

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BND-IM-1-094(192)164	170	2

NOTES

- 100 SCOPE OF WORK: This project consists of building a new 2-span prestressed concrete I-beam bridge with an overall bridge length of 280'-0" and a clear roadway width of 44'-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 Class AE-3 and AAE-3 concrete.
- 105 CONTROL OF WORK: Do not begin construction of new bridge abutments until all 80th ST NE embankment from STA 709+38 to STA 714+18 is in place.
- 202 REMOVAL OF STRUCTURE: The existing structure is a 4-span steel rolled beam bridge, 240'-0" long with a clear roadway width of 24'-0", and concrete substructures. The abutments are supported on treated timber piling and the piers are supported on spread footings. Do not remove any portions of the existing bridge until May 16, 2022. Remove the abutments and center pier entirely. Remove the outside piers 3'-0" below the new ground line. Cut the treated timber piles at 1'-0" below the new ground line. The bottom of the center pier footing is at an approximate elevation of 1775.71 ft (NAVD-88).

Include all costs for the removal of the bridge and concrete slope protection in the contract unit price for "Removal of Structure."
- 210 EXCAVATION: Include the excavation costs at the abutments, as shown in the "Detail at Abutment", and the excavation costs at the pier in the lump sum bid item, "Class 1 Excavation."
- 602 CLASS AE-3 AND AAE-3 CONCRETE: The strength requirements of Section 802.01 A.2 "Class AE and AAE Mixes" are revised to develop a design compressive strength of 3,000 psi (AE-3) and 4,000 psi (AAE-3) at 28 days.
- 602 DIAPHRAGMS AND ENDWALLS: Place the intermediate diaphragm concrete before the deck concrete and allow the diaphragms to cure at least 72 hours before deck placement. Place the pier diaphragm and endwall concrete at the same time as the deck concrete.

Maintain plan beam spacing and alignment at all pier diaphragms, intermediate diaphragms and endwalls.
- 602 DECK PLACEMENT: Place the deck concrete at a minimum rate of 50 CY per hour.
- 602 BRIDGE DECK AND APPROACH SLAB CURING: Do not cover the wet cure burlap with a waterproof material such as polyethylene during the curing period.
- 602 BRIDGE DECK AND APPROACH SLAB 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. Repair all cracks designated by the Engineer at this time.

- Perform a visual inspection of the bridge deck and approach slab surfaces and mark all visible cracks appearing on the top surface 0.007" or greater in width at its 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 limits of crack, including those portions that are narrower than 0.007" wide. The epoxy sealer may be Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved equal. Include all work and materials associated with the bridge deck and approach slab crack sealing in the price bid for the Class AAE-3 concrete and approach slab bid items.
- 602 FORM LINERS: Include the cost to provide and install the form liners in the price bid for the appropriate concrete items.
- 602 BARRIERS: Construct V-grooves that are 3/4 inch wide and 3/4 inch deep in all faces, excluding the form liner areas, of the barriers at the pier and at equal spaces between the pier and abutments at approximately 10-foot spacing.
- 602 SURFACE FINISH "D": Apply Surface Finish "D" on all exposed substructure surfaces, the fascia and bottom surface of the exterior beams, the outside edges of the pier diaphragm, the outside edges of the deck, the underside of the deck overhang, the exposed endwall areas outside of the exterior beams, and to all bridge and approach slab barrier surfaces except for the recessed form liner areas. Use gray surface finish, color number 36424 meeting Aerospace Material Specification (AMS) Standard 595, for the inside and top surfaces of the bridge and approach slab barriers. Use a color matching the lightest shade of brown 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.
- 604 PRESTRESSED BEAMS: Set prestressed beams on bearing seats without field bending substructure or beam reinforcing steel.
- 622 PREBORING: Bore pilot holes for the abutment and approach slab piling to an elevation of 1787 feet before driving piling. Do not bore pilot holes until all of the constructed embankment is in place. Bore pilot holes to a diameter of 24 inches for the abutment piling and 18 inches for the approach slab piling. Prior to pile driving, backfill the pilot holes with polymer free sodium bentonite slurry. Mix the slurry at a ratio of 100 gallons of water per 120 pounds of bentonite. Use powdered bentonite to mix the slurry. Do not use bentonite chips. Place the slurry in the pilot hole from the bottom up using a tremie pipe. Check the hole after 24 hours for settlement of the slurry and top off the hole with slurry mixed at the previously specified ratio. Repeat this process until no observed settlement of the slurry occurs. Include all costs

This document
is preliminary
and not for
construction or
implementation
purposes.

NOTES

associated with boring pilot holes and backfilling with bentonite in the price bid for HP10 x 42 and HP14 x 102 piling.

622 PILING: Drive bridge piling with a diesel hammer with an operational energy of at least 125,048 foot-pound-tons (minimum ram weight of 6,000 pounds) computed by the formula:

$$W(E-30,800) + 0.812E$$

Drive approach slab piling with a diesel hammer with an operational energy of at least 30,594 foot-pound-tons (minimum ram weight of 2,800 pounds) computed by the formula:

$$W(E-12,936) + 0.473E$$

W = Weight of the ram (tons)
E = Operational hammer energy

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

Stop driving the pile if bearing is not yet obtained at a depth approximately 10 feet beyond the estimated depth. 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. Restrike the pile with 10 blows to determine if bearing has been achieved. If bearing was not achieved during restrike, continue to drive the pile until bearing is achieved.

930 ROADWAY CANOPY: Construct a canopy above the traveled roadway under the existing structure and under the new structure to protect traffic from falling material. The canopy is an added safeguard and does not relieve the Contractor from any responsibility for the safety of the public.

Submit the canopy details, including materials that will be used, to the Engineer for review. Provide a canopy under the existing structure with a minimum vertical clearance of 15'-6" above the traveled roadway and provide a canopy under the new structure with a minimum vertical clearance of 17'-4" above the traveled roadway. Extend the canopy a minimum distance of 5'-0" beyond the outside edge of deck of the structure and a minimum distance of 5'-0" beyond the edge of the driving lanes beneath the structure.

Construct the canopy before removing the concrete superstructure. The canopy must be in place before installing forming for the new deck and remain in place until after the new superstructure is complete. The canopy may be supported from the ground or suspended from the beams. Complete the installation of the canopy in a minimum amount of time and with the least inconvenience to the public.

Remove the canopy after the bridge superstructure is completed. Include all costs for construction, maintenance, and removal of the canopy system for the existing structure and new structure in the contract unit price for "Roadway Canopy."

930 AGGREGATE SLOPE PROTECTION: Place aggregate slope protection on the embankment slopes as shown.

Clear the subgrade of rubbish and vegetation before placing the aggregate slope protection. Thoroughly compact all loose material. Excavate or backfill as required to obtain the plan cross-section or lines and grades established in the field.

The gradation of the material used to form the slope protection is given in the following chart:

Sieve Size	% Passing
2"	100%
¾"	5-35%
#4	0-5%

The minimum fractured face requirement of the aggregate is 50% by weight on the portion of the aggregate retained on the No. 4 sieve. To be considered fractured the rock must have at least one fractured face.

Deposit, spread, consolidate, and shape the aggregate by mechanical or hand methods to provide a uniform depth and density and produce a uniform surface appearance. Apply MC-250 that meets the requirements of Section 818.02 C, "Medium-Curing Cutback Asphalt" at an approximate rate of 1.8 gallons per square yard. Emulsified asphalts grade CSS-1, CSS-1H, RS-1, or CRS-2 that meet the requirements of Section 818.02 E, "Cationic Emulsified Asphalt," or Section 818.02 F "Anionic Emulsified Asphalt", applied at 2.5 gallons per square yard, can be substituted for MC-250. The bituminous materials are to penetrate to a depth of not less than one-half the required thickness of the aggregate. Protect adjacent structure surfaces against bituminous splatter.

Include all costs for labor, materials, and equipment to complete this work in the unit price bid for "Aggregate Slope Protection."

This document is preliminary and not for construction or implementation purposes.