TECHNICAL SPECIFICATIONS

TOWN OF CHARLEMONT
BRIDGE NO. C-05-027, SOUTH RIVER ROAD OVER ALBEE BROOK
BRIDGE PRESERVATION

SPECIAL PROVISIONS TO THE
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION – HIGHWAY DIVISION
STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES

DIVISION II

The work on this project shall conform to the 2024 Massachusetts Department of Transportation Highway Division Standard Specifications for Highways and Bridges, the most current version of the MassDOT Supplemental Specifications as of the bid opening date, the October 2017 Massachusetts Department of Transportation Highway Division Construction Standard Details; 1990 Standard Drawings for Signs and Supports; the 1996 Construction and Traffic Standard Details (as relates to the Pavement Markings details only); the 2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revisions 1, 2, and 3 dated July 2022, 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. The 2024 Standard Specifications; the latest editions of the Supplemental Specifications and the Interim Supplemental Specifications shall be referred to collectively as the Standard Specifications.

The South River Road over Albee Brook Bridge Deck Replacement Project is located on a major collector road located just south of the Deerfield River and approximately 2 miles east of the intersection with West Hawley Road in the Town of Charlemont. The bridge currently does not have a posted weight limit. The deck condition is poor and the superstructure and substructure is in generally satisfactory condition. The bridge shall be closed to traffic during construction and a detour route will be signed. The current bridge abutments and wingwalls consist of concrete masonry. The work includes the removal and replacement of the existing bridge deck and related work. This work shall consist of removing and replacing the existing reinforced concrete deck slab, existing reinforced concrete safety curbs, installing the steel thrie beam bridge railing and approach guard rail, performing repairs to the existing abutments and wingwalls, and paving the bridge and approaches. The details are presented on 8 construction drawing sheets that have been reviewed and approved by MassDOT on Xxxxxxx XX, 2024. Traffic management required to perform the construction shall be as shown on the construction drawings. Payment for materials or work shown on the Plans as being part of the work to the bridge and approaches or which may be incidental to its construction and are not specifically included for payment under the Contract shall be considered incidental to the work performed. Where used within the contract documents, the terms “Department”, “Municipality”, and “Town” shall be taken to mean the Town of Charlemont. The term “Engineer” shall be taken to mean the authorized representative or Project Manager for the Town of Charlemont. The construction contract completion date is Xxxxxxx XX, 2025.

Payment for materials or work shown on the Plans or as being part of the bridge preservation project which may be incidental to its construction and are not specifically included for payment under the Contract shall be considered incidental to the work performed. Where used within the contract documents, the terms "Department", "Municipality", and "Town" shall be taken to mean the Town of Charlemont. The term "Engineer" shall be taken to mean the authorized representative or Project Manager for the Town of Charlemont.

For the work specified under this Contract, the Contractor or Subcontractor(s) shall be prequalified by the Massachusetts Department of Transportation Highway Division (MassDOT) for the following classes of work:

Bridge Construction
Demolition

GENERAL REQUIREMENTS FOR DEMOLITION AND WORK INVOLVING PAINTED STEEL

Demolition and work involving painted steel shall conform to the requirements of Section 961 of the 2024 Standard Specifications.

Work Involving Painted Steel

Hazardous materials shall be removed in the immediate area of any intended welding, heating, saw cutting or burning of steel. Hazardous material removal is required to allow the demolition of structural steel, railings, drainage systems, utility supports, steel lamp posts, etc.

The Contractor shall assume that the coatings on the steel contain lead (Pb), unless otherwise determined by testing. The Contractor shall certify in writing to the Engineer the results of all testing, and shall also certify that any lead (Pb) coated steel removed from the project was not reused or buried, but was sent to a scrap metal recycling facility.

Implement and maintain programs and procedures, which comply with the requirements of this specification and all applicable standards and regulations. Comply with all applicable regulations even if the regulation is not specifically referenced herein. If a state or local regulation is more restrictive than the regulation of this specification, follow the more restrictive requirements.

This requirement is intended only for the demolition and preparation prior to repair and does not include provisions for recoating of steel.

Environmental

All applicable portions of Sections 961.65 "Worker Protection" and 961.66 "Environmental Protection and Monitoring" shall be followed when performing this work.

During chemical stripping a hand washing facility may be used in lieu of a decontamination/changing facility.

Hazardous material shall be collected during the disassembly and disposed of as outlined in Section 961.68 “Handling of Hazardous Waste and Reporting Release Programs”.

The applicable submittals shall be according to Section 961.69 “Submittals”.

Cleaning/Removal

Cutting Or Burning Of Steel

All surfaces to be welded, heated, saw cut or burned shall be cleaned so as to remove all contaminants and/or hazardous materials, which could be discharged to the environment as a function of the subsequent operations.

Lead paint shall be removed in its entirety in an area prescribed by a 6 inch (15 cm) minimum offset from the required work. The paint removal operation may be dry abrasive blasting, wet abrasive blasting or chemical stripping.

Proper level of containment shall be used when performing this work in accordance with Section 961.67 “Containment”. Full containment is not required during chemical stripping operation however; the Contractor shall install proper shielding and/or tarpaulins under the chemical stripping operations in order to catch all debris generated during this procedure. A cleaned area must be inspected and approved before the demolition operations are started.

During cleaning operations the Contractor shall be required to furnish and erect temporary floodlights illuminating the steel surface at a minimum of 30-foot candles. This lighting shall be used in areas where there is insufficient lighting for proper cleaning operations and inspection. The Contractor shall supply electrical power.

The Contractor shall provide support for interim and final inspection of the bridge during cleaning operations. This support shall include the necessary traffic controls and safe access to the work.

Mechanical Disassembly Of Steel

All surfaces to be mechanically disassembled by shear cutting or removing bolts or rivets shall not require deleading. When shear cutting or removing bolts or rivets, the Contractor shall not use any method that will cause dust and/or particles to be emitted and/or dispersed into the environment to an extent that would expose the workers above the Action Levels of $30\mu g/m^3$.

For purposes of limiting the lead (Pb) dust, the Contractor will be required to dampen the lead paint work areas.

The Contractor shall install a proper shielding and/or tarpaulins under all lead-paint-coated surfaces to be shear cut or bolts or rivets ordered removed in order to catch any loose lead paint chips, dust or particles.

PLANS AND DETAIL DRAWINGS

(Supplementing Subsection 5.02)

Plans for the existing bridge dated November 1938 and the bridge widening plans dated September 1961 are available upon request from Gill Engineering Associates. Existing conditions shown on the plans were depicted from the existing plans, field survey, and visual observations. The latest MassDOT inspection report is also available upon request. The Contractor shall perform his/her own investigation of the existing culvert to determine its condition and details necessary for construction and base his/her bid thereon.

PROTECTION OF UTILITIES AND PROPERTY

(Supplementing Subsection 7.13)

The plans may indicate the location of existing known utilities in the vicinity of the work. Bidders are cautioned to verify this information, as its accuracy and completeness are not guaranteed in any manner.

The Contractor is responsible for the protection of vehicular and pedestrian areas on and under the culvert being worked on. The Contractor at no additional compensation (unless otherwise, provided in this Contract) shall take all necessary precautions, including the use of shielding, to protect vehicles and pedestrians from debris.

NOTICE TO OWNERS OF UTILITIES

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities attached to, or in the vicinity of the culvert, of his/her intention to commence operations and the Contractor shall at that time file a copy of such notice with the Engineer.

Before the Contractor begins any work or operations that may cause damage to any subsurface structures, he/she shall carefully locate all such structures and conduct his operations so as to avoid any damage to them.

A list of public and private utilities can be found on the MassDOT website at:

https://www.mass.gov/info-details/utility-contacts-by-district-and-municipality

Select District 1 then select the City/Town, and then locate the utility.
The utility contact list is for guidance only and is not guaranteed to be complete or up to date.
The Contractor shall be responsible for informing the following officials in each area that he/she is assigned to work in:

Sarah Reynolds, Town Administrator. Town of Charlemont: 413-339-4335, ext.8
Scott Sullivan, Town of Charlemont Highway Department Superintendent: 413-339-4335, ext.29
Police Department, Town of Charlemont - Dispatch: 413-625-8200
Fire Department, Town of Charlemont: 413-522-2705

PROTECTION OF UNDERGROUND FACILITIES

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, et cetera, will occur. The Contractor shall notify Massachusetts DIG SAFE and procure a Dig Safe Number for each location prior to disturbing existing ground in any way. The telephone number of the Dig Safe Call Center is 811 or 1-888-344-7233

PIGEON WASTE

The Contractor shall remove and disposal of the pigeon waste and any other debris accumulated on the steel members and bridge seats in areas where work is being performed. Pigeon waste and debris material contaminates will require special handling and disposal in accordance with all Federal, state, and local requirements.

ENVIRONMENTAL PERMITTING

The Contractor is advised that a MassDEP WPA Form 2 – Determination of Applicability was issued for this project by the Charlemont Conservation Commission on November 14, 2024. A Negative Determination was issued as the work described in the Request is within an area subject to protection under the Act, but will not remove, fill, dredge, or alter that area. Therefore, said work does not require filing of a Notice of Intent. See Attachment B.

PROVISIONS FOR TRAVEL AND PROSECUTION OF WORK

The Contractor shall notify the Town of Charlemont in writing at least two (2) weeks in advance of any proposed commencement of the work. Before starting any work under this Contract, the Contractor shall submit a Schedule of Operations. Work on roadways shall proceed only on such sections and widths thereof as will be approved by the Town of Charlemont.

DESIGNER/ TOWN HIGHWAY DEPARTMENT

DESIGNER	TOWN HIGHWAY DEPARTMENT
Daniel S. Crovo, P.E.	Scott Sullivan
Gill Engineering Associates, Inc.	Town of Charlemont Highway Superintendent
63 Kendrick Street	12 Factory Road
Needham, MA 02494	Charlemont, MA 01339
781-355-7100	413-339-4335

ARCHITECTURAL ACCESS BOARD TOLERANCES

The Contractor shall be 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).

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 accord All wheelchair 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.

ITEM 114.11 PARTIAL DEMOLITION OF SUPERSTRUCTURE LUMP SUM

Work under this Item shall conform to the relevant provisions of Subsection 112, of the Standard Specifications and the following:

DESCRIPTION
The work under Item 114.11 includes, but is not limited to the installation of temporary protective shielding, sawcutting, removal and satisfactory disposal of the existing metal & timber bridge rail, the entire reinforced concrete safety curbs, the complete disposal of the existing reinforced concrete deck slab to the limits shown on the plans, and the removal of existing pack rust corrosion byproducts located on the top of the beam top flanges.

SUBMITTALS

TEMPORARY PROTECTIVE SHIELDING
The work done under this sub-item consists of designing, furnishing, installing, maintaining, removing and disposing of a temporary protective shielding system under the bridge. The shielding shall allow access to the areas required for the work and protect the waterway from debris and personnel on and under the bridge during the replacement of the reinforced concrete deck and safety curbs. Temporary protective shielding will be required in all areas where full depth deck removal is required between the steel beams and where the deck overhangs the exterior steel beams.

This shall be accomplished by the utilization of adequate shielding system placed beneath the superstructure of the bridge, so as not to allow any debris to pass through the shielding. The deck overhangs beyond the exterior beams shall also be shielded using a system that may include steel brackets, decking, fasteners, or an alternative support system.

All areas under the deck shall be shielded. All shielding shall meet the following requirements:

1. The Contractor is responsible for designing, furnishing, installing, maintaining, removing and disposing (unless otherwise directed to leave in place) of all shielding.

2. The Contractor shall submit plans and computations, that shall bear the seal and signature of a Professional Structural Engineer registered in Massachusetts, of the proposed shielding to the Engineer for approval prior to its installation. The drawings shall include details of all connections, brackets and fasteners.

3. Shielding shall be designed such that impact on traffic during installation and removal shall be minimal. The Contractor shall submit his traffic plan to the Engineer for approval. No portion of the bridge deck, curbing, safety walks or other portion of the superstructure shall be removed until the Protective Shielding is completely in place and the Contractor has approval from the Engineer to proceed.

4. The shielding shall extend a sufficient distance beyond the deck overhangs at the fascias where complete deck removal is required outside the fascia beams. The shielding shall extend the entire length of the bridge span located over the waterway below. The shielding shall extend beyond the limits of the deck excavation. The Contractor may utilize the bottom flanges of the existing beams as supports for the protective shielding. However, the Contractor will not be permitted to weld onto, drill into, or cut any existing structural steel beams without the approval of the Engineer. All spaces along the perimeter of the shielding and at the seams shall be sealed to prevent dust and debris from escaping and falling onto water below the bridge.

5. The shielding shall not decrease the minimum vertical bridge clearance to the roadway or waterway below unless otherwise approved by the Engineer. Shielding shall be designed to safely withstand all loads that it will be subjected to. The allowable design stresses shall be in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition. The design shall also include a description of the equipment and construction methods proposed for the deck removal and also the maximum size of deck area being excavated. The shielding shall also be designed to withstand the maximum size of excavated area should it fall during excavation or removal.

The Contractor shall submit a demolition plan and schedule to the Engineer for review describing the proposed sequence, methods and equipment for the demolition and disposal of all materials.

Submittals involving proposed sequence, methods and equipment for the partial demolition of superstructure components to the limits shown on the plans shall be subject to review by the Engineer. Such time for the checking and examination, review and approval of these submittals shall not be cause for the Contractor to claim for damages due to delay, for additional compensation, or for an extension of time for the Completion of the Contract.

The demolition procedure and any necessary calculations and drawings, including those for the design of the temporary supports, shall bear the stamp of a Professional Engineer registered in the

Commonwealth of Massachusetts certifying that all existing structural members are suitably braced and supported The Contractor shall not proceed with demolition work until the Engineer has given written acceptance of the demolition plan.

CONSTRUCTION METHODS

The Contractor shall verify all conditions and materials in the field and shall base his bid on his own findings without any additional compensation for variance from the Plans of these special provisions regarding actual conditions for Items to be removed.

During the prosecution of the work under these Items, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the remaining structure or any part thereof. The noise and dust created by demolition operations must be reduced to the maximum extent possible.

The Contractor shall take all precautions necessary so as not to damage those portions of the structure that are to remain including but not limited to the steel beams, including the diaphragms, bearings, and any steel reinforcing to be retained. Any portions of the existing structure that are to remain which become damaged as a result of the Contractor's operation, as determined by the Engineer, shall be repaired to the satisfaction of the Engineer at no additional cost to the Town. Additionally, the Contractor shall be responsible for maintaining portions of the existing structures, including but not limited to the existing structural steel and abutments throughout all stages of demolition and construction. The cost of any repairs to the existing structures that are required to maintain traffic shall be considered incidental to the respective item.

No demolition work shall be started until any and all utility companies involved have been notified (not less than seven (7) days prior to the start of demolition) and the Contractor has received approval from the Engineer as to the equipment, procedures and schedule of operation to be used during the demolition and reconstruction periods. The Contractor shall carry on his work concurrently and in conjunction with the utility companies involved at the project site, so as to provide for all possible cooperation toward the satisfactory completion of the work with a minimum of delay and inconvenience. The Contractor shall be responsible for protecting any existing utility lines during his operations. If any utilities are damaged due to the Contractor's negligence, the Contractor shall make repairs at his/her own expense.

The Contractor shall take precautions to prevent debris from falling onto the roadways or Albee Brook below, or to encroach upon the active lanes and shoulders. The Contractor shall be required to remove any debris which is generated by demolition from the site immediately and to restore portions of the site affected by the operation to their original undisturbed condition or better.

All materials removed under Items 114.11 shall become the property of the Contractor and shall be removed from the job site, unless such materials are designated to be reused in the proposed construction.

The Contractor shall make adequate provisions for the protection of traffic, private property and pedestrians from damage and injury during all phases of the demolition process.

The Contractor shall note that the existing bridge was constructed during the period from 1931 through 1990 and the painted steel elements are therefore suspected to contain lead or lead-based

coatings. Demolition and work involving painted steel shall conform to the requirements of Subsection 961 of the 2024 Standard Specifications and any supplements at the time of Bid. All hazardous materials shall be contained and disposed of in accordance with state and federal environmental regulations. The top of the top flanges of all beams to receive welded studs shall be cleaned of any paint, excessive rust or mill scale, dirt, moisture and all other foreign materials prior to welding the studs in accordance with the requirements of the AASHTO/AWS D1.5 Bridge Welding Code.

Incidental to Item 114.11 is the removal and disposal of all existing treated wood products that may be encountered during construction of the specified work or as directed by the Engineer. The Contractor will make his own investigation of the structure to be demolished including the materials that are part of, or which may be stored in the structure.

Existing timber products have the potential to be treated with creosote, pentachlorophenol and/or CCA. The Contractor shall be responsible for sampling, laboratory testing, loading, transportation and disposal of the treated wood encountered while performing the specified work and all costs shall be incidental to Item 114.11 and shall be included in the Lump Sum bid price of Item 114.11.

No increase will be made to the bid price due to the nature of the materials involved in the demolition.

The Contractor is required to submit disposal manifests to the Engineer prior to the completion of the project. All aspects of this Item are to be completed in accordance with state and federal regulations.

BASIS OF PARTIAL PAYMENT

Item 114.11 will be paid for at the Contractor unit price per Lump Sum, which price shall include all labor, materials, equipment, engineering services and all incidental costs required to complete the work.

The Contractor will make his own investigation of the structure components to be demolished including the materials that are part of, or which 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, etcetera, shall be included in the bid price of the demolition item.

The Contractor shall submit to the Engineer a cost schedule for the Partial Demolition of Superstructure components. The acceptance of the cost schedule by the Engineer shall not be considered as a guarantee to the Contractor of the quantities assumed in developing any part of the submitted cost schedule. The schedule is only for the purposes of estimating partial payments, and it shall not affect the contract terms in any way.

The schedule on the following proposal form applies only to Item 114.11 for Bridge Structure No. C05027. Payment for similar materials and construction included under other pay items or 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.

CLEANING ABUTMENTS & WINGWALLS

The horizontal surfaces of the abutments and wingwalls shall be swept clean of all debris, which may include but is not limited to, sand, gravel, bituminous material and bird droppings. This material shall be removed and disposed of as construction waste unless otherwise determined by the required testing as outlined in "**CRITERIA FOR HANDLING OF HAZARDOUS WASTE AND REPORTING RELEASE"**. When the bridge is over water the Contractor shall take all precautions necessary so as not to have any bird droppings or other debris fall into the water below.

After the debris has been removed the Contractor shall wash down the horizontal surfaces of the abutments with fresh water under pressure.

Partial Demolition of Superstructure Components Bridge No. C05027

SUB-ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL
127.1	REINFORCED CONCRETE DECK EXCAVATION	24	CY		
960.13	CLEAN TOP OF BEAM TOP FLANGES	160	SF		
974.31	METAL & TIMBER BRIDGE RAILING REMOVED	113	FT		
994.1	TEMPORARY PROTECTIVE SHIELDING	60	SY		

TOTAL COST OF ITEM 114.11 =

ITEM 127.12 **REINFORCED CONCRETE SUBSTRUCTURE EXCAVATION** **CUBIC YARD**

The Work shall conform to the relevant Provisions of Section 120 of the Standard Specifications and the following:

The work under this Item consists of the removal and disposal of all deteriorated, spalled, and scaled concrete as required to repair the existing concrete substructure elements to the general lines identified on the drawings and as directed by the Engineer. In addition, the existing backwalls are to be excavated to the limits shown on the plans in order to allow the proposed bridge deck to extend over the sawcut backwall. The Contractor shall establish limits of the repairs as shown on the plans and at the direction of the Engineer. The locations shown on the plans are based on bridge inspection records and are not guaranteed. The Contractor shall sound all substructure concrete surfaces to determine the limits of concrete delamination and deterioration. The location and extent of all concrete repairs

are to be field verified and approved by the Engineer after the Contractor has sounded and marked out the repair areas. The limits of the repairs may be extended as directed by the Engineer when chloride content testing indicates chloride contamination of concrete that is not delaminated.

During the prosecution of the Work, the Engineer may reject the use of any method or equipment, which causes undue vibration or possible damage to the structure or any part thereof. Pneumatic hammers heavier than the nominal 25 pounds mass (Chicago Pneumatic No. 111 or equal) shall not be used, unless approved by the Engineer.

The temporary shielding shall be designed by a Registered Professional Engineer and installed by the Contractor. Compensation for the design and construction of this temporary shielding shall be considered incidental to this contract payment item.

Minimum depth of excavation to sound concrete shall be 1" beyond the inner most layer of reinforcing steel but not less than 4" from the original surface. The Contractor shall stop excavating deteriorated concrete when the depth of excavation reaches 6" and shall notify the Engineer immediately. The edges of the patch shall be cut to neat lines by saw cutting to a depth of ¾ inch and the patch areas shall be made rectangular in shape, if possible, with horizontal and vertical edges and square corners.

The Contractor shall take all precautions necessary so as not to damage those portions of the work including reinforcing steel that are to remain. This includes determining the concrete cover to the steel bars at the edge of each patch prior to excavating concrete. Any steel that is unsuitable for further use through no fault of the Contractor shall be replaced under Item 910.1 Steel Reinforcement for Structures – Epoxy Coated. All reinforcing steel that is loose shall be tied tightly together using wire ties.

The Contractor shall take all precautions necessary so as not to damage those portions of the Bridge including reinforcing steel that are to remain.

Also included under this Item are all costs in connection with the cleaning, cutting, and bending of the existing reinforcing steel designated to be retained in the proposed repair. Exposed reinforcing steel shall be cleaned by mechanical cleaning and high pressure water that contains no detergents of bond inhibiting chemicals. Where active corrosion has occurred, the steel shall be abrasively blast cleaned to a near white metal finish. After concrete edge preparation and excavation is complete, all dirt, grease, and loosely bonded aggregate shall be removed by high pressure water blasting that contains no detergents or bond inhibiting chemicals.

PREPARATION FOR PLACEMENT OF NEW CONCRETE

After the surface preparation has been accepted, the existing concrete surfaces to receive the repair concrete shall be pre-wetted with clean potable water for 24 hours. This may be accomplished by continuous wetting with soaker hoses or the use of burlap/burlene, etc. where moisture can be maintained. If, in the opinion of the Engineer, conditions or the situation prohibits this, then the surfaces shall be wetted for as long as possible. Surfaces must be wetted by a means acceptable to the Engineer using potable water.

The Contractor shall remove any puddles of free-standing water with oil-free compressed air, and protect the surfaces from drying, so the existing concrete remains in a clean, saturated surface dry condition until placement of the new concrete.

The Contractor shall take all measures necessary to protect pedestrian, vehicular, and railroad traffic from his/her construction operations. No debris, tools, or incidental equipment of any kind will be permitted to fall into areas of river bed, river bank, or where vehicular or pedestrian traffic exists. Any material that accidentally falls into such areas shall be removed immediately.

DISPOSAL OF EXCAVATED MATERIALS AND SITE CLEANING

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 properly disposed of by the Contractor outside the location at no additional compensation.

The Contractor is required to broom clean all work site areas after the removal of excavated debris regardless of preexisting conditions. This includes areas under the excavated repair area such as at river bed, river bank, or revetment areas. Removal of debris, site cleaning, and disposal of debris is incidental to the Contract and no additional payment will be made.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 127.12 will be measured and paid at the Contract unit price per Cubic Yard of substructure concrete excavated, removed and properly disposed. The Contract price shall include all labor, tools, equipment and incidental work necessary to complete the work, and final disposal of the excavated material necessary to complete the work as required by the Engineer.

ITEM 151. GRAVEL BORROW CUBIC YARD

The work under this item shall conform to the relevant provisions of Section 150 of the Standard Specifications and in close conformity with the lines and grades shown on the plans.

Gravel borrow conforming to material specification M1.03.0 Type B shall be used for the roadway subbase where the existing base material is unsuitable as determined by the engineer.

ITEM 460.22 SUPERPAVE SURFACE COURSE – 9.5 (SSC) – 9.5) TON
ITEM 460.31 SUPERPAVE INTERMEDIATE COURSE – 12.5 (SIC) – 12.5) TON

HMA pavement courses applied on the bridge shall consist of a Superpave Intermediate Course, placed first, followed by the Superpave Surface Course. The maximum amount of Recycled Asphalt Pavement (RAP) used in HMA pavement courses for bridge decks shall not exceed 15%. All Superpave Intermediate and Surface Course mixtures placed on the bridge shall be treated with an approved anti-stripping compound as specified under Subsection 450.30: General. The addition of anti-strip incorporated in the mixes shall be in accordance with the anti-strip Manufacturer's recommendation.

The Superpave Intermediate and Surface Course mixtures to be placed on the bridge only after the membrane waterproofing, gravel borrow fill, safety curb concrete and deck concrete, are in place. The Superpave Intermediate mix shall be placed on the bridge within 24 hours after the membrane waterproofing has been placed. No vehicular traffic shall be permitted over any bare membrane waterproofing. Equipment used for placement and compaction of the Superpave Intermediate and Surface Courses on the bridge shall be sufficient to place the HMA mixture at the required grade, cross-slope, thickness, and in-place density without damaging the underlying membrane waterproofing. Rollers will not be allowed to use the vibratory function when compacting the mat. Rollers operated in oscillatory mode may be permitted.

All other provisions contained in Section 460 of the 2024 Standards, including method of measurement and payment, shall apply to this project.

ITEM 627.01 ROUNDED END UNIT EACH

The Rounded End Unit (previously known as terminal end section, single faced) shall comply with the Rounded End Unit shown in the MassDOT Construction Standard Detail 400.4.1.

ITEM 657. TEMPORARY FENCE FOOT

The work under this Item shall conform to the relevant provisions of Subsection 644 of the Standard Specifications and the following:

The work shall include furnishing, installing, adjusting, and resetting, and subsequently removing a temporary chain link fence across the access to the work area as necessary for safety and security, and as required by the Engineer.

All posts, including end, corner and intermediate brace posts and all access/egress gates and gate posts shall be included in the linear foot cost. The fencing height shall be 72 inches minimum. Material need not be new, but shall not be deteriorated nor in any way jeopardize the security purposes intended. All fencing materials shall meet the approval of the Engineer.

Fence fabric shall be placed on the face of the post away from the work area. The top edge of the fabric shall be finished with a “Knuckled” selvage.

A 48” x 30” sign, conforming to the relevant provisions of Subsection 852, shall be mounted on each gate. The sign legend shall be 8”-high, bold-red font, printed on white background, and shall read as follows:

DANGER

AREA CLOSED TO VEHICLE, BICYCLE, AND PEDESTRIAN TRAFFIC

It may be necessary to remove and reset sections of temporary fence at times during construction to accommodate construction operations. This shall be considered incidental to the work.

The Contractor shall be responsible for maintenance of the temporary fence; be responsible and cognizant that it remains secure, and that the area is always sealed off to the public. Fence gates shall always be secured closed with a padlock and chain while the Contractor is not on site.

METHOD OF MEASUREMENT
Item 657. will be measured per Foot of temporary fence installed, complete in place.

BASIS OF PAYMENT
Item 657. will be paid for at the Contract unit price, per Foot. This price shall include all labor, tools, materials, equipment, repair, restoration, or replacement of any damaged fencing, removal and disposal of the fence upon the completion of the project, and all incidental costs required to complete the work.

ITEM 751.7 COMPOST BLANKET CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsection 751 and M1.06.0 Organic Soil Additives of the Standard Specifications and the following:

Work shall consist of furnishing and pneumatically applying compost as a thin mulch blanket (1/2-1 inch depth) over prepared soil to provide temporary soil stabilization and organic matter for plant growth.

SUBMITTALS AND MATERIALS
No materials shall be delivered until the required submittals have been approved by the Engineer. Delivered materials shall match the approved samples. Approval of test results does not constitute final acceptance.

Contractor shall submit to the Engineer samples and certified test results no sooner than 60 days prior to application of compost. Vender certification that material delivered meets the test results shall be submitted if requested.

Compost may be a blended product of compost and fine wood chips. No kiln-dried wood, construction debris or ground palette is allowed. Material shall meet the following criteria:

- Organic matter content shall be minimum 30 percent (dry weight basis)
- Moisture content shall be 30-60 percent (wet weight basis)
- Bulk Density <1000 lb/cy
- pH shall be 5.5-7.5
- Conductivity shall be a maximum of 4 mmhos
- Stability test shall produce a maximum of 8mg CO2-C/gram of organic material per day
- Particle size shall not exceed ¾ inch
- Compost may be a blended product of compost and fine wood chips.

Compost testing shall be by a laboratory approved by the US Compost Council using the Testing Method for the Examination of Compost and Composting (TMECC) protocols.

The Engineer shall approve the Contractor's equipment for application.

CONSTRUCTION METHODS

Application of compost material shall not begin until the Engineer has approved the site and soil conditions. Soil preparation shall be as specified under the applicable item for soil placement or for seeding. The Contractor shall notify the Engineer when areas are ready for inspection and application of compost.

Compost blanket shall be pneumatically applied (blown on) to a minimum depth of one half to one inch. Where shown on the plans or when directed by the Engineer depth may be increased to provide berms for sediment control or to otherwise prevent slope erosion.

When compost blanket is proposed with seeding, seed shall be broadcast and shall occur in conjunction with compost blanket, as specified under the relevant item for seeding.

When compost blanket is proposed for areas with planting, compost (and seed if applicable) shall be applied after planting. If compost and seed occur prior to planting, areas shall be regraded and compost and seed reapplied to the satisfaction of the Engineer and at the Contractor's expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 751.7 will be measured and paid for at the Contract unit price per CubiYard which price shall include all labor, materials, equipment, and all incidental costs required to complete the work of pneumatically applying compost.

Surface preparation of substrate receiving compost blanket shall be compensated under the applicable item for placement of loam, sand, ordinary borrow, wetland soil, topsoil rehandled and spread, tilled existing soil, or other specified substrate.

Seeding will be compensated for under the appropriate seeding items.

ITEM 767.121 SEDIMENT CONTROL BARRIER FOOT

The work under this item shall conform to the relevant provisions of Sections 670, 751, and 767 of the Standard 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 upgradient 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 this item.

MATERIALS AND CONSTRUCTION

Prior to initial placement of sediment control 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.

SILT FENCE

Materials and Installation shall be per Section 670.40 of the Standard Specifications and the following:

Silt fence shall be used when specified by Orders of Condition or other permitting.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be driven 16 inches into the ground on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched.

Sagging fabric will require additional staking or other anchoring.

MAINTENANCE

Barriers shall be inspected after each rainfall and at least daily during prolonged rainfall. Contractor shall remove accumulated sediments when they reach one half the height of the barrier or sediment fence.

The Contractor shall immediately correct all deficiencies, including, washouts, overtopping, clogging due to sediment, and erosion. The contractor shall review location of barriers in areas where construction activity causes drainage runoff so as to ensure that the barriers are properly located for effectiveness. Where deficiencies exist, such as overtopping or wash-out, additional staking or additional barriers shall be installed as required by the Engineer.

At specific locations, such as at gully points, steep slopes, or identified failure points in the sediment capture line, barriers shall be reinforced as required by the Engineer. Such reinforcing shall be incidental to the cost of this item and shall not exceed 10 percent of the overall length of barrier required for the project.

Barriers that are decomposing, cut, or otherwise compromised shall be repaired or replaced as directed by the Engineer. Repair and/or replacement shall be incidental to this item.

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 photobiodegradable 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 shall be left in place to decompose on-site unless required otherwise by the Engineer. Compost filter tubes may be left as they are with stakes removed. Hay 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.

Dismantling, removal, and seeding shall be incidental to this item.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

This item will be measured and paid for at the Contract unit price per foot which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of site, silt fence if required, and incidental costs required to complete the work.

ITEM 905.01 5000 PSI, 3/8 INCH, 710 HP CEMENT CONCRETE FOR SUBSTRUCTURE REPAIRS — CUBIC YARD

Work performed under this Item shall be performed in accordance with Section 901 of the Standard Specifications, and the following:

Work under this item shall consist of forming, providing, placing, and consolidating 5000 PSI, 3/8 Inch, 710 HP Cement Concrete to perform abutment, wingwall caps, and wingwall repairs, as directed by the Engineer.

The Contractor shall obtain the approval of the Engineer that all concrete substructure excavation has been performed in accordance with the requirements of Item 127.12 prior to placing substructure repair concrete. The existing concrete substructure surfaces shall be abrasively blast cleaned and pre-wetted for a minimum of 24 hours prior to placing substructure repair concrete.

The substructure repair concrete shall be properly consolidated by inserting 1" nominal head diameter pencil vibrators in openings at the tops of the forms at a maximum spacing of 1½ times the radius of action of the vibrator used. The slump of the concrete at discharge shall be increased to 6" to 7" in order to facilitate proper consolidation. Increasing the slump by addition of mixing water in excess of the amount contained in the MassDOT approved mix design shall not be permitted. The mix shall contain superplasticizer conforming to AASHTO M 194 Type F or G, which shall be added in accordance with the concrete technician's recommendations. The amount of superplasticizer added to the cement concrete shall be recorded on the delivery slip. The delivery slip shall be signed by the concrete technician. The concrete technician shall be either an ACI Certified Concrete Technician (minimum Grade I - Field) or a New England Transportation Technician Certification Program - Certified Concrete Technician.

METHOD OF MEASURMENT AND BASIS OF PAYMENT

Item 905.01 will be measured and paid at the Contract Unit Price per Cubic Yard of substructure repair concrete provided, placed, and consolidated. This payment shall be considered full compensation for all labor, tools, equipment, formwork, materials and all incidental items of work necessary to satisfactorily complete the repairs.

ITEM 909.2 CEMENTITIOUS MORTAR FOR PATCHING SQUARE FOOT

The Work to be done under this Item shall consist of chipping away deteriorated concrete and placing an approved polymer modified cementitious patching compound to the concrete bridge substructure for Bridge No. C05027 to the limits as shown on the Plans or as determined by the Engineer.

This item is for the repair of deteriorated or spalled areas that are no more than 1½" in depth for horizontal and vertical applications. Repairs that are deeper than 1 ½" shall be repaired and paid for under Item 905.01, 5000 PSI, 3/8 Inch, 710 HP Cement Concrete.

The procedure to be used to repair deteriorated or spalled concrete shall be as follows:

The Contractor shall remove all deteriorated or spalled concrete in the areas as shown on the Plans or as designated by the Engineer.

All deteriorated or spalled concrete designated to be removed is incidental and shall be included in the Unit Bid Price for this Item.

The Contractor shall have the approval of the Engineer certifying that all spalled and deteriorated concrete has been removed prior to repairing the deteriorated areas.

Concrete at the edges of all areas to be patched using Cementitious Mortar for Patching shall be removed to a minimum depth of 1/2" prior to the application of the mortar.

The Contractor shall be experienced in this type of work and present proof of such experience by citing a minimum of two (2) previous projects on which polymer modified cementitious compound was satisfactorily placed under their supervision.

The mortar shall be applied by workmen who, in the judgment of the Engineer, are sufficiently experienced and skilled in this class of work.

Manufacturers of products that are considered to meet the specification requirements for this item include: Sika Corporation, Lyndhurst, NJ (Tel: 201-933-8800); Dural products by Tamms Industries, Wilkes-Barre, PA (Tel: 717-822-2191); and Master Builders, Inc., Cranbury, NJ (Tel: 609-490-1303). Products to be used for this item shall be approved by the Engineer before the Contractor begins operations.

MATERIALS

1. The polymer modified cementitious system shall consist of a 2-component system whose components conform to the following requirements:

2. Component A shall be a liquid polymer emulsion of an acrylic copolymer base and additives. This acrylic copolymer shall have the following properties:

ph	4.5 - 6.5
Minimum film forming temp.	Approx. 20 deg. C (68 deg. F)
Tear Strength	Approx. 6.8 – 990-1420 psi
Elongation at break	500-900%
Particle Size Range	Less than 0.1 micron

3. Component B shall be a blend of selected Portland Cements, specially graded aggregates, organic accelerator, and admixtures for controlling setting time, water reducers for workability and a corrosion inhibitor.

4. The component ratio A:B shall be 1:5.2 by weight. The system shall not contain chlorides, nitrates, added gypsum, added lime, or high alumina cements. The system shall be non-combustible, either before or after cure.

5. For applications greater than 1 in. in depth, the mortar may have to be extended with an aggregate in accordance with Manufacturer's recommendations. The aggregate shall be 1/2” to 3/8” clean, well-graded, saturated surface dry aggregate having low absorption and high density. Aggregate shall conform to ASTM C-33 and must be approved for use by the Engineer.

<u>Typical Properties of Mixed Components</u>

1.	Application Time (Working Time)	15 mins. after combining comps.
2.	Finishing Time	20-60 mins. after

combining components

3. Color Concrete Gray

TYPICAL PROPERTIES OF CURED MATERIALS	
Finishing Time	20-60 minutes after combining components
Color	Concrete Gray
Abrasion Resistance	6 times that of controlled concrete
Bond Strength	100% concrete substrate failure (Pull off method)
Modulus of Elasticity	4.5×10^6 PSI
Surface Scaling	No Deterioration after 120 cycles (deicing salt solution and freeze/thaw)
Compressive Strength (2 hours, 50% RH)	150 PSI minimum
Compressive Strength (28 days, 50% RH)	5,500 PSI minimum
Flexural Strength (28 days, 50% RH)	1,300 PSI minimum

The system shall conform to the ECA/USPHS Standards for surface contact with potable water. The system shall not produce a vapor barrier. The system shall be thermally compatible with concrete.

CONSTRUCTION METHODS

Surface Preparation
Surface to be prepared in accordance with the mortar manufacturer's written recommendations.

Areas to be patched must be clean and sound. All loose and disintegrated concrete shall be removed by means of chipping or an equivalent method to a depth where sound concrete is exposed. Minimum patch depth at edges of patch = 1/2". Abrasive blast existing concrete to remove all contaminants prior to applying mortar. Chipping methods to be approved in advance by the Resident Engineer.

Mixing
Mix manually or mechanically in accordance with the mortar manufacturer's written recommendations. Manual mix in a wheelbarrow or mortar box. Mechanically mix in appropriately sized mortar mixer or with electric drill and paddle.

1. Mixing Procedure: MORTAR

    a. Shake Component A before using. Then pour approximately 4/5 Component A into

mixing container. Add Component B slowly while continuing to mix. Mix to a uniform consistency maximum 3 min. Add remaining A Component to mix if a more loose consistency is desired.

2. If manual mixing takes more than 3 min., mix smaller quantities. Should smaller quantities be necessary, be sure components are dosed in correct ratio and Component B is mixed

3. before dosing. The mortar shall be prepared in accordance with the manufacturer's instructions.

Application and Finish

1. At time of application, surfaces should be damp (saturated surface dry) with no glistening water. Mortar must be worked into substrate filling all pores and voids. Force material against edge of repair, working toward center. After filling, consolidate, then screed.

2. Maximum thickness of application in one pass shall be 1". If the depth of patch exceeds 1", mortar shall be placed in multiple passes of approximately equal thickness to reach the maximum thickness of 1½" for horizontal and vertical applications.

   Before the first pass has achieved an initial set, the surface shall be prepared for the second pass by scratching with a trowel to form a grid of deformation on the surface.

3. Then prime and work mix into substrate, filling all pores and voids. Avoid puddling of primer on horizontal substrates.

   Priming is not always required but when the surface is porous or the mix stiff, use remaining A Component as a prime coat. A stiff mix is required for vertical or overhead surfaces.

   Brush mix over the substrate just before placing the repair. Do not prime until ready to patch. Mortar must be placed while prime coat is wet. Dried prime coat must be removed by mechanical means.

Curing

1. Use fine mist spray of water, wet burlap, or non-solvent approved curing compound if ambient conditions might cause premature surface drying by high temperatures, low humidity and strong winds.

If necessary, protect newly applied mortar from rain. To prevent freezing, cover with insulating material.

1. Limitations

2. Mortar minimum application thickness 1/8".

3. Minimum ambient and surface temperatures 45 deg. F and rising at time of application.

4. Store A and B Components at 65 to 80 deg. F.

5. Apply only on clean, sound substrate. Surface should be damp but free from standing water (saturated surface dry).

6. Mortar must be mixed to a uniform consistency - no lumps; do not overmix (3 min. maximum).

7. Do not use solvent-type curing compound.

Manufacturer's Field Representative

8. The Contractor shall arrange with the materials manufacturer or distributor to have the services of a competent field representative at the work site prior to any mixing of components to instruct the work crews in the proper mixing and application procedures.

9. The Field Representative shall remain at the job site after work commences and continue to instruct until he/she and the Contractor, Inspector and/or Engineer are satisfied that the crew has mastered the technique of installing the system successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the Contractor, Inspector and/or Engineer.

10. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

11. The Contractor shall be completely responsible for the expense of the services of the required field representative and the bid contract price shall be full compensation for all costs in connection therewith.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 909.2 Cementitious Mortar for patching will be measured and paid for at the contract unit price per SQUARE FOOT complete in place and accepted, which price shall include all labor, materials, equipment and incidental costs required to complete the work, and shall include the removal of deteriorated concrete. No separate payment will be made for preparation of the areas to be patched, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 910.1 STEEL REINFORCEMENT FOR SUBSTRUCTURE REPAIRS - EPOXY COATED POUND

Work under this Item shall conform to the relevant provisions of Section 901 of the Standard Specifications and the following:

Work shall include the addition of supplemental steel reinforcement and/or replacement of any existing steel reinforcement that is deemed unsuitable by the Engineer during the prosecution of the substructure repairs.

Any steel reinforcement that is removed due to deterioration shall be replaced with new steel reinforcement of the same size, shape, and spacing as directed by the Engineer. Any steel reinforcement damaged by the Contractor’s operations will be replaced by the Contractor at his own expense.

All new steel shall be lap spliced or mechanically spliced with existing retained steel reinforcement as directed by the Engineer. Welding of steel reinforcement shall not be allowed. All new steel reinforcement shall be epoxy coated.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 910.1 will be measured and paid at the Contract unit price per the actual number pounds of steel reinforcement bar in place for substructure repairs. Compensation for Drilled and Grouted Dowels shall be made under Item 912.5, Drilled and Grouted #5 Dowels. All epoxy coated steel reinforcement to be placed in the proposed reinforced concrete deck replacement shall be compensated for separately under Item 992.1 Alteration to Bridge Structure. The contract price shall include all labor, materials, tools and equipment required to complete the work as described above and as required by the Engineer.

ITEM 912.5 DRILLED AND GROUTED #5 DOWELS EACH

The work to be done under this item shall consist of drilling and grouting holes in the existing abutments and wingwalls for steel reinforcing dowels as shown on the Plans, or as directed by the Engineer. The dowel embedment must be adequate to fully develop 125% of the yield strength of the bar. The embedment length, the method and equipment used to drill the dowel holes, and the diameter of the drilled hole shall at a minimum conform to the recommendations of the manufacturer and be submitted to the Engineer for approval.

MATERIALS

The cementitious grout to be used for these dowels shall be one of the following: "GaroniteTM HD" as manufactured by Garon Products, Inc. of Wall, New Jersey; "Quik-Rok®" as manufactured by Ameristar of Tulsa, Oklahoma; "FX-228®" as manufactured by Fox Industries, Inc. of Baltimore, Maryland; "Five Star® Grout" as manufactured by Five Star Products, Inc. of Fairfield, Connecticut; SikaGrout® 212 as manufactured by Sika Corporation, or an approved equal. Grouting materials shall be on the MassDOT approved products list of materials. Epoxy, vinyl, or polyester resin adhesives shall not be utilized.

Reinforcing steel dowels shall meet the requirements of ASTM A615 Grade 60. All reinforcing steel dowels shall be epoxy coated. Reinforcing steel dowels shall be incidental to the work under this item.

CONSTRUCTION METHODS

All dowel holes shall be air drilled provided that the minimum edge distance of 6 inches is observed. Should, in the Engineer's opinion, air drilling be inappropriate due to questionable strength of the existing concrete or insufficient edge distance, the dowel holes shall be diamond core drilled. The inner surfaces of diamond core drilled dowel holes shall be scored to develop sufficient keying action. The method of scoring of the dowel hole's inner surfaces shall be subject to the approval of the Engineer. The diameter of the drilled dowel holes shall be in accordance with the recommendations of the grout manufacturer. The holes shall be blown clear of any debris and shall have the approval of the Engineer prior to the placement of any grout material.

The drilling operation shall be performed without damage to any existing reinforcing or portion of the structure that is to remain in place. Any damage to any existing portion of the structure that is to remain in place shall be repaired to a condition equal to or better than that existing prior to the beginning of the Contractor's operations and shall be repaired at the Contractor's expense.

The Contractor shall strictly follow the recommendations of the manufacturer for mixing and placing the grout material prior to the placement of the dowels. The Contractor shall, at a minimum, adhere to the ACI code requirements regarding minimum and maximum temperatures while placing the grout. Any excessive grout around the hole after placement of the dowel shall be struck off smooth while the grout is still fresh.

The Contractor shall arrange with the materials manufacturer or distributor to have the services of a competent field representative at the work site prior to any drilling of the proposed dowel holes to instruct the work crews in proper dowel installation procedures. The field representative shall remain at the job site after work commences and continue to instruct until the representative and the Contractor, Inspector and/or Engineer are satisfied that the crew has mastered the technique of installing the dowels successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the Contractor, Inspector and/or Engineer. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

The Contractor shall be completely responsible for the expense of the services of the required field representative and the bid contract price shall be full compensation for all costs in connection therewith.

The Contractor shall have no claim for any variations in the diameter of the hole, the method of drilling the hole, or the type of grout used in anchoring the proposed dowels.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT
Drilled and Grouted #5 Dowels will be measured per each dowel installed and accepted by the Engineer. Payment for work under this Item shall be at the Contract Unit Price per each Drilled and Grouted Dowel installed. The Contractor shall be responsible for all necessary labor, materials, tools, equipment and the disposal of all materials incidental to the work to the satisfaction of the Engineer

ITEM 992.1 ALTERATION TO BRIDGE STRUCTURE LUMP SUM

The work to be done under this Item shall conform to the relevant provisions of Subsection 995 of the Standard Specifications and the specific requirements stipulated for component parts of Item 992.1. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment.

DESCRIPTION
This Item includes all materials and labor necessary to complete the work in accordance with the schedules listed hereinafter under Basis for Partial Payments and all other Items that are part of

the work as shown on the plans and for which payment has not been provided for under a separate item.

The work includes furnishing and placing cement concrete, epoxy coated reinforcing steel, thrie beam metal bridge rails, stud shear connectors, pvc waterstops at both ends of the deck, and spray applied membrane waterproofing as shown on the plans.

Payment for materials shown on the Plans as being part of this alteration to 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.

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 Item 992.1 and shall be included in the unit price of the component of which they are a part.

STEEL REINFORCING FOR STRUCTURES – EPOXY COATED

The work under this heading shall conform to the applicable provisions of Subsection 901 of the Standard Specifications.

STUD SHEAR CONNECTORS

The top flange of all beams to receive welded studs shall be free of paint, excessive rust or mill scale, dirt, moisture and all other foreign materials prior to welding the studs in accordance with the requirements of the AASHTO/AWS D1.5 Bridge Welding Code.

5000 PSI, ¾ IN., 685 HP CEMENT CONCRETE

5000 PSI, ¾ IN., 685 HP Cement Concrete shall be used to construct the proposed bridge deck slabs and safety curbs. Cement Concrete shall conform to all material, placement, finishing, and curing requirements of Section 901 of the Standard specifications. The safety curbs shall be cast-in-place with embedded anchor bolts to secure the Thrie Beam Bridge Railings as shown on the plans. Placement, finishing, and curing of the concrete bridge deck shall conform to 901.66, except that Section *F. Curing* shall be revised to require a curing period of not less than 7 days.

MEMBRANE WATERPROOFING FOR BRIDGE DECKS

The work under this heading shall conform to the applicable provisions of Subsection 965 of the Standard Specifications.

METAL THRIE BEAM BRIDGE RAILING

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 Supplemental Specifications to the Standard Specifications for Highways and Bridges and the following. Thrie beam panels shall be 10 gauge

and shall conform to AASHTO M 180 Class B. The posts, base plates, and thrie beam rail panels shall be galvanized after fabrication in accordance with AASHTO M111.

BASIS OF PAYMENT
Item 992.1 will be paid for at the Contract Lump Sum Price, which shall include all labor, materials, equipment and all incidental costs required to complete the work.

SCHEDULE OF BASIS FOR PARTIAL PAYMENTS
Within ten (10) days after the date of the Notice to Proceed, the Contractor shall submit on his/her proposal form a schedule of unit prices for the major component Sub-Items that make up Item 992.1 including the total Lump Sum cost. The 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 992.1 and no further compensation will be allowed.

The schedule on the following proposal form applies only to Bridge Structure No. C-05-027. 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.

Alteration to Bridge Structure

SUB-ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL
904.3	5000 PSI, ¾ IN., 685 HP CEMENT CONCRETE	26	CY		
910.1	STEEL REINFORCING FOR STRUCTURES – EPOXY COATED	6100	LB		
911.11	SHEAR CONNECTORS	462	EA		
965.	MEMBRANE WATERPROOFING FOR BRIDGE DECKS	81	SY		
975.5	METAL THRIE BEAM BRIDGE RAILING	88	FT		

CONTRACT ALLOWANCE PAYMENT ITEMS

The quantity to be paid for under these items shall be the actual amount paid by the Contractor to provide satisfactory police services and testing operations as stipulated and required. Any associated Contractor overhead costs and profit shall be considered incidental to the cost of the contract.

ALLOWANCE ITEM 999.001 **TRAFFIC POLICE**

The Contractor shall furnish police services where and when required to direct traffic on existing roadways where traffic is maintained.

The Contractor shall provide such police officers as may be deemed necessary by either the Engineer or the Town for the direction and control of all traffic traveling within and through the project area. The police officers shall be obtained from the Town Police Department as applicable. The police officers shall be paid by the Contractor at the prevailing rate of wages established by the Town.

Allowance for Police Services

An allowance for the furnishing of police services has been included in all bids. This allowance is determined by multiplying the number of hours estimated as necessary by the prevailing hourly rate of wages established for such services. The Contractor shall submit certified copies of itemized bills of services rendered for review and approval by the Engineer. The allowance will be adjusted to the actual amount paid for authorized and approved police services as stipulated and shall include other payments due to any legal requirements of the State and Federal governments.

ALLOWANCE ITEM 999.300 **MATERIALS INSPECTION, SAMPLING AND TESTING SERVICES**

Allowance for Verification and Testing

Materials inspection, sampling and testing services shall be provided by independent testing consultants or firms that shall be retained by the Contractor to ensure compliance with the Standard Specifications and these Special Provisions. These services will include, but are not limited to the following:

- Structural Steel Shop Fabrication
- Galvanizing Inspection at Shop
- Portland Cement Concrete Inspection and Testing

The firm(s) selected to provide these services must be pre-qualified by MassDOT in the discipline of Materials Inspection and Testing. The Contractor shall coordinate with the firm(s) and the Town's Resident Engineer as necessary while the work is ongoing to ensure that the appropriate materials inspection, sampling and testing is occurring. Test reports shall be provided to the Engineer with copies to the Contractor. Work on materials that fail to meet the requirements of these Special Provisions shall be promptly corrected by the Contractor in accordance with the standard specifications. The cost of tests that fail to show compliance will not be reimbursed to the Contractor. The Contractor shall be reimbursed under this allowance item for testing based on paid invoices from the independent testing consultant.

ALLOWANCE ITEM 999.800 **ADDITIONAL MATERIALS**

The Contractor will be paid his/her actual cost plus ten (10) percent for additional materials that are required to perform additional work if directed by the Engineer. However, no materials shall be ordered until approved by the Engineer and competitive prices may be required if the Engineer directs.

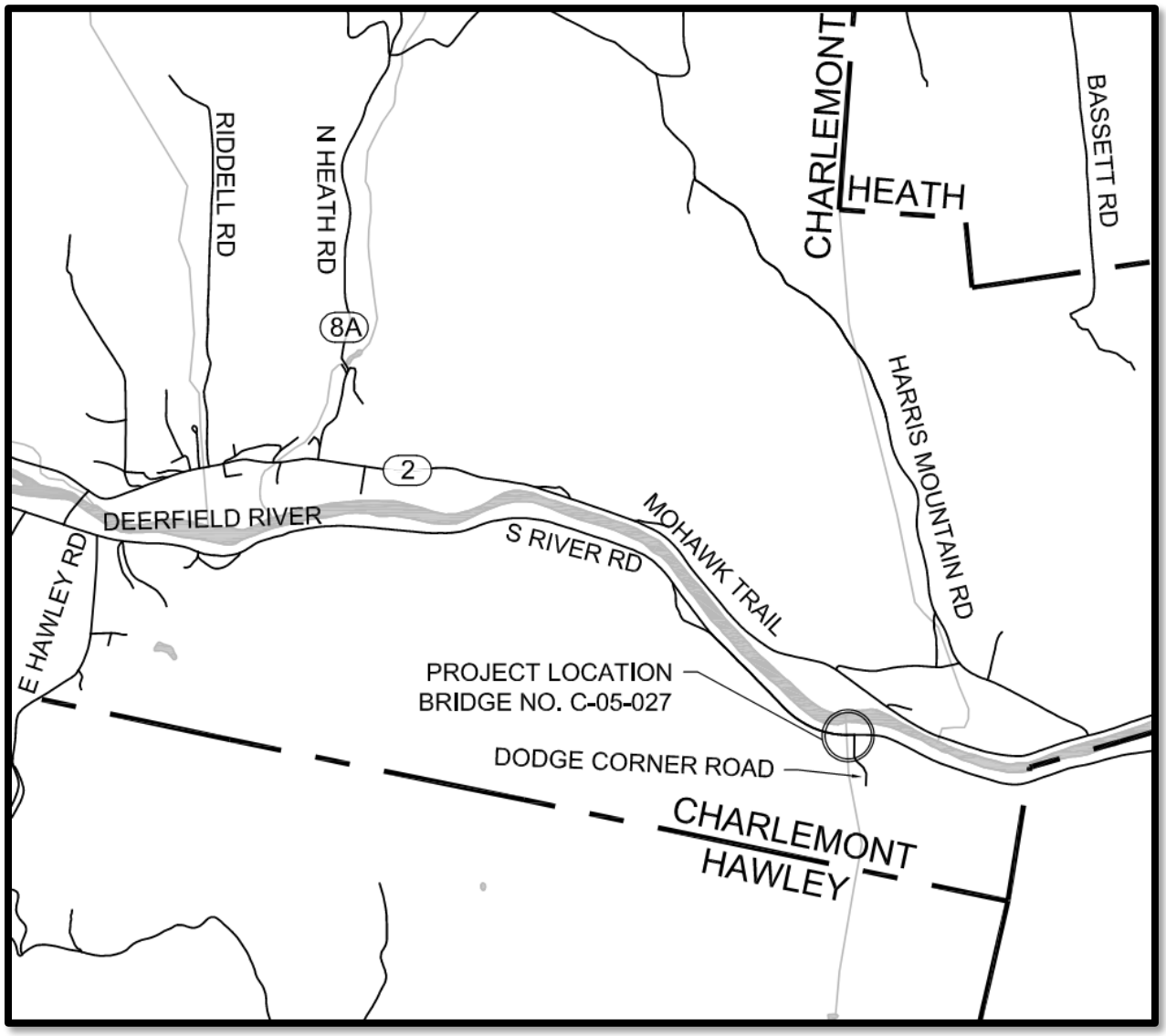
The Contractor is required to seek permission from the Engineer for use of artisans for the acquisition of materials. The Contractor will not bid this item. No materials that are incidental or required under a Bid Item shall be paid for under this allowance.

ALLOWANCE ITEM 999.801 **ADDITIONAL ARTISANS**

The Contractor will be paid his/her actual cost plus ten (10) percent for any additional artisans required to perform additional work if directed by the Engineer. However, no subcontractor shall be ordered until the estimate has been approved by the Engineer and competitive prices may be required if the Engineer so directs.

ATTACHMENT A

LOCUS MAP



LOCUS

SCALE: 1'' = 2000'

ATTACHMENT B
WPA FORM 2 - DETERMINATION OF APPLICABILITY

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. General Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

From:

CHARLEMONT
Conservation Commission

To: Applicant

Town of Charlemont
Name

Town Hall 157 Main Street
Mailing Address

po box 677 | MA | 01339
City/Town | State | Zip Code

Property Owner (if different from applicant):

Name

Mailing Address

City/Town | State | Zip Code

1. Title and Date (or Revised Date if applicable) of Final Plans and Other Documents:

Proposed Deck Replacement Town of Charlemont-South River Road over Albee Brook, Charlemont, MA Bridge No. C-05-027 8 sheets — Title
10/31/2024 — Date

Title — Date

Title — Date

2. Date Request Filed:

10/31/2024

B. Determination

Pursuant to the authority of M.G.L. c. 131, § 40, the Conservation Commission considered your Request for Determination of Applicability, with its supporting documentation, and made the following Determination.

Project Description (if applicable):

Removing and replacing the reinforced concrete bridge deck above the beams, patching concrete above mean annual high water surface, removing and replacing steel railings, removing and resurfacing asphalt on bridge deck, milling and resurfacing approaches within 22 feet of the bridge ends and other incidental items of work. Contractor shall be required to design, install and maintain a shielding system to retain debris and paint during the work to contain debris and prevent it from entering the surrounding environment. No shielding elements will be located in the brook.

Project Location:

486 South River Road over Albee Brook Bridge No. C-05-027 — Charlemont (City/Town)

053-03 — Assessors Map/Plat Number

54 — Parcel/Lot Number

B. Determination (cont.)

The following Determination(s) is/are applicable to the proposed site and/or project relative to the Wetlands Protection Act and regulations:

Positive Determination
Note: No work within the jurisdiction of the Wetlands Protection Act may proceed until a final Order of Conditions (issued following submittal of a Notice of Intent or Abbreviated Notice of Intent) or Order of Resource Area Delineation (issued following submittal of Simplified Review ANRAD) has been received from the issuing authority (i.e., Conservation Commission or the Department of Environmental Protection).

☐ 1. The area described on the referenced plan(s) is an area subject to protection under the Act. Removing, filling, dredging, or altering of the area requires the filing of a Notice of Intent.

☐ 2a. The boundary delineations of the following resource areas described on the referenced plan(s) are confirmed as accurate. Therefore, the resource area boundaries confirmed in this Determination are binding as to all decisions rendered pursuant to the Wetlands Protection Act and its regulations regarding such boundaries for as long as this Determination is valid.

_____

_____

_____

☐ 2b. The boundaries of resource areas listed below are not confirmed by this Determination, regardless of whether such boundaries are contained on the plans attached to this Determination or to the Request for Determination.

_____

_____

_____

☐ 3. The work described on referenced plan(s) and document(s) is within an area subject to protection under the Act and will remove, fill, dredge, or alter that area. Therefore, said work requires the filing of a Notice of Intent.

☐ 4. The work described on referenced plan(s) and document(s) is within the Buffer Zone and will alter an Area subject to protection under the Act. Therefore, said work requires the filing of a Notice of Intent or ANRAD Simplified Review (if work is limited to the Buffer Zone).

☐ 5. The area and/or work described on referenced plan(s) and document(s) is subject to review and approval by:

_____
Name of Municipality

Pursuant to the following municipal wetland ordinance or bylaw:

_____ _____
Name Ordinance or Bylaw Citation

B. Determination (cont.)

☐ 6. The following area and/or work, if any, is subject to a municipal ordinance or bylaw but not subject to the Massachusetts Wetlands Protection Act:

☐ 7. If a Notice of Intent is filed for the work in the Riverfront Area described on referenced plan(s) and document(s), which includes all or part of the work described in the Request, the applicant must consider the following alternatives. (Refer to the wetland regulations at 10.58(4)c. for more information about the scope of alternatives requirements):

- ☐ Alternatives limited to the lot on which the project is located.
- ☐ Alternatives limited to the lot on which the project is located, the subdivided lots, and any adjacent lots formerly or presently owned by the same owner.
- ☐ Alternatives limited to the original parcel on which the project is located, the subdivided parcels, any adjacent parcels, and any other land which can reasonably be obtained within the municipality.
- ☐ Alternatives extend to any sites which can reasonably be obtained within the appropriate region of the state.

Negative Determination

Note: No further action under the Wetlands Protection Act is required by the applicant. However, if the Department is requested to issue a Superseding Determination of Applicability, work may not proceed on this project unless the Department fails to act on such request within 35 days of the date the request is post-marked for certified mail or hand delivered to the Department. Work may then proceed at the owner's risk only upon notice to the Department and to the Conservation Commission. Requirements for requests for Superseding Determinations are listed at the end of this document.

☐ 1. The area described in the Request is not an area subject to protection under the Act or the Buffer Zone.

☒ 2. The work described in the Request is within an area subject to protection under the Act, but will not remove, fill, dredge, or alter that area. Therefore, said work does not require the filing of a Notice of Intent.

☐ 3. The work described in the Request is within the Buffer Zone, as defined in the regulations, but will not alter an Area subject to protection under the Act. Therefore, said work does not require the filing of a Notice of Intent, subject to the following conditions (if any).

☐ 4. The work described in the Request is not within an Area subject to protection under the Act (including the Buffer Zone). Therefore, said work does not require the filing of a Notice of Intent, unless and until said work alters an Area subject to protection under the Act.

B. Determination (cont.)

☐ 5. The area described in the Request is subject to protection under the Act. Since the work described therein meets the requirements for the following exemption, as specified in the Act and the regulations, no Notice of Intent is required:

Exempt Activity (site applicable statuatory/regulatory provisions)

☐ 6. The area and/or work described in the Request is not subject to review and approval by:

Name of Municipality

Pursuant to a municipal wetlands ordinance or bylaw.

Name | Ordinance or Bylaw Citation

C. Authorization

This Determination is issued to the applicant and delivered as follows:

☒ by hand delivery on 11/14/2024 (Date)

☐ by certified mail, return receipt requested on _____ (Date)

This Determination is valid for **three years** from the date of issuance (except Determinations for Vegetation Management Plans which are valid for the duration of the Plan). This Determination does not relieve the applicant from complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

This Determination must be signed by a majority of the Conservation Commission. A copy must be sent to the appropriate DEP Regional Office (see Attachment) and the property owner (if different from the applicant).

Signatures: THORNE PALMER

Andrea Soates

11/14/2024
Date

D. Appeals

The applicant, owner, any person aggrieved by this Determination, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate Department of Environmental Protection Regional Office (see Attachment) to issue a Superseding Determination of Applicability. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form (see Request for Departmental Action Fee Transmittal Form) as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Determination. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant if he/she is not the appellant. The request shall state clearly and concisely the objections to the Determination which is being appealed. To the extent that the Determination is based on a municipal ordinance or bylaw and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.