

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	87 N-0361-01	2011	82	169

MKEC
ENGINEERING
CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

GENERAL NOTES

CONCRETE:

Concrete Grade 4.0 (Per KDOT Specifications)
f'c = 4,000 psi

Each load of concrete delivered to the project shall be accompanied by a batch ticket, including volumes of all ingredients of mix, certifying compliance with project specifications.

Thermal Control Plan shall be required for the placement of mass concrete when the minimum dimensions of the concrete exceeds four (4) feet and the volume of concrete to the surface area ratio is greater than one (1). Submit for approval a written Thermal Control Plan describing the procedures to be used to minimize temperature differentials within the concrete. Include all items required by this note, and other items deemed necessary or prudent. Submit the Thermal Control Plan at least 30 calendar days before the first intended structural mass concrete placement. The Engineer will respond within 21 calendar days after receipt of the plan. Make any changes required by the Engineer and resubmit the plan.

A specialized mix design for mass concrete shall be reviewed by the Engineer. Mass concrete shall test at 3,000 psi prior to forming piers and shall test at 4,000 psi at 56 days.

When placing the concrete, do not allow the temperature of the concrete mixture at the point of placement to exceed 80 F. Insulate the concrete until the thermal control is finished. Do not allow the concrete to exceed the maximum temperature of 160 F at any time during the curing period.

When placing mass concrete, ensure that the temperature differential between any point of the interior of the concrete element greater than 12 inches from the surface and the surface of the concrete element does not exceed 40 degrees F immediately following placing of any lift during the heat dissipation period for a minimum of 24 hours after placement. After 24 hours, the rate of cooling of heating must not exceed 40 degrees F per hour for the interior and exterior concrete to a temperature within 40 degrees F of the surrounding environment of the concrete surface. Maintain records of the temperature differential and immediately apply corrective measures when the temperature differential nears 35 degrees F so as to limit it to the 40 degrees F maximum.

The Engineer will allow the inclusion of the following items in the Thermal Control Plan.

1. Sprinkle the mixer trucks' drums for cooling.
2. Arrange with supplier to avoid delivery of hot cement.
3. Cooling of aggregate stockpiles.
4. Use of a nitrogen gas cooling system to cool the concrete mass before placement.
5. Use of shaved, flaked, or chipped ice as part of the mixing water.
6. Embedment in the structural mass concrete of a cooling system, consisting of non-corrosive piping and circulating fresh water. Filling of the pipe with concrete or grout after its usefulness has ended is required and shall be at the contractor's expense.
7. Placing concrete during the coolest part of the day, or during cooler weather.
8. Use of special cements or additives that will reduce heat of hydration without affecting strength or durability.

All construction joints shall include surface preparation of the existing adjacent concrete surface of the joint. Surface preparation shall include brush blasting, power washing and water soaking immediately prior to casting concrete.

Bevel all edges of concrete with 3/4" triangular molding. Construction joints shall be made only at locations approved by the Engineer.

Splices: Alternate splices of reinforcing steel.
Minimum splice lengths of reinforcing shall be as noted in the table below:

SPLICE LENGTH

#5	#6	#7	#8	#9	#10
2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"

EPOXY-COATED REINFORCING STEEL:

Reinforcing Steel Fy = 60,000 psi
All reinforcement shall meet ASTM A615 Grade 60.
Support reinforcing as shown on the sheet "SUPPORTS AND SPACERS FOR REINFORCING STEEL".
Install reinforcing supports per the latest edition of the CRSI "Manual of Standard Practice".

Shop drawing of reinforcing steel shall be reviewed by the Engineer prior to casting concrete.
All reinforcing steel shall be considered subsidiary to reinforced concrete bid items.

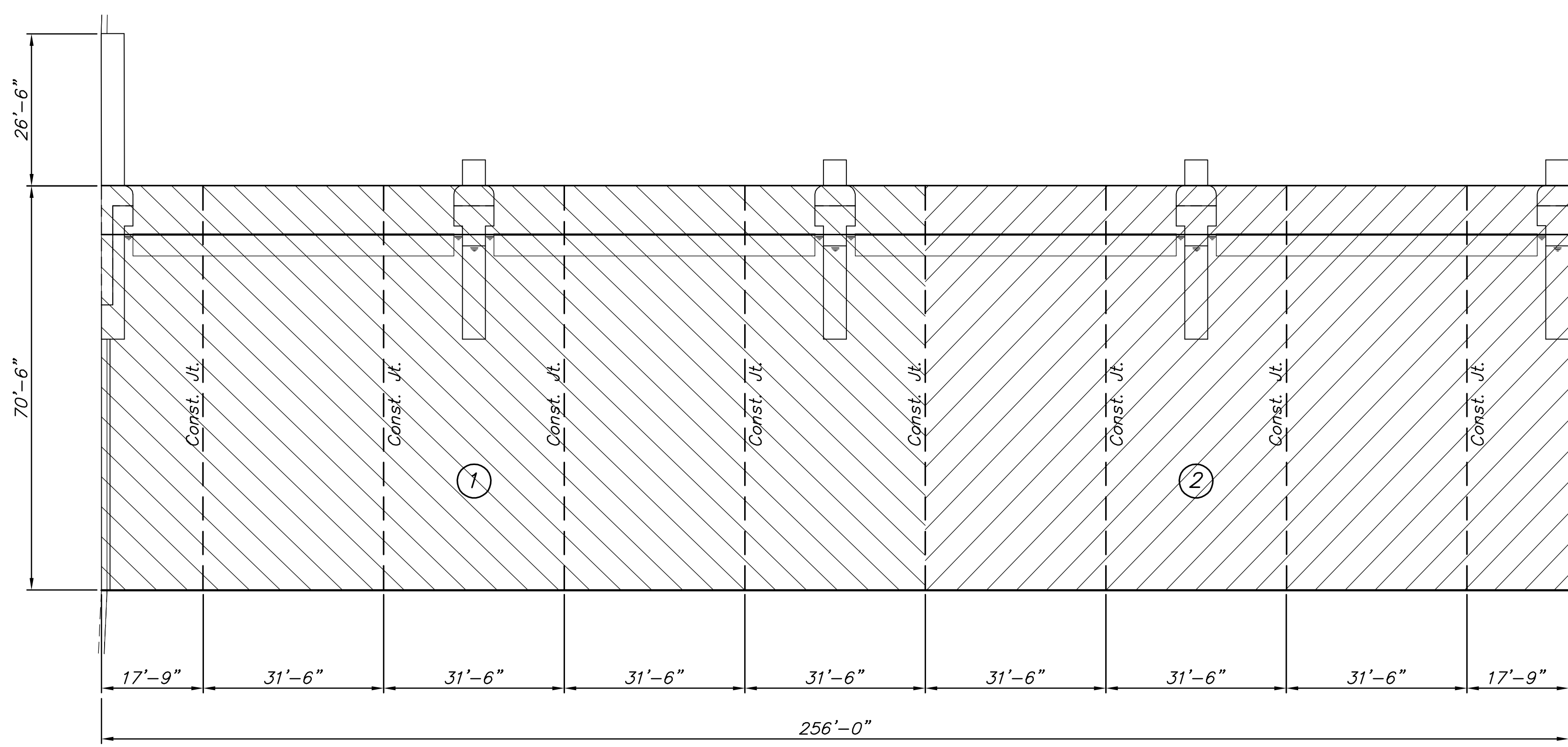
STRUCTURAL STEEL:

All Structural Steel shall be ASTM A709 Gr. 50W: Fy = 50 ksi

Shop drawings of structural steel, embedded materials, and anchors including (but not limited to) stop log support brackets, dam seal plates, dam bearings and dam operator brackets shall be reviewed by the Engineer prior to fabrication, installation of materials, and casting.

CONTRACTOR ANALYSIS:

The Contractor shall provide an analysis of constructibility as provided and listed in Section 6, I-Section Flexural Members, AASHTO LRFD Bridge Design Specifications, 4th Edition with 2009 Interim. The analysis will be prepared by a Kansas Licensed Professional Engineer and presented to the Owner's Engineer prior to fabrication.



SPILLWAY CONCRETE PLACEMENT SEQUENCE

CONCRETE PLACING SEQUENCE:

The sequence of placing the concrete in the slabs and walls shall be as shown, or the Contractor may submit an alternate placing sequence for review. Submit the alternate placing sequence to the Engineer at the Preconstruction Conference. Include the proposed rate of concrete placement in cubic yards per hour, the plant capacity, placement direction, construction joint location, a description of the equipment used in placing the concrete, proposed admixtures, and the quantity of concrete in each placing segment. Any additional cost for the Contractor's alternate plan of placing concrete, including admixtures shall be at the Contractor's Expense. Approval of the Contractor's alternate sequence is required prior to the placement of concrete.

GENERAL NOTES (CONT.)

EMBANKMENT:

Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to construction of the abutment drilled shafts.

PERMANENT CASING: See KDOT Specifications.

BACKFILL COMPACTION: Compact backfill at the abutments.

DRILLED SHAFTS:

Construct the drilled shafts using the cased method. A permanent casing is required. All excavation, concrete, reinforcing steel, casings, labor, and incidentals necessary to complete the shaft as shown on the details and as directed by KDOT Specifications shall be included in the bid item "Drilled Shafts (30)". Use Grade 4.0 Concrete in the drilled shaft.

If the location of the top of the shaft is such that the casing cannot be overtopped to remove concrete impurities, provide extra casing length to over-pour the concrete in the shaft and chip back to the plan elevation of the top of the shaft.

Backfilling the annular space between the temporary casing and the permanent casing, as defined in the KDOT Specifications, is not required at this location.

DESIGN LOADING:

Maintenance Structure Loading: AASHTO LRFD Pedestrian Load 85 psf or H10 truck Design High Water Elevation 1291.5

SUMMARY OF QUANTITIES		
Description	Quantity	Unit
Sheet Pile	56,766	S.F.
Concrete Seal Course	2,017	S.Y.
Reinforced Spillway Concrete	3,332	C.Y.
Reinforced Pier Concrete	512	C.Y.
Reinforced Abutment Concrete	22	C.Y.
Structural Beams WF24	136,320	Lbs.
Structural Steel	8,260	Lbs.
Steel Studs	2,432	Each
Drilled Shaft, 30"	274	L.F.
Reinforced Concrete Maintenance Structure Deck	102	C.Y.
Handrail, 42" Safety	507	L.F.
Fence, 96" Security	145	L.F.
Hinged Crest Gate System	1	L.S.
Water Level Sensor Well	2	Each
Electrical Service and Distribution	1	L.S.
Lighting	1	L.S.
Generator and Transfer Switch	1	L.S.
SCADA System	1	L.S.
Control Building	1	Each

**LINCOLN STREET BRIDGE AND
DAM IMPROVEMENTS OVER
ARKANSAS RIVER**

**CONCRETE
PLACEMENT AND
GENERAL NOTES**

SHEET TITLE
472-84883
PROJECT NUMBER

DESIGN BY: JAG
DRAWN BY: DMU
CHECKED BY: KJS

ISSUED
1/24/2011
REVISED

SHEET NO.
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PLOT002: Tuesday, January 25, 2011 8:44 AM

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