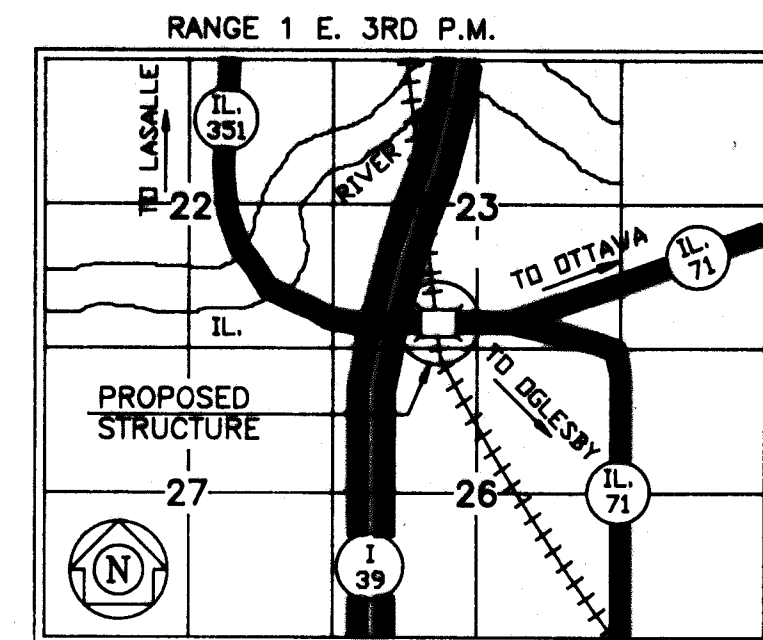


Bench Mark: U.S.G.S. B.M. No. N-230 Brass Disk Set In West Face Of Pier 2 At El. 518.17 Above M.S.L.
Existing Structure: SN 050-0019 Three Span Cont. Steel Beam Bridge With A Total Length Of 176'-6" Back To Back Of Abutments. Abutments To Be Removed And Replaced With A Widened Substructure and Superstructure. New Guardrail To Be Installed As Required.
Traffic: Structure Will Be Closed And Detours Will Be Provided During Construction.

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

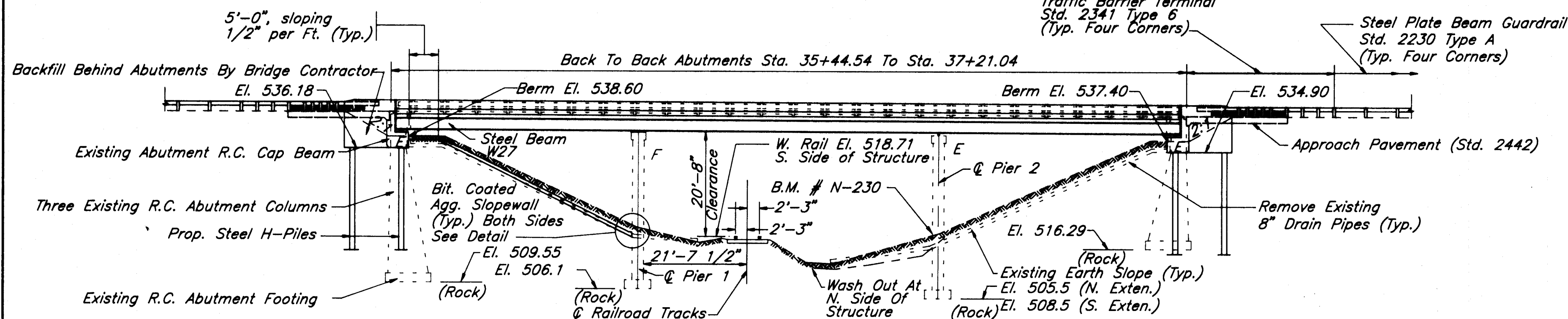


ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 619	VBR-1	LASALLE	30	9
FED. ROAD DIST. NO. 3 ILLINOIS PROJECT P-93-052-90				

SHEET NO. 1
19 SHEETS

GENERAL NOTES

- Fasteners Shall Be High Strength Bolts. Bolts 7/8" #, Open Holes 15/16" #, Unless Otherwise Noted.
- Calculated Weight Of Structural Steel:
M270 Gr.36= 22,420 lbs.
M270 Gr.50= 130,650 lbs.
- The Inorganic Zinc-Silicate / Acrylic / Acrylic Paint System shall be used for shop and field painting of structure steel except where otherwise noted. The color of the acrylic finish coat shall be Interstate Green Munsell No. 7.5G 4/8.
- Field Welding Of Construction Accessories Will Not Be Permitted To The Bottom Flange Of Beams Or Girders Nor To The Top Flange For A Distance Equal To One-Fourth The Span Length Each Way From The Pier Supports. Field Welding In Other Areas Will Be Permitted Only When Approved By The Engineer.
- Anchor Bolts Shall Be Set Before Bolting Diaphragms Over Supports.
- The Structural Steel Bearing Plates Of The Elastomeric Bearing Assembly Shall Conform To The Requirements Of AASHTO M 270 Grade 50.
- The Main Load Carrying Member Components Subject To Tensile Stress Shall Conform To The Supplemental Requirements For Notch Toughness Zone 2. These Components Are The Wide Flange Beams And All Splice Plate Material Except Fill Plates.
- Reinforcement Bars Shall Conform To The Requirements Of AASHTO M-31, M-42 Or M-53 Grade 60.
- Plan Dimensions And Details Relative To Existing Structure Have Been Taken From Existing Plans And Are Subject To Nominal Construction Variations. It Shall Be The Contractor's Responsibility To Verify Such Dimensions And Details In The Field And make Necessary Approved Adjustments Prior To Construction Or Ordering Of Materials. Such Variations Shall Not Be Cause For Additional Compensation For A Change In The Scope Of The Work, However, The Contractor Will Be Paid For The Quantity Actually Furnished At The Unit Price Bid For The Work.
- Bearing Seat Surfaces Shall Be Constructed Or Adjusted To The Designated Elevations Within A Tolerance Of 1/8 Inch. Adjustment Shall Be made Either By Grinding The Surface Or By Shimming The Bearing. Two 1/8 Inch Adjusting Shims, Of The Dimensions Of The Bottom Bearing Plate, Shall Be Provided For Each Bearing In Addition To All Other Plates Or Shims. For Type I Elastomeric Bearings, Shims Of The Dimensions Of Top Plate Shall Be Provided And Placed As Detailed.
- The Contractor Shall Drive Two (2) HP10x42 Test Piles In A Permanent Location At North End Of East And West Abutments As Directed By The Engineer Before Ordering The Remainder of Piles.
- Bridge Seat Sealer Shall Be Applied To The Seat Area Of East And West Abutments.



DESIGN SPECIFICATIONS

1992 AASHTO Specifications

LOADING HS 20-44

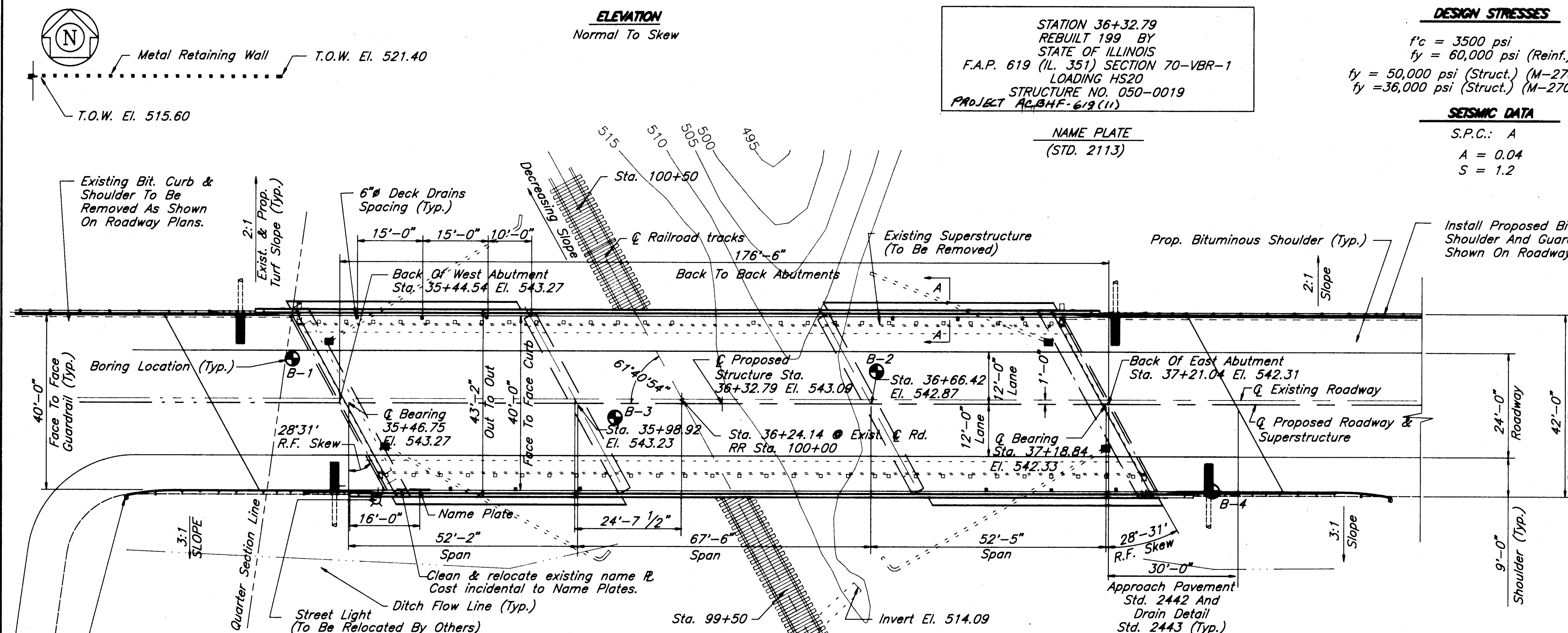
Allow 25#/sq. ft. for future wearing surface.

DESIGN STRESSES

$f'_c = 3500$ psi
 $f_y = 60,000$ psi (Reinf.)
 $f_y = 50,000$ psi (Struct.) (M-270, Gr. 50)
 $f_y = 36,000$ psi (Struct.) (M-270, Gr. 36)

SEISMIC DATA

S.P.C.: A
 A = 0.04
 S = 1.2



PLAN

Note:
Refer To Roadway Plans For Curve Data.
R.O.W. Location, Typical Road Section, Etc.

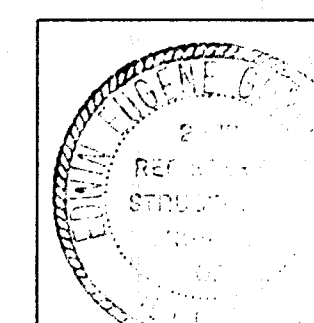
TOTAL BILL OF MATERIALS

Item	Unit	Super	Sub	Total
Removal of Existing Superstructure	Each	1		1
Bituminous Coated Aggregate Slopewall 6"	Sq. Yds.		526	526
Floor Drains	Each	12		12
Concrete Superstructure	Cu. Yds.	223.5		223.5
Concrete Structures	Cu. Yds.		132	132
Protective Coat	Sq. Yds.	928		928
Preformed Joint Seal, 4"	Ft.	50		50
Preformed Joint Seal, 2 1/2"	Ft.	50		50
Elastomeric Bearing Assembly, Ty. I	Each	14		14
Elastomeric Bearing Assembly, Ty. II	Each	7		7
Furnishing and Erecting Structural Steel	L.S.	1		1
Reinforcement Bars, Epoxy Coated	Lbs.	52,950	16,850	69,800
Name Plates	Each	1		1
Bridge Deck Grooving	Sq. Yds.	732		732
Stud Shear Connectors	Each		3,367	3,367
Furnishing Steel Piles, HP 10x42	Ft.		189	189
Driving Steel Piles	Ft.		189	189
Test Pile, Steel HP 10x42	Each		2	2
Concrete Removal	Cu. Yds.		41.1	41.1
Structure Excavation	Cu. Yds.		282	282
Rock Excavation For Structures	Cu. Yds.		6	6
Bridge Seat Sealer	Sq. Ft.		195	195
Graffiti Removal	Sq. Yds.		79	79
Formed Concrete Repair ≤ 5"	Sq. Ft.		120	120

APPROVED

FOR STRUCTURAL ADEQUACY ONLY.

Ralph E. Anderson
Engineer of Bridges and Structures



Walter E. Deuchler
For WALTER E. DEUCHLER ASSOC., INC. Date: 2-25-94

S.E. No. 081-002873

Expiration Date: 11-30-94

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS

DESIGNED RP DRAWN GWR APPROVED DATE 2/25/94 BOOK SCALE CAD DWG. \IL\93030\351GP-E JOB NO. 222/93030

GENERAL PLAN & ELEVATION
 F.A.P. Route 619 (IL Route 351) OVER RAILROAD TRACK, LASALLE COUNTY
 SECTION 70-VBR-1 STATION 36+32.25 S.N. 050-0019

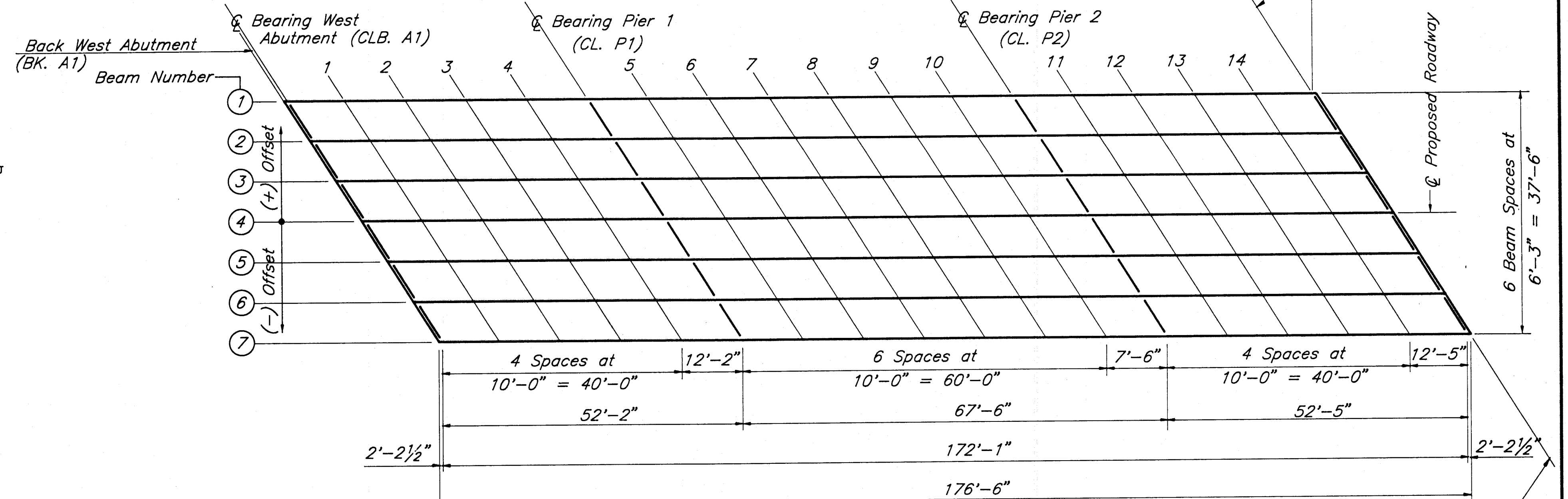
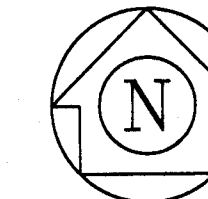
SHEET

9

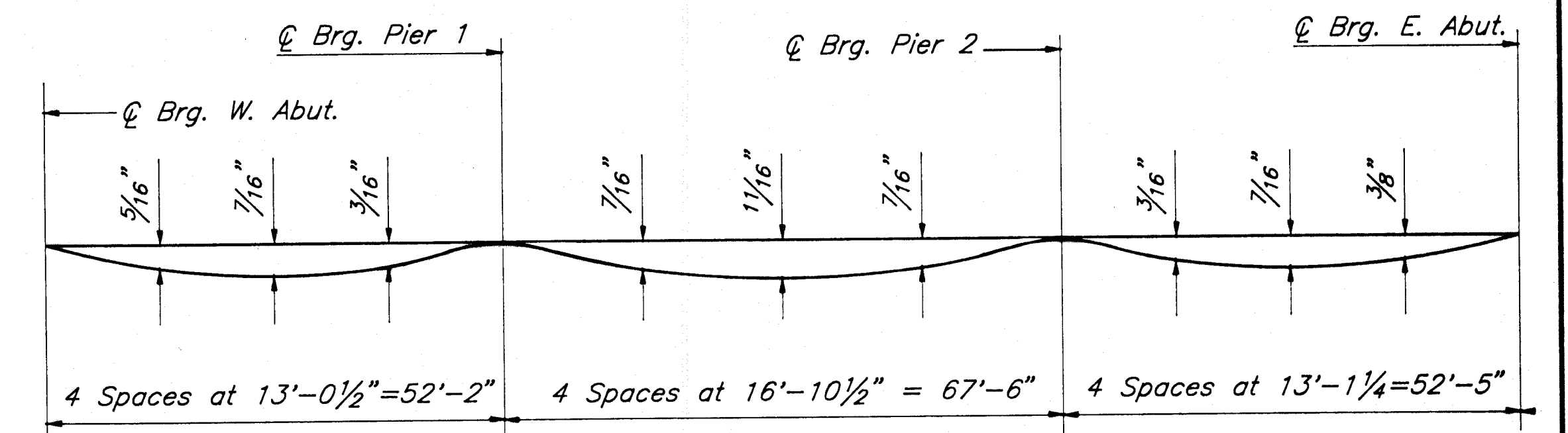
OF 30

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET No. 2
FAP 619	70-VBR-1	LASALLE	30	10	19 SHEETS
FED. ROAD DIST. NO.	ILLINOIS PROJECT				



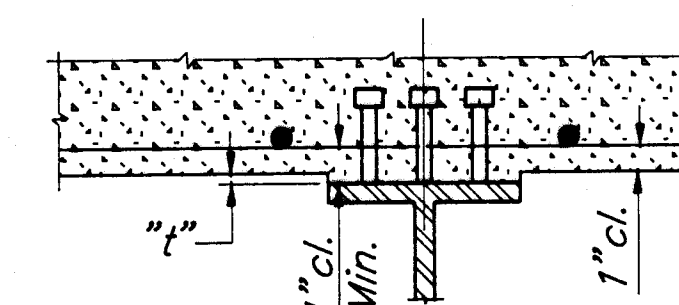
SCREED ELEVATION LOCATION DIAGRAM



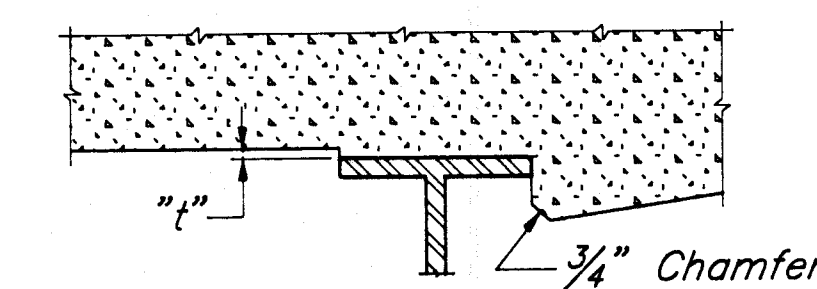
DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete slab only.)

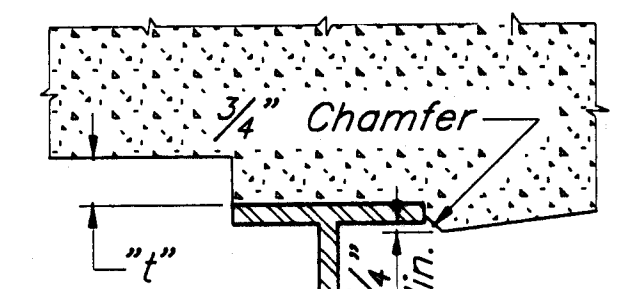
NOTE: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on this sheet.



(INTERIOR BEAM)



AT MINIMUM FILLET



AT MAXIMUM FILLET

EXTERIOR BEAMS

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown. These elevations subtracted from the "Slab Elevations Adjusted for Dead Load Deflection" shown, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

BEAM 1

LOCATION	STATION	OFFSET	SLAB ELEV	SLAB ELEV ADJ
FT	FT	FT	FT	FT
BK. A1	35 + 34.352	18.750	542.921	542.921
CLB. A1	35 + 36.562	18.750	542.926	542.926
1	35 + 46.562	18.750	542.943	542.943
2	35 + 56.562	18.750	542.953	542.988
3	35 + 66.562	18.750	542.955	542.984
4	35 + 76.562	18.750	542.949	542.961
5	35 + 88.732	18.750	542.911	542.931
6	35 + 98.732	18.750	542.907	542.924
7	36 + 8.732	18.750	542.875	542.918
8	36 + 18.732	18.750	542.836	542.894
9	36 + 28.732	18.750	542.789	542.844
10	36 + 38.732	18.750	542.734	542.769
11	36 + 48.732	18.750	542.671	542.681
12	36 + 56.232	18.750	542.618	542.618
13	36 + 66.232	18.750	542.541	542.551
14	36 + 76.232	18.750	542.457	542.483
CLB. A2	36 + 86.232	18.750	542.364	542.400
BK. A2	37 + 8.652	18.750	542.263	542.292
	37 + 10.852	18.750	542.128	542.128
			542.102	542.102

BEAM 2

LOCATION	STATION	OFFSET	SLAB ELEV	SLAB ELEV ADJ
FT	FT	FT	FT	FT
BK. A1	35 + 37.748	12.500	543.059	543.059
CLB. A1	35 + 39.958	12.500	543.063	543.063
1	35 + 49.958	12.500	543.078	543.103
2	35 + 59.958	12.500	543.085	543.120
3	35 + 69.958	12.500	543.084	543.113
4	35 + 79.958	12.500	543.075	543.087
5	35 + 92.128	12.500	543.054	543.054
6	36 + 2.128	12.500	543.027	543.044
7	36 + 12.128	12.500	542.993	543.036
8	36 + 22.128	12.500	542.951	543.009
9	36 + 32.128	12.500	542.901	542.956
10	36 + 42.128	12.500	542.843	542.879
11	36 + 52.128	12.500	542.778	542.788
12	36 + 62.128	12.500	542.723	542.723
13	36 + 72.128	12.500	542.644	542.653
14	36 + 82.128	12.500	542.556	542.583
CLB. A2	37 + 8.652	12.500	542.461	542.497
BK. A2	37 + 14.248	12.500	542.358	542.387
			542.219	542.219
			542.193	542.193

BEAM 3

LOCATION	STATION	OFFSET	SLAB ELEV	SLAB ELEV ADJ
FT	FT	FT	FT	FT
BK. A1	35 + 41.144	6.250	543.165	543.165
CLB. A1	35 + 43.354	6.250	543.169	543.169
1	35 + 53.354	6.250	543.181	543.206
2	35 + 63.354	6.250	543.186	543.221
3	35 + 73.354	6.250	543.182	543.211
4	35 + 83.354	6.250	543.171	543.182
5	35 + 95.524	6.250	543.146	543.146
6	36 + 5.524	6.250	543.117	543.134
7	36 + 15.524	6.250	543.080	543.123
8	36 + 25.524	6.250	543.035	543.094
9	36 + 35.524	6.250	542.983	543.038
10	36 + 45.524	6.250	542.922	542.958
11	36 + 55.524	6.250	542.854	542.864
12	36 + 63.024	6.250	542.797	542.797
13	36 + 73.024	6.250	542.715	542.724
14	36 + 83.024	6.250	542.625	542.652
CLB. A2	37 + 3.024	6.250	542.527	542.563
BK. A2	37 + 15.444	6.250	542.421	542.450
			542.279	542.279
			542.252	542.252

BEAM 4

LOCATION	STATION	OFFSET	SLAB ELEV	SLAB ELEV ADJ
FT	FT	FT	FT	FT
BK. A1	35 + 44.540	0.000	543.269	543.269
CLB. A1	35 + 46.750	0.000	543.272	543.272
1	35 + 56.750	0.000	543.281	543.306
2	35 + 66.750	0.000	543.283	543.318
3	35 + 76.750	0.000	543.277	543.306
4	35 + 86.750	0.000	543.263	543.274
5	35 + 98.920	0.000	543.235	543.235
6	36 + 8.920	0.000	543.203	543.220
7	36 + 18.920	0.000	543.163	543.206
8	36 + 28.920	0.000	543.116	543.174
9	36 + 38.920	0.000	543.061	543.116
10	36 + 48.920	0.000	542.997	543.033
11	36 + 58.920	0.000	542.926	542.937
12	36 + 66.420	0.000	542.868	542.868
13	36 + 76.420	0.000	542.783	542.792
14	36 + 86.420	0.000	542.690	542.717
CLB. A2	37 + 6.420	0.000	542.590	542.626
BK. A2	37 + 18.840	0.000	542.481	542.510
			542.335	542.335
			542.308	542.308

BEAM 5

LOCATION	STATION	OFFSET	SLAB ELEV	SLAB ELEV ADJ
FT	FT	FT	FT	FT
BK. A1	35 + 47.936	-6.250	543.176	543.176
CLB. A1	35 + 50.146	-6.250	543.178	543.178
1	35 + 60.146	-6.250	543.185	543.210
2	35 + 70.146	-6.250	543.184	543.219
3	35 + 80.146	-6.250	543.175	543.204
4	35 + 90.146	-6.250	543.158	543.170
5	36 + 2.316	-6.250	543.127	543.127
6	36 + 12.316	-6.250	543.093	543.110
7	36 + 22.316	-6.250	543.051	543.093
8	36 + 32.316	-6.250	543.000	543.059
9	36 + 42.316	-6.250	542.942	542.997
10	36 + 52.316	-6.250	542.877	542.912
11	36 + 62.316	-6.250	542.803	542.813
12	36 + 72.316	-6.250	542.742	542.742
13	36 + 82.316	-6.250	542.655	542.664
14	36 + 92.316	-6.250	542.559	542.586
CLB. A2	37 + 9.816	-6.250	542.456	542.492
BK. A2	37 + 22.236	-6.250	542.345	542.374
			542.196	542.196
			542.168	542.168

BEAM 6

LOCATION	STATION	OFFSET	SLAB ELEV	SLAB ELEV ADJ
FT	FT	FT	FT	FT
BK. A1	35 + 51.332	-12.500	543.079	543.079
CLB. A1	35 + 53.542	-12.500	543.081	543.081
1	35 + 63.542	-12.500	543.085	543.110
2	35 + 73.542	-12.500	543.082	543.117
3	35 + 83.542	-12.500	543.070	543.099
4	35 + 93.542	-12.500	543.050	543.062
5	36 + 3.542	-12.500	543.016	543.016
6	36 + 15.712	-12.500	542.979	542.996
7	36 + 25.712	-12.500	542.934	542.977
8	36 + 35.712	-12.500	542.881	542.940
9	36 + 45.712	-12.500	542.821	542.876
10	36 + 55.712	-12.500	542.752	542.788
11	36 + 65.712	-12.500	542.676	542.686
12	36 + 75.712	-12.500	542.594	542.613
13	36 + 85.712	-12.500	542.523	542.532
14	36 + 95.712	-12.500	542.425	542.452
CLB. A2	37 + 3.212	-12.500	542.319	542.355
BK. A2	37 + 13.212	-12.500	542.205	542.234
			542.052	542.052
			542.024	542.024

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

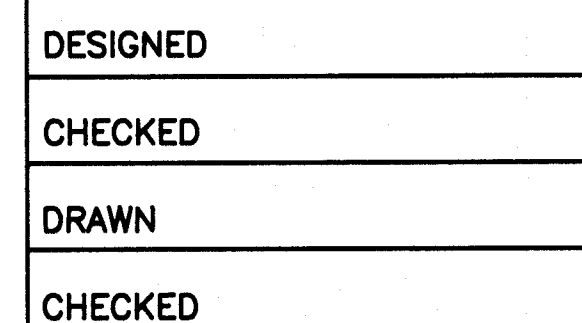
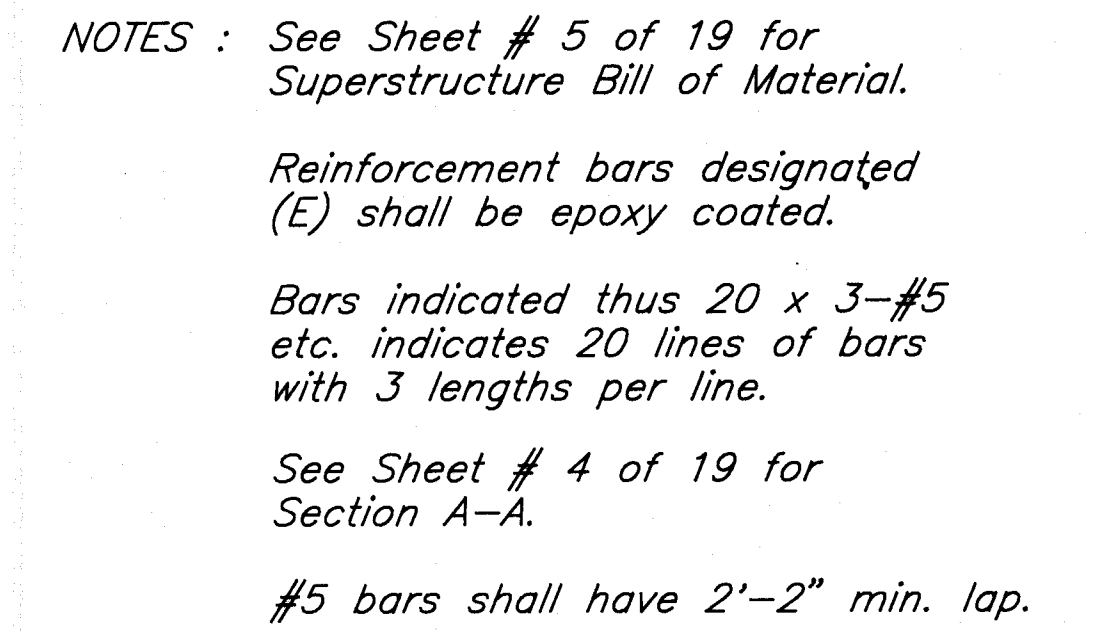
REVISIONS

DESIGNED EEG DRAWN JES APPROVED DATE 1/13/94 BOOK SCALE CAD DWG. IL\93030\351DKEL JOB NO. 222/93030/00

DECK ELEVATIONS
F.A.P. RT. 619 (IL. 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70-VBR-1 STATION 36+32.25 S.N. 050-0019

SHEET
10
OF 30

SHEET NO. 3
9 SHEETS



WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS												
DESIGNED	EEG	DRAWN	JES	APPROVED	DATE	1/13/94	BOOK	SCALE	CAD DWG.	IL\93030\351SUPER	JOB NO.	222\93030\00

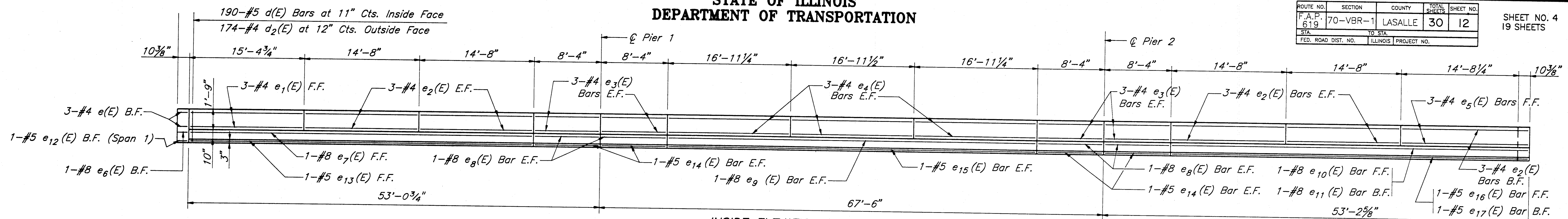
B	SUPERSTRUCTURE			SHE
	F.A.P. 619 (IL. RT. 351) OVER RAILROAD TRACKS, LASALLE COUNTY			
	SECTION 70-VBR-1	STA. 36+32.25	S.N. 050-0019	OF

11	30
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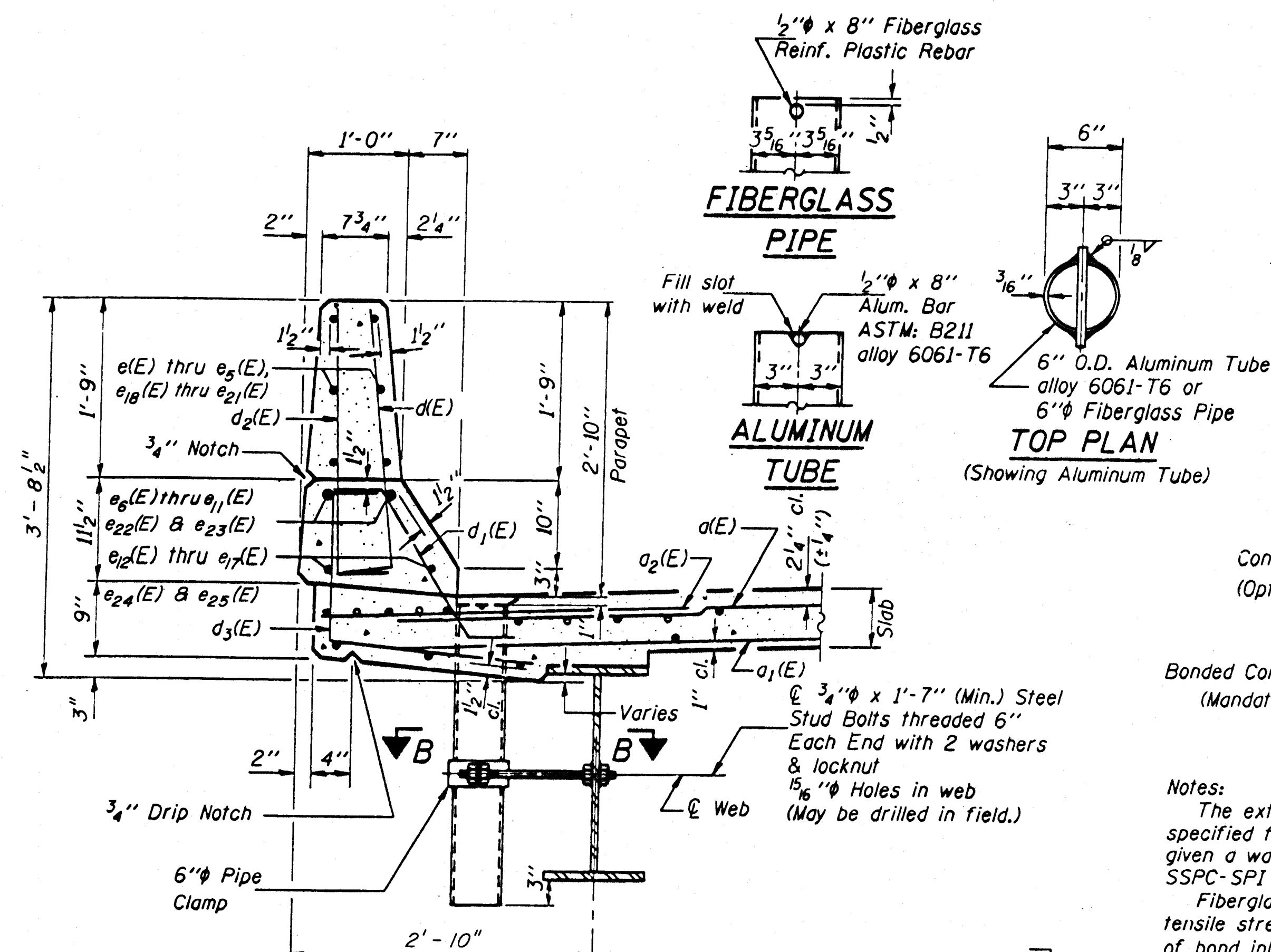
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 619	70-VBR-1	LASALLE	30	12
SIA	TO SIA	ILLINOIS	PROJECT NO.	

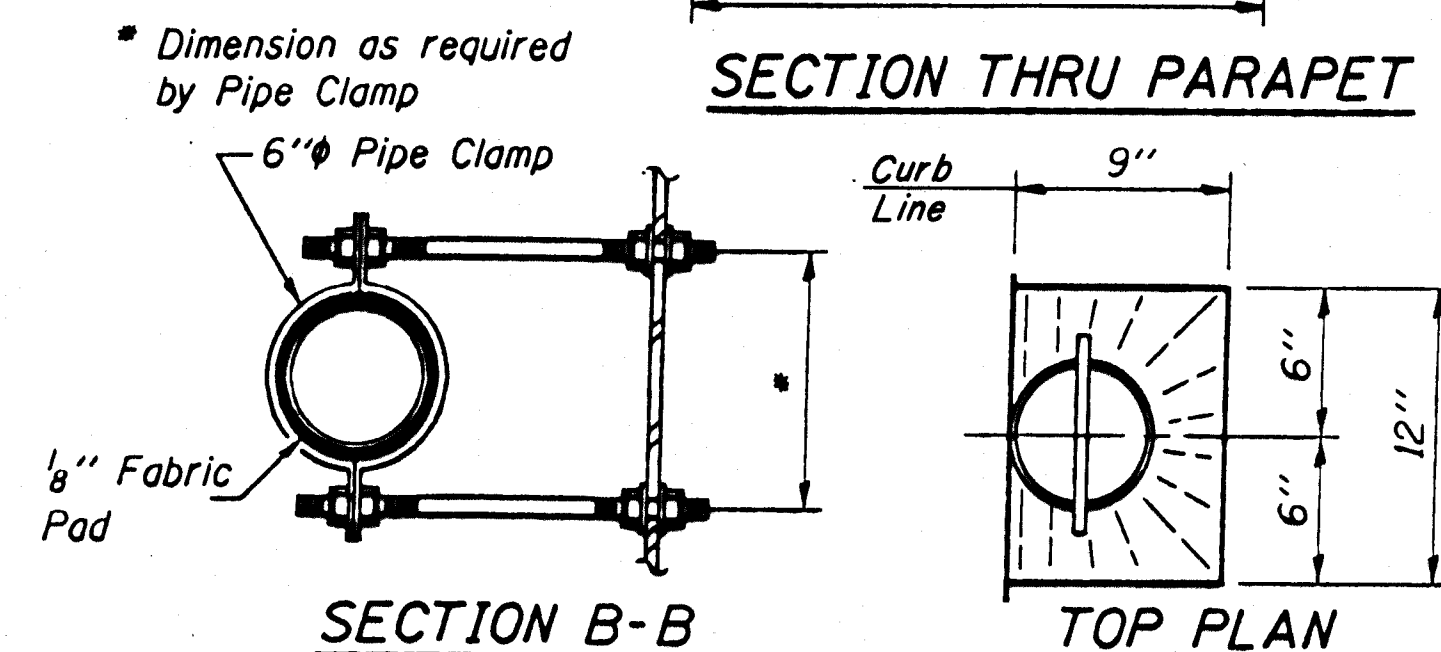
SHEET NO. 4
19 SHEETS



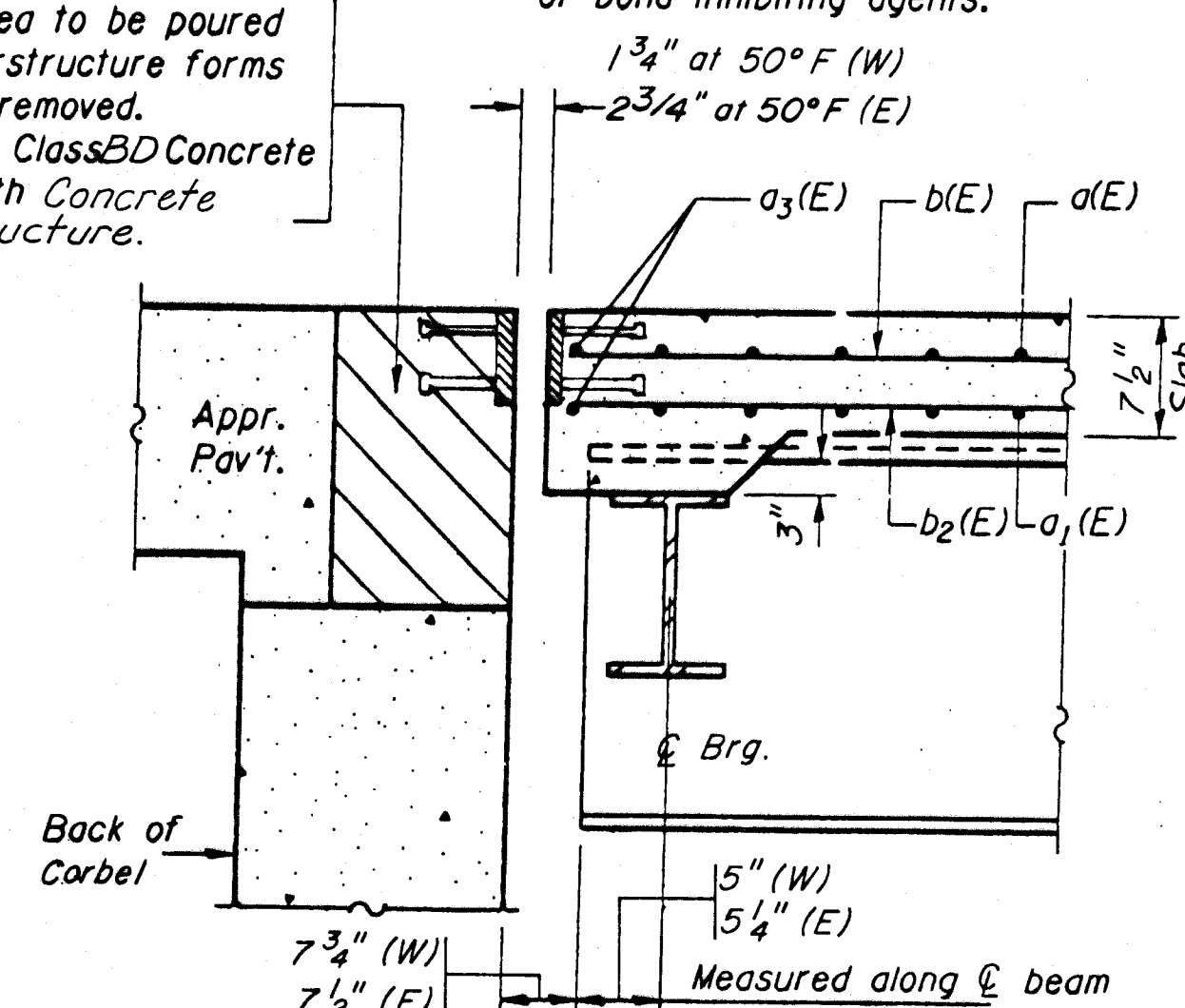
INSIDE ELEVATION OF NORTH PARAPET
E.F.=Each Face, F.F.=Front Face, B.F.=Back Face



SECTION THRU PARAPET

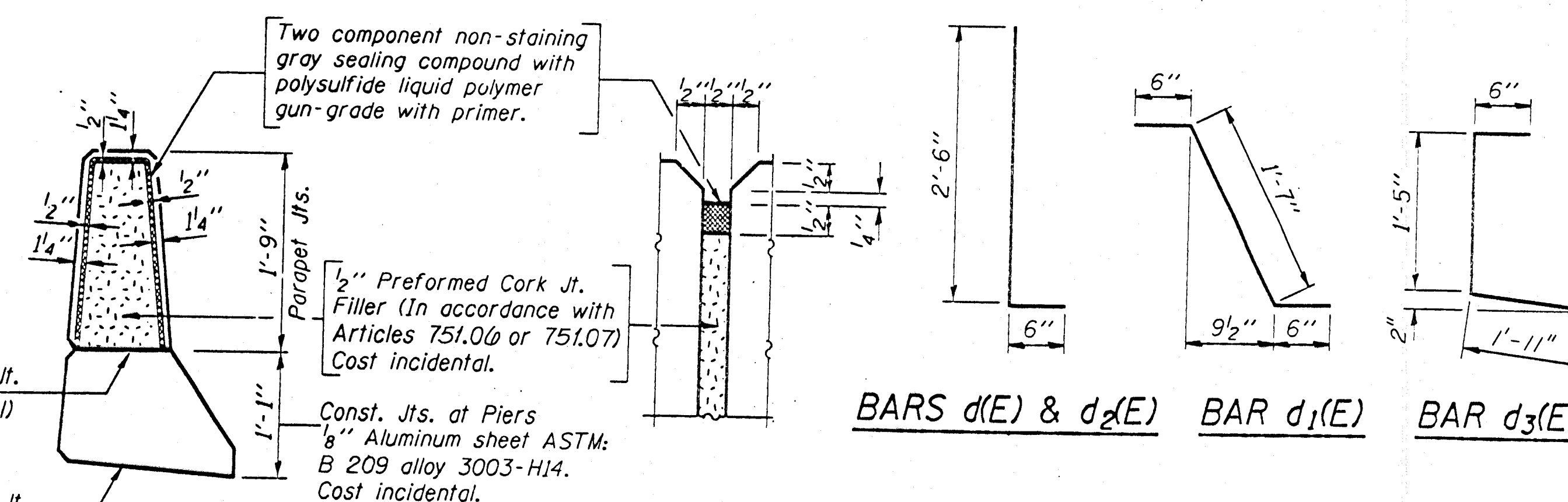


Hatched area to be poured after superstructure forms have been removed. Quantity of Class BD Concrete included with Concrete Super Structure.



SECTION A-A

W = West Abutment E = East Abutment



PARAPET JOINT DETAILS

Notes:
The exterior surfaces of the Floor Drain shall be painted with the finish coat of the paint system specified for Structural Steel. The exterior surfaces of the drain shall be cleaned and given a washcoat pretreatment in accordance with Steel Structures Painting Council's Spec. SSPC-SPI & SSPC-Paint 27 prior to painting.
Fiberglass pipe shall conform to ASTM: D2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum. The surface of the Fiberglass pipe shall be free of bond inhibiting agents.

BARS d(E) & d2(E) BAR d1(E) BAR d3(E)

DESIGNED
CHECKED
DRAWN
CHECKED

S-1-D 2-26-93

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS

DESIGNED	EEG	DRAWN	JES	APPROVED	DATE	1/13/94	BOOK	SCALE	CAD DWG.	IL\93030\351SS-DT	JOB NO.	222/93030
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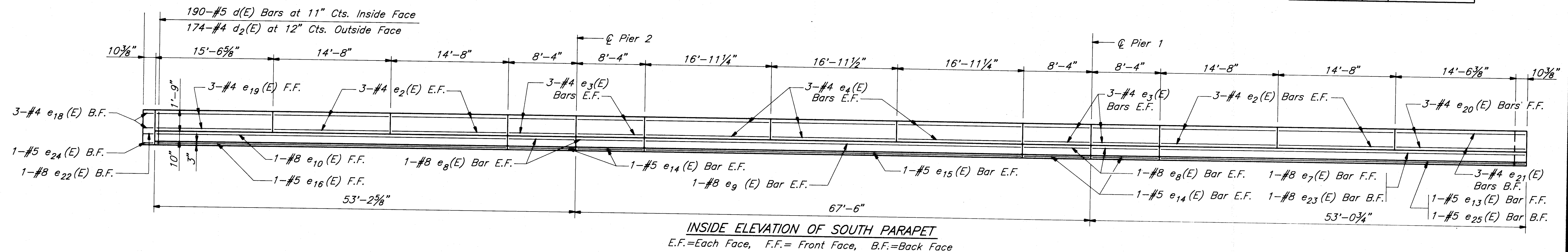
PARAPET DETAILS
F.A.P. 619 (IL. RT. 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70-VBR-1 STATION 36+32.25 S.N. 050-0019

SHEET
12
OF 30

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 619	70-VBR-1	LASALLE	30	13
STA.	TO STA.	ILLINOIS	PROJECT NO.	
FED. ROAD DIST. NO.				

SHEET NO. 5
19 SHEETS



SUPERSTRUCTURE BILL OF MATERIALS

Bar	No.	Size	Length	Shape
a(E)	299	#5	41'-2"	—
a1(E)	232	#5	41'-2"	—
a2(E)	296	#6	4'-0"	—
a3(E)	4	#5	46'-10"	—
b(E)	184	#5	45'-1"	—
b1(E)	86	#6	34'-0"	—
b2(E)	180	#5	36'-6"	—
d(E)	380	#5	3'-0"	┐
d1(E)	378	#5	2'-7"	┐
d2(E)	348	#4	3'-0"	┐
d3(E)	348	#4	3'-10"	┐
e(E)	3	#4	16'-0"	—
e1(E)	3	#4	15'-2"	—
e2(E)	51	#4	14'-5"	—
e3(E)	48	#4	8'-1"	—
e4(E)	36	#4	16'-8"	—
e5(E)	3	#4	15'-3"	—
e6(E)	1	#8	45'-4"	—
e7(E)	2	#8	44'-6"	—
e8(E)	16	#8	8'-1"	—

Bar	No.	Size	Length	Shape
e9(E)	4	#8	50'-7"	—
e10(E)	2	#8	44'-7"	—
e11(E)	1	#8	43'-9"	—
e12(E)	1	#5	45'-4"	—
e13(E)	2	#5	44'-6"	—
e14(E)	16	#5	8'-1"	—
e15(E)	4	#5	50'-7"	—
e16(E)	2	#5	44'-7"	—
e17(E)	1	#5	43'-9"	—
e18(E)	3	#4	16'-2"	—
e19(E)	3	#4	15'-3"	—
e20(E)	3	#4	15'-2"	—
e21(E)	3	#4	14'-4"	—
e22(E)	1	#8	45'-6"	—
e23(E)	1	#8	43'-7"	—
e24(E)	1	#5	45'-6"	—
e25(E)	1	#5	43'-7"	—
Reinforcement Bars Epoxy Coated				Lbs. 52,390
Concrete Super Structure				Cu. Yds. 217

Reinforcement Bars Designated (E)
shall be Epoxy Coated.

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS

DESIGNED EEG DRAWN JES APPROVED DATE 10/16/93 BOOK SCALE CAD DWG. IL\93030\351-BM JOB NO. 222/93030

PARAPET DETAILS & SUPERSTRUCTURE BILL OF MATERIAL
F.A.P. 619 (IL. RT. 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70-VBR-1 STATION 36+32.25 S.N. 050-0019

SHEET
13
OF 30

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 619	70-VBR-1	LASALLE	30	14
FED. ROAD DIST. NO.		ILLINOIS PROJECT		

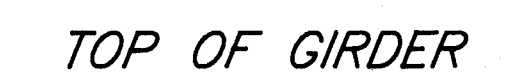
SHEET No. 6
19 SHEETS



NTR Denotes – Notch Toughness Requirements



(No. Req'd. = 196)



(No. Req'd. = 3171)

STUD SHEAR CONNECTOR DETAILS

REVISIONS

DESIGNED	EEG	DRAWN	JES	APPROVED	DATE	1/20/94	BOOK	SCALE	CAD DWG.	IL\93030\351FRAME	JOB NO.	222/93030/00
----------	-----	-------	-----	----------	------	---------	------	-------	----------	-------------------	---------	--------------

STEEL FRAMING PLAN			SH
F.A.P. 619 (IL. RT. 351) OVER RAILROAD TRACKS, LASALLE COUNTY			
SECTION 70-VBR-1	STA. 36+32.25	S.N. 050-0019	OF

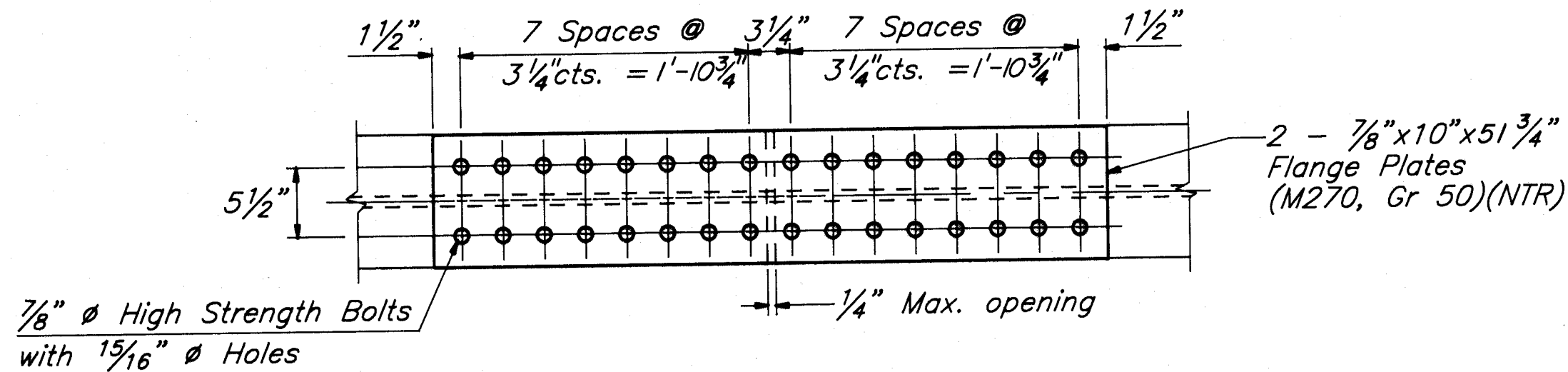
MEET

30

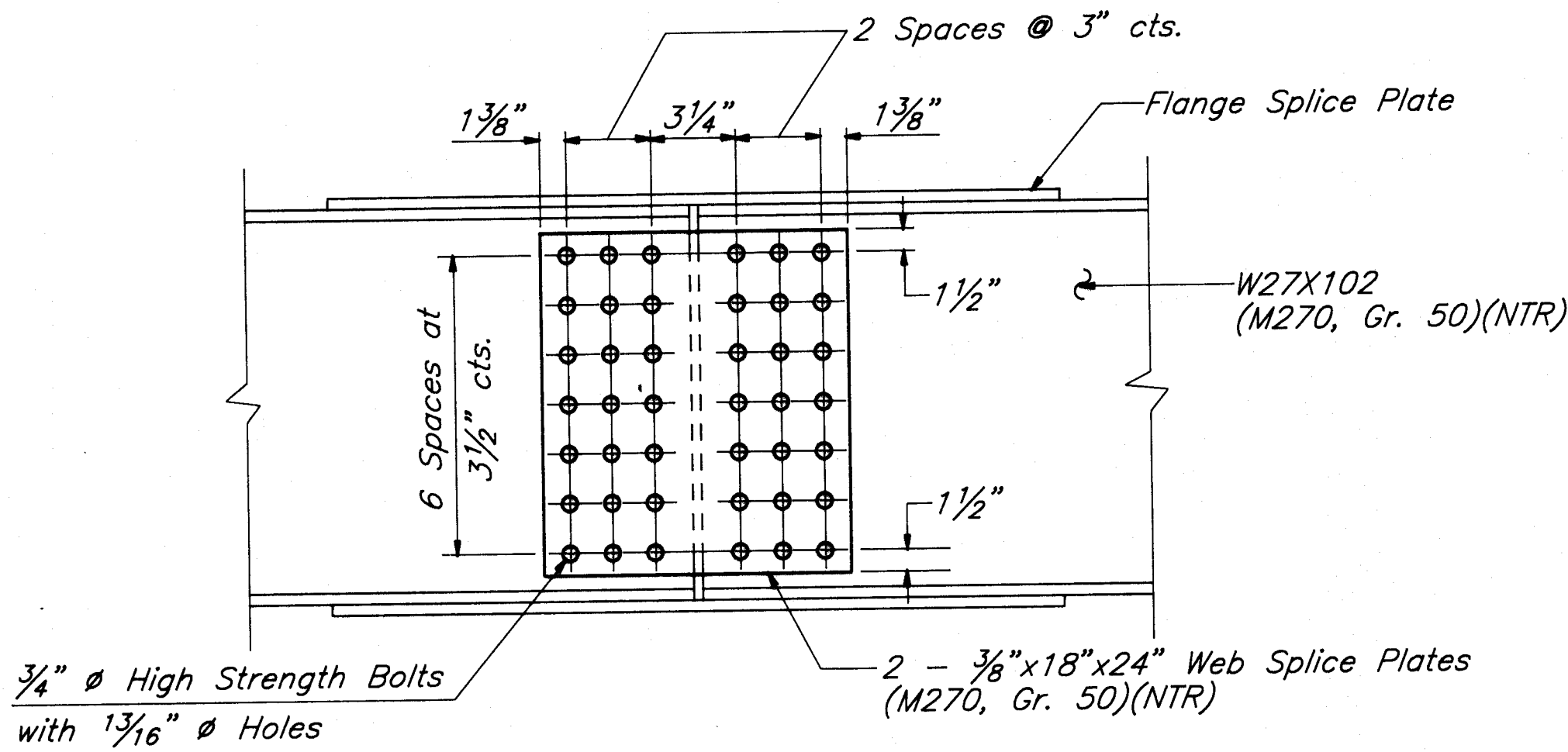
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 619	70-VBR-1	LASALLE	30	15
FED. ROAD DIST. NO.		ILLINOIS PROJECT		

SHEET No. 7
19 SHEETS



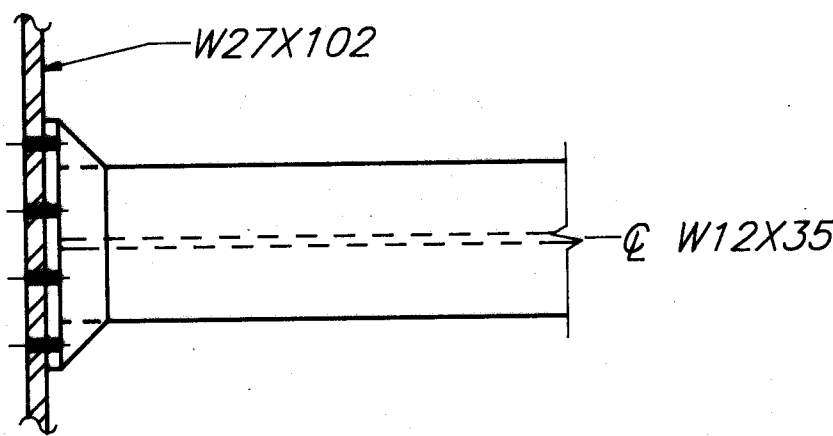
TOP VIEW OF FLANGE SPLICE PLATE



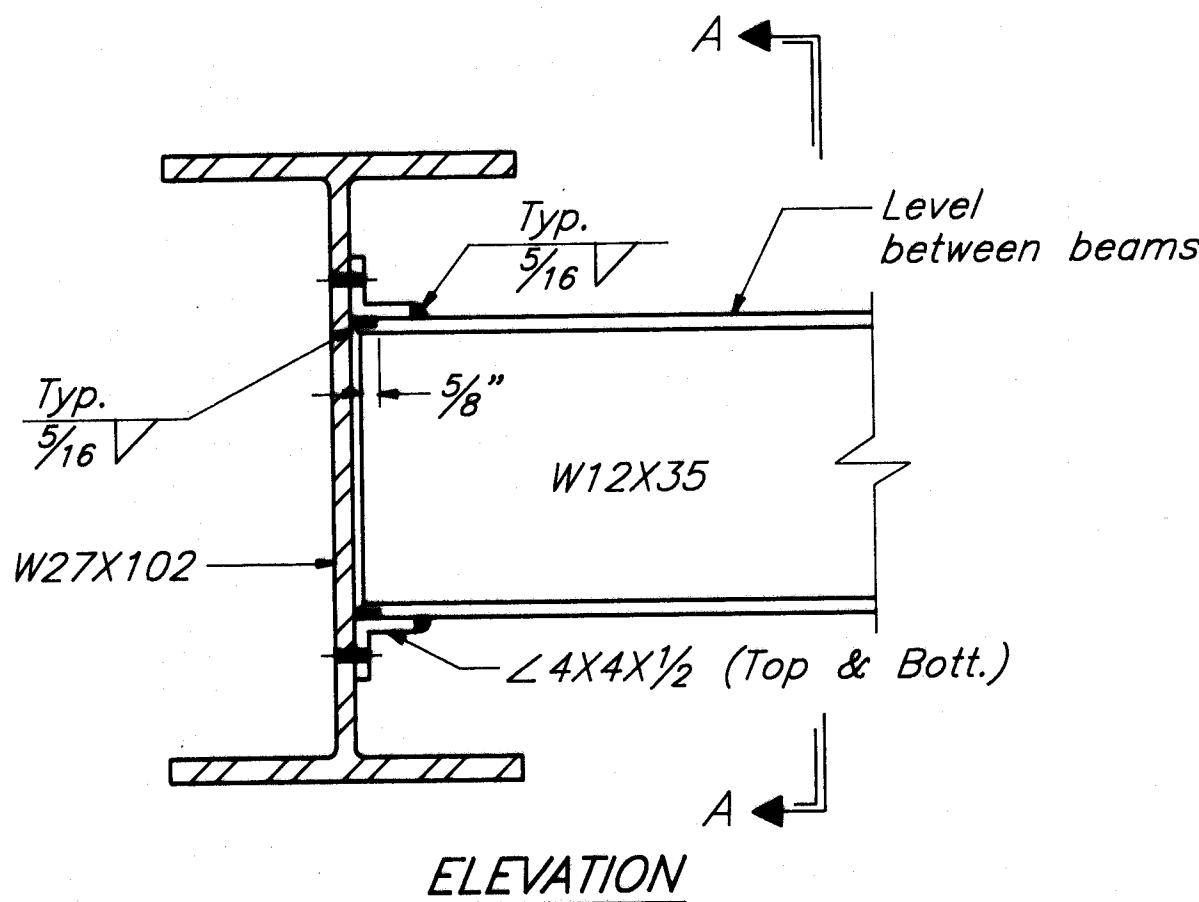
ELEVATION

FIELD SPLICE DETAIL

NOTE :
NTR denotes Notch Toughness Requirements.



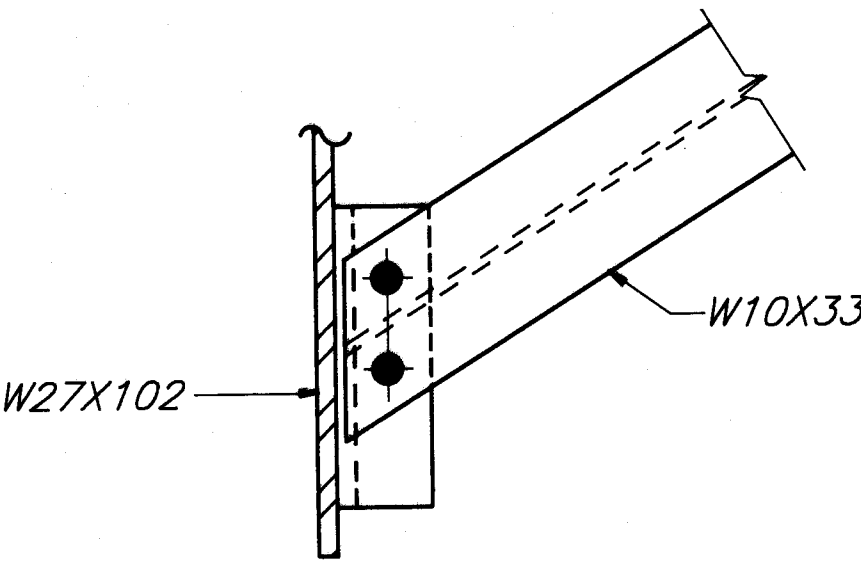
TOP VIEW



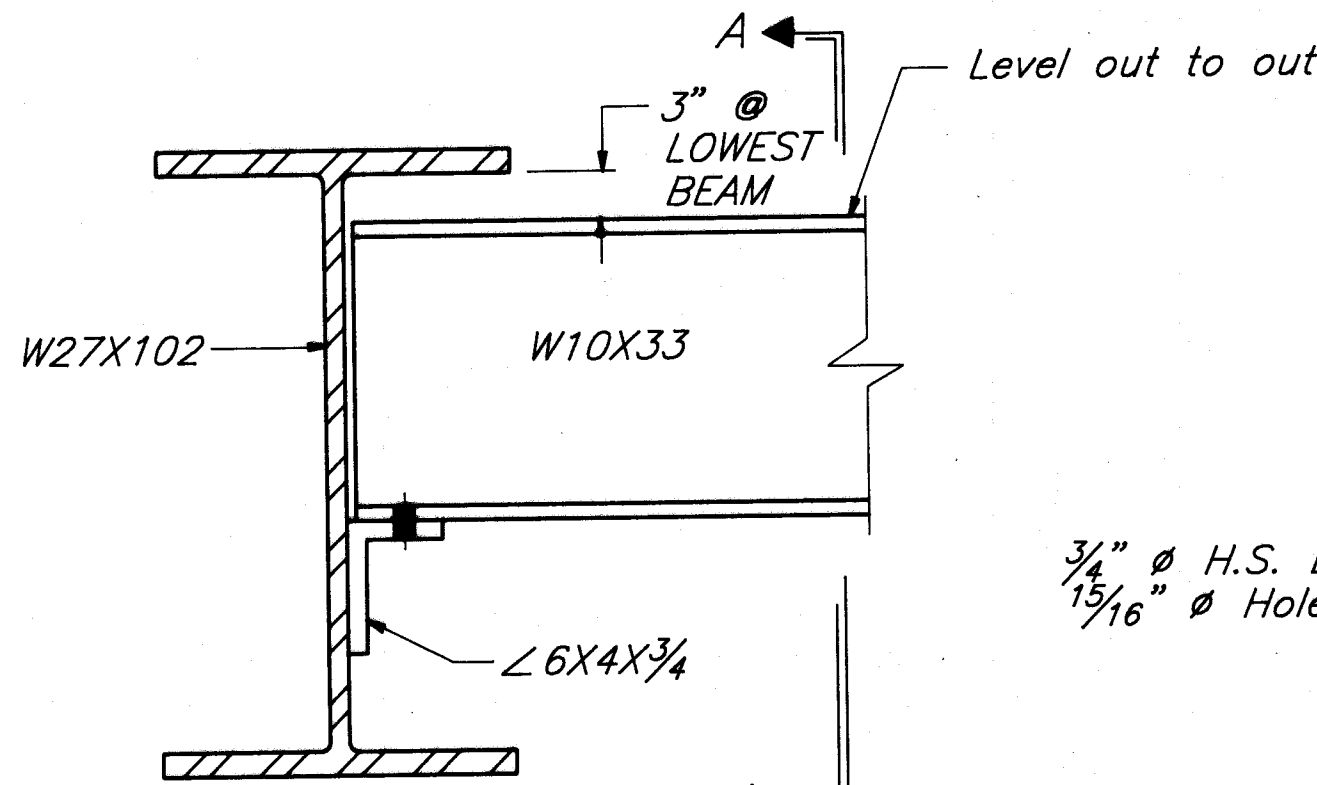
ELEVATION

DIAPHRAGM D1
(54 - Required)

NOTE : Two hardened washers shall be required over all oversize holes for diaphragms.



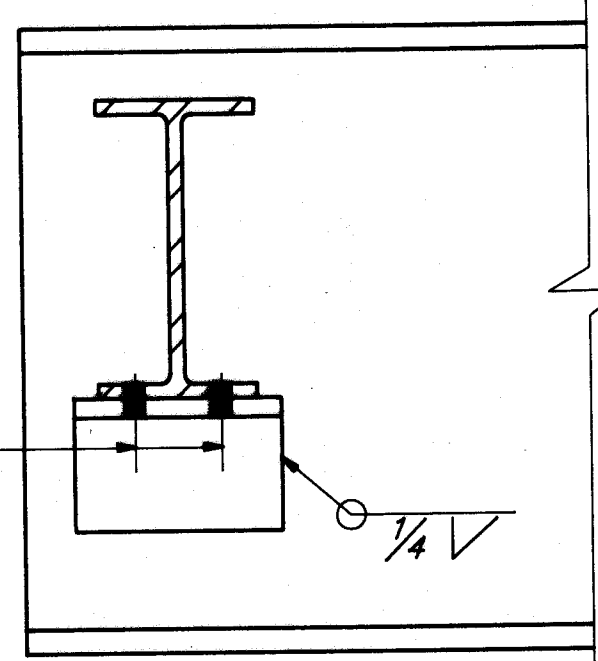
TOP VIEW



ELEVATION

DIAPHRAGM D
(12 - Required)

3/4" Ø H.S. Bolts
15/16" Ø Holes



SECTION A-A

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 3	Pier 1 or 2	0.5 Sp. 2
Is	(in ⁴)	3620	3620	3620
Ic (n)	(in ⁴)	10528		10528
Ic (3n)	(in ⁴)	7730		7730
Ss	(in ³)	267	267	267
Sc (n)	(in ³)	409		409
Sc (3n)	(in ³)	369		369
Q	(K/ft.)	0.732	1.009	0.732
M _Q	(K)	134	355	149
S _Q	(K/ft.)	0.277		0.277
M _{SQ}	(K)	57		79
M _L	(K)	329	194	387
M (Imp)	(K)	93	52	101
5/3[M _L +M(Imp)]	(K)	704	411	813
Ma	(K)	1165	996	1353
fs _Q non-comp	(k.s.i.)	6.0	16.0	6.7
fs _Q (comp)	(k.s.i.)	1.9		2.6
fs _{5/3(L+Imp)}	(k.s.i.)	20.7	18.5	23.9
fs (Overload)	(k.s.i.)	28.6	34.5	33.2
fs (Total)	(k.s.i.)	37.2	44.9	
VR	(K)	48.2		48.3

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).
Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs (Total & Overload).
VR is the maximum Live Load + Impact shear range in span.
Ma (Applied Moment) = 1.3 [M_Q + M_{SQ} + 5/3 (M_L + I)].
fs (Overload) is the sum of the stresses due to M_Q + M_{SQ} + 5/3 (M_L + I).
fs (Total) is the sum of the stresses due to 1.3 [M_Q + M_{SQ} + 5/3 (M_L + I)].

INTERIOR GIRDER REACTION TABLE		
	E. or W. Abut.	Pier 1 or 2
R _Q	(K) 19.7	67.3
R _L	(K) 32.7	39.5
Imp.	(K) 9.2	10.1
R (Total)	(K) 61.6	116.9

* TOP OF FLANGE ELEVATIONS Δ						
Beam No.	Q Bearing W-Abutment	Q Bearing Pier-1	Q Splice-1	Q Splice-2	Q Bearing Pier-2	Q Bearing E-Abutment
1	542.24	542.23	542.23	542.04	541.92	541.44
2	542.38	542.36	542.35	542.15	542.02	541.53
3	542.48	542.45	542.44	542.23	542.10	541.59
4	542.58	542.54	542.53	542.30	542.17	541.65
5	542.49	542.43	542.41	542.18	542.04	541.51
6	542.39	542.32	542.30	542.06	541.91	541.36
7	542.27	542.18	542.15	541.90	541.75	541.19

* For Fabrication Only

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS
GWR-5/20/94-REVISED PER I.D.O.T REVIEW

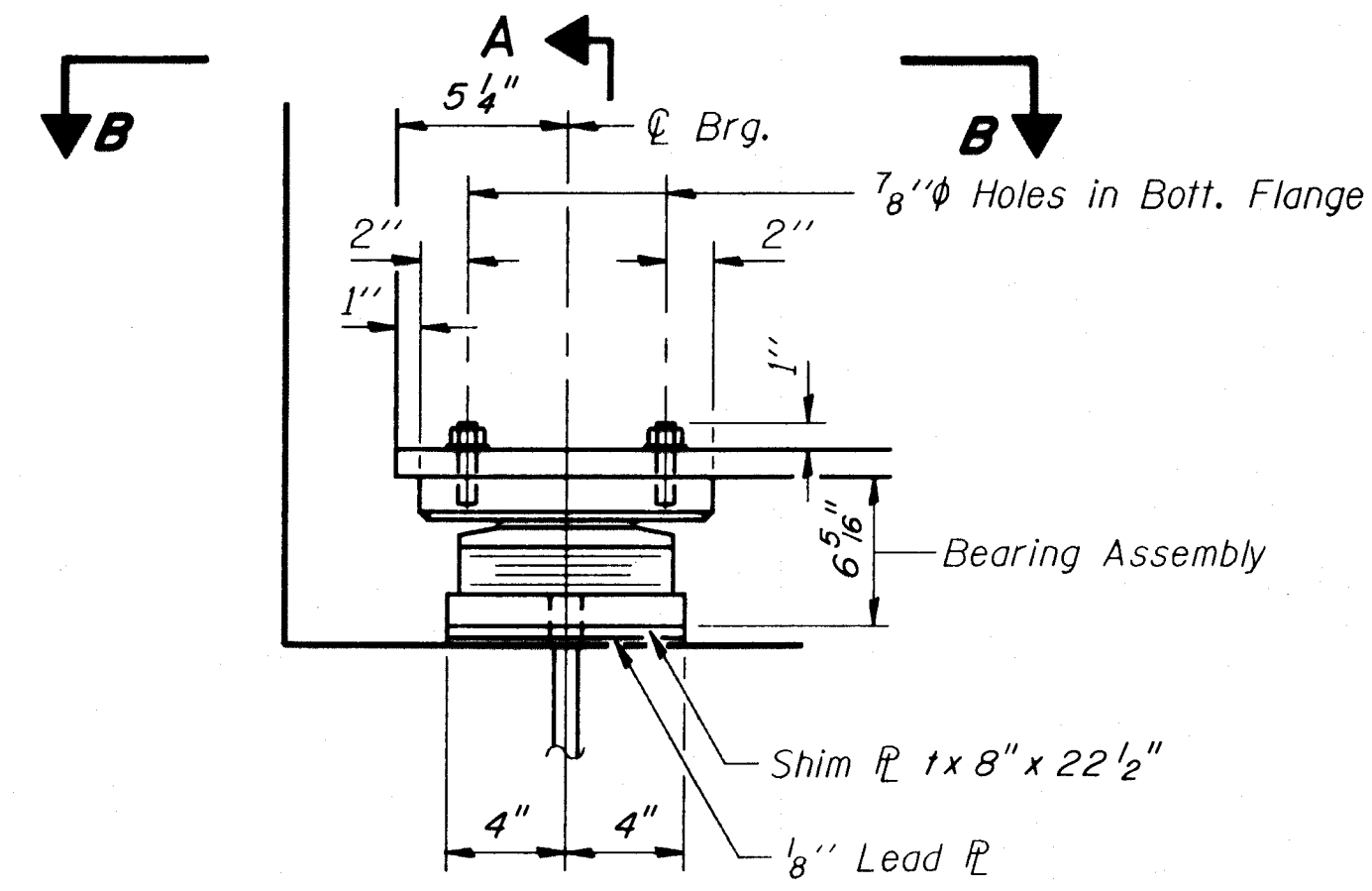
DESIGNED EEG DRAWN JES APPROVED DATE 2/1/94 BOOK SCALE N.T.S. CAD DWG. IL\93030\351DIAPH JOB NO. 222/93030/00

DIAPHRAGM CONNECTION & SPLICE DETAILS
F.A.P. 619 (IL. RT. 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70-VBR-1 STA. 36+32.25 S.N. 050-0019

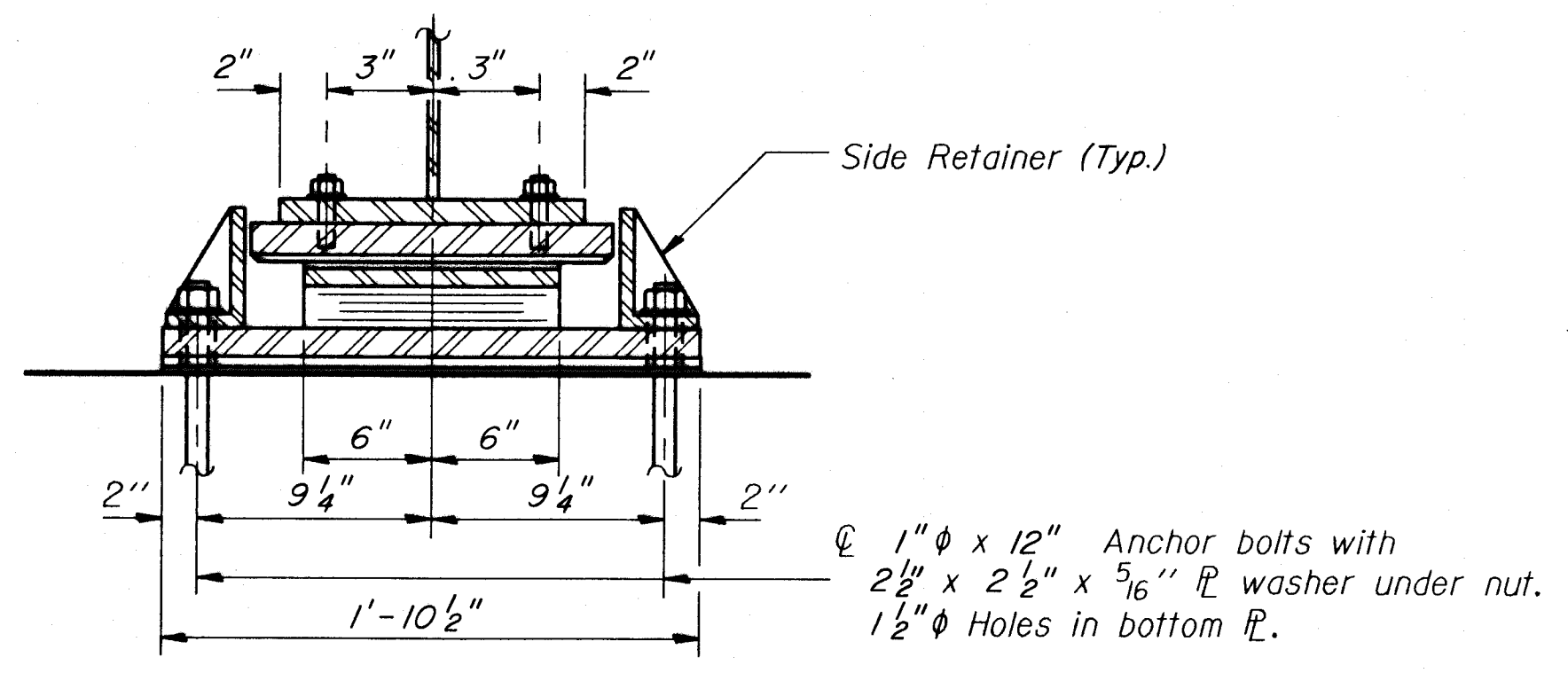
SHEET
15
OF 30

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

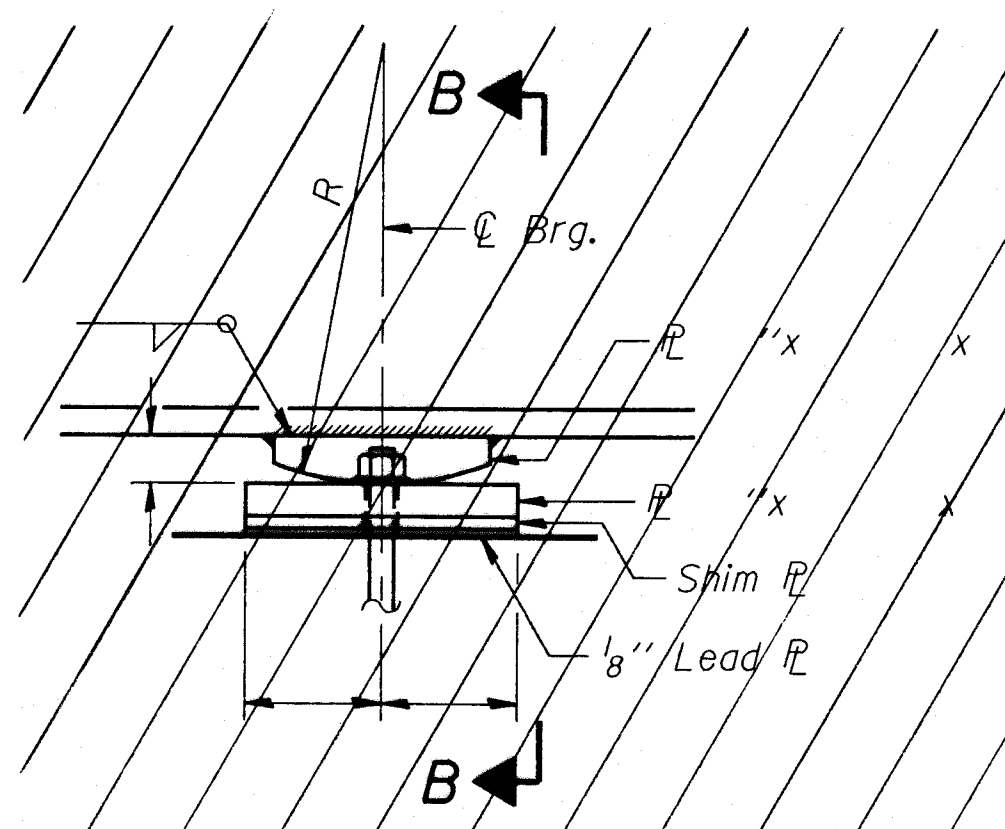
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO.
F.A.P. 619	70VBR -1	LASALLE	30	16	19 SHEETS
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT		



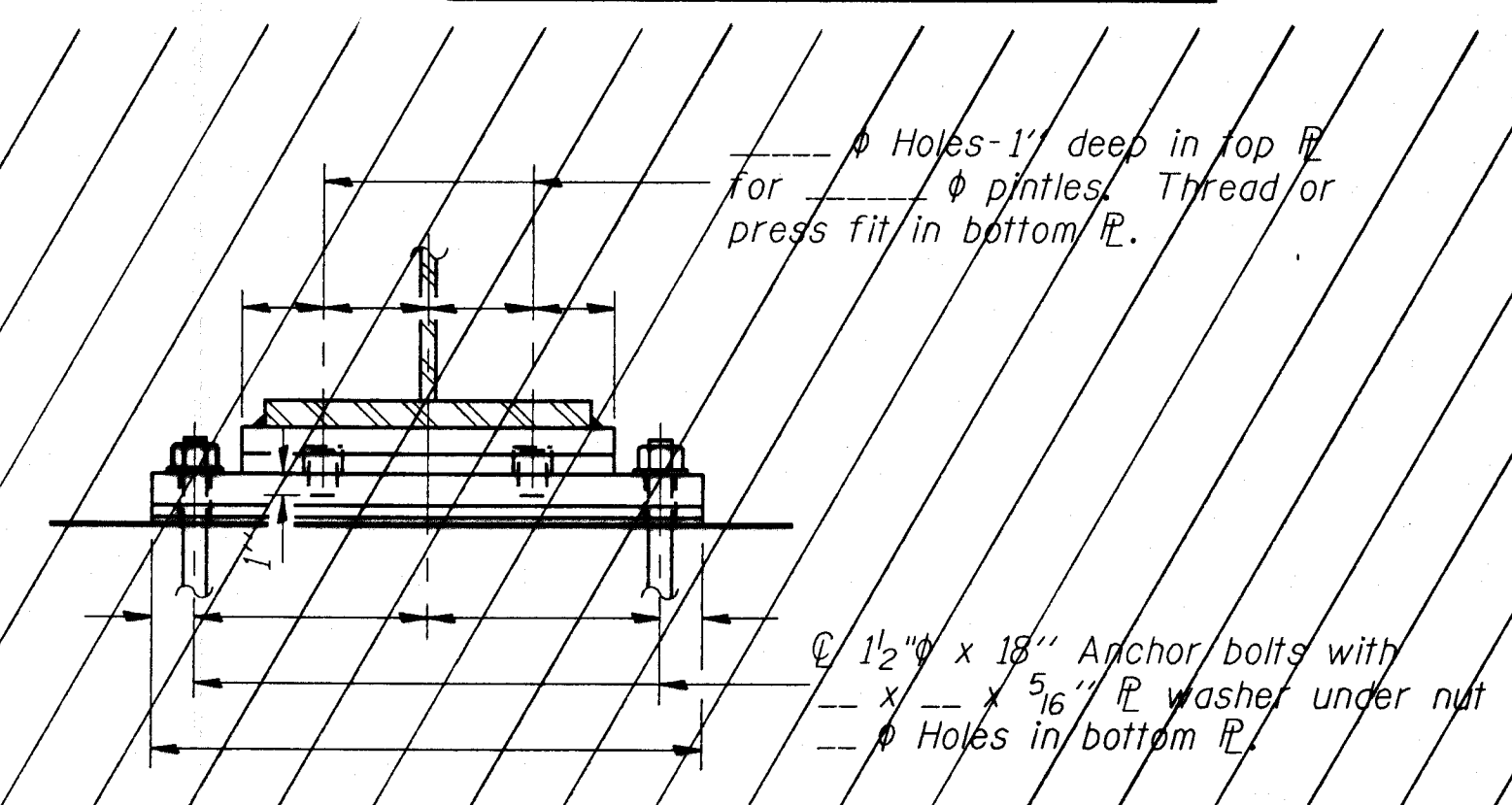
ELEVATION AT ABUT.



SECTION A-A



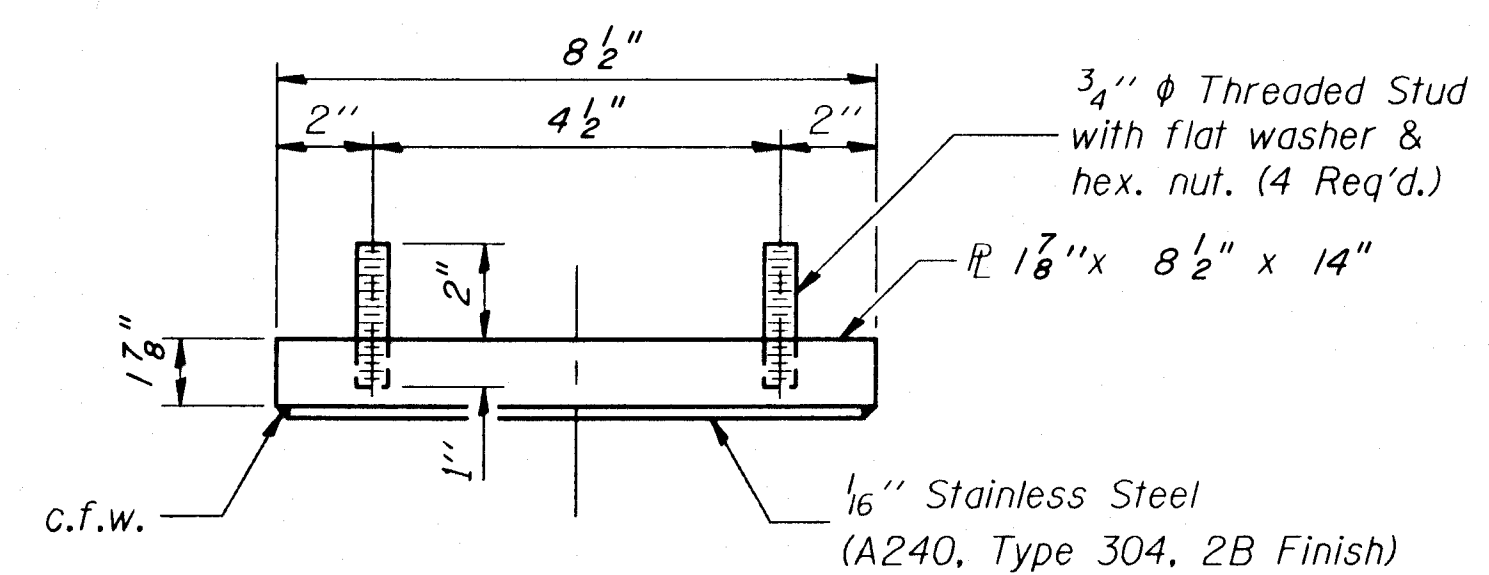
ELEVATION AT PIER



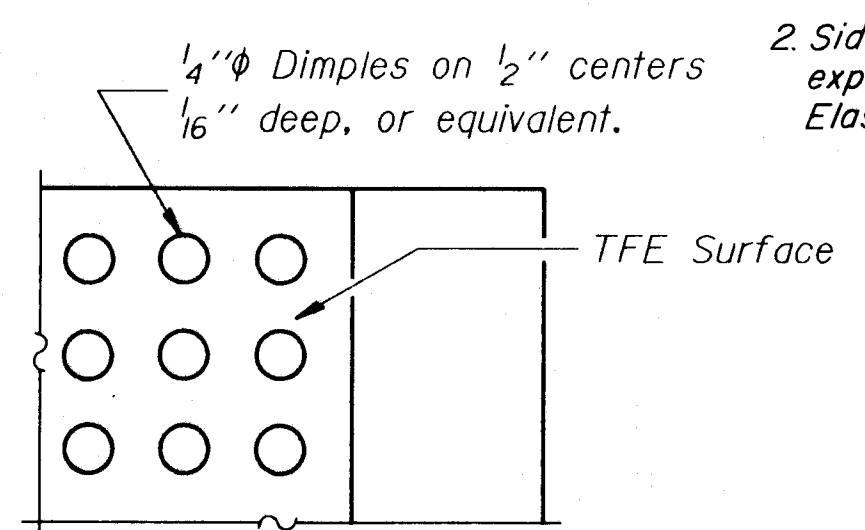
SECTION B-B

TYPE II TFE ELASTOMERIC EXP. BRG.

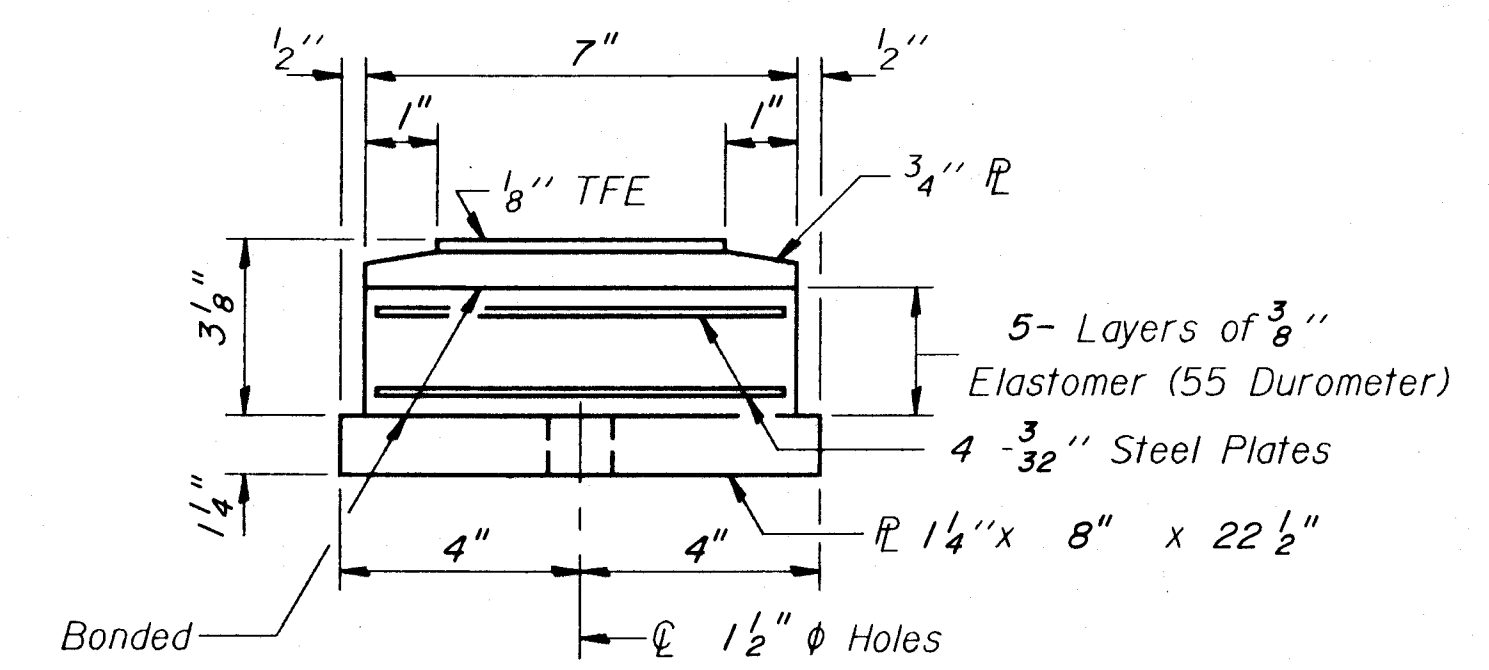
- Notes:
1. See sheet 16 of 19 for Anchor Bolt installation.
 2. Side retainers, shim plate and anchor bolts for expansion bearings are incidental to the cost of Elastomeric Bearing Assembly Type II.



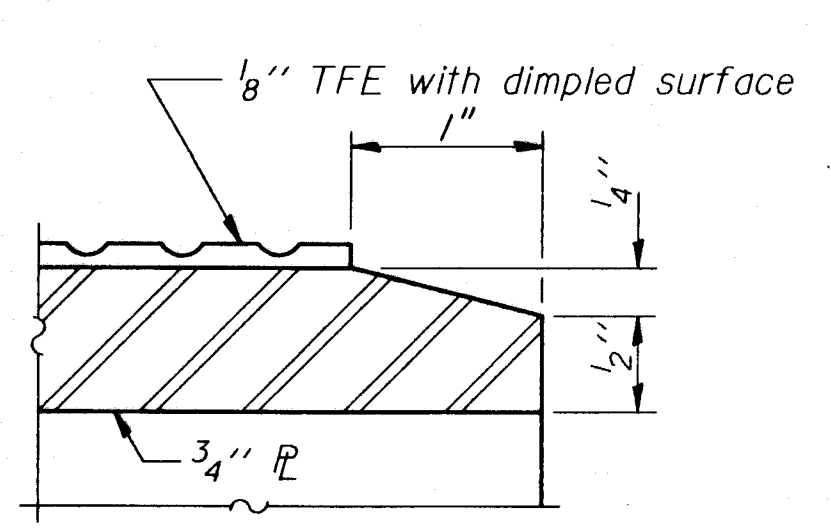
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



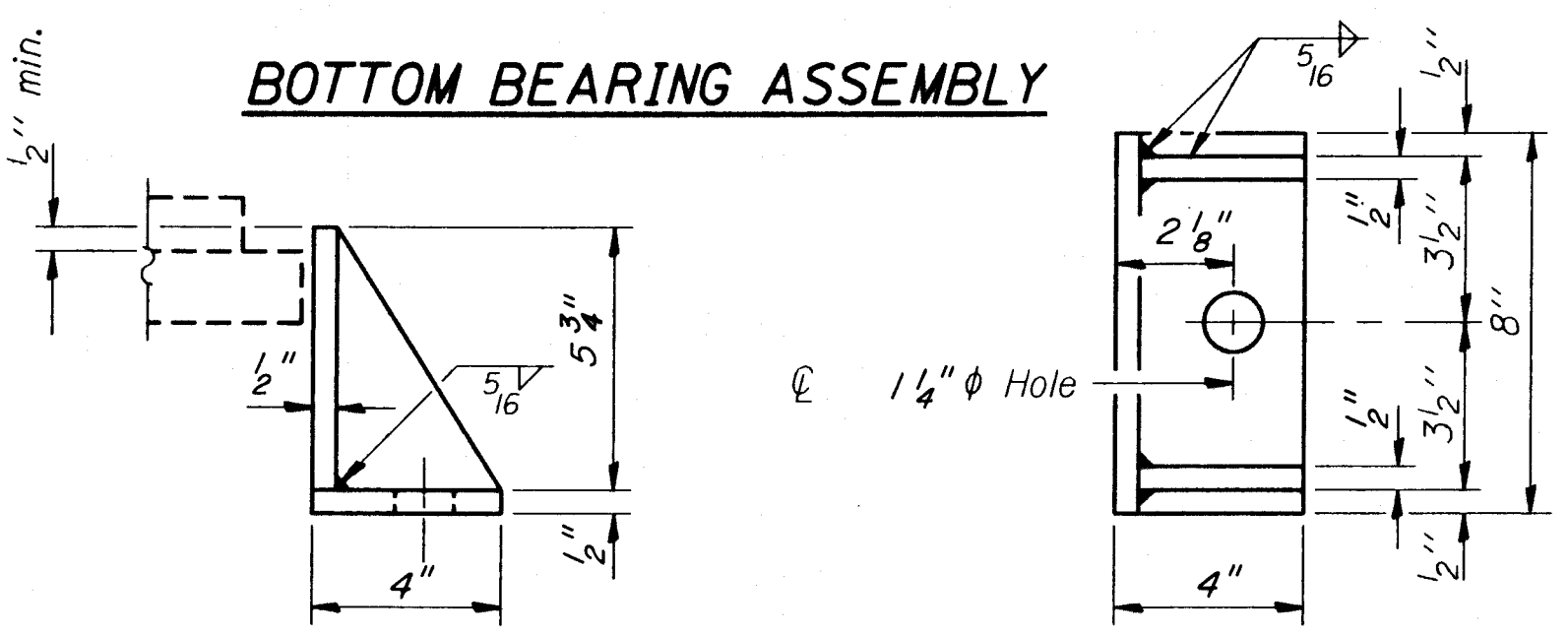
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

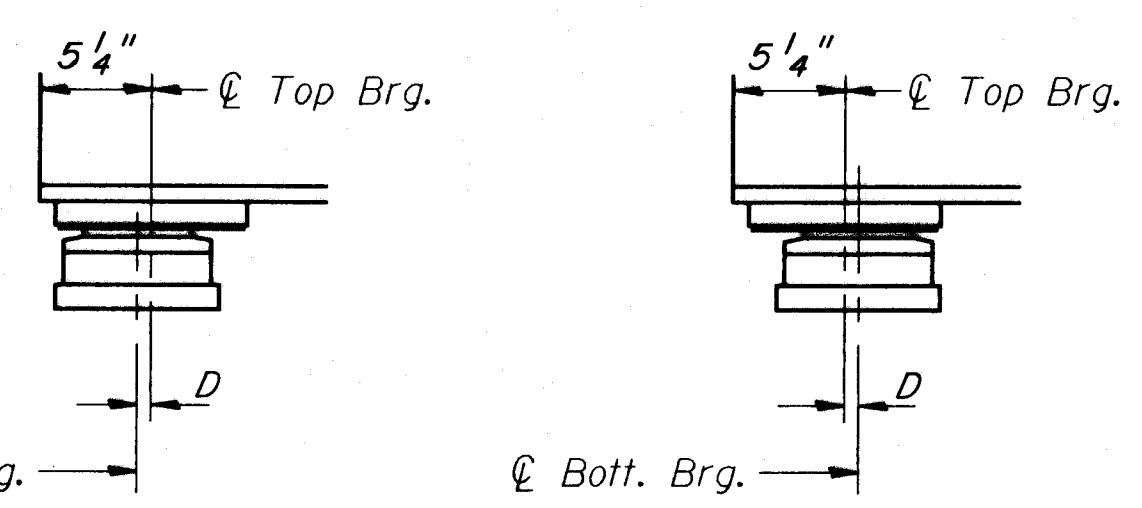
Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Structural Steel.

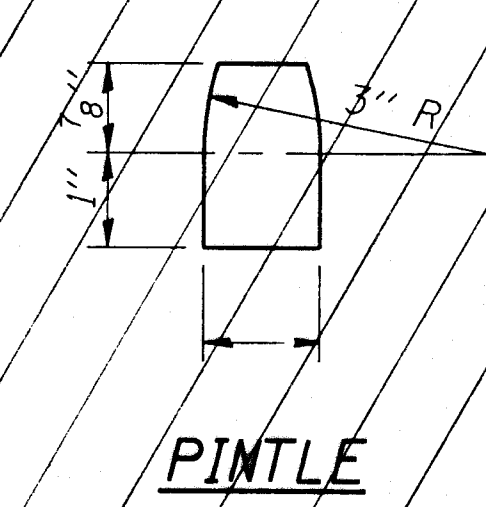


BELOW 50°F. (Move bott. brg. away from fixed brg.)
ABOVE 50°F. (Move bott. brg. toward fixed brg.)

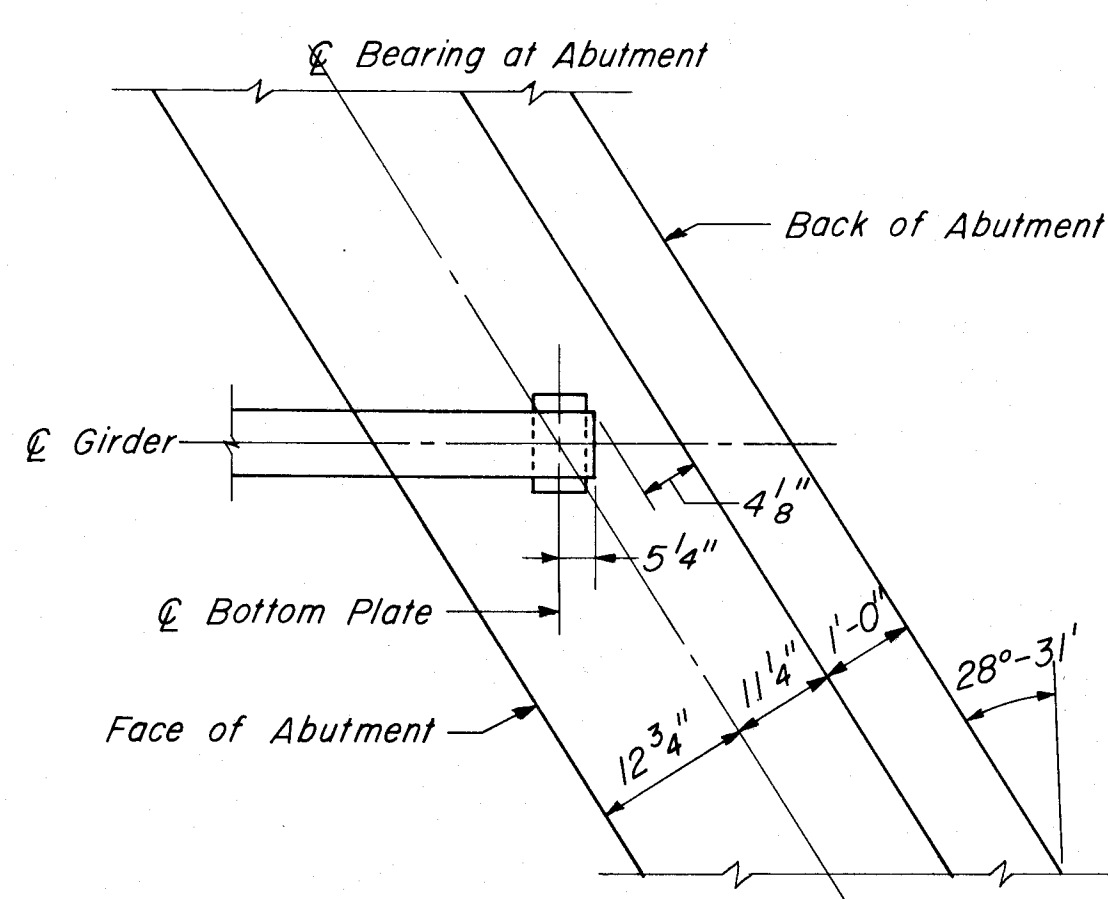
SETTING ANCHOR BOLTS AT EXP. BRG.

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

FIXED BEARING



PINTLE



SECTION B-B

BILL OF MATERIAL

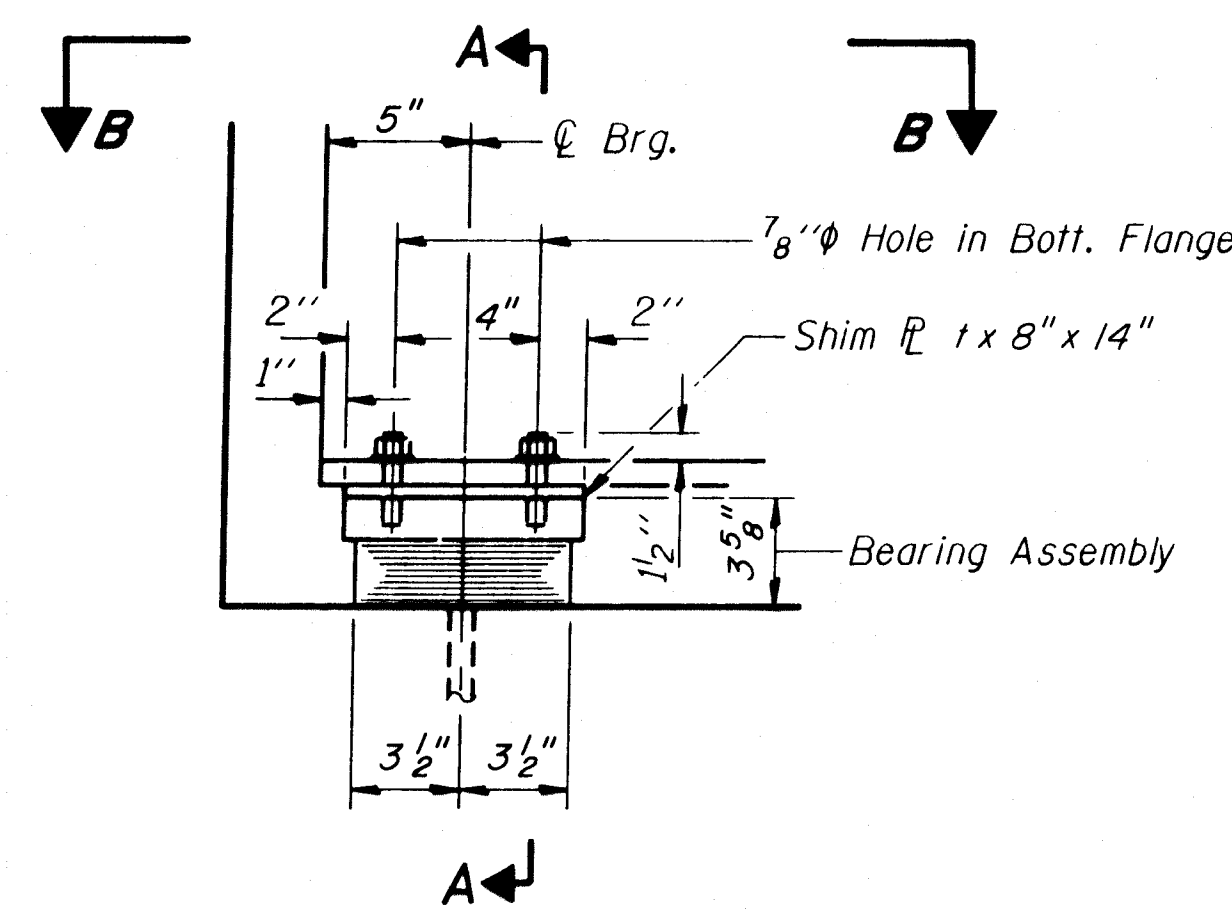
Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	7

DESIGNED
CHECKED
DRAWN
CHECKED

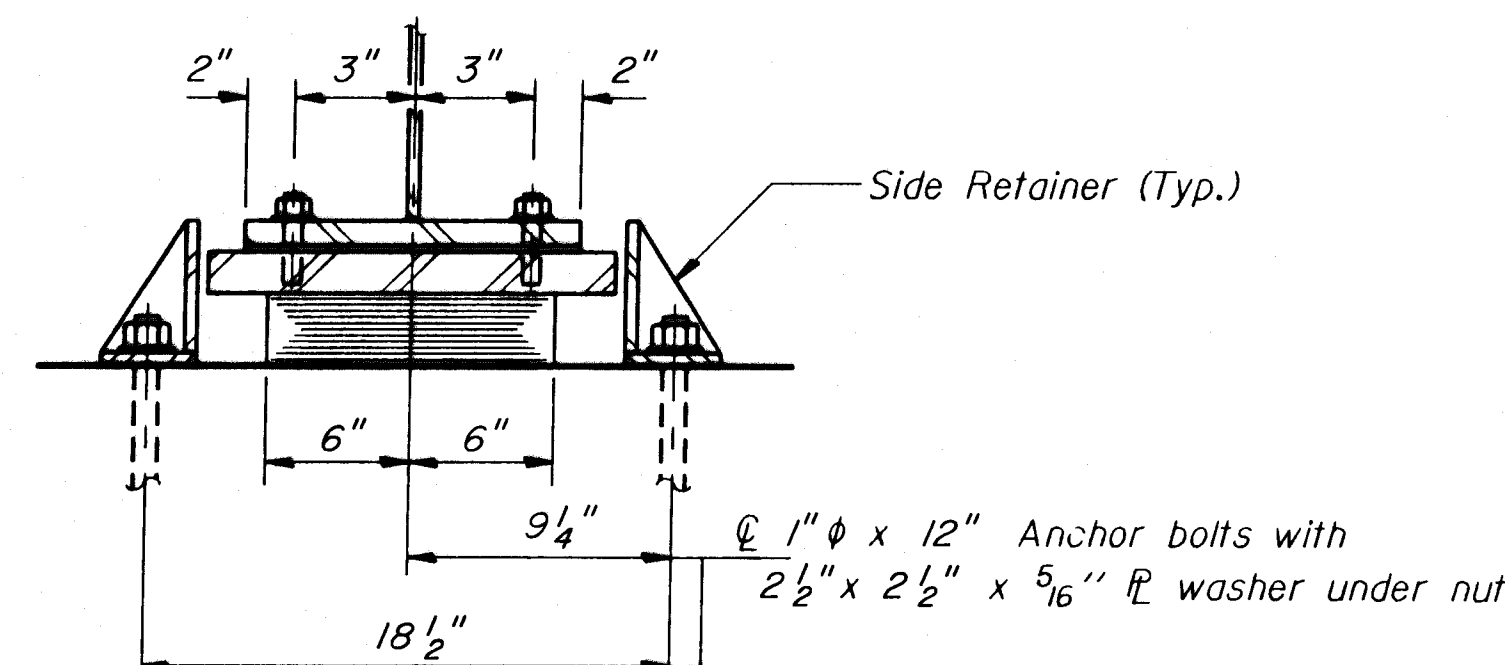
I-2-E2 2-26-93

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO.
F.A.P. 619	70-VBR -1	LASALLE	30	17	19 SHEETS
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-		

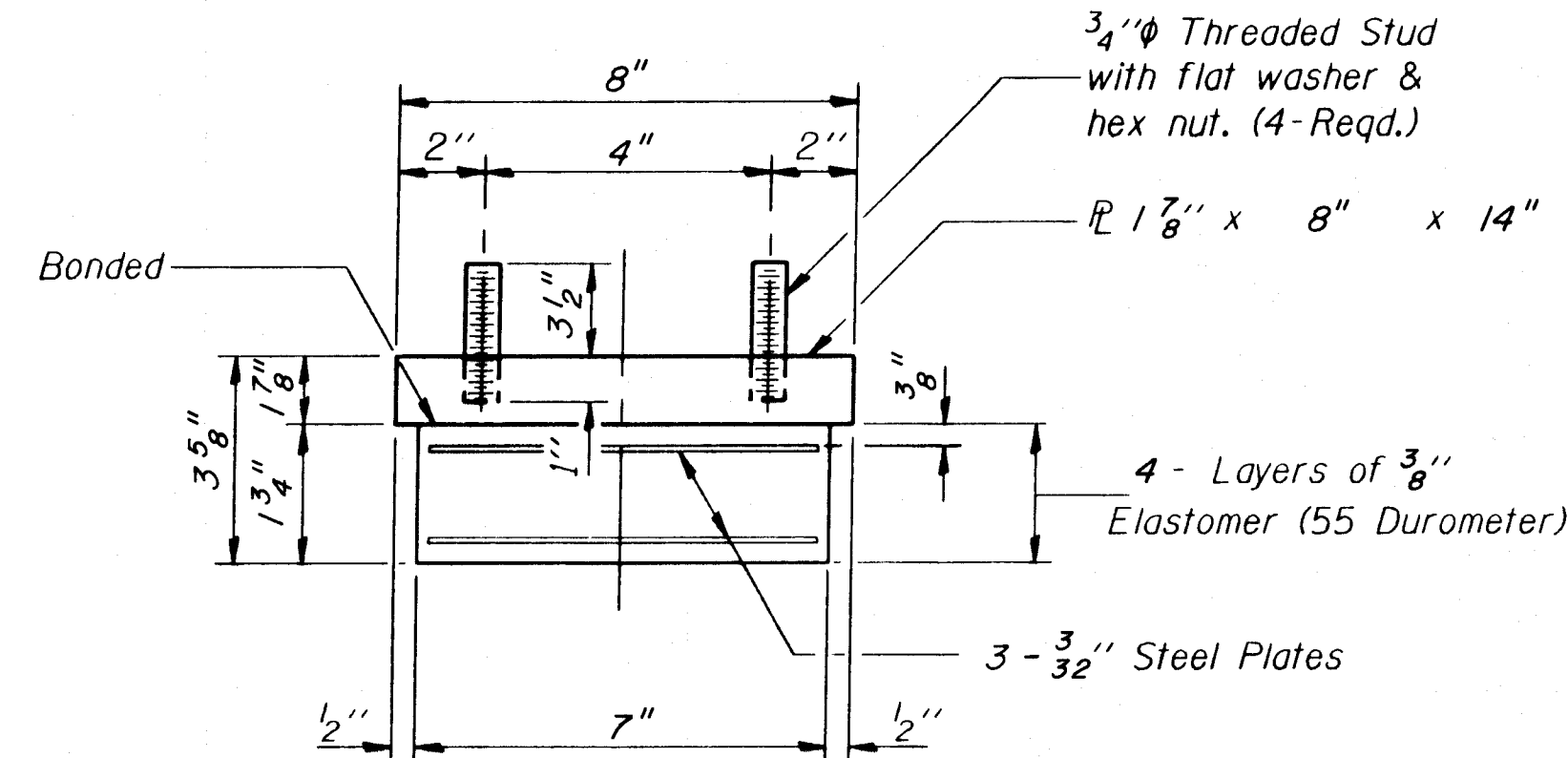


ELEVATION AT ABUT.



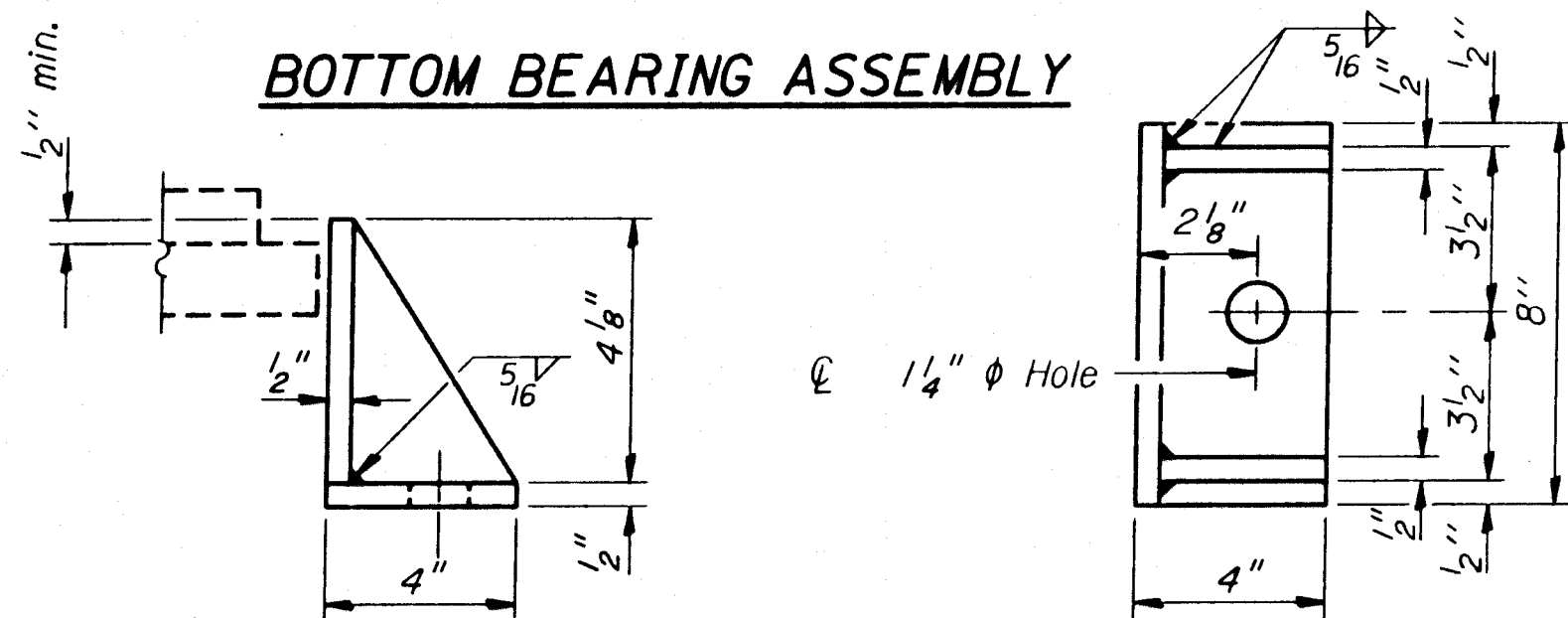
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.



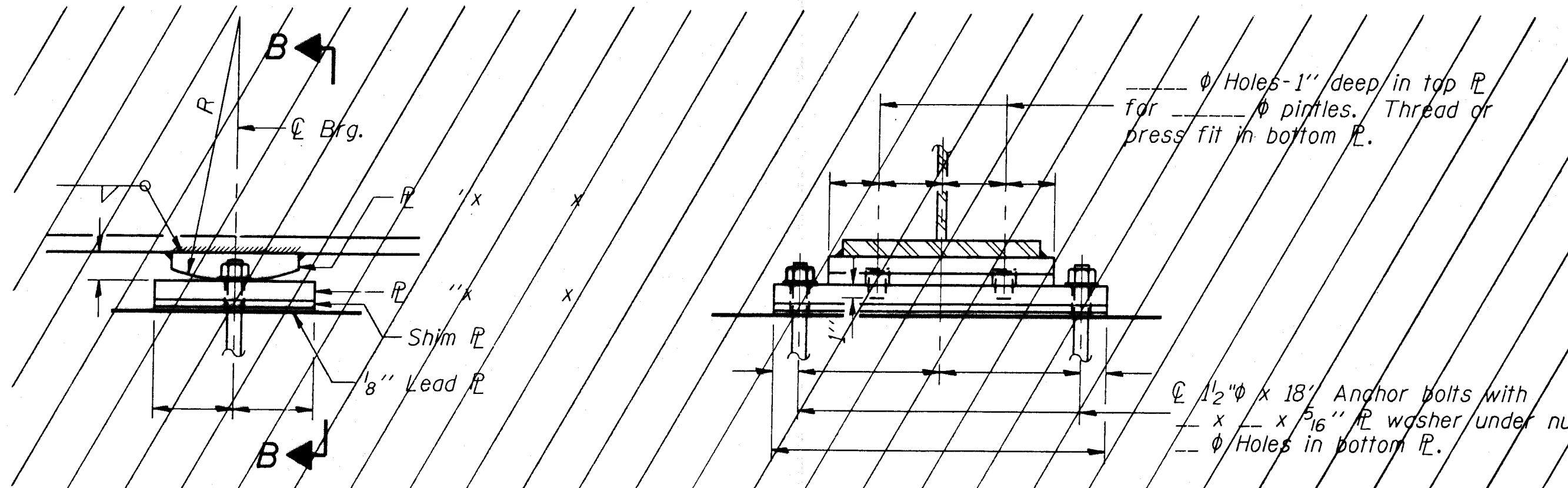
SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Structural Steel.

DESIGNED
CHECKED
DRAWN
CHECKED

I-2-E1 2-26-93

Notes:
1. See sheet 16 of 19 for Anchor Bolt installation.
2. Side retainers, shim plate and anchor bolts for expansion bearings are incidental to the cost of Elastomeric Bearing Assembly Type I.

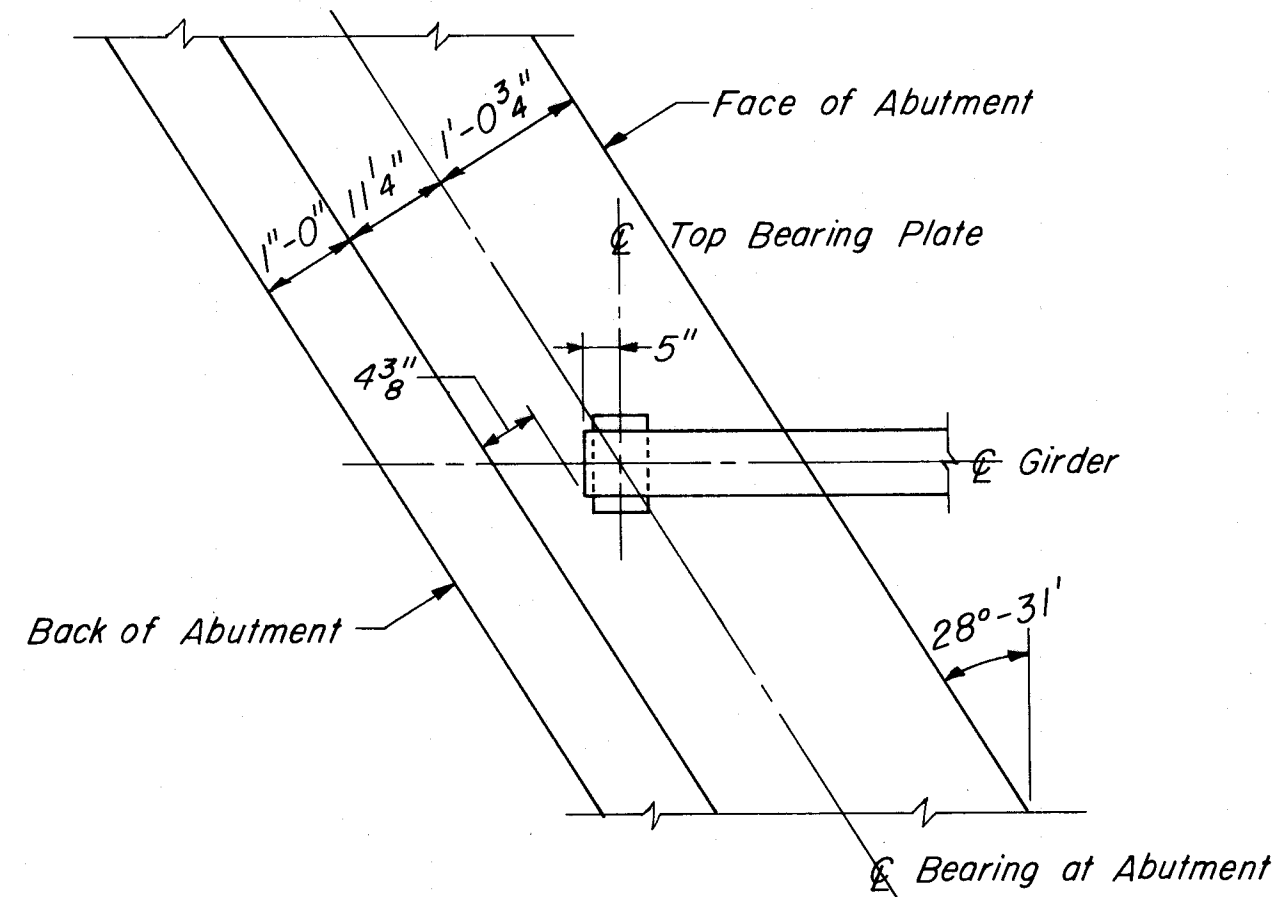


ELEVATION AT PIER

SECTION B-B

FIXED BEARING

PINTLE



SECTION B-B

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	7

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

DESIGNED	RTP	DRAWN	JES	APPROVED	DATE	2/7/94	BOOK	SCALE	JOB NUMBER	222-93030
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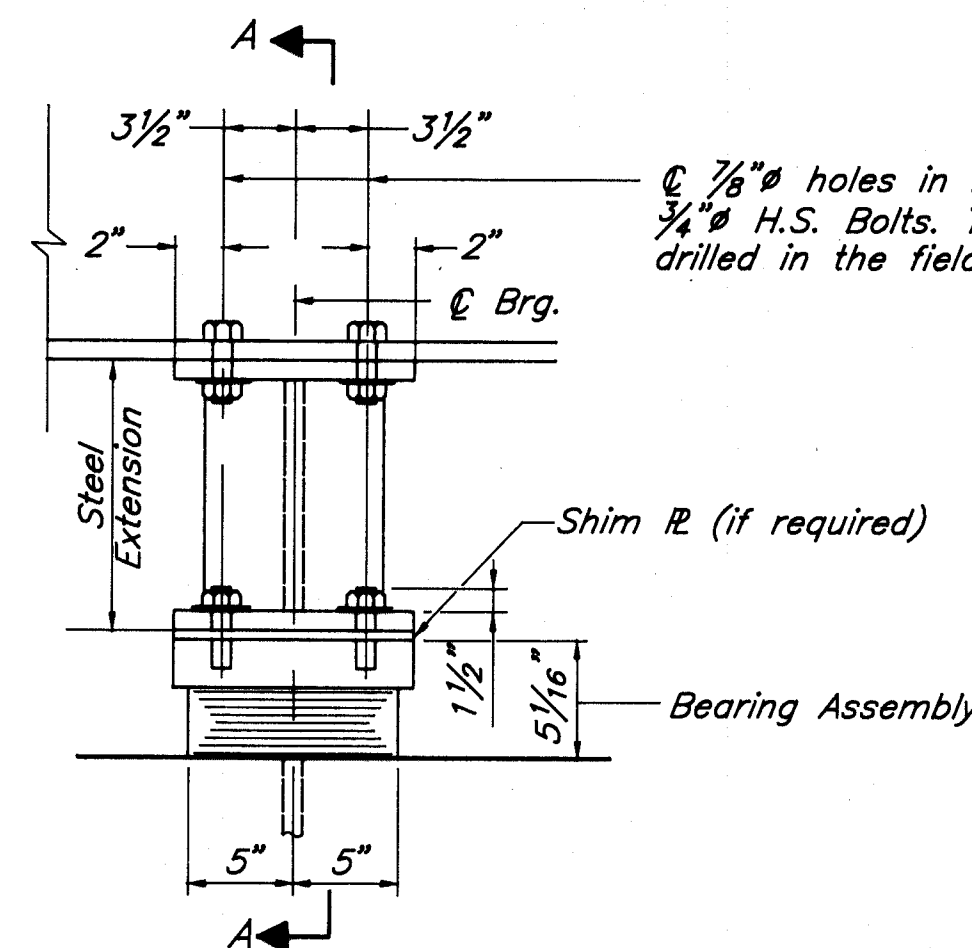
BEARING DETAILS - WEST ABUTMENT
F.A.P. RT. 619 (IL. 351) OVER RAILROAD TRACK, LASALLE COUNTY
SECTION 70-VBR-1 STA. 36+32.5 S.N. 050-0019

SHEET
17
OF
30

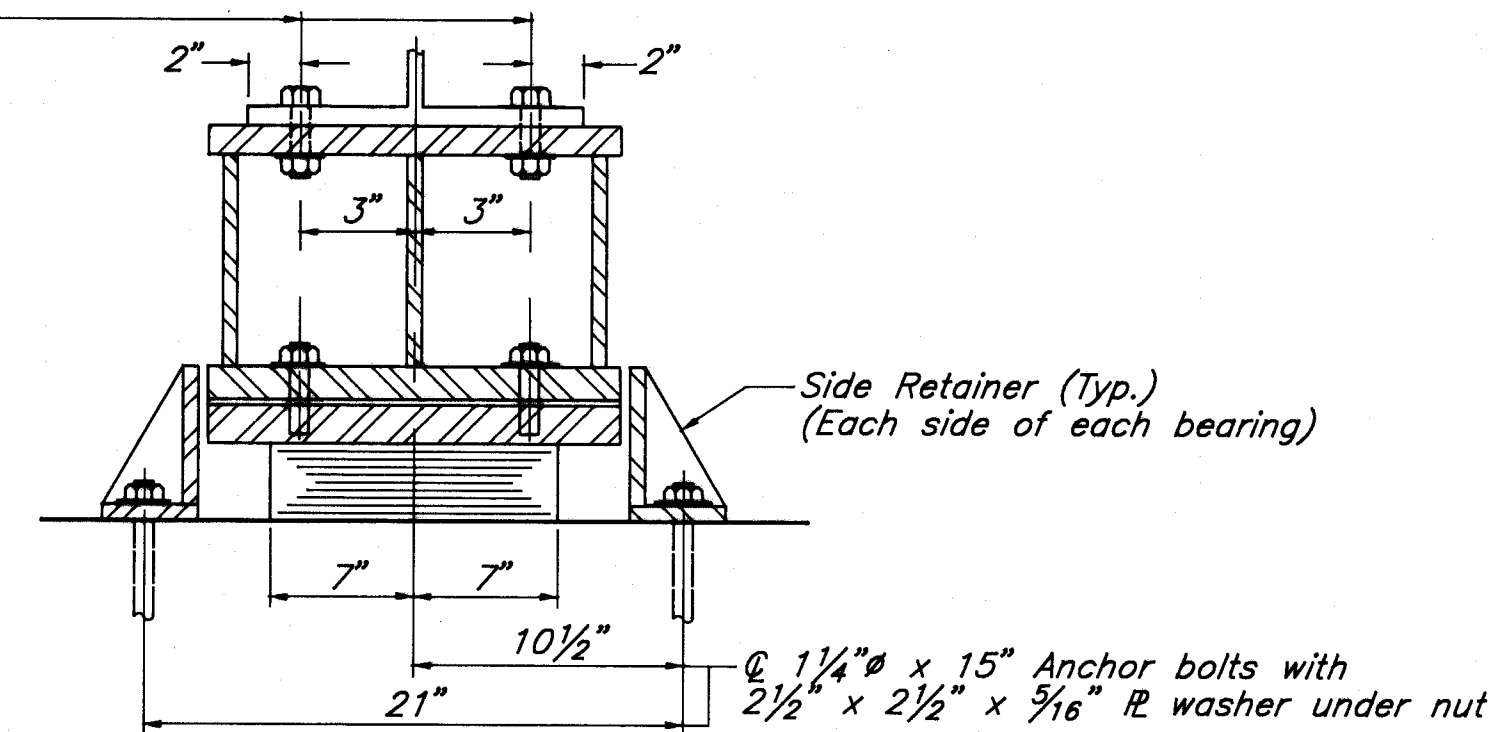
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 619	70-VBR-1	LASALLE	30	18
STA.	TO STA.	FED. ROAD DIST. NO.	ILLINOIS	PROJECT NO.

SHEET NO. 10
19 SHEETS

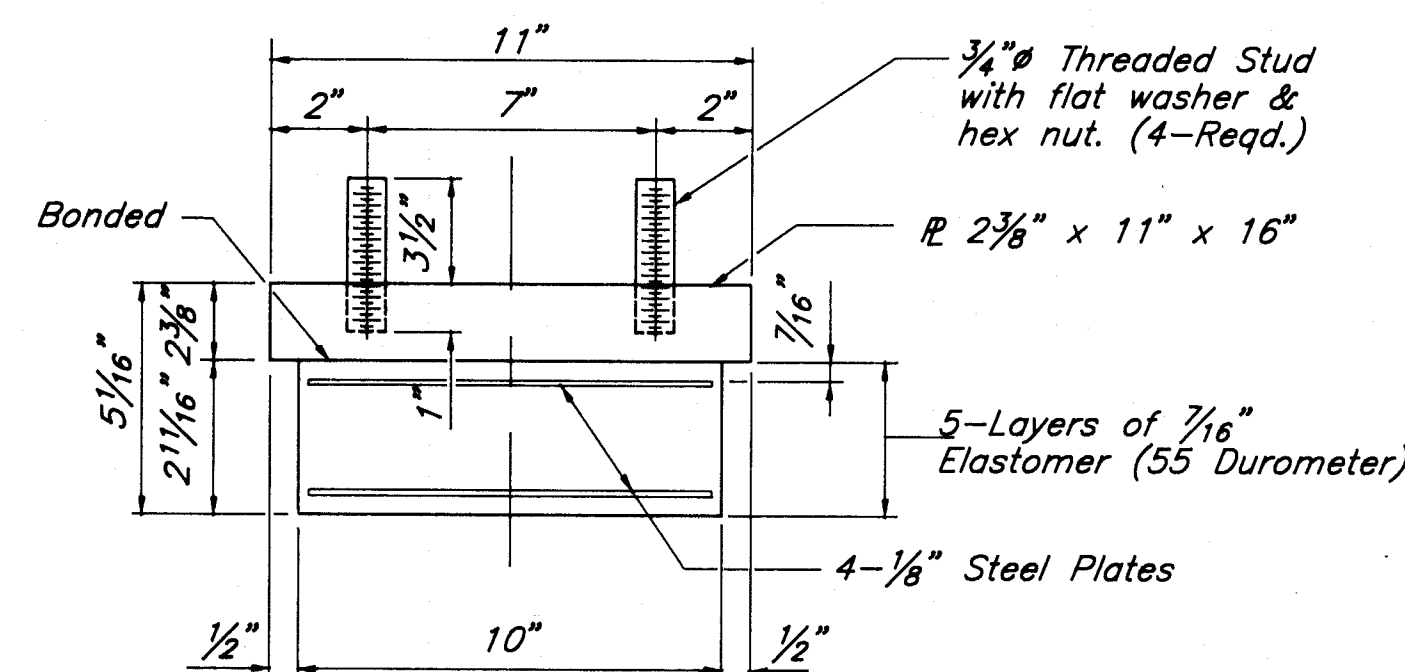


ELEVATION AT PIER NO. 2



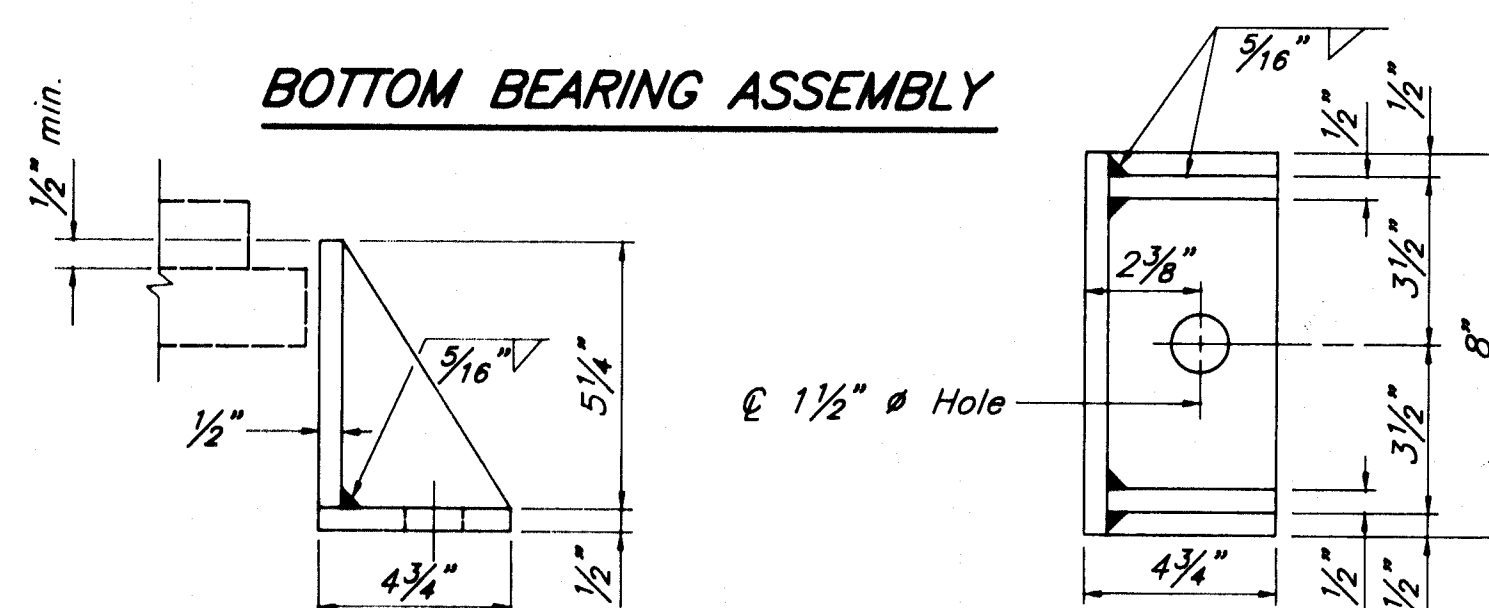
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

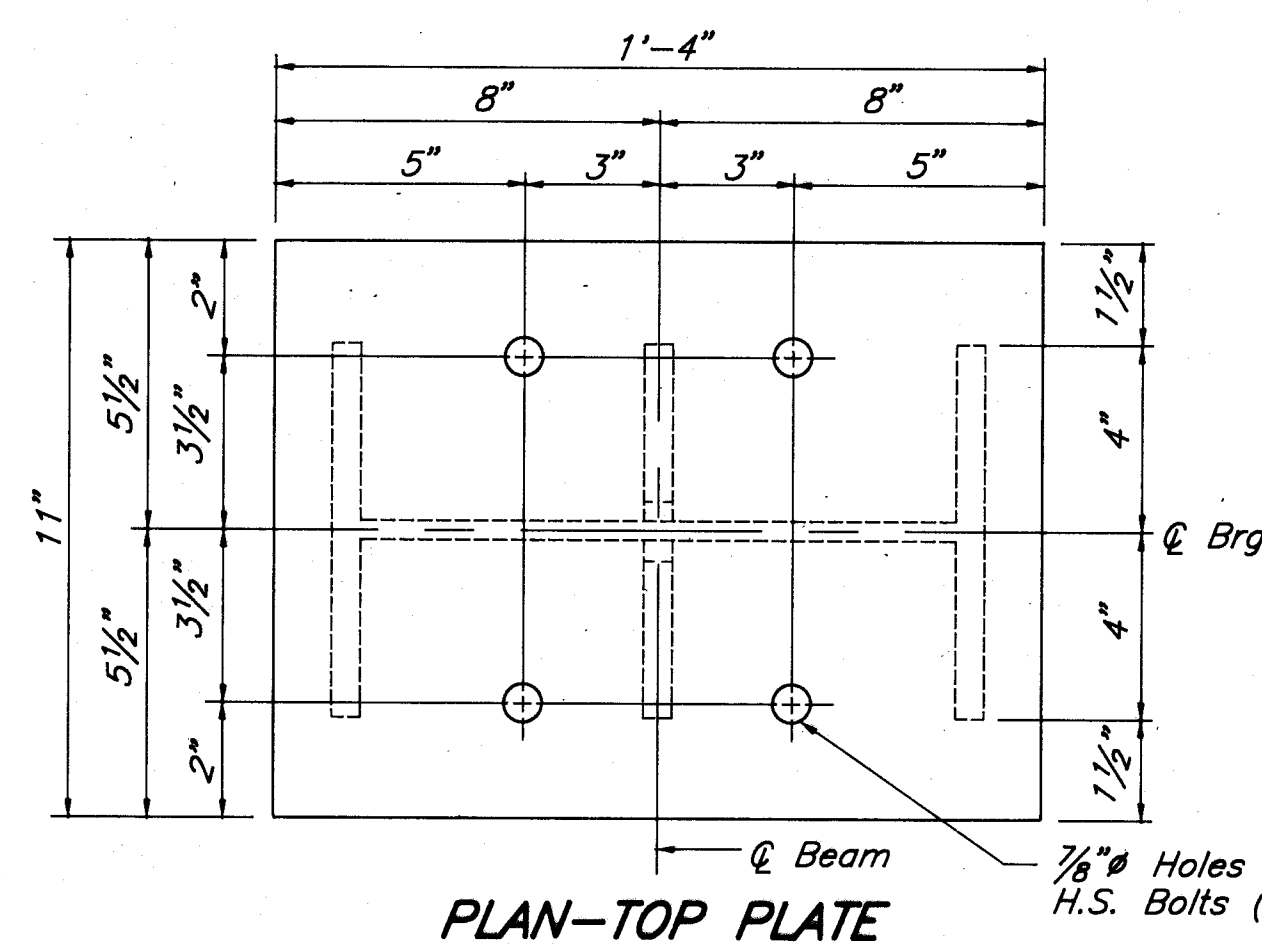
Note: Shim plates shall not be placed under Bearing Assembly.



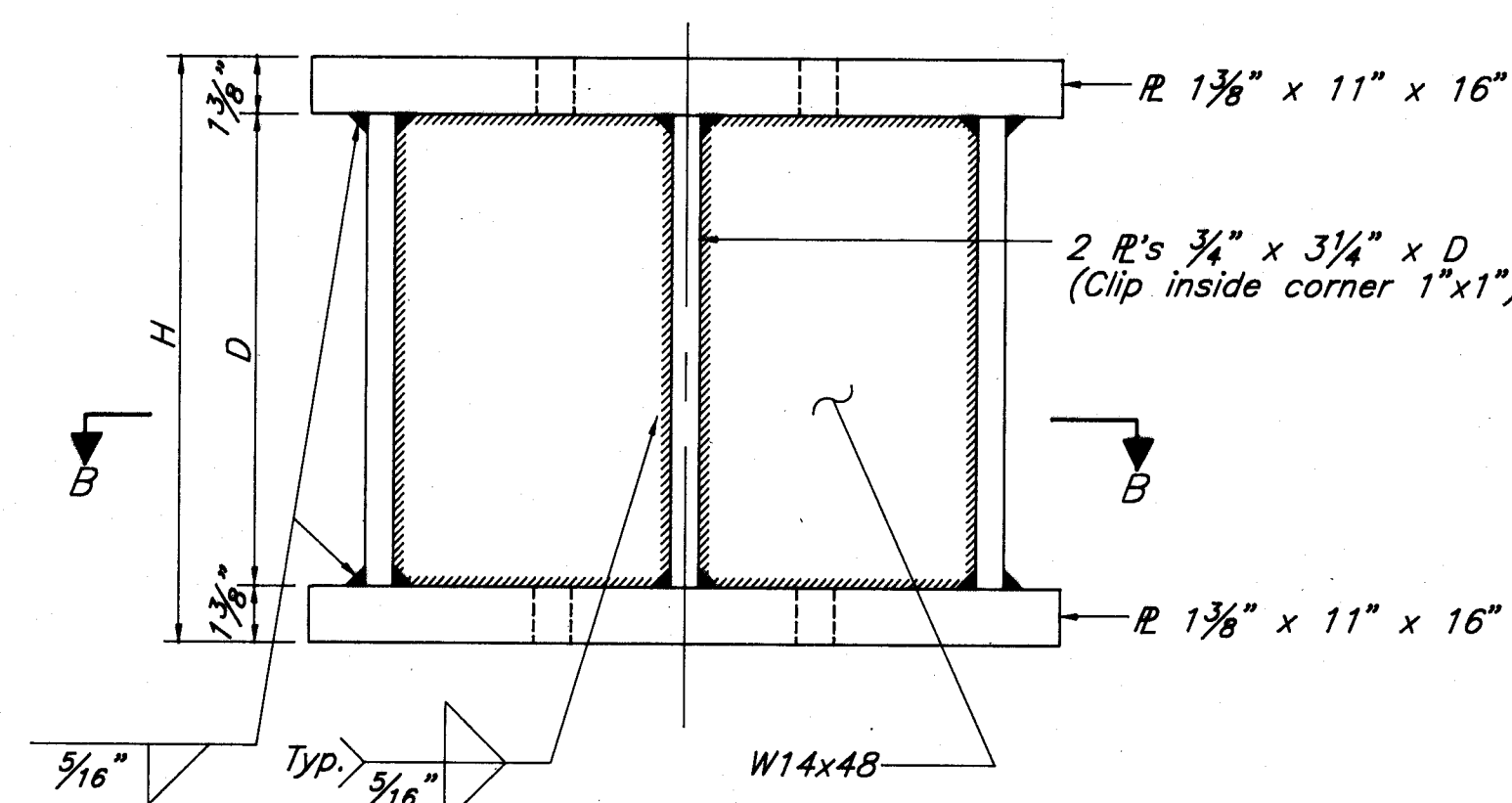
BOTTOM BEARING ASSEMBLY

SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Structural Steel.

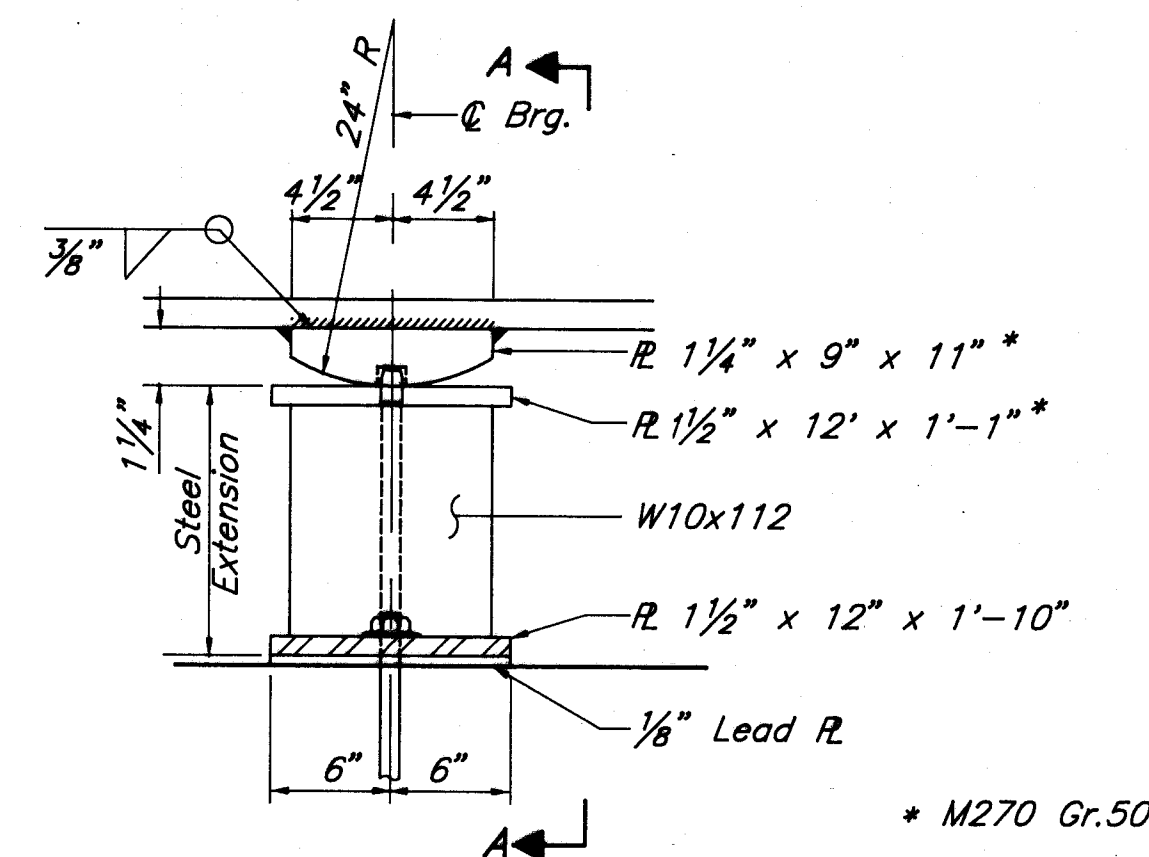


PLAN-TOP PLATE

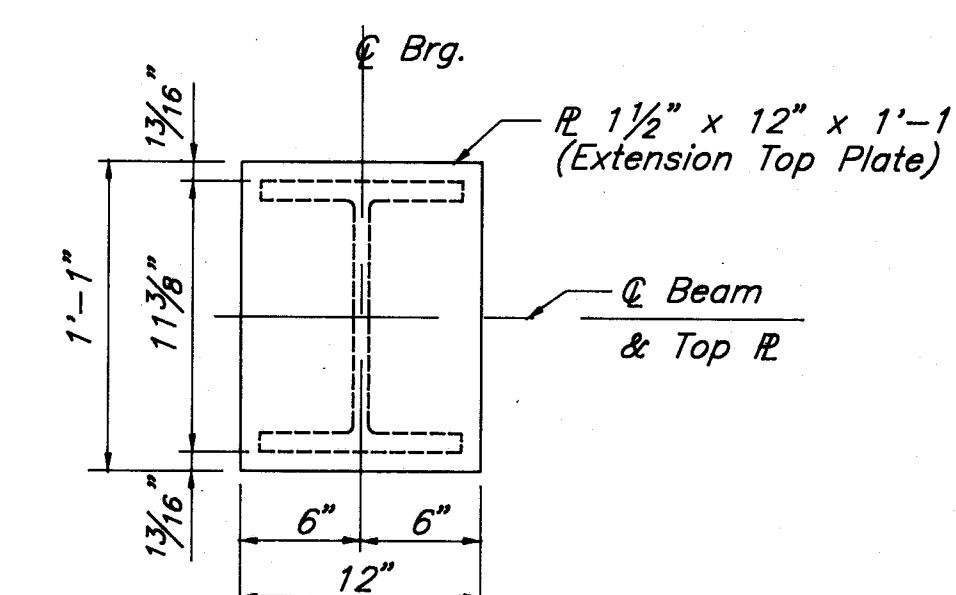


STEEL EXTENSION AT PIER 2

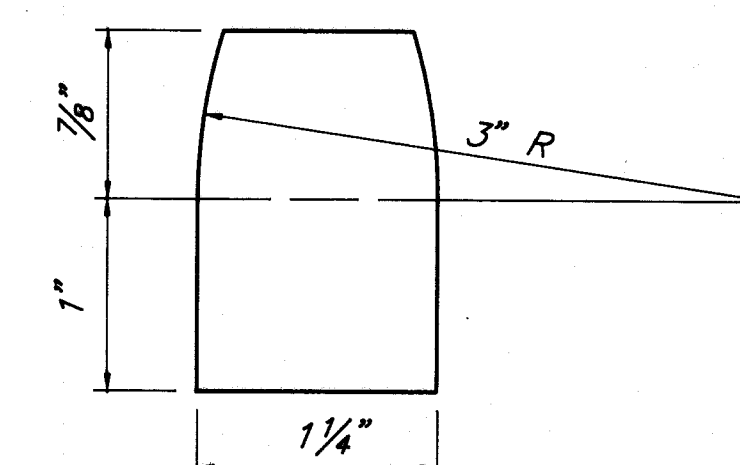
Equivalent welded plates will be allowed in lieu of W14x48 section.



ELEVATION AT PIER NO. 1

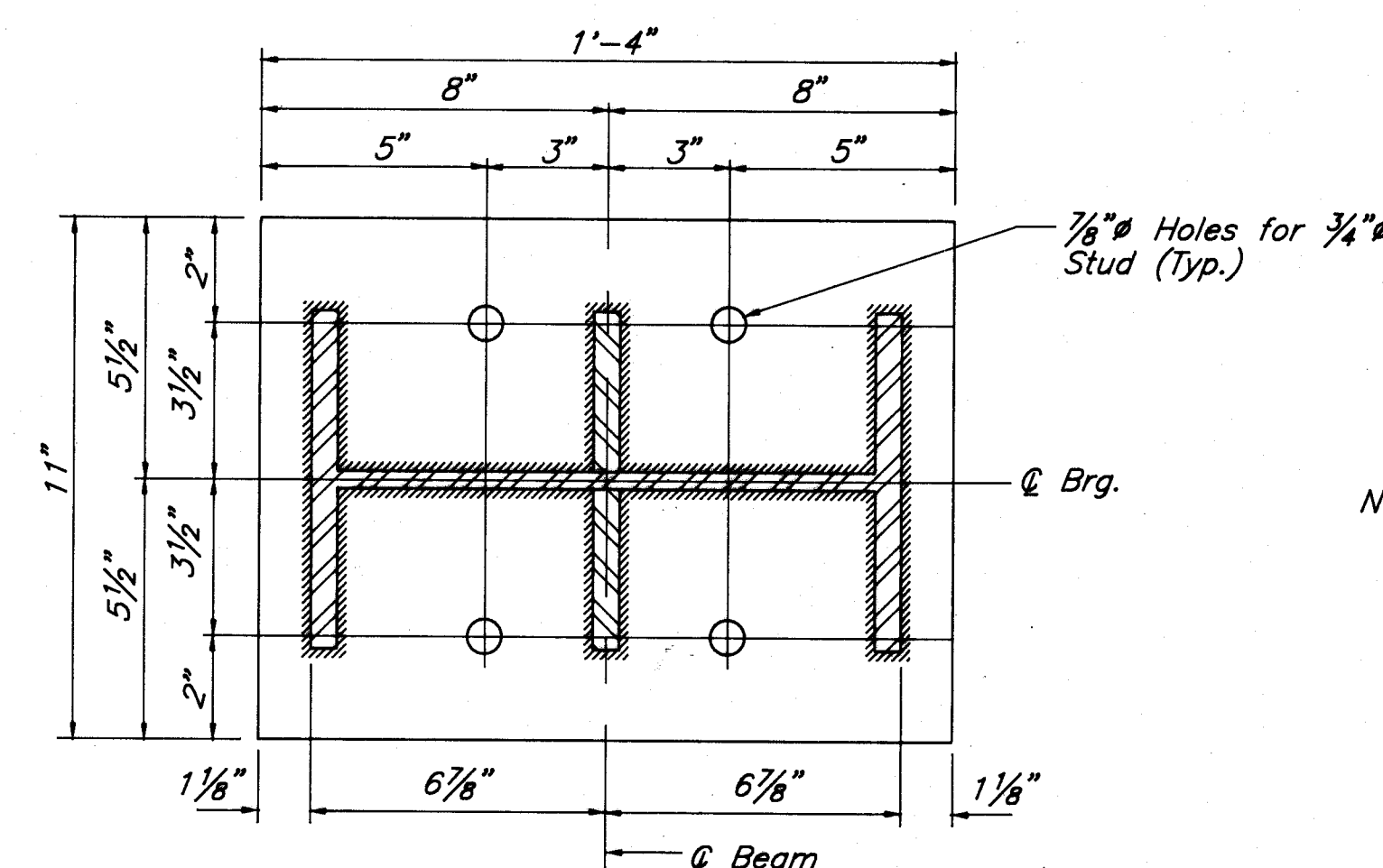


PLAN-TOP PLATE

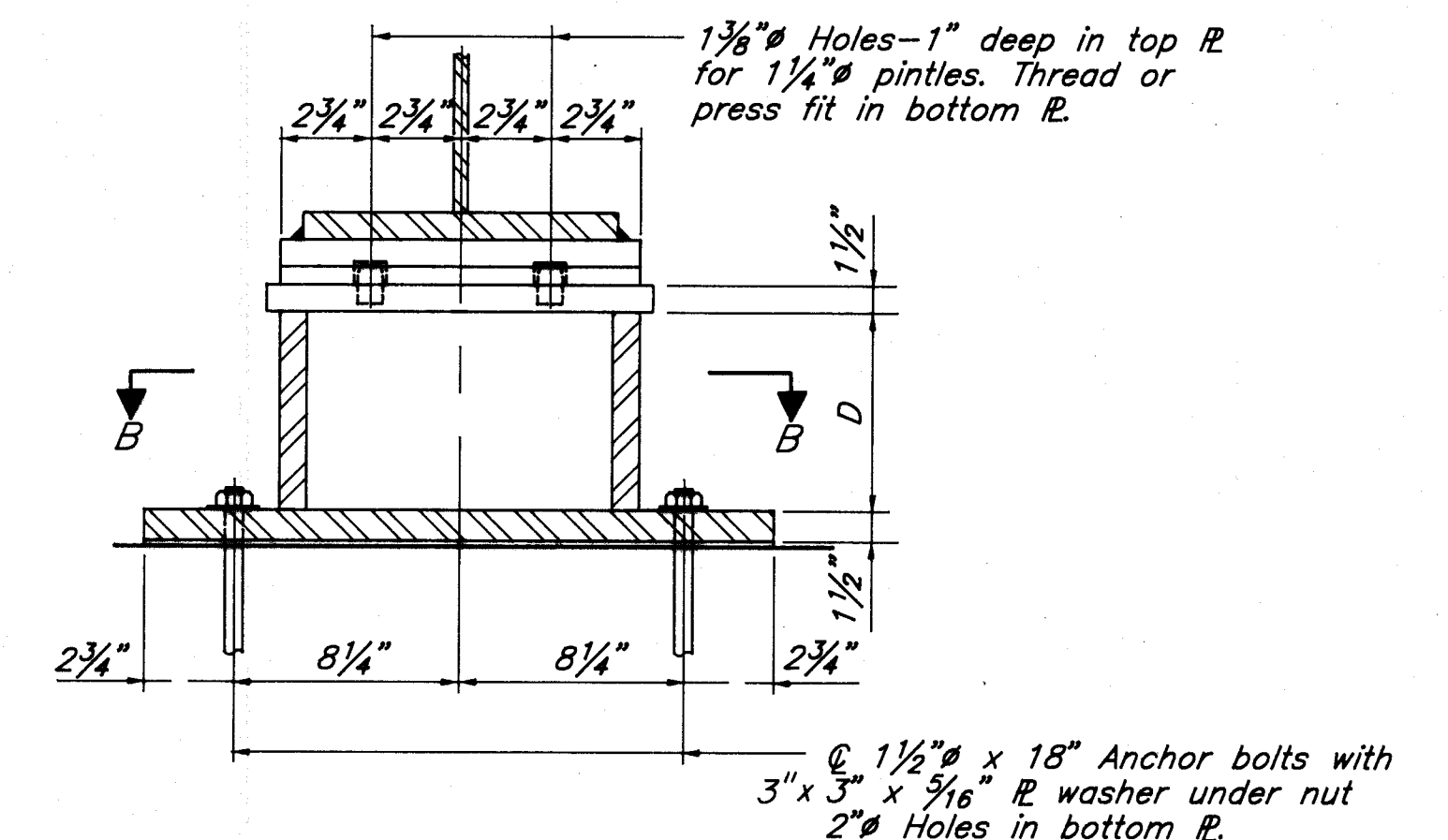


PINTLE

FIXED BEARING
(7 Assembly Required)

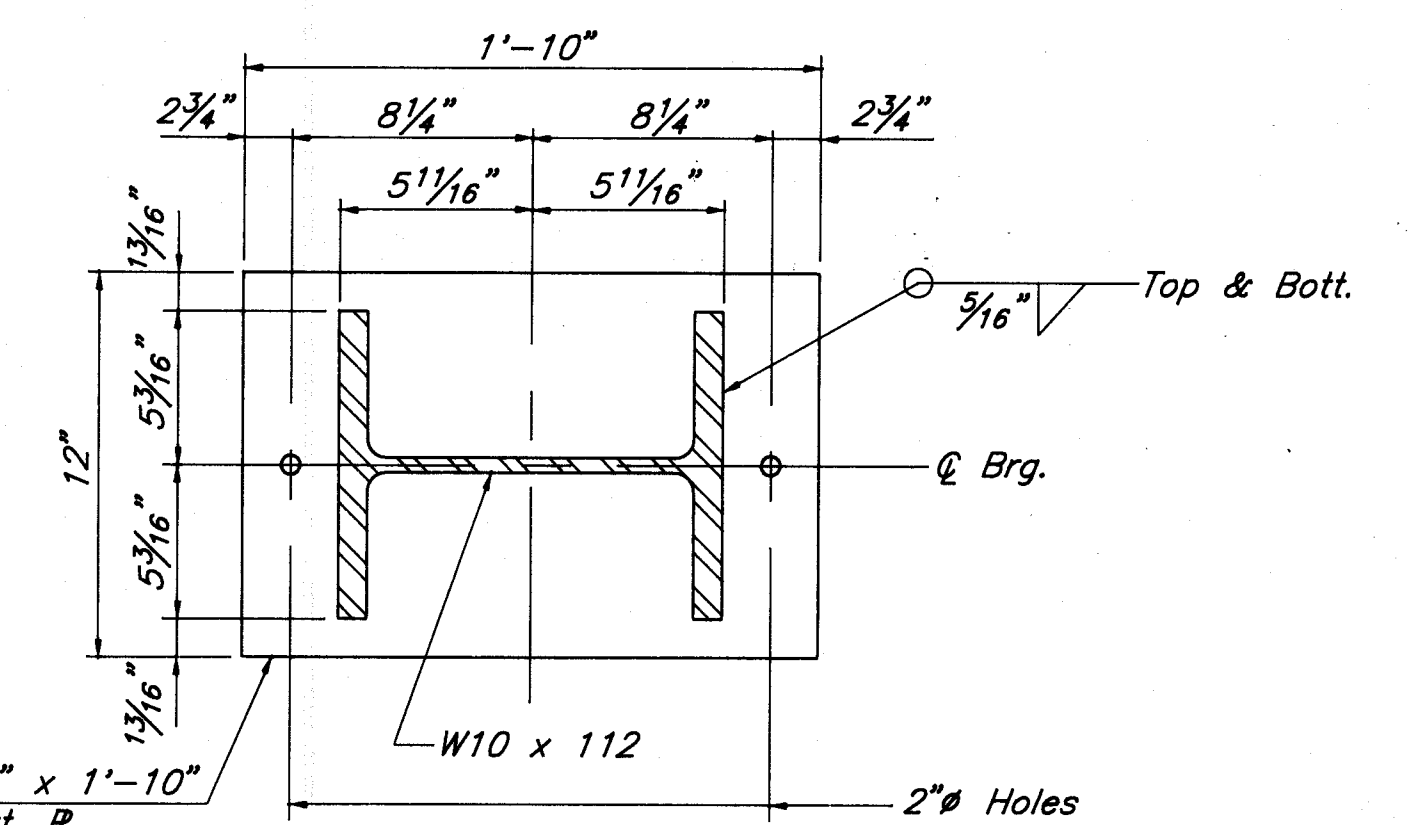


SECTION B-B



SECTION A-A

Beam No.	1	2	3	4	5	6	7
Steel Extension Height	9 5/8"	11 1/8"	12 1/8"	12 1/4"	11 7/8"	10 5/8"	8 7/8"
D	6 5/8"	8 1/8"	9 1/8"	9 1/4"	8 7/8"	7 5/8"	5 7/8"



SECTION B-B

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	7

Notes:

- Anchor bolts at fixed bearings may be built into the masonry.
- See sheet 16 of 19 for Anchor Bolt installation.
- Side retainers, shim plates, extension steel, H.S. bolts and anchor bolts for expansion bearings are incidental to the cost of Elastomeric Bearing Assembly Type I.
- The Fixed Bearing Assemblies shown for Pier No. 1 are included in the Cost of Furnishing & Erecting Structural Steel.

DESIGNED
CHECKED
DRAWN
CHECKED

Beam No.	1	2	3	4	5	6	7
H	16 1/2"	17 3/4"	18 3/4"	19 1/2"	18"	16 3/8"	14 1/2"
D	13 3/4"	15"	16"	16 3/4"	15 1/4"	13 5/8"	11 3/4"

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS
GWR-5/20/94 - REVISED PER I.D.O.T. REVIEW
RAM-6/6/94 - ADDED PER IDOT REVIEW

DESIGNED RTP DRAWN JES APPROVED DATE 2/18/94 BOOK SCALE N.T.S. CAD DWG. D:/ACAD/IL/93030/351BRG JOB NO. 222-93030

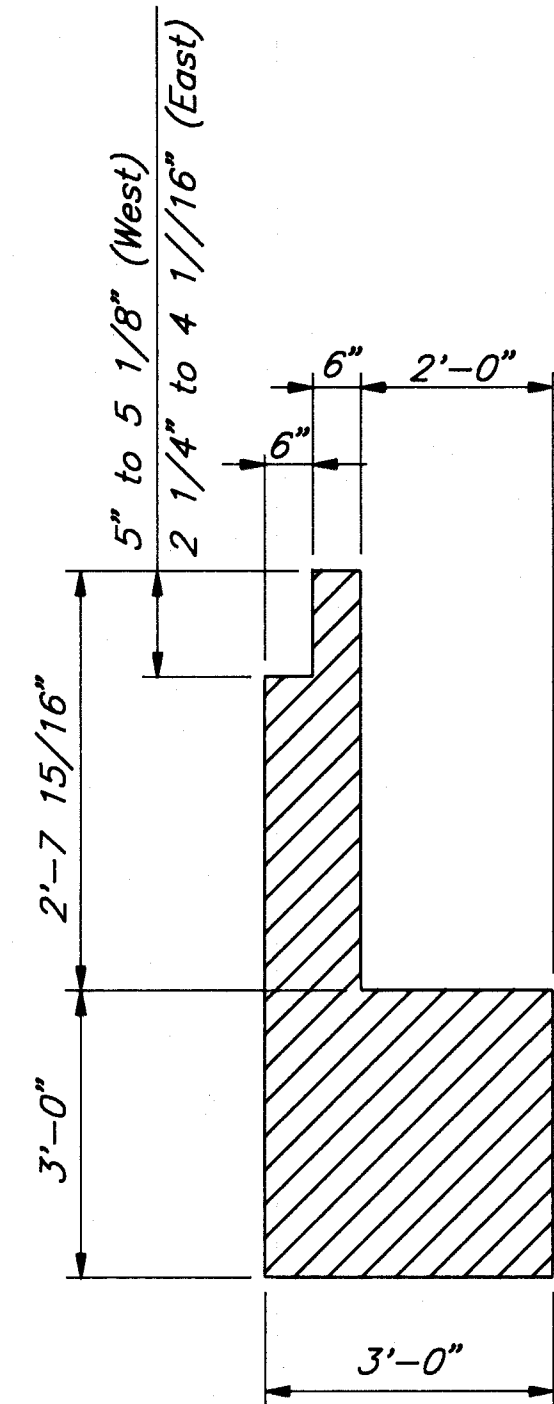
BEARING DETAILS-PIER NO. 1 & 2
F.A.P. RT. 619 (IL. 351) OVER RAILROAD TRACK, LASALLE COUNTY
SECTION 70-VBR-1 STA. 36+32.5 S.N. 050-0019

SHEET
18
OF 30

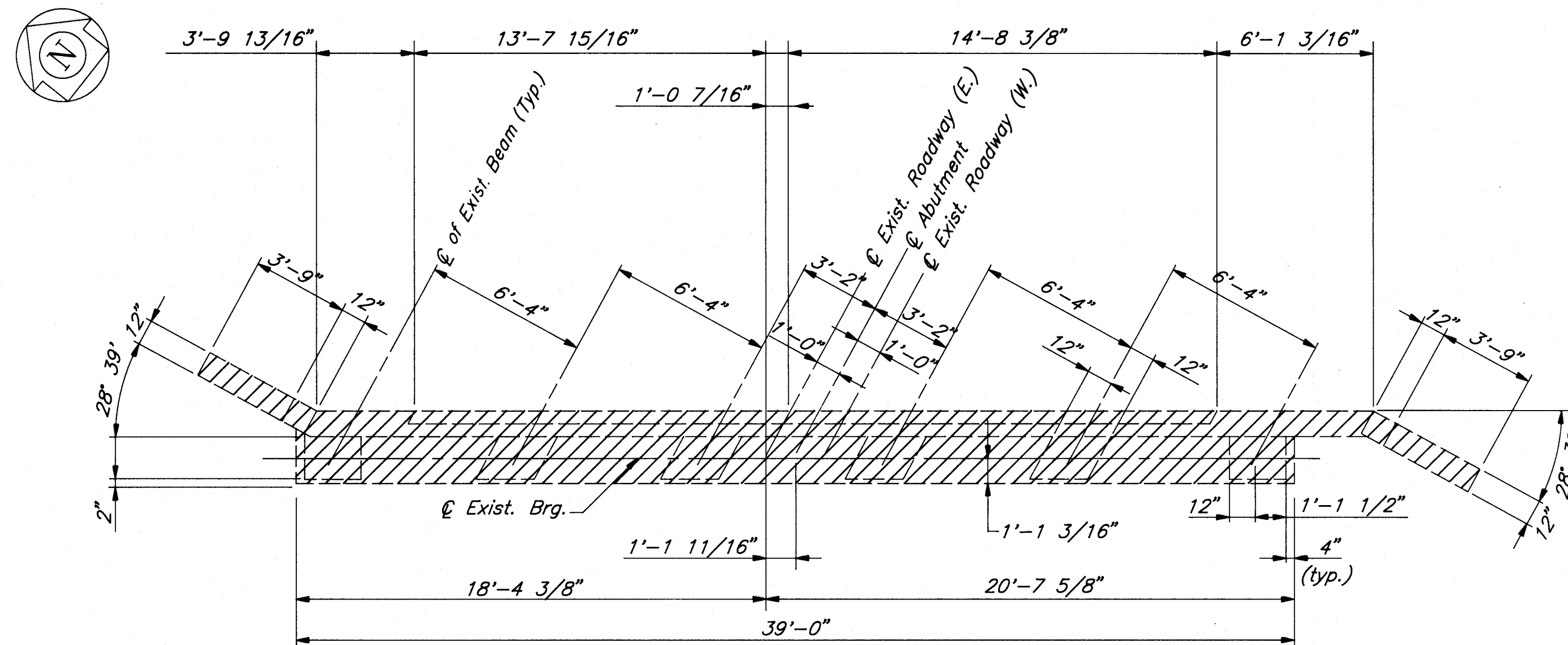
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 619	VBR-1	LASALLE	30	19
STA. 36+32.25	TO STA. 36+32.25	ILLINOIS	PROJECT NO. P-93-053-90	
FED. ROAD DIST. NO. 7				

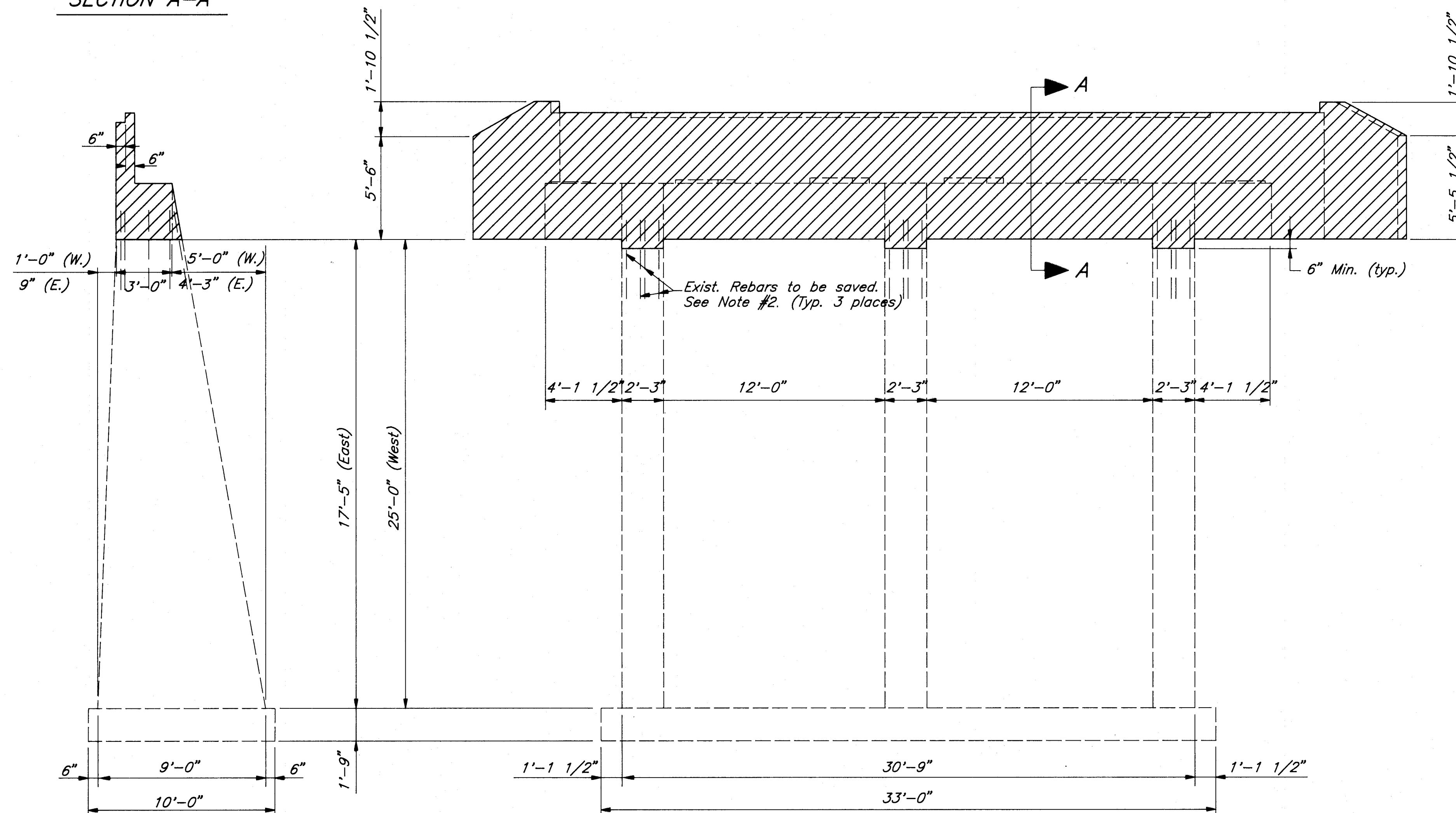
SHEET NO. 11
19 SHEETS



SECTION A-A



PLAN - EAST ABUTMENT
(WEST ABUTMENT SIMILAR BY 180° ROTATION)



END VIEW

ELEVATION

NOTES

- Hatched areas indicate concrete sections to be removed.
- Existing reinforcement shall be cleaned, straightened and incorporated into new construction. Cost incidental to "Concrete Removal".
- E. indicates East Abutment; W. indicates West Abutment.
- Dimensions are similar for both abutments except as noted.

BILL OF MATERIALS

Item	Unit	Quantity
Concrete Removal (For two abutments)	Cu. Yds.	41.1

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS

DESIGNED EEG DRAWN GWR APPROVED DATE 1/13/94 BOOK SCALE CAD DWG/L 93030\351AB-RE JOB NO. 222/93030

EAST & WEST ABUTMENT CONCRETE REMOVAL
F.A.P. 619 (IL. 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70-VBR-1 STATION 36+32.25 S.N. 050-0019

SHEET
19
OF 30

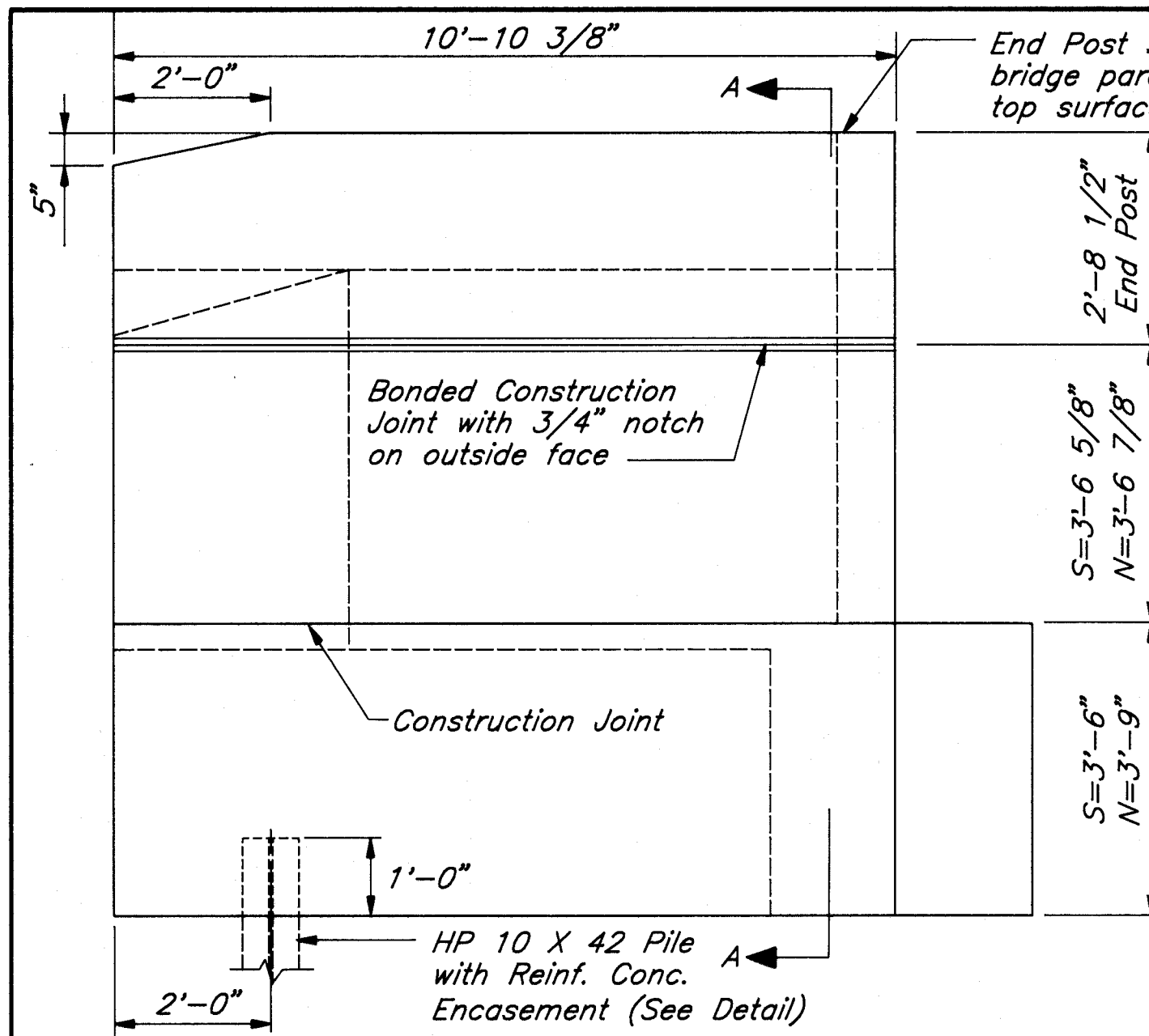
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

PILE DATA

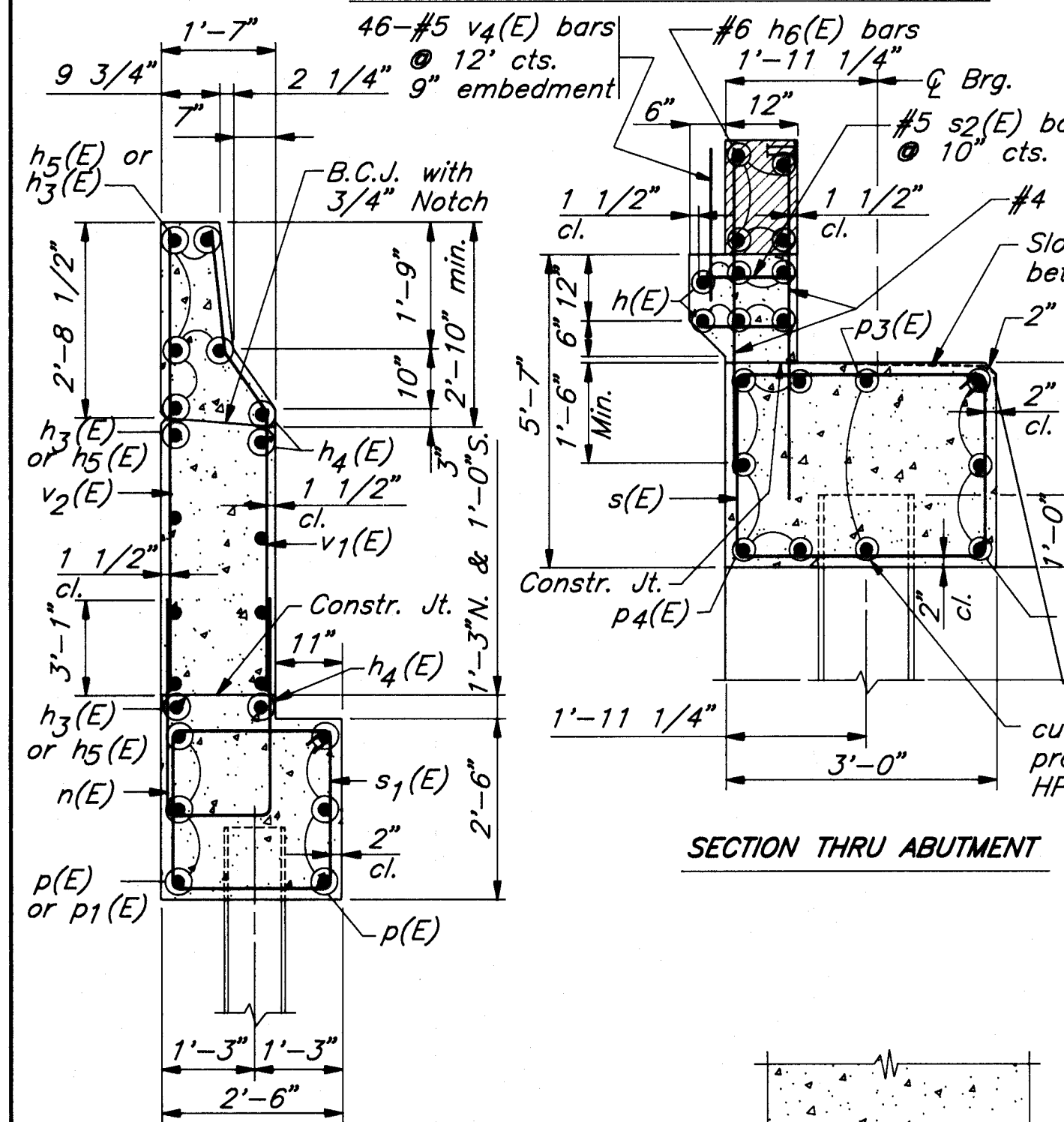
Type: HP 10x42
Capacity: Driven to refusal
Est. Length: 30 ft.
No. Required: 4 including one Test
Pile at N. end of Abut.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
619	70 VBR-1	LASALLE	30	20
TO STA.	ILLINOIS PROJECT NO.			

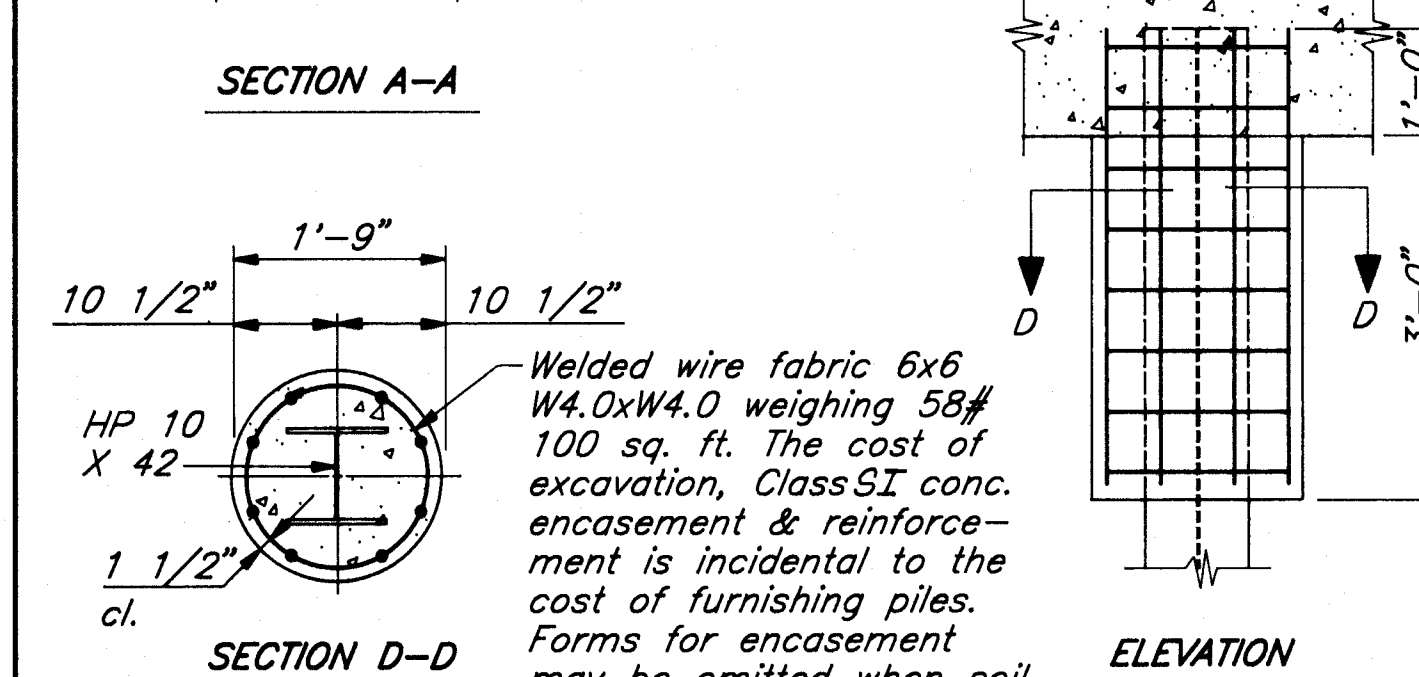
SHEET No. 12
19 SHEETS



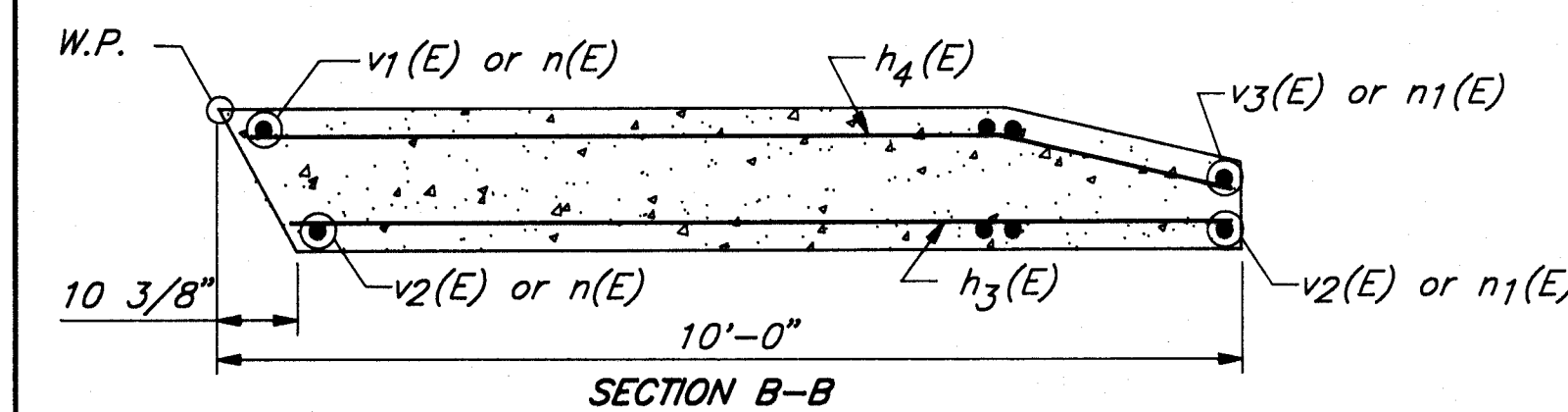
NORTH WING WALL ELEVATION



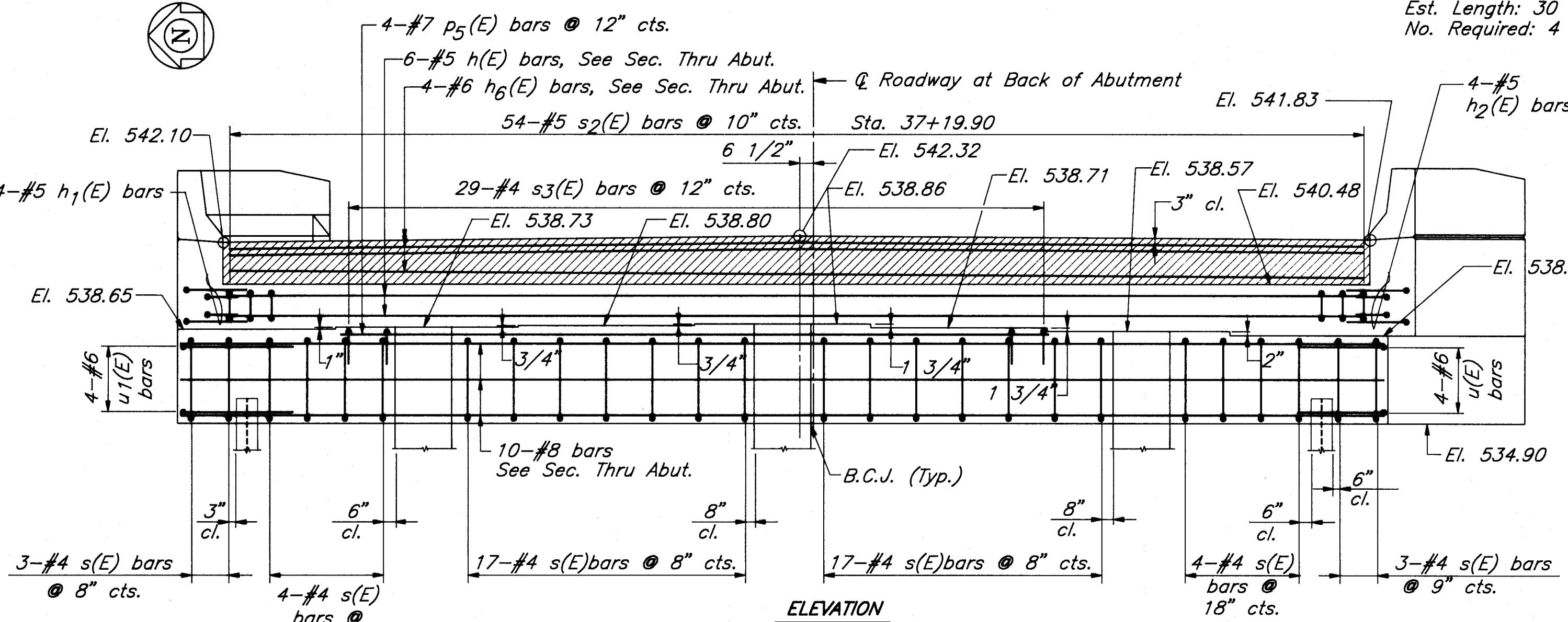
SECTION THRU ABUTMENT



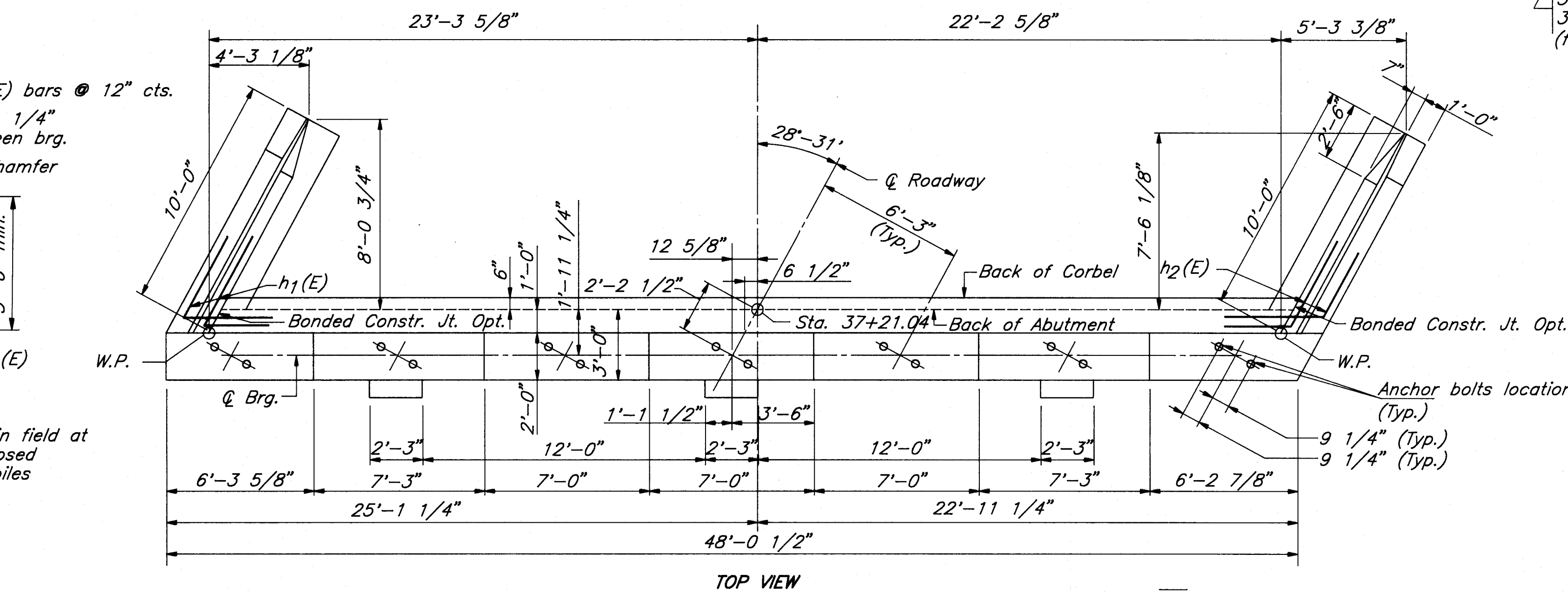
PILE CONCRETE ENCASMENT DETAIL



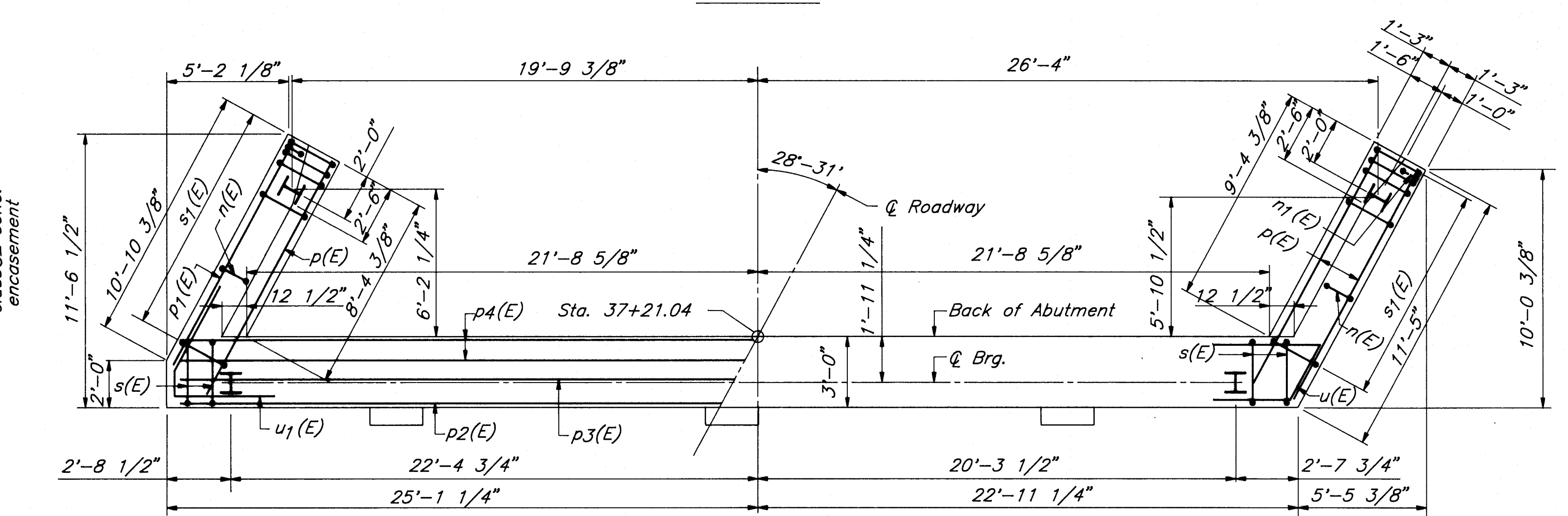
SECTION B-B



ELEVATION

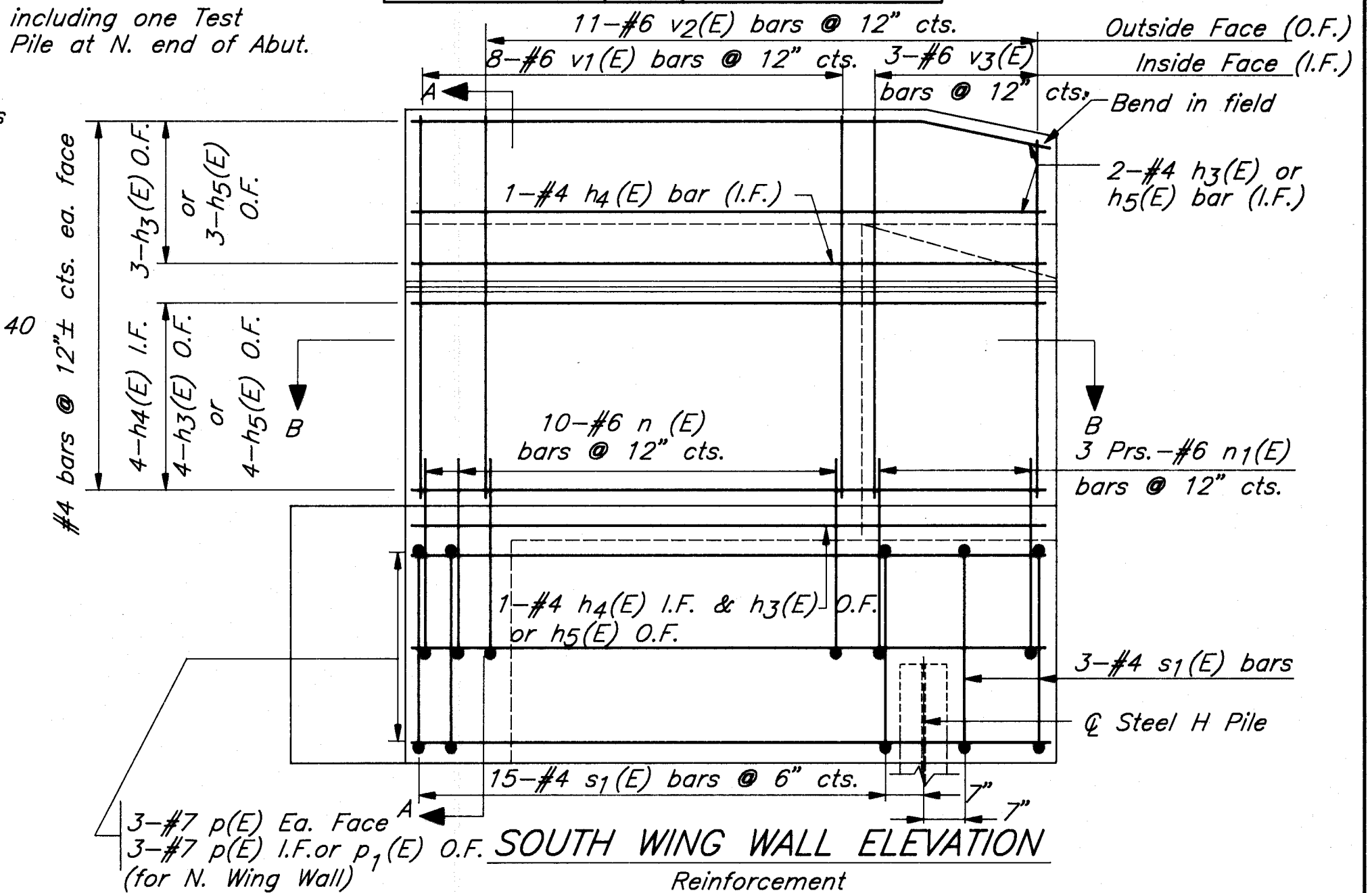


TOP VIEW

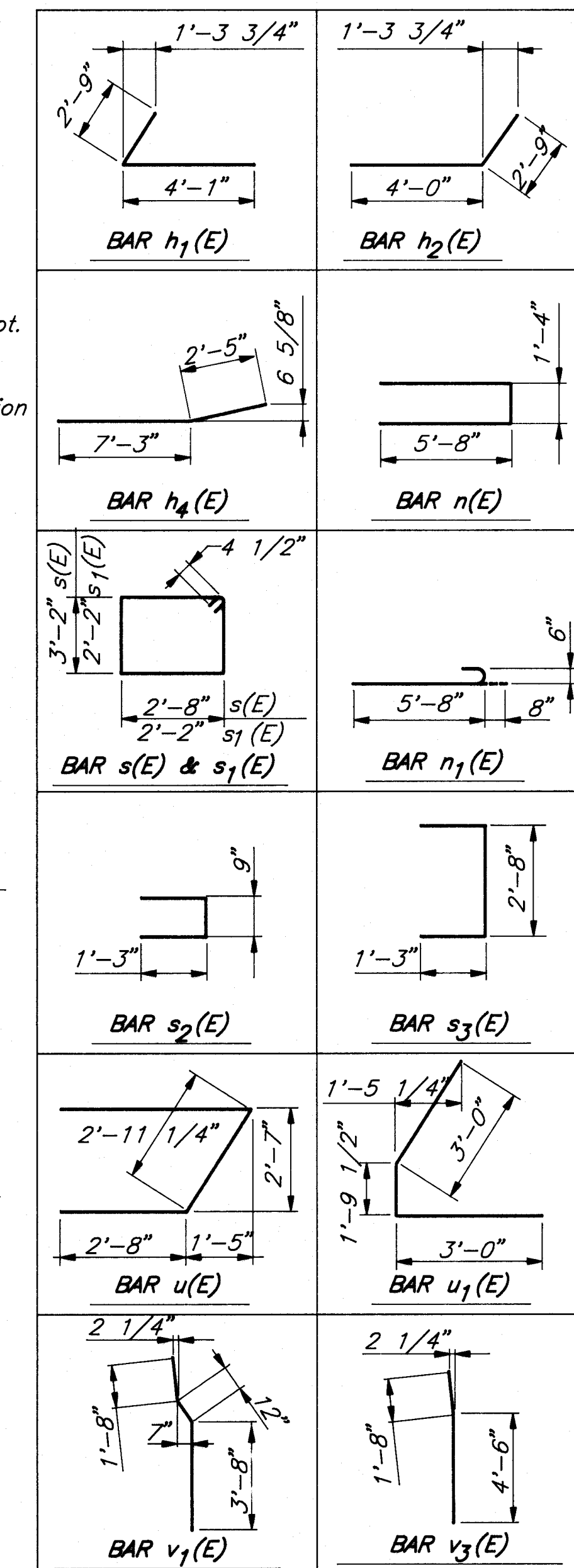


PLAN - PILE CAP

- Notes: 1) Space reinforcement in cap to miss anchor bolts.
2) Reinforcement bars designated (E) shall be epoxy coated.
3) Hatched area to be poured after superstructure forms have been removed.
4) "Concrete Superstructure" and h6(E) bars in hatched area are billed with Superstructure.
5) All edges shall have standard 3/4" chamfer unless noted.
6) B.C.J. denotes Bonded Construction Joint in accordance with Art. 503.09 (a)(2) of the Standard Specifications.



SOUTH WING WALL ELEVATION
Reinforcement



Bar	No.	Size	Length	Shape
h(E)	6	#5	45'-2"	
h1(E)	4	#5	6'-10"	
h2(E)	4	#5	6'-9"	
h3(E)	10	#4	8'-10"	
h4(E)	12	#4	9'-8"	
h5(E)	10	#4	10'-4"	
h6(E)	4	#6	45'-2"	
n(E)	20	#6	12'-8"	
n1(E)	12	#6	6'-4"	
p(E)	9	#7	11'-3"	
p1(E)	3	#7	10'-6"	
p2(E)	3	#8	47'-10"	
p3(E)	2	#8	48'-1"	
p4(E)	5	#8	48'-8"	
p5(E)	4	#7	28'-0"	
s(E)	48	#4	12'-5"	
s1(E)	36	#4	9'-5"	
s2(E)	54	#5	3'-3"	
s3(E)	29	#4	5'-2"	
u(E)	4	#6	9'-8"	
u1(E)	4	#6	7'-10"	
v(E)	92	#4	4'-10"	
v1(E)	16	#6	6'-4"	
v2(E)	21	#6	6'-1"	
v3(E)	6	#6	6'-2"	
v4(E)	46	#5	2'-0"	
Structure Excavation	Cu. Yds.	85		
Concrete Superstructure	Cu. Yds.	36.3		
Reinforcement Bars (Epoxy Coated)	Lbs.	4640		
HP 10 x 42 Piles	Ft.	90		
Test Pile	Each	1		
Reinforcement Bars (Epoxy Coated) Superstructure	Lbs.	280		
Concrete Superstructure	Cu. Yds.	2.9		

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS

DESIGNED RM DRAWN GWR APPROVED DATE 2/22/94 BOOK SCALE CAD DWG/L 93030 351E-AB JOB NO. 222/93030

EAST ABUTMENT
F.A.P. 619(IL. RT. 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70 VBR-1 STATION 36+32.25 S.N. 050-0019

SHEET
20
OF 30

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 619	70 VBR-1	LASALLE	30	22
STA. 36+32.25	TO STA. 36+32.25	ILLINOIS	PROJECT NO. P-93-053-90	

SHEET NO. 14
19 SHEETS

NOTES

- All edges shall have standard 3/4" chamfer except as noted.
- Reinforcement bars designated (E) shall be epoxy coated.
- Set bases of footings 6" min. into sound in-place rock.
- Do not form basal 6" of footing - pour against in-place rock.
- B.C.J. denotes Bonded Construction Joint, in accordance with Art. 503.07 (a)(2) of the Standard Specifications.
- Minimum Lap: #5 bars = 2'-2"
#6 bars = 2'-11"
#9 bars = 3'-3"
- Pier Cap to be Cleaned of existing Bituminous Sealer, Ground Level and Smooth at the New Bearing Locations. Cost included in New Bearings.
- Maximum Soil Bearing Pressure ~ 3 Tons/Sq. Ft.

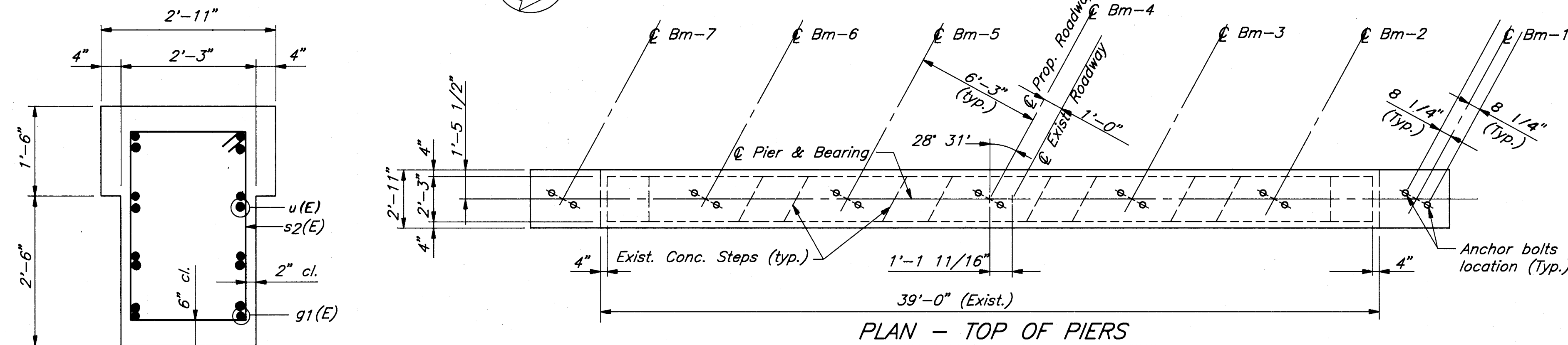
Remove Deteriorated Concrete North & South Ends. Salvage and Clean Existing Rebars. Cost Included in Concrete Structures.

Formed Concrete Repair ≤ 5" (Each Face). Also to be used at New Bearing Locations as Necessary.

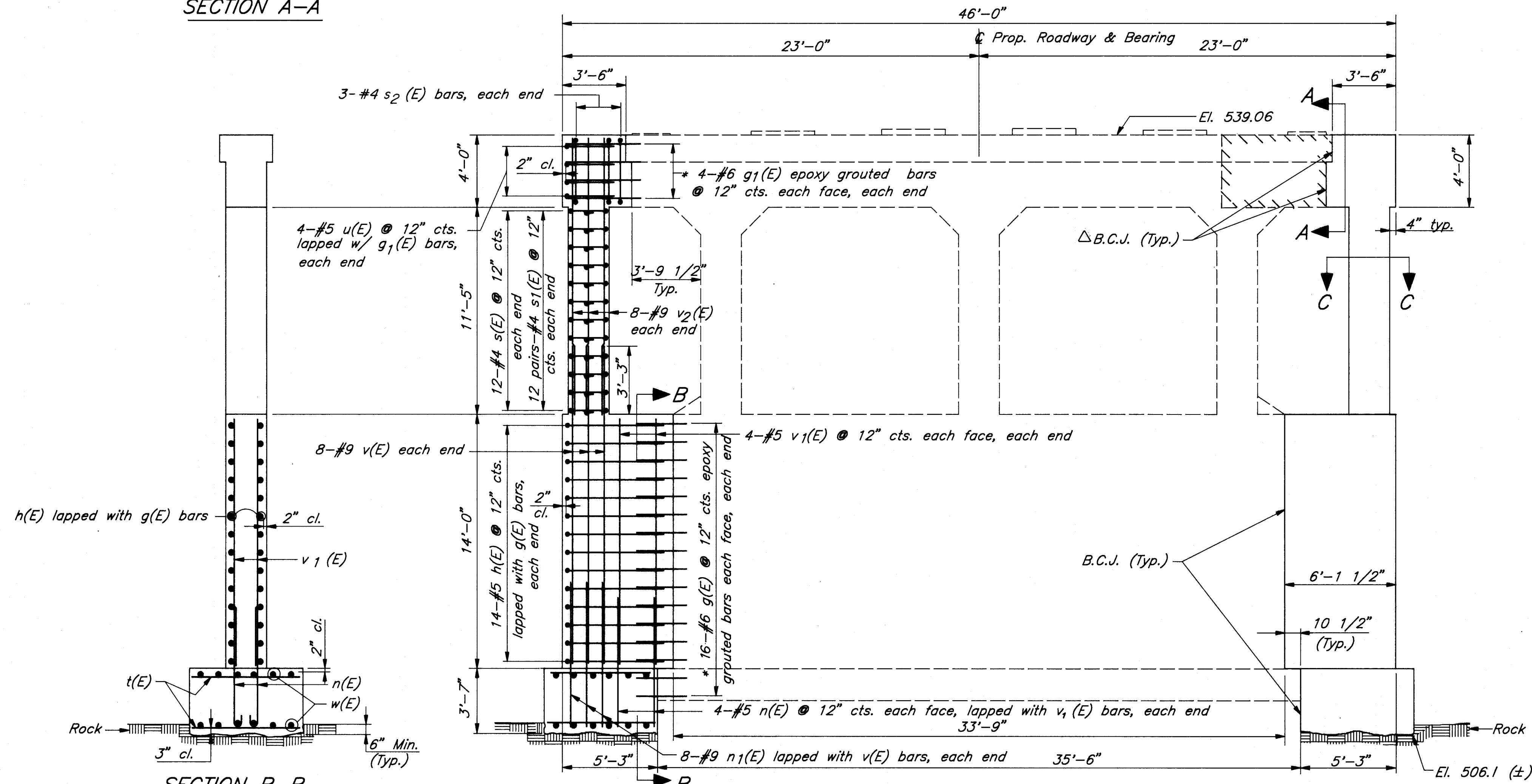
* Epoxy grout bars in minimum 9" deep drilled holes. Cost incidental to Reinforcement Bars (Epoxy Coated).

BILL OF MATERIALS

Bar	No.	Size	Length	Shape
g(E)	64	#6	3'-9"	—
g ₁ (E)	16	#6	4'-2"	—
h(E)	28	#5	13'-9"	□
n(E)	16	#5	6'-1"	C
n ₁ (E)	16	#9	7'-10"	C
s(E)	24	#4	8'-5"	□
s ₁ (E)	48	#4	2'-8"	—
s ₂ (E)	6	#4	10'-7"	□
t(E)	24	#5	5'-11"	—
u(E)	8	#5	8'-2"	□
v(E)	16	#9	17'-3"	—
v ₁ (E)	16	#5	13'-10"	—
v ₂ (E)	16	#9	15'-3"	—
w(E)	24	#5	5'-11"	—
Graffiti Removal			Sq. Yds.	30
Concrete Structures			Cu. Yds.	33
Reinforcement Bars Epoxy Coated			Lbs.	4020
Rock Excavation For Structure			Cu. Yds.	3
Structure Excavation			Cu. Yds.	89
Formed Concrete Repair ≤ 5"			Sq. Ft.	60

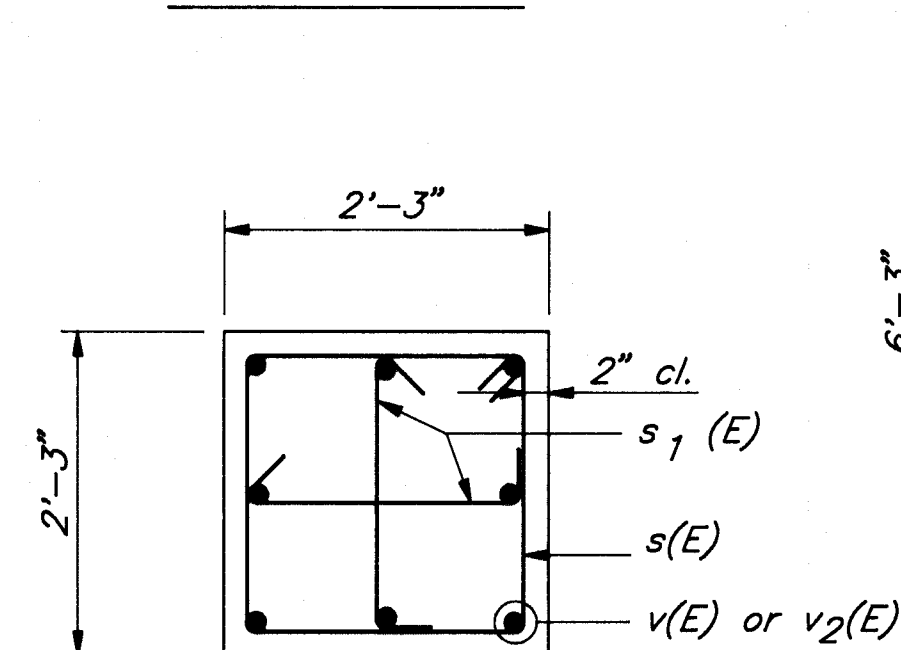


SECTION A-A



ELEVATION

SECTION B-B



SECTION C-C

FOOTING PLAN

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

REVISIONS

DESIGNED EEG DRAWN OMM/SES APPROVED DATE 2/14/94 BOOK SCALE CAD DWG. IL 93030 351P1-1 JOB NO. 222/93030

PIER No. 1 (FIXED BEARING)
F.A.P. 619 (IL. 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70-VBR-1 STATION 36+32.25 S.N. 050-0019

SHEET

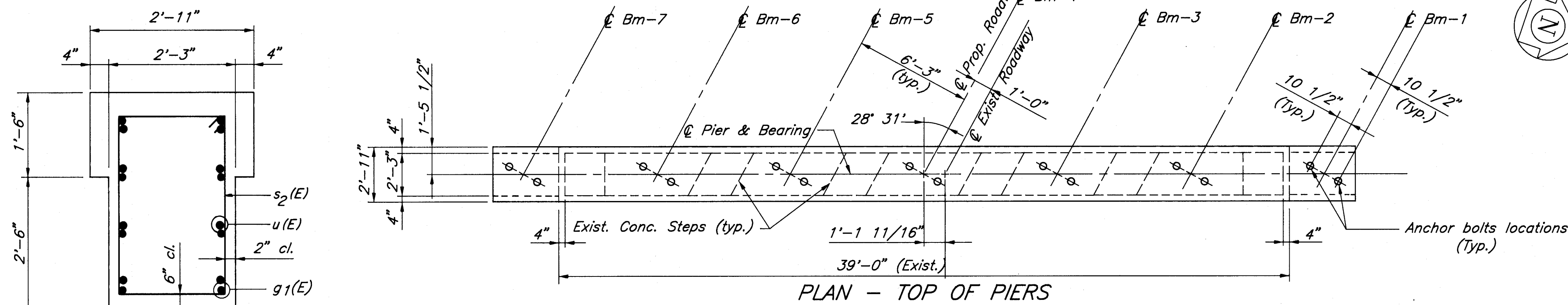
22

OF 30

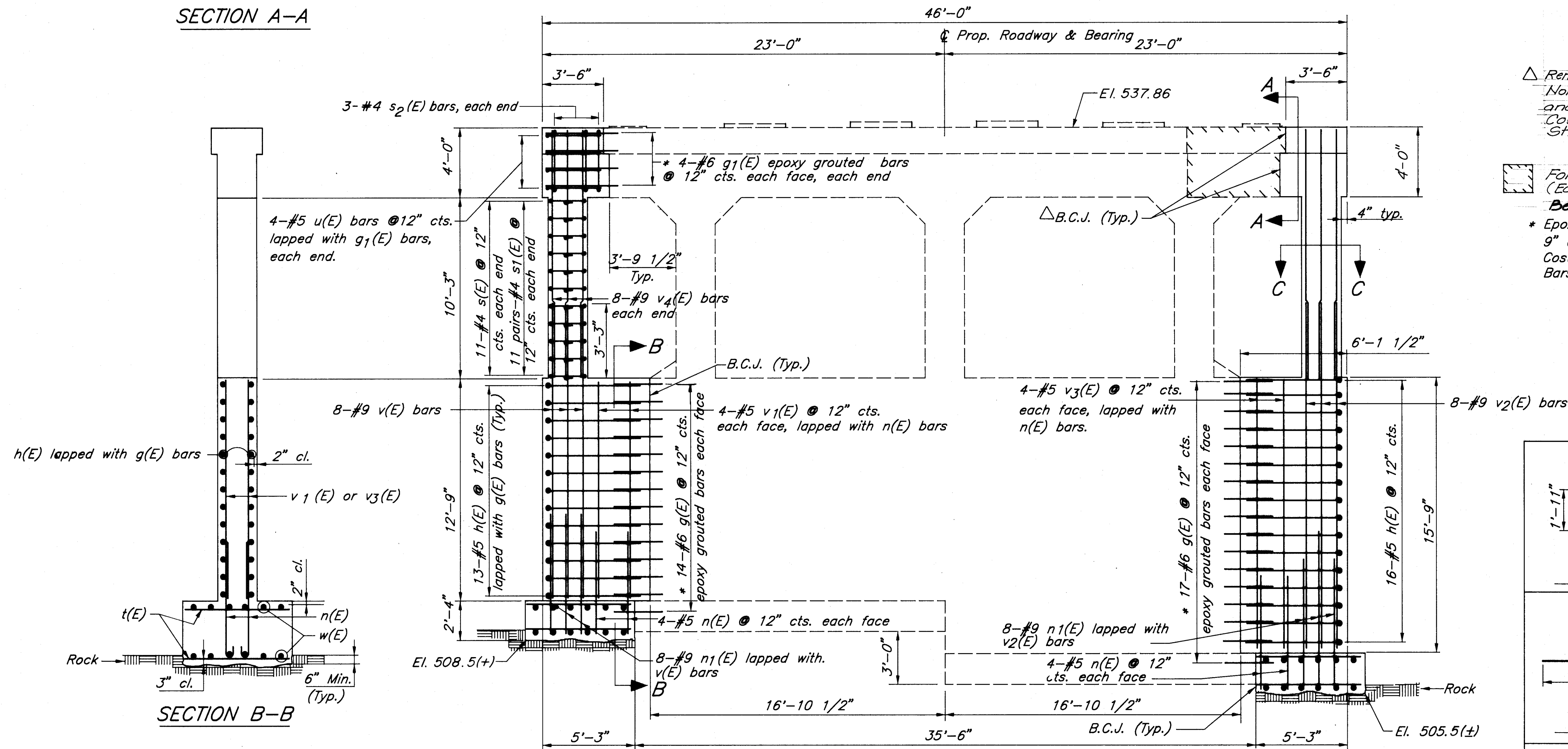
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 619	70 VBR-1	LASALLE	30	23
STA. 36+32.25	TO STA. 36+32.25	ILLINOIS	PROJECT NO. P-93-053-90	

SHEET NO. 15
19 SHEETS



SECTION A-A



SECTION B-B

SECTION C-C

FOOTING PLAN

Remove Deteriorated Concrete North and South Ends. Salvage and Clean Existing Re-bars. Cost Included in Concrete Structures.

Formed Concrete Repair $\leq 5"$ (Each Face). Also to be used at New Bearing Locations as Necessary.

* Epoxy grout bars in minimum 9" deep drilled holes. Cost incidental to Reinforcement Bars (Epoxy Coated).

NOTES

- All edges shall have standard $3/4"$ chamfer except as noted.
- Reinforcement bars designated (E) shall be epoxy coated.
- Set bases of footings 6" min. into sound in-place rock.
- Do not form basal 6" of footing - pour against in-place rock.
- B.C.J. denotes Bonded Construction Joint, in accordance with Art. 503.07 (a)(2) of the Standard Specifications.
- Minimum lap: #5 bars = 2'-2"
#6 bars = 2'-11"
#9 bars = 3'-3"
- Pier Cap to be Cleaned of Existing Bituminous Sealer, Ground Level and Smooth at the New Bearing Locations. Cost Included in New Bearings.
- Maximum Soil Bearing Pressure ~ 4.3 Tons/Sq.Ft.

BILL OF MATERIALS

Bar	No.	Size	Length	Shape
g(E)	62	#6	3'-9"	—
g ₁ (E)	16	#6	4'-2"	—
h(E)	29	#5	13'-9"	□
n(E)	16	#5	4'-10"	—
n ₁ (E)	16	#9	6'-7"	—
s(E)	22	#4	8'-5"	□
s ₁ (E)	44	#4	2'-8"	—
s ₂ (E)	6	#4	10'-7"	□
t(E)	24	#5	4'-11"	—
u(E)	8	#5	8'-2"	□
v(E)	8	#9	16'-0"	—
v ₁ (E)	8	#5	12'-7"	—
v ₂ (E)	8	#9	19'-0"	—
v ₃ (E)	8	#5	15'-7"	—
v ₄ (E)	16	#9	14'-1"	—
w(E)	20	#5	5'-11"	—
Graffiti Removal			Sq. Yds.	49
Concrete Structures			Cu. Yds.	28
Reinforcement Bars Epoxy Coated			Lbs.	3820
Rock Excavation For Structure			Cu. Yds.	3
Structure Excavation			Cu. Yds.	43
Formed Concrete Repair $\leq 5"$			Sq. Ft.	60

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers - Aurora, Illinois

DESIGNED EEG	DRAWN <i>mm/ab</i>	APPROVED	DATE 2/14/94	BOOK	SCALE	CAD DWG. IL 93030 351P2-1	JOB NO. 222/93030
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PIER No. 2 (EXPANSION BEARING)
F.A.P. 619 (IL 351) OVER RAILROAD TRACKS, LASALLE COUNTY
SECTION 70-VBR-1 STATION 36+32.25 S.N. 050-0019

SHEET
23
OF 30