

OCTOBER 19, 2023
REHABILITATION OF BRIDGE NO.07023 INTERSTATE 95 (I-95) ON RAMP OVER
DRAINAGE STRUCTURE
FEDERAL AID PROJECT NO. N/A
STATE PROJECT NO. 0102-0371
TOWN OF NORWALK

ADDENDUM NO. 1

SPECIAL PROVISIONS
NEW SPECIAL PROVISION

The following Special Provision is hereby added to the Contract:

- ITEM NO. 0686360.73 - 73" X 55" CORRUGATED STEEL PIPE ARCH, ALUMINIZED TYPE 2 (12 GAUGE) (SMOOTH INTERIOR)

DELETED SPECIAL PROVISION

The following Special Provision is hereby deleted in its entirety:

- ITEM NO. 0686510A – 87" X 63" CORRUGATED ALUMINUM PIPE ARCH

CONTRACT ITEMS
NEW CONTRACT ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
0686360.73A	73"X55" CORRUGATED STEEL PIPE ARCH, ALUMINIZED TYPE 2 (12 GAUGE) (SMOOTH INTERIOR)	LF	789
0686350.15	15" ALUMINUMIZED CORRUGATED METAL PIPE – 0' – 10' DEEP	LF	9

REVISED CONTRACT ITEMS

ITEM NO.	DESCRIPTION	ORIGINAL QUANTITY	<u>REVISED QUANTITY</u>
0203000	STRUCTURE EXCAVATION – EARTH (COMPLETE)	215 CY	185
0216000	PERVIOUS STRUCTURE BACKFILL	75 CY	65
0216012A	CONTROLLED LOW STRENGTH MATERIAL	305 CY	555

DELETED CONTRACT ITEMS

ITEM NO.	DESCRIPTION	ORIGINAL QUANTITY	<u>REVISED QUANTITY</u>
0686510A	87” X 63” CORRUGATED ALUMINUM PIPE ARCH	789 LF	0
0686300.15	15” CORRUGATED ALUMINUM PIPE – 0’-10” DEEP	9 LF	0

PLANS

REVISED PLAN(S)

The following Plan Sheet are hereby deleted and replaced with the like-numbered Plan Sheets:

- 02.01.A1
- 03.07.A1
- 04.02.A1
- 04.04.A1
- 04.05.A1
- 04.06.A1
- 04.07.A1

The Bid Proposal Form has been revised to reflect these changes.

The Detailed Estimate Sheet does not reflect these changes.

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.

0686360.73A - 73" X 55" CORRUGATED STEEL PIPE ARCH, ALUMINIZED TYPE 2 (12 GAUGE) (SMOOTH INTERIOR)

Description: Work under this item shall consist of fabricating, furnishing, and installing a pipe arch liner within the existing host pipe, including appurtenances and connections to any other drainage pipes, in accordance with the plans and these provisions.

Materials: Materials shall conform to the following requirements:

- Corrugated steel pipe arch shall be in accordance with AASHTO M 36. Steel pipe arch shall be formed from aluminized steel sheet conforming to AASHTO M 274.
- Manning's coefficient $n = 0.012$. The thickness, corrugation pattern, and section properties of the aluminized steel pipe arch shall be as indicated on the plans.
- The length of pipe arch sections shall be the manufacture's standard length or other lengths as required by site conditions and agreed by the fabricator and the Contractor, and approved by the Engineer.
- Connection bands and associated hardware, sealers, and gaskets shall meet the requirements of M.08.01.
- The Contractor shall supply the Engineer with a Materials Certificate for the pipe arch in accordance with Section 1.06.07.
- Non-shrink grout shall conform to Sections 6.01.03 and M.03.05 of Form 818

Construction Methods:

1. Field measurements: Prior to ordering materials, the Contractor shall obtain their own measurements of the existing host pipe. Measurements obtained shall be precise enough to ensure proper fabrication and fit of the aluminized steel liner pipe arch. Geometric information shown in the Plans is provided for use in bidding and is not considered sufficiently detailed for fabrication purposes.

2. Shop Drawings and Working Drawings: The Contractor shall furnish Shop Drawings showing a typical section of the pipe arch, details of the joints, and the moment of inertia in inches to the fourth power per inch of width.

The Contractor shall furnish Working Drawings showing the proposed construction methods and sequence. This shall include, at minimum, methods for moving the liner segments into the pipe arch, centralizers or other means of maintaining space between the host pipe and liner, and the proposed sequence of Controlled Low Strength Material installation, which shall account for buoyancy and any other necessary considerations.

The working drawings shall include layout, fabrication and installation drawings. The drawings shall include the following:

- Layout plan of culvert.

- Fabrication drawings including a plan and cross-section for each unique section showing line dimensions
- Material designations for pipe arch and for any other materials incorporated in the final design.
- Pipe arch profile type and cell classification.
- Installation procedure, including a step-by-step description of work. The installation procedure must be consistent with water handling shown on the contract plans or with the system proposed by the Contractor and accepted by the Engineer.

Shop Drawings and Working Drawings shall be submitted in accordance with Section 1.05.02.

3. Quality Assurance: Fabrication of the Corrugated Steel Pipe Arch may begin only after the working drawings and design computations have been reviewed and the Engineer has authorized fabrication to begin. The Contractor shall submit to the Engineer, no less than 2 weeks prior to the start of fabrication, the name and location of the fabrication shop where the work will be done so that arrangements can be made for an audit of the facility and the assignment of the Department Quality Assurance (QA) inspector. No fabrication will be accepted unless the QA inspector is present during fabrication. No changes may be made during fabrication without prior written approval by the Engineer.

The Contractor shall furnish facilities for the inspection of material and workmanship in the shop by the Engineer. The Engineer or their representative shall be allowed free access to the necessary parts of the premises.

The Engineer will provide QA inspection at the fabrication shop to assure that all applicable Quality Control plans and inspections are adequately adhered to and maintained by the Contractor during all phases of the fabrication. A thorough inspection of a random selection of elements at the fabrication shop may serve as the basis of this assurance.

Prior to shipment to the project, each individual piece of pipe arch shall be marked in a clear and permanent fashion by a representative of the fabricator's Quality Control (QC) Department to indicate complete final inspection by the fabricator and conformance to the project specifications for that piece. The mark must be dated. A Materials Certificate in accordance with Article 1.06.07 may be used in lieu of individual stamps or markings, for all material in a single shipment. The Materials Certificate must list each piece within the shipment and accompany the shipment to the project site.

Following the final inspection by the fabricator's QC personnel, the Engineer may select pieces of aluminized steel for re-inspection by the Department's QA inspector. Should non-conforming pieces be identified, all similar pieces must be re-inspected by the fabricator and repair procedure(s) submitted to the Engineer for approval. Repairs will be made at the Contractor's expense.

The pieces selected for re-inspection and found to be in conformance, or adequately repaired pieces, may be marked by the QA inspector. Such markings indicate the Engineer takes no

exception to the pieces being sent to the project site. Such marking does not indicate acceptance or approval of the material by the Engineer.

The Contractor shall furnish an itemized statement of the number and length of the plates in each shipment. Each plate included in a shipment shall comply with the requirements of this specification.

4. Existing Pipe Arch Preparation: Prior to installation of the corrugated aluminized steel pipe arch liner, the host pipe shall be thoroughly cleaned to remove all debris and dirt. Any existing material including, stones, sand, sediment, organic material, etc. shall be completely removed to ensure an acceptable bond between the Controlled Low Strength Material and host pipe. This work shall be paid for under “Item No. 0653101 – Clean Existing Culvert – Greater than 42” Diameter”. Provide strutting and bracing as required to ensure stability of the host pipe throughout the installation process.

Any holes or voids in the host pipe shall be repaired prior to installation of the corrugated aluminized steel pipe arch liner. This work shall be paid under “Item #0651312A – Repair Existing Culvert (Estimated Cost)”.

5. Handling and Installing Liner: Aluminized steel pipe arch shall be handled in such a manner as to prevent bruising or scaling. Any pipe arch sections that are damaged during handling or placing shall be replaced at the Contractor’s expense, except small areas of minor damage may be repaired by the Contractor as directed by the Engineer. Repair procedures shall be submitted by the Contractor and approved by the Department.

6. Drainage Inlets and Connections: Connections to other drainage lines shall be installed as shown on the plans or as proposed by the Contractor and approved by the Engineer. They shall be installed through the liner and host pipe prior to pumping the Controlled Low Strength Material into the annular space between pipe arches. Connections shall be soil-tight unless otherwise indicated on the plans.

Corrugated pipe arch shall be carefully joined and firmly clamped together by approved connecting bands, which shall be properly bolted in place before any Controlled Low Strength Material is placed in the annular space. Any internal hardware shall be removed once the Controlled Low Strength Material has set.

All inlet and outlet pipes shall be set flush with the inside face of the wall as shown on the plans. The pipes shall extend through the exterior walls for a sufficient distance beyond the exterior surface to allow for satisfactory connections, and the concrete or masonry shall be constructed around them neatly to prevent leakage along their exterior surfaces. Material placed around pipes shall be deposited on both sides to approximately the same elevation at the same time, in accordance with 2.86.03.

7. Controlled Low Strength Material: Controlled Low Strength Material (CLSM) shall be pumped into the annular space using the provided grout ports. The sequence and staging of the

CLSM installation shall be in accordance with the approved Working Drawing, taking into consideration buoyancy and pressures caused by the plastic CLSM. The annular space at the ends of the CLSM infill shall be filled with non-shrink grout in place of the CLSM as shown on the plans.

Method of Measurement:

This work will be measured for payment by the actual number of linear feet of liner pipe installed and accepted.

Basis of Payment:

This work will be paid for at the contract unit price per linear foot of “73" X 55” Corrugated Steel Pipe Arch, Aluminized Type 2 (12 Gauge) (Smooth Interior)”, complete in place, including pipe arch, joints, connections, non-shrink grout, and miscellaneous materials, equipment, tools and labor incidental thereto.

Working drawings, computations and shop drawings will not be measured for separate payment.

Controlling existing culvert drainage flow will be paid for under “Item #0204151A – Handling Water”.

Pay Item	Pay Unit
73" X 55" Corrugated Steel Pipe Arch, Aluminized Type 2 (12 Gauge) (Smooth Interior)	l.f.