

SUMMARY OF BRIDGE QUANTITIES

Item Location	Excavation		Concrete		Reinforcing Steel		Piles	Bridge	Abutment	Bearing	Bearing	Prestressed	Riprap	Slope	Bridge	Electrical	Bridge	Bridge	Bridge	Aesthetic	Artist
	Class I	Class II	(Grade 4.0) (AE)	(Grade 4.0) (SA)(MPC)	(Grade 60) (Epoxy Coated)	(Grade 60)	(Steel) (HPI2x53)	Backwall Prot. System	Strip Drain	(TFE/ Elastomeric)	(Steel Rein. Elastomeric)	Conc. Bm. (K4+3)	(Rein. Conc.)(6")	(Riprap Stone)	Deck Grooving	Lighting System	Handrail Metal (4'-6")	Handrail Metal (3'-6")	Handrail Metal (1'-10")	Metal Tower	Coordination (Set)
	Cu. Yds.	Cu. Yds.	Cu. Yds.	Cu. Yds.	Lbs.	Lbs.	*Lin. Ft.	Sq. Yds.	Sq. Yds.	Each	Each	Lin. Ft.	Sq. Yds.	Cu. Yds.	Sq. Yds.	Lump Sum	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Lump Sum
Abutment No. 1	360	-	81.0	**	**	8,557	1,232	131.6	116.8	9	-	-	363	-	-	-	-	-	-	-	-
Pier No. 1	52	351	277.6	-	-	63,895	2,256	-	-	-	18	-	-	-	-	-	-	-	-	-	-
Pier No. 2	-	339	277.6	-	-	64,683	2,256	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pier No. 3	-	345	277.6	-	-	64,683	2,112	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pier No. 4	-	365	277.6	-	-	63,895	2,064	-	-	-	18	-	-	-	-	-	-	-	-	-	-
Abutment No. 2	360	-	83.5	**	**	8,557	1,232	133.8	119.0	9	-	-	-	305	-	-	-	-	-	-	-
Substr. Total	772	1,400	1,274.9	-	-	274,270	11,152	265.4	235.8	18	36	-	363	305	2,390	-	-	-	-	-	-
Superstr. Total	-	-	-	1,491.6	374,372	-	-	-	-	-	-	4,135.5	-	-	-	1	506.6	506.8	467.7	4	1
Total	772	1,400	1,274.9	1,491.6	374,370	274,270	†11,152	265	236	18	36	4,135.5	363	305	2,390	1	506.6	506.8	467.7	4	1

** Quantities are included in the Superstr. Total Quantity.

DESIGN DATA

UNIT STRESSES:

Concrete (Grade 4.0)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)(SA)(MPC)	f'c = 4 ksi
Prestressed Beam Concrete	f'c = 6.0 ksi (Spans 1, 2, 4 & 5)
	f'c = 6.5 ksi (Span 3)
Reinforcing Steel (Grade 60)	fy = 60 ksi
Steel Piles	Fy = 50 ksi
Prestressed Strands	0.6" Ø Grade 270 uncoated 7-wire Low-relaxation strand

LRFD DESIGN PILE LOAD:

Design Loading (Tons/Pile)	Strength	Service	Phi
Abutments	87	59	.65
Piers	87	60	.65

DESIGN LOADING:

HL-93

Design Dead Load includes an allowance of 15 psf for a future wearing surface.

DESIGN SPECIFICATIONS:

AASHTO Specifications, 9th Edition, Load and Resistance Factor Design.

LFD & LRFR RATING FACTORS			
Rating Level	Inventory	Operating	
Truck			
HS-20 (36T)	1.652	3.095	
Type HET (110T)		1.226	
2002 LFD Rating, 17th Edition AASHTO			
HL-93 Loading	1.342	1.993	
2016 Manual for Bridge Evaluation			

TRAFFIC DATA	
AADT (2022)	195
AADT (2040)	220

† Summary of Piling
 Abutment No. 1 22 @ 56'
 Pier No. 1 48 @ 47'
 Pier No. 2 48 @ 47'
 Pier No. 3 48 @ 44'
 Pier No. 4 48 @ 43'
 Abutment No. 2 22 @ 56'

* NOTE: Use only steel HPI2x53 piles in the Abutments and Piers. The lengths shown are for bidding purposes only. Actual lengths shall be determined by the Engineer based on PDA Pile Driving results.

NOTE: The use of PDA is required for this bridge.

GENERAL NOTES

EXISTING STRUCTURE: Plans of the existing structure are on file and available for inspection by qualified bidders at City of Wichita, City Hall, 455 N Main St., Wichita KS 67202-1603, 7th Floor Engineering.

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling or commencing with the abutment footing excavation.

BRIDGE EXCAVATION: Elevation 1294.5 shall designate the Excavation Boundary Plane of Class I and Class II Excavation; Class I above the plane, Class II below the plane. See the "Bridge Excavation" sheet for the limits of pay excavation.

BACKFILL COMPACTION: Compact backfill at the abutments.

PILING: Drive all piling to penetrate or bear upon the weathered shale bedrock. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutments	87 Tons
Piers	87 Tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of Pile Driving Formula Driving Load. The Pile Driving Analyzer (PDA) equipment is required to be used on this project. Payment for the PDA is subsidiary to the Piles bid item.

DEMOLITION PLANS: This is a Category A Demolition. Submit detailed Demolition Plans to the Field Engineer per KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

See pier details sheet for note about existing battered piling.

PILING SPLICE LOCATION: Integral pile splice locations and weld testing criteria for Abutments and Piers will follow the "Standard Pile Details" sheet (BR110).

CONSTRUCTION JOINTS: The construction joints shown are optional with the Contractor. If used, place the construction joints only at locations shown or at locations approved by the Engineer.

WORK IN CHANNEL: Work in channel (for example, to pull and drive coffer dam sheet piling) after April 1, 2023 is permitted provided the Contractor initially pushes out into the channel from the bank using turbidity screens to keep fish out of the work area. City is in possession of 2 sections of Type III turbidity curtain that are 100' x 60" (200 total linear feet) which were ordered for another project but never used. These are available to the Contractor for this project if needed. Contractor is responsible for acquiring any additional screens needed.

BRIDGE BACKWALL PROTECTION SYSTEM: See the General Notes on the "Abutment Strip Drain" sheet.

SLOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thickness shown on the plans or as directed by the Engineer. Use Light Series (100 lb.) as described in Division 1114 placed to the limits shown on the plans. Contractor can use clean concrete from existing bridge as slope protection if reinforcing steel is removed.

BROKEN CONCRETE: Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer. Contractor can use clean concrete from existing bridge as slope protection if reinforcing steel is removed.

REMOVAL OF EXISTING STRUCTURES: Removal of existing structure is included in the bid item, "Removal of Existing Structures", Lump Sum. All materials removed from the existing structure shall become the property of the Contractor. Remove this material for the site. Coordinate with City of Wichita for removal of homeless shelters under the bridge. All work to remove homeless presence during construction is included in the "Removal of Existing Structures" bid item.

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SA)(MPC). Substructure concrete is bid as Concrete (Grade 4.0)(AE). If desired the Contractor may use Concrete (Grade 4.0) in the footings and in the abutments below the construction joint. Bevel all exposed edges of all concrete with a 3/4" triangular molding, except as otherwise noted on the plans. Construction joints are optional with the Contractor, but if used, place only at locations shown, or at locations approved by the Engineer.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60.

Where noncoated bars come in contact with epoxy coated bars, they need not be coated.

CONTRACTOR CONSTRUCTION STAKING: Contractor Construction Staking for clear span bridges requires two independent surveys. See KDOT Specifications.

ABUTMENT STRIP DRAIN: See the General Notes on the "Abutment Strip Drain" sheet.

CONSTRUCTION LOADS: Limited traffic is permitted on the new, one-course deck during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

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CONSULTANTS:

AMIDON AVE. BRIDGE AT ARKANSAS RIVER



REVISIONS:	MARK	DATE	DESCRIPTION

PROJ NO: E1010-4025062
 SCALE:
 DATE: 07/08/2022
 DESIGNED BY: JBM
 DRAWN BY: JBM
 CHECKED BY: WBS

SHEET TITLE:
GENERAL NOTES, SHEET INDEX AND QUANTITIES

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