

INDEX OF SHEETS 01-18-2019 LETTING ITEM 157

1	COVER SHEET
2	PLAN & PROFILE
3-4	CROSS SECTIONS
5-13	BRIDGE PLANS A.R. STA. 3+25
14	BORINGS A.R. STA. 3+25
15-23	BRIDGE PLANS A.R. STA. 7+90
24-25	BORINGS A.R. STA. 7+90

STANDARDS:
280001-07 - EROSION CONTROL
515001-03 - NAME PLATES
725001-01 - REFLECTOR & TERMINAL MARKER PLACEMENT
701901-08 - TRAFFIC
BLR 21-9 - TRAFFIC

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM-OFF SYSTEM BRIDGE
CRAWFORD COUNTY
SECTION 15-07131-00-BR
STRUCTURE NO. 017-3754
TR 193 OVER DOGWOOD CREEK
STRUCTURE NO. 017-3755
TR 193 OVER BRUSH CREEK
PROJECT NO. V985(178)
JOB NO. C-97-052-18

SUMMARY OF QUANTITIES

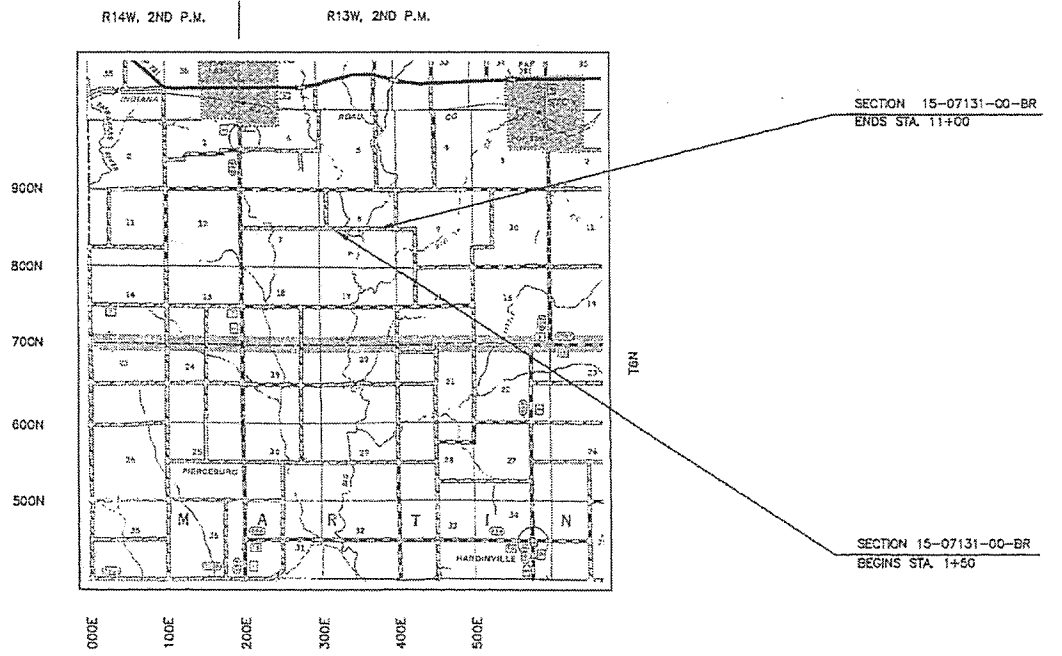
QUANTITY	UNIT	ITEM	CODE NO.
1	L SUM	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	X7010216
42	UNITS	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	20100110
52	UNITS	TREE REMOVAL (OVER 15 UNITS DIAMETER)	20100210
0.1	ACRE	TREE REMOVAL, ACRES	20100500
304	CU YD	EARTH EXCAVATION	20200100
240	CU YD	CHANNEL EXCAVATION	20300100
1,146	CU YD	FURNISHED EXCAVATION	20400800
239	TCN	POROUS GRANULAR EMBANKMENT	20700110
120	FOOT	PERIMETER EROSION BARRIER	28000400
580	TCN	STONE DUMPED RIPRAP, CLASS A4	28100807
351	TCN	AGGREGATE SURFACE COURSE, TYPE B	40200800
1	EACH	REMOVAL OF EXISTING STRUCTURES NO. 1	50100300
1	EACH	REMOVAL OF EXISTING STRUCTURES NO. 2	50100400
85.8	CU YD	CONCRETE STRUCTURES	50300225
175.7	CU YD	CONCRETE SUPERSTRUCTURE	50300255
19.1	CU YD	CONCRETE ENCASEMENT	50300280
481	SQ YD	PROTECTIVE COAT	50300300
100,130	FOUND	REINFORCEMENT BARS, EPOXY COATED	50800205
259	FOOT	STEEL RAILING, TYPE S1	50900205 Δ
1,350	FOOT	FURNISHING STEEL PILES HP 10X42	51201400
1,350	FOOT	DRIVING PILES	51202305
4	EACH	TEST PILES STEEL HP 10X42	51203400
2	EACH	NAME PLATES	51500100
72	FOOT	PIPE CULVERTS, CLASS D, TYPE 1 15"	64200220
1	L SUM	MOBILIZATION	67100100
8	EACH	TERMINAL MARKER - DIRECT APPLIED	72501000 Δ

Δ SPECIALTY ITEMS

FUNCTIONAL CLASS: RURAL LOCAL ROAD
ADT = 75
DESIGN SPEED = 30 MPH

TOLL FREE JOINT UTILITY LOCATING
INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
TELEPHONE NO. 1-800-832-0123

SCALES
PLAN 1 INCH = 50 FEET
PROFILE HORZ. 1 INCH = 50 FEET
PROFILE VERT. 1 INCH = 10 FEET



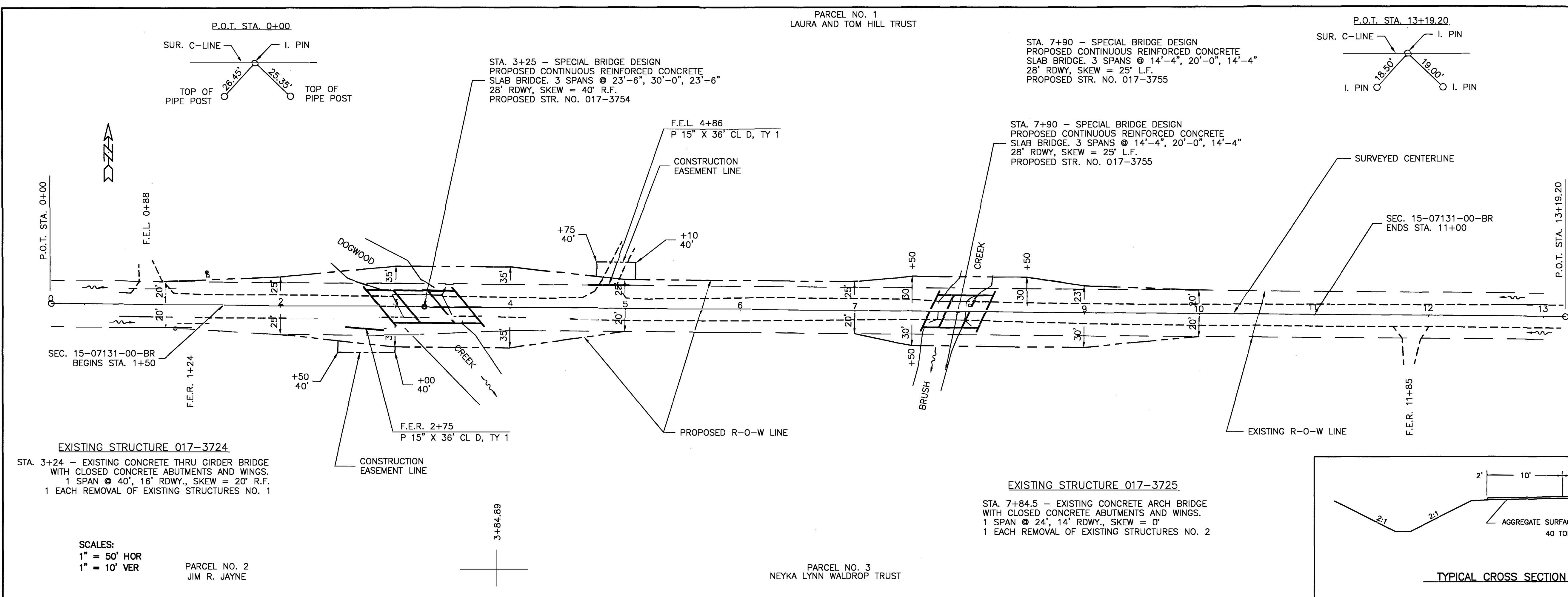
LOCATION MAP

APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH = 950.00 FT. = 0.18 MILES

JOHN A. STONE
062-055012
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS
ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 55012
LICENSE EXPIRES NOVEMBER 30, 2019
PROFESSIONAL DESIGN FIRM #184-000832
05/18/2018

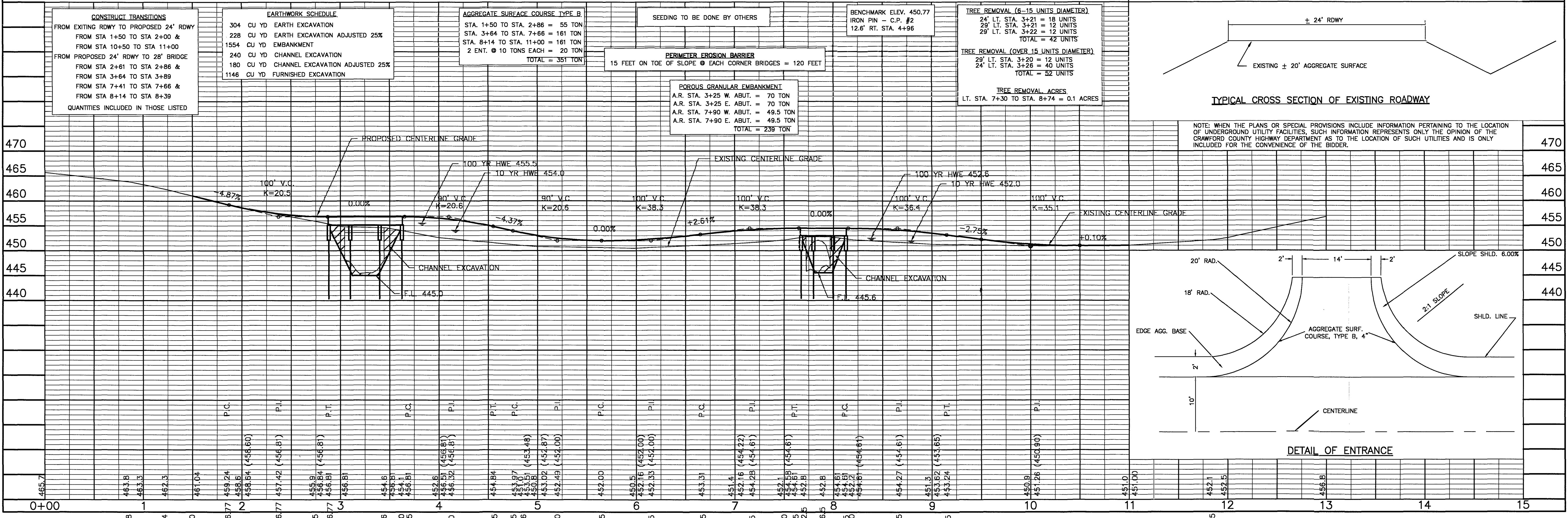
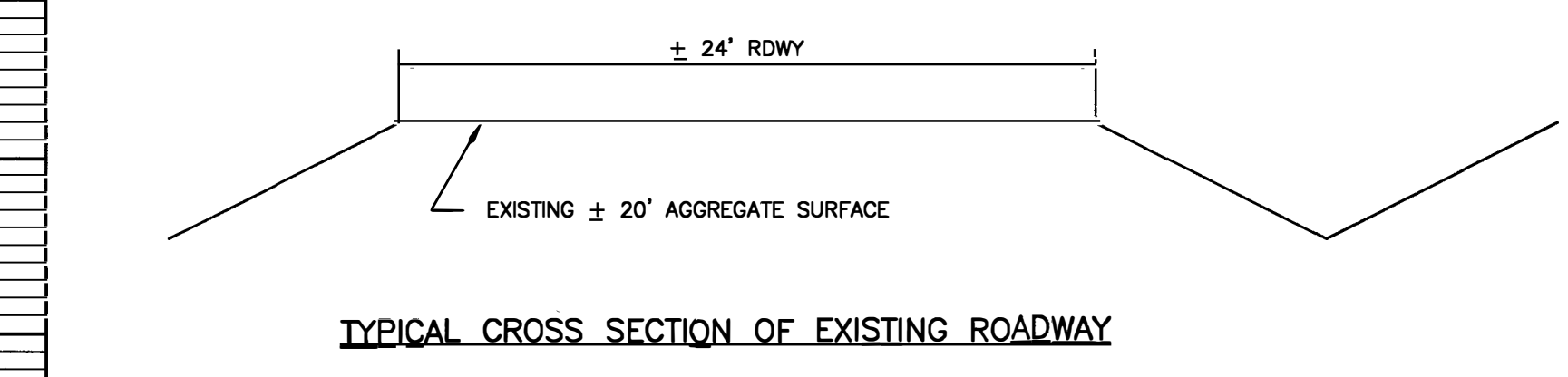
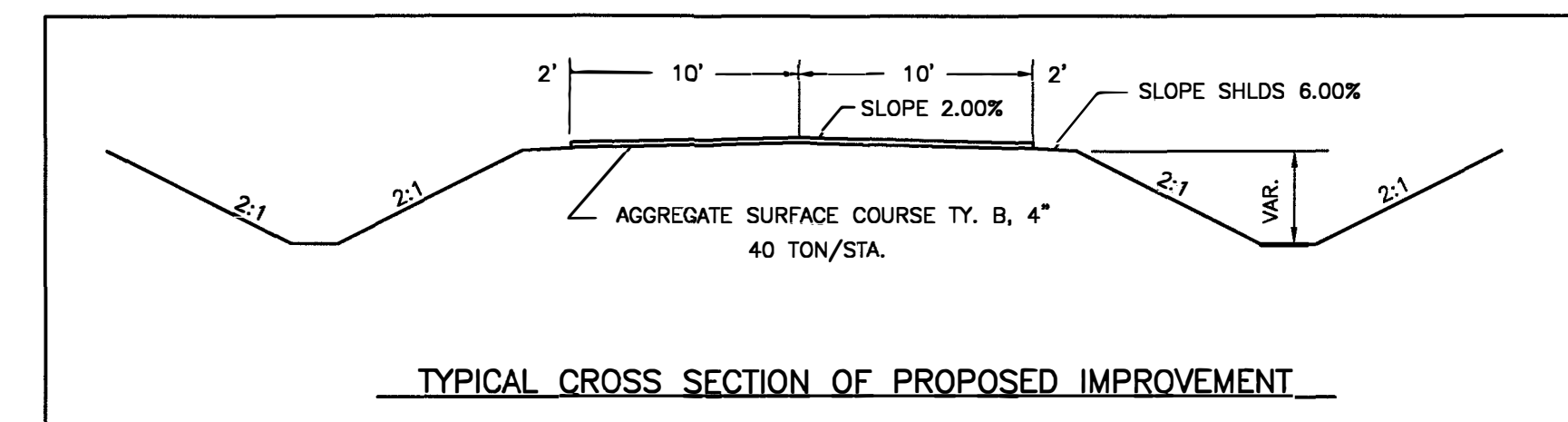
ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED:	<u>March 12, 2018</u> <u>James R. Child</u> CRAWFORD COUNTY ENGINEER
PASSED:	<u>OCT 24, 2018</u> <u>J.A. Phillips</u> DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	<u>OCT 24, 2018</u> <u>Jeffrey M. South</u> REGION FOUR ENGINEER

SECTION	15-07131-00-BR	TOTAL SHEETS	25	SHEET NO.	2
COUNTY	CRAWFORD				
ROAD DIST.	OBLONG				
	STA. 0+00	TO STA.	13+19.20		
CONTRACT 95839					

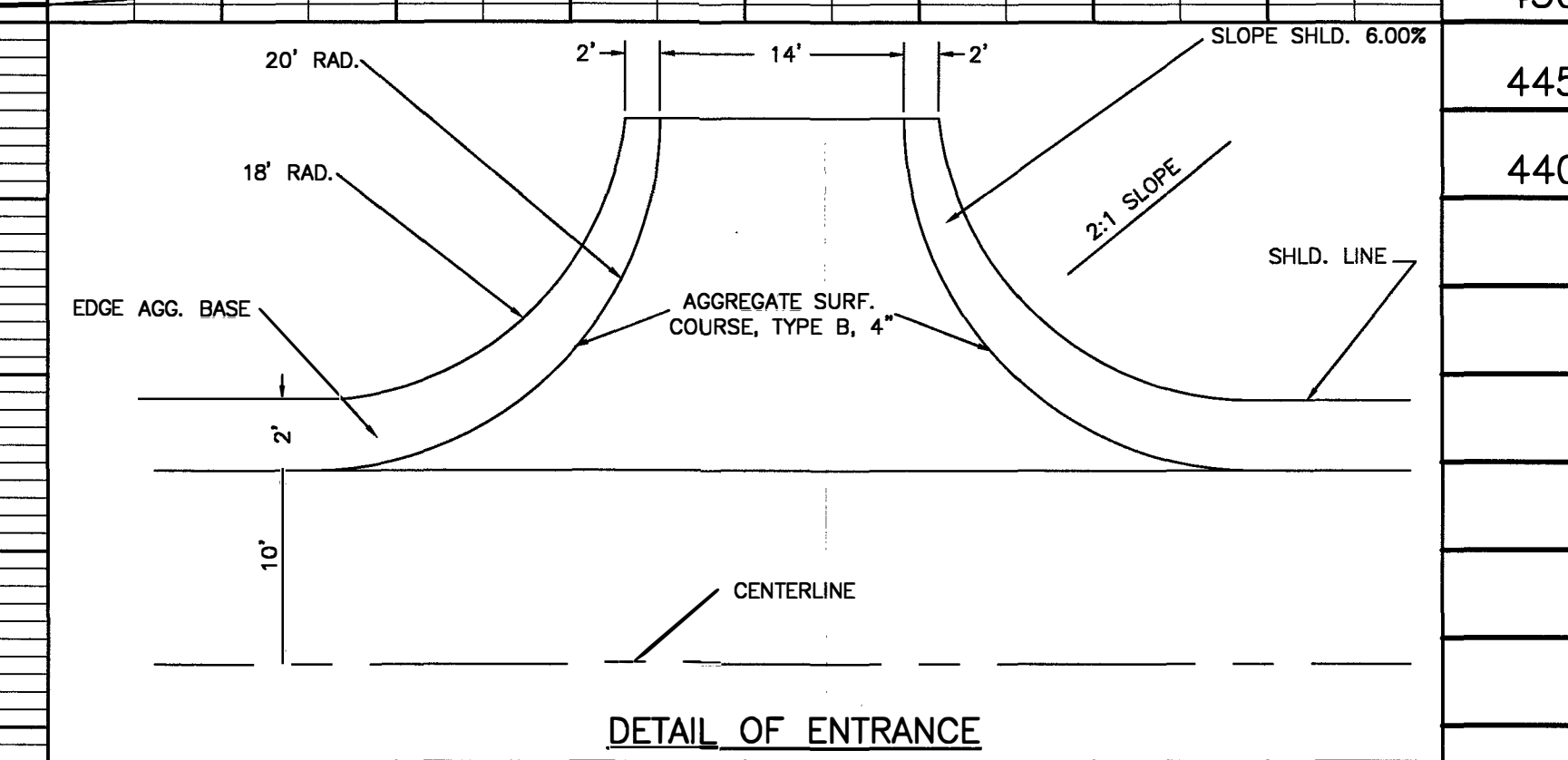


EXISTING STRUCTURE 017-3724
 STA. 3+24 - EXISTING CONCRETE THRU GIRDER BRIDGE WITH CLOSED CONCRETE ABUTMENTS AND WINGS. 1 SPAN @ 40', 16' RDWY., SKEW = 20° R.F. 1 EACH REMOVAL OF EXISTING STRUCTURES NO. 1

EXISTING STRUCTURE 017-3725
 STA. 7+84.5 - EXISTING CONCRETE ARCH BRIDGE WITH CLOSED CONCRETE ABUTMENTS AND WINGS. 1 SPAN @ 24', 14' RDWY., SKEW = 0° 1 EACH REMOVAL OF EXISTING STRUCTURES NO. 2



NOTE: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE CRAWFORD COUNTY HIGHWAY DEPARTMENT AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER.



SCALES:
 1" = 50' HOR
 1" = 10' VER

PARCEL NO. 2
 JIM R. JAYNE

PARCEL NO. 3
 NEYKA LYNN WALDROP TRUST

CONSTRUCT TRANSITIONS

FROM EXISTING RDWY TO PROPOSED 24' RDWY
FROM STA 1+50 TO STA 2+00 & FROM STA 10+50 TO STA 11+00
FROM PROPOSED 24' RDWY TO 28' BRIDGE
FROM STA 2+61 TO STA 2+86 & FROM STA 3+64 TO STA 3+89
FROM STA 7+41 TO STA 7+66 & FROM STA 8+14 TO STA 8+39
QUANTITIES INCLUDED IN THOSE LISTED

EARTHWORK SCHEDULE

304 CU YD EARTH EXCAVATION
228 CU YD EARTH EXCAVATION ADJUSTED 25%
1554 CU YD EMBANKMENT
240 CU YD CHANNEL EXCAVATION
180 CU YD CHANNEL EXCAVATION ADJUSTED 25%
1146 CU YD FURNISHED EXCAVATION

AGGREGATE SURFACE COURSE TYPE B

STA. 1+50 TO STA. 2+86 = 55 TON
STA. 3+64 TO STA. 7+66 = 161 TON
STA. 8+14 TO STA. 11+00 = 161 TON
2 ENT. @ 10 TONS EACH = 20 TON
TOTAL = 351 TON

SEEDING TO BE DONE BY OTHERS

15 FEET ON TOE OF SLOPE @ EACH CORNER BRIDGES = 120 FEET
--

BENCHMARK ELEV. 450.77

IRON PIN - C.P. #2
12.6' RT. STA. 4+96

TREE REMOVAL (6-15 UNITS DIAMETER)

24' LT. STA. 3+21 = 18 UNITS
29' LT. STA. 3+21 = 12 UNITS
29' LT. STA. 3+22 = 12 UNITS
TOTAL = 42 UNITS

TREE REMOVAL (OVER 15 UNITS DIAMETER)

29' LT. STA. 3+20 = 12 UNITS
24' LT. STA. 3+26 = 40 UNITS
TOTAL = 52 UNITS

TREE REMOVAL ACRES

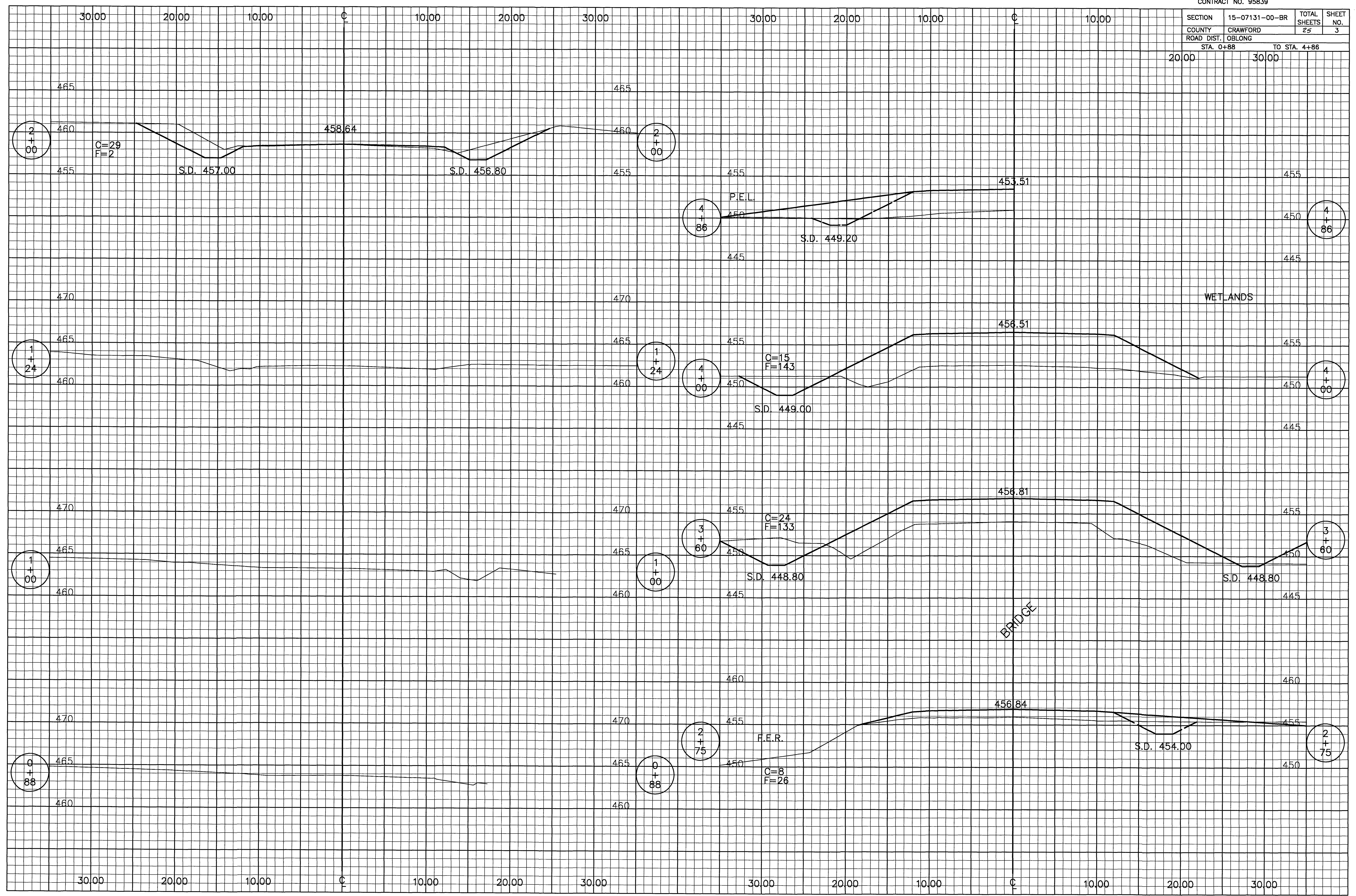
LT. STA. 7+30 TO STA. 8+74 = 0.1 ACRES
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POROUS GRANULAR EMBANKMENT

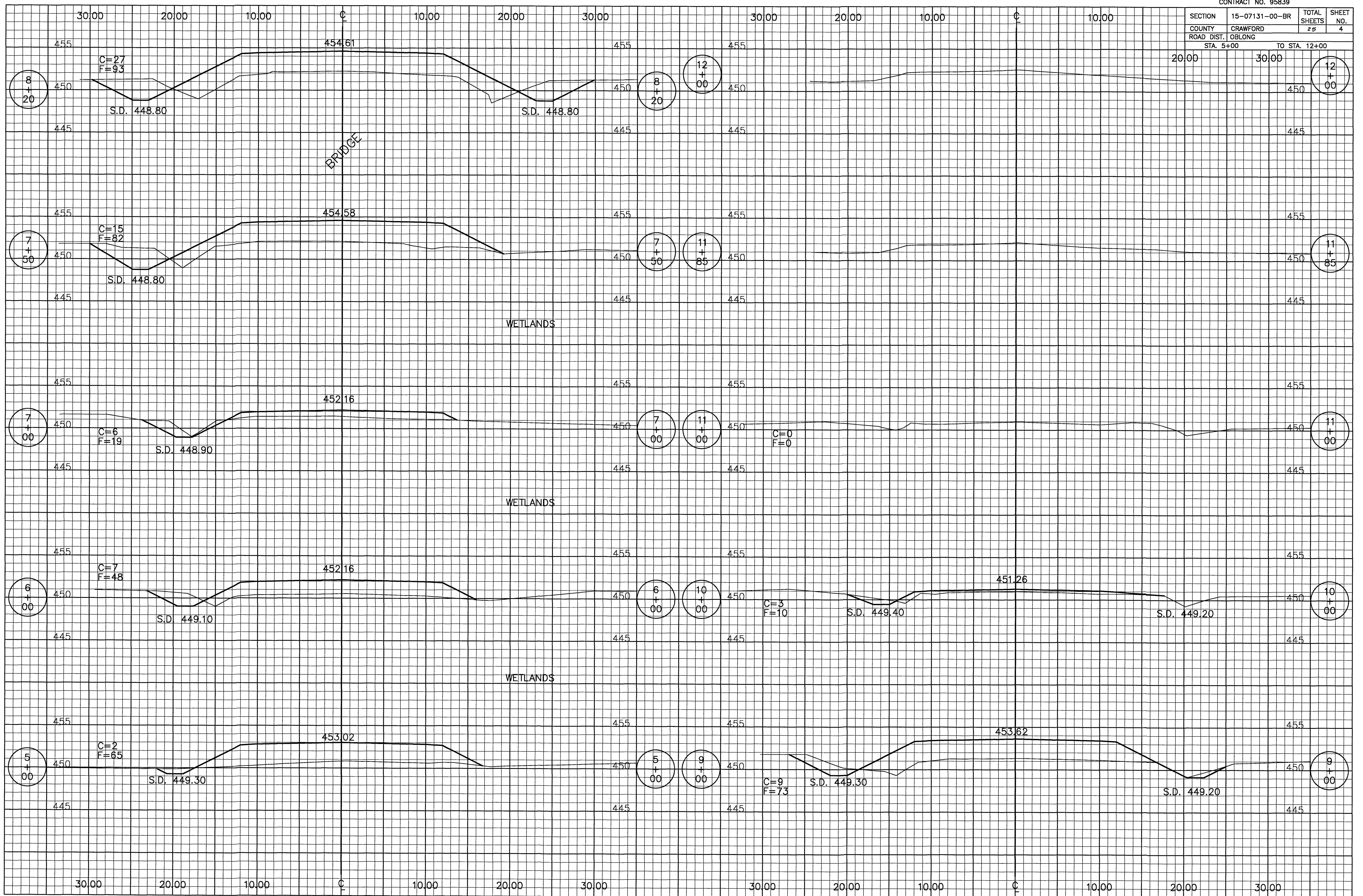
A.R. STA. 3+25 W. ABUT. = 70 TON
A.R. STA. 3+25 E. ABUT. = 70 TON
A.R. STA. 7+90 W. ABUT. = 49.5 TON
A.R. STA. 7+90 E. ABUT. = 49.5 TON
TOTAL = 239 TON

Stationing: 0+00, +88, +24, +50, +86.77, +88.84, +36.77, +75, +86.77, +46, +60, +65, +10, +55, +75, +86, +20, +65, +15, +65, +15, +50, +65, +72.5, +96.5, +100, +65, +15, +10, +65, +15, +11, +85, +12, +13, +14, +15

SECTION	15-07131-00-BR	TOTAL SHEETS	25	SHEET NO.	3
COUNTY	CRAWFORD				
ROAD DIST.	OBLONG				
STA. 0+88		TO STA. 4+86			



SECTION	15-07131-00-BR	TOTAL SHEETS	25	SHEET NO.	4
COUNTY	CRAWFORD				
ROAD DIST.	OBLONG				
STA. 5+00		TO STA. 12+00			

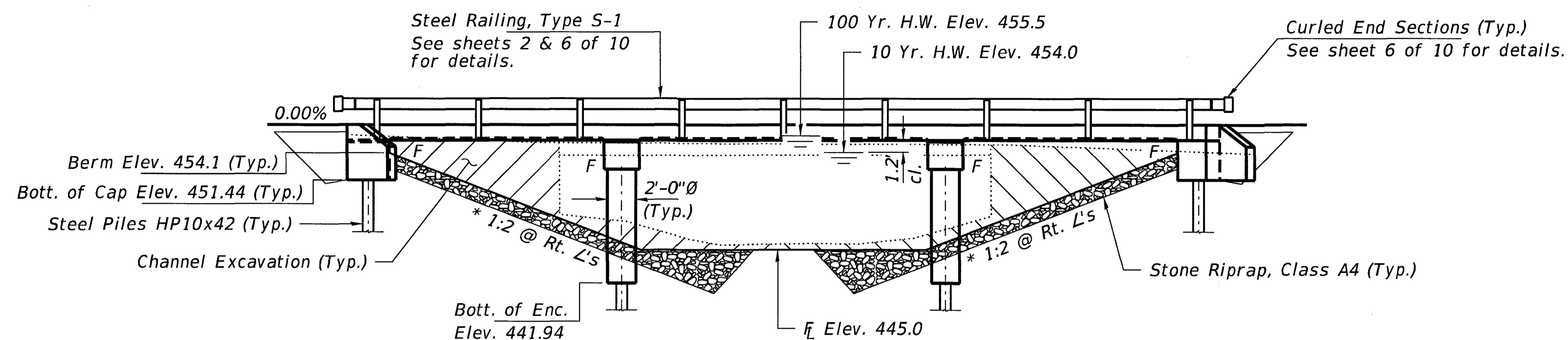


BENCHMARK:

EXISTING STRUCTURE NO. 017-3724: Single span concrete thru girder bridge with closed concrete abutments and wingwalls. 40.0 fc. - fc. abuts. and 16.0' o. - o. deck.

Structure closed to traffic during construction.

No Salvage

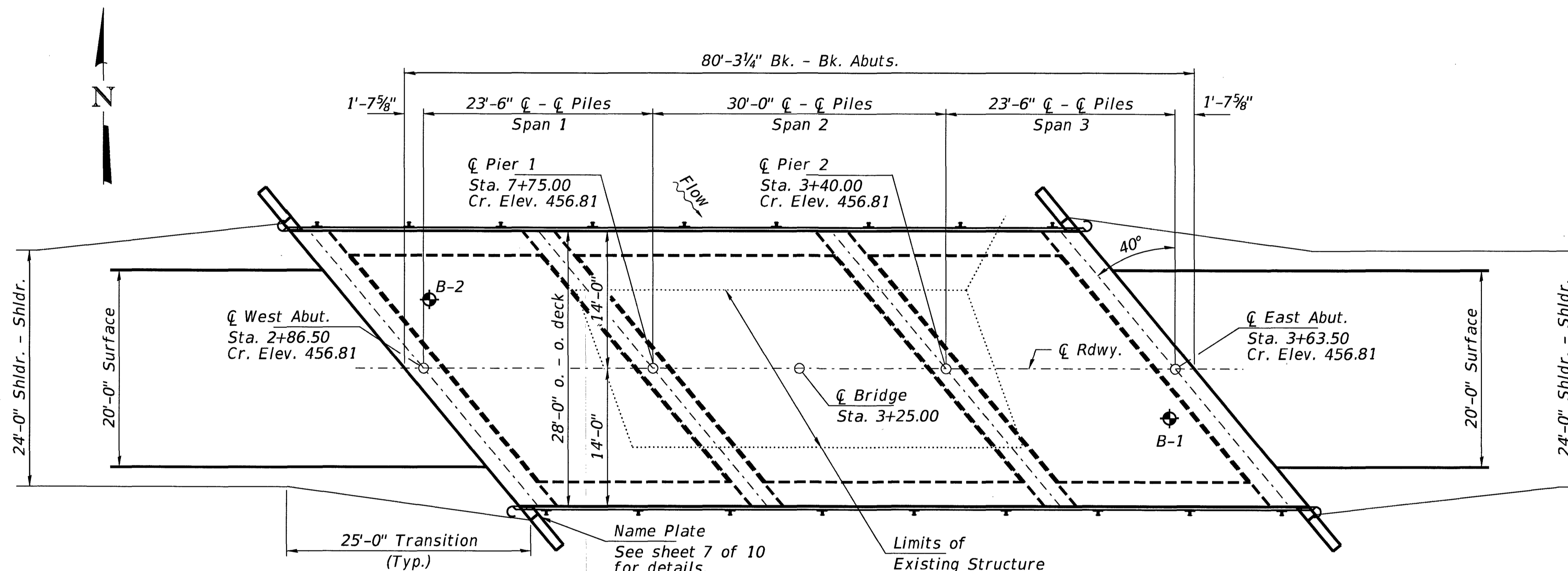


GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
The Contractor shall drive test piles to 110% of the nominal bearing specified in production locations at East Abutment and Pier 1 or approved by the Engineer before ordering the remainder of piles.
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 Contractor shall make allowance for the deflection of forms, shrinkage, and settlement of falsework, in addition to allowance for dead load deflection. Forms for deck slab shall be removed prior to placement of bridge approach slab.
Protective Coat shall be applied to the top surface and the sides of the concrete deck and wingwalls.
Reinforcement bars designated (E) shall be epoxy coated.
Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.
Excavation required to construct the Abutments and Piers shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation or Cofferdam Excavation.

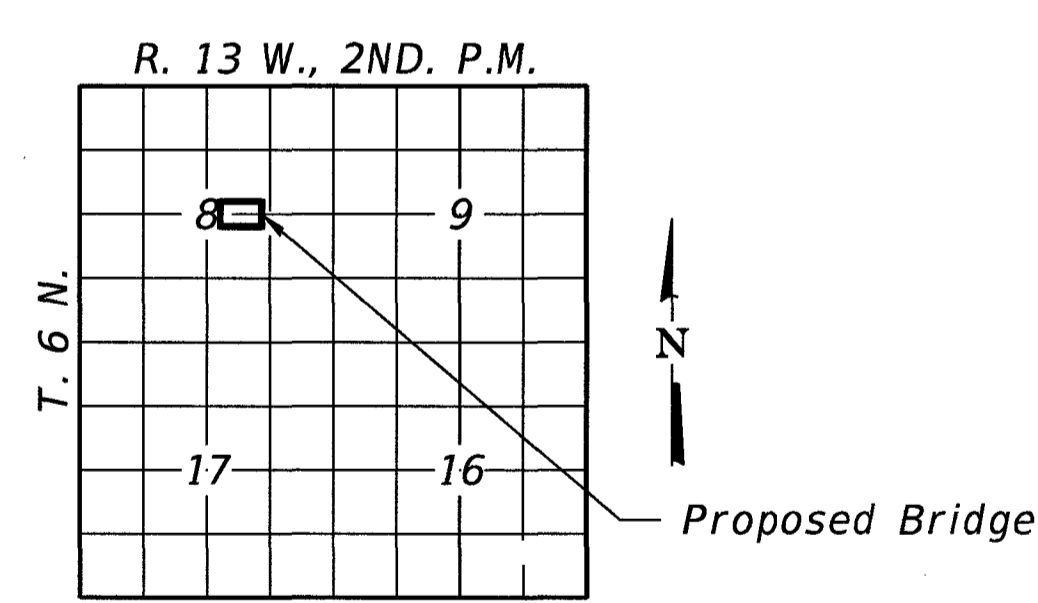
INDEX OF STRUCTURE SHEETS

1. General Plan & Elevation
2. General Details
3. Top of Slab Elevations
4. Superstructure
5. Superstructure Details
6. Steel Railing, Type S-1
7. Abutments
8. Piers
9. HP Pile Details
10. Borings



DOGWOOD CREEK
BUILT 201 BY
CRAWFORD COUNTY
SEC. 15-07131-00-BR
STATION 3+25
STR. NO. 017-3754
LOADING HL-93

NAME PLATE
See Std. 515001



LOCATION SKETCH

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.150g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.375g
Soil Site Class = C

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications, 8th Edition with all interims.

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

FIELD UNITS

f_c = 4,000 psi (Superstructure)
f_c = 3,500 psi (Substructure)
f_y = 60,000 psi (Reinf.)
f_y = 50,000 psi (Steel H-Pile) (M270 Gr. 50)

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elevations (ft.)				Item 113
	W. Abut.	Pier 1	Pier 2	E. Abut.	
Q100	451.4	438.6	438.6	451.4	8
Q200	451.4	438.6	438.6	451.4	
Design	451.4	438.6	438.6	451.4	
Check	451.4	438.6	438.6	451.4	

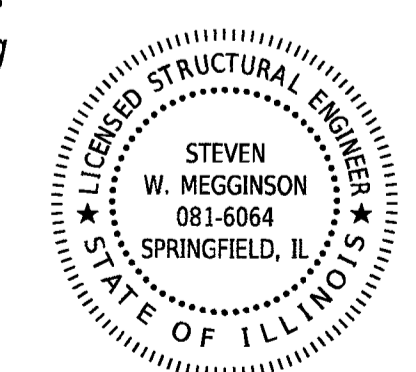
WATERWAY INFORMATION

Drainage Area = 13.9 Mi ²		Existing Low Grade Elev. 450.50 @ Sta. 6+00		Proposed Low Grade Elev. 452.16 @ Sta. 6+00	
Flood	Freq. Yr.	Q C.F.S.	Opening Ft ²	Nat. H.W.E.	Head - Ft. Headwater El.
Design	10	2040	271	310	454.0
Base	100	3760	271	371*	455.5

* Low water approach to remain

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 LRFD Specifications."

Steven W. Megginson 10/05/2018
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064

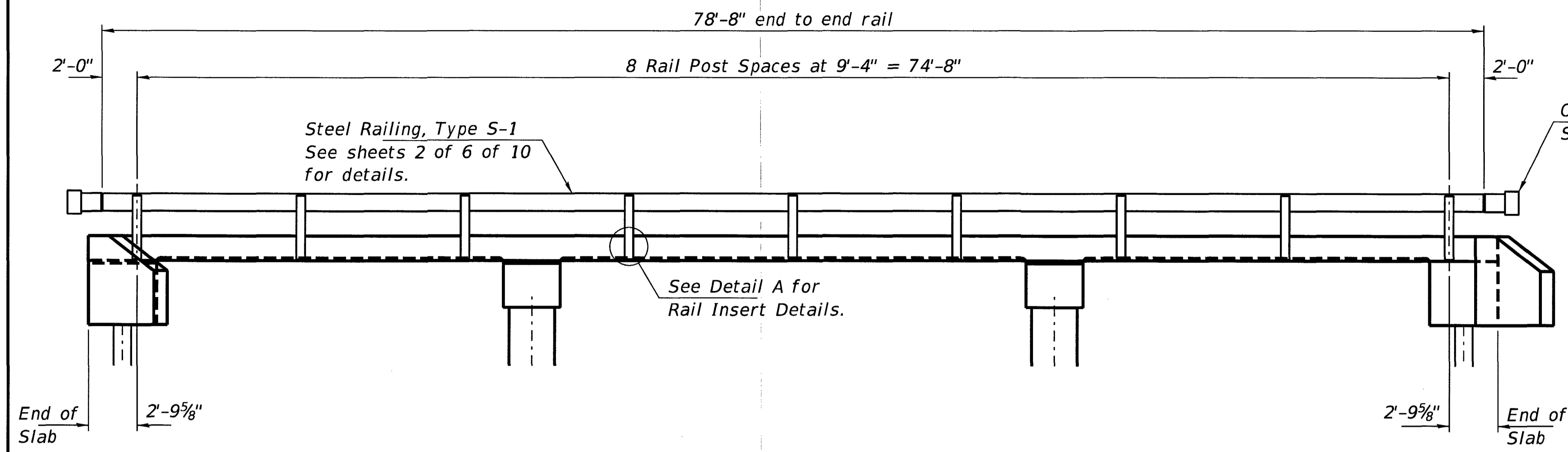


Expires 11-30-2020

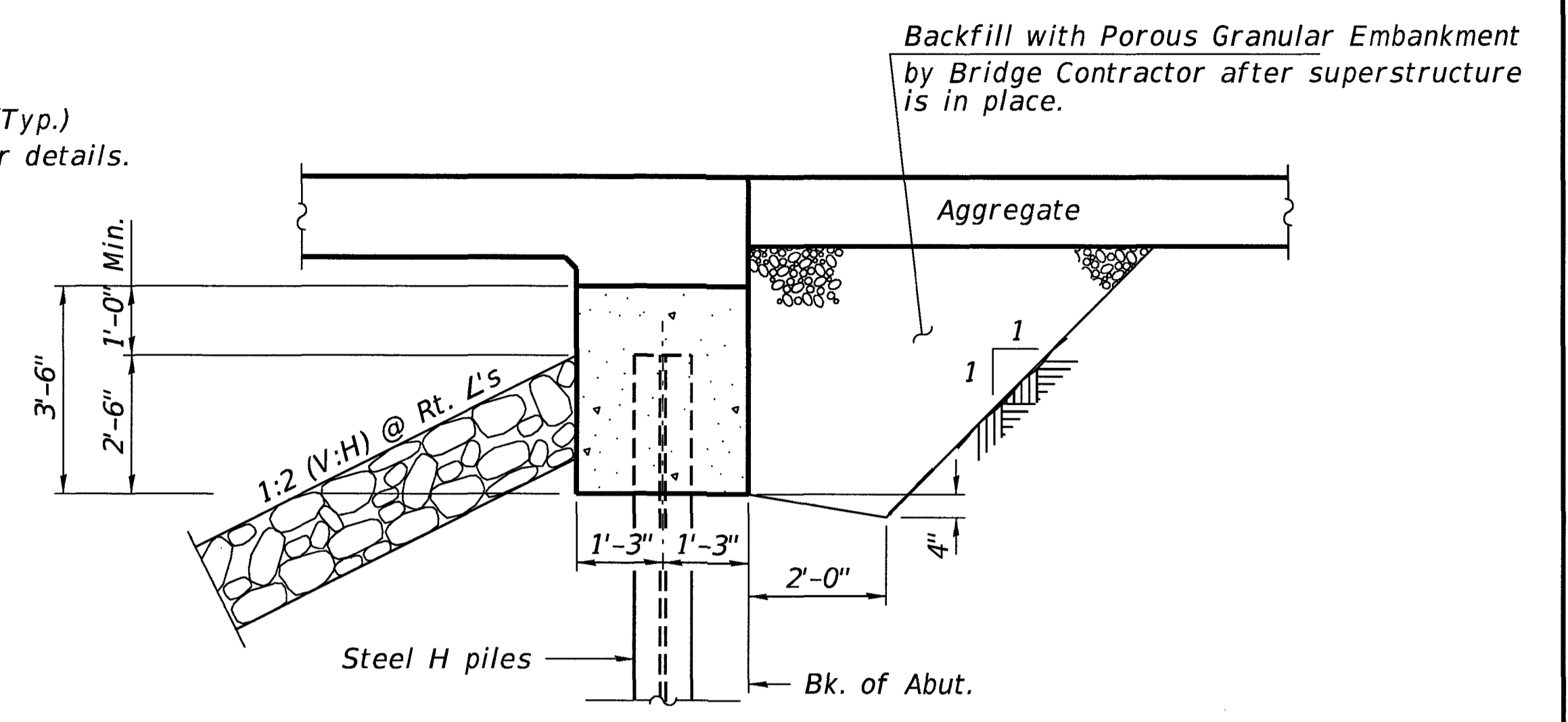
GENERAL PLAN & ELEVATION

T.R. 193
OVER DOGWOOD CREEK
SECTION 15-07131-00-BR
CRAWFORD COUNTY
STATION 3+25.00
STRUCTURE NO. 017-3754

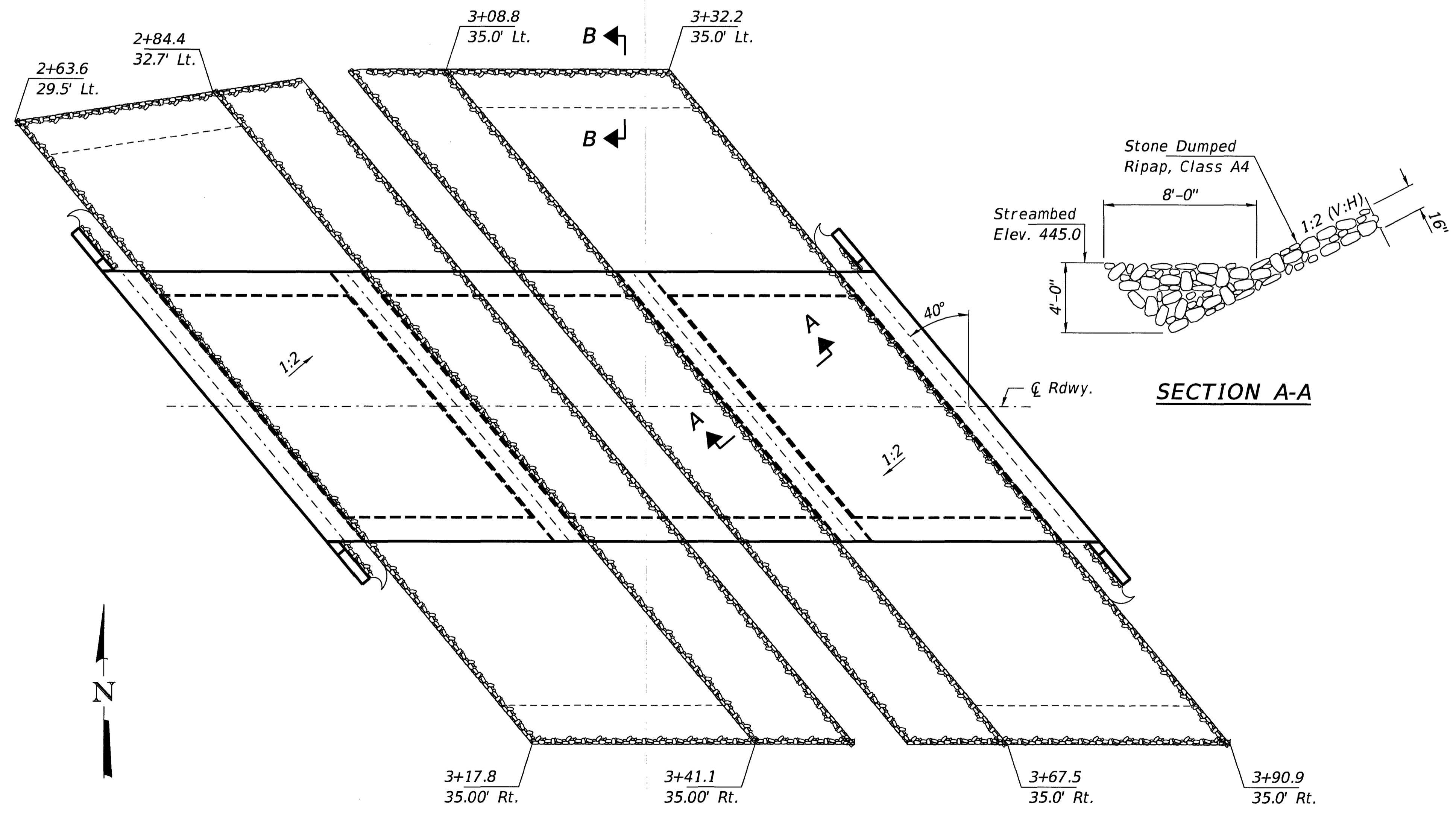
FILE NAME = 170205-ah-bridge-3754.dgn	USER NAME = rmosick	DESIGNED - W.T.A.	REVISIONS -	STATE OF ILLINOIS CRAWFORD COUNTY HIGHWAY DEPARTMENT	GENERAL PLAN AND ELEVATION STRUCTURE NO. 017-3754	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3008 STEVENSON DRIVE, SUITE 207 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE = \$SCALES	CHECKED - S.W.M.	REVISIONS -			193	15-07131-00-BR	CRAWFORD	25	5	
ILLINOIS PROFESSIONAL DESIGN FIRM 13 / PE / SE CORP. 184.000989	PLOT DATE = 10/05/2018	DRAWN - D.A.B.	REVISIONS -			OBLONG ROAD DISTRICT	CONTRACT NO. 95839	ILLINOIS FED. AID PROJECT			
		CHECKED - S.W.M.	REVISIONS -			SHEET NO. 1 OF 10 SHEETS					



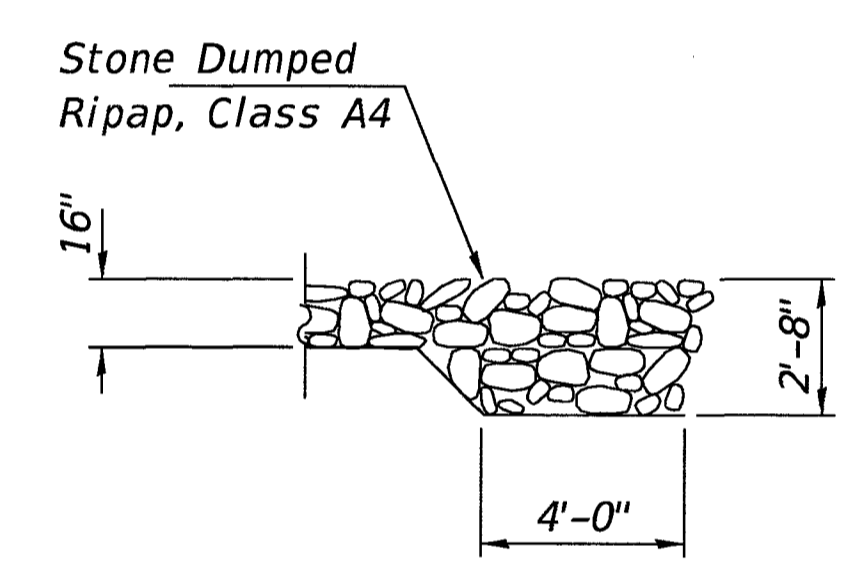
RAILING ELEVATION



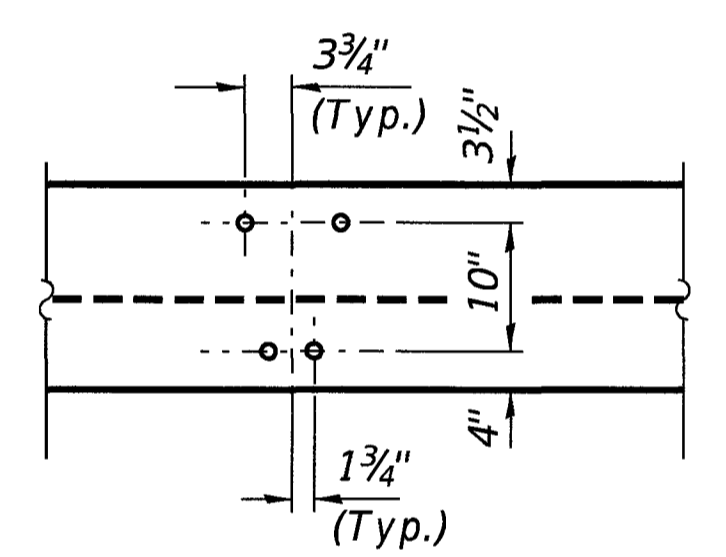
SECTION THRU INTEGRAL ABUTMENT
(Horiz. dim. @ Rt. L's)



RIPRAP PLAN



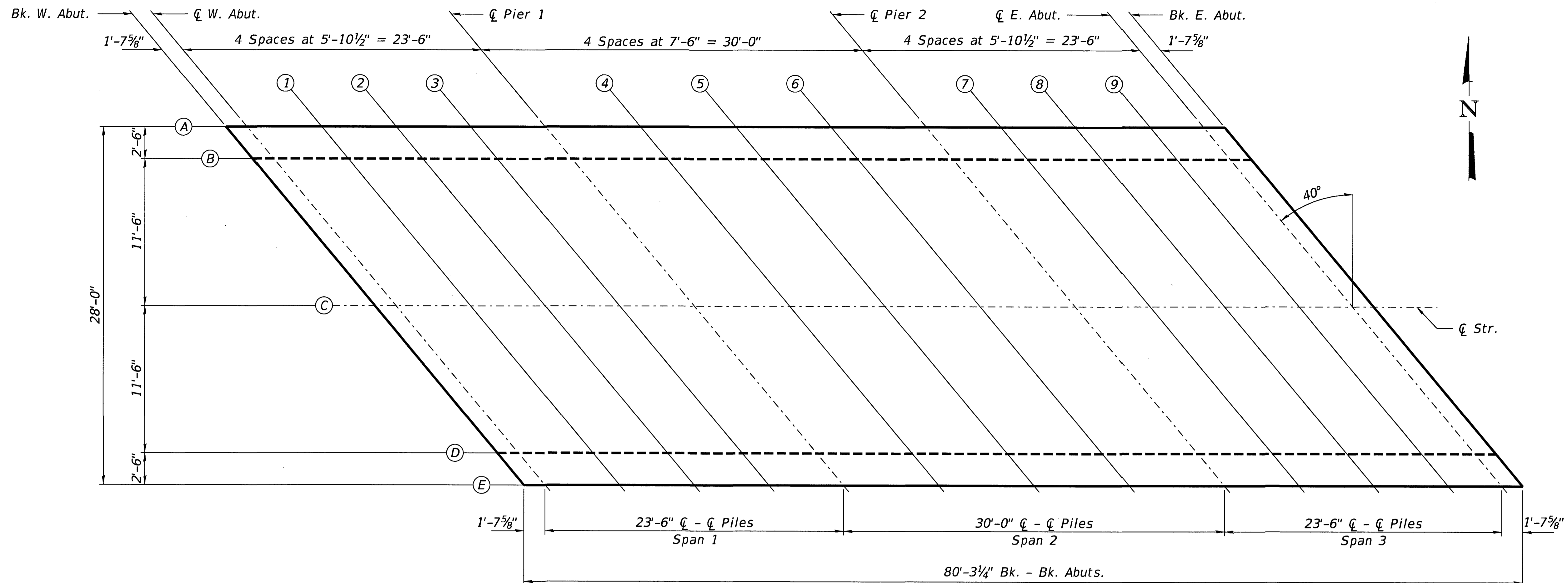
SECTION B-B



DETAIL A

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			165
Porous Granular Embankment	Ton			140
Stone Dumped Riprap, Class A4	Ton			390
Protective Coat	Sq. Yd.	275	16	291
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		44.8	44.8
Concrete Superstructure	Cu. Yd.	108.0		108.0
Concrete Encasement	Cu. Yd.		11.9	11.9
Reinforcement Bars, Epoxy Coated	Pound	52,430	7,510	59,940
Steel Railing, Type S-1	Foot	157		157
Furnishing Steel Piles HP10x42	Foot		720	720
Driving Piles	Foot		720	720
Test Pile Steel HP10x42	Each		2	2
Name Plates	Each	1		1
Terminal Marker - Direct Applied	Each	4		4



PLAN

LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
A	ADJ.	456.518	456.518	456.522	456.522	456.518	456.518	456.522	456.525	456.522	456.518	456.518	456.522	456.522	456.518	456.518
		455.102	455.102	455.105	455.105	455.102	455.102	455.105	455.108	455.105	455.102	455.102	455.105	455.105	455.102	455.102

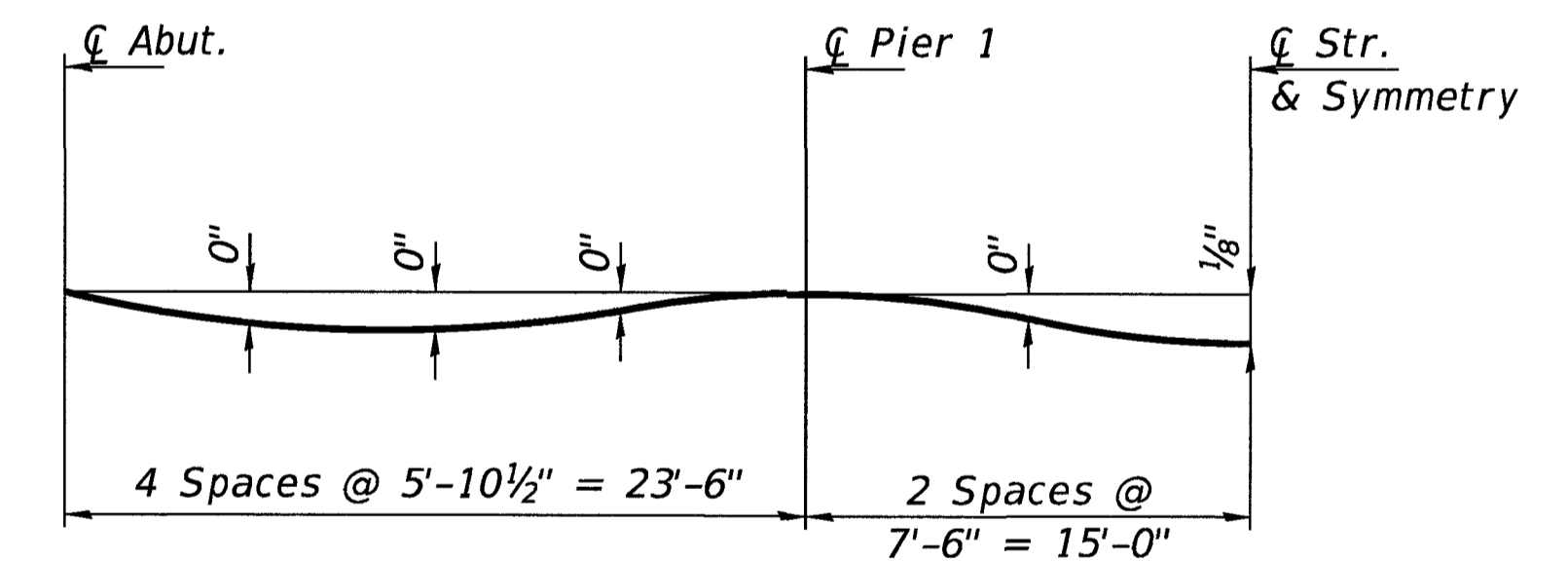
LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
B	ADJ.	456.570	456.570	456.574	456.574	456.570	456.570	456.574	456.577	456.574	456.570	456.570	456.574	456.574	456.570	456.570
		455.404	455.404	455.407	455.407	455.404	455.404	455.407	455.410	455.407	455.404	455.404	455.407	455.407	455.404	455.404

LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
C	ADJ.	456.810	456.810	456.813	456.813	456.810	456.810	456.813	456.817	456.813	456.810	456.810	456.813	456.813	456.810	456.810
		455.643	455.643	455.647	455.647	455.643	455.643	455.647	455.650	455.647	455.643	455.643	455.647	455.647	455.643	455.643

LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
D	ADJ.	456.570	456.570	456.574	456.574	456.570	456.570	456.574	456.577	456.574	456.570	456.570	456.574	456.574	456.570	456.570
		455.404	455.404	455.407	455.407	455.404	455.404	455.407	455.410	455.407	455.404	455.404	455.407	455.407	455.404	455.404

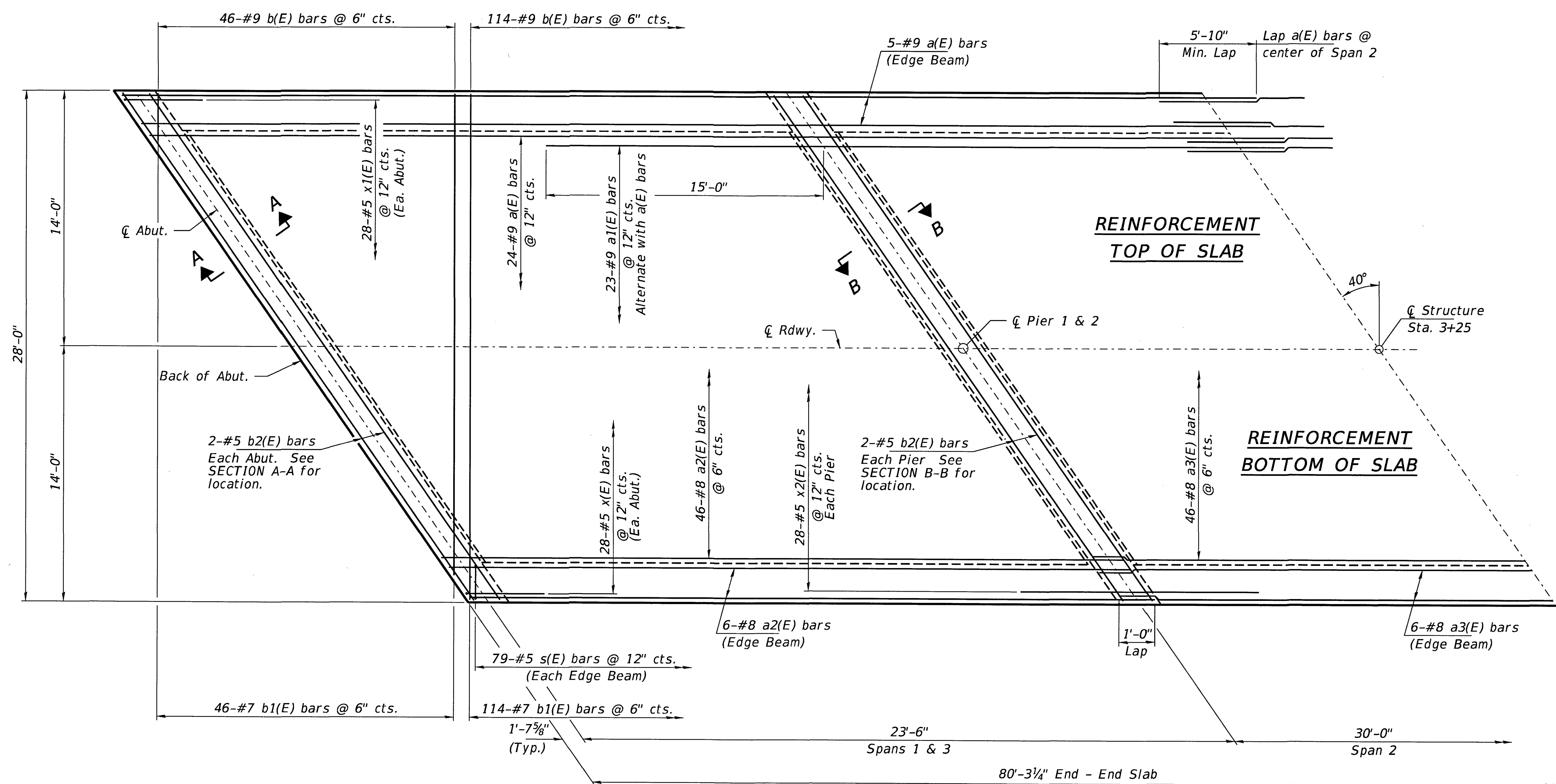
LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
E	ADJ.	456.518	456.518	456.522	456.522	456.518	456.518	456.522	456.525	456.522	456.518	456.518	456.522	456.522	456.518	456.518
		455.102	455.102	455.105	455.105	455.102	455.102	455.105	455.108	455.105	455.102	455.102	455.105	455.105	455.102	455.102

T. - Theoretical elevation at top of slab
 Adj. - T adjusted for dead load deflection
 * Bottom of slab elevation equals bottom of edge beam

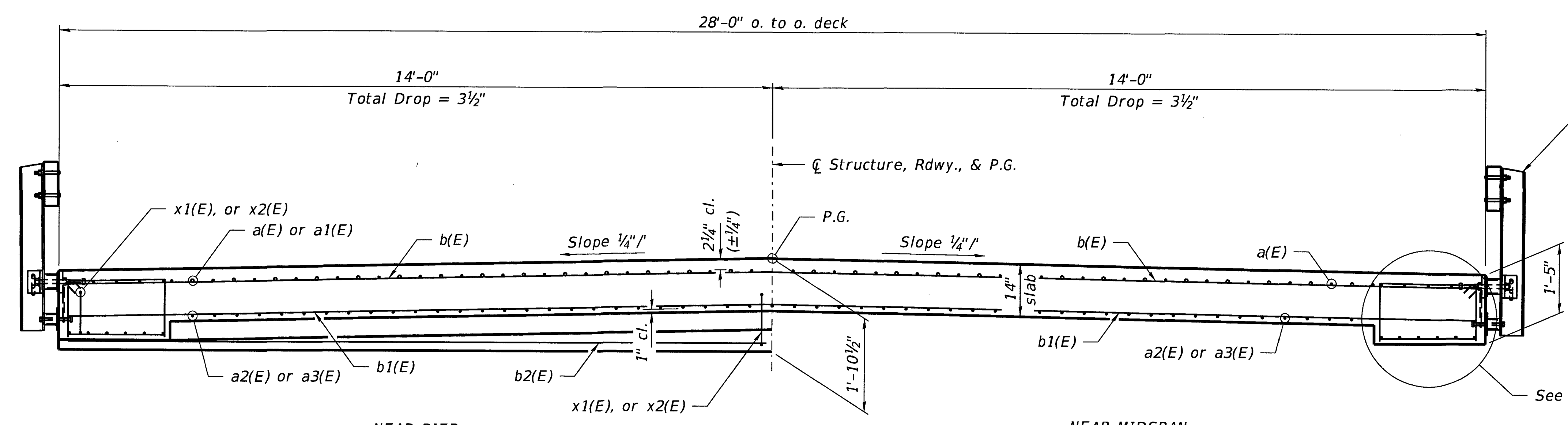


DEAD LOAD DEFLECTION DIAGRAM
 (Includes weight of concrete only.)

Notes:
 The deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown.
 The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework in addition to allowance for dead load deflection.



PLAN



CROSS SECTION
(Looking East)

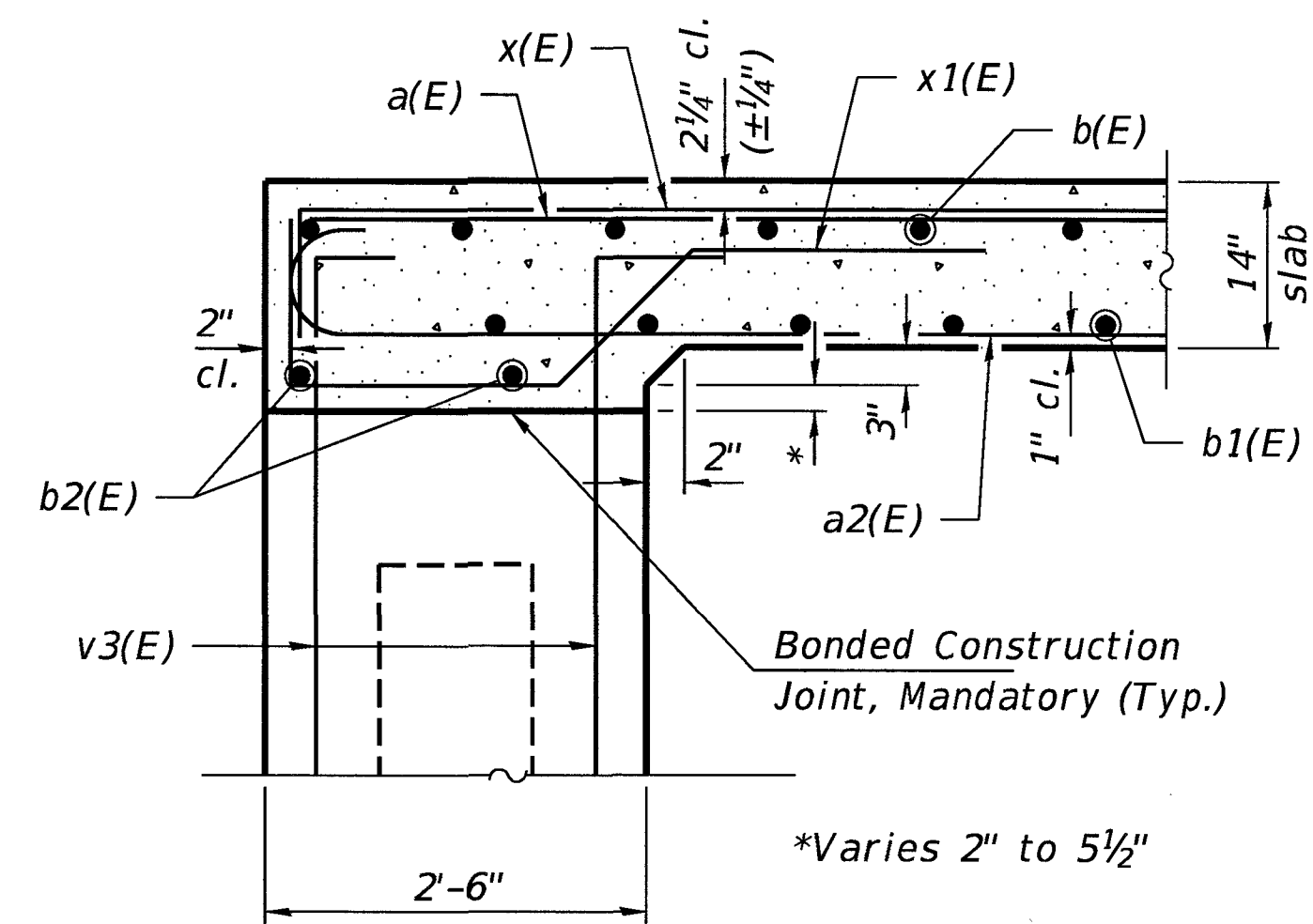
Steel Railing, Type S-1
See sheets 2 & 6
of 10 for details.

Notes:
See sheets 5 of 10 for Superstructure
Details and Bill of Material.
See sheet 5 of 10 for SECTION A-A, SECTION B-B
and DETAIL A.

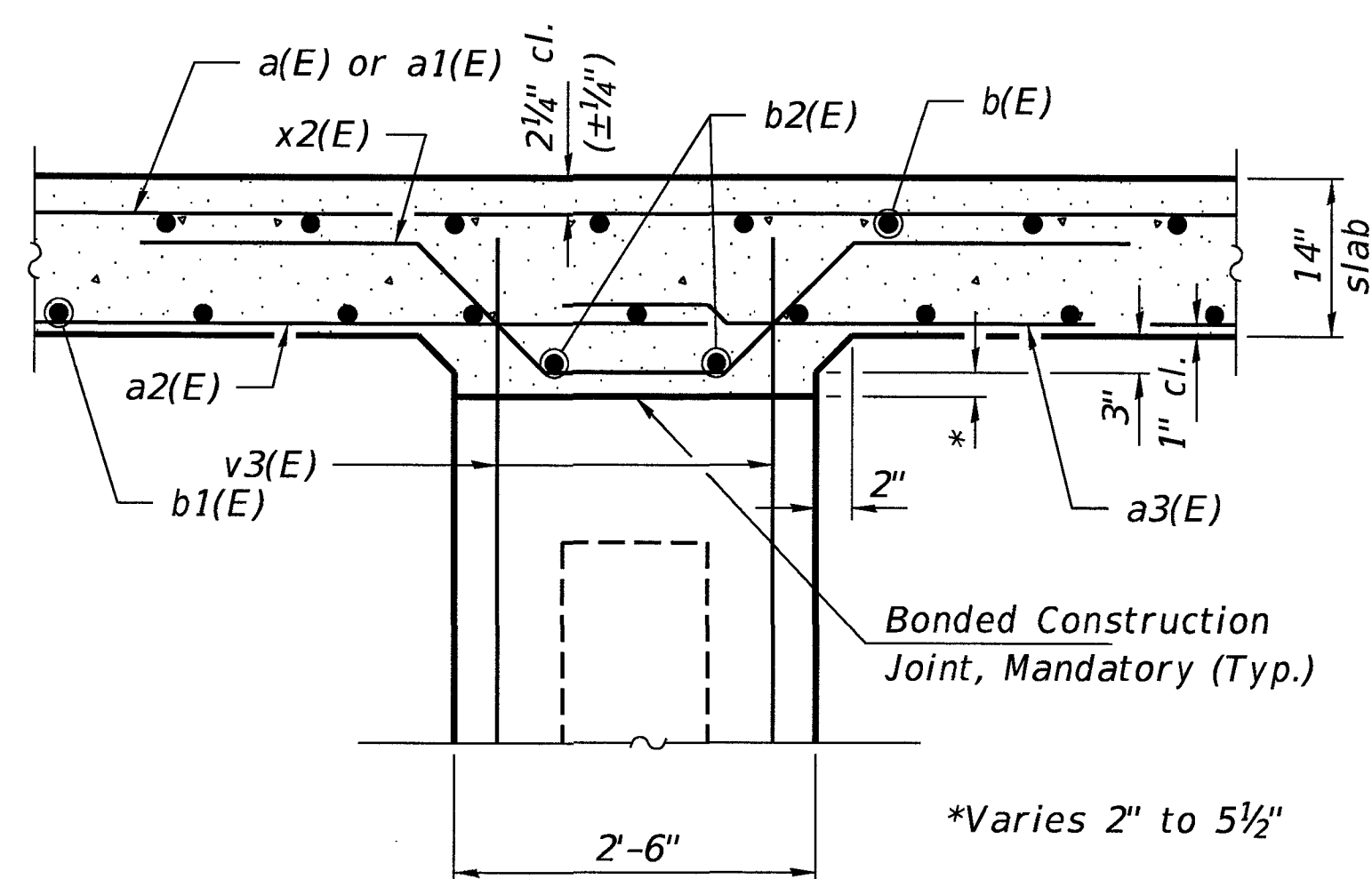
* Order b(E) bars full length. Cut to fit skew
and use remainder of bars in opposite end.

MIN. BAR LAP
#5 = 4'-8"
#9 = 5'-10"

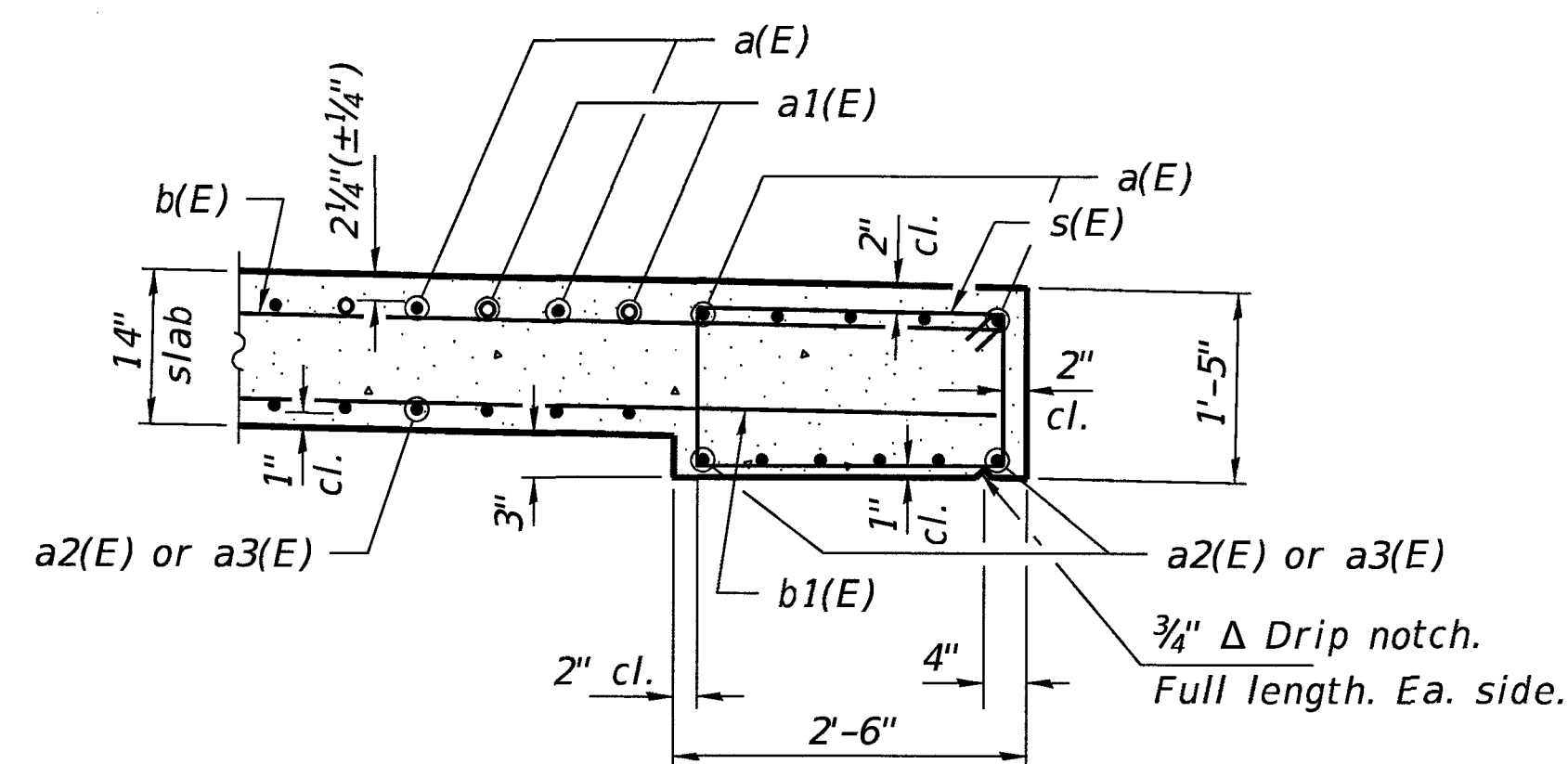
FILE NAME = 170205-eh-bridge-3754.dgn	USER NAME = rhesick	DESIGNED - W.T.A.	REVISD -	STATE OF ILLINOIS CRAWFORD COUNTY HIGHWAY DEPARTMENT	SUPERSTRUCTURE STRUCTURE NO. 017-3754	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3088 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-000956	PLOT SCALE = \$SCALES	CHECKED - S.W.M.	REVISD -			193	15-07131-00-BR	CRAWFORD	25	8	
	PLOT DATE = 10/16/2018	DRAWN - D.A.B.	REVISD -			OBLONG ROAD DISTRICT		CONTRACT NO. 95839			
		CHECKED - S.W.M.	REVISD -			ILLINOIS FED. AID PROJECT					
						SHEET NO. 4 OF 10 SHEETS					



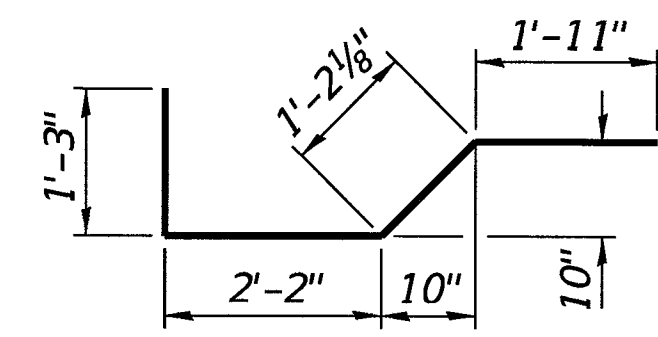
SECTION A-A



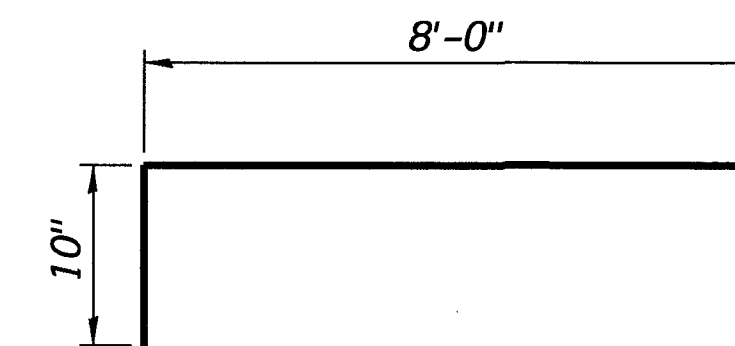
SECTION B-B



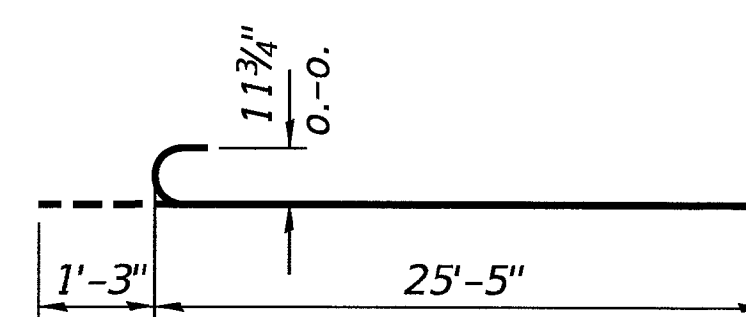
DETAIL A



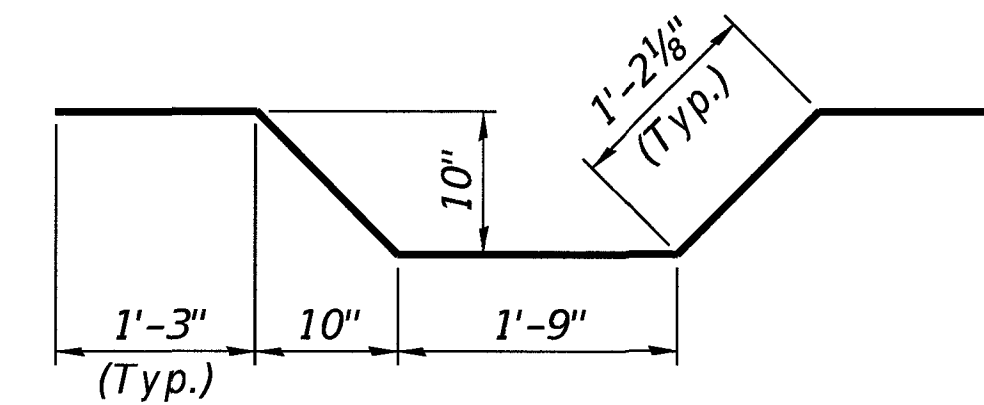
BAR x1(E)



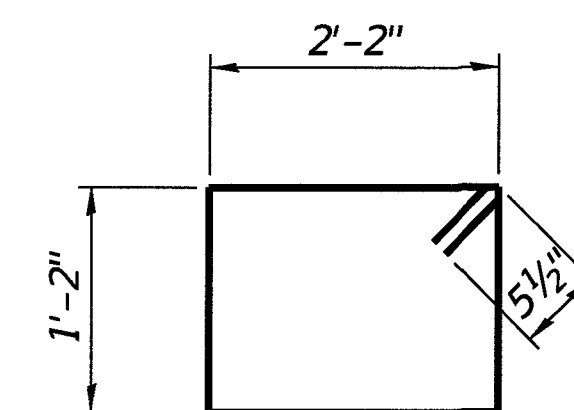
BAR x(E)



BAR a2(E)



BAR x2(E)



BAR s(E)

**SUPERSTRUCTURE
BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
a(E)	68	#9	42'-9"	—
a1(E)	23	#9	32'-4"	—
a2(E)	116	#8	26'-8"	—
a3(E)	58	#8	31'-0"	—
b(E)	160	#9	27'-8"	—
b1(E)	160	#7	27'-8"	—
b2(E)	8	#5	36'-2"	—
s(E)	158	#5	7'-7"	□
x(E)	56	#5	8'-10"	—
x1(E)	56	#5	6'-6"	—
x2(E)	56	#5	7'-1"	—
Protective Coat		Sq. Yd.	275	
Concrete Superstructure		Cu. Yd.	108.0	
Reinforcement Bars, Epoxy Coated		Pound	52,430	
Name Plates		Each	1	

FILE NAME = 170205-shl-bridge-3754.dgn
 HAMPTON, LENZINI AND RENWICK, INC.
 3085 STEVENSON DRIVE, SUITE 201
 SPRINGFIELD, ILLINOIS 62703
 ILLINOIS PROFESSIONAL DESIGN FIRM
 LS / PE / SE CORP. 184-000069

USER NAME = rhoelck
 PLOT SCALE = \$SCALES
 PLOT DATE = 10/5/2018

DESIGNED - W.T.A.
 CHECKED - S.W.M.
 DRAWN - D.A.B.
 CHECKED - S.W.M.

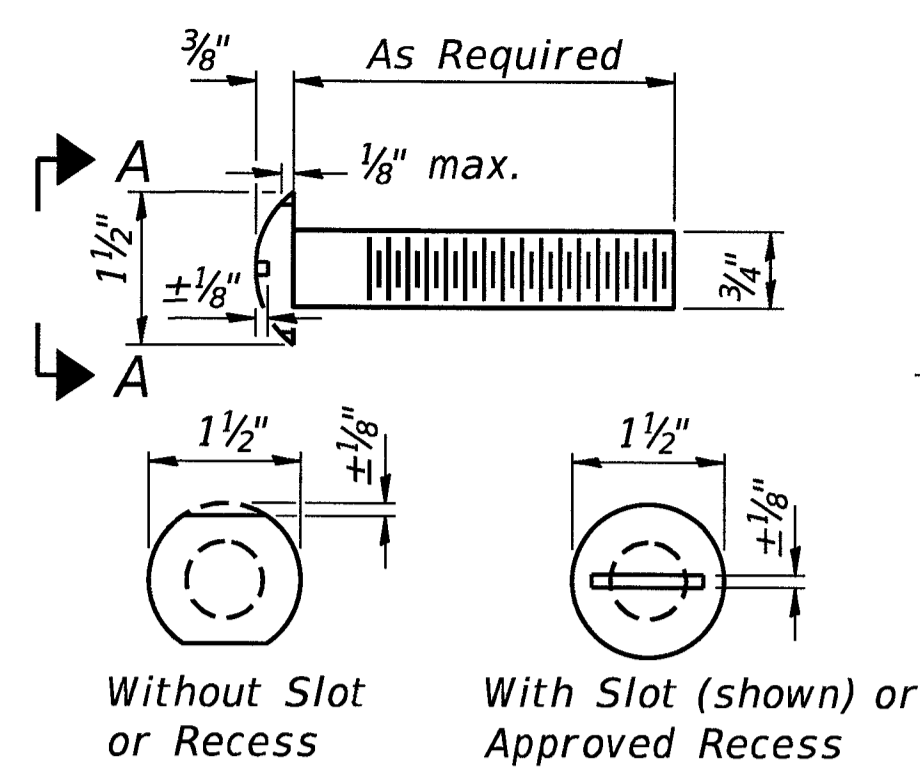
REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 CRAWFORD COUNTY HIGHWAY DEPARTMENT

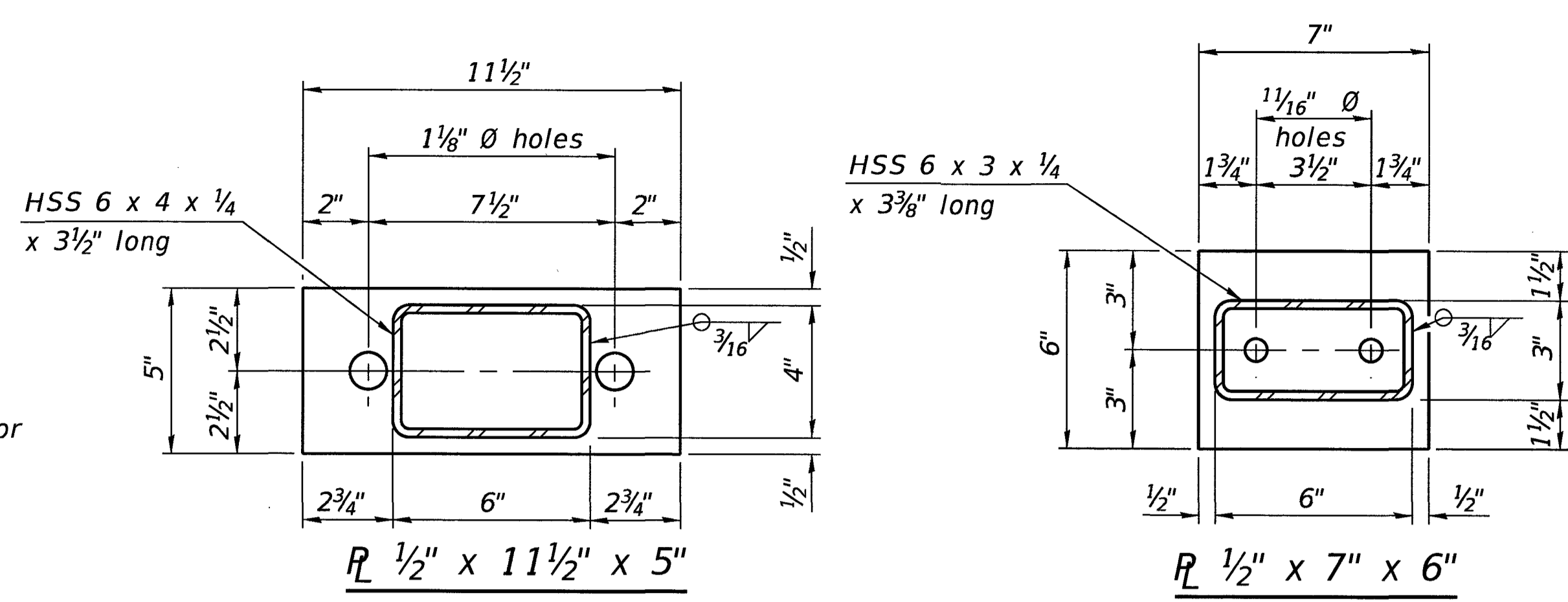
SUPERSTRUCTURE DETAILS
 STRUCTURE NO. 017-3754

SHEET NO. 5 OF 10 SHEETS

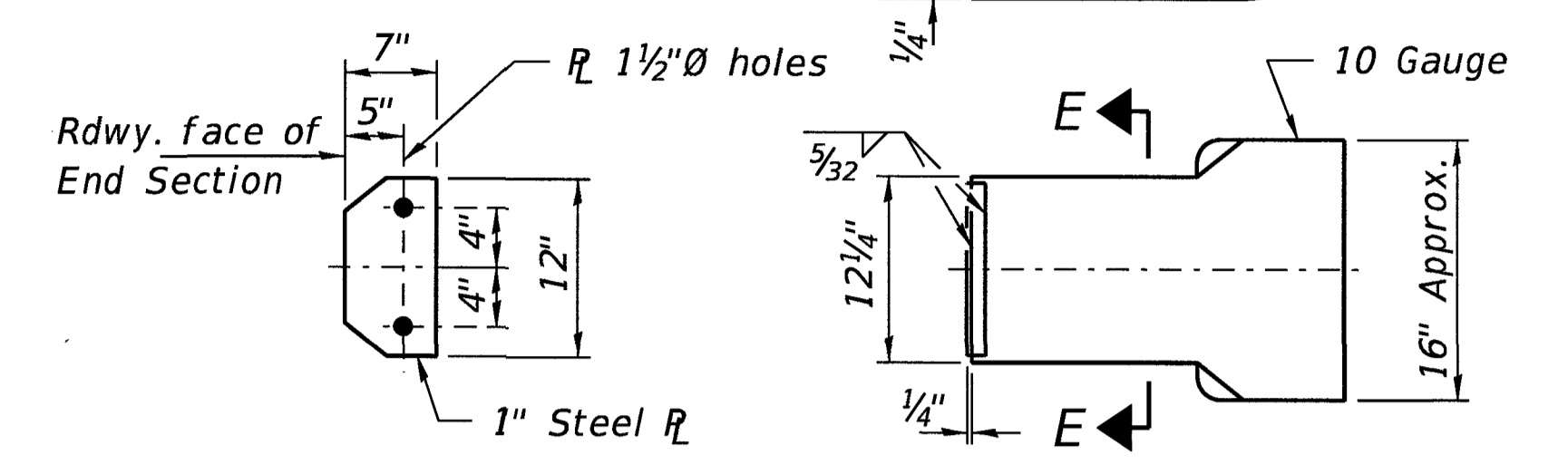
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
193	15-07131-00-BR	CRAWFORD	25	9
OBLONG ROAD DISTRICT			CONTRACT NO. 95839	
ILLINOIS FED. AID PROJECT				



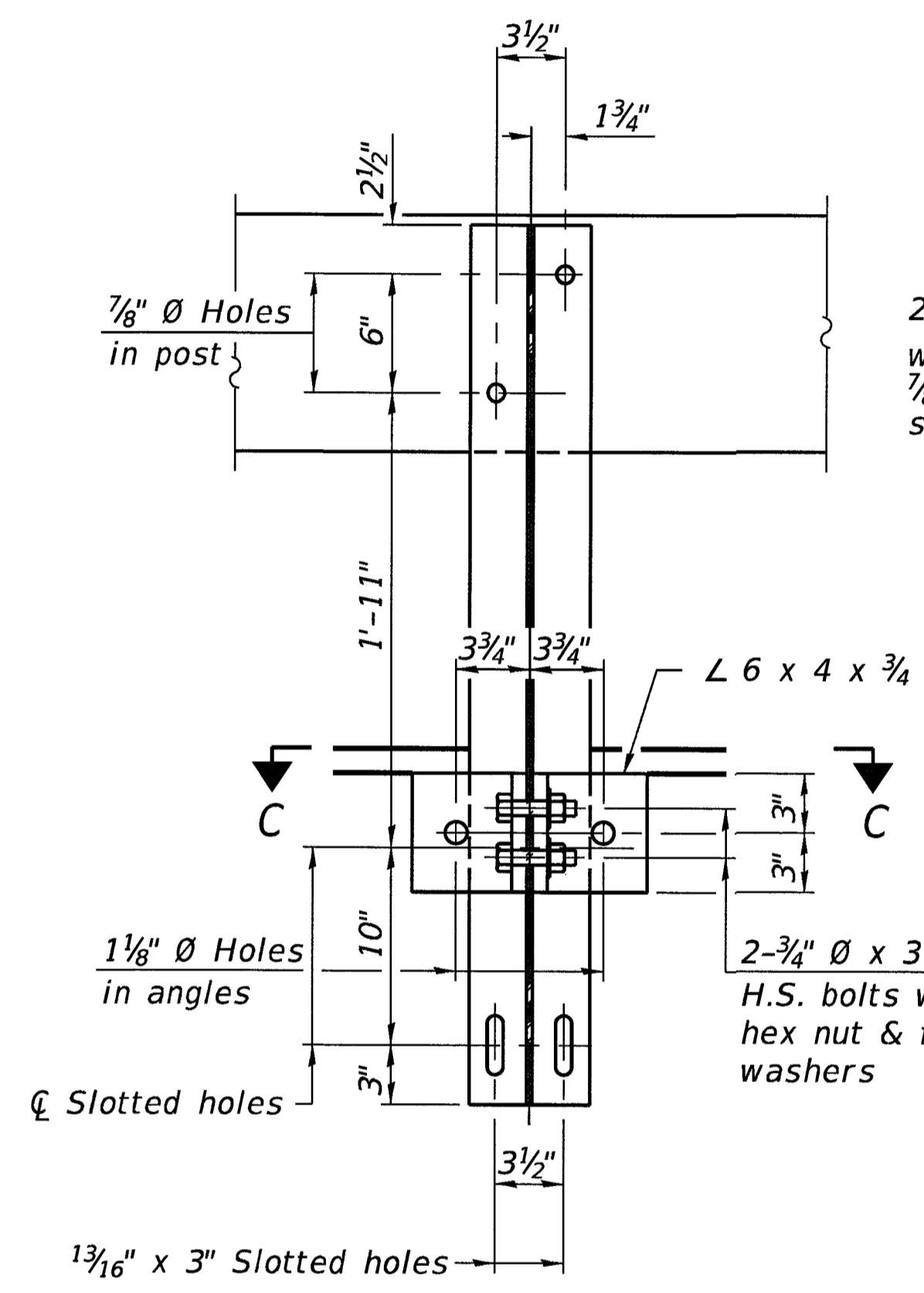
VIEW A-A
ROUND HEAD BOLT



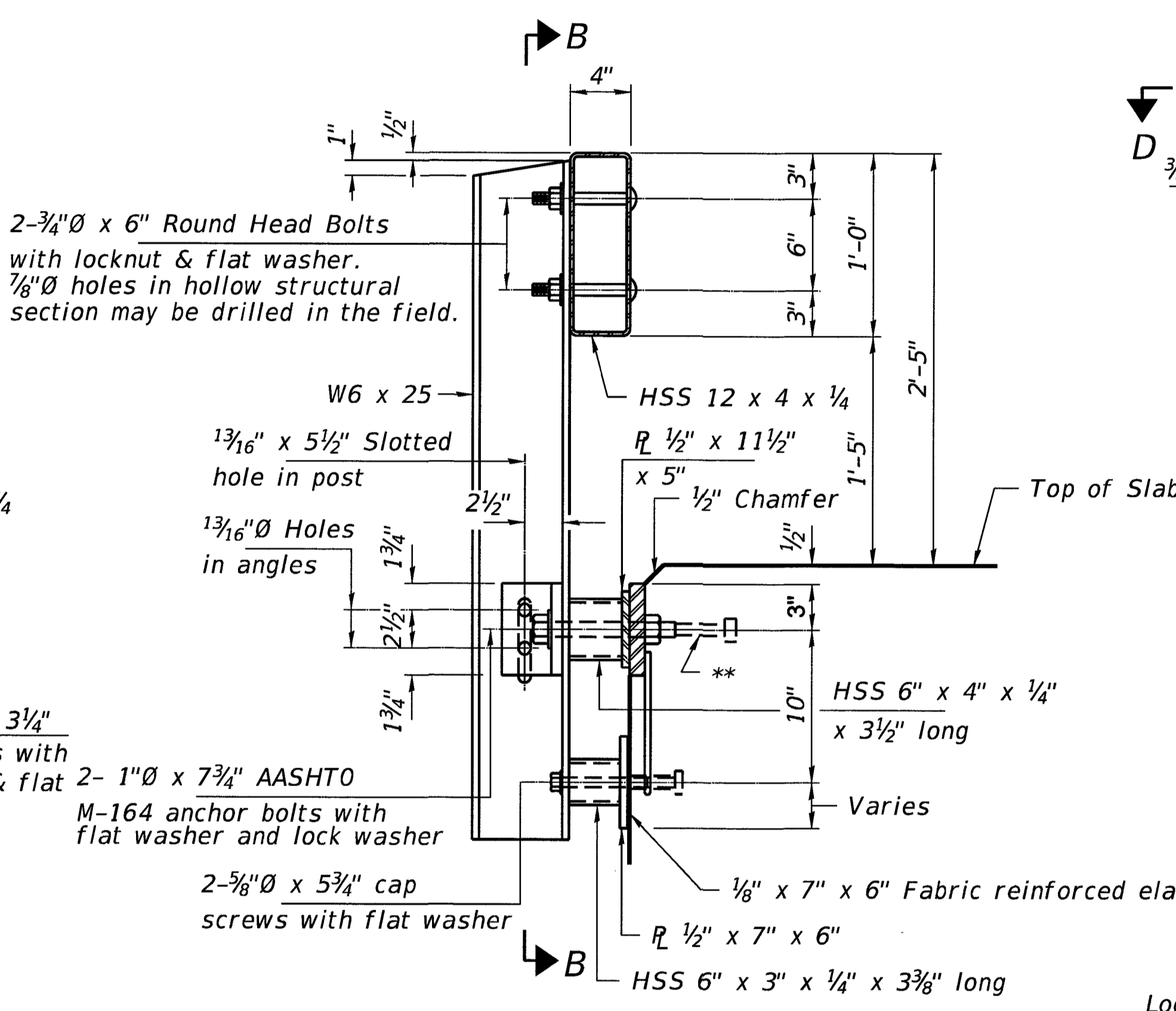
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



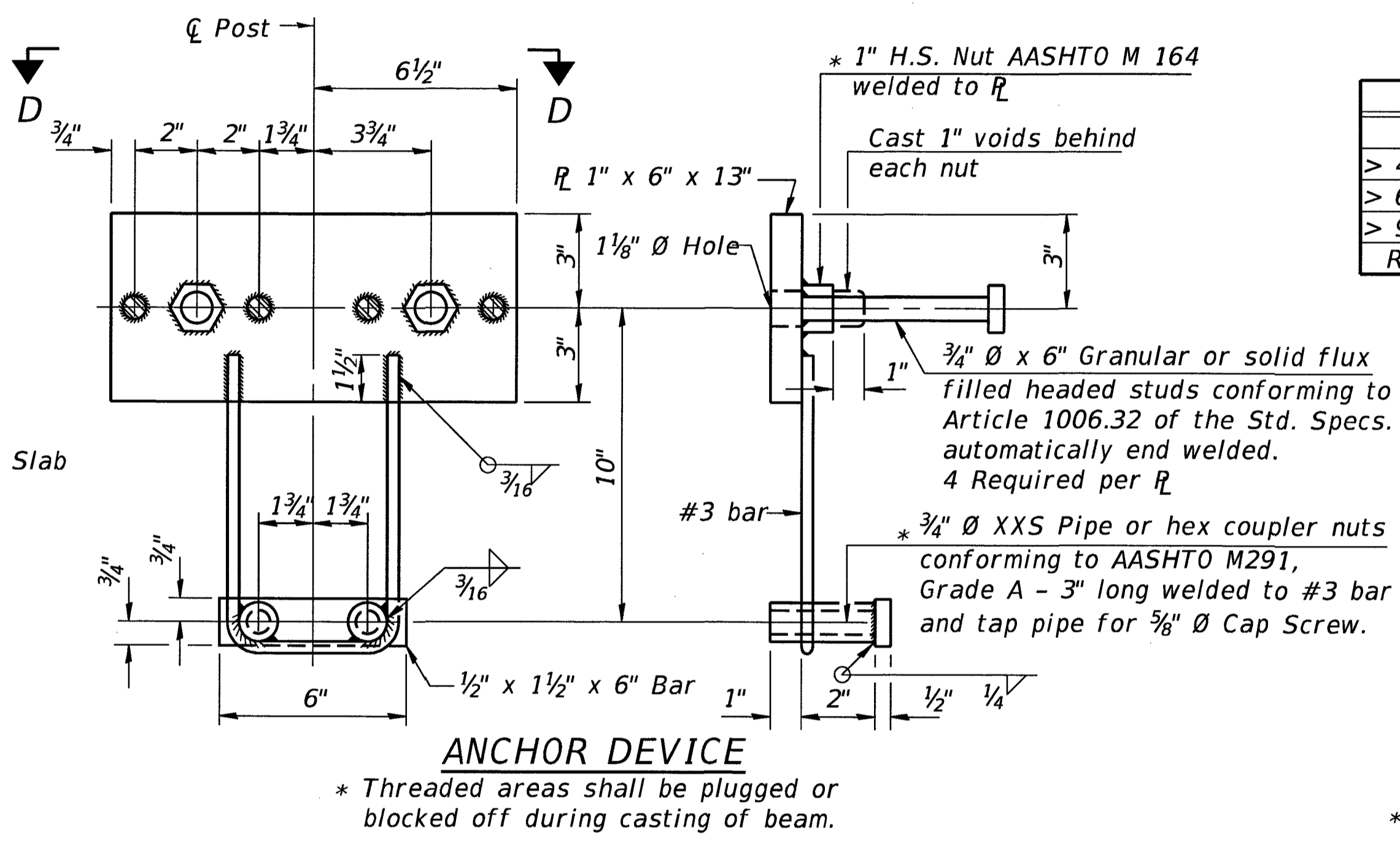
SECTION E-E CURLED END SECTION DETAILS



SECTION B-B



SECTION AT RAILING POST



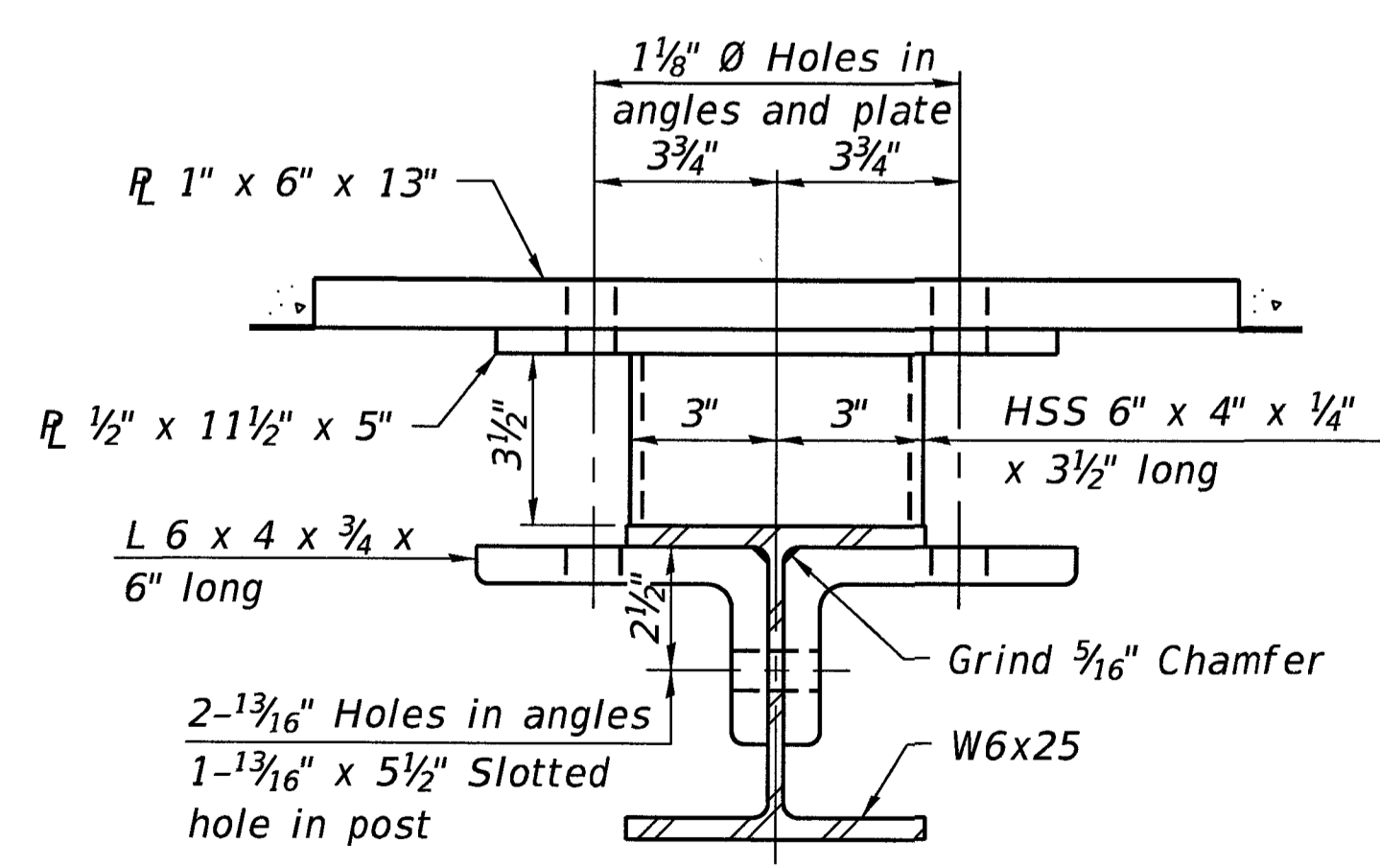
ANCHOR DEVICE

SPLICE DIMENSIONS

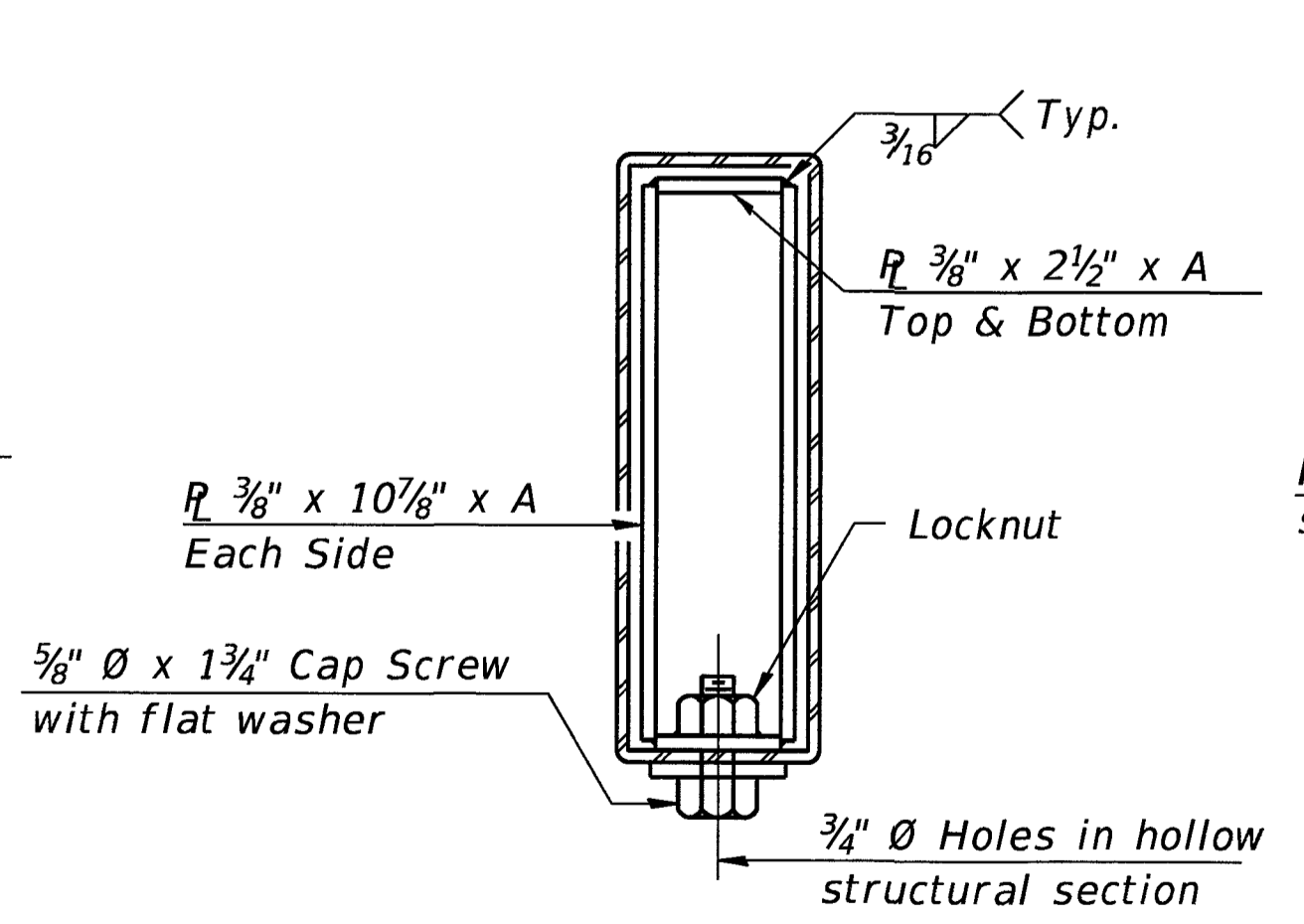
T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	—

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

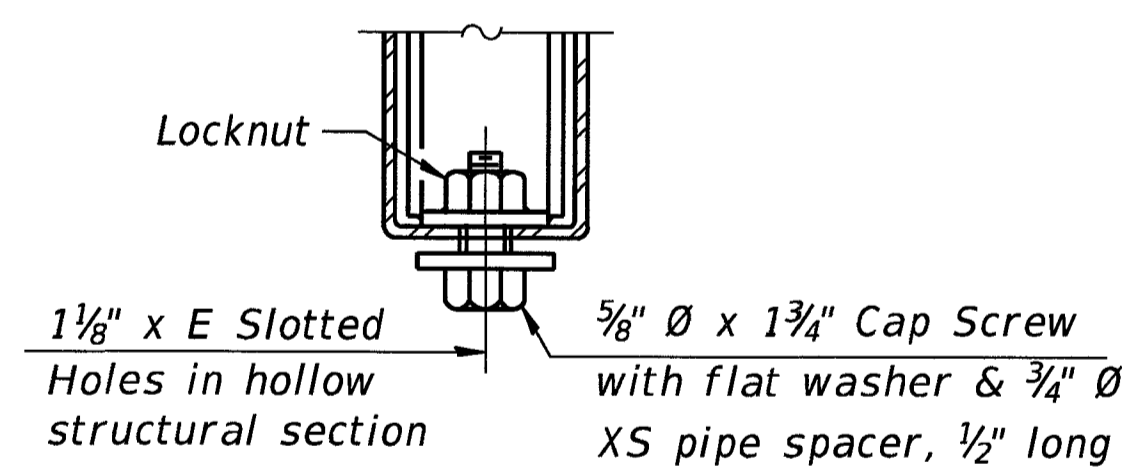
Notes:
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



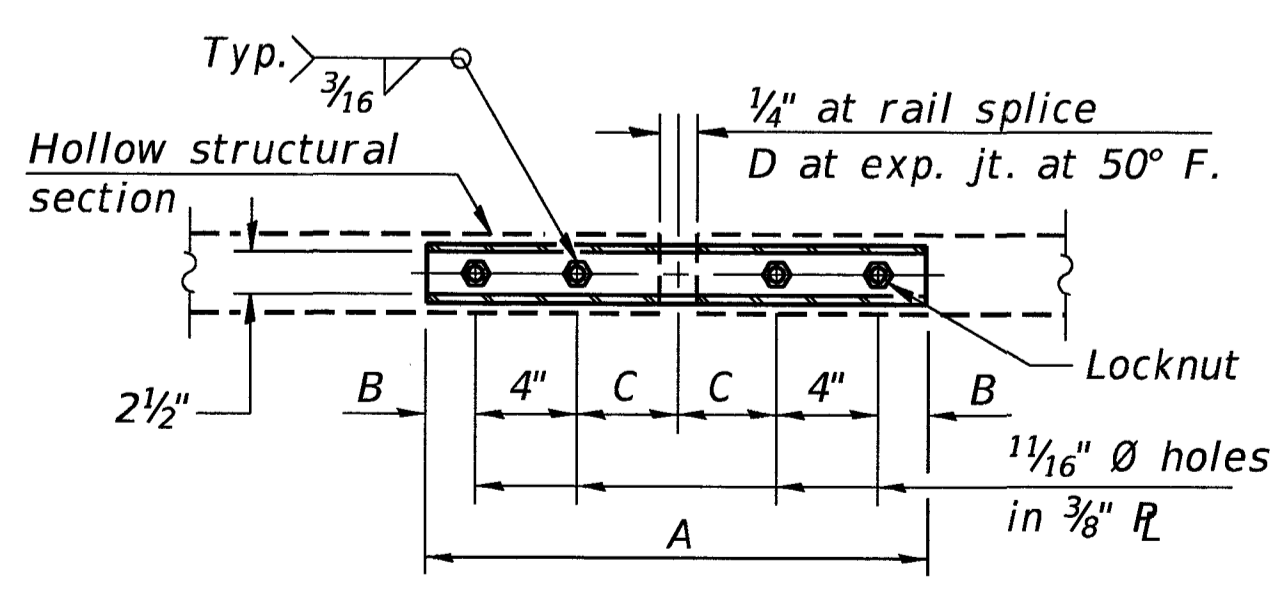
SECTION C-C



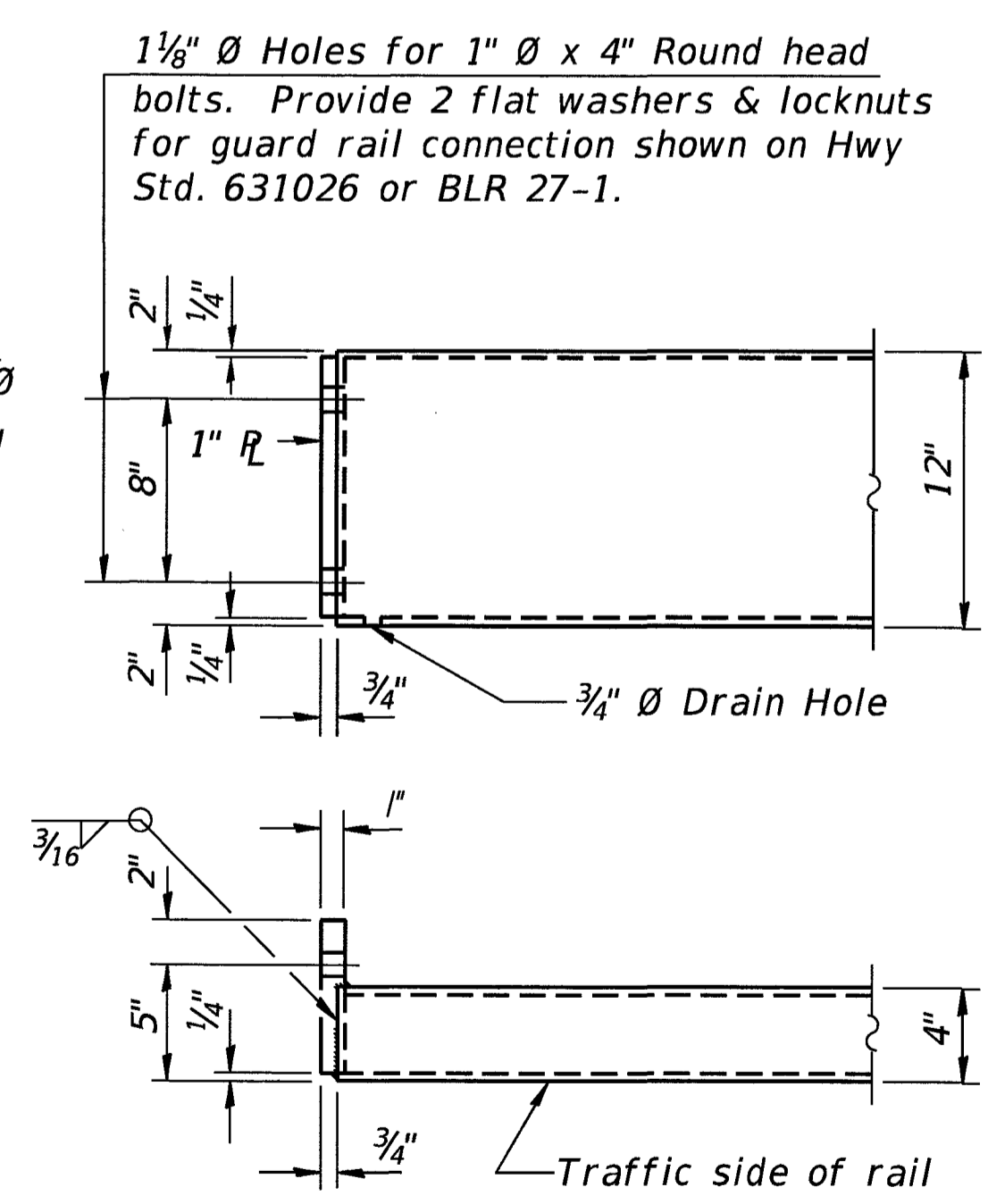
SECTIONS AT RAIL SPLICE



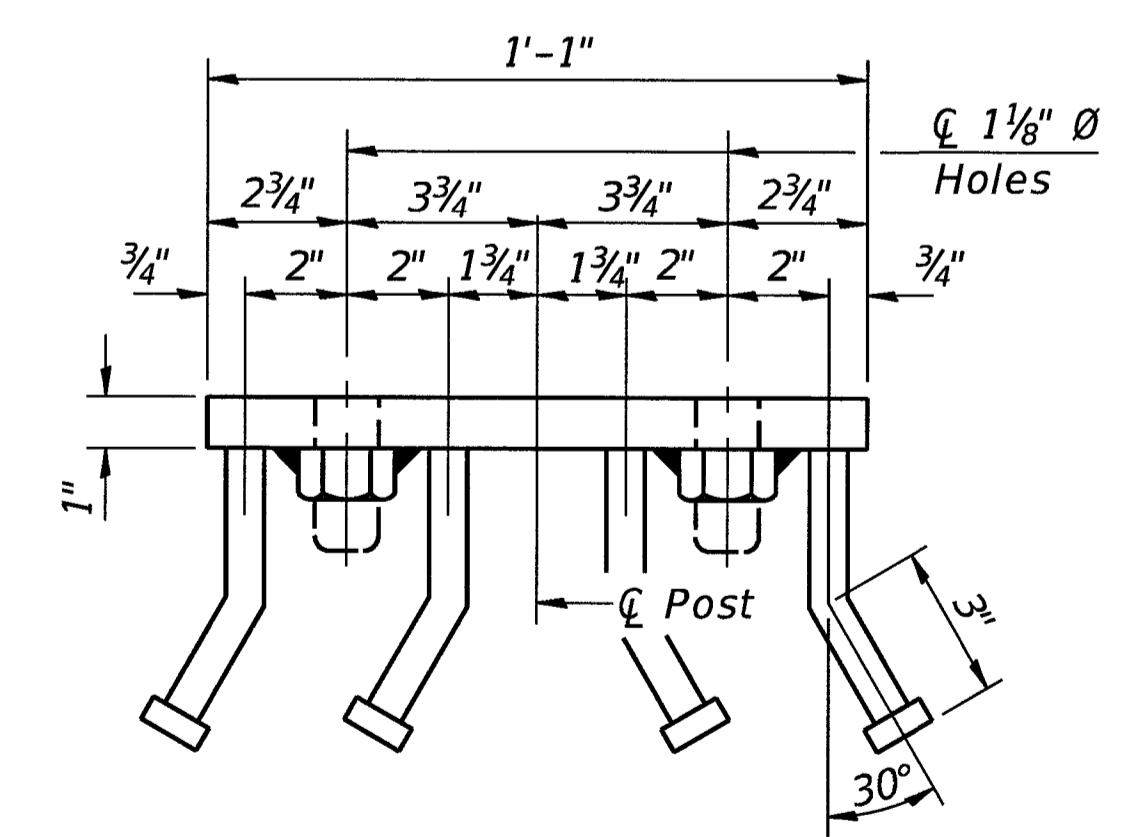
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE R TYPICAL



END OF RAIL DETAILS

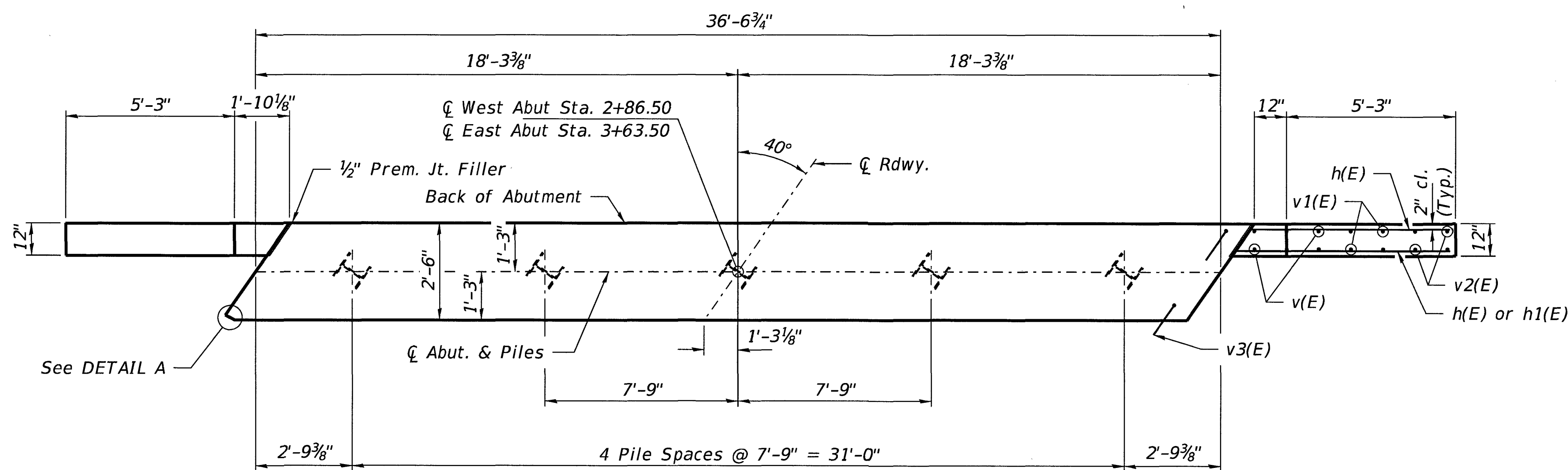


VIEW D-D

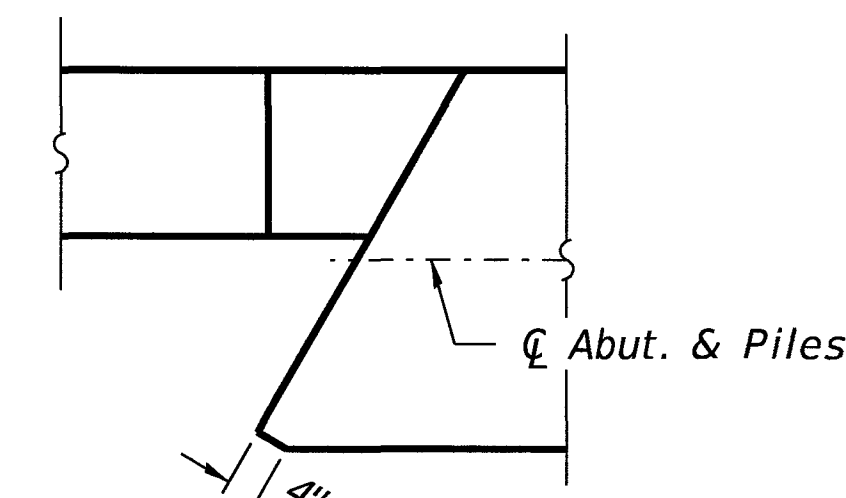
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	157

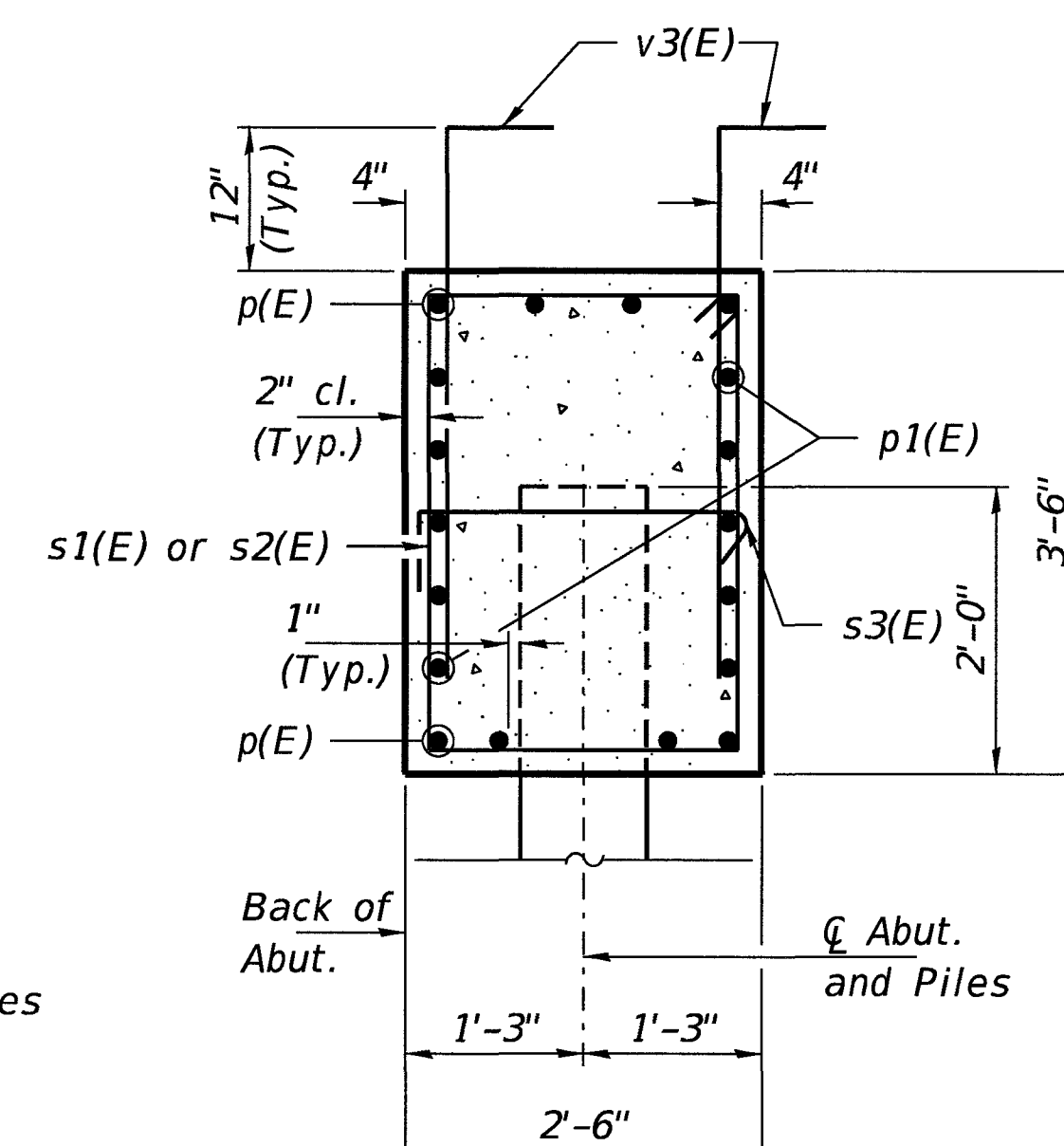
R-23A 8-11-2017 (10'-9" Maximum Post Spacing)



PLAN



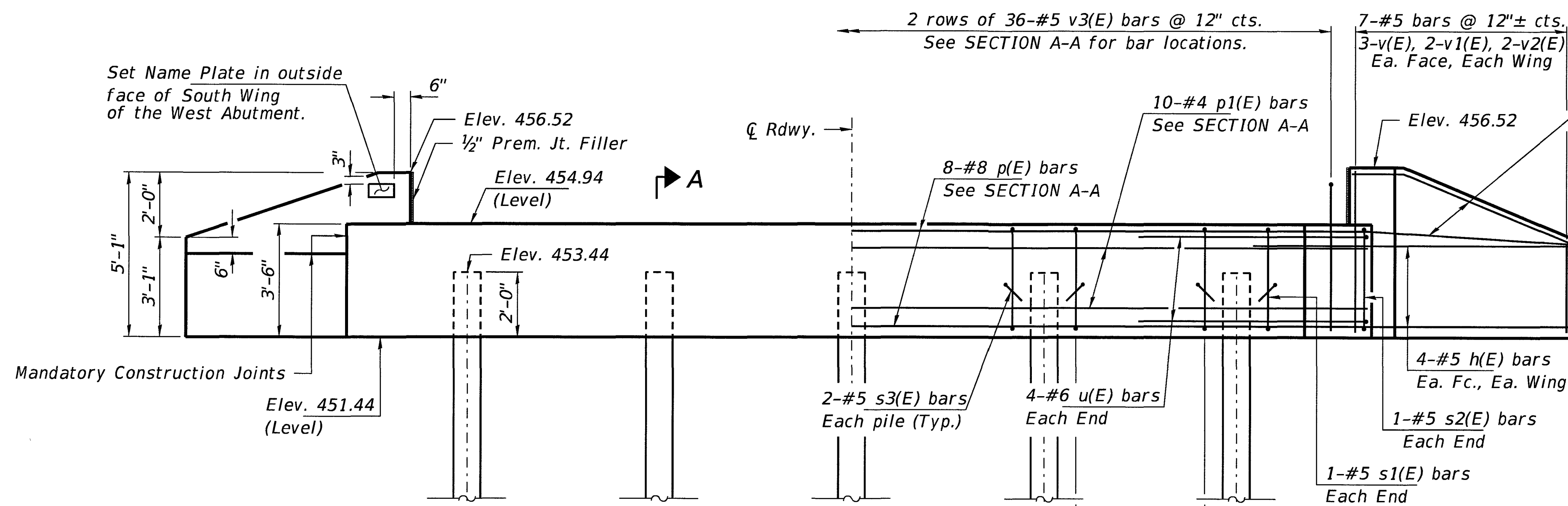
DETAIL A



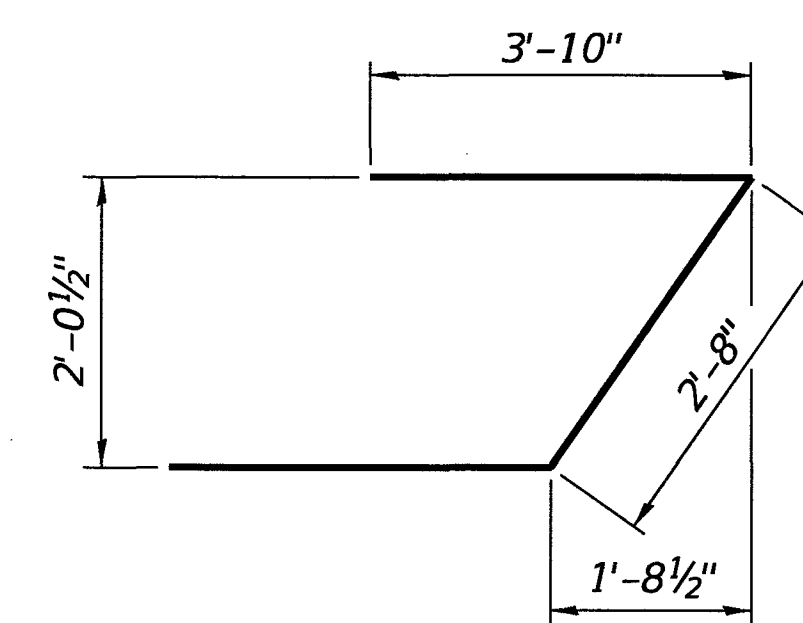
SECTION A-A

Dimensions at right Z's to abutment.

Note: Extend h1(E) bars into abutment cap and superstructure.



ELEVATION



BAR u(E)

PILE DATA

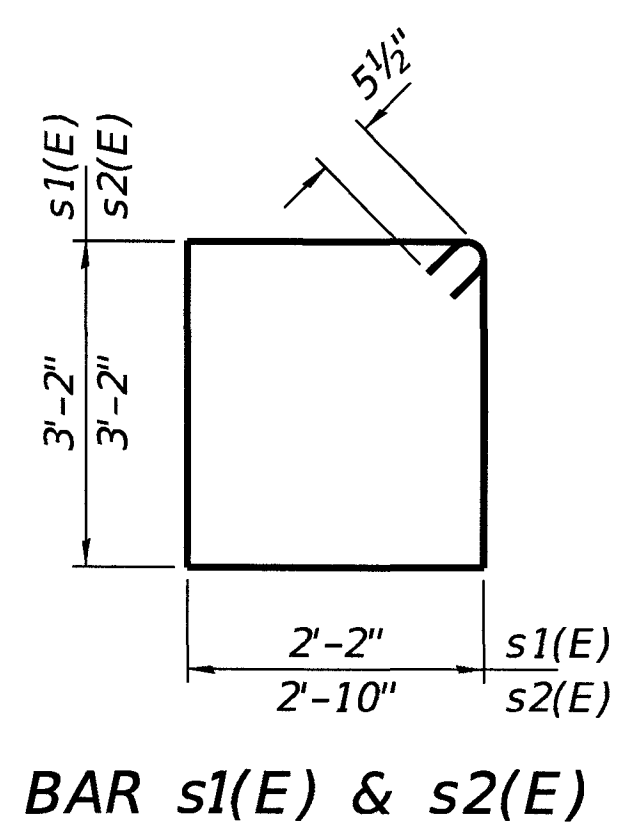
Type _____ Steel HP10x42
 No. Req'd. (2 Abuts.) _____ *10
 Factored Resistance Available (Rf) _____ 167 Kips/Pile
 Nominal Required Bearing (Rn) _____ 335 Kips/Pile
 Est. Length _____ 40 Ft/Pile

BILL OF MATERIAL - 2 ABUTS.

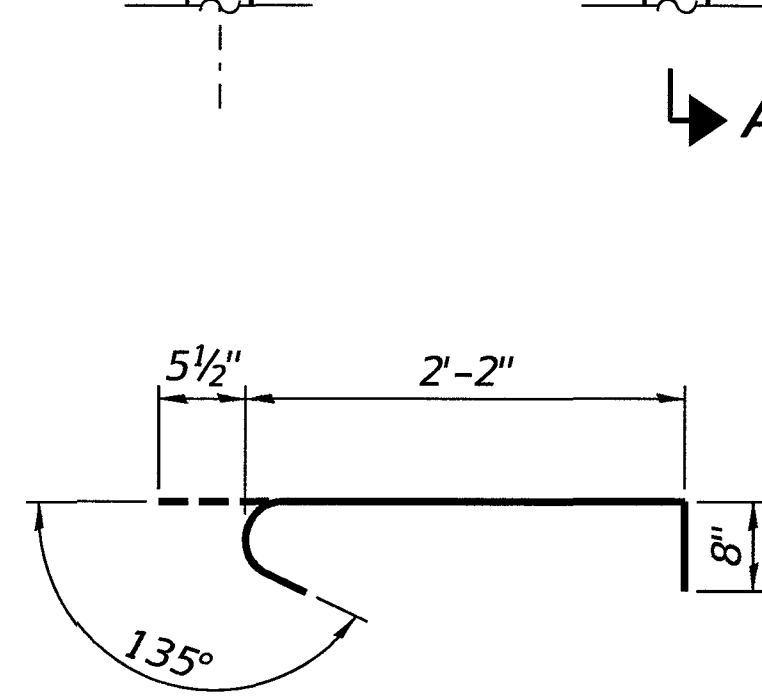
BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	32	#5	7'-6"	▬
h1(E)	24	#5	6'-0"	▬
p(E)	16	#8	36'-2"	▬
p1(E)	20	#4	36'-2"	▬
s1(E)	44	#5	11'-7"	▬
s2(E)	4	#5	12'-11"	▬
s3(E)	20	#5	3'-4"	▬
u(E)	16	#6	10'-4"	▬
v(E)	24	#5	4'-3"	▬
v1(E)	16	#5	3'-6"	▬
v2(E)	16	#5	2'-9"	▬
v3(E)	144	#5	4'-8"	▬
Protective Coat		Sq. Yd.	16	
Concrete Structures		Cu. Yd.	27.9	
Reinforcement Bars, Epoxy Coated		Pound	4,240	
Furnishing Steel Piles HP10x42		Foot	360	
Driving Piles		Foot	360	
Test Pile Steel HP10x42		Each	1	
Name Plate		Each	1	

Notes: *Includes one test pile to be driven in a permanent location at the East Abutment.

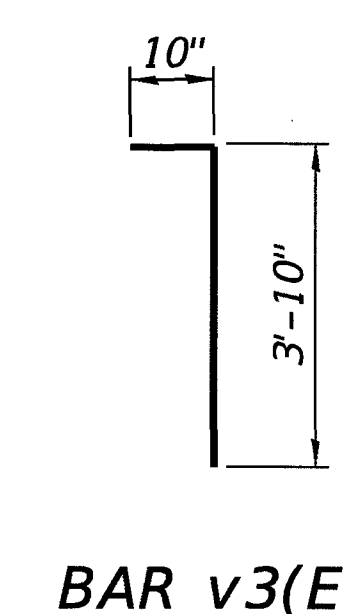
Notes: For details of piles, see sheet 9 of 10. Bottom of wing shall be poured monolithic with the abutment cap. Entire quantity included with Concrete Structures. Extend h(E) bars into abutment cap.



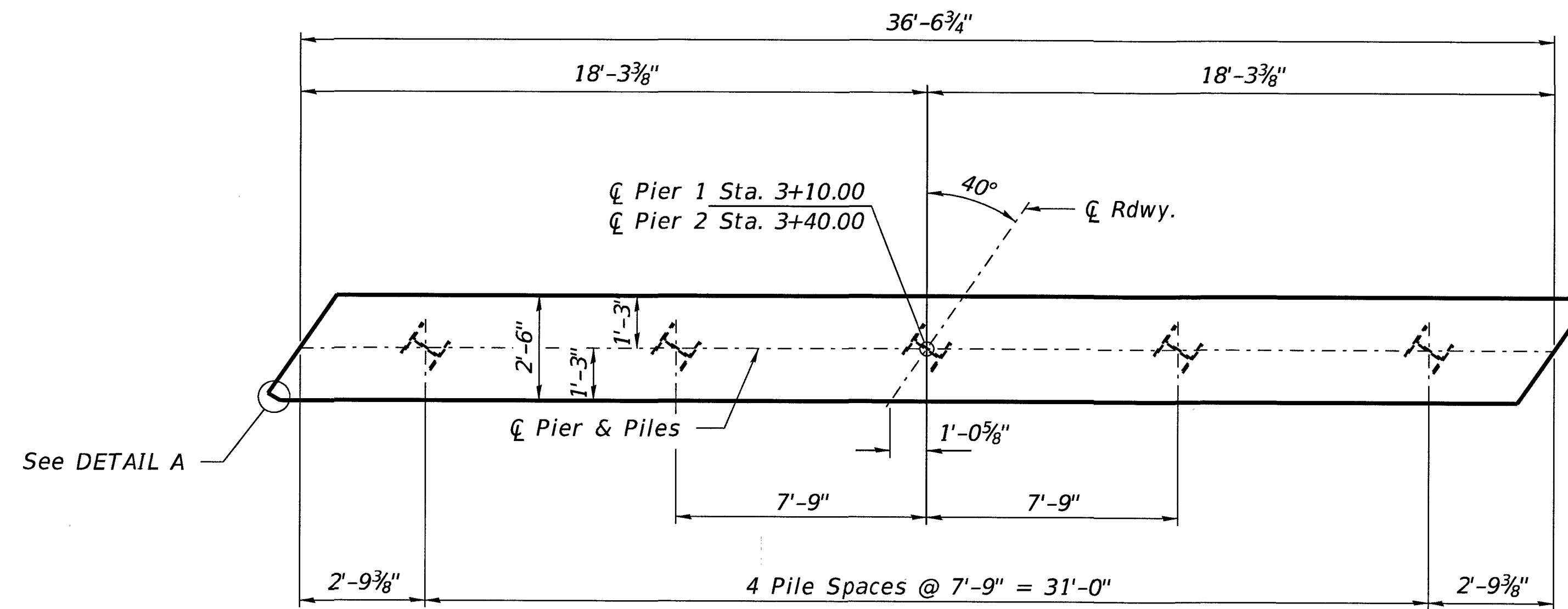
BAR s1(E) & s2(E)



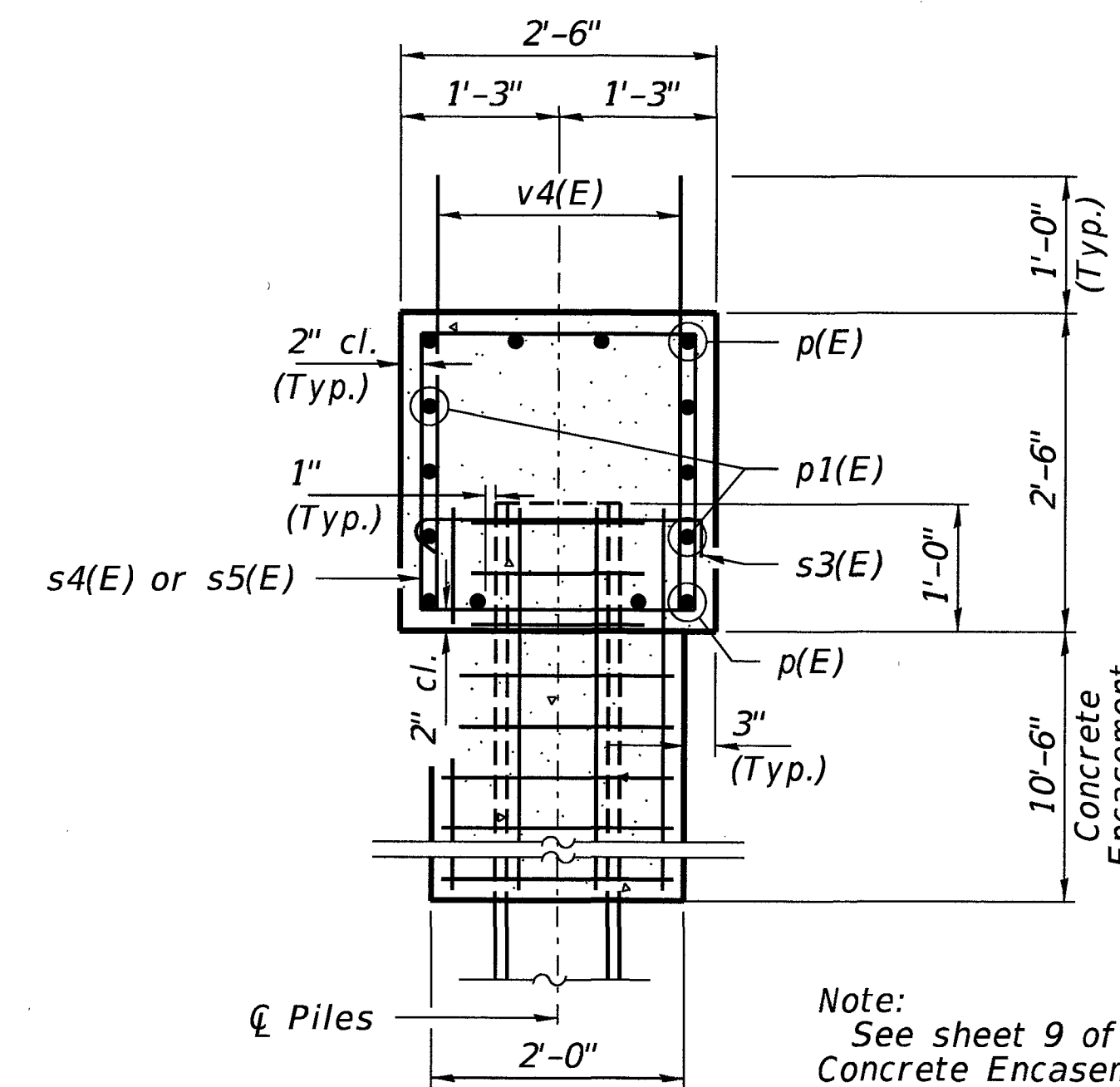
BAR s3(E)



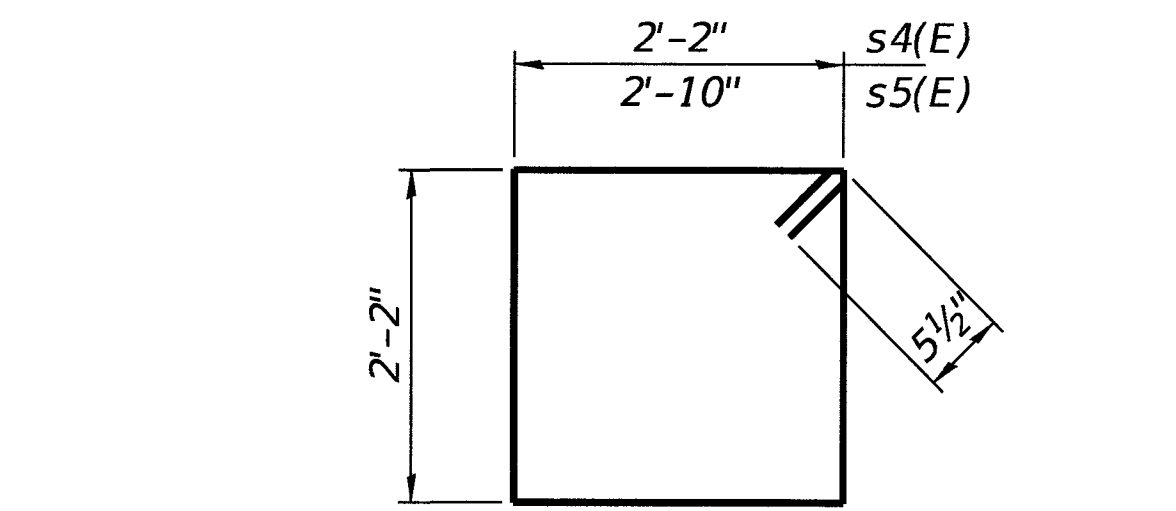
BAR v3(E)



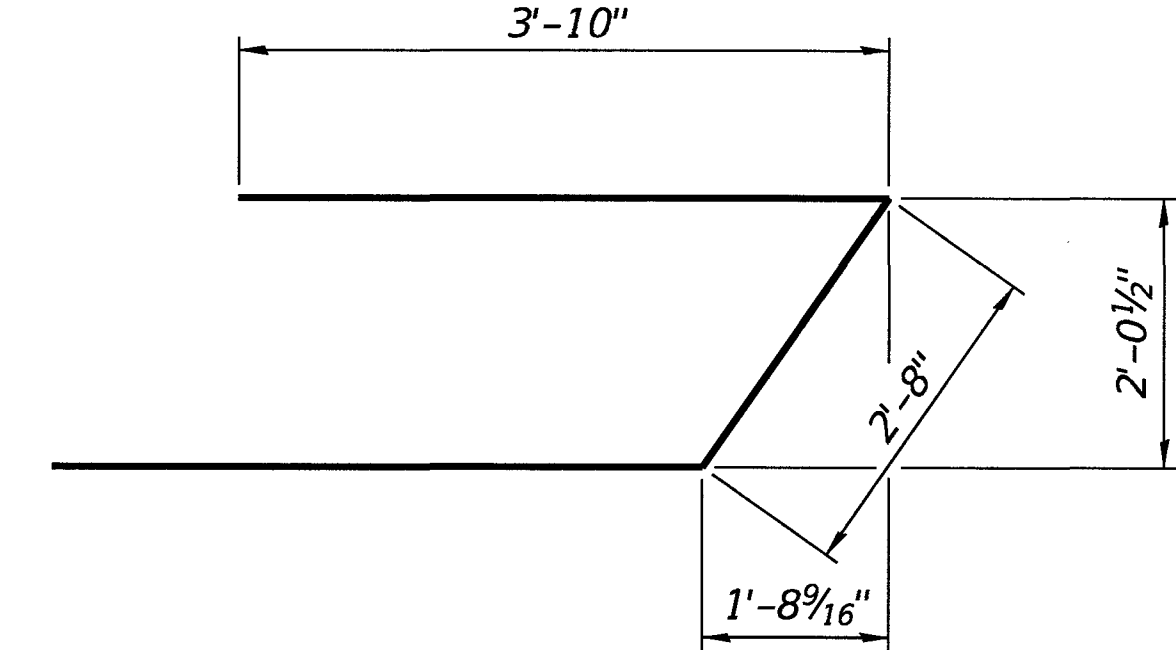
PLAN



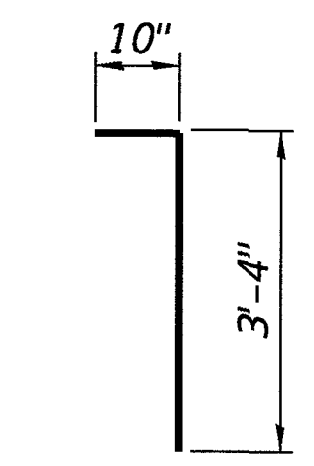
SECTION B-B
Dimensions at right L's to Pier.



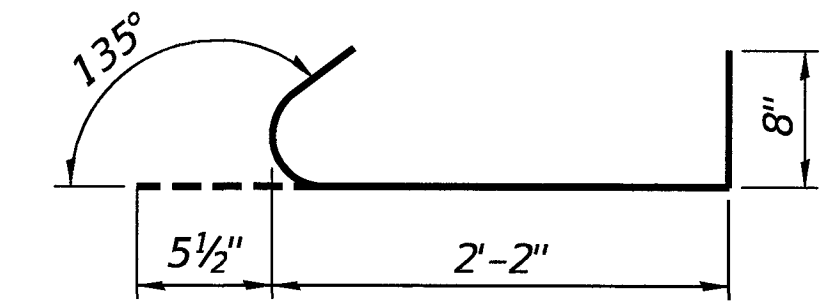
BARS s4(E) & s5(E)



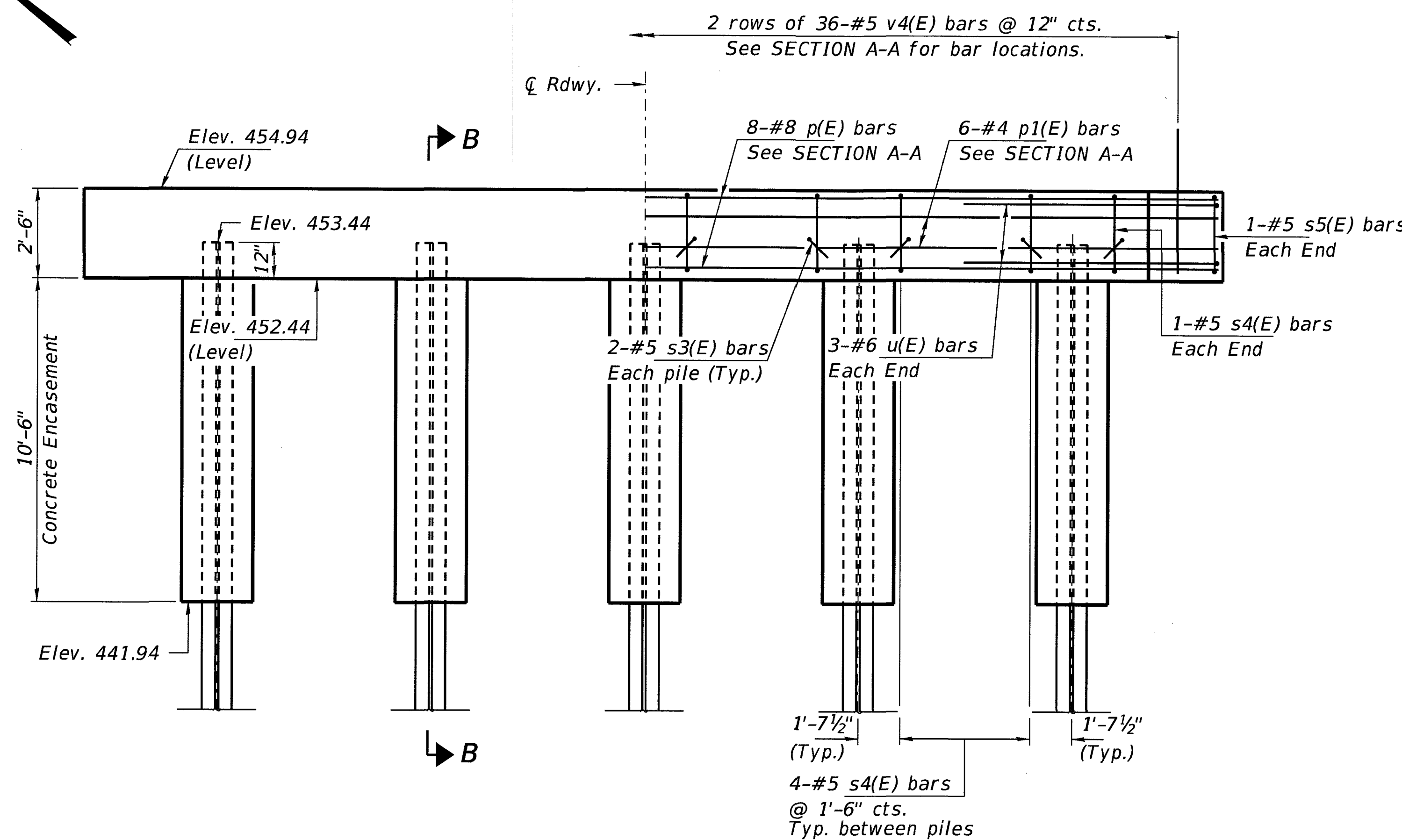
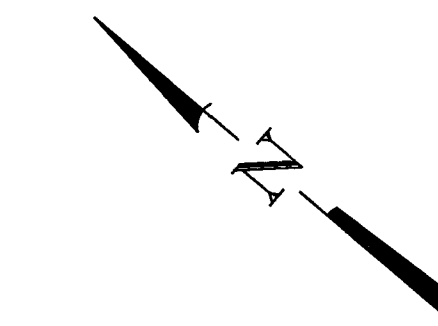
BAR u(E)



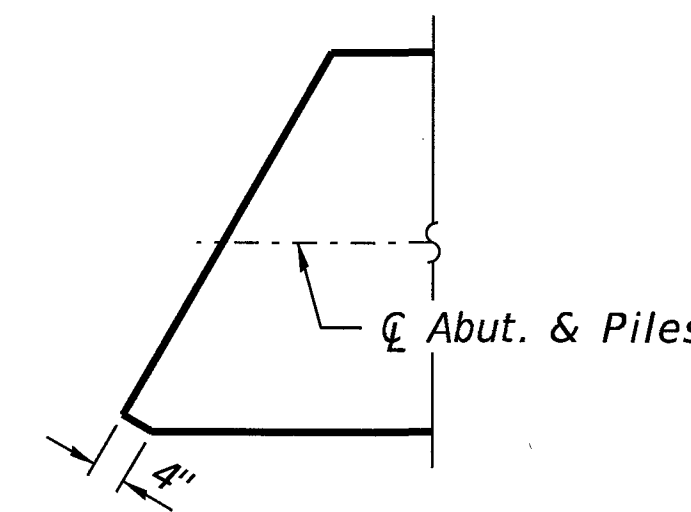
BAR v4(E)



BAR s3(E)



ELEVATION
(Looking East)



DETAIL A

PILE DATA

Type _____ Steel HP10x42
 No. Req'd. (2 Piers) _____ *10
 Factored Resistance Available (Rf) _____ 167 Kips/Pile
 Nominal Required Bearing (Rn) _____ 335 Kips/Pile
 Est. Length _____ 40 Ft/Pile

Notes: *Includes one test pile to be driven in a permanent location at Pier 1.

BILL OF MATERIAL - 2 PIERS

BAR	NO.	SIZE	LENGTH	SHAPE
p(E)	16	#8	36'-2"	—
p1(E)	12	#4	36'-2"	—
s3(E)	4	#5	10'-11"	⌋
s4(E)	20	#5	3'-4"	⌋
s5(E)	36	#5	9'-7"	⌋
u(E)	12	#6	10'-4"	⌋
v4(E)	144	#5	4'-2"	⌋
Concrete Structures		Cu. Yd.	16.9	
Concrete Encasement		Cu. Yd.	11.9	
Reinforcement Bars, Epoxy Coated		Pound	3,270	
Furnishing Steel Piles HP10x42		Foot	360	
Driving Piles		Foot	360	
Test Pile Steel HP10x42		Each	1	

FILE NAME = 170205-eh-bridge-3754.dgn
 USER NAME = rthosick
 DESIGNED - W.T.A.
 CHECKED - S.W.M.
 DRAWN - D.A.B.
 CHECKED - S.W.M.
 PLOT SCALE = \$SCALES
 PLOT DATE = 10/5/2018

DESIGNED - W.T.A.
 CHECKED - S.W.M.
 DRAWN - D.A.B.
 CHECKED - S.W.M.

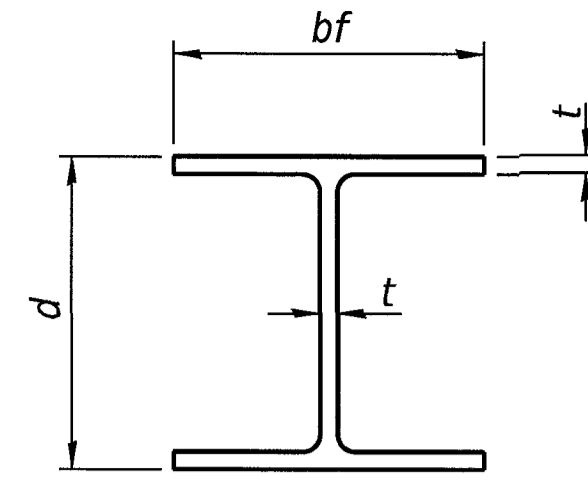
DESIGNED - W.T.A.
 CHECKED - S.W.M.
 DRAWN - D.A.B.
 CHECKED - S.W.M.

DESIGNED - W.T.A.
 CHECKED - S.W.M.
 DRAWN - D.A.B.
 CHECKED - S.W.M.

STATE OF ILLINOIS
 CRAWFORD COUNTY HIGHWAY DEPARTMENT

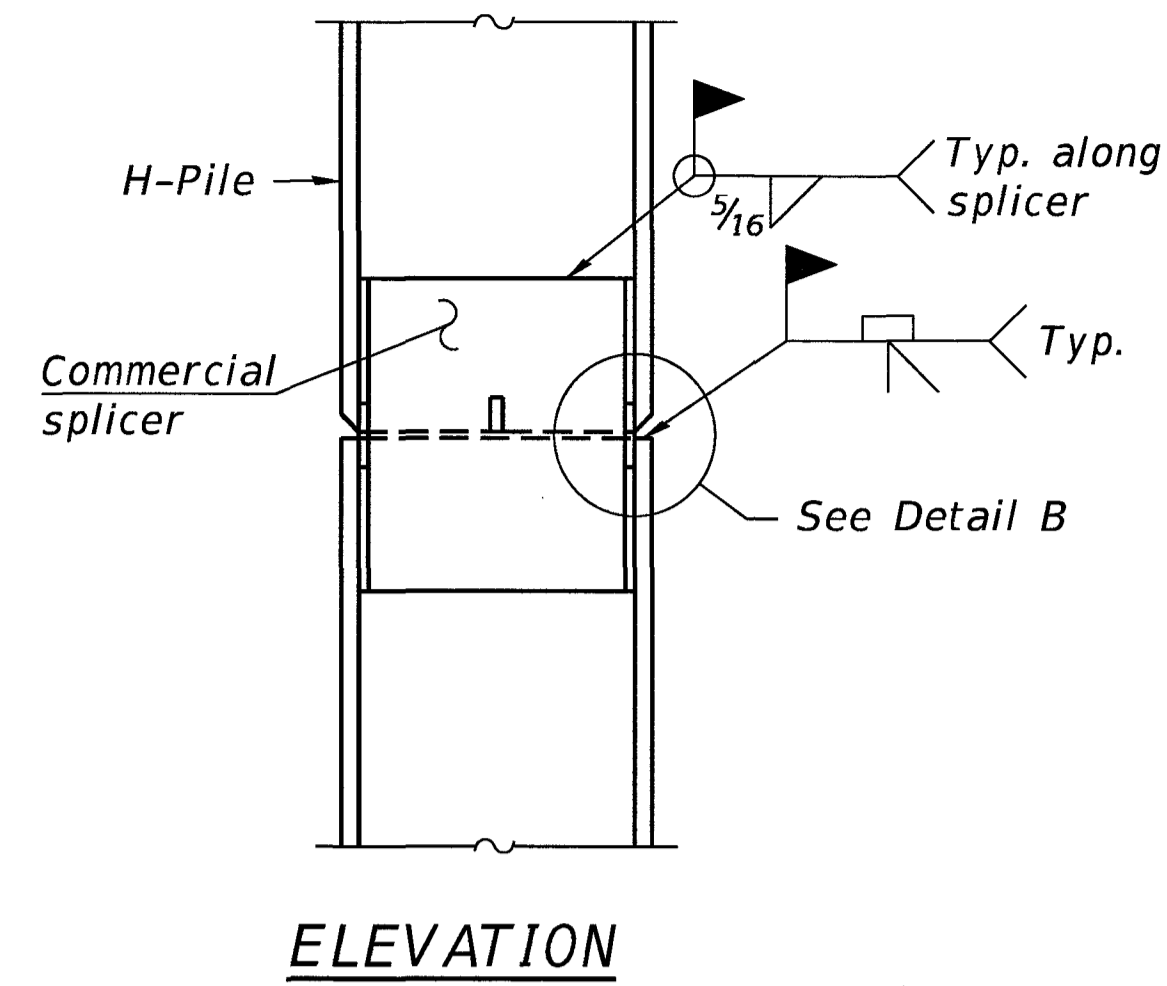
PIERS
 STRUCTURE NO. 017-3754
 SHEET NO. 8 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
193	15-07131-00-BR	CRAWFORD	25	12
OBLONG ROAD DISTRICT			CONTRACT NO. 95839	
ILLINOIS FED. AID PROJECT				

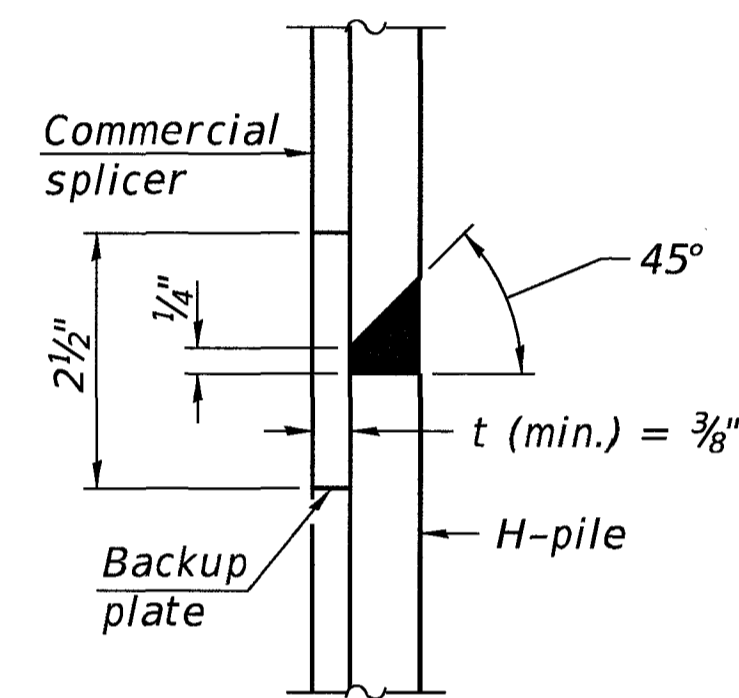


STEEL PILE TABLE

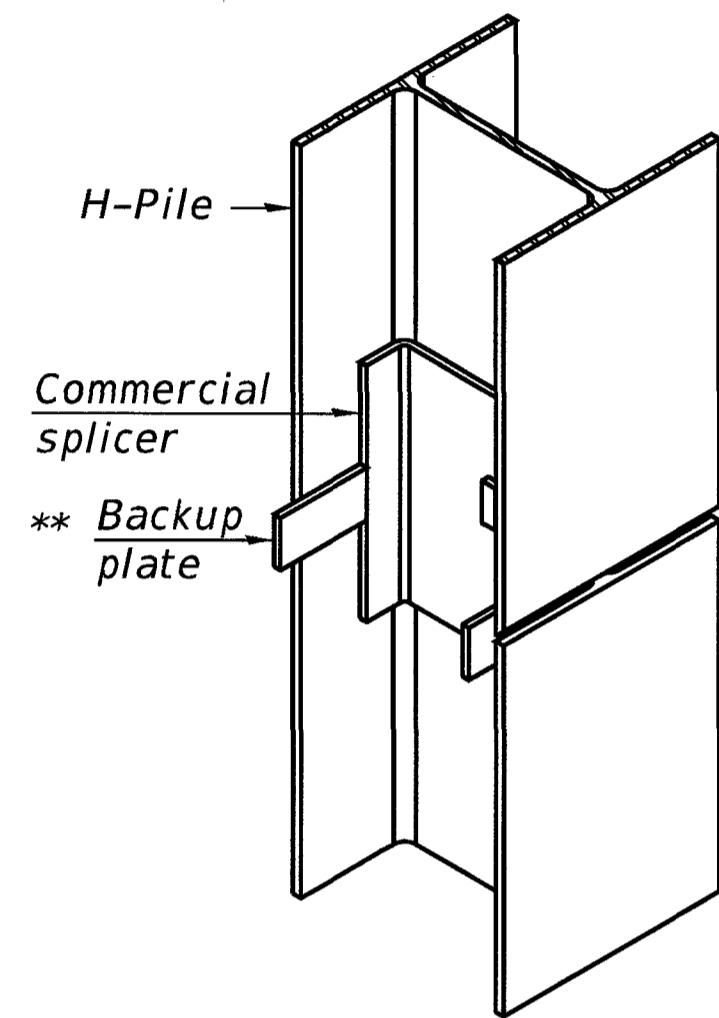
Designation	Depth <i>d</i>	Flange width <i>bf</i>	Web and Flange thickness <i>t</i>	Encasement diameter <i>A</i>
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



ELEVATION

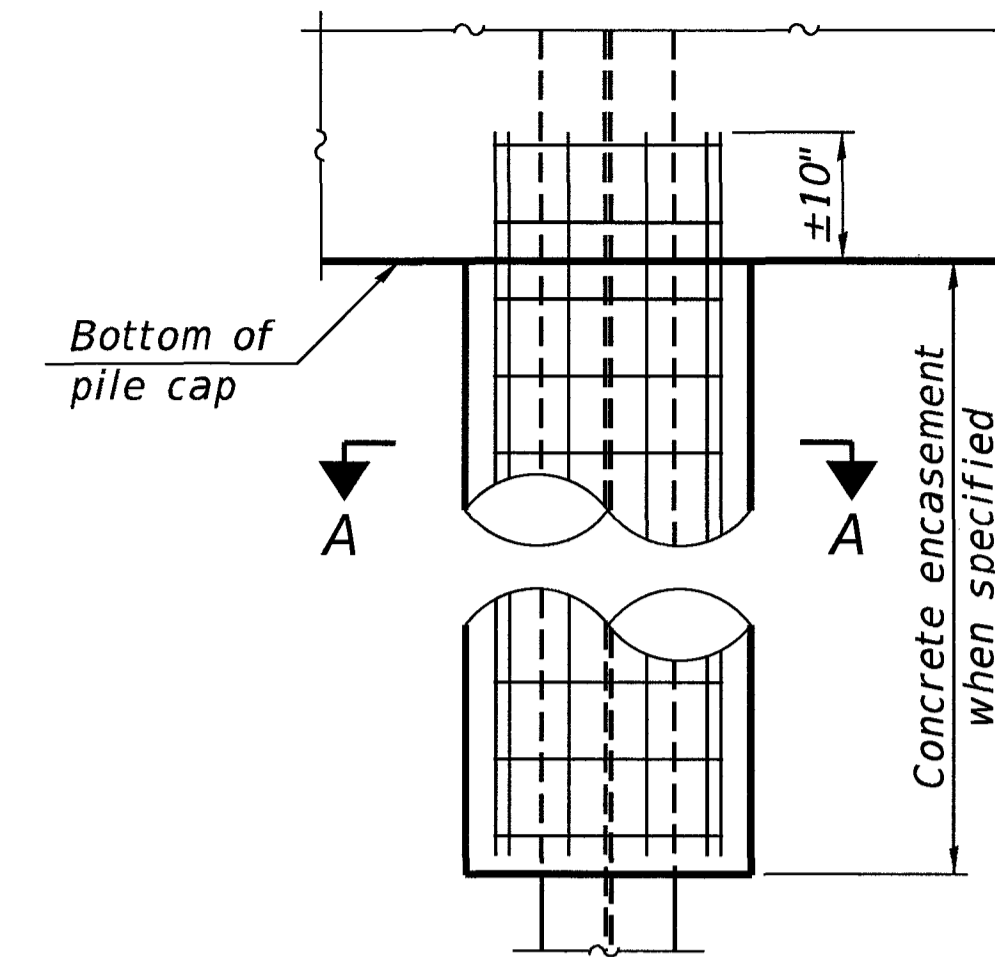


DETAIL "B"

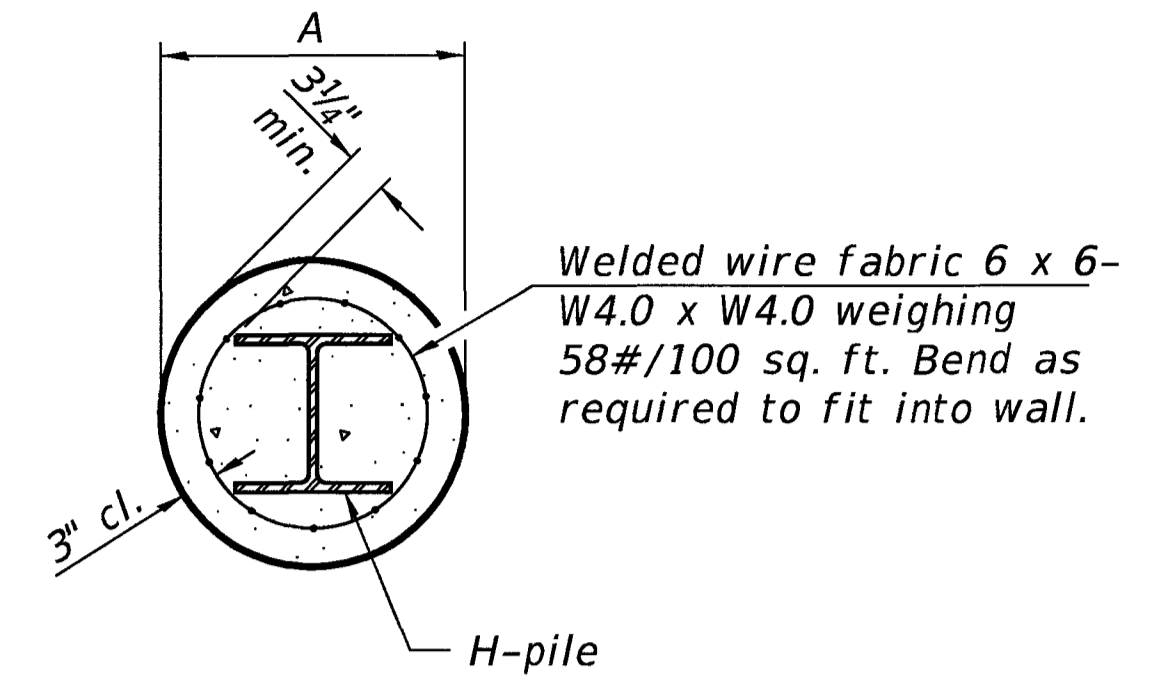


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

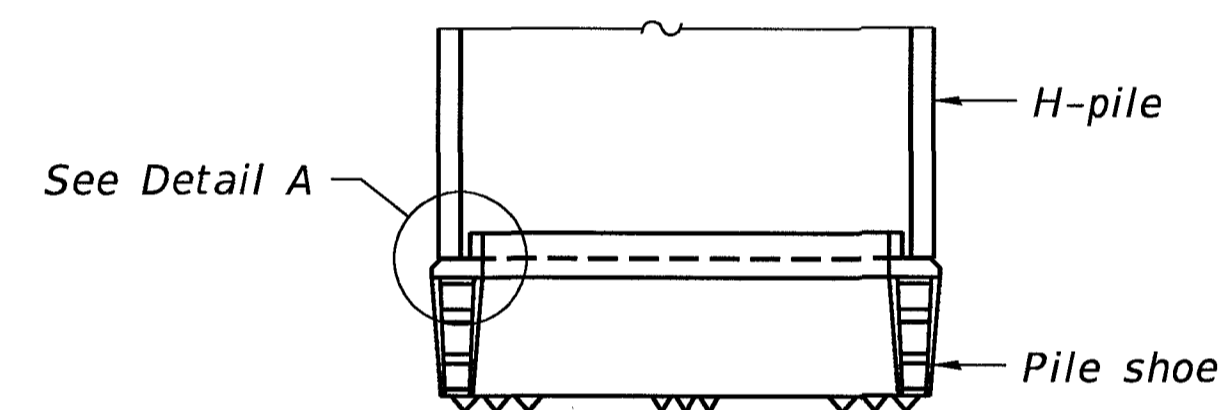


ELEVATION

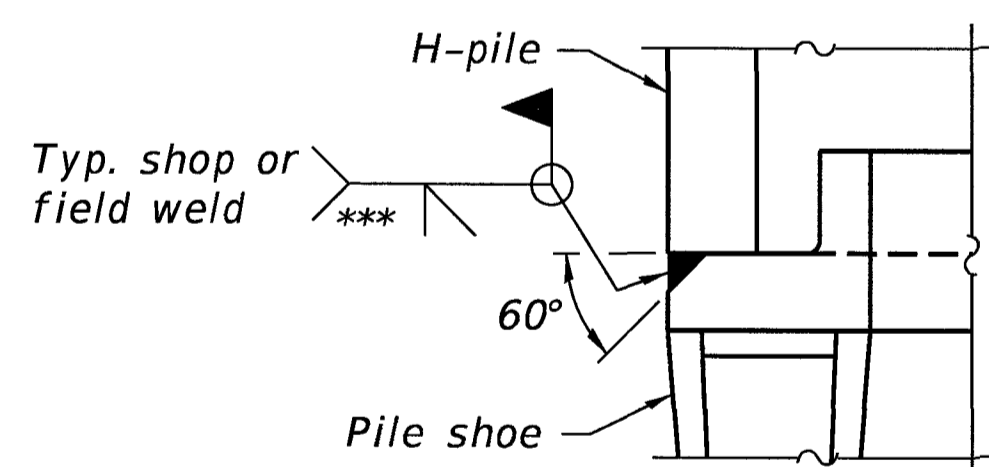


SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASUREMENT
 (Forms for encasement may be omitted when soil conditions permit).

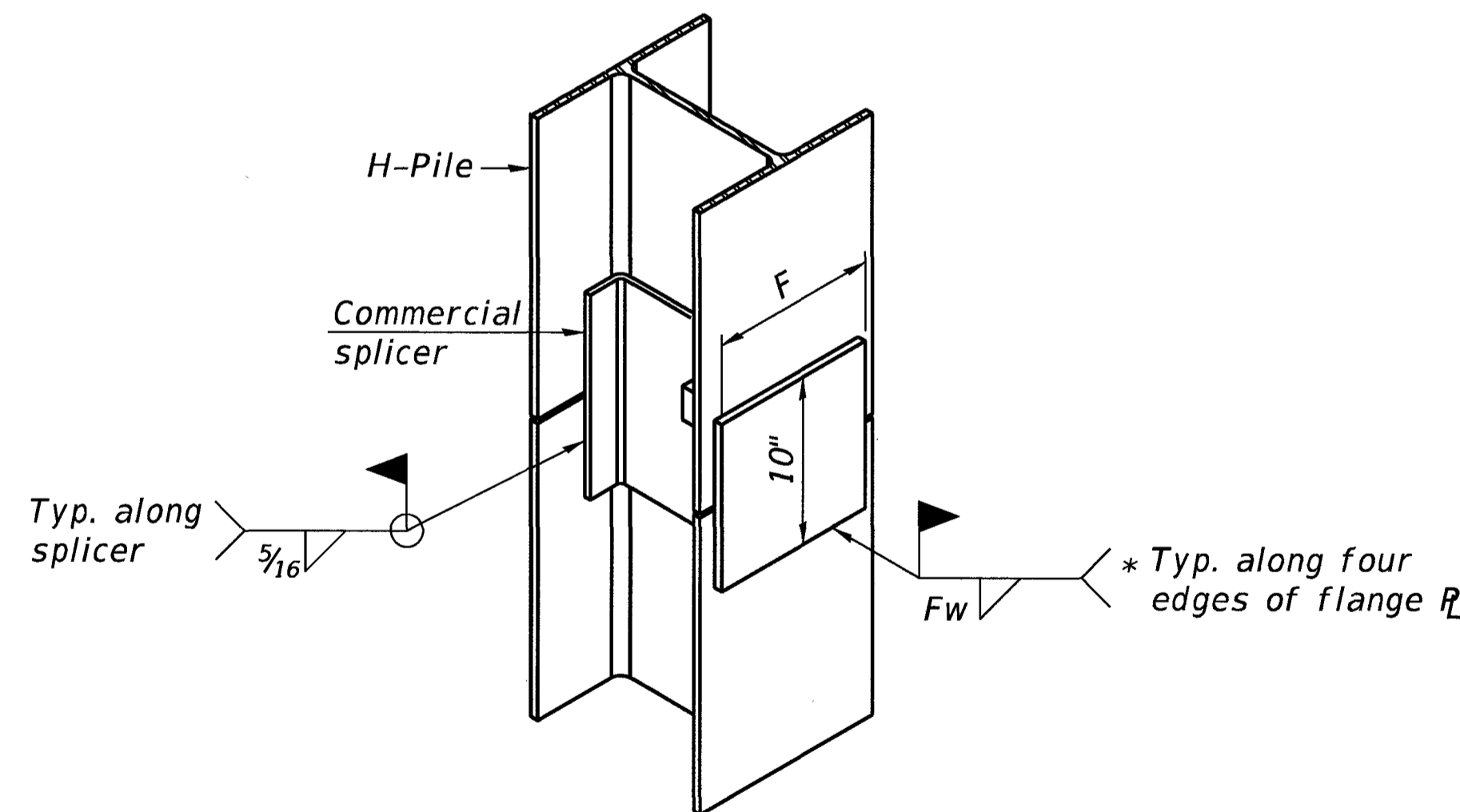


ELEVATION



DETAIL A

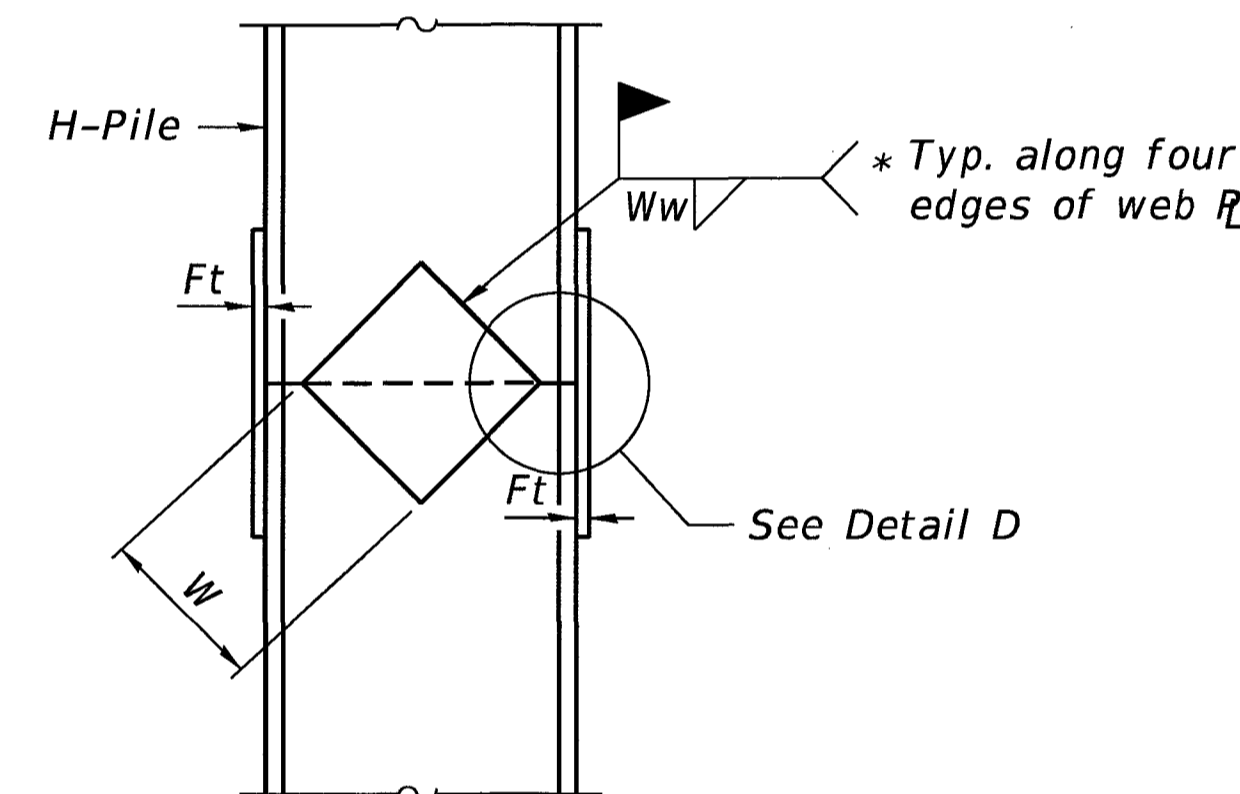
SHOE ATTACHMENT



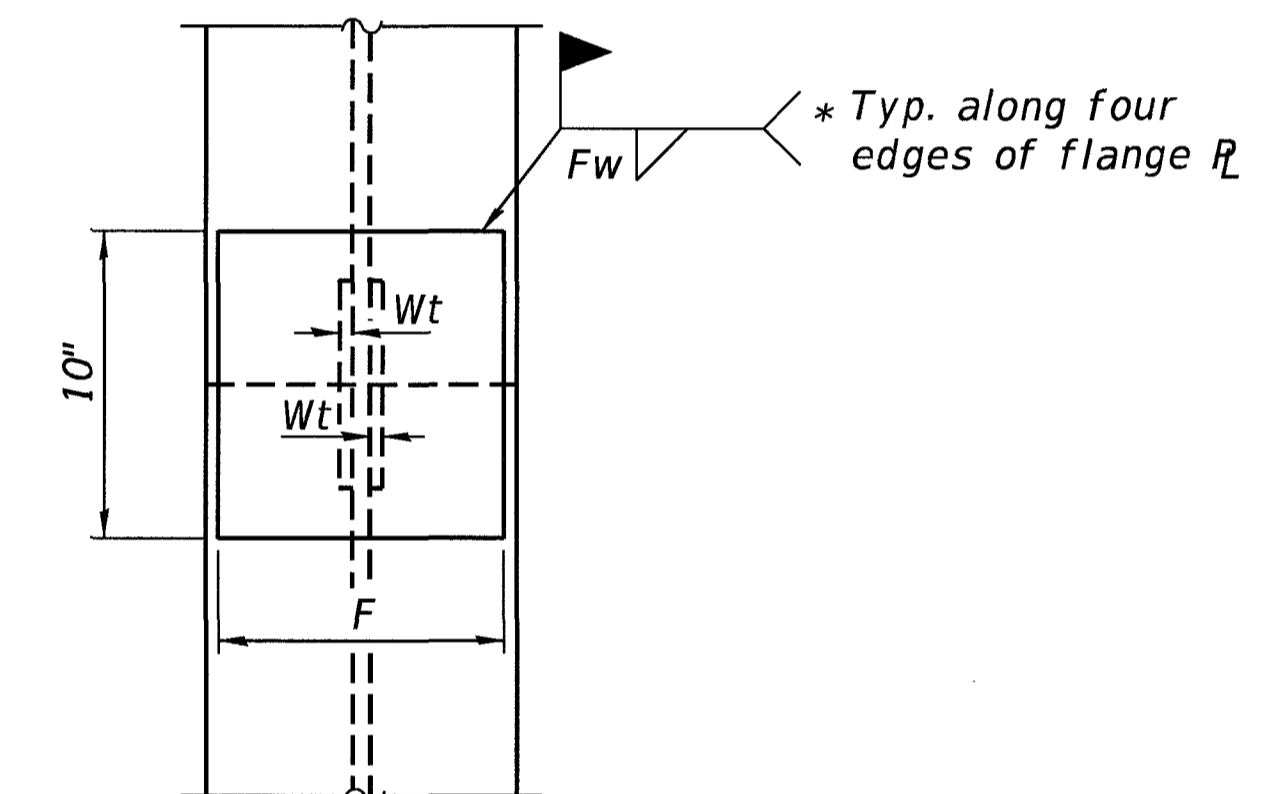
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

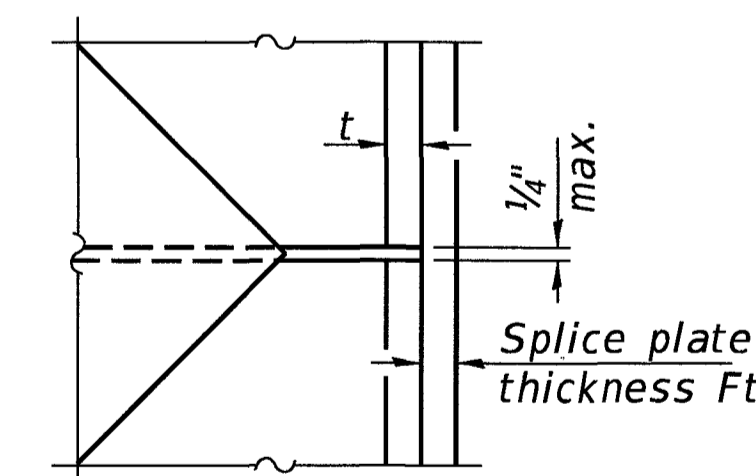
- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- *** Weld size per pile shoe manufacturer (5/16" min.).



ELEVATION



END VIEW



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

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

F-HP 8-11-2017

HOLCOMB FOUNDATION ENGINEERING INC.
P.O. Box 88 618-529-5262
Carbondale, Il. 62903 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-15248 Bridge TR-193 Over Big Creek Date: 11/20/15
Section: 15-07131-00-BR Station 3+24
Structure: 017-3724 Bored by: J. Carter
County: Crawford Checked by: T. Holcomb

Boring No. <u>1</u> Station: <u>3+61</u> Offset: <u>5' RT</u>	Elevation	N	Qu tsf	B	w	Surface Water Elev.		Elevation	N	Qu tsf	B	w
						During Drilling	Upon Completion					
Ground Surface	454.0	0										
3" Crushed Stone												
Brown Silty CLAY (A-6)		6	0.1B	30				-25	17	2.6S	14	
								428.0				
		3	0.3B	33				-5	25	1.8B	17	
448.0												
Gray Silty CLAY (A-6)		2	0.1B	32				-30	28	1.7B	17	
445.5												
Gray Sandy CLAY (A-6)		1		27				-10				
443.0												
Brown Silty CLAY (A-6) with sand and pebbles		9	1.2B	16				-35	70	5.3S	9	
								-15	39			
		22	4.6B	11				-40	100	/6"	7	
									100	/4"	8	
		27	8.3B	11				-20				
432.5												
Gray Sandy CLAY (A-6)		18	2.3S	18					100	/4"	7	
End of Boring @ -44.0'												

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft.
w-Water Content-percentage of oven dry weight-%
B = Bulge Failure
S = Shear Failure
E = Estimated Value
P = Penetrometer

BORING-1

HOLCOMB FOUNDATION ENGINEERING INC.
P.O. Box 88 618-529-5262
Carbondale, Il. 62903 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-15248 Bridge TR-193 Over Big Creek Date: 11/20/15
Section: 15-07131-00-BR Station 3+24
Structure: 017-3724 Bored by: J. Carter
County: Crawford Checked by: T. Holcomb

Boring No. <u>2</u> Station: <u>2+87</u> Offset: <u>6' LT</u>	Elevation	N	Qu tsf	B	w	Surface Water Elev.		Elevation	N	Qu tsf	B	w
						During Drilling	Upon Completion					
Ground Surface	455.7	0										
3" Crushed Stone												
Brown Mottled Gray Silty CLAY (A-6)		7	0.9B	20				-25	35	5.8B	8	
								432.2				
		13	2.1S	18				-5	37	5.5B	9	
								427.2				
		9	1.4S	21				-30	19	2.8S	14	
447.2												
Brown Sandy CLAY (A-6)		7	1.0B	16				-10				
444.7												
Brown Silty CLAY (A-6) with sand and pebbles		34	7.7B	8				-35	66	7.3S	11	
								-15	33	5.6B	8	
								417.2	100	/4"	7	
		43	4.9B	8				-40				
									100	/3"	7	
		42	6.8S	8				-20				
								411.7	100	/3"	8	
		44	7.5S	7								
End of Boring @ -44.0'												

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft.
w-Water Content-percentage of oven dry weight-%
B = Bulge Failure
S = Shear Failure
E = Estimated Value
P = Penetrometer

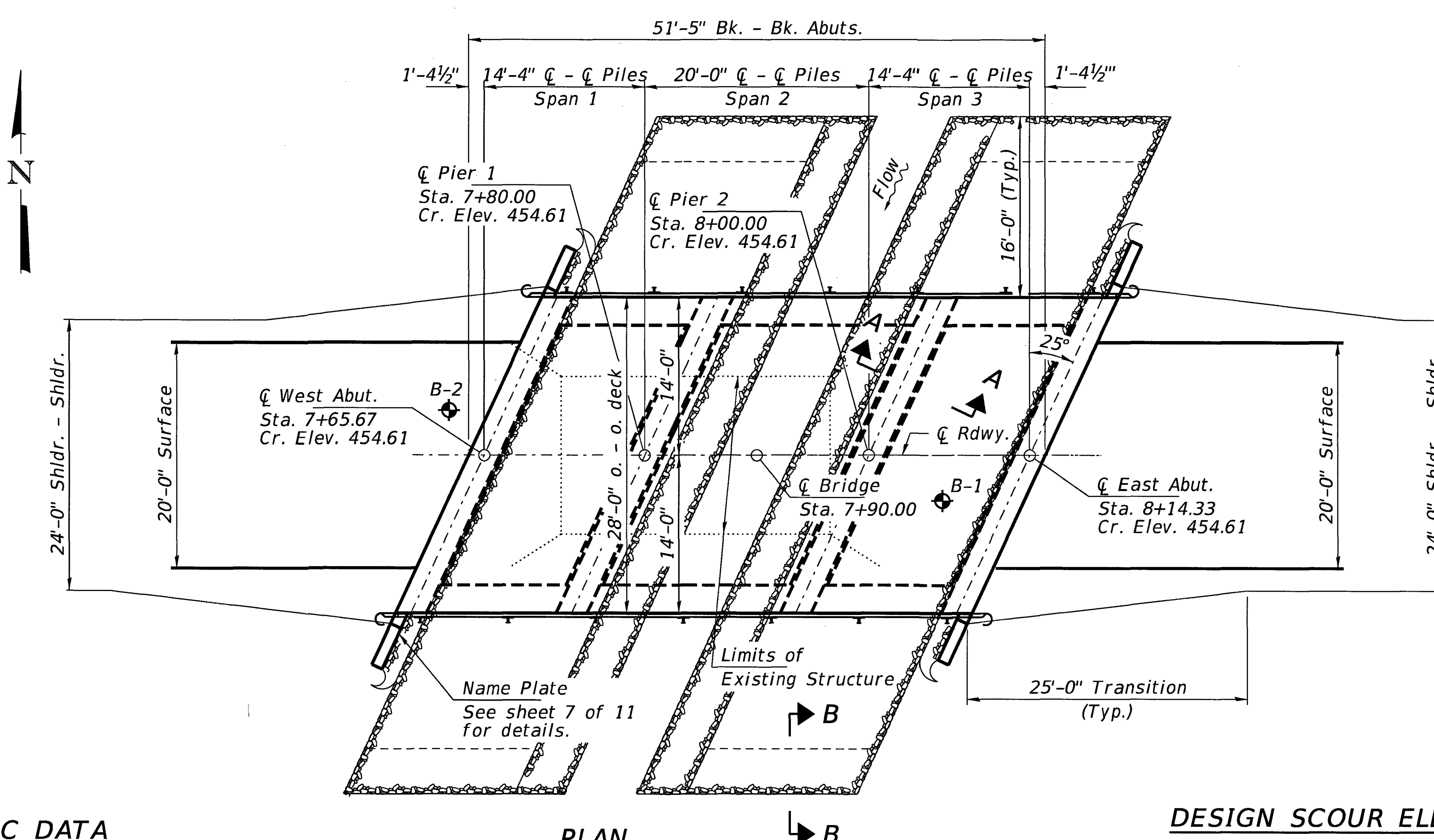
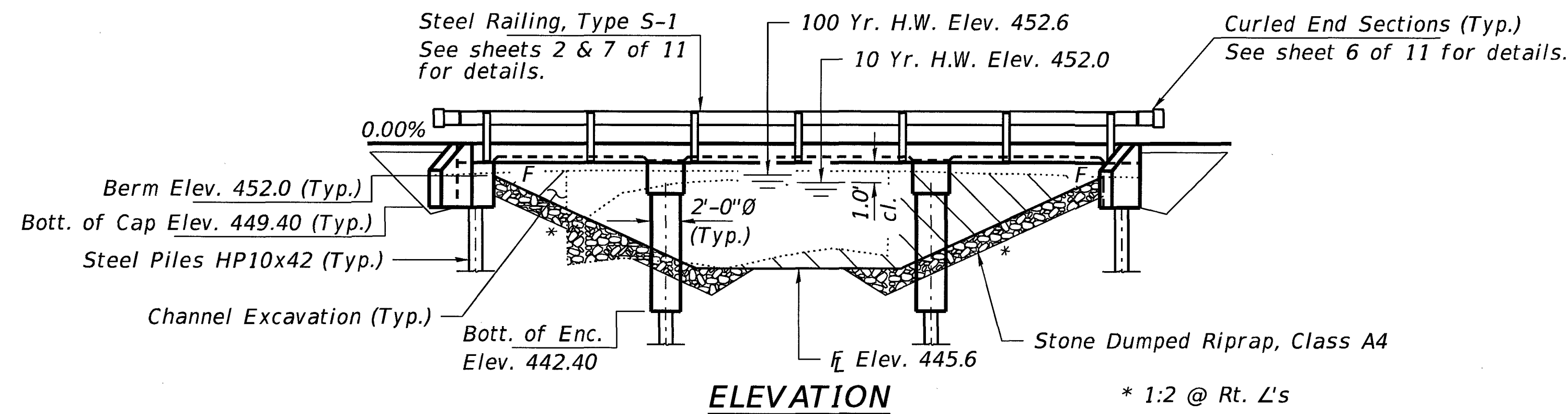
BORING-2

BENCHMARK:

EXISTING STRUCTURE NO. 017-3725; Sta. 7+84.50; Single span concrete arch bridge with closed concrete abutments and wingwalls. 24.0' fc. - fc. abuts. and 14.0' o. - o. deck.

Structure closed to traffic during construction.

No Salvage



GENERAL NOTES

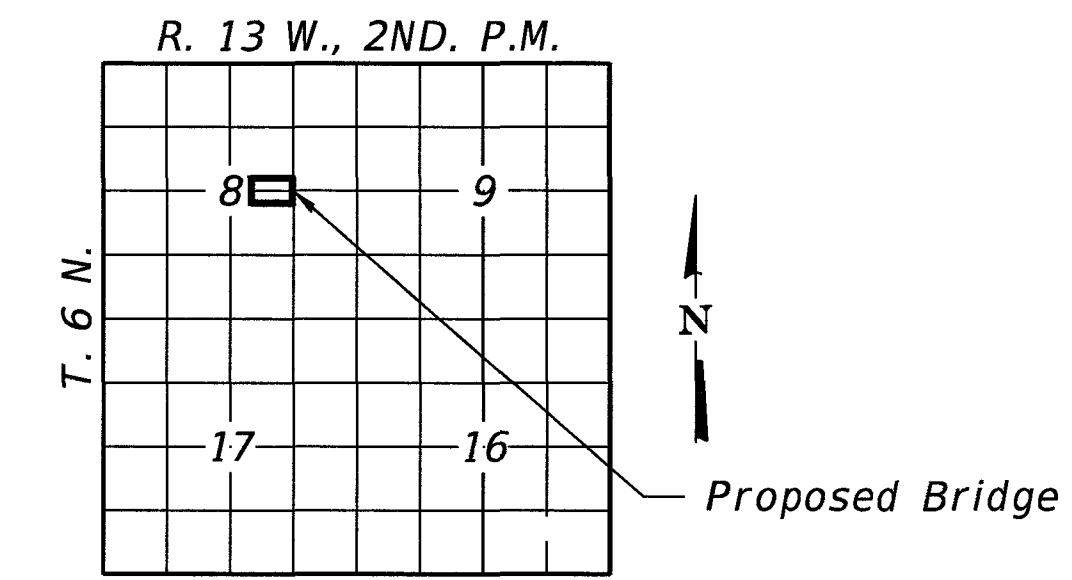
Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
 The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at West Abutment and Pier 2 or approved by the Engineer before ordering the remainder of piles.
 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 Contractor shall make allowance for the deflection of forms, shrinkage, and settlement of falsework, in addition to allowance for dead load deflection. Forms for deck slab shall be removed prior to placement of bridge approach slab.
 Protective Coat shall be applied to the top surface and the sides of the concrete deck and wingwalls.
 Reinforcement bars designated (E) shall be epoxy coated.
 Excavation required to construct the Abutments and Piers shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation or Cofferdam Excavation.

INDEX OF STRUCTURE SHEETS

- 1. General Plan & Elevation
- 2. General Details
- 3. Top of Slab Elevations
- 4. Superstructure
- 5. Superstructure Details
- 6. Steel Railing, Type S-1
- 7. Abutments
- 8. Piers
- 9. HP Pile Details
- 10-11. Borings

BRUSH CREEK
 BUILT 201 BY
 CRAWFORD COUNTY
 SEC. 15-07131-00-BR
 STATION 7+90
 STR. NO. 017-3755
 LOADING HL-93

NAME PLATE
 See Std. 515001



LOCATION SKETCH

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (SD1) = 0.150g
 Design Spectral Acceleration at 0.2 sec. (SDS) = 0.375g
 Soil Site Class = C

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications, 8th Edition with all interims.

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

FIELD UNITS

f'c = 4,000 psi (Superstructure)
 f'c = 3,500 psi (Substructure)
 fy = 60,000 psi (Reinf.)
 fy = 50,000 psi (Steel H-Pile) (M270 Gr. 50)

WATERWAY INFORMATION

Drainage Area = 7.1 Mi² Existing Low Grade Elev. 450.50 @ Sta. 6+00
 Proposed Low Grade Elev. 452.16 @ Sta. 6+00

Flood	Freq. Yr.	Q C.F.S.	Opening Ft ²		Nat. H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	10	1530	108	170	452.0	0.1	0.4	452.1	452.4	
Base	100	2900	108	200*	452.6	0.0	0.6	452.6	453.2	

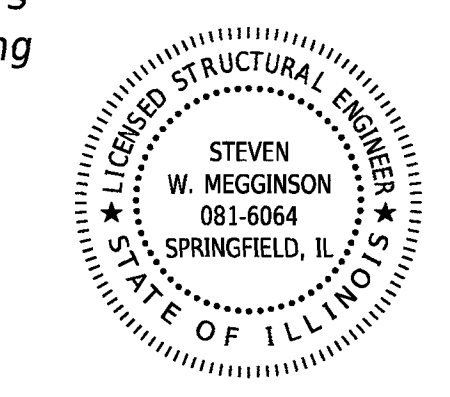
* Low water approach to remain

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elevations (ft.)				Item 113
	W. Abut.	Pier 1	Pier 2	E. Abut.	
Q100	449.4	440.1	440.1	449.4	8
Q200	449.4	440.1	440.1	449.4	
Design	449.4	440.1	440.1	449.4	
Check	449.4	440.1	440.1	449.4	

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 LRFD Specifications."

Steven W. Megginson 10/08/2018
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064

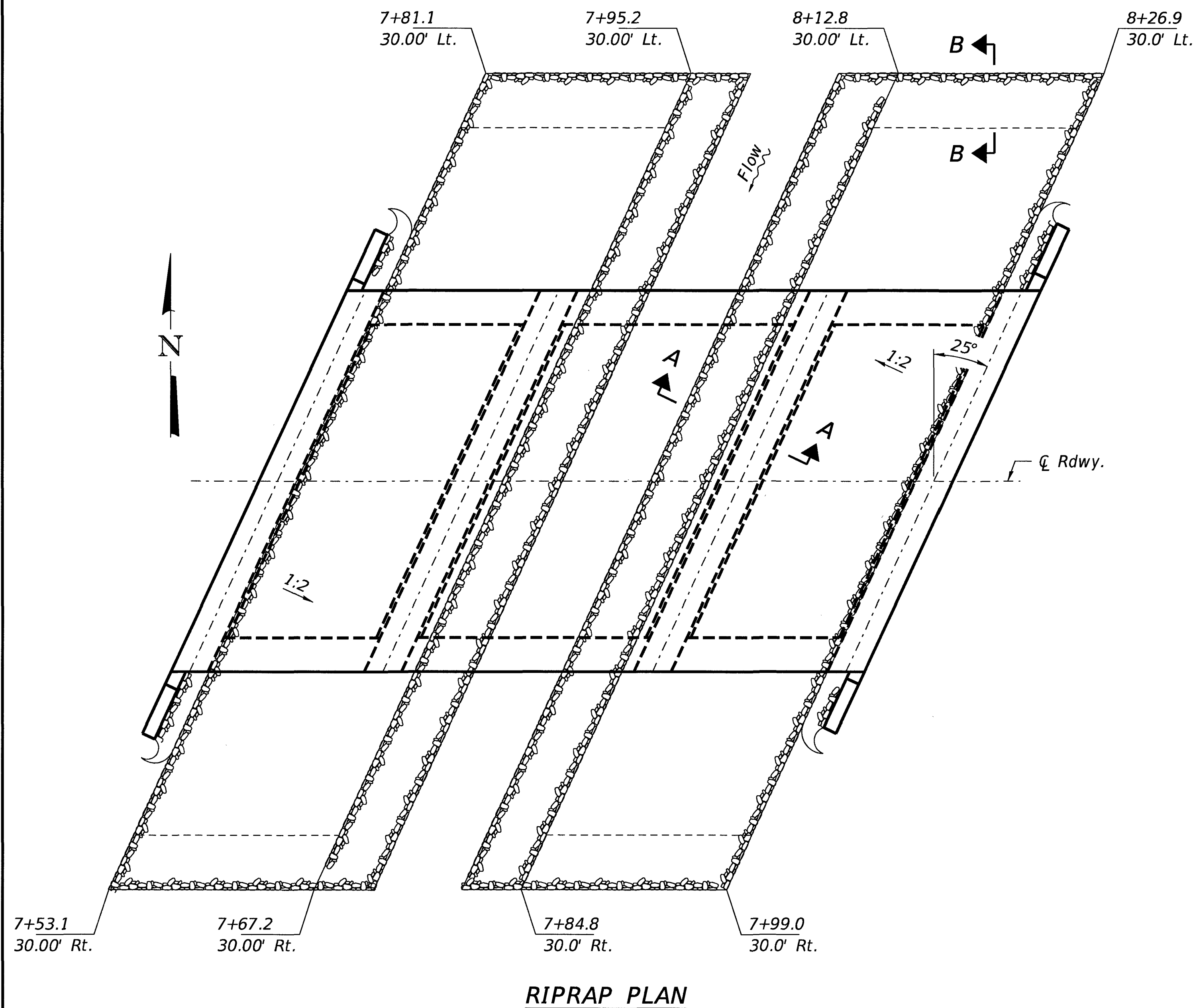
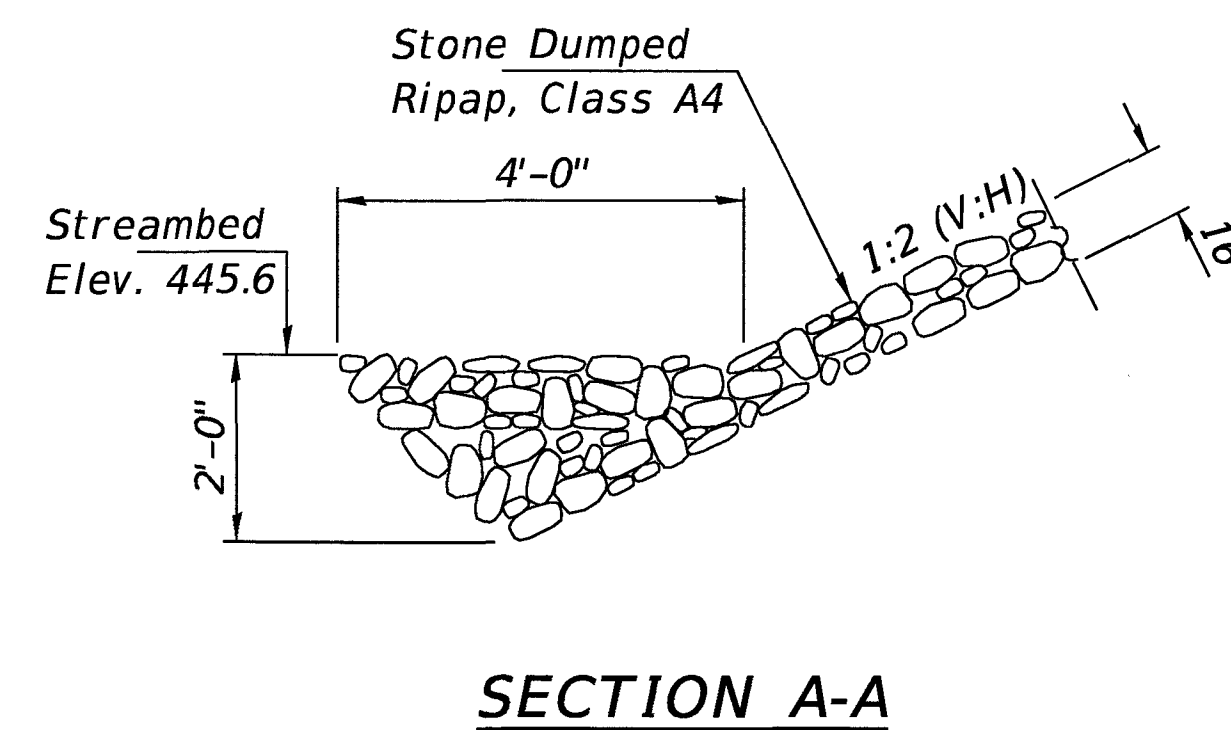
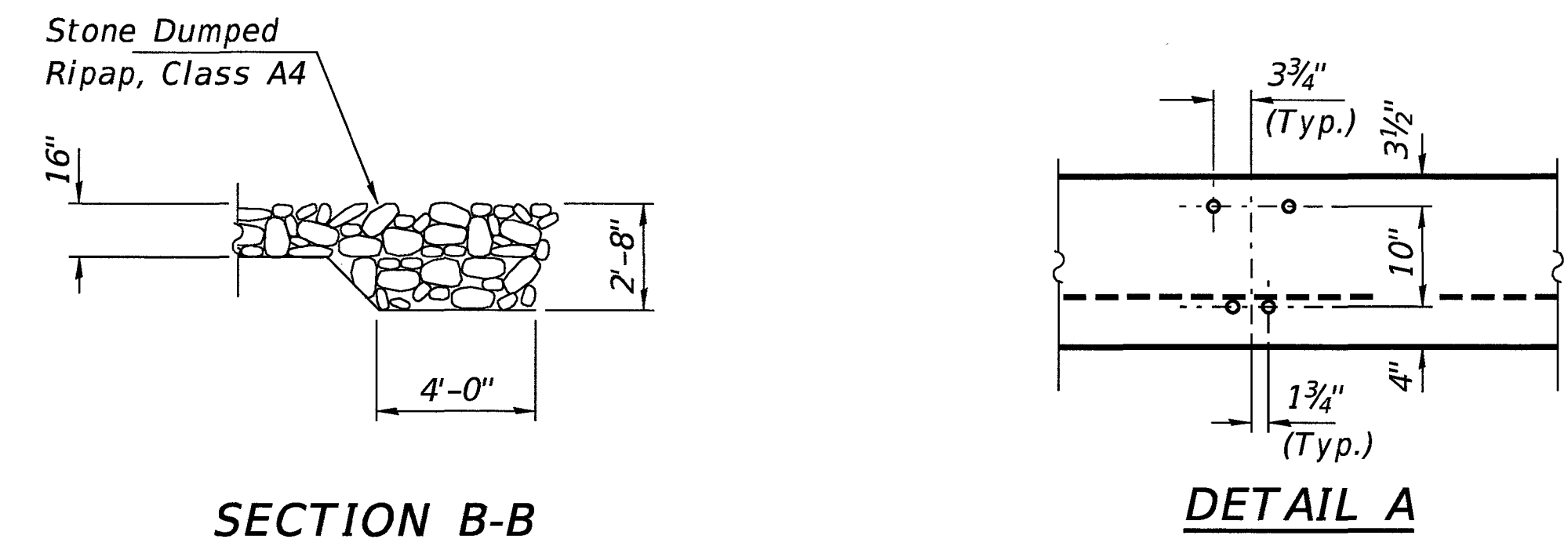
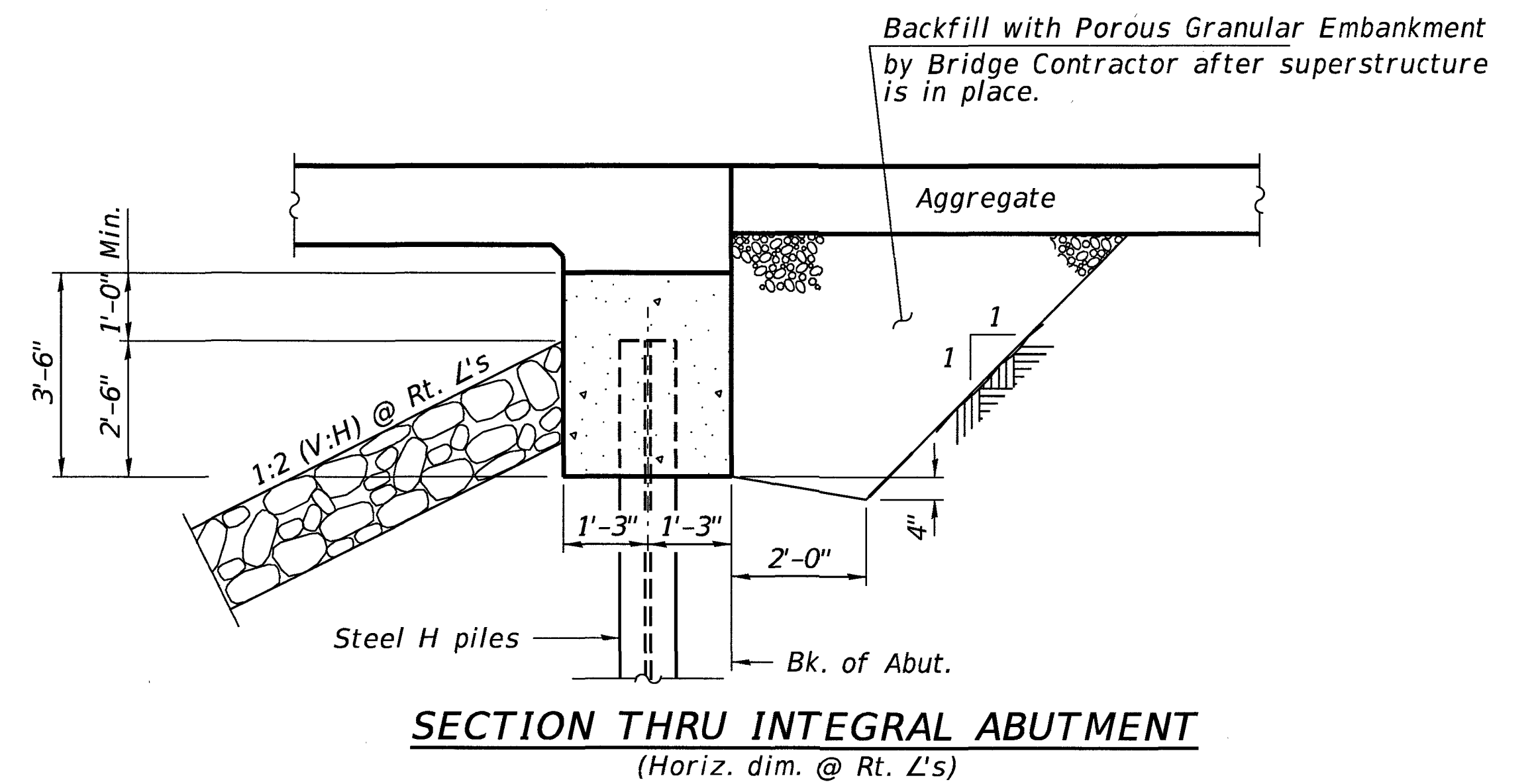
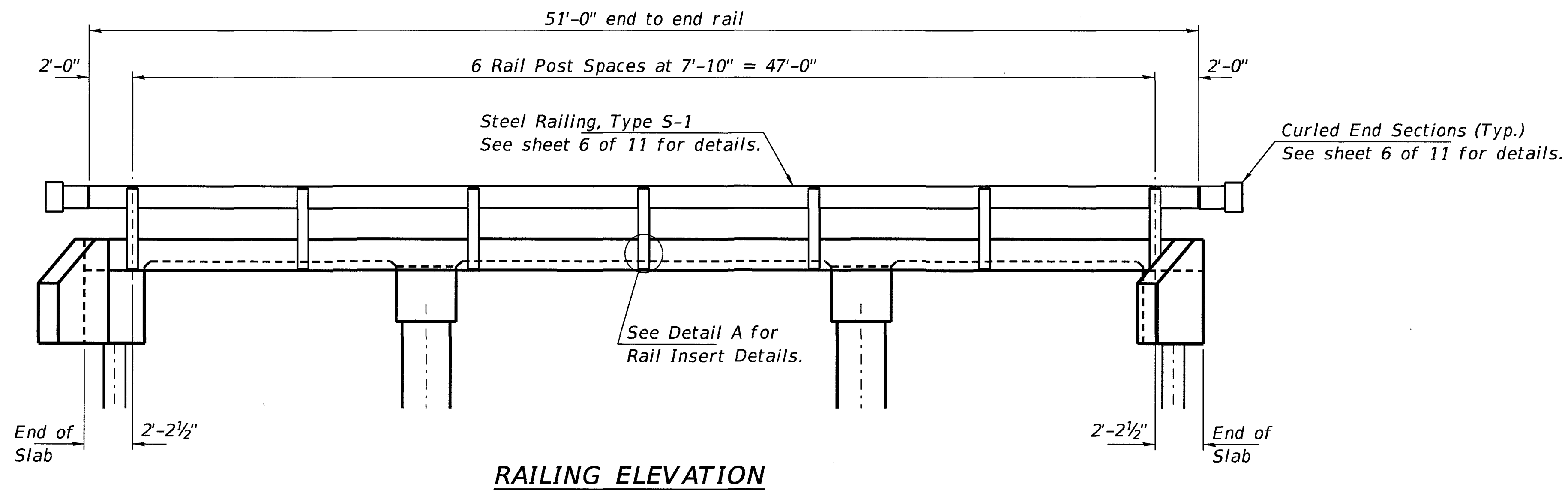


Expires 11-30-2020

GENERAL PLAN & ELEVATION

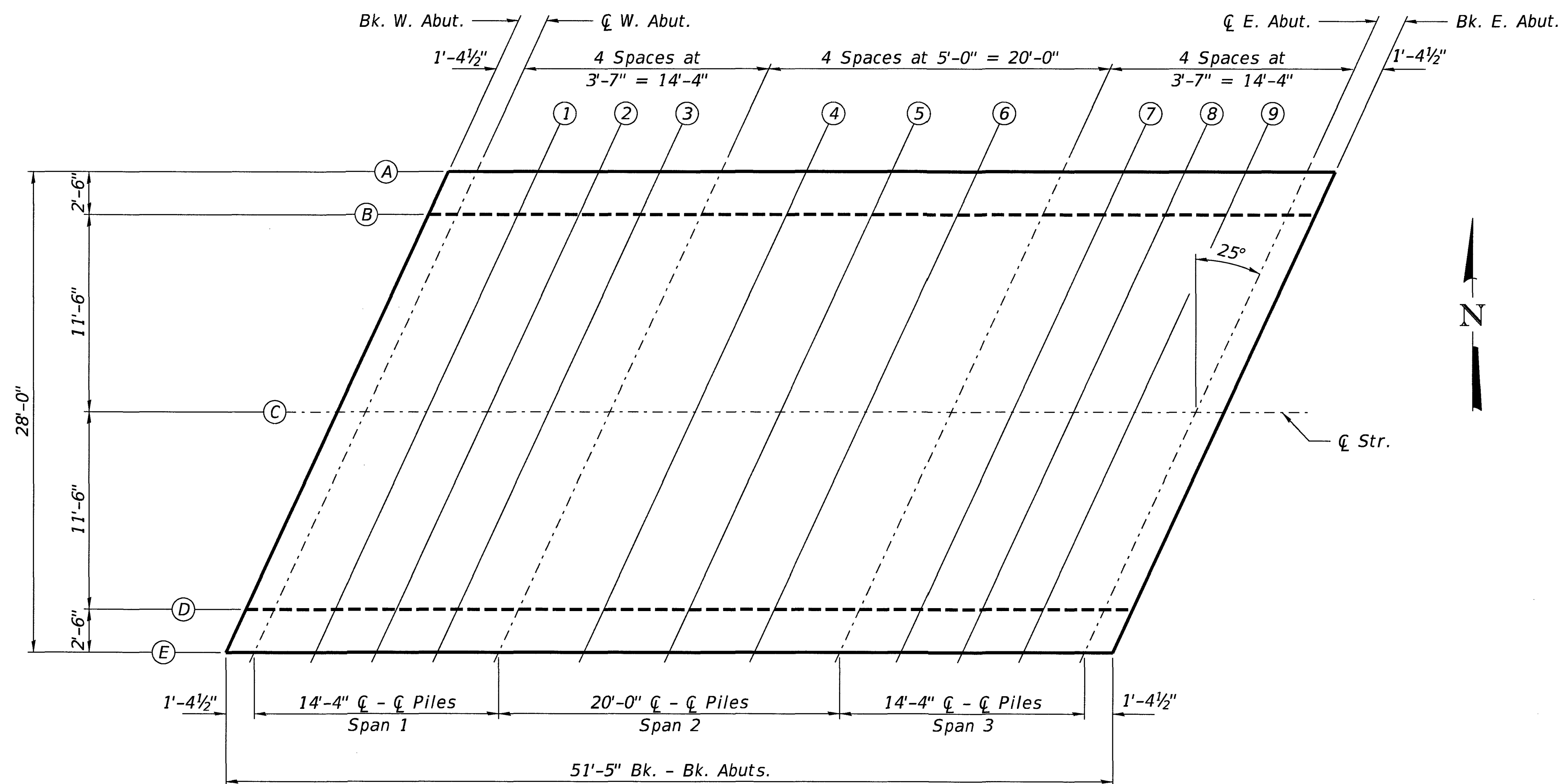
T.R. 193
 OVER BRUSH CREEK
 SECTION 15-07131-00-BR
 CRAWFORD COUNTY
 STATION 7+90.00
 STRUCTURE NO. 017-3755

FILE NAME = 170205-eh-bridge-3755.dgn	USER NAME = rnosick	DESIGNED - J.R.B.	REVISED -	STATE OF ILLINOIS CRAWFORD COUNTY HIGHWAY DEPARTMENT	GENERAL PLAN AND ELEVATION STRUCTURE NO. 017-3755	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 308 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE = \$S CALES	CHECKED - S.W.M.	REVISED -			193	15-07131-00-BR	CRAWFORD	25	15
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-000959	PLOT DATE = 10/8/2018	DRAWN - D.A.B.	REVISED -			OBLONG ROAD DISTRICT		CRAWFORD		
		CHECKED - S.W.M.	REVISED -							

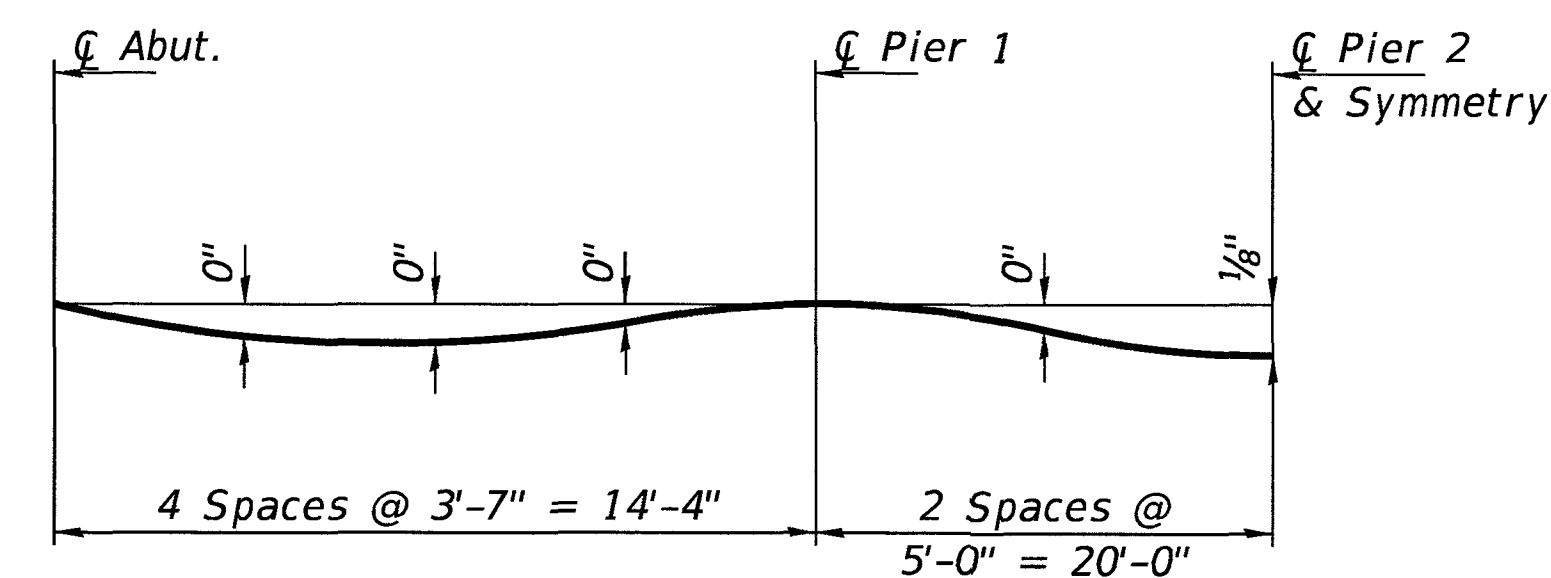


TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			75
Porous Granular Embankment	Ton			99
Stone Dumped Riprap, Class A4	Ton			190
Protective Coat	Sq. Yd.	177	13	190
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		41.7	41.7
Concrete Superstructure	Cu. Yd.	67.7		67.7
Concrete Encasement	Cu. Yd.		7.2	7.2
Reinforcement Bars, Epoxy Coated	Pound	33,900	6,290	40,190
Steel Railing, Type S-1	Foot	102		102
Furnishing Steel Piles HP10x42	Foot		630	630
Driving Piles	Foot		630	630
Test Pile Steel HP10x42	Each		2	2
Name Plates	Each	1		1
Terminal Marker - Direct Applied	Each	4		4



PLAN



DEAD LOAD DEFLECTION DIAGRAM
(Includes weight of concrete only.)

Notes:
The deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown.
The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework in addition to allowance for dead load deflection.

LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
A	ADJ.	454.318	454.318	454.322	454.322	454.318	454.318	454.322	454.325	454.322	454.318	454.318	454.322	454.322	454.318	454.318
	Bott. of Slab	452.902	452.902	452.905	452.905	452.902	452.902	452.905	452.908	452.905	452.902	452.902	452.905	452.905	452.902	452.902

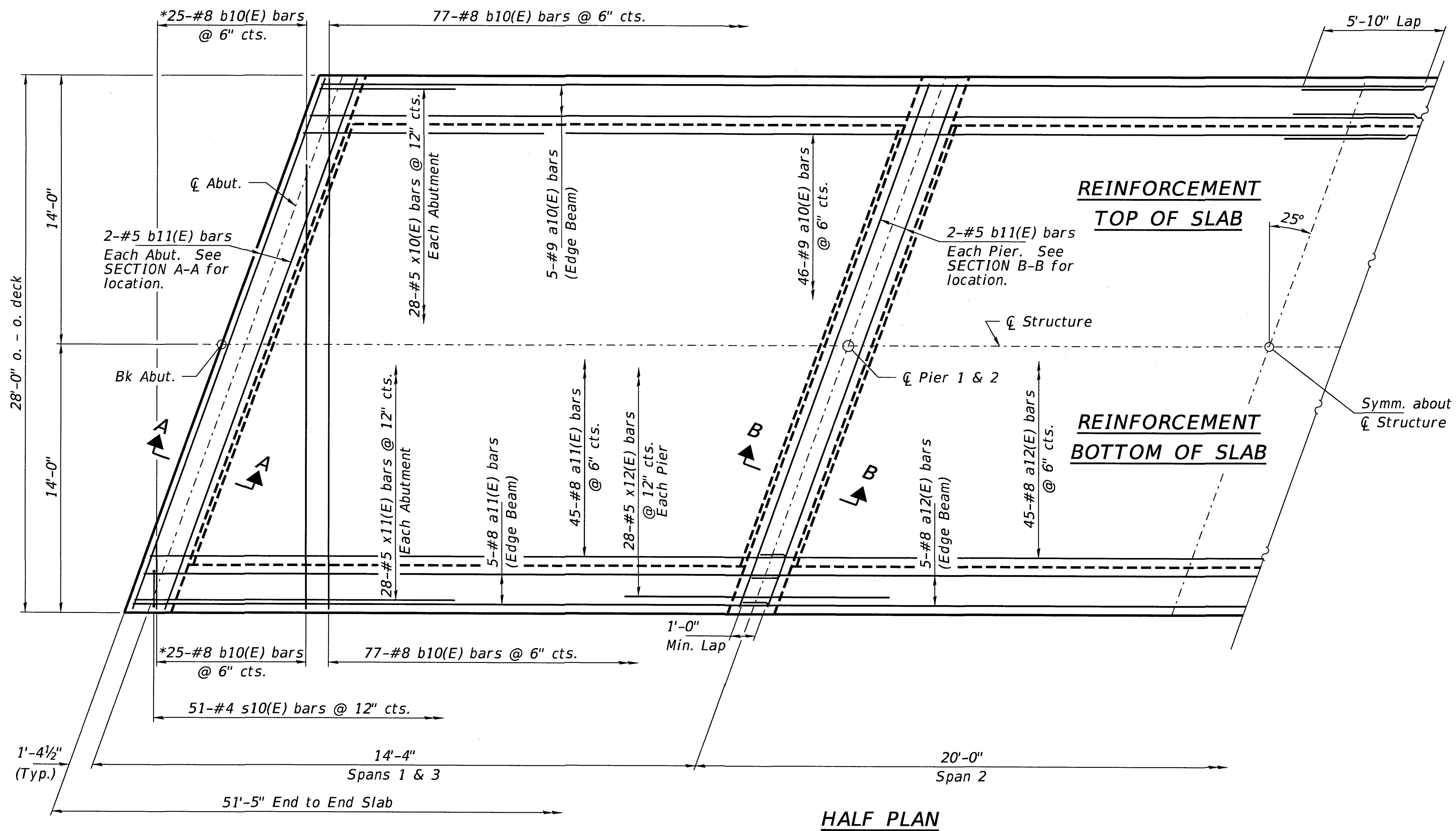
LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
B	ADJ.	454.370	454.370	454.374	454.374	454.370	454.370	454.374	454.377	454.374	454.370	454.370	454.374	454.374	454.370	454.370
	Bott. of Slab	453.370	453.370	453.374	453.374	453.370	453.370	453.374	453.377	453.374	453.370	453.370	453.374	453.374	453.370	453.370

LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
C	ADJ.	454.610	454.610	454.613	454.613	454.610	454.610	454.613	454.617	454.610	454.610	454.610	454.613	454.613	454.610	454.610
	Bott. of Slab	453.610	453.610	453.613	453.613	453.610	453.610	453.613	453.617	453.613	453.610	453.610	453.613	453.613	453.610	453.610

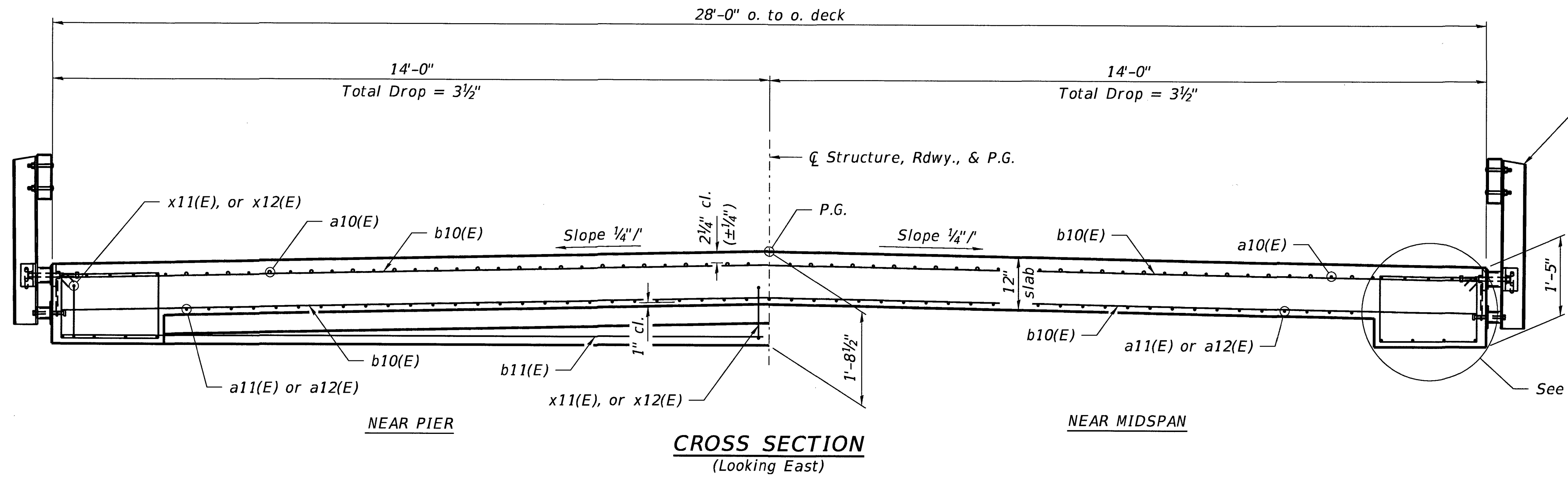
LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
D	ADJ.	454.370	454.370	454.374	454.374	454.370	454.370	454.374	454.377	454.374	454.370	454.370	454.374	454.374	454.370	454.370
	Bott. of Slab	453.370	453.370	453.374	453.374	453.370	453.370	453.374	453.377	453.374	453.370	453.370	453.374	453.374	453.370	453.370

LOCATION		BK. W.	CL W.	SPAN 1			CL	SPAN 2			CL	SPAN 3			CL E.	BK. E.
LINE	T.	ABUT.	ABUT.	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT.	ABUT.
E	ADJ.	454.318	454.318	454.322	454.322	454.318	454.318	454.322	454.325	454.322	454.318	454.318	454.322	454.322	454.318	454.318
	Bott. of Slab	452.902	452.902	452.905	452.905	452.902	452.902	452.905	452.908	452.905	452.902	452.902	452.905	452.905	452.902	452.902

T. - Theoretical elevation at top of slab
Adj. - T adjusted for dead load deflection
* Bottom of slab elevation equals bottom of edge beam



HALF PLAN



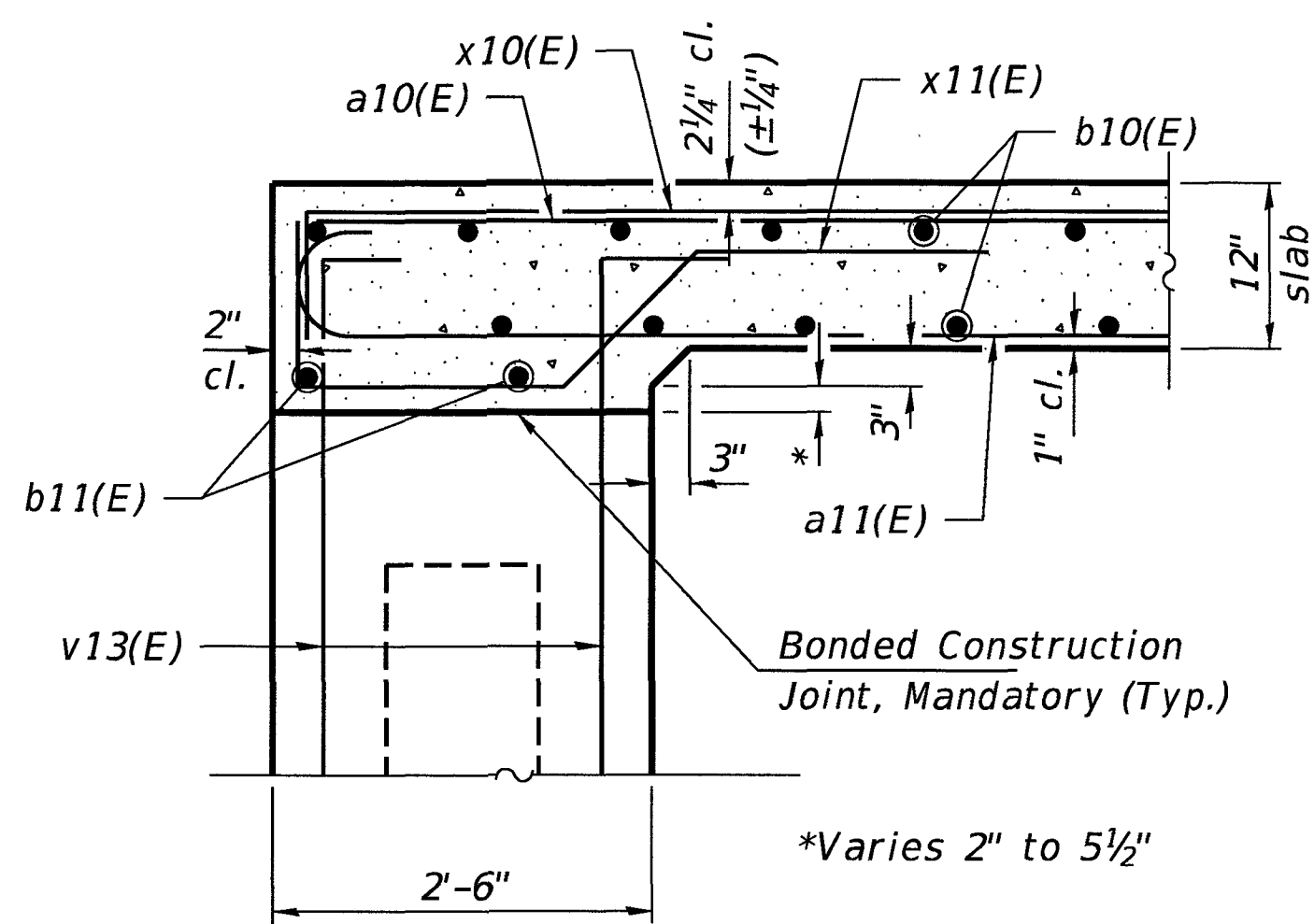
CROSS SECTION
(Looking East)

Steel Railing, Type S-1
See sheets 2 & 6
of 11 for details.

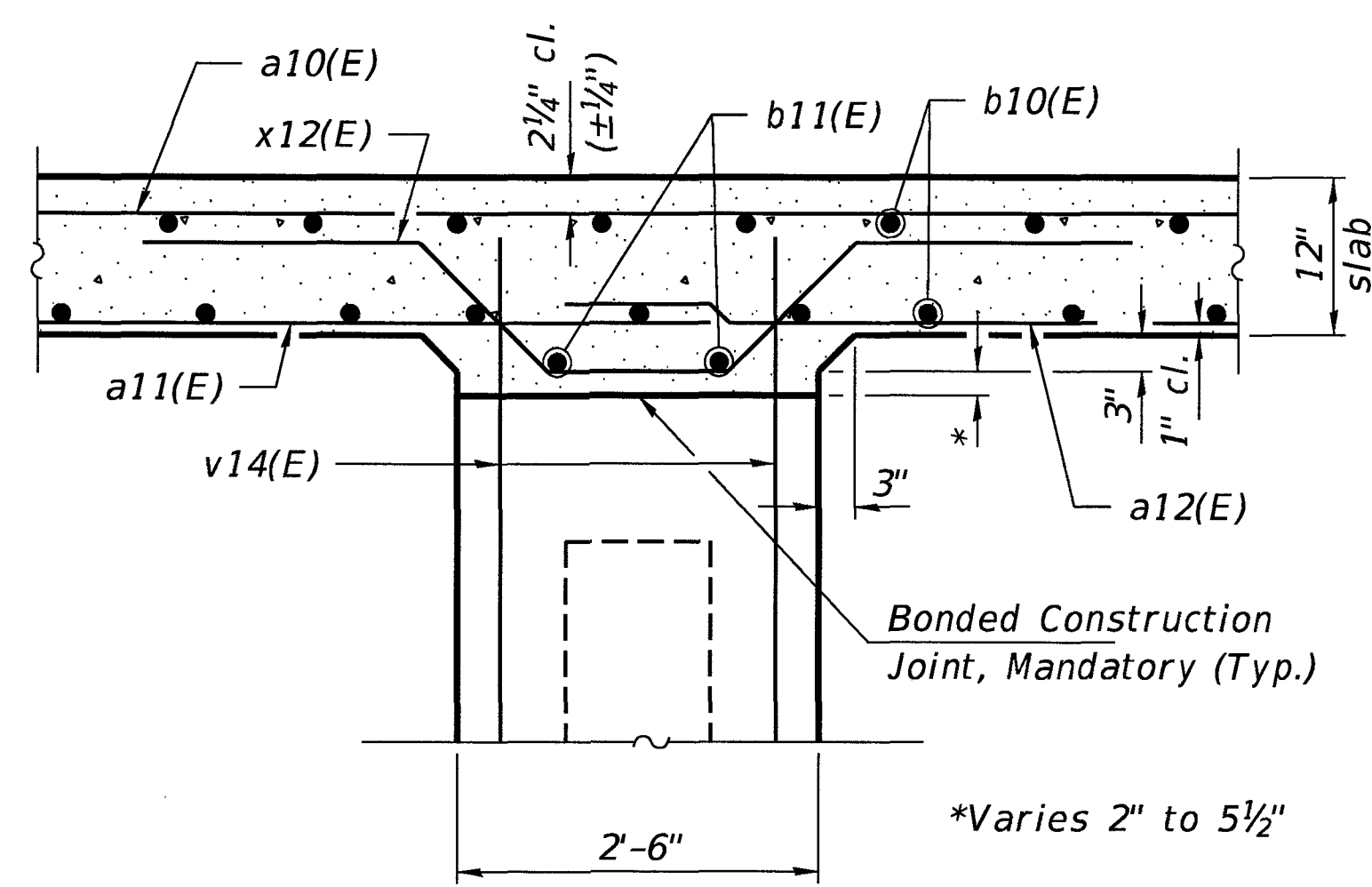
Notes:
See sheets 5 of 11 for Superstructure
Details and Bill of Material.
See sheet 5 of 11 for SECTION A-A,
SECTION B-B and DETAIL A.
Bars indicated thus 35x2-#9 etc. indicates
35 lines of bars with 2 lengths per line.
* Order b10(E) bars full length. Cut to fit skew
and use remainder of bars in opposite end.

MIN. BAR LAP
#9 = 5'-10"

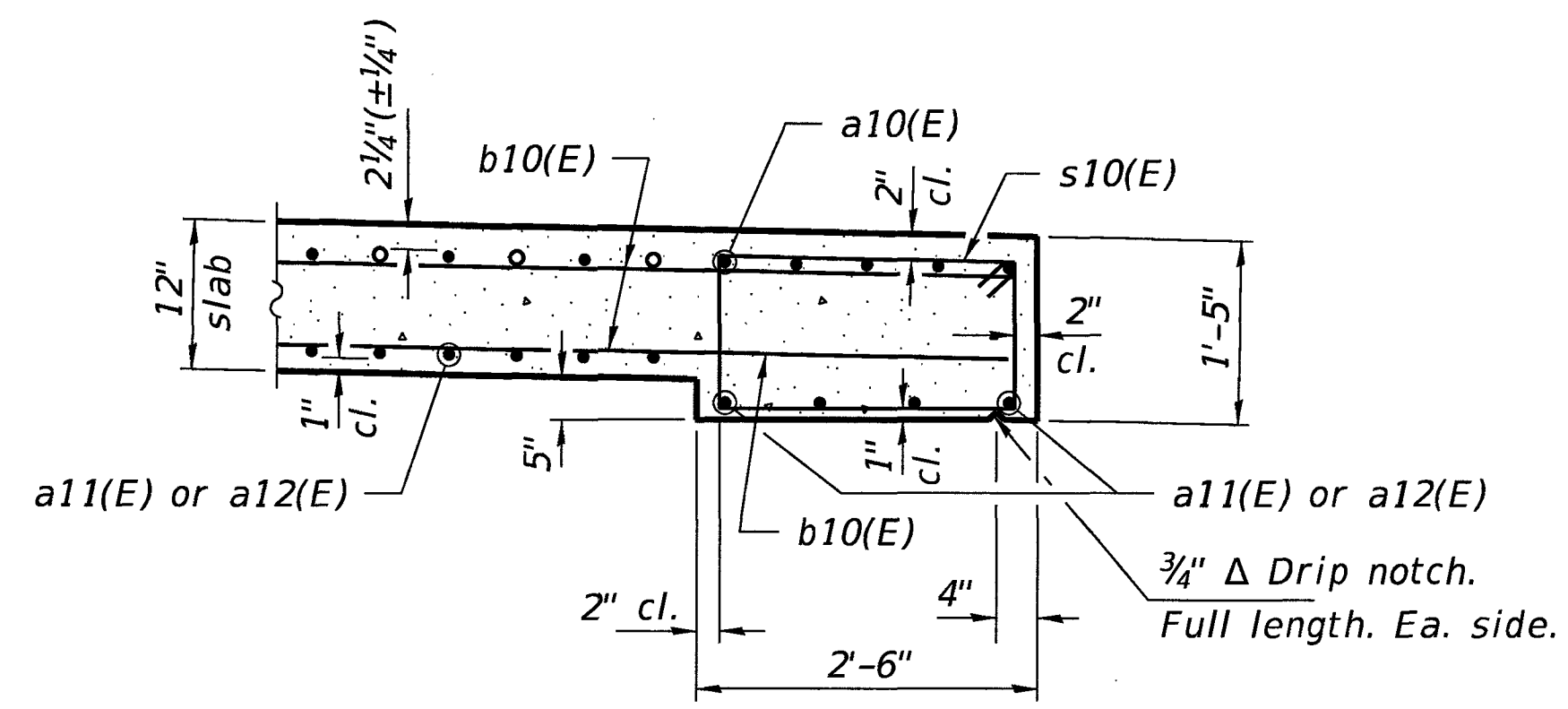
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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.009959	PLOT SCALE = \$SCALES	CHECKED - S.W.M.	REVISED -			193	15-07131-00-BR	CRAWFORD	25	18
	PLOT DATE = 10/8/2018	DRAWN - D.A.B.	REVISED -			OBLONG ROAD DISTRICT		CONTRACT NO. 95839		
		CHECKED - S.W.M.	REVISED -			ILLINOIS FED. AID PROJECT				



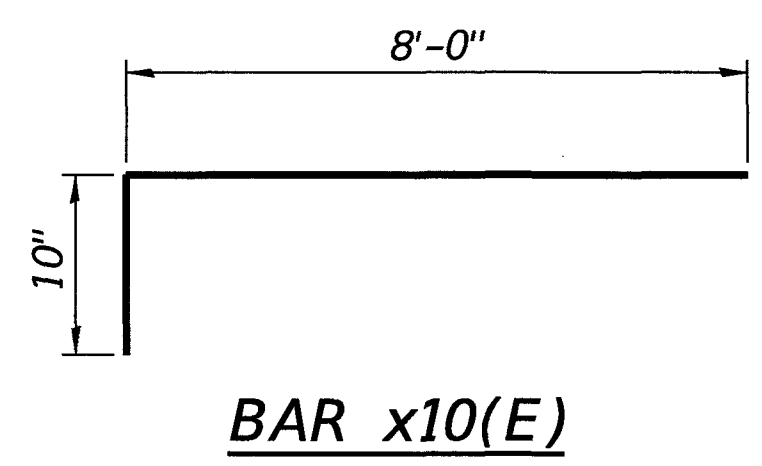
SECTION A-A



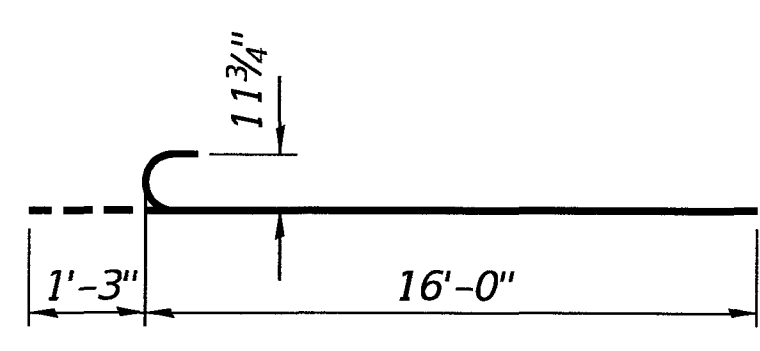
SECTION B-B



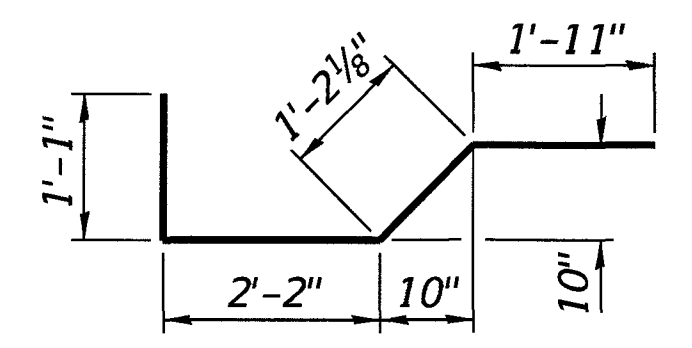
DETAIL A



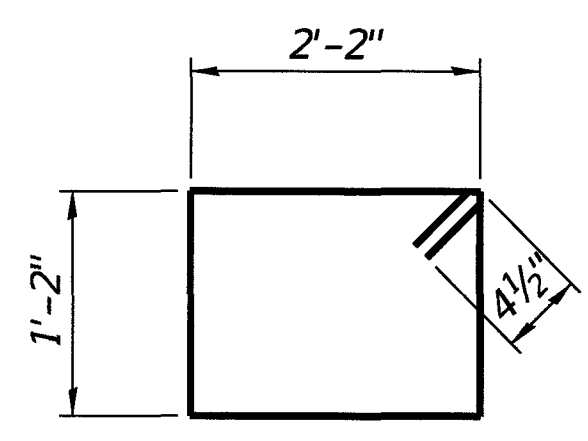
BAR x10(E)



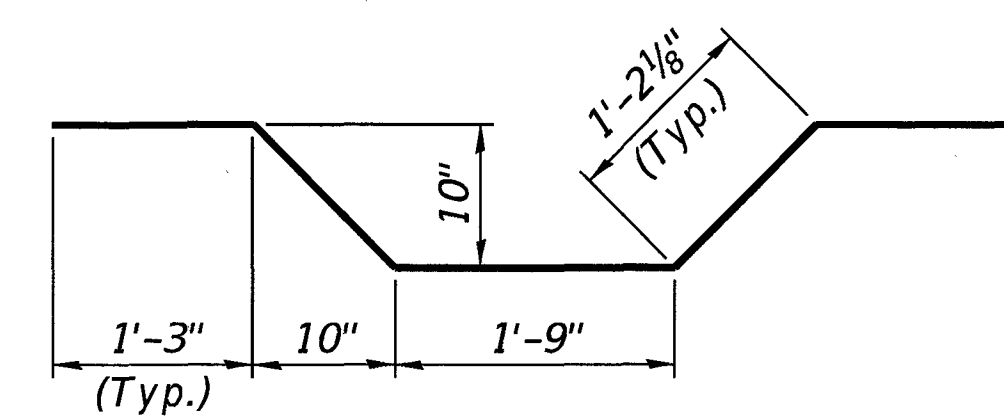
BAR a11(E)



BAR x11(E)



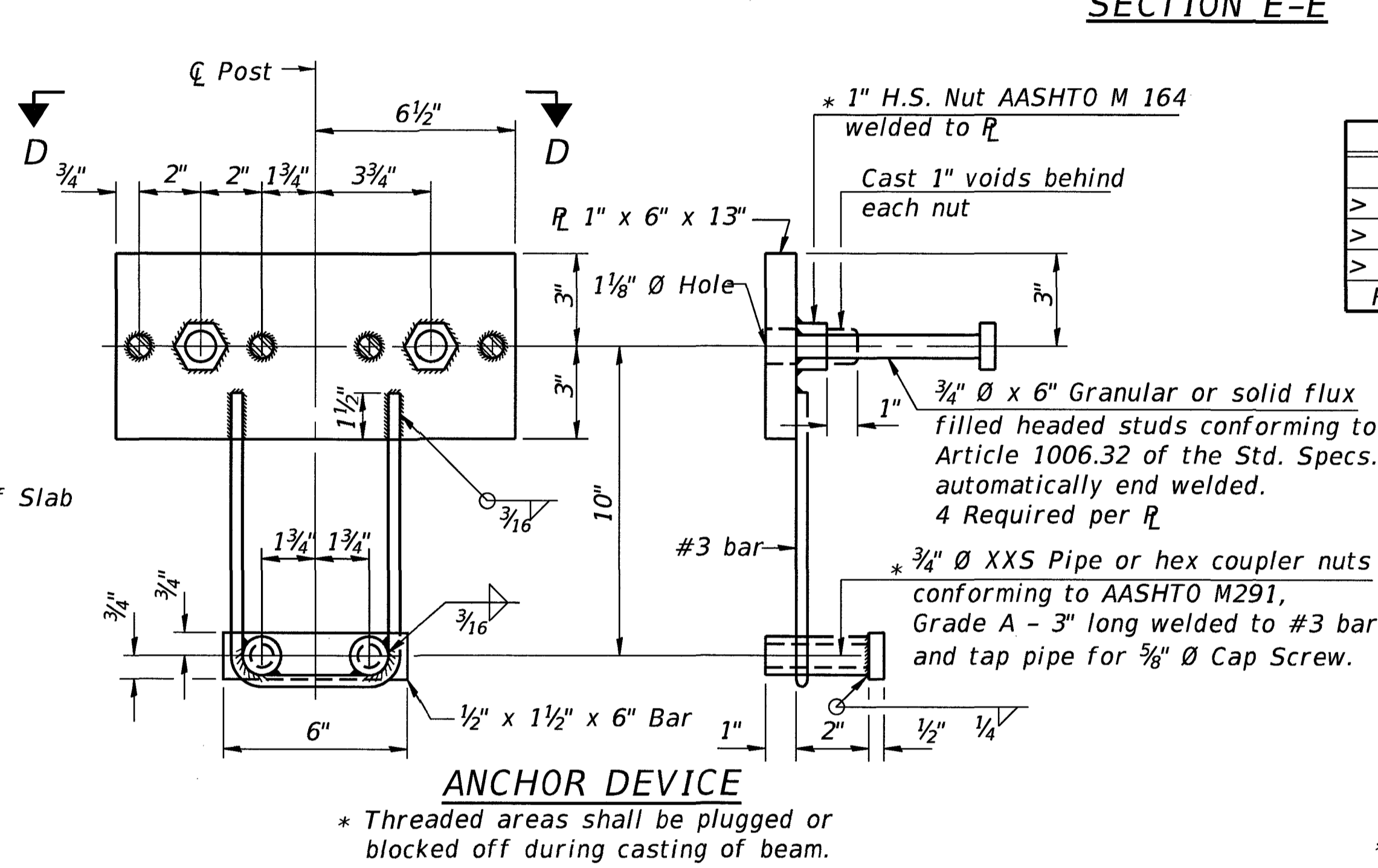
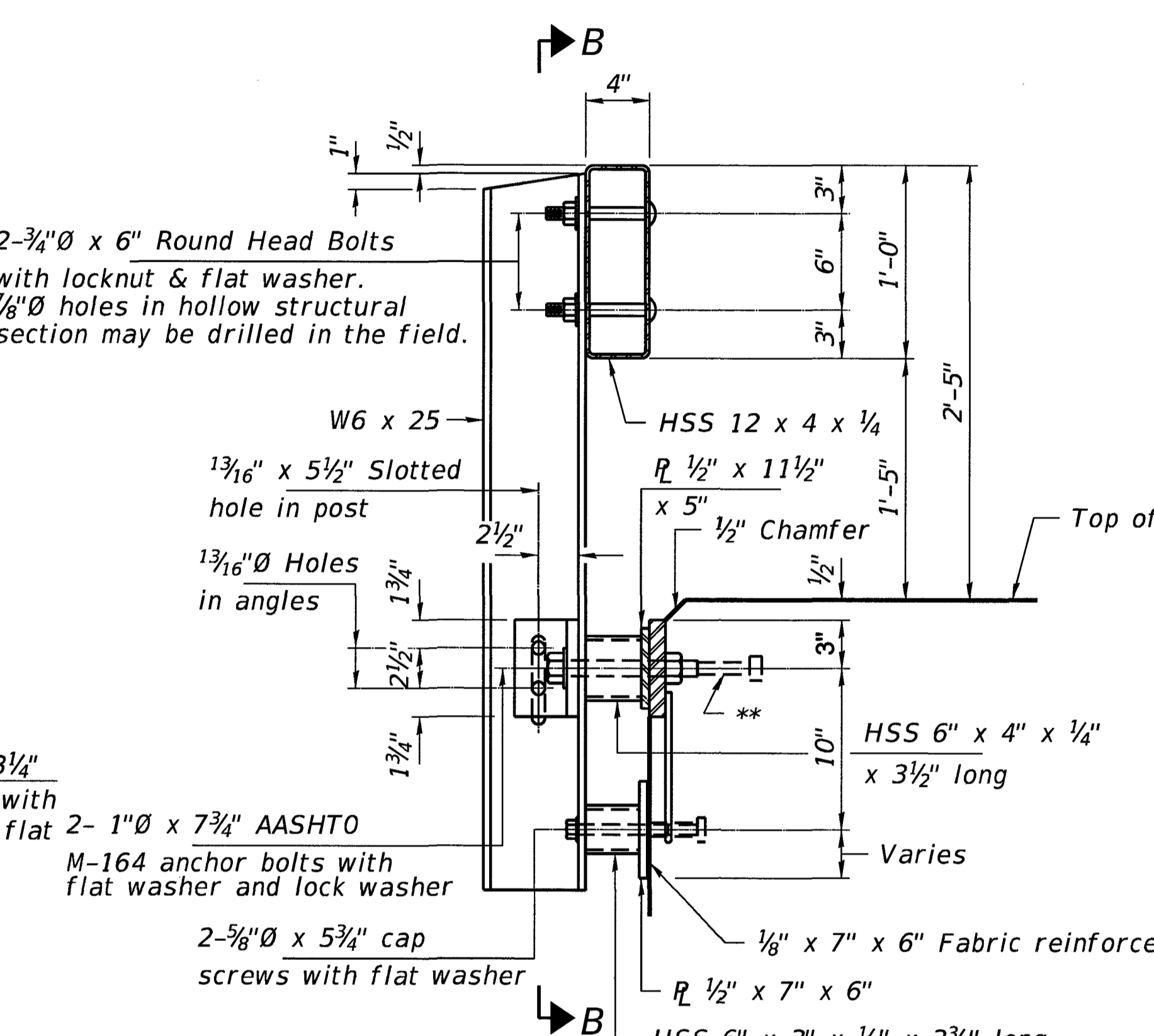
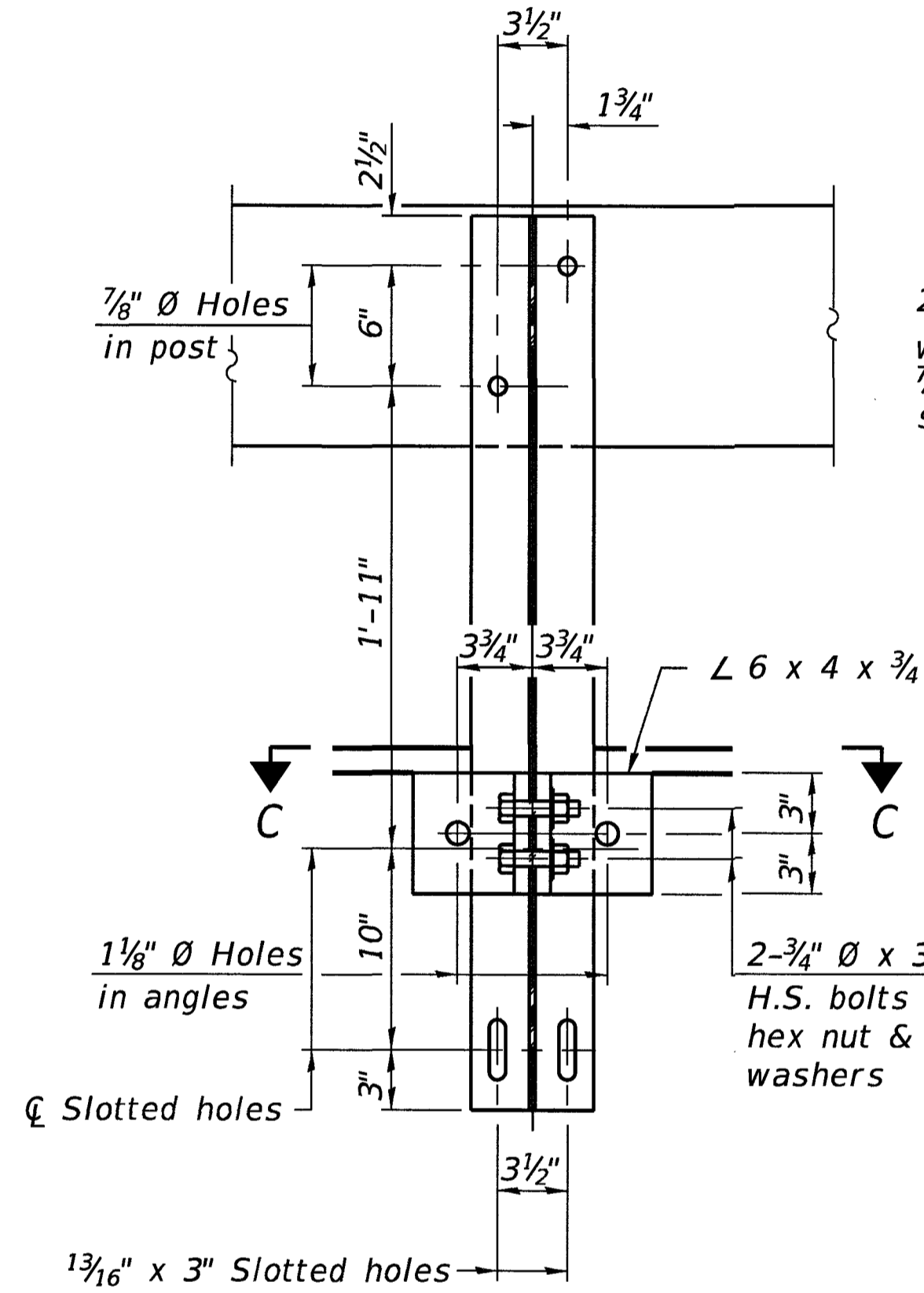
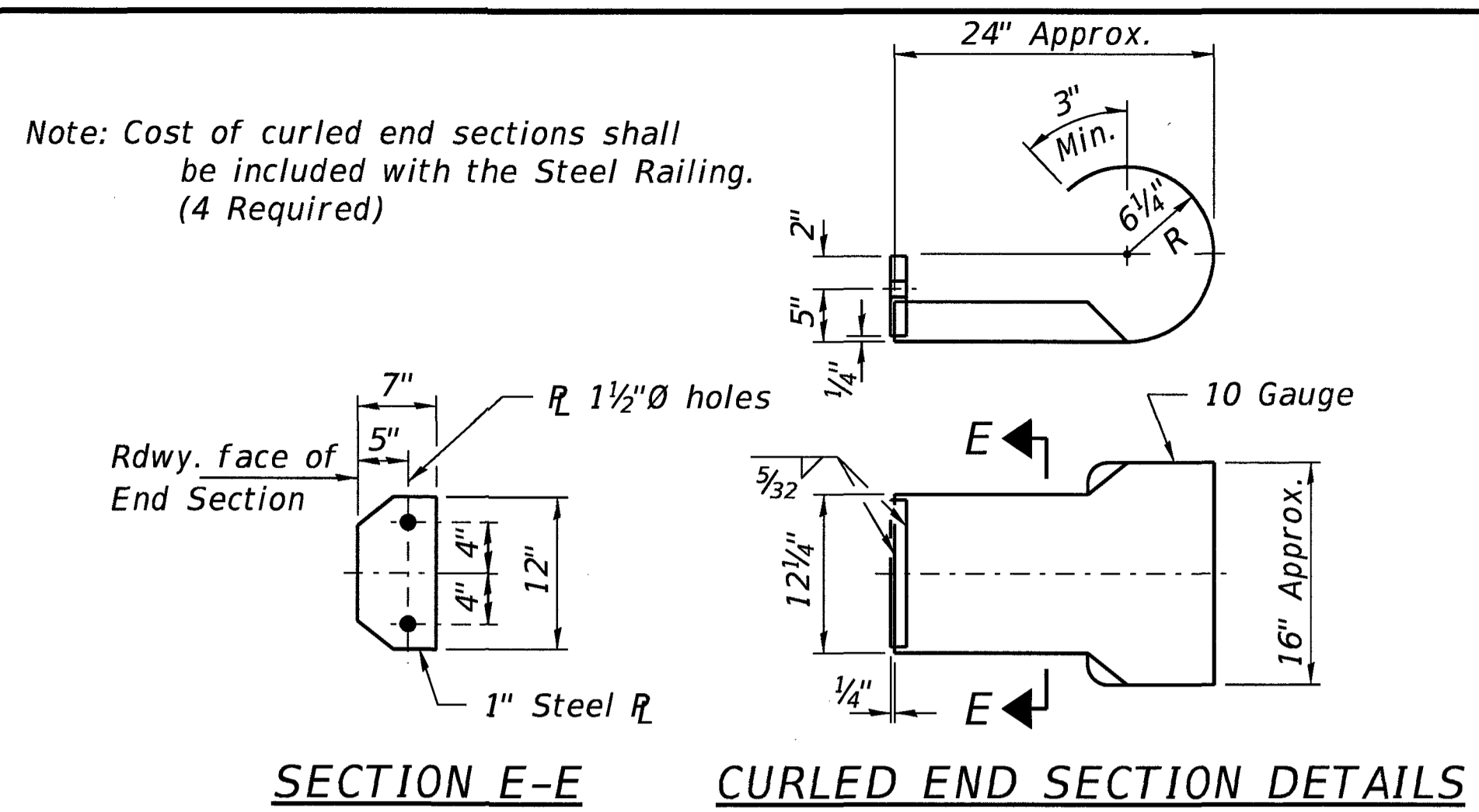
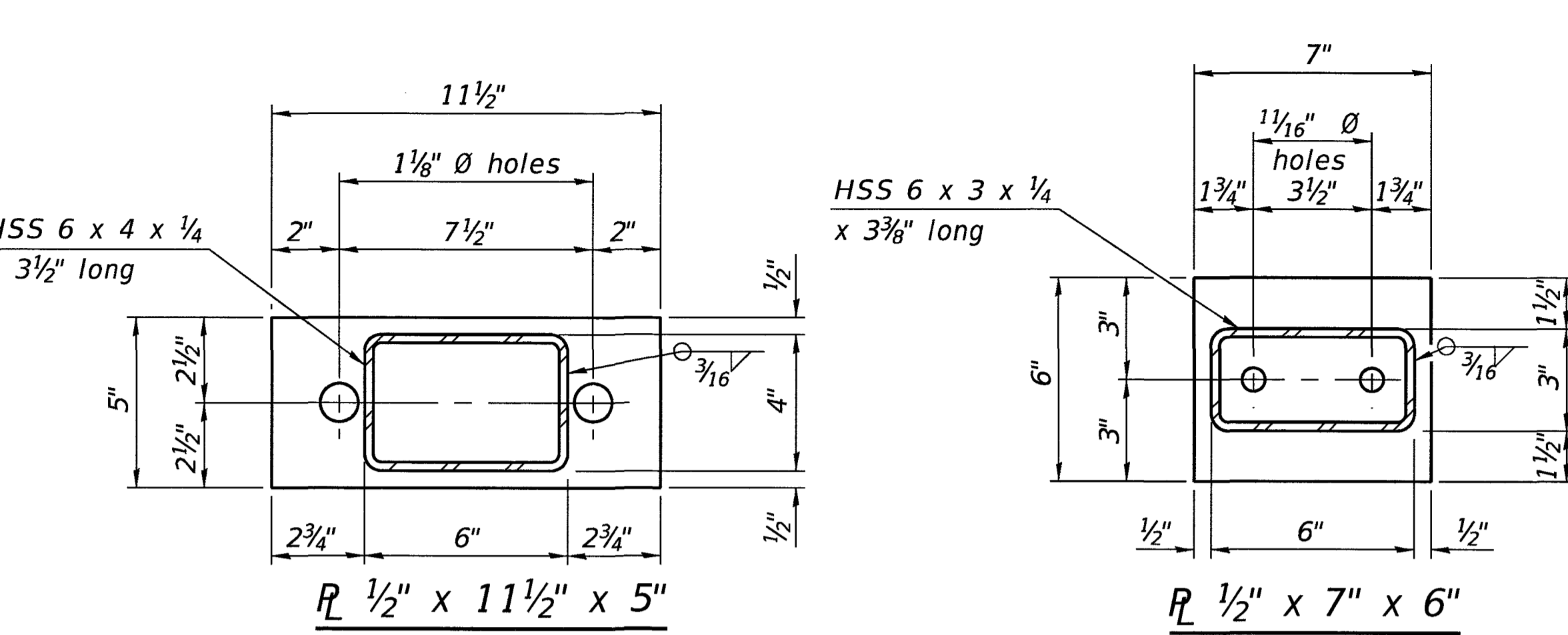
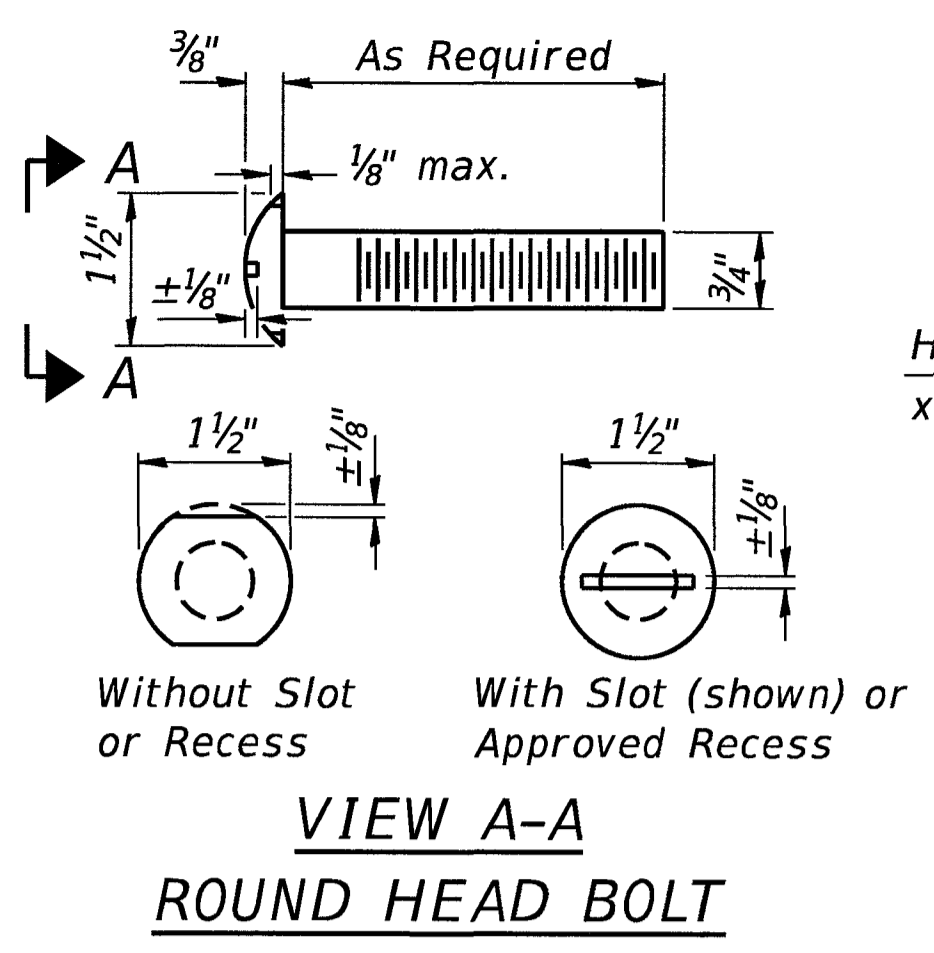
BAR s10(E)



BAR x12(E)

**SUPERSTRUCTURE
BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
a10(E)	82	#9	28'-6"	—
a11(E)	110	#8	17'-3"	C
a12(E)	55	#8	21'-0"	—
b10(E)	204	#8	27'-8"	—
b11(E)	8	#8	30'-6"	—
s10(E)	102	#5	7'-5"	□
x10(E)	56	#5	8'-10"	L
x11(E)	56	#5	6'-9"	—
x12(E)	56	#5	6'-6"	—
Protective Coat			Sq. Yd.	177
Concrete Superstructure			Cu. Yd.	67.7
Reinforcement Bars, Epoxy Coated			Pound	33,900

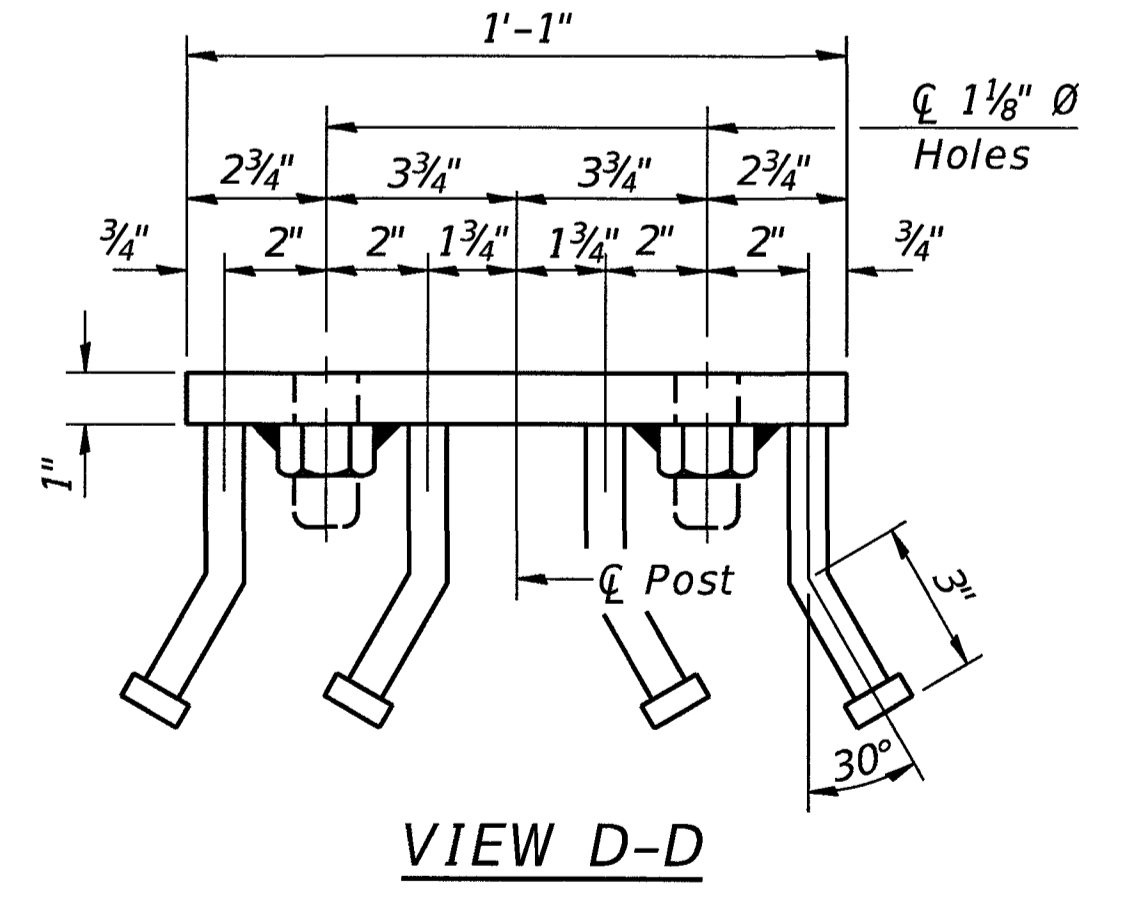
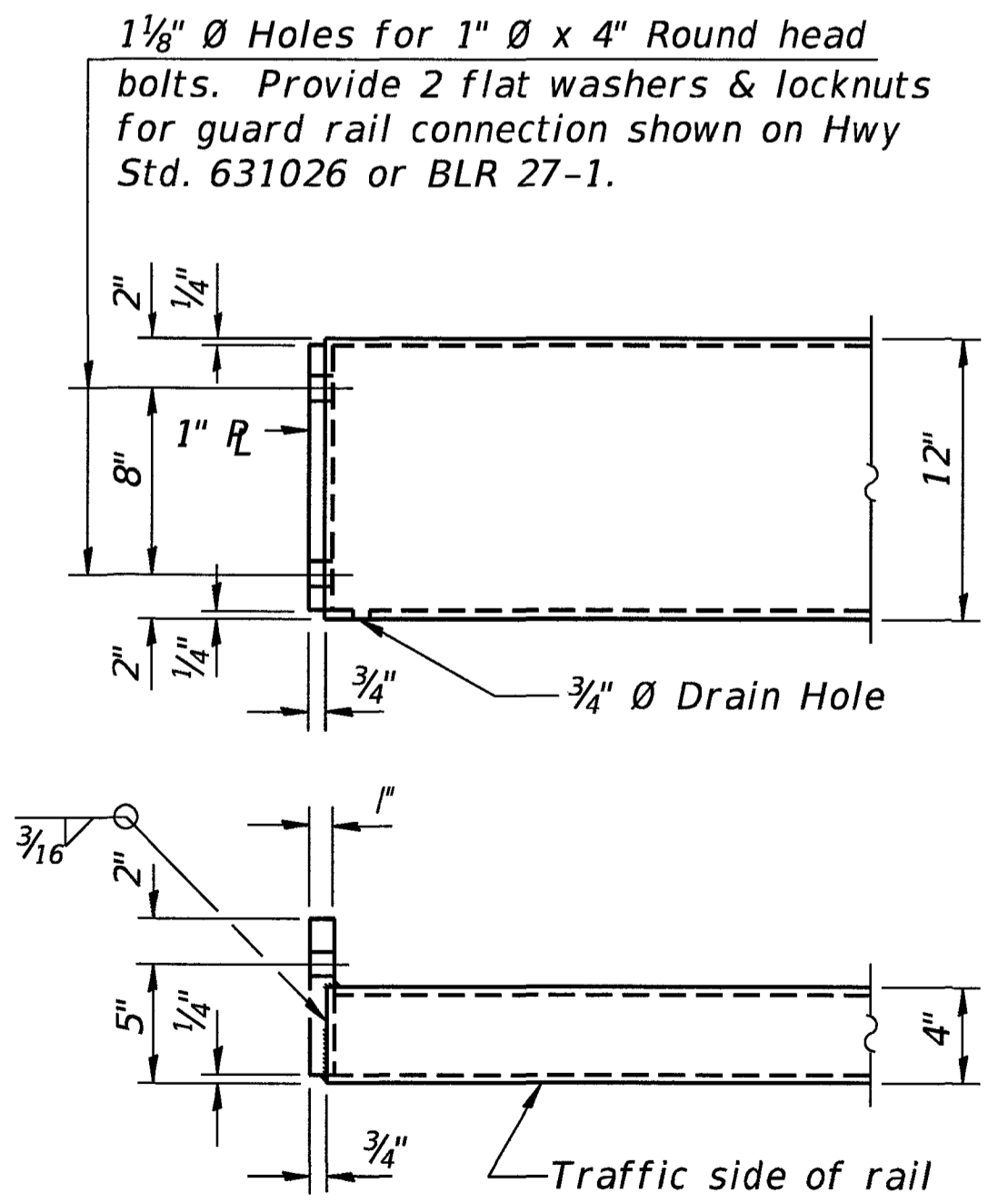
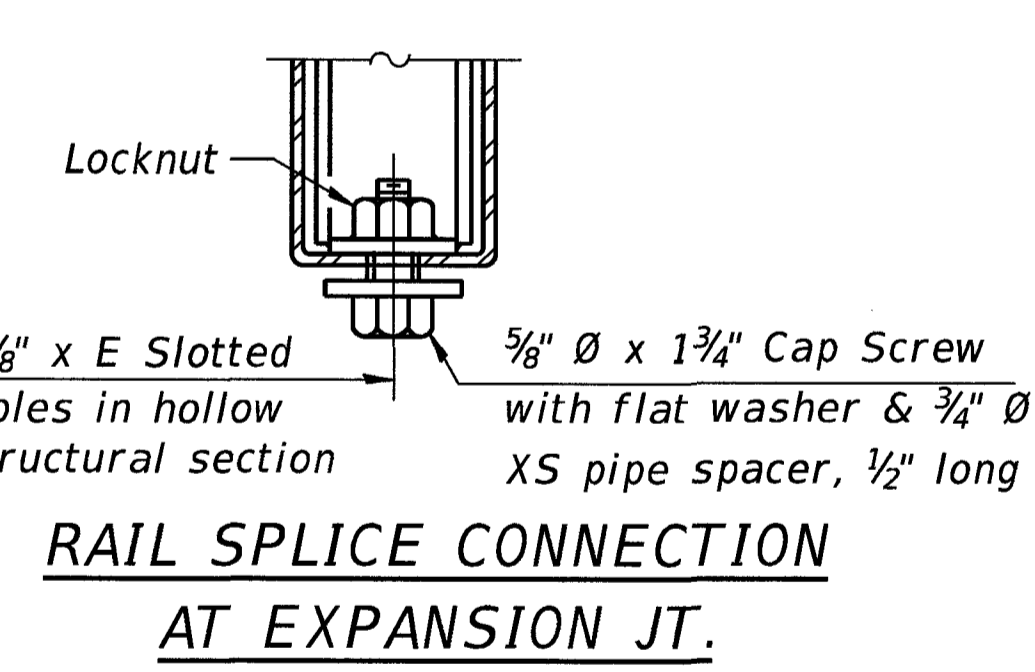
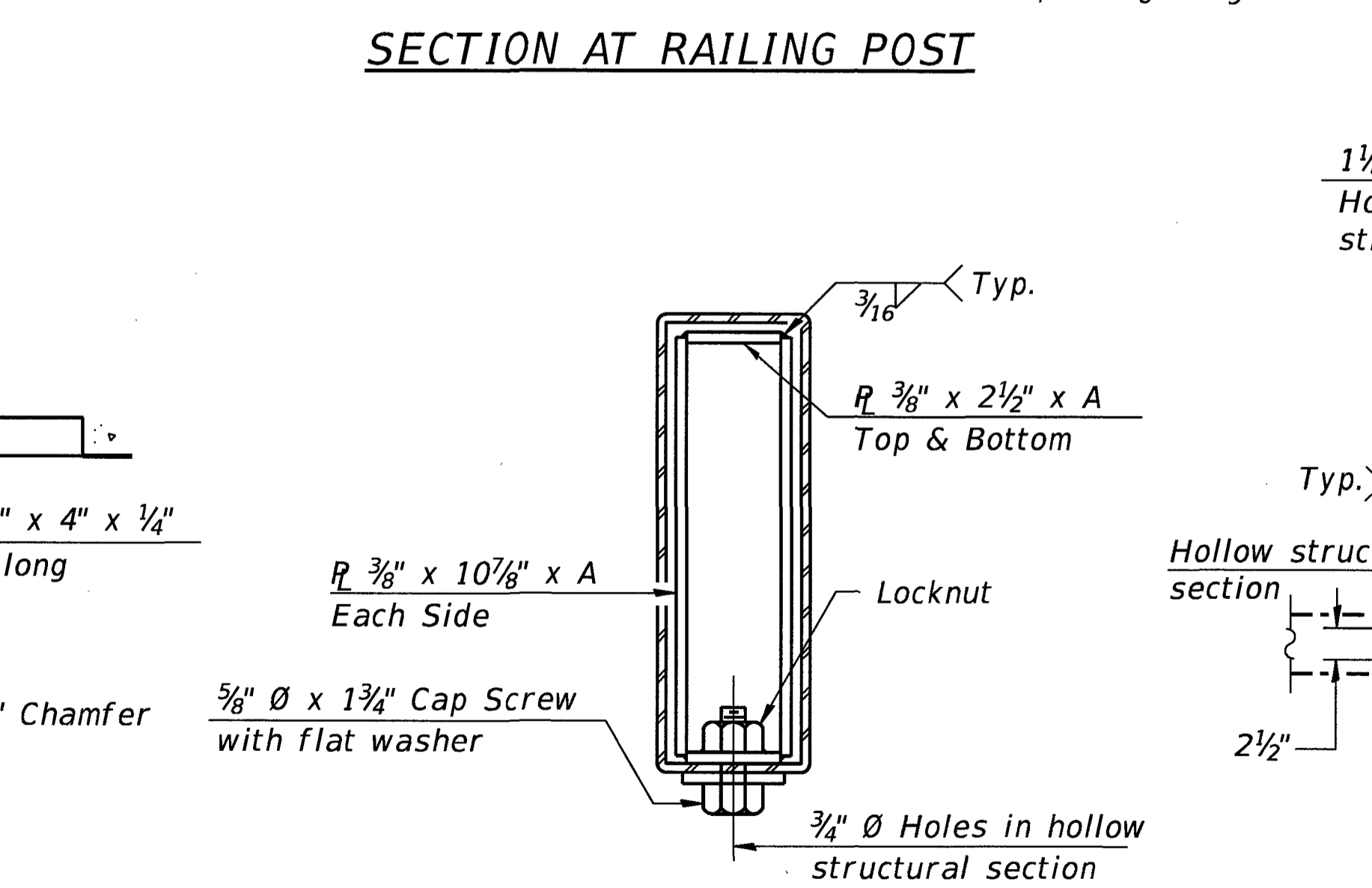
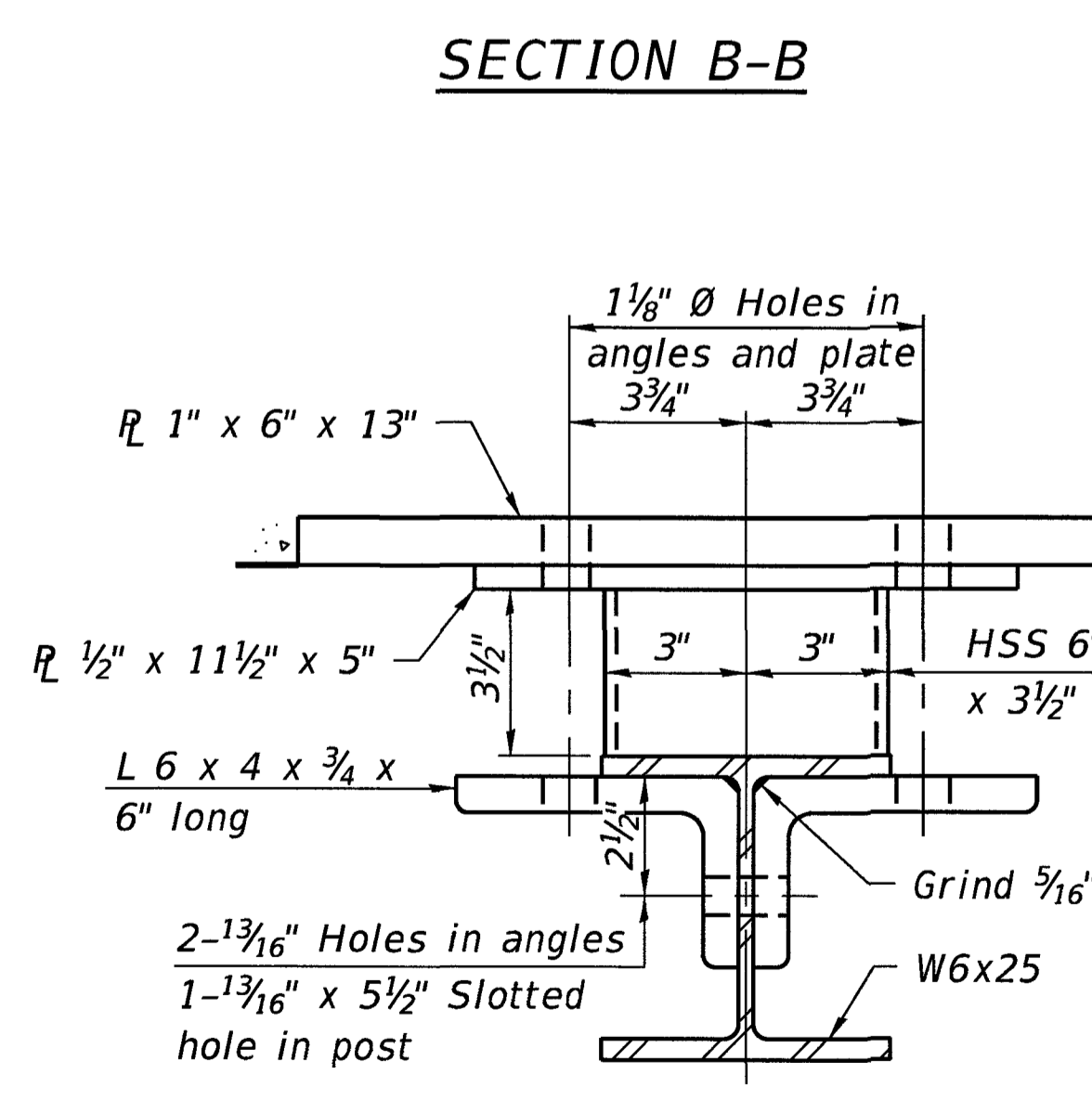


SPLICE DIMENSIONS

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

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

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 S-1.
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	98
Terminal Marker - Direct Applied	Each	4

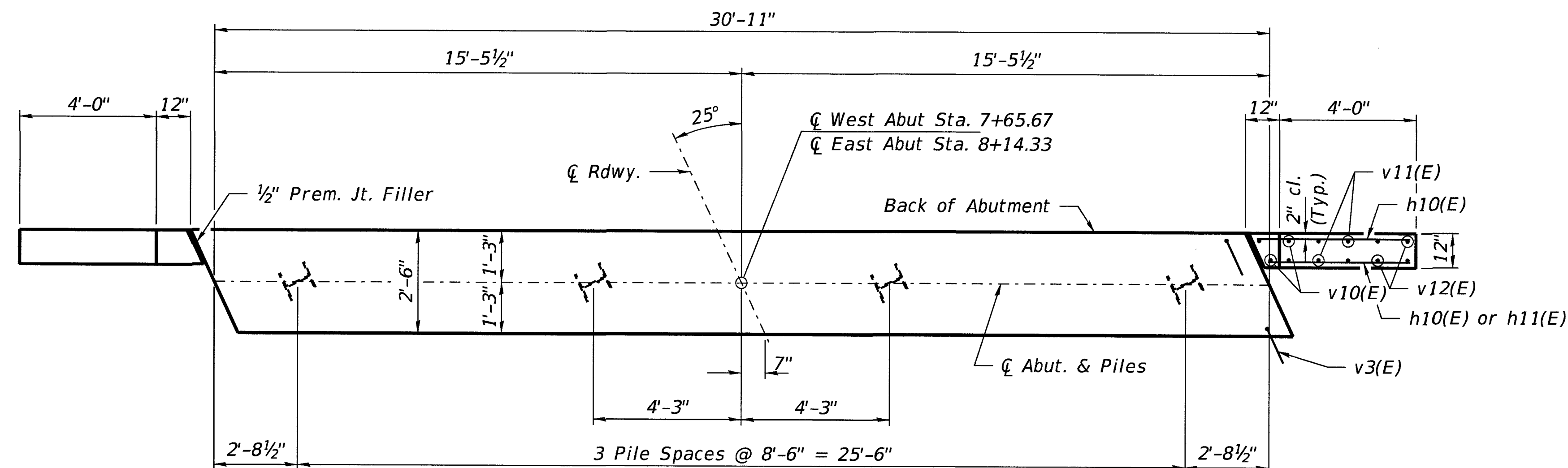
8-11-2017 (10'-9" Maximum Post Spacing)

FILE NAME = 170205-eh-bridge-3755.dgn	USER NAME = rmosick	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE = \$SCALES	CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM L8 / PE / SE CORP. 184-000958	PLOT DATE = 10/8/2018	DRAWN - D.A.B.	REVISED -
		CHECKED - S.W.M.	REVISED -

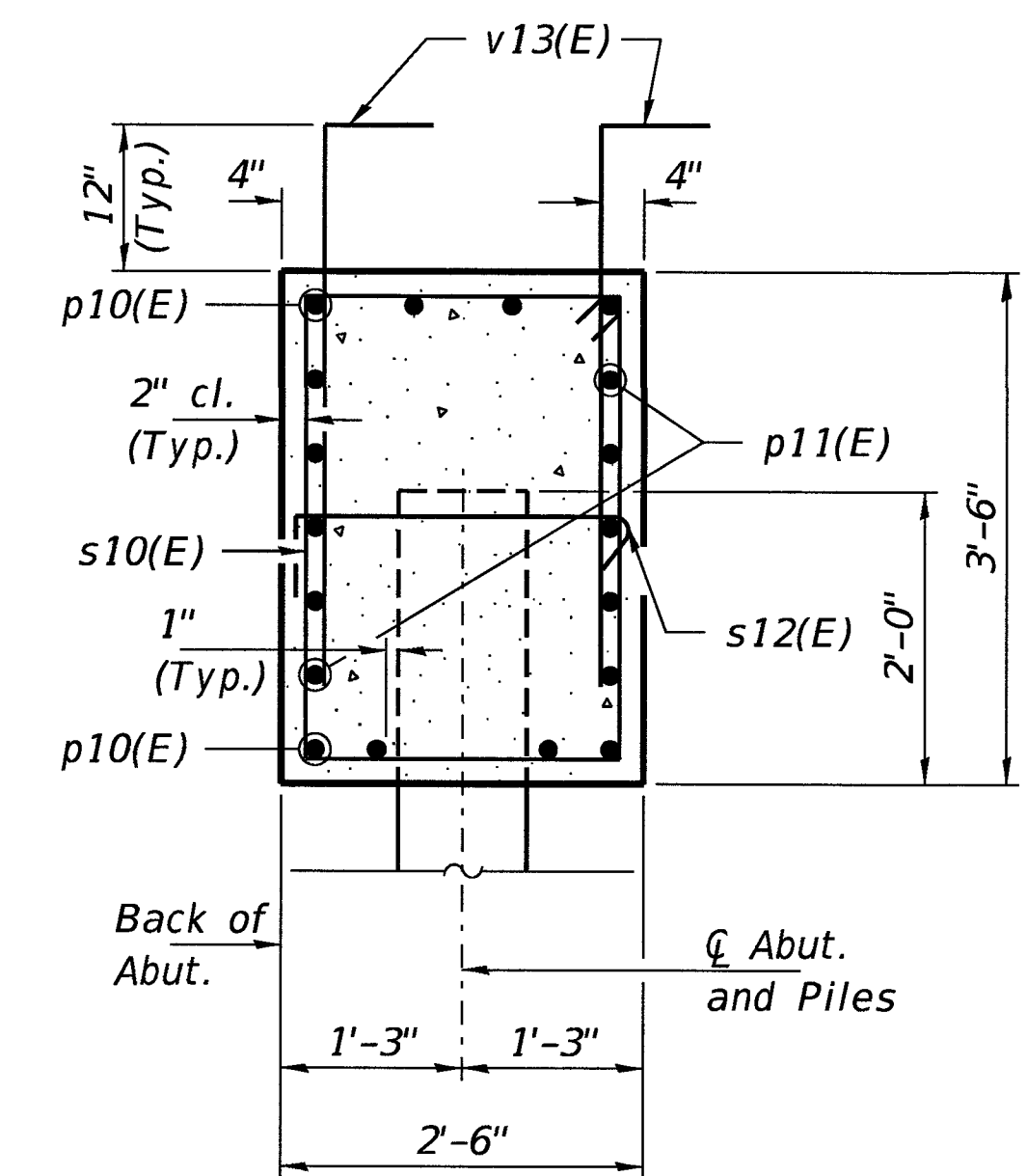
STATE OF ILLINOIS
 CRAWFORD COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE S-1
 STRUCTURE NO. 017-3755
 SHEET NO. 6 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
193	15-07131-00-BR	CRAWFORD	25	20
OBLONG ROAD DISTRICT			CONTRACT NO. 95839	
ILLINOIS / FED. AID PROJECT				

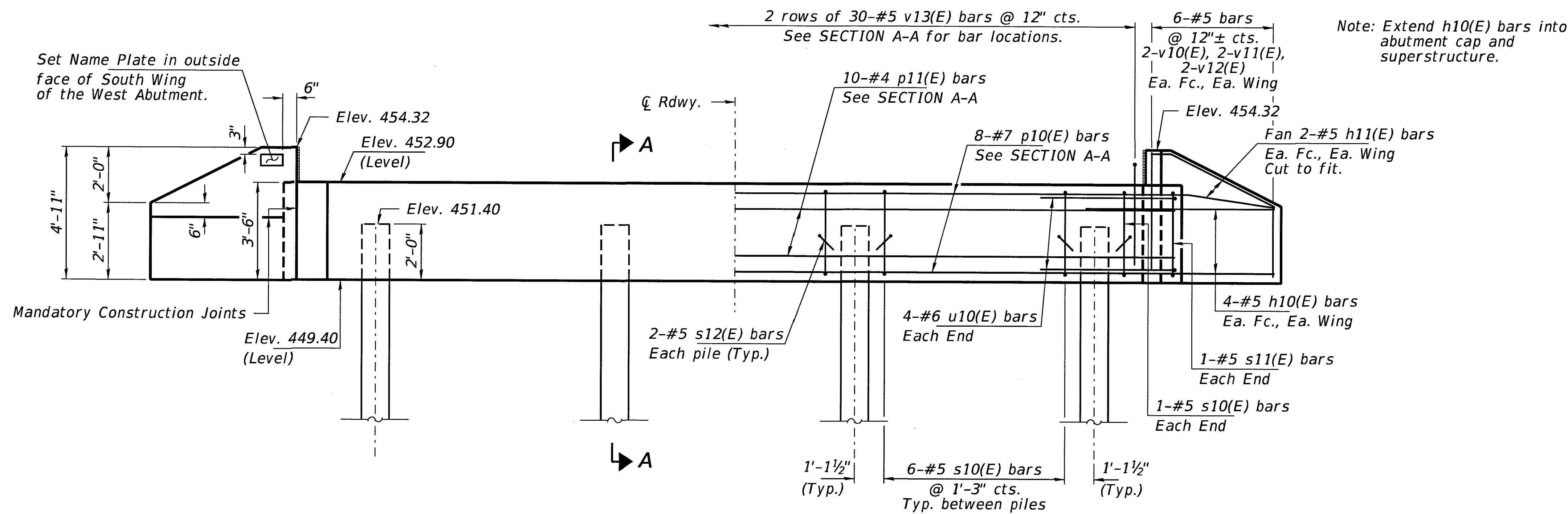


PLAN



SECTION A-A

Dimensions at right L's to abutment.



ELEVATION

Note: Extend h10(E) bars into abutment cap and superstructure.

BILL OF MATERIAL - 2 ABUTS.

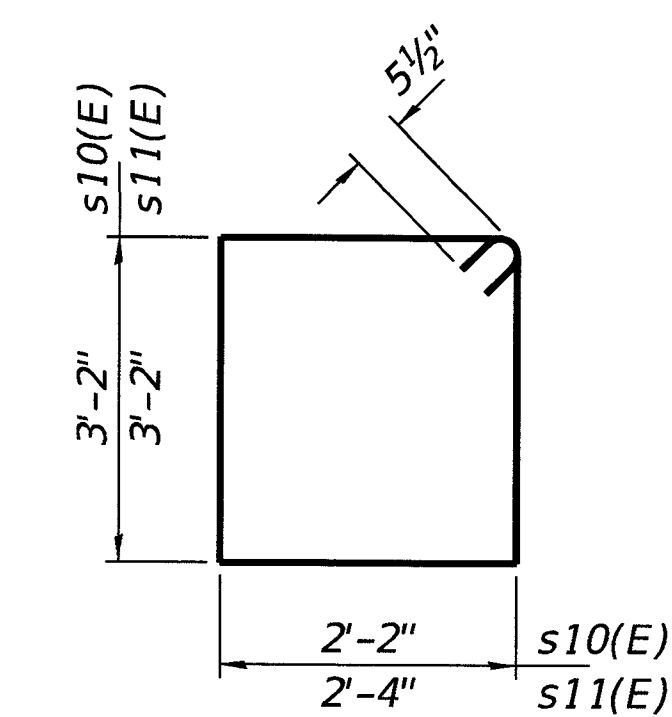
BAR NO.	SIZE	LENGTH	SHAPE
h10(E)	#5	6'-3"	—
h11(E)	#5	4'-9"	—
p10(E)	#7	30'-7"	—
p11(E)	#4	30'-7"	—
s10(E)	#5	11'-7"	□
s11(E)	#5	11'-11"	□
s12(E)	#5	3'-4"	┌
u10(E)	#6	9'-11"	└
v10(E)	#5	4'-6"	—
v11(E)	#5	3'-7"	—
v12(E)	#5	2'-8"	—
v13(E)	#5	4'-8"	—
Protective Coat	Sq. Yd.	13	
Concrete Structures	Cu. Yd.	27.4	
Reinforcement Bars, Epoxy Coated	Pound	3,290	
Furnishing Steel Piles HP10x42	Foot	315	
Driving Piles	Foot	315	
Test Pile Steel HP10x42	Each	1	
Name Plate	Each	1	

PILE DATA

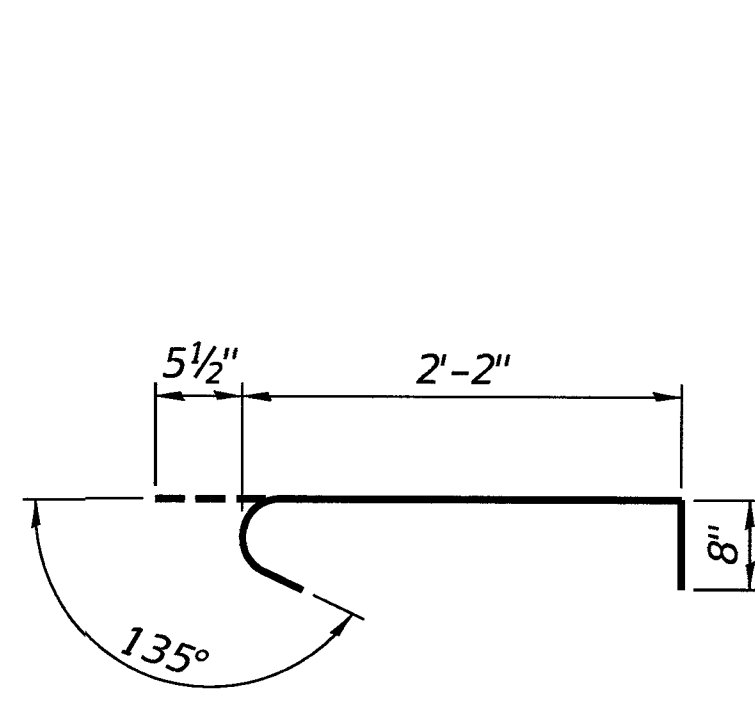
Type ----- Steel HP10x42
 No. Req'd. (2 Abuts.) ----- *8
 Factored Resistance Available (Rf) ----- 167 Kips/Pile
 Nominal Required Bearing (Rn) ----- 335 Kips/Pile
 Est. Length ----- 45 Ft/Pile

Notes: * Includes one test pile to be driven in a permanent location at the West Abutment.

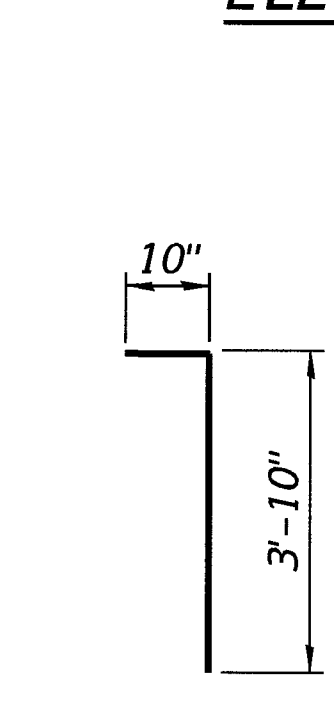
Notes:
 For details of piles, see sheet 9 of 11.
 Bottom of wing shall be poured monolithic with the abutment cap. Entire quantity included with Concrete Structures.
 Extend h10(E) bars into abutment cap.



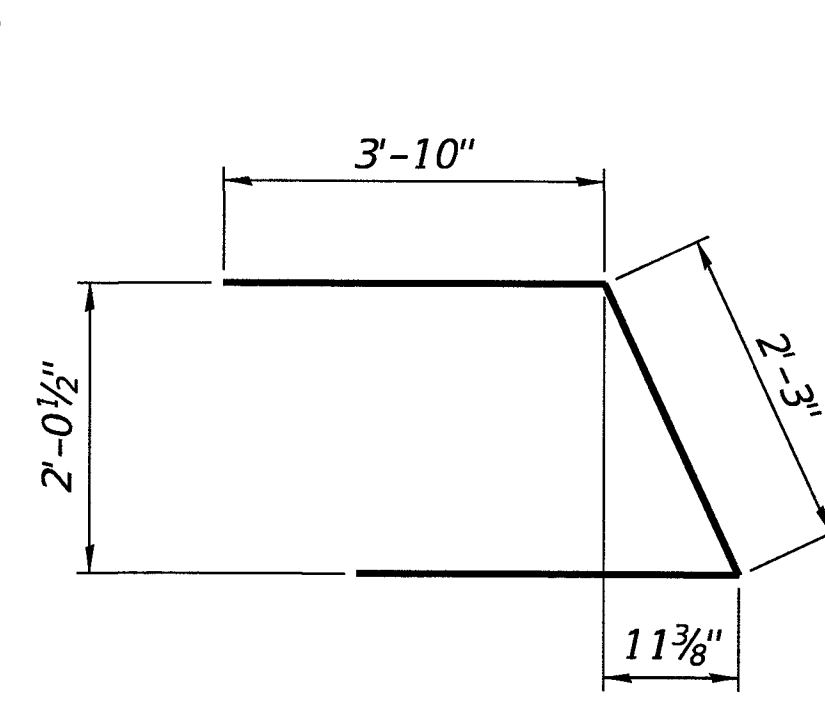
BAR s10(E) & s11(E)



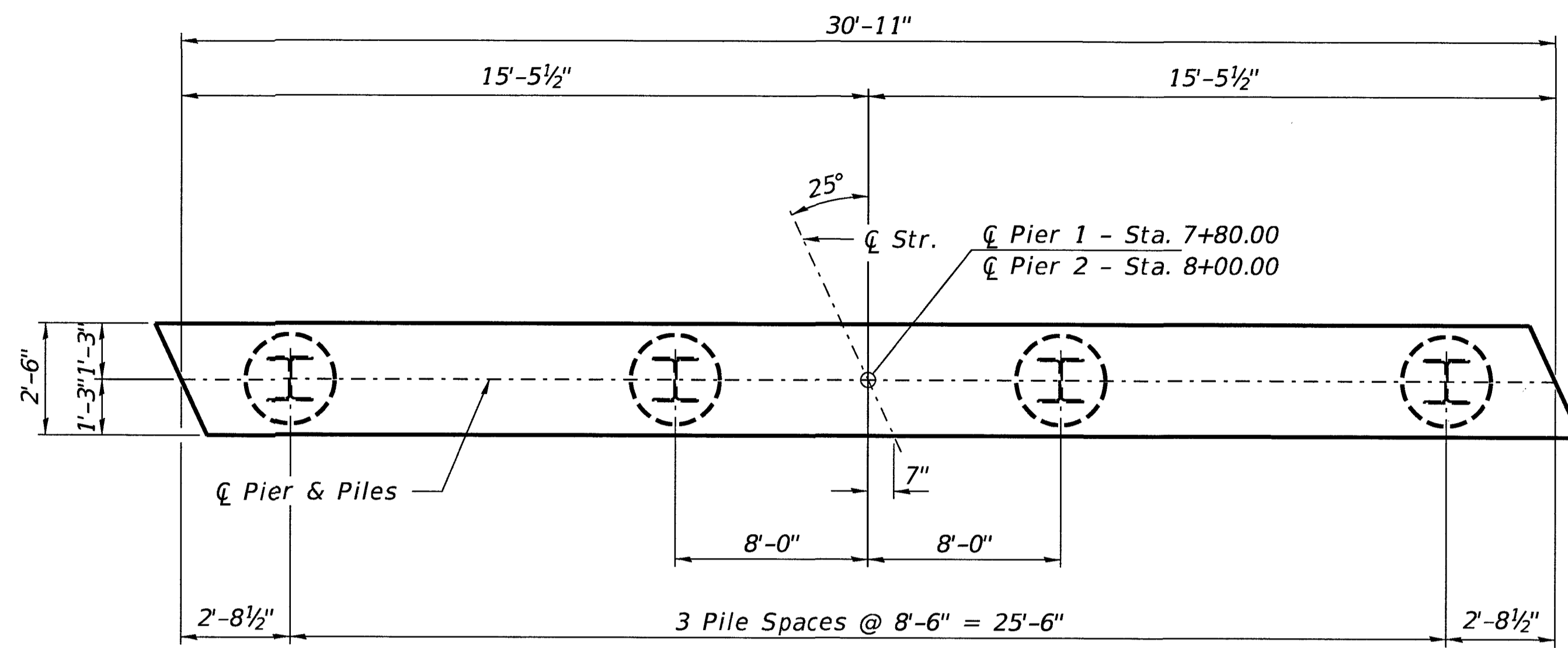
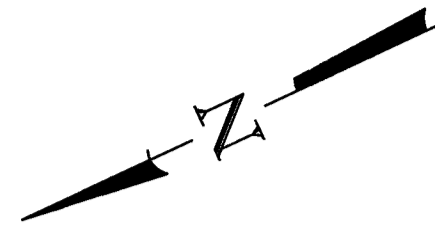
BAR s12(E)



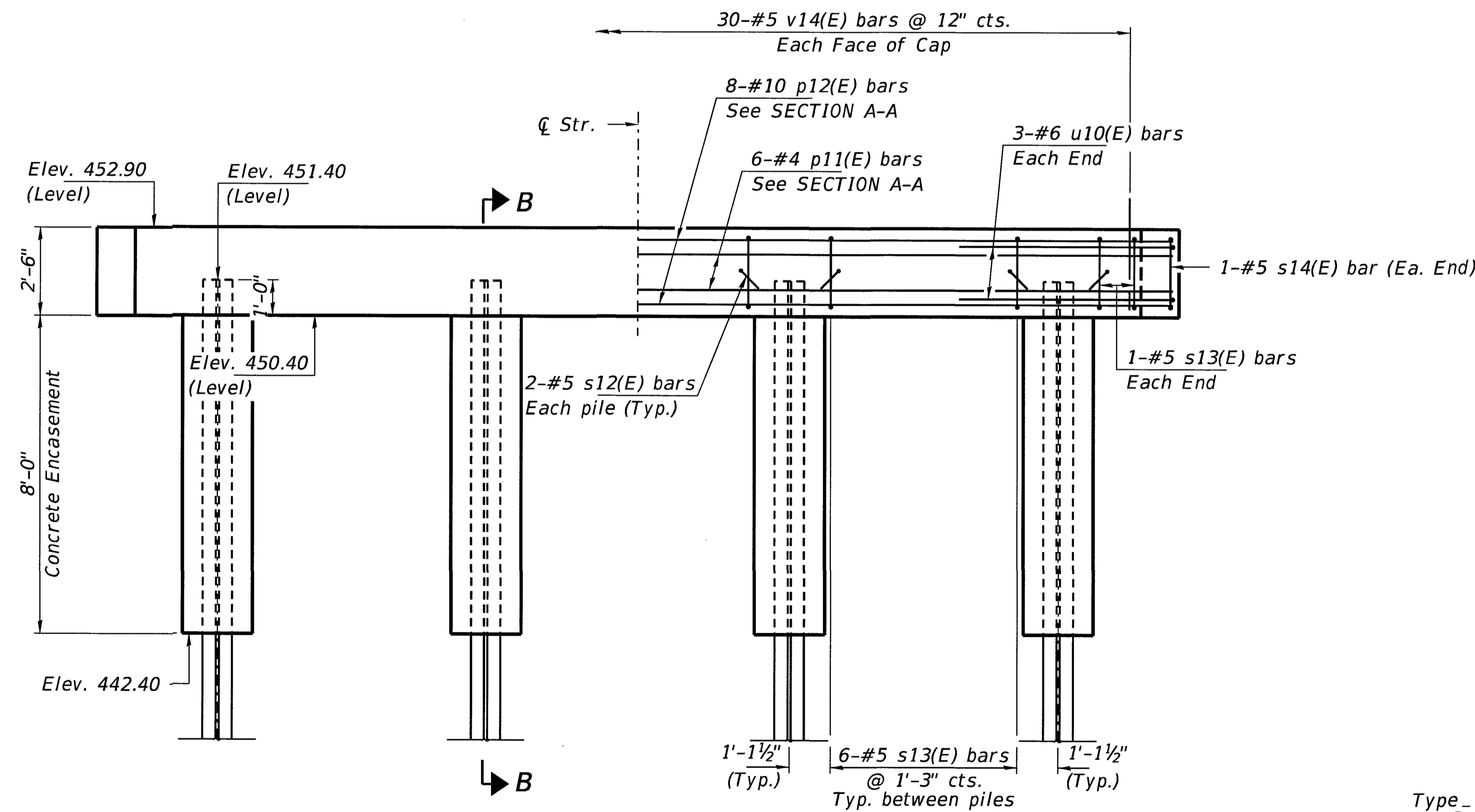
BAR v13(E)



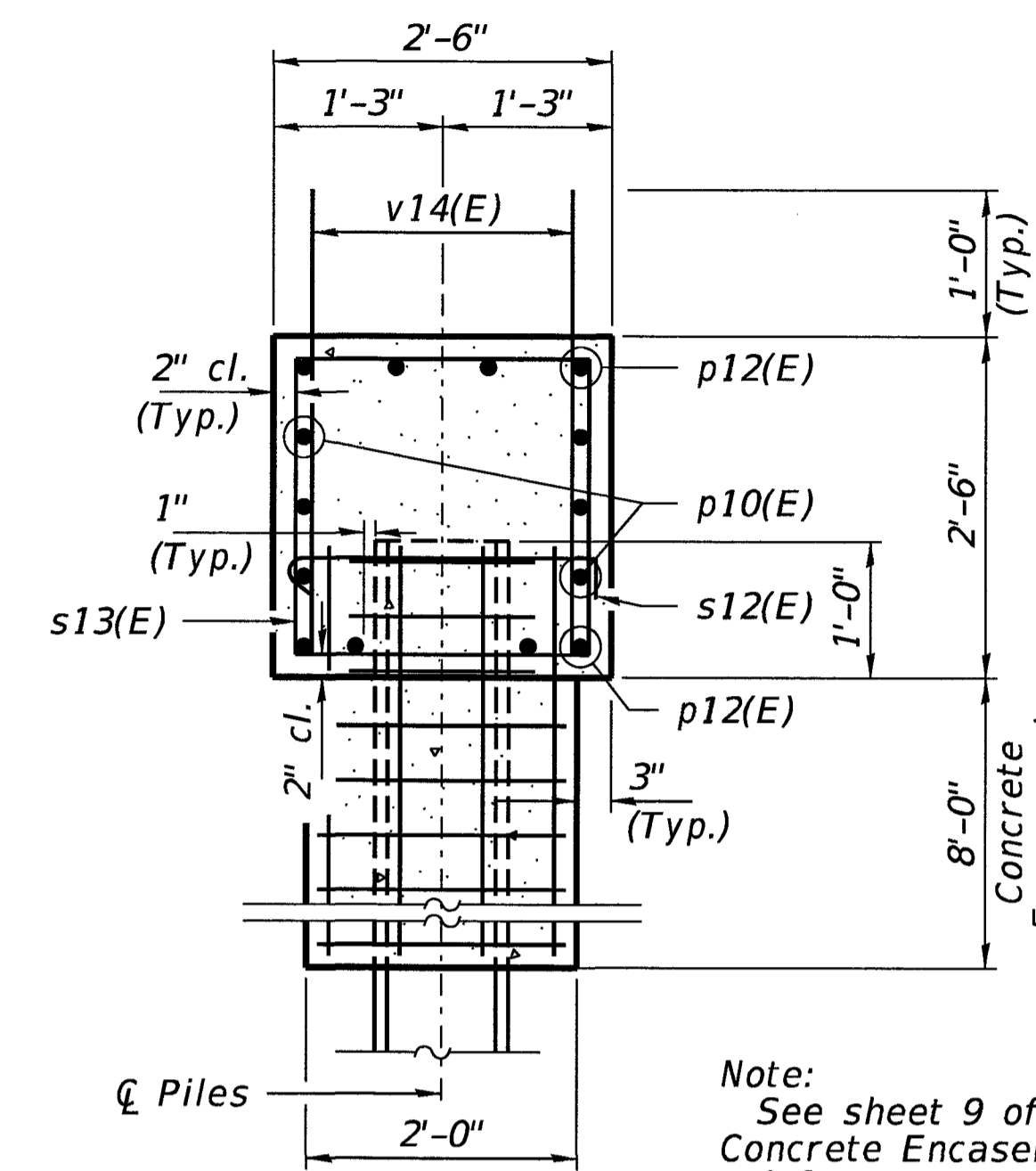
BAR u10(E)



PLAN

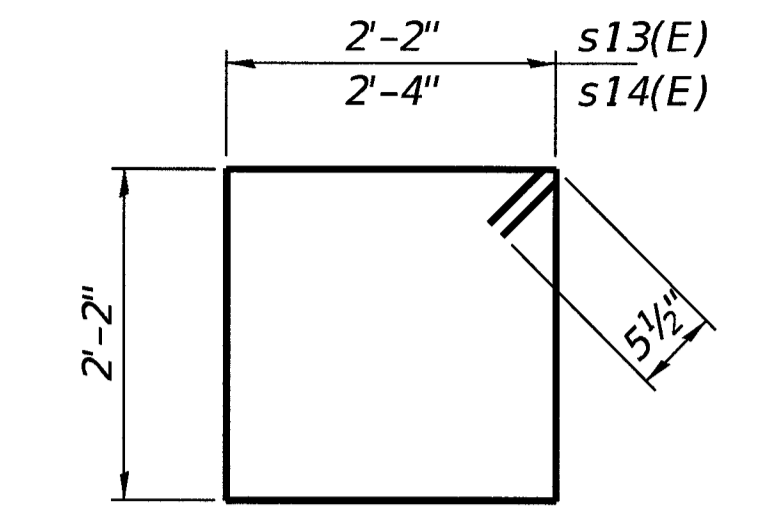


ELEVATION
(Looking East)

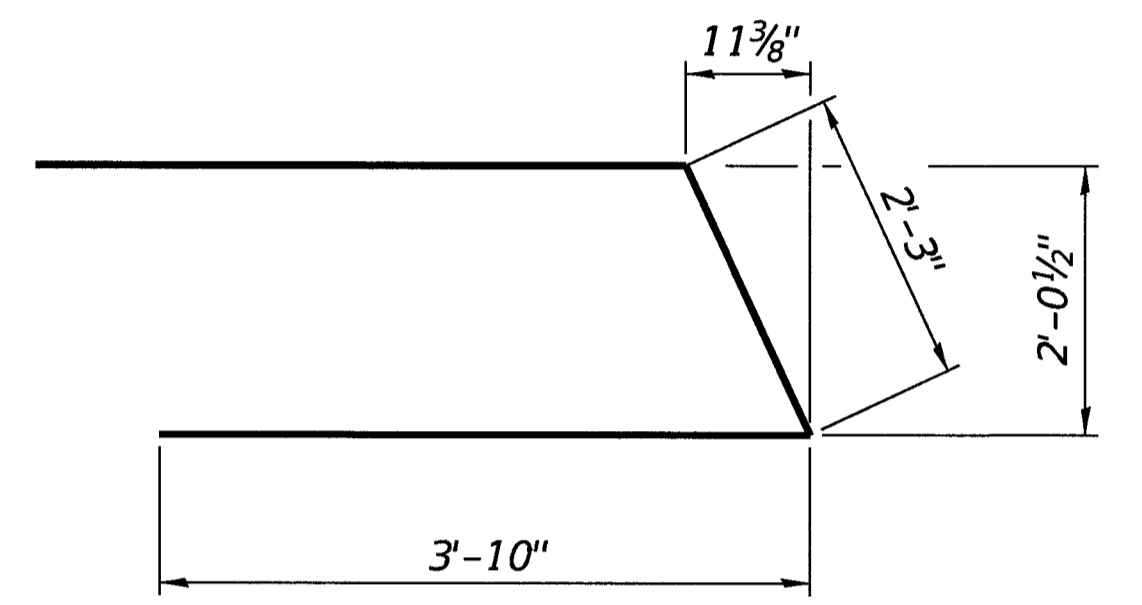


SECTION B-B
Dimensions at right L's to Pier.

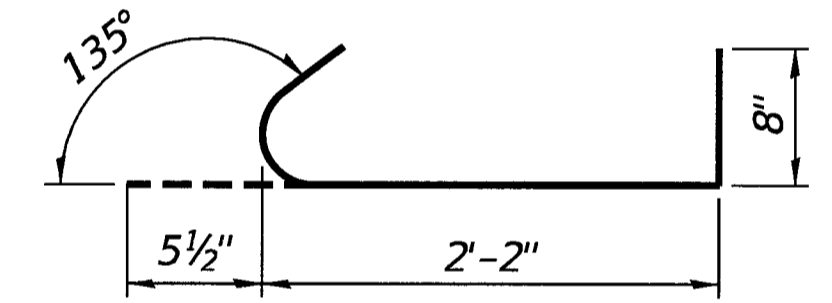
Note:
See sheet 9 of 11 for
Concrete Encasement
reinforcement.



BARS s13(E) & s14(E)



BAR u10(E)



BAR s12(E)

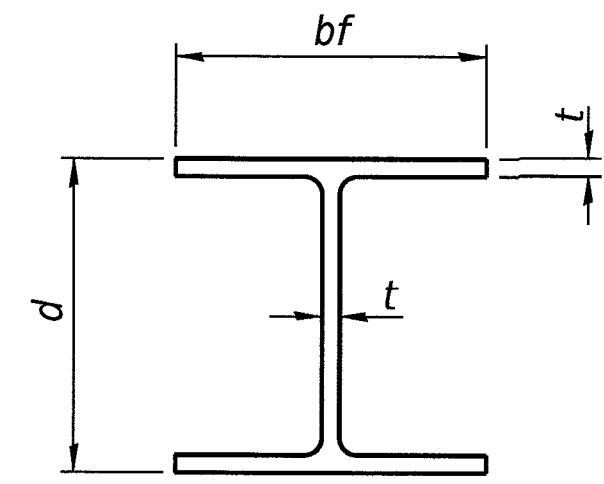
PILE DATA

Type ----- Steel HP10x42
No. Req'd. (2 Piers) ----- *8
Factored Resistance Available (Rf) ----- 167 Kips/Pile
Nominal Required Bearing (Rn) ----- 335 Kips/Pile
Est. Length ----- 45 Ft/Pile

Notes: *Includes one test pile to be driven in a permanent location at Pier 2.

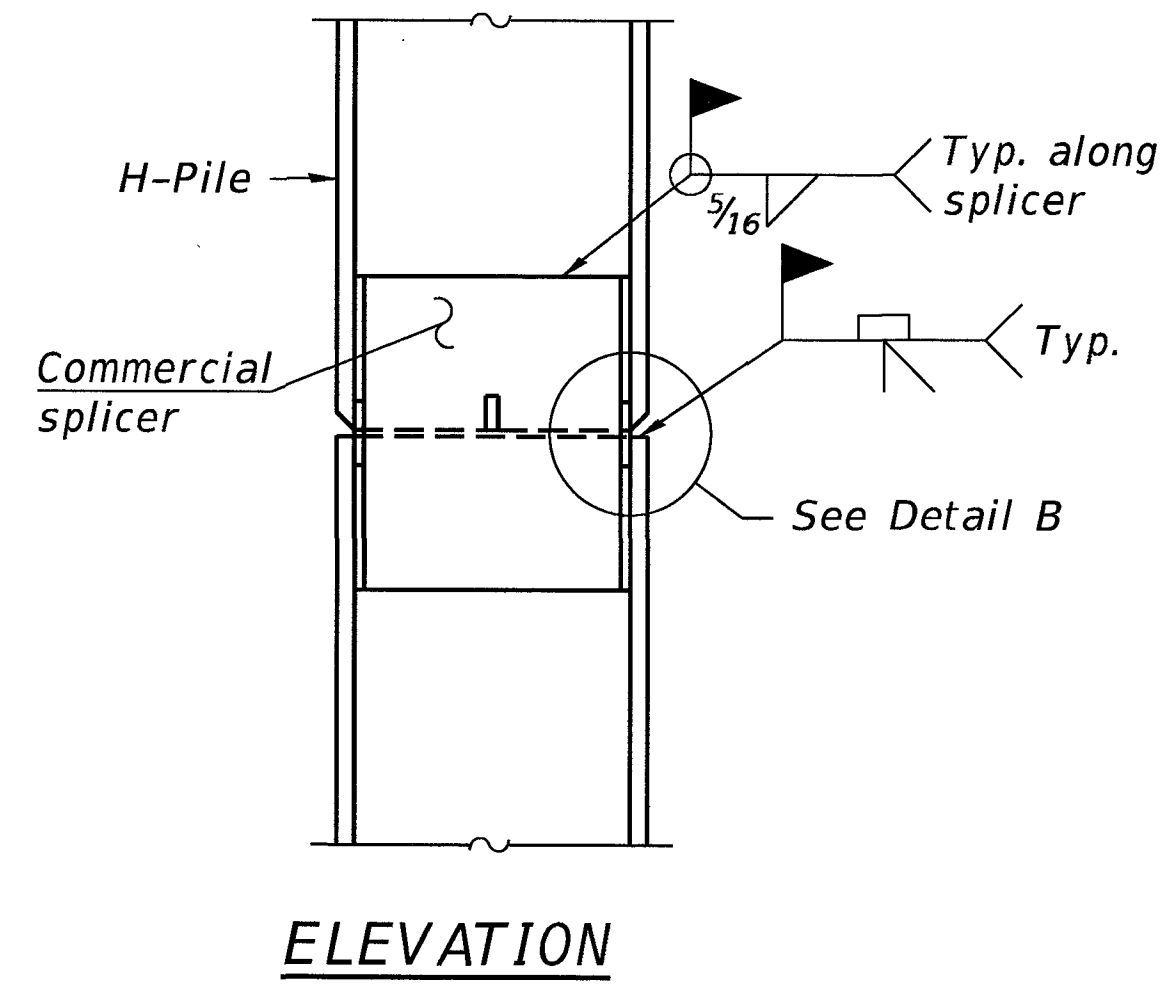
BILL OF MATERIAL - 2 PIERS

BAR	NO.	SIZE	LENGTH	SHAPE
p11(E)	16	#4	30'-7"	—
p12(E)	12	#10	30'-7"	—
s12(E)	16	#5	3'-4"	⌋
s13(E)	40	#5	9'-7"	⌋
s14(E)	4	#5	9'-11"	⌋
u10(E)	12	#6	9'-11"	—
v14(E)	120	#5	3'-4"	—
Concrete Structures		Cu. Yd.	14.3	
Concrete Encasement		Cu. Yd.	7.2	
Reinforcement Bars, Epoxy Coated		Pound	3,000	
Furnishing Steel Piles HP10x42		Foot	315	
Driving Piles		Foot	315	
Test Pile Steel HP10x42		Each	1	

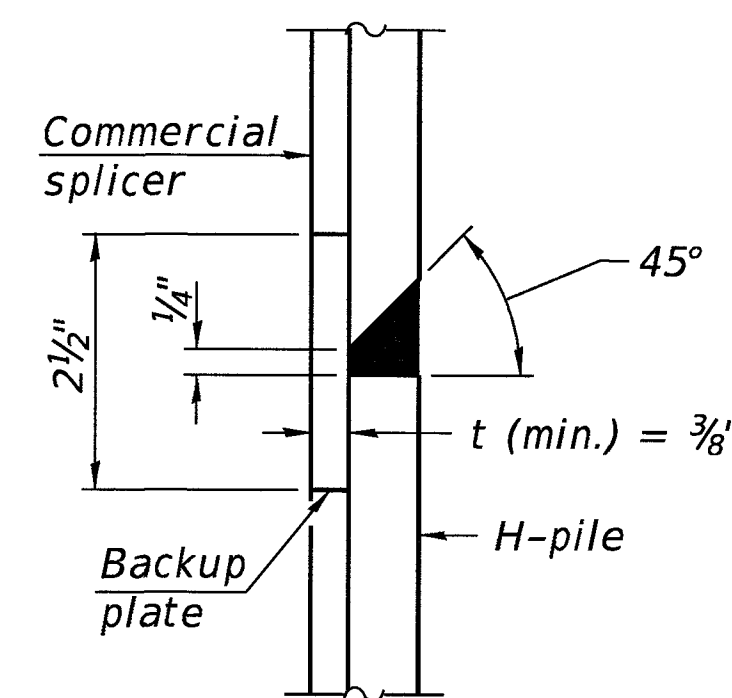


STEEL PILE TABLE

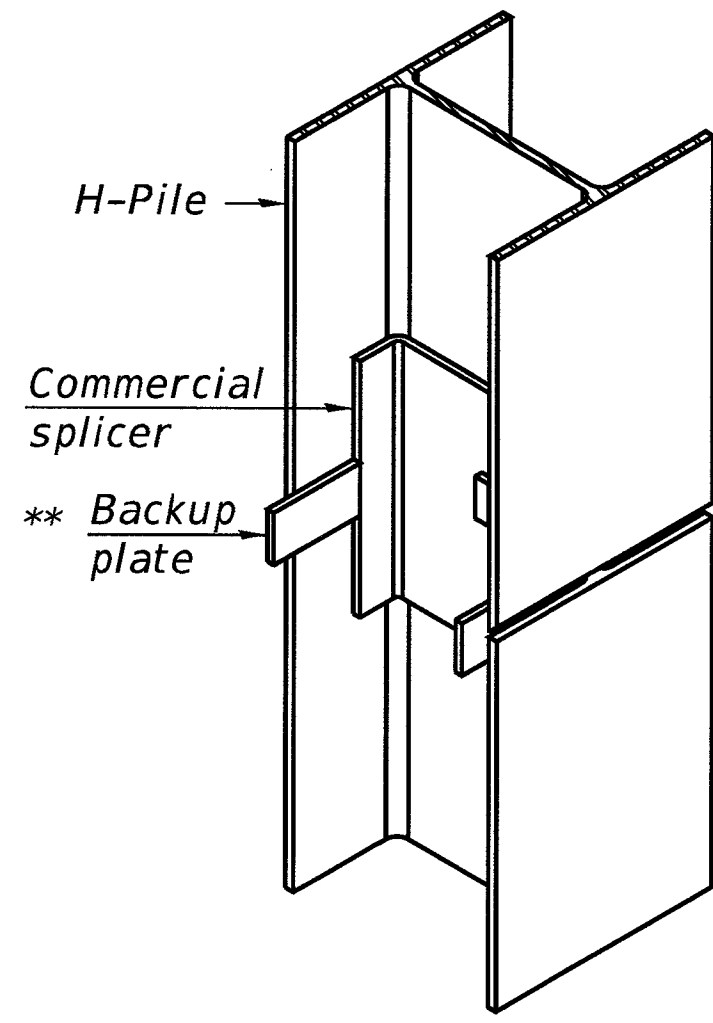
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



ELEVATION

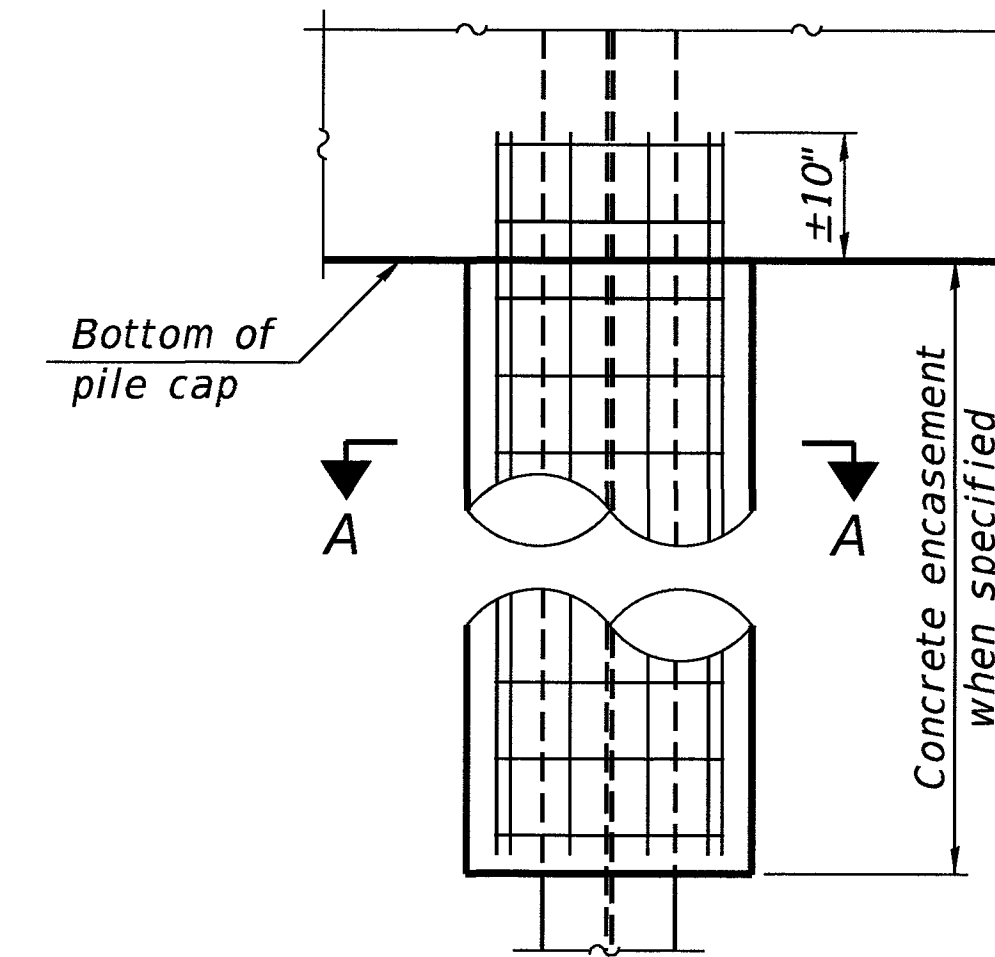


DETAIL "B"

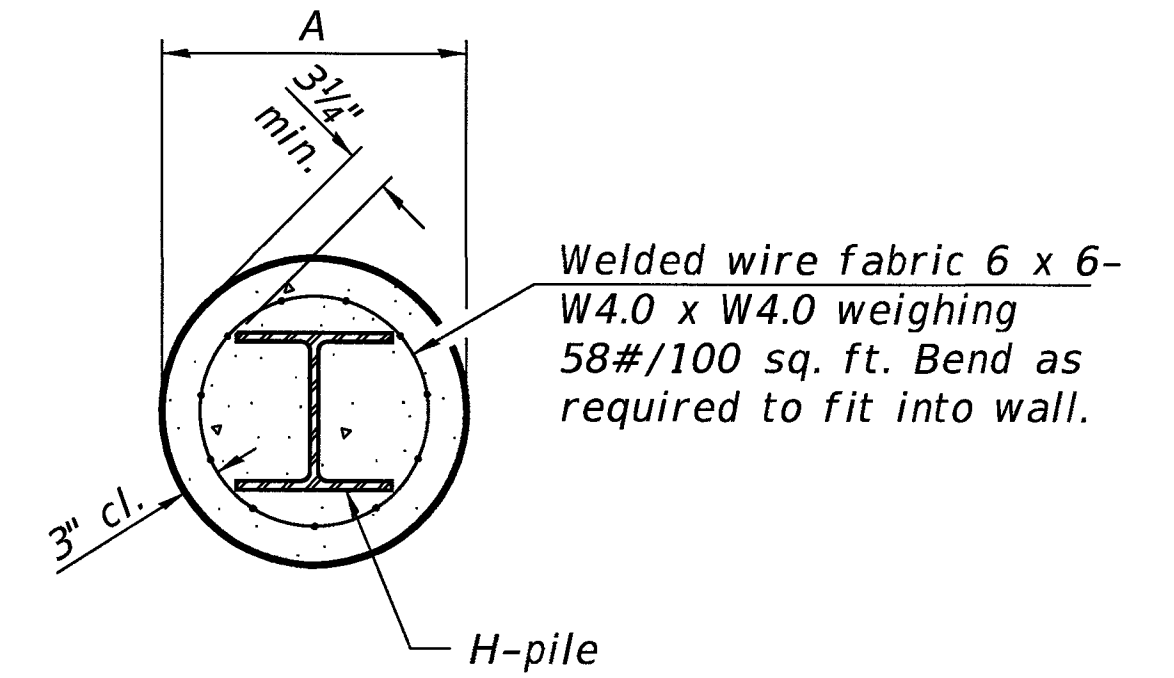


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

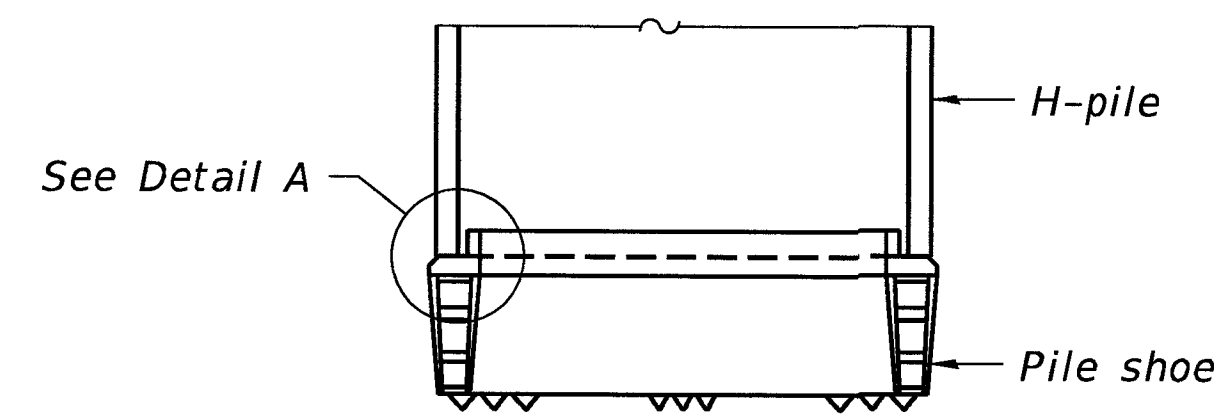


ELEVATION

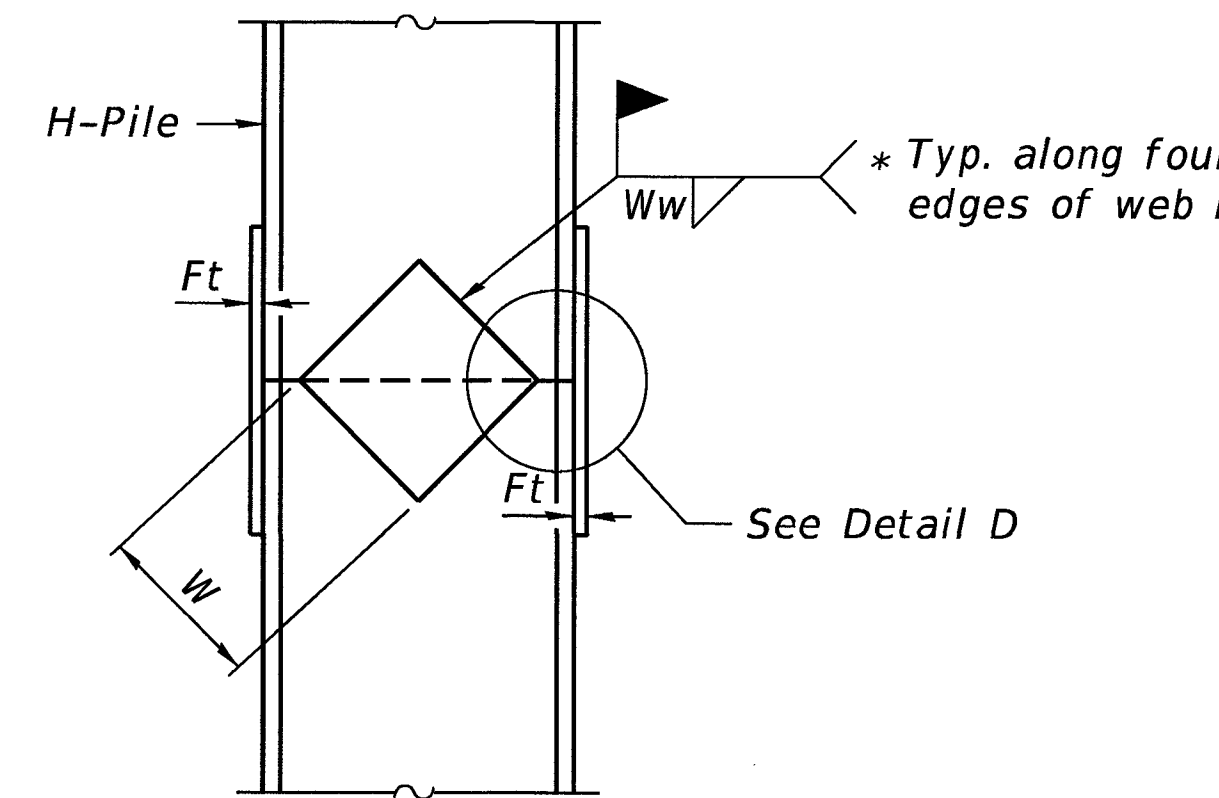


SECTION A-A

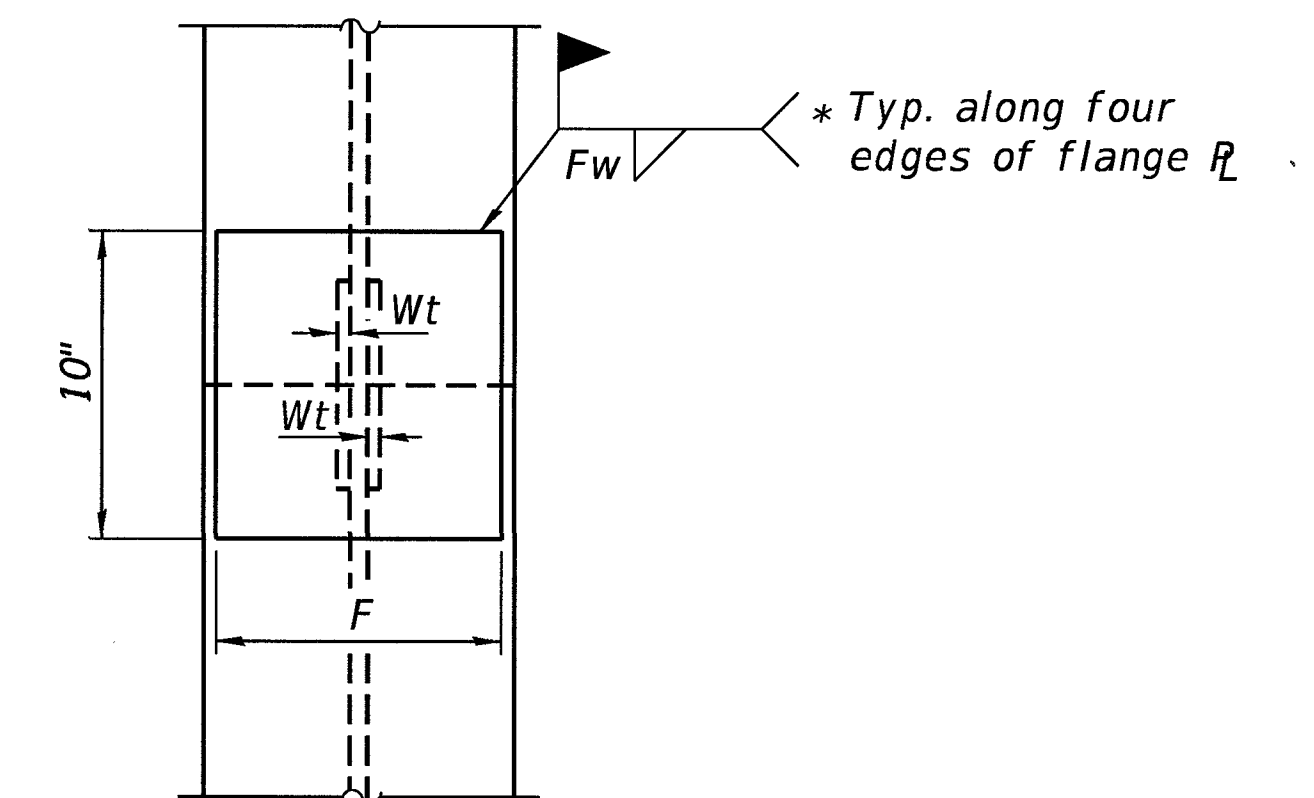
INDIVIDUAL PILE CONCRETE ENCASUREMENT
(Forms for encasement may be omitted when soil conditions permit).



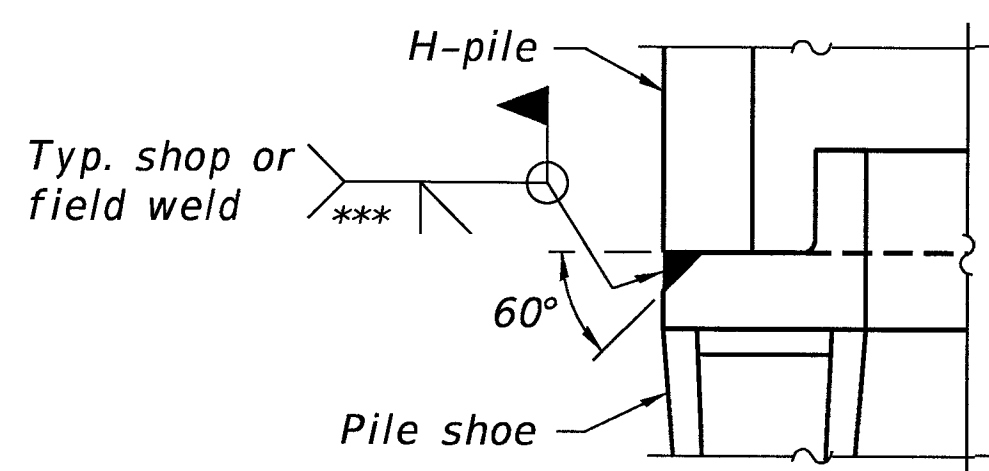
ELEVATION



ELEVATION

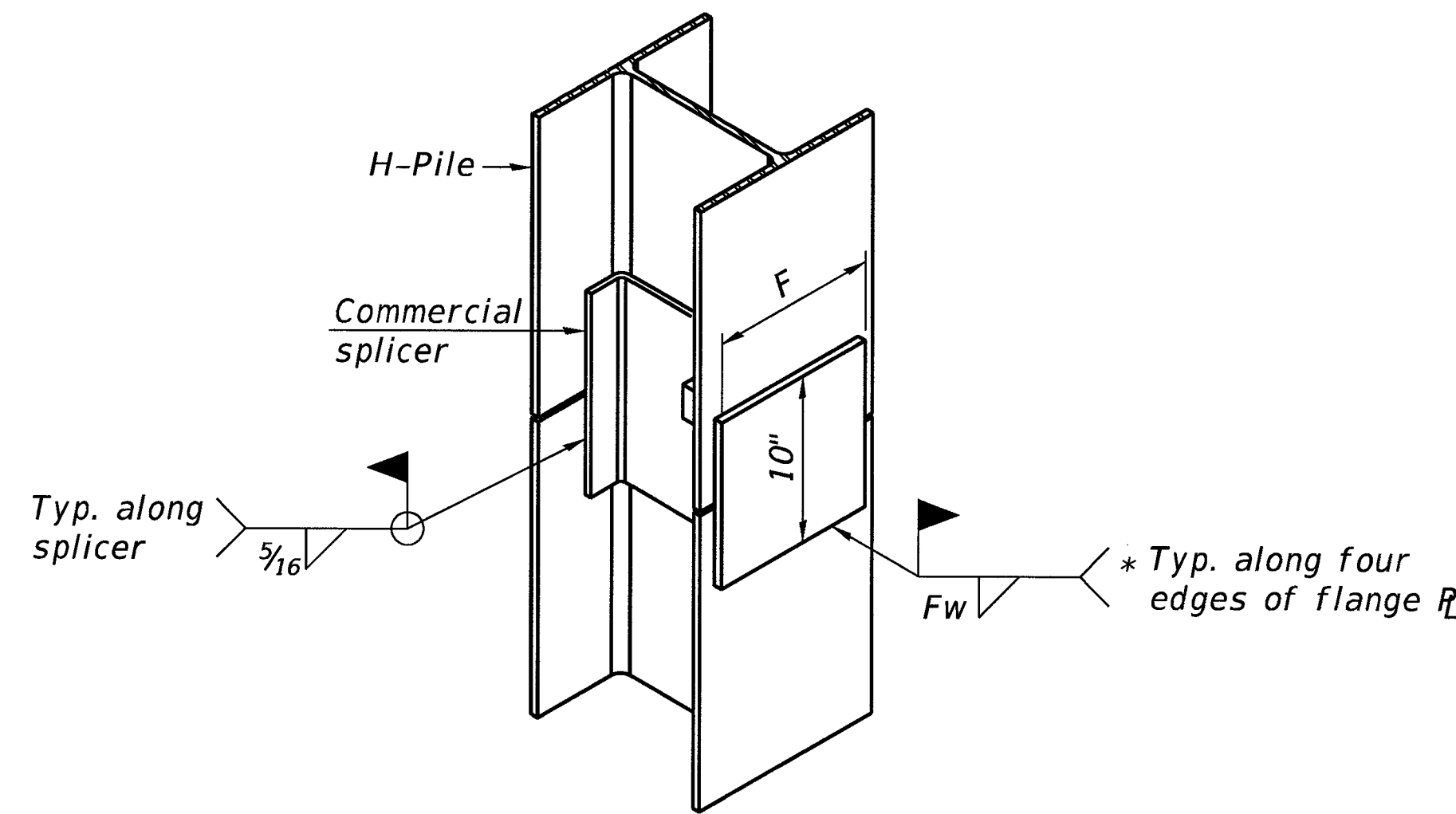


END VIEW



DETAIL A

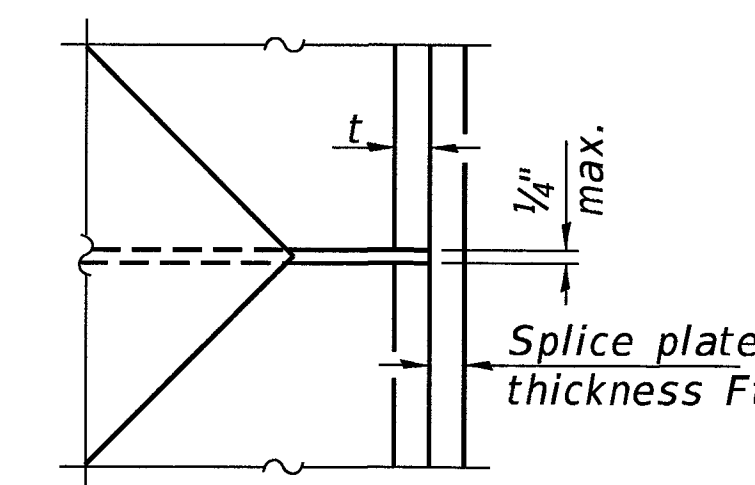
SHOE ATTACHMENT



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.).



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

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

F-HP 8-11-2017

Bridge Foundation Boring Log

Project: H-15249 Bridge TR-193 Over Creek Date: 11/18/15
Section: 15-07131-00-BR Station: 7+84.5
Structure: 017-3725 Bored by: J. Carter
County: Crawford Checked by: J. Holcomb

Boring No. Station: Offset:	Elevation	N	Qu	tsf	w	%	Surface Water Elev.		Elevation	N	Qu	tsf	w	%
							During Drilling	Upon Completion						
	442.5	0												
	419.0													
	436.5													
	414.0													
	412.5													
	408.5													
	404.0													
	426.0													
	421.5													
	398.5													

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu - Unconfined Compressive Strength in tons/sq.ft.
w - Water Content - percentage of oven dry weight-%
B = Bulge Failure
S = Shear Failure
E = Estimated Value
P = Penetrometer

Bridge Foundation Boring Log

Project: H-15249 Bridge TR-193 Over Creek Date: 11/18/15
Section: 15-07131-00-BR Station: 7+84.5
Structure: 017-3725 Bored by: J. Carter
County: Crawford Checked by: J. Holcomb

Boring No. Station: Offset:	Elevation	N	Qu	tsf	w	%	Surface Water Elev.		Elevation	N	Qu	tsf	w	%
							During Drilling	Upon Completion						
	426.5													
	438.5													
	419.0													
	414.0													
	412.5													
	408.5													
	404.0													
	426.0													
	421.5													
	398.5													

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu - Unconfined Compressive Strength in tons/sq.ft.
w - Water Content - percentage of oven dry weight-%
B = Bulge Failure
S = Shear Failure
E = Estimated Value
P = Penetrometer

BORING 2