

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
**PROPOSED  
 HIGHWAY PLANS**

FAP ROUTE 600 (IL 159)  
 SECTION 46BR-I

RETROFIT BRIDGE RAIL  
 ST. CLAIR COUNTY

C-98-021-15

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
600	46BR-I	ST. CLAIR	9	1
		ILLINOIS	CONTRACT NO. 76H68	

INDEX OF SHEETS

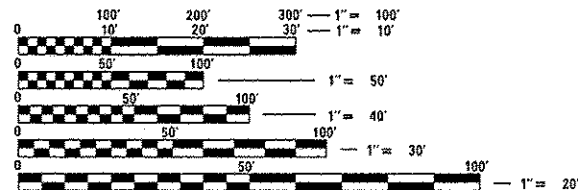
- 1 COVER SHEET, INDEX OF SHEETS
- 2 GENERAL NOTES, HIGHWAY STANDARDS
- 3 SUMMARY OF QUANTITIES
- 4 TYPICAL ROADWAY SECTION
- 5 SCHEDULES OF QUANTITIES & SITE MAP
- 6 BRIDGE GENERAL PLAN AND ELEVATION
- 7 BRIDGE CROSS SECTION
- 8 BRIDGE CONCRETE REMOVAL AND REPLACEMENT
- 9 BRIDGE STEEL RAILING, TYPE 2399

FOR HIGHWAY STANDARDS, SEE SHEET NO. 2

TRAFFIC DATA

ADT: 10,900(2013)  
 11,800(2019)  
 15,300(2039)  
 SU: 2.5%  
 MU: 2.0%

FUNCTIONAL CLASSIFICATION:  
 MINOR ARTERIAL

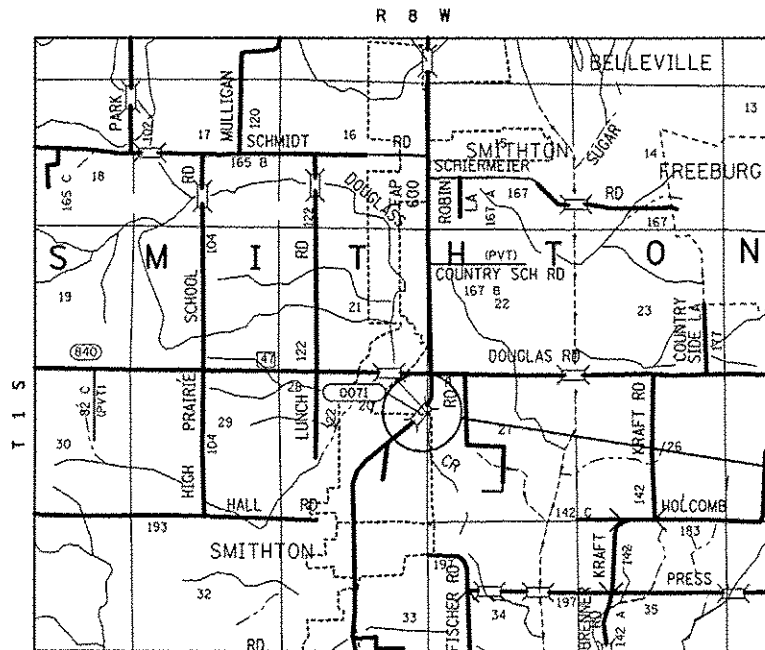


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
 1-800-892-0123  
 OR 811

PROJECT ENGINEER: MICHAEL PRITCHETT 346-3180  
 SENIOR DESIGNER: BO WEDMORE 346-3206

CONTRACT NO. 76H68



GROSS LENGTH = 754.5 FT. = 0.14 MILE  
 NET LENGTH = 754.5 FT. = 0.14 MILE

SN 082-0071 - LATITUDE: 38.42159186° LONGITUDE: 89.98344597°

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED April 3 20 15  
 Jeffrey E. K...  
 DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

May 8 20 15  
 J. D. Baranzoli P.E.  
 ENGINEER OF DESIGN AND ENVIRONMENT

May 8 20 15  
 Omar Osman P.E.  
 DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY  
 OF THE STATE OF ILLINOIS

GENERAL NOTES

HIGHWAY STANDARDS

000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS  
 001001-02 AREAS OF REINFORCEMENT BARS  
 001006 DECIMAL OF AN INCH AND OF A FOOT  
 606001-06 CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER  
 630001-10 STEEL PLATE BEAM GUARDRAIL  
 630301-06 SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS  
 631032-08 TRAFFIC BARRIER TERMINAL, TYPE 6A  
 635006-03 REFLECTOR AND TERMINAL MARKER PLACEMENT  
 635011-02 REFLECTOR MARKER AND MOUNTING DETAILS  
 701001-02 OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY  
 701006-05 OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE  
 701201-04 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS ≥ 45 MPH  
 701311-03 LANE CLOSURE, 2L, 2W, MOVING OPERATIONS-DAY ONLY  
 701901-04 TRAFFIC CONTROL DEVICES

1. ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO ALL UTILITIES WITHIN THE PROJECT AREA BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:
  - \* AMEREN ILLINOIS - GAS & ELECTRIC
  - \* AT&T ILLINOIS - COMMUNICATIONS
  - \* MEDIACOM - COMMUNICATIONS
  - \* MONROE COUNTY ELECTRIC CO-OPERATIVE, INC. - ELECTRIC
  - \* NEW WAVE COMMUNICATIONS - CABLE TV
  - \* VILLAGE OF SMITHTON - WATER & SANITARY SEWER

MEMBERS OF J.U.L.I.E. CALL TOLL FREE (800) 892-0123 OR 811 AND ARE INDICATED BY\*. NON-J.U.L.I.E. MEMBERS MUST BE NOTIFIED INDIVIDUALLY.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
3. ANY MISCELLANEOUS EARTHWORK, SEEDING OR NUTRIENTS REQUIRED TO COMPLETE THE PROJECT SHALL BE DONE ACCORDING TO SECTION 250 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND NOT PAID FOR SEPARATELY.
4. THE CONTRACTOR AND THE ENGINEER SHALL BE AWARE THAT NO SURVEY WAS PERFORMED FOR THIS PROJECT. THE STATIONING, TOPOGRAPHY, AND QUANTITIES SHOWN IN THE PLANS WERE CREATED USING MICROFILM AND FIELD MEASUREMENTS. ALL SHALL BE ASSUMED TO BE APPROXIMATE. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
5. ALL WORK REQUIRED TO MEET HIGHWAY STANDARD 630301, SHALL BE INCLUDED IN THE COST FOR TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT.
6. ALL SAW CUTS FOR THE PAVED SHOULDER REMOVAL SHALL BE INCLUDED IN THE COST FOR THAT PAY ITEM.
7. A QUANTITY OF SIX (6) BARRIER WALL MARKERS, TYPE C HAVE BEEN ADDED TO THE PLANS. THESE ARE TO BE APPLIED TO THE STEEL RAILING, TYPE 2399. THREE (3) ARE FOR THE EAST RAIL AND THREE (3) ARE FOR THE WEST RAIL.

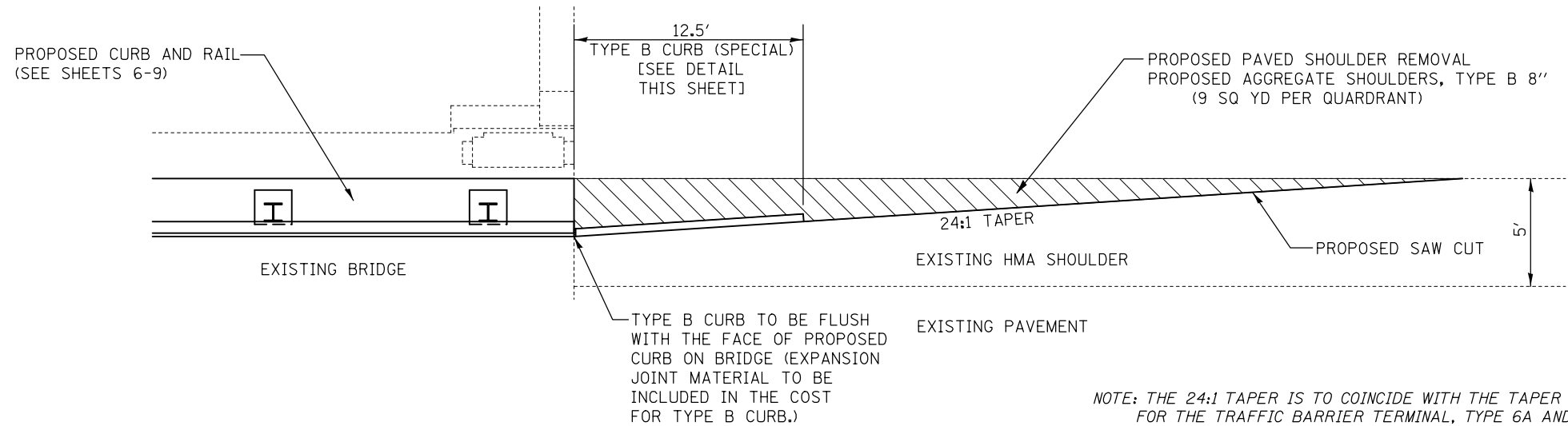
FILE NAME #	USER NAME # wdmora_jb	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>GENERAL NOTES, HIGHWAY STANDARDS</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
61\p\work\p\dat\wdmora_jb\08410604\08	6368-shi-plan.dgn	DRAWN -	REVISED -			600	46BR-1	ST. CLAIR	9	2	
	PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -			CONTRACT NO. 76H68					
	PLOT DATE = 4/2/2015	DATE -	REVISED -			ILLINOIS FED. AID PROJECT					
						SCALE:	SHEET	OF	SHEETS	STA. TO STA.	

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE
				URBAN 100% STATE BRIDGE 0014 082-0071
44004250	PAVED SHOULDER REMOVAL	SO YD	36	36
48101600	AGGREGATE SHOULDERS, TYPE B 8"	SO YD	36	36
50102400	CONCRETE REMOVAL	CU YD	9.6	9.6
50104000	BRIDGE RAIL REMOVAL	FOOT	162	162
50300255	CONCRETE SUPERSTRUCTURE	CU YD	9.6	9.6
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	380	380
50900200	STEEL RAILING, TYPE 2399	FOOT	185	185
63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	687.5	687.5
63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4	4
63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4	4
63200310	GUARDRAIL REMOVAL	FOOT	1050	1050
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MD	3	3
67100100	MOBILIZATION	L SUM	1	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1	1

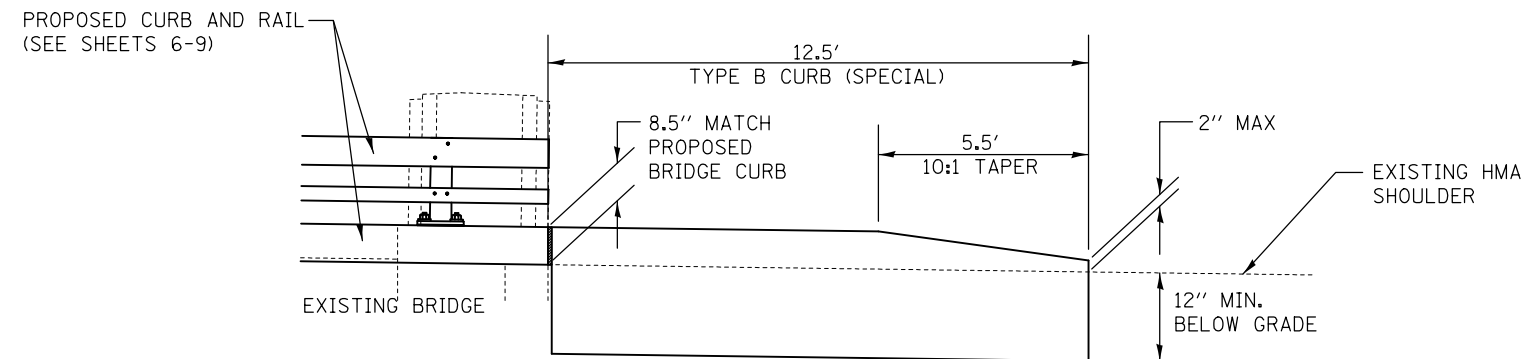
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE
				URBAN 100% STATE BRIDGE 0014 082-0071
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	3	3
78200410	GUARDRAIL MARKERS, TYPE A	EACH	15	15
78200530	BARRIER WALL MARKERS, TYPE C	EACH	6	6
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4
X6061005	CONCRETE CURB, TYPE B (SPECIAL)	FOOT	50	50

5

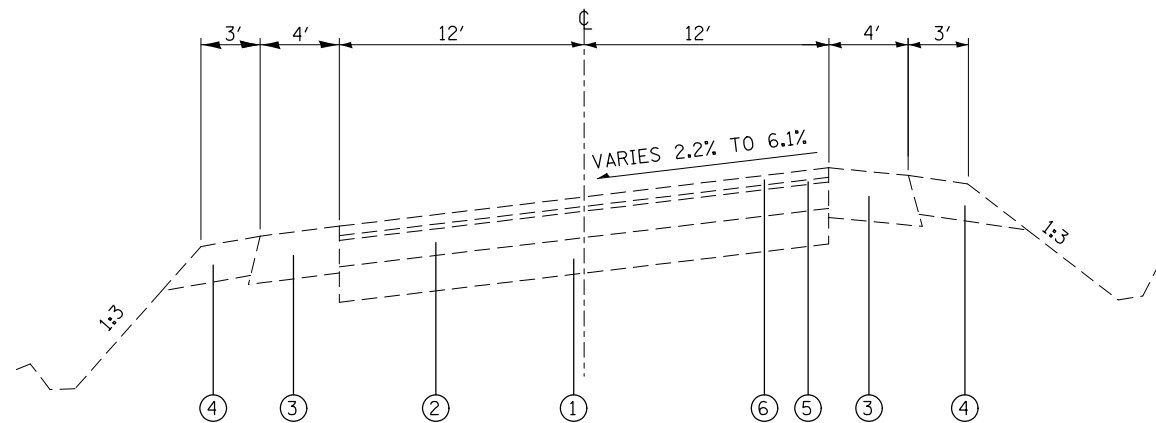
14



PLAN VIEW PROPOSED SHOULDER TREATMENT  
(ALL FOUR QUADRANTS)



DETAIL OF PROPOSED TYPE B CURB (SPECIAL)  
(ALL FOUR QUADRANTS)



ROADWAY APPROACH  
TYPICAL SECTION  
(N.T.S.)

LEGEND

- ① EXISTING CONCRETE PAVEMENT
- ② EXISTING RESURFACING
- ③ EXISTING BITUMINOUS SHOULDER, 8"
- ④ EXISTING AGGREGATE SHOULDER, 6"
- ⑤ EXISTING LEVELING BINDER, 3/4"
- ⑥ EXISTING HMA SURFACE COURSE, 1.5"

FILE NAME =	USER NAME = wedmore_jb	DESIGNED -	REVISED -
et:\pw\work\p1\dot\wedmore_jb\d0418604\d876h68-sh1-plan.dgn		DRAWN -	REVISED -
	PLOT SCALE = 100.0000' / 1in.	CHECKED -	REVISED -
	PLOT DATE = 4/2/2015	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TYPICAL ROADWAY SECTION  
& DETAILS

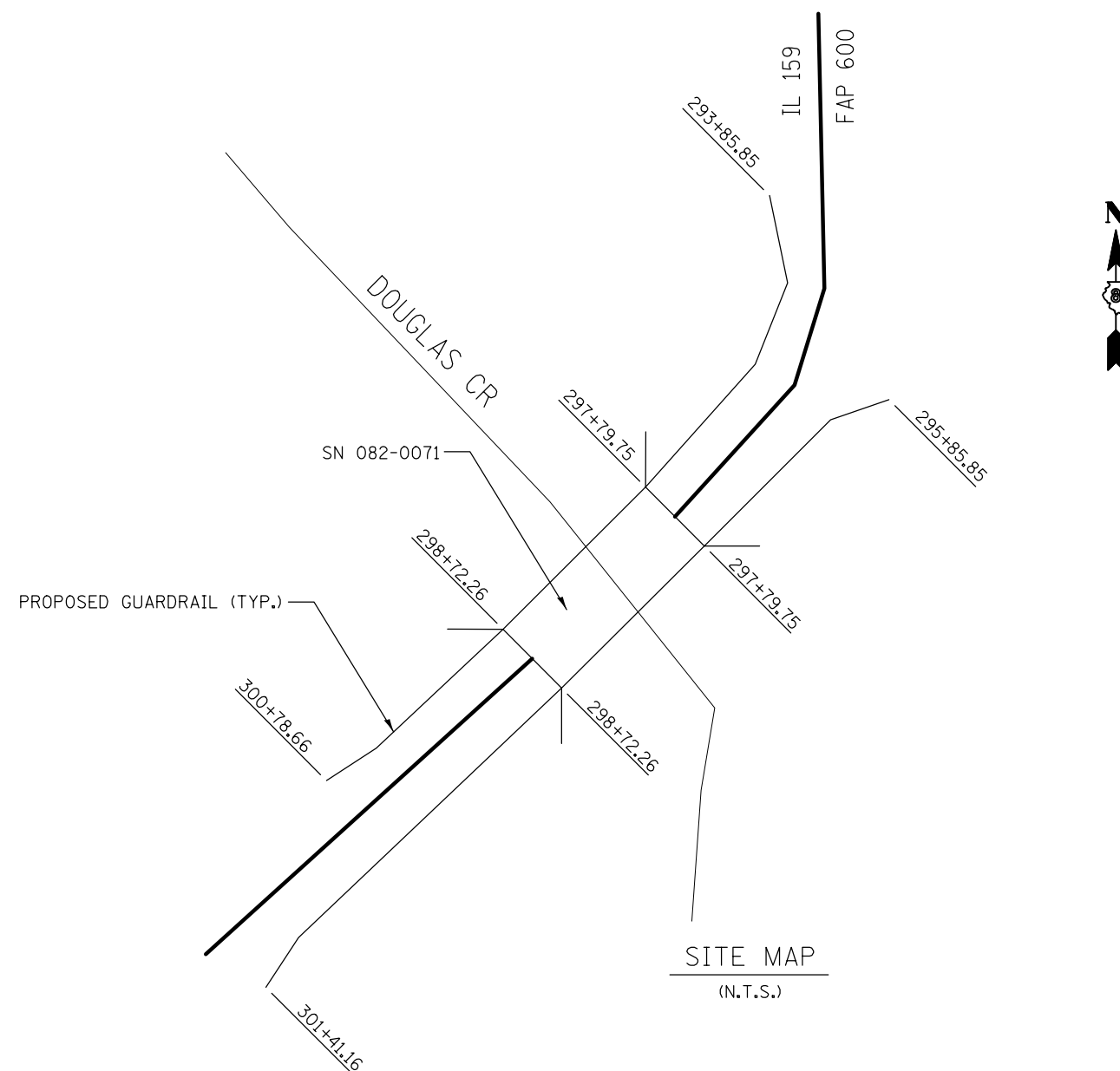
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
600	46BR-I	ST. CLAIR	9	4
ILLINOIS FED. AID PROJECT			CONTRACT NO. 76H68	

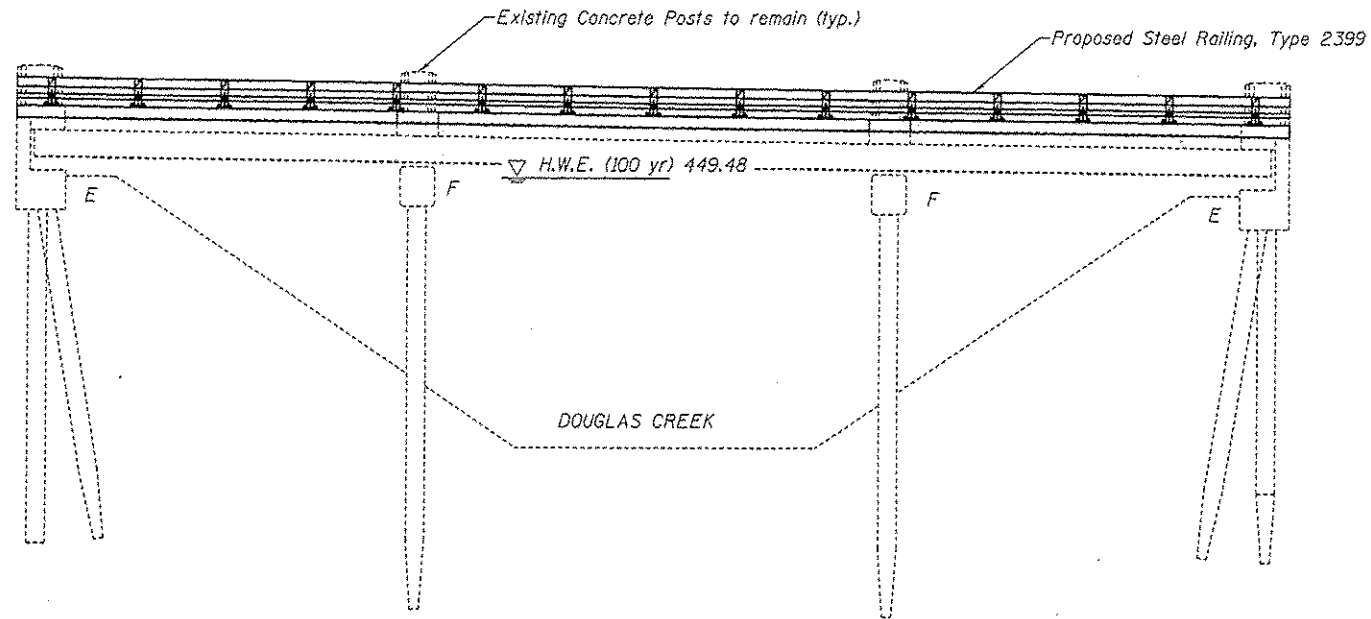
GUARDRAIL SCHEDULE

LOCATION <sup>1</sup>			LENGTH FOOT	SIDE	NB/SB	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	TRAFFIC BARRIER TERMINAL, TYPE 1, (SPECIAL) TANGENT	TRAFFIC BARRIER TERMINAL, TYPE 6A	GUARDRAIL MARKERS, TYPE A	TERMINAL MARKERS DIRECT APPLIED	CONCRETE CURB TYPE B (SPECIAL)	PAVED SHOULDER REMOVAL	GUARDRAIL REMOVAL
						FOOT	EACH	EACH	EACH	EACH	FOOT	SQ YD	FOOT
301+41.16	TO	298+72.26	268.90	EAST	NB	175.0	1	1	4	1	12.5	9	268
297+79.75	TO	295+85.85	193.90	EAST	NB	100.0	1	1	3	1	12.5	9	191
293+85.85	TO	297+79.75	393.90	WEST	SB	300.0	1	1	5	1	12.5	9	394
298+72.26	TO	300+78.66	206.40	WEST	SB	112.5	1	1	3	1	12.5	9	197
TOTAL						687.5	4	4	15	4	50	36	1050

1 STATIONS LISTED BY DIRECTION OF TRAVEL



FILE NAME =	USER NAME = wedmore_jb	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SCHEDULE OF QUANTITIES &amp; SITE MAP</b>				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
et:\pw\work\p\dot\wedmore_jb\d0418604\d876h68-sh-t-plan.dgn	PLOT SCALE = 100.0000' / 1in.	DRAWN -	REVISED -						600	46BR-I	ST. CLAIR	9	5
	PLOT DATE = 4/2/2015	CHECKED -	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.				CONTRACT NO. 76H68				
		DATE -	REVISED -		ILLINOIS FED. AID PROJECT								



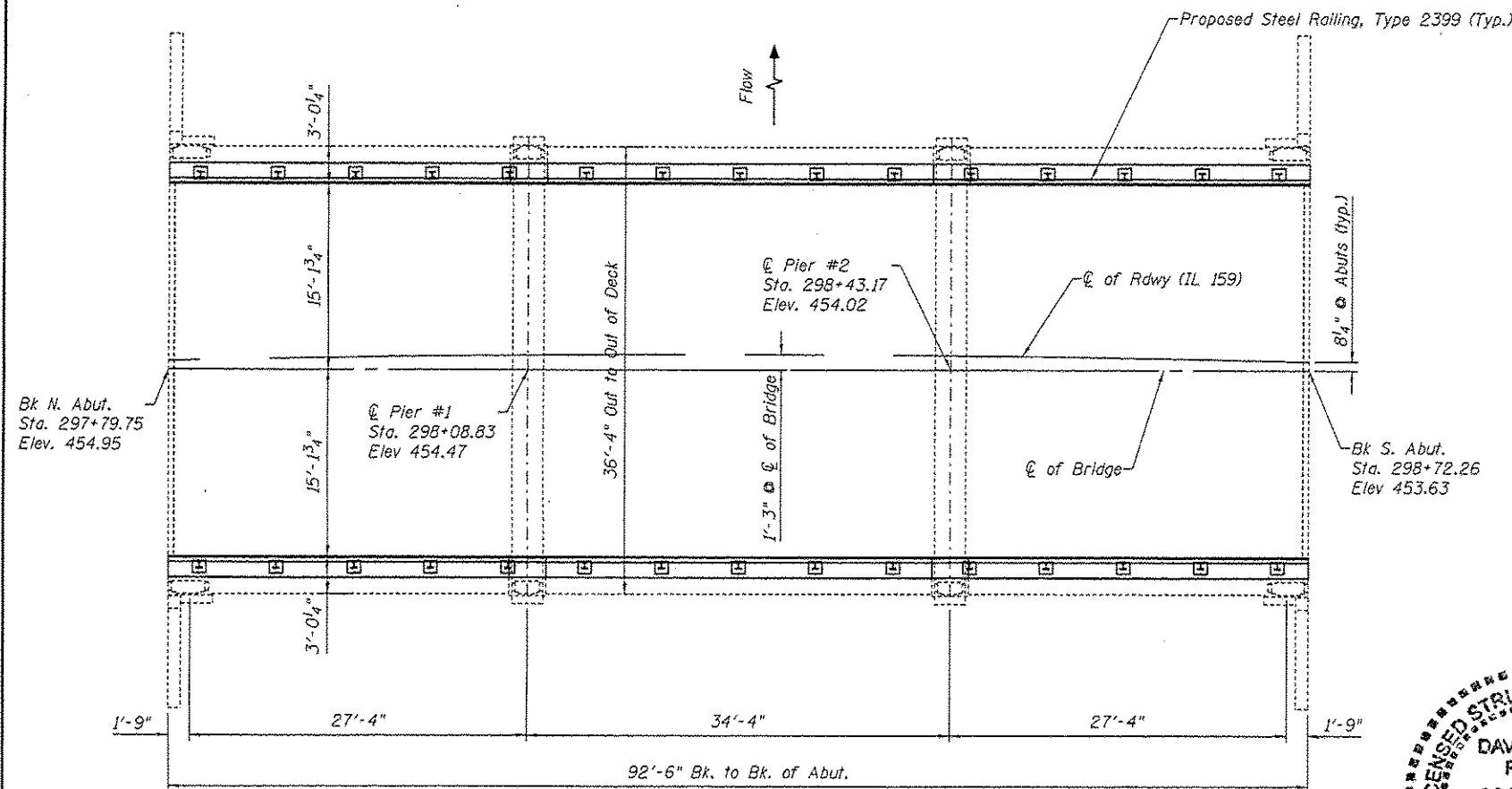
ELEVATION

**GENERAL NOTES**

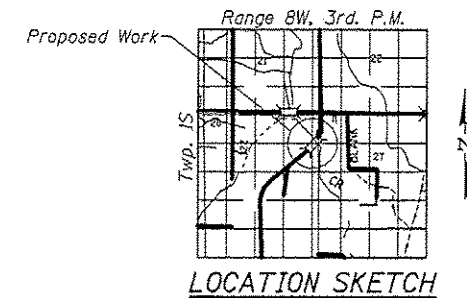
Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall 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.

Existing reinforcement bars extending into 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.



PLAN



LOCATION SKETCH

**INDEX OF SHEETS**

1. General Plan & Elevation
2. Deck Cross Section
3. Concrete Removal & Replacement
4. Steel Railing, Type 2399

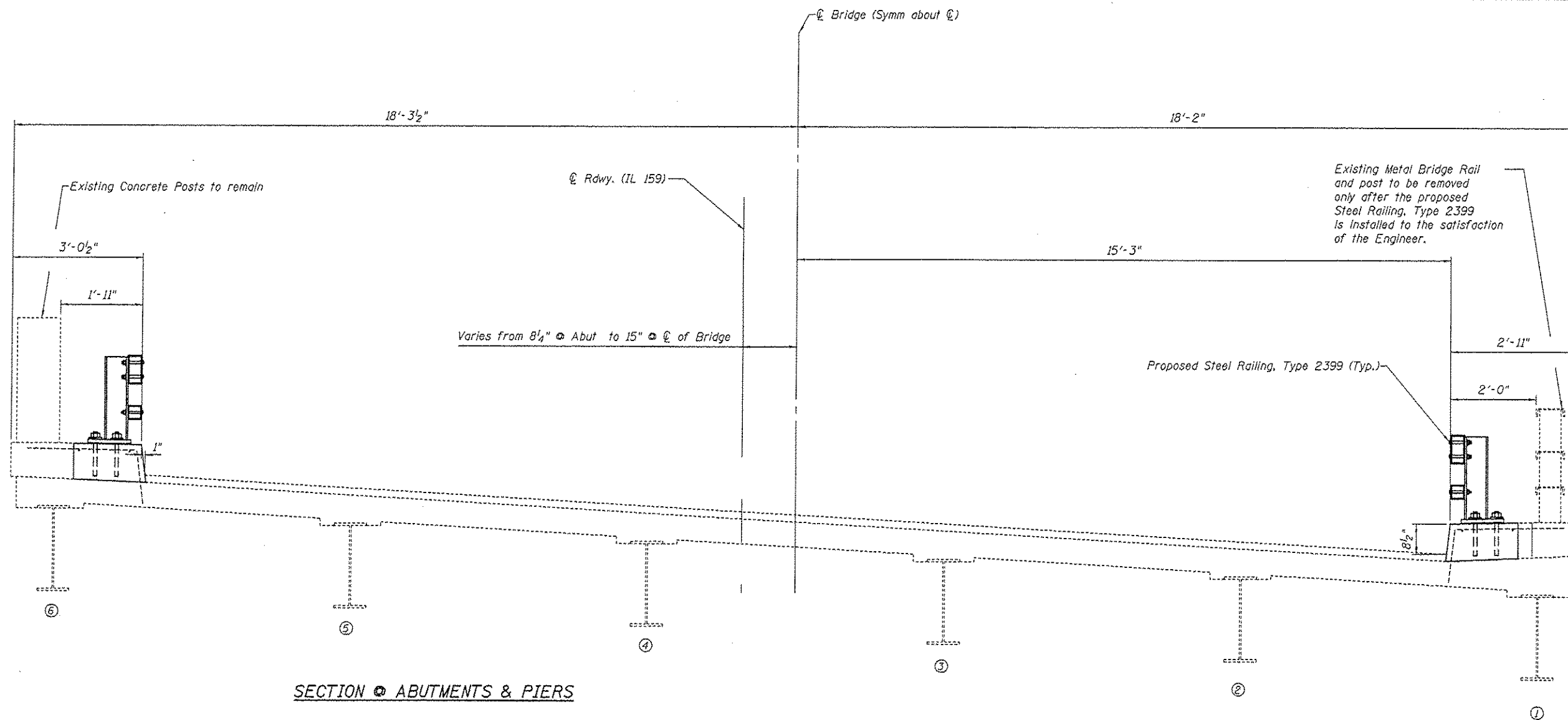
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Steel Railing, Type 2399	Foot	185
Bridge Rail Removal	Foot	162
Concrete Removal	Cu. Yd.	9.6
Concrete Superstructure	Cu. Yd.	9.6
Reinforcement Bars, Epoxy Coated	Pound	380



Remove existing metal Bridge Rail and metal Bridge Rail post on bridge.  
Install new curb-mounted Steel Railing, Type 2399

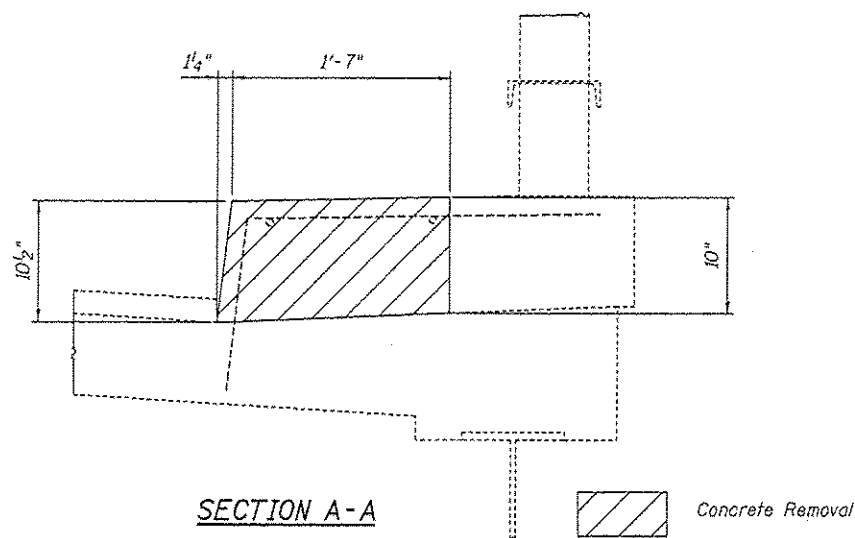
DESIGNED: AYY	EXAMINED: [Signature]	DATE: 4/27/15	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN AND ELEVATION (IL 159 over Douglas Creek) SN 082-0071	F.A.P. RTE. 600	SECTION 46BR-1	COUNTY ST. CLAIR	TOTAL SHEETS 9	SHEET NO. 6	
CHECKED: ATH	PASSED: [Signature]	REVISOR:			ILLINOIS FED. AID PROJECT			CONTRACT NO. 76H68		
DRAWN: AYY	REVISOR:	REVISOR:			SHEET NO. 1 OF 4 SHEETS					
CHECKED: ATH	REVISOR:	REVISOR:								



**SECTION ABUTMENTS & PIERS**

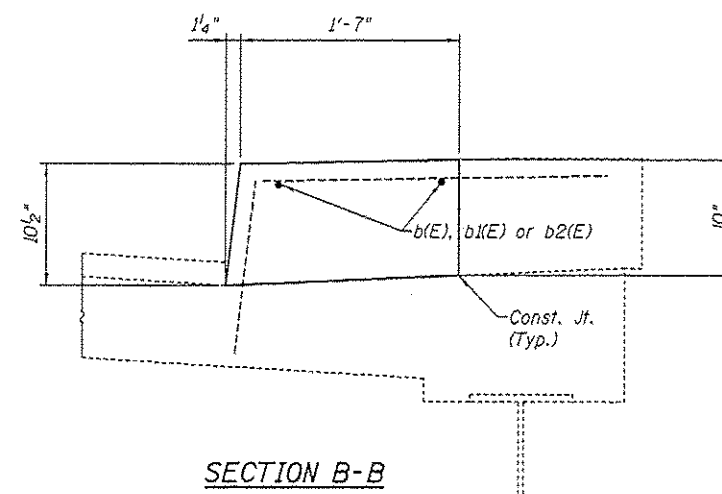
**TYPICAL SECTION**

**CROSS SECTION**  
(Looking South)



**SECTION A-A**

Concrete Removal



**SECTION B-B**

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
b(E)	8	#5	27'-3"	———
b1(E)	8	#5	2'-9"	———
b2(E)	4	#5	31'-0"	———
Reinforcement Bars, Epoxy Coated			Pound	380
Concrete Superstructure			Cu. Yds.	9.6
Concrete Removal			Cu. Yds.	9.6

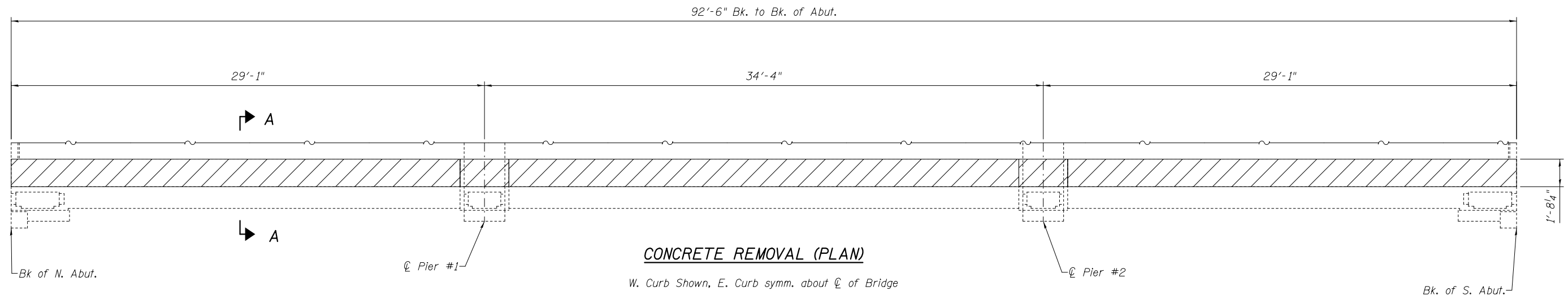
DESIGNED - AYV	EXAMINED	DATE -
CHECKED -	ENGINEER OF STRUCTURAL SERVICES	
DRAWN - AYV	PASSED	REVISED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES	REVISED

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**CROSS SECTION**  
**SN 082-0071**

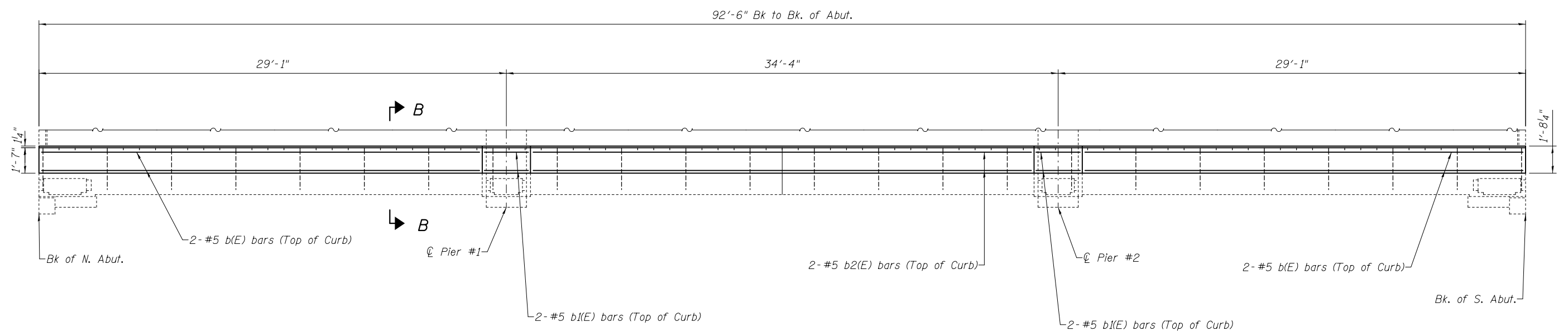
SHEET NO. 2 OF 4 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
600	46BR-1	ST. CLAIR	9	7
CONTRACT NO. 76H68				
ILLINOIS FED. AID PROJECT				



**CONCRETE REMOVAL (PLAN)**

W. Curb Shown, E. Curb symm. about C of Bridge



**CONCRETE REPLACEMENT (PLAN)**

W. Curb Shown, E. Curb symm. about C of Bridge



Note: See sheet 2 of 4 for Sections A-A & B-B

DESIGNED - AYV	EXAMINED	DATE -
CHECKED -	ENGINEER OF STRUCTURAL SERVICES	
DRAWN - AYV	PASSED	REVISED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

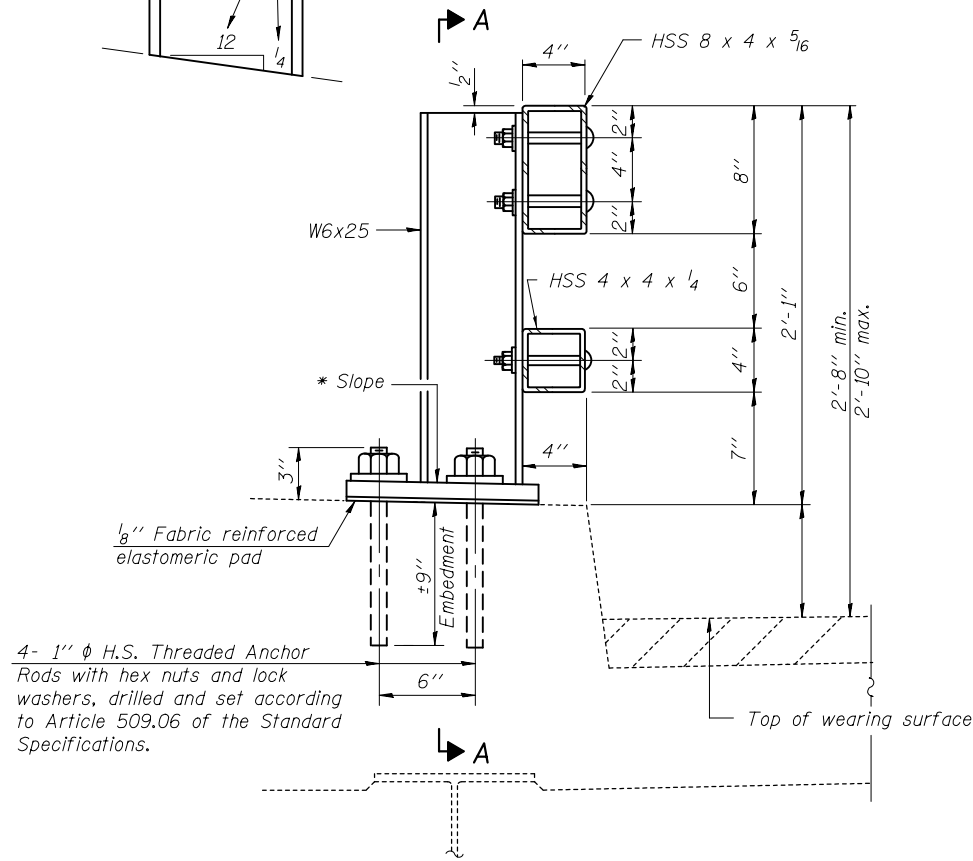
**CONCRETE REMOVAL & REPLACEMENT  
SN 082-0071**

SHEET NO. 3 OF 4 SHEETS

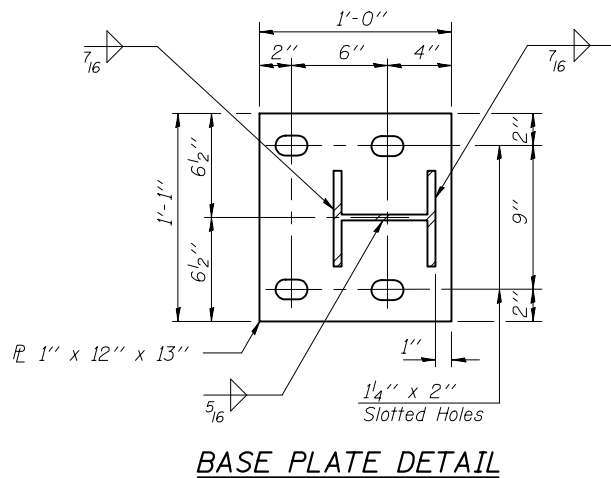
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
600	46BR-I	ST. CLAIR	9	8
CONTRACT NO. 76H68			ILLINOIS FED. AID PROJECT	



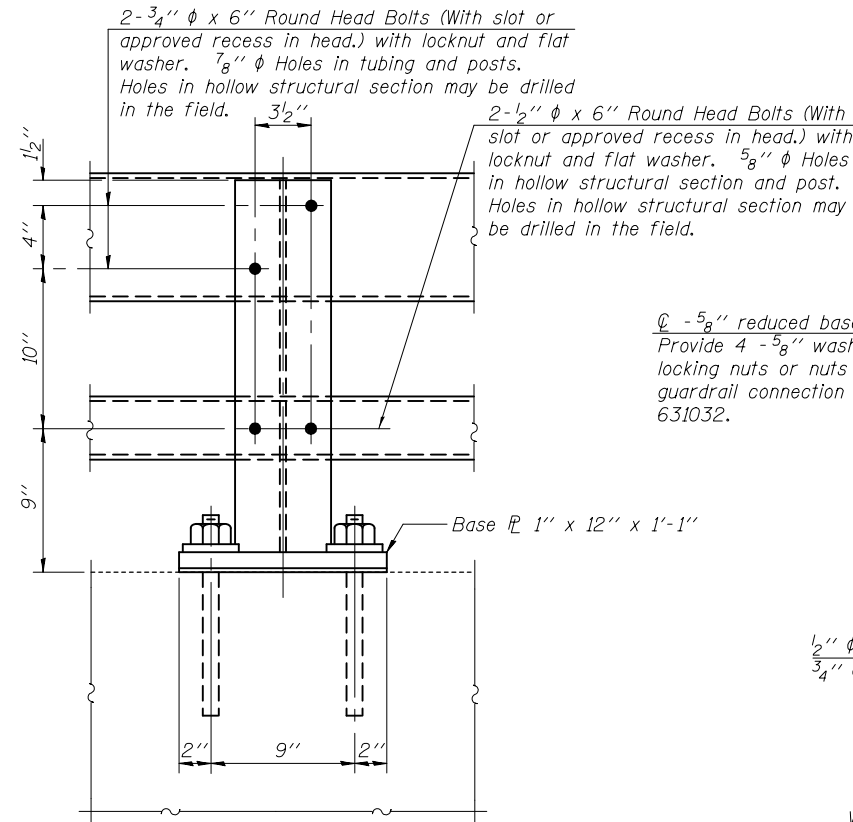
\* Cut bottom end of post to curb slope.



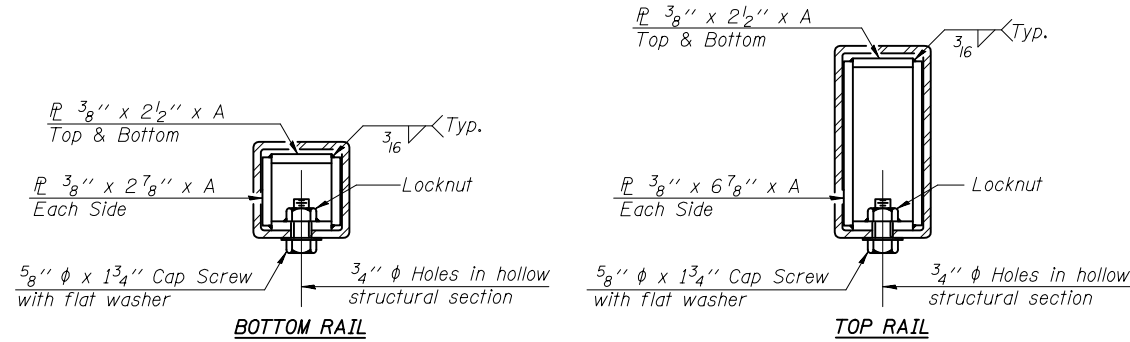
**SECTION AT RAIL POST**



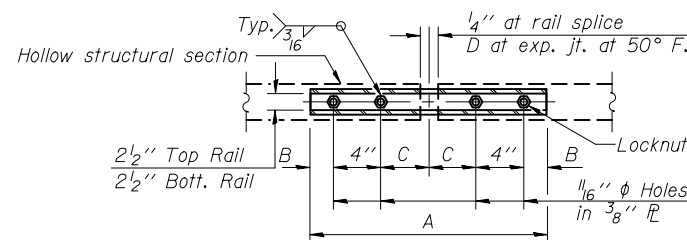
**BASE PLATE DETAIL**



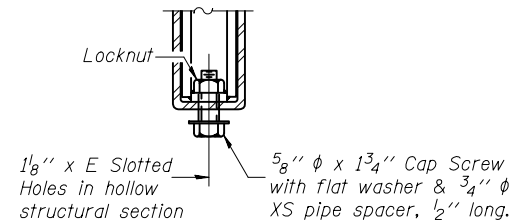
**SECTION A-A**



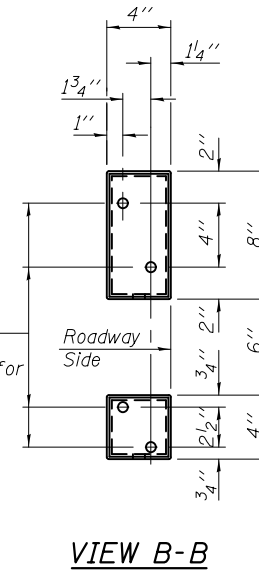
**SECTIONS AT RAIL SPLICE**



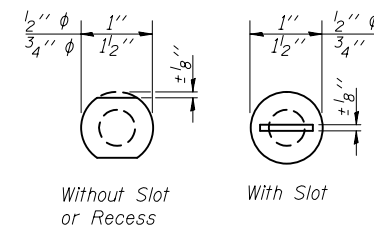
**PLAN-BOTT. SPLICE R TYPICAL**



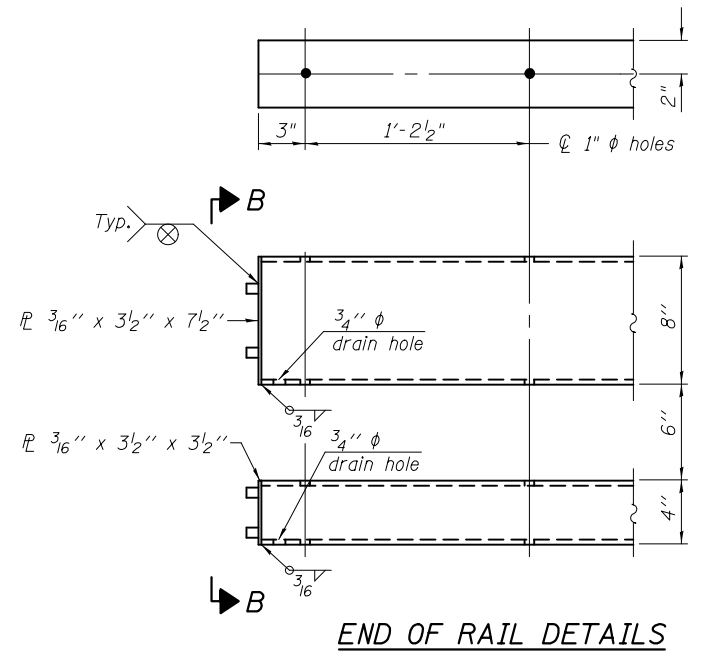
**RAIL SPLICE CONNECTION AT EXPANSION JT.**



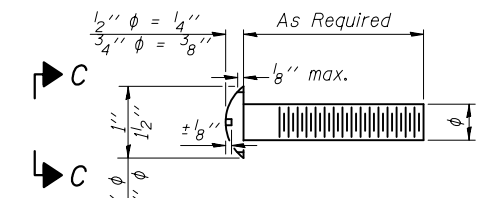
**VIEW B-B**



**VIEW C-C**



**END OF RAIL DETAILS**



**DETAIL OF 1/2" & 3/4" ROUND HEAD BOLTS**

**Notes:**

All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 Posts shall not be located closer than 1'-3" to an existing bridge expansion joint or end of bridge.  
 Steel Bridge Rail expansion joint shall be provided between any two (2) posts which span a bridge expansion joint. Bolts located at expansion joint shall be provided with locknuts and shall be tightened only to a point that will allow railing movement.  
 Provide one 1/8" and two 1/16" steel shims for 25% of the posts. Shims shall be similar to base plates in size and holes.  
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

**SPLICE DIMENSIONS**

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	—

T = Total movement at expansion joint as shown on the design plans.

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type 2399	Foot	185

R-31

7-1-10

(6'-3" Maximum Post Spacing)

DESIGNED	AYV	EXAMINED	DATE -
CHECKED		ENGINEER OF STRUCTURAL SERVICES	
DRAWN	AYV	PASSED	REVISOR
CHECKED		ENGINEER OF BRIDGES AND STRUCTURES	REVISOR

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**STEEL RAILING, TYPE 2399  
STRUCTURE NO. 082-0071**

SHEET NO. 4 OF 4 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
600	46BR-I	ST. CLAIR	9	9
ILLINOIS FED. AID PROJECT			CONTRACT NO. 76H68	