

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				80% FEDERAL 20% STATE ROADWAY 0006 RURAL	
50300300	PROTECTIVE COAT	SQ YD	2254	2254	
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	95.9	95.9	
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	87120	87120	
50500505	STUD SHEAR CONNECTORS	EACH	4524	4524	
50606701	CLEANING AND PAINTING STRUCTURAL STEEL, LOCATION 1	L SUM	1	1	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	173980	173980	
50800515	BAR SPLICERS	EACH	1685	1685	
51100100	SLOPE WALL 4 INCH	SQ YD	513	513	
51500100	NAME PLATES	EACH	1	1	
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	6	6	
52100520	ANCHOR BOLTS, 1"	EACH	26	26	
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	150	150	
60604400	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.18	FOOT	217	217	
* 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	400	400	

* = SPECIALTY ITEM

FILE NAME = I:\18303_PTB_182_84\18303_18 - IL_38 OVER UPRR\CADD\CADD_Sheets\0162C14-sh1-SDD.dgn

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USER NAME = oseiber	DESIGNED - ZJT	REVISED -
	DRAWN - ZJT	REVISED -
PLOT SCALE = 100.0000' / 1in.	CHECKED - CEI	REVISED -
PLOT DATE = 12/6/2018	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**IL 38 OVER UNION PACIFIC RAILROAD
SUMMARY OF QUANTITIES**

SCALE: SHEET 3 OF 7 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
567	5VB-BR	KANE	73	5
ILLINOIS FED. AID PROJECT			CONTRACT NO. 62C14	

REV. 2/27/19 REV. 1/18/19

INDEX OF SHEETS

S-1	General Plan and Elevation
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S-4	Temporary Concrete Barrier for Stage Construction
S-5 to S-8	Top of Slab Elevations
S-9 to S-10	Top of Approach Slab Elevations
S-11	Superstructure - Spans 1 & 2
S-12 to S-13	Superstructure Details - Spans 1 & 2
S-14	Superstructure - Span 3
S-15	Superstructure Details - Span 3
S-16	Superstructure - Spans 4 & 5
S-17 to S-18	Superstructure Details - Spans 4 & 5
S-19 to S-21	Bridge Approach Slab Details
S-22	Concrete Parapet Slipforming Option
S-23	Steel Framing Plan - Spans 1 & 2
S-24	Structural Steel Details - Spans 1 & 2
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S-27	Structural Steel Details - Spans 4 & 5
S-28	Drainage System Details
S-29	Drainage Scupper, DS-33
S-30	Bearing Details
S-31	West Abutment Repairs
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S-33	Abutment Details
S-34	Sloped Wall Repair Details
S-35 to S-38	Pier Details
S-39	Bar Splicer Assembly and Mechanical Splicer Details
S-40	Parapet Details at Preformed Joint Seal

GENERAL NOTES

- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts (in painted areas and ASTM A325 Type 3 in unpainted areas). Bolts 3/4" dia., holes 13/16" dia., unless otherwise noted.
- All structural steel shall be AASHTO M270 Gr. 36, unless otherwise noted.
- Calculated weight of Structural Steel = 26,280 pounds (Gr. 36) = 60,840 pounds (Gr. 50)
- No field welding is permitted except as specified in the contract documents.
- The Contractor shall test the existing welds by non-destructive methods within 2 ft. of the end of the existing cover plates for cracks after removal of the existing concrete deck. Dye penetrant (PT), magnetic particle (MT), or other approved testing method shall be performed by qualified personnel approved by the Engineer. If cracks are found, report them to the Bureau of Bridges and Structures for disposition. The cost of testing is included in Removal of Existing Concrete Deck. The cost of crack repair, if necessary, will be paid for according to Article 109.04 of the Standard Specifications.
- Reinforcement bars designated (E) shall be epoxy coated.
- 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 cannot be removed by grinding 1/4 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.
- If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.
- 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.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- The concrete for bridge decks finished according to Article 503.16(a) of the Standard Specifications shall be placed and compacted parallel to the skew in uniform increments along centerline of bridge. The machine used for finishing shall be set parallel to the skew for striking off and screeding the concrete.
- All new fasteners shall be high strength bolts. Holes shall be subpunched or subdrilled 1 1/16" dia. and reamed in the field 1 3/16" dia. for 3/4" dia. bolts, unless otherwise noted. Holes shall be subpunched or subdrilled 1 3/16" dia. and reamed in the field to 1 5/16" dia. or 7/8" dia. bolts, unless otherwise noted.
- Existing structural steel that will be in contact with new structural steel shall be cleaned and painted as required by the Special Provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
- All new structural steel shall be shop painted with an inorganic zinc rich primer per AASHTO M 300, Type 1.

GENERAL NOTES (cont.)

- Cleaning and painting of the existing structural steel shall be as specified in the Special Provision for "Cleaning and Painting Existing Structural Steel Structures". All beams, bearings and other structural steel within 10 feet (measured along the beam) of either side of deck joints shall be cleaned per Near White Blast Cleaning - SSPC-SP10. The exterior surfaces and bottom flange of the fascia beams shall be cleaned per Commercial Grade Power Tool Cleaning - SSPC-SP15.

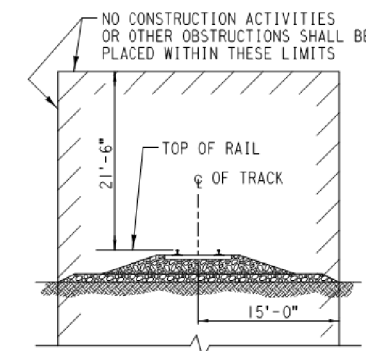
All designated areas to be cleaned per Near White Blast Cleaning or Commercial Grade Power Tool Cleaning shall be painted according to the requirements of paint system 1 - OZ/E/U. The color of the final finish coat for the interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G 4/8.
- The Contractor shall mark the top surface of the existing deck to identify the location and limits of the top flanges of the girders prior to the commencement of deck removal operation. Care shall be taken not to damage the existing girders. When girder is damaged by deck removal operations, it is the Contractor's responsibility to repair the damage at his/her own expense, as approved by the Engineer.

STATION 224+03.88
BUILT BY
STATE OF ILLINOIS
F.A.P. RT. 567 SEC. 5VB-BR
LOADING HS-20
STRUCTURE NO. 045-0009

NAME PLATE
See Std. 515001
Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plate.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu. Yd.		257	257
Concrete Removal	Cu. Yd.		15.3	15.3
Slope Wall Removal	Sq. Yd.		463	463
Removal of Existing Concrete Deck	Each	1		1
Protective Shield	Sq. Yd.	474		474
Floor Drains	Each	4		4
Concrete Structures	Cu. Yd.		20.9	20.9
Concrete Superstructures	Cu. Yd.	502.2		502.2
Protective Coat	Sq. Yd.	2,254		2,254
Concrete Superstructure (Approach Slab)	Cu. Yd.	95.9		95.9
Furnishing and Erecting Structural Steel	Pound	87,120		87,120
Stud Shear Connectors	Each	4,524		4,524
Cleaning and Painting Structural Steel, Location 1	L. Sum	1		1
Reinforcement Bars, Epoxy Coated	Pound	168,630	5,350	173,980
Bar Splicers	Each	1455	230	1,685
Slope Wall 4 Inch	Sq. Yd.		513	513
Name Plates	Each	1		1
Elastomeric Bearing Assembly, Type I	Each	6		6
Anchor Bolts, 1"	Each	26		26
Controlled Low Strength Material	Cu. Yd.		150	150
Preformed Joint Seal 1 1/2"	Foot	280		280
Preformed Joint Seal 3"	Foot	93.5		93.5
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	1,367		1,367
Jack and Remove Existing Bearings	Each	6		6
Structural Steel Removal	Pound	87,200		87,200
Containment and Disposal of Lead Paint Cleaning Residues	L. Sum	1		1
Structural Repair of Concrete (Depth Equal to or Less Than 5 inches)	Sq. Ft.		2,779	2,779
Drainage Scuppers, DS-33	Each	6		6
Drainage System	L. Sum	1		1
Diamond Grinding (Bridge Section)	Sq. Yd.	1,606		1,606



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE
(NORMAL TO RAILROAD)

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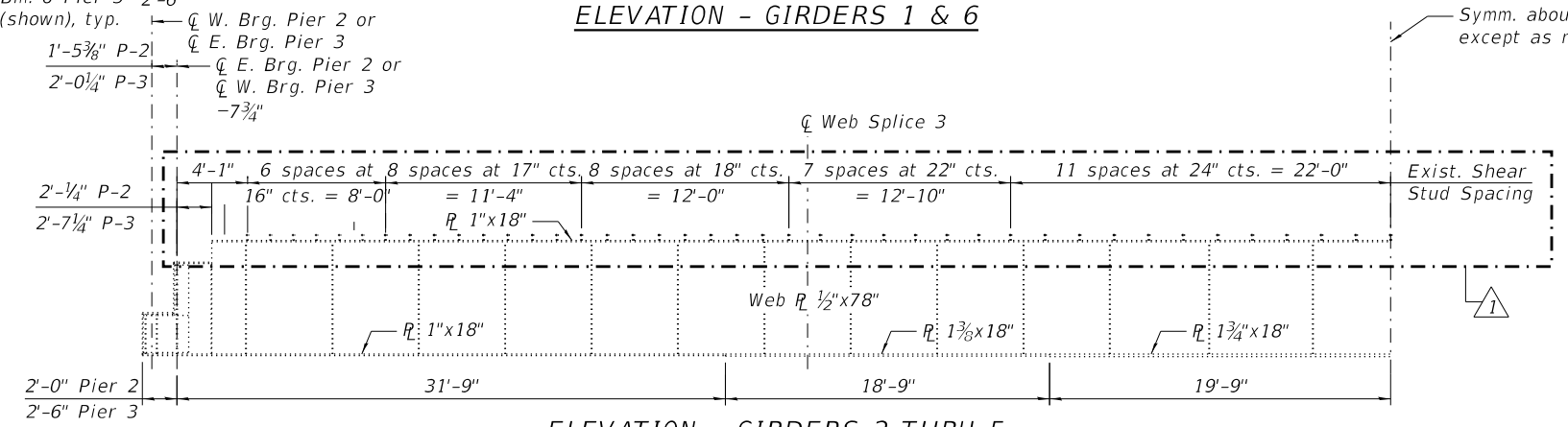
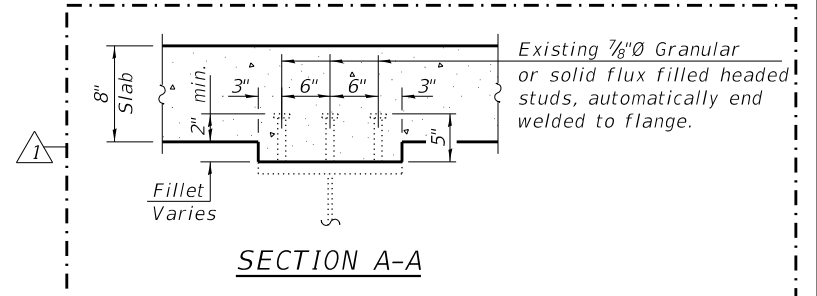
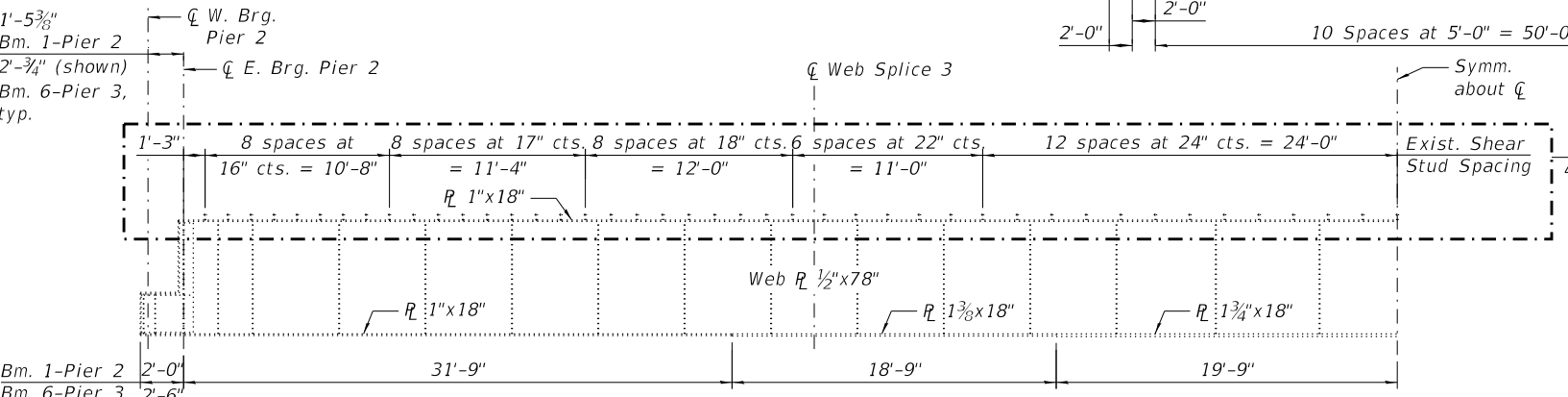
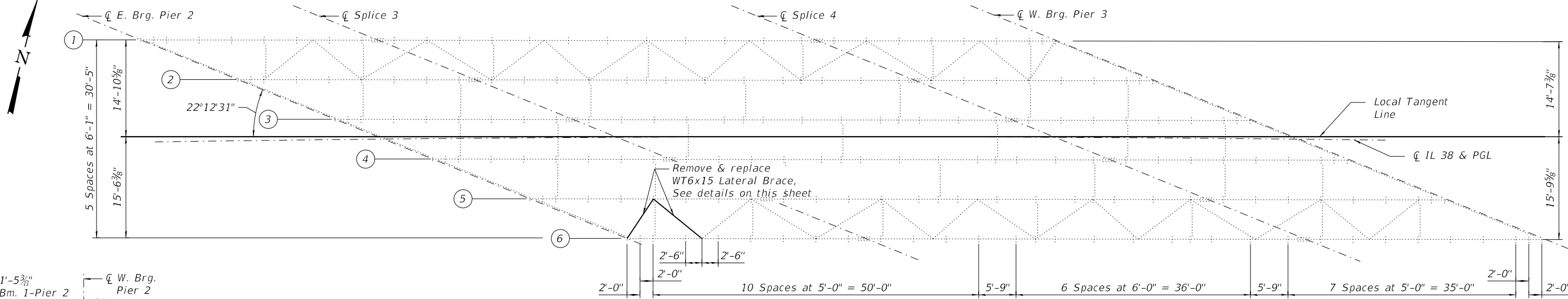


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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS AND TOTAL BILL OF MATERIAL
STRUCTURE NO. 045-0009
SHEET NO. S-2 OF S-40 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
567	5VB-BR	COOK	73	28
CONTRACT NO. 62C14				
ILLINOIS FED. AID PROJECT				



INTERIOR GIRDER MOMENT TABLE		
	0.5 Sp. 3	0.64 Sp. 3
I_s	(in ⁴) 94,596	85,946
$I_c(n)$	(in ⁴) 191,048	168,795
$I_c(3n)$	(in ⁴) 139,880	125,566
S_s	(in ³) 2,735	2,319
$S_c(n)$	(in ³) 3,390	2,885
$S_c(3n)$	(in ³) 3,121	2,653
ρ	(k/')	0.94
$M\rho$	(k)	2,301
$s\rho$	(k/')	0.42
$M_s\rho$	(k)	1,036
M_L	(k)	1,244
M_I	(k)	234
$s_3 [M_L + I]$	(k)	2,463
M_a	(k)	7,540
M_u	(k)	6,976
$f_s \rho$ non-comp	(ksi)	10.1
$f_s \rho$ (comp)	(ksi)	4.0
$f_s s_3 [M_L + M_I]$	(ksi)	8.7
f_s (Overload)	(ksi)	22.8
f_s (Total)	(ksi)	29.6
VR	(k)	46.6

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads (in⁴ and in³).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads (in⁴ and in³).

$I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).

ρ : Un-factored non-composite dead load (kips/ft.).

$M\rho$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\rho$: Un-factored long-term composite (superimposed) dead load (kips/ft.).

$M_s\rho$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_L : Un-factored live load moment (kip-ft.).

M_I : Un-factored moment due to impact (kip-ft.).

M_a : Factored design moment (kip-ft.).

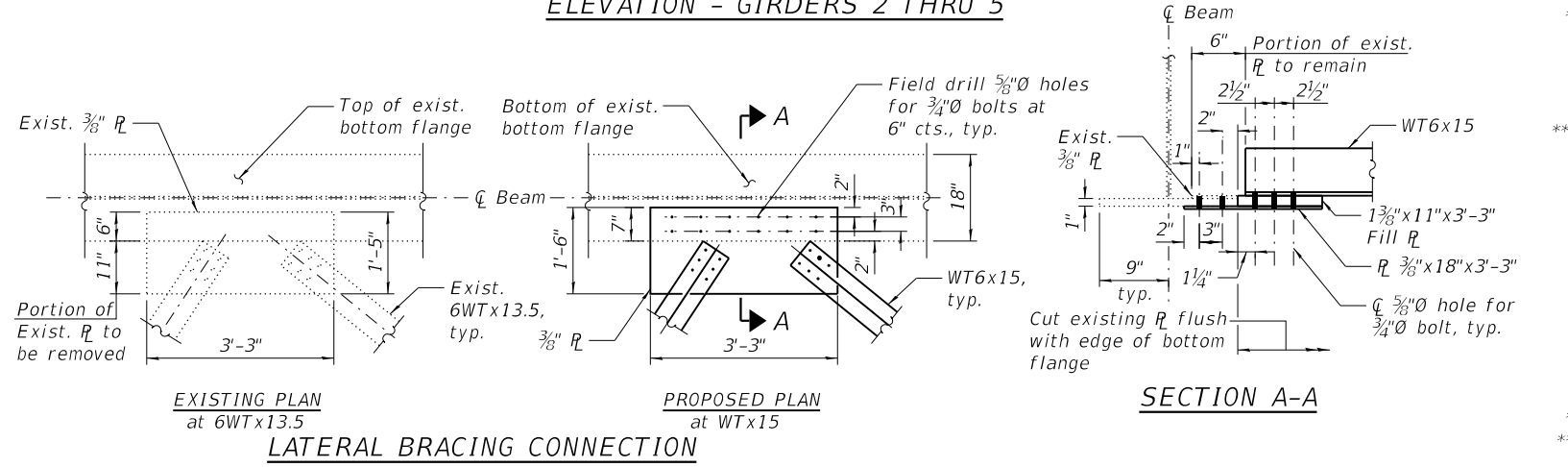
$1.3 [M\rho + M_s\rho + \frac{5}{3} (M_L + M_I)]$

M_u : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f_s (Overload): Sum of stresses as computed from the moments below (ksi). $M\rho + M_s\rho + \frac{5}{3} (M_L + M_I)$

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi). $1.3 [M\rho + M_s\rho + \frac{5}{3} (M_L + M_I)]$

VR : Maximum ℓ + impact shear range within the composite portion of the span for stud shear connector design (kips).



Note: Girder Rating governed at the flange plate section change located at 90 feet (0.64L).

INTERIOR GIRDER REACTION TABLE		
	Pier 2	Pier 3
$R\rho$	(k) 94.5	94.5
R_L	(k) 36.0	36.0
R_I	(k) 6.8	6.8
R_{Total}	(k) 137.3	137.3

* Compact section
** Braced non-compact and partially braced section



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL FRAMING PLAN - SPAN 3
STRUCTURE NO. 045-0009

F.A.P. RTE. 567	SECTION 5VB-BR	COUNTY COOK	TOTAL SHEETS 73	SHEET NO. 51
CONTRACT NO. 62C14				
ILLINOIS FED. AID PROJECT				