

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	54-87 K-8258-01	2007	181	556

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SUMMARY OF QUANTITIES FOR BRIDGE NO. 54-87-30.81(700)											
LOCATION	EXCAVATION CLASS III m <sup>3</sup>	CONCRETE		REINFORCING STEEL		PRESTRESSED CONCRETE BEAMS (K4+75 mm) m	STEEL PILE HP310 x 79 m	SILICA FUME OVERLAY (40 mm) m <sup>2</sup>	ABUTMENT STRIP DRAIN m <sup>2</sup>	BRIDGE BACKWALL PROTECTION SYSTEM m <sup>2</sup>	
		(GRADE 31) (AE) m <sup>3</sup>	(GRADE 31) (SF) (AE) (SA) m <sup>3</sup>	EPOXY COATED (GRADE 420) kg	(GRADE 420) kg						
ABUTMENT NO. 1		25.2			1660		140.4		47.4	51.6	
PIER NO. 1	128	71.3			5960		131.2				
ABUTMENT NO. 2		25.2			1660		96.3		47.1	51.3	
SUBSTRUCTURE TOTAL	128	121.7			9280		367.9				
SUPERSTRUCTURE TOTAL			291.3	47 590		468.0		906.4			
GRAND TOTAL	128	121.7	291.3	47 590	9280	468.0	367.9 *	906.4	94.5	102.9	

\* Includes: 16 @ 8.2, 9 @ 10.7 & 9 @ 15.6 m.

SUMMARY OF QUANTITIES FOR BRIDGE NO. 54-87-30.82(701)											
LOCATION	EXCAVATION CLASS III m <sup>3</sup>	CONCRETE		REINFORCING STEEL		PRESTRESSED CONCRETE BEAMS (K4+75 mm) m	STEEL PILE HP310 x 79 m	SILICA FUME OVERLAY (40 mm) m <sup>2</sup>	ELASTOMERIC COMPRESSION SEAL m	ABUTMENT STRIP DRAIN m <sup>2</sup>	BRIDGE BACKWALL PROTECTION SYSTEM m <sup>2</sup>
		(GRADE 31) (AE) m <sup>3</sup>	(GRADE 31) (SF) (AE) (SA) m <sup>3</sup>	EPOXY COATED (GRADE 420) kg	(GRADE 420) kg						
ABUTMENT NO. 1		24.3			1625		140.4			45.7	49.7
PIER NO. 1	147	70.3			5770		131.2				
ABUTMENT NO. 2		24.3			1625		96.3			45.5	49.5
SUBSTRUCTURE TOTAL	147	118.9			9020		367.9				
SUPERSTRUCTURE TOTAL			258.9	44 120		468.0		906.4	53.0		
GRAND TOTAL	147	118.9	258.9	44 120	9020	468.0	367.9 * *	906.4	53.0	91.2	99.2

\* \* Includes: 16 @ 8.2, 9 @ 10.7 & 9 @ 15.6 m.

NOTE: ONLY STEEL PILES HP310 x 79 SHALL BE USED ON THIS STRUCTURE

**GENERAL NOTES**

**DESIGN SPECIFICATIONS:**

AASHTO Standard Specifications for Highway Bridges, 1996 Edition with appropriate interim Specifications. (Load Factor Design).

**CONSTRUCTION SPECIFICATIONS:**

Kansas Department of Transportation Standard Specifications for State Road and Bridge Construction, 1990 and Special Provisions.

**DESIGN LOADING:**

Live Load --- MS18-44 with Kansas Overload Provision.  
 Sidewalk Live Load --- Includes an allowance of 0.72 kPa  
 Dead Load --- Includes an allowance of 0.72 kPa for a future wearing surface.  
 Thermal Gradient --- as specified by AASHTO Guide Specifications

**UNIT STRESSES:**

Concrete Grade 31 (SF) (AE) (SA) f'c = 31 MPa  
 Concrete Grade 31 (AE) f'c = 31 MPa  
 Concrete Grade 31 f'c = 31 MPa  
 Reinforcing Steel (Grade 420) fy = 420 MPa  
 Prestressed Strands: Uncoated 13 mm 7 Wire, Low Relaxation Strands fs = 1860 MPa

**DESIGN PILE LOAD:**

	LOADING	ACTUAL (kN per Pile)	ALLOWABLE
Abutments	Service Load I	553	620
Pier	Service Load III	610	620

**CONCRETE:**

All superstructure concrete is bid as Concrete (Grade 31)(SF)(AE) (SA). All substructure concrete is bid as Concrete (Grade 31)(AE). The Contractor may use Concrete (Grade 31) in the Pier Footings Bevel all exposed edges of all concrete with a 20 mm triangular molding, except as otherwise noted on the Plans. All construction joints are optional with the Contractor, but if used, place only at the locations shown, or at locations approved by the Engineer.

**REINFORCING STEEL:**

All dimensions shown for placement of reinforcing steel are to the centerline of the bar, unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615M-96 Grade 420. Spiral bars may meet the requirements of either ASTM A615M-96 (Grade 300 or 420) or ASTM A82M, and are included in the bid item "Reinforcing Steel (Grade 420) Epoxy Coated".

**DIMENSIONS:**

All dimensions shown on the Plans are horizontal dimensions unless otherwise noted.

**BRIDGE EXCAVATION:**

All excavation shall be Class III Excavation. See "Bridge Excavation" sheet for limits of Pay Excavation.

**PILING:**

Drive all piling to penetrate or bear upon the Wellington Shale Formation. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive all piling to the minimum computed bearing value equal to the allowable pile load:

Abutments = 620 kN  
 Piers = 620 kN

When using the pile driving formula in the KDOT Specifications, drive the pile to the allowable load and penetration, but in no case shall the pile be driven to more than 930 kN. At any location where problems are experienced, pile damage is suspected, or apparent refusal occurs significantly above the design pile tip elevation, the Engineer may request the pile driving analyzer (PDA) equipment be used.

**BACKFILL COMPACTION:**

Backfill Compaction shall be required at both Abutments and Pier. See K.D.O.T. Specifications.

**FALSEWORK PLANS:**

The falsework details shall be designed and bear the seal of a Licensed Professional Engineer. Seven sets of details in compliance with the K.D.O.T. Specifications shall be submitted to the Engineer for review.

**DECK PROTECTIVE SYSTEM:**

All reinforcing steel in the Superstructure of the bridge shall be epoxy coated. A minimum concrete cover to the top reinforcing steel layer shall be 75 mm. A 40 mm Silica Fume Overlay shall be placed on the subdeck of the bridge between the gutterlines as shown on the Plans.

**DECK FORMS:**

Steel or Prestressed Concrete stay-in-place forms will not be permitted on this structure.

**BORING LOGS:**

The Boring Logs are in the file of the the Consultant and are available for inspection by interested and/or qualified bidders.

**CAMBER:**

The beams shall be cambered to include the effects of the dead load deflections. See "Miscellaneous Details" sheet for details.

**CONCRETE POURING SCHEDULE:**

The sequence of placing concrete in the slab 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 cu m/h, the plant capacity, placement direction, construction joint locations, a description of equipment used in placing the concrete, the 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 and shall be considered subsidiary to the bid item "Concrete (Grade 31)(SF) (AE)(SA). Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck.

**COLUMN CONSTRUCTION:**

The pier footings will cure a minimum of 2 days before column construction (placing resteel or formwork) shall be permitted. The column formwork shall not be removed without the approval of the Engineer. Curing shall continue after the formwork is removed as required by the KDOT Specifications.

**PRESTRESSED BEAM CONCRETE:**

Use Concrete (Grade 35) (AE) (PB) with the release strength and 28 day strength requirements as noted on the Plans.

**ABUTMENT AND PIER DIAPHRAGMS:**

Concrete for the diaphragms shall not be placed until all beams have cured a minimum of 28 days. Pier and abutment diaphragms shall be placed and hand vibrated to the bottom of deck elevation just prior to the normal paving train operations. The work shall be accomplished in a manner to avoid cold joints in either the slab or diaphragms.

**ERECTION ELEVATION CHECKS:**

After abutment and pier concrete has cured and before setting any beams, the Contractor shall present verification to the Engineer that the elevations at the bearings match the plan elevation (+/- 5 mm).

**CONSTRUCTION JOINTS:**

Construction joints shown are optional with the Contractor but if used, shall be made only at the locations shown on the plans or as approved by the Engineer

**BRIDGE SEATS:**

Finish the bridge seat area under the bearing pads to a smooth finish. Finish the remaining area to a rough finish.

**BRIDGE BARRIER RAILS:**

The Contractor may place the barrier rails continuously from one end of the bridge to the other end. Removal of falsework prior to placing the barrier is optional.

**SILICA FUME OVERLAY:**

Place a 40 mm Silica Fume Overlay over the entire deck surface as shown on the Plans.

**INTERMEDIATE CONCRETE DIAHRAGMS:**

Cure the intermediate diaphragms for a minimum of seven days before placing slab.

**TEMPERATURE:**


The design temperature for all dimensions is 15° C. (60° F.).

**ABUTMENT STRIP DRAIN:**

See the General Notes on the "Abutment Strip Drain" sheet.

**BRIDGE BACKWALL PROTECTIVE SYSTEM:**

See the General Notes on the "Abutment Strip Drain" sheet.

KANSAS DEPARTMENT OF TRANSPORTATION		BR. NO. 54-87-30.81(700) W.B. STA. 3+378.725		 <b>Cook, Flatt &amp; Strobel</b> ENGINEERS, P. A.
BR. NO. 54-87-30.82(701) E.B.		GENERAL NOTES AND QUANTITIES		
KELLOGG AVENUE OVER ARMOUR ROAD				DESIGNED R.S.C. SCALE Varies DETAILED T.R.G. DATE QUANTITIES T.R.G. SHEET 1 OF 39
Proj. No. 54-87 K-8258-01		SEDGWICK COUNTY		