

2/19/2010  
 P:\09f1les\09044\Work Order 5 (PE 2 - I-72)\CA00.Sheets\Bridge Plans\SN001-0064-65-0010064-65-D672A09-001-CPE.dgn

**Existing Structure:** SN 001-0064 & SN 001-0065 are dual single span, 60" welded plate girder structures on vaulted abutments. The structures were built in 1982 and carry FAI 172 over Illinois Route 57. Joint rehabilitation was done on the structures in 2001. The structures are 209'-6" long measured from back to back of approach bents. SN 001-0064 varies from 54'-9 1/2" to 43'-6 7/8" wide out to out to accommodate an exit ramp. SN 001-0065 varies from 56'-7 1/2" to 52'-4 1/4" wide out to out to accommodate an entrance ramp. Both structures are on a 0 degree skew and have an approximate 26'-4" minimum clearance over Illinois Route 57.

Structure improvements include removing the existing expansion joints and replacing with strip seals, structural repair of concrete at the abutments, concrete deck patching, hydro scarification of the deck, placing microsilica overlay, replacing existing guardrail, and removing & replacing concrete bridge approach shoulder pavement.

Traffic to be maintained utilizing stage construction.

No salvage.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work. However, the contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Reinforcement bars designated (E) shall be epoxy coated.

Reinforcement bars shall conform to the requirements of ASTM A 706 grade 60. See special provisions.

Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with concrete removal.

Joint openings shall be adjusted according to article 520.04 of the standard specifications when the deck is poured at an ambient temperature other than 50 degrees Fahrenheit.

All repair work associated with the bridges shall be completed by stage construction utilizing TC&P. Standard 701402 and with temporary concrete barrier located as detailed in these repair plans.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that can not be removed by grinding/in. deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

The "Bridge Approach Shoulder Removal" and "P.C. Concrete Bridge Approach Shoulder Pavement" shall be constructed to proposed grade, after the completion of the microsilica overlays and joint repairs. Stage traffic shall not drive on the new bridge approach shoulders.

Concrete Sealer shall apply to Top of Deck, Inside Face of Parapets, & Top of Parapets.

**DESIGN STRESSES**

**FIELD UNITS**

**New Construction**

f'c = 3,500 psi  
 fy = 60,000 psi (Reinforcement)

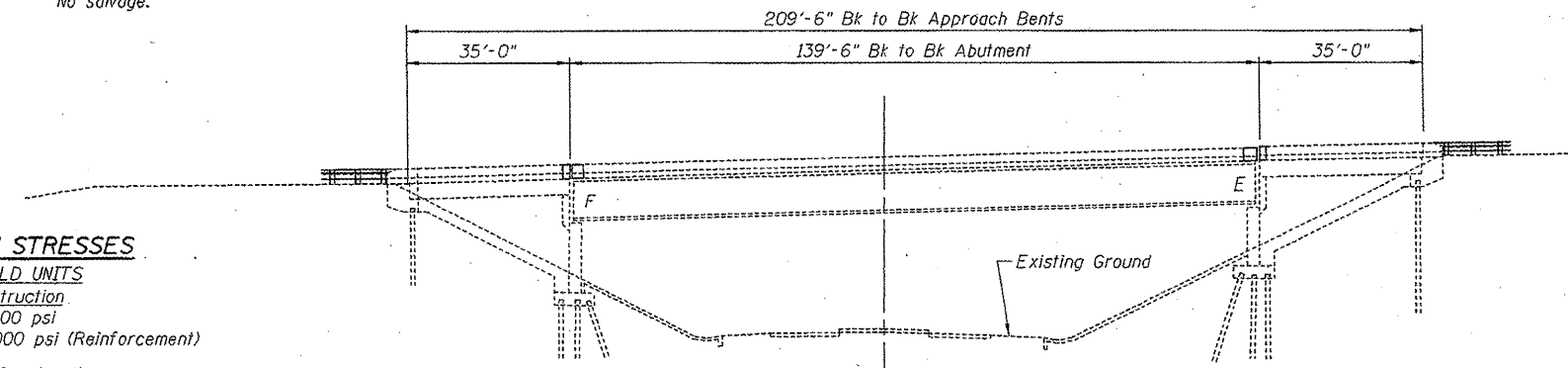
**Existing Construction**

f'c = 3,500 psi  
 fy = 60,000 psi (Reinforcement)  
 fs = 36,000 psi (M183) (Structural Steel)  
 50,000 psi (M223 Grade 50) (Structural Steel)

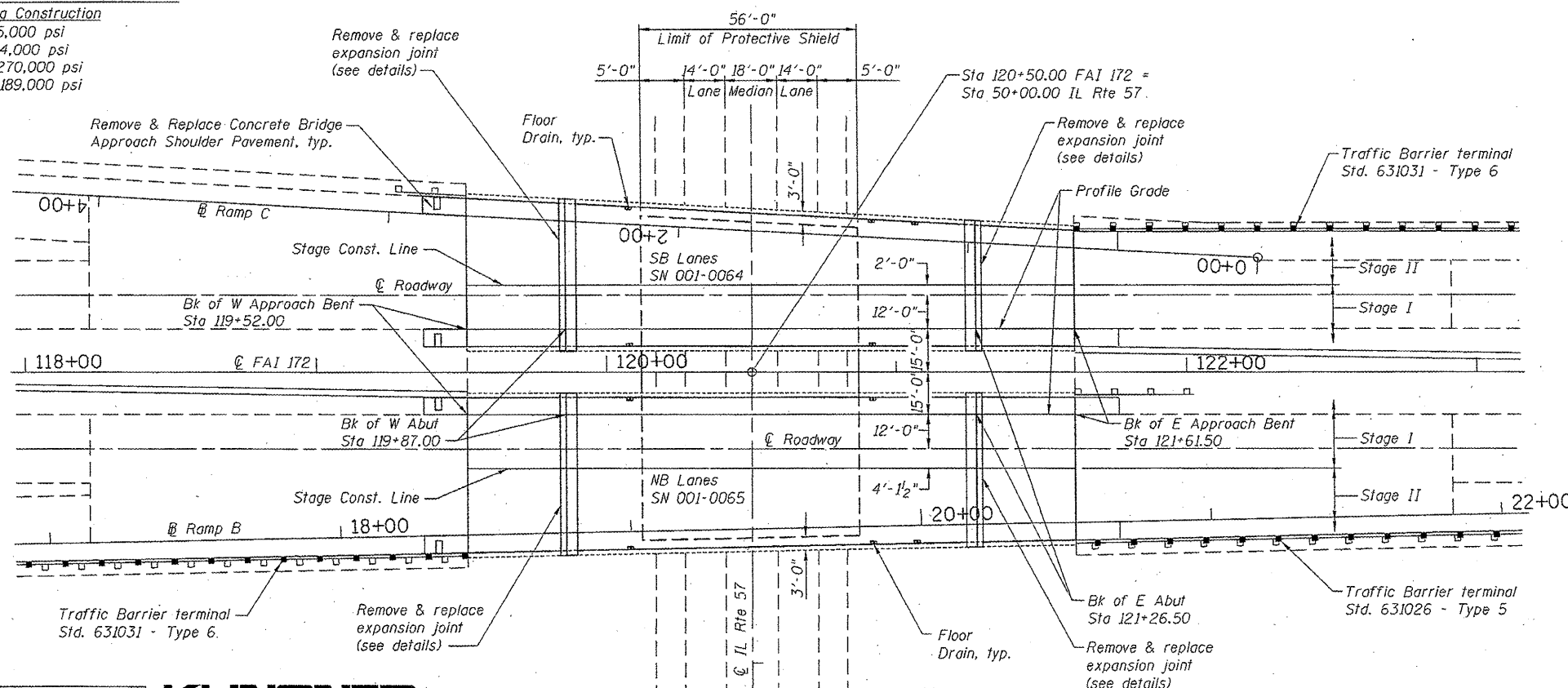
**PRECAST/PRESTRESSED UNITS**

**Existing Construction**

f'c = 5,000 psi  
 f'ci = 4,000 psi  
 f's = 270,000 psi  
 f'si = 189,000 psi

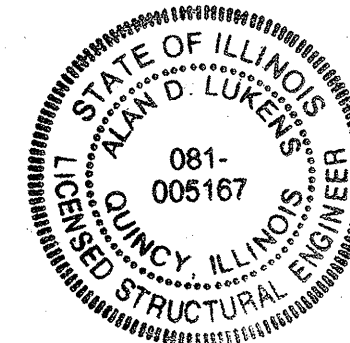



**ELEVATION**



**PLAN**

TOTAL BILL OF MATERIALS		
ITEM	UNIT	TOTAL
CONCRETE REMOVAL	CU YD	20.2
REINFORCEMENT BARS, EPOXY COATED	POUND	3620
BAR SPLICERS	EACH	44
PREFORMED JOINT STRIP SEAL	FOOT	203.0
CONCRETE SUPERSTRUCTURE	CU YD	23.9
DECK SLAB REPAIR (FULL DEPTH, TYPE II)	SQ YD	5.3
DECK SLAB REPAIR (FULL DEPTH, TYPE I)	SQ YD	5.3
BRIDGE DECK MICROSILICA CONCRETE OVERLAY 2 1/2"	SQ YD	2191
BRIDGE DECK HYDRO-SCARIFICATION 1/2"	SQ YD	2191
FRAMES AND GRATES TO BE ADJUSTED	EACH	4
POLYMER CONCRETE	CU FT	8.9
FLOOR DRAINS	EACH	12
BRIDGE APPROACH SHOULDER REMOVAL	SQ YD	42
P.C. CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT	SQ YD	42
STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	825
CONCRETE SEALER	SQ FT	22077
BRIDGE DECK GROOVING	SQ YD	2164
PROTECTIVE SHIELD	SQ YD	703




 2-19-10  
 Alan D. Lukens  
 Licensed Structural Engineer  
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 License Expires 11/30/10

**GENERAL PLAN & ELEVATION  
 FAI 172 OVER IL RTE 57  
 SN 001-0064 & 0065**

**DESIGN SPECIFICATIONS**  
 (New Construction)  
 2002 AASHTO "Standard  
 Specifications for Highway Bridges"

**LOADING HS20-44**

SHEET NO. 1	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	172	1-3HB	ADAMS	165	102
17 SHEETS	FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		CONTRACT NO. 72A09

Klingner & Associates P.C.

DESIGNED	KTH
CHECKED	ADL
DRAWN	KTH
CHECKED	ADL

**KLINGNER & ASSOCIATES, P.C.**  
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