

GENERAL NOTES FOR BRIDGE "A"

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	JOB PIECE NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.	2899(04)			
DESCRIPTION				REVISIONS	DATE
Added Note					08/22/2016

SPECIFICATIONS:

Comply with the requirements of the 2009 Oklahoma Standard Specifications for Highway Construction, except as modified by the Plans and Special Provisions.

REMOVAL OF EXISTING BRIDGE "A" STRUCTURE:

Item "REMOVAL OF EXISTING BRIDGE STRUCTURE" (NBI 14152) consists of removal and disposal of a 30'-55'-55'-30' Concrete Slab Span structure x 28'-0" Clear Roadway.

The removal of the existing structure shall be in accordance with Section 619.04.B.2 of the Standard Specifications and in a manner approved by the Engineer.

The existing structure shall be removed to:
(a) 1'-0" below the surrounding ground elevation
(b) as needed to facilitate construction of the proposed bridge
(c) as shown on the plans

VERIFICATION OF EXISTING CONDITIONS:

Contractor shall be aware of existing conditions and potential hazards during construction. Contractor shall take precautions to maintain the integrity of any existing utilities and structures. Any damage to these items during construction shall be repaired and/or replaced at the Contractor's expense to the Engineer's satisfaction.

PLANS:
The original project plans are available from:
Reproduction Branch
Oklahoma Department of Transportation
200 N.E. 21st Street
Oklahoma City, Oklahoma 73105

The bridge was constructed under the following Project No.
Bridge "A" F.A.P. IN-591 (17)

PILE DRIVING EQUIPMENT:

Use a pile driving hammer of the size and type capable of consistently delivering the effective dynamic energy sufficient to drive the piles to the required tip elevation and to achieve the required ultimate pile capacity without exceeding the limitations set on the allowable driving stresses in accordance with Section 514.03 of the Standard Specifications.

ABUTMENT PILING:

Provide Structural Steel conforming to AASHTO M270 (Grade 50) for steel piling.

ABUTMENT PILING CAPACITY:

The factored reaction for each HP 10x42 pile at each Abutment is 52.7 tons.

The following formula (Gates Equation) shall be used to determine the axial load resistance of the driven foundation piles:

$\text{Axial Load Resistance} = \phi [0.875 \sqrt{E} \text{LOG}_{10}(10NI) - 50]$ (tons)

Where:

- ϕ = Resistance Factor of 0.4
- E = Energy produced by the hammer per blow in foot-pounds. For Gravity and Single Acting Diesel Hammers, the value is based on the actual ram stroke observed in the field and measured in feet multiplied by the ram weight in pounds.
- N = Average number of hammer blows per inch of pile penetration for the last 10 to 20 blows delivered to the pile head.

The above formula is only applicable when:

- The pile driving hammer has a free fall (Gravity and Single Acting Hammers only).
- The head of the pile is not broomed, crushed or otherwise damaged.
- The penetration is quick and uniform.
- There is no appreciable rebound of the hammer, and
- A follower is not used.

The number of blows per inch of pile penetration may be measured either during initial driving or by re-driving with a warm hammer operated at full energy after a pile set period, as determined by the Engineer.

If water jets are used in connection with the driving, determine the axial load resistance by the formula shown above only after the jets have been withdrawn.

DRILLED SHAFTS:

The Casing Methods, outlined in Section 516.04.C.1.c of the Standard Specifications, may be required to advance the drilled shaft to the final bearing elevation. It shall be the Contractor's responsibility to select the proper methods required to install the drilled shafts.

Drilling into hard rock is anticipated during Drilled Shaft construction.

CONCRETE:

All concrete shall be placed in the dry. All exposed edges shall have a $\frac{3}{4}$ " chamfer unless noted or shown on plans. All chamfer strips shall be sized lumber. All Class "A" and Class "AA" Concrete shall be air-entrained.

All concrete in the Superstructure, Approach Slabs & 42" F-Shaped Parapets shall be Class "AA" Concrete, $f'c = 4,000$ p.s.i. minimum strength at 28 days. All concrete in the Substructure shall be Class "A" Concrete, $f'c = 3,000$ p.s.i. minimum strength at 28 days. All concrete in the Drilled Shafts shall be Class "AA" Concrete, $f'c = 4,000$ p.s.i. minimum strength at 28 days.

Concrete surfaces under all beam supports (bearing assemblies) shall be ground with a carborundum brick before placement of bearing assembly to secure full bearing of assembly on concrete. Before bearing assemblies are set, the Contractor will check bearing surfaces with regard to levelness. The maximum permissible slope shall be 0.5 %, which should be checked along an axis perpendicular and parallel to the beam line. Slopes exceeding 0.5 % shall be corrected in a manner approved by the Engineer.

When vibrating concrete containing epoxy coated reinforcing steel, the vibrator shall be equipped with a plastic tip designed to prevent damage to the epoxy coating.

CONCRETE INTERMEDIATE DIAPHRAGMS:

Once the concrete has been placed for the concrete intermediate diaphragms, wait a minimum of 24 hours before removing the side forms. Do not remove the bottom form for a minimum of 3 days, or at the discretion of the Engineer. This time can be shortened if the concrete has attained 80% of the specified compressive strength. Do not place the concrete for the deck slab or apply other massive loads to the beams or diaphragms until the concrete in the diaphragms has been in place for a minimum of 10 days, or at the discretion of the Engineer. This time may be shortened if the concrete has attained 80% of the specified compressive strength.

REINFORCING:

All reinforcing steel shall have 2" clearance unless shown or noted otherwise. All reinforcing steel shall be deformed bars, cold bent with no welds. Bar bend dimensions are out to out, unless noted otherwise. Unless otherwise specified in the contract documents, all reinforcing steel shall conform to AASHTO M31 (ASTM A615), GRADE 60.

Field welding of crossing reinforcing bars shall not be permitted. Tack welding of reinforcing bars shall be prohibited in all cases.

All longitudinal top reinforcing in the bridge slab shall be supported on approved continuous metal high chairs spaced at 4'-0" maximum on centers and the bottom layer of reinforcing steel shall be supported on approved metal slab bolsters spaced at 4'-0" maximum on centers.

DECK HAUNCHES:

Plan quantity for Class AA Concrete includes 27.10 cubic yards for the haunches over the beams and diaphragms. The haunch heights will be calculated by the Contractor for approval by the Engineer to provide for dead load deflection and beam camber.

STAY-IN-PLACE FORMS:

Stay-in-place deck forms may not be used.

CONCRETE DECK FINISHING:

The bridge deck for this project is to be finished with a mechanical type finishing machine. Overhanging slab forms will be required to be of sufficient strength to support the weight of the concrete, forms, finishing machine and other construction loads. Prior to finishing operations, a proposal stipulating the type of finishing machine and the finishing procedure will be submitted to the Engineer. This proposal shall set forth any areas in which a mechanical finisher cannot be used and the methods for finishing these areas. Concrete shall not be placed until this proposal is approved by the Engineer.

APPROACH SLAB:

Class AA concrete shall be used in the Approach Slabs with epoxy coated reinforcing. The quantity given is based on the actual Square Yards of the Approach Slabs. All costs of concrete, reinforcing steel, longitudinal construction joint sealant, sawed and sealed construction joint between new deck and approach slab, sawing of joints, excavation, labor, equipment, and incidentals necessary to complete the work as specified shall be included in the price bid per Square Yard of "APPROACH SLAB".

STAINLESS STEEL EXPANSION BEARING ASSEMBLIES:

Provide and install Stainless Steel Expansion Bearing Assemblies of the size, shape and location as specified or as shown in the plans. The total estimated amount of Structural Steel in the Stainless Steel Expansion Bearing Assemblies is 174.40 pounds.

All costs of providing and installing the Stainless Steel Expansion Bearing Assemblies as specified or as shown in the plans including the cost of steel reinforced elastomeric bearing pads, anchor plates, contact plates, anchor bolts, nuts, washers, materials, labor, equipment and incidentals shall be included in the price bid per Each of "STAINLESS STEEL EXPANSION BEARING ASSEMBLY".

STAINLESS STEEL FIXED BEARING ASSEMBLIES:

Provide and install Stainless Steel Fixed Bearing Assemblies of the size, shape and location as specified or as shown in the plans. The total estimated amount of Structural Steel in the Stainless Steel Fixed Bearing Assemblies is 204.30 pounds.

All cost of providing and installing the Stainless Steel Fixed Bearing Assemblies as specified or as shown in the plans including the cost of anchor plates, anchor bars, materials, labor, equipment and incidentals shall be included in the price bid per Each of "STAINLESS STEEL FIXED BEARING ASSEMBLY".

WEATHERING STEEL FIXED BEARING ASSEMBLIES:

Provide and install Weathering Steel Fixed Bearing Assemblies of the size, shape and location as specified or as shown in the plans. The total estimated amount of Structural Steel per each Weathering Steel Fixed Bearing Assembly located at each abutment is 79.70 pounds.

All cost of providing and installing the Weathering Steel Fixed Bearing Assemblies as specified or as shown in the plans including the cost of anchor plates, anchor bars, materials, labor, equipment and incidentals shall be included in the price bid per Each of "WEATHERING STEEL FIXED BEARING ASSEMBLY".

PENETRATING WATER REPELLENT SURFACE TREATMENT:

A penetrating water repellent surface treatment shall be applied to the following concrete surfaces of the bridge:

- (a) Edges and underside of south cantilever portion of the bridge deck
- (b) The roadway face, top and inside of post openings of the 42" F-Shaped Parapets
- (c) Top, sides and ends of Pier Caps and Pedestals
- (d) Front, sides and exposed areas of Abutment Seat and Backwall

All costs associated with the use of Penetrating Water Repellent Surface Treatment including the cost of material, labor, equipment, and incidentals shall be included in the price bid per Square Yard of "WATER REPELLENT (VISUALLY INSPECTED)".

NON-PERFORATED PIPE UNDERDRAIN:

Item "6" Non-Perf. Pipe Underdrain Rnd." Includes 58.00 feet of Non-Perf. Pipe, 5.80 cubic yards of Trench Excavation and 5.80 cubic yards of Standard Bedding Material for each Abutment. The installation of the Non-Perforated Pipe shall be as shown on Sheet Nos. 111, 126, & 127.

All costs of the Non-Perforated Pipe Underdrain installation including backfilling, material, labor, equipment and incidentals shall be included in the price bid per Linear Foot of "6" NON-PERF. PIPE UNDERDRAIN RND.".

PERFORATED PIPE UNDERDRAIN:

Item "6" Perforated Pipe Underdrain Round" Includes 670.00 feet of Perforated Pipe and 80.10 cubic yards of Pipe Underdrain Cover Material for the Abutments and Slope Walls. The installation of the Perforated Pipe and Pipe Underdrain Cover Material shall be as shown on Sheet Nos. 111, 126, & 127.

All costs of the Perforated Pipe Underdrain installation including material, labor, equipment and incidentals shall be included in the price bid per Linear Foot of "6" PERFORATED PIPE UNDERDRAIN ROUND".

(PL) PILOT HOLES

Pay Item "Pilot Holes" consists of drilling 18" Diameter pilot holes approximately 24'-0" deep into the rock for Abutment Nos. 1 & 2 Bridge Seats. After Pilot Holes are drilled, Piles shall be lowered in Pilot Holes. Drive Piles until the required capacity is reached. Backfill 3'-0" of pilot hole with Class C Concrete and the remainder with Pea Gravel. See "Staking Diagram" (Sheet No. 106) for location and detail of Pilot Holes.

All costs including labor, equipment, Class C Concrete, Pea Gravel and incidentals shall be included in the price bid per linear foot of "(PL) Pilot Holes".

CROSSHOLE SONIC LOGGING (CSL) TUBES AND TESTING:

Install CSL Access Tubes at all shaft locations and perform nondestructive Crosshole Sonic Logging (CSL) Testing at the following minimum locations:

- One Drilled Shaft at each pier shall be tested.

The Engineer shall determine the location and need for additional tests at Piers Nos. 1 - 3. CSL Testing shall be performed in accordance with Special Provision 516.

SPECIAL CONCRETE FINISH

The Special Concrete Finish shall be a liquid applied urethane coating such as CIM 1000 as manufactured by CIM Industries, Inc., IM-129 as manufactured by Custom Linings, or an approved equal. Product information for CIM 1000 can be obtained from Laster Castor Corp. of Tulsa, Oklahoma, phone number 918-234-7777. Product information for IM129 can be obtained from Custom Linings, phone number 719-395-4414.

The Special Concrete Finish shall be applied to the following concrete surfaces of the bridge:

- (a) Top, sides and ends of Pier Caps.

The equipment and methods of applying the urethane coating shall be in accordance with the product coating profile and instruction guides for application to concrete. Precautionary measures shall be in accordance with the Material Safety Data Sheets as provided by the manufacturer.

The coating shall be 60 mils dry thickness and 68 mils wet thickness. In addition to applying the coating to the concrete substructure units as shown in the plans, the coating shall return up the vertical surfaces of the pier and abutment bearing pads to provide a water tight seal with the concrete pedestals. Surface preparations and product mixing shall be per the manufacturer's recommendations and all new concrete shall have a minimum strength of 3000 psi at the time of application. Primer shall be applied to the concrete surfaces prior to applying the coating. All concrete work shall be completed prior to the application of the Special Concrete Finish.

Water repellent will not be required on surfaces that are coated with Special Concrete Finish.

Payment will be made at the Contract unit price bid per Square Yard of "SPECIAL CONCRETE FINISH", which price shall be full compensation for all materials, labor, tools, equipment and incidentals necessary to complete the work as specified.

145TH OVER I-44 TULSA & ROGERS COUNTIES BRIDGE "A"		DESIGN	MJY	2/14
SUMMARY OF PAY QUANTITIES AND NOTES (BRIDGE) (SHEET 1 OF 2)		DETAIL	SJL	2/14
		CHECK	MJY	10/14
		GARVER		
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION			
	JOB PIECE NO. 21899(04)	SHEET NO.	14	