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06-16-2017 LETTING ITEM 240

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**UTILITY CONTACTS**

**GAS:**  
 NICOR  
 PATRICIO MUNOZ  
 (815) 272-9269

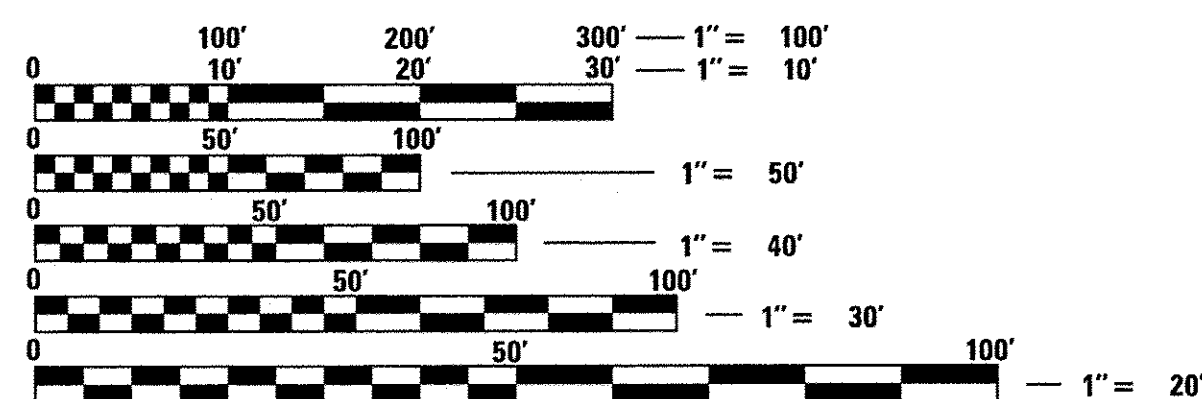
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**ELECTRIC:**  
 COMMONWEALTH EDISON  
 TOM STUTZMAN  
 (630) 437-2236

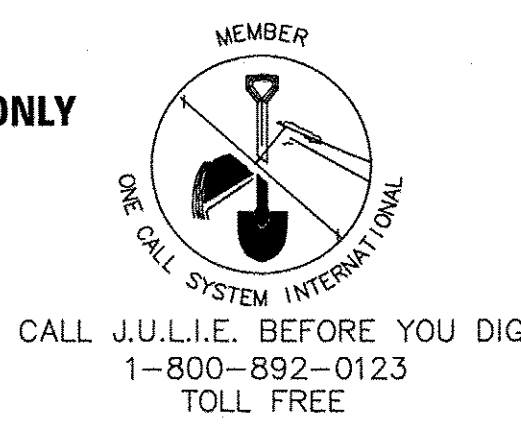
**CABLE TELEVISION:**  
 MEDIACOM  
 DARIN W. DEAN  
 (563) 584-0589 x114

**ATTENTION CONTRACTORS**

THE ILLINOIS DEPARTMENT OF TRANSPORTATION BUREAU OF MATERIALS AND PHYSICAL RESEARCH, "PROJECT PROCEDURES GUIDE", IS APPLICABLE TO THIS PROJECT.



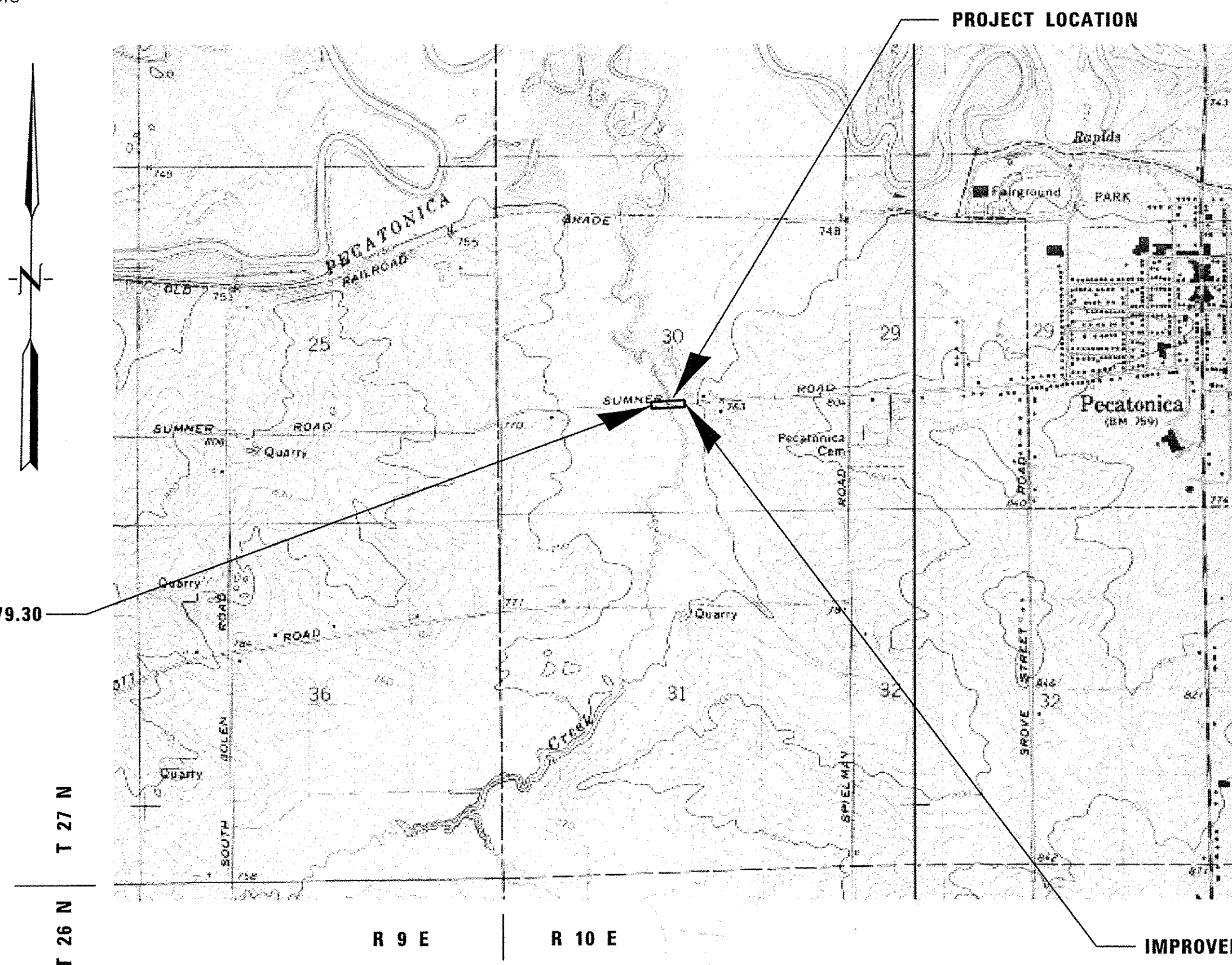
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.



CALL J.U.L.I.E. BEFORE YOU DIG  
 1-800-892-0123  
 TOLL FREE

IMPROVEMENT BEGINS STA. 7+79.30

IMPROVEMENT ENDS STA. 12+44.71



*Mark R. Rice* 4-11-17  
 MARK R. RICE  
 IL REGISTRATION #062-044509  
 EXPIRATION DATE 11/30/17



PLAN & PROFILE SCALES 1"=20' HORIZ. ; 1"=5' VER.  
 CROSS SECTION SCALES 1"=5' HORIZ. ; 1"=2' VER.

**STATE OF ILLINOIS**

**DEPARTMENT OF TRANSPORTATION**

**DIVISION OF HIGHWAYS**

**PLANS FOR PROPOSED SURFACE TRANSPORTATION PROGRAM - BRIDGE WINNEBAGO COUNTY - PECATONICA TOWNSHIP**

**SECTION 04-08124-00-BR**

**(TR 125) SUMNER ROAD BRIDGE**

**over SUMNER CREEK**

**PROJECT NUMBER BROS-0201(033)**

**JOB NUMBER C-92-062-16**

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 125	04-08124-00-BR	WINNEBAGO	16	1
		ILLINOIS	CONTRACT NO. 85655	



APPROVED April 19 2017  
*Brian T. Seger*  
 PECATONICA TOWNSHIP ROAD COMMISSIONER

APPROVED April 17 2017  
*John W. Sawyer*  
 WINNEBAGO COUNTY ENGINEER

PASSED April 24 2017  
*John W. Sawyer*  
 DISTRICT 2 ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW April 24 2017  
*Kevin Marchek*  
 DEPUTY DIRECTOR OF HIGHWAYS, REGION 2 ENGINEER

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

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**CONTRACT NO. 85655**

**McClure**  
 Engineering Associates, Inc.  
 7282 Argus Drive  
 Rockford, Illinois 61107-5837  
 (815) 398-2332  
 Design Firm License: #Illinois 184-000816

PROJECT LENGTH : 466.00 FT. (0.088 MI.)  
 SUMNER ROAD FUNCTIONAL CLASSIFICATION : MINOR COLLECTOR ADT=550 (2017); 1% TRUCKS

**GENERAL NOTES**

- THE WORK INCLUDED IN THESE PLANS SHALL REFERENCE THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED APRIL 1, 2016 AND THE LATEST SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS.
- THE THICKNESS OF BITUMINOUS MIXTURES SHOWN ON THE PLANS IS THE NORMAL THICKNESS. DEVIATIONS FROM THE NORMAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE BITUMINOUS MIXTURE IS PLACED.
- THE ENGINEER WILL BE THE SOLE JUDGE CONCERNING CURING TIME FOR THE VARIOUS BITUMINOUS LIFTS.
- FOR STABILIZATION, ALL TYPE III BARRICADES SHALL REQUIRE A MINIMUM OF FOUR SANDBAGS PER BARRICADE.
- SEEDING SHALL NOT BE PERMITTED AT ANY TIME WHEN THE GROUND IS FROZEN, WET OR IN AN UNTILLABLE CONDITION. LOCATIONS TO BE SEEDED WILL BE DETERMINED BY THE ENGINEER.
- THE FINISHED EARTHWORK SHALL HAVE A VEGETATION SUSTAINING SOIL COVERING THE TOP FOUR INCHES IN AREAS TO BE SEEDED OR SODDED. THE VEGETATION SUSTAINING SOIL REQUIRED WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF FURNISHED EXCAVATION.
- ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUBNUMBER LISTED ON THE INDEX OF SHEETS OR THE COPY OF THE STANDARD INCLUDED IN THESE PLANS.
- THE LOCATIONS OF EXISTING WATERMAIN, GAS MAIN, SEWERS, ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT THEY ARE NOT GUARANTEED. ALL UTILITY LOCATIONS SHOWN ARE SUPPLIED BY THE UTILITY COMPANIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE UTILITY COMPANIES AND BY FIELD INSPECTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES.
- ALL DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE.
- PROVIDE POSITIVE DRAINAGE AT ALL TIMES WITHIN THE CONSTRUCTION AREA.

- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE ENCOUNTERED BETWEEN THE PLANS AND SPECIFICATIONS AND THE EXISTING FIELD CONDITIONS.
- ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED TO FURNISH AND INSTALL THE PCC DECK BEAMS AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR PRECAST, PRESTRESSED CONCRETE DECK BEAMS. THIS SHALL INCLUDE DRILLING AND INSTALLING DOWELS AS REQUIRED.
- BACKFILL SHALL BE PLACED BEHIND THE ABUTMENTS IN ACCORDANCE WITH ARTICLE 502.10 OF THE STANDARD SPECIFICATIONS.

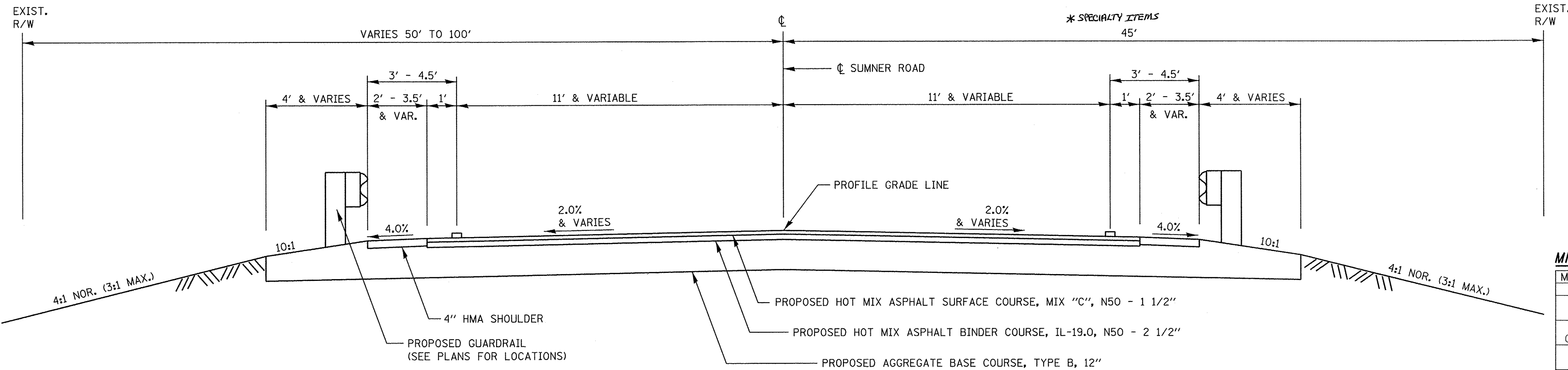
**APPLICATION RATES :**

HOT MIX ASPHALT - 112#/IN./SY  
 SEEDING - 154 LB./AC. IN ACCORDANCE WITH ARTICLE 250.07  
 FERTILIZER NUTRIENTS - 270 LB./AC. AT ANALYSIS OF 10-10-10  
 MULCH - 2 TON/AC.  
 PRIME COAT - 0.25 LBS./SF RESIDUAL ASPHALT

**SUMMARY OF QUANTITIES**

CONSTRUCTION TYPE CODE: 0011

ITEM NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CY	176
20400800	FURNISHED EXCAVATION	CY	352
20700220	POROUS GRANULAR EMBANKMENT	CY	58.8
21101615	TOPSOIL FURNISH AND PLACE, 4"	SY	821
25000300	SEEDING, CLASS 3	AC	0.17
25000400	NITROGEN FERTILIZER NUTRIENT	LB	15
25000500	PHOSPHORUS FERTILIZER NUTRIENT	LB	15
25000600	POTASSIUM FERTILIZER NUTRIENT	LB	15
25100105	MULCH, METHOD 1	AC	0.17
25100630	EROSION CONTROL BLANKET	SY	1500
28000250	TEMPORARY EROSION CONTROL SEEDING	LB	20
28000305	TEMPORARY DITCH CHECKS	FOOT	16
28000400	PERIMETER EROSION BARRIER	FOOT	660
28100107	STONE RIPRAP CLASS A4	SY	376
28200200	FILTER FABRIC	SY	376
35102400	AGGREGATE BASE COURSE TYPE B, 12"	SY	680
40600275	BITUMINOUS MATERIALS, (PRIME COAT)	POUND	1251
40603080	HOT MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	78
40603310	HOT MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	111
44000100	PAVEMENT REMOVAL	SY	520
44213200	SAW CUTS	FOOT	44
48101500	AGGREGATE SHOULDER, TYPE B, 6"	SY	290
48203013	HOT-MIX ASPHALT SHOULDERS 4"	SY	120
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CY	225
50300225	CONCRETE STRUCTURES	CY	45.7
50300280	CONCRETE ENCASEMENT	CY	25.8
50400405	PRECAST, PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SF	4214
50800205	REINFORCEMENT BARS, EPOXY COATED	LB	4320
*50901050	STEEL BRIDGE RAILING, TYPE SM	FOOT	305
51200958	FURNISHING METAL SHELL PILES, 14" X 0.250"	FOOT	1830
51202305	DRIVING PILES	FOOT	1830
51203200	TEST PILE METAL SHELLS	EA	4
51500100	NAME PLATES	EA	1
58100200	WATERPROOFING MEMBRANE SYSTEM	SY	469
58300100	P.C. MORTAR FAIRING COURSE	FOOT	904
*63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6' POSTS	FOOT	50
*63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
*63100167	TRAFFIC BARRIER TERMINAL, TYPE 1, SPECIAL (TANGENT)	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	108
67100100	MOBILIZATION	LSUM	1
*72501000	TERMINAL MARKER, DIRECT APPLIED	EA	4
X7010216	TRAFFIC CONTROL AND PROTECTION SPECIAL	LSUM	1
20013798	CONSTRUCTION LAYOUT	LSUM	1

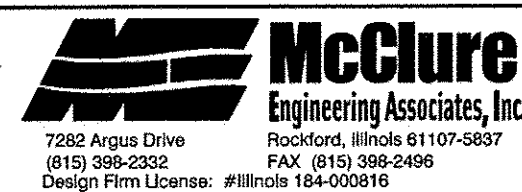


**PROPOSED TYPICAL SECTION**  
 STA. 8+00.00 TO 9+35.74 & 10+88.28 TO 11+75.00

**MIXTURES TABLE**

MIXTURE USES	HMA BINDER	HMA SURFACE
PG GRADE	PG 64-22	PG 70-22
DESIGN AIR VOIDS	4.0% @ N50	4.0% @ N50
MIXTURE COMPOSITION	IL-19.0	IL-9.5
FRICTION AGGREGATE	N/A	MIX C
MAX % RAP ALLOWABLE	PER IDOT BDE SP	PER IDOT BDE SP

\* MIX TONNAGES ARE BASED ON THE DENSITY VALUE OF 112.0 LB/SQ YD/IN.



DESIGNED - CTB	REVISOR - MML 01-04-2017
DRAWN -	REVISOR - MML 04-10-17
CHECKED - JWH	REVISOR -
DATE - NOV. 2016	REVISOR -

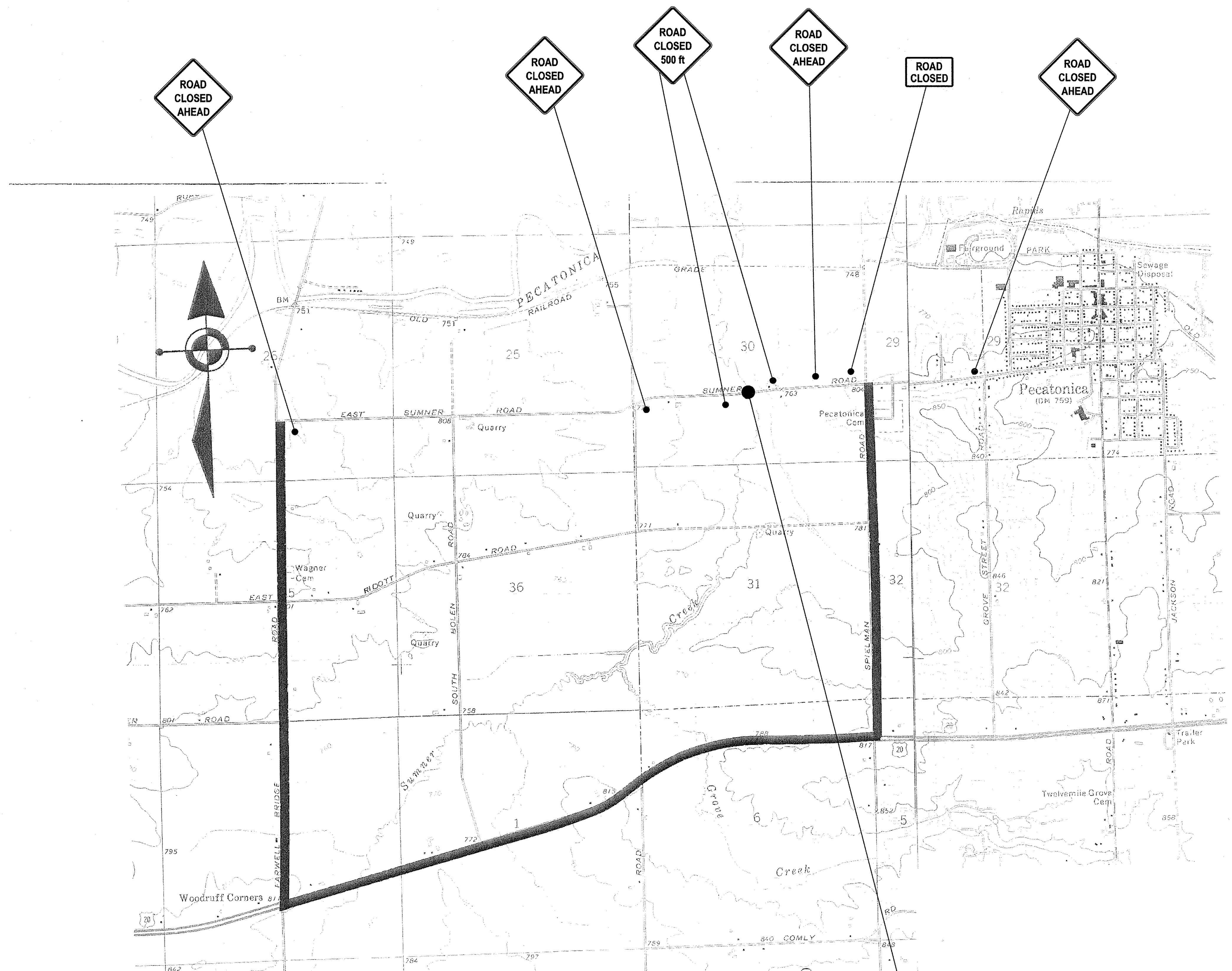
DESIGNED - CTB	REVISOR - MML 01-04-2017
DRAWN -	REVISOR - MML 04-10-17
CHECKED - JWH	REVISOR -
DATE - NOV. 2016	REVISOR -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES  
 & TYPICAL SECTION**

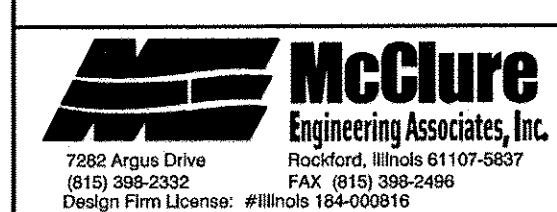
SCALE: SHEET OF SHEETS STA. TO STA.

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	2
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



DETOUR ROUTE (UNMARKED)

BRIDGE LOCATION



DESIGNED - JWH	REVISED -
DRAWN - MML	REVISED -
CHECKED - JWH	REVISED -
DATE - APRIL 2016	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLAN

SCALE:	SHEET	OF	SHEETS	STA.	TO	STA.
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T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	3
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
[ILLINOIS] FED. AID PROJECT				

**ROAD  
CLOSED**

R11-2

**ROAD  
CLOSED**

R11-2

ROAD  
CLOSED  
TO  
THRU TRAFFIC  
R11-4

ROAD  
CLOSED  
TO  
THRU TRAFFIC  
R11-4

COMPLETE CLOSURE TYPE III  
BARRICADES SHALL BE PLACED  
AT THE LAST ENTRANCE ACCESS  
IS REQUIRED.

SIGNING  
ACCORDING  
TO BLR 21

SIGNING  
ACCORDING  
TO BLR 22

GOEKE Rd.

SPIELMAN Rd.

⑧

BARRICADE DETAIL

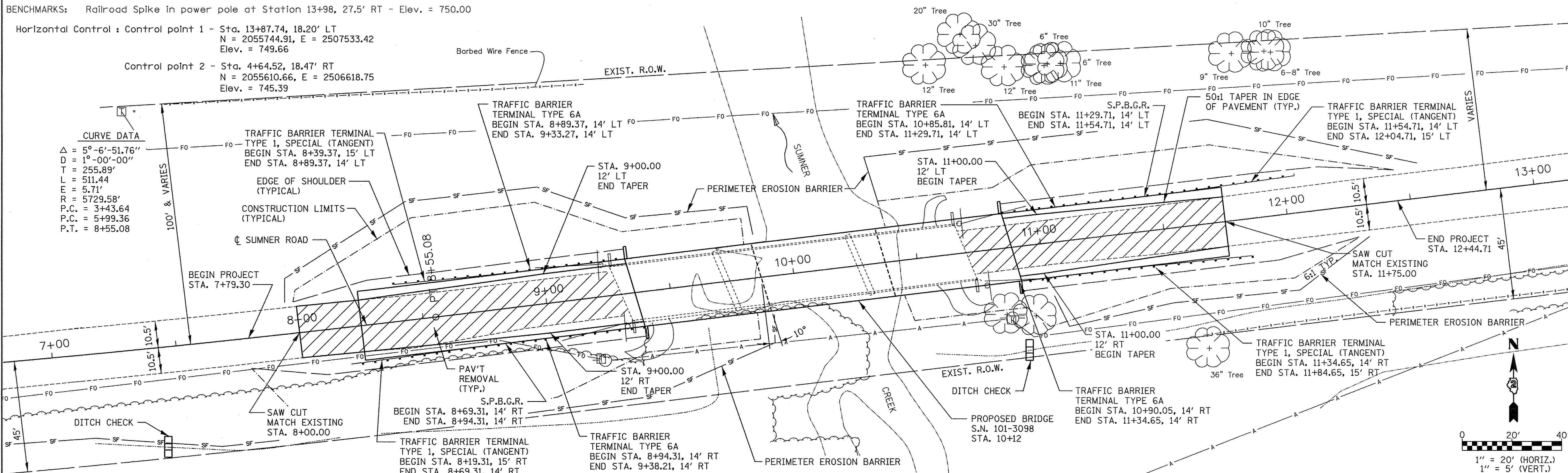
BENCHMARKS: Railroad Spike in power pole at Station 13+98, 27.5' RT - Elev. = 750.00

Horizontal Control : Control point 1 - Sta. 13+87.74, 18.20' LT  
 N = 2055744.91, E = 2507533.42  
 Elev. = 749.66

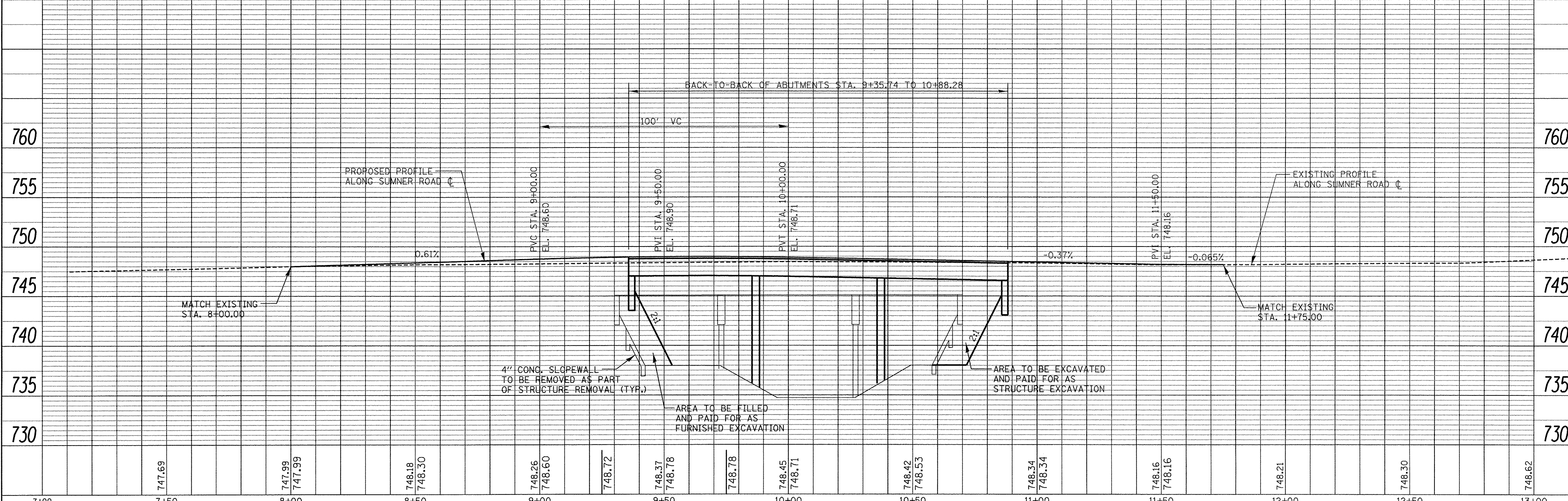
Control point 2 - Sta. 4+64.52, 18.47' RT  
 N = 2055610.66, E = 2506618.75  
 Elev. = 745.39

**CURVE DATA**  
 $\Delta = 5^\circ - 6' - 51.76''$   
 $D = 1^\circ - 00' - 00''$   
 $T = 255.89'$   
 $L = 511.44'$   
 $R = 5729.58'$   
 $P.C. = 3+43.64$   
 $P.T. = 5+99.36$   
 $P.T. = 8+55.08$

DATE	
BY	
REVISIONS	
NO. 1	DATE
NO. 2	DATE
NO. 3	DATE
NO. 4	DATE
NO. 5	DATE



DATE	
BY	
REVISIONS	
NO. 1	DATE
NO. 2	DATE
NO. 3	DATE
NO. 4	DATE
NO. 5	DATE



7+00	7+50	8+00	8+50	9+00	9+50	10+00	10+50	11+00	11+50	12+00	12+50	13+00										
	747.69	747.99	747.99	748.18	748.30	748.26	748.60	748.72	748.37	748.78	748.78	748.45	748.71	748.42	748.53	748.34	748.34	748.16	748.16	748.21	748.30	748.62

**McClure**  
 Engineering Associates, Inc.  
 7282 Argus Drive  
 Rockford, Illinois 61107-3837  
 (815) 395-2232  
 FAX (815) 395-2489  
 Design Firm License: #11610184-000816

USER NAME = SURVEY  
 DESIGNED - CTB  
 DRAWN -  
 CHECKED - JWH  
 DATE - NOV. 2016  
 REVISIONS  
 REVISIONS - MML 01-04-2017  
 REVISIONS - MML 04-06-2017  
 REVISIONS -  
 REVISIONS -

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

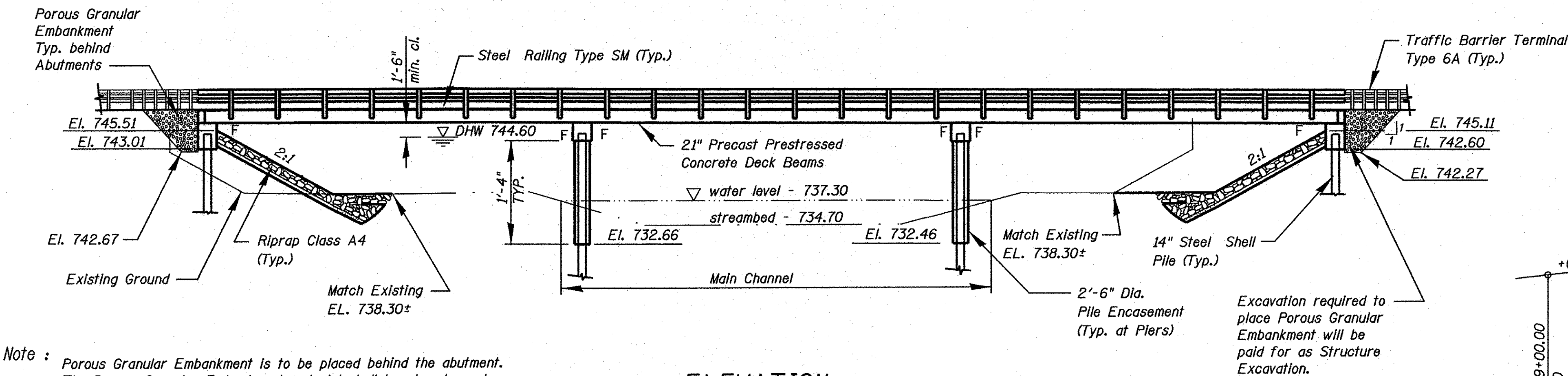
**SUMNER ROAD OVER SUMNER CREEK**  
**ROADWAY PLAN AND PROFILE**  
 SCALE: SHEET OF SHEETS STA. 7+00 TO STA. 13+00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	5
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

BENCHMARKS: Railroad Spike in power pole at Station 13+98, 27.5' RT - Elev. = 750.00

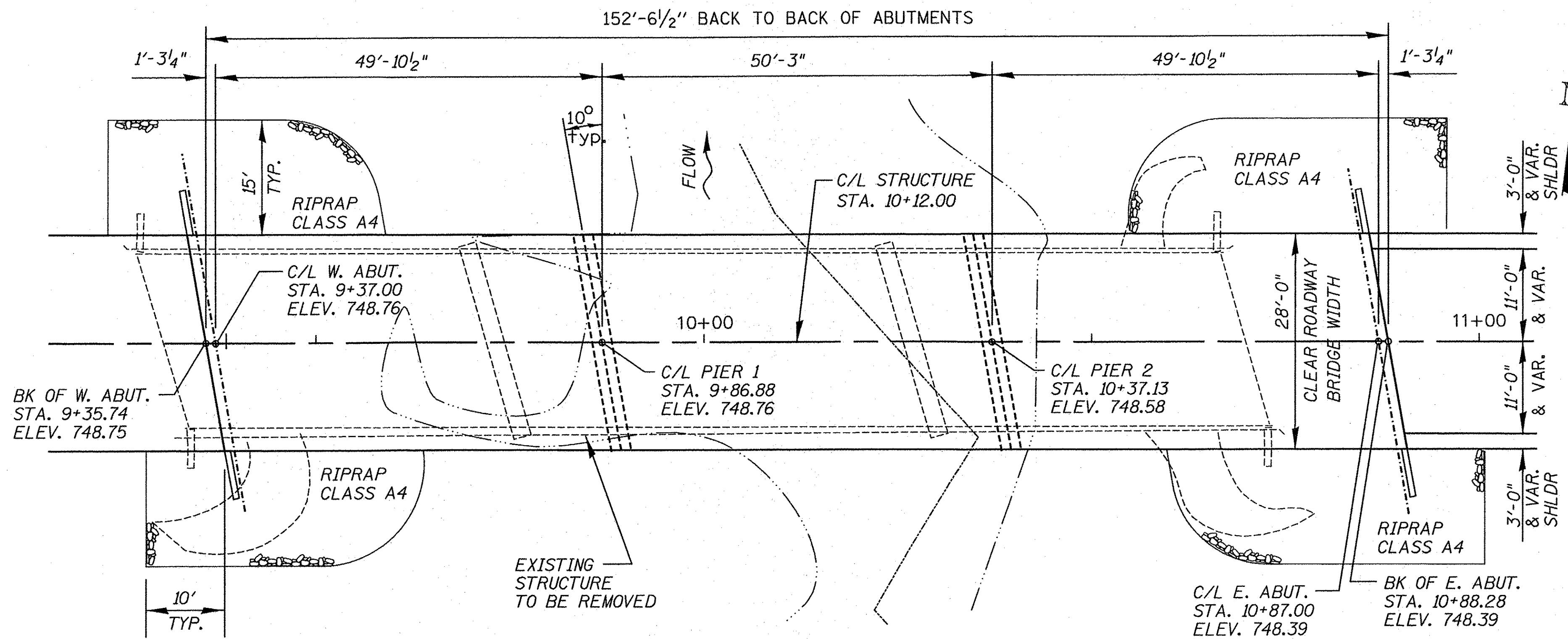
EXISTING STRUCTURE: The existing structure (101-3015) is a three span 140 ft long and 24 ft wide. Sumner Road will be closed during construction.

No salvage.



Note : Porous Granular Embankment is to be placed behind the abutment. The Porous Granular Embankment material shall be placed as shown directly under and for the full-width of the Aggregate Base Course of the approach roadway. Beyond the site limits of the Aggregate Base Course of the approach roadway, the Porous Granular Embankment material shall diminish in height from the full depth shown, utilizing a lateral slope of 1:1 to the bottom of the abutment cutoff wall at Elevation 742.67(W) & 742.27(E).

**ELEVATION**



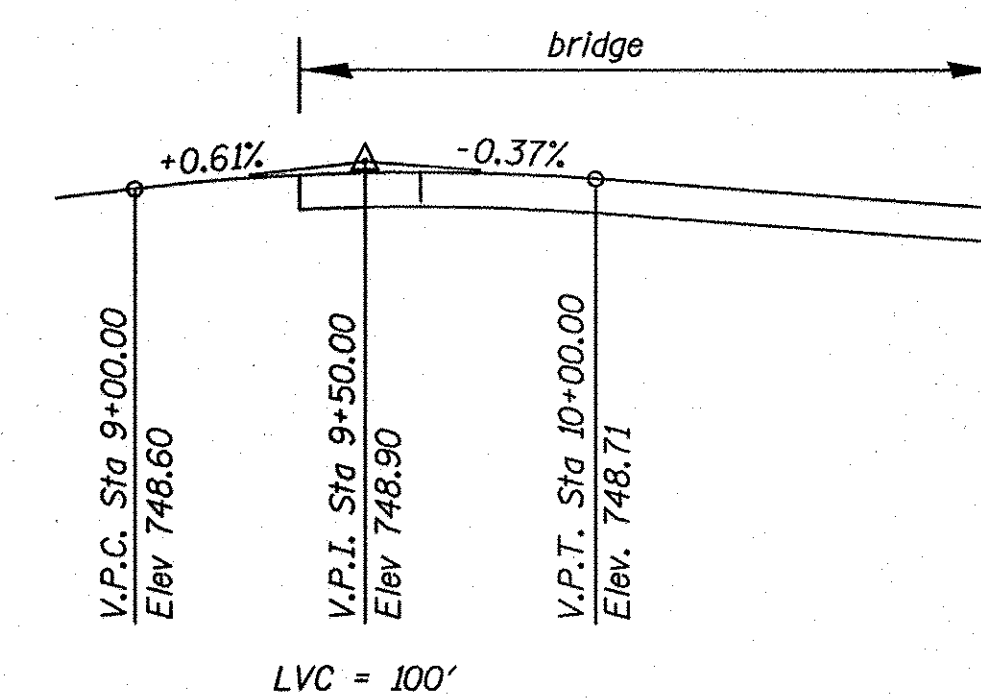
**PLAN**

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft)	W. Abut.	Pier 1	Pier 2	E. Abut.
	743.0	728.7	728.7	742.6

**WATERWAY INFORMATION**

Drainage Area = 25.36 Sq.Mi.		Low Grade Elev. = 746.49 @ Sta. 4+18.00							
Flood	Freq. Yr.	Q C.F.S.	Channel Opening Sq.Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exlst.	Prop.		Exlst.	Prop.	Exlst.	Prop.
Design	50	2,808	659	661	744.51	0.08	0.08	744.59	744.59
Base	100	3,180	686	689	744.75	0.00	0.00	744.85	744.85
Overtopping									
Max. Calc.	500	4,043	741	747	745.24	0.27	0.15	745.51	745.39



**PROFILE GRADE**  
(Along & Roadway)

**SUMNER CREEK  
BUILT 2017 BY  
WINNEBAGO COUNTY  
SEC. 04-08124-00-BR  
SUMNER RD STA. 10+12  
STR. NO. 101-3098 LOADING HL-93**

**LETTERING FOR NAME PLATE**

Locate Name Plate at Southeast Corner of Bridge (See Std. 515001)

**HIGHWAY CLASSIFICATION**

Sumner Road  
ADT: 750 (2026)  
Functional Class: Minor Rural Collector  
Design Speed: 50 mph  
Posted Speed: 45 mph

**DESIGN SPECIFICATIONS**

AASHTO LRFD Bridge Design Specifications 4th Edition, 2007

**LOADING HL-93**

Allow 25# / sq. ft. for future wearing surface

**DESIGN STRESSES**

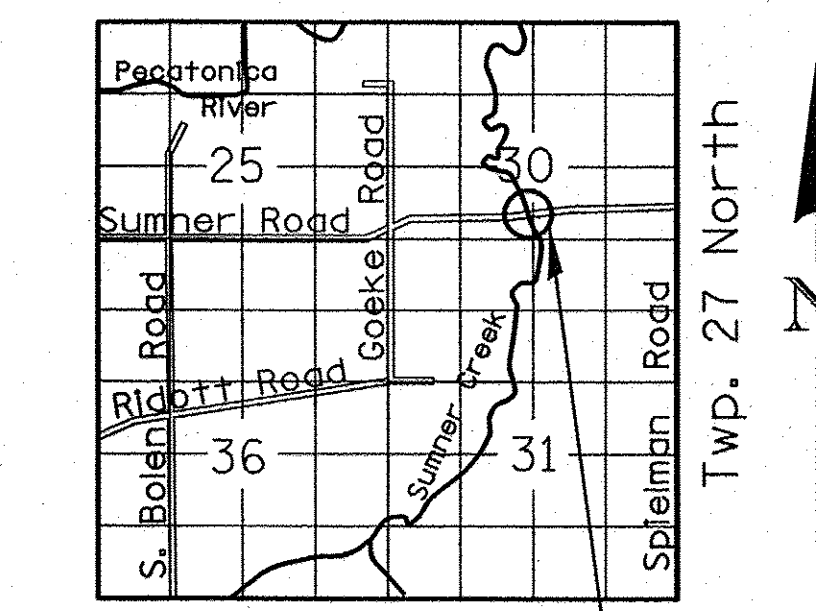
**FIELD UNITS**  
f'c = 3500 psi (Class SI Concrete)

fy = 60,000 psi (reinforcement)

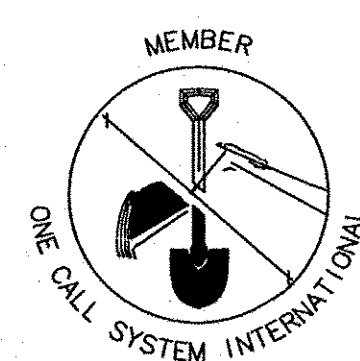
**PRECAST PRESTRESSED UNITS**

f'c = 6,000 psi  
f'ci = 5,000 psi  
f pu = 270,000 psi (1/2"  $\phi$  Low Relaxation strands)  
f pbt = 201,960 psi (1/2"  $\phi$  Low Relaxation strands)

Range 10 E - 4th P.M.

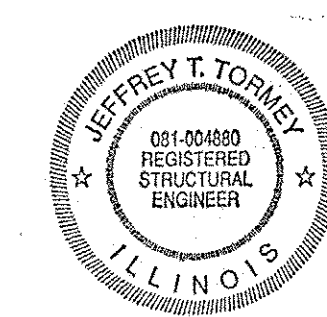


**LOCATION SKETCH**



CALL J.U.L.I.E. BEFORE YOU DIG  
1-800-892-0123  
TOLL FREE

I certify that to the best of my knowledge, information and belief, this bridge/box culvert design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.



Jeffrey T. Torney  
JEFFREY T. TORNEY  
IL REGISTRATION #081-004880  
EXPIRATION DATE 11/30/18  
DATE 4/12/17



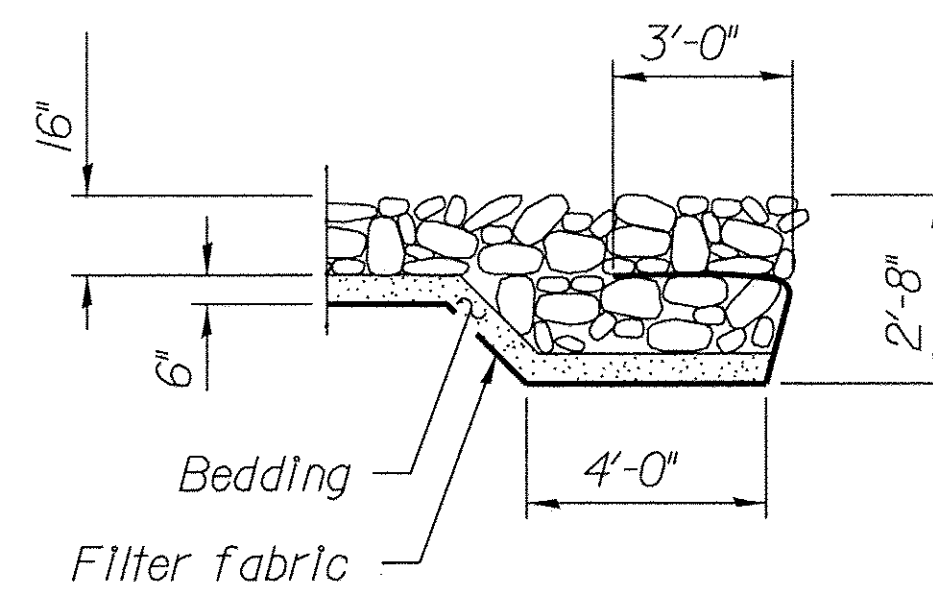
DESIGNED - CTB	REVISOR - MML 04-06-2017
CHECKED - JTT	REVISOR
DRAWN - JBB	REVISOR
CHECKED - JWH	REVISOR

PILOT SCALE =	
PILOT DATE =	

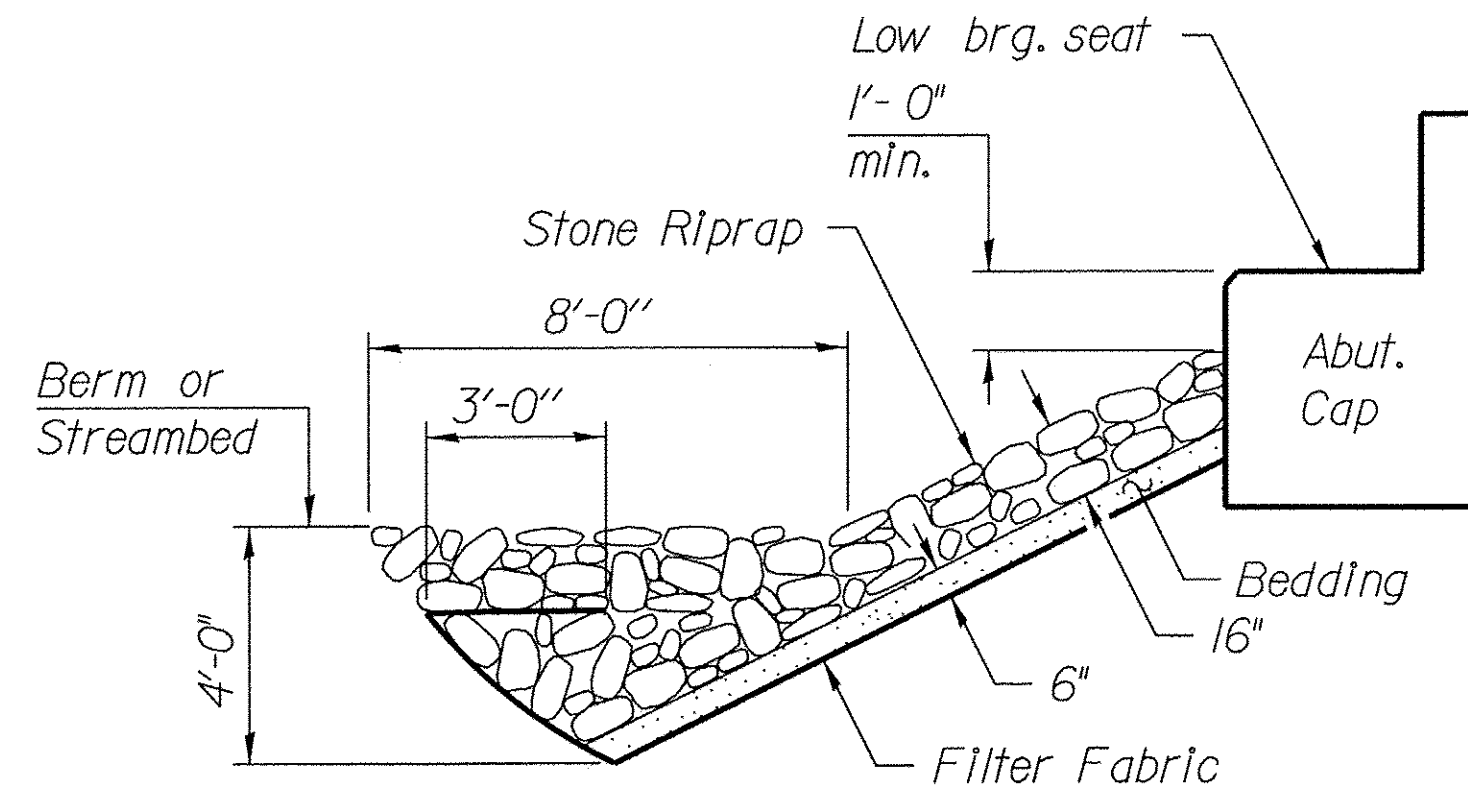
STATE OF ILLINOIS  
WINNEBAGO COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION  
STRUCTURE NO. 101-3098  
STRUCTURE SHEET NO. 1 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	6
PECATONICA TWP. ROAD DIST.			CONTRACT NO.	
ILLINOIS FED. AID PROJECT				



**FLANK STONE RIPRAP DETAIL**



**STONE RIPRAP ANCHOR DETAIL**

**GENERAL NOTES**

1. The Contractor shall drive the Test Pile to 110% of the nominal required bearing specified for the production pile before ordering the remainder of the piles. The location shall be in a permanent pile location shown on the plans. The Gates Formula Pile Driving Table is applicable to this design.
2. See Special Provisions for the Borling Logs.
3. A Calcium Nitrate corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
4. All exposed concrete edges shall have a 3/4" x 45 chamfer, unless noted otherwise. Chamfer on vertical edges shall be continued a minimum of one foot below finished ground level.
5. Reinforcement bars shall conform to the requirements of ASTM A706 Grade 60. Reinforcement bars designated (E) shall be epoxy coated.
6. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8" (0.01 ft). Adjustment shall be made either by grinding or shimming the bearings.
7. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
8. All (embedded and separate) bearing plates, side retainers, tie rods, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
9. Backfill shall be placed behind the abutment after the deck beams are in place and any false work is removed.
10. Cofferdams are intentionally not provided for the piers. It is expected that work can be completed without cofferdams by using bypass culverts. If the Contractor chooses to use cofferdams for his convenience, no additional compensation will be made for this work.
11. The removal and disposal of the concrete slope wall below the bridge shall be included in the cost of Structure Removal.

**BILL OF MATERIAL - BRIDGE**

Coded Pay Item No.	Item	Unit	Super	Sub.		Total
				Piers	Abuts.	
28100107	Stone Riprap Class A4	Sq.Yd.			376	376
28200200	Filter Fabric	Sq.Yd.			376	376
40603310	Hot Mix Asphalt Surface Course, Mix "C", N50	Ton	64			64
50100100	Removal of Existing Structures	Each				1
50200100	Structure Excavation	Cu.Yd.			225	225
50300225	Concrete Structures	Cu.Yd.		16.9	28.8	45.7
50300280	Concrete Encasement	Cu.Yd.		25.8		25.8
50400405	Precast Prestressed Concrete Deck Beams ( 21" Depth)	Sq.Ft.	4214			4214
50800205	Reinforcement Bars, Epoxy Coated	Pound		1,700	2,620	4,320
50901050	Steel Bridge Rail, Type SM	Foot	305			305
51200958	Furnishing Metal Shell Piles, 14" x 0.250"	Foot		1,190	640	1,830
51202305	Driving Piles	Foot		1,190	640	1,830
51203200	Test Pile Metal Shells	Each		2	2	4
51500100	Name Plates	Each			1	1
58000200	Waterproofing Membrane System	Sq.Yd.	469			469
58100200	PC Mortar Fining Course	Foot	904			904

**INDEX OF BRIDGE SHEETS**

- 1 General Plan & Elevation
- 2 General Notes, Index of Sheets, Bill of Material and Details
- 3 Typical Section, Camber and Type SM Rail Post Spacing
- 4 21" x 48" PPC Deck Beam
- 5 21" x 48" PPC Deck Beam Details
- 6 Pile Bent Abutment
- 7 Pile Bent Pier
- 8 Metal Shell Pile Details
- 9 Steel Railing, Type SM with Hot-Mix Asphalt Wearing Surface



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DRAWN - JBB	REVISOR -
CHECKED - JWH	REVISOR -

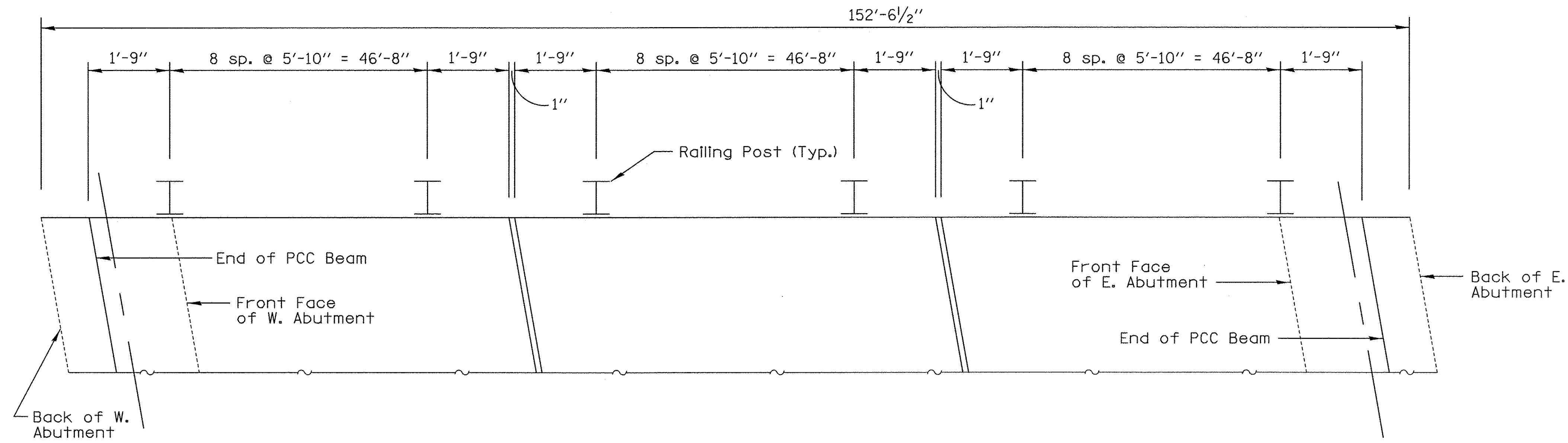
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CHECKED -	REVISOR -
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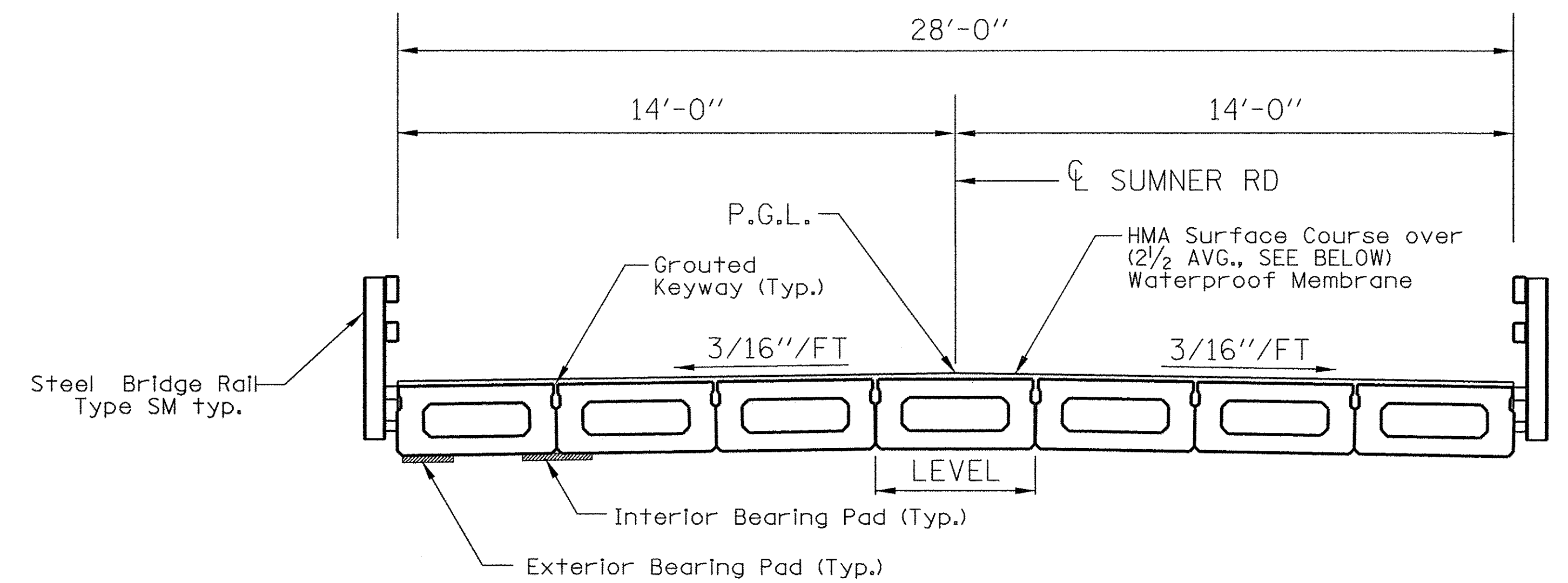
GENERAL NOTES, INDEX OF SHEETS, BILL OF MATERIAL AND DETAILS  
STRUCTURE NO. 101-3098

STRUCTURAL SHEET NO. 2 OF 9 SHEETS

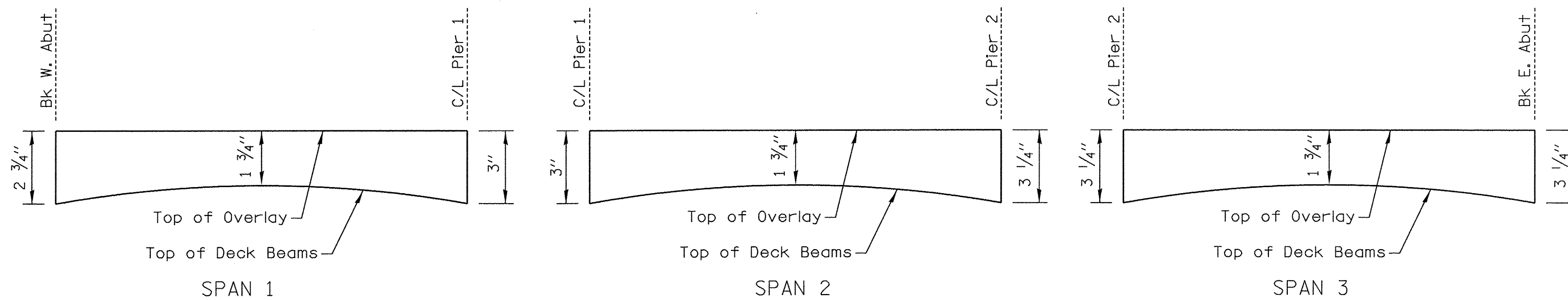
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	7
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
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TYPE SM RAILING POST SPACING



CROSS SECTION  
SUMNER ROAD OVER SUMNER CREEK



OVERLAY THICKNESS DETAIL



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CHECKED -	JWH

REVISD	MML 04-06-2017
REVISD	
REVISD	
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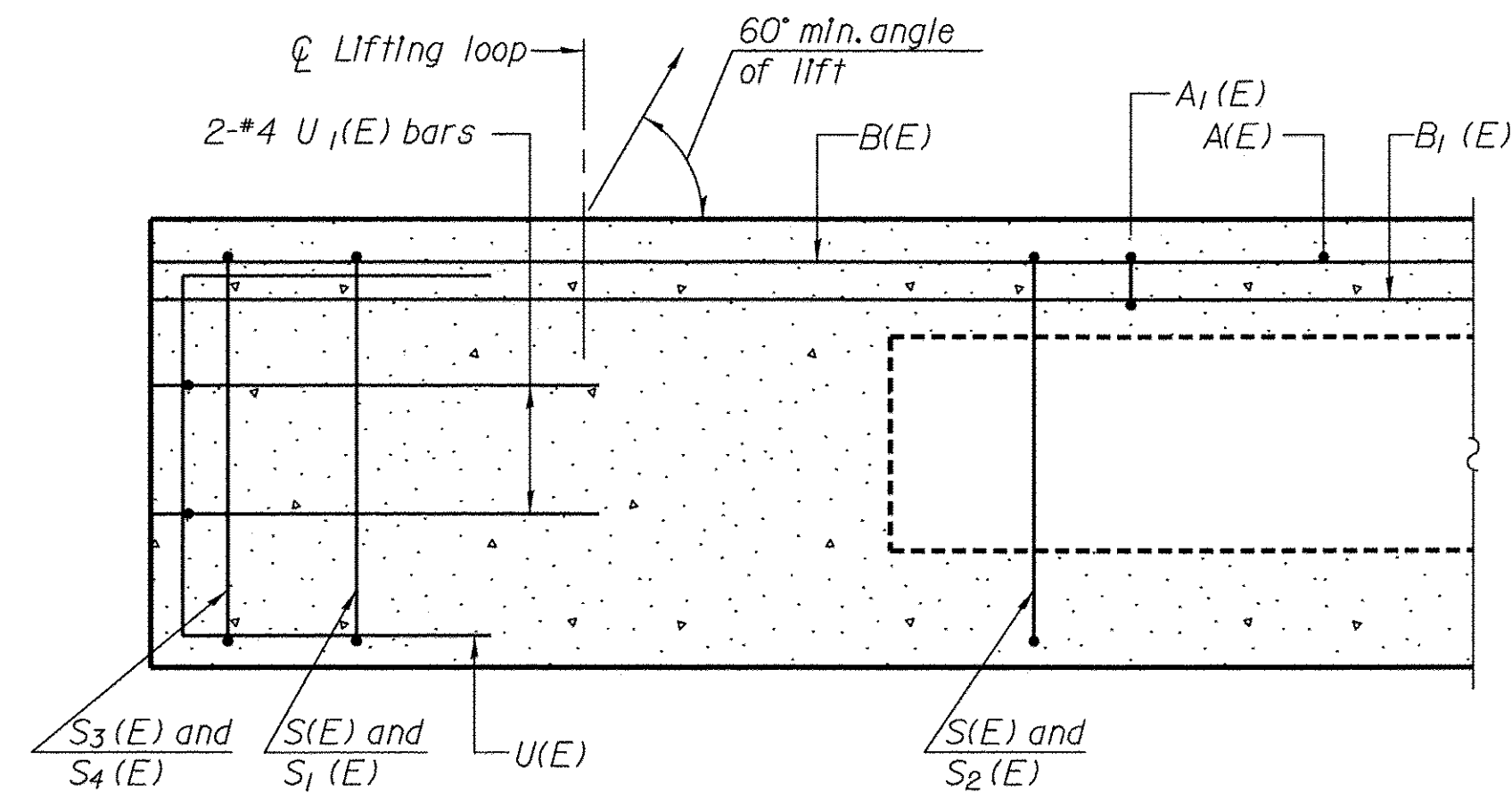
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WINNEBAGO COUNTY HIGHWAY DEPARTMENT

TYPICAL SECTION, CAMBER AND TYPE SM RAIL POST SPACING  
STRUCTURE NO. 101-3098

STRUCTURAL SHEET NO. 3 OF 9 SHEETS

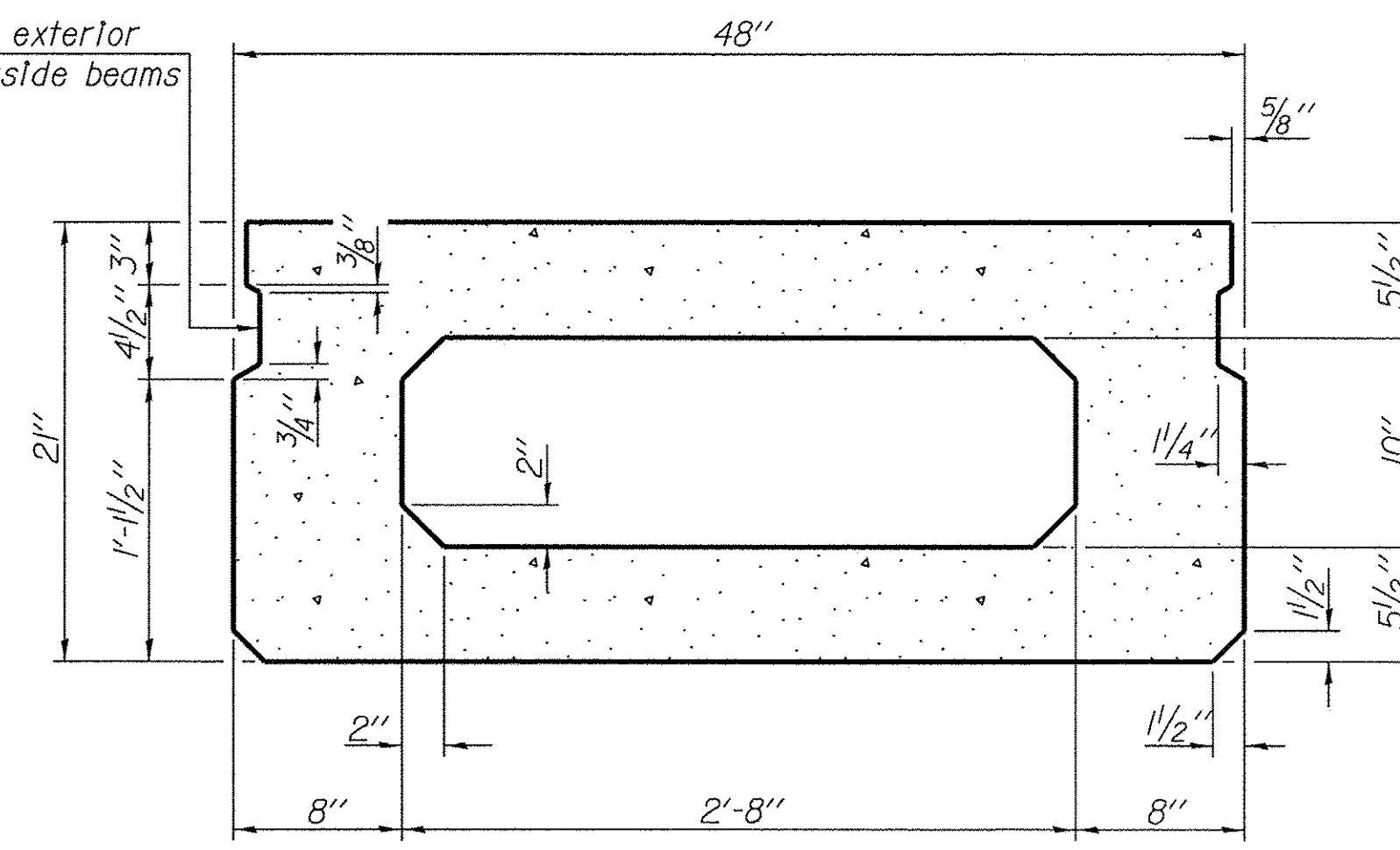
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PECATONICA TWP. ROAD DIST.			CONTRACT NO.	
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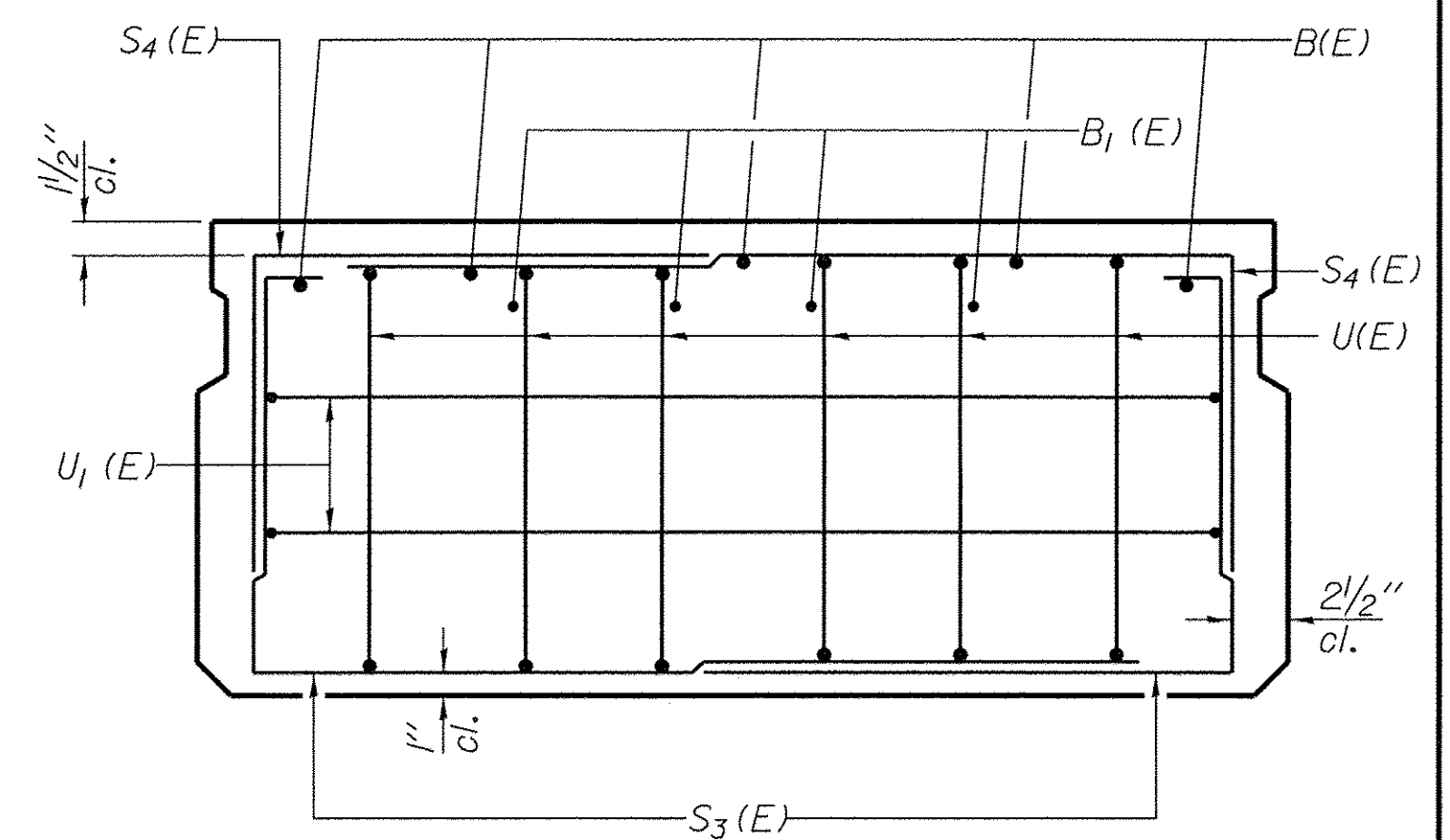


**SECTION C-C**

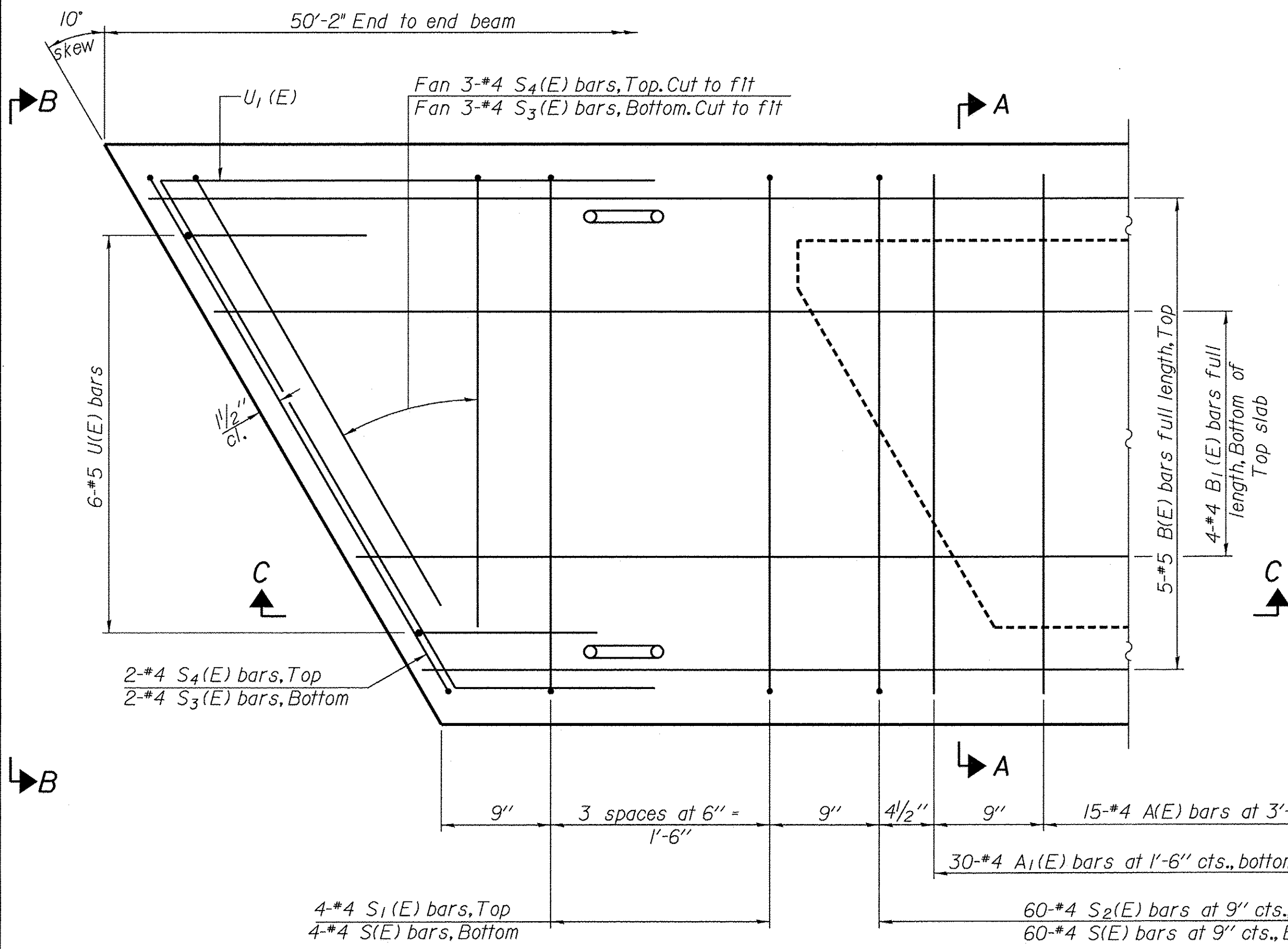
Omit key on exterior face of outside beams



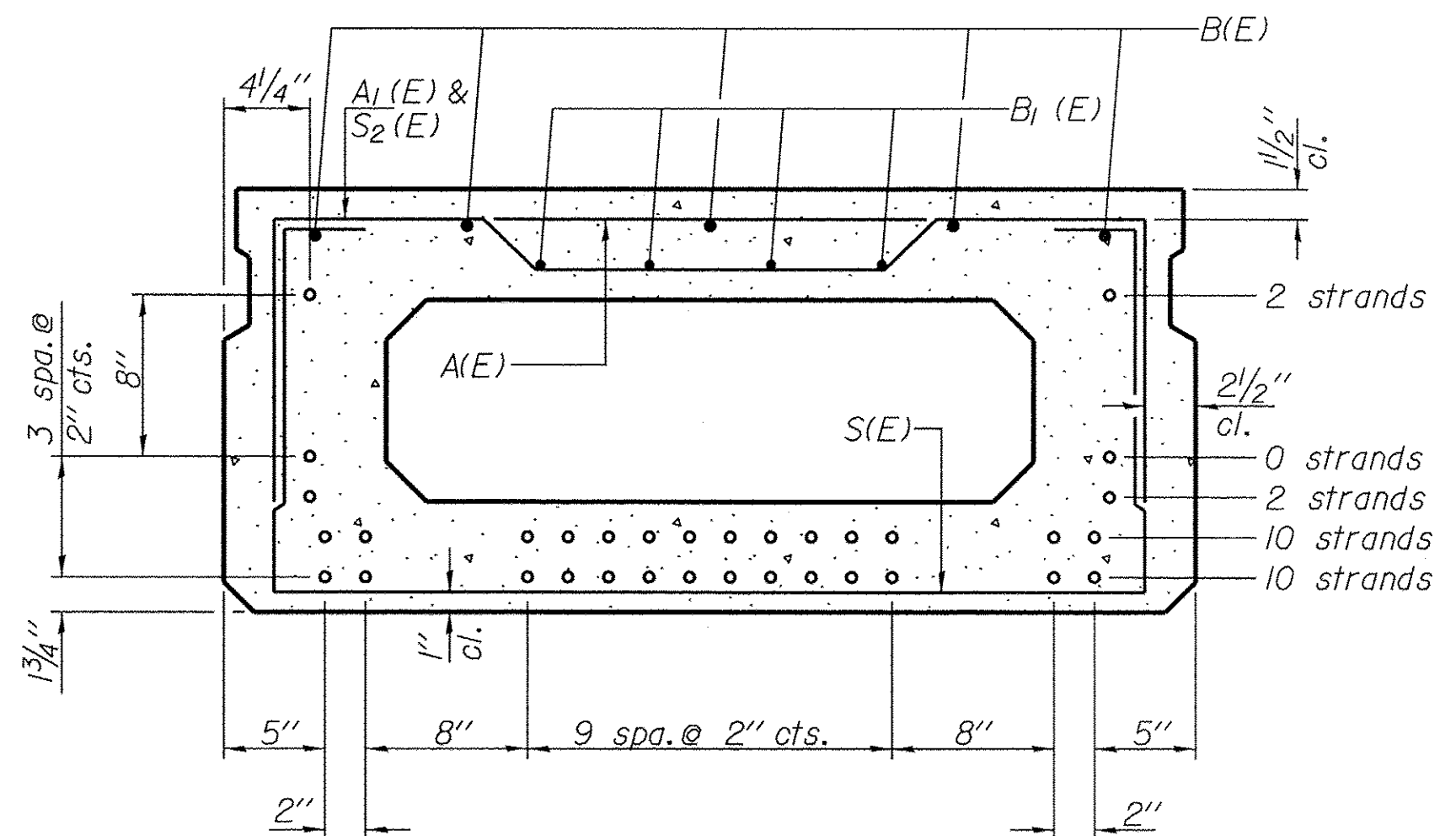
**SECTION A-A**  
(Showing dimensions)



**VIEW B-B**



**PLAN VIEW**



**SECTION A-A**  
(Showing reinforcement and permissible strand locations)  
Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	15	#4	3'-7"	—
A1(E)	30	#4	3'-10"	—
B(E)	10	#5	26'-0"	—
B1(E)	8	#4	25'-9"	—
S(E)	68	#4	7'-5"	┌
S1(E)	8	#4	5'-11"	┌
S2(E)	60	#4	6'-2"	┌
S3(E)	10	#4	4'-8"	┌
S4(E)	10	#4	3'-11"	┌
U(E)	12	#5	4'-0"	┌
U1(E)	4	#4	6'-8"	┌

Note: See sheet S5 of 10 for additional details and Bill of Material.

**MINIMUM BAR LAP**

- #4 bar 1'-11"
- #5 bar 2'-6"

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

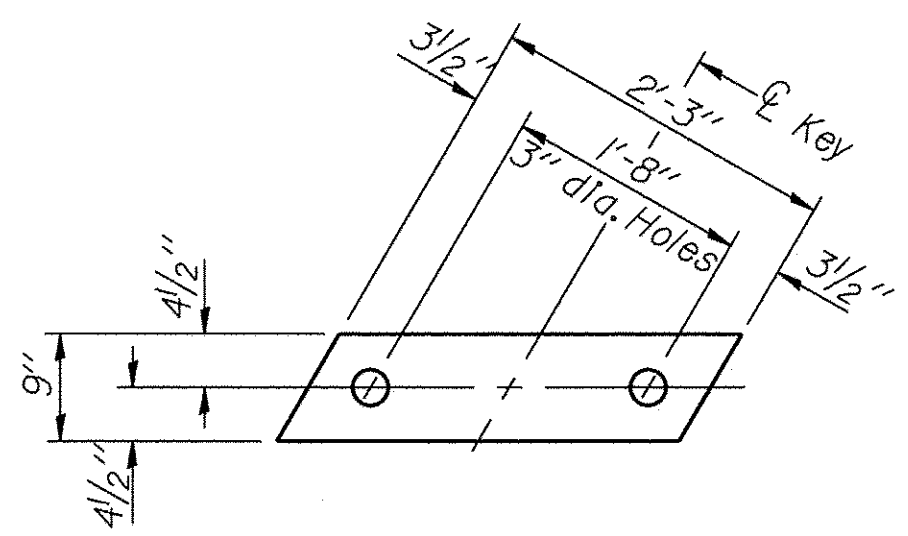


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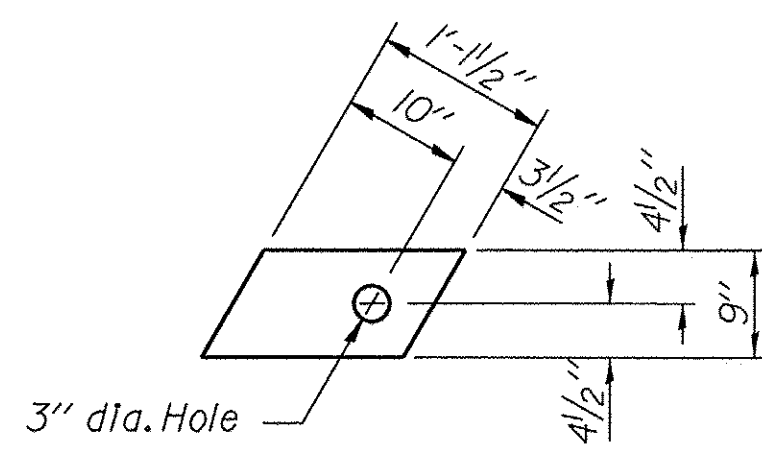
**21" X 48" PPC DECK BEAM**  
**STRUCTURE NO. 101-3098**  
STRUCTURAL SHEET NO. 4 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	9
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



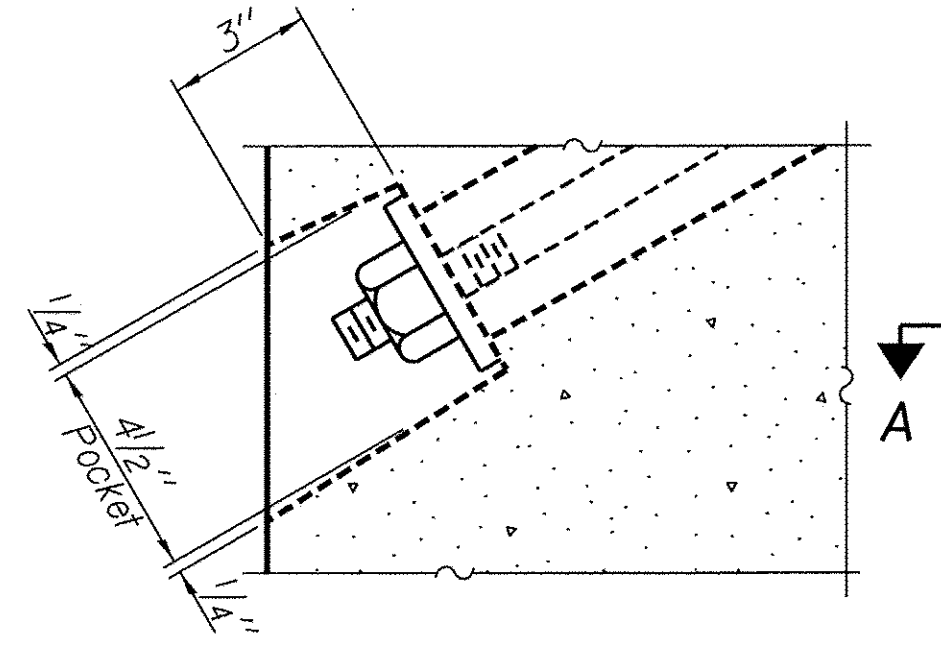
**FABRIC BEARING PAD**

(Interior)

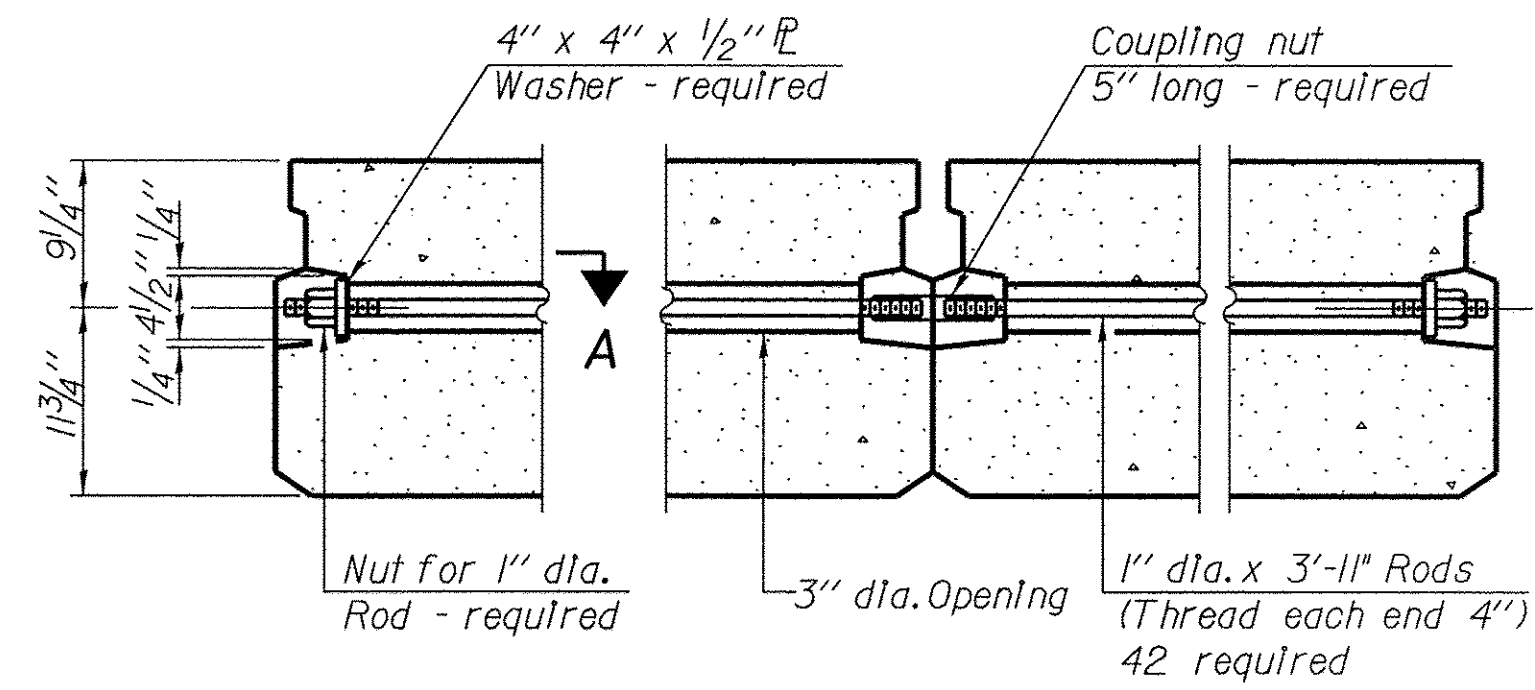


**FABRIC BEARING PAD**

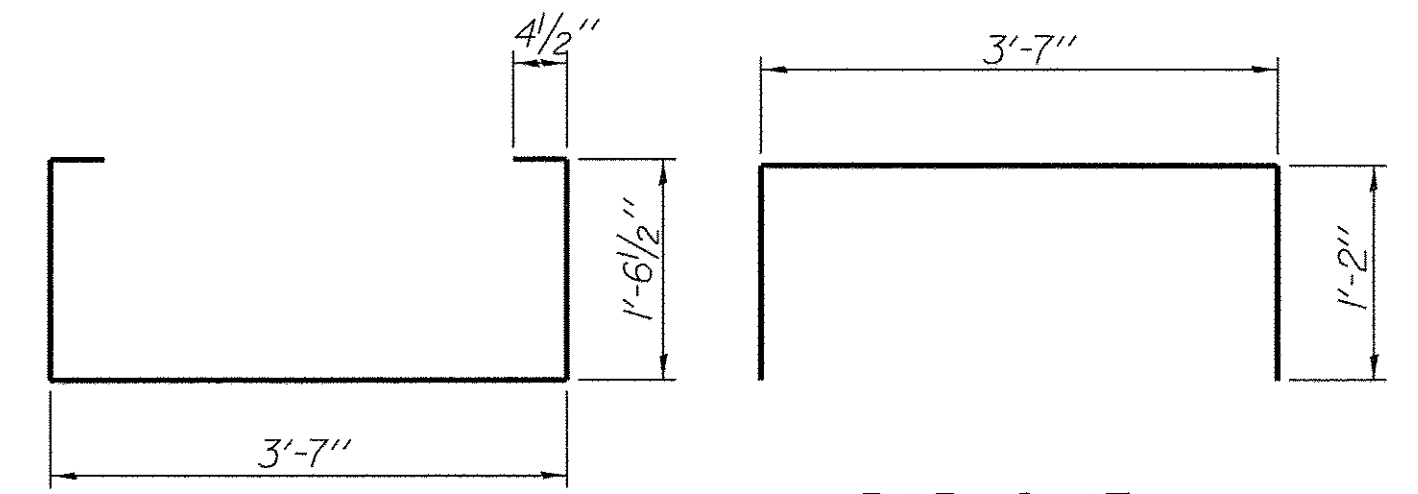
(Exterior)



**SECTION A-A**

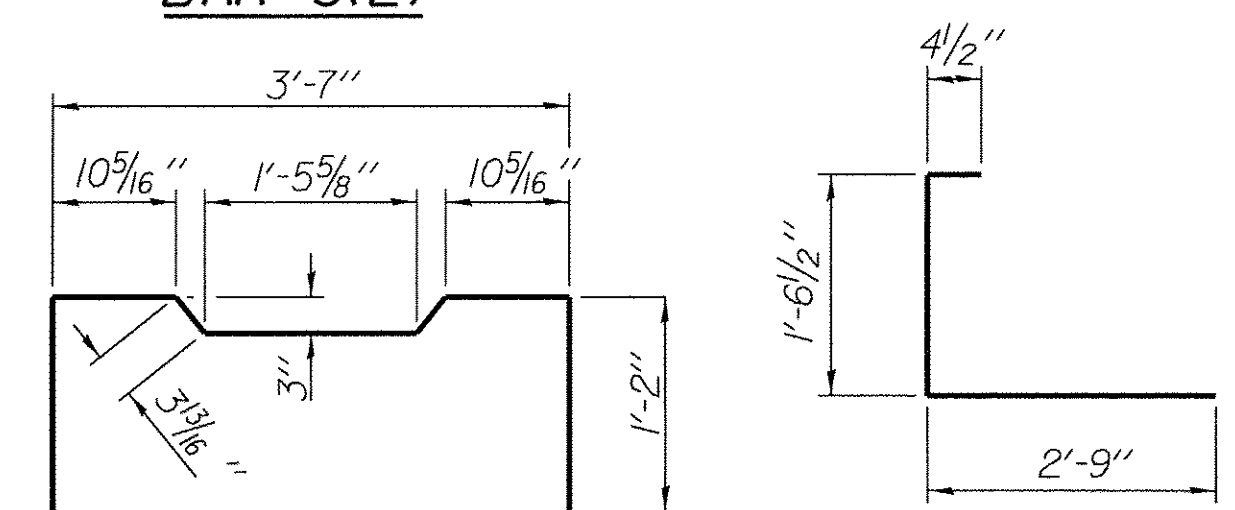


**TYPICAL TRANSVERSE TIE ASSEMBLY**



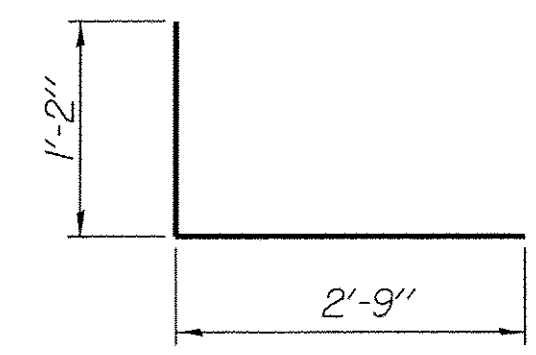
**BAR S (E)**

**BAR S (E)**



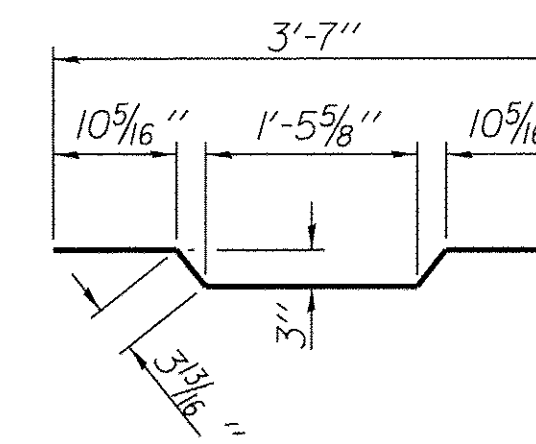
**BAR S (E)**

**BAR S (E)**

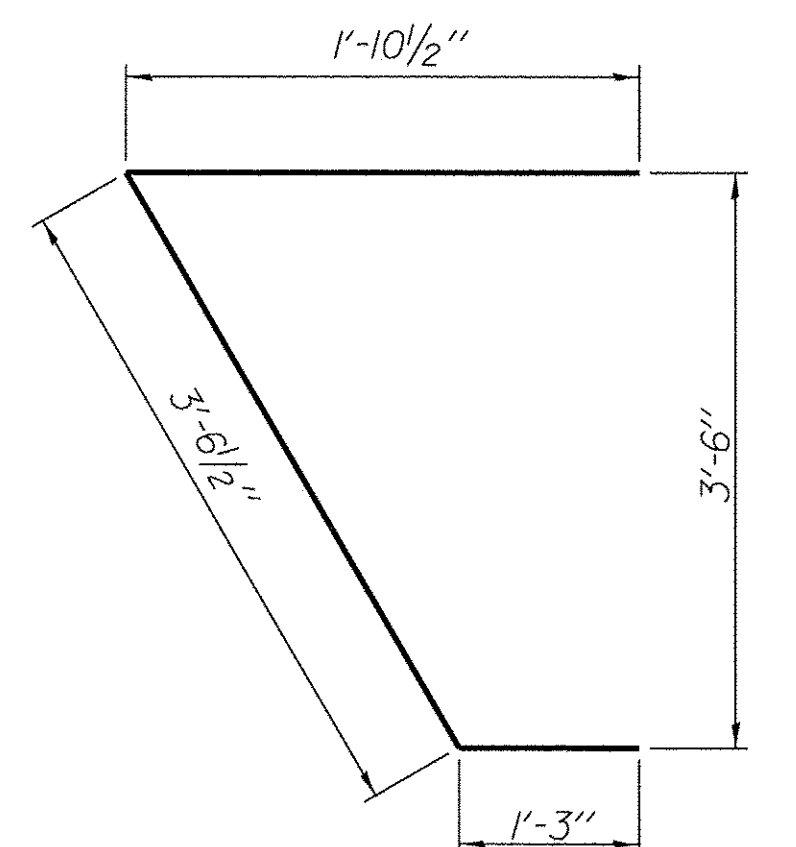


**BAR S (E)**

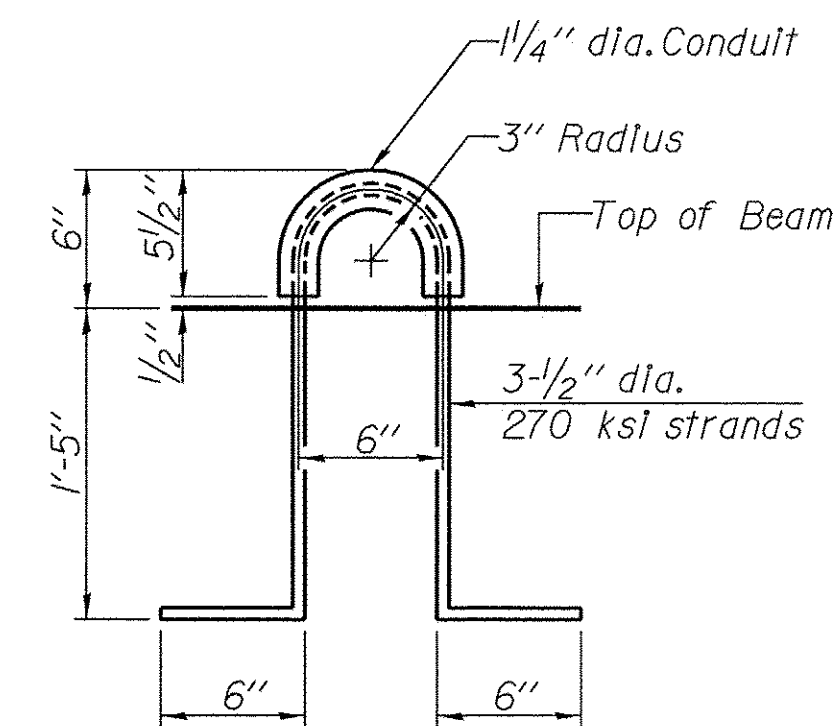
**BAR U (E)**



**BAR A (E)**



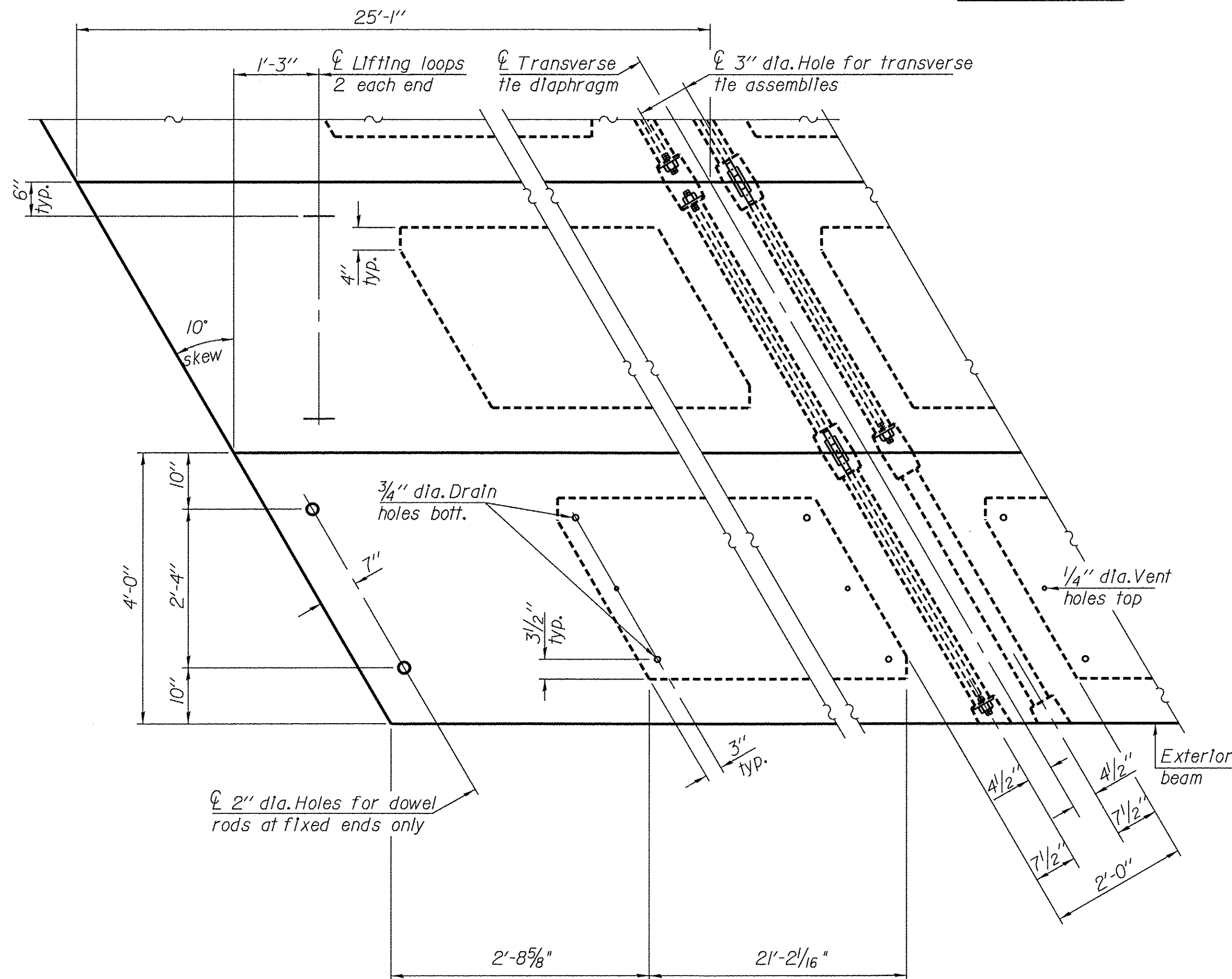
**BAR U (E)**



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (21' depth)	Sq. Ft.	4214



**PLAN VIEW**

**NOTES**

Note: Connect beams in pairs with the transverse tie configuration shown.

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
- The 1" dia. rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Reinforcement bars shall conform to ASTM A 706, Grade 60.
- Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
- A minimum 2 1/2" dia. lifting pin shall be used to engage the lifting loops during handling.
- Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'cl, shall be 5000 psi.



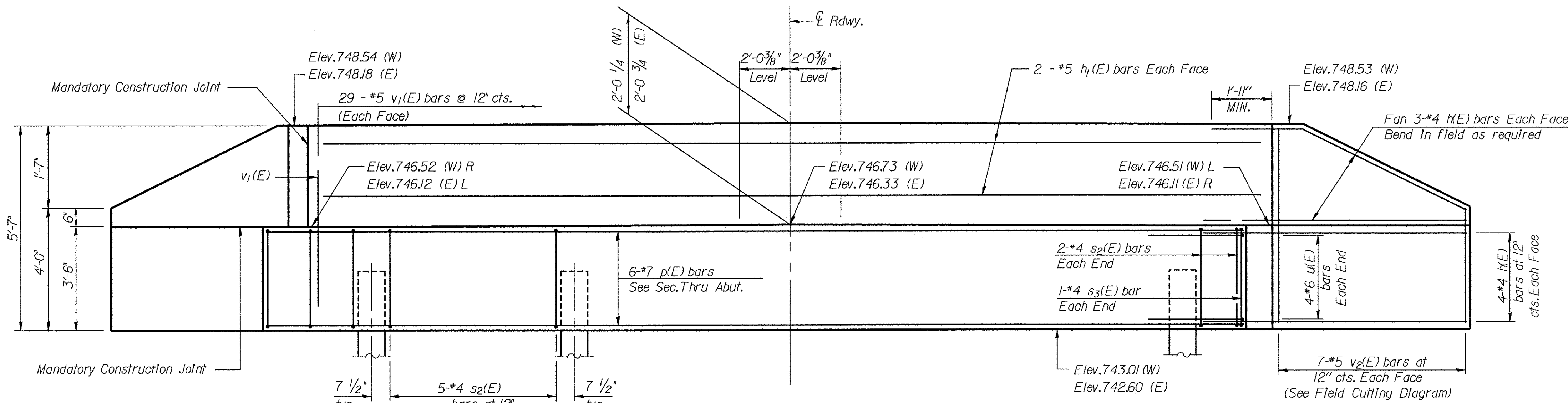
DESIGNED - CTB	REVISIONS	MML 04-06-2017
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DRAWN - JBB	REVISIONS	
CHECKED - JWH	REVISIONS	

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WINNEBAGO COUNTY HIGHWAY DEPARTMENT

21' X 48" PPC DECK BEAM DETAILS  
STRUCTURE NO. 101-3098

STRUCTURAL SHEET NO. 5 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	10
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



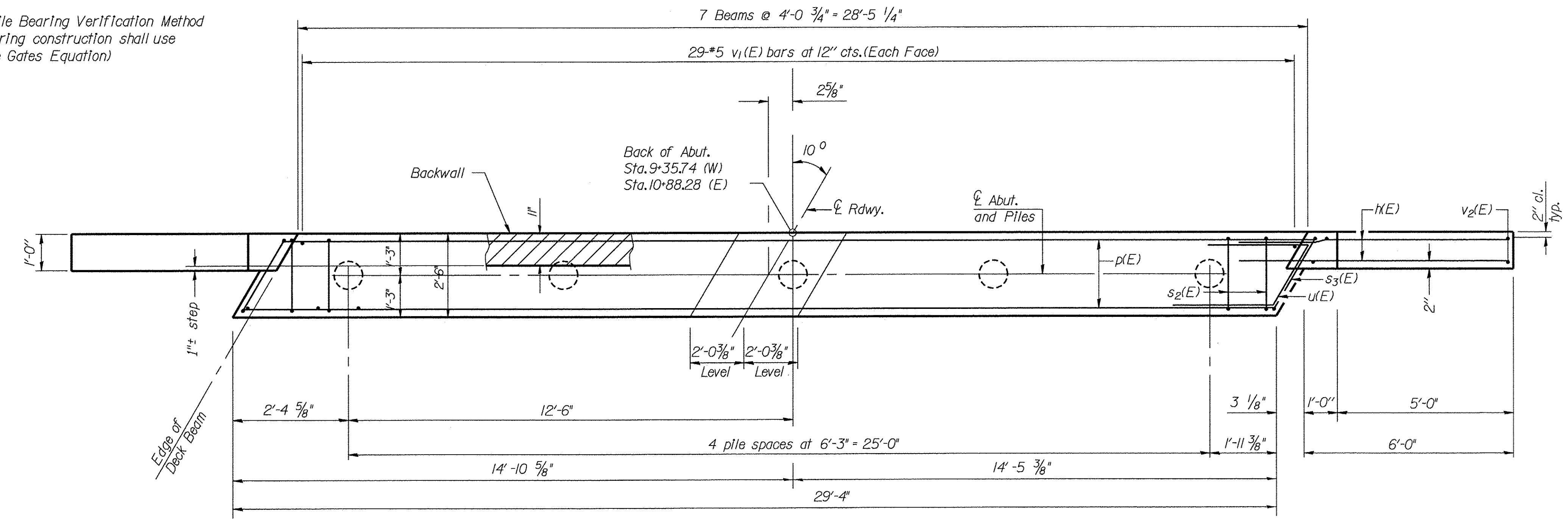
**PILE DATA (2 - ABUTMENTS)**

Pile Type and Size : 14 in. dia. x 0.25 in. walls  
 Nominal Required Bearing : 264 Kips  
 Allowable Resistance Available : 88 Kips  
 Est. Length : 80 feet  
 No. Required : 4 • 1 Test Pile Per Abut.

(Pile Bearing Verification Method during construction shall use the Gates Equation)

**ELEVATION**

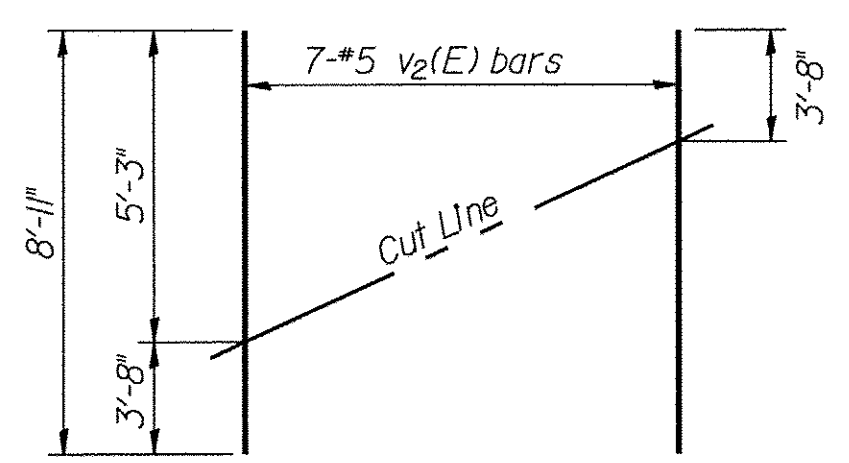
( West Abutment Looking West )  
 ( East Abutment Looking East )



**PLAN**

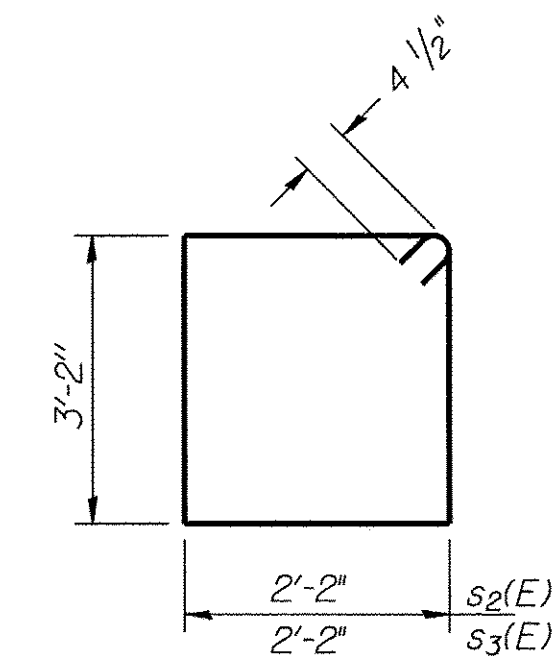
**Notes :**

1. Space reinforcement in cap to miss anchor bolts.
2. The back wall and the portions of the wingwalls above the bonded construction joint shall be cast against the in-place beam.
3. Refer to Sheet 8 of 9 for details of piles and metal shell reinforcement.
4. Where bars are designated to be cut in the field, they shall be cut using a saw. Flame cutting will not be allowed. Cut ends shall be given a coat of epoxy paint in accordance with section 508.04 of the standard specifications.
5. All exposed concrete surfaces shall receive a "normal" finish, which cost shall be included in the contract unit price for Concrete Structures.

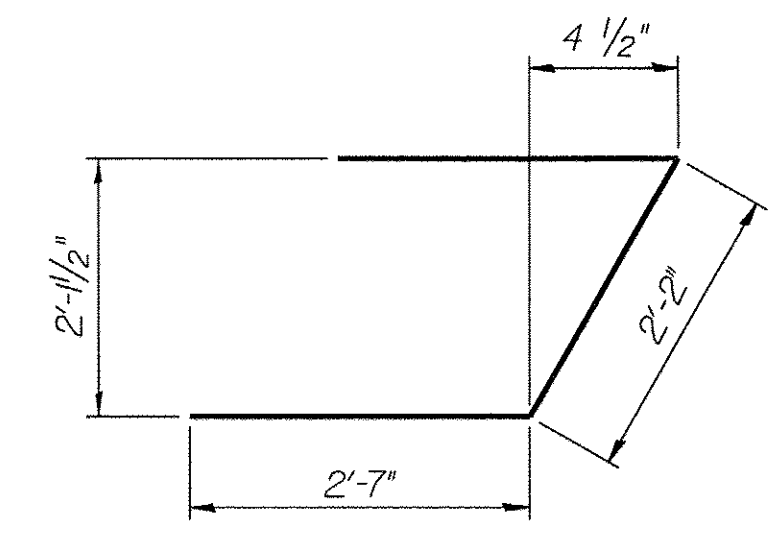


**FIELD CUTTING DIAGRAM**

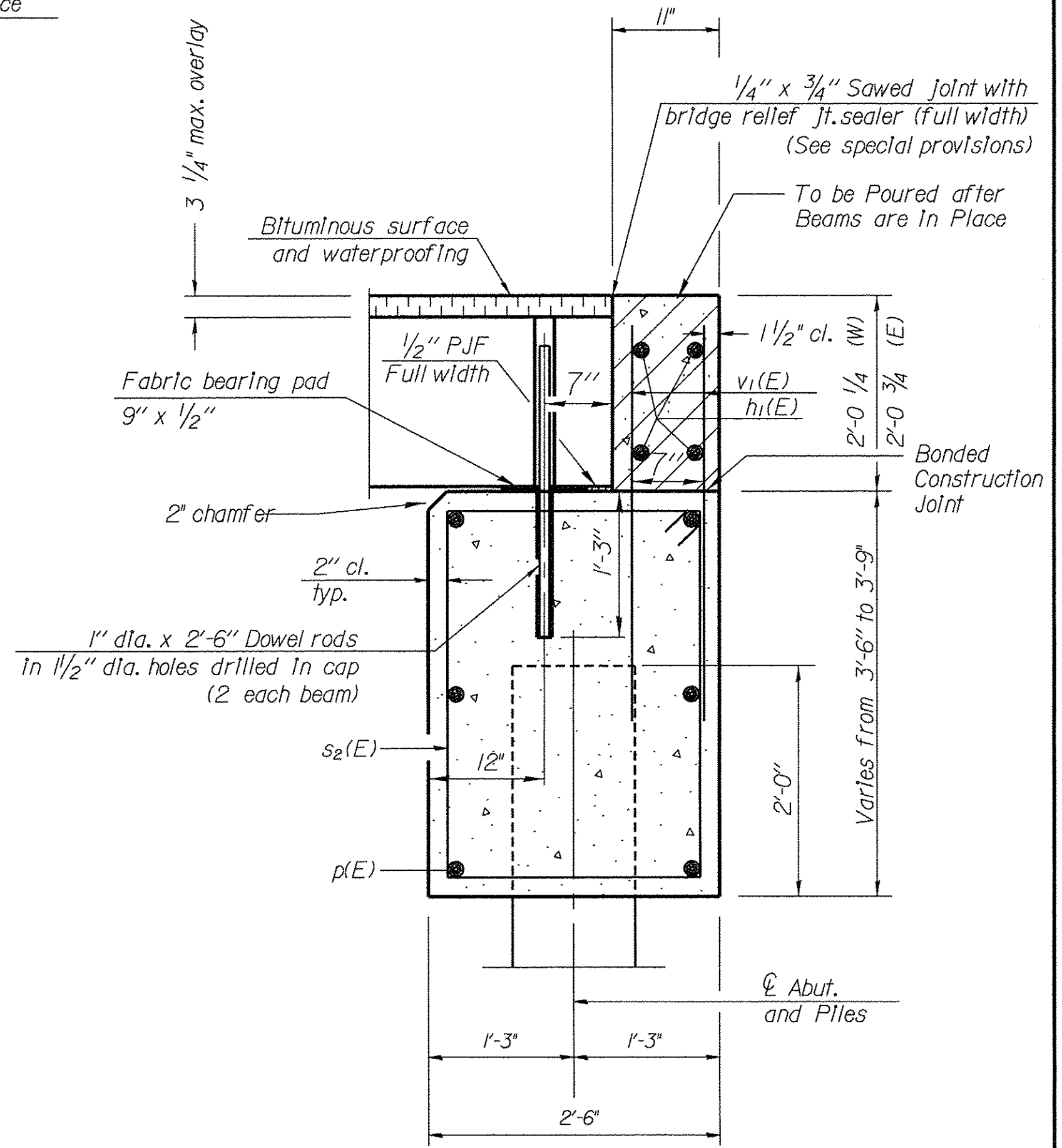
Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



**BARS s2(E) & s3(E)**



**BAR u(E)**



**SECTION THRU ABUTMENT**

Notes :  
 After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys. The cost of furnishing and installing dowels is included in precast deck beams.  
 All horizontal dimensions are at right angles to beam ends. Hatched area to be poured after beams are in place. See sheet 5 of 9 for bearing pad details.

**BILL OF MATERIAL - 2 ABUT.**

Bar	No.	Size	Length	Shape
h1(E)	8	*5	28'-1"	
v1(E)	116	*5	4'-4"	
v2(E)	28	*5	8'-11"	
h(E)	56	*4	8'-6"	
s2(E)	48	*4	11'-5"	
s3(E)	4	*4	11'-5"	
u(E)	16	*6	7'-4"	
p(E)	12	*7	29'-0"	
Test Pile Metal Shell			Each	2
Furnishing Metal Shell Piles, 14" x 0.250"			Foot	640
Driving Piles			Foot	640
Concrete Structures			Cu.Yd.	28.8
Reinforcement Bars, Epoxy Coated			Pound	2,620
Structure Excavation			Cu.Yd.	171

Note: Reinforcement bars designated (E) shall be epoxy coated.



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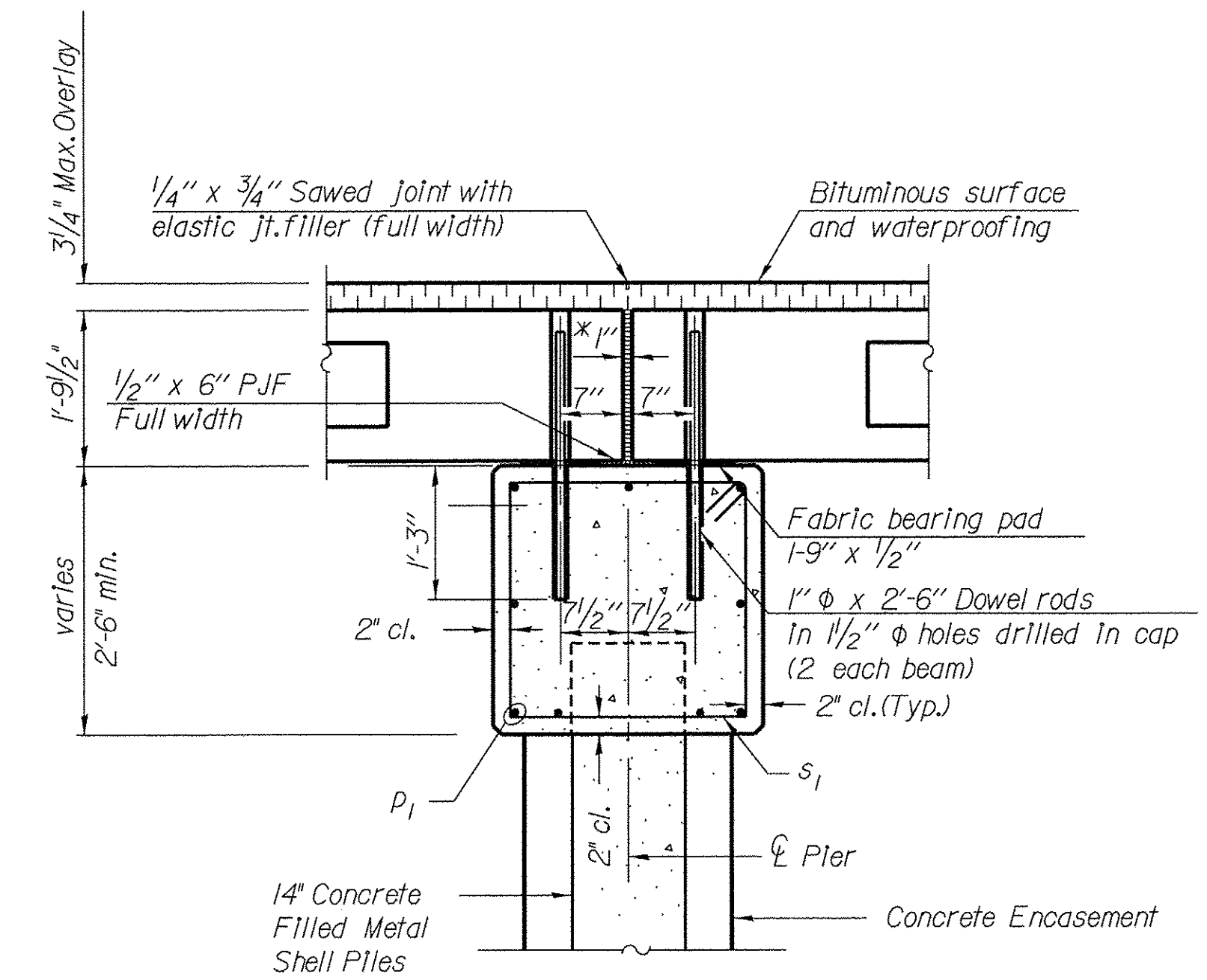
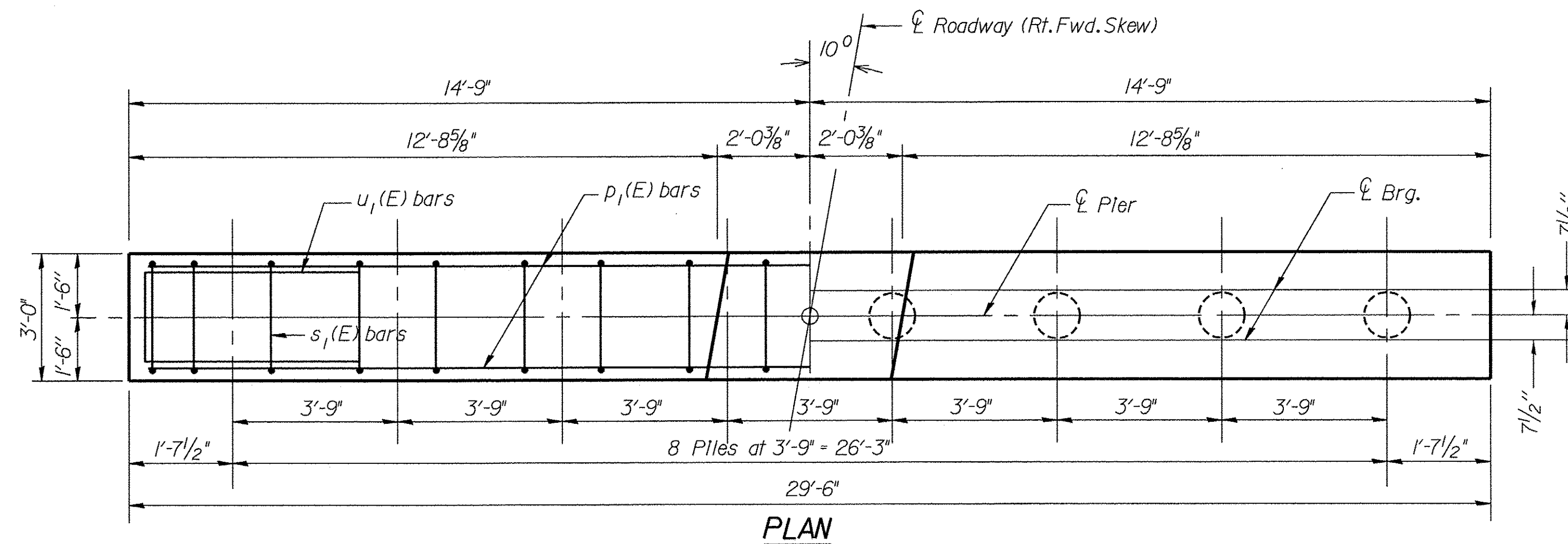
**PILE BENT ABUTMENT  
 STRUCTURE NO. 101-3098**

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	11
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

**PILE DATA (2-PIERS)**

Pile Type and Size: 14 in. dia. x 0.25 in. walls  
 Nominal Required Bearing : 255 Kips  
 Allowable Resistance Available : 85 Kips  
 Est. Length : 85 feet  
 No. Req'd: 7 + 1 Test Pile Per Pier

(Pile Bearing Verification Method during construction shall use the Gates Equation)

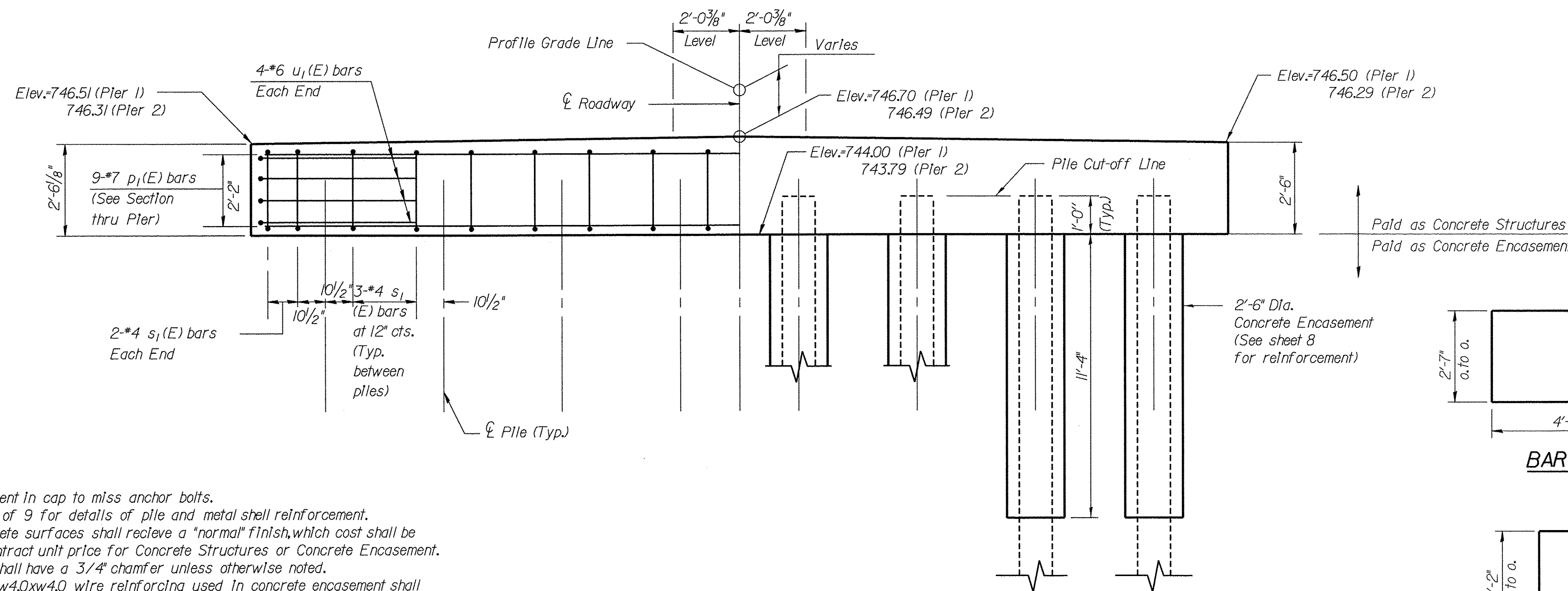


**SECTION THRU FIXED PIER**

(At Right Angles)

\* 1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.

Notes :  
 After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys. The cost of furnishing and installing dowels is included in precast deck beams.  
 All horizontal dimensions are at right angles to beam ends. See sheet 5 of 9 for bearing pad details.

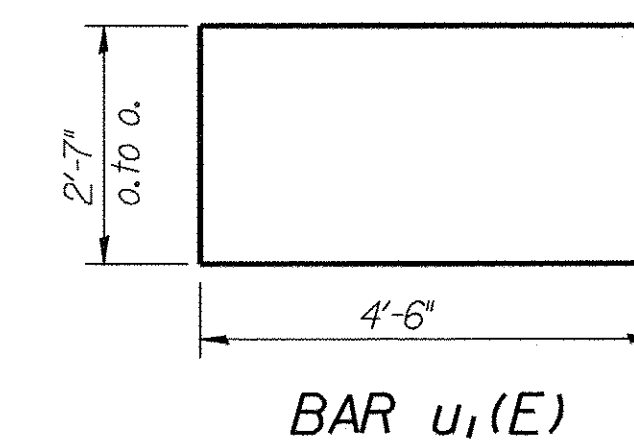


**ELEVATION**

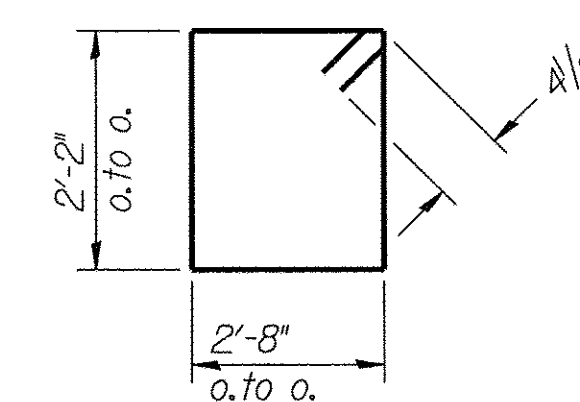
(Looking East)

**Notes :**

- Space reinforcement in cap to miss anchor bolts.
- Refer to Sheet 8 of 9 for details of pile and metal shell reinforcement.
- All exposed concrete surfaces shall receive a "normal" finish, which cost shall be included in the contract unit price for Concrete Structures or Concrete Encasement.
- Exposed edges shall have a 3/4" chamfer unless otherwise noted.
- The cost of 6x6 w4.0xw4.0 wire reinforcing used in concrete encasement shall be included in the contract unit price for concrete encasement. Chairs, ties, or spacers used to maintain 1 1/2" clearance with the forms shall be epoxy coated or have plastic lips to prevent corrosion.
- Because of the low normal flow conditions, cofferdams are not deemed necessary and will not be considered for payment. If the contractor elects to use cofferdams for the piers, they will be at his sole expense.



**BAR u1(E)**



**BAR s1(E)**

**BILL OF MATERIAL - 2 PIERS**

Bar	No.	Size	Length	Shape
p1(E)	18	#7	29'-2"	—
s1(E)	50	#4	10'-5"	□
u1(E)	16	#6	11'-7"	—
Furnishing Metal Shell Piles, 14" x 0.250"		Foot	1,190	
Driving Piles		Foot	1,190	
Concrete Encasement		Cu. Yd.	25.8	
Concrete Structures		Cu. Yd.	16.9	
Reinforcement Bars, Epoxy Coated		Pound	1,700	
Test Pile Metal Shell		Each	2	

Reinforcement Bars designated (E) shall be epoxy coated.



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CHECKED - JWH	REVISD -

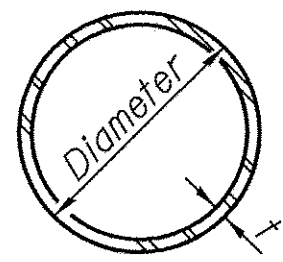
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DRAWN - JBB	REVISD -
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**PILE BENT PIER**  
**STRUCTURE NO. 101-3098**

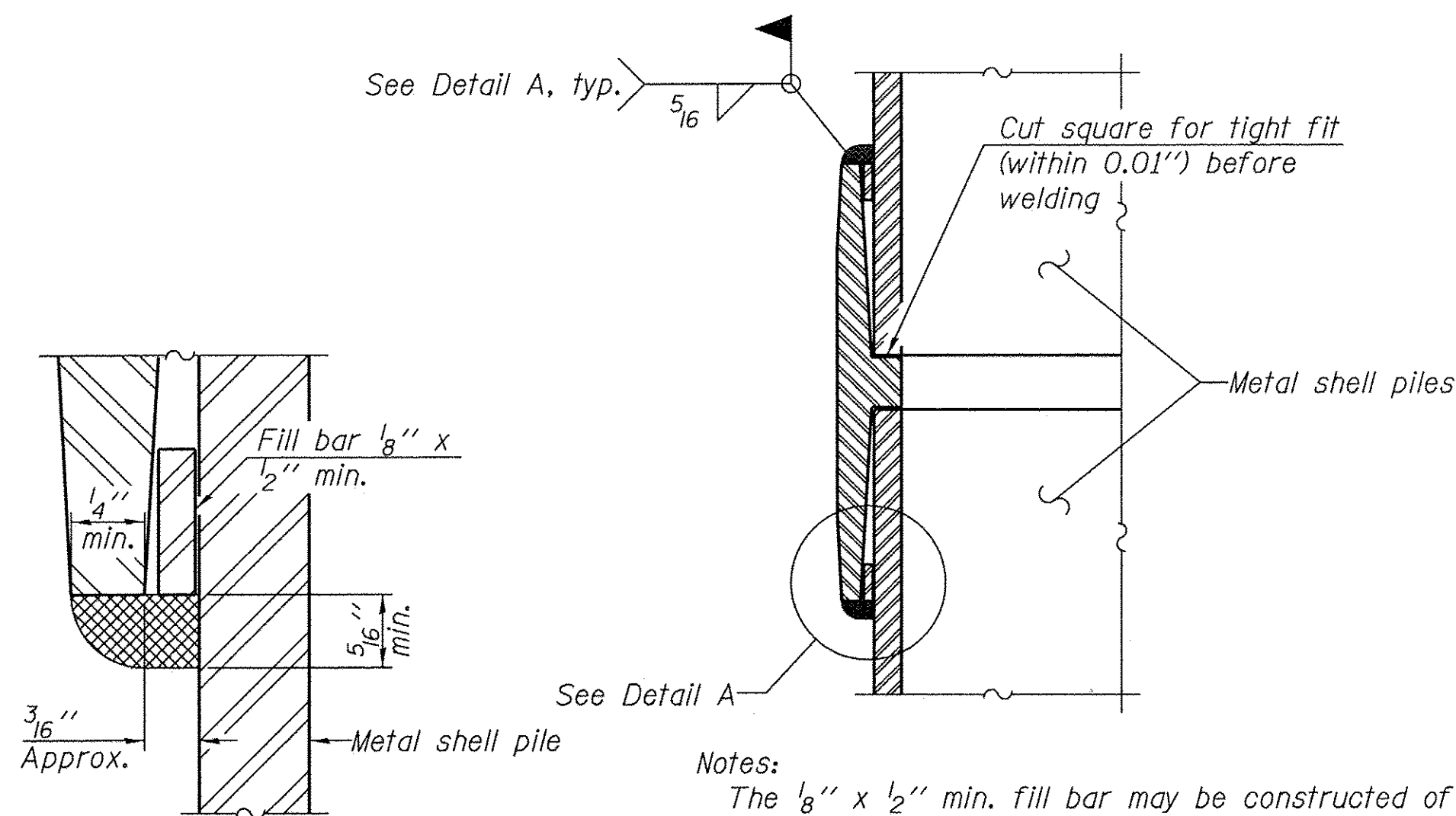
STRUCTURAL SHEET NO. 7 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	12
PECATONICA TWP. ROAD DIST.			CONTRACT NO.	
ILLINOIS FED. AID PROJECT				



**METAL SHELL PILE TABLE**

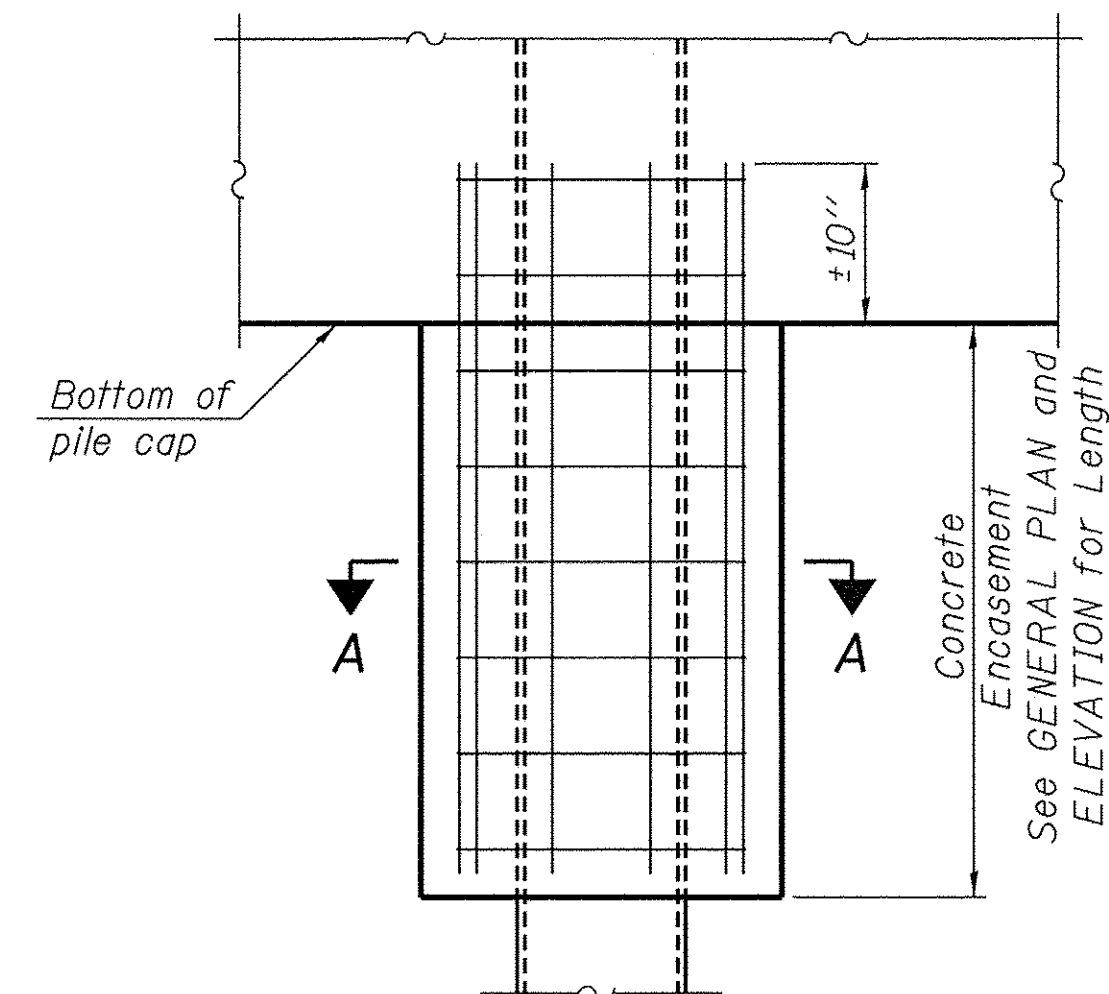
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



**DETAIL A**

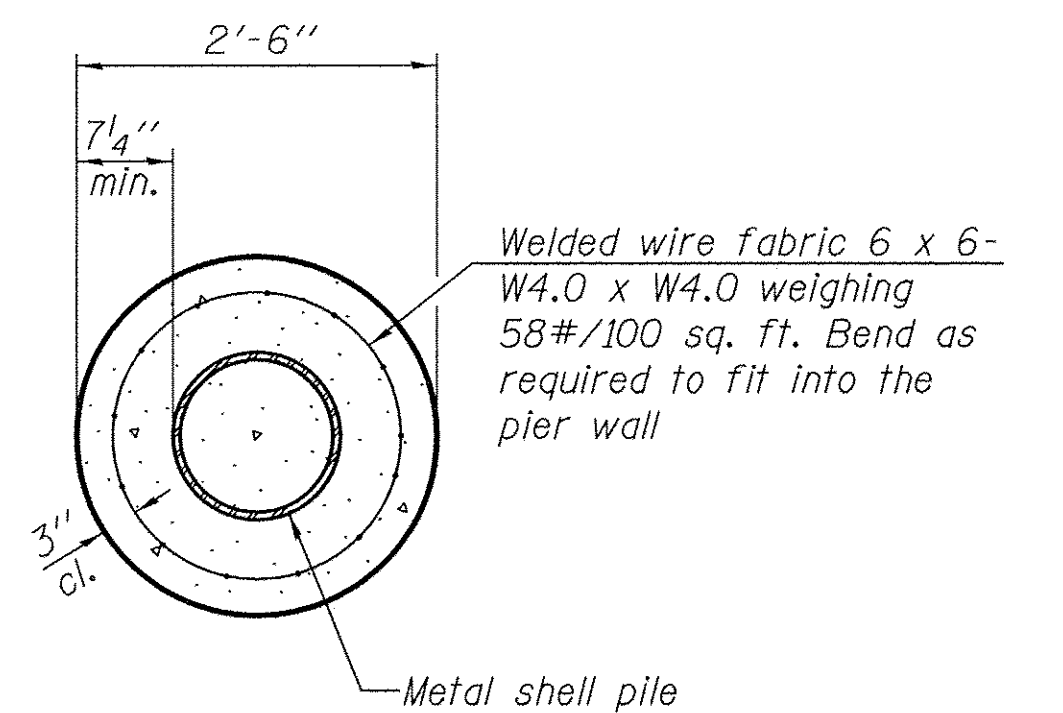
Notes:  
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.

**WELDED COMMERCIAL SPLICE**



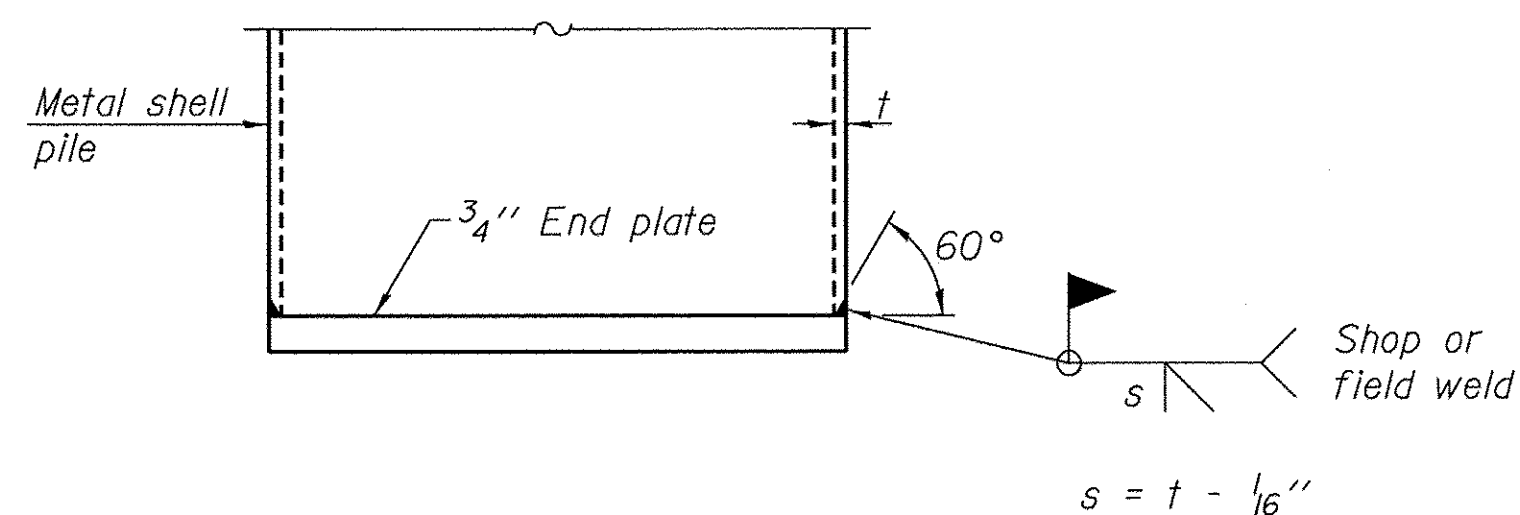
**ELEVATION**

**CONCRETE ENCASEMENT AT PIERS**

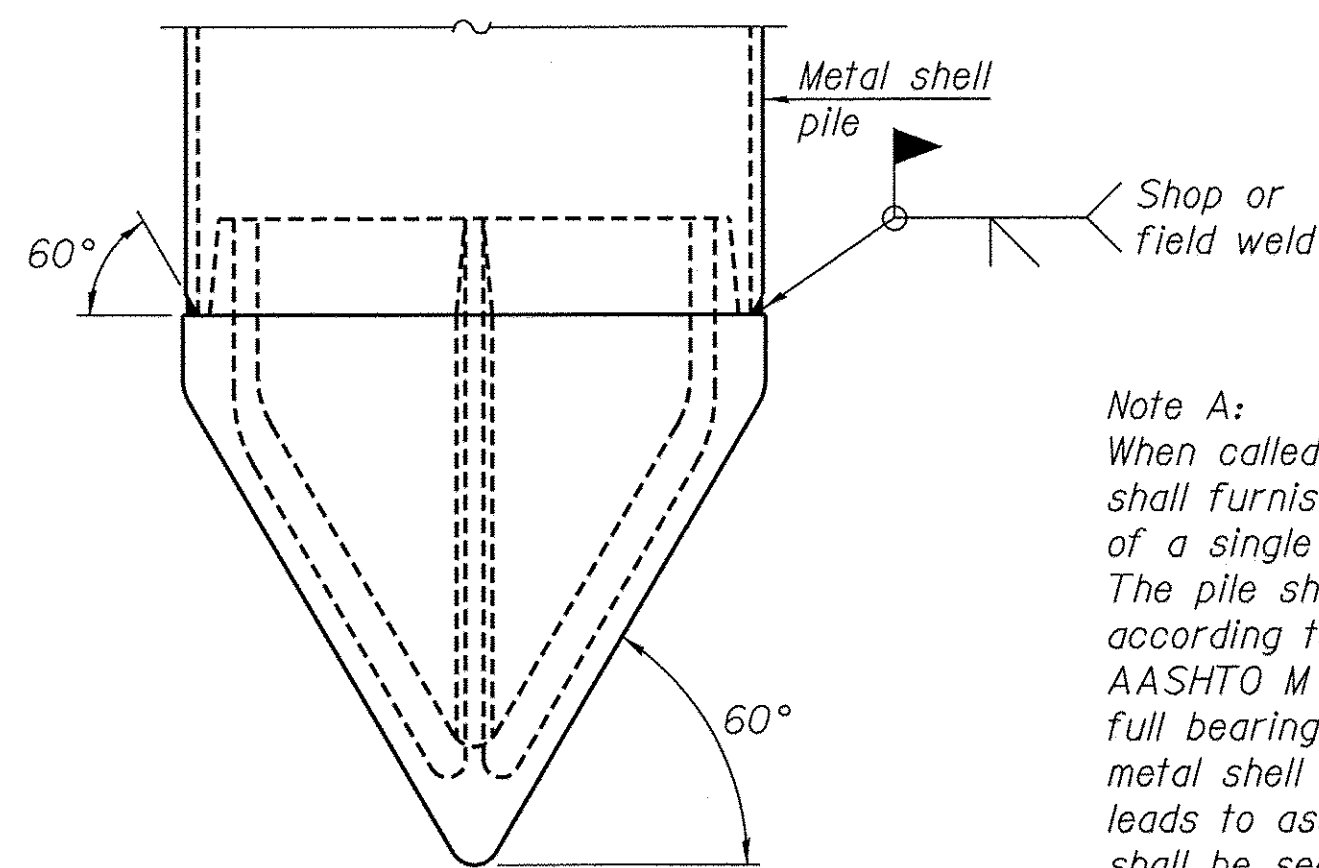


**SECTION A-A**

Note:  
 Forms for encasement may be omitted when soil conditions permit.



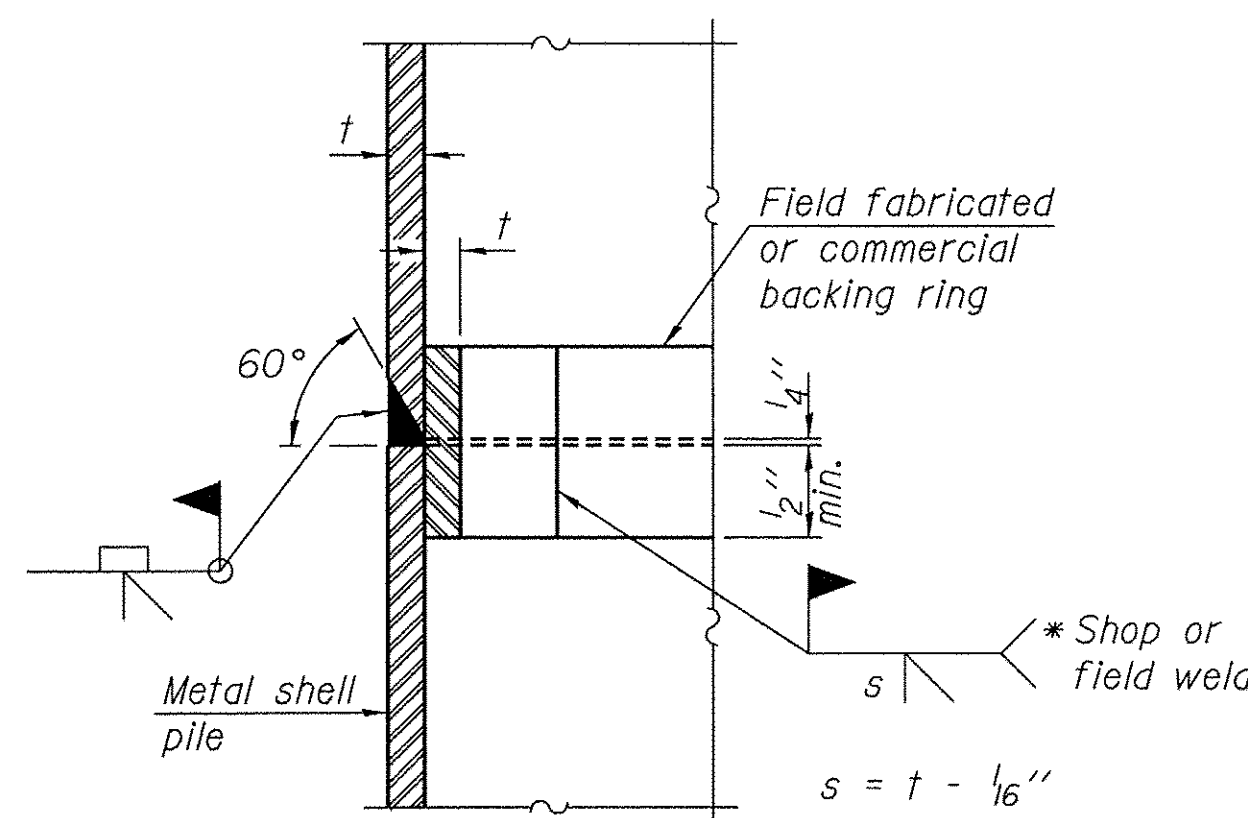
**END PLATE ATTACHMENT**



**METAL SHELL PILE SHOE ATTACHMENT**

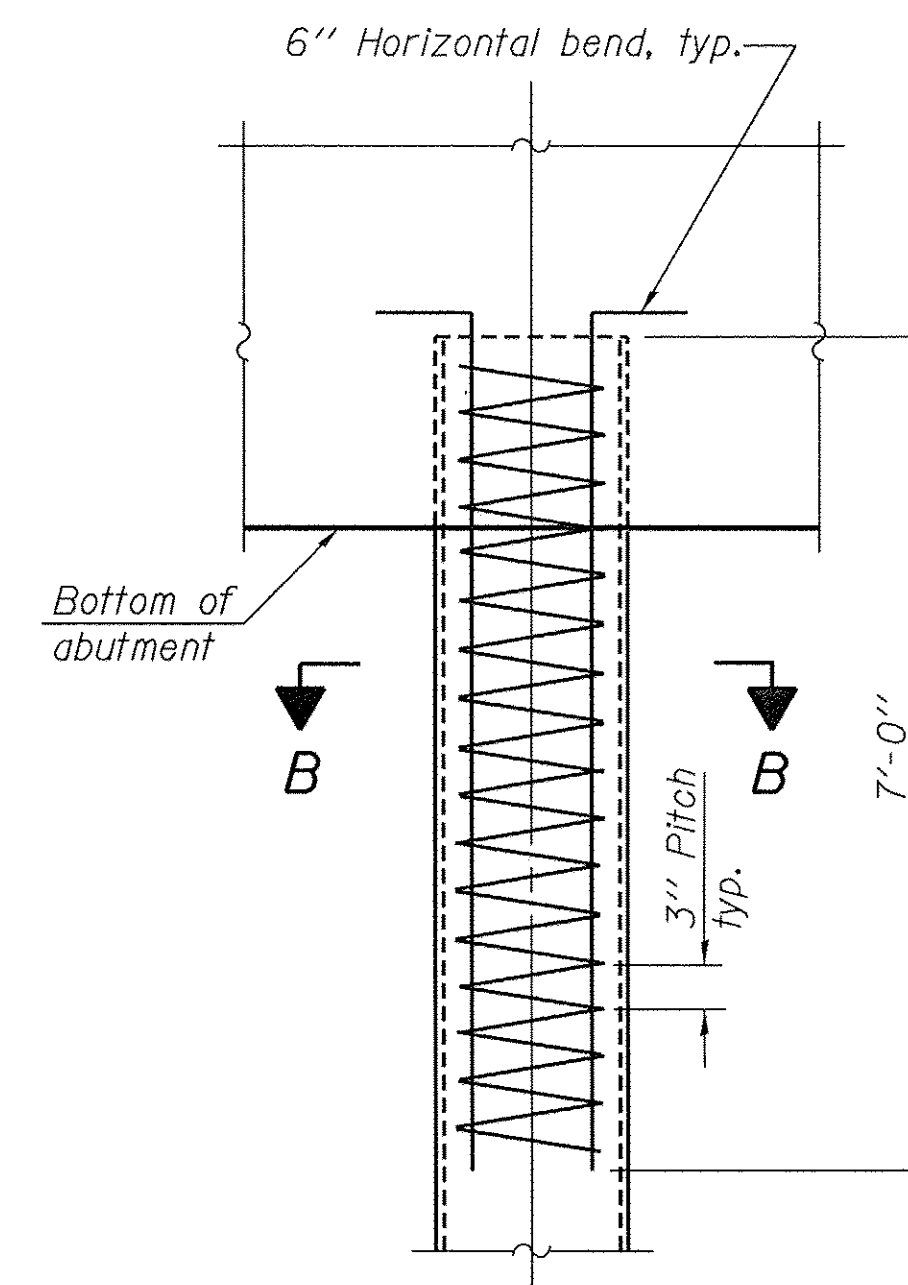
(See Note A)

Note A:  
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.



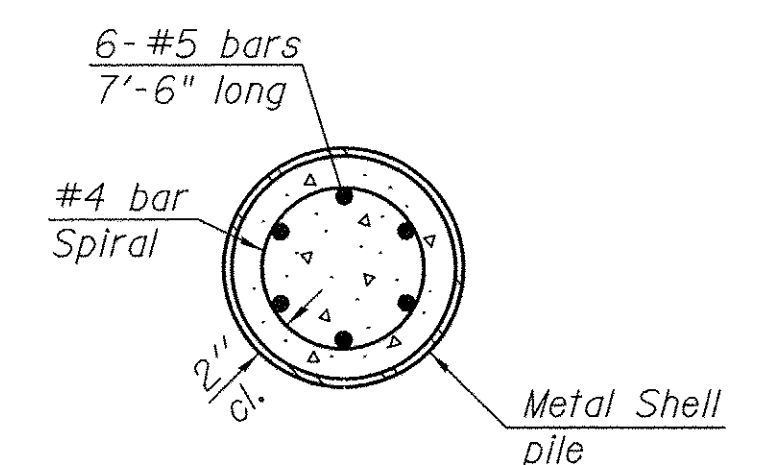
**COMPLETE PENETRATION WELD SPLICE**

\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**



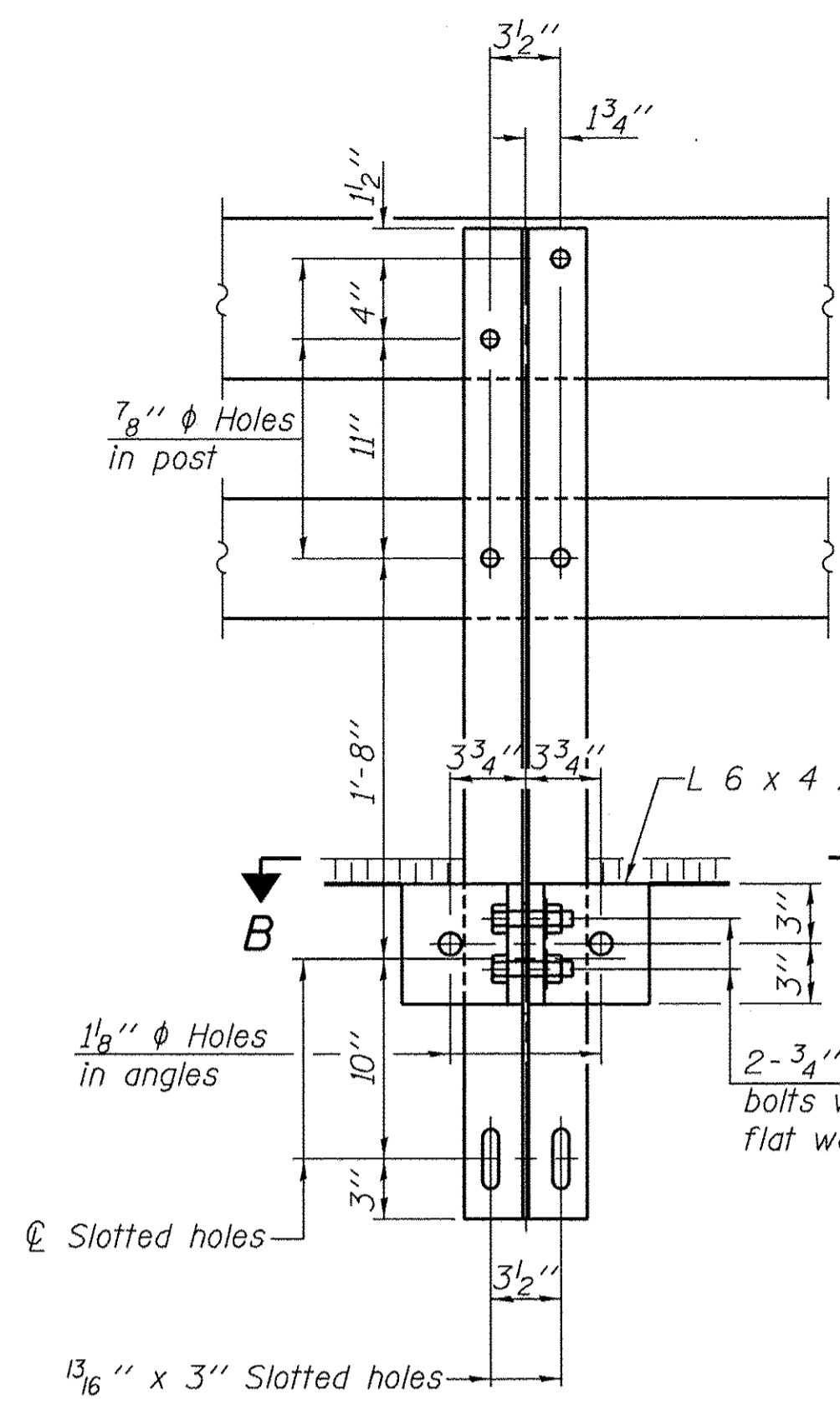
**SECTION B-B**

**QUANTITIES/FT. OF ENCASEMENT**

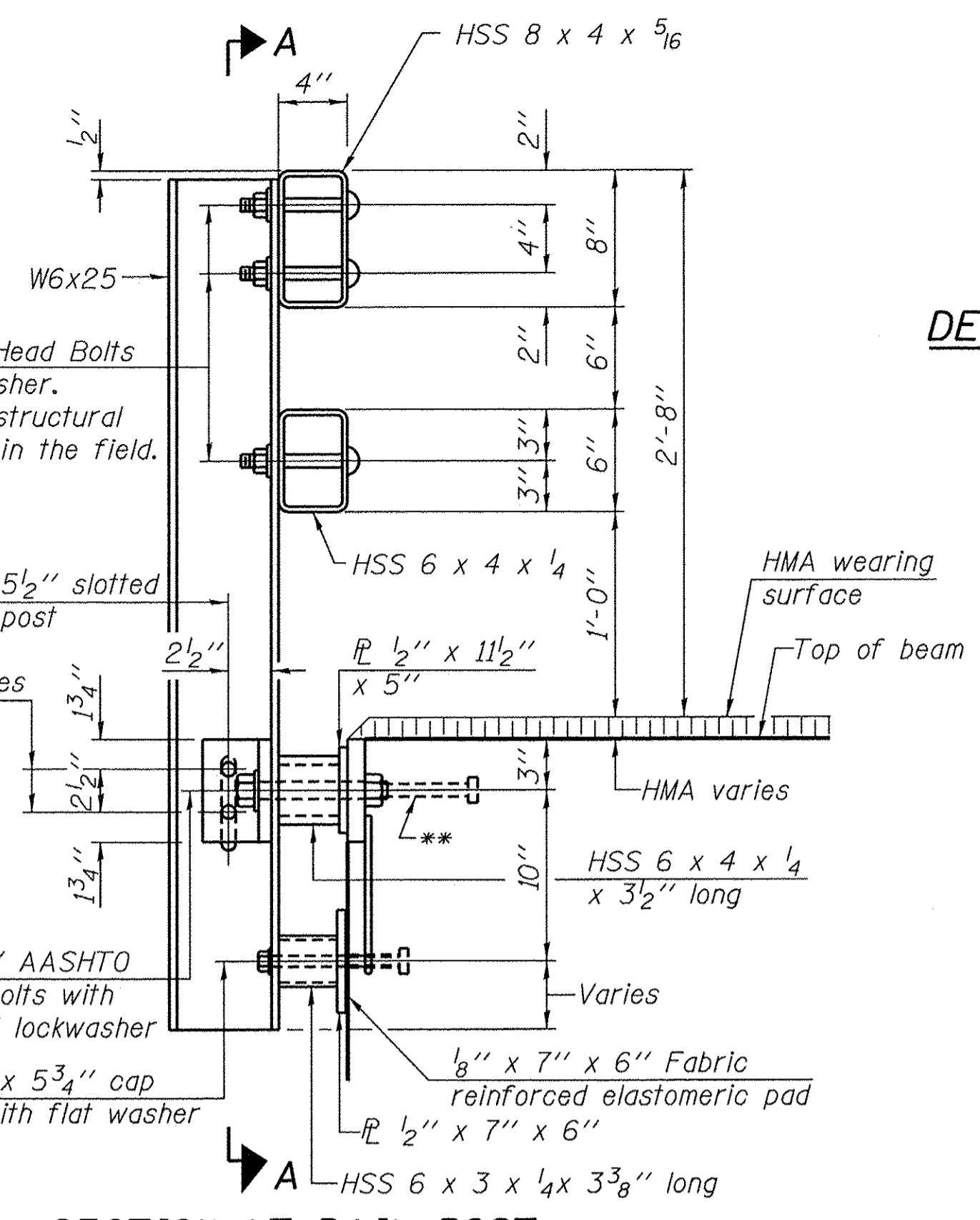
(METAL SHELL PILES)

Pipe Size	Item	Quantity
14" Dia.	Concrete Encasement	0.142 C.Y.

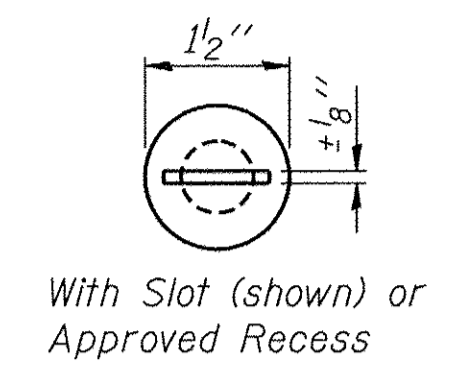
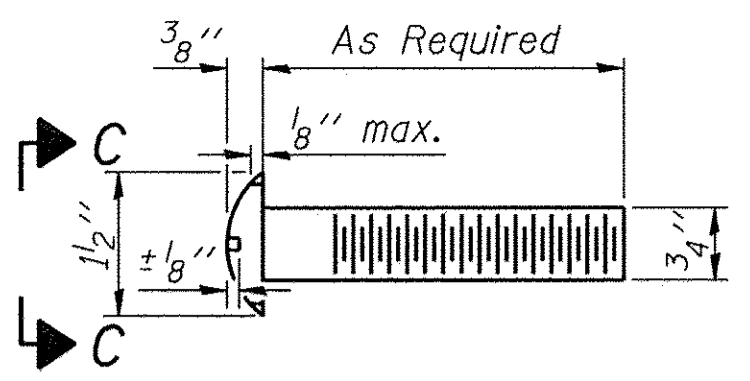
Note:  
 The metal shell piles shall be according to ASTM A 252 Grade 3.



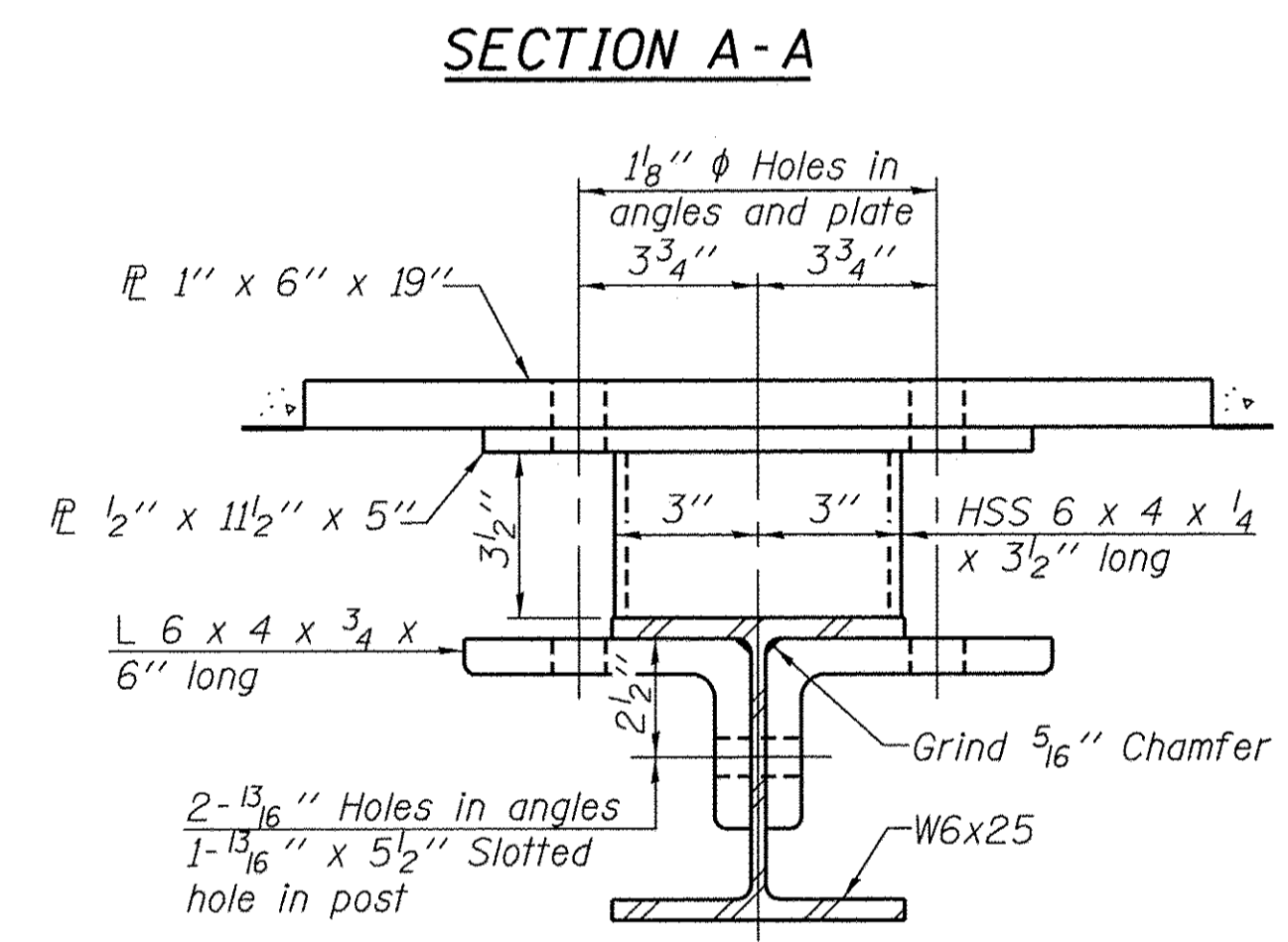
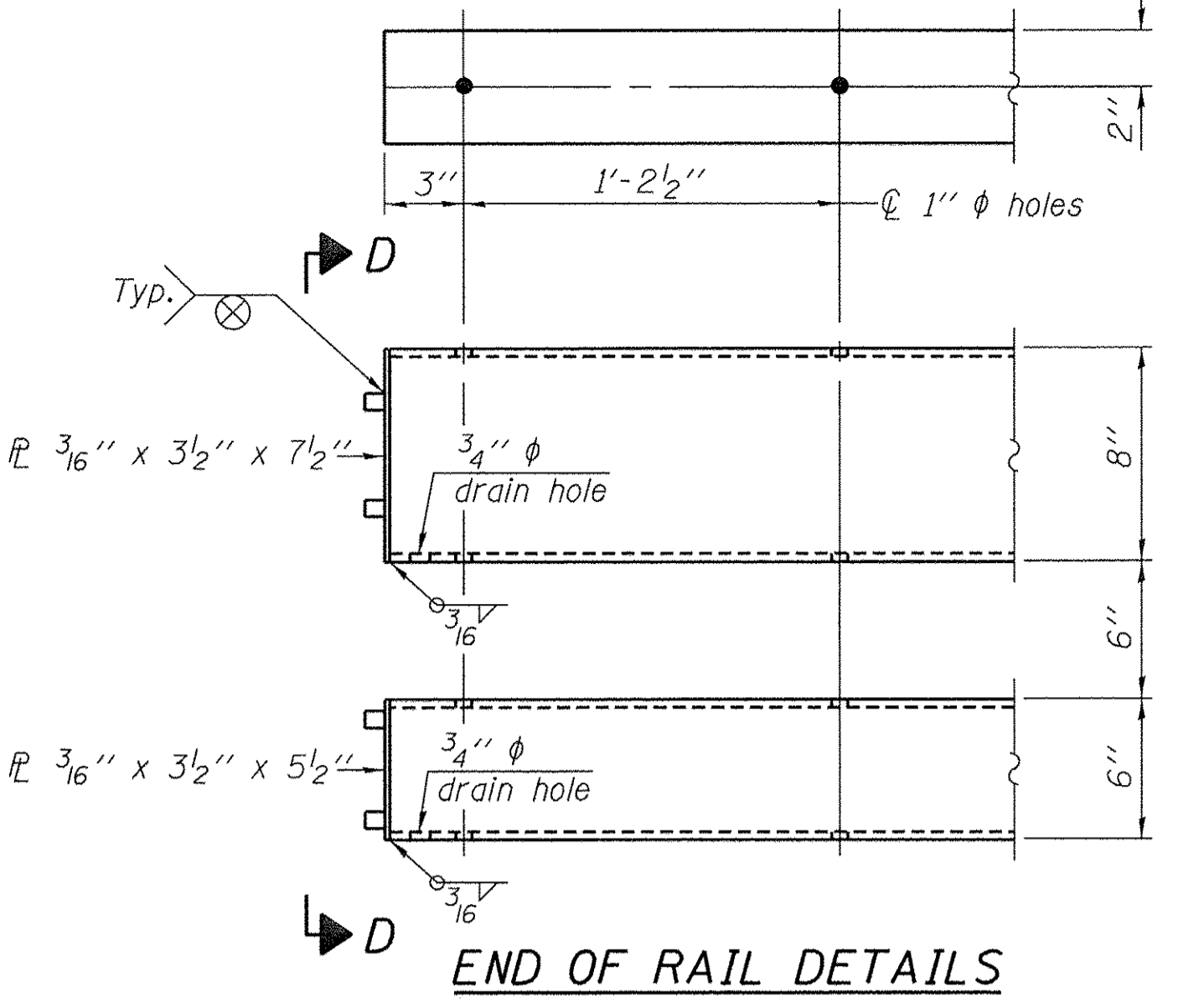
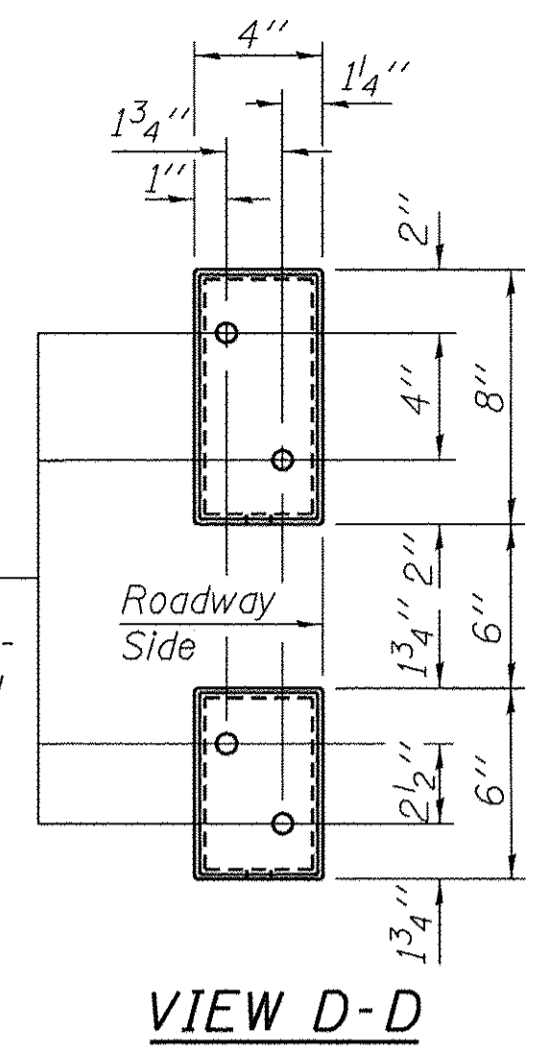
4-3/4" φ x 6" Round Head Bolts with locknut & flat washer.  
7/8" φ holes in hollow structural section may be drilled in the field.



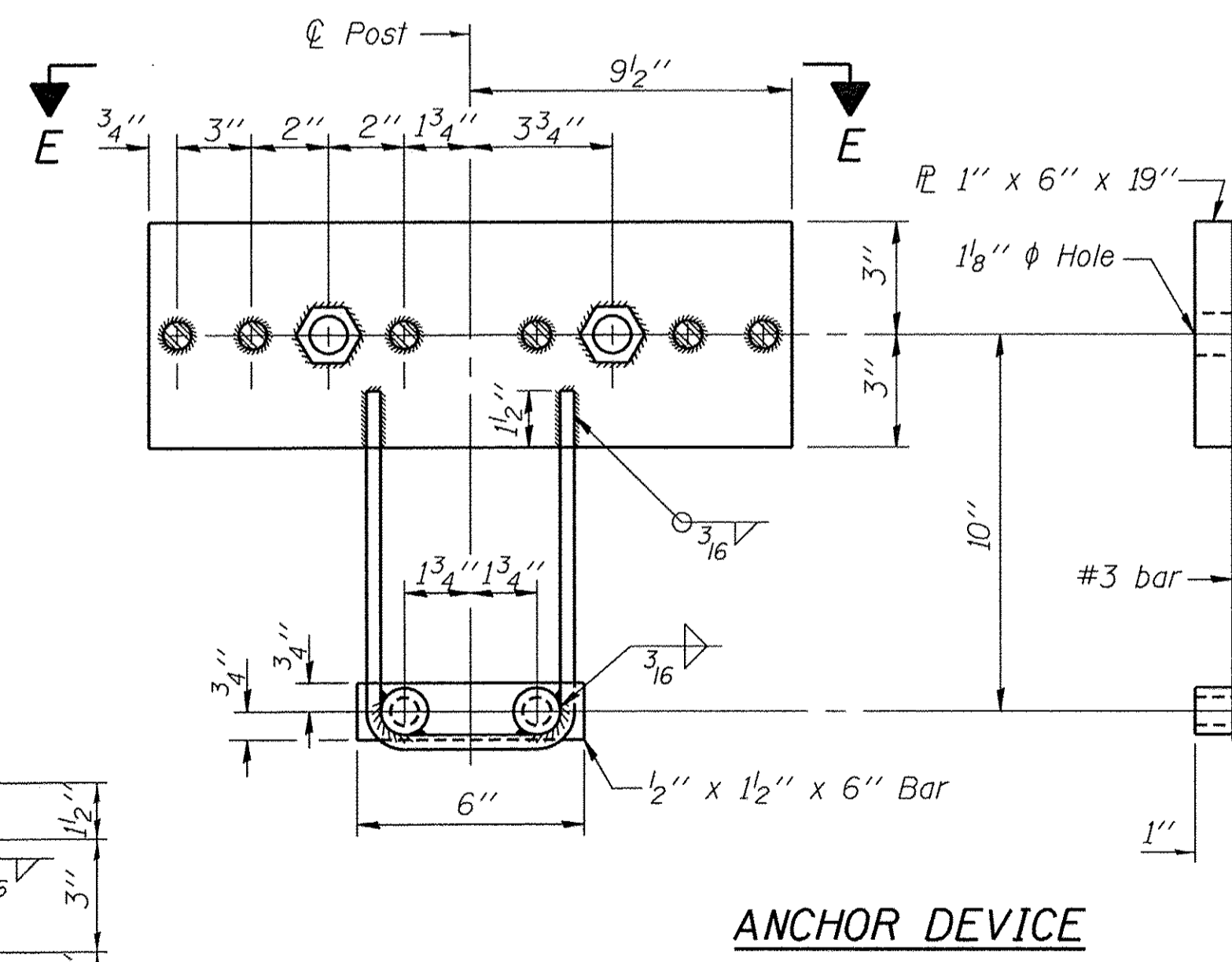
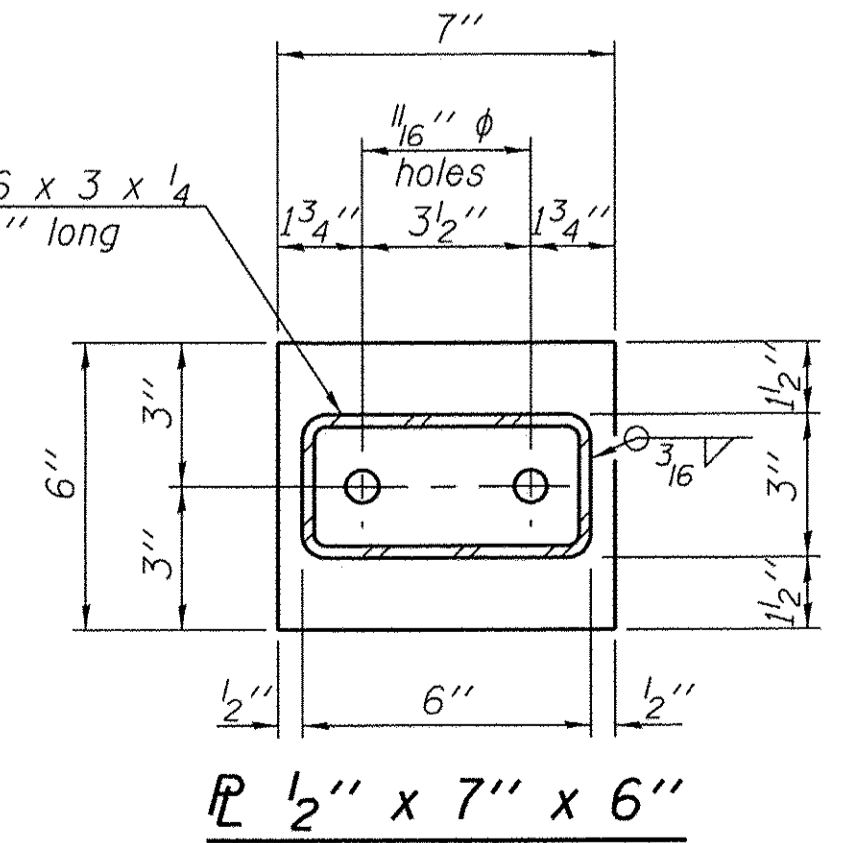
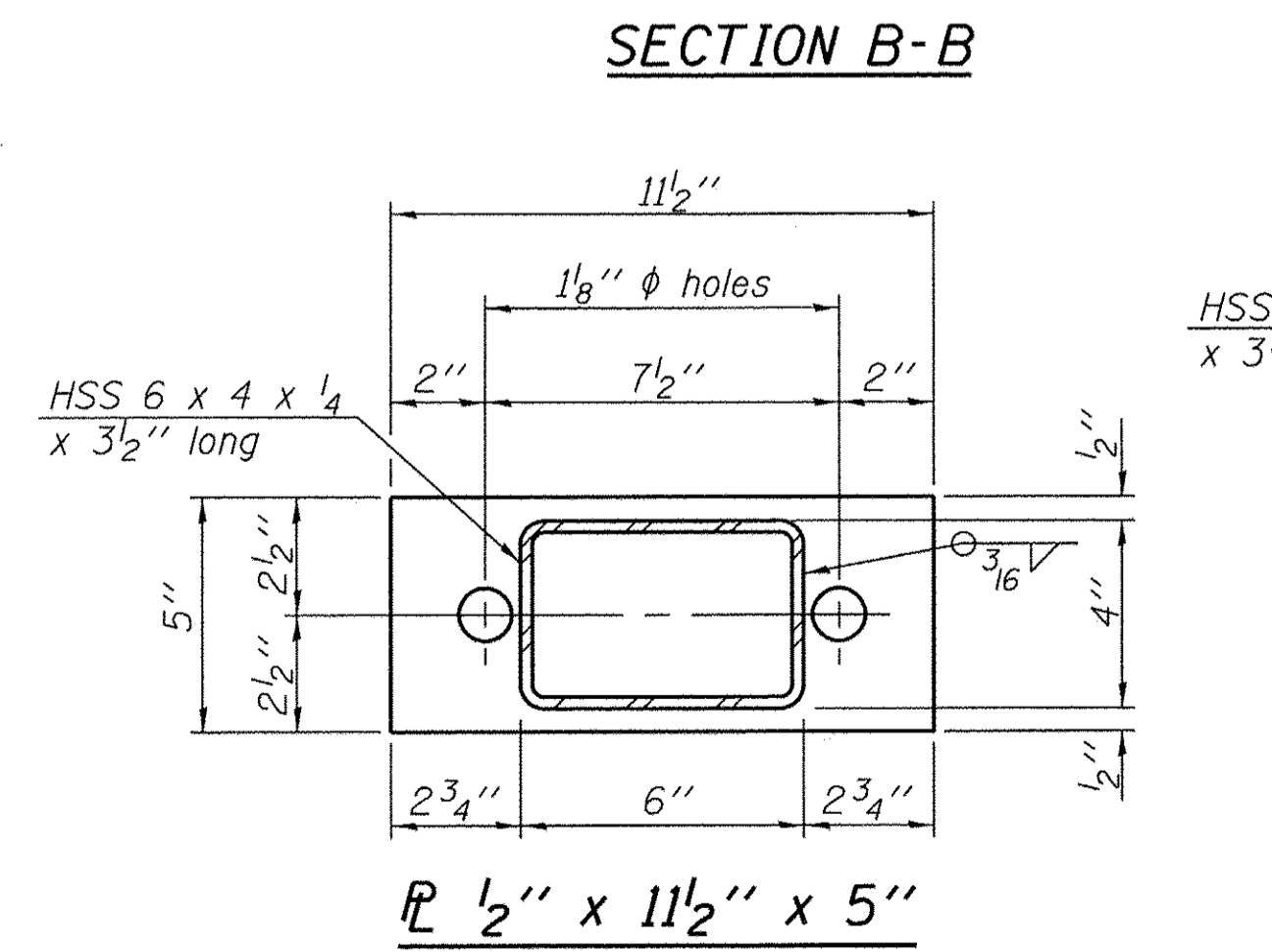
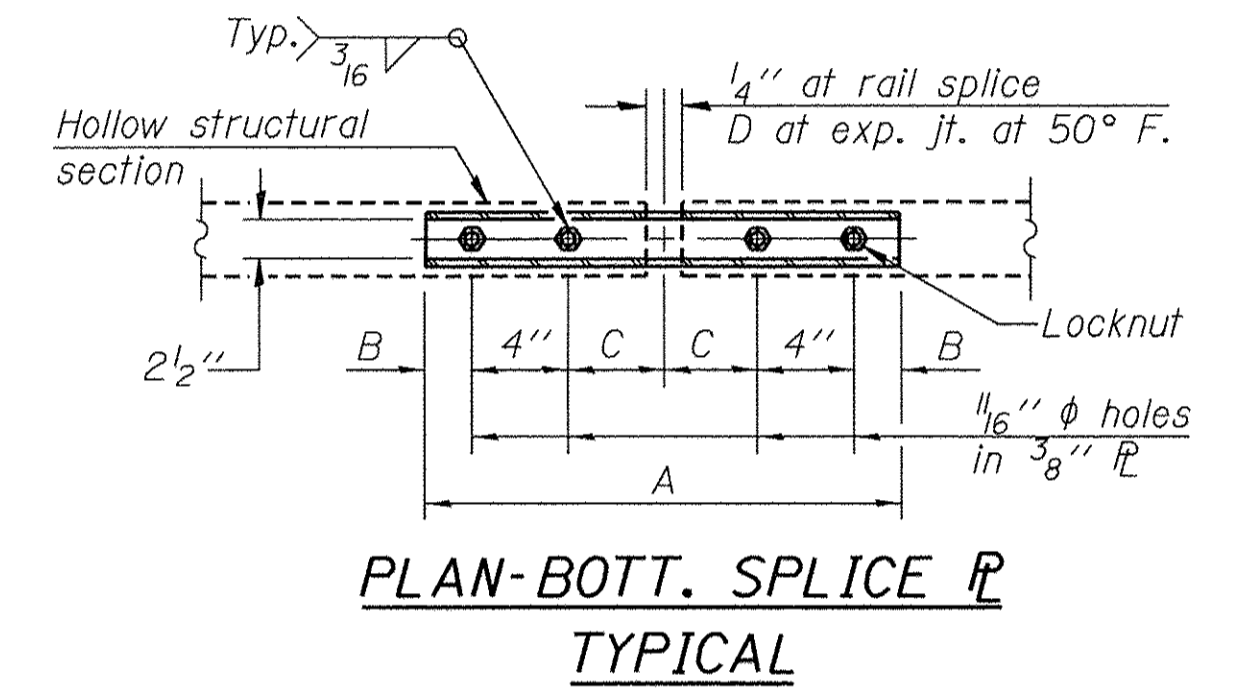
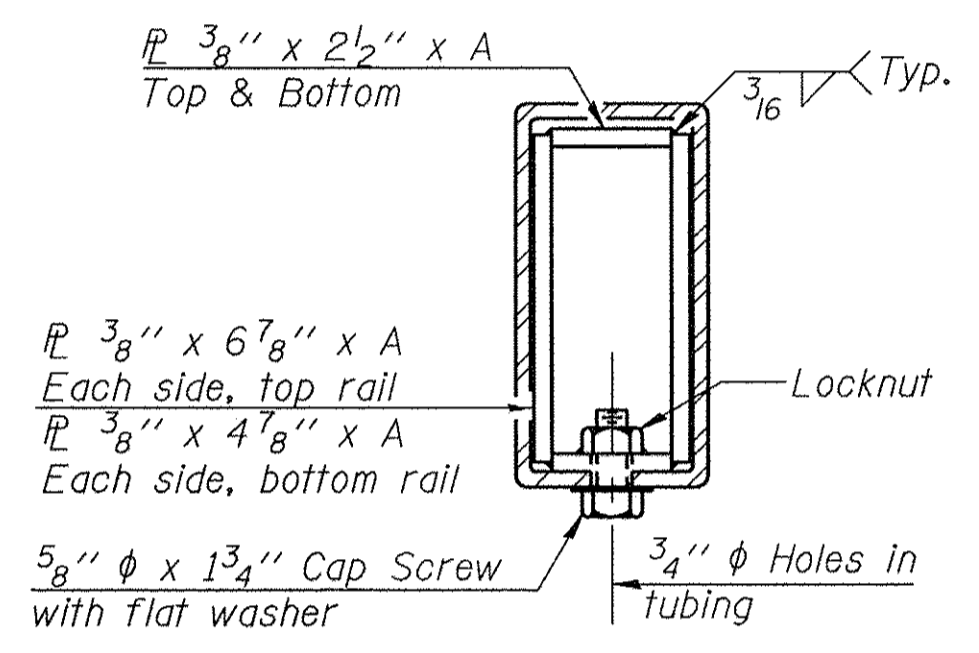
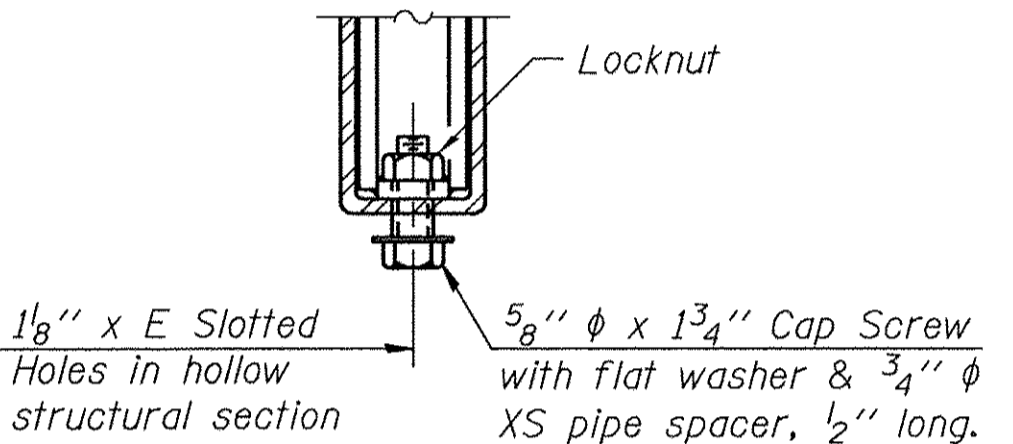
DETAIL OF 3/4" φ ROUND HEAD BOLT



φ - 5/8" reduced base welded studs. Provide 4-5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032.



RAIL SPLICE CONNECTION AT EXPANSION JT.



\* 1" H.S. Nut AASHTO M 164 welded to PL

Cast 1" voids behind each nut

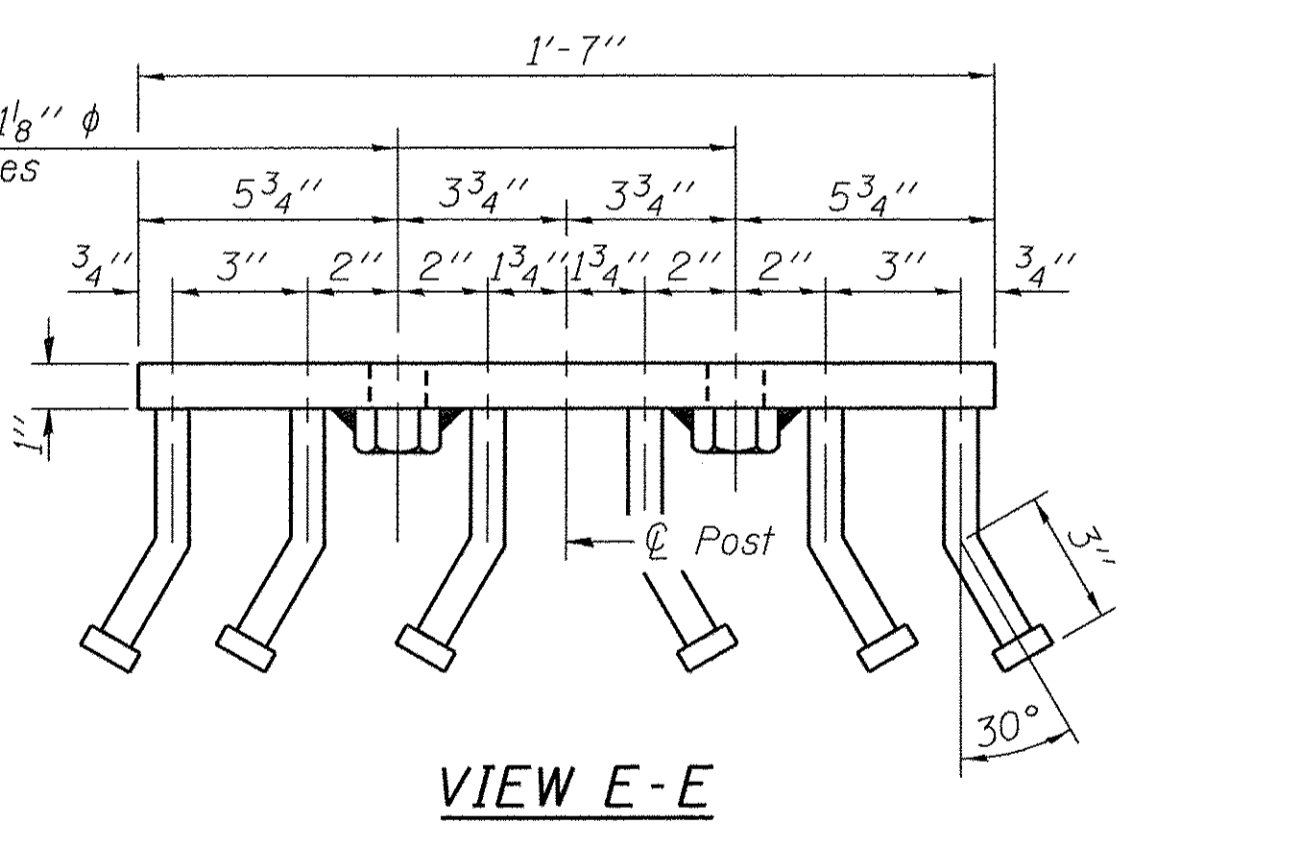
3/4" φ x 6" Granular or solid flux filled headed studs conforming to article 1006.32 of the Std. Specs. automatically end welded. (6 Required per PL)

\* 1" Round bar stock AASHTO M270 G50 or hex coupler nuts conforming to AASHTO M291, Grade A - 3" long welded to #3 bar. Tap pipe for 5/8" φ cap screw.

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 1/4"	1'-8"	2"	4"	—

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



Notes:  
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.  
All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.  
\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	304

R-34HMAWS

1-12-15 (6'-3" Maximum Post Spacing) (1/4" minimum to 3/8" maximum HMA thickness)



DESIGNED - CTB	REVISOR
CHECKED - JTT	REVISOR
DRAWN - JBB	REVISOR
CHECKED - JWH	REVISOR

DESIGNED - CTB	REVISOR
CHECKED - JTT	REVISOR
DRAWN - JBB	REVISOR
CHECKED - JWH	REVISOR

STATE OF ILLINOIS  
WINNEBAGO COUNTY HIGHWAY DEPARTMENT

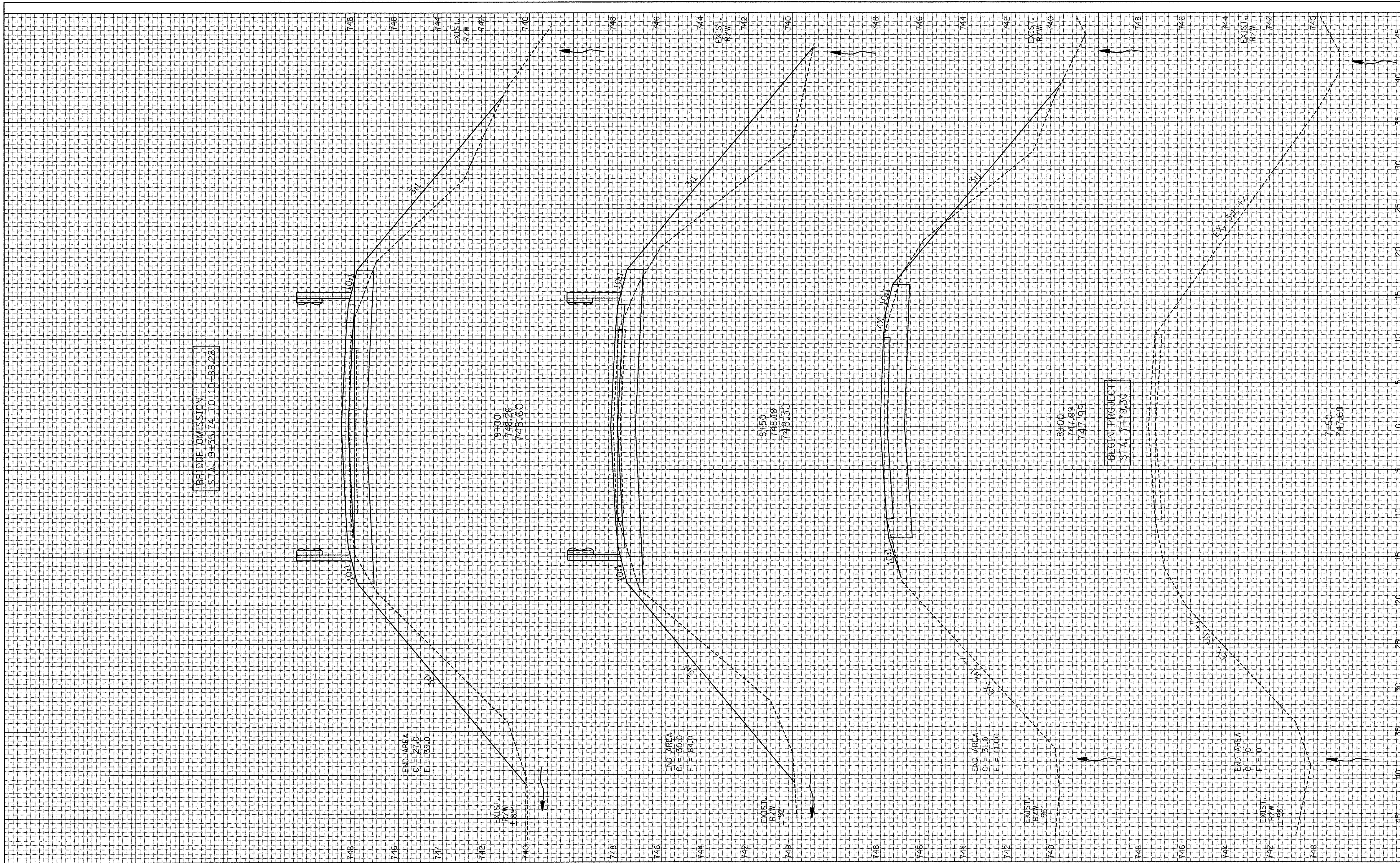
STEEL RAILING, TYPE SM WITH HOT-MIX ASPHALT WEARING SURFACE  
STRUCTURE NO. 101-3098

STRUCTURAL SHEET NO. 9 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	14
PECATONICA TWP. ROAD DIST.			CONTRACT NO.	
ILLINOIS FED. AID PROJECT				

FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
	TEMPLATE		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
	TEMPLATE		
	AREAS CHECKED		



USER NAME = SURVEY	DESIGNED - CTB	REVISED - MML 01-04-2017
PLOT SCALE = 1.0000' / 1" =	DRAWN -	REVISED - MML 04-06-2017
PLOT DATE = 4/12/2017	CHECKED - JWH	REVISED -
	DATE - NOV. 2016	REVISED -

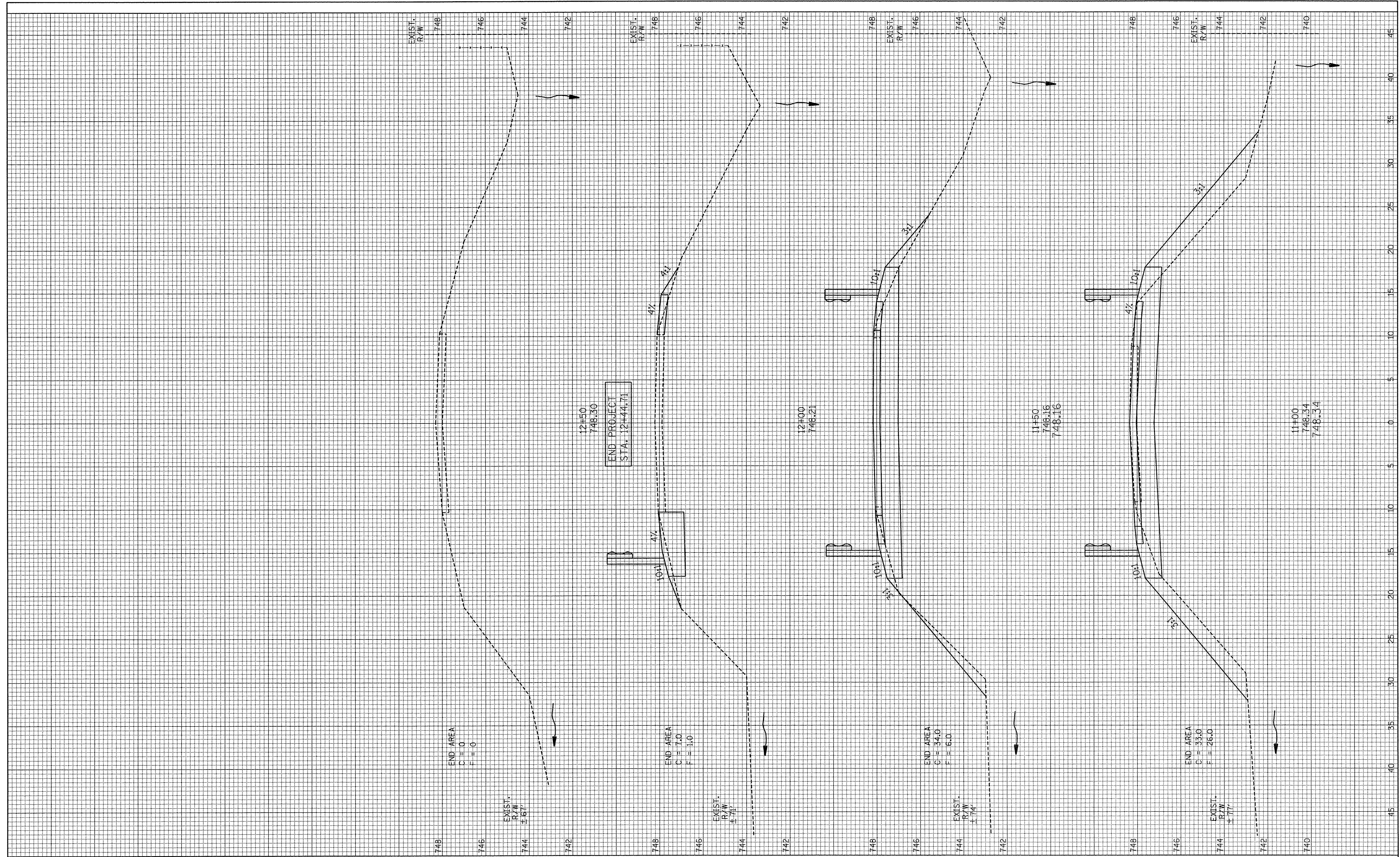
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SCALE:	SHEET 1 OF 2 SHEETS	STA. 7+50 TO STA. 9+00
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T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	15
PECATONICA TWP. ROAD DIST.		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

FINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK		
AREAS		
AREAS CHECKED		
NO.		

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK		
AREAS		
AREAS CHECKED		
NO.		



USER NAME = SURVEY	DESIGNED - CTB	REVISED - MML 01-04-2017
PLOT SCALE = 1,0000 ' / in.	DRAWN -	REVISED - MML 04-06-2017
PLOT DATE = 4/12/2017	CHECKED - JWH	REVISED -
	DATE - NOV. 2016	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

SCALE:	SHEET 2 OF 2 SHEETS	STA. 11+00 TO STA. 12+50
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T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
125	04-08124-00-BR	WINNEBAGO	16	16
PECATONICA TWP. ROAD DIST.			CONTRACT NO.	
ILLINOIS FED. AID PROJECT				