NOTES

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	2

100 SCOPE OF WORK: This project consists of building a new 3-span prestressed concrete box beam bridge with an overall bridge length of 169'-6" and a clear roadway width of 40’-0".

100 GENERAL: Include the cost of furnishing and placing preformed expansion joint filler, concrete inserts, rebar couplers, silicone sealant, waterproof membrane, and other miscellaneous items in the price bid for the appropriate concrete bid items.

202 REMOVAL OF STRUCTURE: The existing structure is a 3-span reinforced concrete slab bridge, 80'-0" long with a clear roadway width of 28'-0". The substructure consists of reinforced concrete abutments and piers, supported on timber piling. The structure has abandoned stream crest gauges attached to the south abutment and south pier.

Remove the abutment concrete in its entirety. Remove the pier concrete to 1 foot below the bottom of rip rap elevation. Remove all timber piling at the abutments to 1’-0” below the bottom of the rip rap elevation. Explosives are not permitted.

Install a below-deck containment system over the river to capture any falling deconstruction materials, debris, or slurry. Construct the system to capture debris or slurry and allow removal without releasing debris or slurry into the river.

Remove all deconstruction materials or debris and capture all slurry generated in removal.

Remove any deconstruction materials, debris, or material within 14 days that accidentally falls or escapes containment during construction or demolition.

Large structural elements may be dropped and removed if the elements are large enough to be visible and remain intact after dropping. Remove these elements within 48 hours of dropping and dispose or stockpile in an upland area.

Include all costs for the removals, including the abandoned stream gauges, and the containment system in the contract unit price for “Removal of Structure.”

210 EXCAVATION: Include the excavation cost at the abutments, as shown in the “Detail at Abutment”, in the lump sum bid item, “Class 1 Excavation.” Include the excavation costs at the piers, as shown, in the lump sum bid item, “Class 2 Excavation.”

210 CHANNEL EXCAVATION: Include all excavation required to shape the channel in the lump sum bid item “Channel Excavation.” The extents of the channel excavation are detailed in Section 70 and the estimated quantities are provided in the Section 11 Earthwork Tables. Suitable material from channel excavation can be used in place of borrow for embankment construction, if approved by the Engineer. If the Contractor elects to use channel excavation material as embankment, include the costs for placing the embankment, in accordance with 203.04 G.1 & G.3, in the price bid for channel excavation. Excess material not used as embankment becomes property of the Contractor.

602 BRIDGE CONCRETE: Design a mix the meets Section 802 and will attain a minimum compressive strength of 4,000 psi at 28-days.

The Engineer will verify the mix design using materials that are to be used on the project. Supply samples of materials as specified in the table below. Provide additional materials upon request.

Material	Sample Size
Cement	100 lbs
SCM	35 lbs
Aggregate	1000 lbs
Admixtures	½ pint each

Deliver the samples and the mix design, including the test results, to the Materials and Research Division a minimum of 14 calendar days before placing concrete. Attach a tag to all samples identifying the Department’s project number and the type of material. On the day the material is delivered, provide the Engineer with a copy of the mix design and test results, and notify the Engineer the samples have been delivered.

602 FALSEWORK: Brace the exterior beams to prevent rotation during deck placement. Design the strength of the bracing to resist the forces induced by the weight of the concrete, forms, equipment, and workers. Submit a bracing plan and design, stamped by a Professional Engineer, to the Engineer for review.

602 DIAPHRAGMS AND ENDWALLS: Place the pier diaphragm and endwall concrete at the same time as the deck concrete.

602 DECK PLACEMENT: Place the deck concrete at a minimum rate of 35 CY per hour.

602 FORM LINERS: Include the cost to provide and install the form liners in the price bid for the appropriate concrete bid items.

602 BARRIERS: Do not construct V-grooves through form liner areas.

602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.

602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent to the driving surface of the bridge deck and approach slabs prior to crack sealing. Do not allow traffic on the driving surfaces until the solution has completely penetrated and the entire driving surface is dry.

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602 CRACK SEALING: After the penetrating water repellent has been applied and is dry, the Engineer will perform a visual inspection of the bridge deck and approach slabs to determine the need for crack sealing. Mark and repair all visible cracks on the top surface measuring 0.012" or greater in width at the widest segment or as directed by the Engineer.

Immediately before applying the sealer, clean the cracks by removing all dust and debris with compressed air. Seal the cracks with a two-part epoxy in accordance with the manufacturer's recommendations. Chase crack with the sealant application to the limits of the crack, including those portions that are narrower than 0.012" wide. Use Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved equal epoxy sealer.

Include all material, labor, and equipment required to crack seal the bridge deck and approach slabs in the price bid for Bridge Deck Concrete.

602 SPECIAL SURFACE FINISH: Clean the surfaces that are to receive the Tex-Cote surface finish using sandblasting, shot blasting, or water-washing equipment to remove all dirt, grease, oil, efflorescence, and laitance. Ensure any curing compounds and release agents have been completely removed from the surfaces to receive the Tex-Cote surface finish.

Apply Tex-Cote XL 70 Bridge Cote with Silane to the areas listed below. Apply the surface finish in accordance with the manufacturer's recommended application procedures to attain a dry film thickness of 15 mils. Do not apply Tex-Cote special surface finish to any form liner areas.

- All exposed substructure surfaces
- Outside edges of the bridge deck
- Underside of the bridge deck overhang
- Outside and bottom surfaces of the exterior beams
- Exposed endwall areas outside the exterior beams
- All bridge and approach slab barrier surfaces (except form liner areas)

Finish the surface with a uniform texture, color, and appearance free from fins, projections, cavities, and porous areas. Use a sand textured finish. Use gray surface finish color number 36424 meeting AMS-STD-595 for the inside and top surfaces of the bridge and approach slab barriers. Use a color matching the lightest shade of brown used in the Architectural Surface Finish, as it looks applied to the barrier form liner areas, for all other surfaces. Submit to the Engineer a 1' x 1' sample of the brown surface finish.

Include all special surface finish costs in the price bid for the appropriate concrete bid items.

602 WEATHER LIMITATIONS: All requests in accordance with 602.04 C.4 "Weather Limitations" require approval from the NDDOT Bridge Division.

602 REMOVAL OF FORMS: Leave deck slab forms in place for a minimum of 1 day after completion of curing period and the bridge deck concrete has reached 70 percent of the required design strength.

604 PRESTRESSED BEAMS: Set prestressed beams on bearing seats without field bending substructure or beam reinforcing steel.

616 STRUCTURAL STEEL: Approximately 1,016 lbs of structural steel has been estimated for the ice noses. Provide steel in accordance with 834.01 A. Include all costs to provide and install the ice noses in the price bid for "Structural Steel." Shop drawings for ice nose structural steel are not required.

622 PILING: Drive piling using a diesel hammer meeting the minimum specifications listed below for each substructure unit. The operating energy is the energy a hammer is capable of producing during pile driving under actual project conditions, and shall be estimated to be no greater than 85% of the hammer's maximum rated energy as specified in the manufacturer's literature. Submit specifications for all pile hammers proposed for use on the project to the Engineer for review at least 14 calendar days prior to beginning pile driving operations.

Abutment Piling:	Minimum Ram Weight = 2,500 lbs Minimum Operating Energy = 29,000 foot-pounds
Pier Piling:	Minimum Ram Weight = 5,500 lbs Minimum Operating Energy = 56,000 foot-pounds

Run the hammer at an energy that produces a penetration at bearing between ½" and 3 inches in the last 10 blows.

If the pile has not reached bearing 10 feet beyond the estimated depth, stop driving the pile and wait 24 hours to allow pile setup to occur. After 24 hours, warm the hammer with a minimum of 20 blows by striking the ground or timber mats. If bearing was not achieved during restrike, continue to drive the pile until bearing is achieved.

930 CONCRETE SLEEPER SLAB: Construct a concrete sleeper slabs at the ends of the bridge approach slabs as shown in the plans. The sleeper slab includes a concrete header adjacent to the HMA approach roadway, forming a sealed butt joint with the HMA pavement.

Provide Bridge Concrete in accordance with Section 602 and reinforcing steel in accordance with Section 612.

Finish the surface of the sleeper slab smooth. Allow the sleeper slab to cure for 24 hours before performing additional work on or adjacent to the slab. Place a double layer of 4 or 4 mil polyethylene sheeting as a bond breaker between the sleeper slab and approach slab interface. Include all to labor, materials and equipment needed to install the sleeper slab and header in the contract unit price of "Concrete Sleeper Slab".

930 POLYURETHANE FOAM JOINT SEAL: Install a pre-compressed, polymer-impregnated polyurethane foam expansion joint seal at the sleeper slab, with a nominal joint width as specified in the plans. Provide a seal coated with highway-grade silicone providing a permanent, weather-tight barrier. Use a compatible two-component epoxy adhesive to bond the seal to the joint faces.

The joint seal may be Wabo FS Bridge Seal (Watson Bowman Acme); BEJS Bridge Expansion Joint System (Emseal); Iso-Flex Silfast XL (LymTal International); or an approved equal. Prepare the joint opening and install the joint seal according to the manufacturer's recommendations. Do not install the joint until the approach slab concrete has been in place for a minimum of 21 days. Provide a joint seal the full length of the clear roadway width between barriers, with an additional 6 inches at each end to be turned up vertically matching the inside face of the curb.

Include all to labor, materials and equipment needed to install the polyurethane foam joint seal in the unit price bid for "Polyurethane Foam Joint Seal."