and maintained by the Contractor during the length of the Project. If necessary, the Contractor shall be responsible for providing street sweepers and operators for sweeping of haul road paved surfaces. Sweeping services shall be provided on an hourly basis at the discretion of Engineer. Street sweepers shall be self-propelled, diesel powered units with brushes and a water spray, less than three years old. The Contractor shall remove debris from the work area and deposit sweepings at locations as directed by the Engineer. The Contractor shall also be responsible for repairing roadways and bridges damaged by construction vehicles. Payment for maintenance and cleaning of roads will not be paid for separately but shall be considered

incidental to the contract.

PRESERVATION OF ROADSIDE GROWTH

The Contractor shall take all necessary care when excavating or working in the vicinity of existing trees so that the root systems, trunks and branches are not damaged. All precautions shall be taken to insure that heavy equipment does not damage any roots, including those that lie below the limits of excavation. Do not store equipment or stockpile materials within drip line of trees or in areas enclosed by tree protection fencing.

Extreme care shall be exercised during excavation operations beneath the canopy of trees designated to be preserved. All excavation within ten feet of designated trees shall be performed by hand labor to preserve the root system of the tree.

Avoid any direct soil contamination in root zone area by petroleum, petroleum products or solvents, salts or any other pollutant during construction.

All cutting or trimming of trees to be preserved shall be executed by a Massachusetts Certified Arborist. The Contractor shall provide the Engineer with a copy of the certification prior to any work on trees.

Trees that, in the judgment of the Engineer, have been irreparably damaged by the Contractor shall be replaced in kind and in size, or, with a quantity of 2" caliper replacement trees (the quantity of which shall be determined by the Engineer) such that the cumulative caliper of the replacement trees will be up to the equivalent of diameter of the lost tree at breast height. Cost of replacement trees shall be paid by the Contractor.

Cost of removal of destroyed tree, including roots and stump, as well as the cost of replacement trees, shall be paid for by the Contractor.

OIL AND HAZARDOUS MATERIAL SPILL PREVENTION

Measures must be taken by the Contractor to prevent spills and leaks of oils and other hazardous materials to the environment. Such measures include but are not limited to properly maintaining construction equipment, establishing fuel and hazardous material handling areas that are designed to prevent releases to the environment (include containment structures if needed), instructing personnel in proper waste handling procedures and strictly prohibiting disposal into drains, water ways or receptacles, such as dumpsters, designed for non-hazardous waste. Spills or leaks of oil or hazardous materials must be reported to the DEP in accordance with the reportable quantities and criteria for "spills" as designed by the DEP in 310 CMR 40.370.

Notification to the Engineer and to DEP must be made as soon as possible, but not more than two (2) hours after a spill or leak occurs.

ARCHITECTURAL ACCESS BOARD TOLERANCES

The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB). These construction elements shall also be in conformance with ADA requirements of detect ability. Detectable

warning surfaces shall be 2 feet wide square-pattern truncated dome surfaces setback 6 inches from the gutter line.

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheel chair ramp locations, and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans).

All pedestrian curb ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

STANDARD SPECIFICATIONS

Item numbers and item descriptions noted in the Standard Specifications below refer to MassDOT Standard Specification items as contained in the "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES", dated 2024 and all Subsequent Supplements, Errata and Addenda. Accordingly, these Standard Specifications are incorporated herein by reference.

ITEM 101.	**CLEARING AND GRUBBING**	**A**
ITEM 120.	**EARTH EXCAVATION**	**CY**
ITEM 141.1	**TEST PIT FOR EXPLORATION**	**CY**
ITEM 143.	**CHANNEL EXCAVATION**	**CY**
ITEM 144.	**CLASS B ROCK EXCAVATION**	**CY**
ITEM 146.	**DRAINAGE STRUCTURE REMOVED**	**EA**
ITEM 151.	**GRAVEL BORROW**	**CY**
ITEM 151.2	**GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES**	**CY**
ITEM 156.	**CRUSHED STONE**	**TON**
ITEM 201.	**CATCH BASIN**	**EA**
ITEM 202.	**MANHOLE**	**EA**
ITEM 220.	**DRAINAGE STRUCTURE ADJUSTED**	**EA**
ITEM 220.7	**SANITARY STRUCTURES ADJUSTED**	**EA**
ITEM 227.4	**MASONRY PLUG**	**SF**
ITEM 241.12	**12 INCH REINFORCED CONCRETE PIPE CLASS III**	**FT**
ITEM 415.1.	**PAVEMENT STANDARD MILLING**	**SF**
ITEM 402.	**DENSE GRADED CRUSHED STONE FOR SUB-BASE**	**CY**
ITEM 402.	**DENSE GRADED CRUSHED STONE FOR SUB-BASE**	**CY**
ITEM 415.	**PAVEMENT STANDARD MILLING**	**GAL**
ITEM 450.23	**SUPERPAVE SURFACE COURSE – 12.5 (SSC – 12.5)**	**TON**
ITEM 450.32	**SUPERPAVE INTERMEDIATE COURSE – 19.0 (SIC – 19.0)**	**TON**
ITEM 452.	**ASPHALT EMULSION FOR TACK COAT**	**GAL**
ITEM 453.	**HMA JOINT ADHESIVE**	**FT**
ITEM 482.3	**SAW CUTTING ASPHALT PAVEMENT**	**FT**
ITEM 482.4	**SAW CUTTING PORTLAND CEMENT CONCRETE**	**FT**
ITEM 506.	**GRANITE CURB TYPE VB - STRAIGHT**	**FT**
ITEM 514	**GRANITE CURB INLET - STRAIGHT**	**EA**
ITEM 570.2	**HOT MIX ASPHALT CURB TYPE II**	**FT**
ITEM 627.82	**GUARDRAIL FLARED END TREATMENT**	**EA**
ITEM 628.24	**TRANSITION TO BRIDGE RAIL**	**EA**
ITEM 628.304	**TEMPORARY IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-2**	**EA**
ITEM 628.4	**TEMPORARY IMPACT ATTENUATOR, REMOVE AND RESET**	**EA**
ITEM 697.	**SEDIMENTATION FENCE**	**FT**
ITEM 748.	**MOBILIZATION**	**LS**
ITEM 751.	**LOAM FOR ROADSIDES**	**CY**
ITEM 765.	**SEEDING**	**SY**
ITEM 833.7	**DELINEATION FOR GUARDRAIL TERMINAL**	**EA**

ITEM 851.1	**TRAFFIC CONES FOR TRAFFIC MANAGEMENT**	**DAY**
ITEM 852.	**SAFETY SIGNING FOR TRAFFIC MANAGEMENT**	**SF**
ITEM 853.1	**PORTABLE BREAKAWAY BARRICADE TYPE III**	**EA**
ITEM 853.21	**TEMPORARY BARRIER REMOVED AND RESET**	**FT**
ITEM 853.23	**TEMPORARY BARRIER (TL-3)**	**FT**
ITEM 854.016	**TEMPORARY PAVING MARKINGS – 6 INCH (PAINTED)**	**FT**
ITEM 854.1	**PAVEMENT MARKING REMOVAL**	**SF**
ITEM 856.12	**PORTABLE CHANGEABLE MESSAGE SIGN**	**DAY**
ITEM 859.	**REFLECTORIZED DRUM**	**DAY**
ITEM 866.106	**6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)**	**FT**
ITEM 866.112	**12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)**	**FT**
ITEM 867.106	**6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)**	**FT**
ITEM 983.1	**RIPRAP**	**TON**

SUPPLEMENTAL SPECIFICATIONS: Pecks Road

ITEM 115.1 DEMOLITION OF SUPERSTRUCTURE OF BRIDGE P-10-048 LUMP SUM

The work under this Item shall conform to the applicable provisions of Section 114 of the Standard Specifications and the following:

GENERAL

The demolition work under this item shall consist of the bridge superstructure elements, including but not limited to the decking components and steel framing.

The Contractor shall develop and design a protective shielding/debris containment system. The work of this Item also includes environmental protection and waste disposal. All debris, including used water if applicable, shall be collected and legally disposed of. The Contractor shall implement and maintain programs and procedures that comply with the requirements of these specifications and all applicable standards and regulations. The Contractor shall comply with all applicable regulations even if the regulation is not specifically referenced herein. If a Federal, State or local regulation is more restrictive than the regulations of these specifications, follow the more restrictive requirement. All costs for protective shielding shall be considered incidental to this item.

It is not guaranteed that the bridge materials will actually coincide with any descriptions contained herein or represented on Drawings. The Contractor must visit the bridge site prior to submitting bids to get familiar with the scope of work and bridge condition. No additional compensation, other than the lump sum price bid for this Item, shall be made if the materials or work provided is different than that inferred or described herein or shown on the drawings.

All materials, labor, and equipment required to demolish and dispose of the existing superstructure for Bridge No. P-10-048, as well as the design, installation, maintenance and removal of temporary earth supports, false-work, shall be considered incidental to this item. All demolition materials and debris shall become the property of the Contractor. The Contractor shall dispose of the material

outside and away from the site in an appropriate location. The Contractor shall notify the Engineer at the site intended for disposal prior to any disposal activity.

SUBMITTALS

Prior to the start of work, the Contractor shall submit Demolition Plans and Calculations, for review and approval by the Engineer, that conform to the same requirements as steel erection submittals, listed under Section 960 of the Standard Specifications. The Demolition Plans and Calculations shall be designed and stamped by a Professional Engineer (Structural) registered in Massachusetts. The plans shall indicate the type, size, and dimensions of all materials and equipment to be used for temporary earth support, falsework, and protective shielding/debris containment systems. The contractor shall indicate his proposed methods of demolition and removal with a sequence and schedule of operations.

The contractor shall also submit a plan showing crane set-up locations, operating radii and heights, crane capacity, etc. for approval by the Engineer. No work shall commence until the Engineer has given written approval for the method of demolition and the proposed protective shielding/debris containment system.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Demolition of Superstructure of Bridge No. P-10-048 will be paid for at the contract lump sum price, which shall constitute full compensation for all materials, labor, transportation, equipment, temporary earth supports, protective shielding and all incidentals necessary for the complete and safe demolition and removal of the bridge superstructure.

The contractor will make his/her own investigation of the structure to be demolished including the materials that are part of, or may be stored in the structure. No increase will be made to the bid price due to the nature of the materials involved in the demolition. All costs for permits, dump fees, special handling of hazardous materials, etc., shall be included in the bid price of the demolition item.

ITEM 140.01 BRIDGE EXCAVATION CY

The work under this Item shall conform to the applicable provisions of Sections 112, 120, and 140 of the Standard Specifications and the following:

GENERAL

The demolition work under this item shall consist of removal and disposal of bridge substructure materials to achieve necessary grades to install new bridge footings and other proposed substructure elements. Items removed shall include reinforced concrete abutments and footings.

The perimeter of all areas of Reinforced Concrete Excavation adjacent to existing concrete to remain (temporarily for staged removal) shall be sawcut to a depth of 1-inch. Sawcuts shall be considered incidental and shall not be measured for payment separately. Care shall be taken so as not to cut any reinforcing bars which are identified for reuse.

Also included as incedental to this item shall be the roughening of existing concrete surfaces if needed to place new concrete (such as leveling pad for footings) as directed by the Engineer. All excavated materials shall become the propoerty of the Contractor and be removed and disposed from the job site.

SUBMITTALS

Prior to the start of work, the Contractor shall submit Demolition Plans and calculations for review and approval by the Engineer. Plans and calculations shall include the portions of substructure to be removed. The procedure shall meet the requirements for a submittal of a demolition procedure contained under Item 115.1 Demolition of Superstructure of Bridge No. P-10-048 of these Special Provisions. Contractor shall include any calculations needed for temporary earth support to maintain traffic.

CONSTRUCTION METHODS

During the prosecution of the work under this Item, the Engineer may reject the use of any method or equipment that causes undue vibration or possible damage to the remaining structure. No debris from any excavation shall fall into Onota Brook and sloped areas adjacent to the abutments. The Contractor shall perform all excavation in such a manner as to maintain the safety of traffic operating in the vicinity. All temporary protective shielding and work platforms required for the safe performance of this work, outside of that provided under Item 115.1, shall be considered as incidental to this Item.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 140.01 - Bridge Excavation shall be measured for payment by the number of cubic yards of material excavated, as determined by field measurements conducted by the Contractor and verified by the Engineer.

Item 140.01 - Bridge Excavation shall be paid for at the contract bid price per CUBIC YARD. Said price shall constitute full payment for excavation, saw cutting, removal, and satisfactory off-site disposal of all excavated materials, including reinforced concrete. Said price shall also include the furnishing of all tools, labor, equipment, temporary earth support and transportation and all incidental work required to properly execute the work in accordance with these specifications and to the satisfaction of the Engineer.

ITEM 170.1 FINE GRADING AND COMPACTING SUBGRADE AREA SY

Work under the above items shall conform to the relevant provisions for Item 170. Fine Grading and Compacting – Subgrade Area of the MassDOT 2024 Standard Specifications for Highways & Bridges.

METHOD OF MEASUREMENT

The method of measurement under these Items shall conform to the relevant provisions for Item 170. Fine Grading and Compacting – Subgrade Area of the MassDOT 2024 Standard Specifications for Highways & Bridges.

BASIS OF PAYMENT

The basis of payment under these Items shall conform to the relevant provisions for Item 170. Fine Grading and Compacting – Subgrade Area of the MassDOT 2024 Standard Specifications for Highways & Bridges.

ITEM 222.31 FRAME AND GRATE MUNICIPAL STANDARD EACH
ITEM 222.32 FRAME AND COVER MUNICIPAL STANDARD EACH

The Work under these Items shall be in accordance with the relevant provisions of Section 220, and to the requirements and standard practices of the Pittsfield Water Dept.

Work under these items shall consist of placing new castings.
The concrete collar shall be brought up only to a height which will allow 4 inches of bituminous concrete to be placed above the collar. The concrete for collars is to be 4000 psi - 3/4" cement concrete (High Early Strength) and will be considered incidental to the respective items. Hot Mix Asphalt hand work that is required above the collars, up to the underside grade of the proposed paved surface course will be paid for under Item 472., Temporary Asphalt Patching.

Structure frames and covers shall meet the specifications of the City of Pittsfield Department of Public Works Standards, and the Pittsfield Water Dept. installation process.

METHOD OF MEASUREMENT

Measurement for Items 222.31 & 222.32 will be made by the unit each complete in place.

BASIS OF PAYMENT

Items 222.31 & 222.32 will be paid for at the contract unit price, Each, which price shall include full compensation for all labor, equipment, materials, and incidentals necessary for the satisfactory completion of the work.

ITEM 594.1 ASPHALT CURBING REMOVED FT

Work under this Item shall conform to the requirements of Section 580 of the Standard Specifications and the following:

All curb or edging removed shall be discarded per the direction of the Engineer.

The Contractor is responsible for notifying the City representative when the curbing will be removed.

CONSTRUCTION METHODS
The existing pavement to be sawcut as shown on Construction Details. Existing asphalt and curbing to be removed and disposed.

BASIS OF PAYMENT
The quantity of curb or edging removed and stacked to be paid for will be the length actually removed and disposed as measured along the face of the curb in place prior to removal.

ITEM 627.2 W-BEAM END SECTION (ROUNDED) EA

Work under this Item shall conform to the requirements of Section 601 of the Standard Specifications and the following:

Work under these items shall consist of W-BEAM END SECTION (ROUNDED) installation complete in place.

CONSTRUCTION METHODS
Install per Section 601 of the Standard Specifications and manufacturers instructions.

BASIS OF PAYMENT
W-BEAM END SECTION (ROUNDED) will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, fasteners, w-beam terminal connectors, equipment, and incidental costs required to complete the work.

Guardrail delineators shall be considered incidental to the cost of the guardrail, guardrail end treatment or w-beam end sections.

ITEM 697.1 SILT SACK EA

Work under this item shall conform to the relevant provisions of Sections 227 and 670 of the Standard Specifications and the following:

The work under this item includes the furnishing, installation, maintenance, and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

CONSTRUCTION

Silt sacks shall be installed in retained existing catch basins and drop inlets within the project limits and as required by the Resident Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.
When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.
All debris accumulated in silt sacks shall be handled and disposed of as specified in Section 227 of the Standard Specifications Massachusetts Department of Transportation Highway Division

COMPENSATION

Silt sacks will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment, and incidental costs required to complete the work. No separate payment will be made for removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 701. CEMENT CONCRETE SIDEWALK SQUARE YARD

DESCRIPTION AND PROSECUTION OF WORK

The work under these items shall conform to the relevant provisions of Section 700 and Subsection 701.and the following:

In addition to the requirements of Section 700 the work shall include the application of a liquid penetrant/sealer to protect concrete surfaces from chloride intrusion. The material shall meet the requirements of section M 9.15.0 and appear on the most current version of the Qualified Construction Materials List (QCML) for penetrating sealer found at:

https://www.mass.gov/qualified-construction-materials-list-qcml

702.30: General Materials shall meet the requirements specified in the following Subsections of Division III, Materials:
Gravel Borrow, Type b.....M1.03.0 Asphalt Release Agents .....M3.01.6 HMA for Driveways, Sidewalks, Berm, and Curb.....M3.07.0 Hot Mix Asphalt Production Facility.....M3.12.0 Hot Mix Asphalt Materials Testing Laboratory and Equipment .....M3.13.0 Deformed-Steel Welded Wire Reinforcement…….. ASTM A 497/A 497M, flat sheet
Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from galvanized steel wire into flat sheets
Plain-Steel Wire: ASTM A 82/A 82M, as drawn

The concrete mix design shall be submitted and approved by the City of Pittsfield before the start of construction.

CONSTRUCTION METHODS

Application of the penetrant/sealer shall be done in accordance with the manufacturer's instructions which shall be submitted to the Engineer 30 days in advance of any work done under these items. Unless otherwise allowed by the manufacturer's instructions all concrete shall be fully cured, clean, dry, and have no chemical films or coatings applied before application of the penetrant/sealer.

Concrete placed under these items shall be cured using a 3 day moist cure. Curing compounds will not be allowed. Following the moist cure the concrete shall be cured for an additional length of time as required by the manufacturer before applying the penetrant/sealer, typically 28 days. No concrete shall be poured when air temperatures are below or expected to drop below 40 degrees Fahrenheit.

Detectable Tactile warning surface shall conform to the requirements of MassDOT as shown on the 2017 Massachusetts Department of Transportation Highway Division Construction Standard Details, Drawing Number E 107.6.5 and shall be "brick red" in color.
No separate payment will be made for the detectable warning panels, but all costs in connection therewith shall be included in the unit price bid.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Items will be measured and paid for at the contract unit price per square yard which shall include all labor, equipment, and materials per standard detail in the contract plans, for the specified thickness and includes welded wire mesh, required to complete the work. Payment for the penetrant/sealer will be incidental to the work and no additional compensation will be made.

ITEM 767.121 SEDIMENT CONTROL BARRIER FOOT

The work under this item shall conform to the relevant provisions of Sections 751 and 767 of the Standard Specifications and Section 670 of the Standard Supplemental Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment Control Barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from

storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent up gradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes are intended to be the primary sedimentation control barrier.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods;

- Straw tubes/wattles which shall be trenched
- Straw bales which shall be trenched

Additional barriers (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

Where specified or required by permits, silt fence shall be used in addition to compost filter tubes or straw bales and shall be incidental to the item.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched and/or wedged as specified herein and shall be securely in contact with existing soil such that there is no flow beneath the barrier.

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be a knitted mesh with 1/8 - 3/8” openings and made of 100% biodegradable materials (i.e., cotton, hemp or jute).

Compost filter tubes shall be a minimum of 12 inches in diameter installed. Tubes shall be placed, filled, and staked in place as required to ensure stability against water flows. All tubes shall be tamped, but not trenched, to ensure good contact with soil.

Where reinforcement is necessary, additional tubes shall be installed as shown on the plans.

Straw Bales

Straw bales shall conform to the requirements of Section M6.04.3 of the Standard Specifications and the following:

Bales should be a minimum size of 12 x 16 x 36 inches and shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

The bales shall be trenched and backfilled. The trench shall be excavated the width of the bale and the length of the proposed barrier to a depth of 4 inches. After the bales are staked the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

Straw Wattle

Straw wattle shall be a minimum of 12 inches in diameter. Straw filling shall conform to the requirements of Section M6.04.3, shall be encased in durable netting, and shall have a density of 3 lb/foot.

Straw wattle shall be trenched in 3 inches deep and staked according to the plans. The wattles shall be sufficiently secure on the upstream side to prevent water flowing underneath the wattle.

Stakes

Stakes for anchoring Compost Filter Tubes, Straw Wattles, and Straw Bales shall be as shown on the plans and shall be a minimum of 1x1 inch diameter x 4 feet hardwood stakes.

When used with Silt Fence, stakes for Compost Filter Tubes shall be driven 12 inches into the ground, Stakes for Straw Bales shall be driven 16 inches into the ground.

Stakes of other material of equivalent strength may be used if approved by the Engineer.

MAINTENANCE

Maintenance of Sediment Control Barriers shall be per Section 670.40 of the Standard Supplemental Specifications or per the Stormwater Pollution Prevention Plan (SWPPP).

The contractor shall inspect the sediment barrier after each rain event and as specified in relevant permits to ensure that they are working effectively and as intended. Contractor shall be responsible for ensuring that an effective barrier is in place for all phases of the contract.

Barriers that decompose naturally due to weatherization over time such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed when construction work is complete and when site conditions are sufficiently stable to prevent surface erosion and after receiving permission to do so from the Engineer.

For all instances, all nonbiodegradable material, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor regardless of site context.

For naturalized areas, biodegradable, natural fabric, and material may be left in place to decompose on-site. Compost filter tubes may be left as they are with stakes removed. Straw bales shall be broken

down and spread evenly. All nylon or nonbiodegradable twine shall be removed along with silt fence. Wooden stakes may be left on site, placed neatly and discretely.

In urban, residential, and other locations where aesthetics is a concern, the following shall apply:

- Filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (similar to a soil amendment or mulch). Not more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall look neat and clean upon completion.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, if requested by Engineer shall be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 816.81 TEMPORARY TRAFFIC CONTROL SIGNAL LUMP SUM

The work under this Item shall conform to the relevant provisions of Section 800 of the Standard Specifications, the latest MassDOT-adopted edition of the Manual on Uniform Traffic Control Devices (MUTCD) as amended and supplemented, and the following:

Traffic management activities for this project will require the use of the temporary traffic control systems for construction stages and final design where the intersection will operate per the plans. All traffic signal adjustments shall be coordinated with the Engineer prior to implementation.

The Contractor may use the supplied Temporary Traffic Control Plans, which depict use of portable signal trailer, or submit another signalization method (i.e. span wire using wood posts, other) for managing traffic during construction.

UTILITY COORDINATION

Relocation of overhead communication and/or electric wires, if required based on the type of temporary signal control, shall be coordinated by the contractor with the utility companies affected. The cost of relocating or adjusting overhead utilities to accommodate the temporary signal shall be incidental to the temporary signal item.

TRAFFIC SIGNAL MAINTENANCE DURING CONSTRUCTION

For each stage of construction, the Contractor shall maintain traffic signal control at the intersections due to work zones and changes in travel lane locations and alignments, and to accommodate overhead utility relocation, such maintenance shall, where necessary, include relocation or repositioning of existing traffic signal equipment, or installation of temporary traffic signal equipment. The Contractor shall make required traffic signal modifications prior to implementation of each stage and make the necessary adjustments for each subsequent construction stage through the end of construction. All materials, devices, and methods under this item shall conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

BASIS OF PAYMENT

Item 816.81 will be paid for at the Contract unit price per Lump Sum, which price shall include full compensation for all labor, materials and equipment inventory, design, and field implementation of the temporary traffic signal modifications during each construction stage. No additional compensation will be made for coordination with utilities and signal modifications, but all costs in connection therewith shall be included in the Contract lump sum price bid.

ITEM 852.11 TEMPORARY PEDESTRIAN BARRICADE FOOT
ITEM 852.12 TEMPORARY PEDESTRIAN CURB RAMP EACH

DESCRIPTON

Work under these items consist of furnishing, deploying, maintaining in proper operating conditions, and removing temporary pedestrian barricades and temporary pedestrian ramps as part of a Temporary Pedestrian Access Route (TPAR) in order to guide pedestrians around a fully- or partially-closed sidewalk. These devices are intended to prevent pedestrians from entering the work area and to prevent pedestrians from inadvertently entering the vehicle travel lane by providing visual and physical separation between each space.

MATERIALS

The Temporary Pedestrian Barricade shall have a continuous bottom rail or edge no more than two (2) inches above the ground and eight (8) inches in height (minimum) to accommodate cane users, have a smooth and continuous hand railing along the top edge no less than 32 inches above the ground and not obstruct or project into the pedestrian path of travel. Barricade walls shall be nearly vertical and generally within the same plane.
If exposed to traffic, Temporary Pedestrian Barricades shall be crashworthy.
The Temporary Pedestrian Curb Ramp shall provide a 48 inch minimum width, with a firm, stable, and non-slip surface. Protective edging with a two (2) inch minimum height shall be installed when the curb ramp or landing platform has a vertical drop of six (6) inches or greater.
The Temporary Pedestrian Curb Ramp walkway and landing area surface shall be of a solid, continuous, contrasting color abutting up to the existing sidewalk.
If a Temporary Pedestrian Curb Ramp leads to a crosswalk, a detectable warning pad must be used at the base of the ramp; if it leads to a protected path that does not conflict with vehicular traffic then a detectable pad shall not be used.

CONSTRUCTION METHODS

The Temporary Pedestrian Barricade shall be placed in an area that will provide pedestrians with a TPAR on a smooth, continuous hard surface for its entirety. The geometry and alignment of the facility shall meet the applicable requirements of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities" and the Massachusetts Architectural Access Board.

The recommended width of the TPAR is 60 inches, but if constraints exist a minimum clear width of 48 inches shall be provided along its entirety. If a 60 inch width cannot be accommodated in full, a 60 inch by 60 inch passing space shall be provided every 200 feet or less along the TPAR.
Turning areas shall be 60 inches by 60 inches minimum.
Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

ITEM 852.11-852.12 (Continued)

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and/or resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental.

COMPENSATION

Payment for Temporary Pedestrian Barricades will be made at the contract price per foot installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramps will be made at the contract price per each unit installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

ITEM 874.4 TRAFFIC SIGN REMOVED AND STACKED EACH

The work to be done under this item shall consist of the dismantling, removing, transporting, and stacking of all existing street, warning, regulatory and guide, and miscellaneous signs and their supports, as directed by the Engineer.

Also included is the excavation of the existing foundations. If in the opinion of the Engineer, the existing foundation will not interfere with new construction, it may be removed to a depth of 6 inches below the existing ground, and the hole backfilled with gravel and compacted, and the existing surfaces restored or replaced in kind.

All re-usable sign material within the City of Pittsfield, in the opinion of the Engineer, shall be delivered to the respective owner. The following are the stacking locations for the corresponding owners:

City of Pittsfield: Department of Public Works, West Housatonic Street.

The existing signs shall not be removed until the new signs and structures replacing them are ready for traffic unless otherwise directed by the Engineer.

Payment for work under Item 874.4 - Traffic Signs Removed and Stacked, shall be at the price per each which price shall be full compensation for dismantling, removing, transporting, and stacking of the signs and their supports, excavation, and disposal of the existing foundation, supplying and placing of gravel backfill and compaction, and the restoration or replacement in kind of disturbed surfaces.

ITEM 991.1 CONTROL OF WATER – STRUCTURE NO. P-10-048 LUMP SUM

The work to be performed under this Item shall include all pumping, sandbagging, earth, and other measures, inclusive of optional sheeting if deemed practical, necessary for sufficient water control to accomplish bridge and abutment installation and two (2) 48" HDPE culvert temporary bypass. Also, this Item includes all water pollution prevention including sediment control and flood prevention of the excavated areas at the structure for demolition, reconstruction, and riprap placement necessary to complete the bridge superstructure replacement.

The Work under this Item shall conform to the relevant provisions of Subsection 140 of the Standard Specifications and these Special Provisions.

The Contractor's attention is directed to the section of these Special Provisions that addresses the Contractor's obligations for Sedimentation and Erosion Control for this project.

The contractor is responsible for following the Order of Conditions for this project including conditions relevant to Item 991.1. Relevant conditions include but are not limited to the following:

1. Dewatering activities shall be located as far as possible from wetland resource areas and shall be prohibited from discharging to Bordering Vegetated Wetlands, Isolated Vegetated Wetlands, Land Under Water Bodies and Waterways, or within the inner Riverfront Area.
2. Dewatering may only occur in other upland resource areas provided adequate control measures are implemented and locations are identified by the contractor and reviewed and approved by the Commission and/or its agent prior to implementation.

CONSTRUCTION METHODS

As part of the work under this Item, it is the responsibility of the Contractor to determine the means and method to maintain the required channel opening for fish and water flow, dewatering techniques and sedimentation controls needed to control water and sediment for the required operations. Prior to commencing construction, the Contractor shall submit Plans showing the methods and materials he/she proposes to use for the Engineer's approval. The submittal shall include a hydraulic calculation showing the proposed methods do not result in flood impact to improvements on surrounding properties due to storm flows. The Plans and hydraulic calculations shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

All work shall be performed during the low flow season, and the design submittal must consider a minimum 10 year flood elevation for the cross-section in each stage of construction (see Bridge Manual Part I 1.3.3.3E). A minimum of 1 foot of freeboard shall be provided with the 10 year flood elevation for water control purposes. The 10 year flood elevation that is indicated on the Plans is based on the particular cross-section shown for each stage of construction. Any deviation of the location of the water control system from the Plans will require a determination of a new 10 year flood elevation for the design.

The Contractor shall use such equipment and shall perform his/her operations in such a manner that boiling or other disturbances of the soil in the foundation area will be prevented. He/She shall keep the area being excavated dry by such means that water will be prevented from entering from the adjacent soils and adversely affecting the stability of the foundation material or supporting soils. In the event of high flow rates, the Contractor shall be responsible to develop and implement a reasonable means necessary to handle the additional flows to protect the surrounding area, as approved by the engineer.

All dewatering and related earthwork shall be conducted in such a manner as to prevent siltation or contamination of the waterway.

The Contractor shall provide the means of removing all sediment from water pumped from channel excavation or water entering the bridge excavation via ground water or from surface flow; this shall include the use of sedimentation basins, check dams, sedimentation fences or tanks as required in these Special Provisions under Sedimentation and Erosion Control listed below.

All temporary support of excavation that protrudes into the soil that supports the bridge structure shall be left in place. Supporting soil shall be defined as all soil directly below the footing contained within a series of planes that originate at the perimeter of the bottom of the footing and project down and away from the footing at an angle of 45 degrees from the horizontal.

Measures to control the discharge of pollutants into water resource areas shall include, but not be limited to the following:

- Rigorous management of construction operations involving potentially hazardous materials, such as, refueling and maintenance of construction equipment.

- Formulation of contingency plans to control accidental spillage from potentially hazardous materials.

- Sighting of construction staging areas outside of the buffer zones on relatively flat ground.

- Scheduling of work within the resource areas to avoid periods of high flood (e.g., spring floods) and inclement weather.

- Installation and continuous maintenance of staked hay bales and filter fences to prevent sediment migration into adjacent downstream resource areas. Placement of erosion controls shall be as shown on the plans, as specified herein, or as directed by the Engineer, so as to accomplish maximum control of project related sediment mobilization. Additional erosion control measures shall be employed as necessary to prevent erosion and sedimentation of the streambed. These measures shall be maintained for the duration of the contract.

- All discharge resulting from dewatering activities shall be directed to temporary settling tanks/basins located as necessary to control turbidity (see below). At no time shall said discharge be directly released into adjacent resource areas.

The pumping discharge shall not be allowed to enter directly into Onota Brook. The water from the work areas shall be pumped to a settling tank. The tank shall be constructed to allow for the pumped water to pass through the tank with sediments settling out before discharging to an area enclosed by hay bales. The tank can be constructed of concrete, fiberglass or any other material that will meet the following:

1. Approximately 70 percent sedimentation trapping efficiency shall be achieved with a typical tank to ensure that the tanks are adequately sized to prevent overtopping from dewatering and to provide the required filtering.

2. The outlet from the settling tank shall not cause erosion of the surrounding area. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the tank.

The settling tanks shall be maintained as follows:

1. Inspect at least twice daily during dewatering operations.
2. Repair any damage immediately.
3. Clean tank outlet daily. Remove any debris immediately.
4. Remove sediments when deposits reach 8 inches below the outlet invert.
5. Dispose sediments outside of wetland areas at a location approved by the Engineer.
6. The Contractor shall inspect hay bales that surround the outlet daily and shall immediately replace any that are damaged.

The approximate location of the settling tanks shall be shown on the Contractor's Plans as part of the submittal for the Engineer's approval.

Pumping shall be conducted in a manner which will not adversely affect the work within the excavation.

The Contractor shall provide and maintain ample pumps, pipes and other devices to promptly and continually remove and dispose of water from the excavation areas. The size and configuration of pumps and pipes shall be selected by the Contractor.

The Contractor is advised that the effectiveness of the water control method used will vary based on the field conditions and the time at which the actual excavation work is being performed. The Engineer has the right to order the Contractor to stop all excavation operations when in his judgment the Contractor's water control operations are failing to produce adequate results or are posing a threat to the environment.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Payment for all water control work, including design for flood prevention of excavated areas, water pollution prevention and dewatering operation, all necessary tools, material, installation, and removal of all temporary measures necessary for the measures outlined above, shall be included in the Contract LUMP SUM Price for this Item.

Payment under this Item is a partial progressive payment of the Lump Sum Contract Bid Price of this Item and shall be made based upon the following percentages: 50% upon completion of the installation of the water control system to the satisfaction and approval of the Engineer, and 50% upon the removal and satisfactory disposal of the water control system from the project site at the completion of the work.

ITEM 995.01 BRIDGE STRUCTURE, BRIDGE NO. P-10-48 LUMP SUM

The work to be done under this Item shall conform to the applicable provisions of Section 901 and Section 995 of the Standard Specifications and the specific requirements stipulated below for the component parts of this Item.

Work under this Item shall include all materials, equipment and labor needed to construct the following components of the bridge: the precast 3-sided frame sections with footings and concrete risers, precast wingwalls, approach slabs, S3-TL4 Bridge Rail, and the application of bituminous damp-proofing to the top surfaces of the bridge. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment.

The contractor is responsible for following the Order of Conditions for this project and relevant conditions to Item 995.01. The Applicants shall notify the Pittsfield Conservation Commission Office once erosion control measures are installed for review two (2) days prior to commencement of bridge work.

Any temporary shoring required for crane support to construct or place the structure shall be included in this item.

The work does not include any items listed separately in the proposal. Payment for materials shown on the plans as being part of this bridge structure or which may be incidental to its construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under this Item and shall be included in the unit price of the component of which they are a part.

PRECAST CONCRETE 3-SIDED FRAME BRIDGE DESCRIPTION

This work shall consist of designing, fabricating, furnishing, and constructing a precast concrete 3-sided frame bridge on precast footings with risers and wingwalls (if precast) in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans. In situations where two or more specifications apply to this work, the more stringent requirements shall govern. Any deviation from the bridge geometry shown on the plans will be subject to the review and approval of the Engineer. The bridge shall provide the same span and hydraulic opening and fit within the profile grade lines shown on the plans. The bottom chord of the proposed bridge shall not be set below the existing bottom chord elevation. The proposed top of roadway shall be per plans. The proposed overall structure depth shall fit within the theoretical envelope from the top of proposed grade to the existing bridge bottom chord.

Designation - Precast concrete bridge frame units shall be designated by span and height. Precast bridge footings slabs manufactured in accordance with this specification shall be designated by length and width. Precast reinforced concrete wingwalls manufactured in accordance with this specification shall be designated by length and height.

DESIGN

Specifications - The precast elements shall be designed in accordance with the current version and latest interim specifications of LRFD Bridge Design Specifications of the American Association of State Highway and Transportation Officials (AASHTO) for HL-93 loading.

Design Submissions

Computations - The Contractor shall submit a PDF copy of the design computations prepared and stamped by a Professional Engineer registered in Massachusetts for the precast elements to the Engineer for review and acceptance. The design computations shall consider all loadings as are appropriate for each stage of fabrication, shipment, construction, and final condition.

Shop Drawings - Shop drawings shall be prepared and stamped by a Professional Engineer licensed in Massachusetts. Prior to fabrication, a PDF copy of complete shop drawings showing, at a minimum, the following information shall be submitted to the Engineer for approval:

1. Plan layout of the structure indicating the piece mark of each precast unit;
2. Catalogue cut-sheets for all hardware to be used in the precast elements;
3. Description of the fabricating plant, including any backup concrete mixing facilities, current MassDOT approved concrete mix design and proposed method of placement. Modifications or deviations from the current MassDOT approved mix design at any time after the original approval shall be submitted to the Engineer for approval;
4. Proposed admixtures to be added to the concrete mix, including brand and dosage rates, shall be consistent with the MassDOT approved mix design;
5. Outline of the proposed concrete curing procedures for both the precast units and test cylinders;
6. The name of the Manufacturer of all reinforcing steel;
7. Complete details of all precast units, including all dimensions and tolerances, locations and types of reinforcement, finish treatments, and concrete strengths at lifting and at 28 days;
8. Details of bridge frame and wingwall units (if precast) and all connections;
9. Joint dimensions and details including type and brand of joint sealing materials;
10. Grouted shear keyway and bolt details to rigidly connect frames together or similar details to prevent reflective cracking through the pavement;
11. Locations and methods of forming lifting holes, type and location of lifting devices, and the method of handling and transporting all precast units to the job site;
12. Provisions for repair of minor non-structural defects;

Final MassDOT Chapter 85 Approval Process for Prefabricated Structures:

1. After the construction contract is executed, the Contractor shall submit PE-stamped shop drawings and design calculations prepared by the Fabricator Engineer to the Designer for review and approval.

2. Upon receipt, the Designer shall forward shop drawings and calculations (PDF) to MassDOT for their concurrent review with the Designer's review. At any time MassDOT may forward comments to the Designer who will address the comments or forward them to the Contractor for their responses.

3. The Designer shall review shop drawings and calculations and resolve any comments with the Contractor (and Fabricator Engineer as appropriate) through the normal shop drawing review process. The Designer shall forward any review comments to the Contractor, with a copy to MassDOT. The Designer shall forward any Contractor resubmittals to MassDOT, again PDF.

4. Upon resolution of all Designer comments, the Designer shall submit a PDF of the Designer-approved shop drawings and calculations to MassDOT for approval. All sheets of the final set of shop drawings shall include the Standard Chapter 85 Approval Stamp shown below, along with the Designer's shop drawing approval stamp.

5. Once all MassDOT comments are resolved, the Designer shall submit a PDF of the shop drawings and calculations to MassDOT. Each sheet of the shop drawings shall have the Standard Chapter 85 Approval Stamp, the Fabricator's Registered Professional Engineer's stamp, and the Designer's Shop Drawing Approval Stamp. MassDOT will forward their approval to the Designer, who will forward notification to the Contractor so that fabrication may begin. This approval shall constitute the final approval as stipulated by Chapter 85 Section 35 of the Massachusetts General Laws.

It is recommended to allow sufficient time for shop drawing approval by the Designer and MassDOT per the process described above. Any fabrication prior to final Chapter 85 approval by MassDOT will be at the Contractor's own risk.

MATERIALS

Concrete

All precast concrete 3-sided frame bridge components and safety curbs supporting the bridge rail and railing on the wingwalls shall be produced using a minimum 5000 psi HP cement concrete mix design. All other precast concrete elements: frame bridge footings, risers, wingwall footings and stems, shall be minimum 4000 psi cement concrete. All concrete mix designs for precast shall be approved MassDOT High Performance cement concrete mixes.

Steel Reinforcement

The minimum steel yield strength shall be 60,000 psi, unless otherwise required by the design and noted on the shop drawings.

All reinforcing steel for the precast elements shall be fabricated and placed in accordance with the approved shop drawings submitted by the manufacturer.

Reinforcement shall consist of welded wire fabric conforming to ASTM Specification A 1064 or deformed billet steel bars conforming to ASTM Specification A615, Grade 60. Longitudinal distribution reinforcement may consist of welded wire fabric or deformed billet-steel bars.

All reinforcing steel bars shall be epoxy coated in accordance with ASTM A775. All welded wire fabric shall be epoxy coated in accordance with ASTM A884.

Steel Hardware as a minimum:

- Bolts and threaded rods shall conform to ASTM A 307. Nuts shall conform to AASHTO M292 (ASTM A194) Grade 2H. All bolts, threaded rods and nuts used shall be mechanically zinc coated in accordance with ASTM B695 Class 50.
- Structural Steel for connection plates and plate washers shall conform to AASHTO M 270 (ASTM A709) Grade 36 and shall be hot dip galvanized as per AASHTO M111 (ASTM A123).
- Reinforcing bar splices shall be made using the Dowel Bar Splicer System as manufactured by Dayton Superior, and shall consist of the Dowel Bar Splicer (DB-SAE) and Dowel-In (DI).

MANUFACTURE OF PRECAST ELEMENTS

Subject to the provisions of the PERMISSIBLE VARIATIONS section, below, the precast element dimension and reinforcement details shall be as prescribed in the plan and shop drawings provided by the manufacturer.

The forms used in manufacture shall be sufficiently rigid and accurate to maintain the required precast element dimensions within the permissible variations given in Section 5 of these specifications. All casting surfaces shall be of a smooth material.

Placement of Reinforcement

Placement of Reinforcement in Precast Units - The cover of concrete over the reinforcement of the precast units shall be 2 inches minimum.

Curing

The precast concrete elements shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be used:

Steam Curing - The precast elements may be low-pressure steam cured by a system that will maintain a moist atmosphere.

Water Curing - The precast elements may be water cured by any method that will keep the sections moist.

Membrane Curing - A sealing membrane conforming to the requirements of ASTM Specification C309 may be applied and shall be left intact until the required concrete compressive strength is attained. The concrete temperature at the time of application shall be within +/- 10 degrees F of the atmospheric temperature. All surfaces shall be kept moist prior to the application of the compounds and shall be damp when the compound is applied.

STORAGE, HANDLING & DELIVERY

Storage

- Precast concrete bridge elements shall be lifted and stored in "as-cast" position.
- Precast concrete wingwall units are cast, stored and shipped in a flat position.
- The precast elements shall be stored in such a manner to prevent cracking or damage. Store elements using timber supports as appropriate. The units shall not be moved until the concrete compressive strength has reached a minimum of 2500 psi, and they shall not be stored in an upright position.

Handling

- Handling devices shall be permitted in each precast element for the purpose of handling and setting.
- Spreader beams may be required for the lifting of precast concrete bridge elements to preclude damage from bending or torsion forces.

Delivery

- Precast concrete elements shall not be shipped until the concrete has attained the specified design compressive strength, or as directed by the Engineer.
- Precast concrete elements may be unloaded and placed on the ground at the site until installed. Store elements using timber supports as appropriate.
- The bridge shall not be opened to traffic until the precast concrete has attained the required 28 day design strength shown on the approved shop drawings as verified by concrete cylinder break.

Quality Assurance

The Precaster shall demonstrate adherence to the Specifications set forth in the NPCA Quality Control Manual.

Certification: The Precaster shall be approved by MassDOT and certified by the Precast/Prestressed Concrete Institute Plant Certification Program or the National Precast Concrete Association's Plant Certification Program prior to and during production of the products covered by this specification.

Testing and Inspection: At a minimum, the Precaster shall perform the following tests in accordance with the ASTM standards indicated. Tests shall be performed as indicated in the TESTING/INSPECTION section of these specifications.

- Air Content: C231 or C173
- Compressive Strength: C31, C39, C497
- The Owner may place an inspector in the plant when the products covered by this specification are being manufactured.

PERMISSIBLE VARIATIONS

Bridge 3-Sided Frame Units

Internal Dimensions - The internal dimensions shall not vary more than 1% from the design dimensions nor more than 1-1/2 inches, whichever is less.

Top Slab and Wall Thickness - The slab and wall thickness shall not be less than that shown in the design by more than 1/4 inch. A thickness more than that required in the design shall not be cause for rejection.

Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the bridge unit shall not be more than 1/2 inch in any section, except where beveled ends for laying of curves are specified by the purchaser.

Length of Section - The underrun in length of a section shall not be more than 1/2 inch in any bridge unit.

Position of Reinforcement - The maximum variation in position of the reinforcement shall be ± 1/2 inch.

Area of Reinforcement - The areas of steel reinforcement shall be the design steel areas as shown in the approved shop drawings. Steel areas that are greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcement.

Wingwalls (if precast)

Wall Thickness - The wall thickness shall not vary from that shown in the design by more than 1/2 inch.

Length/ Height of Wall sections - The length and height of the wall shall not vary from that shown in the design by more than 1/2 inch.
Position of Reinforcement - The maximum variation in the position of the reinforcement shall be ± 1/2 inch.

Size of Reinforcement - The permissible variation in diameter of any reinforcing shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcing. Steel areas that are greater than that required shall not be cause for rejection.

TESTING/ INSPECTION

Testing

Type of Test Specimen - Concrete compressive strength shall be determined from compression tests made on cylinders. A minimum of 3 cylinders shall be taken for each lot of bridge elements. (A lot is defined as the precast elements made using the same concrete mix during a single day's production.) Each lot shall be considered separately for the purpose of testing and acceptance.
Compression Testing - Cylinders shall be made and tested as prescribed by the ASTM C 39 Specification.

Acceptability of Cylinder Tests - When the average compressive strength of all cylinders tested is equal to or greater than the design compressive strength, and not more than 10% of the cylinders tested have a compressive strength less than the design concrete strength, and no cylinder tested has a compressive strength less than 80% of the design compressive strength, then the lot shall be accepted. When the compressive strength of the cylinders tested does not conform to these acceptance criteria, the acceptability of the lot may be determined as described in the following section.

Inspection - The quality of materials, the process of manufacture, and the finished precast elements shall be subject to inspection by the purchaser.
Certificates of Compliance – The precast concrete producer shall furnish Certificates of Compliance to the Engineer stating that all fabrication was performed in accordance with the approved construction documents.

JOINTS

The precast concrete 3-sided frame bridge units shall be produced with grouted shear keyways and bolted connections in the deck slabs or similar details to provide a rigid connection that will preclude reflective cracking through the pavement.

WORKMANSHIP/FINISH

The bridge and wingwall units shall be substantially free of fractures. The ends of the units shall be normal to the walls and centerline of the bridge section, within the limits of the variations specified, above, except where oblique or beveled ends are specified. The faces of the wingwalls shall be parallel to each other, within the limits of variations given above. The surface of the precast elements shall be a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth, steel form finish.

REPAIRS

Precast elements may be repaired, if necessary, because of imperfections in manufacture or handling damage and will be acceptable if, in the opinion of the Engineer, the repairs are sound, properly finished and cured, and the repaired section conforms to the requirements of this specification.

REJECTION

The precast elements shall be subject to rejection on account of any of the specification requirements. Individual precast elements may be rejected because of any of the following:

- Fractures or cracks passing through the wall, except for a single end crack that does not exceed one half the thickness of the wall.
- Defects which indicate proportioning, mixing, and molding not in compliance with MANUFACTURER OF PRECAST ELEMENTS section of these specifications.
- Honeycombed or open texture.
- Damaged ends, where such damage would prevent making a satisfactory joint.

MARKING

Each unit shall be clearly marked by waterproof paint. The following shall be shown on the inside of the vertical leg of the bridge frame sections:

- Bridge Frame Span XX ft Bridge Rise X ft
- Date of Manufacture
- Name or trademark of the manufacturer

INSTALLATION PREPARATION

To ensure correct installation of the precast concrete bridge system, care and caution must be exercised in placing the support areas for the footings, 3 sided frame units and wingwall elements. Exercising special care will facilitate the rapid installation of the precast components.

Footings

The precast bridge frame and wingwall units (if precast) shall be set on cast-in-place concrete footings as the footings will be laid on a poured concrete leveling slab as shown in the plans. The top of footing elevations are shown in the plans. The top of footing elevations may be adjusted to meet the actual site conditions with the approval of the Engineer, but the final top of grade shall match the plans.

The elevations shall be as shown on the plans and shop drawings. The precast units shall be set to the lines and grades shown on the plans or as modified from field conditions. When tested with a 10-foot straight edge, the top surface of the precast units shall not vary more than 1/4 inch in 10 feet.

Grout for bridge frame keyways and wingwall joints shall be a rapid set grout suitable for the application and as specified on the approved shop drawings.

INSTALLATION

General

The installation of the precast concrete elements shall be per manufacturer's recommendations, and the following:

- Lifting - It is the responsibility of the contractor to ensure that a crane of the correct lifting capacity is available to handle the precast concrete units. This can be accomplished by using the weights given for the precast concrete components and by

determining the lifting reach for each crane unit. Site conditions must be checked well in advance of shipping to ensure proper crane location and to avoid any lifting restrictions. The lift anchors or holes provided in each unit shall be the only means to be used to lift the elements. The precast concrete elements must not be supported or raised by other means than those given in the manuals and drawings without written approval from the manufacturer.

- Erection Procedure – The Contractor shall submit along with the design computations and shop drawings specified above an erection procedure to the Engineer for approval. This procedure will indicate his proposed erection procedures and methods to be used including equipment, tools, devices, crane capacity and location, schedule of operations, methods of utility protection, etc. The requirements for equipment and all procedures utilized shall be in conformance with the intent of Subsection 960.61 Erection of the Specifications.

  The erection procedure and any necessary calculations and drawings shall be stamped by a Professional Engineer registered in Massachusetts certifying that all elements are suitably braced and within acceptable stress limits during all stages of the erection process. In determining the stresses to which the structure will be subjected, all loading combinations including wind loading shall be considered. The method of determining stresses may conform to either the AASHTO LRFD or 2002 AASHTO Standard Specifications for Highway Bridges. Erection of any bridge components may not commence until the Engineer has given written approval.

Construction equipment weight restrictions

In no case shall equipment operating in excess of the design load (HL93) be permitted over the bridge frame units unless approved by the manufacturer and Engineer.

Placement of Bridge Units

The 3-sided bridge frame and wingwall units (if precast) shall be placed as shown on the plans and shop drawings. Special care shall be taken in setting the elements to the line and grade show on the plans.

Waterproofing/ Joint protection and Subsurface Drainage

Bituminous Damp-proofing – All units shall be coated with bituminous damp-proofing conforming to the relevant provisions of Section 970 of the Specifications on all surfaces which will be in contact with backfill soils. This coating shall be applied at the precasting plant and allowed to cure prior to shipping to the job site.

The joints between adjacent bridge frame sections shall be connected as required on the approved shop drawings. Lifting holes shall also be filled with non-shrink grout after erection is complete.
Membrane Waterproofing for Bridge Decks – Membrane Waterproofing for Bridge Decks shall conform to the requirements of Section 965 of the Specifications and may be sheet membrane.

Backfill

Do not perform backfilling during wet or freezing weather. No backfill shall be placed against

any structural elements until they have been approved by the Engineer.

Streambed Restoration (addendum #1)

The Contractor shall restore the streambed beneath the structure according to the detail shown on Sheet STR-4. The matrial shall be 12" thick natural bottom conforming to MassDOT material specicification M1.03.0 Type A. It shall be well graded, compacted and consolidated, using as much of the existing nartual stones as possible. Do not perform backfilling during wet or freezing weather.

ON SITE INSPECTION BY MANUFACTURER

A representative from the manufacturer shall be onsite for the following operations or to inspect completed portions of the structure for conformance with the design specifications:

1. Once the foundation preparation is complete it shall be inspected for acceptability prior to placement of the bridge and wingwall units;
2. During the entire erection operation of the bridge and wingwall units (if precast);
3. Once erection and assembly of the structure is complete and the joint connections are made, it shall be inspected for conformance with the design specifications prior to backfilling;
4. During the entire backfilling operation until the fill is uniformly brought up to the level of the approach slabs.

4000 PSI, 1.5 IN., 565 CEMENT CONCRETE

The work to be done under this heading shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

4000 PSI, 1.5 IN., 565 HP Cement Concrete shall be used to construct areas as designated on the Plans and/or designated by the Engineer. This concrete shall conform to all material requirements contained in Subsection M4.02 of the Supplemental Standard, with the exception of the cementitious content, which shall be limited to a maximum of 565 pounds per cubic yard.

STEEL REINFORCEMENT FOR STRUCTURES-EPOXY COATED

The work to be done under this heading shall conform to the relevant provisions of Subsection 901.62 of the Standard Specifications.

S3-TL4 BRIDGE RAIL

The work to be performed under this heading shall consist of the fabrication and installation of a Thrie Beam Bridge Rail system. Work shall conform to the relevant provisions of Section 975, Metal Bridge Railings and Protective Screen, of the Standard Specifications to the Standard Specifications for Highways and Bridges.

Anchor bolts shall conform to ASTM A449. Guardrail post anchorage assemblies shall be provided to the Precaster so they may be installed into the precast headwall units during casting.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

The Contractor shall submit a schedule of unit prices for the major component Sub-Items that make up Item 995.01 as well as his/her total Bridge Structure Lump Sum cost. The Bridge Structure Lump Sum breakdown quantities provided in the proposal form are estimated and not guaranteed. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the accuracy of the quantities furnished by the Engineer for the individual bridge components. The cost of labor and materials for any Item not listed but required to complete the work shall be considered incidental to Item 995.01 and no further compensation will be allowed. Cost of furnishing and placement of streambed material shall be included in lump sum bid price for Item 995.01.

The schedule on the proposal form applies only to Bridge Structure No. P-10-48 payment for similar materials and construction at locations other than at this bridge structure shall not be included under this Item. Sub-Item numbering is presented for information only in coordination with MassDOT Standard Nomenclature.

ITEM 995.01 ESTIMATED LUMP SUM BREAKDOWN QUANTITIES (NOT GUARANTEED)

SUB-ITEM	DESCRIPTION	QTY.	UNIT
901.	4000 PSI, 1.5 in., 565 Cement Concrete	26	CY
915.16	Arch Frame Unit (Over 6 Feet Wide – 20 to 24.99 Foot Span)	01	EA
970.	Bituminous Damp-Proofing	607	SY
975.1	Metal Bridge Railing (3 Rail), Steel (Type S3-TL4)	86	FT

The above schedule applies only to Bridge No. P-10-048. Payment for similar materials and construction at locations other than at this bridge structure shall not be included under this Item. * - Sub-Item numbering is presented for information only in coordination with MassDOT Standard Nomenclature.