

01-21-2022 LETTING ITEM 120

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM - BRIDGE

SECTION 18-08137-00-BR LAWRENCE COUNTY

PROJECT GJZP(832)

JOB NO. C-97-104-21

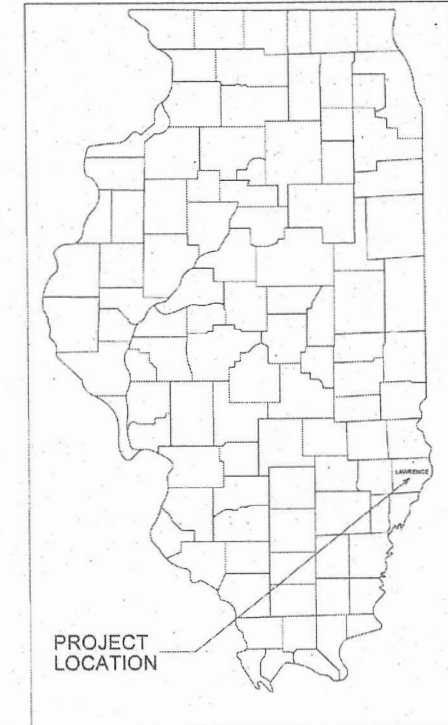
T.R. 18

CONTRACT 95906

Joint Utility Locating Information for Excavators

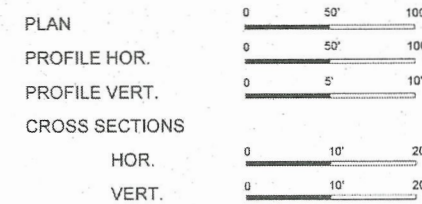
JULIE 1-800-892-0123

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 18	18-08137-00-BR	LAWRENCE	17	1
CONTRACT 95906		ILLINOIS	PROJECT GJZP(832)	



INDEX OF SHEETS

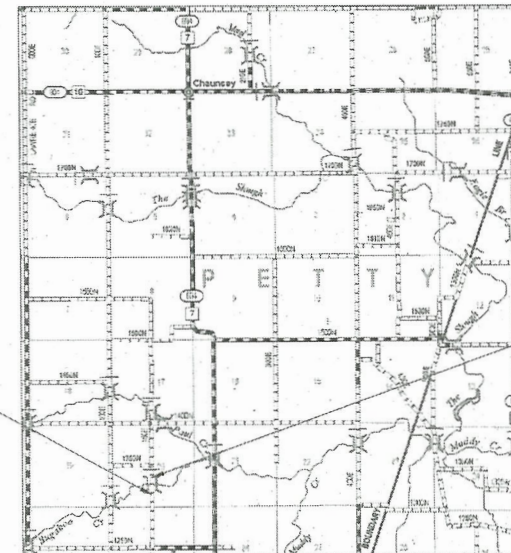
SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	GENERAL PLAN AND ELEVATION
5	SUPERSTRUCTURE SPAN 1 OR 3
6	SUPERSTRUCTURE DETAILS SPAN 1 OR 3
7	SUPERSTRUCTURE SPAN 2
8	SUPERSTRUCTURE DETAILS SPAN 2
9	STEEL RAILING, TYPE S-1
10	STEEL RAILING, TYPE S-1 DETAILS
11	ABUTMENT DETAILS
12	PIER DETAILS
13	PILE DETAILS
14	BORING LOGS
15-17	CROSS SECTIONS



NOTE: SCALES VALID FOR 22" X 34" SHEETS

- STANDARD DRAWINGS
- STANDARD 000001-08
 - STANDARD 280001-07
 - STANDARD 515001-04
 - STANDARD 665001-02
 - STANDARD 701901-08
 - STANDARD 725001-01
 - STANDARD BLR 21-9

R 13 W ← R 12 W



SECTION 18-08137-00-BR BEGINS STA. 2+00.00

THREE-SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE
 100'-50" BK.-BK. ABUTMENTS
 STEEL H PILE / SPILLTHROUGH ABUTMENTS
 STEEL H PILE / SOLID WALL PIERS
 28" DECK
 EXISTING STRUCTURE NO. 051-3049
 PROPOSED STRUCTURE NO. 051-3308

SECTION 18-08137-00-BR ENDS STA. 7+00.00

R 13 W ← R 12 W

NET LENGTH SECTION 18-08137-00-BR = 500.00 Ft. = 0.095 Mi.

FUNCTIONAL CLASSIFICATION - LOCAL ROAD
 ADT = 125
 DESIGN SPEED = 30 MPH



10/27/2021

LICENSE EXPIRES 11/30/2021

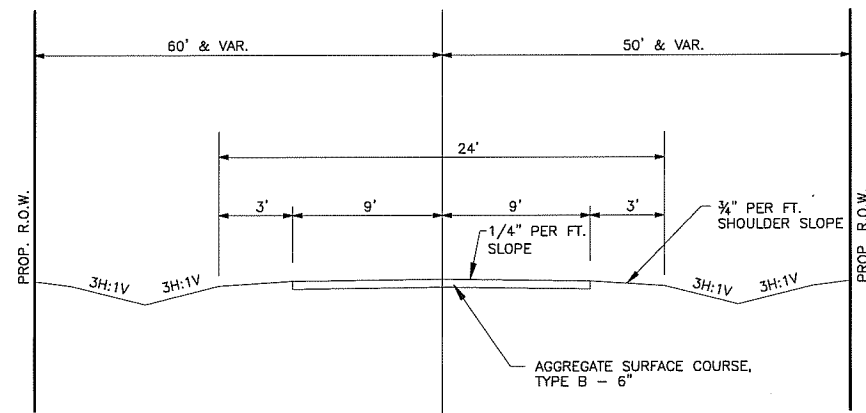
CHARLESTON ENGINEERING, INC.
 CONSULTING ENGINEERS
 105 NORTH KITCHELL
 P.O. BOX 397
 OLNEY, ILLINOIS 62450
 (618) 392-0736
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

APPROVED October 28, 2021
Ann Miller
 COUNTY ENGINEER

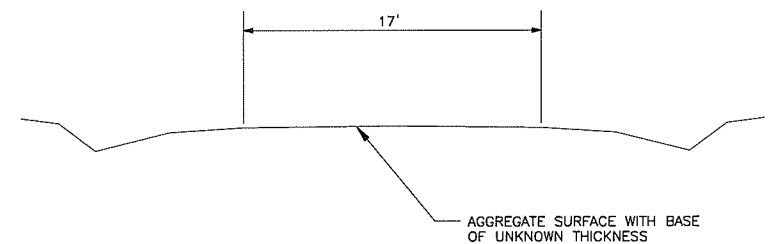
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

PASSED 11/02/21
Brian Walker
 DISTRICT SEVEN ENGINEER OF
 LOCAL ROADS AND STREETS

Releasing For
 Bid Based on
 Limited Review
11/02/21
Jeffrey Myer
 REGION FOUR ENGINEER



TYPICAL SECTION
PROPOSED



TYPICAL SECTION
EXISTING

GENERAL NOTES

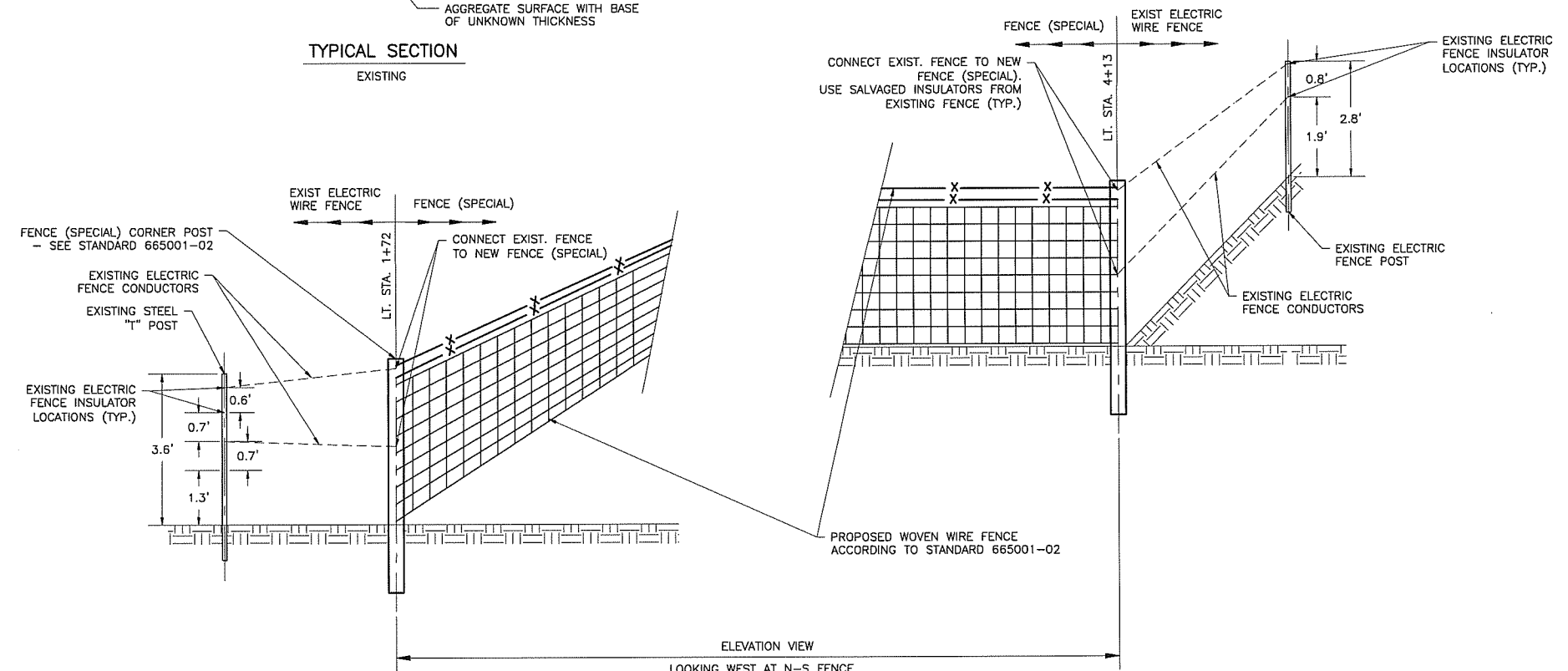
THE CONTRACTOR SHALL CONTACT JULIE (1-800-892-0123) BEFORE COMMENCING WORK. UNDERGROUND UTILITIES SHOWN ON THE PLAN SHEETS WERE OBTAINED FROM LOCAL UTILITY COMPANIES AND OTHER AVAILABLE SOURCES. LOCATIONS, SIZE, MATERIAL, DESCRIPTION, OR TYPE OF EXISTING UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT, OR COMPLETE AND SHALL BE CONSIDERED APPROXIMATE. ABOVE GROUND UTILITY LOCATIONS ARE SHOWN AS FOUND DURING THE INITIAL SURVEY FIELD WORK AND MAY NOT REFLECT CURRENT CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND COORDINATION WITH UTILITY COMPANIES.

THE FOLLOWING RATES HAVE BEEN USED TO CALCULATE PLAN QUANTITIES:

STONE DUMPED RIPRAP, CLASS A4	1.75 TONS/CU YD
AGGREGATE BASE COURSE, TY-B	2.0 TONS/CU YD
AGGREGATE SURFACE COURSE, TY-B	2.0 TONS/CU YD

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	QUANTITY
Δ X2200003	FENCE (SPECIAL)	FOOT	260
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.85
Δ 20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	44
Δ 20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	134
20200100	EARTH EXCAVATION	CU YD	705
20300100	CHANNEL EXCAVATION	CU YD	1340
28000305	TEMPORARY DITCH CHECKS	FOOT	91
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	650
35101400	AGGREGATE BASE COURSE, TYPE B	TON	90
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	450
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	91.4
50300280	CONCRETE ENCASMENT	CU YD	3.5
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	2744
50800105	REINFORCEMENT BARS	POUND	8700
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	200
51201600	FURNISHING STEEL PILES HP12X53	FOOT	990
51202305	DRIVING PILES	FOOT	990
51203600	TEST PILE STEEL HP12X53	EACH	2
51500100	NAME PLATES	EACH	1
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	20
67100100	MOBILIZATION	L. SUM	1
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

Δ SPECIALTY ITEMS



FENCE (SPECIAL) DETAIL
LT. STA. 1+72 TO 4+13

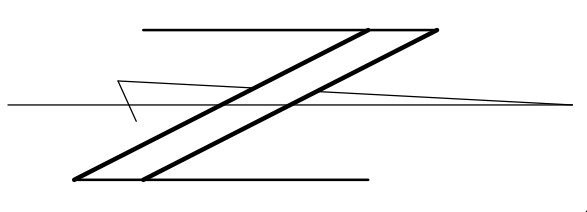
CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS - LAND SURVEYORS
105 NORTH KITCHELL AVENUE
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-6736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

DESIGNED - BMB	REVISED -
DRAWN - BMB	REVISED -
CHECKED - BMB	REVISED -
DATE - 7-2021	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 18	18-08137-00-BR	LAWRENCE	17	2
CONTRACT 95906		ILLINOIS	PROJECT GJZP(832)	



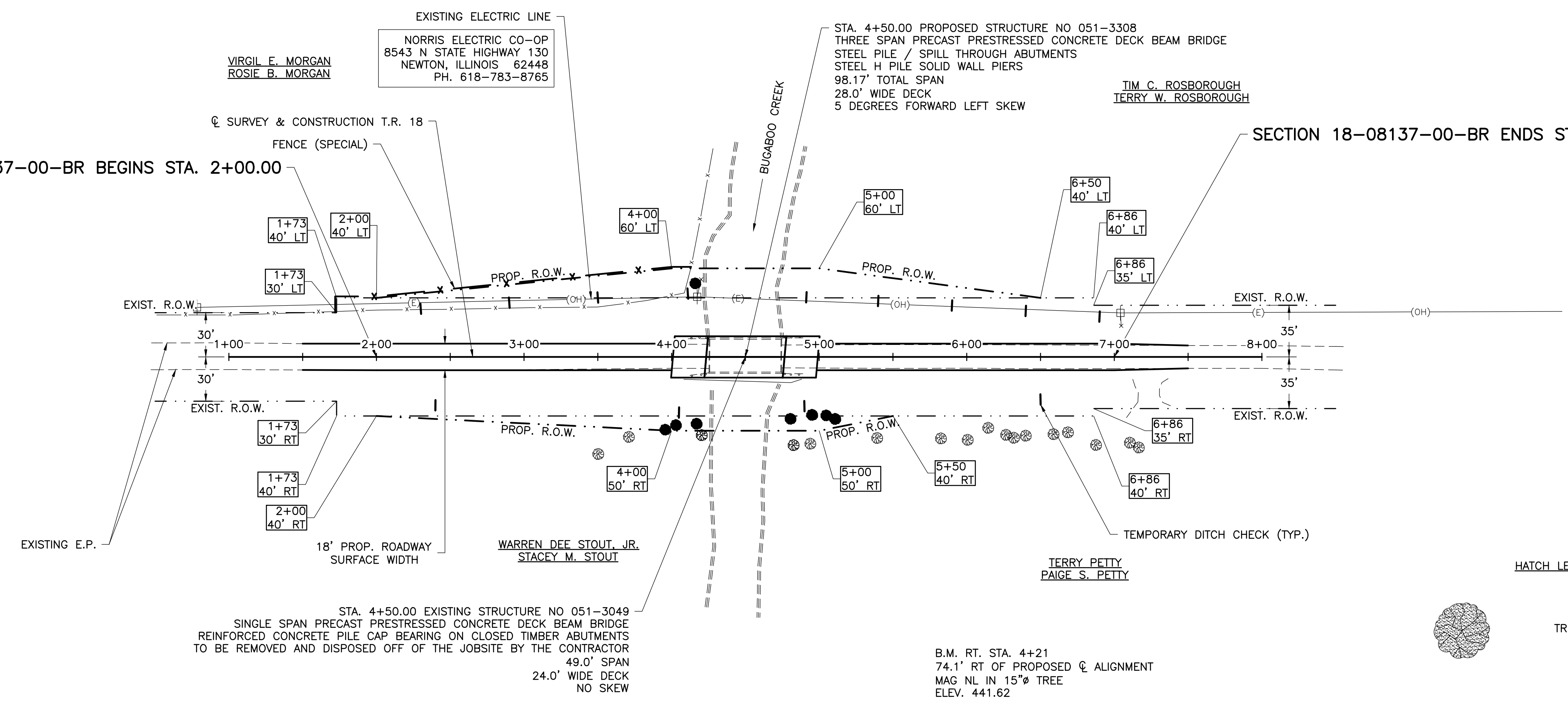
SCALES:
1" = 50' HOR
1" = 5' VER

SECTION 18-08137-00-BR BEGINS STA. 2+00.00

SECTION 18-08137-00-BR ENDS STA. 7+00.00

P.O.T. STA. 2+00.00
N: 764,179.77
E: 1,113,429.95
COORDINATES BASED ON NAD83
ILLINOIS EAST STATE PLANE
COORDINATE SYSTEM

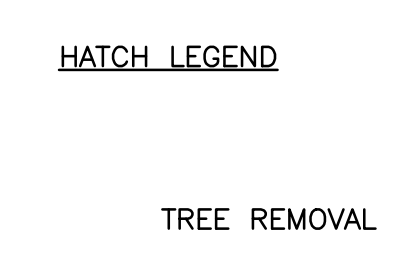
P.O.T. STA. 7+00.00
N: 764679.77
E: 1,113,429.10
COORDINATES BASED ON NAD83
ILLINOIS EAST STATE PLANE
COORDINATE SYSTEM



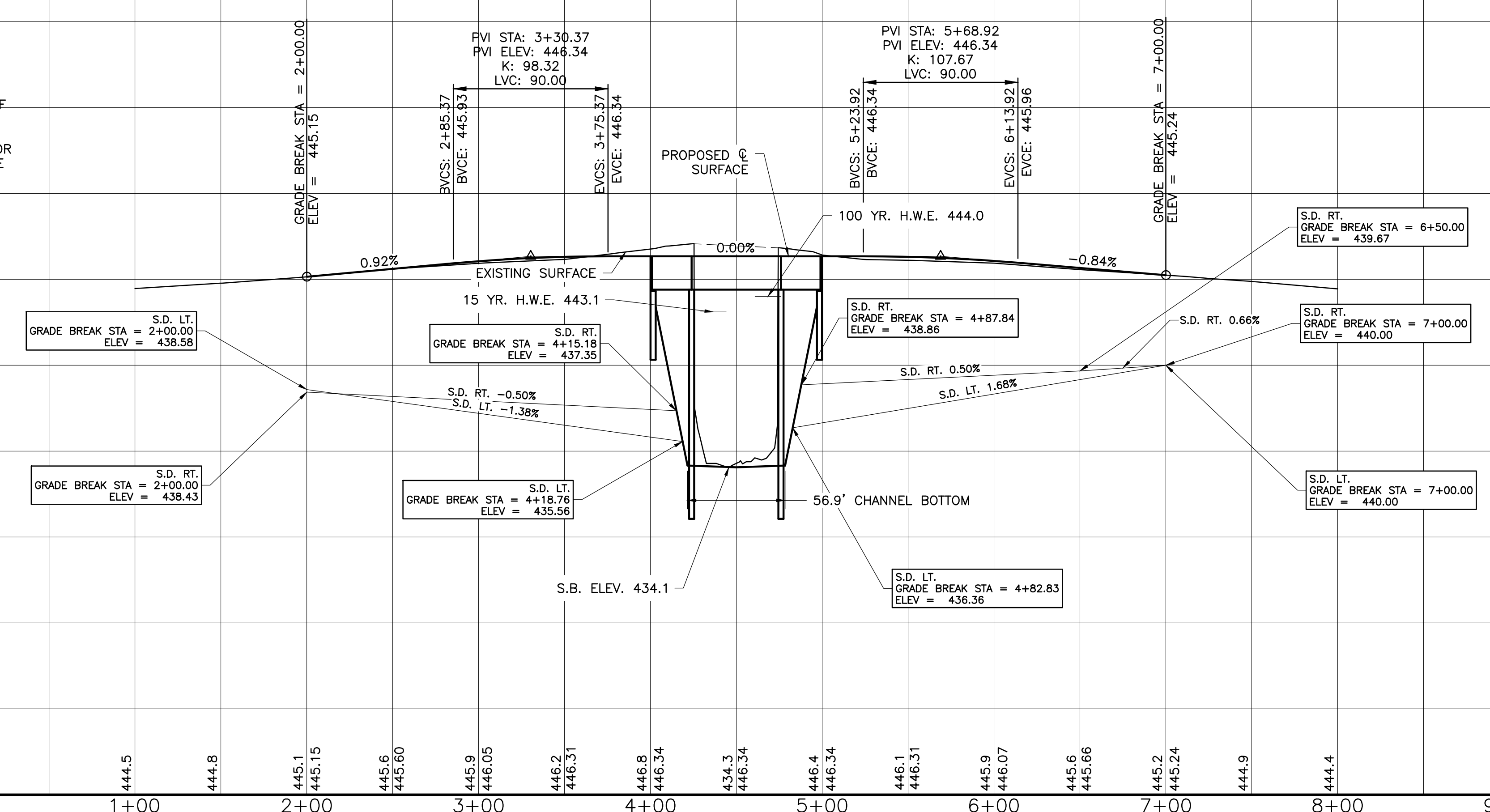
TRANSITION EXISTING ROADWAY TO PROPOSED ROADWAY
STA. 1+50 TO 2+00 AND 7+00 TO 7+50. QUANTITIES
FOR THE ABOVE ARE INCLUDED IN THOSE LISTED.

WARREN DEE STOUT, JR.
STACEY M. STOUT
STA. 4+50.00 EXISTING STRUCTURE NO 051-3049
SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE
REINFORCED CONCRETE PILE CAP BEARING ON CLOSED TIMBER ABUTMENTS
TO BE REMOVED AND DISPOSED OFF OF THE JOBSITE BY THE CONTRACTOR
49.0' SPAN
24.0' WIDE DECK
NO SKEW

B.M. RT. STA. 4+21
74.1' RT OF PROPOSED C ALIGNMENT
MAG NL IN 15"Ø TREE
ELEV. 441.62



STATION	DESCRIPTION	UNIT	QUANTITY
460	EARTHWORK	CU YD	
	EARTH EXCAVATION		705*
	CHANNEL EXCAVATION		1340**
	EMBANKMENT		545
455	*QUANTITY INCLUDES 115 C.Y. EXCAVATION FOR CONCRETE STRUCTURES. COST OF EXCAVATION FOR CONCRETE STRUCTURES INCLUDED IN ITEM "EARTH EXCAVATION."		
	**IT IS ESTIMATED THAT 50% OF THE CHANNEL EXCAVATION WILL BE SUITABLE FOR USE IN THE EMBANKMENT. UNSUITABLE MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.		
450	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.85
	STA. 2+00 TO 7+00		
445	TREE REMOVAL (6 TO 15 UNIT DIAMETER)	UNIT	44
	STA. 3+90 TO 5+15		
440	TREE REMOVAL (OVER 15 UNIT DIAMETER)	UNIT	134
	STA. 3+90 TO 5+15		
435	AGG. SURF. CSE. TYPE B	TON	450
	STA. 2+00 TO 7+00		
430	TEMPORARY DITCH CHECKS	FOOT	91
	LT. STA. 2+30		7
	LT. STA. 2+90		7
	LT. STA. 3+50		7
	LT. STA. 4+10		7
	LT. STA. 4+90		7
	LT. STA. 5+40		7
	LT. STA. 5+90		7
	LT. STA. 6+40		7
	LT. STA. 6+90		7
	RT. STA. 2+40		7
	RT. STA. 4+05		7
	RT. STA. 4+90		7
	RT. STA. 6+50		7
	TOTAL 91 FOOT		
425	FENCE (SPECIAL)	FOOT	260
	LT. STA. 1+72 TO 4+13		



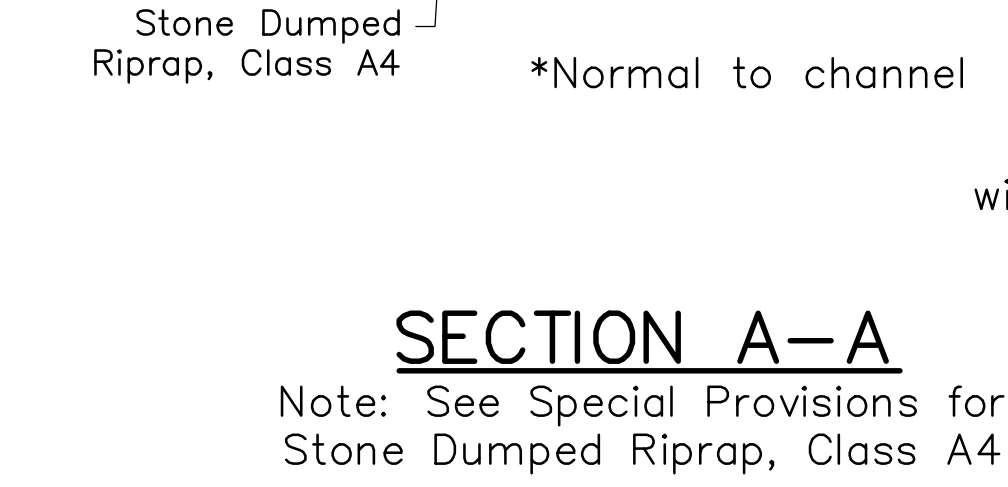
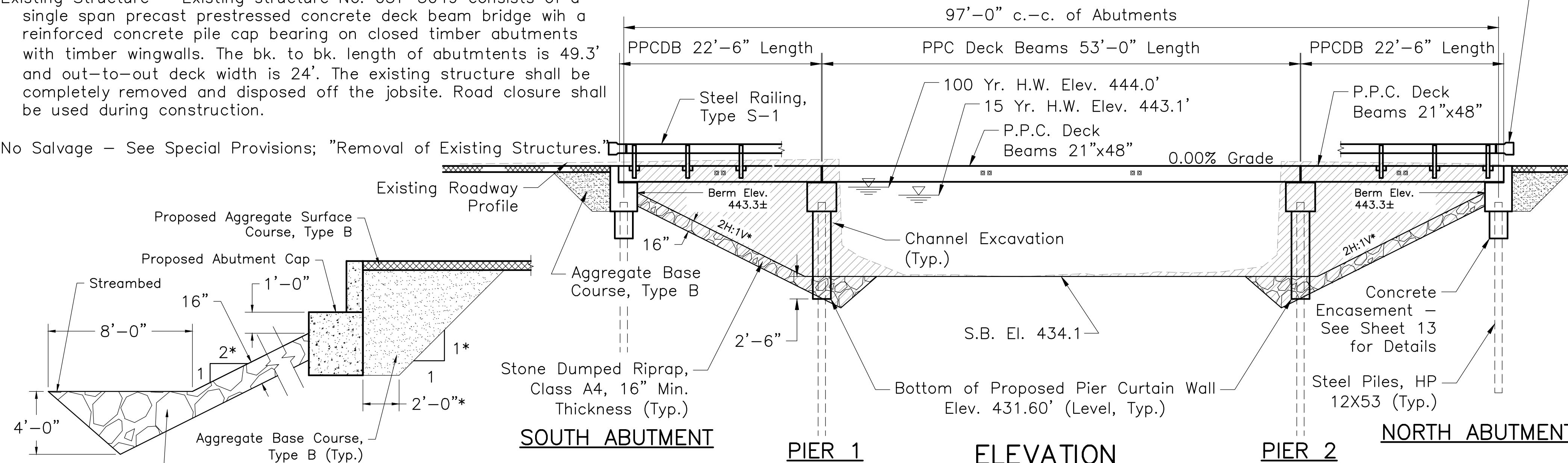
B.M.—Rt. Sta. 4+21, 74.1' Rt. of Proposed \bar{C} Alignment, Mag Nail in 15" \varnothing Tree, Elev. 441.62.

Existing Structure — Existing structure No. 051-3049 consists of a single span precast prestressed concrete deck beam bridge with a reinforced concrete pile cap bearing on closed timber abutments with timber wingwalls. The bk. to bk. length of abutments is 49.3' and out-to-out deck width is 24'. The existing structure shall be completely removed and disposed off the jobsite. Road closure shall be used during construction.

No Salvage — See Special Provisions; "Removal of Existing Structures."

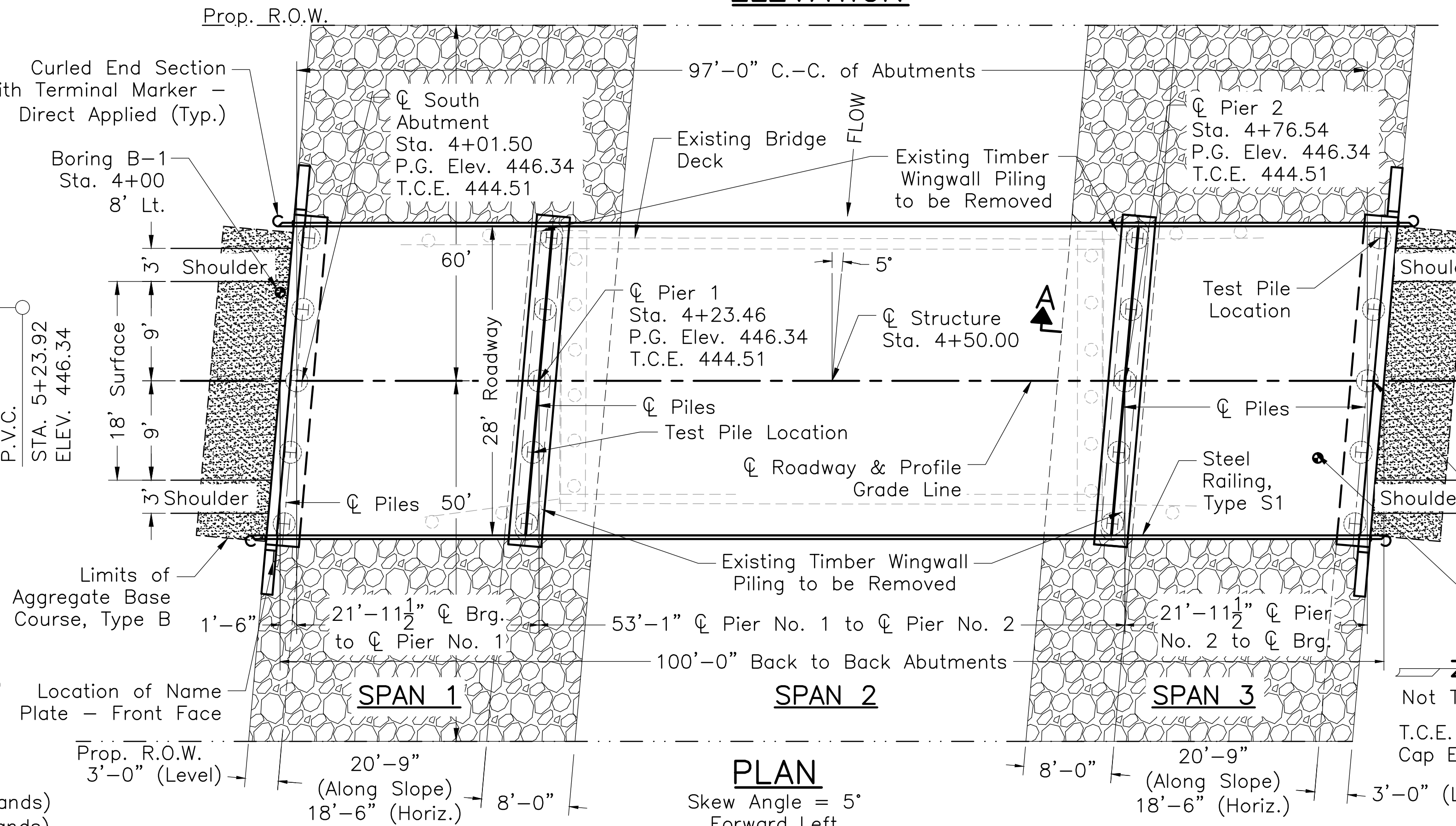
GENERAL NOTES

- Do not scale sheets 4-14.
- See Special Provisions for removing existing wingwall timber piles and backfilling pile voids with Controlled Low-Strength Material. Voids shall be filled before any steel H-piles are driven. The Contractor shall take special care while driving piling to ascertain and avoid driving proposed steel piling into existing timber piling that remain in place. 12" minimum from outside of existing pile to outer edge of proposed H-pile shall be maintained.
- The Contractor shall drive the test piles to 110% of the nominal required bearing specified in production locations at the North Abutment and Pier No. 1 or as approved by the Engineer before ordering the remainder of piles.
- It shall be the responsibility of the Contractor to divert flow during construction to keep construction areas free of water. The method of water diversion shall be subject to the approval of the Engineer and shall be included in the cost of Concrete Structures.
- See Sheet 14 for boring logs.
- Excavation required to construct the Abutments shall be included in the cost of Earth Excavation. No additional compensation will be allowed for Structure Excavation.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- Toe stone riprap treatment as shown in Section A-A shall extend entire channel length from proposed R.O.W. west to proposed R.O.W. east.
- All proposed construction activities shall be in accordance with Nationwide Permit Number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity.

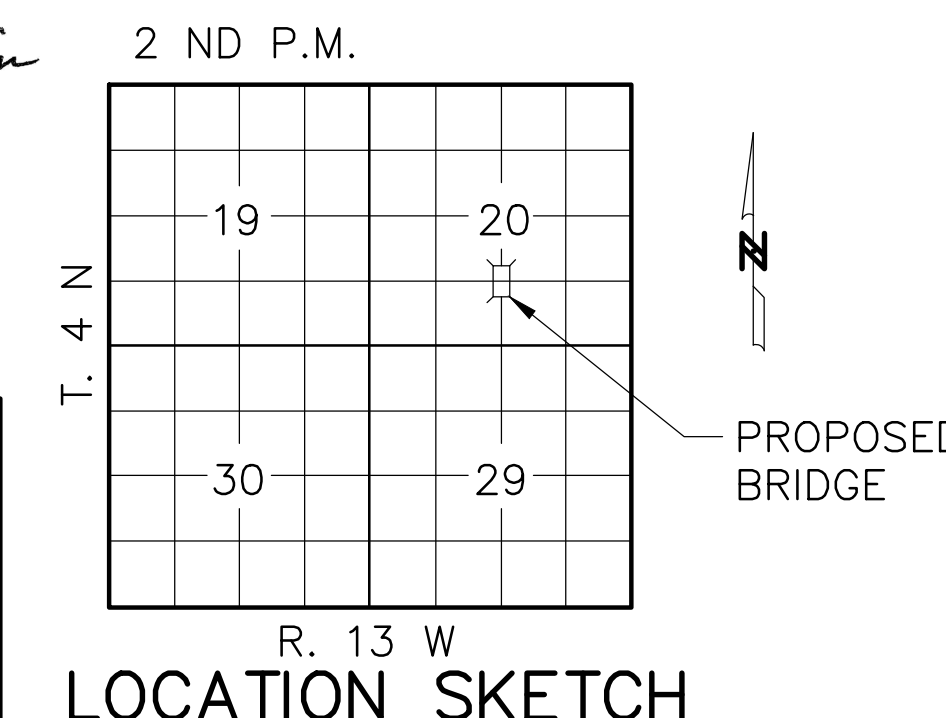


TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Channel Excavation	Cu. Yd.	-	-	1340	1340
Stone Dumped Riprap, Class A4	Ton	-	-	650	650
Removal of Existing Structures	Each	-	-	-	1
Concrete Structures	Cu. Yd.	-	63.6	27.8	91.4
Concrete Encasement	Cu. Yd.	-	-	3.5	3.5
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	2744	-	-	2744
Reinforcement Bars	Pound	-	5040	3660	8700
Steel Railing, Type S1	Foot	200	-	-	200
Furnishing Steel Piles HP 12 X 53	Foot	-	495	495	990
Driving Piles	Foot	-	495	495	990
Test Pile Steel HP 12 X 53	Each	-	1	1	2
Name Plates	Each	-	-	1	1
Aggregate Base Course, Type B	Ton	-	-	90	90
Controlled Low-Strength Material	Cu. Yd.	-	-	20	20
Terminal Marker - Direct Applied	Each	4	-	-	4



I certify that to the best of my knowledge, information and belief, this bridge 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.



DESIGN STRESSES

FIELD UNITS
 $f'_c = 3,500$ psi
 $F_y = 60,000$ psi (reinforcement)

PRECAST PRESTRESSED UNITS
 $f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $F'_s = 270,000$ psi ($\frac{1}{2}$ " low relax. strands)
 $F'_i = 201,960$ psi ($\frac{1}{2}$ " low relax. strands)

DESIGN SPECIFICATIONS

AASHTO LRFD Bridge Design Specifications - 9th edition

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.165g
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.428g
 Soil Site Class = C

BUGABOO CREEK
 BUILT 202_ BY
 PETTY ROAD DISTRICT
 LAWRENCE COUNTY
 SEC. 18-08137-00-BR
 T.R. 18 STATION 4+50.00
 STR. NO. 051-3308 LOADING HL-93

LOADING HL-93

50#/sq. ft. included in dead load for future wearing surface.

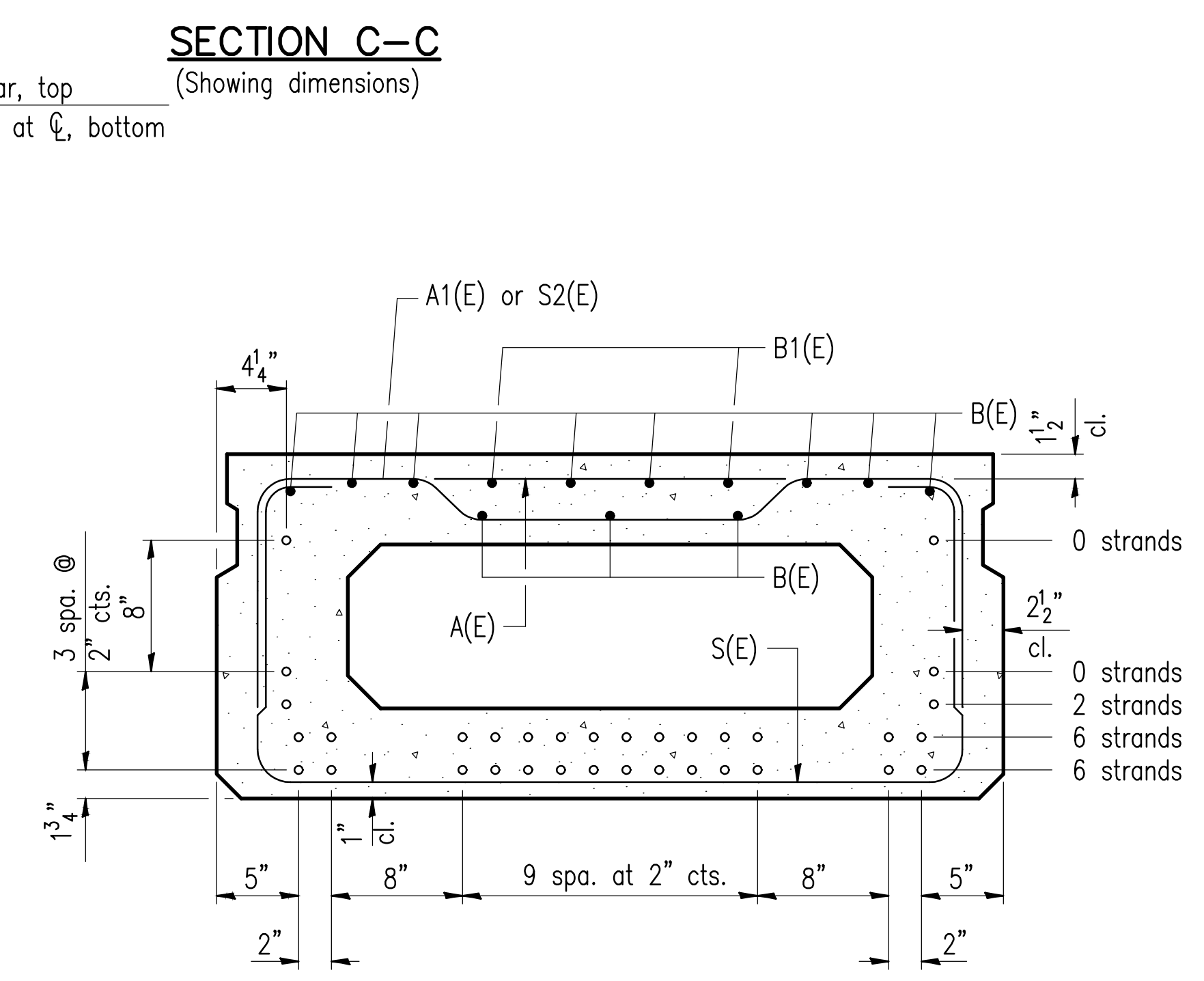
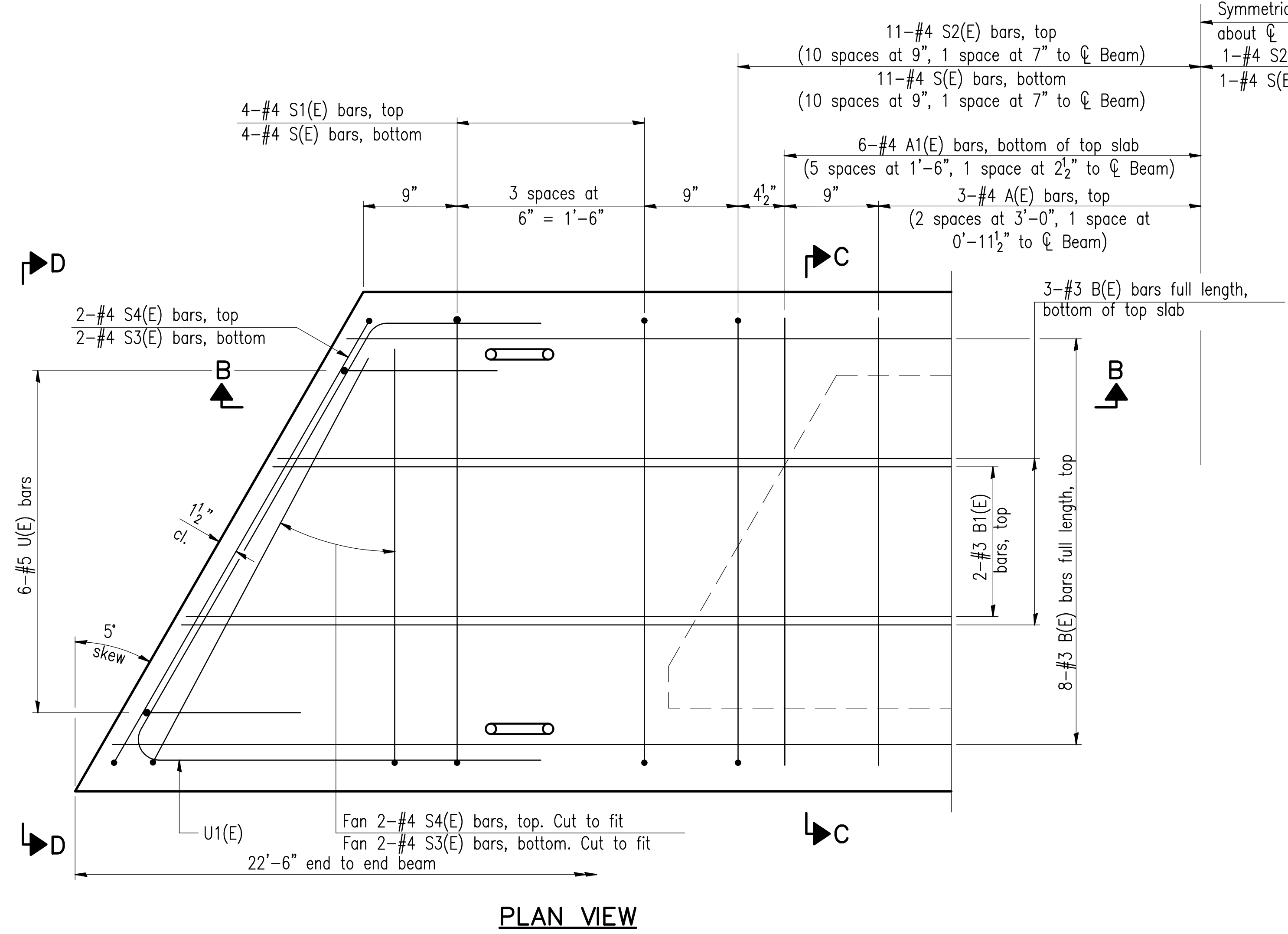
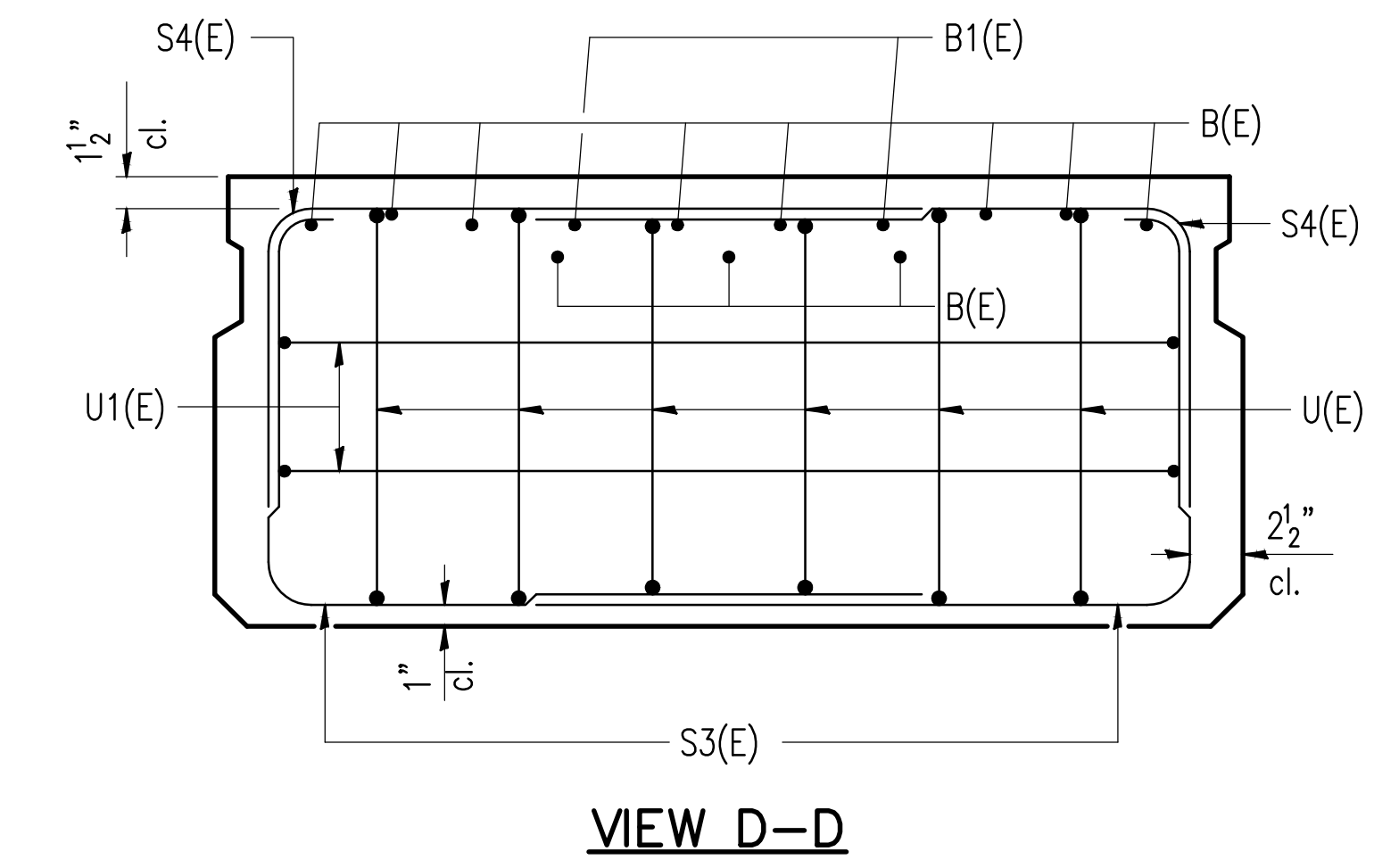
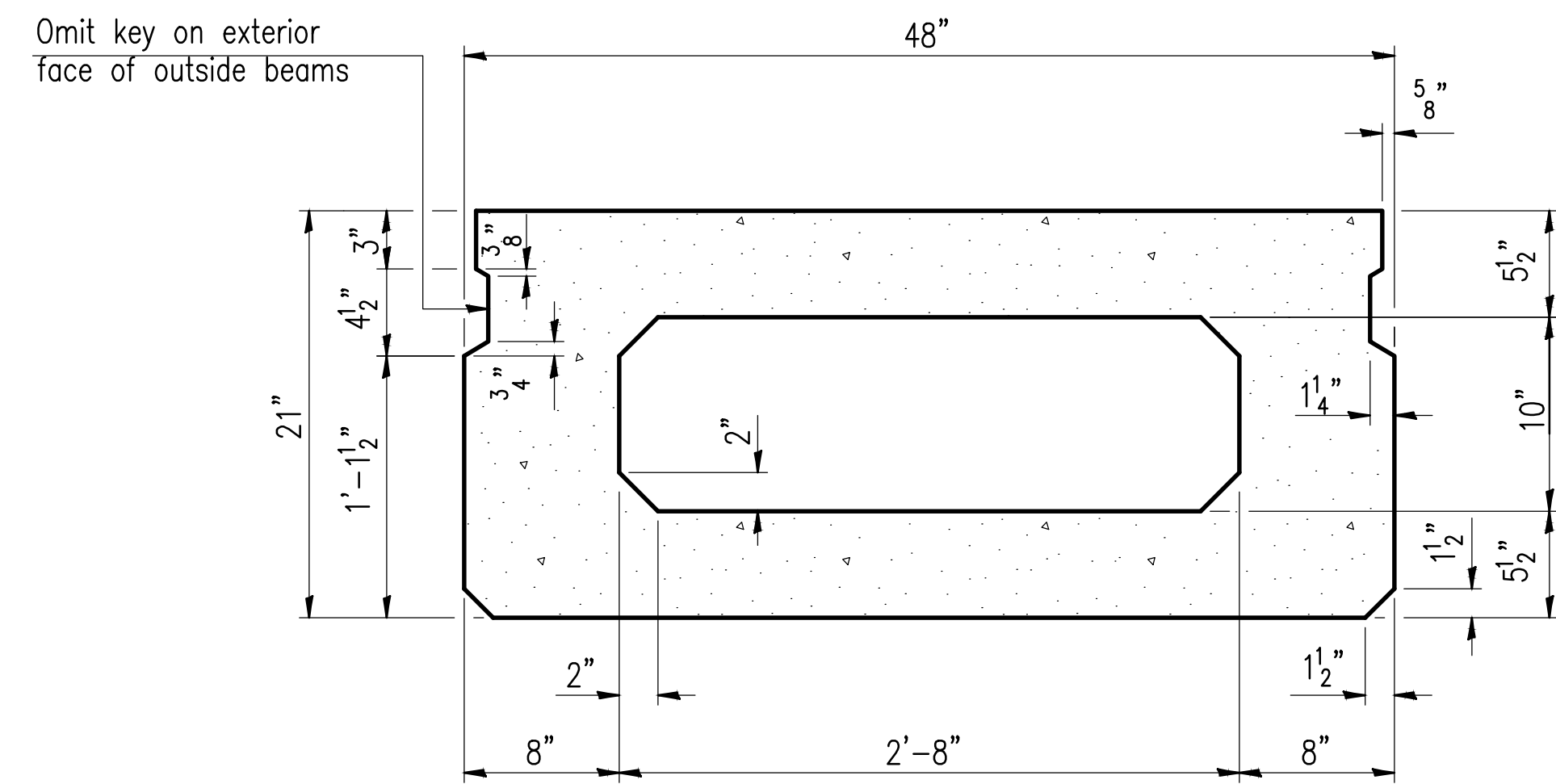
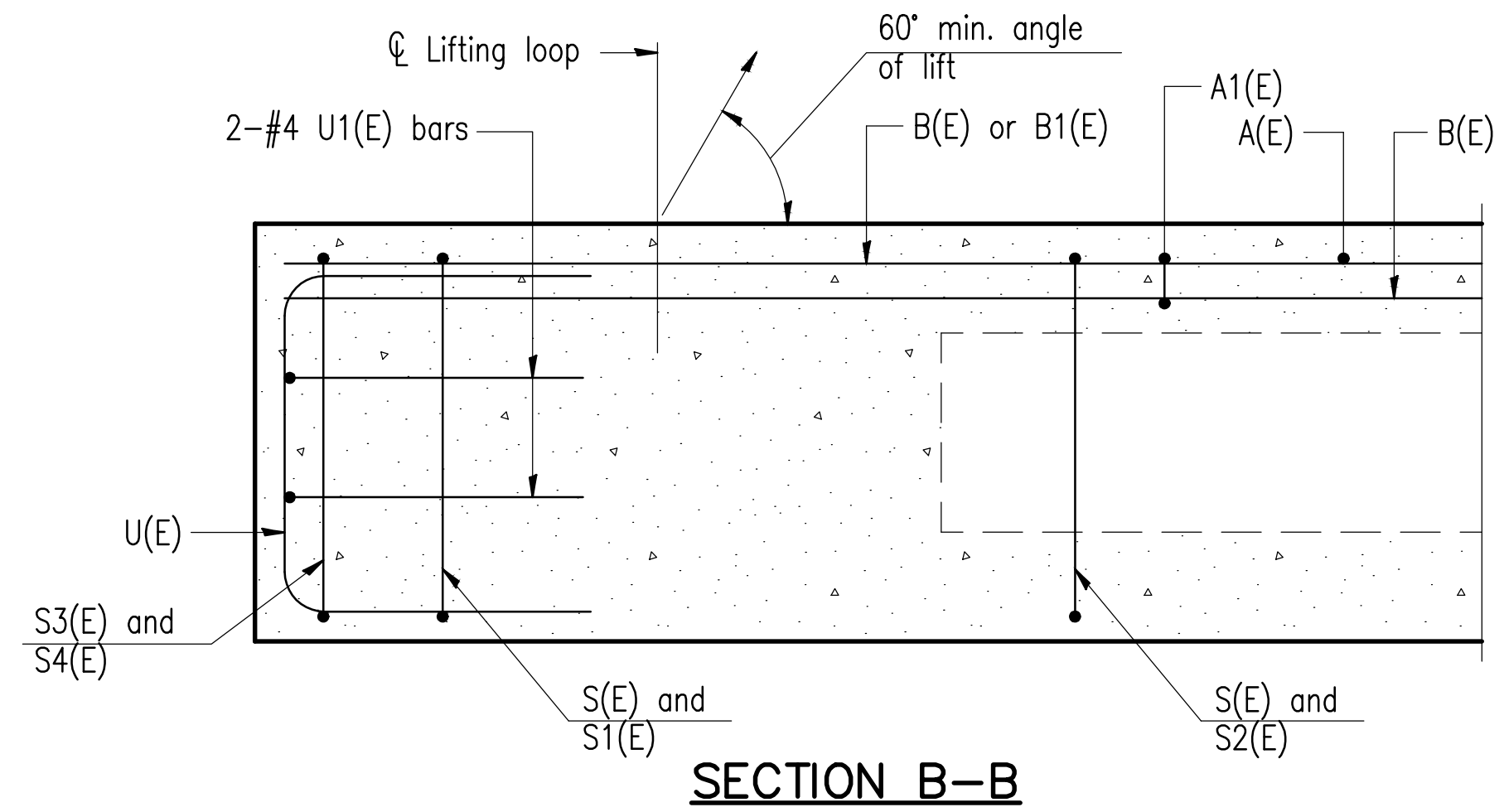
WATERWAY INFORMATION

Drainage Area=9.6 Sq.Mi. Low Grade Elev = 444.0 Sta. -0+50.00

Flood	Freq. Yr.	Q. C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	15	2320	368.0	660.0	443.1	0.3'	0.1'	443.4'	443.2'
Base	100	3760	379.0	725.0	444.0	0.8'	0.2'	444.8'	444.2'

LETTERING FOR NAME PLATE

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



SECTION C-C
 (Showing reinforcement and permissible strand locations)
 Notes: 14 total strands per beam
 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)

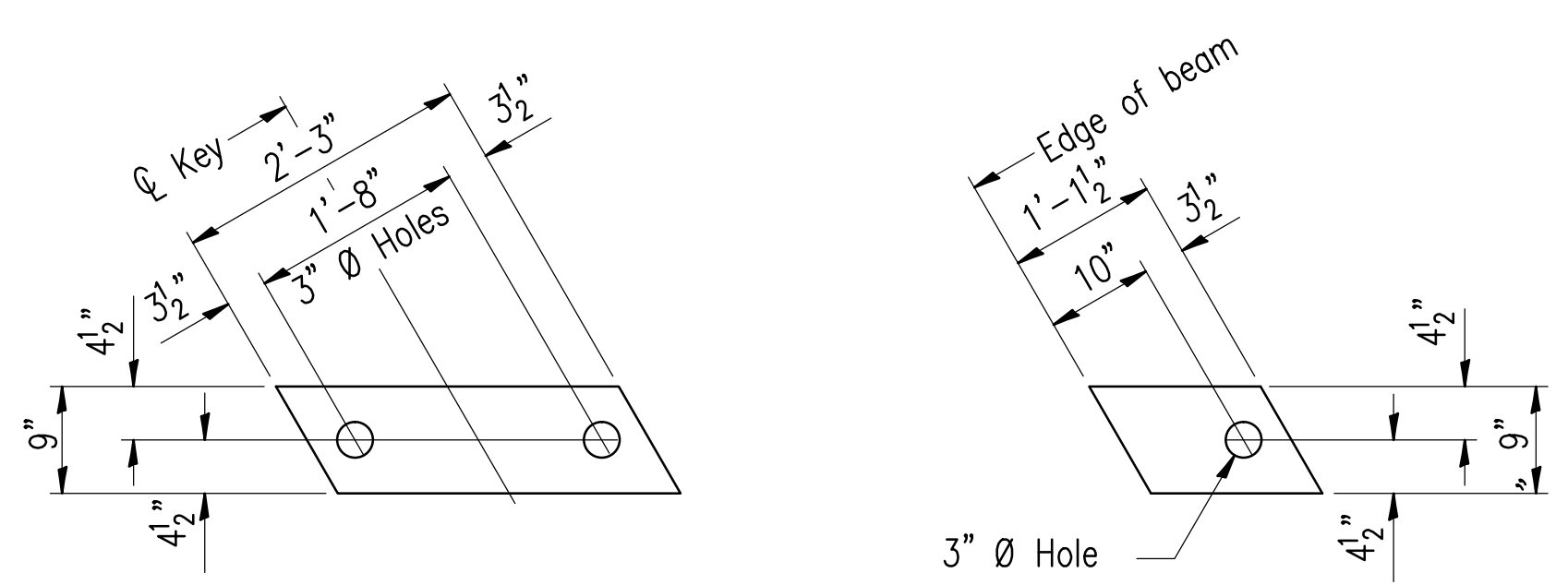
Bar	No.	Size	Length	Shape
A(E)	6	#4	3'-7"	—
A1(E)	12	#4	3'-10"	~
B(E)	11	#3	22'-3"	—
B1(E)	4	#3	10'-0"	—
S(E)	31	#4	7'-5"	⌋
S1(E)	8	#4	5'-11"	⌋
S2(E)	23	#4	6'-2"	⌋
S3(E)	8	#4	5'-0"	⌋
S4(E)	8	#4	4'-3"	⌋
U(E)	12	#5	4'-0"	⌋
U1(E)	4	#4	6'-4"	⌋

MINIMUM BAR LAP
 #3 bar = 1'-6"

SPAN 1 OR 3

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.

Note:
 See sheet 6 of 17 for additional details and Bill of Material.

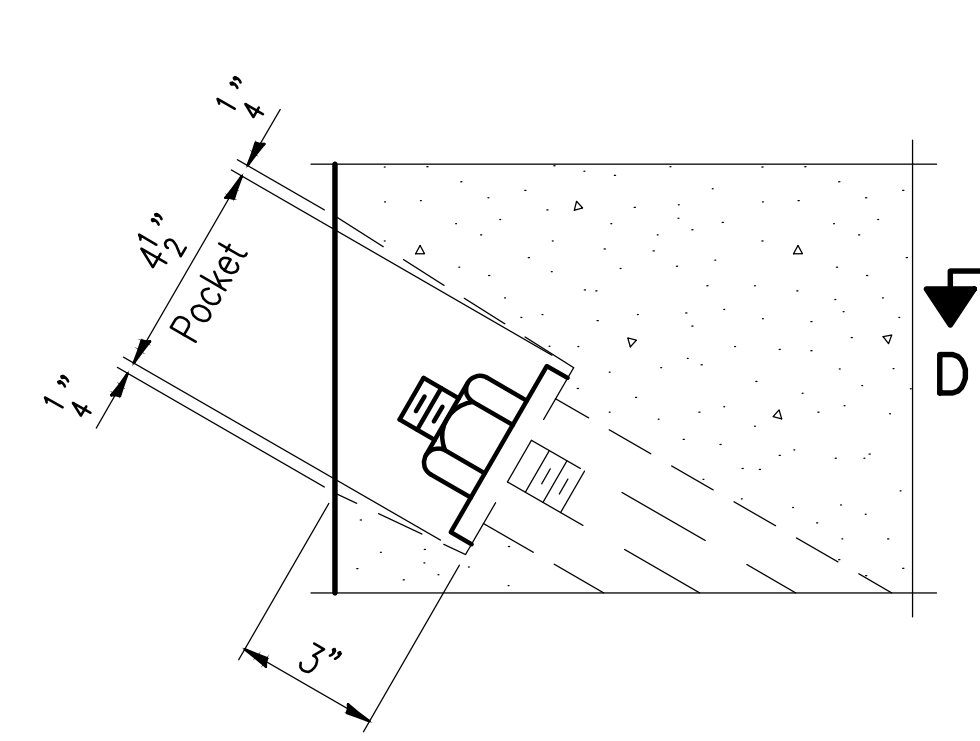


FABRIC BEARING PAD

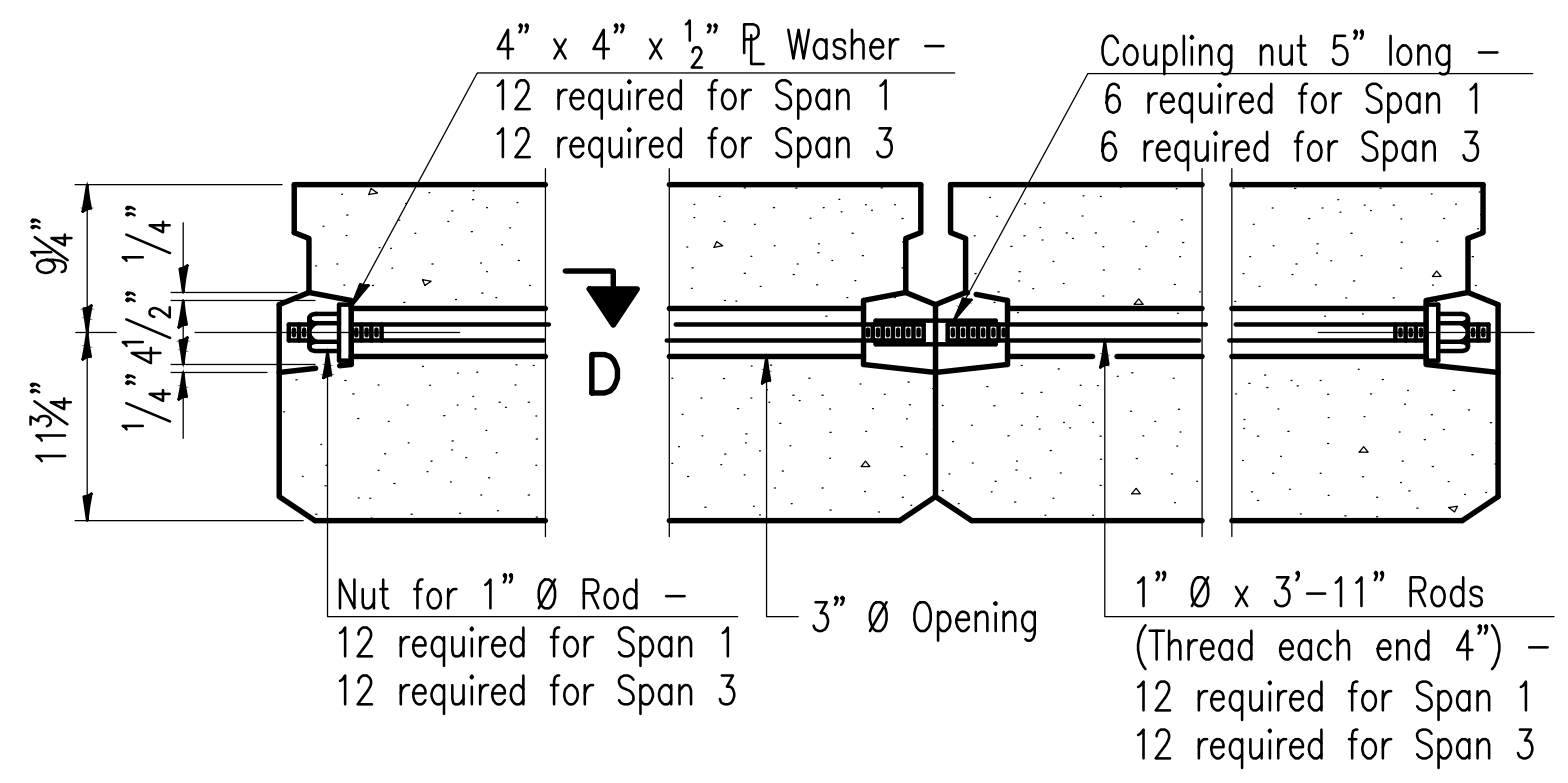
FABRIC BEARING PAD

(Interior) **FIXED** (Exterior)
 12 Required for Span 1 4 Required for Span 1
 12 Required for Span 3 4 Required for Span 3

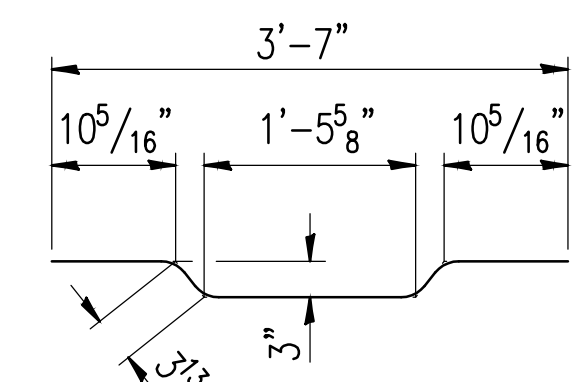
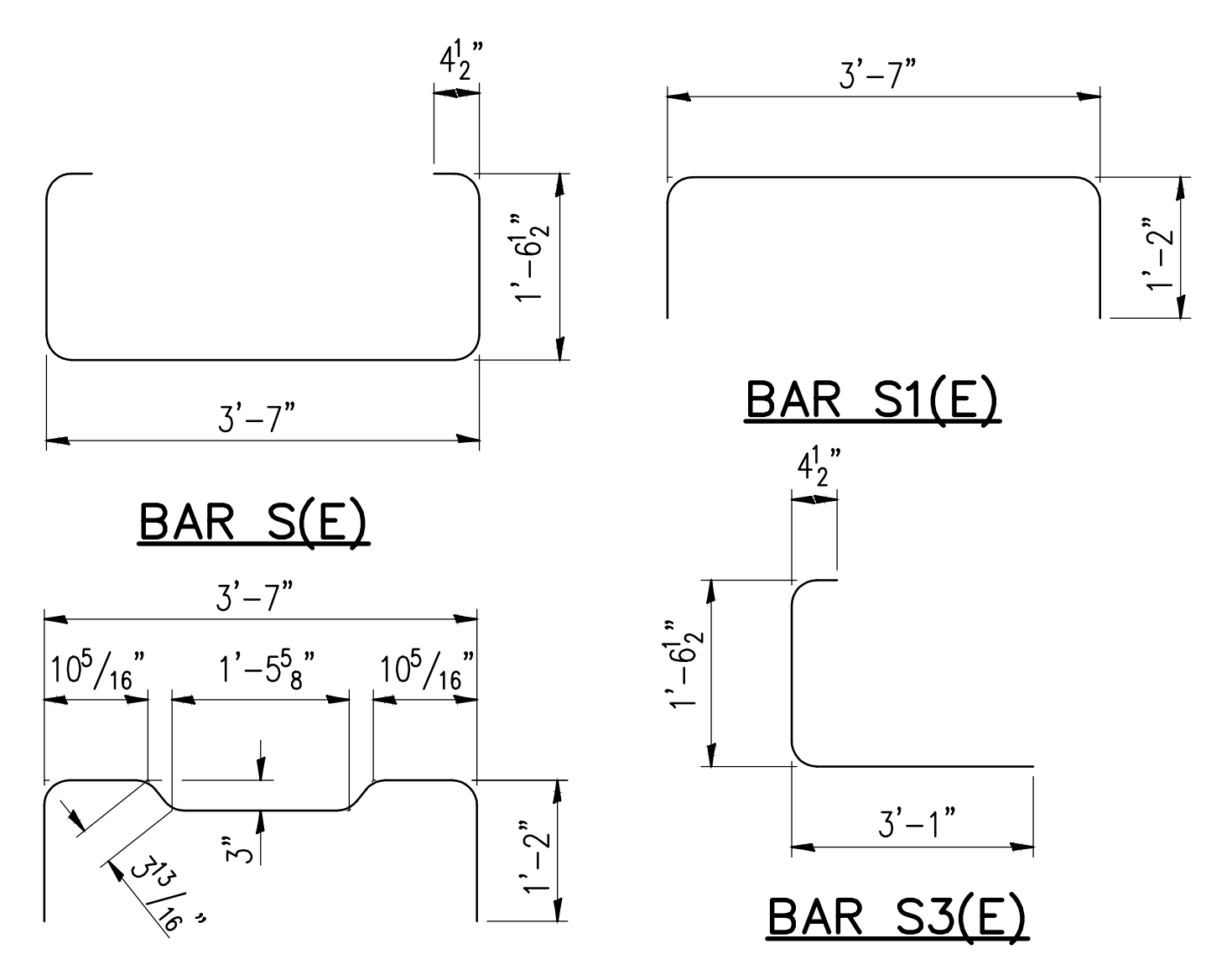
Notes:
 All bearing pads shall be 1" thick.



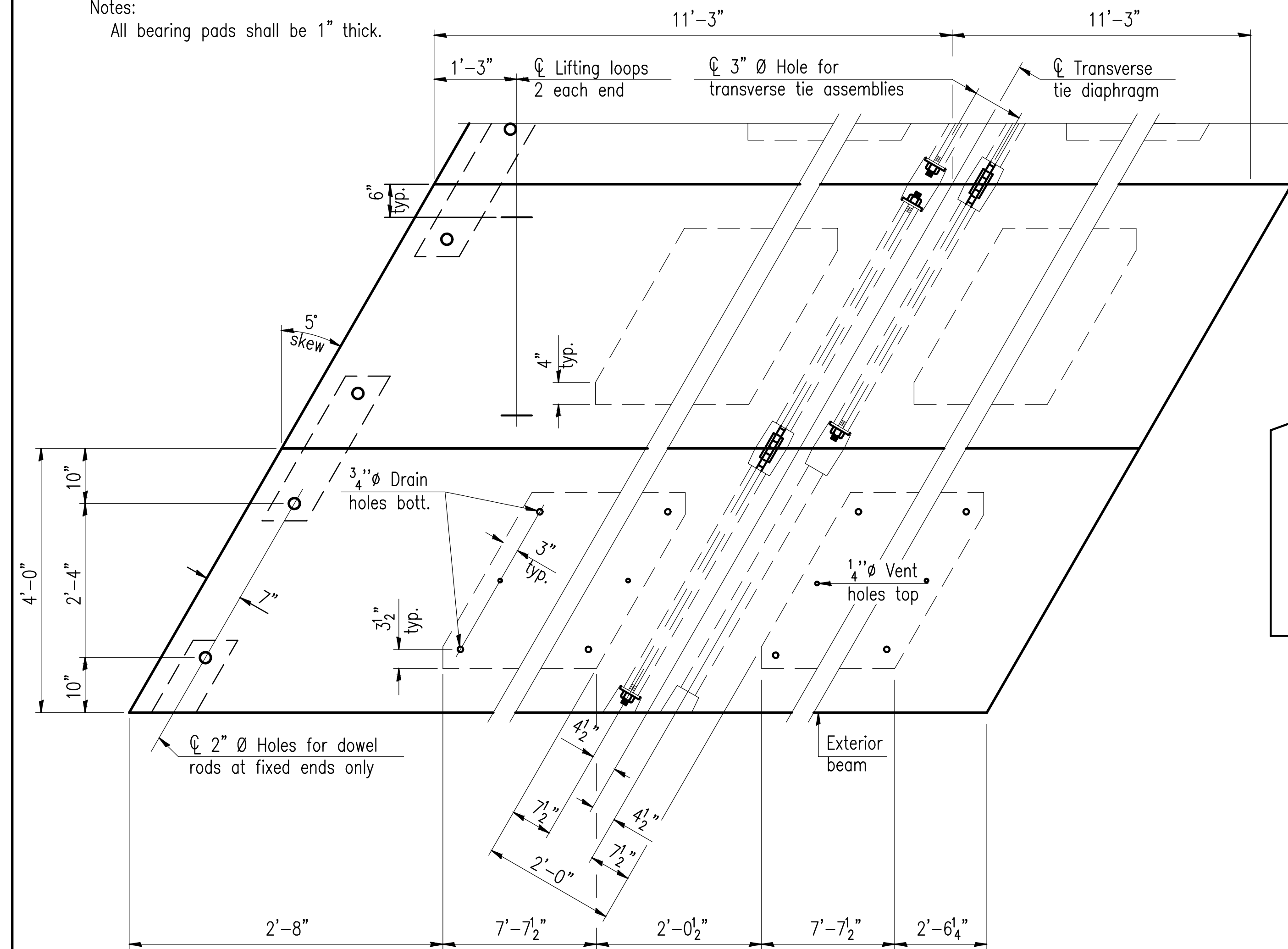
SECTION D-D



TYPICAL TRANSVERSE TIE ASSEMBLY



BAR A1(E)

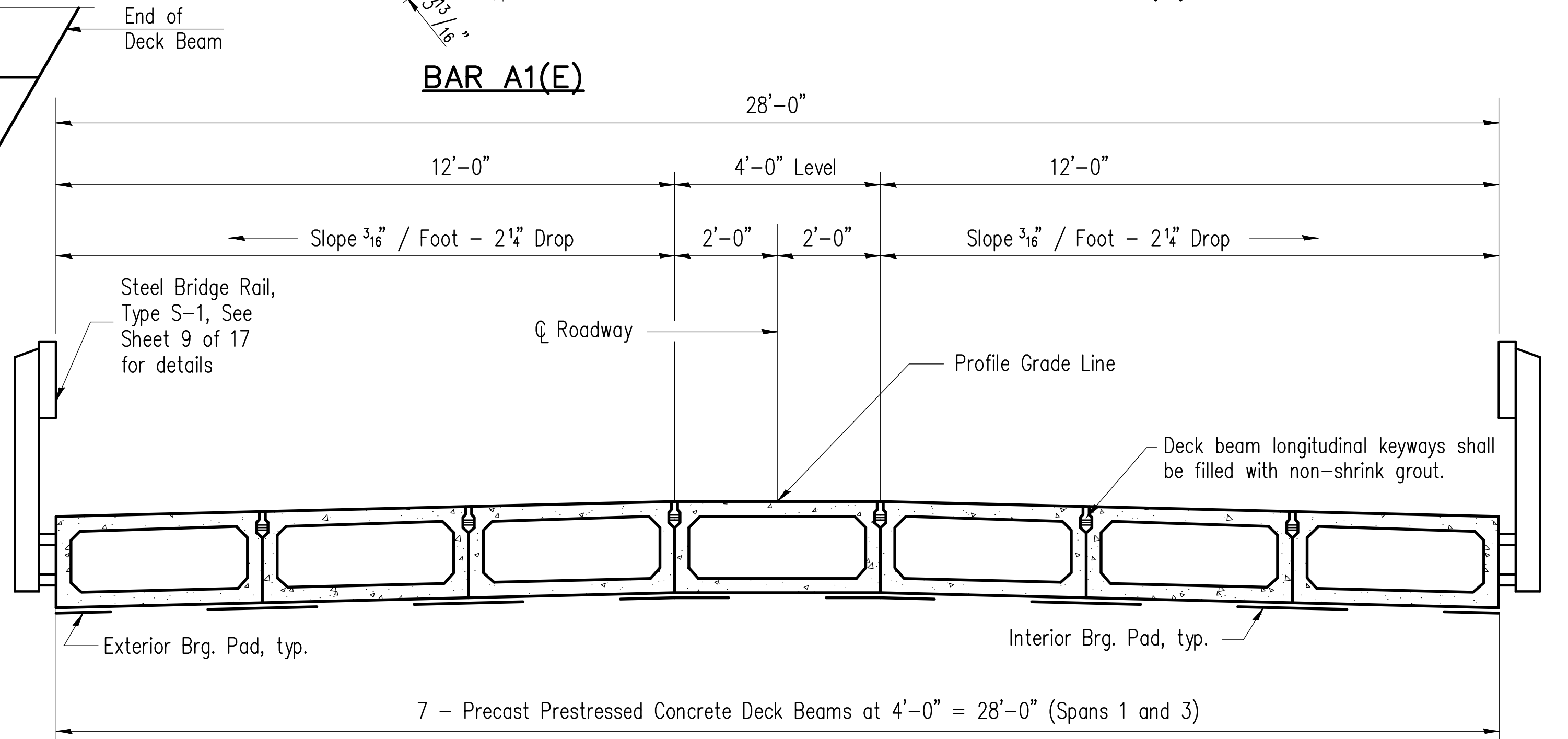


PLAN VIEW

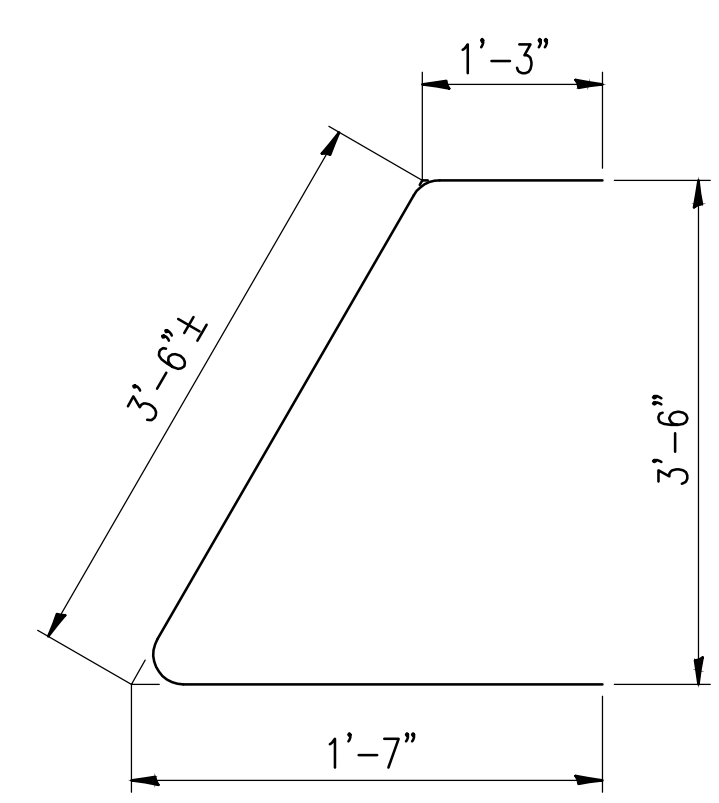
NOTES

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" 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. See Standard Specifications. 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" 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'ci, shall be 5000 psi.

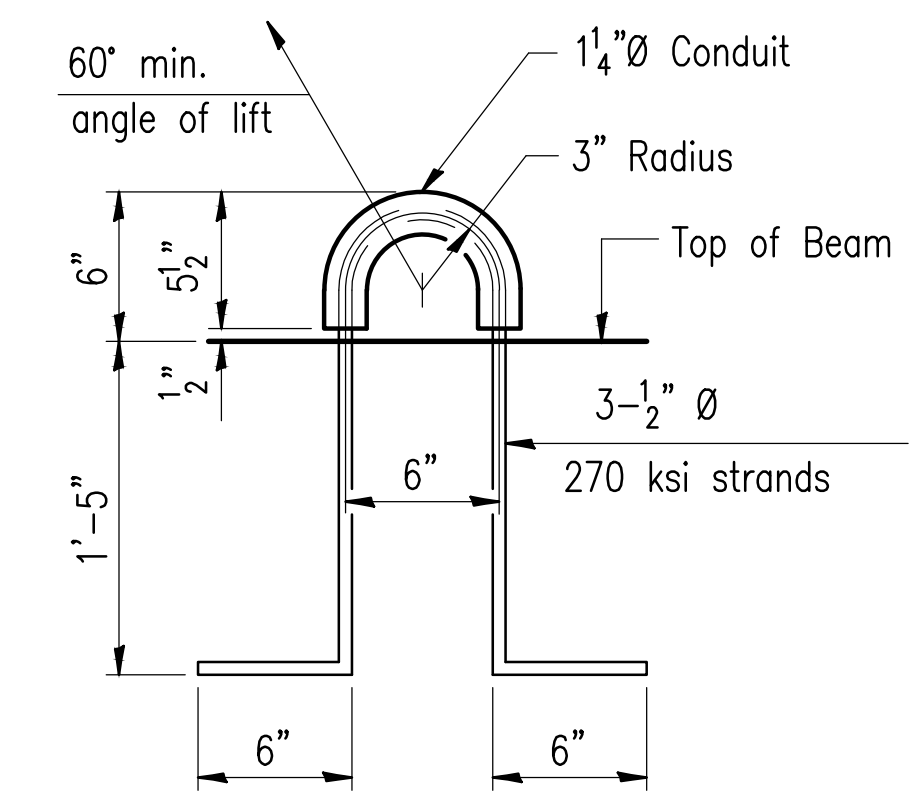
Note:
 Connect beams in pairs with the transverse tie configuration shown.



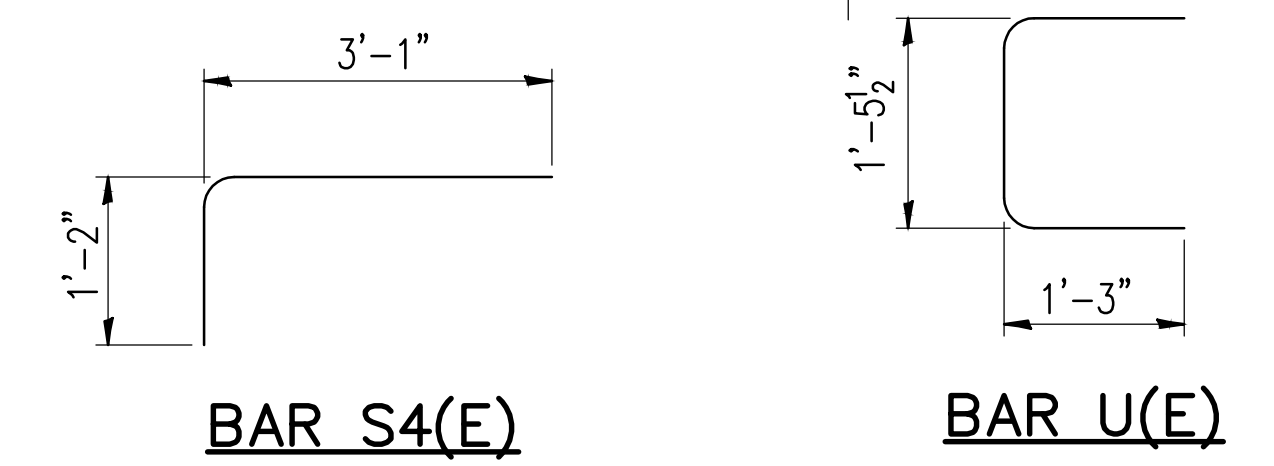
CROSS SECTION



BAR U1(E)



LIFTING LOOP DETAIL



BAR S4(E)

BAR U(E)

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)-Spans 1 and 3	Sq. Ft.	1260
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SPAN 1 OR 3

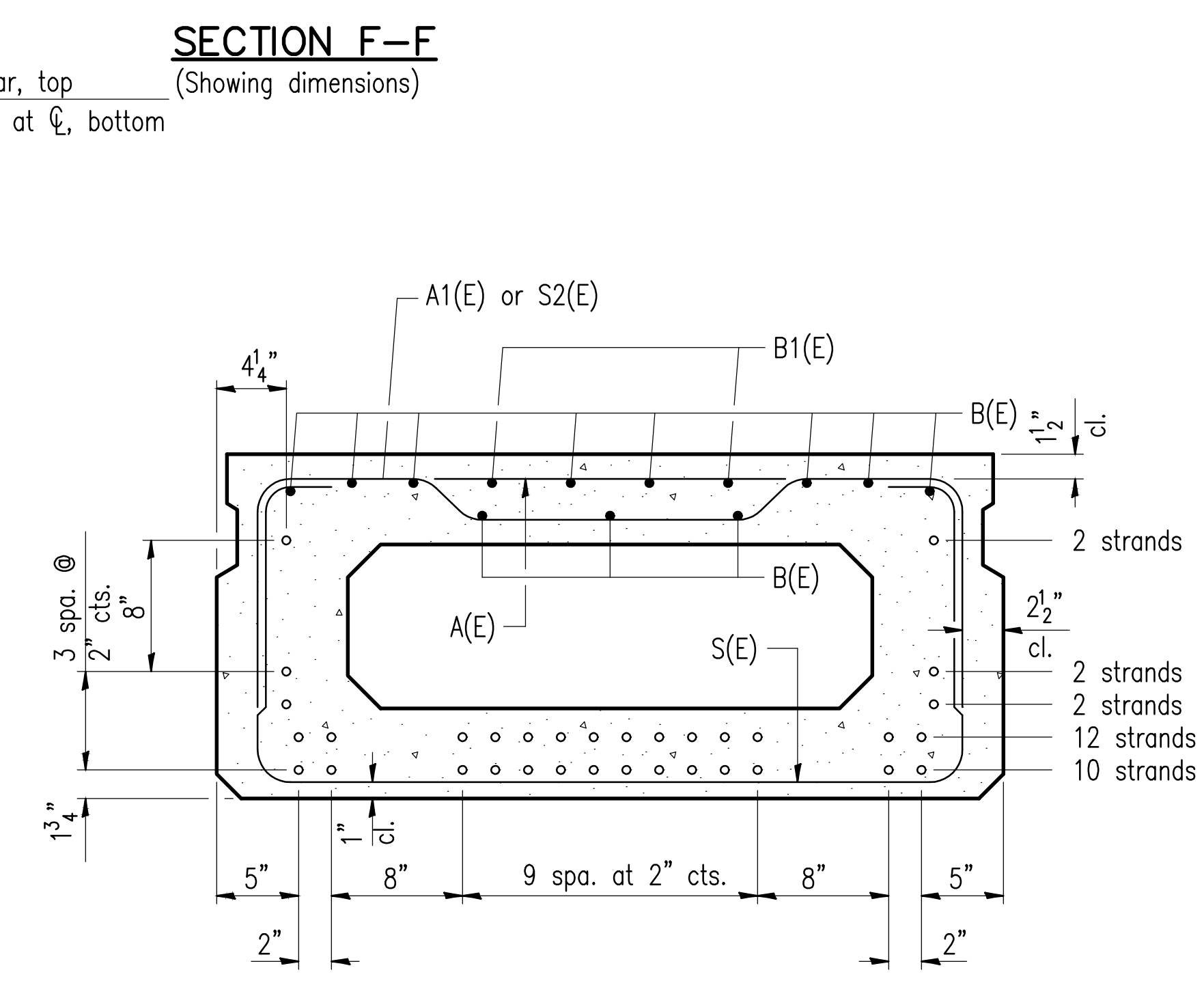
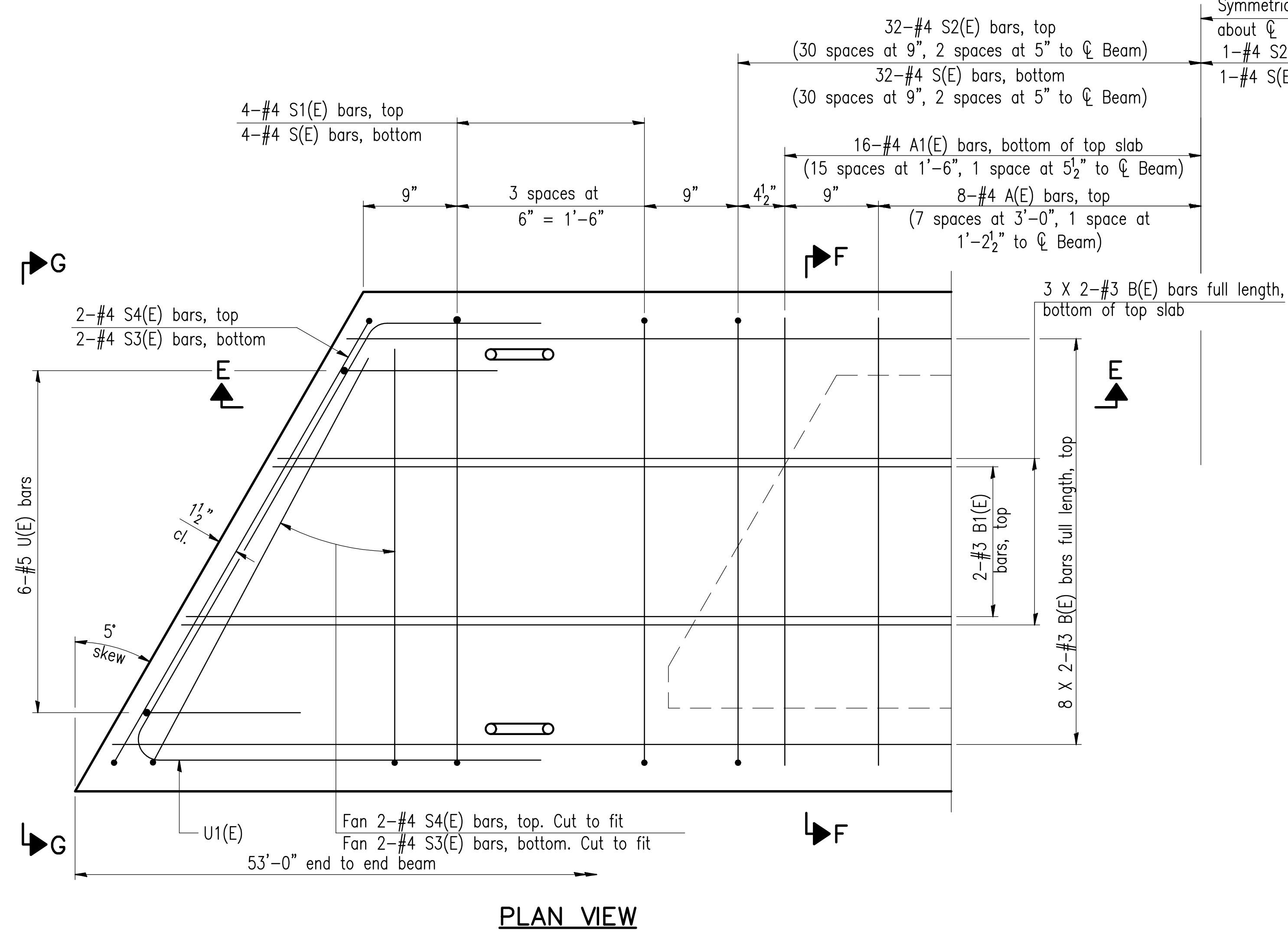
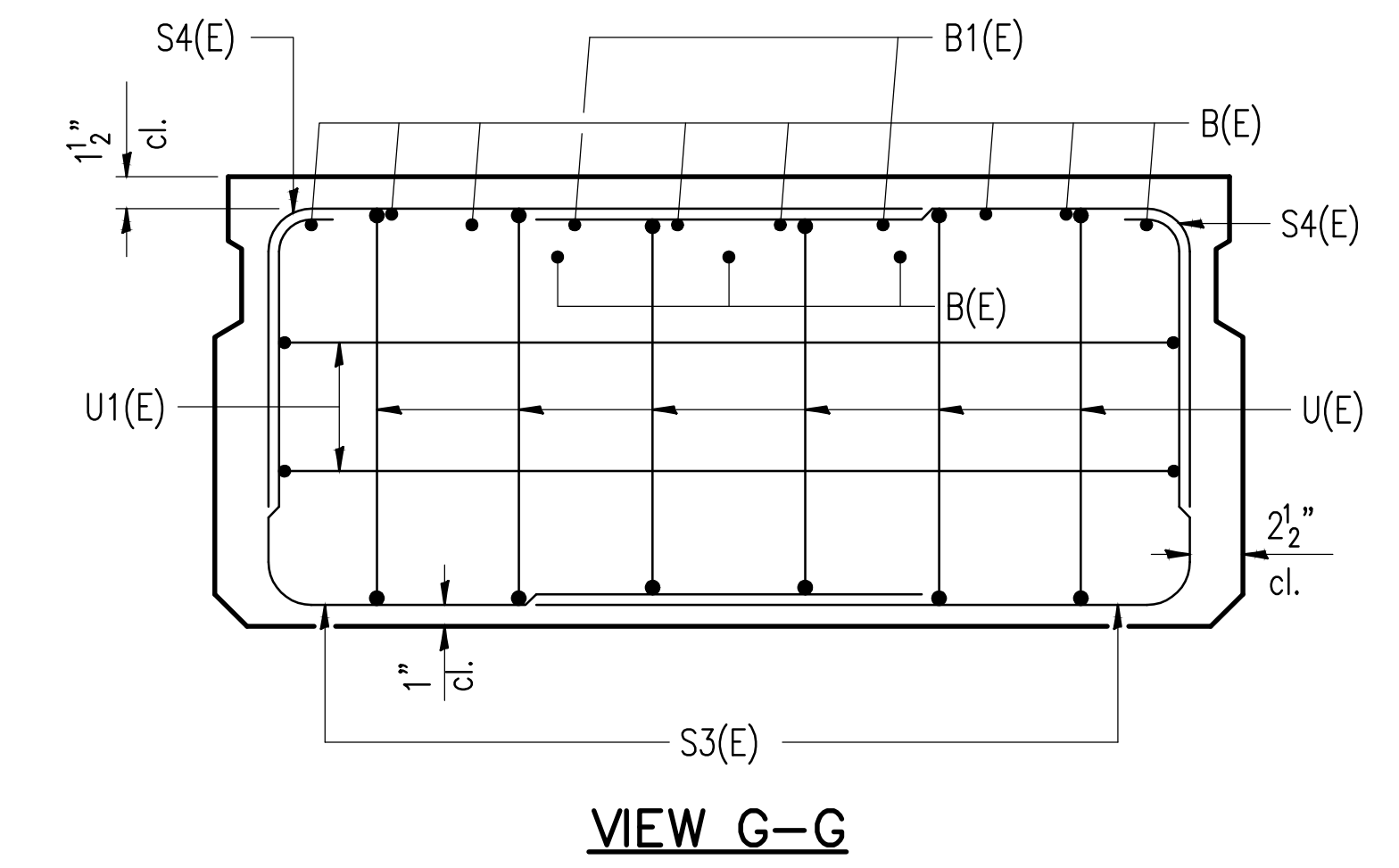
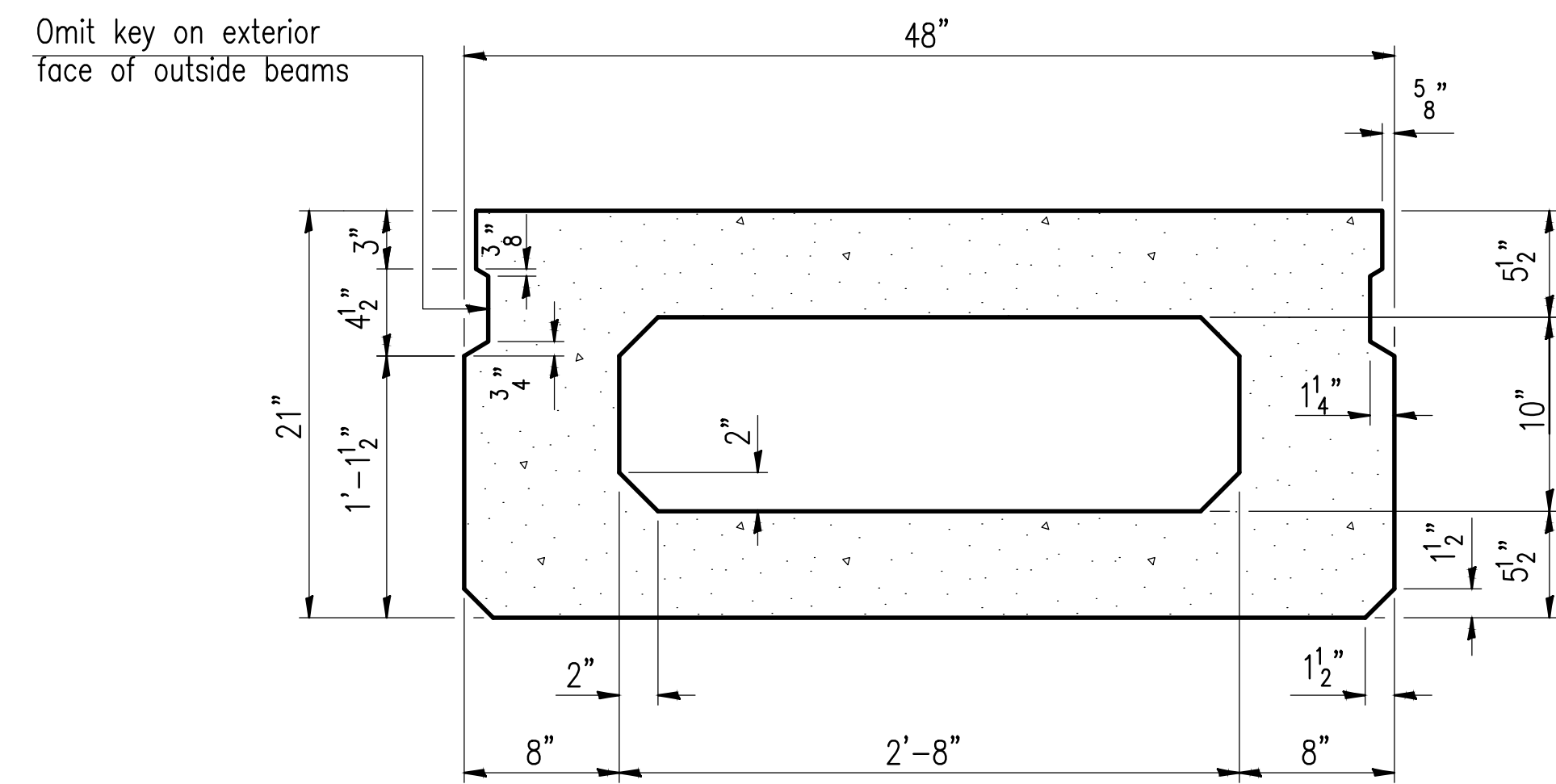
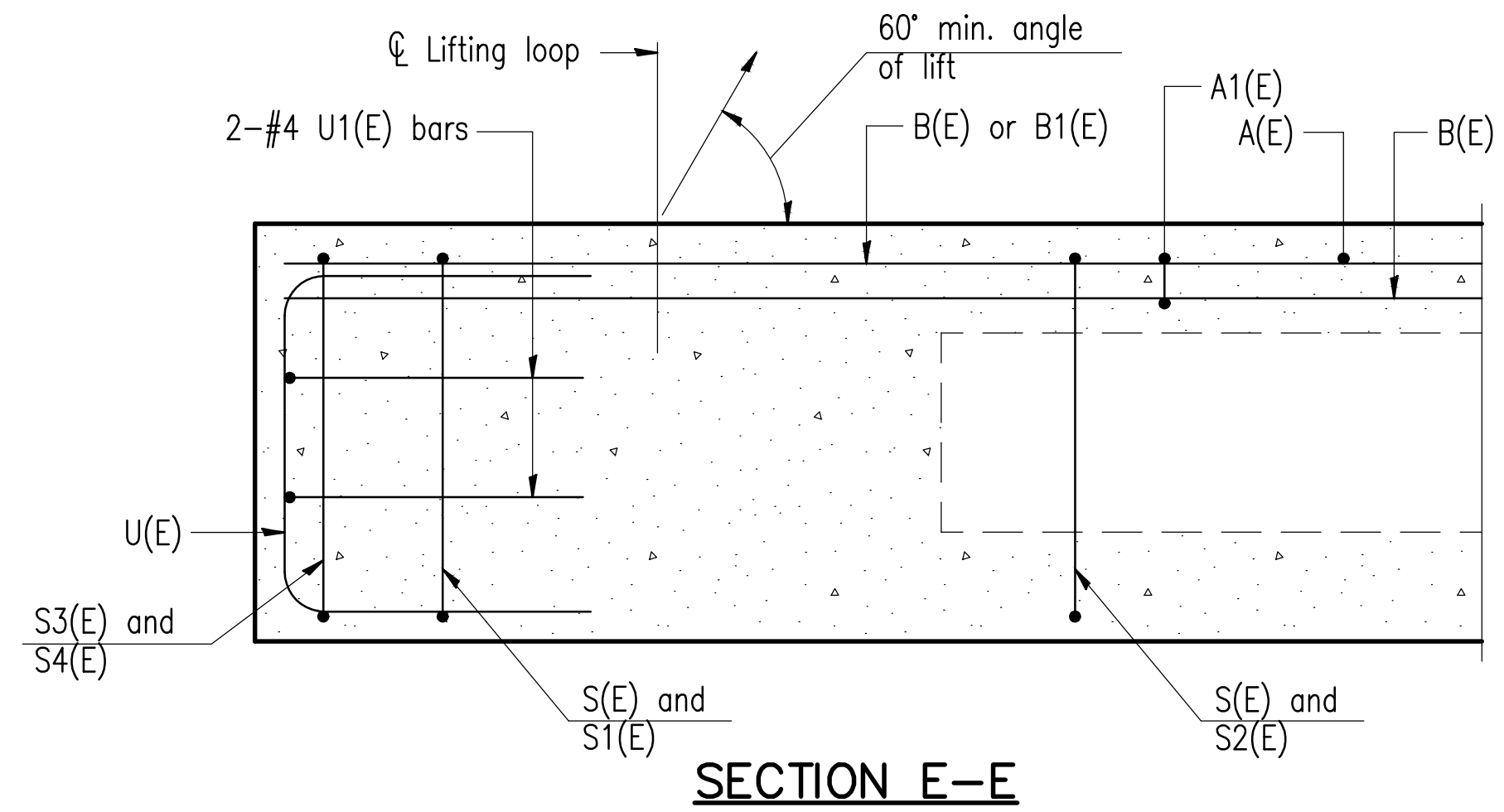
CHARLESTON ENGINEERING, INC.
 CONSULTING ENGINEERS - LAND SURVEYORS
 105 NORTH KITCHELL AVENUE OLNEY, ILLINOIS 62450
 P.O. BOX 397 (618) 392-0736
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

DESIGNED - NRF/BMB	REVISED -
DRAWN - BMB	REVISED -
CHECKED - NRF	REVISED -
DATE - 7-2021	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

21" X 48" PPC DECK BEAM (SPAN 1 OR 3)
 STRUCTURE NUMBER 051-3308

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 18	18-08137-00-BR	LAWRENCE	17	6
CONTRACT 95906		ILLINOIS	PROJECT GJZP(832)	



SECTION F-F
 (Showing reinforcement and permissible strand locations)
 Notes: 28 total strands per beam
 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)

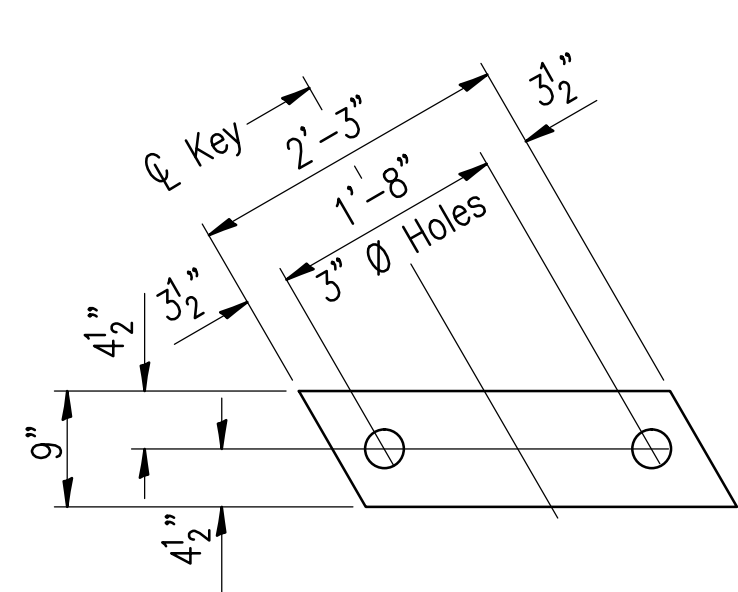
Bar	No.	Size	Length	Shape
A(E)	16	#4	3'-7"	—
A1(E)	32	#4	3'-10"	~
B(E)	22	#3	27'-2"	—
B1(E)	4	#3	10'-0"	—
S(E)	73	#4	7'-5"	⌋
S1(E)	8	#4	5'-11"	⌋
S2(E)	65	#4	6'-2"	⌋
S3(E)	8	#4	5'-0"	⌋
S4(E)	8	#4	4'-3"	⌋
U(E)	12	#5	4'-0"	⌋
U1(E)	4	#4	6'-4"	⌋

Note:
 See sheet 8 of 17 for additional details and Bill of Material.

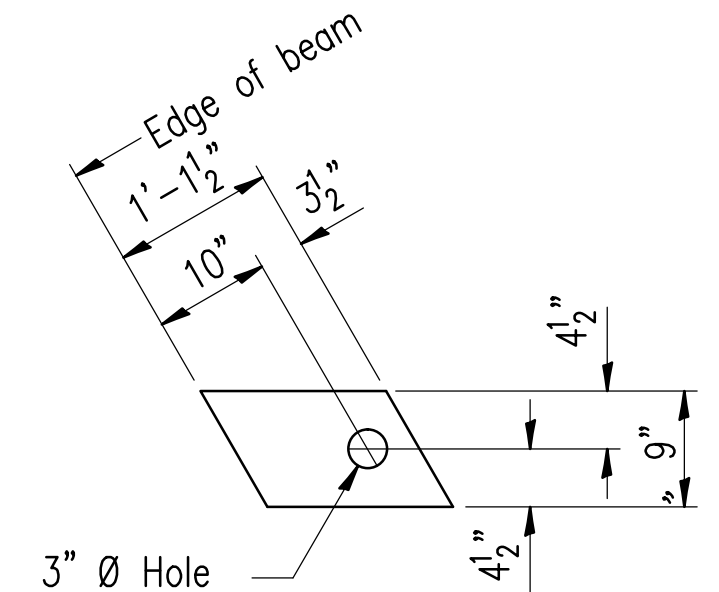
MINIMUM BAR LAP
 #3 bar = 1'-6"

SPAN 2

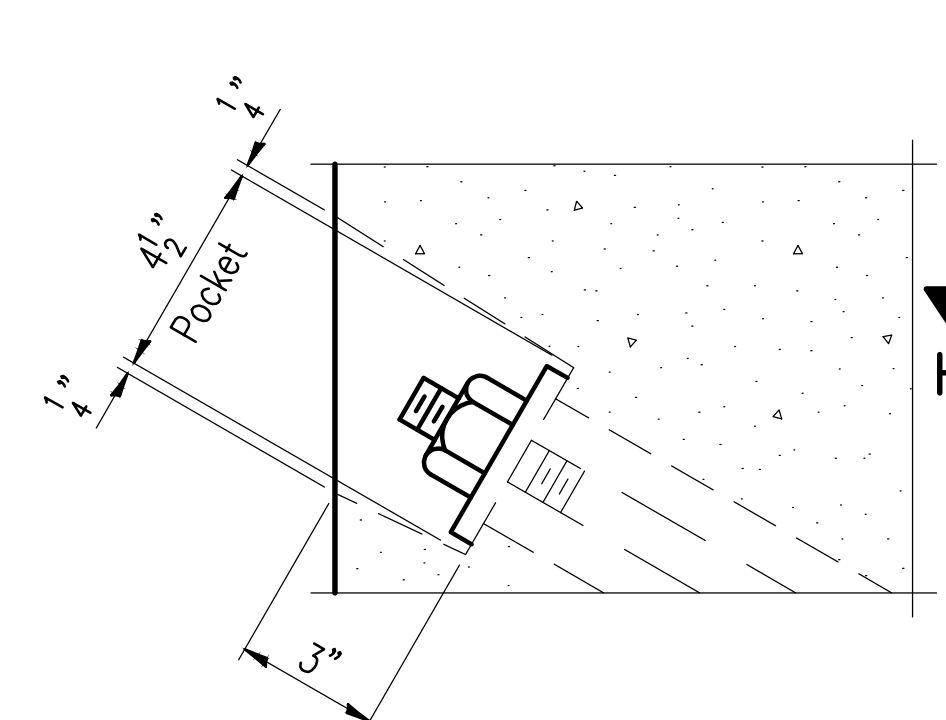
Note:
 Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



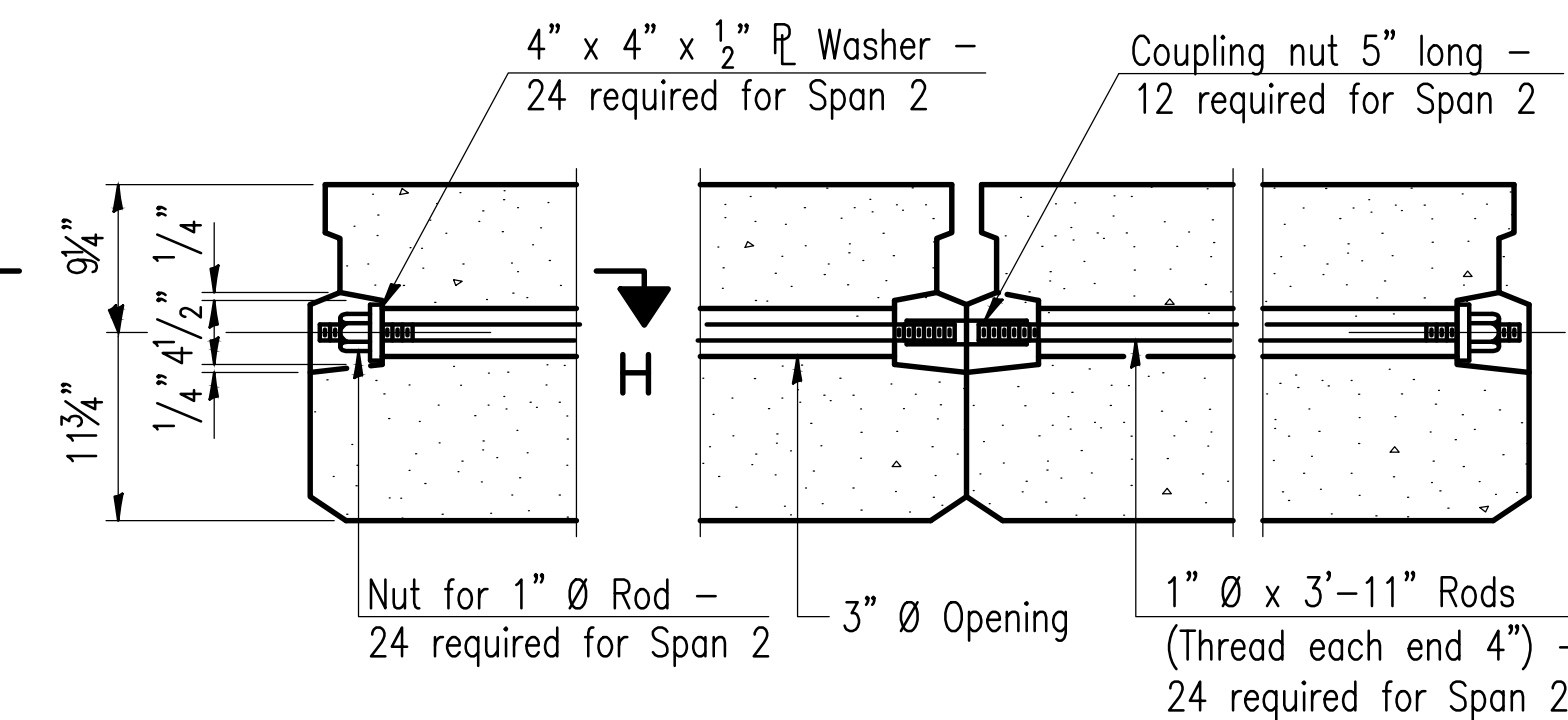
FABRIC BEARING PAD
(Interior)
12 Required



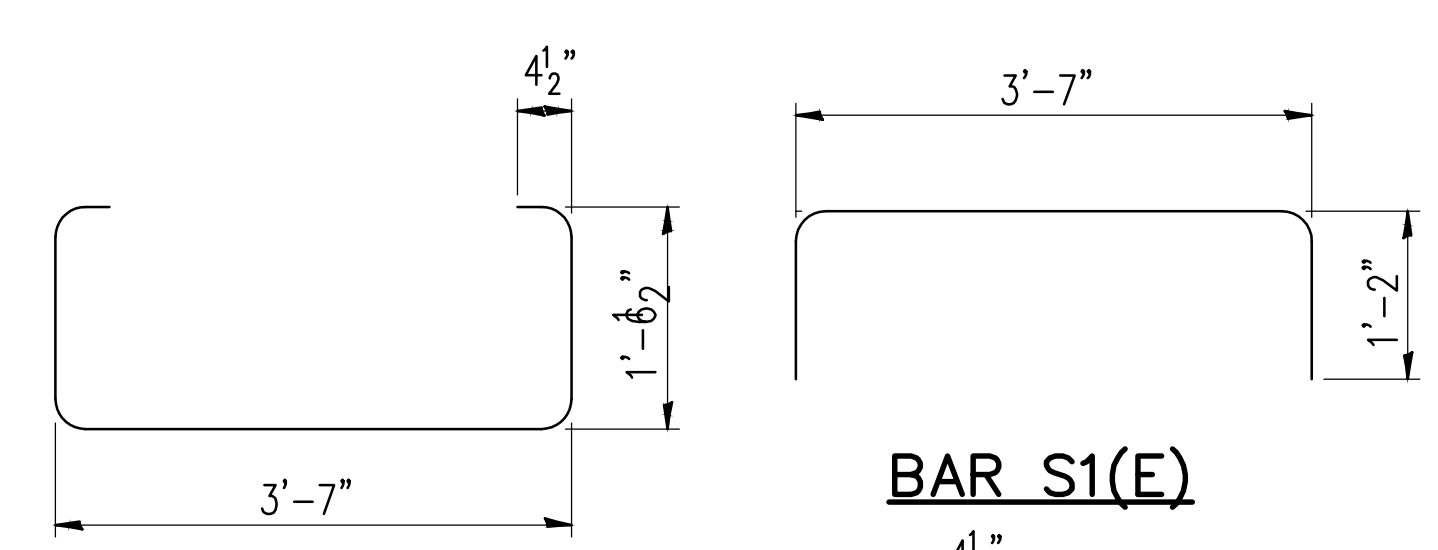
FABRIC BEARING PAD
(Exterior)
4 Required



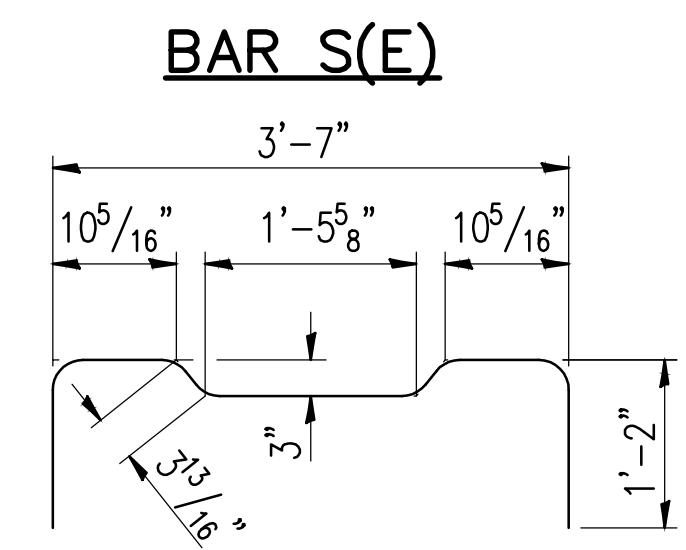
SECTION H-H



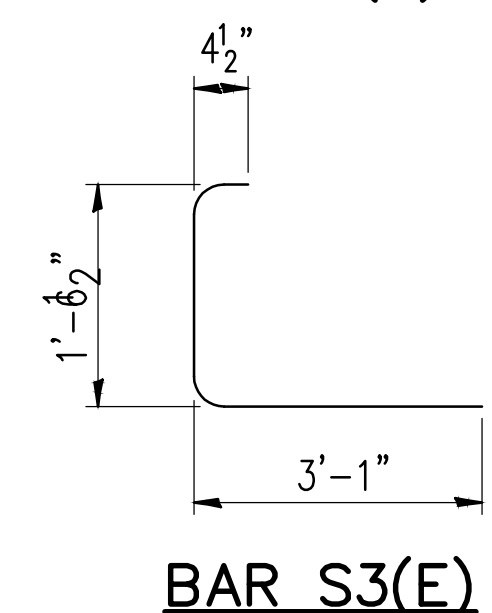
TYPICAL TRANSVERSE TIE ASSEMBLY



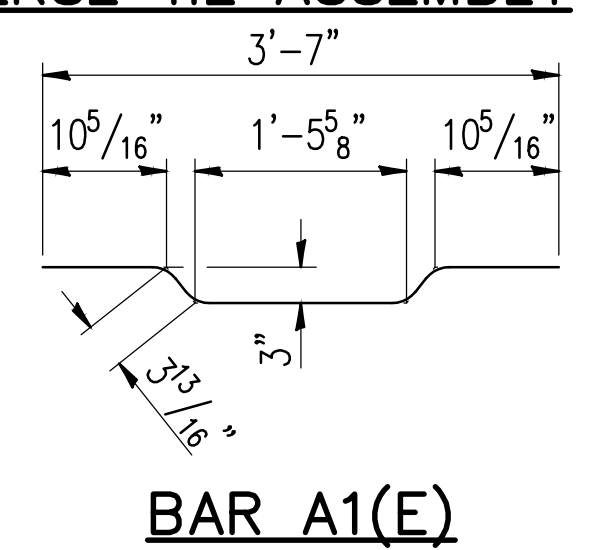
BAR S1(E)



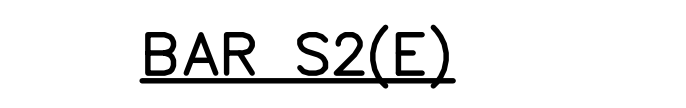
BAR S(E)



BAR S3(E)



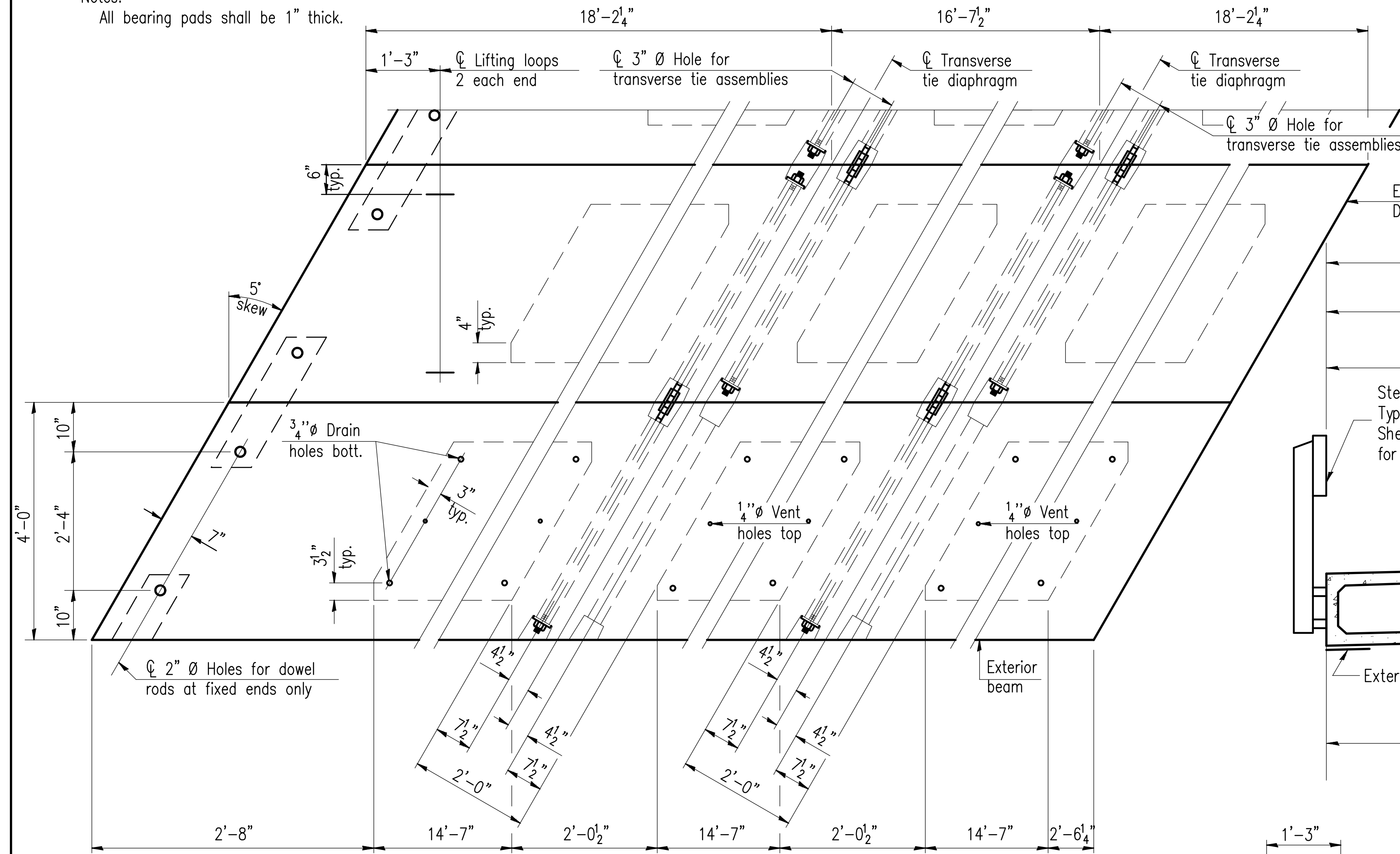
BAR A1(E)



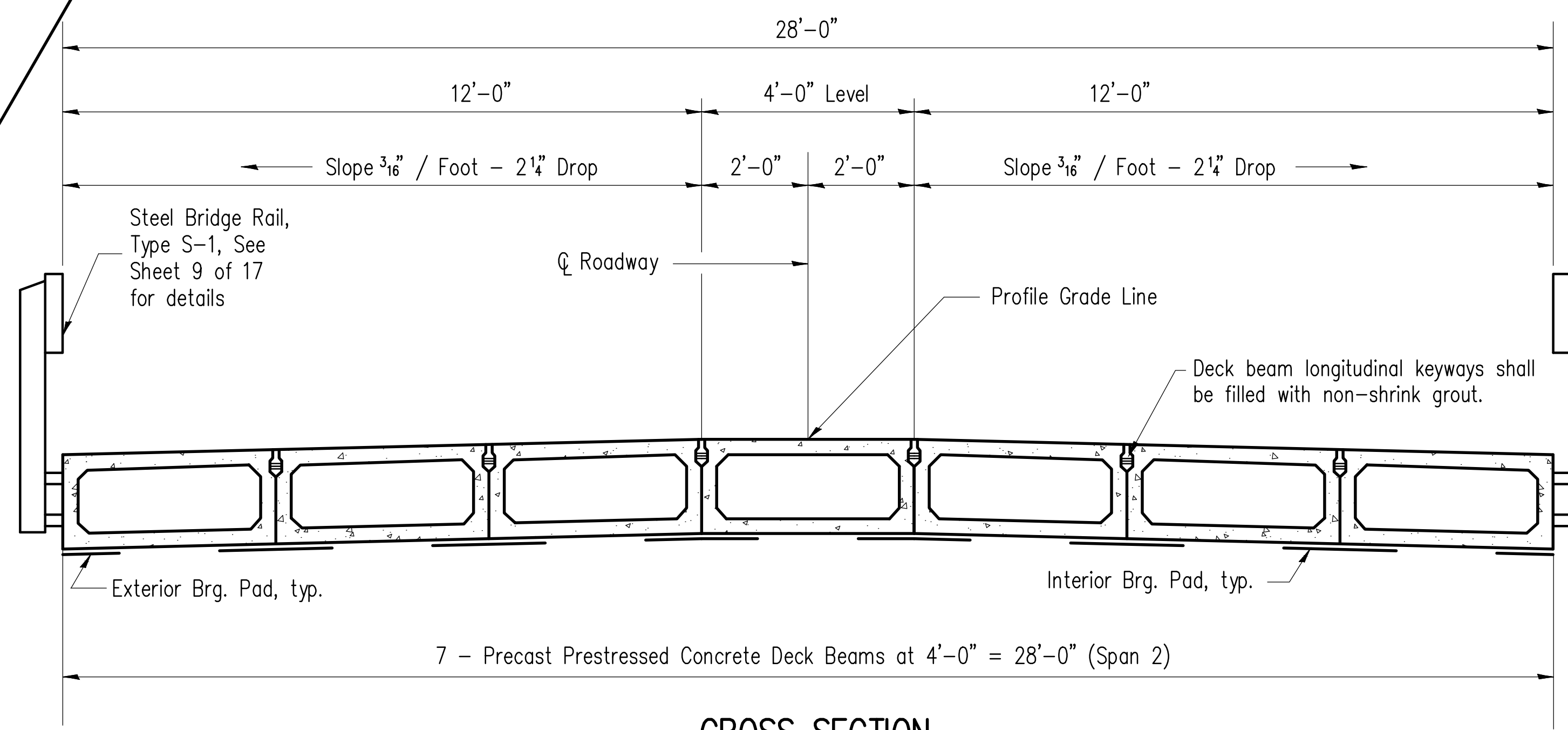
BAR S2(E)

Notes:
All bearing pads shall be 1" thick.

FIXED



PLAN VIEW

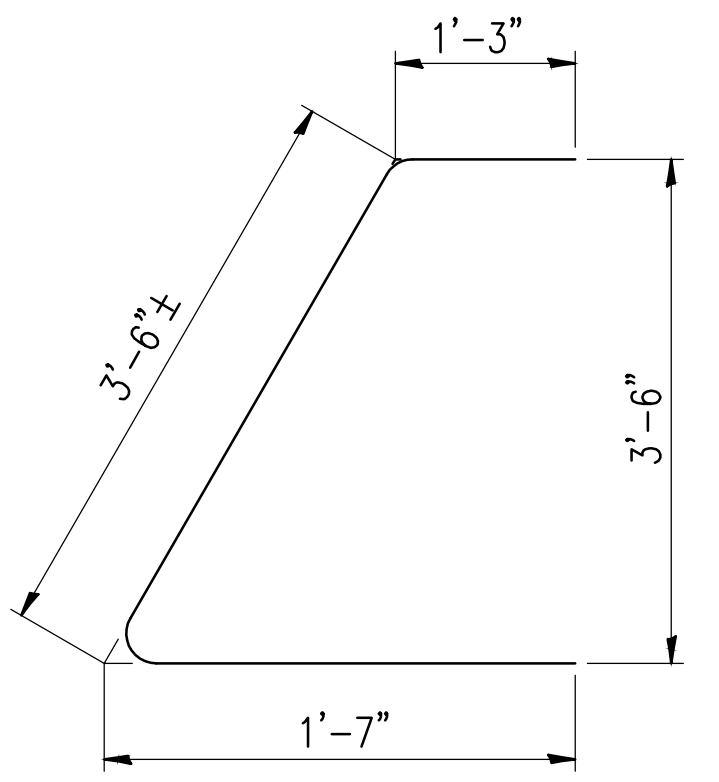


CROSS SECTION

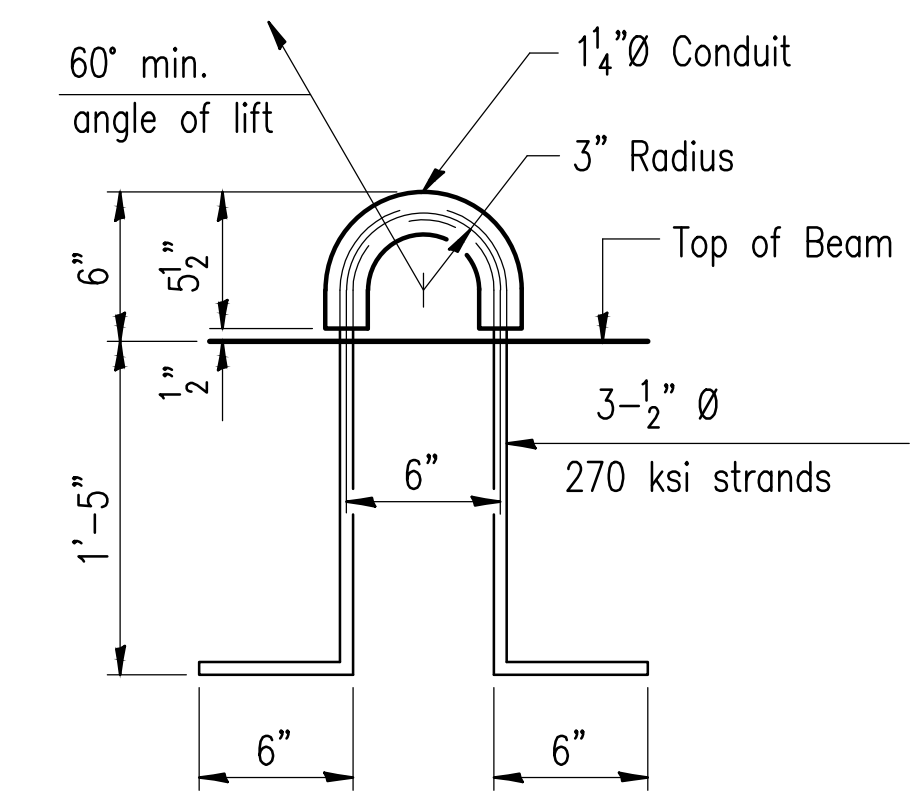
NOTES

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" 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. See Standard Specifications.
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" 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'ci, shall be 5000 psi.

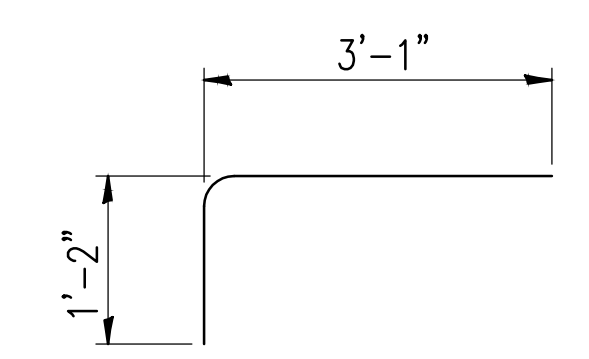
Note:
Connect beams in pairs with the transverse tie configuration shown.



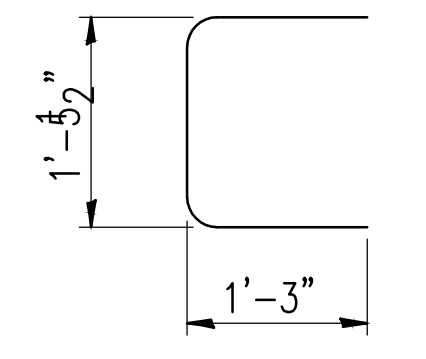
BAR U1(E)



LIFTING LOOP DETAIL



BAR S4(E)

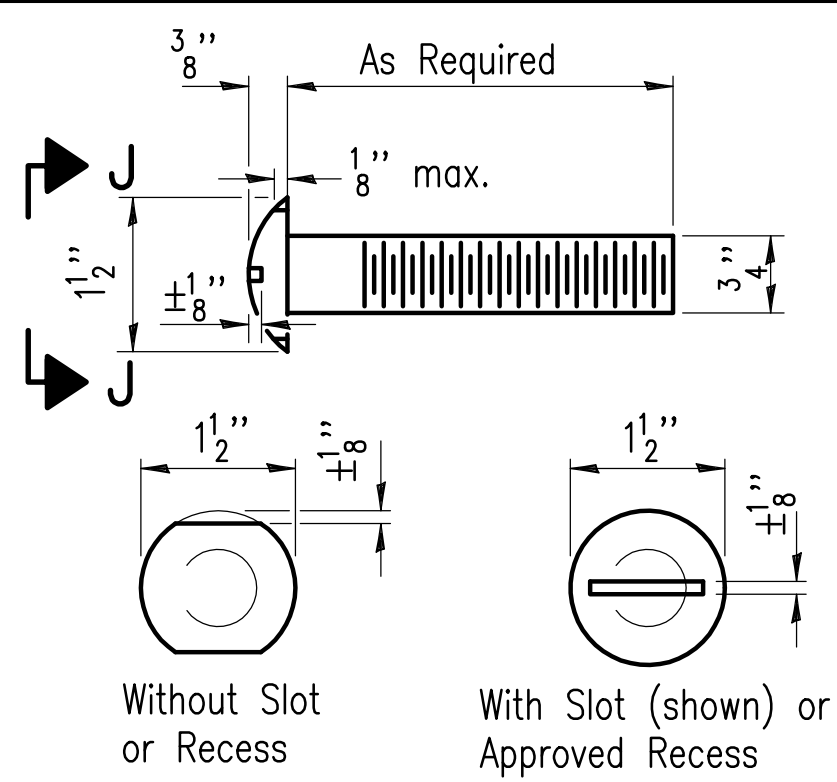


BAR U(E)

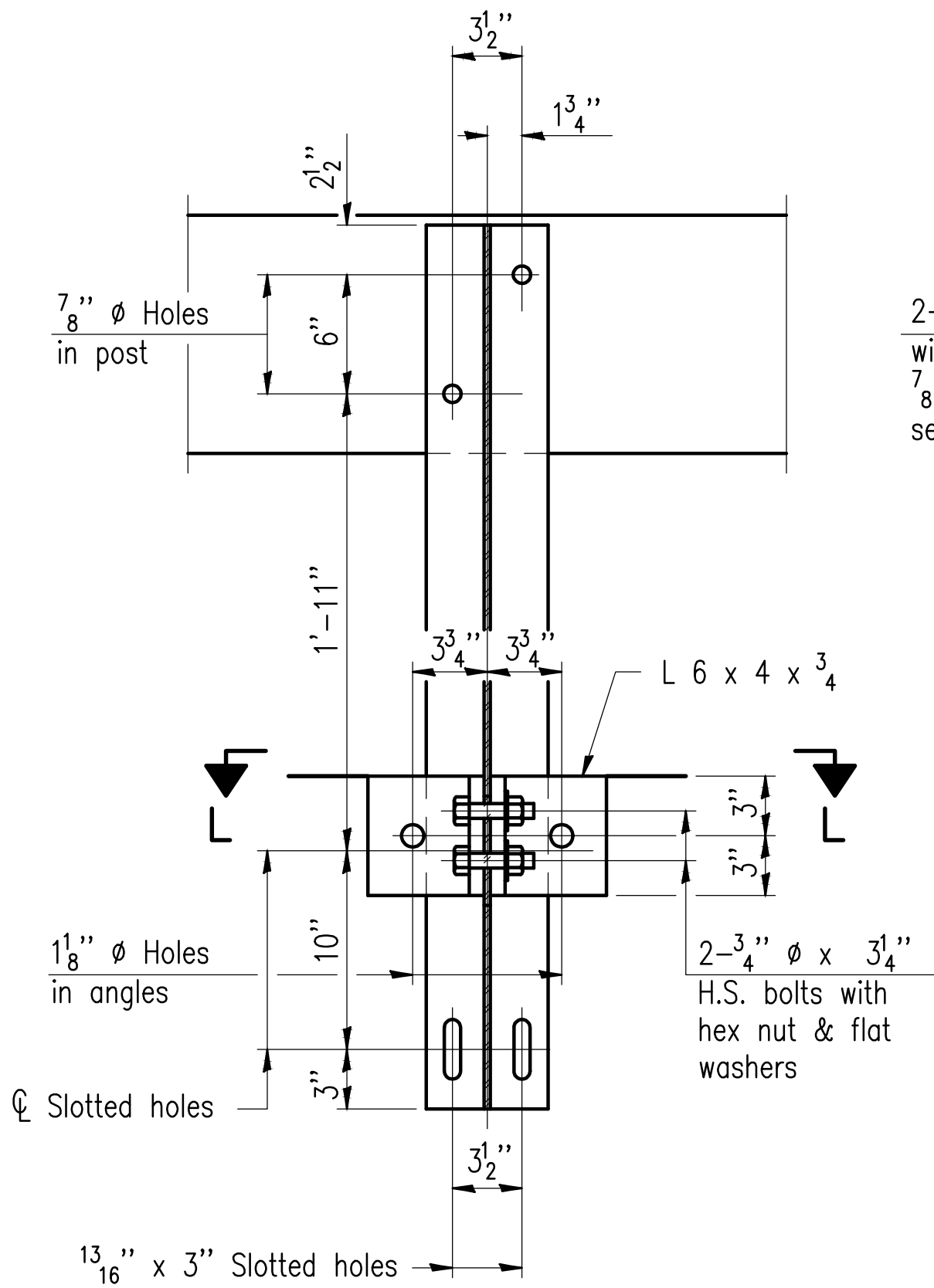
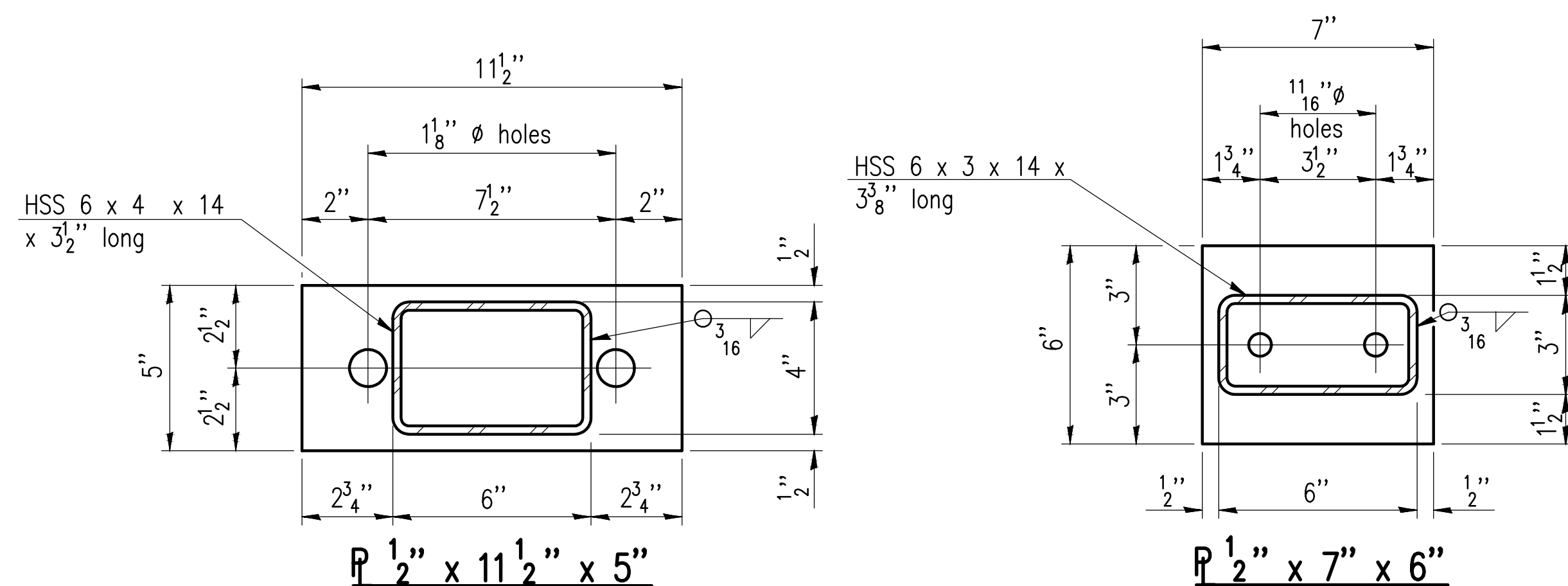
BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)-Span 2	Sq. Ft.	1484
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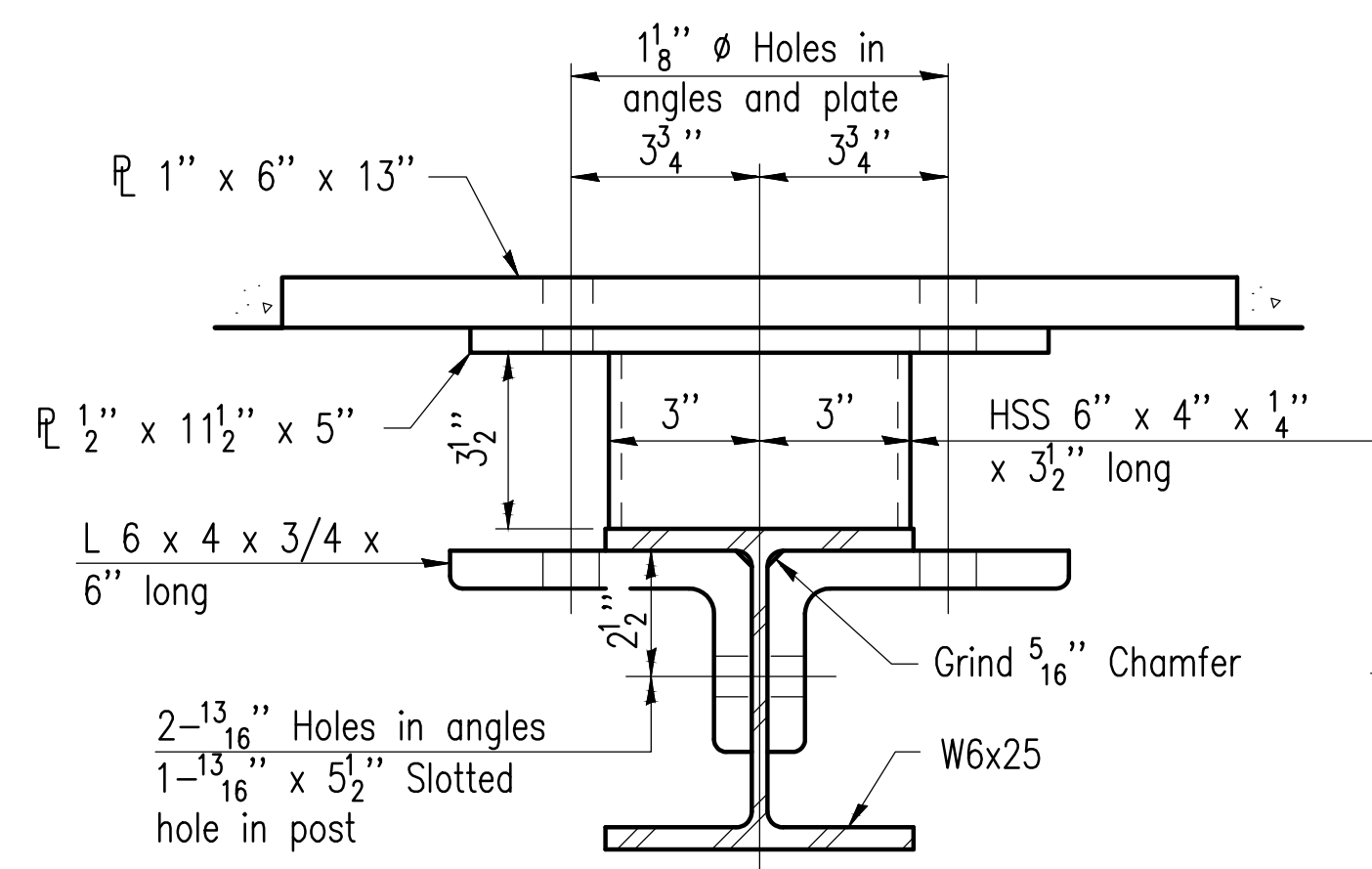
SPAN 2



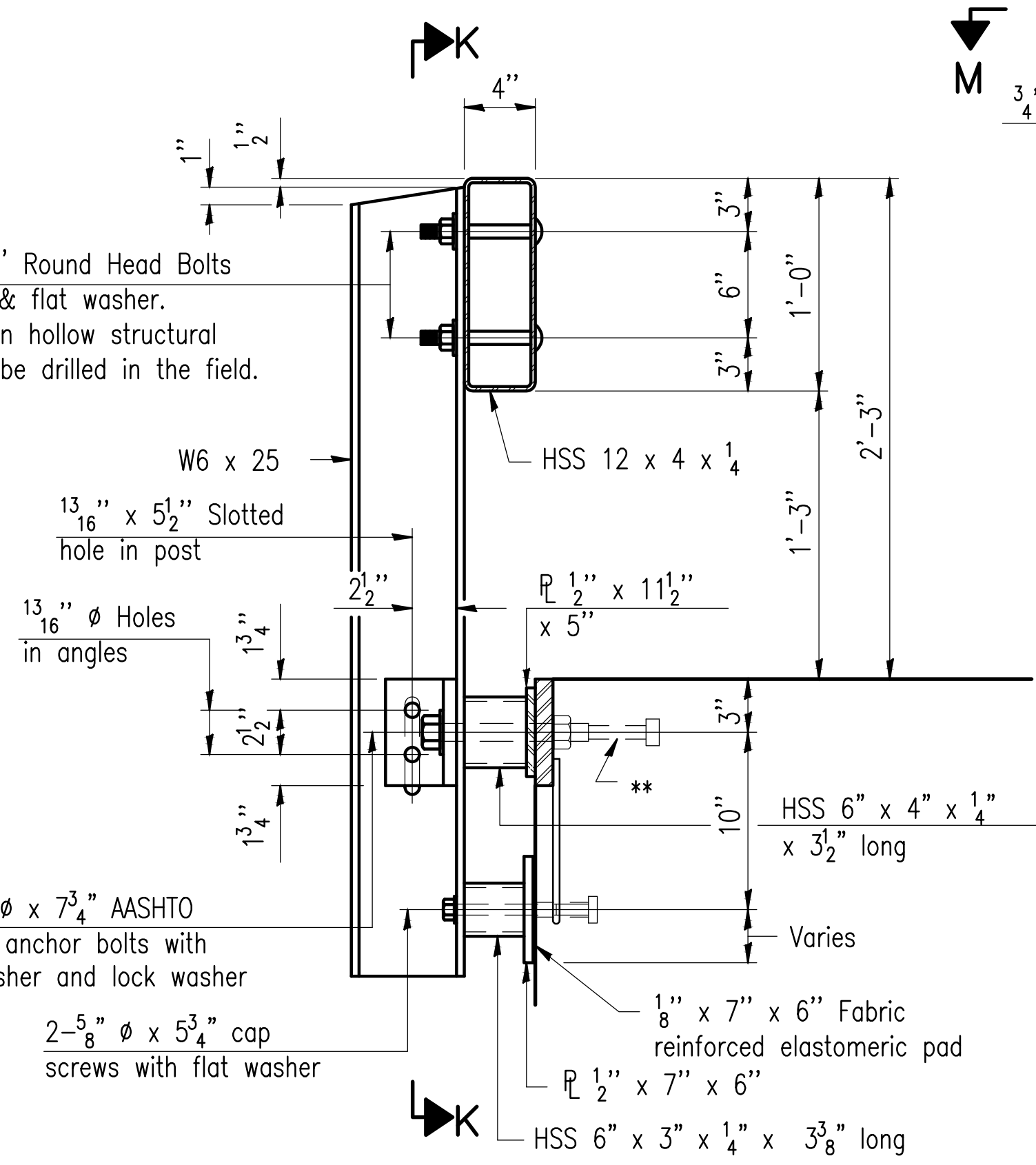
**VIEW J-J
ROUND HEAD BOLT**



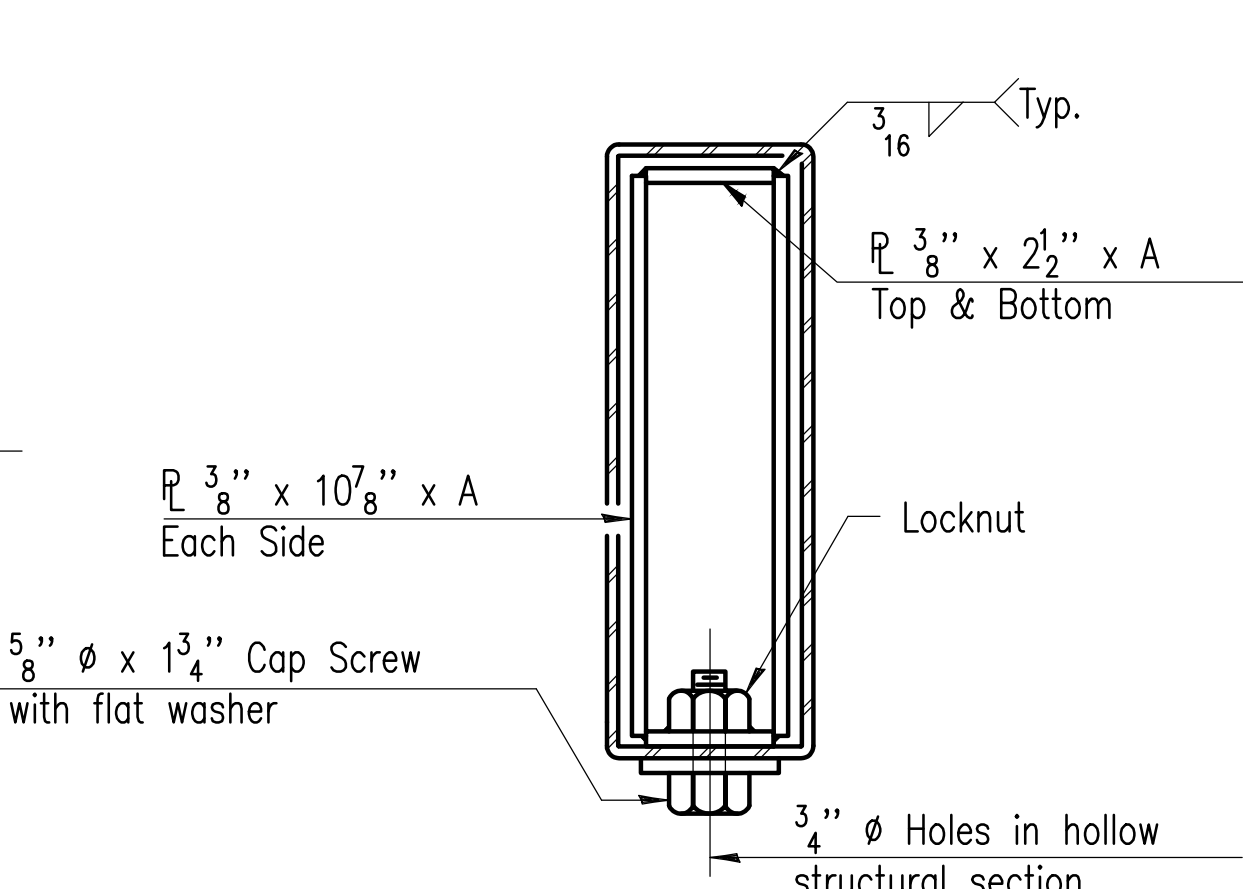
SECTION K-K



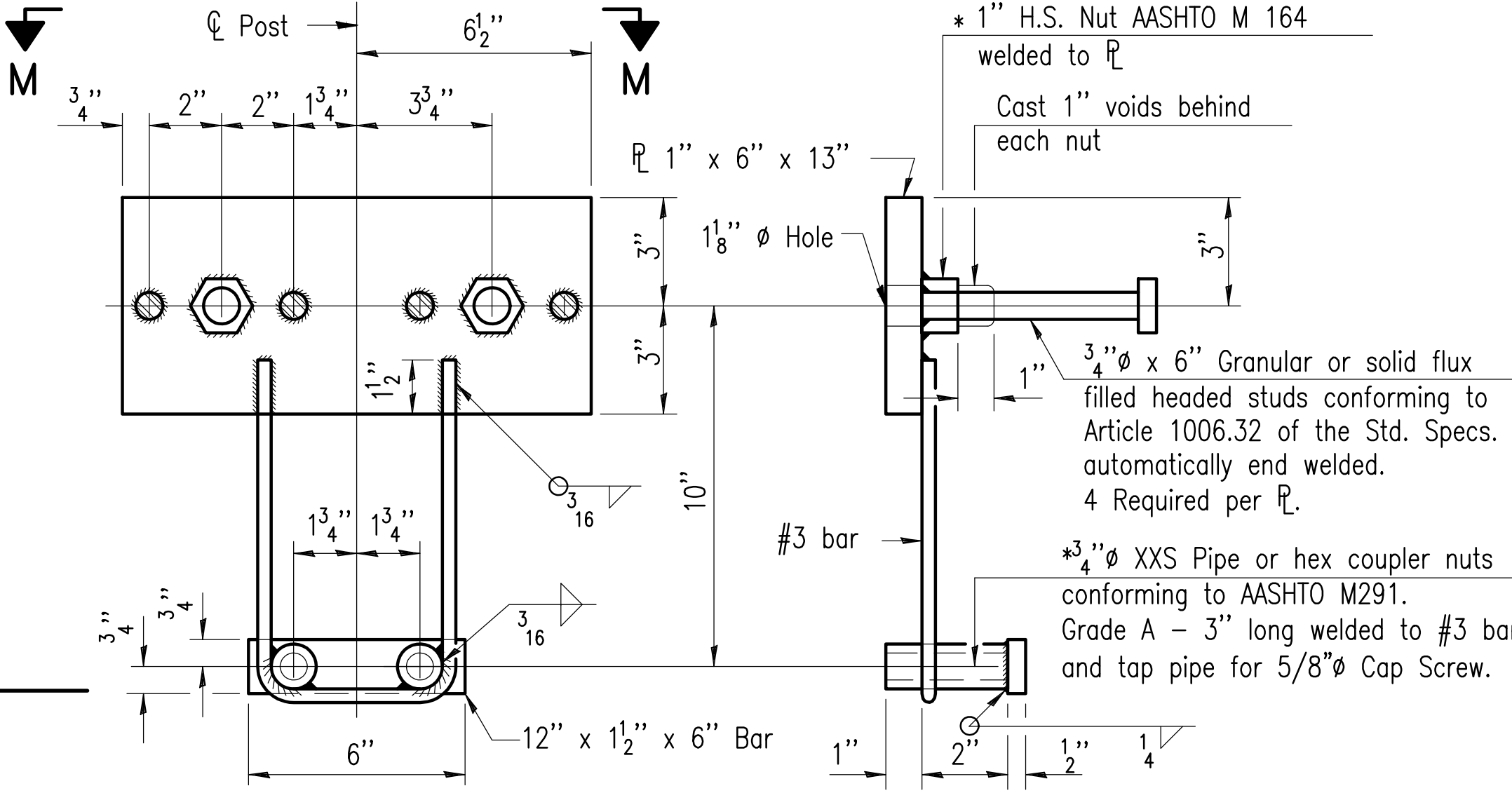
SECTION L-L



SECTION AT RAILING POST

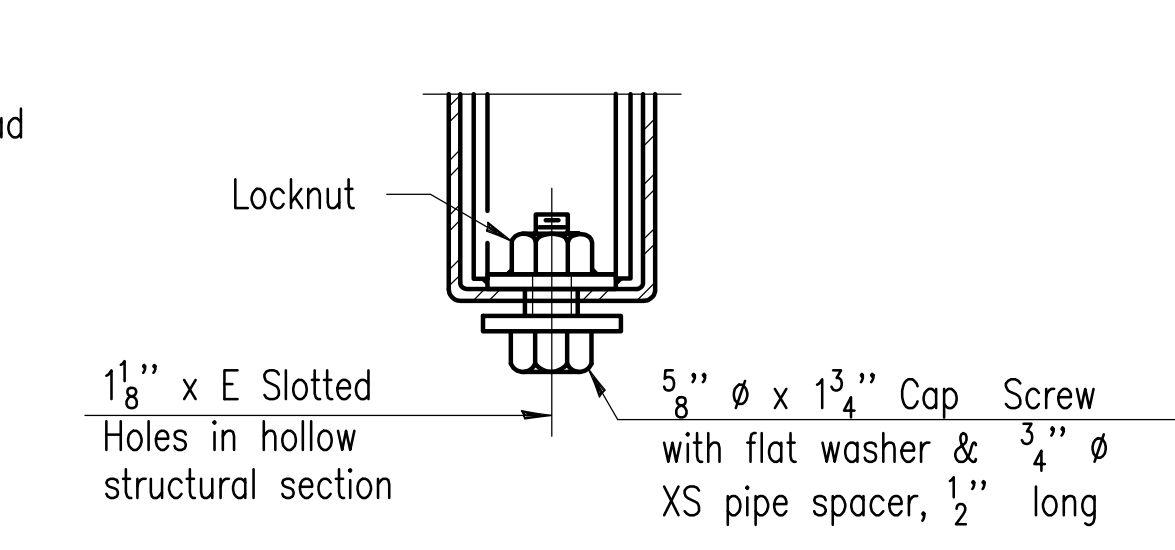


SECTIONS AT RAIL SPLICE

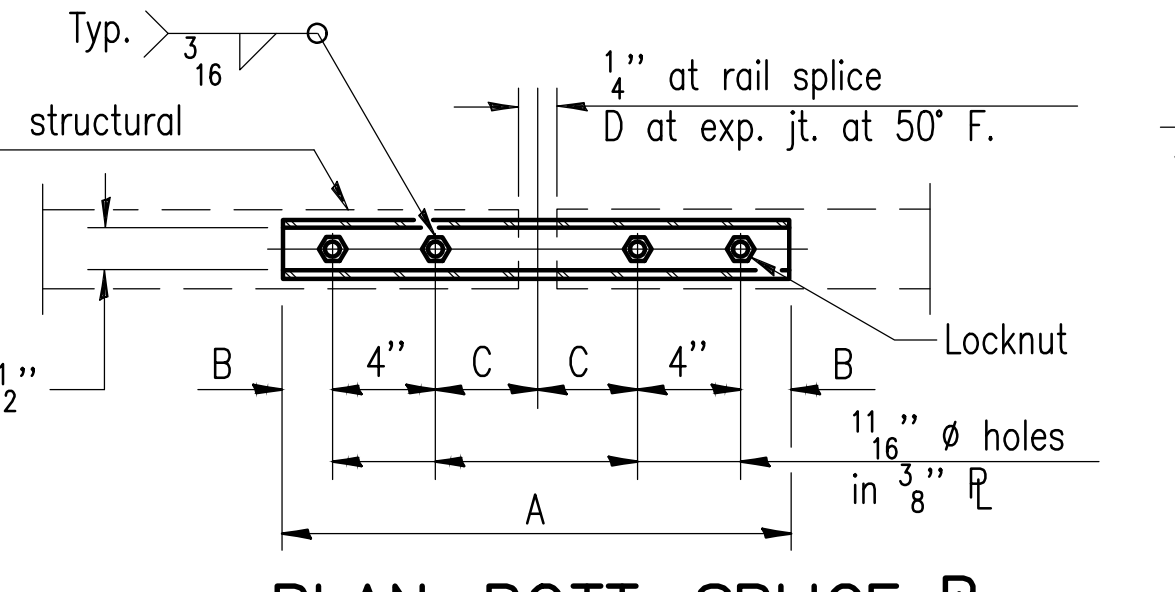


ANCHOR DEVICE

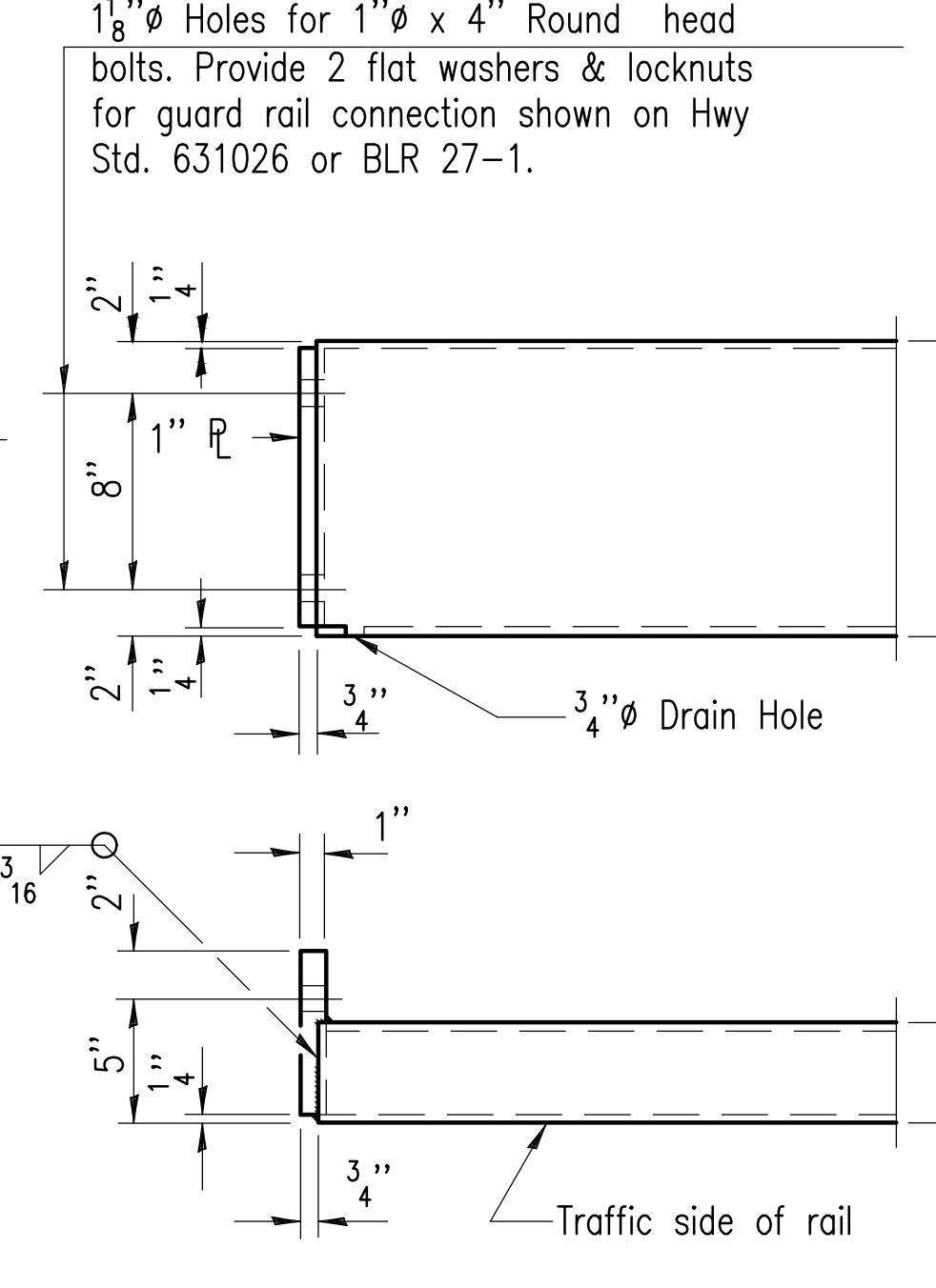
*Threaded areas shall be plugged or blocked off during casting of beam.



**RAIL SPLICE CONNECTION
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE P
TYPICAL**



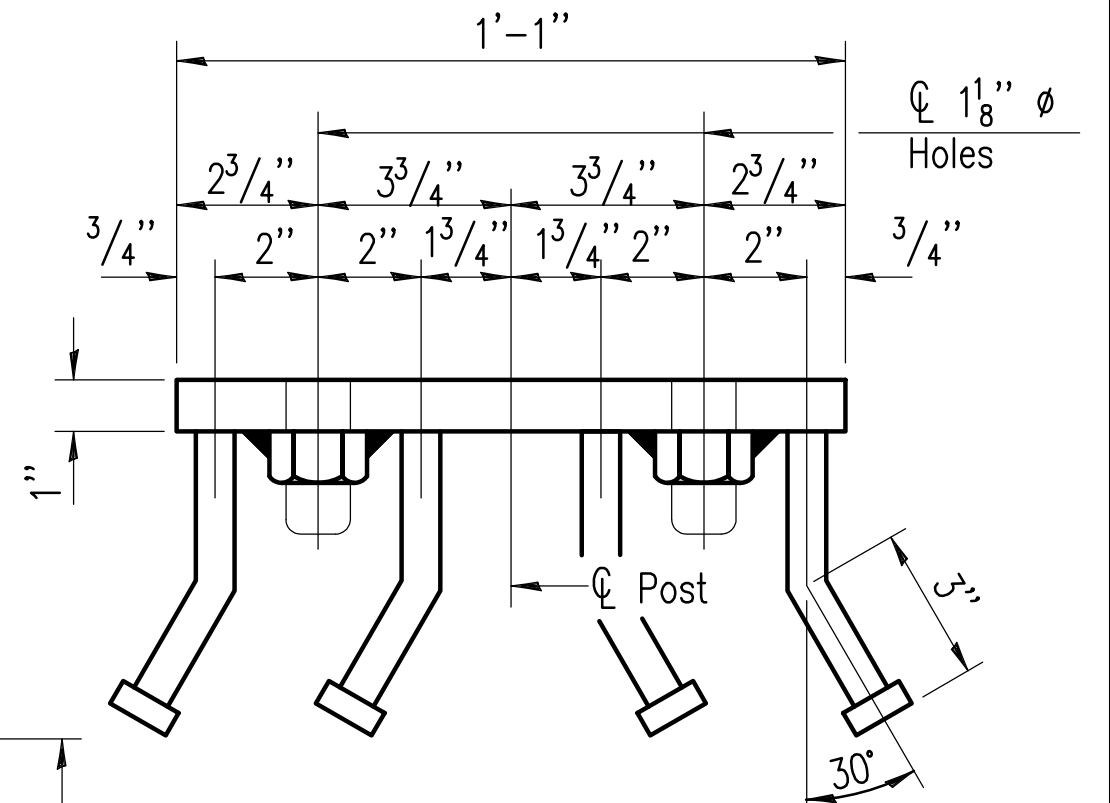
END OF RAIL DETAILS

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 inch x 6 inch x 1'-2 inch galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
All steel rail elements 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.

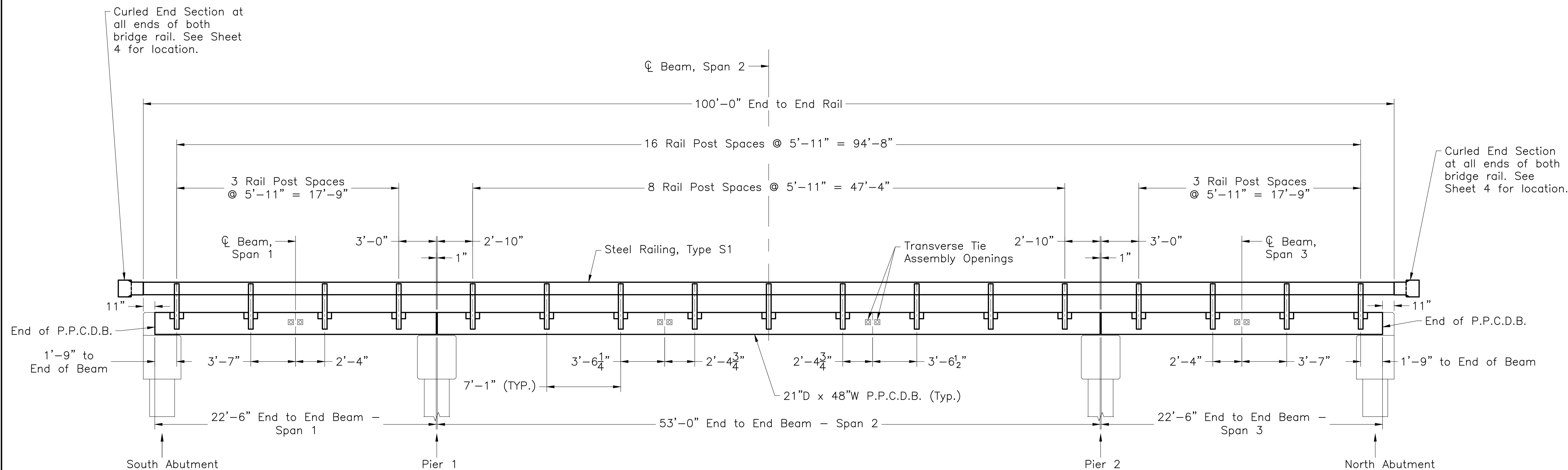


VIEW M-M

BILL OF MATERIAL

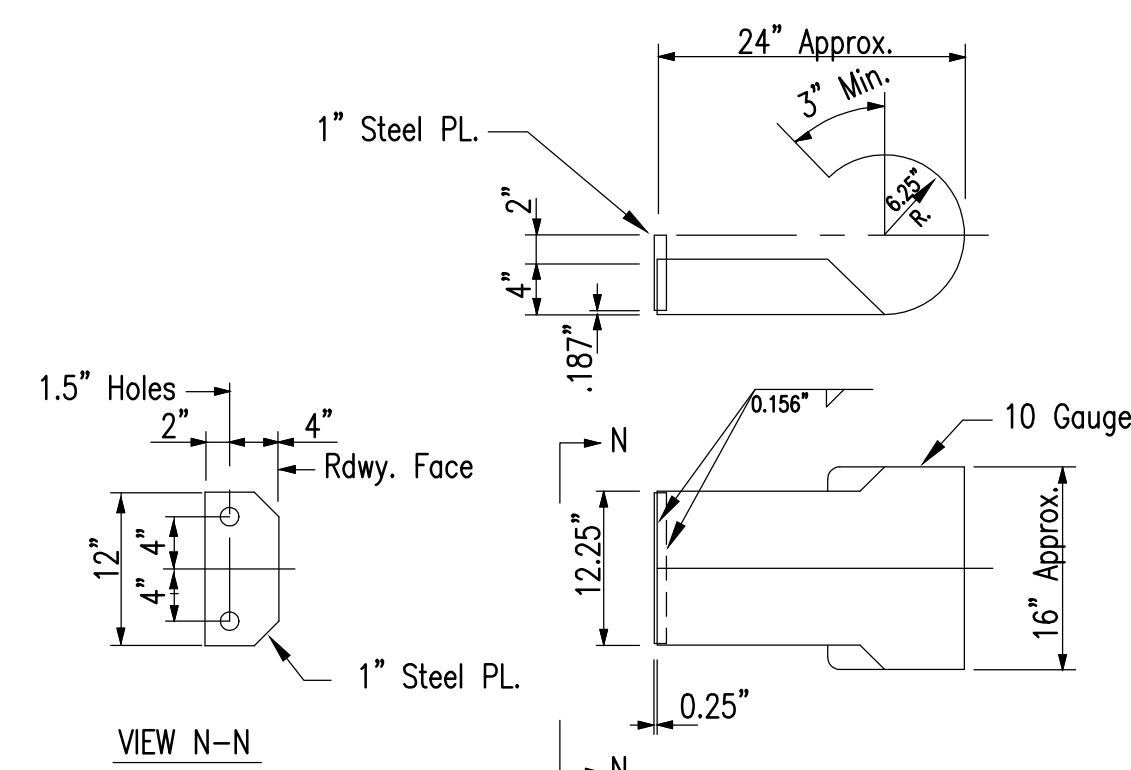
Item	Unit	Quantity
Steel Railing, Type S-1	Foot	200

(10'-9" Maximum Post Spacing)



RAIL POST SPACING – EAST ELEVATION

Not to Scale



CURLED END SECTION DETAILS

4 Required – The cost of the Curled End Sections shall be included the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.

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 105 NORTH KITCHELL AVENUE OLNAY, ILLINOIS 62450
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 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

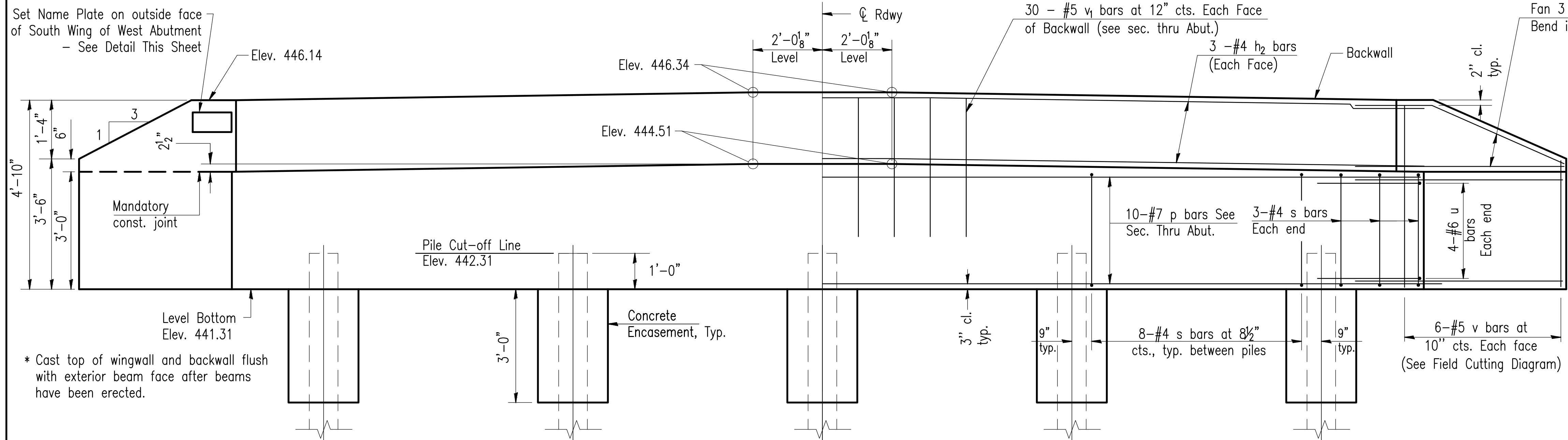
DESIGNED - NRF/BMB	REVISED -
DRAWN - BMB	REVISED -
CHECKED - NRF	REVISED -
DATE - 7-2021	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

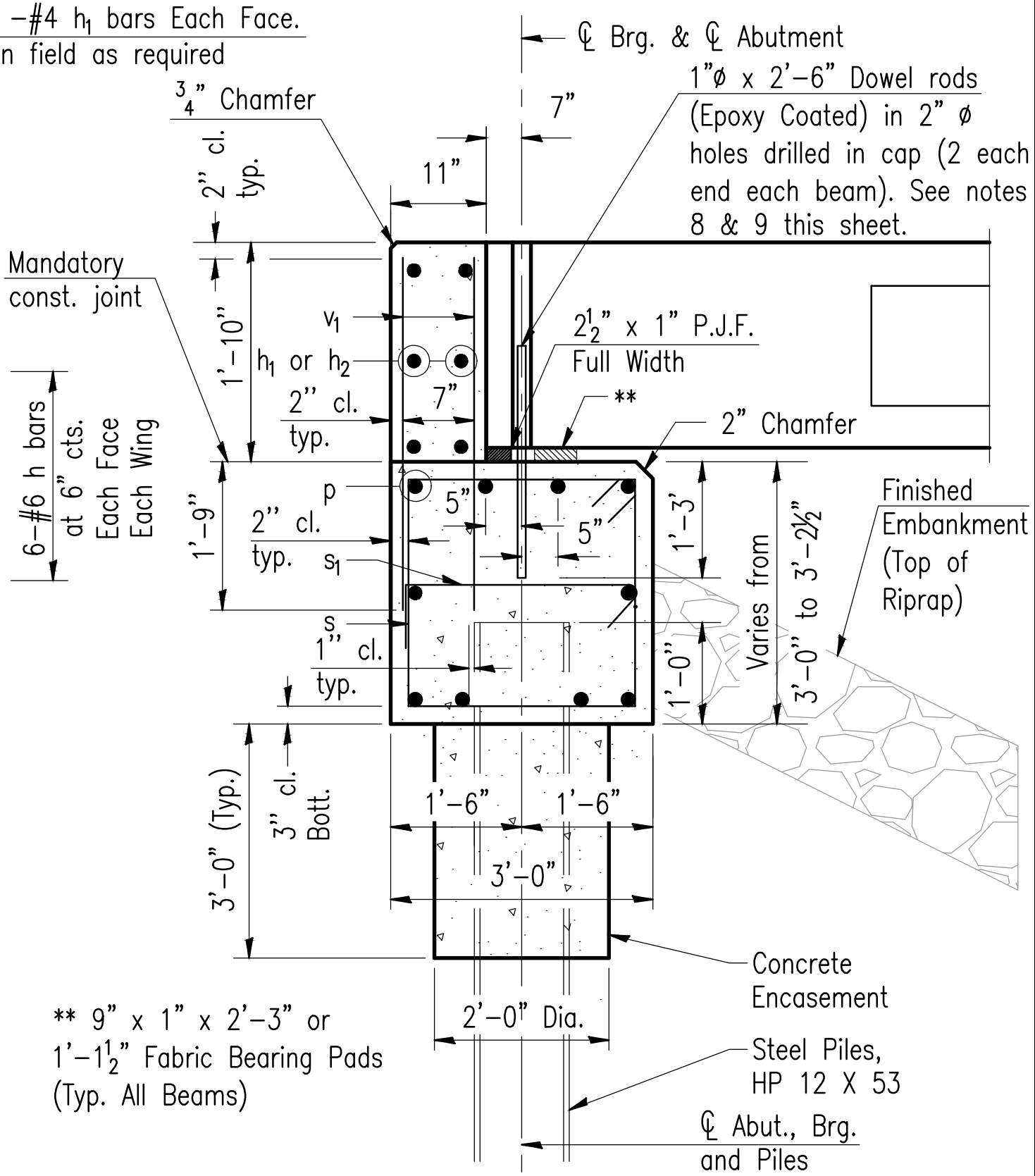
STEEL RAILING, TYPE S-1 DETAILS
 STRUCTURE NUMBER 051-3308

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 18	18-08137-00-BR	LAWRENCE	17	10
CONTRACT 95906		ILLINOIS	PROJECT GJZP(832)	

Set Name Plate on outside face of South Wing of West Abutment - See Detail This Sheet

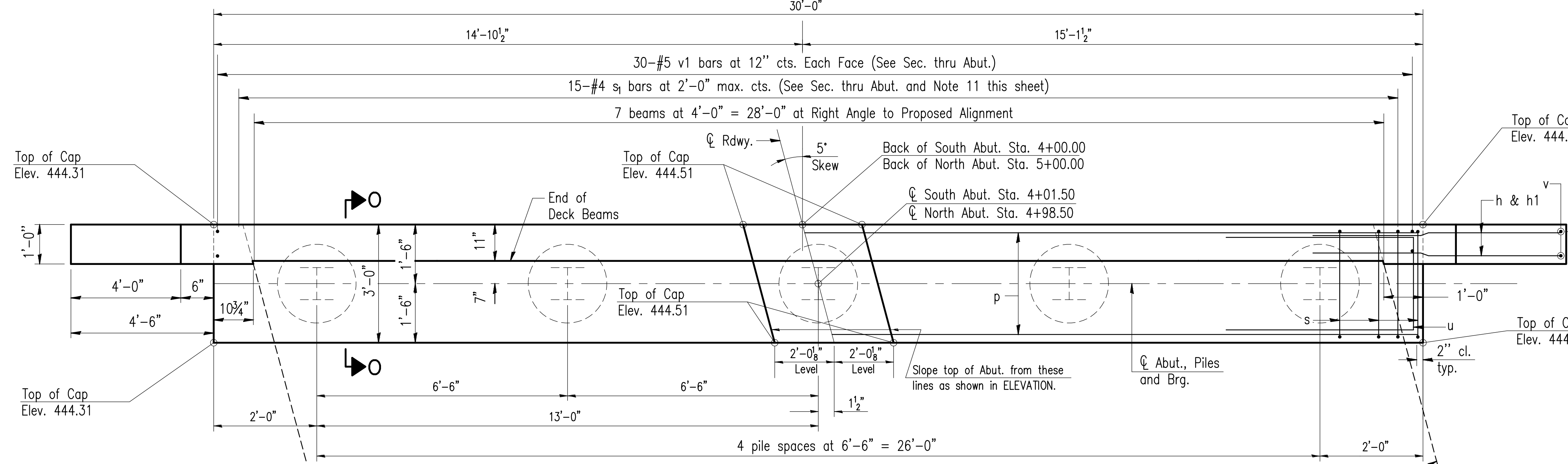


* Cast top of wingwall and backwall flush with exterior beam face after beams have been erected.



ELEVATION

SECTION 0-0
(At Right Angles)



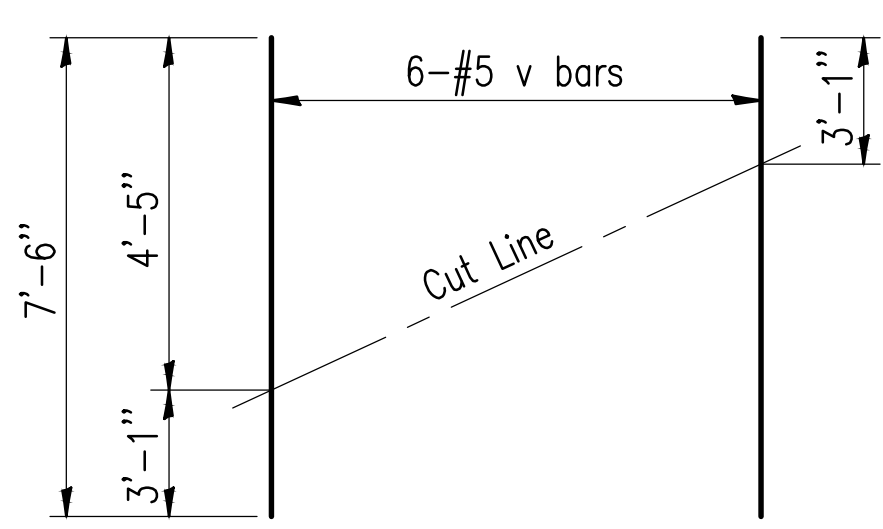
PLAN

PILE DATA SOUTH ABUTMENT

Type: Steel HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Est. Length: 55 Feet/Pile
No. Production Piles: 5
No. Test Piles: 0

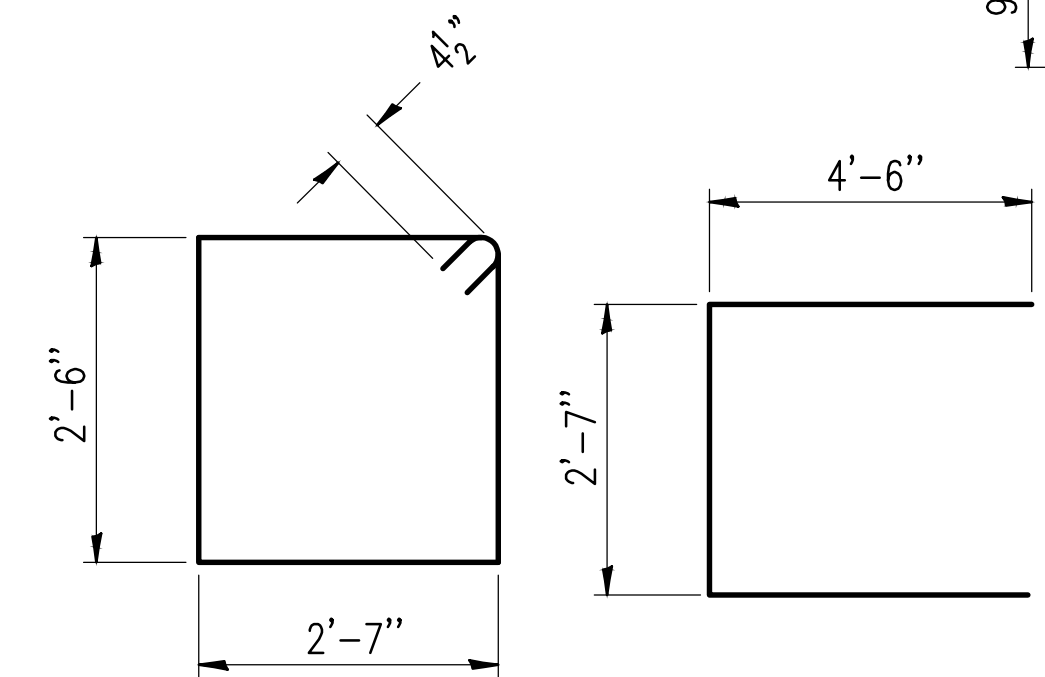
PILE DATA NORTH ABUTMENT

Type: Steel HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Est. Length: 55 Feet/Pile
No. Production Piles: 4
No. Test Piles: 1

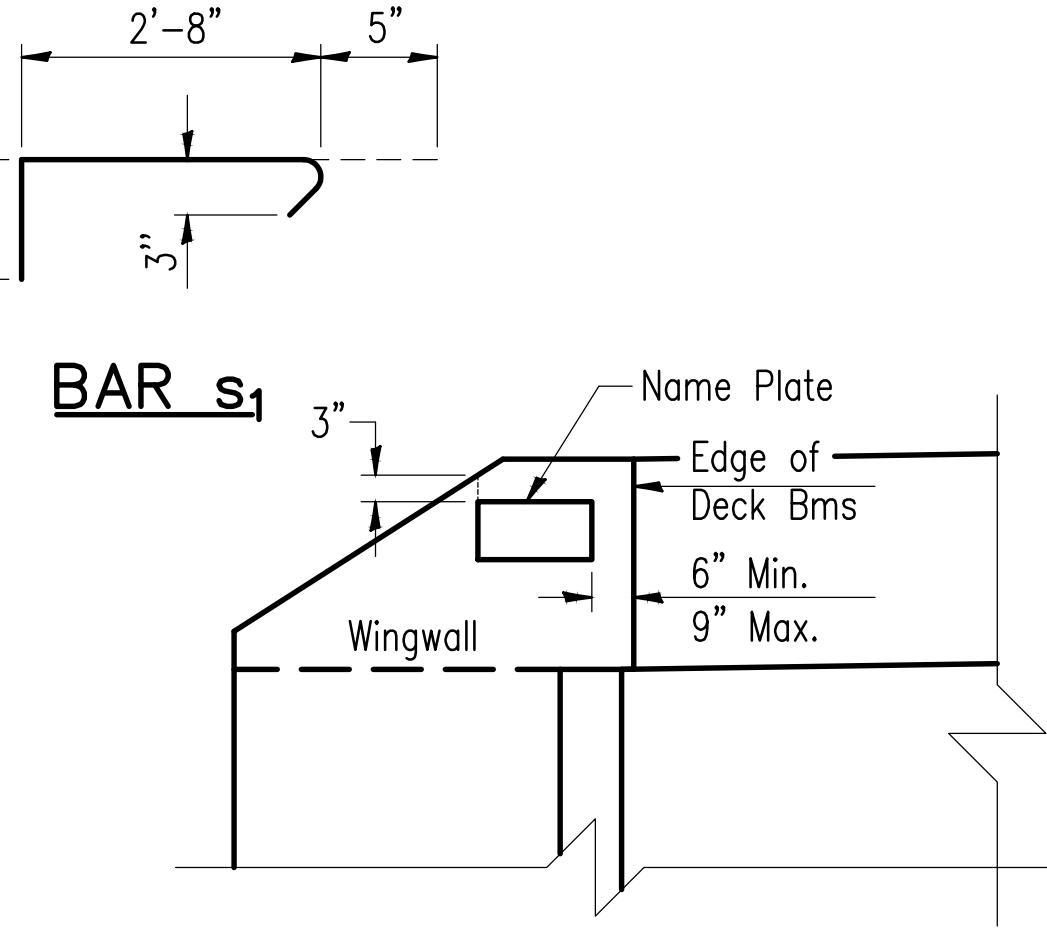


FIELD CUTTING DIAGRAM

Order v bars full length. Cut as shown and use remainder of bars in opposite face.



BAR s **BAR u**



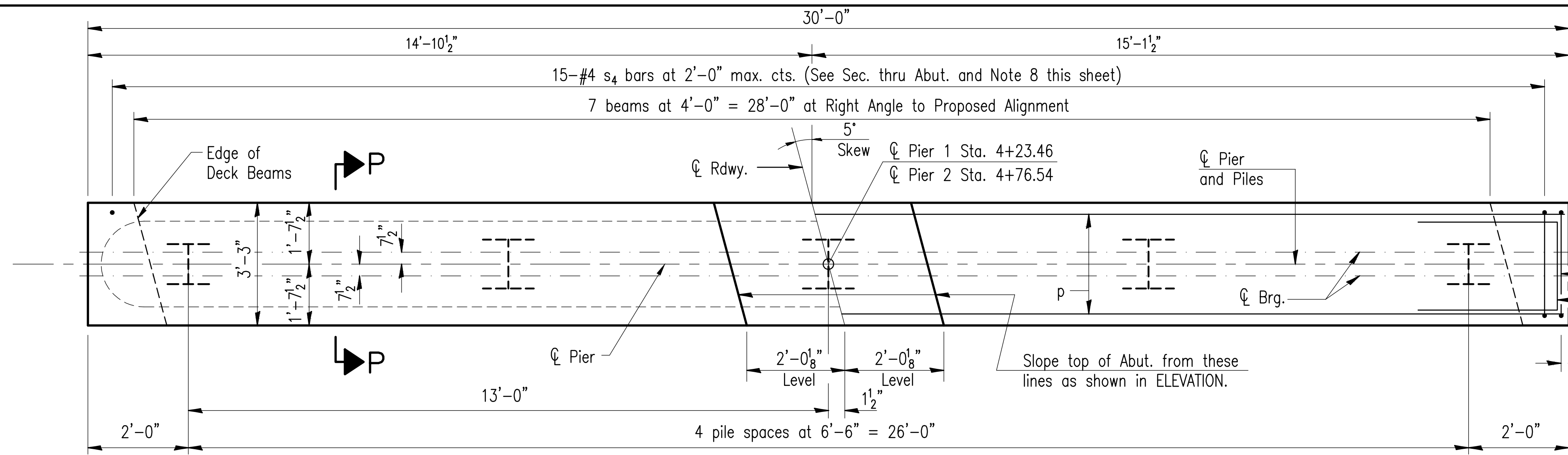
NAME PLATE PLACEMENT

GENERAL NOTES:

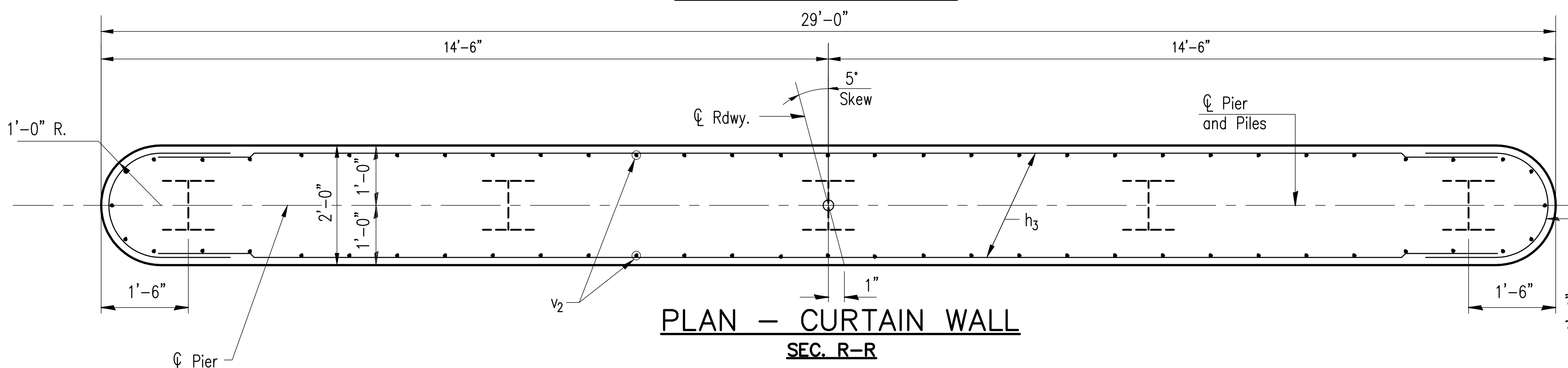
- Cast backwalls and top of Wingwalls after beams have been erected. Top of wingwall and backwall shall be cast flush with exterior beam face.
- The backwalls and the portion of the Wingwalls above the mandatory construction joint shall be cast against the in-place beam.
- Extend "h" bars into the abutment cap.
- For details of piles and Concrete Encasement, see sheet 13 of 17.
- Drawings not to scale.
- All clearances between rebar and form surface shall be 2" unless otherwise noted.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (Illinois Modified).
- Space reinforcement in cap to miss PPCDB dowel rods.
- Dowel rods shall be grouted after beams are in place and allowed to cure (min. 24 hrs.) prior to start of grouting deck beam longitudinal keyways.
- All exposed edges shall have a standard 3/4" chamfer unless otherwise noted or as directed by the Engineer.
- s1 bars: Alternate the position of the 90° and 135° hooked ends between adjacent s1 bars.

BILL OF MATERIAL FOR ONE ABUTMENT

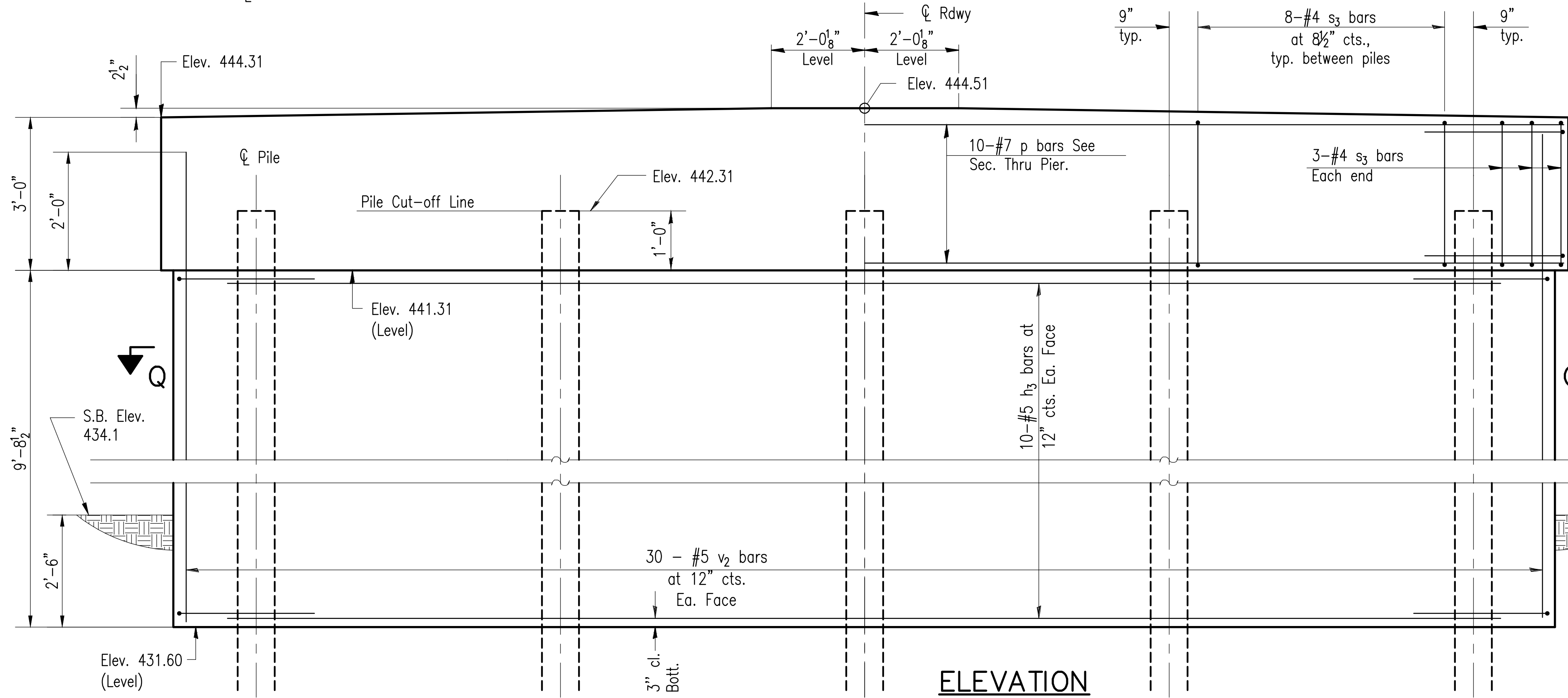
Bar	No.	Size	Length	Shape
h	24	#6	7'-10"	—
h1	12	#4	6'-8"	—
h2	6	#4	29'-8"	—
p	10	#7	29'-8"	—
s	38	#4	10'-11"	□
s1	15	#4	3'-10"	┌
u	8	#6	11'-7"	—
v	12	#5	7'-6"	CUT IN FIELD
v1	60	#5	3'-5"	—
Concrete Structures			Cu. Yd.	13.9
Concrete Encasement			Cu. Yd.	1.75
Reinforcement Bars			Pound	1830
Furnishing Steel			Foot	N Abut. 220
Piles HP 12 X 53			Foot	S Abut. 275
Driving Piles			Foot	N Abut. 220
			Foot	S Abut. 275
Test Pile Steel			Each	N Abut. 1
HP 12 X 53			Each	S Abut. 0



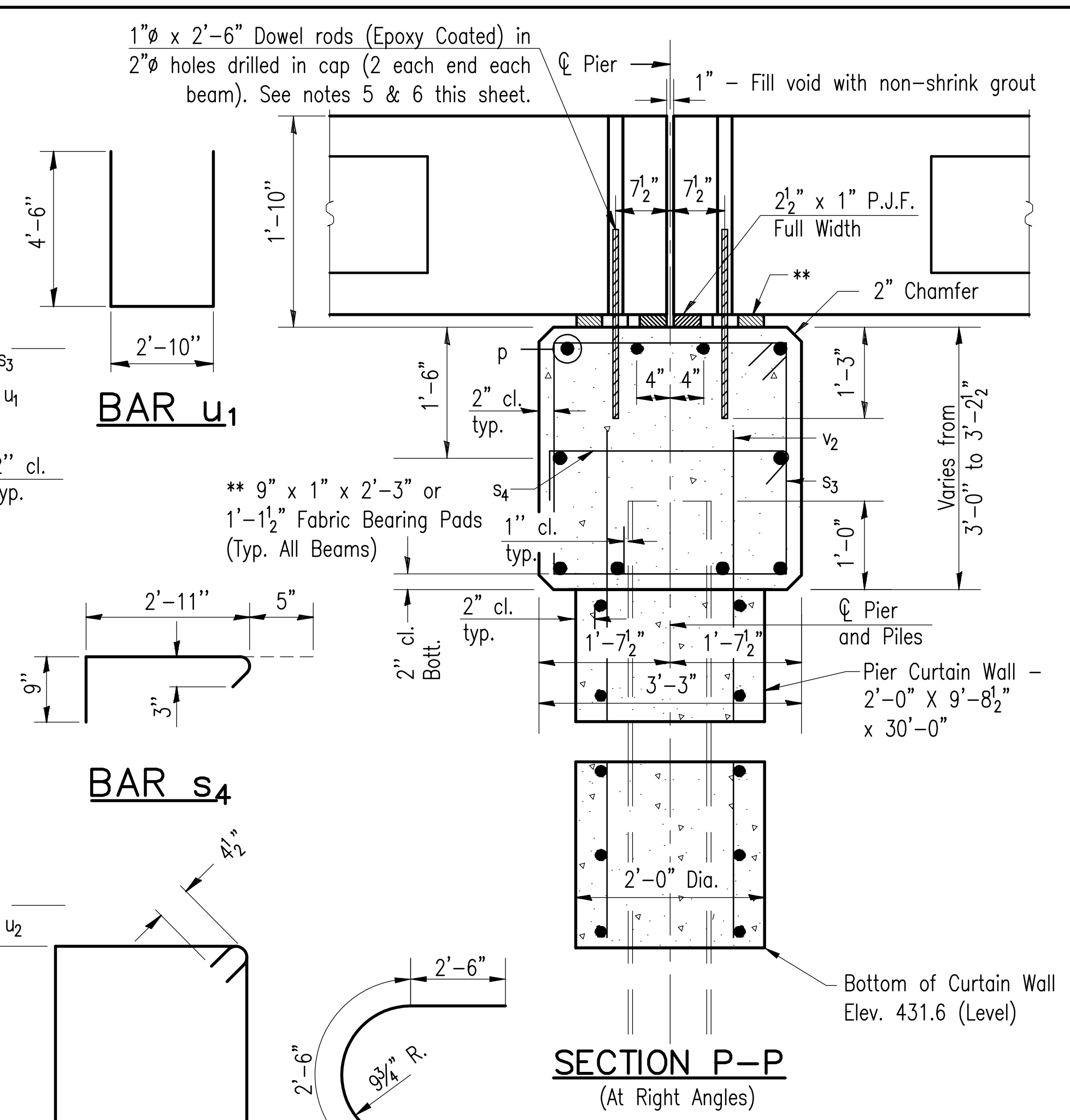
PLAN - PIER CAP



**PLAN - CURTAIN WALL
SEC. R-R**



ELEVATION



**SECTION P-P
(At Right Angles)**

**BILL OF MATERIAL -
1 PIER**

Bar	No.	Size	Length	Shape
h ₃	20	#5	27'-0"	—
p	10	#7	29'-8"	—
s ₃	38	#4	11'-5"	□
s ₄	15	#4	4'-1"	┌
u ₁	8	#6	11'-10"	—
u ₂	20	#5	7'-6"	C
v ₂	60	#5	11'-6"	—
Concrete Structures			Cu. Yd.	31.8
Reinforcement Bars			Pound	2520
Furnishing Steel		Foot	Pier #1	220
Piles HP 12 X 53		Foot	Pier #2	275
Driving Piles		Foot	Pier #1	220
		Foot	Pier #2	275
Test Pile Steel		Each	Pier #1	1
HP 12 X 53		Each	Pier #2	0

GENERAL NOTES:

- Extend "v₂" bars into pier cap.
- For details of piles and Concrete Encasement see sheet 13 of 17.
- Drawings not to scale.
- All clearances between rebar and form surface shall be 2" unless otherwise noted.
- Space reinforcement in cap to miss PPCDB dowel rods.
- Dowel rods shall be grouted after beams are in place and allowed to cure (min. 24 hrs.) prior to start of grouting deck beam longitudinal keyways.
- All exposed edges shall have a standard 3/4" chamfer unless otherwise noted or as directed by the Engineer.
- s₄ bars: Alternate the position of the 90° and 135° hooked ends between adjacent s₁ bars.

PILE DATA

Pier 1:
Type: HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Est. Length: 55 Feet
No. Production Piles: 4
No. Test Piles: 1

Pier 2:
Type: HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Est. Length: 55 Feet
No. Production Piles: 5
No. Test Piles: 0

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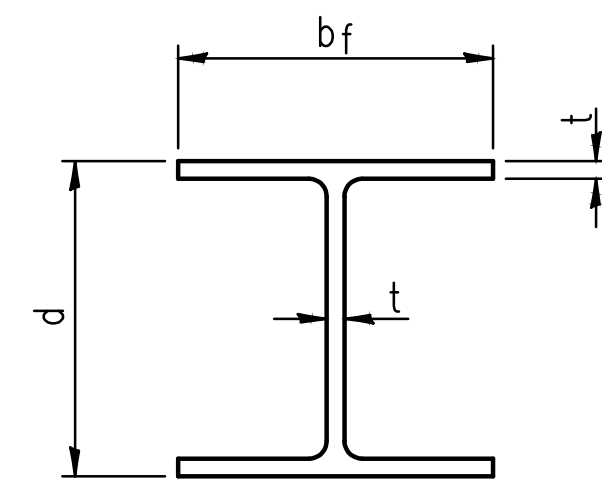
DESIGNED - NRF/BMB
DRAWN - BMB
CHECKED - NRF
DATE - 7-2021

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REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

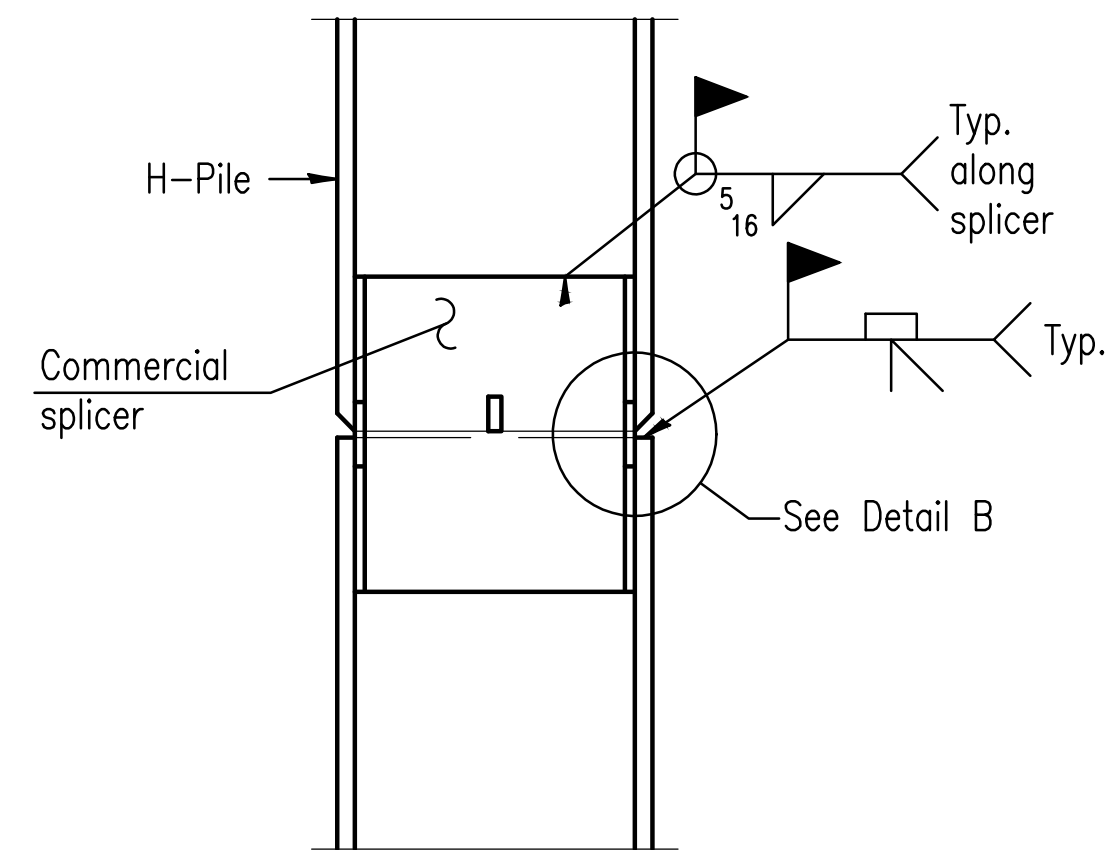
PIER DETAILS
STRUCTURE NUMBER 051-3308

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 18	18-08137-00-BR	LAWRENCE	17	12
CONTRACT 95906		ILLINOIS	PROJECT GJZP(832)	

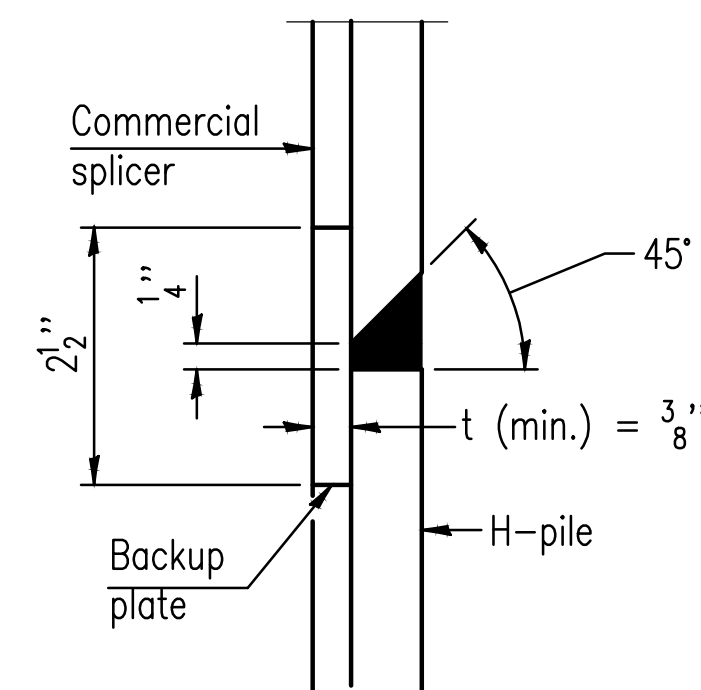


STEEL PILE TABLE

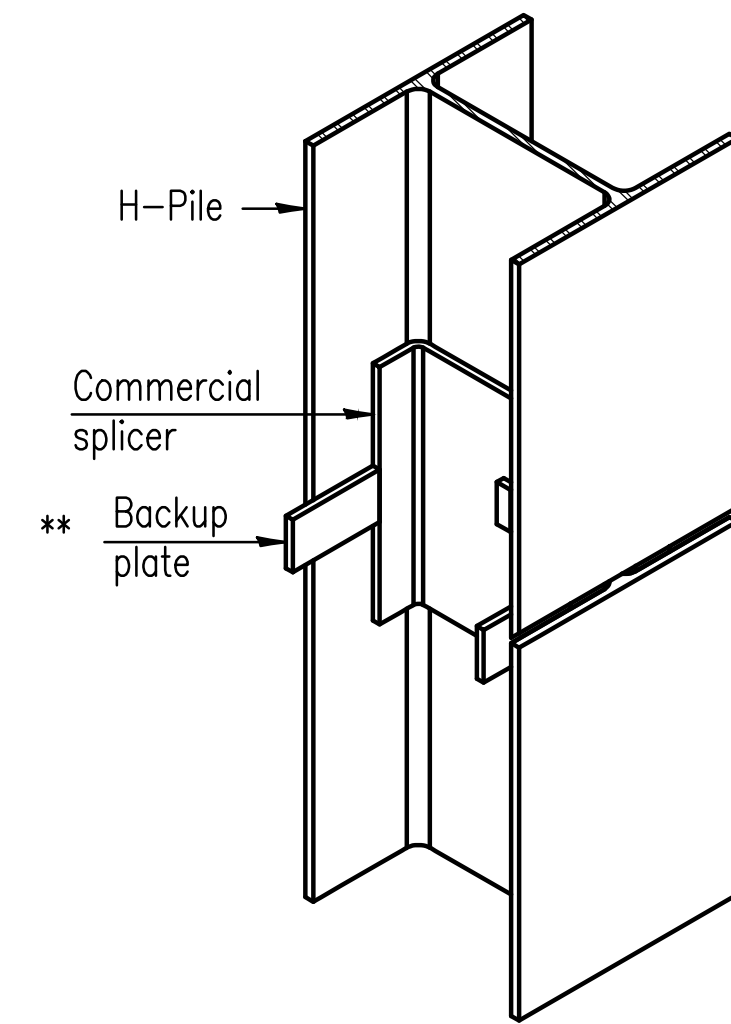
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 12x53	11 ³ / ₄ "	12"	7 ⁷ / ₁₆ "	24"



ELEVATION

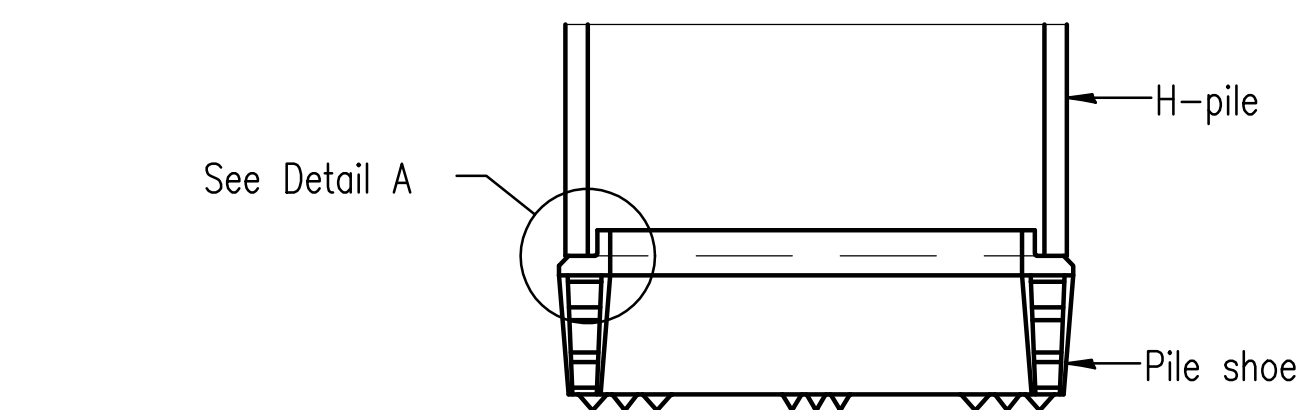


DETAIL "B"

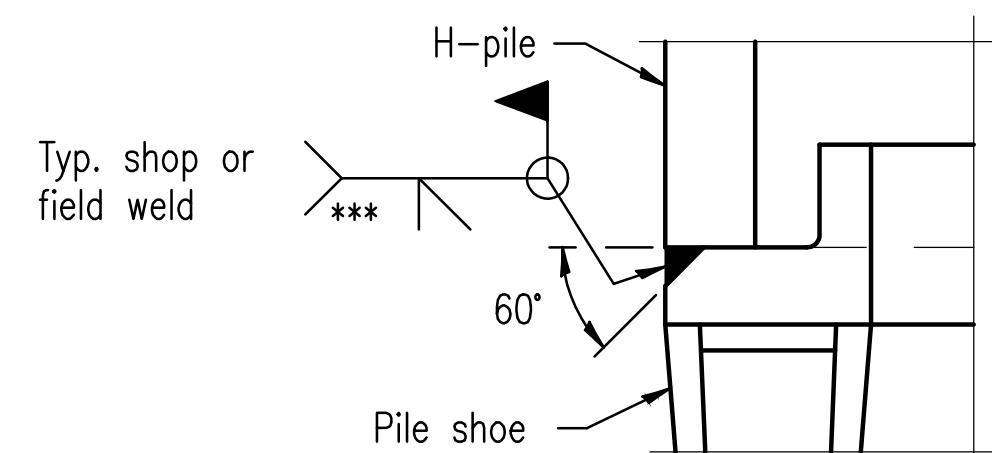


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

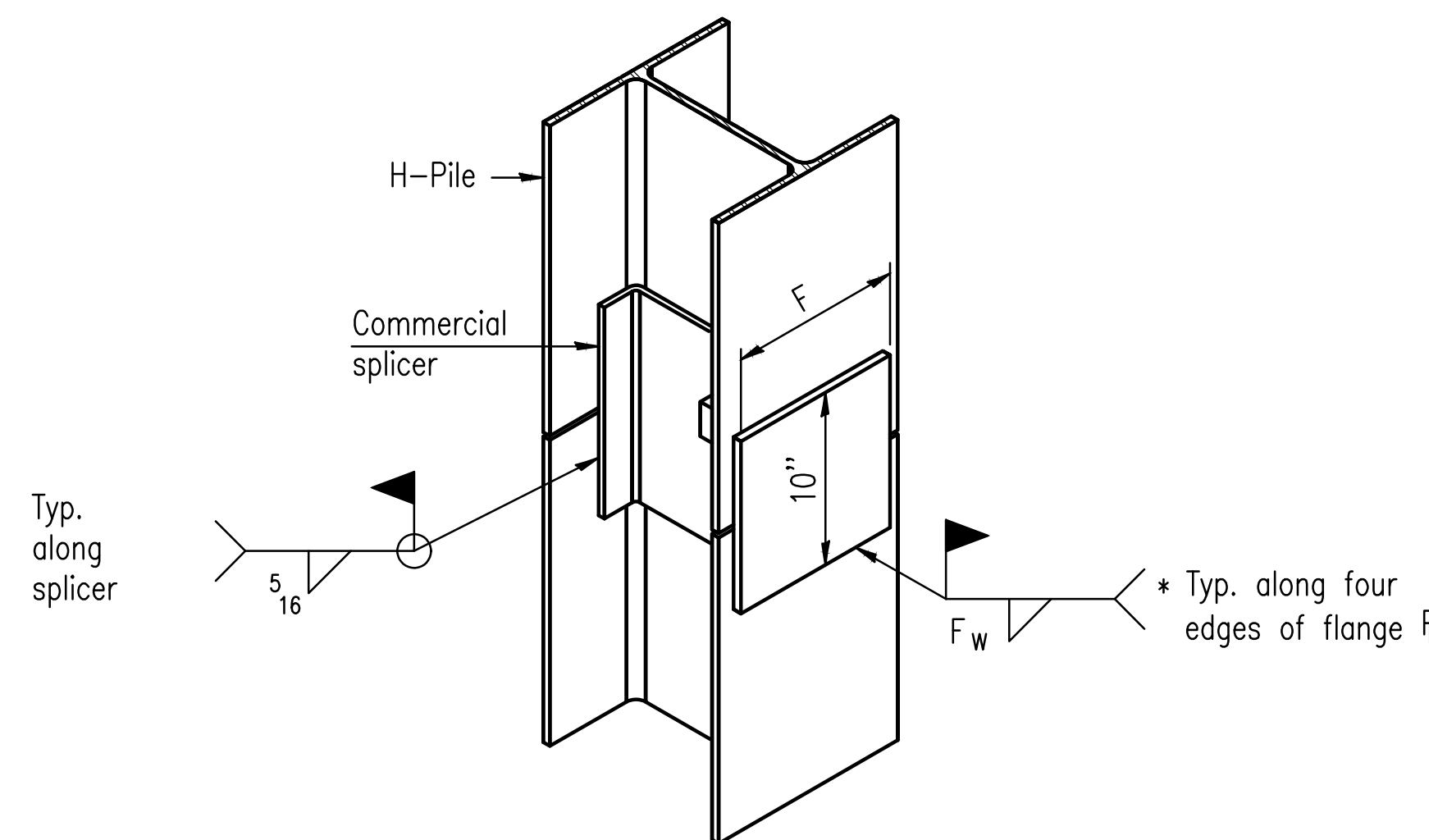


ELEVATION



DETAIL A

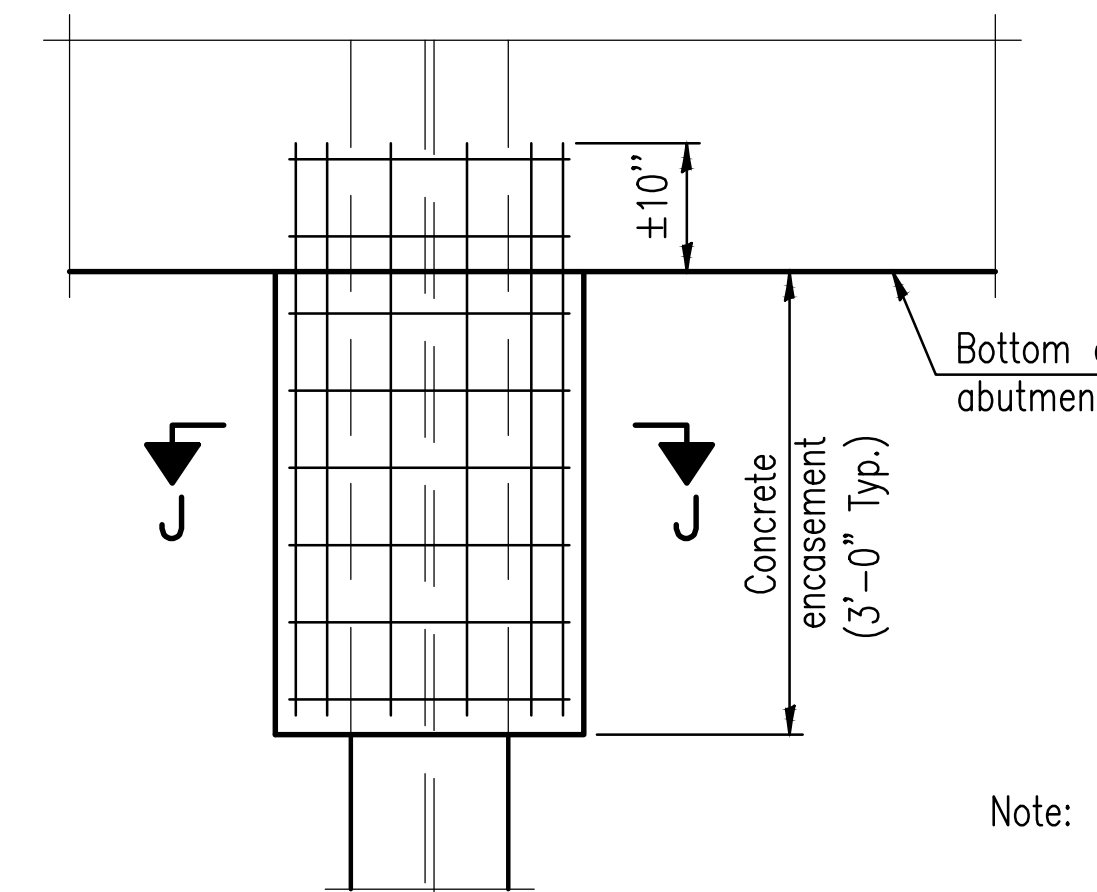
H-PILE SHOE ATTACHMENT



ISOMETRIC VIEW

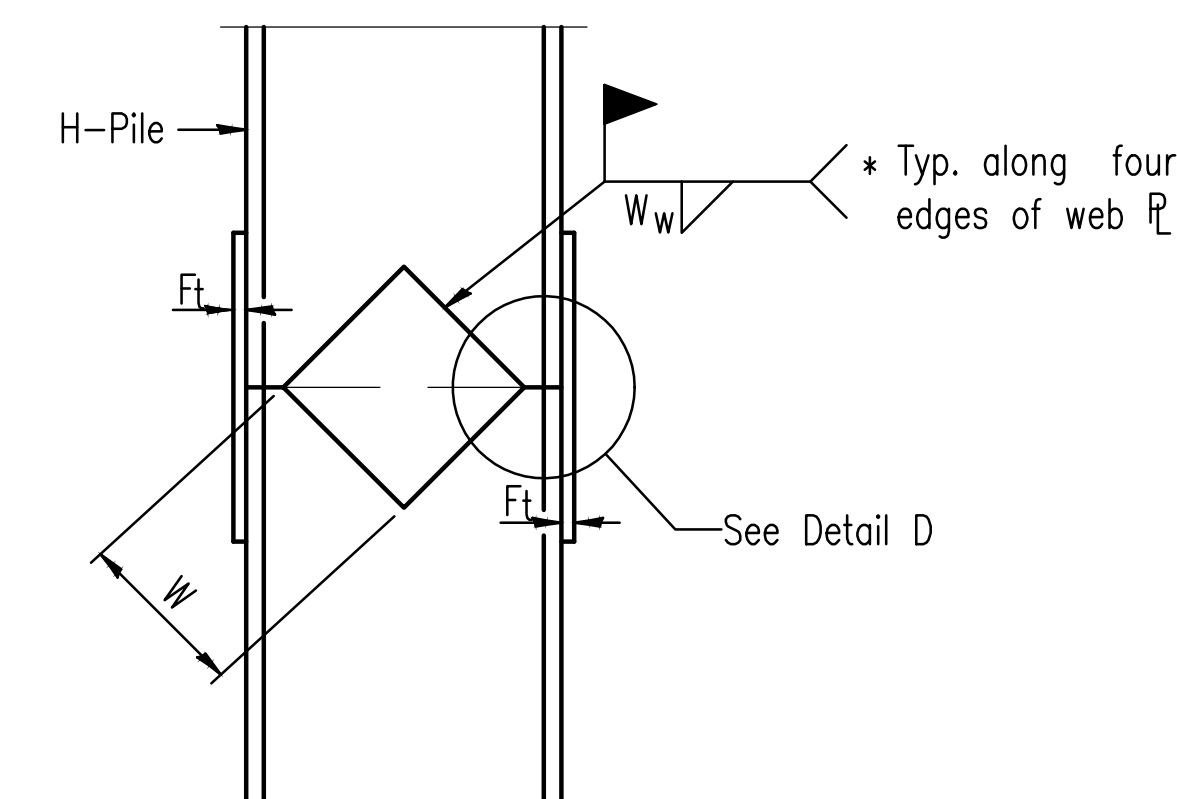
WELDED COMMERCIAL SPLICE ALTERNATE

- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- ***Weld size per pile shoe manufacturer (5/16" min.).

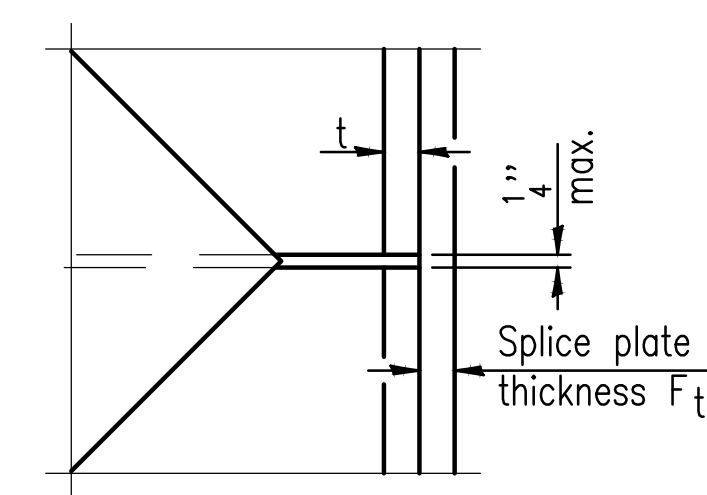


ELEVATION DRIVEN PILES

PILE ENCASEMENT



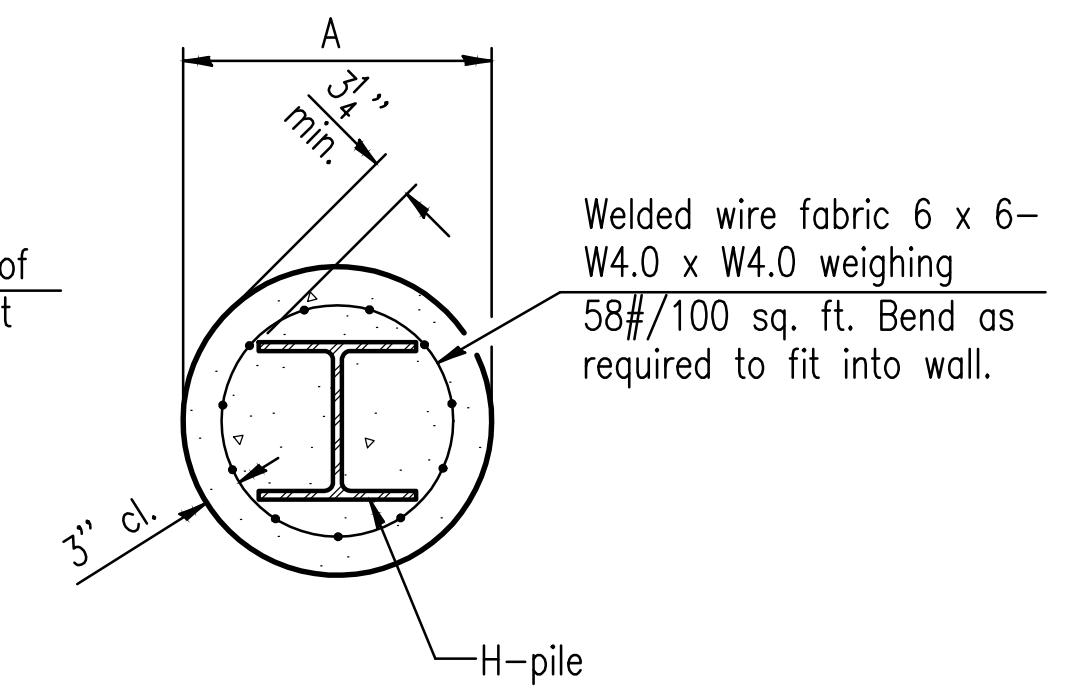
ELEVATION



DETAIL D

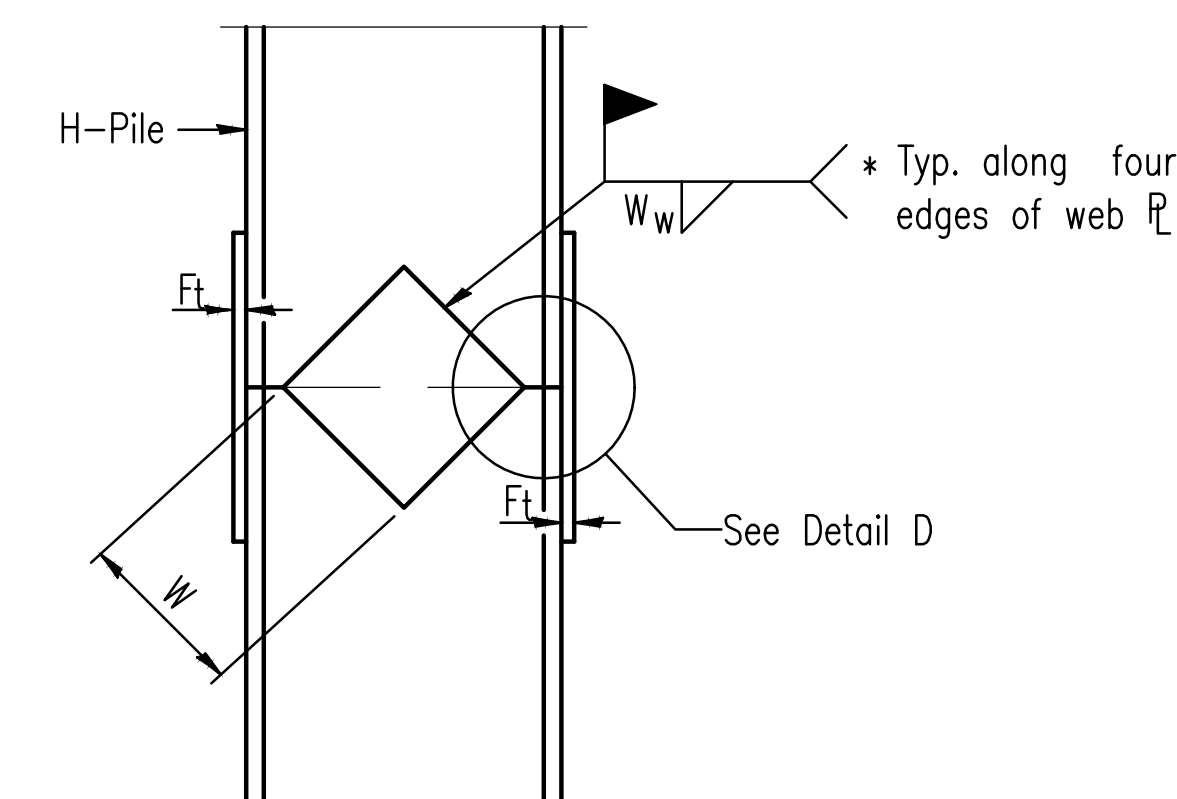
WELDED PLATE FIELD SPLICE

Designation	F	F _t	F _w	W	W _t	W _w
HP 12x53	10"	5 ⁵ / ₈ "	1 ¹ / ₂ "	6 ¹ / ₂ "	1 ¹ / ₂ "	3 ³ / ₈ "

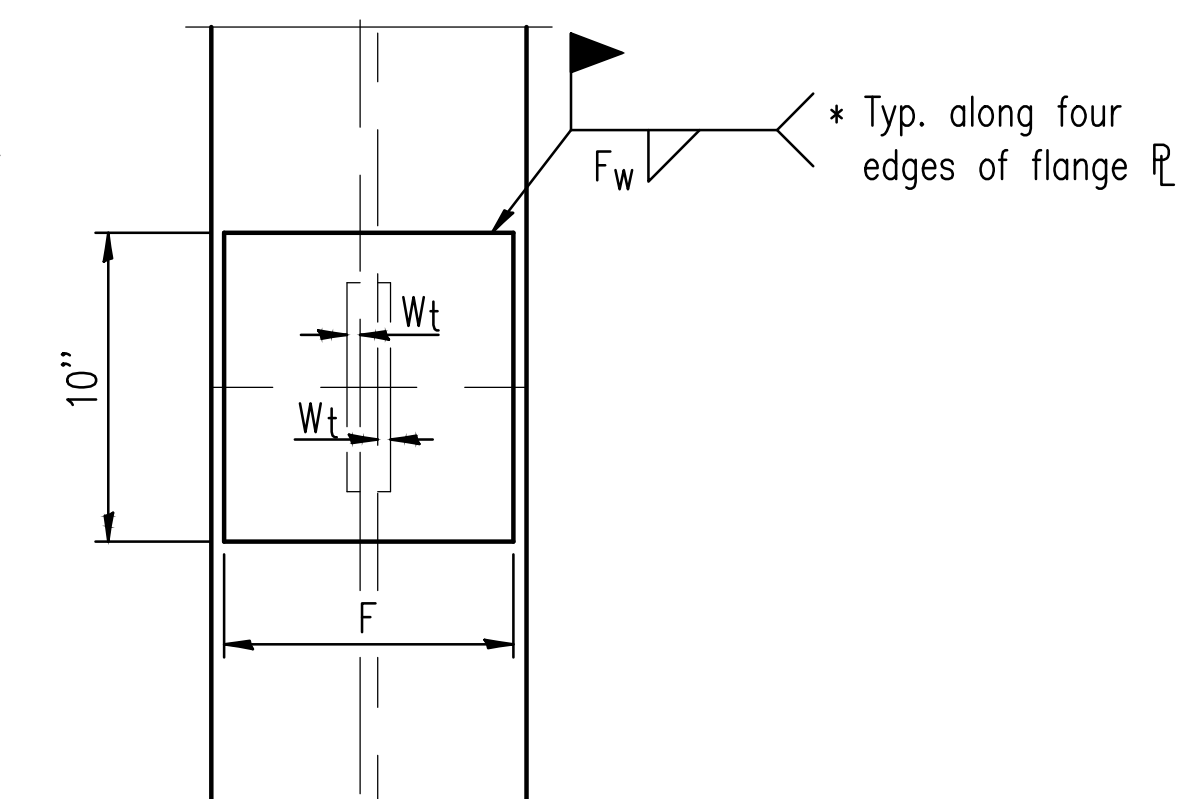


Note: Forms for encasement may be omitted when soil conditions permit. If soil conditions are not favorable to use the soil as forms, the Contractor shall provide forms; the cost for the forms and all labor to install forms shall be included in item "Concrete Encasement."

SECTION J-J



ELEVATION



END VIEW

Note: The steel H-piles shall be according to AASHTO M270 Grade 50.

NOBLE										BORING No. B-1			water level reading		
ENGINEERING CONSULTANTS										County: Lawrence, IL		Sheet No. 1 of 2		1st encounter: 24'	
Client: Charleston Engineering										Weather: Sunny		Temperature: 90's		water level reading	
Driller: Noble Engineering Consultants										Date Start: 8-8-18		Surface Elevation: 4466 **		@completion Dry Cave	
Location: Sec. #18-08137-00-BR										Date Finished: 8-8-18		Driller: Tony Schocker		Backfill: Soil cuttings	
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**						
1							0.0'-0.7' Gravel-FILL		445.6						
2	SS-1	1.0'-2.5'	7	7-3-4	20		0.7'-9.2' Silt, Clay, Etc. FILL	FILL	444.6						
3									443.6						
4	SS-2	3.5'-5.0'	12	3-3-9	50			FILL	442.6						
5									441.6						
6	SS-3	6.0'-7.5'	12	4-7-5	100			FILL	440.6						
7									439.6						
8									438.6						
9	SS-4	8.5'-10.0'	8	3-3-5	70	0.8	8.2'-38' SILTY CLAY, trace to some sand, occ. wet silt seams below 24', medium stiff to stiff, gray to gray mottled brown below 19'	CL	437.6						
10									436.6						
11									435.6						
12									434.6						
13									433.6						
14	SS-5	13.5'-15.0'	13	6-6-7	100	1.1		CL	432.6						
15									431.6						
16									430.6						
17									429.6						
18									428.6						
19	SS-6	18.5'-20.0'	8	3-4-4	100	0.9		CL	427.6						
20									426.6						
21									425.6						
22									424.6						
23									423.6						
24	SS-7	23.5'-25.0'	11	5-6-5	100	1.0		CL	422.6						
25									421.6						
26									420.6						
27									419.6						
28									418.6						
29									417.6						
30	SS-8	28.5'-30.0'	10	4-5-5	100	1.0		CL	416.6						
Drilling Method: HSA (2-1/4" id)										comments: * Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 51.5'										** ground surface elevation at boring location is estimated from bridge deck					
Drill Rig: Mobile 8-47										100.0 and is not surveyed					
Sampling: split- spoon (SS)															

NOBLE										BORING No. B-2			water level reading		
ENGINEERING CONSULTANTS										County: Lawrence, IL		Sheet No. 1 of 2		1st encounter: 19'	
Client: Charleston Engineering										Weather: Sunny		Temperature: 90's		water level reading	
Driller: Noble Engineering Consultants										Date Start: 8-8-18		Surface Elevation: 4461 **		@completion Dry Cave	
Location: Sec. #18-08137-00-BR										Date Finished: 8-8-18		Driller: Tony Schocker		Backfill: Soil cuttings	
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**						
1							0.0'-6.6' Gravel-FILL		445.1						
2	SS-1	1.0'-2.5'	9	5-4-5	30		0.6'-8.7' Silt, Clay, Etc. FILL	FILL	444.1						
3									443.1						
4	SS-2	3.5'-5.0'	11	3-5-6	70			FILL	442.1						
5									441.1						
6	SS-3	6.0'-7.5'	14	4-6-8	100			FILL	440.1						
7									439.1						
8									438.1						
9	SS-4	8.5'-10.0'	12	4-6-6	70	1.0	8.7'-37' SILTY CLAY, trace to some sand, occ. wet silt seams below 19', medium stiff to stiff, gray mottled brown	CL	437.1						
10									436.1						
11									435.1						
12									434.1						
13									433.1						
14	SS-5	13.5'-15.0'	15	6-7-8	100	1.1		CL	432.1						
15									431.1						
16									430.1						
17									429.1						
18									428.1						
19	SS-6	18.5'-20.0'	11	4-5-6	100	0.9		CL	427.1						
20									426.1						
21									425.1						
22									424.1						
23									423.1						
24	SS-7	23.5'-25.0'	12	4-6-6	100	1.0		CL	422.1						
25									421.1						
26									420.1						
27									419.1						
28									418.1						
29									417.1						
30	SS-8	28.5'-30.0'	10	4-4-6	100	1.0		CL	416.1						
Drilling Method: HSA (2-1/4" id)										comments: * Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 52.4'										** ground surface elevation at boring location is estimated from bridge deck					
Drill Rig: Mobile 8-47										100.0 and is not surveyed					
Sampling: split- spoon (SS)															

NOBLE										BORING No. B-1			water level reading		
ENGINEERING CONSULTANTS										County: Lawrence, IL		Sheet No. 2 of 2		1st encounter: 24'	
Client: Charleston Engineering										Weather: Sunny		Temperature: 90's		water level reading	
Driller: Noble Engineering Consultants										Date Start: 8-8-18		Surface Elevation: ~ 4466		@completion Dry Cave	
Location: Sec. #18-08137-00-BR										Date Finished: 8-8-18		Driller: Tony Schocker		Backfill: Soil cuttings	
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**						
31									415.6						
32									414.6						
33									413.6						
34	SS-9	33.5'-35.0'	20	6-9-11	100	1.5	8.2'-38' SILTY CLAY, trace to some sand, occ. wet silt seams below 24', medium stiff to stiff, gray to gray mottled brown below 19'	CL	412.6						
35									411.6						
36									410.6						
37									409.6						
38									408.6						
39	SS-10	38.5'-40.0'	50+	31-50/5'	100	-	38'-47.0' SILTY FINE SAND, well cemented, trace to some gravel, very dense, saturated, gray	ML	407.6						
40									406.6						
41									405.6						
42									404.6						
43									403.6						
44	SS-11	43.5'-45.0'	50+	47-50/5'	50	-		ML	402.6						
45									401.6						
46									400.6						
47									399.6						
48									398.6						
49	SS-12	48.5'-50.0'	100+	100/5"	20	-	47.0'-51.5' HIGHLY WEATHERED ROCK		397.6						
50									396.6						
51									395.6						
52									394.6						
53									393.6						
54										AR 51.5'					
55															
56															
57															
58															
59															
60															
Drilling Method: HSA (2-1/4" id)										comments: * Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 51.5'										** ground surface elevation at boring location is estimated and is not surveyed					
Drill Rig: Mobile 8-47										100.0 and is not surveyed					
Sampling: split- spoon (SS)															

NOBLE										BORING No. B-2			water level reading		
ENGINEERING CONSULTANTS										County: Lawrence, IL		Sheet No. 2 of 2		1st encounter: 19'	
Client: Charleston Engineering										Weather: Sunny		Temperature: 90's		water level reading	
Driller: Noble Engineering Consultants										Date Start: 8-8-18		Surface Elevation: 4461		@completion Dry Cave	
Location: Sec. #18-08137-00-BR										Date Finished: 8-8-18		Driller: Tony Schocker		Backfill: Soil cuttings	
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**						
31									415.1						
32									414.1						
33									413.1						
34	SS-9	33.5'-35.0'	17	7-8-9	100	1.4	8.7'-37' SILTY CLAY, trace to some sand, occ. wet silt seams below 19', medium stiff to stiff, gray mottled brown	CL	412.1						
35									411.1						
36									410.1						
37									409.1						
38									408.1						
39	SS-10	38.5'-40.0'	50+	29-50/5'	100	-	37'-46.0' SILTY FINE SAND, well cemented, trace to some gravel, occ. cobbles, very dense, saturated, gray	ML	407.1						
40									406.1						
41									405.1						
42									404.1						
43									403.1						
44	SS-11	43.5'-45.0'	50+	44-50/5'	50	-		ML	402.1						
45									401.1						
46									400.1						
47									399.1						
48									398.1						
49	SS-12	48.5'-50.0'	100+	46-100/5"	40	-	46.0'-52.4' HIGHLY WEATHERED ROCK		397.1						
50									396.1						
51									395.1						
52									394.1						
53									393.1						
54										AR 52.4'					
55															
56															
57															
58															
59															
60															
Drilling Method: HSA (2-1/4" id)										comments: * Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 52.4'										** ground surface elevation at boring location is estimated and is not surveyed					
Drill Rig: Mobile 8-47										100.0 and is not surveyed					
Sampling: split- spoon (SS)															

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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

DESIGNED -- NRF/BMB
DRAWN -- BMB
CHECKED -- NRF
DATE -- 7-2021

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
STRUCTURE NUMBER 051-3308

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 18	18-08137-00-BR	LAWRENCE	17	14
CONTRACT 95906		ILLINOIS	PROJECT GJZP(832)	

