**JANUARY 29, 2026**

**REPLACEMENT OF RETAINING WALL ALONG ROUTE 44**

**DISTRICT 2**

**STATE PROJECT NO. 0115-0122**

**F.A.P. NO. 0044(166)**

**TOWN OF PUTNAM**

# ADDENDUM NO. 1

This Addendum addresses the following questions and answers contained on the "CT DOT QUESTIONS AND ANSWERS WEBSITE FOR ADVERTISED CONSTRUCTION PROJECTS":

Question and Answer Nos. 2, 3, 7, 8 and 14.

## SPECIAL PROVISIONS

## REVISED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety and replaced with the attached like-named Special Provisions:

- ITEM #0201902A – INTERPRETATIVE DISPLAY SIGN
- ITEM #0601651A - RETAINING WALL (SITE NO. 1)
- ITEM #0605003A - MASONRY FACING

## PLANS

## REVISED PLANS

The following Plan Sheets are hereby deleted in their entirety and replaced with the attached like-named Plan Sheets:

- 02.02.A01
- 04.10.A01

The Bid Proposal Form and Detailed Estimate Sheets are not affected by this change

There will be no change in the number of calendar days due to this Addendum.

The foregoing is hereby made a part of the contract.

# ITEM #0201902A – INTERPRETATIVE DISPLAY SIGN

**Description:** Under this item the Contractor shall furnish and install signage of the specified type, on concrete foundations, and in locations and to the dimensions and details shown on the plans.

Included under this item shall be all work associated with shop drawings and sign graphic legend detailing, manufacture and erection, and furnishing and installing concrete foundations.

**Materials:**
Signs

Sign(s) shall be as manufactured by:

Fossil Industries Inc.
44 Jefryn Boulevard
Deer Park, NJ 11729
(631) 254-9200

Sign Pro Inc
60 Westfield Drive
Plantsville, CT 06479
(860) 229-1812

iZone Imaging
2526 Charter Oak Drive, Suite 100
Temple, TX 76502
(888) 464-9663

or approved equal.

Foundations
Concrete and gravel fill shall conform to the requirements of M.03 of the Standard Specifications. Concrete shall be Class PCC03340.

Reinforcing shall be galvanized and conform to the requirements of Article M.06.01 of the Standard Specifications.

Anchoring Systems: The anchoring system for the sign supports shall consist of breakaway couplings and anchors meeting the criteria shown on the plans.

Sign Supports
Sign posts or supports shall meet the requirements of ASTM M270, Grade 36.

All support bases shall have two-piece base plate covers matching the sign supports to hide mounting hardware.

Factory-Applied Architectural Finish over Primer and Hot-dip Galvanizing – All steel shapes, plates, structural sections, and associated steel hardware shall be hot-dip galvanized, primed, and have a factory-applied architectural finish. This three-step process shall conform to the requirements below:

A. Hot-Dip Galvanizing: Provide coating applied by the hot-dip process. The galvanizing bath shall contain high-grade zinc and other earthy materials. Immediately before galvanizing, the steel shall be immersed in a bath of zinc ammonium chloride. The use of the wet kettle process is prohibited. Comply with ASTM A 123 for fabricated products and ASTM A 153 for hardware. Provide thickness of galvanizing in referenced standards.

B. Factory-Applied Primer Over Hot-Dip Galvanizing: Provide factory-applied polyamide primer over specially prepared galvanizing steel, 2.0 mils dry film thickness minimum. Apply primer within 12 hours after galvanizing at the galvanizer's plant in a controlled environment meeting applicable environmental regulations, and as recommended by coating manufacturer. Engage the services of a galvanizer who has demonstrated a minimum of five (5) years' experience in the successful performance of the processes outlined in this specification in the facility where the work is to be done and who will apply the galvanizing and coating within the same facility as outlined herein.

C. Factory-Applied High-Performance Architectural Finish Over Primer and Hot-Dip Galvanizing: Provide factory-applied polyurethane color coating, 2.5 mils dry film thickness minimum, architectural coating over primed galvanized steel as previously referenced. Apply coating at the galvanizer's plant, immediately after application of the prime coat, in a controlled environment meeting applicable environmental regulations, and as recommended by coating manufacturer. Engage the services of a galvanizer who has demonstrated a minimum of five (5) years' experience in the successful performance of the processes outlined in this specification in the facility where the work is to be done and who will apply the galvanizing and coatings within the same facility as outlined herein and will assume single-source responsibility for galvanizing, priming and finish coating. The architectural finish coat of the steel shapes, plates, and structural sections (including associated steel hardware) shall be Black #23-AMS-17038 (gloss).

Sign Panels
Steel flat stock shall meet the standards of ASTM 36, AISI M1020 or 1015 as applicable.
Panel facing shall be ½" thick high-pressure laminate with clear UV protection, vandal resistant with matte finish.

All hardware and fasteners shall be Stainless Steel Grade 316. All visible hardware shall have black caps or be painted black to match the sign support posts and brackets.

Sign mounting hardware shall be vandal resistant button-head screws.

Welding shall be in conformance with AWS codes. All connections shall be formed with "fish mouthed" joints full seam welded, ground smooth, and sanded.

All steel shall be galvanized in accordance with the requirements of Section M.06.03 of the Standard Specifications, after fabrication.

Shop prime and paint all steel with approved paint as detailed on the shop drawings, as appropriate.

Submittals
Shop or product drawings and product data shall be submitted for each item including foundation detail and anchoring method.

Final locations for all signs shall be as determined by the Engineer in the field.

Final sign graphics and legend for all signs shall be as determined by the Engineer in connection with the shop drawing and review process with detailing by the Contractor's selected manufacturer or vendor. The Engineer will furnish digital files for manufacturer's use in reproduction/detailing of the sign.

Note: A minimum of one (1) graphic sample at a size no smaller than 8.5" x 11" produced by the manufacturer demonstrating color, text, and panel finish shall be coordinated and provided to the Engineer for acceptance prior to final approval.

This submittal requires review and written approval from OEP and SHPO per the Memorandum of Agreement dated May 23, 2024 for SPN 0115-0122.

**Construction Methods:**

Installation shall conform to the manufacturer's instructions and the plan details.

Interpretative display signs shall be set plumb with alignment as shown on the plans or otherwise directed by the Engineer in the field.

All connections shall be drawn together tightly to the manufacturer's recommendations.

Surfaces shall be thoroughly cleaned and dry prior to installation. Signage shall be installed flush with sidewalk.

Following installation, all signs shall be thoroughly cleaned in strict accordance with manufacturer's recommendations.

**Method of Measurement:** This item will be paid for at the Contract unit price bid per each "Interpretative Display Sign" complete and accepted in place.

**Basis of Payment:** This item will be paid for at the contract unit price bid per each "Interpretative Display Sign" complete and accepted in place, which price which shall include final sign detailing and shop drawing preparation and all materials, equipment, labor and work incidental thereto.

| Pay Item | Pay Unit |
|---|---|
| Interpretative Display Sign | ea. |

# Cargill Falls Mill

## History

Cargill Falls has long been a source of waterpower on the Quinebaug River. As the only falls in Putnam, it provided the ideal location for harnessing energy. Settled as "Aspinock," the site which became Putnam was utilized for gristmills and fulling mills during the colonial period. Several such mills were constructed in town when Benjamin Cargill bought this site in 1760. In 1793, Samuel Slater built the first water-powered cotton spinning mill in the United States in Pawtucket, Rhode Island. As associates of Slater sought to expand textile operations in the region, Cargill Falls was an obvious choice. Slater's brother-in-law, Smith Wilkinson, built Connecticut's first successful cotton mill at Cargill Falls in 1806. Modeled after Slater's mill in Rhode Island, the original mill at Cargill Falls was a wooden building; however, it no longer stands. In 1824, the current granite building was constructed and remains the oldest surviving portion of the mill. Power looms were installed in the 1820s and the mill expanded from cotton spinning, to weaving, and eventually to woolen goods. Textile production fueled the growth of Aspinock to the point that it separated from the neighboring towns in 1855 and became incorporated as the town of Putnam.



Smith Wilkinson

**1793** — Samuel Slater opens the first water-powered cotton mill in America in Pawtucket, Rhode Island

**1690s** — First European settlers arrive at Aspinock

**1806** — Cotton mill is built at Cargill Falls

**1824** — The granite building is constructed, oldest standing part of the mill

**1855** — Town of Putnam is incorporated

**1860s** — Mill begins expanding with new brick buildings

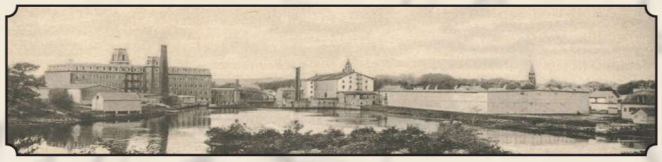
**1950** — Last new portion of the mill is constructed

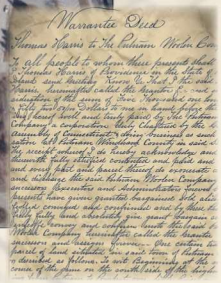
**1984** — Manufacturing stops at the mill

**2020** — Mill converted to apartments.

Smith Wilkinson initially operated the mill as the Pomfret Manufacturing Company, but in 1835, the company was divided between Smith Wilkinson and a businessman named James Rhodes. These companies eventually became the Saxon Woolen Manufactory on the eastern side and the Harris Woolen Company on the western side. Both companies focused on producing wool in addition to cotton. In the 1860s and 1870s, the companies expanded the facilities, and added many of the brick buildings for different stages of wool processing. Housing for the mill employees was also constructed on Pomfret Street in the 1870s, both to the north and west of the mill.

The two companies reunited in 1875 as the Putnam Woolen Company. The mill remained highly productive in textiles through World War II, and additional portions of the mill were constructed up to 1950. During the second half of the twentieth century, much of the region's textile manufacturing moved to the south, and the mill switched to producing synthetic materials as the Hale Manufacturing Company. The mill ceased all manufacturing in 1984. Following a restoration project, Cargill Falls Mill became an apartment complex in 2020.



## Textile Production


Arkwright's Water Frame, 1775


Power Loom, 1857

Before cotton mills, textiles were made using devices powered by human hands. This occurred in two main stages: spinning and weaving. Spinning was the process of converting raw materials such as wool, flax, or cotton into yarn, which could then be woven into cloth. This was accomplished using a spinning wheel, where spinners, usually women, turned a large wheel that transferred the rotating force to a small spindle that spun much faster than the wheel. This twisted the material into a long continuous thread. The next stage was weaving, which interlaced the yarn into a length of cloth. Weavers used looms, where they could arrange rows of yarn, called warp, on a frame. The loom separated alternating rows of warp in order to pass a shuttle between them, which carried another length of yarn called weft across the loom. Textile factories first appeared in England in the 18th century, when this process was automated. In 1769, Richard Arkwright patented his "water frame," which was a water-powered spinning machine. This led to the development of cotton mills in the 1770s. By 1793, Samuel Slater brought this technology to America. Soon, Slater's factory system spread to places with an abundance of flowing water like Aspinock. Following the invention of the power loom, water-power weaving also became possible, and the entire process of spinning and weaving cloth could be integrated into a single factory at Cargill Falls.

## Mill Employees

In the early days of Wilkinson's mill at Cargill Falls, the factory emulated the system of labor developed by Samuel Slater. This meant workers were mainly children whose role was to monitor the machines, while a few adult men were employed as "mechanics". Operating the machines could be dangerous, and the employees worked long hours. Meanwhile, the thread from the factory was sent out to women who would weave into clothing or other goods at home. As the nineteenth century progressed, labor at the mill was organized in new ways and moved beyond Slater's original system. Women made up much of the workforce at Cargill Falls mill beginning in the 1820s, when power looms arrived at the factory, and they were employed at the mill as weavers. Textile mills across New England began shifting their employment to young women and teenage girls. By the mid-nineteenth century, many of these mills experienced an increase in immigrant labor, which was cheaper than employing local residents. In Putnam, many French Canadian and Irish immigrants arrived in the 1840s and worked at Cargill. This was followed by Polish, Italian, Greek, and Turkish immigrants by the end of the century. In the 1870s, housing was built near the mill for the employees, and by the middle of the twentieth century, men did most of the weaving, while women worked in offices or made thread at nearby factories.

## Employee Housing

Worker's housing was constructed by many industrial companies during the nineteenth century to provide workers and their families a place to live. Companies in rural areas, where there was a lack of housing, would often construct these houses alongside schools, churches, and other buildings, forming what was known as a "mill town." The housing helped to attract workers to the company by providing a residence for their families, and it also allowed the companies to recoup some of the employees' wages through rent. Between 1820 and 1850, the workforce in Connecticut grew by 250 percent. To accommodate the increased number of workers, companies constructed rows of identical or nearly identical houses close to the mills. Typically, these houses were plainly detailed buildings, with little or no ornamentation. They were often two stories in height, had a wooden frame and brick chimneys. Generally, two to three families lived in each of the houses, which would typical be located near a company store. This provided easy access to shopping for everyday goods and groceries.

# ITEM #0601651A – RETAINING WALL (SITE NO. 1)

**Description:** This item shall consist of designing, furnishing and constructing a retaining wall and all incidentals necessary to complete the work in the location, at the grades, and to the dimensions and details shown on the Plans.

Retaining Wall Selection: The retaining wall type shall be selected from the list of retaining walls shown on the Plans. The Plans may also detail a cast-in-place reinforced concrete retaining wall. The Engineer will reject any proposed retaining wall type that is not listed on the Plans.

The Plans will list all proprietary retaining walls that are appropriate for each Site. This list does not warrant that the walls can be designed to meet either the dimensional, structural, or geotechnical constraints at each Site.

Refer to the Department's Qualified Product List (QPL) for the currently acceptable proprietary retaining wall and for suppliers' contact information; no other proprietary retaining walls will be allowed. The Department's QPL can be found at:

Qualified Products List

**NOTE: SEE THE PLANS FOR THE SPECIFIC RETAINING WALL TYPES THAT ARE ACCEPTABLE FOR EACH SITE.**

On-Site Representative: A qualified and experienced representative from the retaining wall supplier shall be at the Site at the initiation of wall construction to assist the Contractor and the Engineer at no additional cost to the Department. The wall supplier's on-Site representative shall have, in the past three years, successfully installed at least three retaining walls of the height, length and complexity similar to the retaining wall(s) shown on the Plans and meeting the tolerances specified herein. If there is more than one wall or more than one wall type on the Plans, this criterion will apply to the construction of the initial wall only, or the initial wall of each wall type only. After the initial wall construction, the representative shall also be available on an as needed basis, as requested by the Engineer.

Pre-Installation Meeting: A Pre-Installation meeting shall be scheduled prior to commencement of construction activity. Attendees shall include the Engineer, the Contractor (including wall construction crew chiefs), the wall Subcontractor, wall manufacturer and wall designer, or their respective representatives. No wall construction activity shall be performed until the Contractor's final submittal has been accepted by the Engineer and the Pre-Installation meeting has been held.

Design: Design computations are not required for the cast-in-place wall option detailed on the Plans except the Contractor shall submit Working Drawings and design computations, in

accordance with Article 1.05.02, for any temporary earth retaining systems (TERS) necessary (included in the lump sum item).

The submissions for proprietary retaining walls shall be treated as Working Drawings in accordance with Section 1.05.02.

1. Design Computations: If the Contractor chooses one of the proprietary wall options, he is fully responsible for the design, detailing and additional specifications required. The actual designer of the retaining wall shall be a qualified Professional Engineer licensed in the State of Connecticut. The designer must have designed at least three proprietary walls within the last three years.

2. Designer's Liability Insurance: The Designer of the proprietary retaining wall shall secure and maintain, at no direct cost to the Department, a Professional Liability Insurance Policy for errors and omissions in accordance with Articles 1.03.07 and 1.05.02.

3. Preliminary Submissions for Proprietary Retaining Walls: Prior to the start of fabrication or construction, the Contractor shall submit Working Drawings to the Engineer, which shall include, at a minimum the following:
   a. Detailed Plans:
      1) Full plan view of the wall drawn to scale. The plan view must reflect the horizontal alignment and offset from the horizontal control line to the face of the wall. Beginning and ending stations, all utilities, signs, lights, etc. that affect the construction along with all property lines and easement lines adjacent to the retaining wall shall be shown.
      2) Full elevation view of the wall drawn to scale. Elevation views shall indicate the elevation at the top and bottom of walls, horizontal and vertical break points, and the location of finished grade.
      3) Typical cross sections drawn to scale including all appurtenances. Detailed cross sections shall be provided at significant reinforcement transitions such as wall ends.
      4) Details of all wall components and their connections such as the length, size and type of reinforcement and where any changes occur; modular component and facing details including reinforcing steel and reinforcement connections; joint material including geotextile filter location and horizontal joint compression material, etc.
      5) Drainage details for embankment backfill including attachment to outlets shown on Plans.
      6) Details of any roadway drainage pipe projecting through the wall, or any attachments to the wall. Details of the treatment of drainage swales or ditches shown on the Plans.
      7) Design parameters used along with references from latest edition of American Association of State Highway and Transportation Officials (AASHTO) LRFD Bridge Design Specifications, including the latest interims, as specified in the Plans.
      8) Material designations for all materials to be used.
      9) Detailed construction methods including a Quality Control plan. Construction Quality Control plans shall include monitoring and testing frequencies (e.g., for

setting batter and maintaining horizontal and vertical control), construction restraints, and specific requirements for construction around obstructions.

10) Details of parapet attachments where required, along with any lighting and/or signing requirements.
11) Details of architectural treatment where required.
12) Details of TERS where required.
13) Details of retaining wall treatment where the wall abuts other structures.
14) Treatment at underground utilities where required.

b. Design Computations:
   1) Computations shall clearly refer to the applicable AASHTO LRFD Bridge Design Specifications provisions as stated on the Plans.
   2) Documentation of computer programs including all design parameters.
   3) The design shall meet the criteria listed below.

c. Construction Specifications:
   1) Construction methods shall be specific to the proprietary retaining wall chosen. These specifications shall include construction limitations including vertical clearance, right-of-way limits, etc.
   2) Submittal requirements for materials such as certification, quality, and acceptance/rejection criteria.
   3) Details on connection of modular units and connection of reinforcements including assurance of uniform stress transfer.
   4) Any other requirements.

4. Final Submissions for Proprietary Retaining Walls: Once a proprietary retaining wall design has been reviewed and accepted by the Department, the Contractor shall submit Working Drawings in accordance with Article 1.05.02.

   The Working Drawing submission shall be made no later than 14 days after acceptance by the Department. No work shall be performed on the retaining wall until the Department has accepted the Working Drawings.

   Acceptance of the Working Drawings shall not relieve the Contractor of responsibility for the successful completion of the work.

   The Contractor's designer of the proprietary retaining wall shall review any Shop Drawings prepared for the fabrication of the wall. One set of full-size accepted Shop Drawings shall be submitted per Article 1.05.02 Submittals.

5. General Design Requirements:
   a. All designs for proprietary walls and TERS (if required) shall meet the requirements of the latest edition of the AASHTO LRFD Bridge Design Specifications including the latest Interims published except as noted otherwise herein.
   b. The wall design shall follow the dimensions of the wall envelope shown on the Plans.

For all proprietary walls, the top of the leveling pad or reinforced concrete toe footing shall be located at or below the bottom of the footing elevation shown on the Plans. If no footing elevation is shown, the minimum wall embedment shall be 4 feet as measured to the top of the leveling pad or toe footing.

If steps at the bottom of the wall are required, they shall be kept at or below the footing elevation shown on the Plans. Steps in addition to those shown on the Plans will be permitted at no additional cost to the Department.

c. The wall shall be designed to be within all property lines and easement lines shown on the Plans. If additional work areas are necessary for the construction of the proprietary retaining wall, the Contractor shall be responsible for obtaining the rights from the affected property owners. Copies of these rights shall be forwarded to the Department.
d. The top of the wall shall be at the top of the wall elevations shown on the Plans. Where coping or barrier is used, the wall face panel shall extend up into the coping or barrier a minimum of 2 inches. The top of the face panels may be level or sloped to meet the top of the wall line noted.
e. Cast-in-place concrete will not be an acceptable replacement for areas noted by the wall envelope, except for minor grouting of pipe penetrations and leveling required for coping or traffic barrier.
f. The wall shall be designed for a minimum live load surcharge as specified in AASHTO LRFD Bridge Design Specifications Article 3.11.6. If there are specific live load surcharges acting on the wall, they shall also be accounted for. The minimum equivalent fluid pressure used to design the wall shall meet the requirements of AASHTO LRFD Article 3.11.5.
g. If stated on the Plans, the retaining wall shall be designed for seismic forces according to the AASHTO LRFD Bridge Design Specifications.
h. If the wall is detailed with a concrete parapet, the top two courses of prefabricated modular walls units shall be designed to support a transverse railing load of 10 kips. The 10-kip load may be distributed over the length of the parapet section between joints, but not exceeding 20 feet. Computations that verify the stability of the top two courses of the modular units shall be submitted to the Engineer.

   The detailing and reinforcement in the parapet section above the gutterline or finished grade, including any light standard attachments, shall be as shown on the Plans.
i. The wall shall be designed to accommodate all roadway drainage and drainage structures as shown on the Plans.
j. At a minimum, an underdrain system shall be provided for leading subsurface and surface water away from the backfill and outside limits of the wall.
k. Hydrostatic Forces: Unless specified otherwise, when a design high water surface is shown on the Plans at the face of the wall, the design stresses calculated from that elevation to the bottom of wall must include a 3-foot minimum differential head of saturated backfill. In addition, the buoyant weight of saturated soil shall be used in the calculation of pullout resistance.
l. The Maximum Design Foundation Pressures for both Strength and Service Limit States shall be as shown on the Plans. The foundation pressure stated assumes a uniform

pressure distribution. If additional soils information is required by the Contractor's designer, it must be obtained by the Contractor at no additional cost to the Department.

m. Backfill: The friction angle of the Pervious Structure Backfill used in the reinforced fill zone for the internal stability design of the wall shall be assumed to be 34 degrees unless shown otherwise on the Plans. The friction angle of the in-situ soils shall be assumed to be a maximum of 30 degrees unless otherwise shown on the Plans.

n. Parapet and Moment Slab Design:

1) General requirements for parapet and moment slab design: Where an unyielding barrier (e.g. concrete barrier, parapet) on top of the retaining wall is warranted, the parapet and moment slab shall be designed in accordance with the latest AASHTO LRFD Bridge Design Specifications, including the latest interim specifications and errata, amended as follows:

The parapet shall be designed and constructed of precast or cast-in-place concrete. The moment slab shall be designed and constructed of cast-in-place reinforced concrete.

Above the finished grade, the parapet dimensions, concrete and reinforcement shall meet the Department's retaining wall parapet details. Below the finished grade, the parapet shall be designed to resist the forces specified in the following table:

| **MASH Test Level** | **Parapet Height (in.)** | **Design Transverse Impact Force $F_t$ (kips)** | **Height of Design Impact Force (in.)** |
|---|---|---|---|
| TL-3 | ≥ 29 | 71 | 19 |
| TL-4 | 36 | 68 | 25 |
| | > 36 | 80 | 30 |
| TL-5 | 42 | 160 | 35 |
| | > 42 | 262 | 43 |

The structural design of the moment slab and its connection to the parapet shall resist, at a minimum, a transverse load equal to 100% of $F_t$. The length of the structural connection between parapet and moment slab assumed to resist transverse force $F_t$ shall be the distance between parapet joints but not greater than 30 feet in any case.

The minimum thickness of the moment slab shall be 1foot.

The design of the moment slab for overturning and sliding shall be based on a lateral force of 10 kips static load. The length of the moment slab assumed to resist sliding and overturning may exceed parapet joint spacing providing the slab is monolithic beneath the joints but shall be no greater than 30 feet in any case. The moments shall be summed about the front face of the wall facing. All resistance factors shall be taken as 1.0. The internal angle of friction for the soil shall be assumed to be 34 degrees unless otherwise shown on the Plans.

Minimum concrete cover for reinforcing steel shall be 2 inches for top bars and 3 inches for bottom bars.

2) Precast Concrete Parapet Alternative:
   - Precast parapet sections shall be no less than 10 feet in length.
   - Parapets shall include details for shear transfer between adjacent units by either concrete shear keys or steel dowels as follows:
     - Shear keys, when used, shall be monolithically cast in each parapet section or joint location. Shear keys shall be located vertically within the top 32 inches of the parapet and shall be a minimum of 24 inches in length with a tapered width between 3 and 4 inches, and a minimum interlock depth of 2 inches.
     - Steel dowels, when used, shall be, at a minimum, 14 inches long and have a 1-inch diameter at each parapet interface. The steel dowels shall be smooth and, at a minimum, number 3 bars. Steel dowels shall be located in each parapet joint and spaced approximately 1 foot apart vertically. Steel dowels shall be positioned to project equally into each adjoining parapet section and shall be detailed to avoid impeding shrinkage and thermal movements. Bond breakers may be used with steel dowels for that purpose. Alternatively, pockets may be cast to receive steel dowels in adjacent parapet units. Pocket widths shall not exceed steel dowel diameters by more than 1/2 inch.
   - Moment slabs for precast concrete parapets shall be structurally continuous throughout the overall retaining wall length. Construction joints are permitted in moment slabs.

3) Cast-in-Place Parapet Alternative:

The minimum distance between parapet joints shall be 20 feet. Expansion and contraction joints shall be placed in accordance with Section 11.6 of the AASHTO LRFD Bridge Design specifications. Expansion and contraction joints shall be located a minimum of 10 feet from the nearest edge of a catch basin. Expansion and contraction joints shall be located a minimum of 6 feet from the centerline of light standard anchorages and junction boxes. Preformed expansion joint filler, ½ inch thick, shall be installed at the expansion joints in the parapet.

Parapets shall include details for shear transfer between sections by way of concrete shear keys or steel dowels as follows:
- Shear keys, when used, shall be monolithically cast in each parapet section or joint location. Shear keys shall be located vertically within the top 32 inches of the parapet and shall be a minimum of 24 inches in length with a tapered width between 3 and 4 inches, and a minimum interlock depth of 2 inches.
- Steel dowels, when used, shall be a minimum of 14 inches long and have a 1-inch diameter at each parapet interface. The steel dowels shall be smooth and,

at a minimum, number 3 bars. Steel dowels shall be located in each parapet joint and spaced approximately 1 foot apart vertically. Steel dowels shall be positioned to project equally into each adjoining parapet sections and shall be detailed to avoid impeding shrinkage and thermal movements. A bond breaker shall be used with steel dowels for that purpose.

Moment slabs for cast-in-place parapets shall extend to the outside face of the retaining wall as shown on the Plans. Moment slabs for cast-in-place parapets shall be structurally continuous throughout the overall wall length, except for the purpose of crack control at parapet contraction and expansion joint locations, longitudinal reinforcing within 2 feet of the retaining wall face shall be discontinuous. All remaining longitudinal reinforcement in moment slabs at parapet expansion and contraction joints shall be continuous. A vertical 1 inch deep chamfer on the exposed face of the moment slab shall be provided in locations directly under parapet expansion and contraction joints. Construction joints are permitted in cast-in place moment slabs.

6. Design Requirements for Mechanically Stabilized Earth Walls: The design shall consider the internal stability of the wall mass as outlined below. The global stability of the structure, including slope stability, bearing capacity at strength and service limit states, and total and differential settlement, is the responsibility of the Department.
   a. Soil Reinforcement: The soil reinforcement shall be the same length from the bottom to the top of each wall section. The reinforcement length defining the width of the entire reinforced soil mass may vary with wall height along the length of wall. The minimum length of the soil reinforcement shall be 70% of the wall height, H, or 8 feet, whichever is greater.

      The soil reinforcement shall be of sufficient length to provide for the required factored resistances for sliding, overturning and pullout loads (as designated in AASHTO LRFD Bridge Design Specifications) and shall be the minimum lengths required for external stability as recommended by the Department. Calculations of stresses, pullout factored loads and resistances shall be in accordance with the most recent AASHTO LRFD Bridge Design Specifications.
   b. Calculations for factored loads and resisting forces shall be based on assumed conditions at the end of the design life. The design life shall be 75 years unless otherwise indicated on the Plans. The design of soil reinforcements shall account for section loss as outlined in the AASHTO LRFD Bridge Design Specifications. All soil reinforcement shall be hot-dip galvanized in accordance with ASTM A123.

7. Design Requirements for Prefabricated Modular Walls: The general design of the retaining wall shall be according to the AASHTO LRFD Bridge Design Specifications. The Contractor shall be responsible for internal stability aspects of wall design. The design shall consider the stability at each level of modules. The global stability of the structure, including slope stability, bearing capacity at strength and service limit states, and total and differential settlement, is the responsibility of the Department.

a. Infill: The maximum assumed unit weight of infill material used for overturning stability analysis shall be 100 pounds per cubic foot. If Doublewal modules are to be filled with crushed stone, the maximum assumed unit weight of the infill shall be 80 pounds per cubic foot.
b. Resistance Factors: The resistance factors used in the design computations shall be as specified in the AASHTO LRFD Bridge Design Specifications amended as follows: The unfactored resistance for pullout of the concrete stem for T-Walls shall be 1.5 times or greater than the unfactored loads. Shear keys shall not be included in these computations. Only resisting forces developed beyond the theoretical failure plane may be used in these computations.

**Materials:**

1. Cast-in Place Concrete Walls: The materials furnished and used in the work shall be those prescribed in the Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, including supplemental specifications and applicable special provisions as specified in the Contract.

2. Prefabricated Modular and Mechanically Stabilized Earth Walls: Materials shall meet the following requirements, and those not listed below shall be as prescribed within the Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, including supplemental specifications and applicable special provisions.
   a. Concrete: The concrete shall meet the requirements of Section M.03 and as follows:

      Concrete for all precast components shall be air-entrained, Portland cement, fine and coarse aggregates, admixtures and water. An air-entraining Portland cement or an accepted air-entraining admixture shall be used. The entrained-air content shall be from 3.5 to 6.5%. The concrete shall attain a minimum 28-day strength ($f'_c$) of 5,000 pounds per square inch and conform to the requirements of PRC05060. The mix design shall be furnished to the Engineer.

      Concrete for footings or unreinforced leveling pads shall meet the requirements of Class PCC03340. Class PCC04460 shall be used for cast-in-place concrete copings. Class PCC04462 shall be used for traffic barriers.

      Concrete Finish: Unless otherwise indicated on the Plans or elsewhere in the specifications, the concrete surface for the exposed face shall have a steel form finish. All non-exposed surfaces shall have an unformed finish which shall be free of open pockets of aggregate and surface distortions in excess of 1/4 inch.

      Special Surface Treatment: If a special surface finish is proposed, before proceeding with production, a model face panel shall be provided by the fabricator for the Engineer's acceptance, to establish a guide and standard for the type of finish on the exposed face. This panel shall be stored at the fabricator's plant to be used for comparison purposes during production. Formed surfaces other than the exposed face shall not require a special finish.

Acceptance Criteria for Precast Components: Acceptance of precast components shall be based on the concrete strength, the soil reinforcement connection devices and the panel or module dimensions meeting the manufacturer's allowable tolerances. Any chipping, cracks, honeycomb or other defects shall be within acceptable standards for precast concrete or repaired as determined by the Engineer.

It is recognized that certain cracks and surface defects are not detrimental to the structural integrity of the precast components if properly repaired. The Engineer will determine the need for, and review the proposed method of, such repair and all repairs shall be reviewed by the Engineer prior to acceptance for use in wall construction.

Marking: The date of manufacture, production lot number, and piece-mark shall be clearly marked on the non-exposed side of each element.

b. Reinforcing Steel: Reinforcing steel shall meet the requirements of ASTM A615, Grade 60. All reinforcing bars shall be hot-dip galvanized, after fabrication, to the requirements of ASTM A767, Class 1, including supplemental requirements.
c. Attachment Devices for Prefabricated Modular Walls: All structural connectors shall be hot-dip galvanized according to the requirements of ASTM A123 (AASHTO M111). The minimum thickness of the galvanizing shall be based on the service life requirements in the AASHTO LRFD Bridge Design Specifications.
d. Soil Reinforcing and Attachment Devices for MSE Walls:
    1) Soil Reinforcement: Steel strip reinforcement bands shall be hot rolled to the required shape and dimensions. The steel shall meet the requirements of ASTM A572 Grade 65 unless otherwise specified.

       Welded wire fabric reinforcement shall be shop fabricated from cold-drawn wire of the sizes and spacing shown on the Plans. All wire and welded wire fabric shall meet the requirements of ASTM A1064 or AASHTO M 336M/M 336. Welded wire fabric shall be galvanized in accordance with the requirements of AASHTO M 111 or ASTM A123.

       All soil reinforcement and structural connectors shall be hot-dip galvanized in accordance with ASTM A123 (AASHTO M111). The minimum thickness of the galvanizing shall be based on the service life requirements as previously stated.
    2) Connection Hardware: Connection hardware shall be in accordance with the details on the Plans, and shall meet the requirements in the special provisions or Plans. All fasteners shall be galvanized in accordance with ASTM A153 or AASHTO M 232 and shall meet the requirements of AASHTO M 164. The minimum thickness of the galvanizing shall be based on the service life requirements as previously stated.
e. Joint Materials: All horizontal and vertical joints between panels shall be covered by Geotextile (Separation - Class 1) meeting the requirements of Subarticle M.08.01-19. The minimum width and lap shall be 12 inches. Details of installation including connection of the geotextile to coping shall be provided.

f. Backfill: Backfill shall be Pervious Structure Backfill meeting the requirements of Articles M.02.05 and M.02.06. In addition, the backfill for Mechanically Stabilized Earth Walls shall meet all of the following electrochemical requirements:

| PROPERTY | REQUIREMENT | TEST METHODS |
|---|---|---|
| Resistivity at 100% saturation | Minimum 3000 ohm-cm | ASTM G57-06 (2012)<br>AASHTO T288 |
| pH | Acceptable Range<br>5.0 – 10.0 | ASTM G51-95 (2012)<br>AASHTO T289 |
| Chlorides | Maximum 100 ppm | ASTM D512 or D4327<br>AASHTO T291 |
| Sulfates | Maximum 200 ppm | ASTM D516 or D4327<br>AASHTO T290 |
| Organic Content | Maximum 1% | ASTM D2974 or<br>AASHTO T267 |

g. Smooth Steel dowels: Steel dowels used in parapet joints shall meet the requirements of ASTM A36 and shall be galvanized in accordance with ASTM A153.

**Construction Methods:**

1. Cast-in-Place Concrete Walls: All construction methods for cast-in-place retaining walls shall be in accordance with the detailed requirements prescribed for the construction of the appropriate component items as specified in the Standard Specifications for Roads, Bridges, Facilities and Incidental Construction.

2. Prefabricated Modular Walls: All construction methods for prefabricated modular retaining walls shall be in accordance with the detailed requirements prescribed for the construction of the appropriate component items as specified in the Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, with the following additional requirements:
   a. Inspection and Rejection: The quality of materials, process of manufacture, and finished units will be subject to inspection by the Engineer prior to shipment.

      Modular units which have imperfect molding, honeycomb, open texture concrete, or broken corners shall be repaired to the satisfaction of the Engineer or will be rejected. Insufficient compressive strength will also be cause for rejection.

      Modular units with special surface treatments will be rejected if there are variations in the exposed face that deviate from the accepted model as to color or texture in accordance with precast concrete industry standards.
   b. Installation: The modular units shall be installed in accordance with manufacturer's recommendations. Special care shall be taken in setting the bottom course of units to true line and grade.

      The vertical joint opening on the front face of the wall shall not exceed 3/4 inch. Vertical tolerances and horizontal alignment of the wall shall not exceed 3/4 inch in 8 feet from

the vertical. The plumbness of the wall from top to bottom shall not exceed 1/2 inch per 8 feet, or 1 inch total, whichever is less, measured from the face line shown on the Plans. A strip of geotextile shall be installed at all vertical joints.

Assembly of the various components shall not place any undue strain or stress on any of the members that constitute the completed structure.

c. Backfilling:
   1) Doublewal:
      - Infill for modular units shall be placed one course at a time, in lifts not exceeding two feet in thickness. The dry density of each lift of Pervious Structure Backfill, after compaction, shall meet the requirements of Article 2.16.03.
      - Placement of the Pervious Structure Backfill behind the wall shall follow erection of successive courses of modular units. The difference in backfill elevation between the interior and exterior of the wall shall not exceed 6 feet.
      - The units may be backfilled with crushed stone if the design of the retaining wall was based on a density of 80 pounds per cubic foot.
      - All Pervious Structure Backfill placed outside of the modular units shall be placed in accordance with the requirements of Article 2.16.03.
      - At the end of each work shift, the Contractor shall slope the last level of backfill away from the wall facing to direct runoff away from the wall face. The Contractor shall control and divert runoff at the ends of the wall to prevent erosion. In addition, the Contractor shall prevent surface runoff from entering the wall construction site.
   2) T-Wall:
      - Backfill placement in the interior of the wall unit and behind the wall shall follow erection of each course of prefabricated wall modules. Backfill shall be placed in such a manner as to avoid any damage or disturbance to the wall materials or misalignment of the modules. Any wall materials which become damaged or disturbed during backfill placement shall be removed and replaced at the Contractor's expense or corrected, as directed by the Engineer. Any backfill material placed within the wall envelope which does not meet the specified material requirements shall be corrected or removed and replaced at the Contractor's expense.
      - Each lift (10 inches thick maximum) shall be placed and compacted with a mechanical or vibratory compactor to meet the density requirements in Article 2.16.03. The Contractor may reduce the lift thickness to obtain the specified density.
      - Compaction within 3 feet of the module face shall be achieved by at least three passes of a lightweight mechanical tamper, roller or vibratory system. The specified lift thickness shall be adjusted as warranted by the type of compaction equipment actually used. Care shall be exercised in the compaction process to avoid misalignment or damage to the module. Heavy compaction equipment shall not be used to compact backfill within 3 feet of the wall face. Sheepfoot rollers and puddling for compaction will not be allowed. The Contractor shall

take soil density tests, in accordance with Article 2.16.03, to ensure compliance with specified compaction requirements and if a compaction test fails, no additional backfill shall be placed over the area until the lift is recompacted and a passing test is achieved.

- The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with a placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with Article 2.16.03.
- At the end of each day's operation, the Contractor shall slope the last level of backfill away from the retaining wall facing to direct runoff away from the retaining wall face. The Contractor shall control and divert runoff at the ends of the wall to prevent erosion or washout of the wall section does not occur. In addition, the Contractor shall prevent surface runoff from entering the wall construction site.

3. Mechanically Stabilized Earth Walls: All construction methods for items not listed below shall be in accordance with the detailed requirements prescribed for the construction of the appropriate items as specified in the Standard Specifications for Roads, Bridges, and Incidental Construction.
   a. Foundation Preparation: The foundation for the structure shall be graded level for a width equal to or exceeding the length of the soil reinforcements, or as shown on the Plans. Prior to wall construction the foundation, if not rock, shall be compacted. Any foundation soils found to be unsuitable shall be removed and replaced with Granular Fill or as shown on the Plans.

      At each panel foundation level, an un-reinforced concrete leveling pad shall be constructed as shown on the Plans. Granular Fill leveling pads are not allowed. The concrete leveling pad shall be cast to the design elevations as shown on the Plans and shall meet the pertinent requirements of Section 6.01.
   b. Wall Erection: Panels shall be placed in successive horizontal lifts in the sequence shown on the Plans as backfill material is placed behind the panels, and the panels shall be maintained in a vertical position. The vertical joint opening on the front face of the wall panels shall not exceed 3/4 inch. Vertical tolerances and horizontal alignment of the wall face shall not exceed 3/4 inch in 8 feet from the vertical. The plumbness of the wall from top to bottom shall not exceed 1/2 inch per 8 feet, or 1 inch total, whichever is less, measured from the face line shown on the Plans.

      The allowable offset in any panel joint shall be 3/4 inch. The final horizontal and vertical joint gaps between adjacent facing panel units shall be within 1/8 inch and 1/4 inch, respectively, of the design final joint opening per the accepted Working Drawings.

c. Placement of Reinforcements: Soil reinforcements shall be placed normal to the face of the wall, unless otherwise shown on the Plans. All reinforcement bands shall be structurally connected to the wall face per the manufacturer's detail.

   The reinforcement shall bear uniformly on compacted soil from the wall connection to the free end of the reinforcing elements. The reinforcement placement elevation shall be at, or at most 2 inches above, the connection elevation. Bending of reinforcement in the horizontal plane that results in a permanent deformation in their alignment is not allowed. Gradual bending in the vertical direction that does not result in permanent deformations is allowable.

   Connection of reinforcements to piles or bending of reinforcements around piles is not allowed. A structural connection (yoke) from the retaining wall panel to the reinforcement shall be used to avoid cutting or excessive skewing of reinforcements due to pile or utility conflicts.

   Where overlapping of reinforcement may occur, such as at corners, reinforcing connections to panels shall be adjusted to maintain at least 3 inches of vertical separation between overlapping reinforcement.

d. Backfill Placement: Backfill placement shall follow erection of each course of panels. Backfill shall be placed to avoid any damage, disturbance to the wall materials or misalignment of the facing panels, or damage to soil reinforcement. The Contractor shall place backfill to the level of connection and shall ensure that no voids exist directly underneath the reinforcing elements.

   Any wall materials which become damaged or disturbed during backfill placement shall be either removed and replaced at the Contractor's expense or corrected, as directed by the Engineer. The Contractor may submit alternative corrective procedures to the Engineer for consideration. Proposed alternative corrective procedures shall have the concurrence of the MSE wall supplier and designer, in writing, prior to submission to the Engineer for consideration. All corrective procedure development and actions shall be at the Contractor's expense.

   Any backfill material placed within the reinforced soil mass which does not meet the specified requirements shall be corrected or removed and replaced at the Contractor's expense.

   The fill shall be spread by moving the machinery parallel to or away from the wall facing so that the steel reinforcement remains normal to the face of the wall. Construction equipment shall not operate directly on the steel reinforcement. A minimum fill thickness of 3 inches over steel reinforcement shall be required prior to operation of vehicles. Sudden braking and sharp turning shall be avoided.

   Backfill shall be installed in accordance with Article 2.16.03, except as follows:

If 30% or more of the backfill material is greater than 3/4 inch in size, the acceptance criterion for control of compaction shall be either a minimum of 70% of the dry density of the material as determined by a test method performed by the Contractor, or by following a specification provided by the wall supplier. The wall supplier's specification shall be based on a test compaction section, which defines the type of equipment, lift thickness, number of passes of the specified equipment, and placement moisture content.

Backfill shall be compacted using a static-weighted or vibratory roller. Sheepfoot or grid type rollers shall not be used for compacting material within the limits of the soil reinforcement. The Contractor shall take soil density tests, in accordance with Article 2.16.03, to ensure compliance with specified compaction requirements.

The maximum lift thickness after compaction shall not exceed 10 inches, regardless of the vertical spacing between layers of soil reinforcements. The Contractor shall decrease this lift thickness, if necessary, to obtain the specified density. Prior to placement of the soil reinforcements, the backfill elevation at the face shall be level with the connection after compaction. From a point approximately 3 feet behind the back face of the panels to the free end of the soil reinforcements, the backfill shall be 2 inches above the attachment device elevation unless otherwise shown on the Plans.

Compaction within 3 feet of the back face of the panels shall be achieved by at least three passes of a lightweight mechanical tamper, roller or vibratory system. The minimum number of passes and rolling pattern shall be determined, prior to construction of the wall, by constructing a test pad section. The minimum dimensions of the test pad shall be 5 feet wide, 15 feet long, and 3 feet final depth. The specified lift thickness shall be adjusted as warranted by the type of compaction equipment actually used. Care shall be exercised in the compaction process to avoid misalignment of the panels or damage to the attachment devices. Heavy compaction equipment shall not be used to compact backfill within 3 feet of the wall face.

The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with a placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with Article 2.16.03 (with oversize correction, as outlined in Note 7).

At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing to direct runoff away from the wall face. The Contractor shall control and divert runoff at the ends of the wall to prevent erosion. In addition, the Contractor shall prevent surface runoff from entering the wall construction site.

**Method of Measurement:** This work, being paid for on a lump sum basis, will not be measured for payment. Prior to the commencement of work on this item, the Contractor shall submit a proposed schedule of values for review and comment by the Engineer.

**Basis of Payment:** This work will be paid for at the Contract lump sum price for "Retaining Wall (Site No. 1)," complete in place, which price shall include all work shown within the pay limits on the Plans for the retaining wall including the following:

1. Design and construction of the proprietary retaining wall.
2. Excavation required for the construction of the retaining wall.
3. Design, construction, removal, and abandonment of temporary earth retaining systems to retain the existing facilities during construction.
4. The furnishing, placing and compacting of Pervious Structure Backfill within the payment lines.
5. The furnishing and placing of backfill drainage systems for the wall.
6. Services of the On-Site Representative.
7. Any other work and materials shown on the Plans for the retaining wall.

The price shall also include all materials, equipment, tools and labor incidental thereto.

Bedrock or boulders in excess of 1 cubic yard encountered in the excavation, will be paid for under the item "Structure Excavation – Rock (Complete)."

Texture or relief on precast concrete wall units created by the use of architectural form liner shall be paid separately under the item "Simulated Stone Masonry".

Removal of the existing wall shall be paid separately under the item "Removal of Existing Masonry."

| Pay Item | Pay Unit |
|---|---|
| Retaining Wall (Site No. 1) | l.s. |

# ITEM #0605003A – MASONRY FACING

Work under this item shall conform to the applicable requirements of Section 6.05 of Form 819, amended as follows:

**Article 06.05.01 – Description:** Add the following:

Work shall also include reuse of stone from the existing historic masonry wall, where practicable, as the masonry facing to be constructed to the lines, grades and dimensions indicated and/or shown on the plans, and as directed by the Engineer. The Contractor is permitted to import stone for use in the masonry facing, however, such stone shall be selected to resemble, as closely as possible, the existing stone walls within the project limits in size, shape, color, and pattern.

Mortar used to install the stone masonry facing shall be selected to match the existing historic masonry wall as directed by the Engineer and in accordance with the Secretary of the Interior's Standards for Treatment of Historic Properties publication "Preservation Briefs: Repointing Mortar Joints in Historic Masonry Buildings" (see Appendices). Work will include preparing the joints to be pointed, installing new mortar, finishing with the proper profile, and cleaning of the work area once completed.

The Contractor to perform this work shall demonstrate a minimum of five (5) years of successful repointing experience in masonry restoration projects for historic structures. The Contractor shall provide names, dates, and locations of a minimum of three (3) similar projects.

**Article 06.05.02 – Materials:** Delete the only paragraph and replace with the following:

The materials for this work shall meet the requirements of M.11.01 for masonry facing stone. Masonry facing stone shall match the existing as closely as possible in color, character, and size. Stone from the existing wall to be removed may also be utilized for the masonry facing where the appearance and integrity of the stone has not been damaged by the demolition.

A demonstration test area including the proposed mortar sample shall be completed for the Engineer to review and approve before full-scale repair work is initiated.

The test area described above shall also be subject to review by OEP and SHPO and shall require written approval from OEP and SHPO per the Memorandum of Agreement dated May 23, 2024 for SPN 0115-0122.

Mortar shall meet the requirements of Article M.11.04.

Metal dowels and ties shall meet the requirements of Article M.06.01.

**Article 06.05.03 – Construction Methods:** Delete item 8 and replace with the following:

8. **Pointing**: The joints in the masonry facing masonry shall be thoroughly raked out and cleaned of all loose mortar, dirt, or other foreign material to a depth of about two (2) inches or as ordered. The joints shall be thoroughly wet with water and filled with mortar. The mortar shall be well driven into the joints and finished with an approved pointing tool. The wall shall be kept wet while pointing is being done; and in hot or dry weather, the pointed masonry shall be protected from the sun and kept wet for a period of at least three (3) days after completion. Pointing of mortar joints shall take place when air temperature is between 40 and 90 degrees F and is predicted to remain so for at least 7 days after the completion of work. The stone to be pointed shall not contain frost. After the pointing is completed and the mortar set, the wall shall be thoroughly cleaned and left in a neat and workmanlike condition.

    a. **Demonstration Test Area:** Prior to commencing the pointing operations, the Contractor shall install a trial application of the proposed pointing methods on a portion of the masonry wall, as directed by the Engineer. The surface area of the demonstration test shall be approximately three (3) by three (3) feet (0.91m x 0.91m) in area. The demonstration test area shall be cleaned using methods, materials and means previously submitted and approved. The production work of pointing the masonry shall not begin without approval from the Engineer of the methods, materials, and equipment used. The evaluation by the Engineer of the acceptability of the Contractor's proposed repointing will include a seven (7) day observation period after completion of the pointing to allow the mortar to cure. The approved sample shall remain as part of the finished work. In the event that the pointing sample is not approved, a new sample shall be prepared at a new location selected by the engineer. The rejected sample areas shall be repointed as directed by the Engineer.

**Article 06.05.04 – Method of Measurement:** Delete this section in its entirety and replace with the following:

The quantity of masonry facing shall be the actual number of square feet of the face area of accepted masonry facing, completed within the neat lines as shown on the plans, or as ordered by the Engineer.

No measurement will be made for areas of rejected cleaning and pointing samples.

**Article 06.05.05 – Basis of Payment:** Delete this section in its entirety and replace with the following:

Masonry facing will be paid for at the Contract unit price per square feet for "Masonry Facing", complete in place, which price shall include all equipment, tools and labor incidental thereto and all materials including metal dowels or ties. The cost of drilling holes for dowels or ties shall be considered as included in the general cost of the work.

| Pay Item | Pay Unit |
|---|---|
| Masonry Facing | SF |