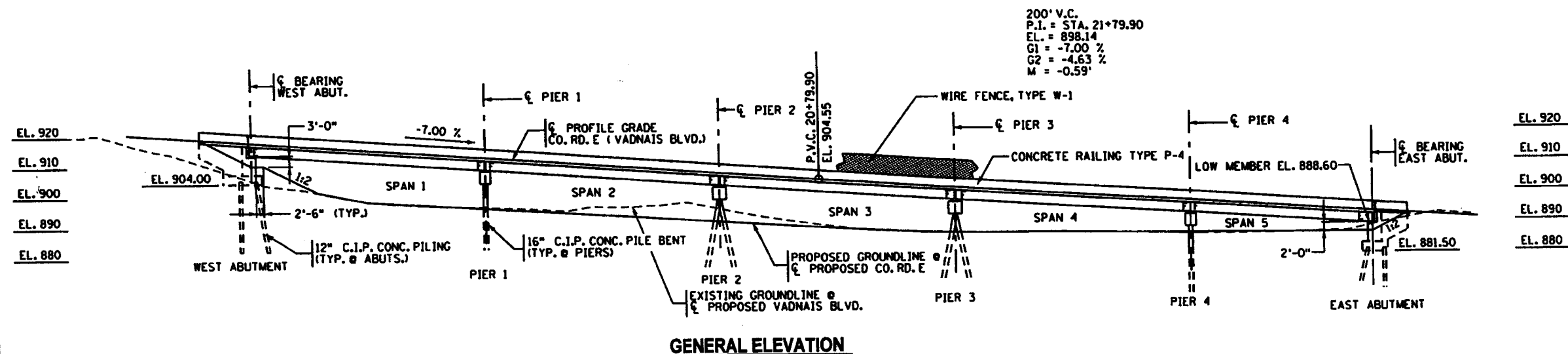
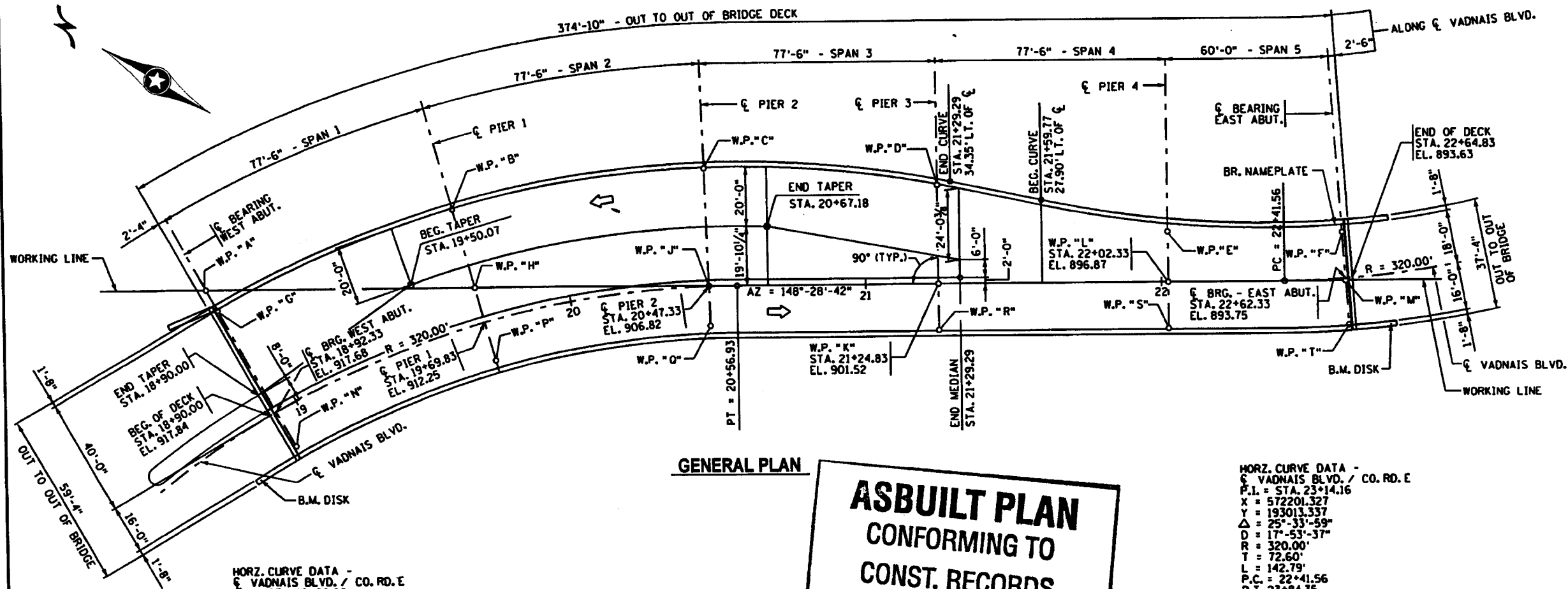




DESIGN DATA

2004 AND CURRENT INTERIM AASHTO LRFD
BRIDGE DESIGN SPECIFICATIONS
DESIGN LOADING HL93 LIVE LOAD
LOAD AND RESISTANCE FACTOR DESIGN METHOD
DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR
FUTURE WEARING COURSE MODIFICATIONS.
MAXIMUM ALLOWABLE DESIGN STRESSES:
REINFORCED CONCRETE:
f_c = 4 ksi n = 8
f_y = 60 ksi REINFORCEMENT
PRESTRESSED CONCRETE:
f_c = 9 ksi n = 1
f_{pu} = 270 ksi STRANDS LOW RELAX
0.75f_{pu} FOR INITIAL PULL
STRUCTURAL STEEL:
f_y = 36 ksi
STRUCTURAL STEEL
MNDOT 3306
DESIGN SPEED 30 MPH
APPROXIMATE DECK AREA: 19,998 SF
OPERATING RATING HS 38.2
PROJECTED ADT FOR 2026 = 7200

LIST OF SHEETS

NO.	DESCRIPTION
B1	GENERAL PLAN AND ELEVATION
B2	TRANSVERSE SECTION & QUANTITIES
B3	BRIDGE LAYOUT
B4-B7	WEST ABUTMENT DETAILS
B8-B12	WEST ABUTMENT REINFORCEMENT
B13-B16	EAST ABUTMENT DETAILS
B17-B21	EAST ABUTMENT REINFORCEMENT
B22-B23	PIER 1 DETAILS AND REINFORCEMENT
B24-B25	PIER 2 DETAILS AND REINFORCEMENT
B26-B27	PIER 3 DETAILS AND REINFORCEMENT
B28-B29	PIER 4 DETAILS AND REINFORCEMENT
B30-B34	PRESTRESSED CONCRETE BEAM DETAILS
B35-B36	FRAMING PLAN
B37-B43	SUPERSTRUCTURE DETAILS & REINF.
B44	CONCRETE RAILING TYPE P-4 DETAILS
B45	WIRE FENCE DESIGN W-1
B46-B47	WATERPROOF EXPANSION DEVICE
B48-B52	BRIDGE DETAILS
B53	AS-BUILT BRIDGE DATA
B54	ALIGNMENT TABULATION
B55	BRIDGE SURVEY
B56	BRIDGE SURVEY - PLAN & PROFILE

BENCH MARK EL. 927.311 (NAVD 88)
LOCATION: SE CORNER OF THE RICE STREET
BRIDGE OVER I-694
X = 571638.530
Y = 192522.193

APPROVED: *[Signature]*
RAMSEY COUNTY ENGINEER

DATE: 9/12/07

701 Xania Avenue
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

Bridge No. 62623
VADNAIS BLVD./COUNTY ROAD E
0.10 MILES EAST OF RICE ST. IN THE
CITY OF VADNAIS HEIGHTS
SPAN IDENTIFICATION NO. 501
SEC. 31 TWP. 30N R. 22W
CITY OF VADNAIS HEIGHTS RAMSEY COUNTY
APPROVED: *[Signature]* 9/21/07
FOR STATE BRIDGE ENGINEER DATE

DEB: BRL DR: DJV
CHK: SA CHK: BRL

62623

Sheet B1 of B56 Sheets

NO.	DATE	BY	CHK	REVISIONS

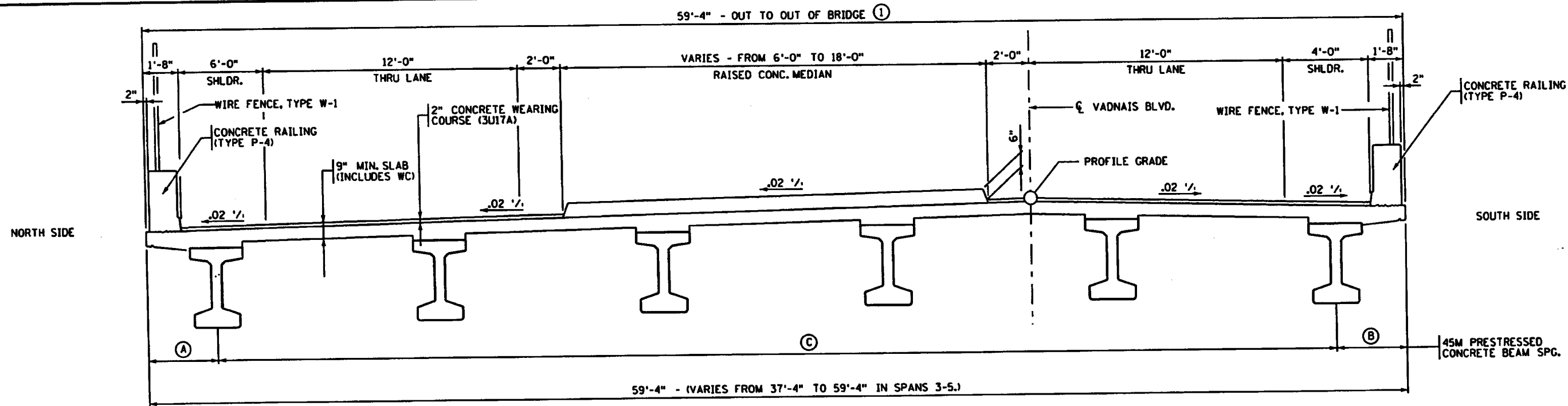


I HEREBY CERTIFY THAT THIS PLAN WAS
PREPARED BY ME OR UNDER MY DIRECT
SUPERVISION AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE
LAWS OF THE STATE OF MINNESOTA

[Signature]
BARRITT SEVIER
LICENSED PROFESSIONAL ENGINEER - BARRITT SEVIER
9-17-07 40456
DATE LIC. NO.

COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.

S.P. NO. 62-616-02
S.P. 6285-130 (TH694=343)
S.P. 62-649-24CTB



TRANSVERSE SECTION THRU DECK

SECTION SHOWN IS AT SPAN 2

① OUT TO OUT OF BRIDGE VARIES IN SPANS 3 - 5. SEE GENERAL PLAN ON SHEET NO. 1.

- ① VARIES - FROM 2'-0" TO 4'-7 13/16"
 ② VARIES - FROM 2'-0" TO 4'-3"
 ③ VARIES - 5 EQUAL SPACES SPANS 1-4
 3 EQUAL SPACES SPAN 5

L	SCHEDULE OF QUANTITIES FOR BRIDGE NO. 62623		
ITEM NO.	ITEM	UNIT	QUANTITY
2021.501	MOBILIZATION	LUMP SUM	1 (P)
2401.501	STRUCTURAL CONCRETE (1A43)	CU. YD.	95 (P)
2401.501	STRUCTURAL CONCRETE (3Y43)	CU. YD.	250 (P)
2401.512	BRIDGE SLAB CONCRETE (3Y36)	SQ. FT.	19998 (P)
2401.513	TYPE P-4 RAILING CONCRETE (3Y46)	LIN. FT.	816 (P)
② 2401.516	RAISED MEDIAN CONCRETE (3Y46)	SQ. FT.	3898 (P)
2401.541	REINFORCEMENT BARS	POUND	6005 (P)
2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	194845 (P)
2401.601	SLOPE PREPARATION	LUMP SUM	1
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
2402.591	EXPANSION JOINT DEVICES TYPE 5	LIN. FT.	94 (P)
2402.595	BEARING ASSEMBLY	EACH	56
① 2404.501	CONCRETE WEARING COURSE (3U17A)	SQ. FT.	18092 (P)
2405.502	PRESTRESSED CONCRETE BEAMS TYPE 45M	LIN. FT.	2144 (P)
2405.511	DIAPHRAGMS FOR TYPE 45M PRESTRESSED BEAMS	LIN. FT.	600 (P)
2452.507	C.I.P. CONC. PILING DELIVERED 12"	LIN. FT.	2860
2452.508	C.I.P. CONC. PILING DRIVEN 12"	LIN. FT.	2860 2802
2452.519	C.I.P. CONC. TEST PILES 120 FT. LONG 12"	EACH	2
2452.507	C.I.P. CONC. PILING DELIVERED 16"	LIN. FT.	2870 3090
2452.508	C.I.P. CONC. PILING DRIVEN 16"	LIN. FT.	2870 3092
2452.519	C.I.P. CONC. TEST PILES 145 FT. LONG 16"	EACH	2
2452.519	C.I.P. CONC. TEST PILES 135 FT. LONG 16"	EACH	2
2452.527	PILE REDRIVING	EACH	12 6
2452.602	PILE ANALYSIS	EACH	6
2502.601	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
2557.501	WIRE FENCE, TYPE W-1	LIN. FT.	816

① INCLUDES APPROACH PANELS

② INCLUDES APPROACH PANEL AT WEST END OF BRIDGE

CONSTRUCTION NOTES

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL DIMENSIONS ARE IN UNITS OF FEET AND INCHES AND ELEVATIONS ARE IN FEET UNLESS NOTED OTHERWISE.

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE, WHICH APPROXIMATES THE NOMINAL DIAMETER OF THE BAR IN MILLIMETERS.

BAR MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE BEAMS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR & PLACING ANCHOR RODS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

CONSTRUCTION AT EACH ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUTMENT HAS BEEN CONSTRUCTED TO THE FULL HEIGHT AND CROSS SECTION AND ALLOWED TO SETTLE FOR 30 DAYS.

THE PILE LOADS SHOWN IN THE PLAN AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R_n) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
 RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694-343),
 S.P. 62-649-24CTB



701 Kern Ave. South
 Suite 300
 Minneapolis, MN 55416
 763-541-4800
 FAX 763-541-1700

TITLE:

TRANSVERSE SECTION
 AND QUANTITIES

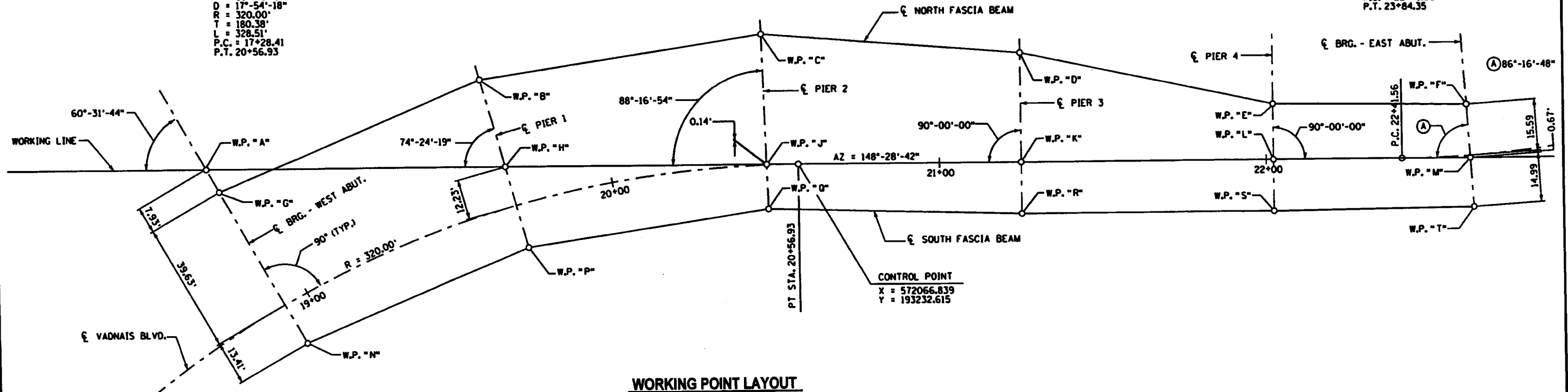
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barrett L. Leland
 LICENSED PROFESSIONAL ENGINEER - MINN'T LELAND
 L.C. NO. 955
 9-17-07

DES: BRL DR: DJW
 CHK: SA CHK: BRL
 APPROVED:
 Sheet B2 of B56 Sheets

Bridge No.
 62623

HORZ. CURVE DATA -
 E VADNAIS BLVD. / CO. RD. E
 P.I. = STA. 19+08.80
 X = 571972.530
 Y = 193386.383
 Δ = 58°-49'-13"
 D = 17°-54'-18"
 R = 320.00'
 T = 180.38'
 L = 328.51'
 P.C. = 17+28.41
 P.T. = 20+56.93

HORZ. CURVE DATA -
 E VADNAIS BLVD. / CO. RD. E
 P.I. = STA. 23+14.16
 X = 572201.327
 Y = 193013.337
 Δ = 25°-33'-59"
 D = 17°-53'-37"
 R = 320.00'
 T = 72.60'
 L = 142.79'
 P.C. = 22+41.56
 P.T. = 23+84.35



WORKING POINT LAYOUT

TOP OF ROADWAY TO BRIDGE SEAT						
	WEST ABUTMENT	EAST ABUTMENT	PIER 1	PIER 2	PIER 3	PIER 4
SLAB THICKNESS	9"	9"	9"	9"	9"	9"
STOOL HEIGHT	4"	4"	4"	4"	4"	4"
BEAM HEIGHT	45"	45"	45"	45"	45"	45"
TAPERED SOLE PLATE	1"	1"	1"	1"	1"	1"
BEARING HEIGHT	6.5"	6.5"	3 1/4"	3 1/4"	3 1/4"	(A)
TOTAL	5.46'	5.46'	5.18'	5.18'	5.18'	(B)

DIMENSIONS BETWEEN WORKING POINTS																				ELEVATIONS			STATIONING & COORDINATES		
POINT	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	TOP OF ROADWAY	TOP OF ROWY. TO BR. SEAT	BRIDGE SEAT	POINT	STATION	X-COORD.	Y-COORD.
A		88.20	174.58	250.94	326.67		7.93	91.52	171.23	248.74	326.24			101.48	172.18	249.23	326.61		911.46	5.18	906.28	A	18+92.33	571972.295	193386.766
B			86.89	164.73	242.28		86.89	27.44	91.01	166.70	243.53	303.27	96.20		96.20	169.89	245.72	305.91	911.46	5.18	906.03	B	19+69.83	572038.814	193328.853
C				78.94	157.81	216.42	172.51	87.91	39.52	88.05	161.11	219.80	167.89	96.20		96.10	165.65	223.91	906.03	5.18	900.85	C	20+47.33	572094.875	193262.463
D					79.20	137.75	248.10	160.68	84.31	33.20	84.31	141.48	235.14	161.09	90.17		91.62	146.64	900.86	5.18	895.68	D	21+24.83	572130.639	193192.089
E						58.98	323.21	235.32	214.59	137.44	61.17	16.27	361.91	289.70	215.64	140.15	67.05		893.44	5.46	887.98	E	22+02.33	572157.265	193117.504
F																			893.44	5.46	887.98	F	22+62.33	572187.531	193066.885
G																			916.88	5.46	911.42	G	18+92.33	571968.450	193379.831
H																						H	19+69.83	572020.144	193308.750
J																						J	20+47.33	572061.820	193240.799
K																						K	21+24.83	572102.340	193174.732
L																						L	22+02.33	572142.859	193108.668
M																						M	22+62.33	572174.243	193057.497
N																						N	18+92.33	571942.728	193333.441
P																						P	19+69.83	572002.680	193289.947
Q																						Q	20+47.33	572050.469	193233.359
R																						R	21+24.83	572088.985	193166.541
S																						S	22+02.33	572129.503	193100.477
T																						T	22+62.33	572161.999	193048.846

- (A) VARIES - 3 1/4" OR 4 1/4"
 SEE FRAMING PLAN & DETAIL
 B310 FOR LOCATION.
- (B) VARIES - 5.18' OR 5.27'
 SEE FRAMING PLAN & DETAIL
 B310 FOR LOCATION.

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NO.	DATE	BY	CHK	REVISIONS

R COUNTY ROAD E / VADNAIS BLVD.
 RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694-343),
 S.P. 62-649-24CTB

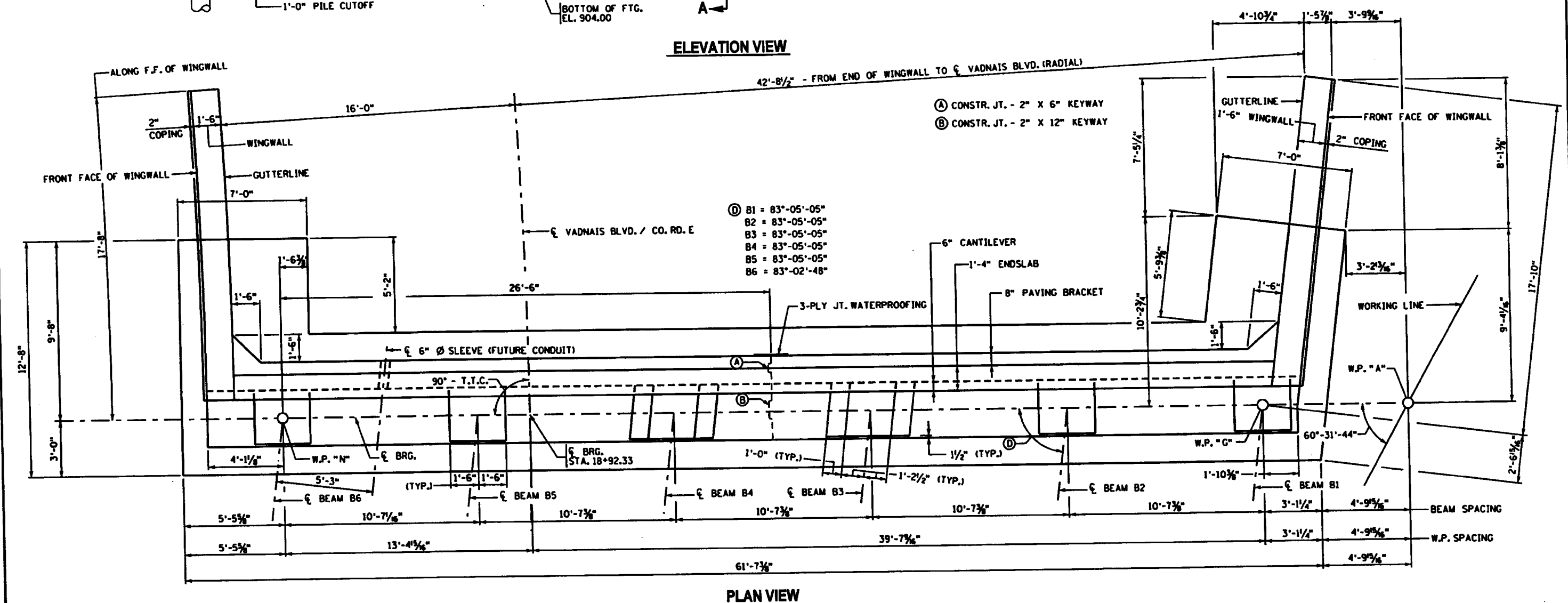
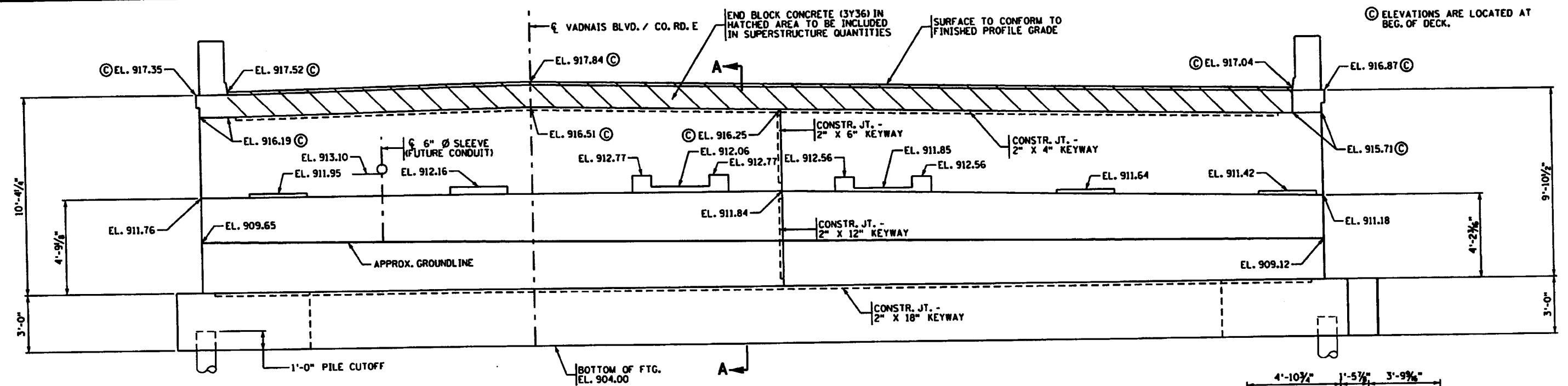
WSB
 701 Kenia Ave. South
 Suite 300
 Minneapolis, MN 55416
 763-641-4800
 FAX 763-641-1700
 INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE
BRIDGE LAYOUT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNED: *Barbara Seal*
 LICENSED PROFESSIONAL ENGINEER BARBARA SEAL
 LIC. NO. 947-07

DES: BRL DR: DJW APPROVED:
 CHK: SA CHK: BRL
 Sheet B3 of B56 Sheets

Bridge No.
 62623

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**COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB**



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700
MANUFACTURERS - PLANNERS

NO.	TITLE
1	1. The first part of the report is a general introduction to the project.
2	2. The second part of the report is a detailed description of the methodology used.
3	3. The third part of the report is a discussion of the results of the study.
4	4. The fourth part of the report is a conclusion and a list of references.
5	5. The fifth part of the report is an appendix containing additional data and figures.
6	6. The sixth part of the report is a bibliography of the literature cited.
7	7. The seventh part of the report is a list of the authors' addresses.
8	8. The eighth part of the report is a list of the authors' affiliations.
9	9. The ninth part of the report is a list of the authors' contact information.
10	10. The tenth part of the report is a list of the authors' acknowledgments.

WEST ABUTMENT DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Barrett Lendage L.C. NO. 9-17
LICENSED PROFESSIONAL ENGINEER BARRETT LENDAGE DATE:

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	

Sheet B5 of B56 Sheet

Bridge No.
62623

Sheet B5 of B56 Sheets



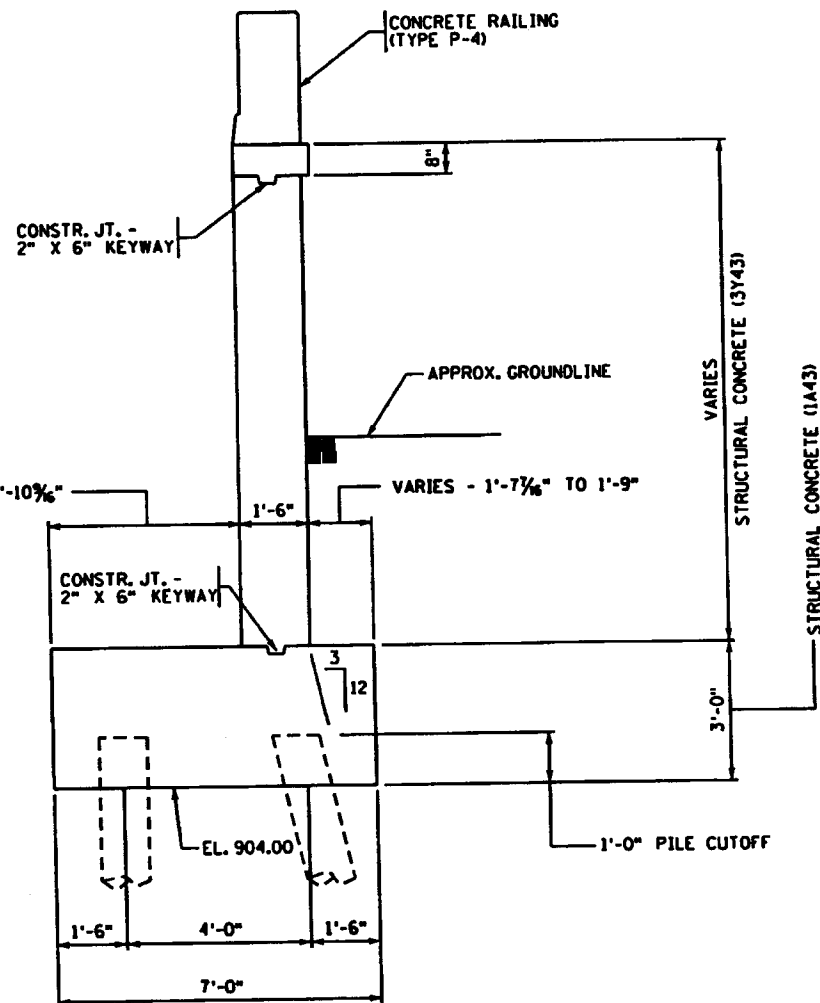
WSB
& Associates, Inc.

TITLE	
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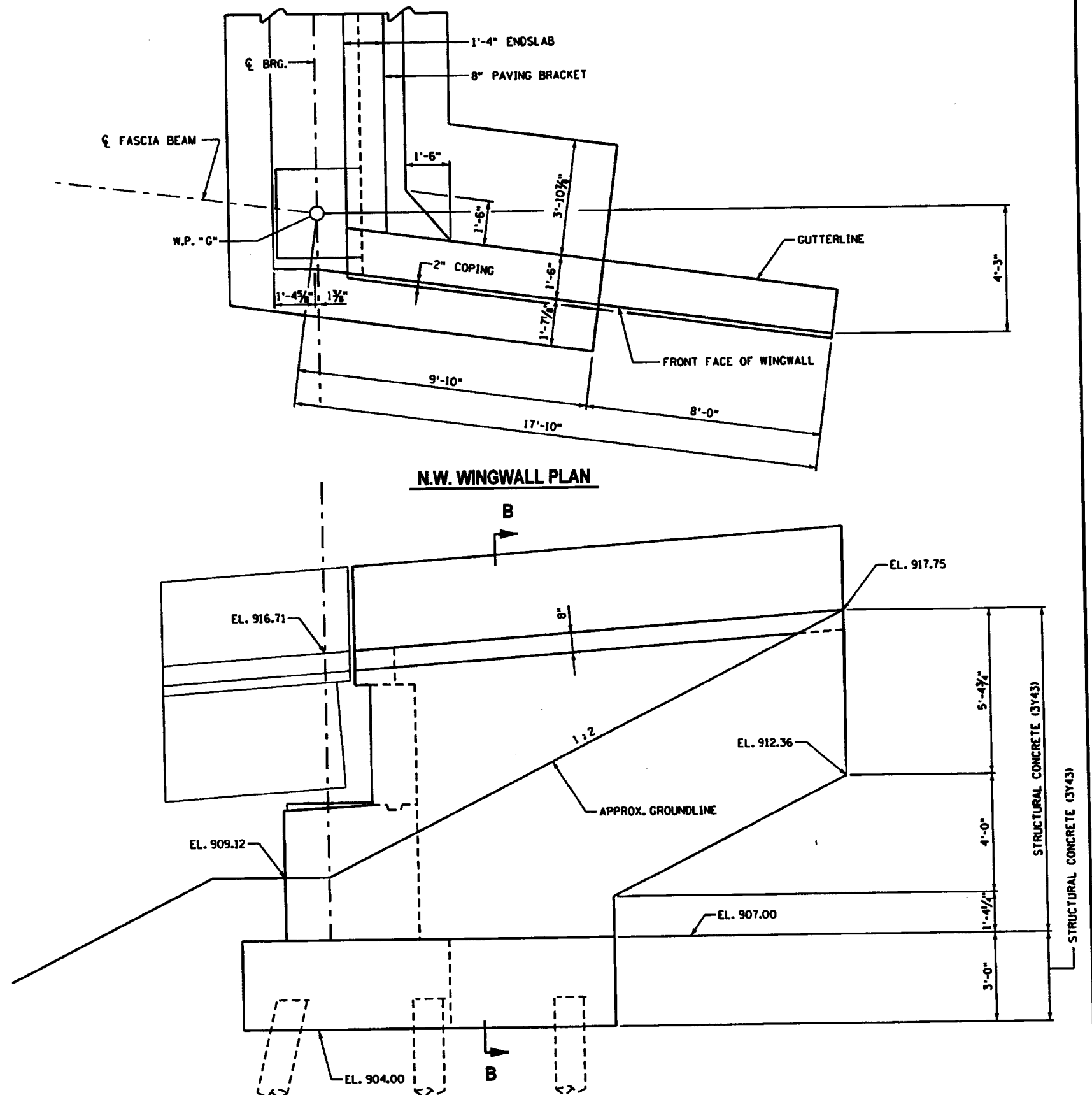
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Bernard Sander L.C. NO. 9-17
SIGNED: LICENSED PROFESSIONAL ENGINEER DORRIS LOWDAGE DATE:

Bridge No.
62623



SECTION B-B



N.W. WINGWALL PLAN

N.W. WINGWALL ELEVATION

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COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700

TITLE:

N.W. WINGWALL DETAILS

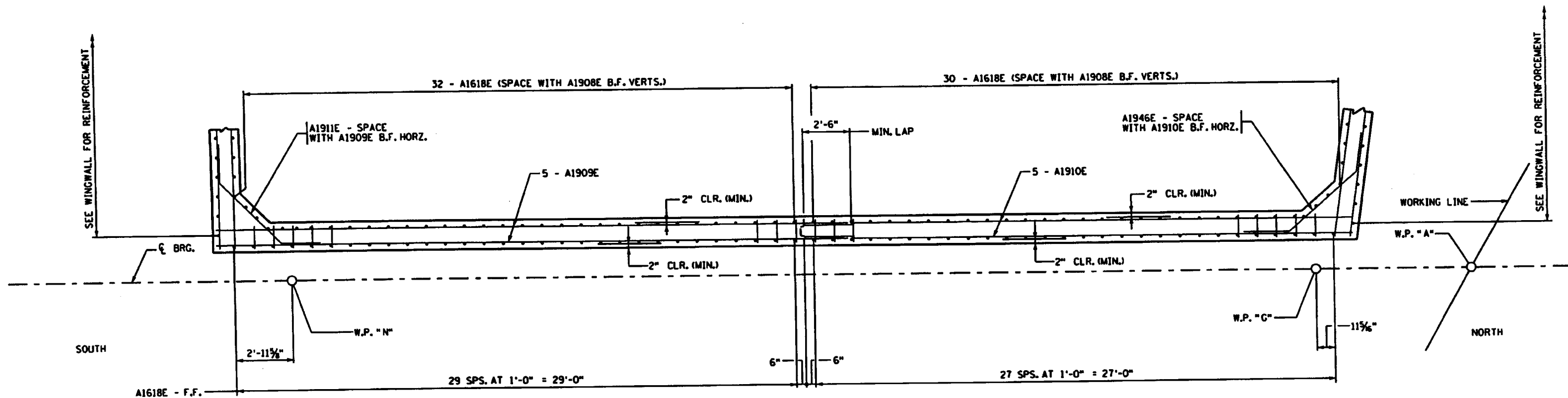
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Barbara L. Lofgren
LICENSED PROFESSIONAL ENGINEER - MINN. LICENSE NO. 9-17-07

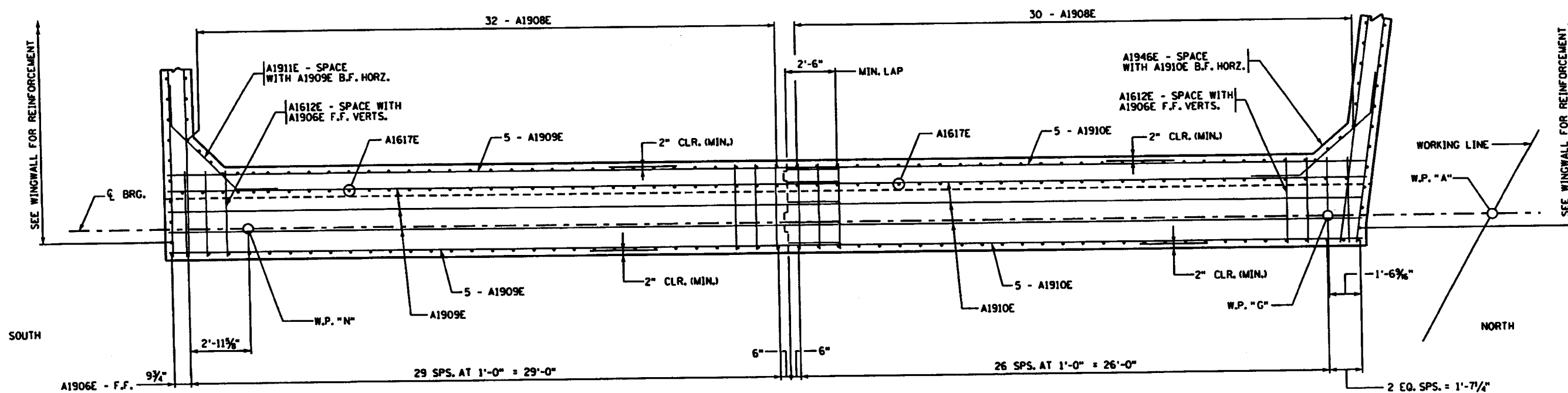
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Sheet B7 of B56 Sheets

Bridge No.
62623



SECTION C-C



SECTION D-D

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
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S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE:

WEST ABUTMENT
REINFORCEMENT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A QUALY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

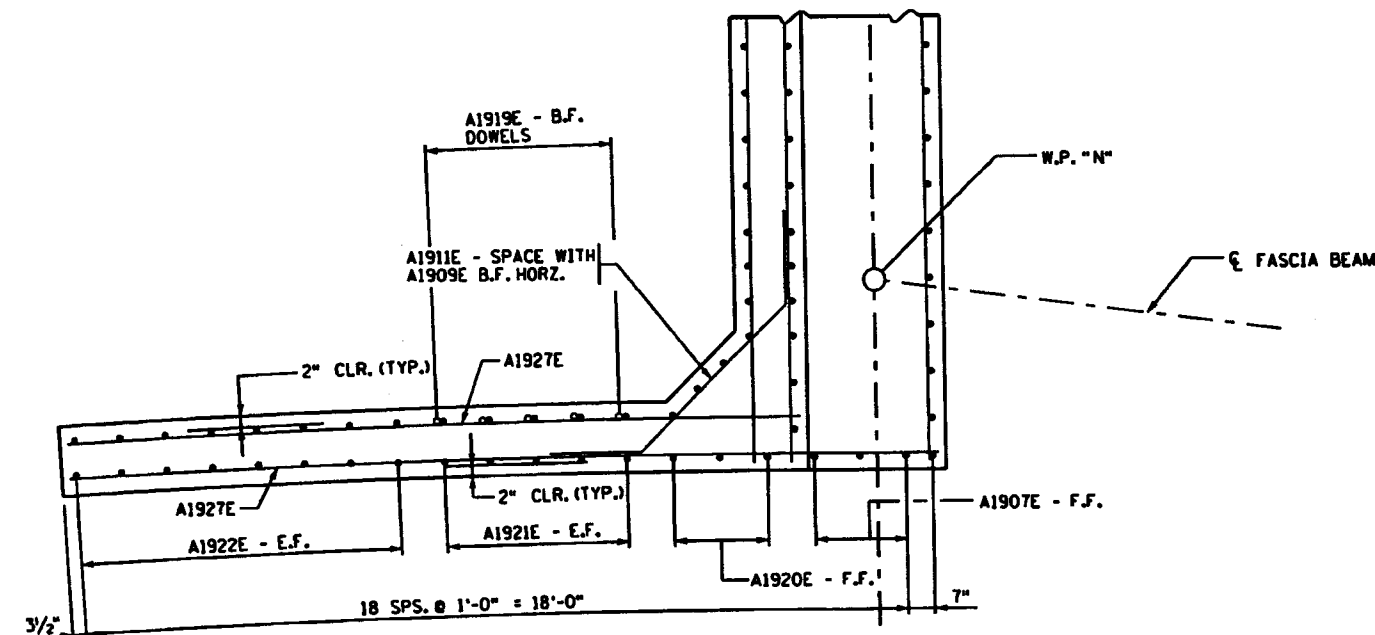
Barbara G. Geller
LICENSED PROFESSIONAL ENGINEER, BRITNEY LARSEN

LIC. NO. 7-1702

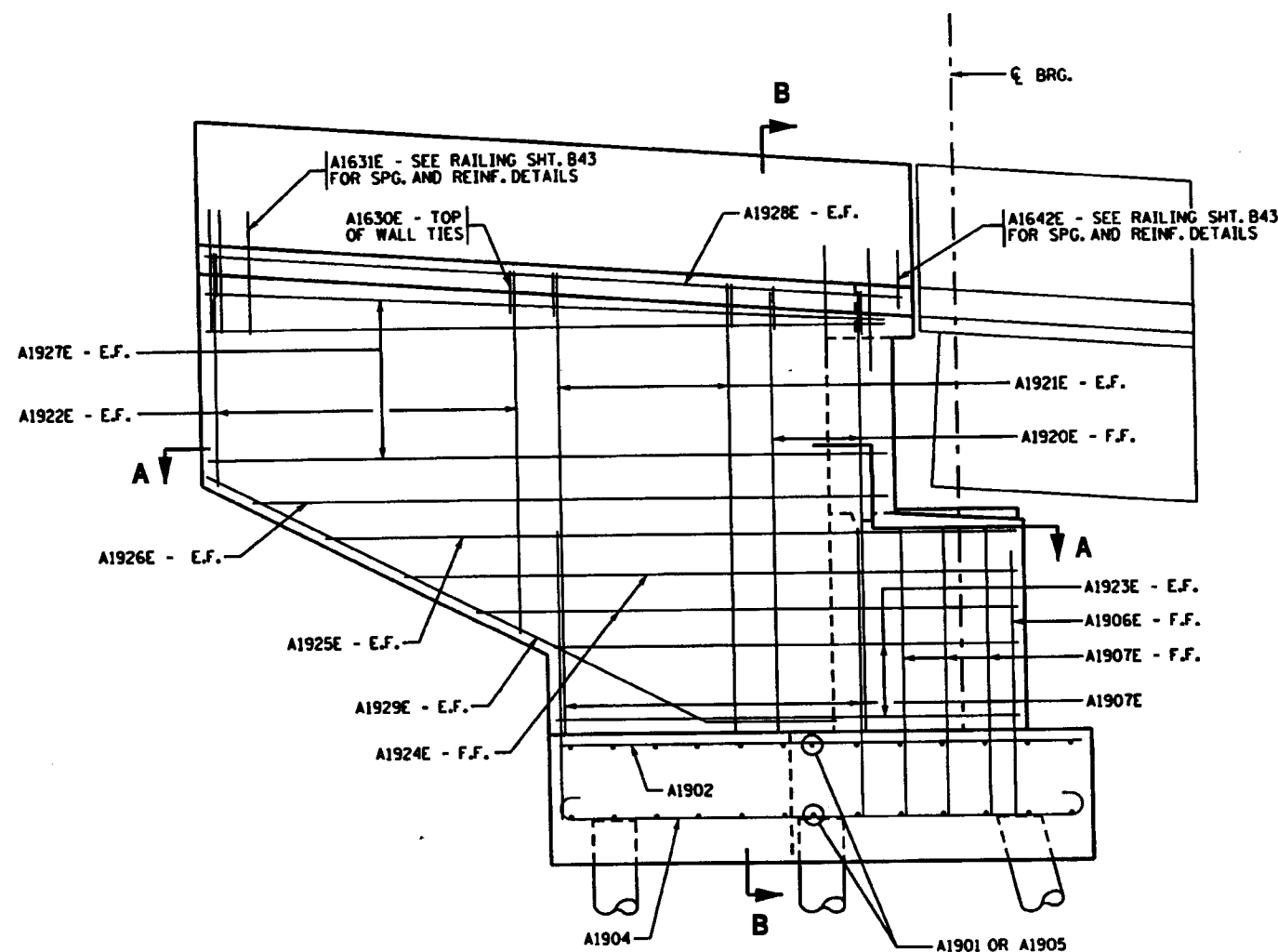
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CHK: SA	CHK: BRL	

Sheet B9 of B56 Sheets

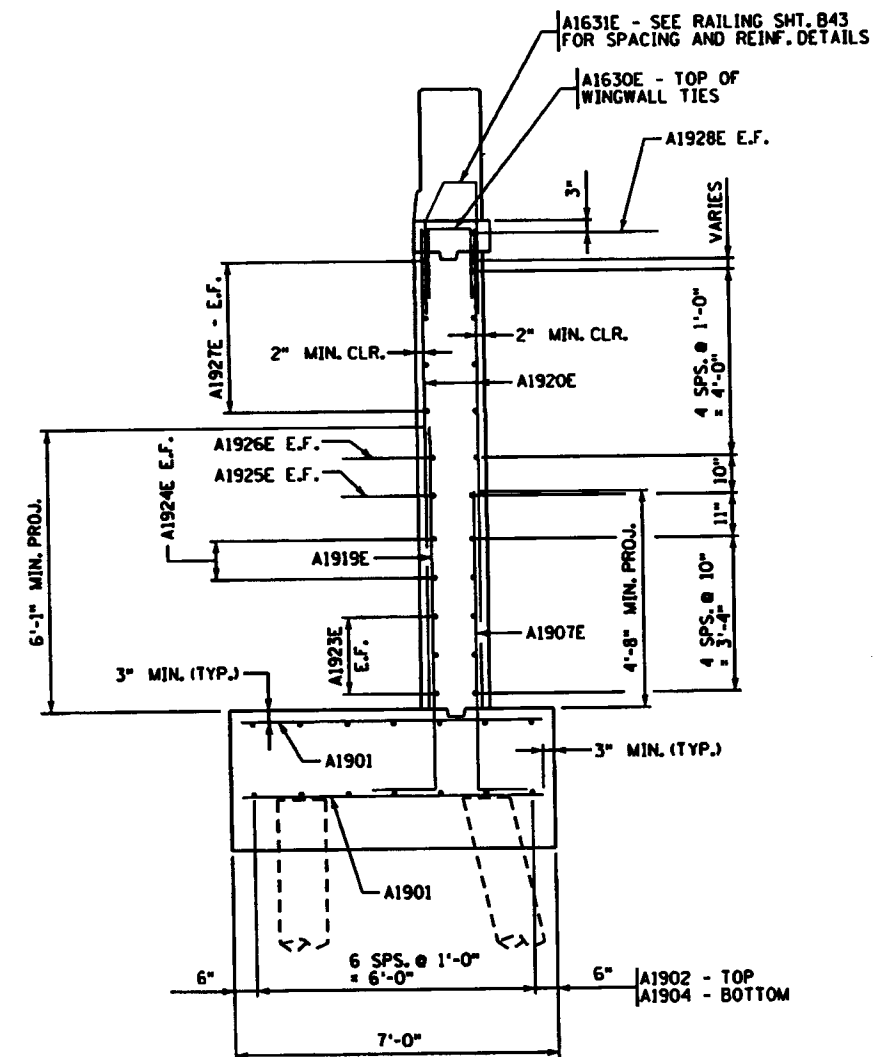
Bridge No.
62623



SECTION A-A



S.W. WINGWALL ELEVATION



SECTION B-B

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Kania Ave. South
Suite 200
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

TITLE

S.W. WINGWALL
REINFORCEMENT

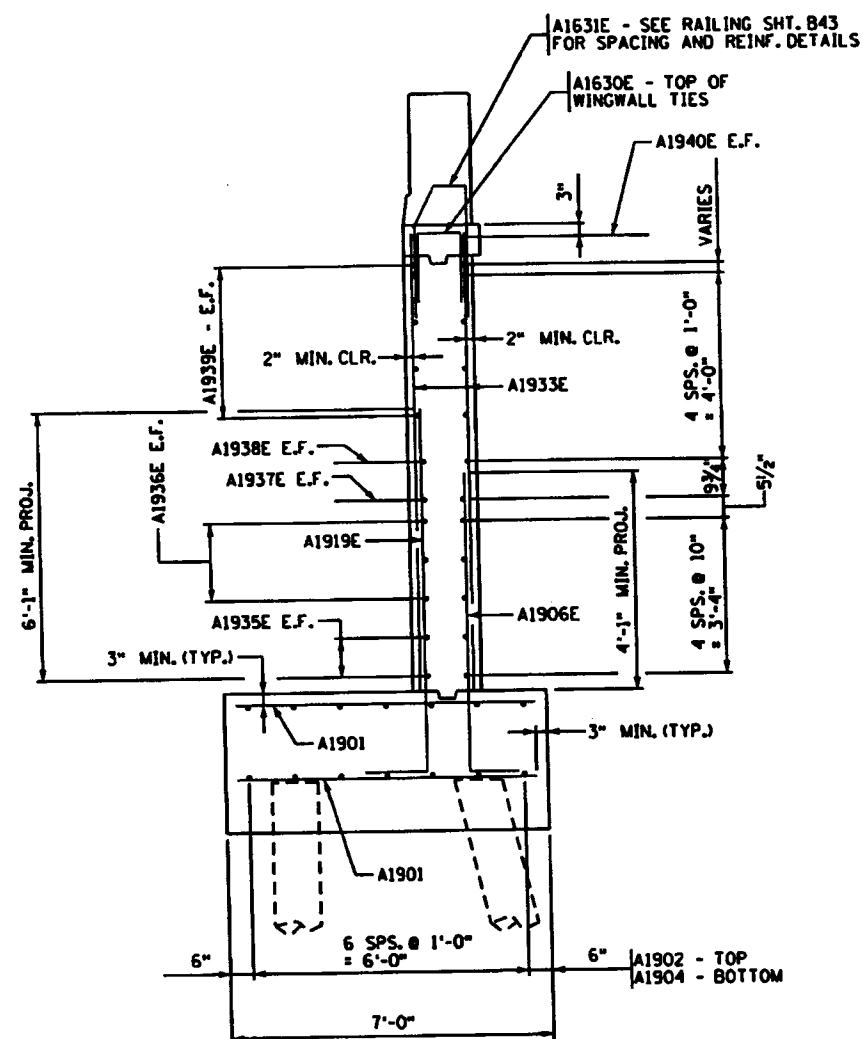
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

David S. Smith
LICENSED PROFESSIONAL ENGINEER DANNI LONLACE
LIC. NO. 955
9-17-07

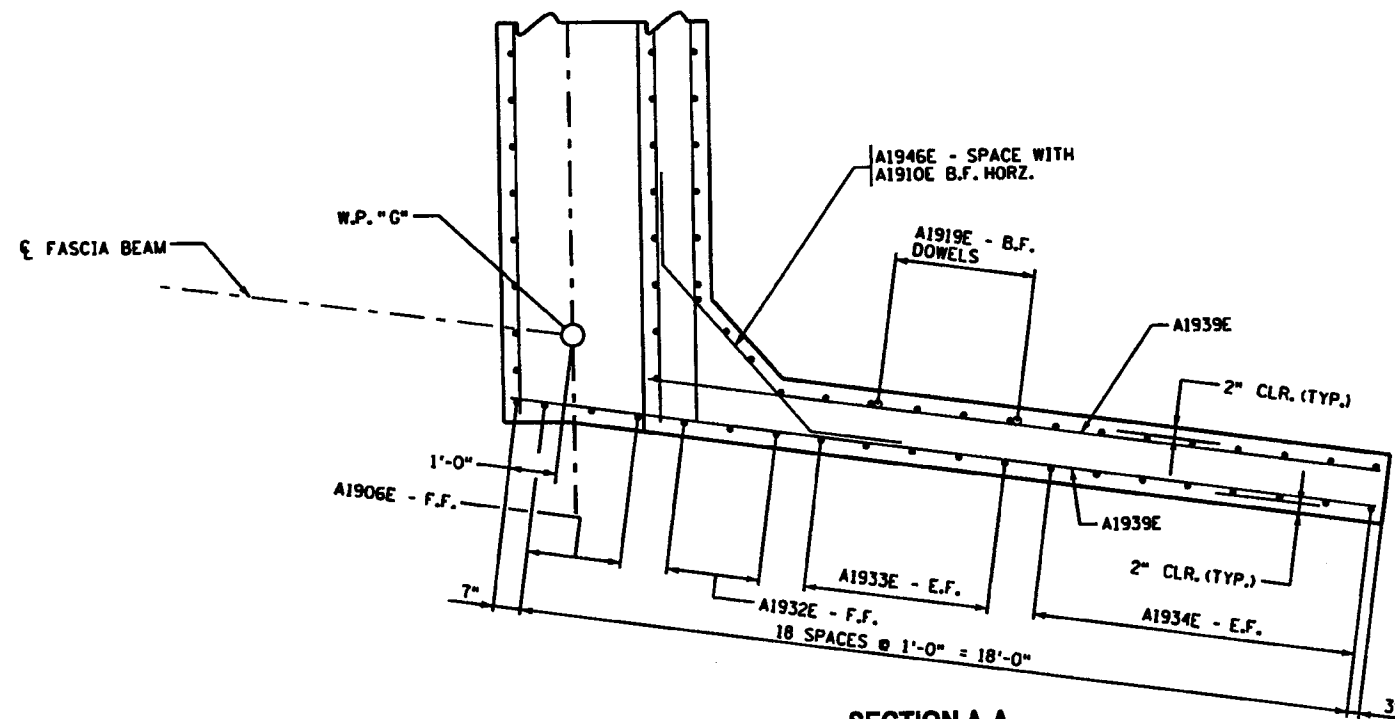
DES: BRL DR: DJV
CHK: SA CHK: BRL

Sheet B10 of B56 Sheets

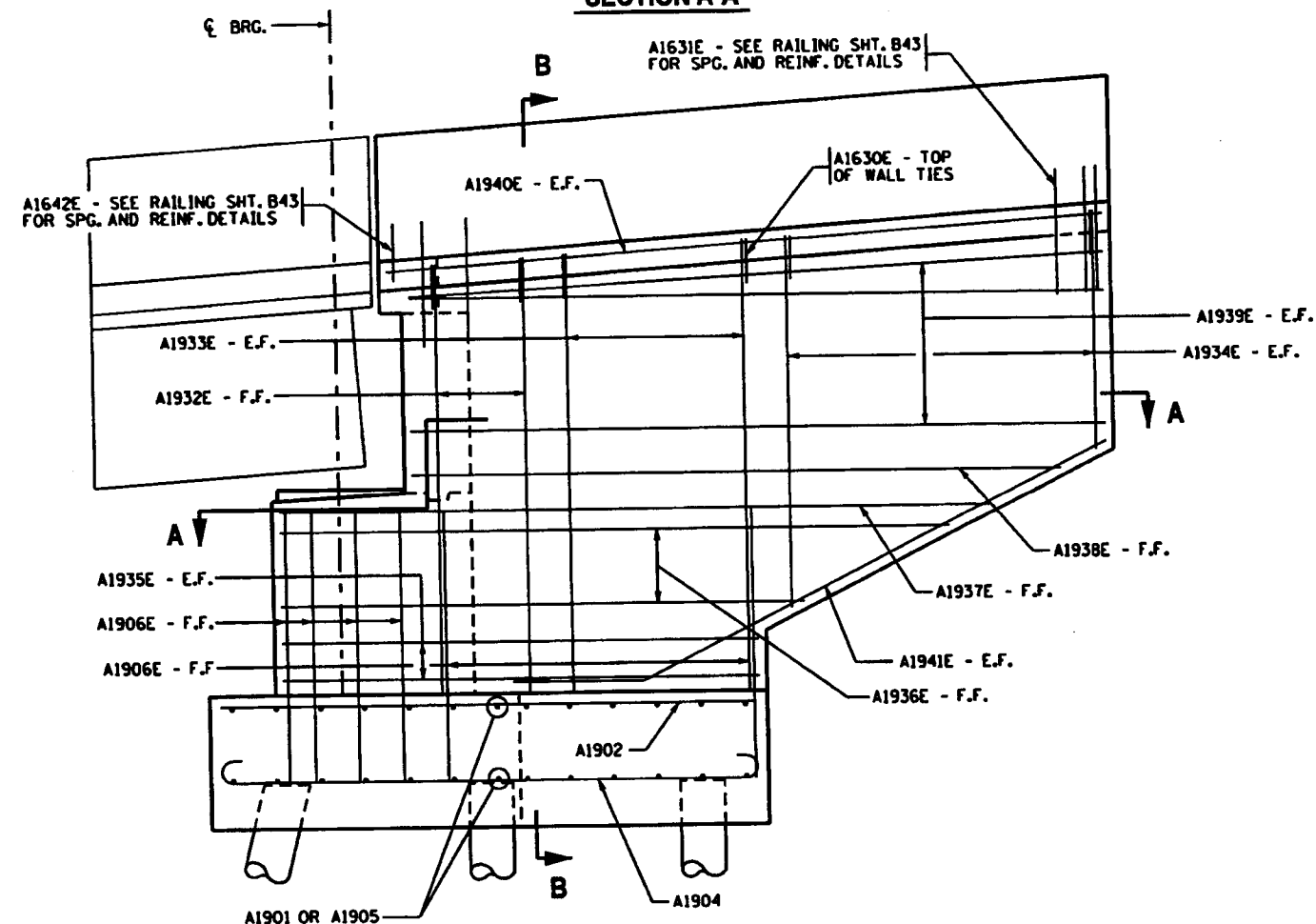
Bridge No.
62623



SECTION B-B



SECTION A-A



N.W. WINGWALL ELEVATION

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



701 Kent Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE

N.W. WINGWALL
REINFORCEMENT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Frank S. La
LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER

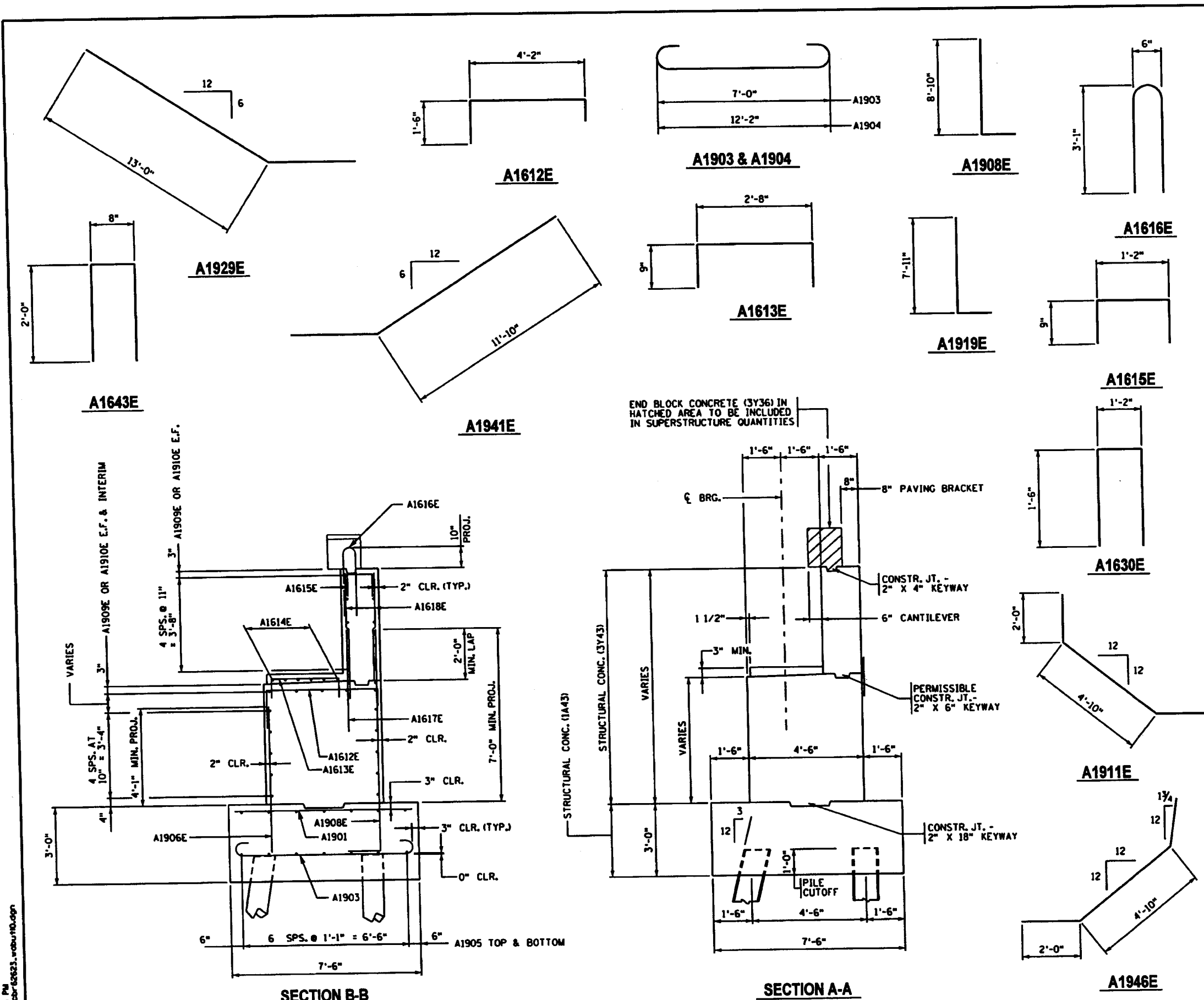
LIC. NO. 955
942-07

DES: BRL	DR: DJW	APPROVED:
CHK: SA	CHK: BRL	

Sheet B11 of B56 Sheets

Bridge No.
62623

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WEST ABUTMENT - BILL OF REINFORCEMENT

BAR MARK	NUMBER	LENGTH	SHAPE	LOCATION
A1901	48	7'-0"	STR.	FTG. - TOP TRANSV.
A1902	14	12'-2"	STR.	FTG. - TOP TRANSV.
A1903	48	8'-4"	BENT	FTG. - BOTTOM TRANSV.
A1904	14	13'-6"	BENT	FTG. - BOTTOM TRANSV.
A1905	28	32'-0"	STR.	FTG. - TOP & BOTTOM LONGIT.
A1906E	71	5'-10"	STR.	FTG. - F.F. DOWELS
A1907E	11	6'-7"	STR.	FTG. - F.F. DOWELS
A1908E	62	9'-10"	BENT	FTG. - B.F. DOWELS
A1909E	25	33'-0"	STR.	BR. SEAT - HORZ.
A1910E	25	28'-2"	STR.	BR. SEAT - HORZ.
A1911E	12	8'-10"	BENT	FILLET - HORZ. TIES
A1612E	59	6'-5"	BENT	BR. SEAT - TOP TIES
A1613E	36	4'-2"	BENT	PEDESTALS - TIES
A1614E	36	2'-8"	STR.	PEDESTALS - HORZ.
A1615E	56	2'-8"	BENT	PARAPET WALL - TOP TIES
A1616E	56	6'-5"	BENT	PARAPET WALL - ENDSLAB TIES
A1617E	58	4'-0"	STR.	BR. SEAT - PARAPET WALL DOWELS
A1618E	120	4'-2"	STR.	PARAPET WALL - VERTS.
A1919E	10	8'-11"	BENT	B.F. WINGWALL DOWELS
A1920E	3	10'-2"	STR.	S.W. WINGWALL - VERT.
A1921E	10	10'-4"	STR.	S.W. WINGWALL - VERT.
A1922E	16	(A)	STR.	S.W. WINGWALL - VERT.
A1923E	6	10'-9"	STR.	S.W. WINGWALL - HORZ.
A1924E	4	(B)	STR.	S.W. WINGWALL - HORZ.
A1925E	2	16'-1"	STR.	S.W. WINGWALL - HORZ.
A1926E	2	14'-9"	STR.	S.W. WINGWALL - HORZ.
A1927E	10	15'-10"	STR.	S.W. WINGWALL - HORZ.
A1928E	2	16'-3"	STR.	S.W. WINGWALL - HORZ.
A1929E	2	16'-0"	BENT	S.W. WINGWALL - HORZ.
A1630E	32	4'-2"	BENT	BOTH WINGWALLS - TOP TIES
A1631E	46	6'-10"	BENT	BOTH WINGWALLS - RAILING TIES
A1932E	3	9'-8"	STR.	N.W. WINGWALL - VERT.
A1933E	5	9'-10"	STR.	N.W. WINGWALL - VERT.
A1934E	16	(C)	STR.	N.W. WINGWALL - VERT.
A1935E	4	10'-9"	STR.	N.W. WINGWALL - HORZ.
A1936E	6	(D)	STR.	N.W. WINGWALL - HORZ.
A1937E	2	16'-1"	STR.	N.W. WINGWALL - HORZ.
A1938E	2	14'-9"	STR.	N.W. WINGWALL - HORZ.
A1939E	10	15'-9"	STR.	N.W. WINGWALL - HORZ.
A1940E	2	16'-4"	STR.	N.W. WINGWALL - HORZ.
A1941E	2	14'-10"	BENT	N.W. WINGWALL - HORZ.
A1642E	2	4'-4"	BENT	BOTH WINGWALLS - RAILING TIES
A1643E	16	4'-8"	BENT	SHEAR LUGS @ BEAMS
A1644E	8	2'-6"	STR.	SHEAR LUGS @ BEAMS
A1945	20	6'-6"	STR.	FOOTING - TRANSV.
A1946E	12	9'-2"	BENT	FILLET - HORZ. TIES

- (A) 2 SERIES OF 8 BARS (5'-4" TO 8'-4")
(B) 2 SERIES OF 2 BARS (12'-7" TO 14'-3")
(C) 2 SERIES OF 8 BARS (5'-2" TO 8'-3")
(D) 2 SERIES OF 3 BARS (11'-10" TO 15'-3")

NO.	DATE	BY	CHK	REVISIONS

R COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB

WSB
701 Kelle Ave. South
Suite 300
Minneapolis, MN 55415
763-641-4800
FAX 763-641-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE:
**WEST ABUTMENT
REINFORCEMENT**

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barbara E. Sander
LICENSED PROFESSIONAL ENGINEER, BRIDGE ENGINEER
DATE: 7/20/07

DES: BRL DR: DJV
CHK: SA CHK: BRL
APPROVED:
Sheet B12 of B56 Sheets

Bridge No.
62623

EAST ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	$\bullet R_n$
MN/DOT NOMINAL RESISTANCE FORMULA	0.40	175.8
PDA	0.65	108.2

$\bullet R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

EAST ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
	EAST ABUT.
FACTORED DEAD LOAD + EARTH PRESSURE	50.1
FACTORED LIVE LOAD	20.2
FACTORED DOWDRAG	19.8
$\bullet$ FACTORED DESIGN LOAD	90.1

$\bullet$ BASED ON STRENGTH I LOAD COMBINATION;
INCLUDES LIVE LOAD BUT DOES NOT INCLUDE
DOWDRAG.

PILE NOTES

- 1 CAST-IN-PLACE CONC. TEST PILES 120 FT. LONG
- 8 CAST-IN-PLACE CONC. PILES EST. LENGTH 110 FT.
- 9 CAST-IN-PLACE CONC. PILES REQ'D FOR EAST ABUTMENT

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS $\odot$ TO BE BATTERED 3" PER
FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12".

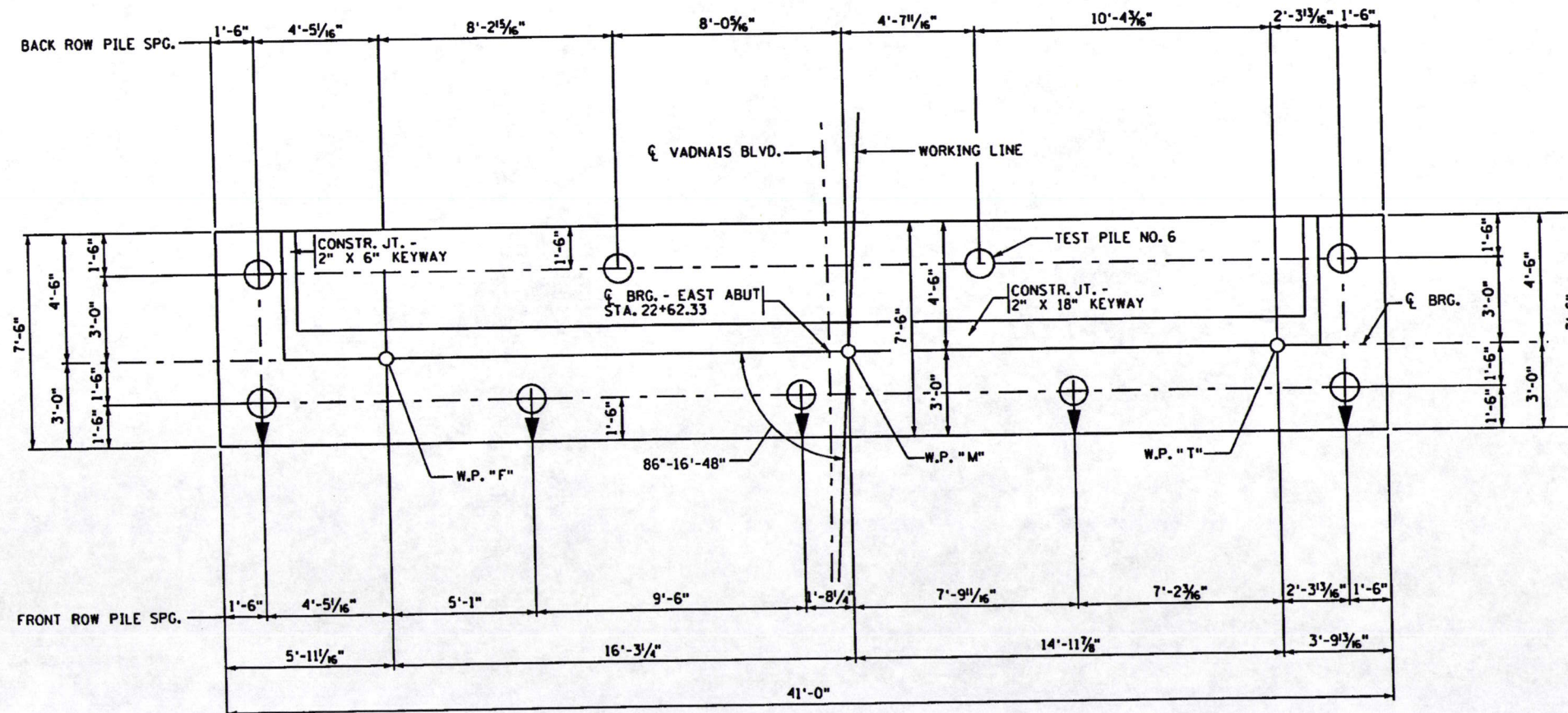
FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE CUTOFF IS EL. 882.50

SUMMARY OF QUANTITIES - EAST ABUTMENT

STRUCTURAL CONCRETE (1A43)	35	CU. YD.
STRUCTURAL CONCRETE (3Y43)	45	CU. YD.
REINFORCEMENT BARS	1770	POUND
REINFORCEMENT BARS (EPOXY COATED)	5720	POUND
C-I-P CONCRETE PILING DELIVERED 12"	880	LIN. FT.
C-I-P CONCRETE PILING DRIVEN 12"	880	LIN. FT.
C-I-P CONCRETE TEST PILE 120 FT. LONG 12"	1	EACH
3-PLY JOINT WATERPROOFING	42	LIN. FT.
STRUCTURE EXCAVATION	1	LUMP SUM
6" DIA. PIPE SLEEVE (FUTURE)	1	EACH

- ① DOES NOT INCLUDE TEST PILES.
- ② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ③ APPROXIMATE QUANTITY = 165 CU. YD.



PLAN VIEW

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NO.	DATE	BY	CHK	REVISIONS



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S.P. 62-649-24CTB



INFRASTRUCTURE - ENGINEERS - PLANNERS

701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700

TITLE:

EAST ABUTMENT DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNED: *Barrett Longace*
LICENSED PROFESSIONAL ENGINEER BARRETT LONGACE
DATE: 9-17-07

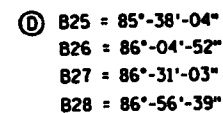
DES: BRL DR: DJV
CHK: SA CHK: BRL

Sheet B13 of B56 Sheets

Bridge No.
62623



(A) 86°-16'-48"
 (B) CONSTR. JT. - 2" X 6" KEYWAY
 (C) CONSTR. JT. - 2" X 12" KEYWAY



SECTION A-A



RAMSEY COUNTY



WSB
 & Associates, Inc.
 INFRASTRUCTURE

[illegible]

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

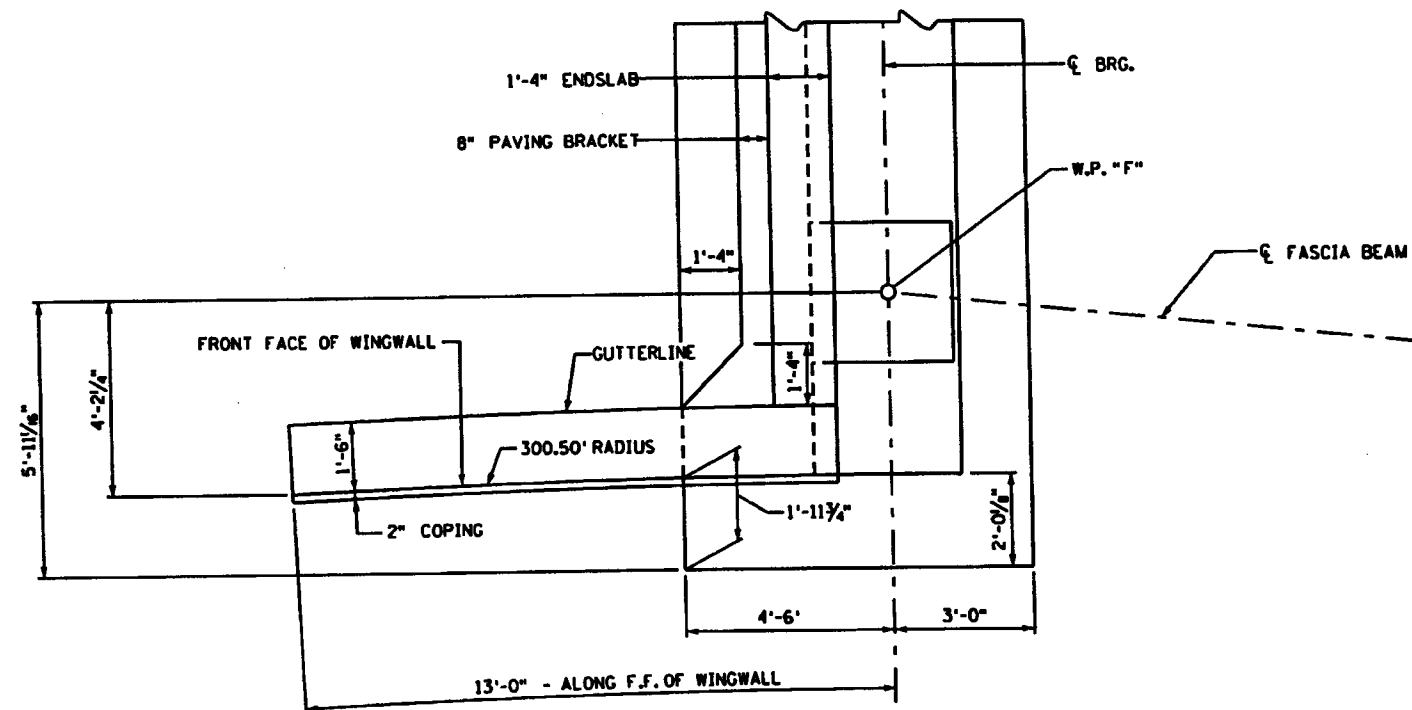
Barry J. Louder

SEAL: LICENSED PROFESSIONAL ENGINEER BARRETT LOUDER I.C. NO. 817

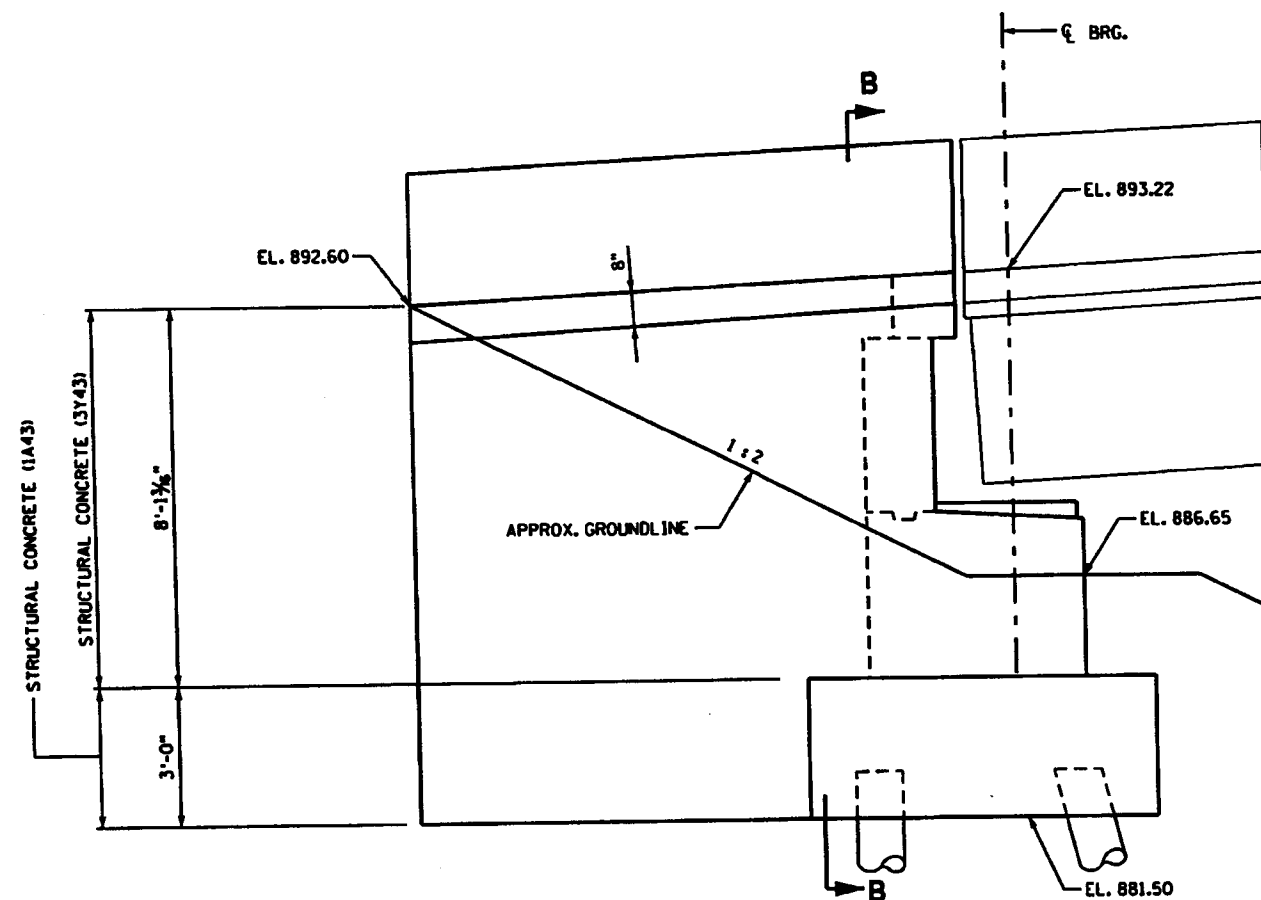
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CHK: SA	CHK: BRL	

Sheet B14 of B56 Sheet

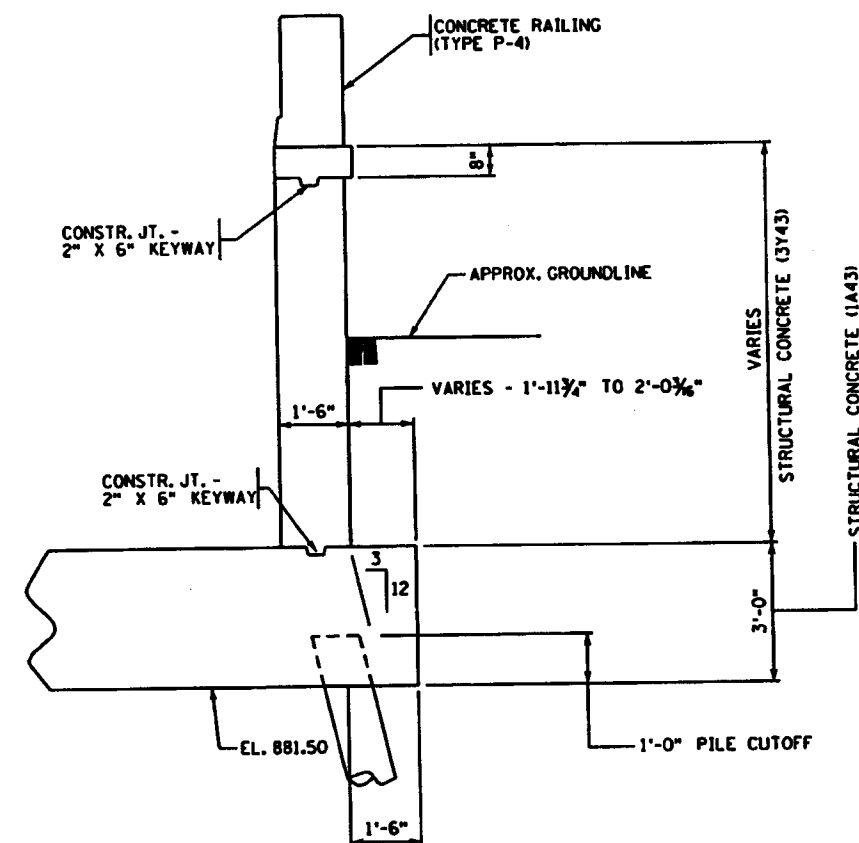
Bridge No.
62623



N.E. WINGWALL PLAN



N.E. WINGWALL ELEVATION



SECTION B-B

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



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Suite 300
Minneapolis, MN 55416
763-641-6800
FAX 763-641-1700

INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE

N.E. WINGWALL DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

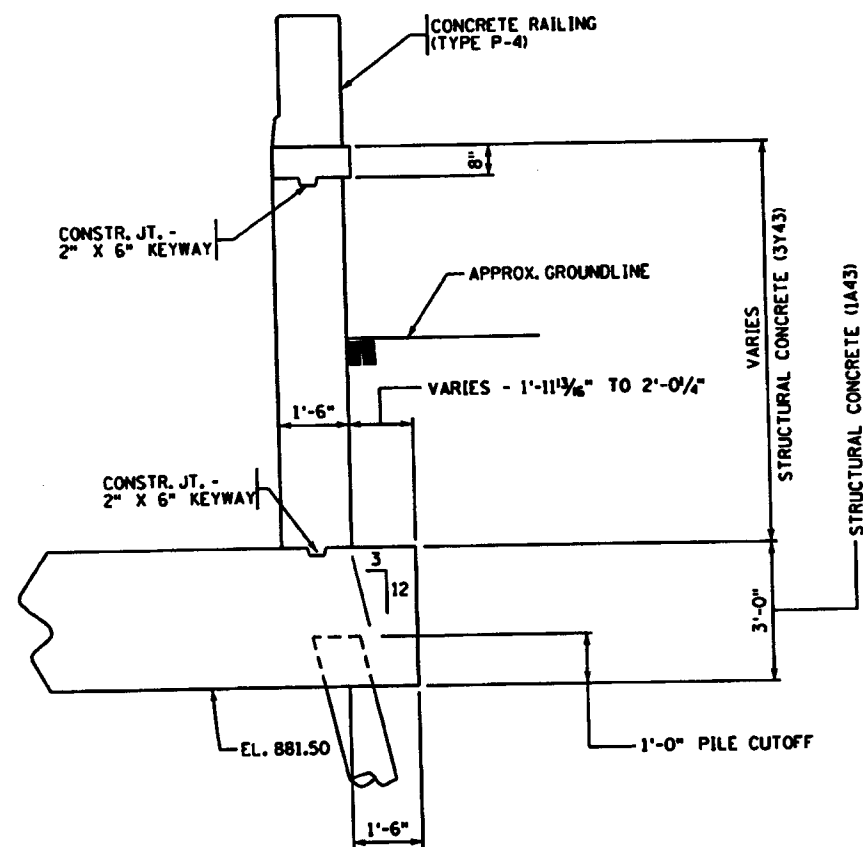
Barry S. Sauer
LICENSED PROFESSIONAL ENGINEER 000111 LINDALE
DATE: 7-17-07

DES: BRL DR: DJV
CHK: SA CHK: BRL

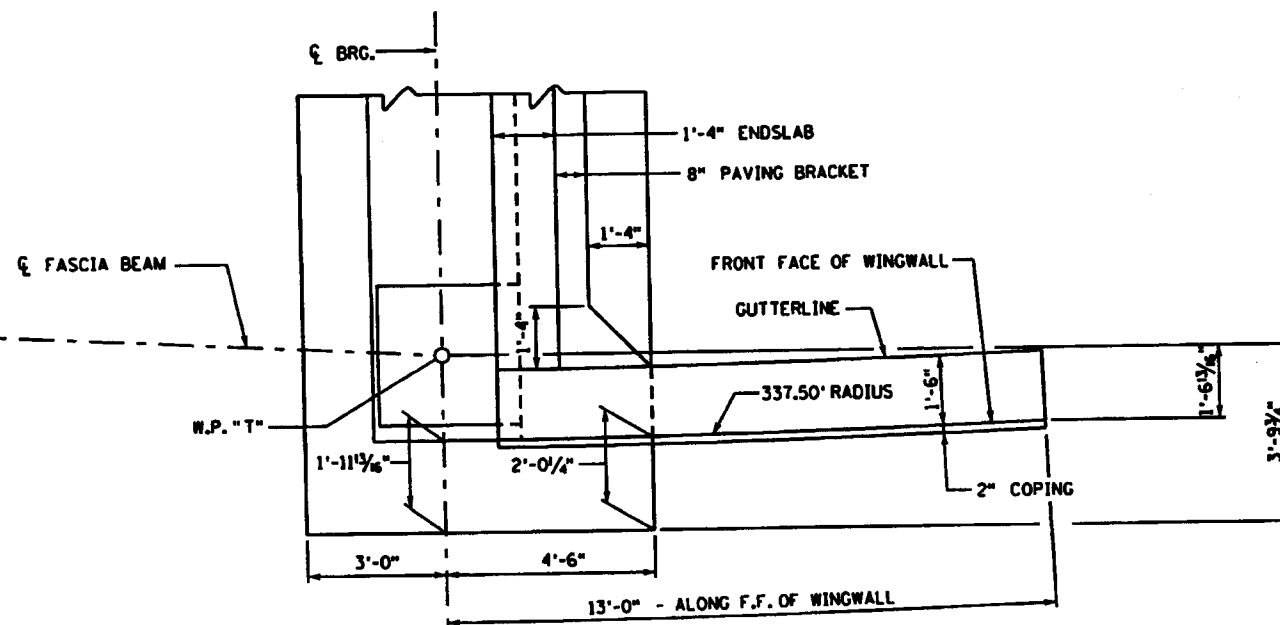
APPROVED:

Sheet B15 of B56 Sheets

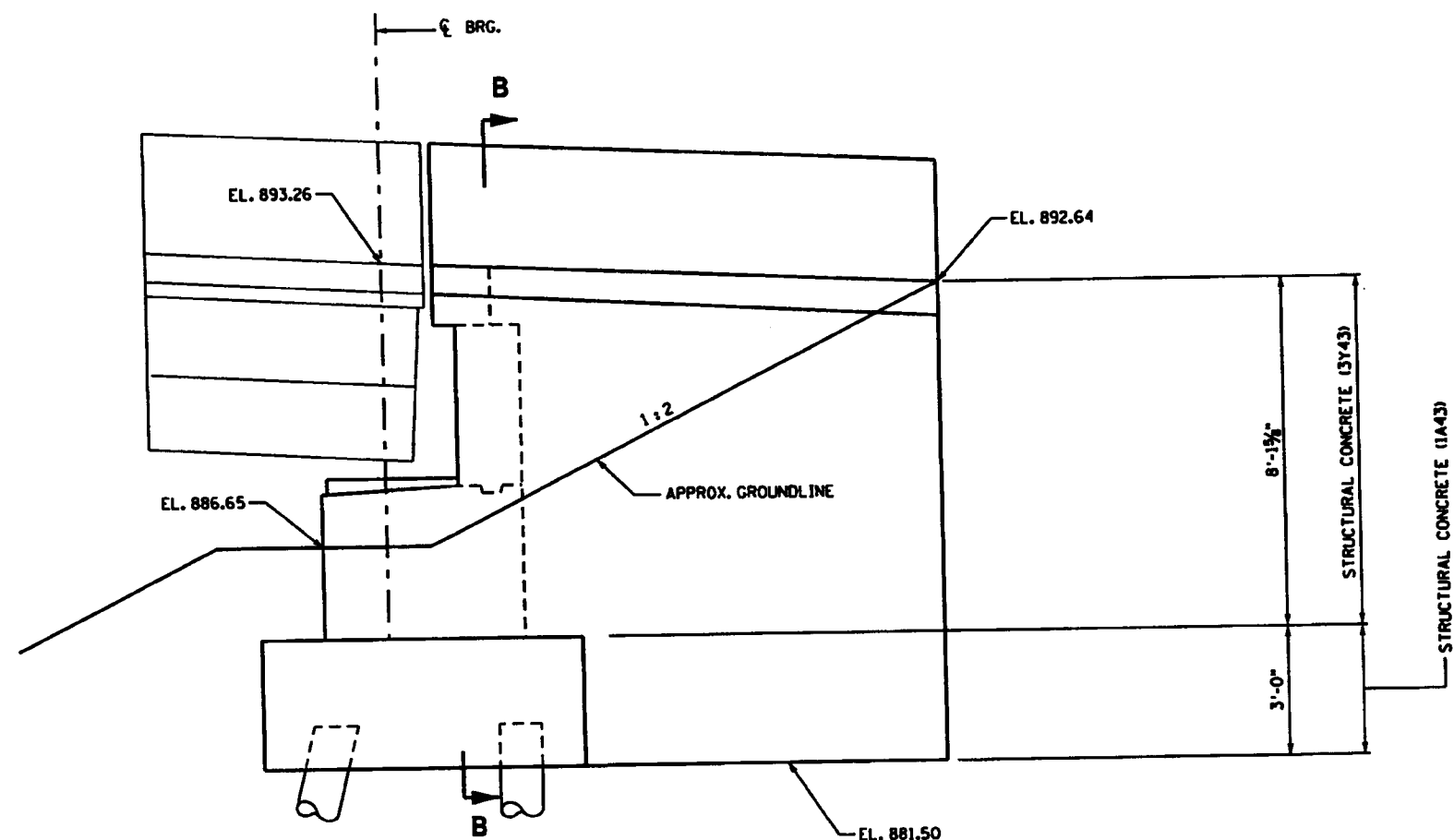
Bridge No.
62623



SECTION B-B



S.E. WINGWALL PLAN



S.E. WINGWALL ELEVATION

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



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Minneapolis, MN 55415
763-541-8800
FAX 763-541-1700

TITLE:

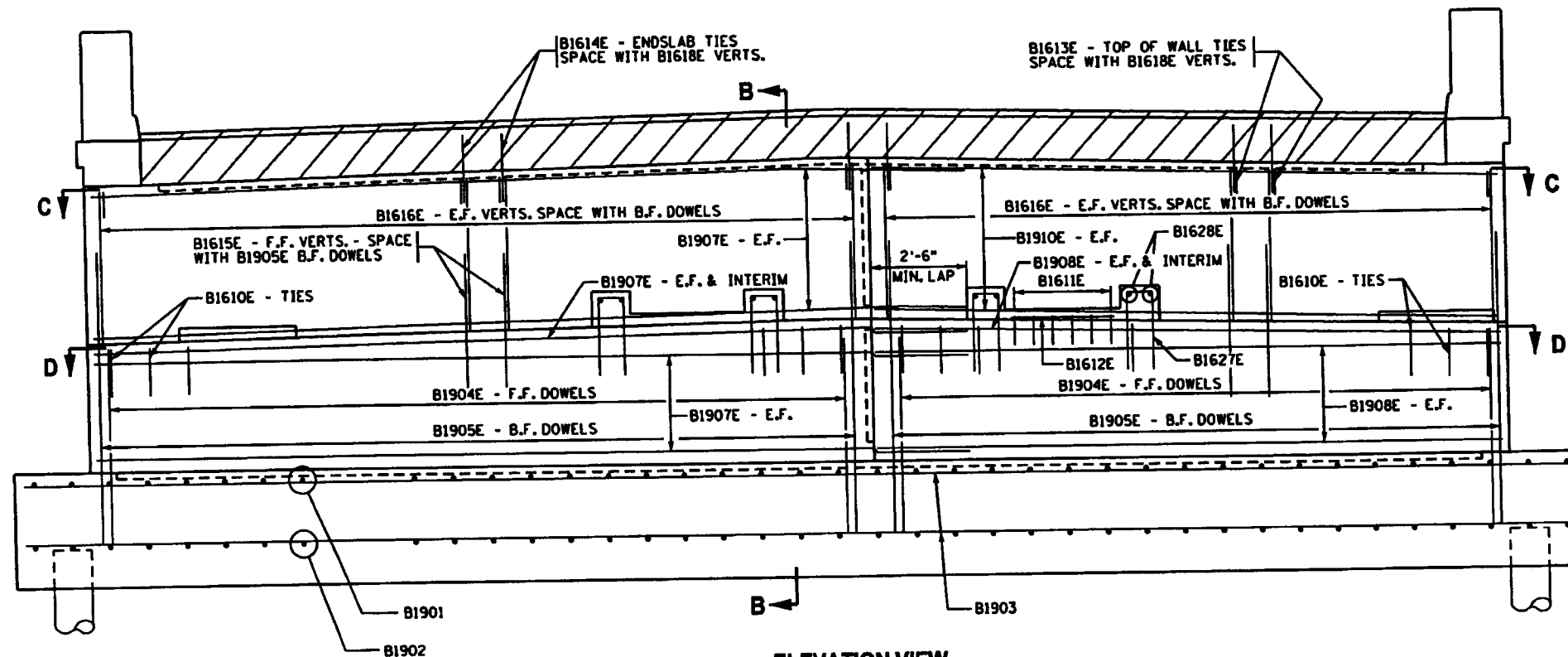
S.E. WINGWALL DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

David S. Lohr
L.C. NO. 955
2-17-07
LICENSED PROFESSIONAL ENGINEER - BRIMMY LOWE

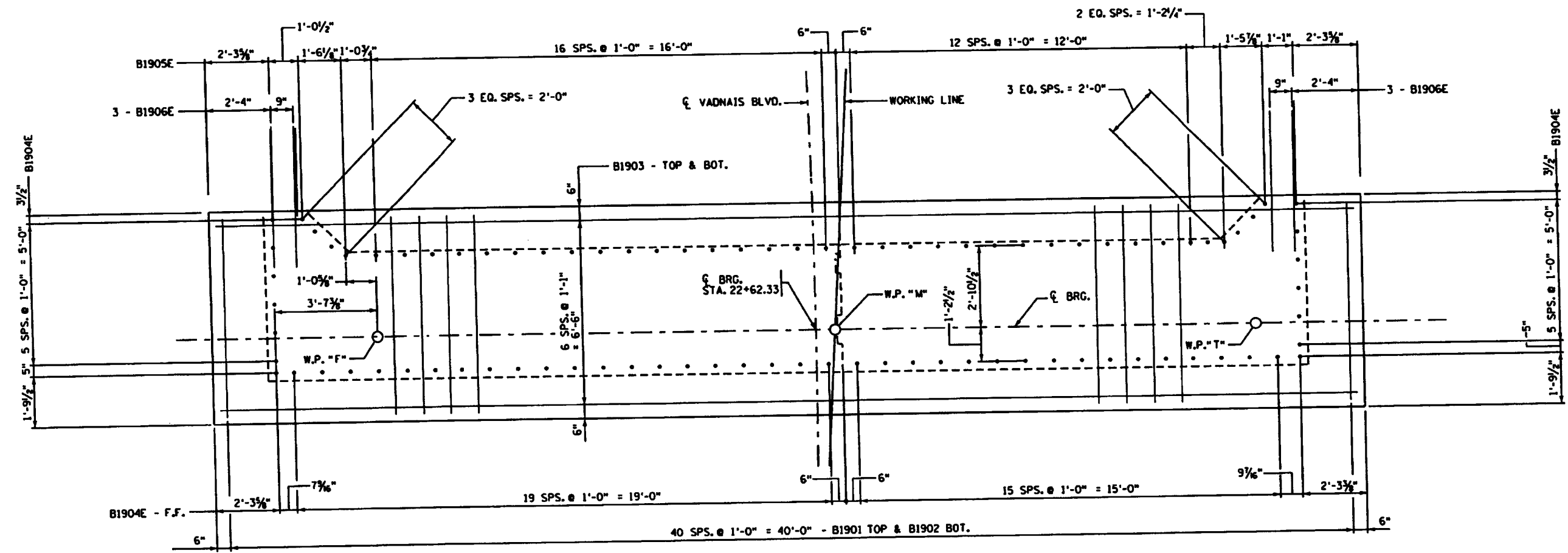
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CHK: SA CHK: BRL
Sheet B16 of B56 Sheets

Bridge No.
62623



ELEVATION VIEW

NOTE:
SEE SHEET B21 FOR SECTION B-B
SEE SHEET B18 FOR SECTIONS C-C & D-D



FOOTING PLAN

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NO.	DATE	BY	CHK	REVISIONS

COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB

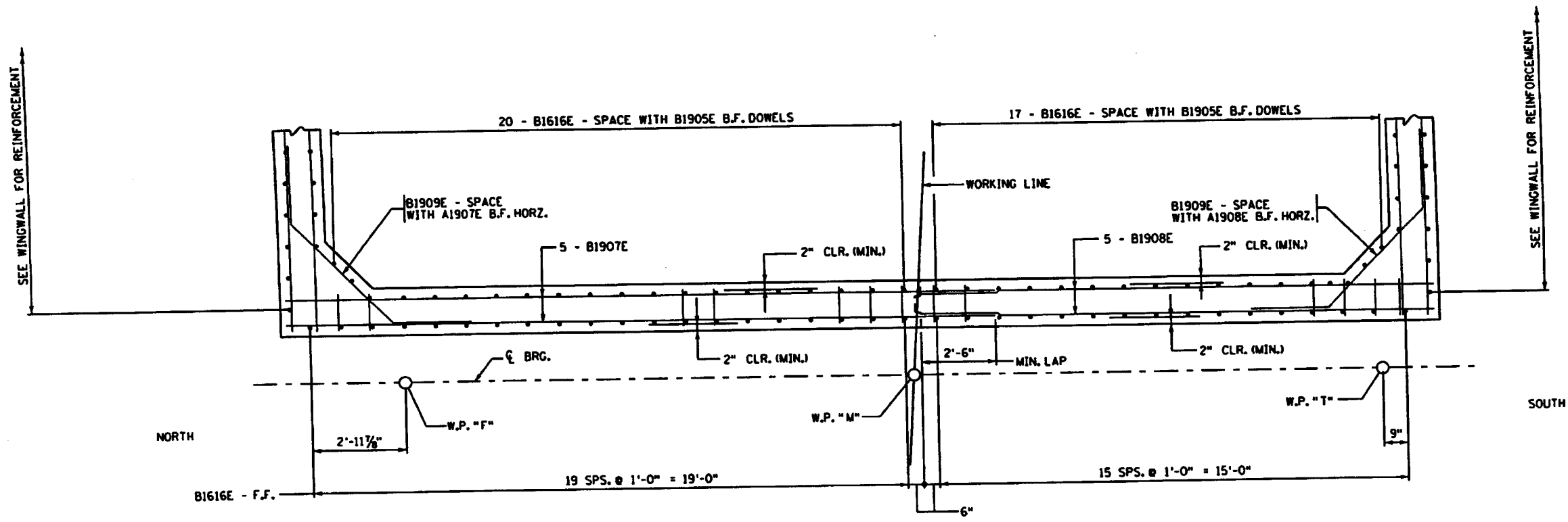
WSB
701 Xerox Ave. South
Minneapolis, MN 55415
763-641-8800
FAX 763-641-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE:
**EAST ABUTMENT
REINFORCEMENT**

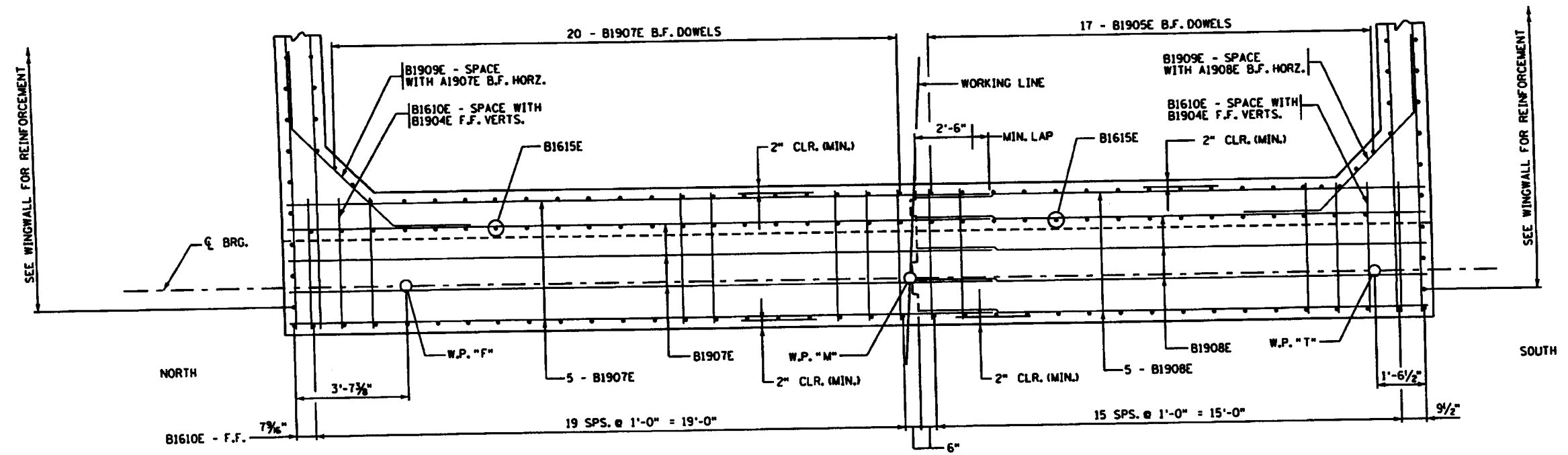
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barry Landace
LICENSED PROFESSIONAL ENGINEER - MINN. LICENSE NO. 91707

DES: BRL DR: D/V
CHK: SA CHK: BRL
Sheet B17 of B56 Sheets

Bridge No.
62623



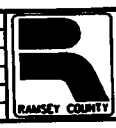
SECTION C-C



SECTION D-D

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

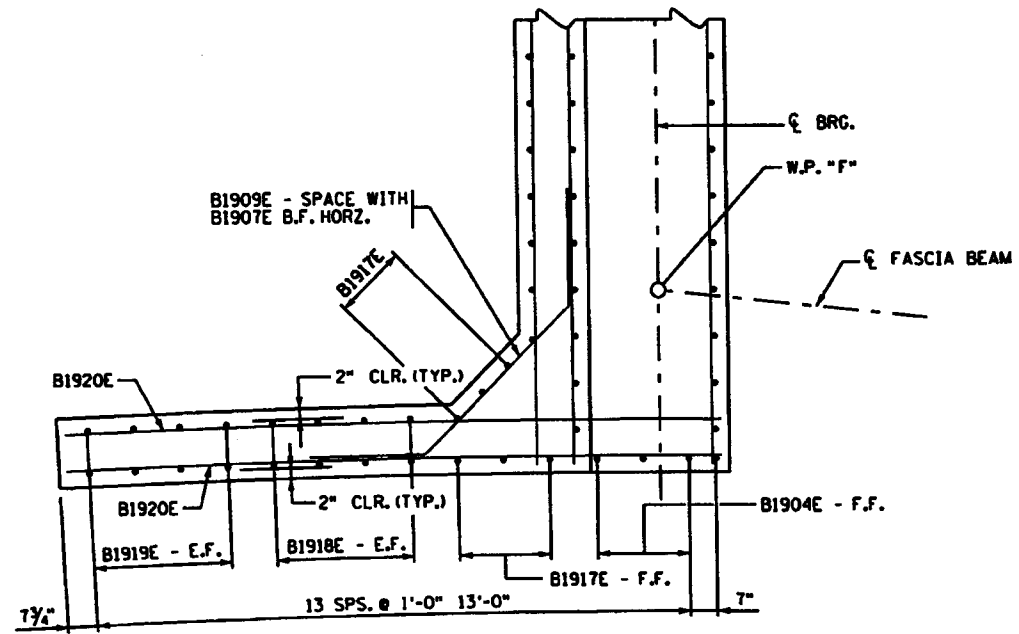
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EAST ABUTMENT
REINFORCEMENT

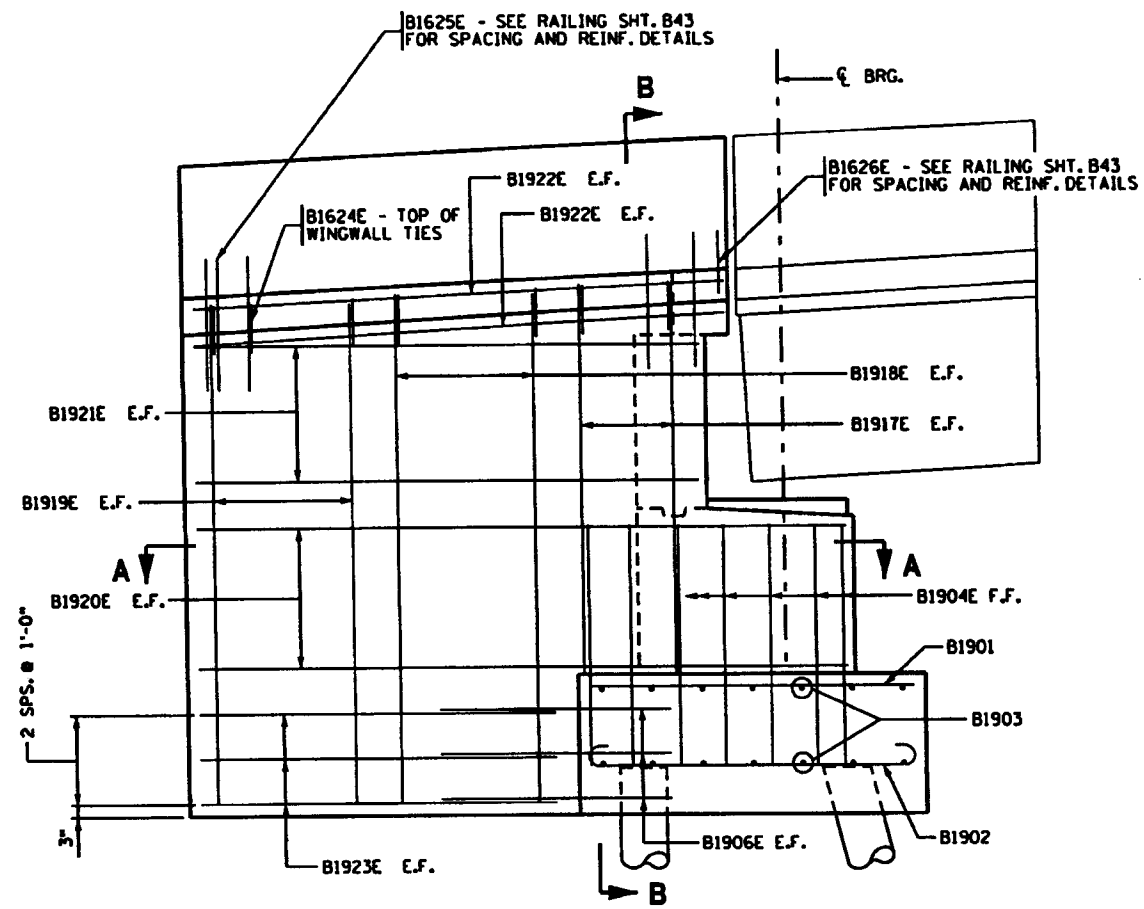
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barrett Lavelle
LICENSED PROFESSIONAL ENGINEER BARRETT LAVELLE
LIC. NO. 958
DATE 9-17-07

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	
Sheet B18 of B56 Sheets		

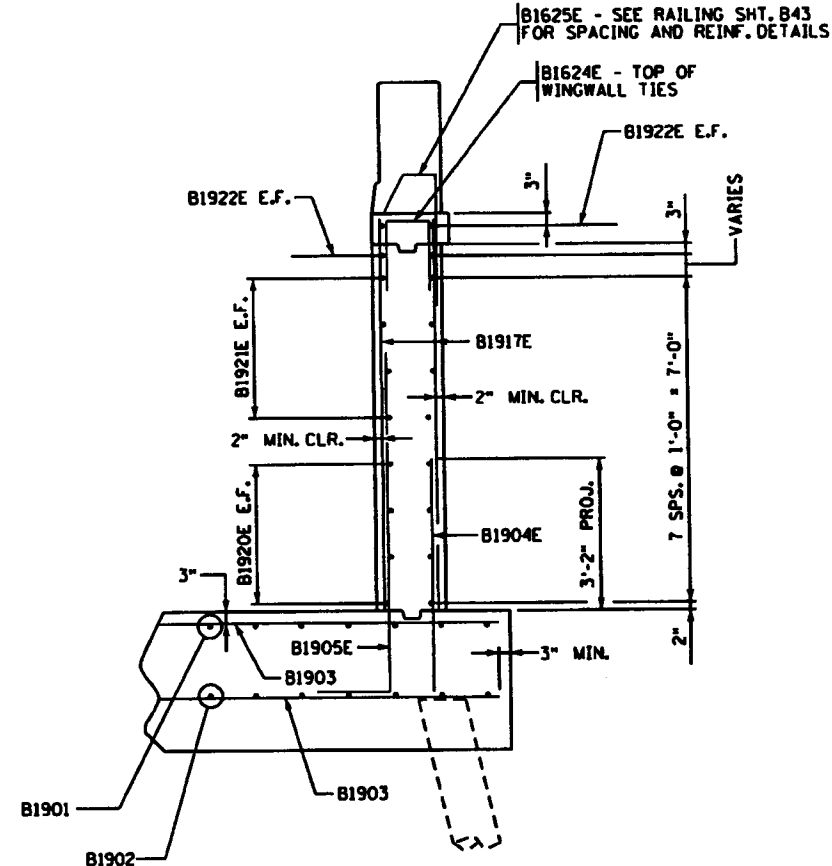
Bridge No.
62623



SECTION A-A



N.E. WINGWALL ELEVATION



SECTION B-B

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



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Suite 300
Minneapolis, MN 55416
763-641-4000
FAX 763-641-1700

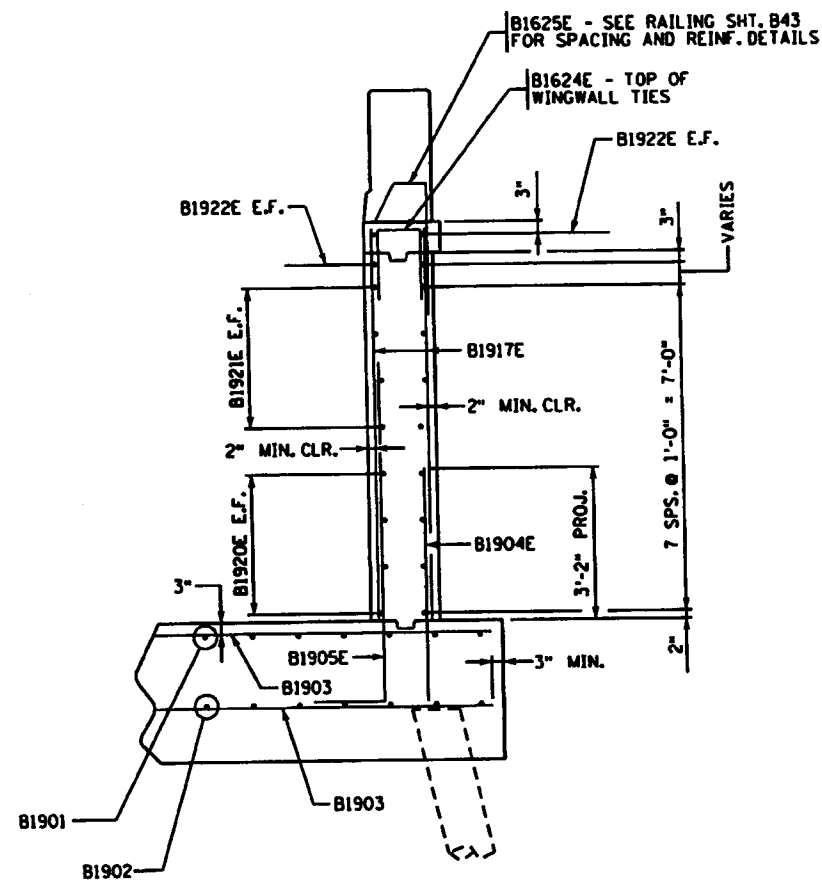
TITLE

N.E. WINGWALL
REINFORCEMENT

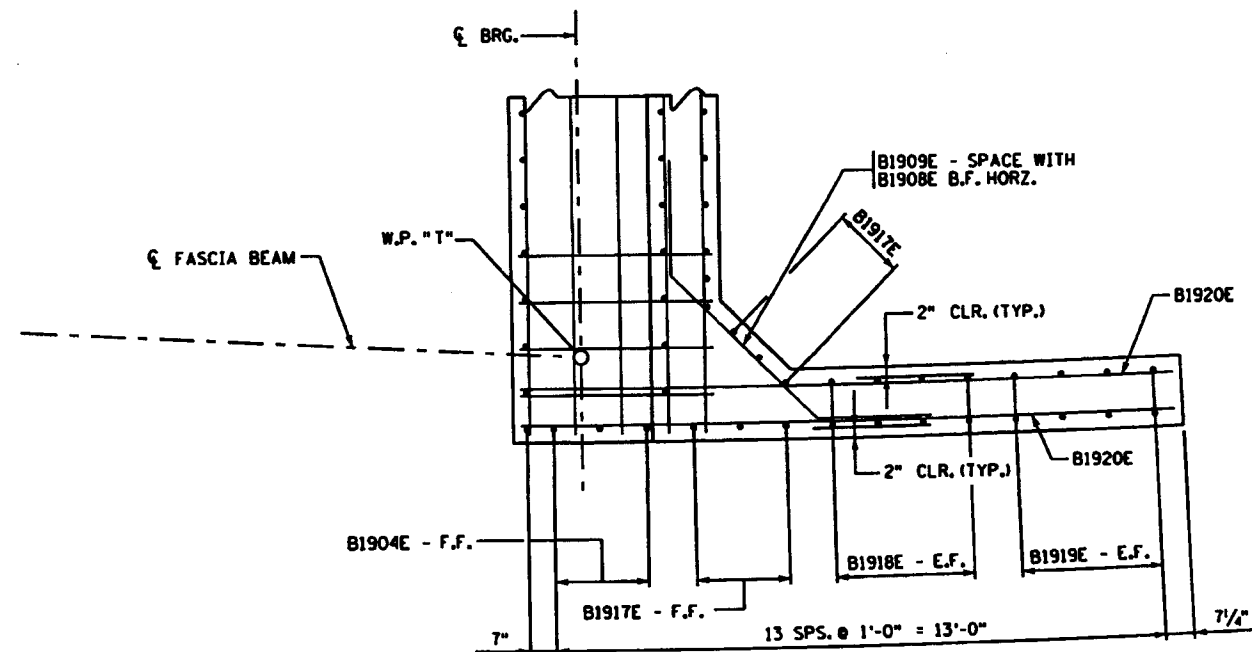
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
David L. Linder
LICENSED PROFESSIONAL ENGINEER BRADY LINDLACE
DATE: 9-17-02

DES: BRL	DR: D.W.	APPROVED:
CHK: SA	CHK: BRL	
Sheet B19 of B56 Sheets		

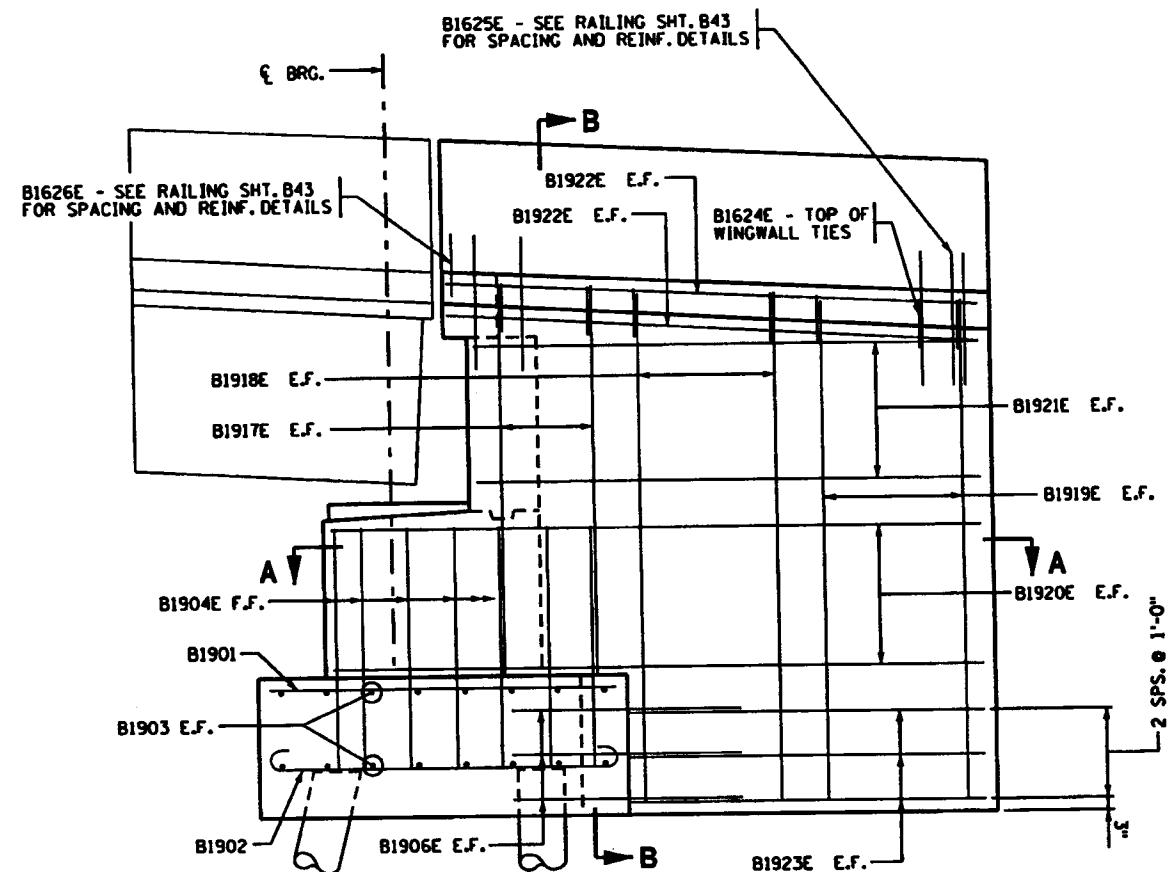
Bridge No.
62623



SECTION B-B



SECTION A-A



N.W. WINGWALL ELEVATION

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55419
763-441-4800
FAX 763-441-1700

INFRASTRUCTURE • ENGINEERS • PLANNERS

TITLE

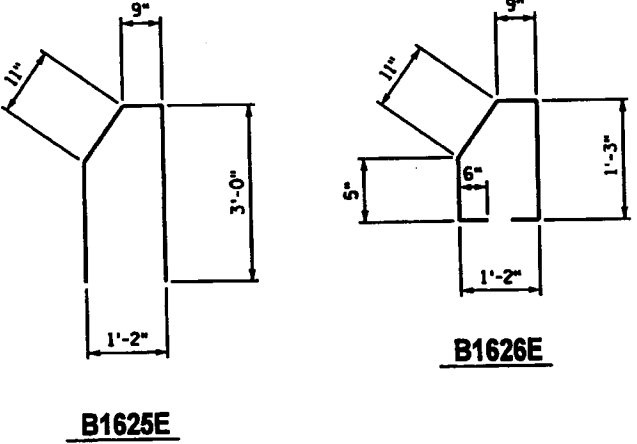
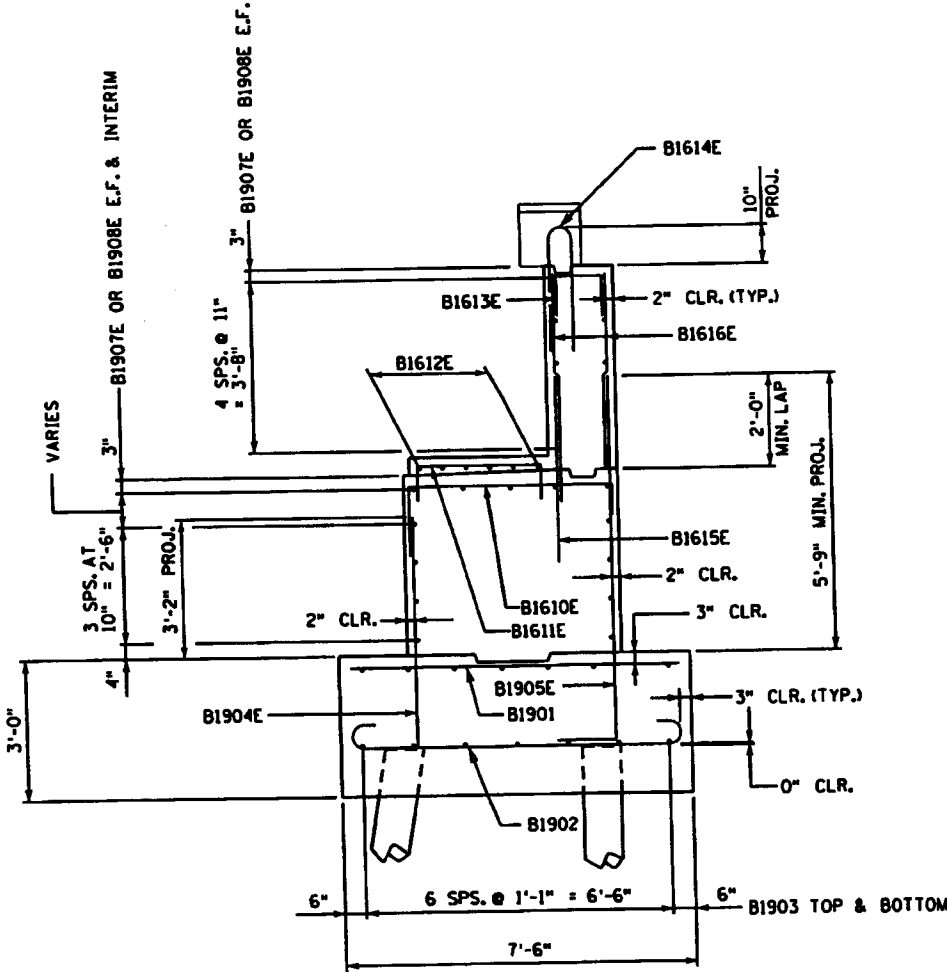
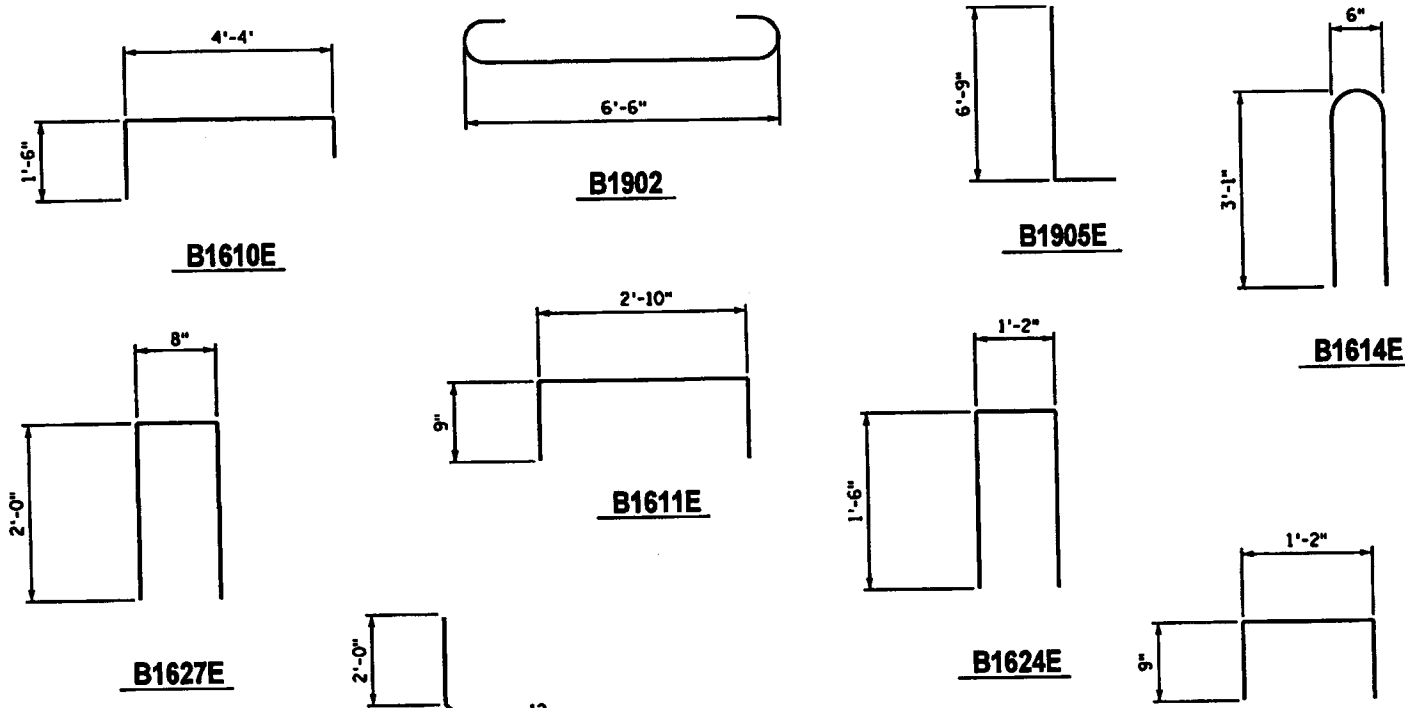
S.E. WINGWALL
REINFORCEMENT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barndollar
LICENSED PROFESSIONAL ENGINEER BRUNNEN LINDLACE
LIC. NO. 938
DATE 7-17-07

DES: DR: APPROVED:
CHK: CHK:
Sheet B20 of B56 Sheets

Bridge No.
62623

EAST ABUTMENT - BILL OF REINFORCEMENT				
BAR MARK	NUMBER	LENGTH	SHAPE	LOCATION
B1901	41	6'-6"	STR.	FTG. - TOP TRANSV.
B1902	41	8'-4"	BENT	FTG. - TOP TRANSV.
B1903	14	40'-6"	STR.	FTG. - TOP & BOTTOM LONGIT.
B1904E	50	5'-0"	STR.	FTG. - F.F. DOWELS
B1905E	39	7'-9"	BENT	FTG. - B.F. DOWELS
B1906E	12	5'-0"	STR.	FTG. - TO WINGWALL HORZ. DOWELS
B1907E	23	22'-8"	STR.	BR. SEAT - HORZ.
B1908E	23	16'-4"	STR.	BR. SEAT - HORZ.
B1909E	20	8'-8"	BENT	FILLET - HORZ. TIES
B1610E	36	6'-7"	BENT	BR. SEAT - TOP TIES
B1611E	24	4'-4"	BENT	PEDESTALS - TIES
B1612E	24	2'-8"	STR.	PEDESTALS - HORZ.
B1613E	33	2'-8"	BENT	PARAPET WALL - TOP TIES
B1614E	33	6'-5"	BENT	PARAPET WALL - ENDSLAB TIES
B1615E	36	4'-0"	STR.	BR. SEAT - PARAPET WALL DOWELS
B1616E	73	3'-10"	STR.	PARAPET WALL - VERTS.
B1917E	12	8'-4"	STR.	BOTH WINGWALLS - VERTS.
B1918E	16	10'-11"	STR.	BOTH WINGWALLS - VERTS.
B1919E	16	10'-9"	STR.	BOTH WINGWALLS - VERTS.
B1920E	16	14'-0"	STR.	BOTH WINGWALLS - HORZ.
B1921E	16	10'-10"	STR.	BOTH WINGWALLS - HORZ.
B1922E	8	11'-4"	STR.	BOTH WINGWALLS - HORZ.
B1923E	12	7'-9"	STR.	BOTH WINGWALLS - HORZ.
B1624E	24	4'-2"	BENT	BOTH WINGWALLS - TOP TIES
B1625E	36	6'-10"	BENT	BOTH WINGWALLS - RAILING TIES
B1626E	2	4'-4"	BENT	BOTH WINGWALLS - RAILING TIES
B1627E	16	4'-8"	BENT	SHEAR LUG AT BEAMS
B1628E	8	2'-6"	STR.	SHEAR LUG AT BEAMS



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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694-343),
 S.P. 62-649-24CTB



701 Xerxes Ave. South
 Suite 300
 Minneapolis, MN 55416
 763-641-4000
 FAX 763-641-1700

TITLE:

**EAST ABUTMENT
 REINFORCEMENT**

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Barry Sander
 LICENSED PROFESSIONAL ENGINEER, BRIDGES & HIGHWAYS
 LIC. NO. 4955
 DATE: 8-17-07

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	

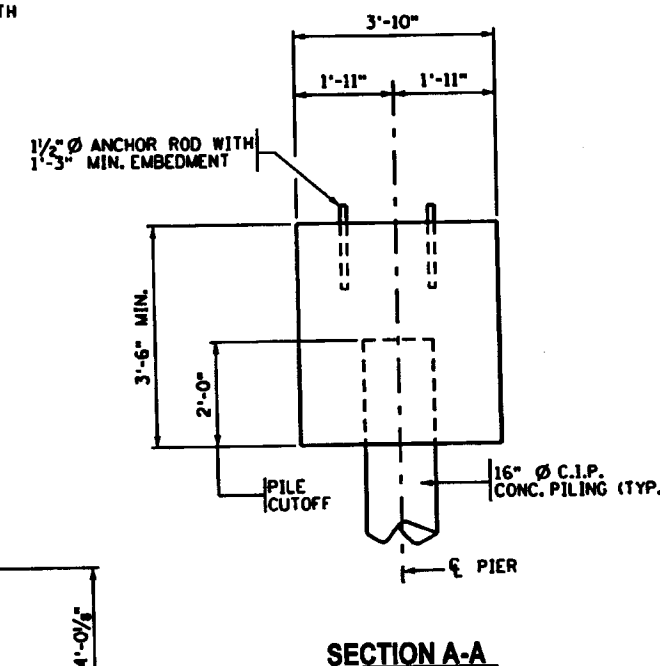
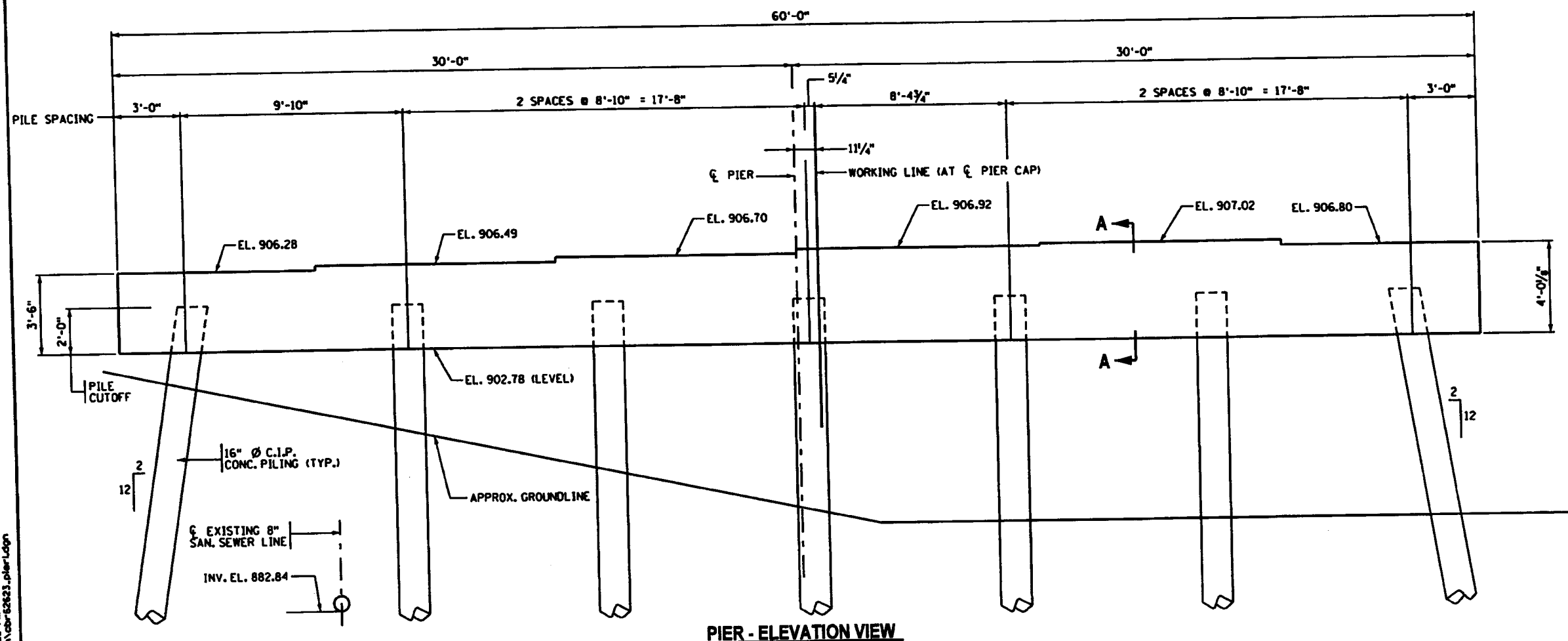
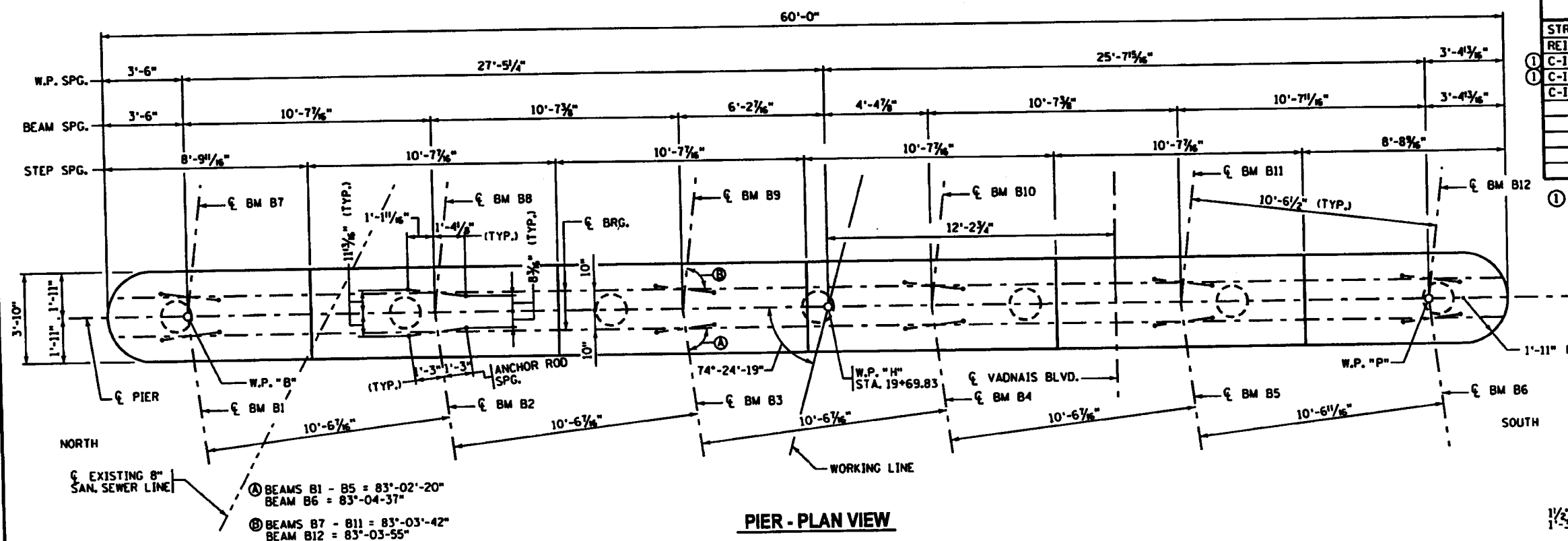
Sheet B21 of B56 Sheets

Bridge No.
 62623

SUMMARY OF QUANTITIES - PIER 1

STRUCTURAL CONCRETE (3Y43)	34	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	4050	POUND
① C-I-P CONCRETE PILING DELIVERED 16"	810	LIN. FT.
① C-I-P CONCRETE PILING DRIVEN 16"	810	LIN. FT.
C-I-P CONCRETE TEST PILE 145 FT. LONG 16"	1	EACH

① DOES NOT INCLUDE TEST PILES.



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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4000
FAX 763-641-1700

TITLE:

PIER 1 DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Barry J. Smith
LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER
DATE: 9-17-07

DES: BRL	DR: JDA	APPROVED:
CHK: SA	CHK: BRL	

Sheet B22 of B56 Sheets

Bridge No.
62623

PIER 1 REQUIRED NOMINAL PILE BEARING RESISTANCE R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	$\bullet R_n$
MN/DOT NOMINAL RESISTANCE FORMULA	0.40	517.5
PDA	0.65	318.5

$\bullet R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

PIER 1 COMPUTED PILE LOAD - TONS/PILE	
	PIER 1
FACTORED DEAD LOAD	112
FACTORED LIVE LOAD	29
FACTORED OVERTURNING	5
FACTORED DOWNDRAW	90
FACTORED DESIGN LOAD	207

$\bullet$ BASED ON STRENGTH I LOAD COMBINATION;
INCLUDES DOWNDRAW BUT DOES NOT INCLUDE
LIVE LOAD.

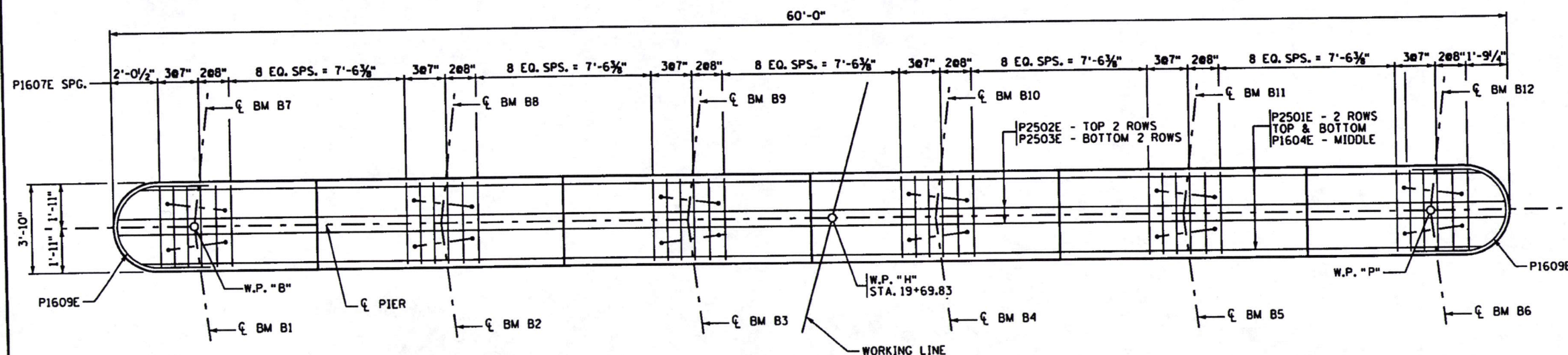
PILE NOTES

- 1 CAST-IN-PLACE CONC. TEST PILES 145 FT. LONG
- 6 CAST-IN-PLACE CONC. PILES EST. LENGTH 135 FT.
- 7 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 1

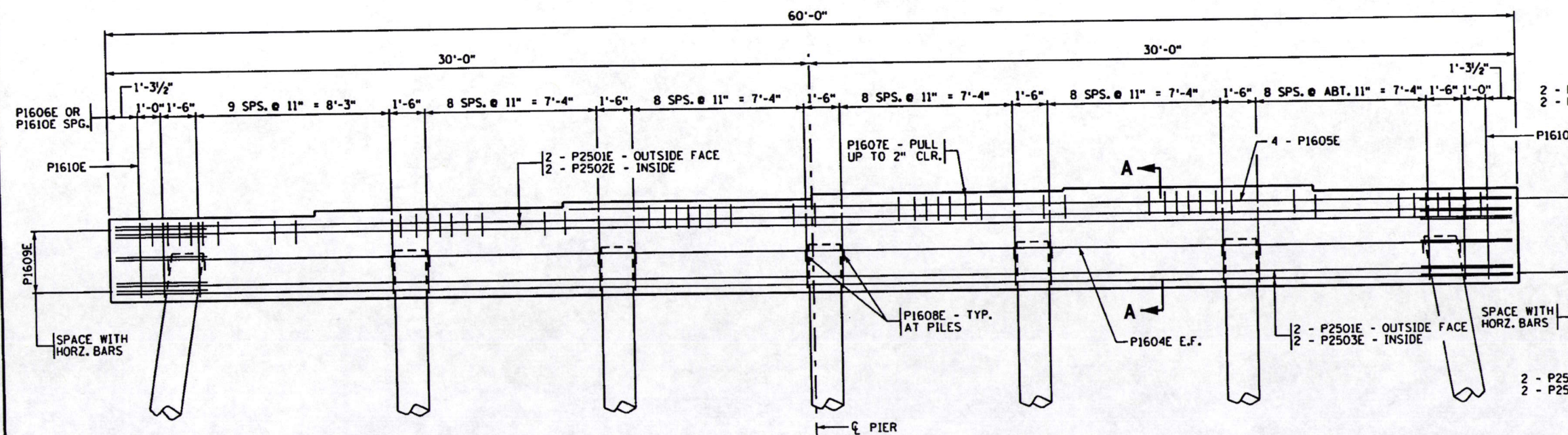
PILES TO HAVE A NOMINAL DIAMETER OF 16".
FOR PILE SPLICE DETAILS SEE DETAIL B201.
SEE SPECIAL PROVISIONS FOR ADDITIONAL
PILE DRIVING REQUIREMENTS.

PIER 1 - BILL OF REINFORCEMENT

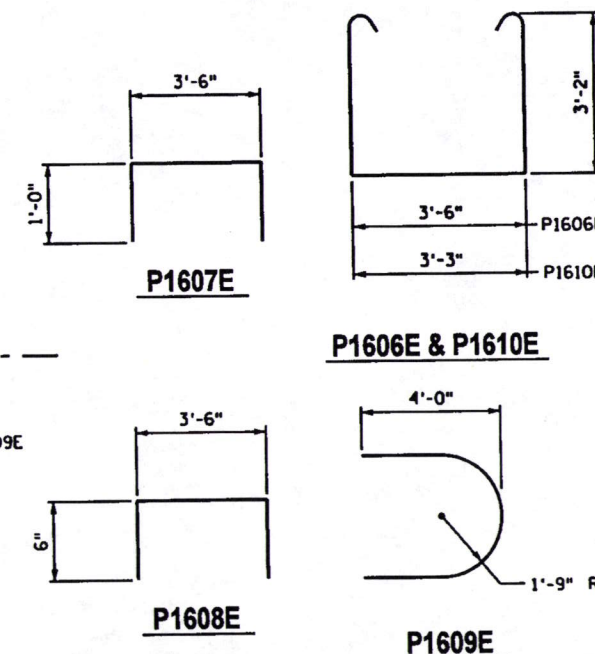
BAR MARK	NUMBER	LENGTH	SHAPE	LOCATION
P2501E	8	57'-6"	STR.	PIER CAP - LONGIT.
P2502E	4	59'-6"	STR.	PIER CAP - LONGIT.
P2503E	4	59'-1"	STR.	PIER CAP - LONGIT.
P1604E	2	57'-6"	STR.	PIER CAP - LONGIT.
P1605E	4	39'-0"	STR.	PIER CAP - LONGIT.
P1606E	57	10'-9"	BENT	PIER CAP - STIRRUPS
P1607E	75	5'-6"	BENT	PIER CAP - TOP TIES
P1608E	14	4'-6"	BENT	PIER CAP - TIES @ PILES
P1609E	11	10'-0"	BENT	PIER CAP - TIES @ ENDS
P1610E	2	10'-6"	BENT	PIER CAP - STIRRUPS @ ENDS



PIER - PLAN VIEW



PIER - ELEVATION VIEW



SECTION A-A

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55415
763-641-4800
FAX 763-641-1700

INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE:

PIER 1 REINFORCEMENT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Barrett Lowrance
LICENSED PROFESSIONAL ENGINEER - BARRETT LOWRANCE
DATE: 9-17-07

DES: BRL DR: DJV
CHK: SA CHK: BRL
APPROVED:

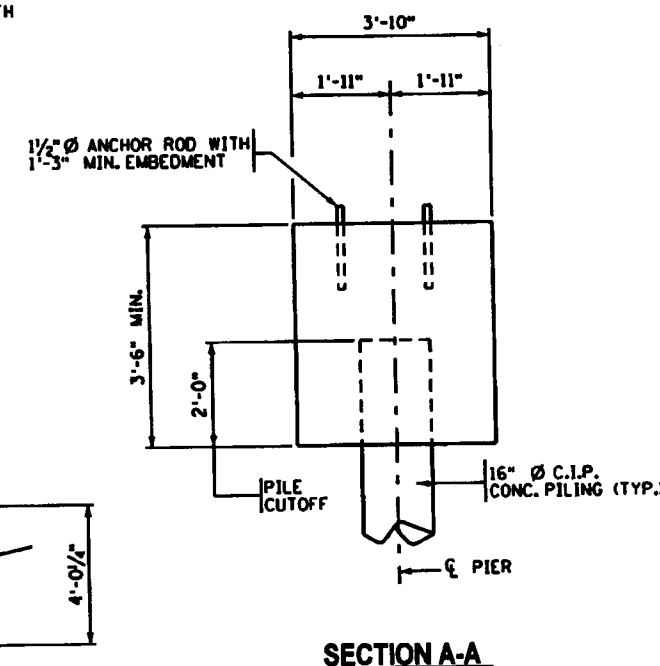
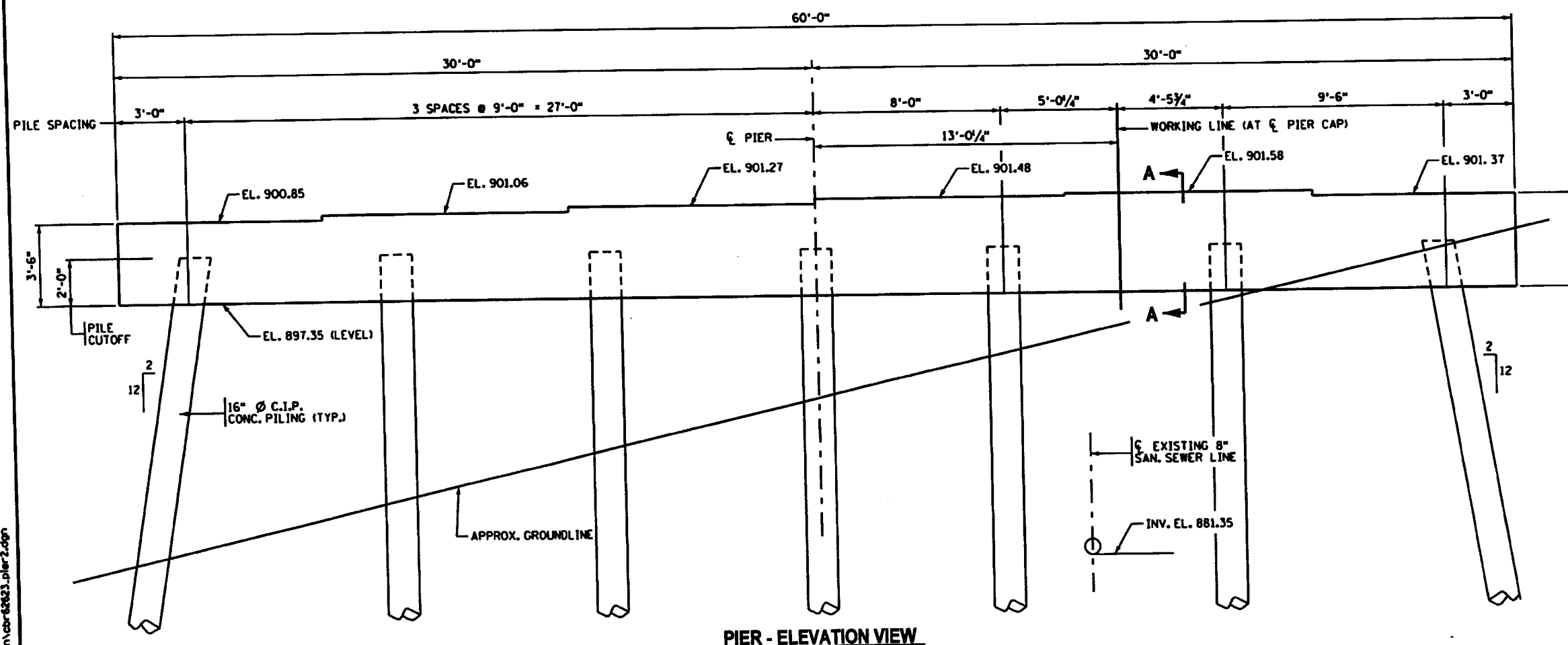
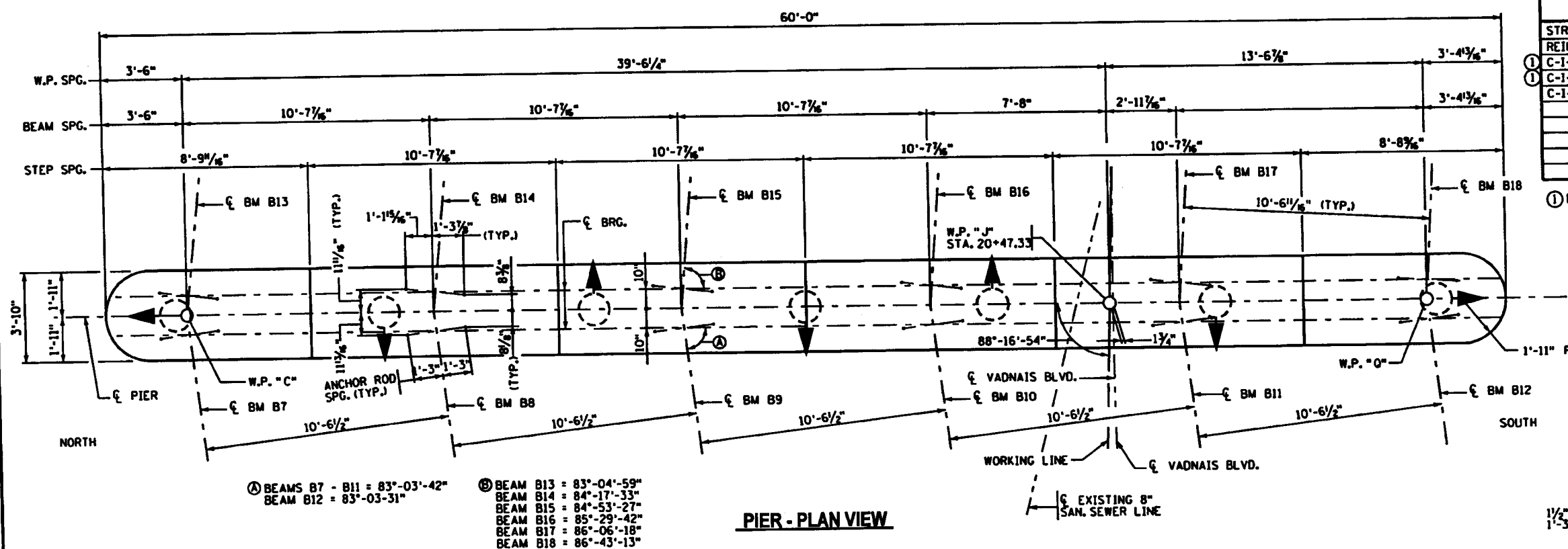
Sheet B23 of B56 Sheets

Bridge No.
62623

SUMMARY OF QUANTITIES - PIER 2

STRUCTURAL CONCRETE (3Y43)	34	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	4030	POUND
C-I-P CONCRETE PILING DELIVERED 16"	810	LIN. FT.
C-I-P CONCRETE PILING DRIVEN 16"	810	LIN. FT.
C-I-P CONCRETE TEST PILE 145 FT. LONG 16"	1	EACH

① DOES NOT INCLUDE TEST PILES.



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NO. DATE BY CHK REVISIONS				COUNTY ROAD E / VADNAIS BLVD. RUSTIC PLACE TO TWIN LAKES BLVD. S.P. 62-616-02, S.P. 6285-130 (TH694=343), S.P. 62-649-24CTB		WSB A. Associates, Inc. 701 Xerxes Ave. South Suite 300 Minneapolis, MN 55416 763-541-8800 FAX 763-541-1700		TITLE: PIER 2 DETAILS		I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. David L. Sander LICENSED PROFESSIONAL ENGINEER - MINN. LICENSE NO. 217-02		DES: BRL CHK: SA DR: JDA CHK: BRL APPROVED:		Bridge No. 62623	
										Sheet B24 of B56 Sheets					

PIER 2 REQUIRED NOMINAL PILE BEARING RESISTANCE R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	R_n
MN/DOT NOMINAL RESISTANCE FORMULA	0.40	515.0
PDA	0.65	316.9

$R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

PIER 2 COMPUTED PILE LOAD - TONS/PILE	
	PIER 2
FACTORED DEAD LOAD	111
FACTORED LIVE LOAD	30
FACTORED OVERTURNING	5
FACTORED DOWNDRAW	90
FACTORED DESIGN LOAD	206

BASED ON STRENGTH I LOAD COMBINATION;
INCLUDES DOWNDRAW BUT DOES NOT INCLUDE
LIVE LOAD.

PILE NOTES

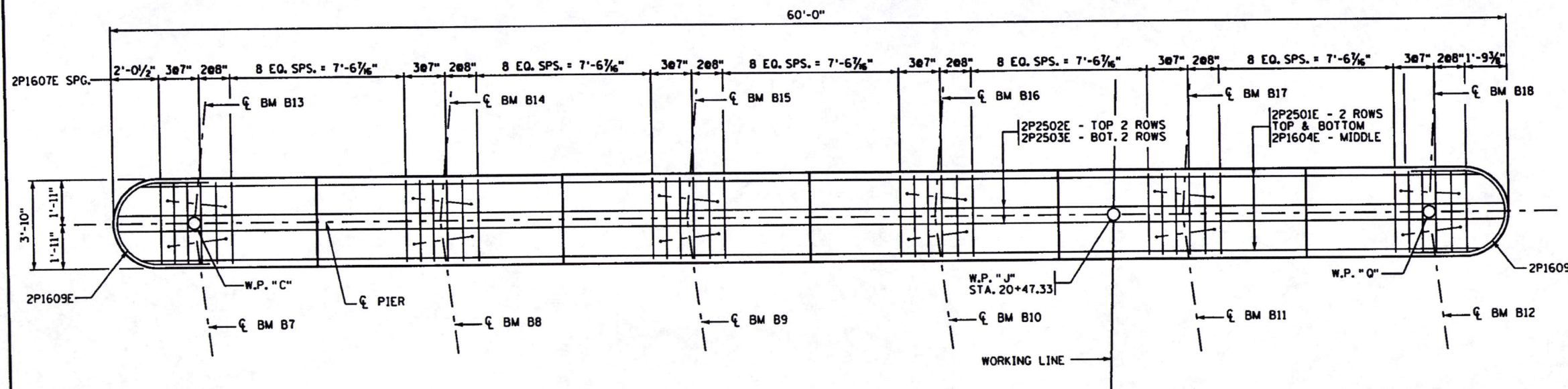
- CAST-IN-PLACE CONC. TEST PILES 145 FT. LONG
- CAST-IN-PLACE CONC. PILES EST. LENGTH 135 FT.
- CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 2

PILES TO HAVE A NOMINAL DIAMETER OF 16".
FOR PILE SPLICE DETAILS SEE DETAIL B201.
PILES MARKED THUS $\odot$ TO BE BATTERED 2" PER
FOOT IN DIRECTION SHOWN.

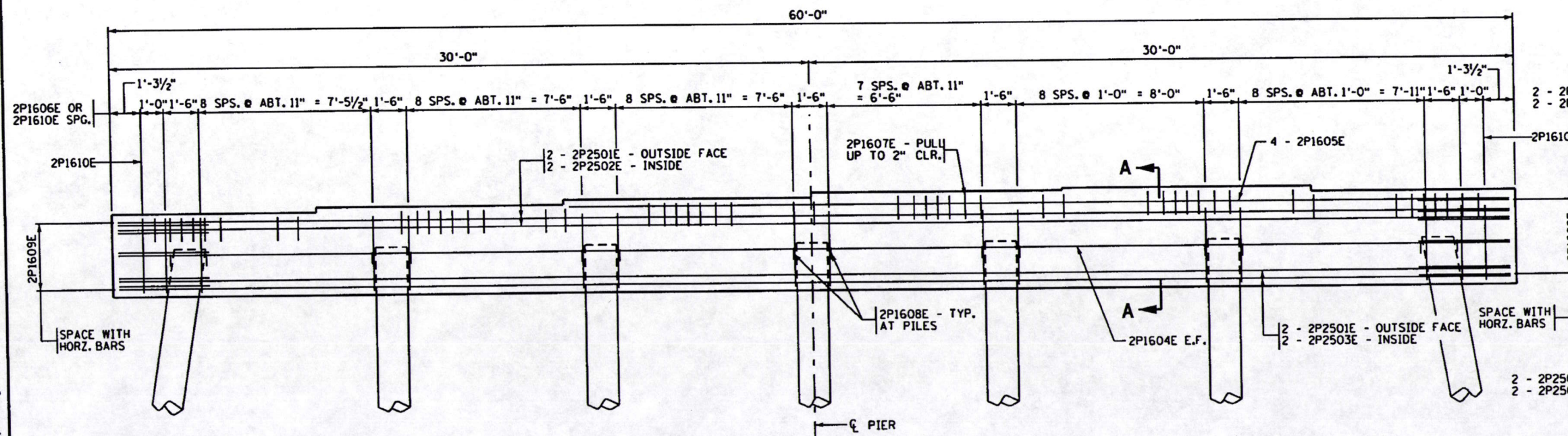
SEE SPECIAL PROVISIONS FOR ADDITIONAL
PILE DRIVING REQUIREMENTS.

PIER 2 - BILL OF REINFORCEMENT

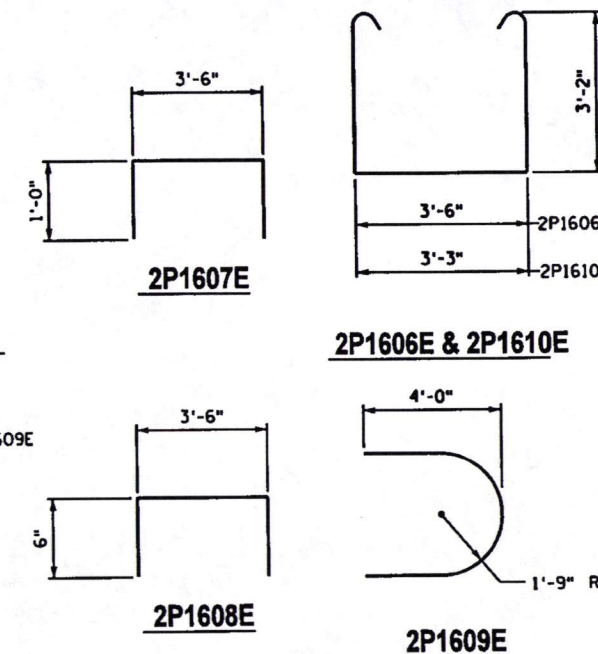
BAR MARK	NUMBER	LENGTH	SHAPE	LOCATION
2P2501E	8	57'-6"	STR.	PIER CAP - LONGIT.
2P2502E	4	59'-6"	STR.	PIER CAP - LONGIT.
2P2503E	4	59'-1"	STR.	PIER CAP - LONGIT.
2P1604E	2	57'-6"	STR.	PIER CAP - LONGIT.
2P1605E	4	39'-0"	STR.	PIER CAP - LONGIT.
2P1606E	55	10'-9"	BENT	PIER CAP - STIRRUPS
2P1607E	75	5'-6"	BENT	PIER CAP - TOP TIES
2P1608E	14	4'-6"	BENT	PIER CAP - TIES @ PILES
2P1609E	11	10'-0"	BENT	PIER CAP - TIES @ ENDS
2P1610E	2	10'-6"	BENT	PIER CAP - STIRRUPS @ ENDS



PIER - PLAN VIEW



PIER - ELEVATION VIEW



SECTION A-A

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700

TITLE:

PIER 2 REINFORCEMENT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barbara L. Lavelle
LICENSED PROFESSIONAL ENGINEER BARBARA L. LAVELLE
DATE: 7-17-07

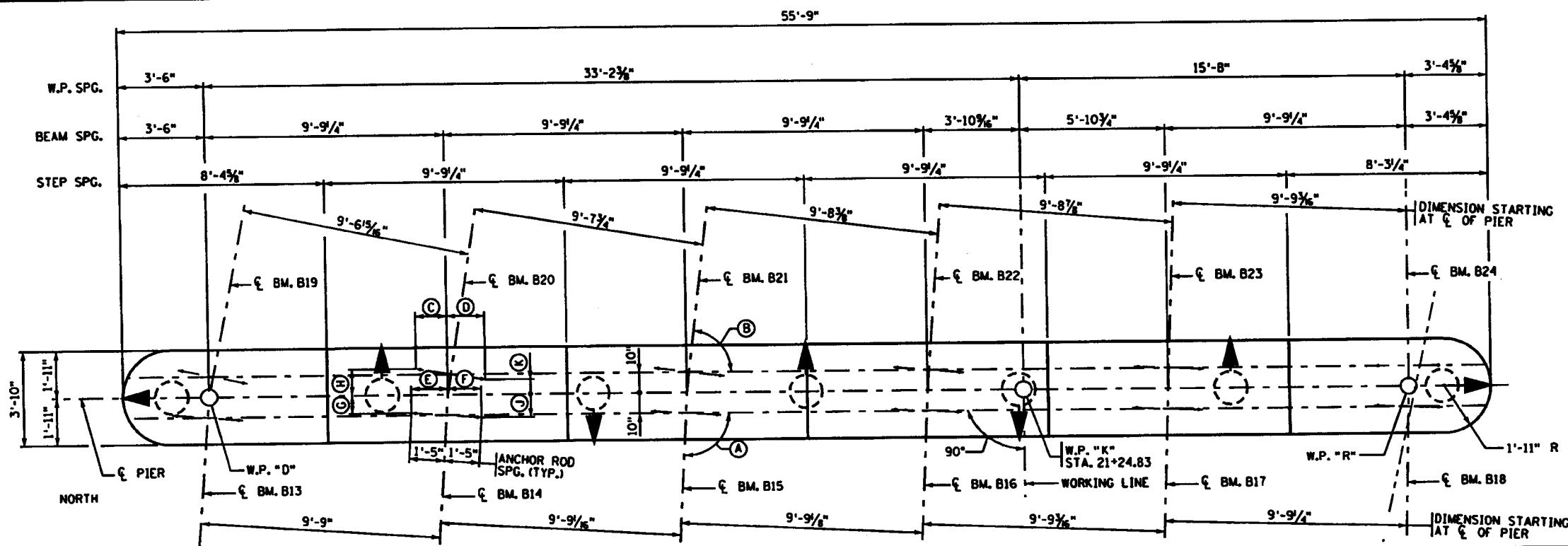
DES: BRL DR: DJV APPROVED:
CHK: SA CHK: BRL
Sheet B25 of B56 Sheets

Bridge No.
62623

SUMMARY OF QUANTITIES - PIER 3

STRUCTURAL CONCRETE (3Y43)	31	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	3695	POUND
C-I-P CONCRETE PILING DELIVERED 16"	750	LIN. FT.
C-I-P CONCRETE PILING DRIVEN 16"	750	LIN. FT.
C-I-P CONCRETE TEST PILE 135 FT. LONG 16"	1	EACH

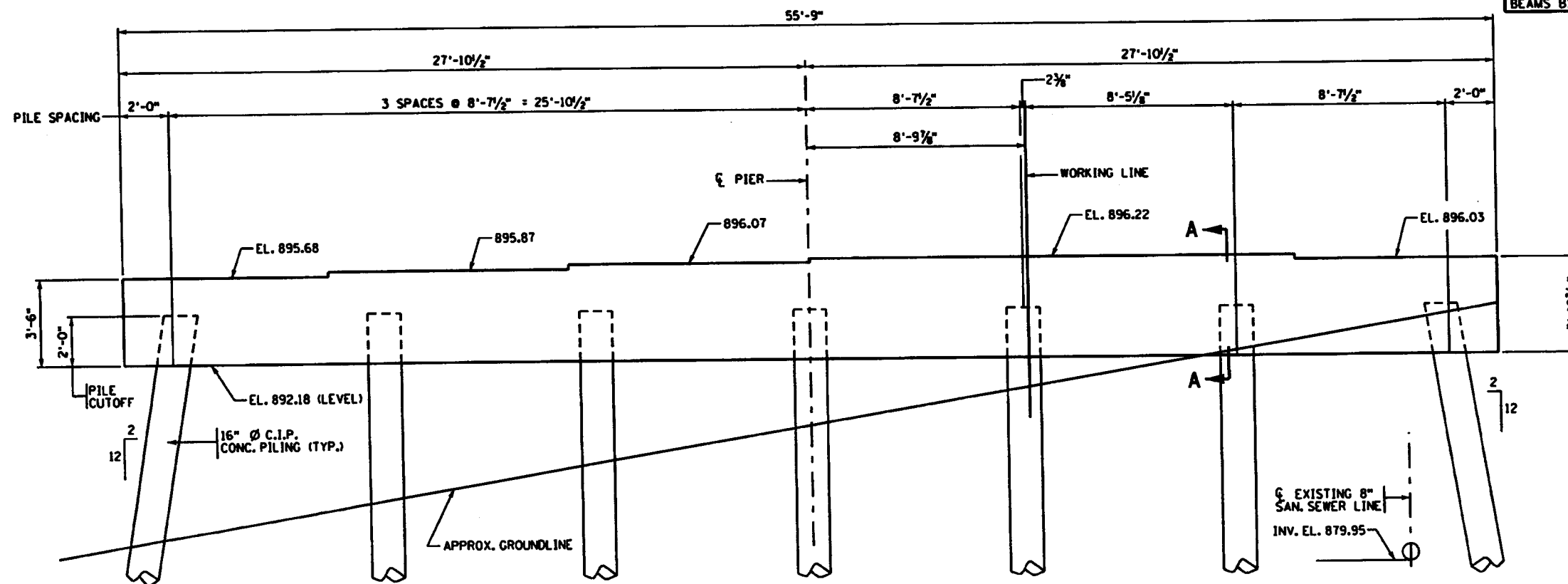
① DOES NOT INCLUDE TEST PILES.



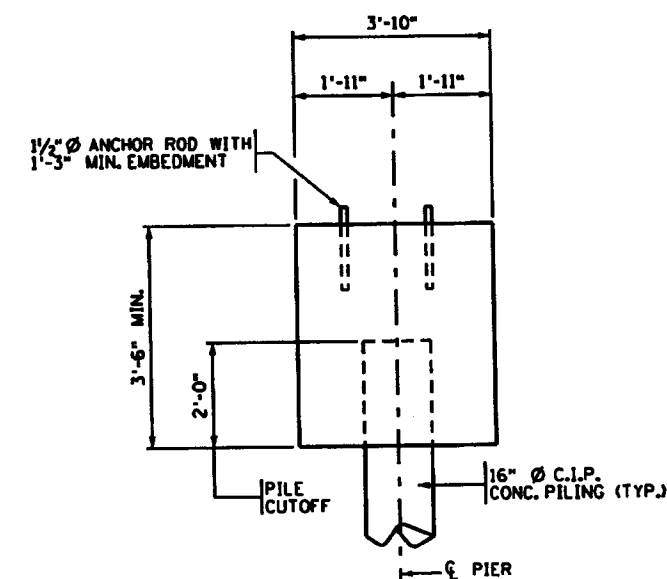
- (A) BEAM B13 = 94°-34'-56"
 BEAM B14 = 93°-59'-21"
 BEAM B15 = 93°-23'-27"
 BEAM B16 = 92°-47'-12"
 BEAM B17 = 92°-10'-37"
 BEAM B18 = 91°-33'-42"
 (B) BEAM B19 = 78°-07'-26"
 BEAM B20 = 80°-27'-08"
 BEAM B21 = 82°-48'-36"
 BEAM B22 = 85°-11'-34"
 BEAM B23 = 87°-35'-32"
 BEAM B24 = 90°-00'-00"

PIER - PLAN VIEW

ANCHOR BOLT SPACING DIMENSIONS									
BEAMS	(C)	(D)	(E)	(F)	(G)	(H)	(J)	(K)	
BEAMS B13 & B19	1'-0 5/8"	1'-4 1/8"	1'-3 3/4"	1'-2 1/4"	8 5/8"	1'-1"	11 5/8"	7"	
BEAMS B14 & B20	1'-1 1/4"	1'-4 1/8"	1'-4 1/8"	1'-1 3/8"	8 5/8"	1'-0 5/8"	11 5/8"	7 3/4"	
BEAMS B15 & B21	1'-1 1/4"	1'-4 1/8"	1'-3 3/4"	1'-2 1/4"	9 1/4"	11 5/8"	10 9/16"	7 3/4"	
BEAMS B16 & B22	1'-2 1/8"	1'-3 3/4"	1'-3 3/4"	1'-2 1/4"	9 1/4"	11 1/4"	10 3/4"	8 3/4"	
BEAMS B17 & B23	1'-2 3/8"	1'-3 3/4"	1'-3 3/4"	1'-2 1/4"	9 1/4"	10 5/8"	10 3/8"	9 3/4"	
BEAMS B18 & B24	1'-3"	1'-3"	1'-3 3/4"	1'-2 1/4"	9 1/4"	10"	10 3/8"	10"	



PIER - ELEVATION VIEW



SECTION A-A

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
 RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694=343),
 S.P. 62-649-24CTB



701 Kania Ave. South
 Suite 320
 Minneapolis, MN 55416
 763-541-4820
 FAX 763-541-1700

PIER 3 DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 [Signature]
 LICENSED PROFESSIONAL ENGINEER DANIEL L. LANGE

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	

Bridge No.
 62623

Sheet B26 of B56 Sheets

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PIER 3 REQUIRED NOMINAL PILE BEARING RESISTANCE R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	$\bullet R_n$
MN/DOT NOMINAL RESISTANCE FORMULA	0.40	502.5
PDA	0.65	309.2

$\bullet R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

PIER 3 COMPUTED PILE LOAD - TONS/PILE	
	PIER 3
FACTORED DEAD LOAD	106
FACTORED LIVE LOAD	27
FACTORED OVERTURNING	5
FACTORED DOWDRAG	-90
FACTORED DESIGN LOAD	201

$\bullet$ BASED ON STRENGTH I LOAD COMBINATION;
INCLUDES DOWDRAG BUT DOES NOT INCLUDE
LIVE LOAD.

PILE NOTES

- 1 CAST-IN-PLACE CONC. TEST PILES 135 FT. LONG
- 6 CAST-IN-PLACE CONC. PILES EST. LENGTH 125 FT.
- 7 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 2

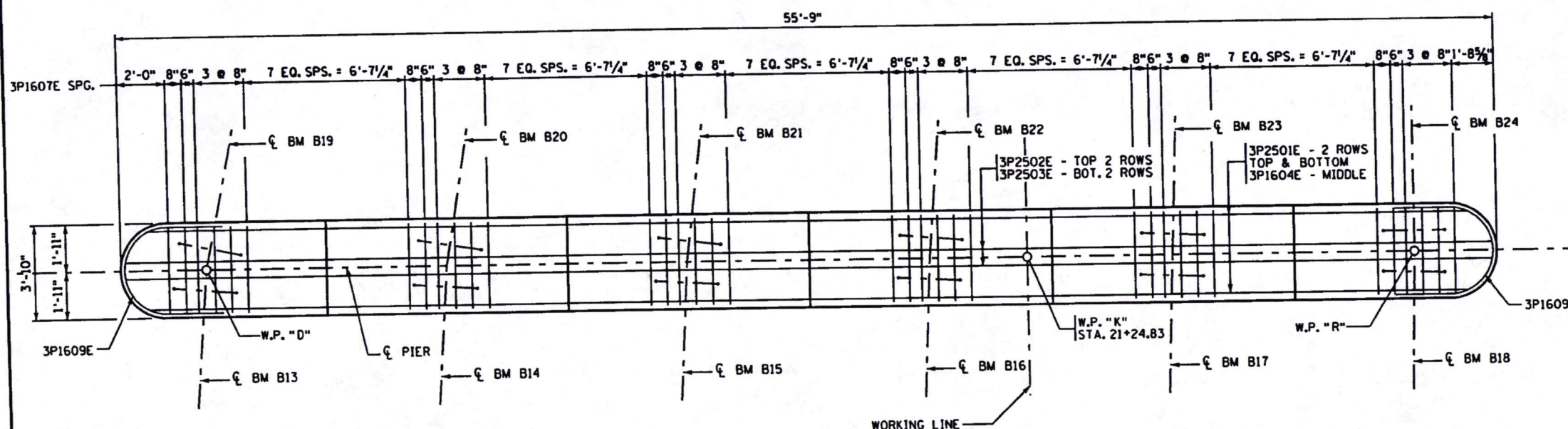
PILES TO HAVE A NOMINAL DIAMETER OF 16".
FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILES MARKED THUS $\odot$ TO BE BATTERED 2" PER
FOOT IN DIRECTION SHOWN.

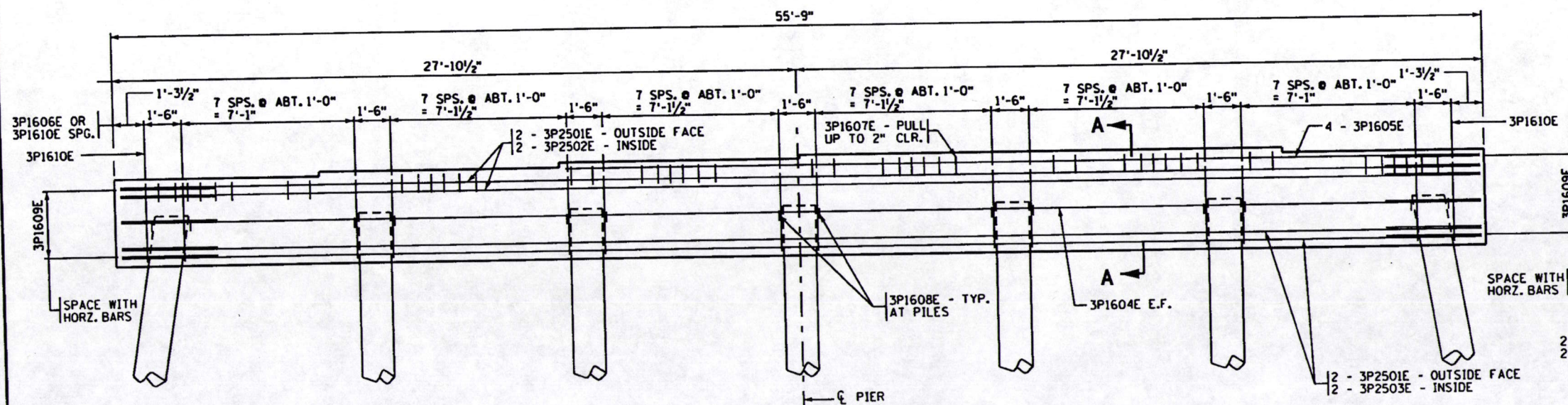
SEE SPECIAL PROVISIONS FOR ADDITIONAL
PILING DRIVING REQUIREMENTS.

PIER 3 - BILL OF REINFORCEMENT

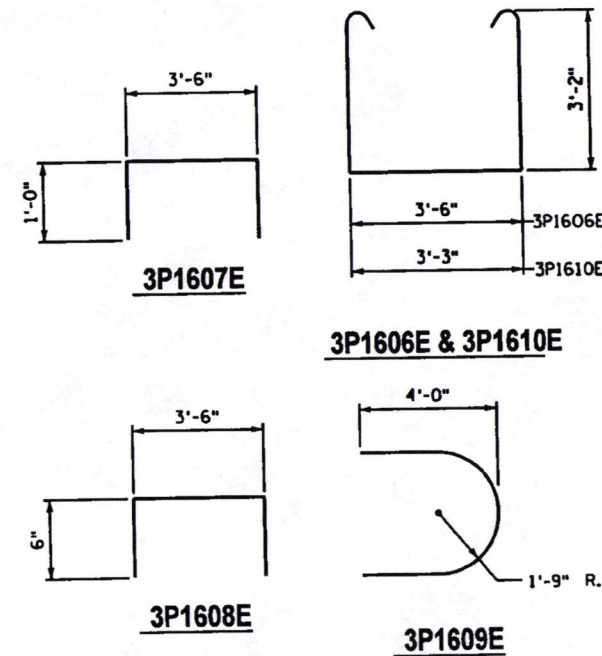
BAR MARK	NUMBER	LENGTH	SHAPE	LOCATION
3P2501E	8	53'-3"	STR.	PIER CAP - LONGIT.
3P2502E	4	55'-2"	STR.	PIER CAP - LONGIT.
3P2503E	4	54'-10"	STR.	PIER CAP - LONGIT.
3P1604E	2	53'-3"	STR.	PIER CAP - LONGIT.
3P1605E	4	36'-0"	STR.	PIER CAP - LONGIT.
3P1606E	48	10'-9"	BENT	PIER CAP - STIRRUPS
3P1607E	66	5'-6"	BENT	PIER CAP - TOP TIES
3P1608E	14	4'-6"	BENT	PIER CAP - TIES @ PILES
3P1609E	11	10'-0"	BENT	PIER CAP - TIES @ ENDS
3P1610E	2	10'-6"	BENT	PIER CAP - STIRRUPS @ ENDS



PIER - PLAN VIEW



PIER - ELEVATION VIEW



SECTION A-A

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55415
763-541-4800
FAX 763-541-1700

TITLE:
PIER 3 REINFORCEMENT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barrett Longacre
LICENSED PROFESSIONAL ENGINEER - BARRETT LONGACRE
DATE: 7-17-07

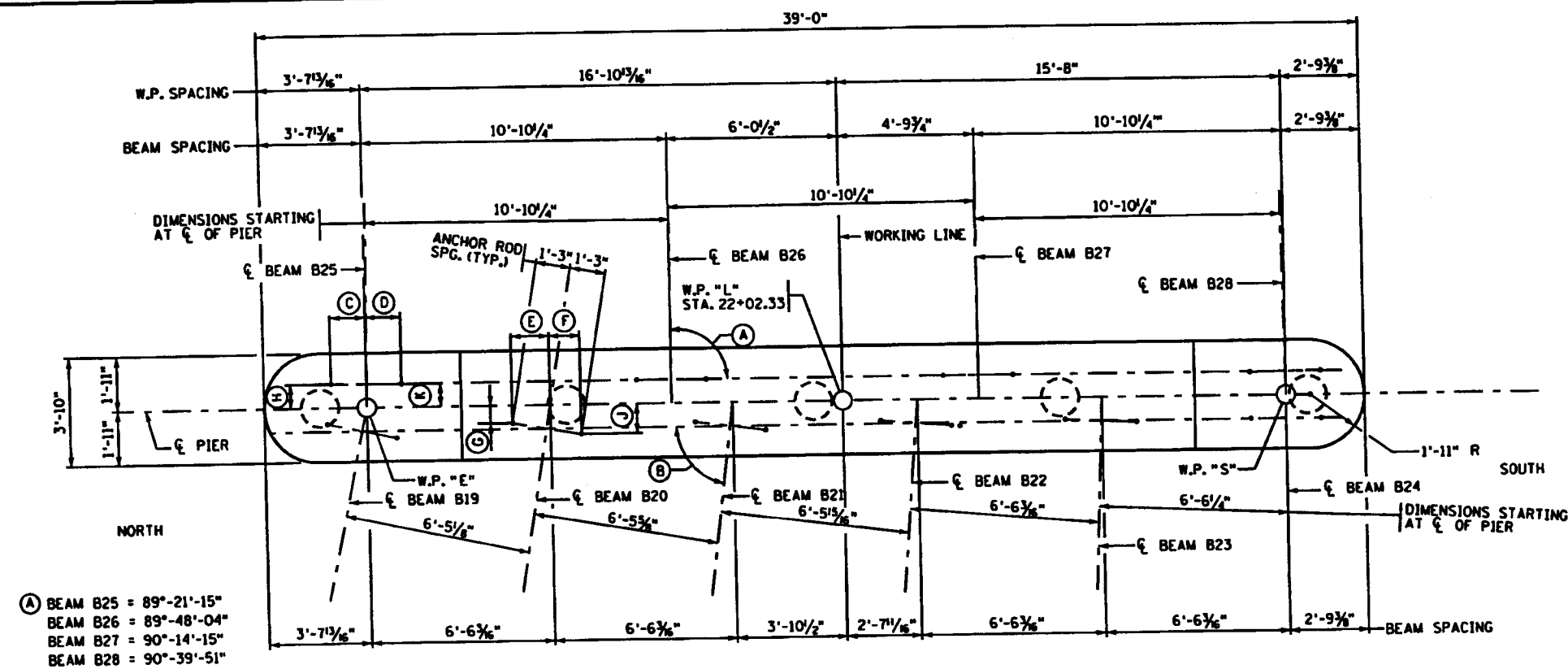
DES: BRL DR: DJV
CHK: SA CHK: BRL
APPROVED:
Sheet B27 of B56 Sheets

Bridge No.
62623

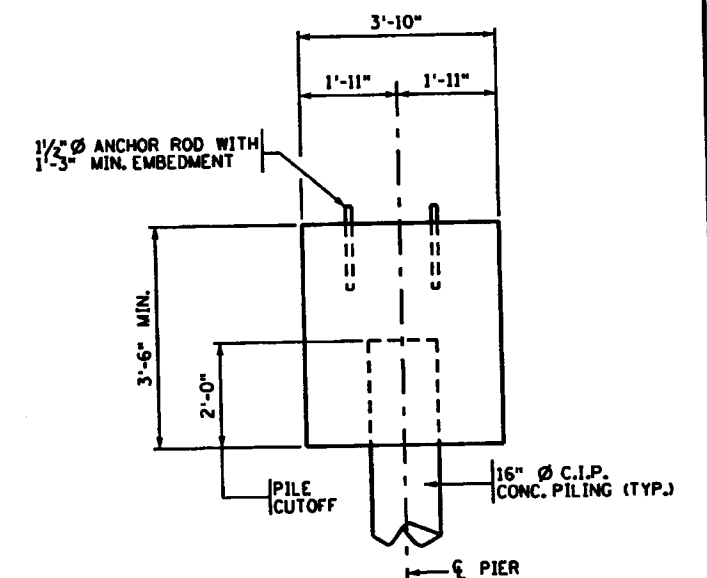
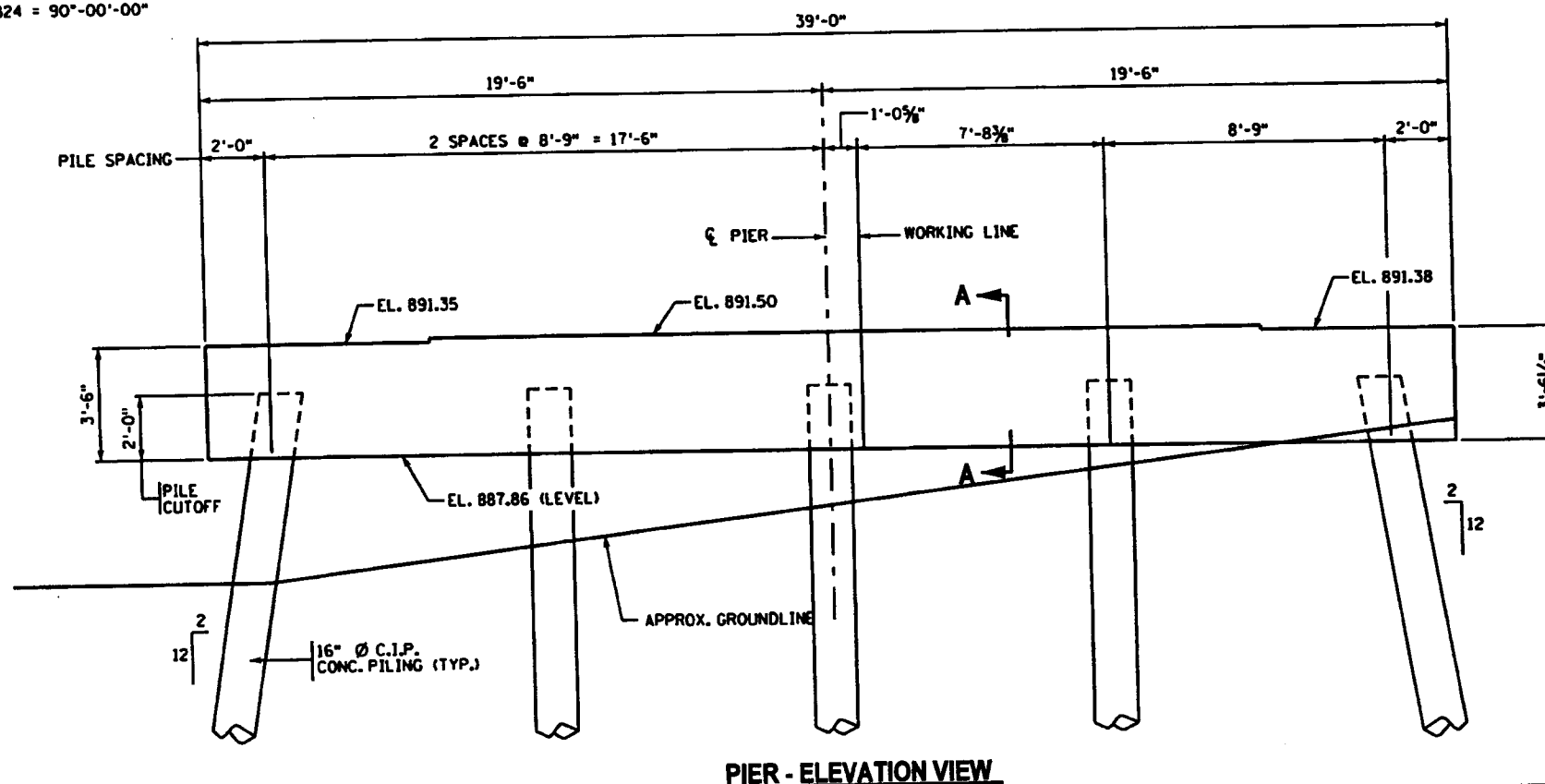
SUMMARY OF QUANTITIES - PIER 4

STRUCTURAL CONCRETE (3Y43)	20	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	2560	POUND
① C-I-P CONCRETE PILING DELIVERED 16"	500	LIN. FT.
① C-I-P CONCRETE PILING DRIVEN 16"	500	LIN. FT.
C-I-P CONCRETE TEST PILE 135 FT. LONG 16"	1	EACH

① DOES NOT INCLUDE TEST PILES.



ANCHOR BOLT SPACING DIMENSIONS									
BEAMS	(C)	(D)	(E)	(F)	(G)	(H)	(J)	(K)	
BEAMS B19 & B25	1'-2 1/2"	1'-3 1/4"	1'-4 3/4"	1'-0 1/2"	6 1/8"	10 1/2"	1'-1"	9 1/8"	
BEAM B20			1'-4 1/2"	1'-1 1/4"	7 1/2"		1'-0 1/2"		
BEAM B21			1'-4 1/2"	1'-1 1/4"	8 1/2"		11 1/2"		
BEAM B22			1'-3 3/4"	1'-2 1/4"	8 1/2"		11 1/4"		
BEAM B23			1'-3 3/4"	1'-2 1/4"	9 1/2"		10 1/2"		
BEAMS B24 & B28	1'-3 1/4"	1'-2 1/4"	1'-3"	1'-3"	10"	10 1/2"	10"	9 1/8"	
BEAMS B26	1'-3"	1'-3"				10"		10"	
BEAM B27	1'-3 1/4"	1'-2 1/4"				10"		10"	



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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
 RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694=343),
 S.P. 62-649-24CTB



701 Kania Ave. South
 Suite 300
 Minneapolis, MN 55416
 763-641-4803
 FAX 763-641-1700

PIER 4 DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

David S. Sauer
 LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER

DES: BRL DR: DJV
 CHK: SA CHK: BRL

APPROVED:

Sheet B28 of B56 Sheets

Bridge No.
 62623

PIER 4 REQUIRED NOMINAL PILE BEARING RESISTANCE R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	$\bullet R_n$
MN/DOT NOMINAL RESISTANCE FORMULA	0.40	500.8
PDA	0.65	308.2

$\bullet R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

PIER 4 COMPUTED PILE LOAD - TONS/PILE	
	PIER 4
FACTORED DEAD LOAD	104.0
FACTORED LIVE LOAD	31.5
FACTORED OVERTURNING	6.3
FACTORED DOWDRAG	90.0
FACTORED DESIGN LOAD	200.3

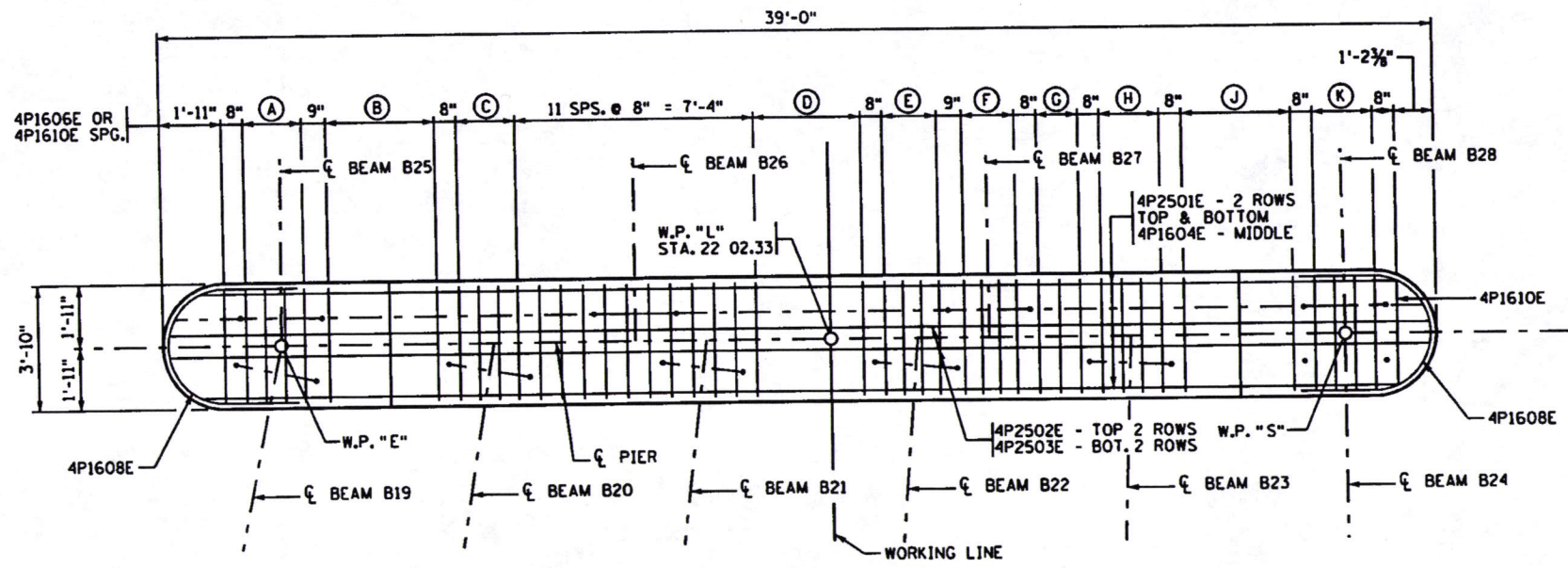
• BASED ON STRENGTH I LOAD COMBINATION;
INCLUDES DOWDRAG BUT DOES NOT INCLUDE
LIVE LOAD.

PILE NOTES

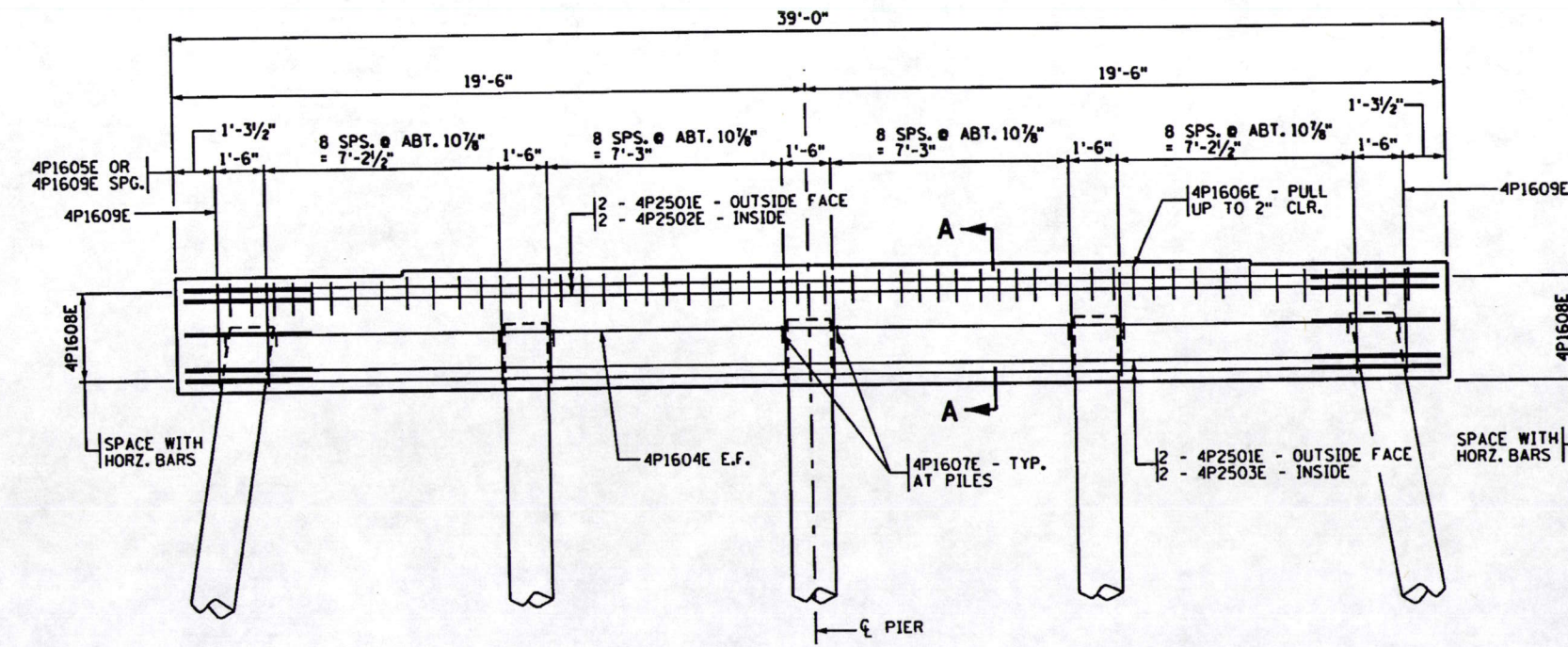
- 1 CAST-IN-PLACE CONC. TEST PILES 135 FT. LONG
 - 4 CAST-IN-PLACE CONC. PILES EST. LENGTH 125 FT.
 - 5 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 2
- PILES TO HAVE A NOMINAL DIAMETER OF 16".
- FOR PILE SPLICE DETAILS SEE DETAIL B201.
- SEE SPECIAL PROVISIONS FOR ADDITIONAL
PILE DRIVING REQUIREMENTS.

- (A) 3 EQ. SPS. = 1'-9 $\frac{3}{8}$ "
- (B) 4 EQ. SPS. = 3'-4 $\frac{1}{8}$ "
- (C) 3 EQ. SPS. = 1'-9 $\frac{3}{8}$ "
- (D) 4 EQ. SPS. = 3'-3 $\frac{3}{8}$ "
- (E) 3 EQ. SPS. = 1'-7 $\frac{1}{8}$ "
- (F) 3 EQ. SPS. = 1'-7 $\frac{1}{8}$ "
- (G) 2 EQ. SPS. = 1'-3 $\frac{3}{8}$ "
- (H) 3 EQ. SPS. = 1'-10"
- (J) 4 EQ. SPS. = 3'-3 $\frac{3}{8}$ "
- (K) 3 EQ. SPS. = 1'-10"

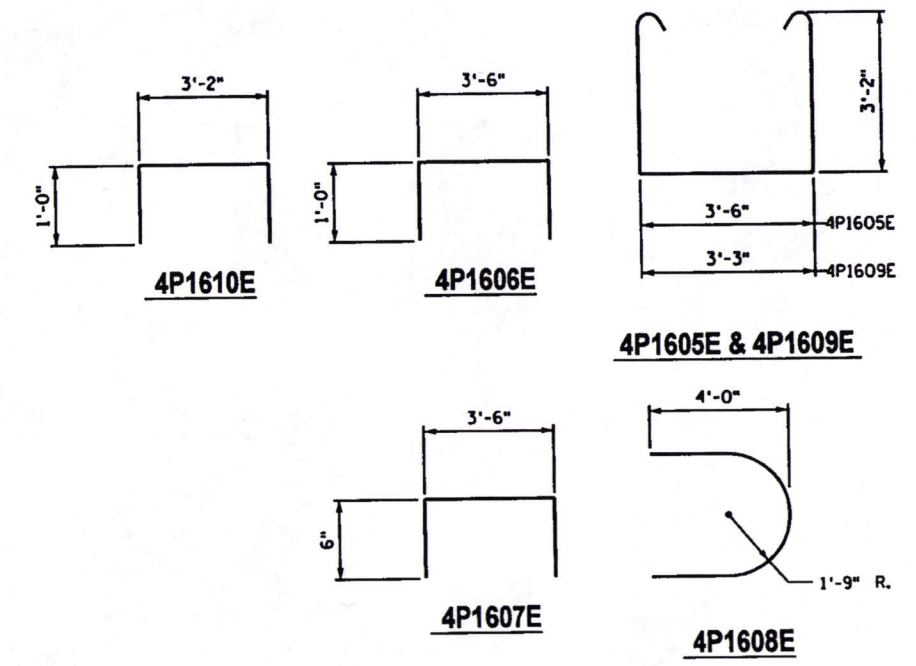
PIER 4 - BILL OF REINFORCEMENT				
BAR MARK	NUMBER	LENGTH	SHAPE	LOCATION
4P2501E	8	36'-6"	STR.	PIER CAP - LONGIT.
4P2502E	4	38'-6"	STR.	PIER CAP - LONGIT.
4P2503E	4	38'-1"	STR.	PIER CAP - LONGIT.
4P1604E	2	36'-6"	STR.	PIER CAP - LONGIT.
4P1605E	36	10'-9"	BENT	PIER CAP - STIRRUPS
4P1606E	53	5'-6"	BENT	PIER CAP - TOP TIES
4P1607E	10	4'-6"	BENT	PIER CAP - TIES @ PILES
4P1608E	10	10'-0"	BENT	PIER CAP - TIES @ ENDS
4P1609E	2	10'-6"	BENT	PIER CAP - STIRRUPS @ ENDS
4P1610E	1	5'-2"	BENT	PIER CAP - TOP TIES



PIER - PLAN VIEW



PIER - ELEVATION VIEW



SECTION A-A

9/17/2007 2:54:09 PM K:\0073-00\CAO\Plan\cor-62623.pier-8.dgn

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

TITLE

PIER 4 REINFORCEMENT

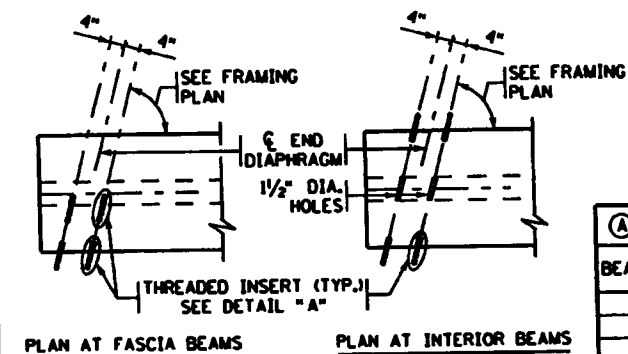
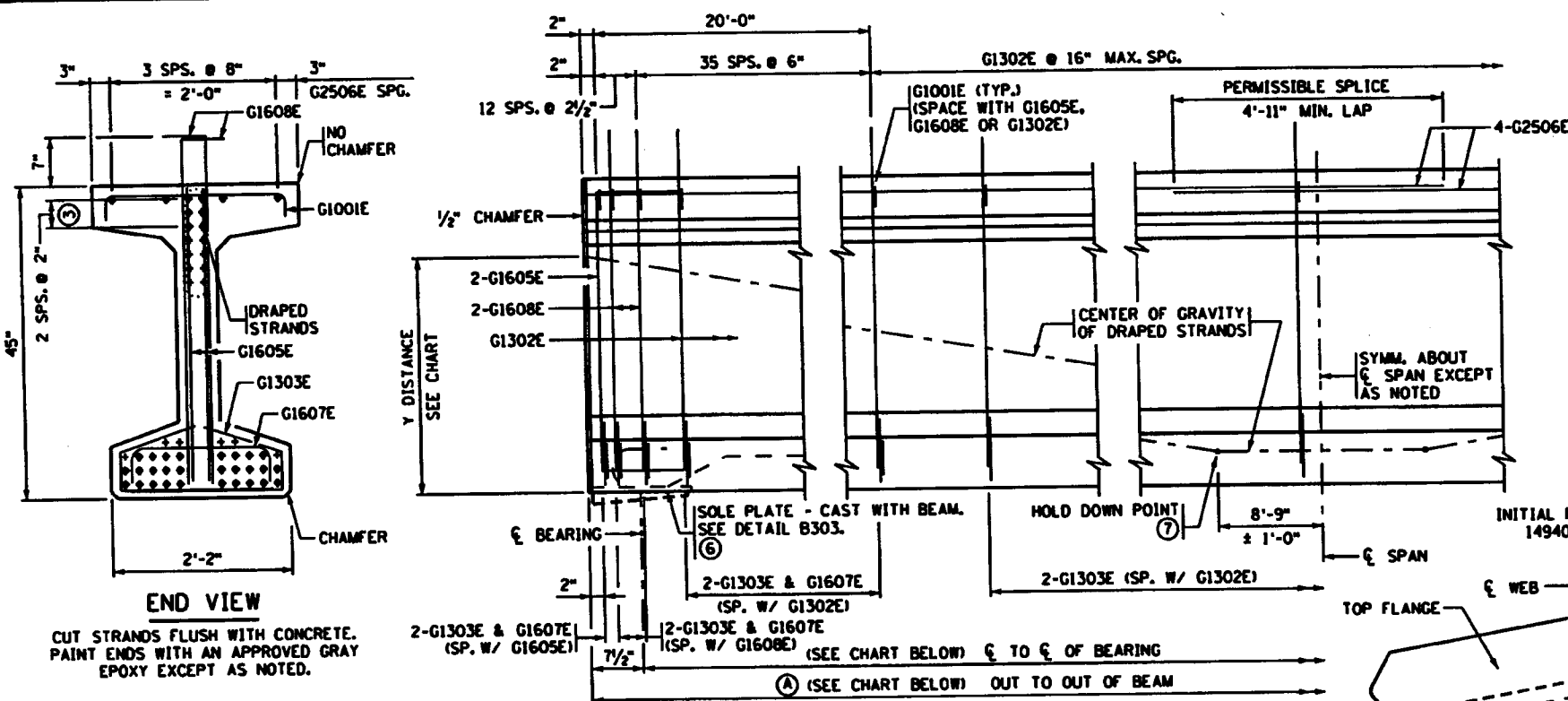
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Barbara S. Lohmeyer
LICENSED PROFESSIONAL ENGINEER BARBARA LOHMEYER
DATE: 7-17-07

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	

Sheet B29 of B56 Sheets

Bridge No.
62623

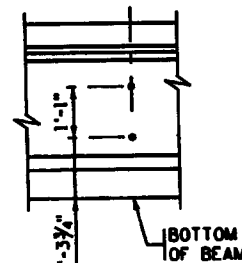


A PRESTRESSED BEAM LENGTHS		
BEAM NO.	℄ TO ℄ OF BEARING	OUT TO OUT OF BEAM A
B1	86.22'	87.47'
B2	83.67'	84.92'
B3	81.10'	82.35'
B7	85.38'	86.63'
B8	82.83'	84.08'
B9	80.26'	81.51'

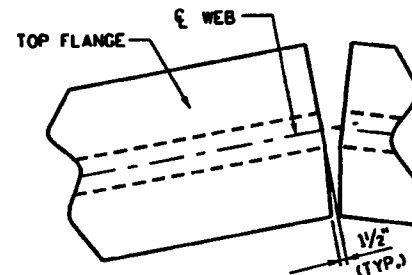
SEE FRAMING PLAN FOR BEAM LOCATION

A OUT TO OUT OF BEAM LENGTH ADJUSTED FOR SLOPE ALONG ROADWAY.

℄ 1/2" DIA. HOLE (INTERIOR BEAM) OR 3/4" DIA. BOLT ANCHORAGE (FASCIA BEAMS).



STEEL INTERMEDIATE DIAPHRAGM
(SEE DETAIL B403 FOR DIAPHRAGM DETAILS)

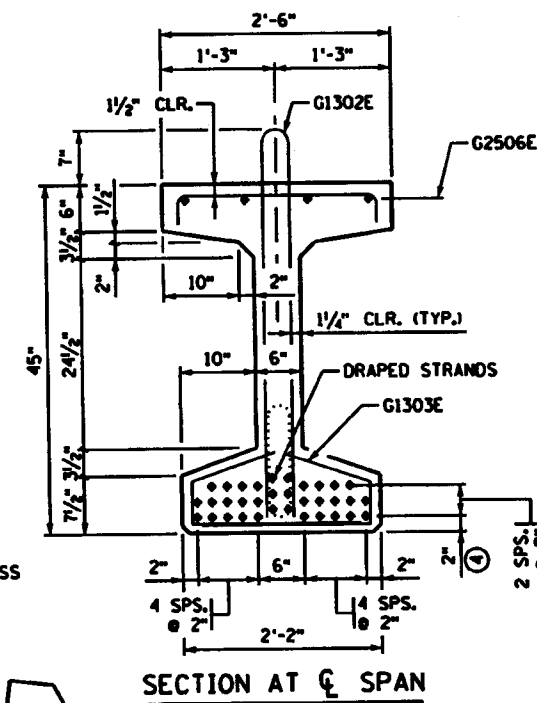


TOP FLANGE CHAMFER

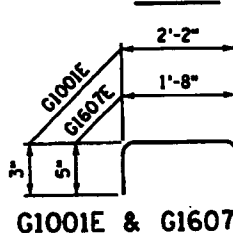
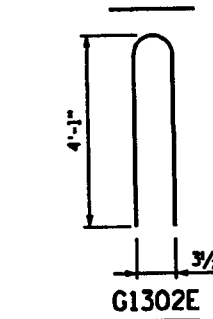
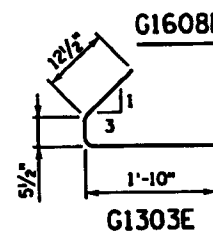
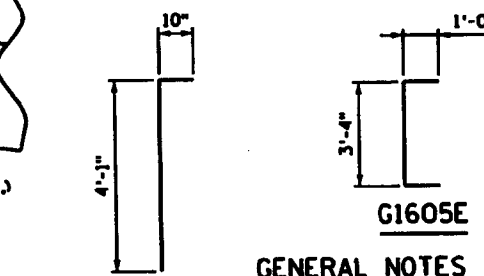
FABRICATOR TO LOCATE & VERIFY CHAMFER AT PIER LOCATIONS @ INSIDE OF CURVE HALF OF FLANGE.

MINIMUM CONCRETE STRENGTH - P.S.I.	
① f'ci	② f'c
7500	9000

PRESTRESSING STRAND DIAMETER	
⑤ 1/2" □	⑤ 0.60" □



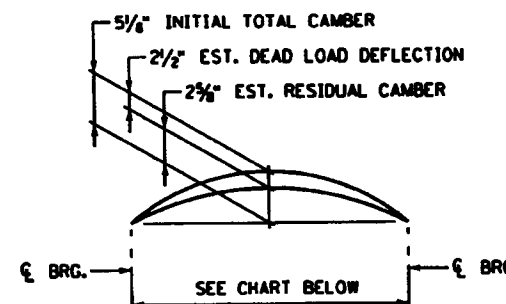
SECTION AT ℄ SPAN



Y DISTANCES (IN INCHES)			
	NO.	℄ SPAN	END
STRAIGHT STRANDS	28	3.86	
DRAPED STRANDS	6	5.0	39
TOTAL STRANDS	34	4.06	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



CAMBER DIAGRAM

INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, RAILING, SIDEWALK AND MEDIAN WHERE APPLICABLE.

ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

GENERAL NOTES

TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND.

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS 30 TONS.

AS AN ALTERNATE TO THE DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.

- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ TAPERED SOLE PLATE TO BE WELDED TO SOLE PLATE CAST IN THE BEAM. SEE DETAIL B303 ON SHEET B51 FOR DETAIL.
- ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

BEAMS B1 - B3 & B7-B9

FIG. 5-397.514

REVISED:
APPROVED: OCTOBER 26, 2005
David A. Johnson
STATE ENGINEER

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



INFRASTRUCTURE - ENGINEERS - PLANNERS

701 Xenia Ave. South
Suite 300
Minneapolis, MN 55410
763-641-8800
FAX 763-641-1700

TITLE
45" PRESTRESSED CONCRETE BEAM (PRETENSIONED) 45M-

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
David A. Johnson
LICENSED PROFESSIONAL ENGINEER
7-1700

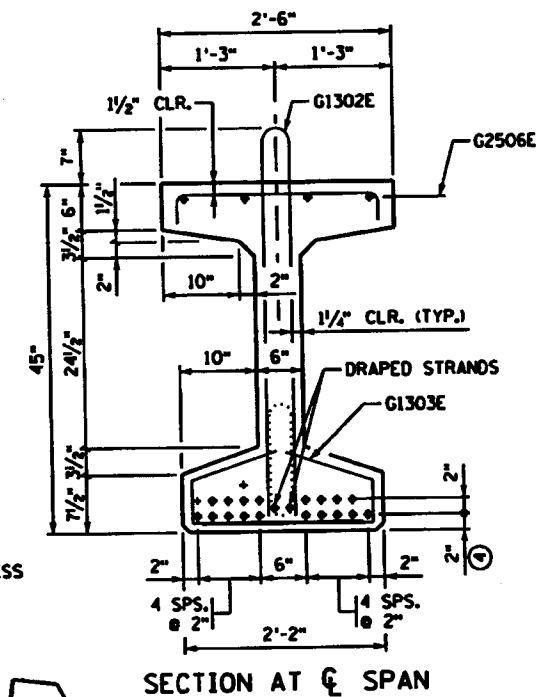
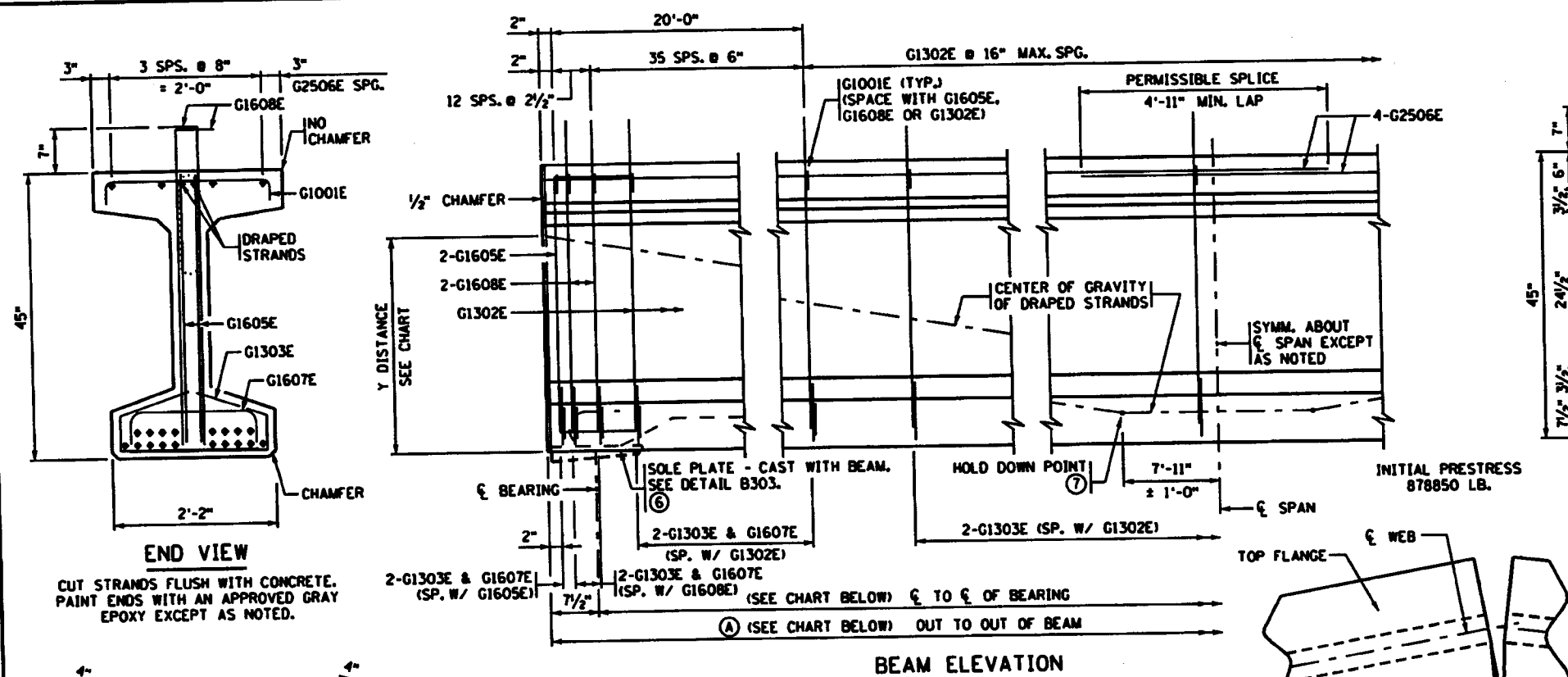
DES: BRL
CHK: SA
DR: DJV
CHK: BRL

APPROVED:

Bridge No.
62623

Sheet B30 of B56 Sheets

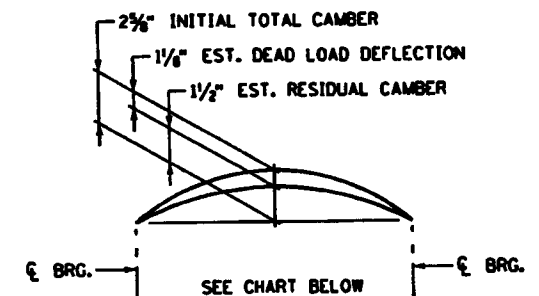




Y DISTANCES (IN INCHES)			
	NO.	¢ SPAN	END
STRAIGHT STRANDS	18	2.89	XX
DRAPED STRANDS	2	3.0	41.0 °
TOTAL STRANDS	20	2.90	XX

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS
FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2"
CENTER TO CENTER, HORIZONTALLY AND VERTICALLY,
EXCEPT AS NOTED.

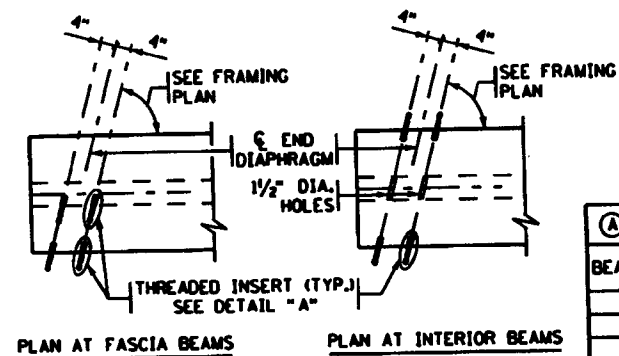
• A TOLERANCE OF $\pm 1"$ WILL BE PERMITTED IN THIS DIMENSION.



INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS
ARE IN PLACE.

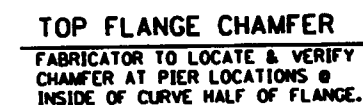
DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT
OF SLAB, WEARING COURSE, RAILING, SIDEWALK
AND MEDIAN WHERE APPLICABLE.

ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.



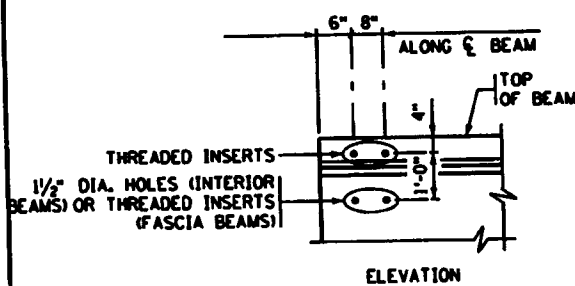
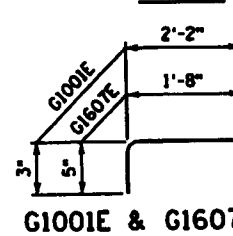
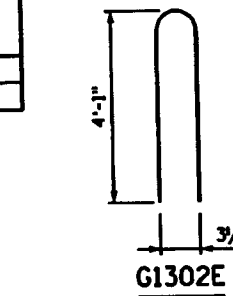
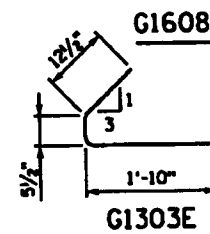
(A) PRESTRESSED BEAM LENGTHS		
BEAM NO.	£ TO £ OF BEARING	OUT TO OUT OF BEAM (A)
B19	77.61'	78.86'
B20	77.02'	78.27'
B21	76.56'	77.81'
B22	76.24'	77.49'
B23	76.05'	77.30'
B24	75.97'	77.22'

(A) OUT TO OUT OF BEAM LENGTH
ADJUSTED FOR SLOPE ALONG
ROADWAY.



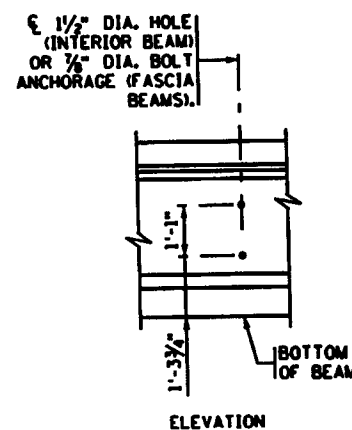
MINIMUM CONCRETE STRENGTH - P.S.I.	
① f'ci	② f'c
7500	9000

PRESTRESSING STRAND DIAMETER	
⑤	$\frac{1}{2}"$ ☐
⑤	0.60" ☒



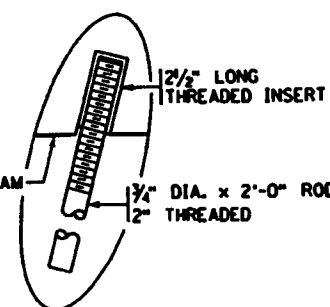
CONCRETE END
DIAPHRAGM

PARAPET ABUTMENT
(SEE DETAIL B814 FOR DIAPHRAGM DETAILS)



**STEEL INTERMEDIATE
DIAPHRAGM**

(SEE DETAIL B403 FOR
DIAPHRAGM DETAILS)



GENERAL NOTES

TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND.

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED
IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS 27 TONS.

AS AN ALTERNATE TO THE DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY
SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR
APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF
15 KIPS PER ANCHORAGE.

- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ TAPERED SOLE PLATE TO BE WELDED TO SOLE PLATE CAST IN BEAM. SEE DETAIL B303 ON SHEET B51 FOR DETAIL.
- ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

BEAMS B19 - B24

FIG. 5-397.514

REVISOR: _____
APPROVED: OCTOBER 26, 2005

.....
STATE BRIDGE ENGINEER

NO.	DATE:	BY:	CHK:
-----	-------	-----	------

REVISIONS



R
RANDY CURFMAN



WSB
 & Associates, Inc.
 INFRASTRUCTURE

701 Karin Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700

DATE	TITLE
10/1/78	...
10/2/78	...
10/3/78	...
10/4/78	...
10/5/78	...
10/6/78	...
10/7/78	...
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10/27/78	...
10/28/78	...
10/29/78	...
10/30/78	...
10/31/78	...

**45" PRESTRESSED
CONCRETE BEAM
(PRETENSIONED) 45M-**

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

Bernie L. Lohmeyer

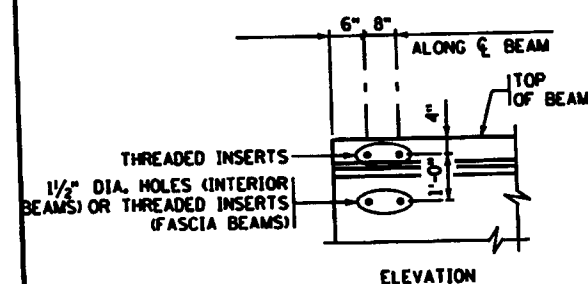
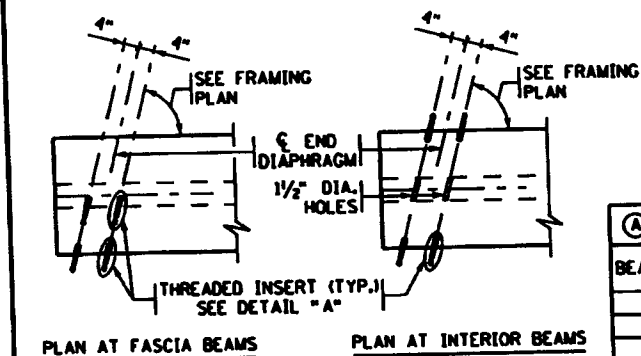
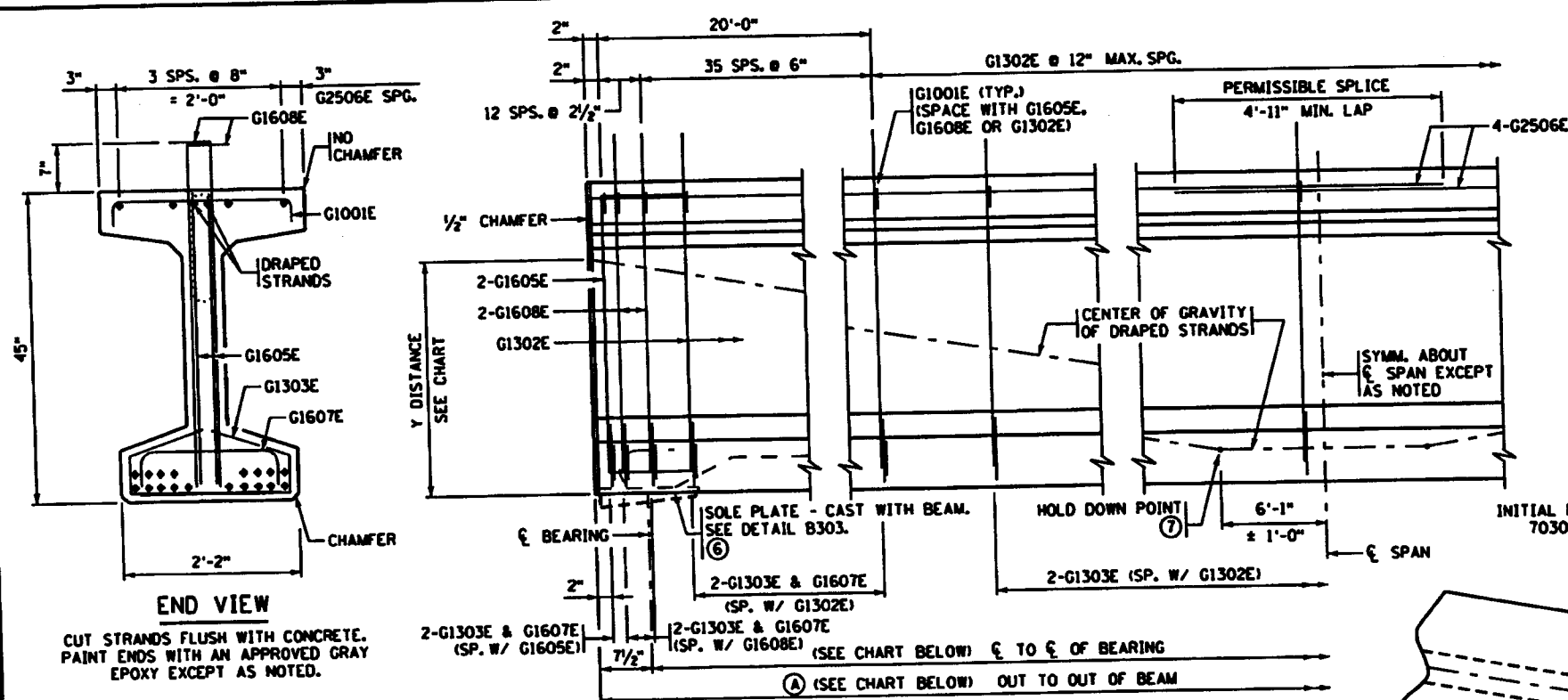
SEVEN: LICENSED PROFESSIONAL ENGINEER BERNIE LOHMEYER

LIC. NO. 9-17

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	

Sheet B33 of B56 Sheet

Bridge No.
62623



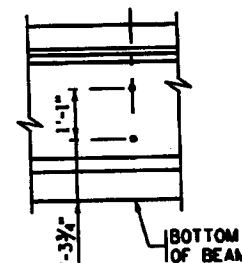
CONCRETE END DIAPHRAGM
PARAPET ABUTMENT
(SEE DETAIL B814 FOR DIAPHRAGM DETAILS)

A PRESTRESSED BEAM LENGTHS		
BEAM NO.	℄ TO ℄ OF BEARING	OUT TO OUT OF BEAM A
B25	58.23'	59.48'
B26	58.90'	60.15'
B27	59.57'	60.82'
B28	60.26'	61.51'

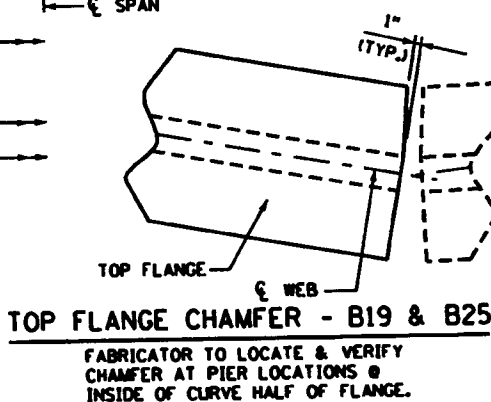
SEE FRAMING PLAN FOR BEAM LOCATION

A OUT TO OUT OF BEAM LENGTH ADJUSTED FOR SLOPE ALONG ROADWAY.

℄ 1/2" DIA. HOLE (INTERIOR BEAM) OR 3/4" DIA. BOLT ANCHORAGE (FASCIA BEAMS).

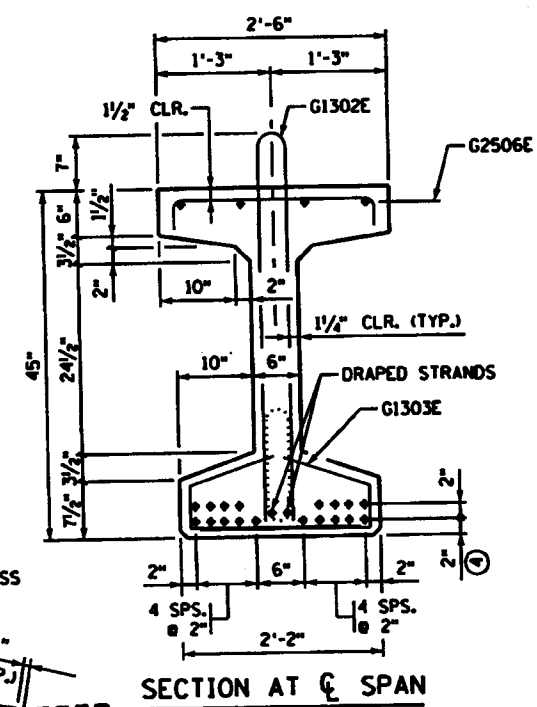


STEEL INTERMEDIATE DIAPHRAGM
(SEE DETAIL B403 FOR DIAPHRAGM DETAILS)



MINIMUM CONCRETE STRENGTH - P.S.I.	
① 1' c/l	② 1' c
7500	9000

PRESTRESSING STRAND DIAMETER	
⑤ 1/2" □	⑤ 0.60" □

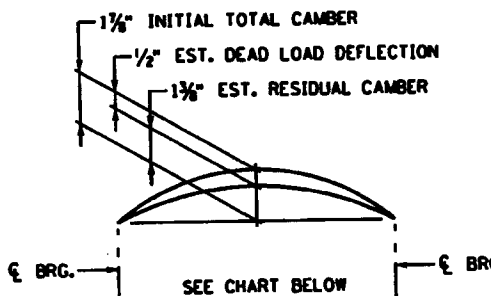


SECTION AT ℄ SPAN

Y DISTANCES (IN INCHES)			
	NO.	℄ SPAN	END
STRAIGHT STRANDS	18	2.89	
DRAPED STRANDS	2	3.0	41.0
TOTAL STRANDS	20	2.90	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



CAMBER DIAGRAM

INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, RAILING, SIDEWALK AND MEDIAN WHERE APPLICABLE.

ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

GENERAL NOTES

TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND. PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS 21 TONS.

AS AN ALTERNATE TO THE DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.

- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ TAPERED SOLE PLATE TO BE WELDED TO SOLE PLATE CAST IN BEAM. SEE DETAIL B303 ON SHEET B51 FOR DETAIL.
- ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

BEAMS B25 - B28

FIG. 5-397.514

REVISED:
APPROVED: OCTOBER 26, 2005
David A. Nelson
STATE BRIDGE ENGINEER

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-648-24CTB



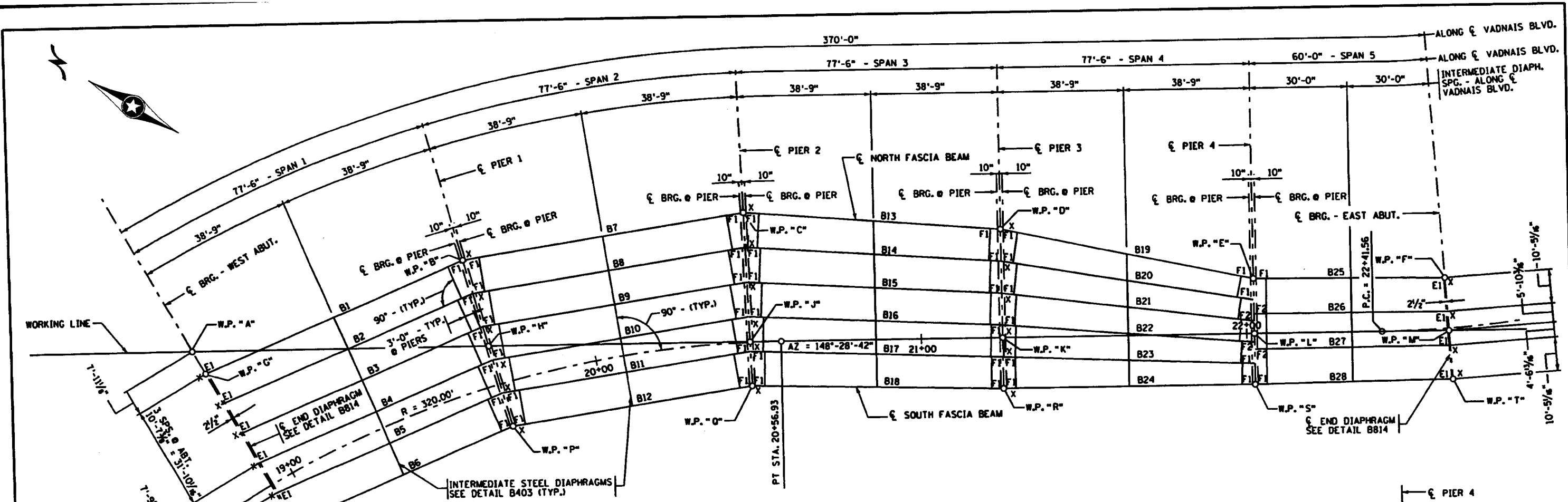
701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4880
FAX 763-641-1700

TITLE: 45" PRESTRESSED CONCRETE BEAM (PRETENSIONED) 45M-

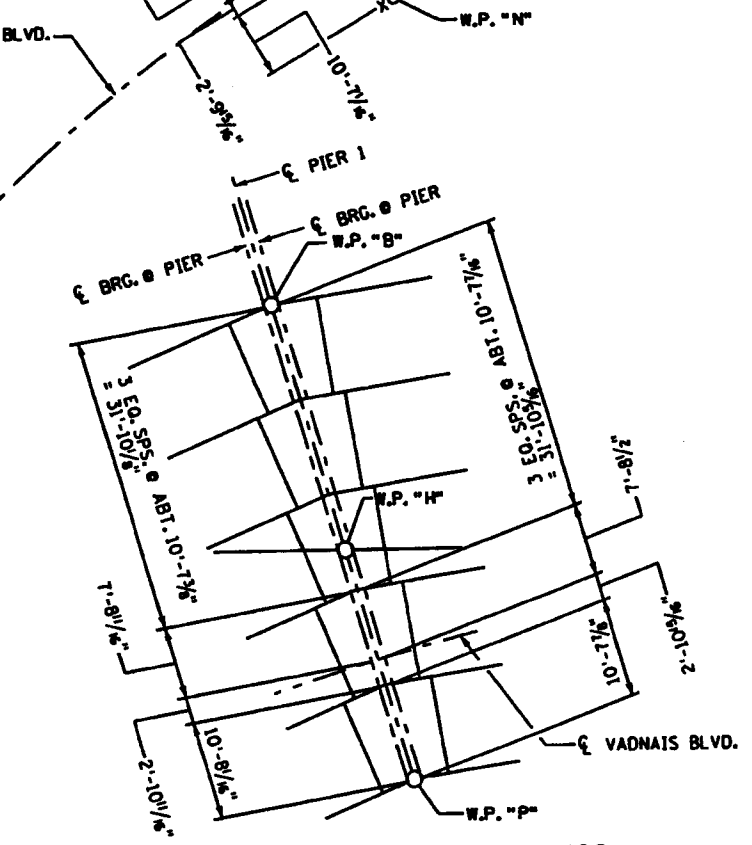
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
David A. Nelson
LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER
LIC. NO. 558
EXP. 1-17-07

DES: BRL DR: DAV
CHK: SA CHK: BRL
Sheet B34 of B56 Sheets

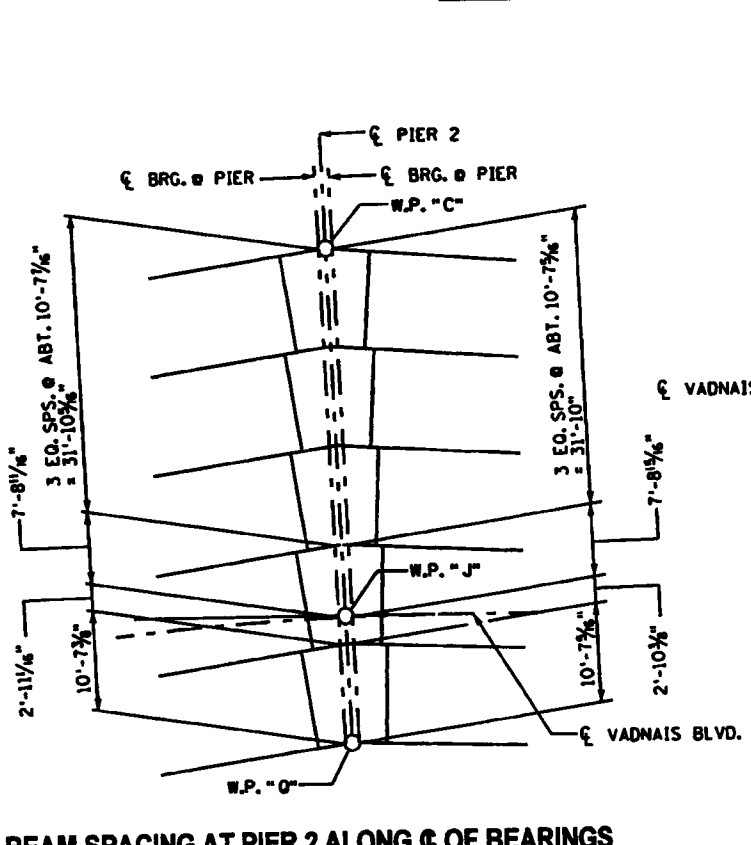
Bridge No. 62623



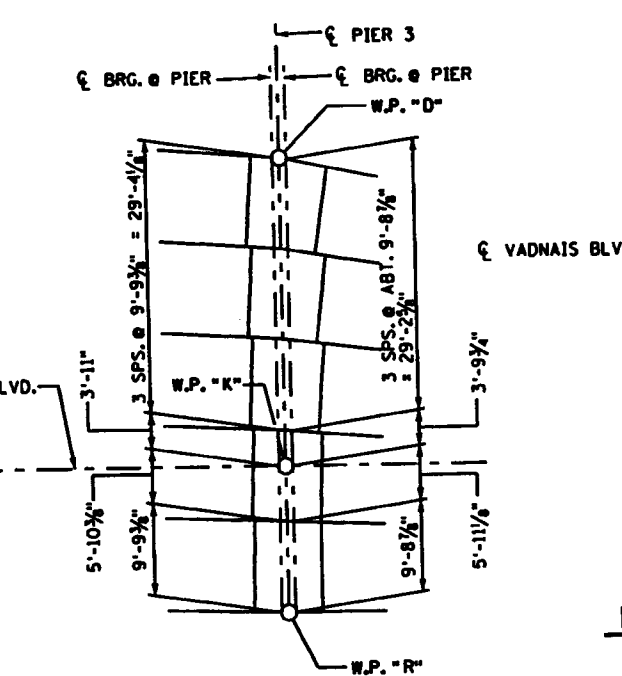
FRAMING PLAN



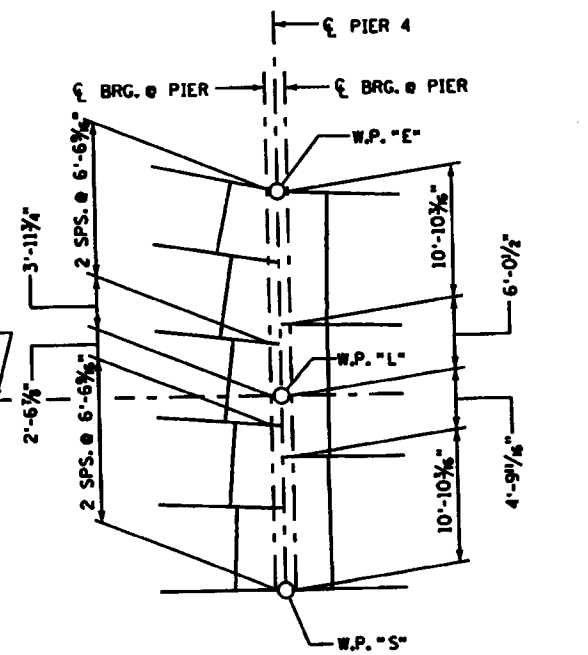
BEAM SPACING AT PIER 1 ALONG C OF BEARINGS



BEAM SPACING AT PIER 2 ALONG C OF BEARINGS



BEAM SPACING AT PIER 3 ALONG C OF BEARINGS



BEAM SPACING AT PIER 4 ALONG C OF BEARINGS

NOTES:
 X = MARKS END OF BEAM
 E1 = EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE 1 (10 REQUIRED)
 F1 = FIXED CURVED PLATE BEARING ASSEMBLY, TYPE 1 (42 REQUIRED)
 F2 = FIXED CURVED PLATE BEARING ASSEMBLY, TYPE 2 (4 REQUIRED)

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NO.	DATE	BY	CHK	REVISIONS

COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694=343),
 S.P. 62-649-24CTB

WSB
 701 Xerox Ave. South
 Minneapolis, MN 55416
 763-641-0880
 FAX 763-641-1700
 INFRASTRUCTURE - ENGINEERING - PLANNING

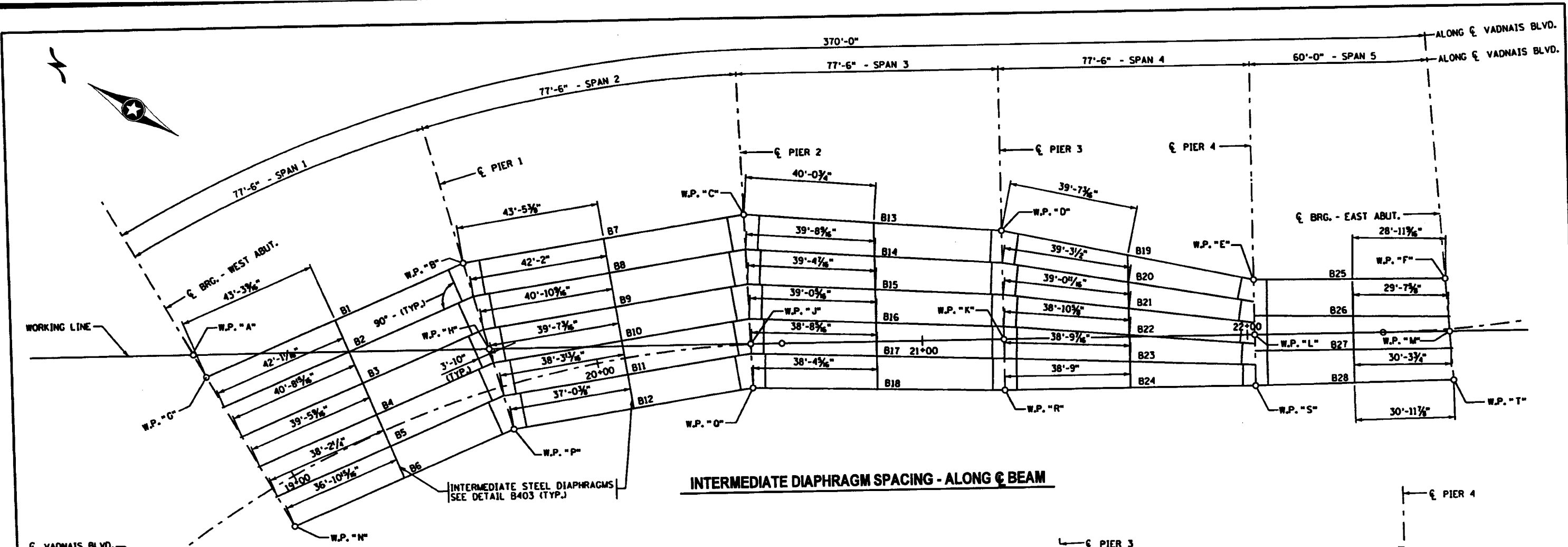
TITLE:
FRAMING PLAN

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Franklin J. Smith
 LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER
 LIC. NO. 958
 9-17-07

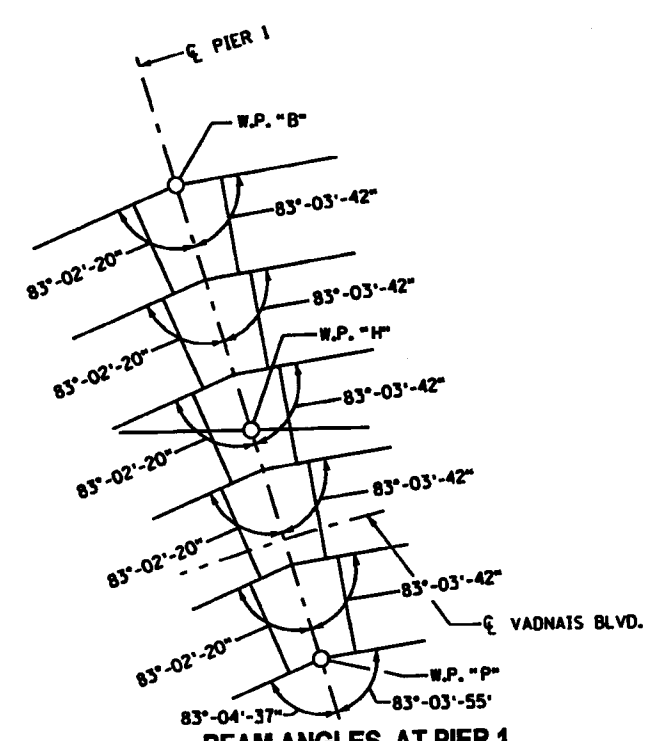
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CHK: SA	CHK: BRL	

Sheet B35 of B56 Sheets

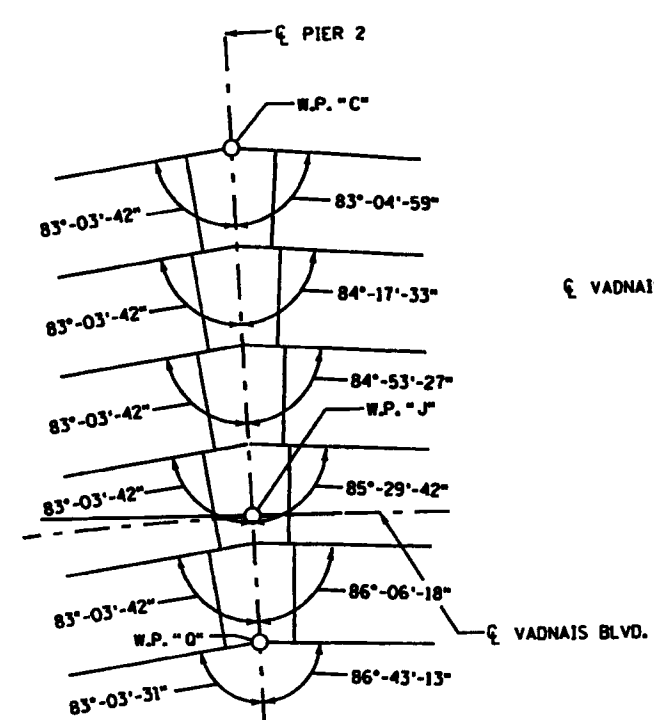
Bridge No.
62623



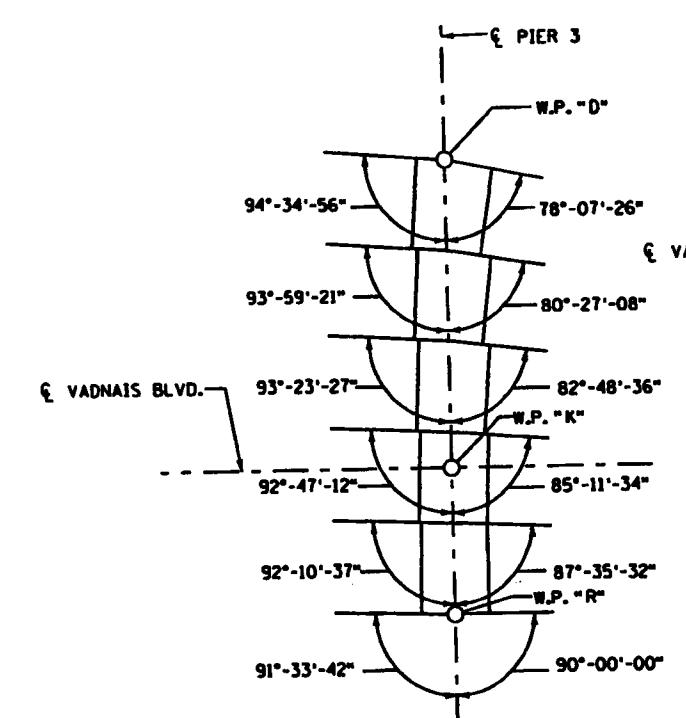
INTERMEDIATE DIAPHRAGM SPACING - ALONG E BEAM



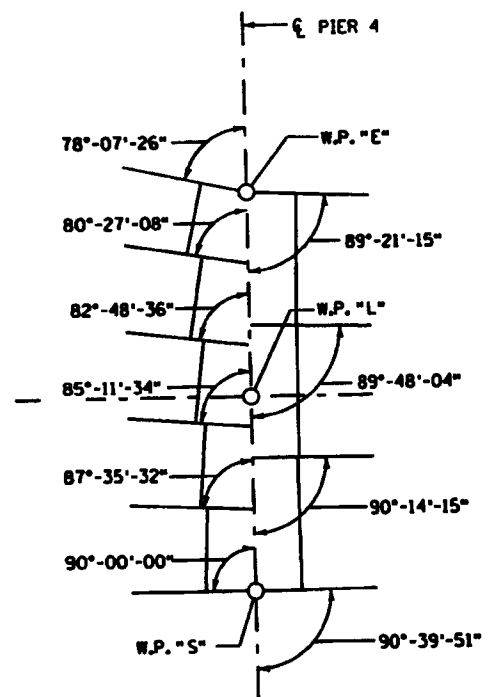
BEAM ANGLES AT PIER 1



BEAM ANGLES AT PIER 2



BEAM ANGLES AT PIER 3



BEAM ANGLES AT PIER 4

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COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
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 S.P. 62-649-24CTB

WSB
 A. Associates, Inc.
 INFRASTRUCTURE • ENGINEERS • PLANNERS
 701 Xerxes Ave. South
 Suite 300
 Minneapolis, MN 55416
 763-641-4800
 FAX 763-641-1700

TITLE: **FRAMING PLAN**

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

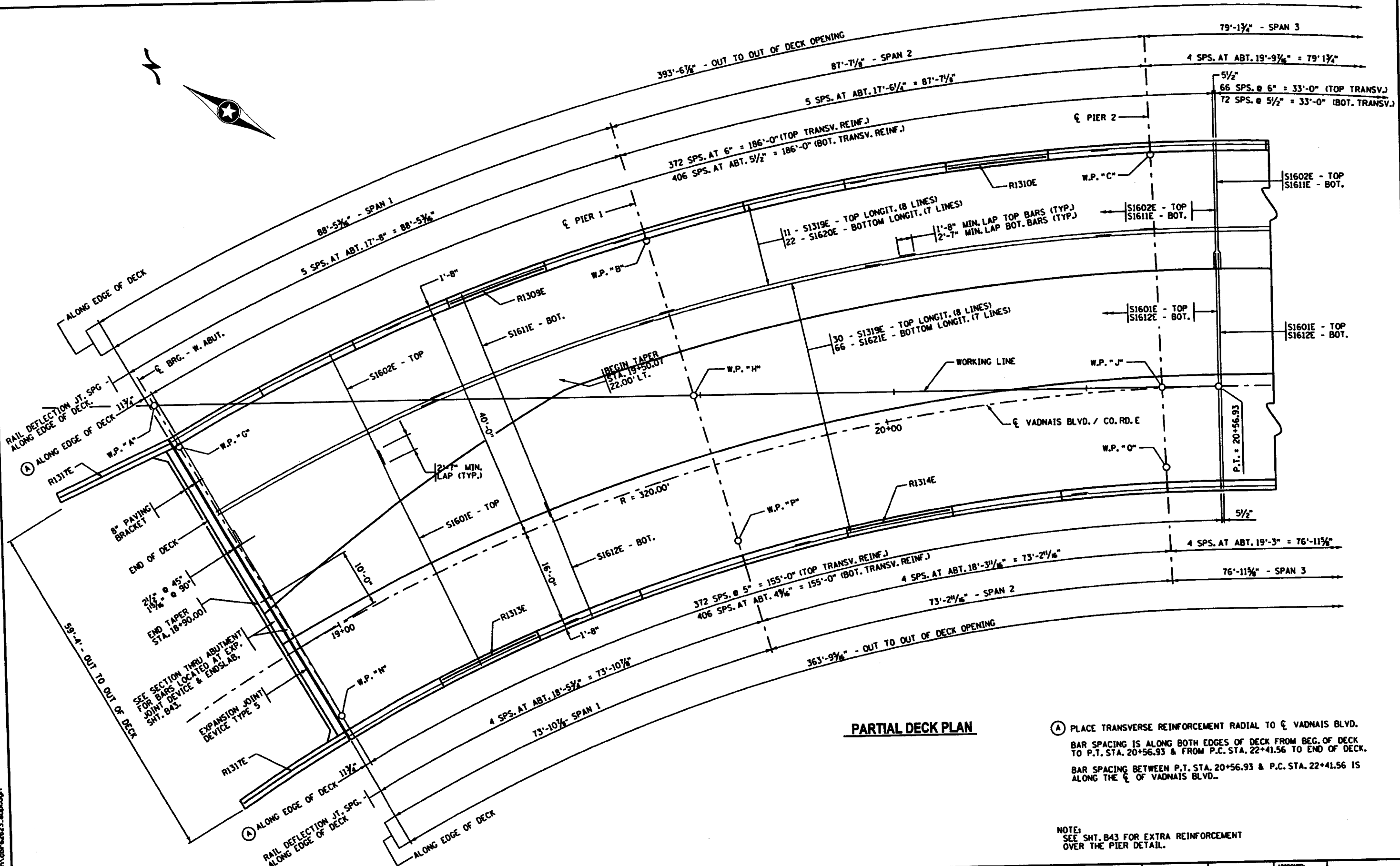
Bandit Senu
 LICENSED PROFESSIONAL ENGINEER
 9-17-07

DES: BRL DR: D/V
 CHK: SA CHK: BRL

Sheet B36 of B56 Sheets

Bridge No. **62623**

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PARTIAL DECK PLAN

- ① PLACE TRANSVERSE REINFORCEMENT RADIAL TO ϕ VADNAIS BLVD.
BAR SPACING IS ALONG BOTH EDGES OF DECK FROM BEG. OF DECK
TO P.T. STA. 20+56.93 & FROM P.C. STA. 22+41.56 TO END OF DECK.
BAR SPACING BETWEEN P.T. STA. 20+56.93 & P.C. STA. 22+41.56 IS
ALONG THE ϕ OF VADNAIS BLVD.

NOTE:
SEE SHT. B43 FOR EXTRA REINFORCEMENT
OVER THE PIER DETAIL.

NO.	DATE	BY	CHK	REVISIONS

COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB

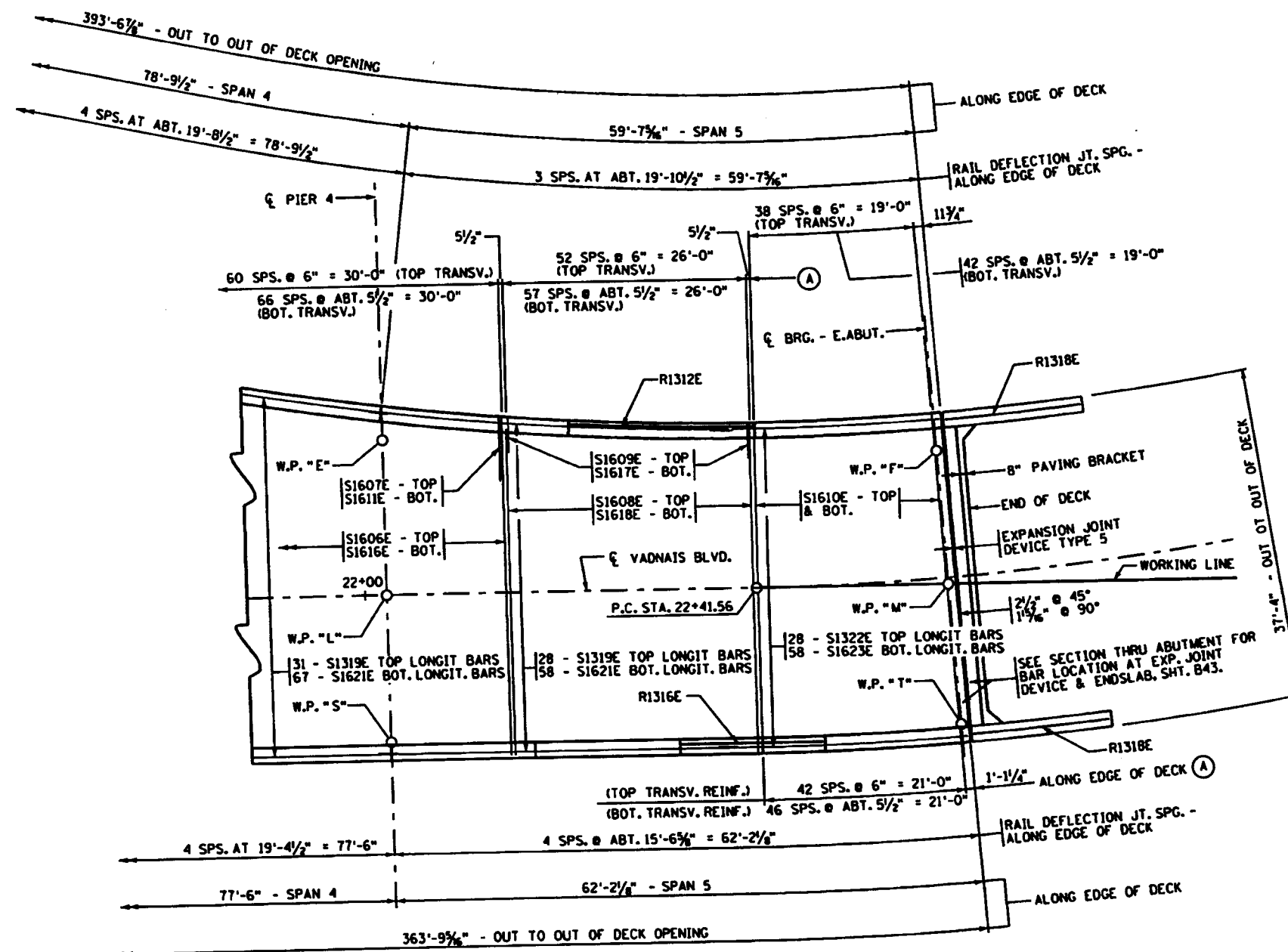
WSB
701 Xenia Ave. South
Suite 300
Morgantown, WV 26501
763-641-4800
FAX 763-641-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

TITLE:
SUPERSTRUCTURE DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A QUALY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
David J. Scola
LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER
9/17/07

DES: BRL DR: D/V
CHK: SA CHK: BRL
Sheet B37 of B56 Sheets

Bridge No.
62623



PARTIAL DECK PLAN

- Ⓐ PLACE TRANSVERSE REINFORCEMENT RADIAL TO ϕ VADNAIS BLVD.
 BAR SPACING IS ALONG BOTH EDGES OF DECK FROM BEG. OF DECK TO P.T. STA. 20+56.93 & FROM P.C. STA. 22+41.56 TO END OF DECK.
 BAR SPACING BETWEEN P.T. STA. 20+56.93 & P.C. STA. 22+41.56 IS ALONG THE ϕ OF VADNAIS BLVD..

NOTE:
 SEE SHT. B43 FOR EXTRA REINFORCEMENT OVER THE PIER DETAIL.

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REV.	DATE	BY	CHK	REVISIONS



**COUNTY ROAD E / VADNAIS BLVD.
 RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694=343),
 S.P. 62-649-24CTB**



701 Xerxes Ave. South
 Suite 300
 Minneapolis, MN 55416
 763-541-4820
 FAX 763-541-1700

TITLE:

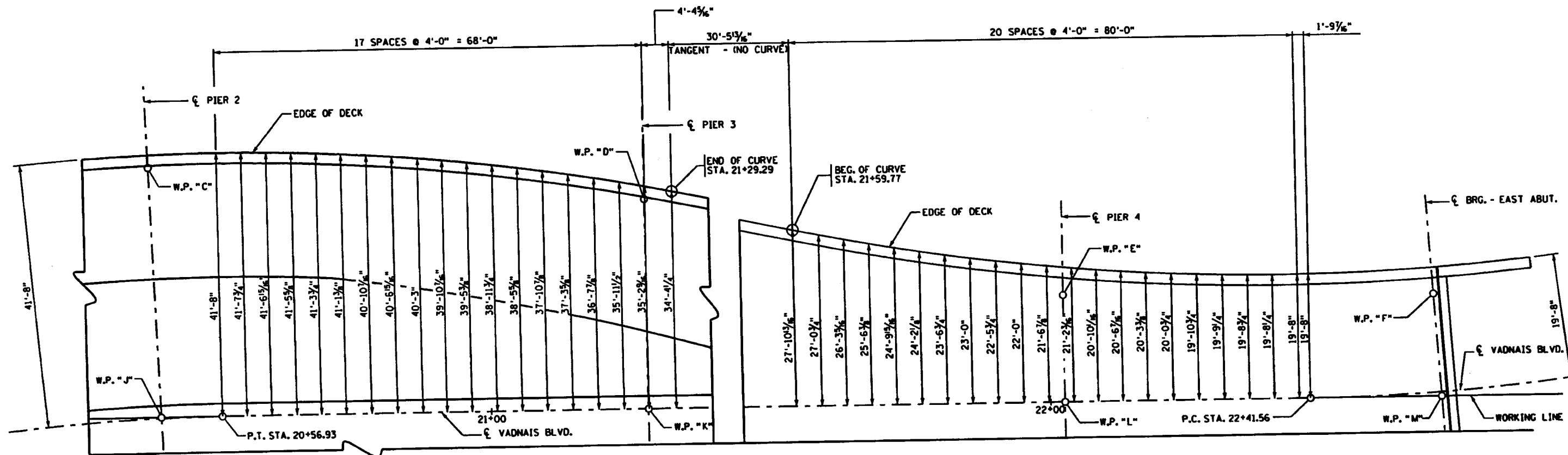
SUPERSTRUCTURE DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Frank J. Sullivan
 LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER
 LIC. NO. 97707

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	

Sheet B39 of B56 Sheets

Bridge No.
62623



NORTH EDGE OF DECK GEOMETRY

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**COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.**
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



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Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700

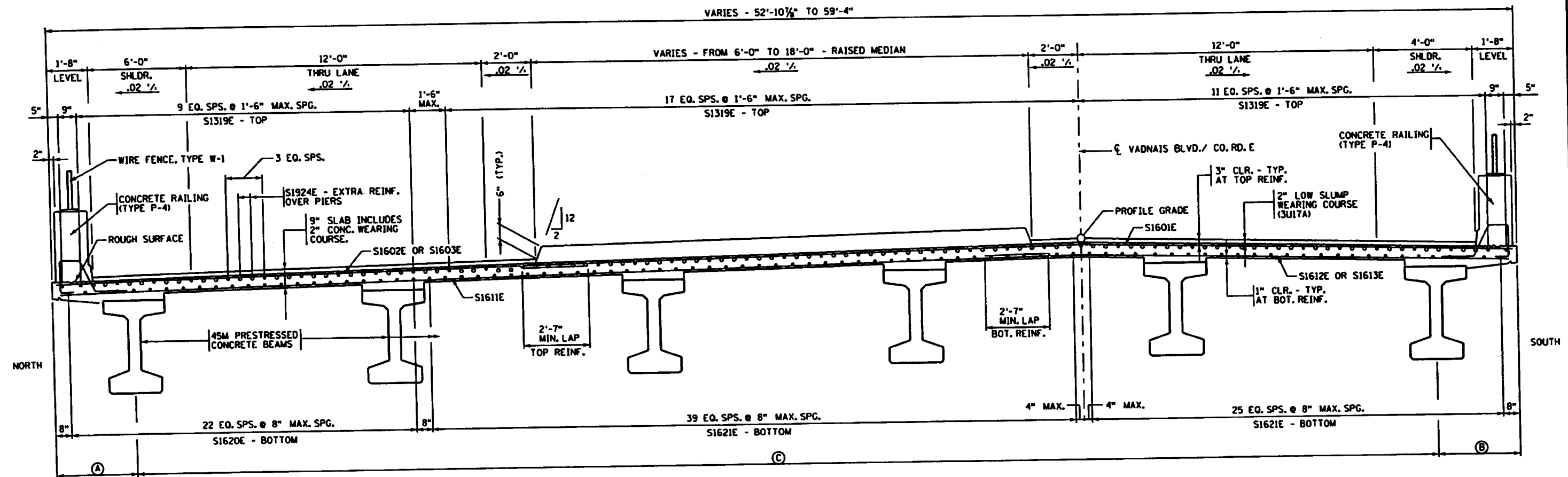
TITLE:
SUPERSTRUCTURE DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DES: DRL	DR: DJV	APPROVED:
CHK: SA	CHK: DRL	

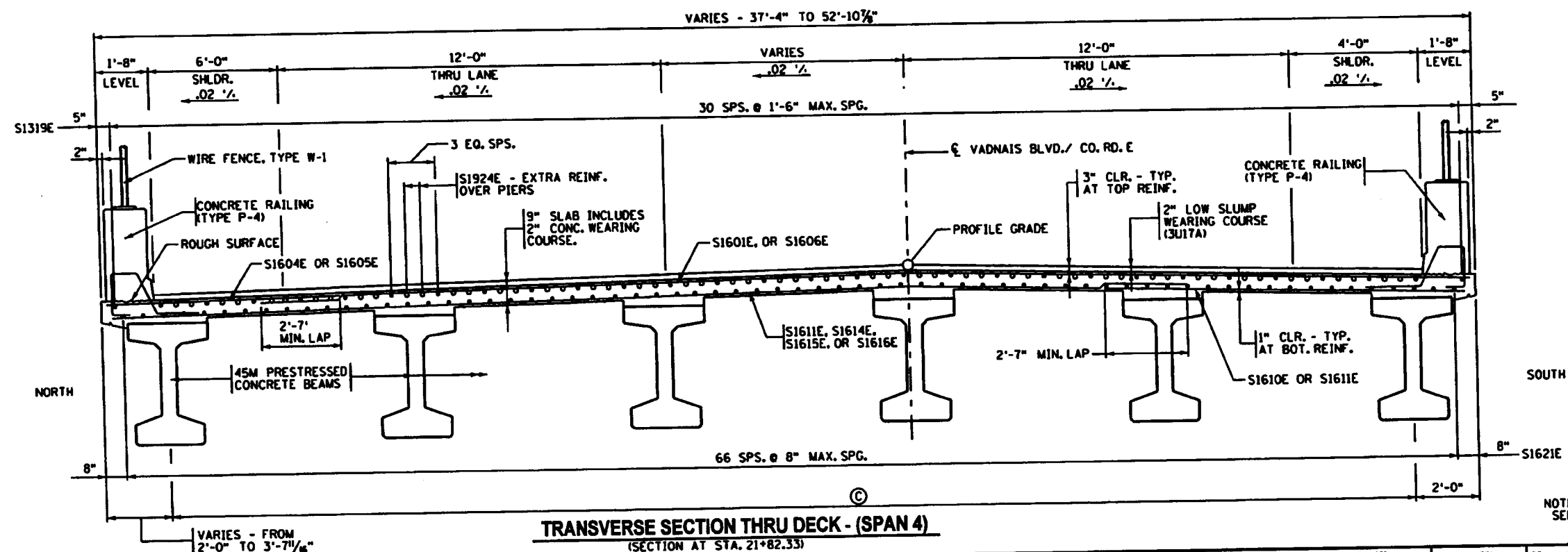
Sheet B40 of B56 Sheets

Bridge No.
62623



- (A) VARIES - FROM 2'-0" TO 4'-7¹¹/₁₆"
 (B) VARIES - FROM 2'-0" TO 4'-3"
 (C) SEE FRAMING PLAN FOR BEAM SPACING AT EACH SPAN

TRANSVERSE SECTION THRU DECK - SPANS 1-3



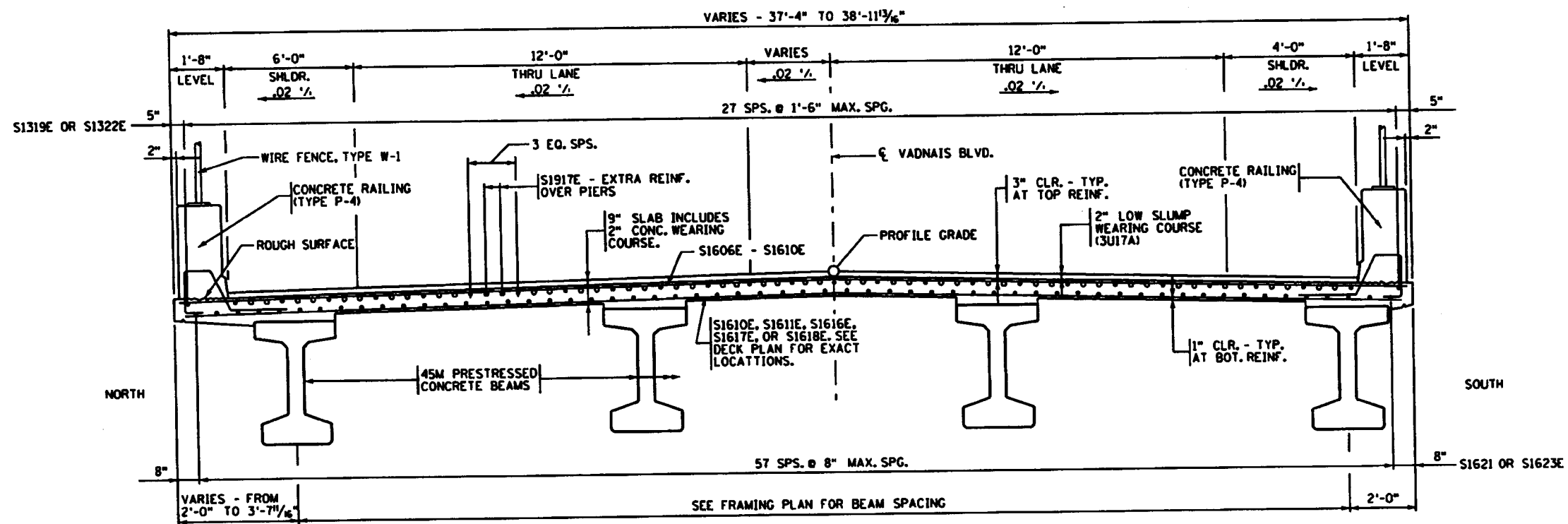
NOTE: SEE SHT. B43 FOR EDGE OF DECK DETAIL

TRANSVERSE SECTION THRU DECK - (SPAN 4)

(SECTION AT STA. 21+82.33)

REVISIONS				COUNTY ROAD E / VADNAIS BLVD. RUSTIC PLACE TO TWIN LAKES BLVD. S.P. 62-616-02, S.P. 6285-130 (TH694=343), S.P. 62-649-24CTB		WSB & Associates, Inc. SUPERSTRUCTURE - ENGINEERING - PLANNING		701 Xanadu Ave. South Suite 300 Minneapolis, MN 55416 763-541-8800 FAX 763-541-1700		TITLE: SUPERSTRUCTURE DETAILS		I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. Brent B. Bunker LICENSED PROFESSIONAL ENGINEER, MINN. LICENSE NO. 7-17-02		DES: BRL CHK: SA		DR: DJV CHK: BRL		APPROVED:		Bridge No. 62623	
NO.	DATE	BY	CHK																		

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TRANSVERSE SECTION THRU DECK - (SPAN 5)

NOTE:
SEE SHT. B43 FOR EDGE OF DECK DETAIL

NO.	DATE	BY	CHK	REVISIONS



**COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.**
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



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Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

TITLE:
SUPERSTRUCTURE DETAILS

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Barbara Smith
LICENSED PROFESSIONAL ENGINEER BARBARA SMITH
LIC. NO. 912
9-17-07

DES: BRL DR: DJV
CHK: SA CHK: BRL

APPROVED:

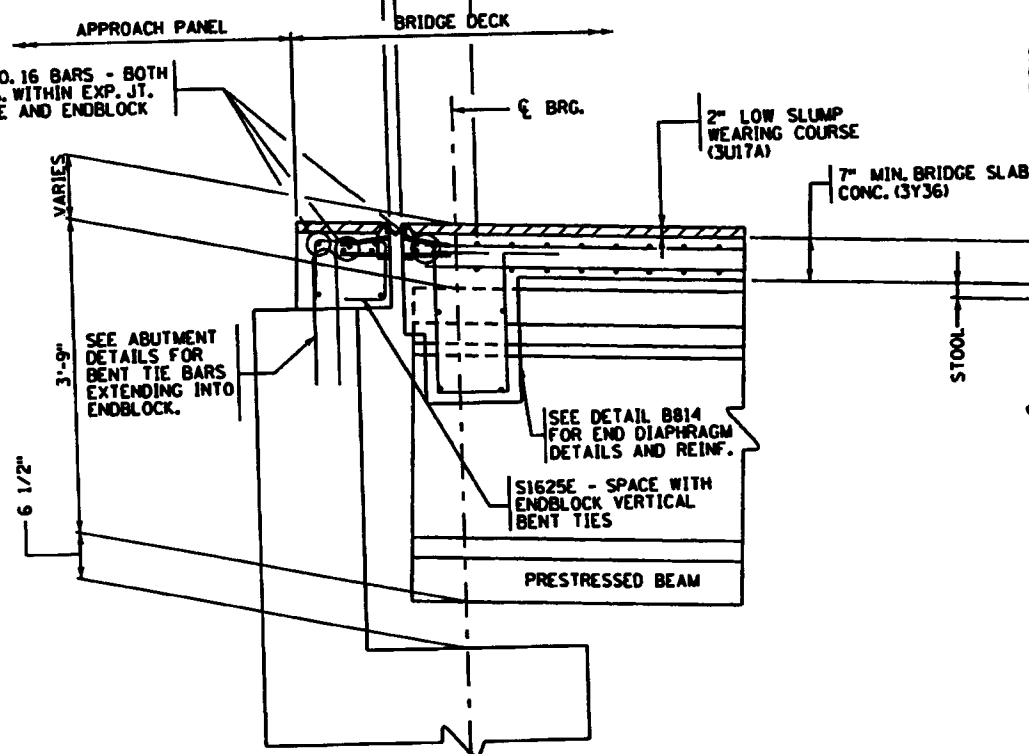
Sheet B42 of B56 Sheets

Bridge No.
62623

(A) S1601E & S1602E - WEST ABUTMENT
S1613E - EAST ABUTMENT

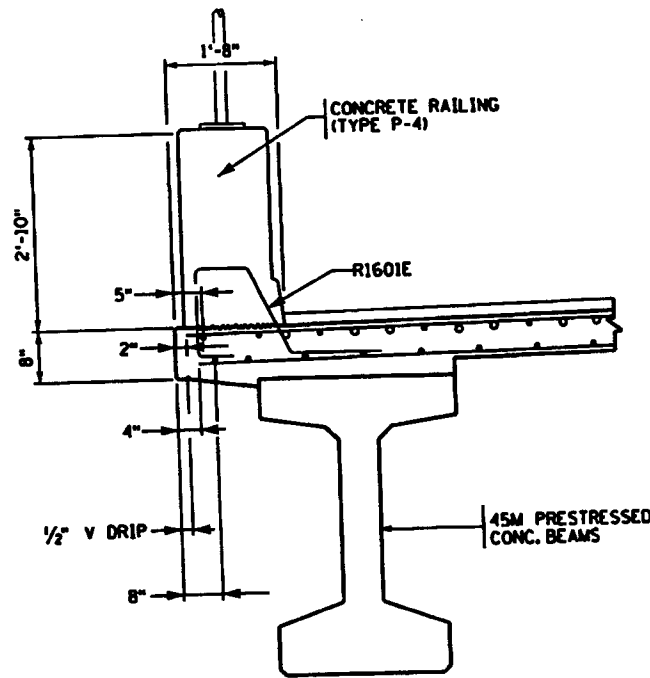
2 1/2" @ 45° OR 2" @ 90° SEE DECK PLAN FOR BAR MARKS AND SPG.

(A) 11 - NO. 16 BARS - BOTH ABUTTS. WITHIN EXP. JT. DEVICE AND ENDBLOCK



SECTION THRU ABUTMENT

DIMENSIONS ARE NORMAL TO SUBSTRUCTURE

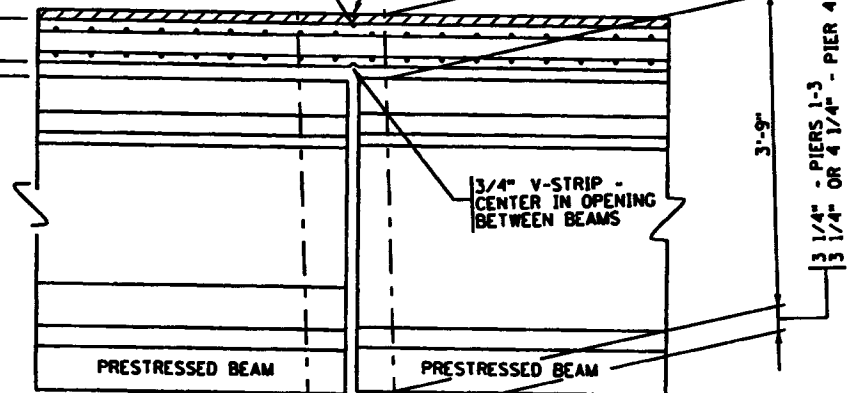


EDGE OF DECK DETAIL

SAWCUT IN WEARING COURSE DIRECTLY ABOVE V-STRIP AND SAWCUT IN DECK. SEAL PER SPEC. 3723.

SAWCUT IN DECK - CENTER IN OPENING BETWEEN BEAMS

STOOL

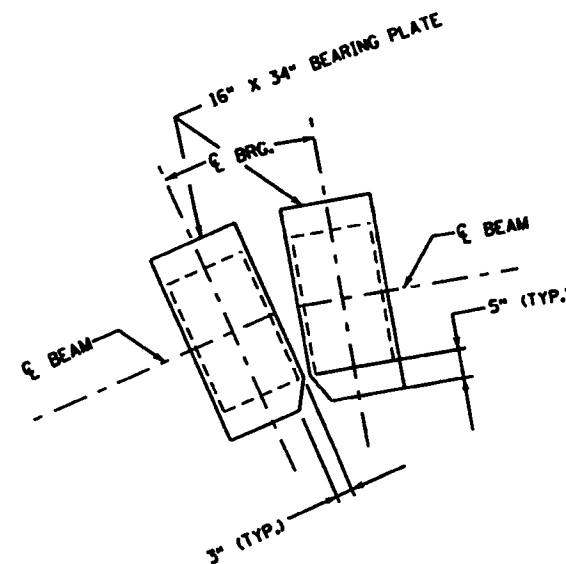


BRG.

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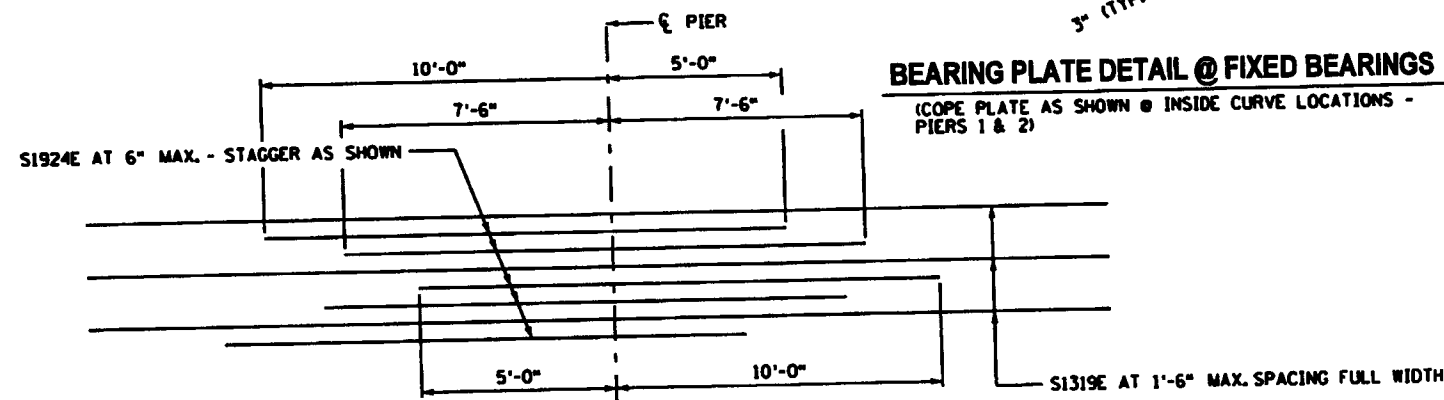
PIER

PART LONGITUDINAL DECK SECTION



BEARING PLATE DETAIL @ FIXED BEARINGS

(COPE PLATE AS SHOWN @ INSIDE CURVE LOCATIONS - PIERS 1 & 2)



ADDITIONAL TOP REINFORCEMENT AT PIER

BILL OF REINFORCEMENT - SUPERSTRUCTURE

BAR	NO.	LENGTH	SHAPE	LOCATION
S1601E	640	40'-0"	STR.	TOP - TRANSV.
S1602E	451	21'-8"	STR.	TOP - TRANSV.
S1603E	67	20'-0"	STR.	TOP - TRANSV.
S1604E	61	16'-0"	STR.	TOP - TRANSV.
S1605E	61	10'-0"	STR.	TOP - TRANSV.
S1606E	61	37'-6"	STR.	TOP - TRANSV.
S1607E	61	7'-0"	STR.	TOP - TRANSV.
S1608E	53	36'-10"	STR.	TOP - TRANSV.
S1609E	53	4'-0"	STR.	TOP - TRANSV.
S1610E	101	37'-0"	STR.	TOP & BOT. TRANSV.
S1611E	687	39'-0"	STR.	BOTTOM - TRANSV.
S1612E	480	24'-1"	STR.	BOTTOM - TRANSV.
S1613E	73	22'-6"	STR.	BOTTOM - TRANSV.
S1614E	67	17'-10"	STR.	BOTTOM - TRANSV.
S1615E	67	11'-8"	STR.	BOTTOM - TRANSV.
S1616E	67	5'-6"	STR.	BOTTOM - TRANSV.
S1617E	58	32'-0"	STR.	BOTTOM - TRANSV.
S1618E	58	8'-9"	STR.	BOTTOM - TRANSV.
S1319E	390	38'-6"	STR.	TOP - LONGITUDINAL
S1620E	154	44'-6"	STR.	BOT. - LONGITUDINAL
S1621E	600	43'-0"	STR.	BOT. - LONGITUDINAL
S1322E	28	26'-0"	STR.	TOP - LONGITUDINAL
S1623E	58	24'-0"	STR.	BOT. - LONGITUDINAL
S1924E	252	15'-0"	STR.	TOP - OVER PIER
S1625E	94	3'-2"	BENT	ENDSLAB - TIES

SUMMARY OF QUANTITIES - SUPERSTRUCTURE

1	BRIDGE SLAB CONCRETE (3Y36)	19998	SQ. FT.
2	CONCRETE WEARING COURSE (3U17A)	18092	SQ. FT.
3	TYPE P-4 RAILING CONCRETE (3Y46)	816	LIN. FT.
4	STRUCTURAL CONCRETE (3Y43)	8	CU. YD.
5	RAISED MEDIAN CONCRETE (3Y46)	3896	SQ. FT.
6	REINFORCEMENT BARS (EPOXY COATED)	165835	POUND
7	DIAPHRAGMS FOR TYPE 45M PRESTR. BEAMS	600	LIN. FT.
8	ELASTOMERIC BEARING ASSEMBLY TYPE E1	10	EACH
9	ELASTOMERIC BEARING ASSEMBLY TYPE F1	42	EACH
10	ELASTOMERIC BEARING ASSEMBLY TYPE F2	4	EACH
11	EXPANSION JOINT DEVICES TYPE 5	94	LIN. FT.
12	PRESTRESSED CONCRETE BEAMS TYPE 45M	2144	LIN. FT.
13	BENCH MARK DISK	2	EACH
14	1" THICK CORK	75	SQ. FT.
15	BRIDGE NAME PLATE	1	EACH
16	WIRE FENCE, TYPE W-1	816	LIN. FT.

- "BRIDGE SLAB CONCRETE (3Y36)" VOLUME WAS COMPUTED USING AN AVERAGE STOOL HEIGHT OF 2 1/2" INCHES AND IS APPROXIMATELY 490 CU. YDS. INCLUDES END BLOCKS.
- "CONCRETE WEARING COURSE (3U17A)" VOLUME IS APPROXIMATELY 112 CU. YDS. INCLUDES 1601 SQ. FT. FOR BRIDGE APPROACH PANELS.
- TYPE P-4 RAILING CONCRETE (3Y46)" VOLUME IS APPROXIMATELY 117 CU. YDS.
- END DIAPHRAGM CONCRETE ONLY.
- INCLUDES SLAB AND RAILING REINFORCEMENT.
- PAYMENT FOR BEARINGS INCLUDED IN ITEM "BEARING ASSEMBLY" PER EACH.
- PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS TYPE 45M PER LINEAR FOOT.
- STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- "RAISED MEDIAN CONCRETE (3Y46)" VOLUME IS APPROXIMATELY 97 CU. YDS.

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NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xerox Ave. South
Suite 200
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

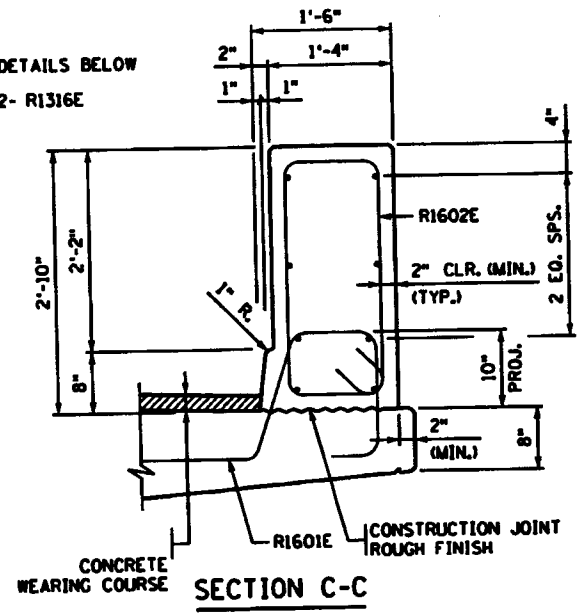
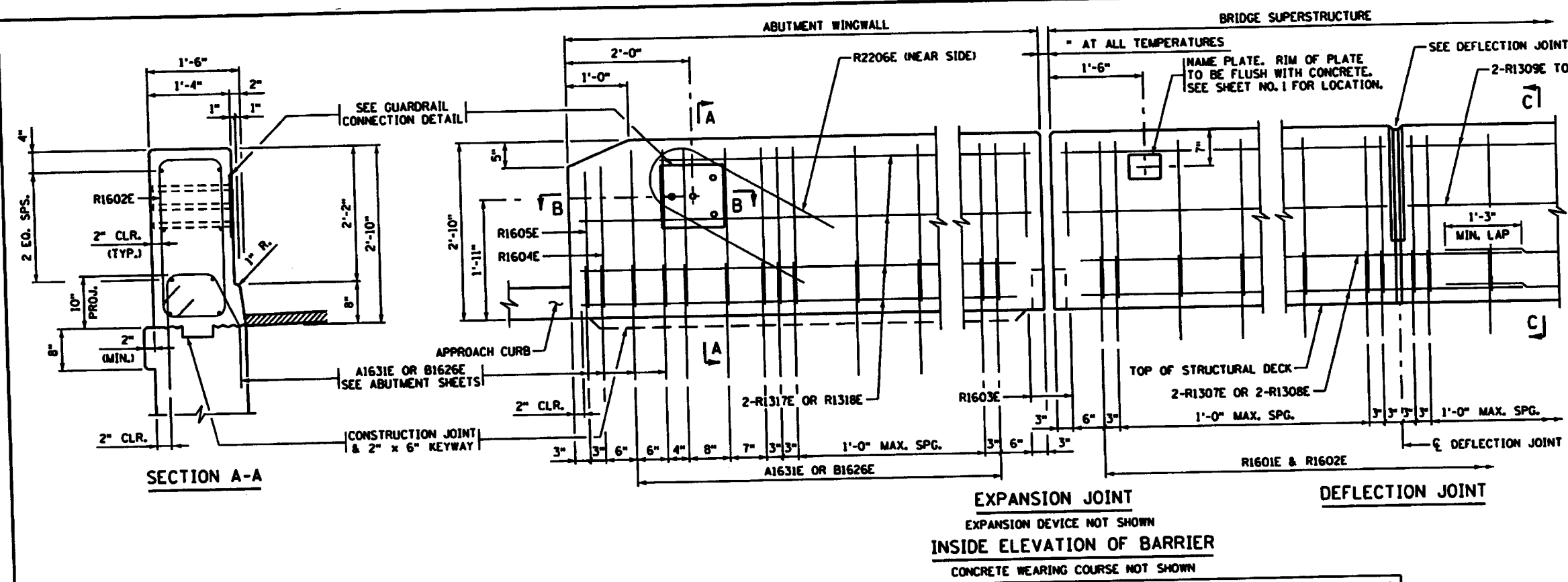
TITLE:

SUPERSTRUCTURE
DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barry Lindale
LICENSED PROFESSIONAL ENGINEER BARRY LINDALE

DES: BRL DR: DJV
CHK: SA CHK: BRL
APPROVED:
Sheet B43 of B56 Sheets

Bridge No.
62623



BILL OF REINFORCEMENT FOR BARRIER				
BAR	NO.	LENGTH	SHAPE	LOCATION
R1601E	854	5'-7"		BARRIER DOWEL
R1602E	912	7'-11"		BARRIER VERTICAL
R1603E	8	5'-11"		BARRIER VERTICAL
R1604E	4	7'-5"		BARRIER VERTICAL
R1605E	4	7'-3"		BARRIER VERTICAL
R2206E	4	6'-7"		BARRIER VERTICAL
R1307E	52	32'-0"		BARRIER LONGIT.
R1308E	52	30'-0"		BARRIER LONGIT.
R1309E	20	17'-4"		BARRIER LONGIT.
R1310E	20	17'-2"		BARRIER LONGIT.
R1311E	32	19'-4"		BARRIER LONGIT.
R1312E	12	19'-6"		BARRIER LONGIT.
R1313E	16	18'-1"		BARRIER LONGIT.
R1314E	16	17'-11"		BARRIER LONGIT.
R1315E	32	18'-11"		BARRIER LONGIT.
R1316E	16	15'-2"		BARRIER LONGIT.
R1317E	16	16'-0"		BARRIER LONGIT.
R1318E	16	11'-4"		BARRIER LONGIT.

GENERAL NOTES

LENGTH OF "TYPE P-4 (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.

CONCRETE BARRIER = 579 LBS./FT. (0.143 CU. YDS./FT.)

FINISH ALL EDGES OF BARRIER WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.

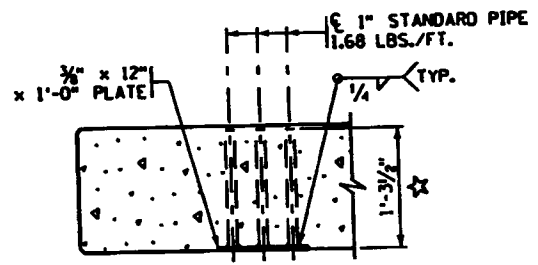
SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, Mn/DOT SPEC. 3306.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394 AFTER FABRICATION.

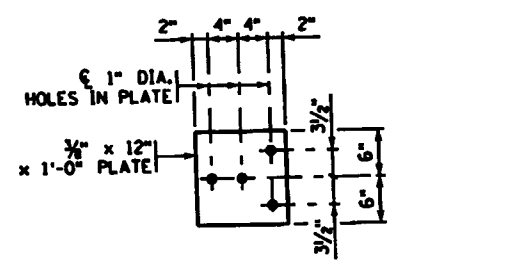
GUARDRAIL CONNECTION, CORK, AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO "TYPE P-4 (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)".

BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.



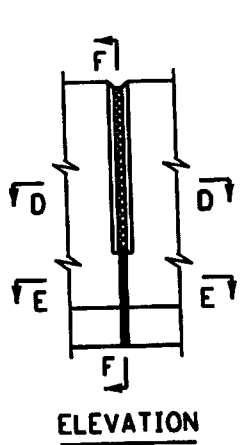
SECTION B-B

(REINFORCEMENT NOT SHOWN)
★ DIMENSIONS INCLUDE 3/8" PLATE

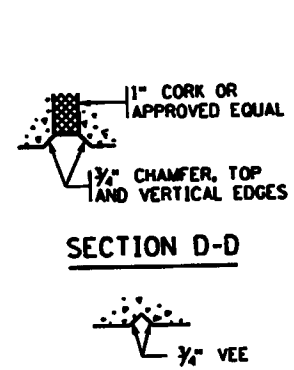


GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394
ESTIMATED WEIGHT = 22 LBS

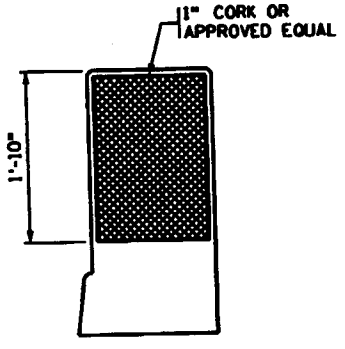


ELEVATION



SECTION D-D

SECTION E-E



SECTION F-F

DEFLECTION JOINT DETAILS

ESTIMATED QUANTITY OF CORK PER JOINT = 2.15 SQ. FT.

REVISED: 08-10-2006	
APPROVED: JULY 25, 2005	
STATE BRIDGE ENGINEER	
NO.	DATE



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-618-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55416
763-641-8880
FAX 763-641-1780

TITLE
CONCRETE RAILING (TYPE P-4, TL-4)
WITH INTEGRAL END POST
(WITH CONC. WEARING COURSE)

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

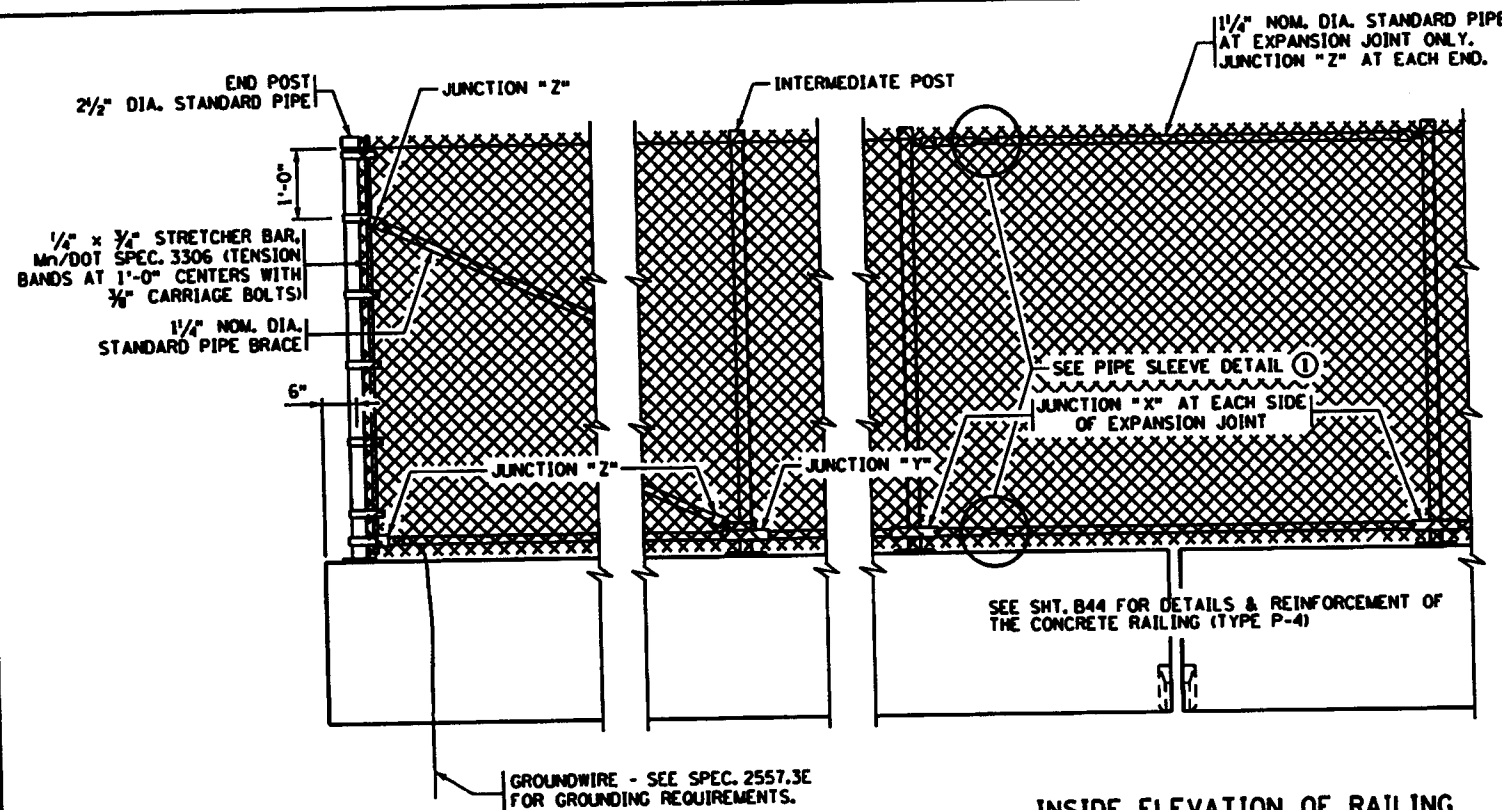
7-17-07

DES: BRL	DR: DJV	APPROVED:
CHK: SA	CHK: BRL	

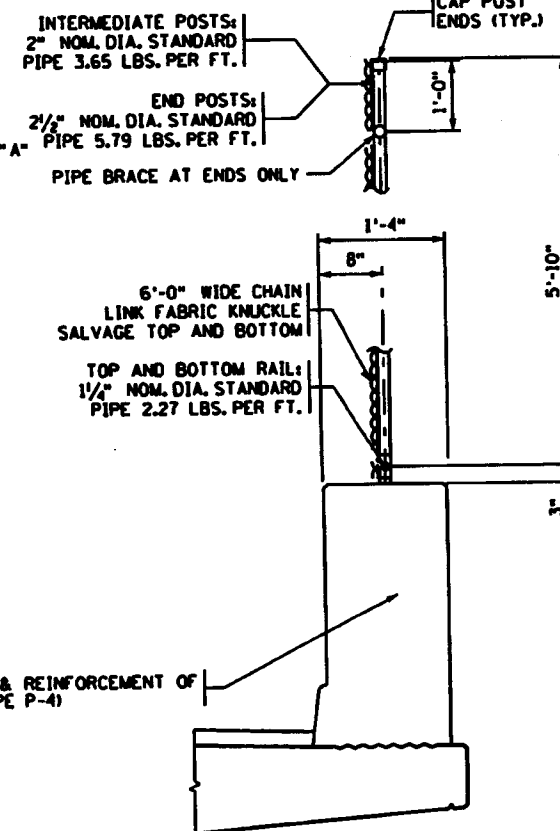
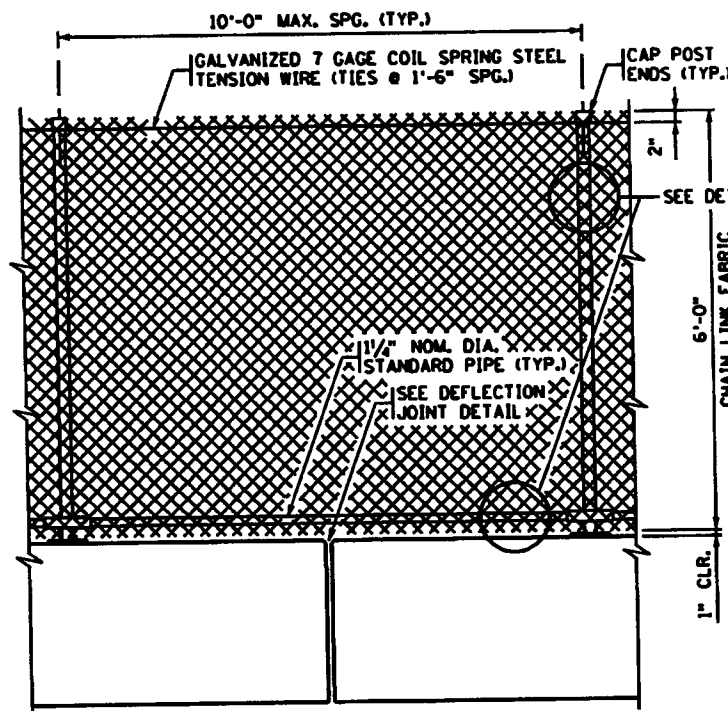
Sheet B44 of B56 Sheets

Bridge No.
62623

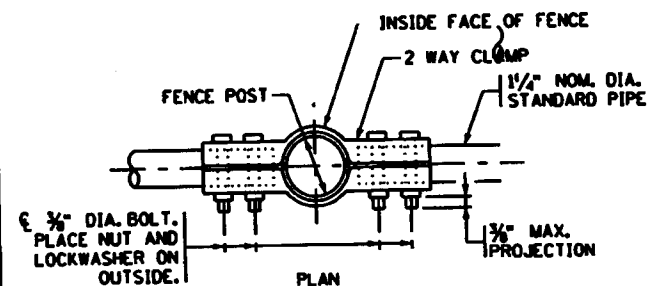
FIG. 5-397.173



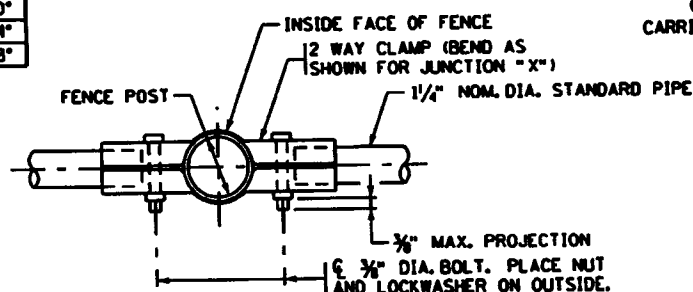
INSIDE ELEVATION OF RAILING



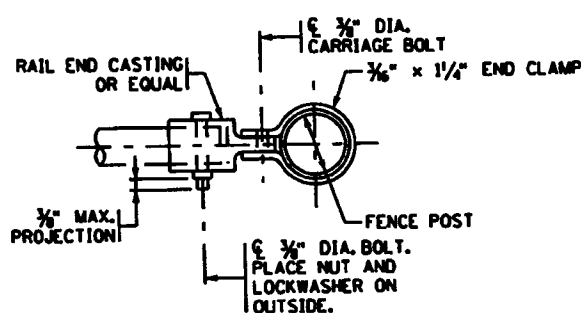
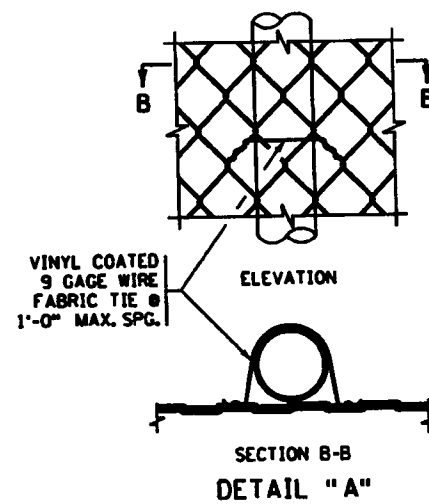
TYPICAL SECTION THROUGH FENCE
INTERMEDIATE POST SHOWN



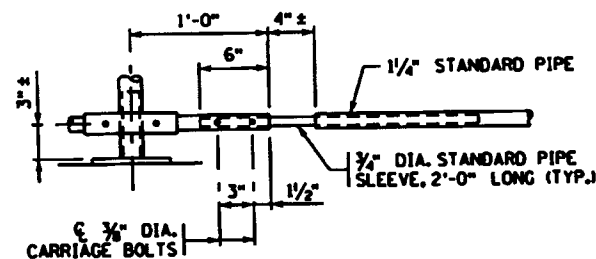
2 WAY CLAMP BENDING TABLE	
GRADE OF FENCE	B
0" TO 2"	0"
2" TO 6"	4"
6" TO 10"	8"



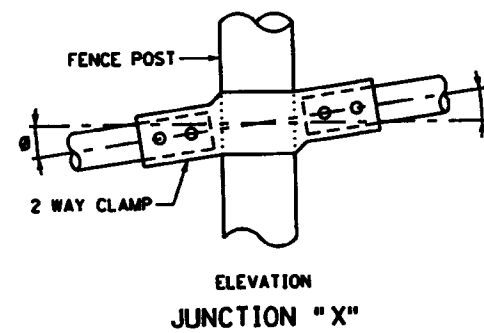
JUNCTION "Y"



JUNCTION "Z"



PIPE SLEEVE DETAIL ①



GENERAL NOTES

LENGTH OF "WIRE FENCE, DESIGN W-1" FOR PAYMENT SHALL BE MEASURED BETWEEN THE CENTERS OF END RAILPOSTS.

FENCE POST ANCHORAGES SHALL BE TYPE A. SEE DETAIL B905 "FENCE POST ANCHORAGE".

FENCE POSTS AND FENCE POST ANCHORAGES SHALL BE SET VERTICAL, UNLESS OTHERWISE NOTED.

OF FENCE POST ANCHORAGE SHALL BE A MINIMUM OF 6" FROM JOINTS.

END POSTS AND BRACING SHALL BE AT 500 FT. MAXIMUM INTERVALS.

ALL POSTS SHALL HAVE A MEANS TO SECURELY HOLD THE TOP TENSION WIRE IN POSITION AND ALLOW FOR THE REMOVAL AND REPLACEMENT OF A POST WITHOUT DAMAGING THE TOP WIRE.

WIRE TIES MAY BE 9 GAGE GALVANIZED STEEL OR 0.179" MIN. ALUMINUM ALLOY CONFORMING TO A.S.T.M. B211, ALLOY 1100-H18. USE 12 1/2 GAGE GALVANIZED HOG RINGS FOR TENSION WIRE TIES.

ALL MATERIAL IN THE CONCRETE BASE AND END POST IS INCLUDED IN THE SUPERSTRUCTURE QUANTITIES.

SEE SPECIAL PROVISIONS FOR REQUIREMENTS NOT INCLUDED ON THIS SHEET AND FOR BASIS OF PAYMENT.

ALL POSTS, ANCHORAGES, HARDWARE, & FABRIC TO BE BLACK VINYL COATED. SEE SPECIAL PROVISIONS.

① PROVIDE PIPE SLEEVE IN SPAN BETWEEN THE VERTICAL POSTS AT EXPANSION JOINT. SEE SUPERSTRUCTURE SHEETS FOR LOCATION.

FIG. 5-397.119 (MODIFIED)

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



701 Kerkira Ave. South
Suite 202
Minneapolis, MN 55416
763-641-0200
FAX 763-641-1700

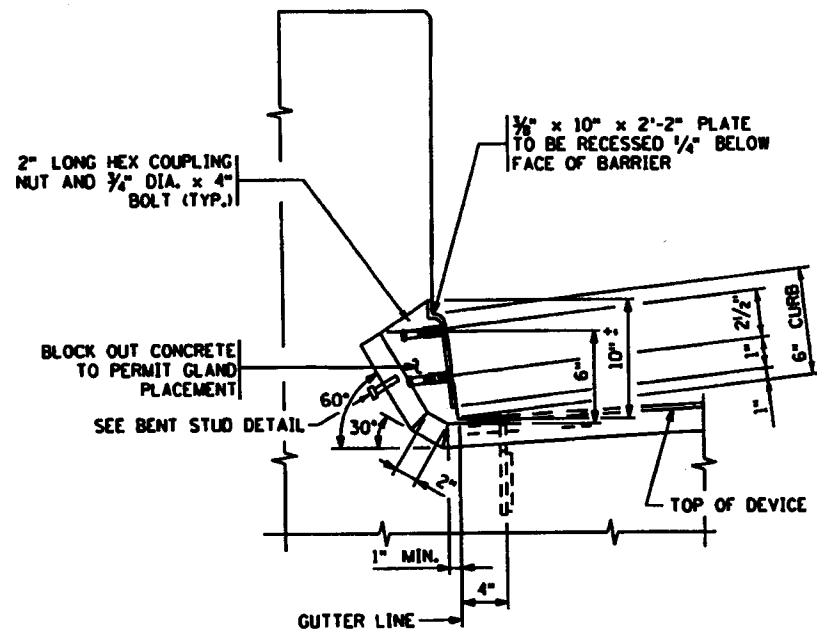
TITLE:

WIRE FENCE DESIGN W-1

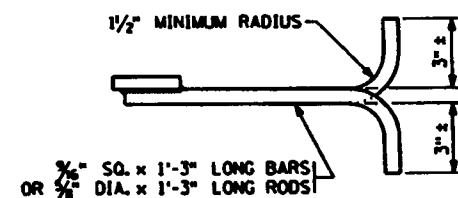
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Barrett S. Suler
LICENSED PROFESSIONAL ENGINEER - MINN. LICENSE NO. 91707

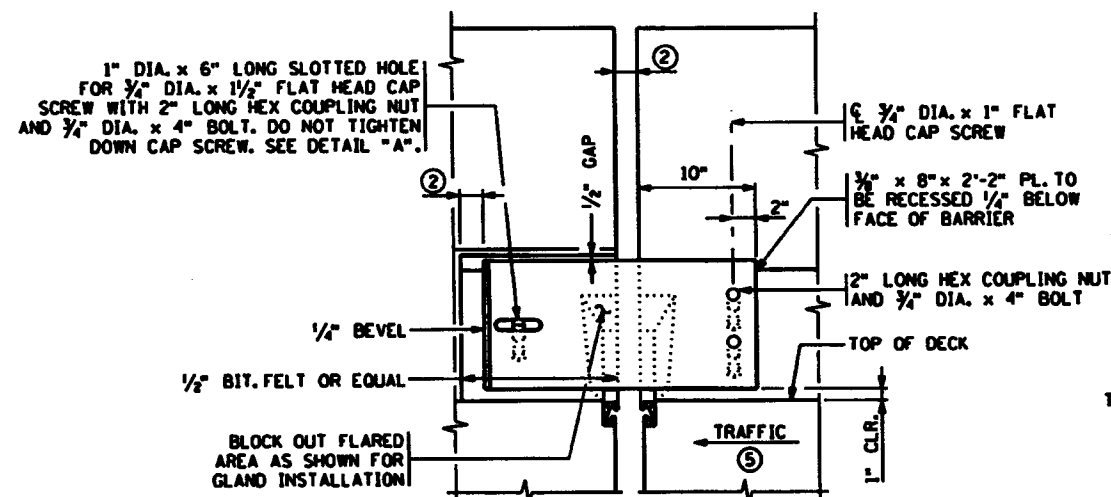
DES: BRL	DR: DJV	APPROVED:
CHK: BA	CHK: BRL	
Sheet B45 of B56 Sheets		
Bridge No. 62623		



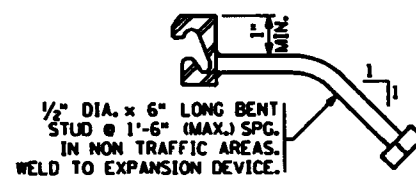
SECTION THROUGH RAILING
TYPE F RAILING



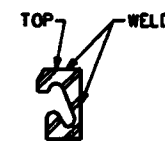
BAR-ROD DETAIL



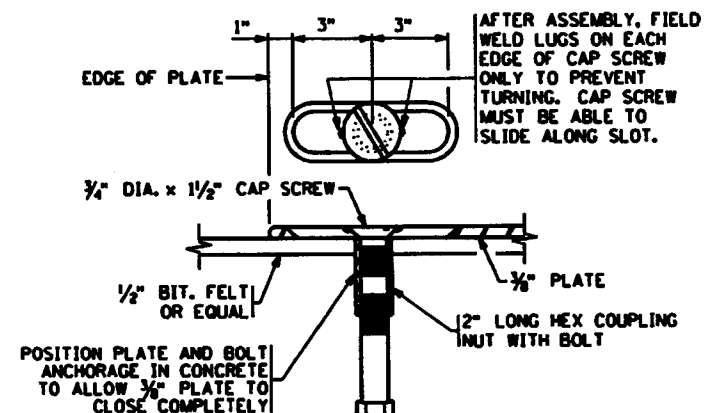
RAILING ELEVATION



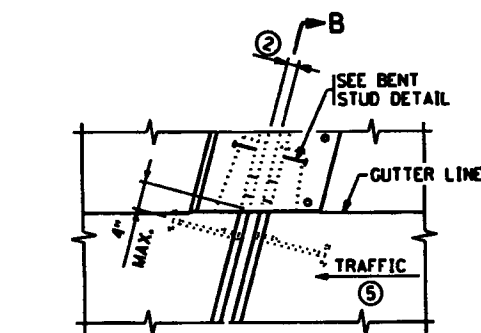
BENT STUD DETAIL



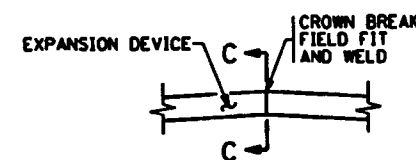
SECTION C-C



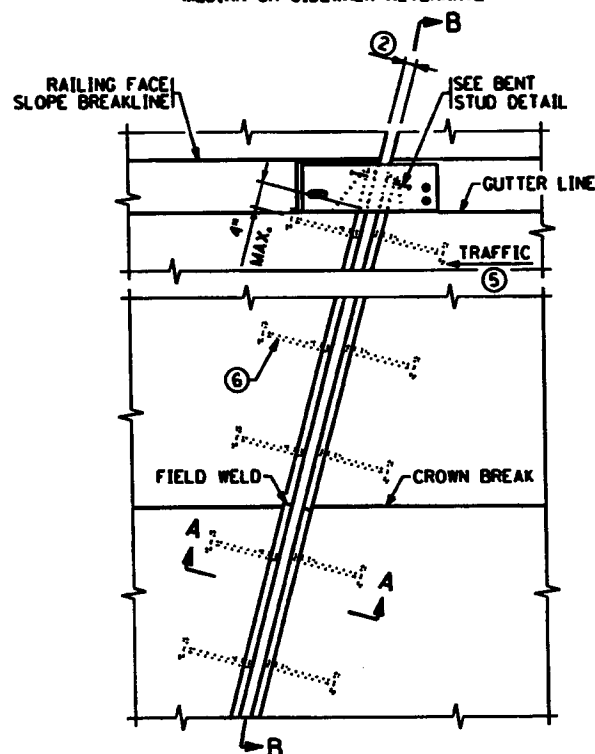
DETAIL "A"



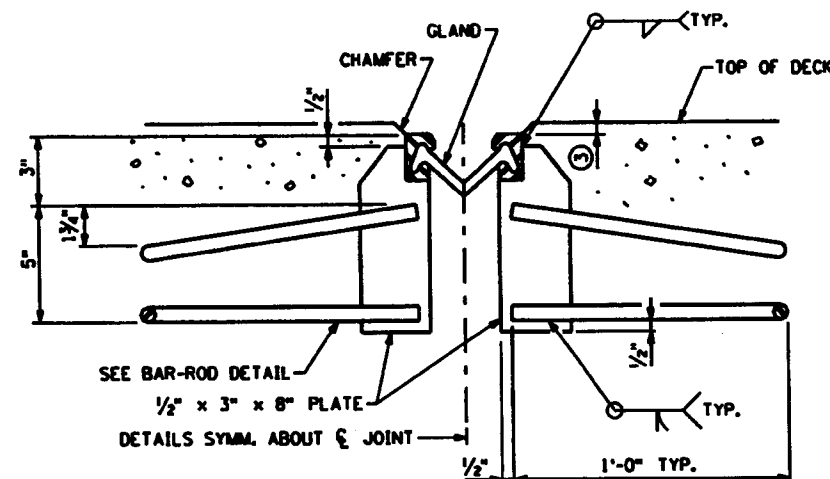
PLAN VIEW @ EXPANSION DEVICE
MEDIAN OR SIDEWALK ALTERNATE



DETAIL "B"



PLAN VIEW @ EXPANSION DEVICE
WITH STRAIGHT DEVICE



SECTION A-A

GENERAL NOTES

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER Mn/DOT SPEC. 3394. GALVANIZE FASTENERS AS PER Mn/DOT SPEC. 3392.

JOINTS IN EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER Mn/DOT SPEC. 2471.3L.

STRUCTURAL STEEL SHALL COMPLY WITH Mn/DOT SPEC. 3306 OR Mn/DOT SPEC. 3309.

EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN 10 FT.

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.

LENGTH OF PAYMENT FOR DEVICE IS FROM OUT TO OUT OF EXTRUSION ALONG CENTERLINE OF JOINT.

- ① DIMENSIONS ARE ALONG CENTERLINE OF JOINT.
- ② 2 1/2" @ 45°, 1 1/2" @ 90°
- ③ 1/8" (1/4" MAX.) WHEN SNOWFLOW FINGERS ARE USED. SNOWFLOW FINGERS ARE REQUIRED FOR SKEWS OVER 15° AND LESS THAN 50°.
- ④ SEE SUPERSTRUCTURE DETAILS FOR RADIUS.
- ⑤ SEE SHEET NO. 1 FOR DIRECTION OF TRAFFIC.
- ⑥ PLACE BAR-ROD NORMAL TO JOINT ON NEW BRIDGES AND JOINT REPLACEMENTS. ON JOINT REPLACEMENTS WHEN SKEW IS OVER 15° AND LESS THAN 50° BEND RODS PARALLEL TO ROADWAY.

FIG. 5-397.627 (MODIFIED)

9/17/2007 2:45:23 PM
K:\GIS\00-CAD\Plan\05-397.627.dgn

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700

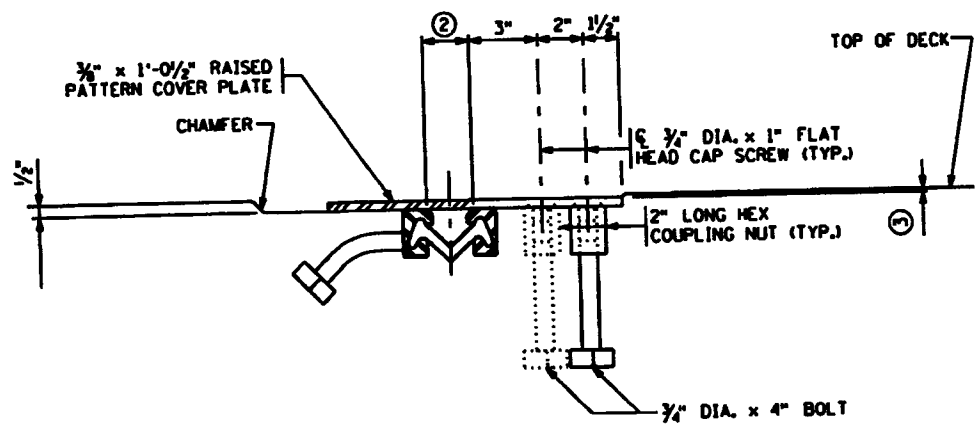
INFRAStructure - ENGINEERS - PLANNERS

WATERPROOF
EXPANSION DEVICE
(WITH TYPE F BARRIER)

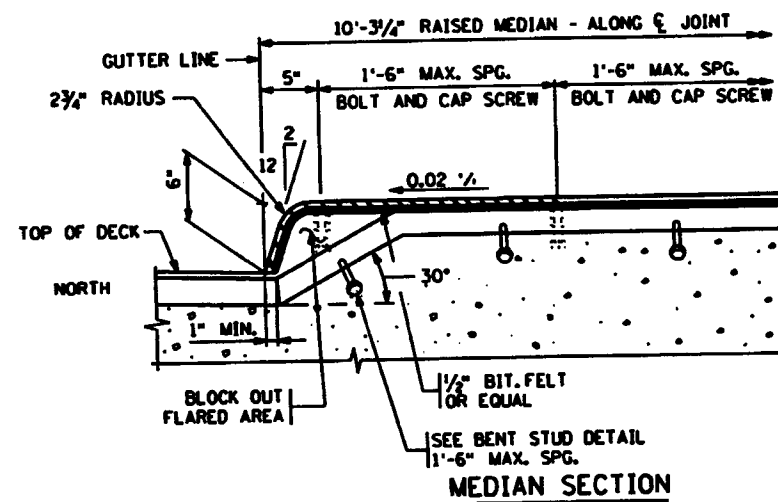
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barry Lindale
LICENSED PROFESSIONAL ENGINEER BARRY LINDALE
DATE: 9-17-07

DER: BRL DR: DJV APPROVER:
CHK: SA CHK: BRL
Sheet B46 of B56 Sheets

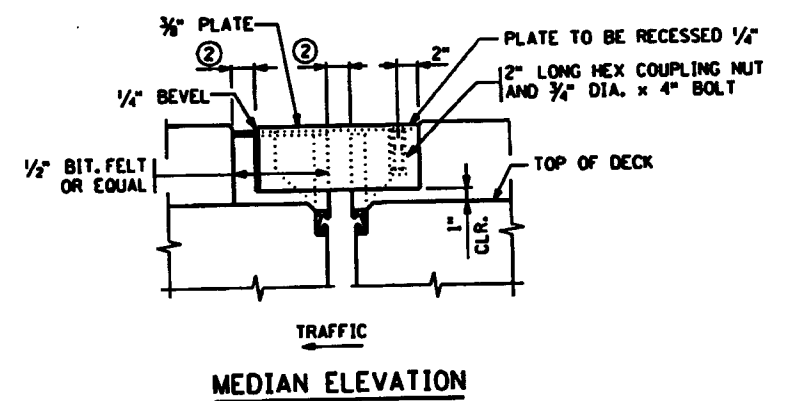
Bridge No.
62623



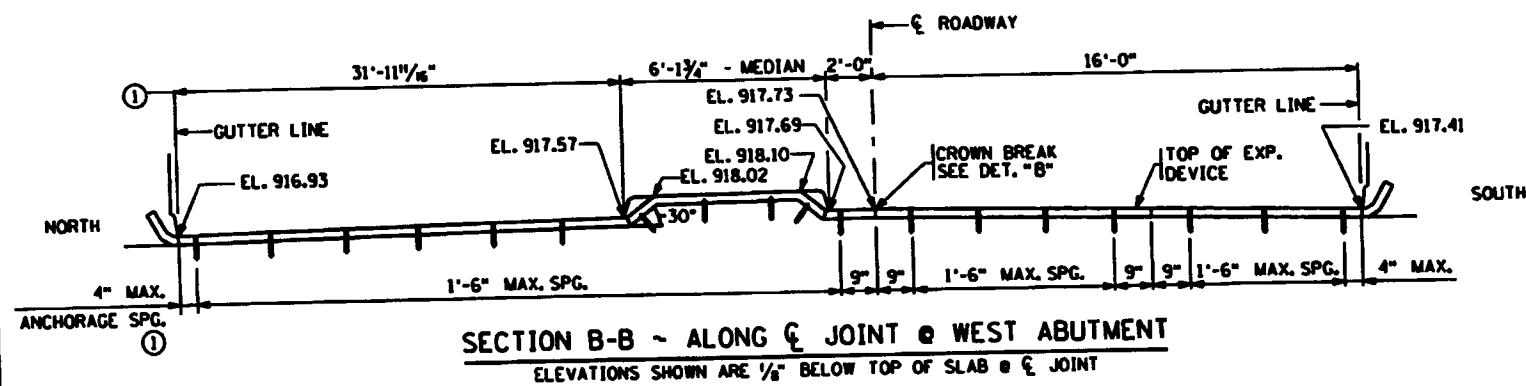
SECTION THRU RAISED PATTERN PLATE



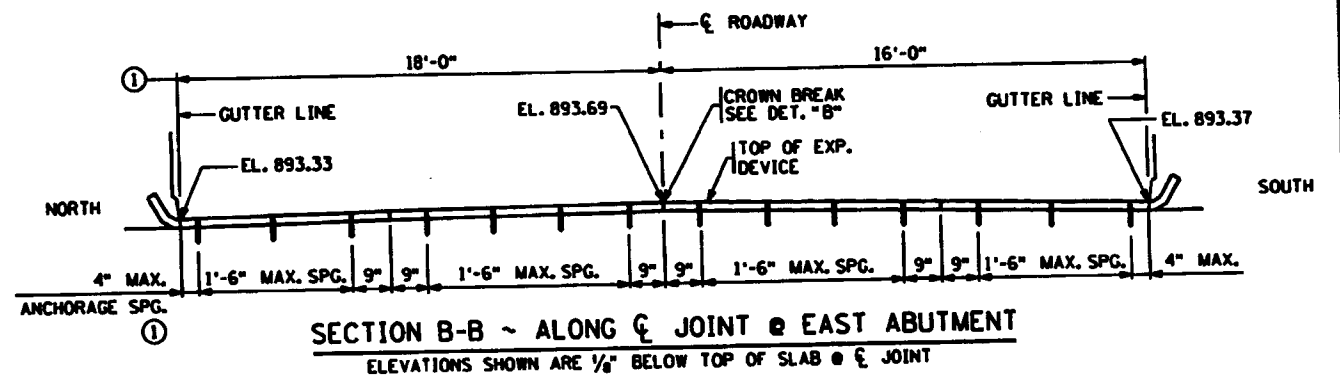
MEDIAN SECTION



MEDIAN ELEVATION



SECTION B-B ~ ALONG C JOINT @ WEST ABUTMENT
ELEVATIONS SHOWN ARE 1/8" BELOW TOP OF SLAB @ C JOINT



SECTION B-B ~ ALONG C JOINT @ EAST ABUTMENT
ELEVATIONS SHOWN ARE 1/8" BELOW TOP OF SLAB @ C JOINT

GENERAL NOTE
SEE DETAIL 5-397.627 FOR
ADDITIONAL DETAILS AND NOTES.

FIG. 5-397.630 (MODIFIED)

REV.	DATE	BY	CHK.	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xenth Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4880
FAX 763-641-1700

TITLE:

WATERPROOF
EXPANSION DEVICE
(WITH RAISED MEDIAN)

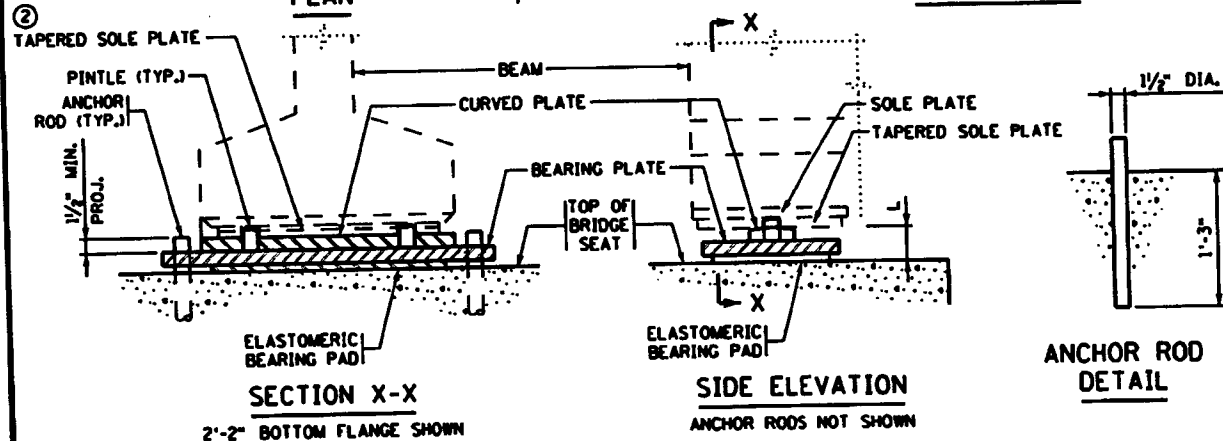
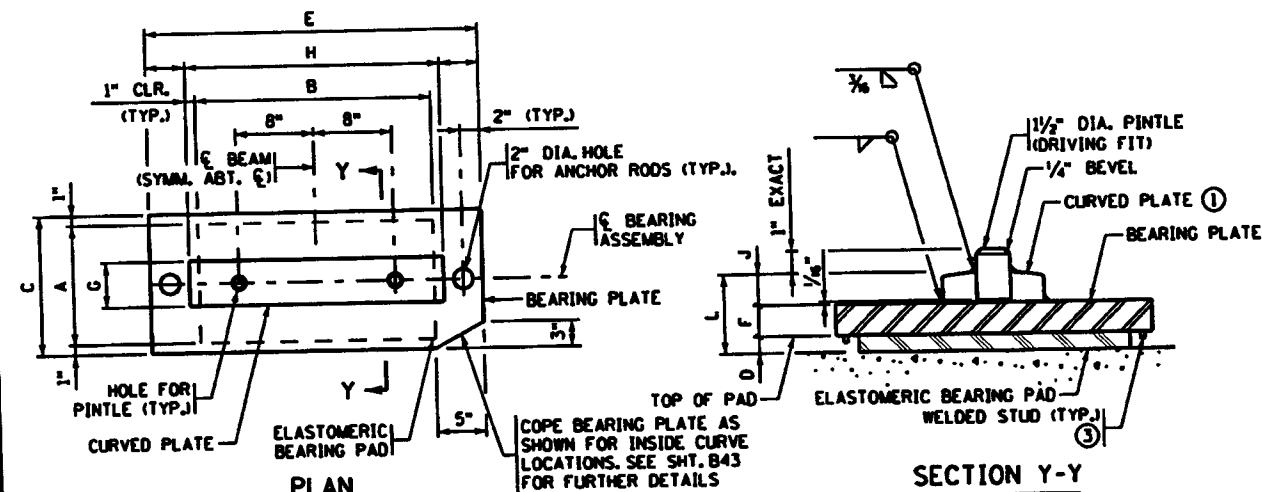
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barbara S. Smith
LICENSED PROFESSIONAL ENGINEER - BRIDGES - MINN. LICENSE NO. 94727

DES: BRL DR: DJW
CHK: SA CHK: BRL

APPROVED:

Sheet B47 of B56 Sheets

Bridge No.
62623



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			ANCHOR ROD OFFSET	ASSY. HEIGHT	CURVED PLATE
			A	B	D		C	E	F	G	H	J			
F1	PIERS	45M	14"	24"	1/2"	8.8	16"	34"	1 1/2"	6"	26"	1 1/4"	0"	3 1/4"	21"
F2	PIER 4	45M	14"	24"	1/2"	8.8	16"	34"	2 1/2"	6"	26"	1 1/4"	0"	4 1/4"	21"

NOTES:

ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH Mn/DOT SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH Mn/DOT SPEC. 3306.

ANCHOR RODS SHALL COMPLY WITH Mn/DOT SPEC. 3306. GALVANIZE PER Mn/DOT SPEC. 3394.

PINTLES SHALL COMPLY WITH Mn/DOT SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER Mn/DOT SPEC. 3394, EXCEPT AS NOTED.

PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.

① THE MIN. RADIUS OF THE CURVED PLATE SHALL BE 16" UNLESS OTHERWISE SPECIFIED. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

② SEE SHEET 51 FOR TAPERED SOLE PLATE DETAILS.

③ 3/8" DIA. x 3/4" KNOCK-OFF WELD STUDS INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. CENTERLINE STUD TO EDGE OF PAD DIMENSION = 1/2". MAX. STUD SPACING = 4", AND MAX. SPACING TO PAD CORNER = 2".

DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1 1/2" PINTLES.

APPROVED: OCTOBER 26, 2005

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CURVED PLATE BEARING ASSEMBLY
(PRESTRESSED CONCRETE BEAMS)
(FIXED)

REVISED

DETAIL NO.

(MODIFIED)

B310

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xanadu Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

TITLE

CURVED PLATE
BEARING ASSEMBLY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

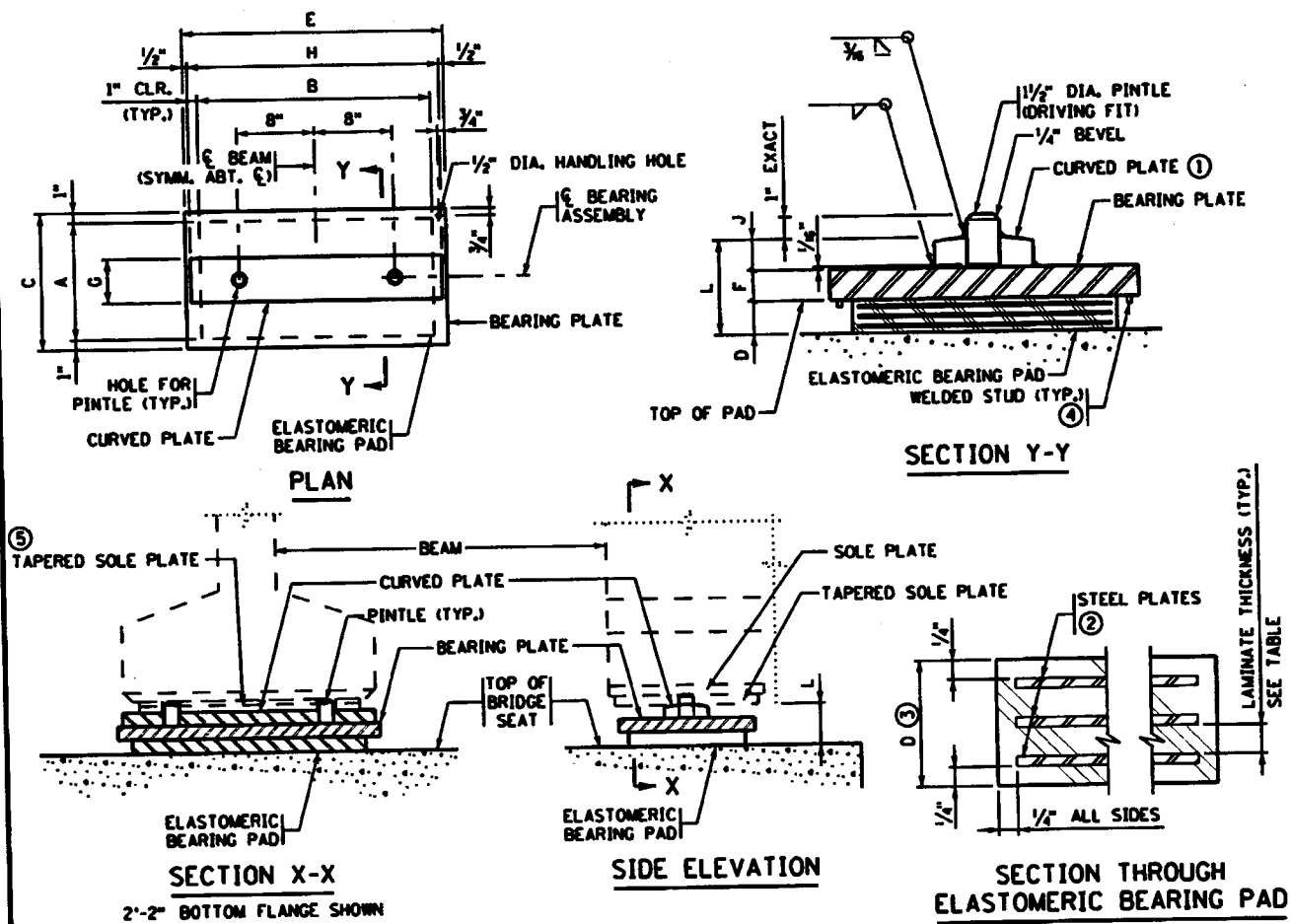
DES: BRL
CHK: SA

DES: DJV
CHK: BRL

APPROVED:

Bridge No.
62623

Sheet B48 of B56 Sheets



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			STEEL PLATES	LAMINATES	SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			ASSY. HEIGHT	CURVED PLATE		
			A	B	D	NO. THICK.	NO. THICK.		C	E	F	G	H	J	L	R		
E1	ABUTS.	45M	12"	24"	3 3/4"	6	1/8"	5	1/2"	8.0	14"	27"	1 1/2"	4 1/2"	26"	1 1/4"	6 1/2"	19"

NOTES:

ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH Mn/DOT SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH Mn/DOT SPEC. 3306.

PINTLES SHALL COMPLY WITH Mn/DOT SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER Mn/DOT SPEC. 3394, EXCEPT AS NOTED.

PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.

① THE MIN. RADIUS OF THE CURVED PLATE SHALL BE 16" UNLESS OTHERWISE SPECIFIED. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

② DO NOT GALVANIZE THESE PLATES.

③ THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.

④ 3/8" DIA. x 3/4" KNOCK-OFF WELD STUDS INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. CENTERLINE STUD TO EDGE OF PAD DIMENSION = 1/2". MAX. STUD SPACING = 4", AND MAX. SPACING TO PAD CORNER = 2".

⑤ SEE SHEET 51 FOR TAPERED SOLE PLATE DETAILS

DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1 1/2" PINTLES.

APPROVED: OCTOBER 26, 2005

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CURVED PLATE BEARING ASSEMBLY
(PRESTRESSED CONCRETE BEAMS)
(EXPANSION)

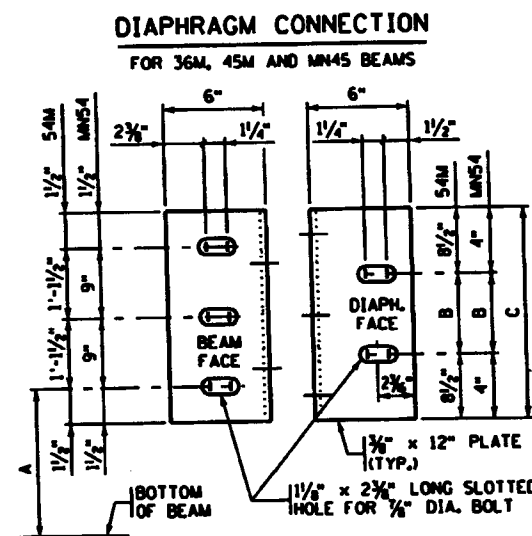
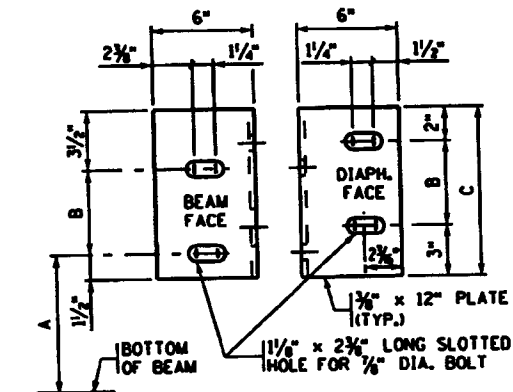
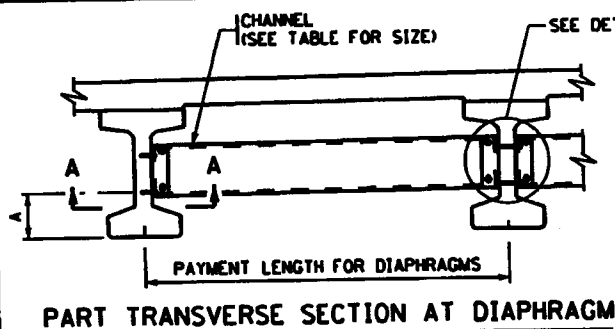
REVISED

DETAIL NO.

(MODIFIED)

B311

STATE BRIDGE ENGINEER



BEAM HEIGHT	DISTANCE			CHANNEL SIZE
	A	B	C	
36M	1'-3"	7"	1'-0"	C12x20.7
45M	1'-3 3/4"	1'-1"	1'-6"	MC18x42.7
54M	1'-2 1/4"	1'-1"	2'-6"	MC18x42.7
MN45	1'-7 1/4"	7"	1'-0"	C12x20.7
MN54	1'-7 1/4"	1'-1"	1'-9"	MC18x42.7

APPROVED: OCTOBER 26, 2005

Daniel J. Horgan
STATE BRIDGE ENGINEER

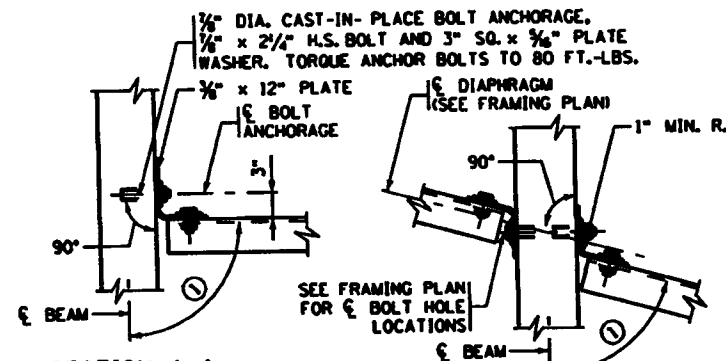
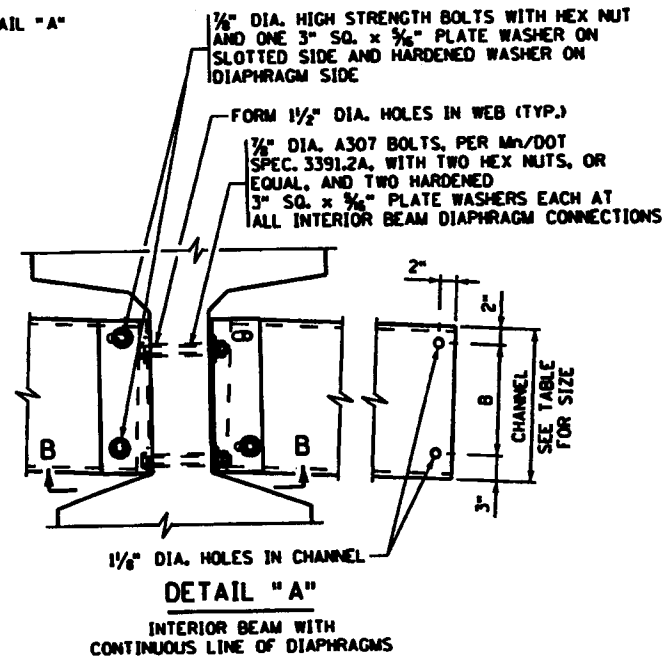
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

STEEL INTERMEDIATE DIAPHRAGM
(FOR 36M - 54M, MN45 AND MN54 PRESTRESSED CONCRETE BEAMS)

REVISED

DETAIL NO.

B403



NOTES:

ALL STEEL SHALL CONFORM TO Mn/DOT SPEC. 3306.

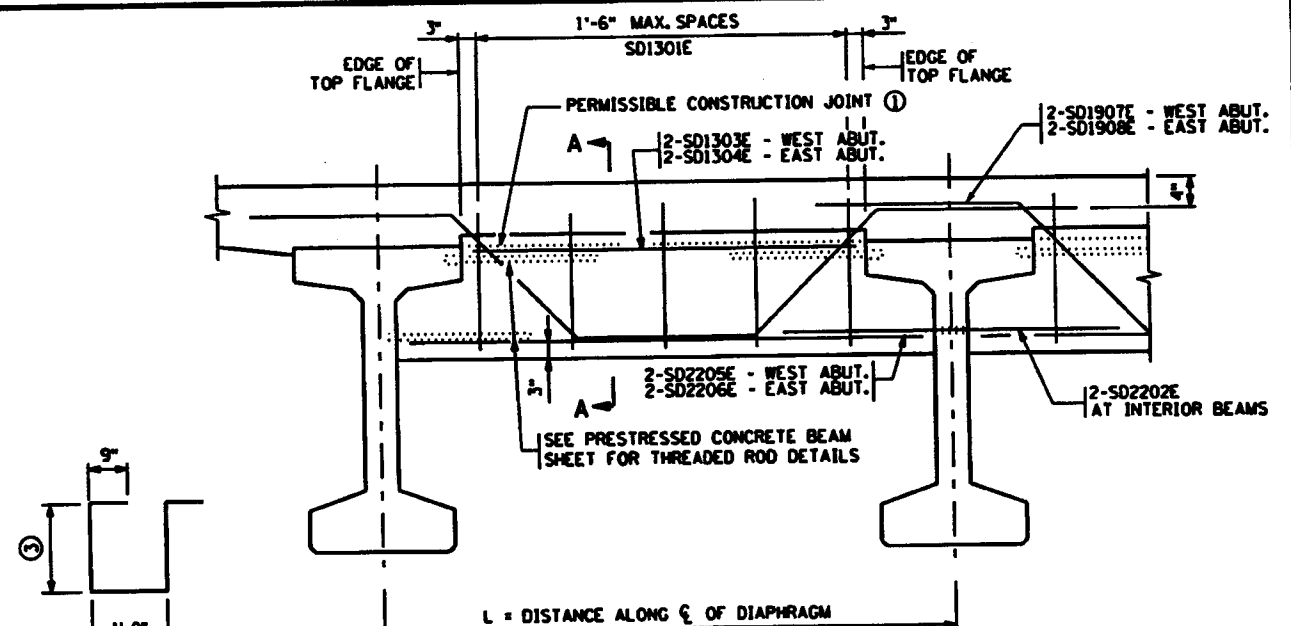
SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION.

THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

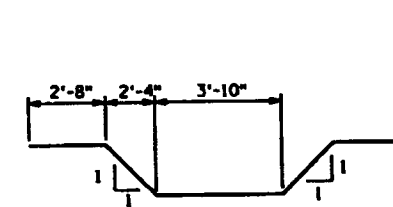
ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN THE PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

BENT PLATES MAY BE USED IN PLACE OF CHANNELS. THE BENT PLATES MUST BE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, BE 3/8" IN THICKNESS, AND HAVE LEGS 5" LONG.

① FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.



SD1301E



LONGITUDINAL REINFORCEMENT IN BOTTOM OF DIAPHRAGM				
DISTANCE "L" ALONG C OF DIAPHRAGM	STRAIGHT		BENT	
	NO.	SIZE	NO.	SIZE
UP TO 8'	2	19E	1	16E
OVER 8' TO 11'	2	22E	1	19E
OVER 11' TO 13'	2	25E	1	25E
OVER 13' TO 15'	2	29E	1	30E
OVER 15' TO 18'	2	36E	1	36E

BILL OF REINFORCEMENT FOR END DIAPHRAGM

BAR	NO.	LENGTH	SHAPE	LOCATION
SD1301E	48	6'-10"	□	VERTICAL TIE
SD2202E	12	5'-0"	—	LONG. THRU BEAM
SD1303E	10	7'-5"	—	LONG. TOP
SD1304E	10	7'-4"	—	LONG. TOP
SD2205E	10	9'-9"	—	LONG. BOTTOM
SD2206E	10	9'-6"	—	LONG. BOTTOM
SD1907E	5	15'-10"	—	LONGITUDINAL
SD1908E	3	15'-6"	—	LONGITUDINAL

NOTES:

DIAPHRAGM CONCRETE TO BE MIX NO. 3Y43.

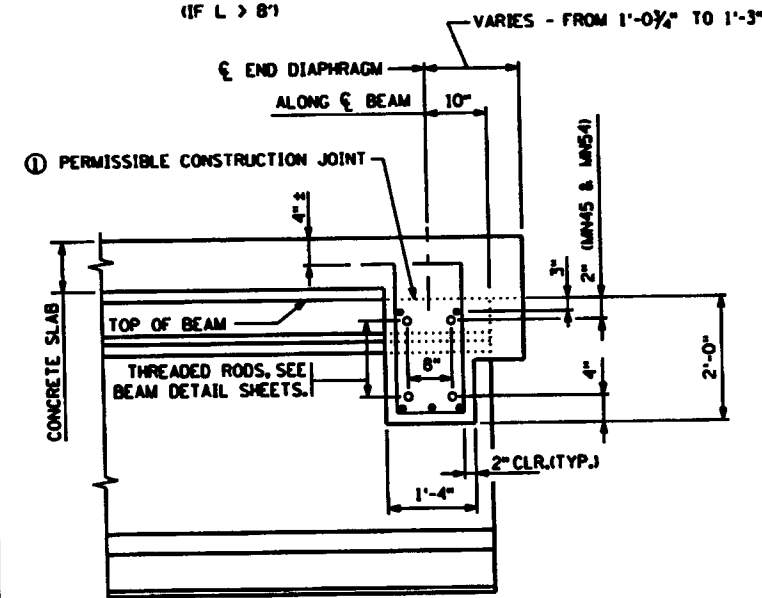
ALL DIAPHRAGM CONCRETE AND REINFORCEMENT BARS SHOWN ON THIS DETAIL TO BE INCLUDED IN PAYMENT FOR SUPERSTRUCTURE QUANTITIES.

THREADED RODS ARE INCLUDED IN PAYMENT FOR PRESTRESSED CONCRETE BEAMS.

① USE OF CONSTRUCTION JOINT REQUIRES CLEARANCE FOR EXPANSION DEVICE. WHEN CONSTRUCTION JOINT IS USED AT THIS LOCATION, DIAPHRAGM FALSEWORK SHALL REMAIN IN PLACE UNTIL COMPLETION OF SLAB CURING PERIOD.

② PERPENDICULAR TO CENTERLINE OF DIAPHRAGM. SEE PLANS FOR DIMENSION.

③ 2'-0" (27M); 2'-2" (36M, 45M AND MN45); 2'-6" (54M AND MN54). BASED ON 3" STUOL AND 9" DECK.



APPROVED: OCTOBER 26, 2005

Daniel J. Horgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONCRETE END DIAPHRAGM
(27M - 54M, MN45 AND MN54 PRESTRESSED CONCRETE BEAMS)
(PARAPET ABUTMENT)

REVISION

DETAIL NO.

B814

BRIDGE DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Daniel J. Horgan
LICENSED PROFESSIONAL ENGINEER - CIVIL/STRUCTURAL
DATE: 9-1-2011

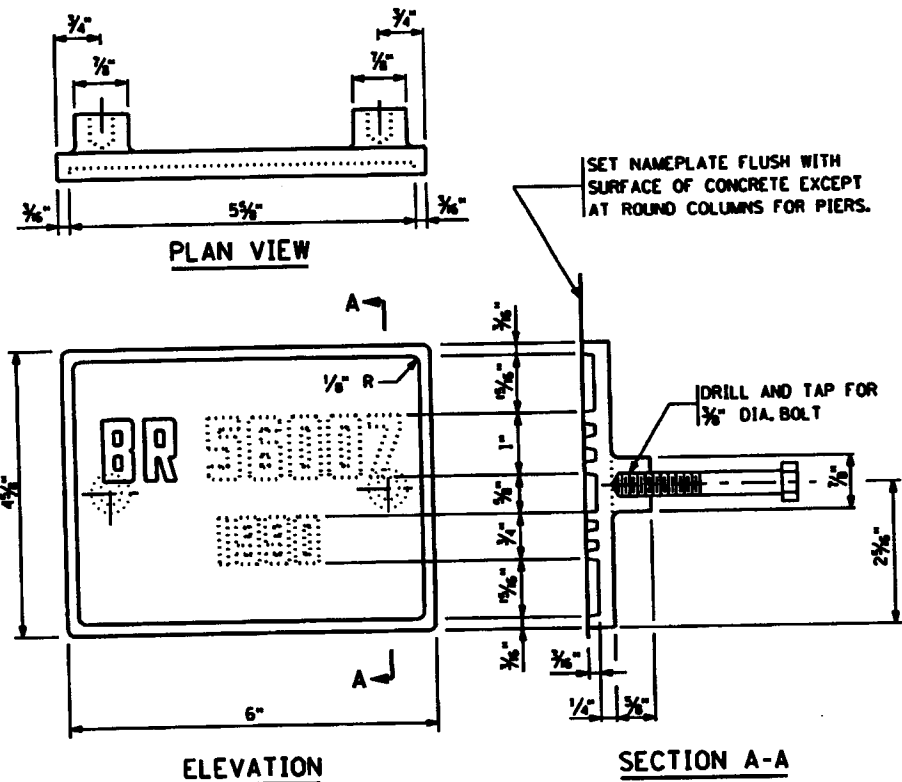
DES: BRL
CHK: SA

DR: DJW
CHK: BRL

APPROVED:

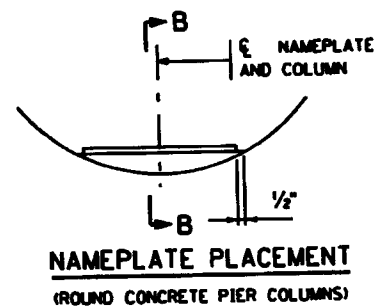
Sheet B49 of B56 Sheets

Bridge No.
62623



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 62623
YEAR 2008



1234567890

NUMBERS FOR NAMEPLATE

NOTES:

- NO SHOP DRAWING REQUIRED.
- MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.
- LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
- DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
- HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
- TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
- FURNISH 2 STEEL BOLTS 3/4" DIA. x 3" LONG WITH EACH PLATE.
- ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

SECTION B-B

APPROVED: NOVEMBER 22, 2002

Daniel J. Hargison
STATE BRIDGE ENGINEER

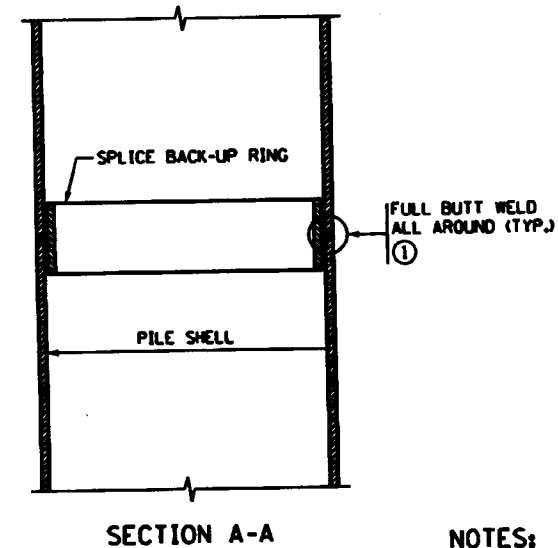
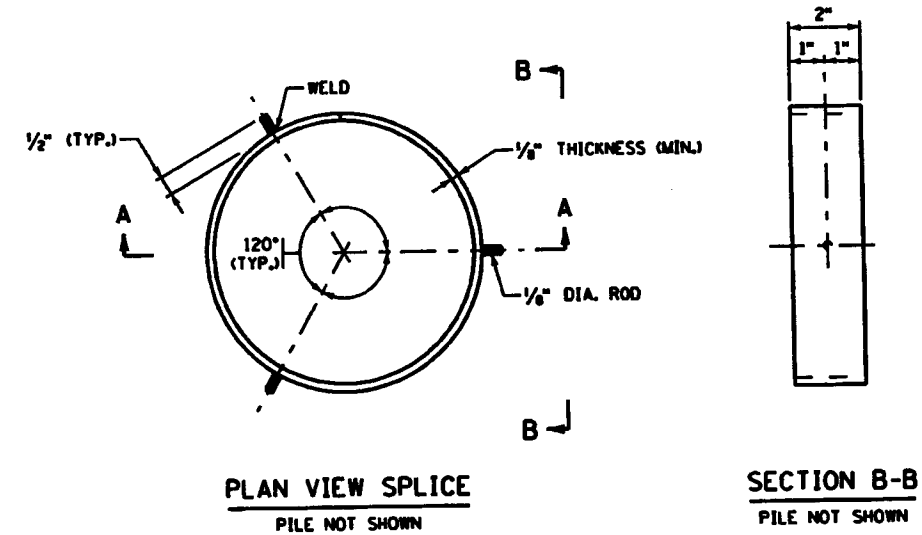
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE NAMEPLATE
(FOR NEW BRIDGES)

REVISION

DETAIL NO.

B101



NOTES:

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.
- WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
- ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
- WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.
- ① FOR PILE SHELL THICKNESSES GREATER THAN 1/2", USE A B-U40 WELD CONFIGURATION.

APPROVED: NOVEMBER 22, 2002

Daniel J. Hargison
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

PILE SPLICE
(CAST-IN-PLACE CONCRETE PILES)

REVISION

DETAIL NO.

B201

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB



701 Korte Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-1700

TITLE

BRIDGE DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

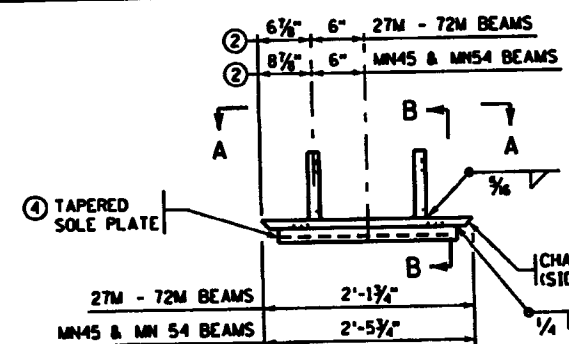
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CHK: SA CHK: DRL

APPROVER:

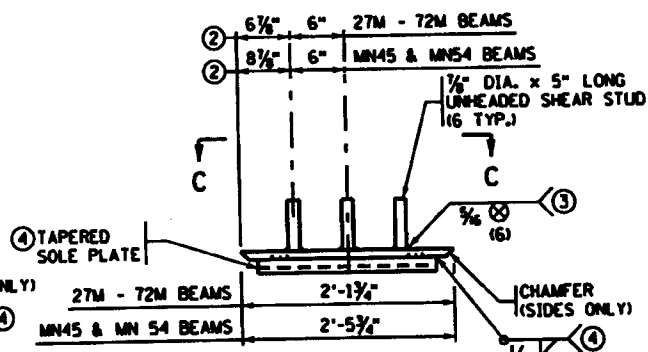
Daniel J. Hargison
LICENSED PROFESSIONAL ENGINEER - MINNIT LORRAINE
LIC. NO. 938
EXP. 9-17-07

Sheet B50 of B56 Sheets

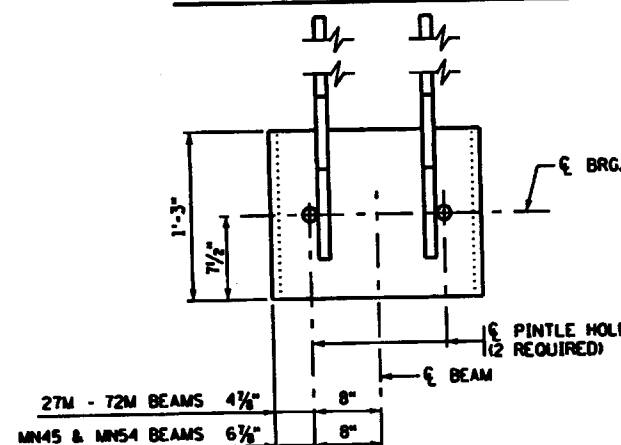
Bridge No.
62623



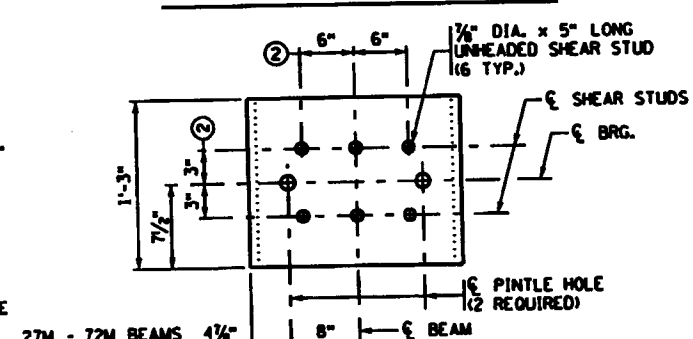
FRONT ELEVATION - OPTION 1



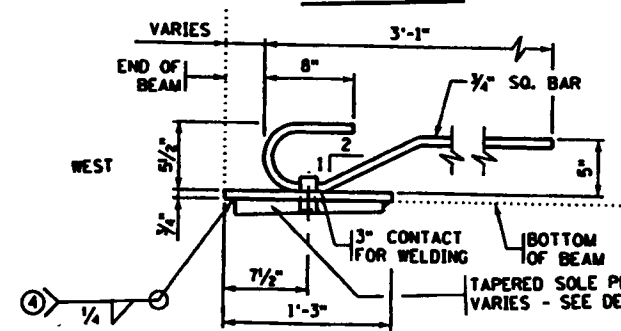
FRONT ELEVATION - OPTION 2



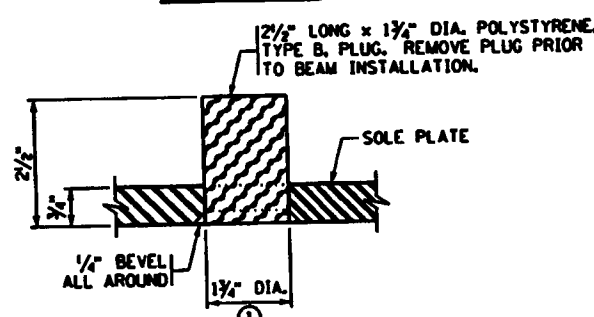
SECTION A-A



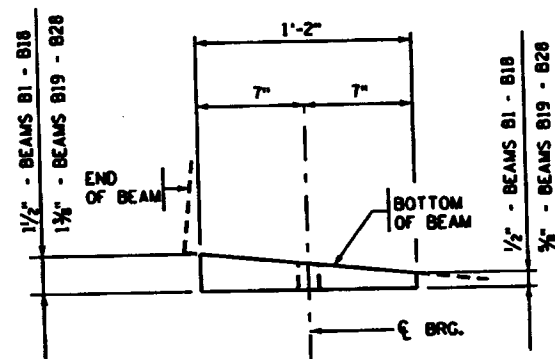
SECTION C-C



SECTION B-B



PINTLE HOLE DETAIL



TAPERED SOLE PLATE DETAIL

PLACED AT BOTH ENDS OF THE BEAM WITH THE THICKEST END OF THE PLATE PLACED TO WEST. BOTTOM OF TAPERED SOLE PLATE TO BE APPROX. LEVEL WITH BEAM PLACED IN IT'S FINAL POSITION.

TAPERED SOLE PLATE DETAIL

NOTES:

- MATERIAL TO BE STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.
- WELDED STUDS TO BE WELDABLE CARBON STEEL PER Mn/DOT SPEC. 3391.2D.
- SOLE PLATES FOR BEARING ASSEMBLY TO BE GALVANIZED PER Mn/DOT SPEC. 3394 AFTER FABRICATION.
- PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.
- PAYMENT FOR SOLE PLATES TO BE INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE BEAMS.
- ① FOR 1 1/2\"/>
- ② THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.
- ③ THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D1.5.
- ④ TAPERED SOLE PLATES TO BE WELDED TO SOLE PLATE CAST IN BEAM PRIOR TO DELIVERY. SEE SPECIAL PROVISIONS FOR PROCEDURE.

APPROVED: OCTOBER 26, 2005

STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

SOLE PLATE
(PRESTRESSED CONCRETE BEAMS)
(FOR BEARINGS WITH PINTLES)

REVISED DETAIL NO.

(MODIFIED) B303

9/17/2007 2:55:45 PM K:\G13-00\conf\plan\cbr-62623.dwg

NO.	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694-343),
S.P. 62-649-24CTB



701 Xerxes Ave. South
Suite 300
Minneapolis, MN 55416
763-641-4800
FAX 763-641-7700

TITLE:

BRIDGE DETAILS

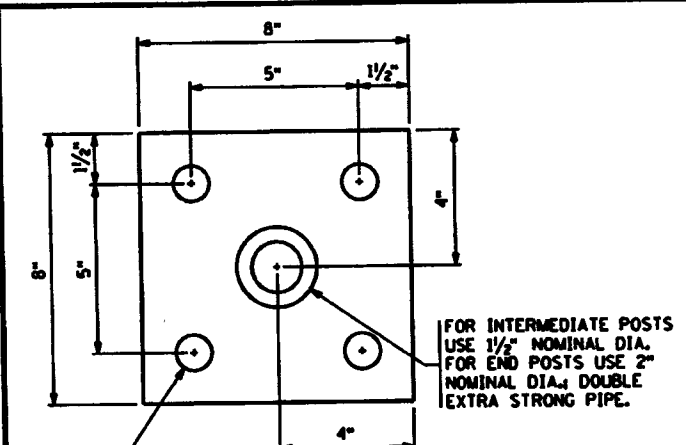
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

David J. W.
LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER

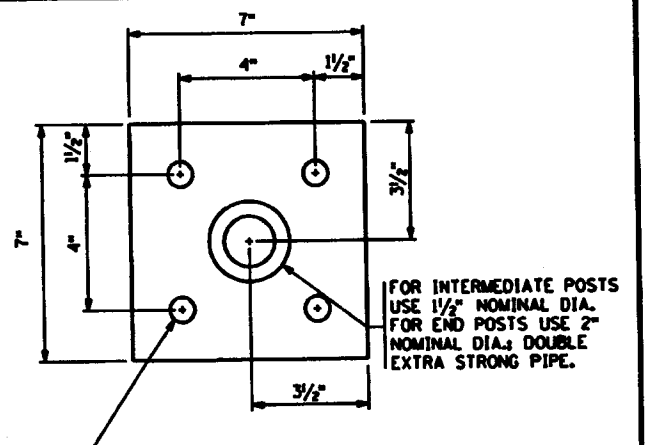
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CHK: SA	CHK: BRL	

Sheet B51 of B56 Sheets

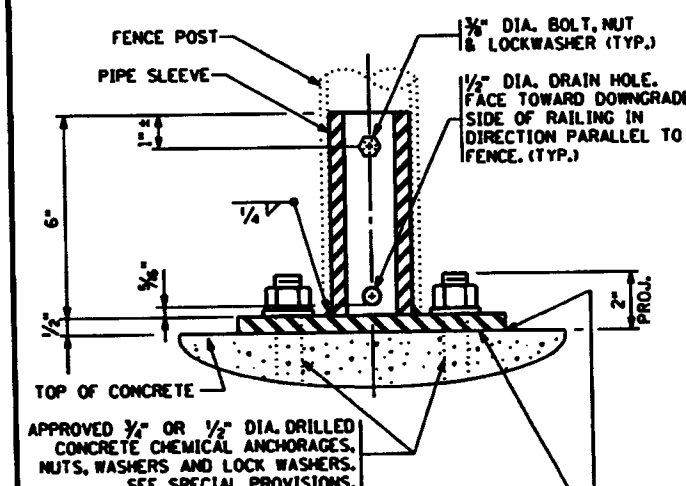
Bridge No.
62623



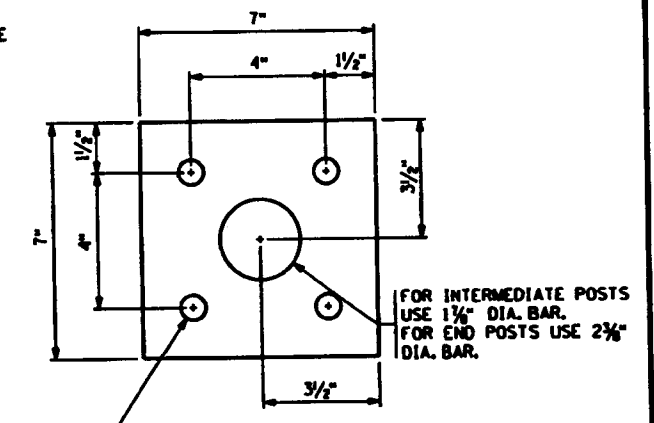
PLAN VIEW - TYPE A
ESTIMATED WEIGHT = 12 OR 14 LBS.



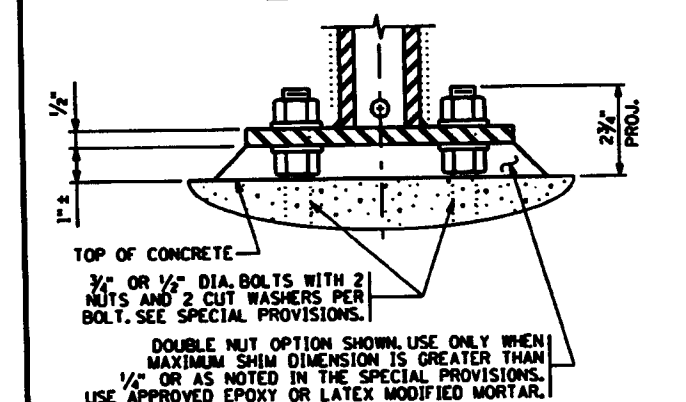
PLAN VIEW - TYPE B
ESTIMATED WEIGHT = 10 OR 12 LBS.



TYPICAL SECTION



PLAN VIEW - TYPE C
ESTIMATED WEIGHT = 12 OR 15 LBS.



GROUT ALTERNATE

NOTES:
STRUCTURAL STEEL PER Mn/DOT SPEC. 3306
STRUCTURAL PIPE PER Mn/DOT SPEC. 3362
GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER Mn/DOT SPEC. 3394. GALVANIZE THE FASTENERS PER Mn/DOT SPEC. 3392.
DOUBLE EXTRA STRONG PIPE WEIGHTS:
1 1/2" NOMINAL DIA. = 6.41 LBS./FT.
2" NOMINAL DIA. = 9.03 LBS./FT.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Daniel J. Hansen</i> STATE BRIDGE ENGINEER	FENCE POST ANCHORAGE		B905

9/17/2007 2:55:50 PM K:\0713-001\CAD\Plan\cbr-62623.dwg 105.dgn

NO.	DATE	BY	CHK	REVISIONS

COUNTY ROAD E / VADNAIS BLVD.
RUSTIC PLACE TO TWIN LAKES BLVD.
S.P. 62-616-02, S.P. 6285-130 (TH694=343),
S.P. 62-649-24CTB

WSB
701 Kent Ave. South
Suite 200
Minneapolis, MN 55416
763-641-4203
FAX 763-641-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

BRIDGE DETAILS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Daniel J. Hansen
LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER
LIC. NO. 917-07

DES: BRL DR: DJW
CHK: SA CHK: BRL
APPROVED:
Sheet B52 of B56 Sheets

Bridge No.
62623

☒ LOW SLUMP 3017A

EXPANSION JOINTS

SIZE OF GLAND 1/4" THICKNESS X 1 5/16" WIDTH

Bridge No.
62623

SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

ALIGNMENT TABULATION - TWIN LAKES BLVD.

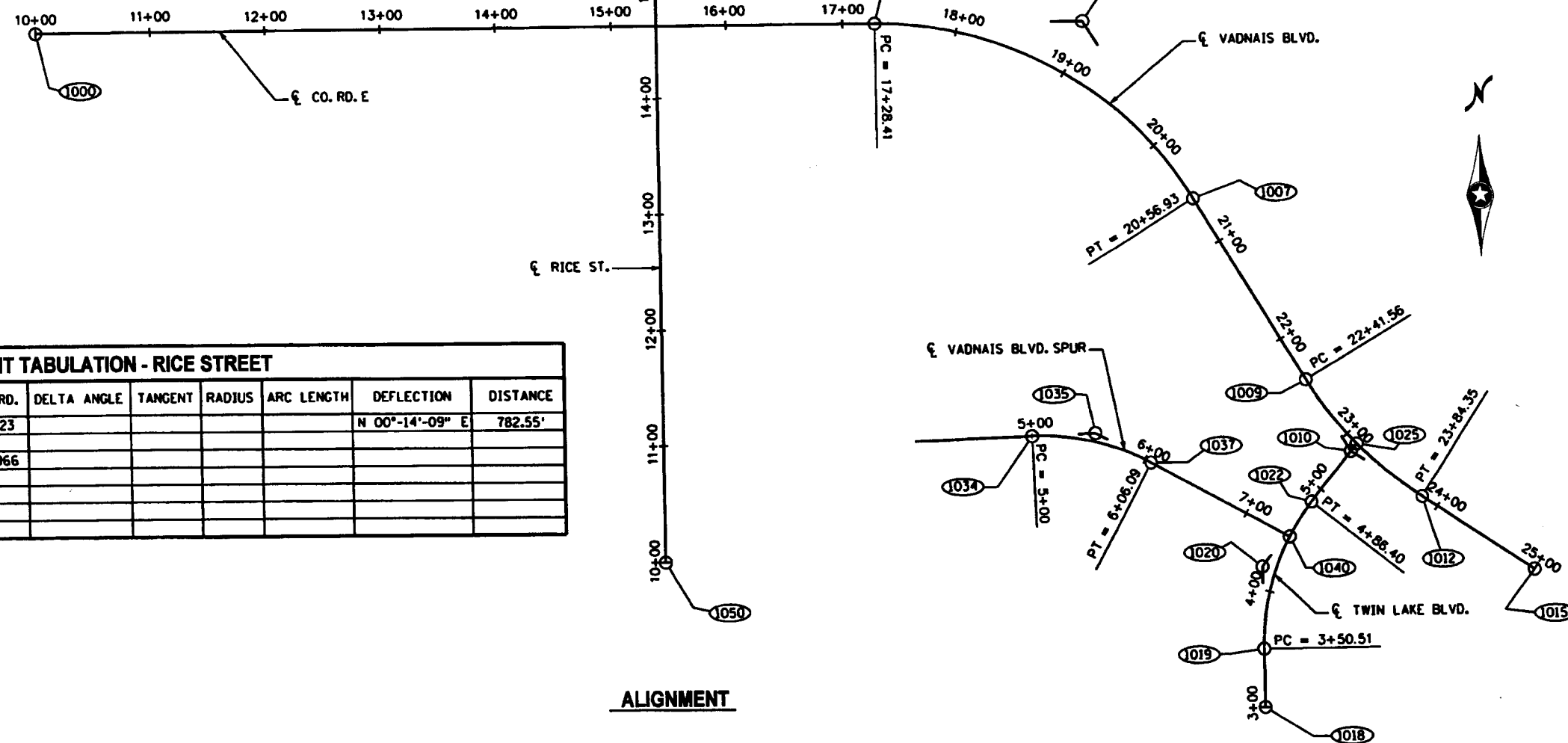
POINT NO.	POINT	STATION	X - COORD.	Y - COORD.	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH	DEFLECTION	DISTANCE
1018	P08	3+00.00	572124.254	192793.301					N 00°-33'-44" W	50.51'
1019	PC	3+50.51	572123.759	192843.808						
	RADIUS		572323.749	192845.771	38°-55'-49"	70.69'	200.00'	135.89'		
1020	PI	4+21.20	572123.065	192914.492						
1022	PT	4+86.40	572166.941	192969.913					N 38°-22'-05" E	63.69'
1025		5+50.00	572206.414	193019.772						

ALIGNMENT TABULATION - VADNAIS BLVD. - SPUR

POINT NO.	POINT	STATION	X - COORD.	Y - COORD.	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH	DEFLECTION	DISTANCE
1034	PC	5+00.00	571924.626	193028.030						
	RADIUS		571932.504	192828.185	30°-23'-33"	54.32'	200.00'	106.09'		
1035	PI	5+54.32	571978.909	193030.170						
1037	PT	6+06.09	572026.814	193004.553					S 61°-51'-54" E	136.72'
1040		7+42.81	572147.381	192940.081						

ALIGNMENT TABULATION - VADNAIS BLVD. / COUNTY ROAD E

POINT NO.	POINT	STATION	X - COORD.	Y - COORD.	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH	DEFLECTION	DISTANCE
1000	P08	10+00	571063.746	193380.960					N 89°-39'-29" E	728.41'
1004	PC	17+28.41	571792.148	193385.307						
	RADIUS		571794.058	1933065.312	58°-49'-13"	180.38'	320.00'	328.51'		
1005	PI	19+08.80	571972.530	193386.383						
1007	PT	20+56.93	572066.839	193232.615					S 31°-31'-18" E	184.63'
1009	PC	22+41.56	572163.369	193075.227						
	RADIUS		572436.150	193242.530	25°-33'-59"	72.60'	320.00'	142.79'		
1010	PI	23+14.16	572201.327	193013.337						
1012	PT	23+84.35	572262.278	192973.888					S 57°-05'-17" E	116.03'
1015		25+00.38	572359.683	192910.845						



ALIGNMENT TABULATION - RICE STREET

POINT NO.	POINT	STATION	X - COORD.	Y - COORD.	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH	DEFLECTION	DISTANCE
1050		10+00.00	571605.080	192921.423					N 00°-14'-09" E	782.55'
1055		17+82.55	571601.859	193703.966						

ALIGNMENT

9/17/2007 2:55:59 PM
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NL	DATE	BY	CHK	REVISIONS



COUNTY ROAD E / VADNAIS BLVD.
 RUSTIC PLACE TO TWIN LAKES BLVD.
 S.P. 62-616-02, S.P. 6285-130 (TH694-343),
 S.P. 62-649-24CTB



701 Xerxes Ave. South
 Suite 300
 Minneapolis, MN 55416
 703-541-4993
 FAX 703-541-1700

TITLE:

ALIGNMENT TABULATION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Frank S. Sullivan
 LICENSED PROFESSIONAL ENGINEER - BRIDGE ENGINEER
 LIC. NO. 91707

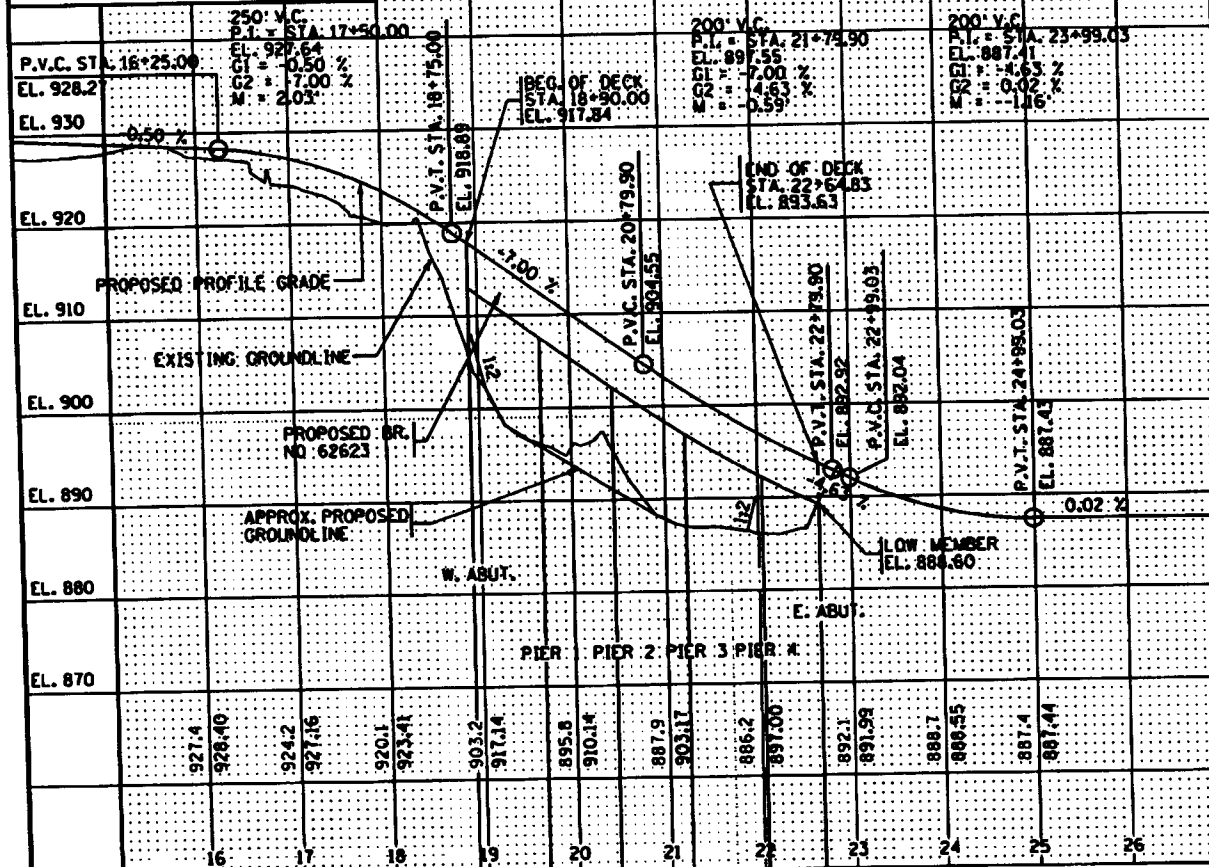
DES: BRL DR: DJW
 CHK: SA CHK: BRL

APPROVED:

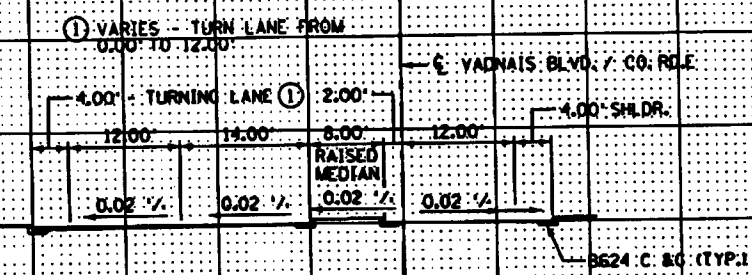
Sheet B54 of B56 Sheets

Bridge No.
 62623

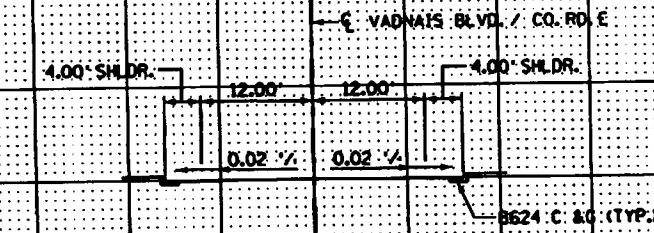
CONTRACTED PROFILE
SCALE: 0 50' 100' 0 5' 10'
HORIZONTAL VERTICAL



TYPICAL SECTIONS & PERTINENT DATA
SCALES AS SHOWN



APPROACH ROADWAY SECTION - STA. 18+90.00



APPROACH ROADWAY SECTION - STA. 22+75.00

- LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE
1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
 2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY); GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS SECTIONAL AREA ETC.
 3. APPARENT HIGHWATER ELEVATION OBTAINED FROM: LOCAL LAND OWNER
 4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

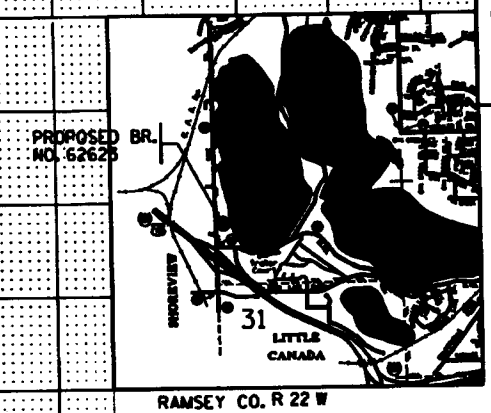
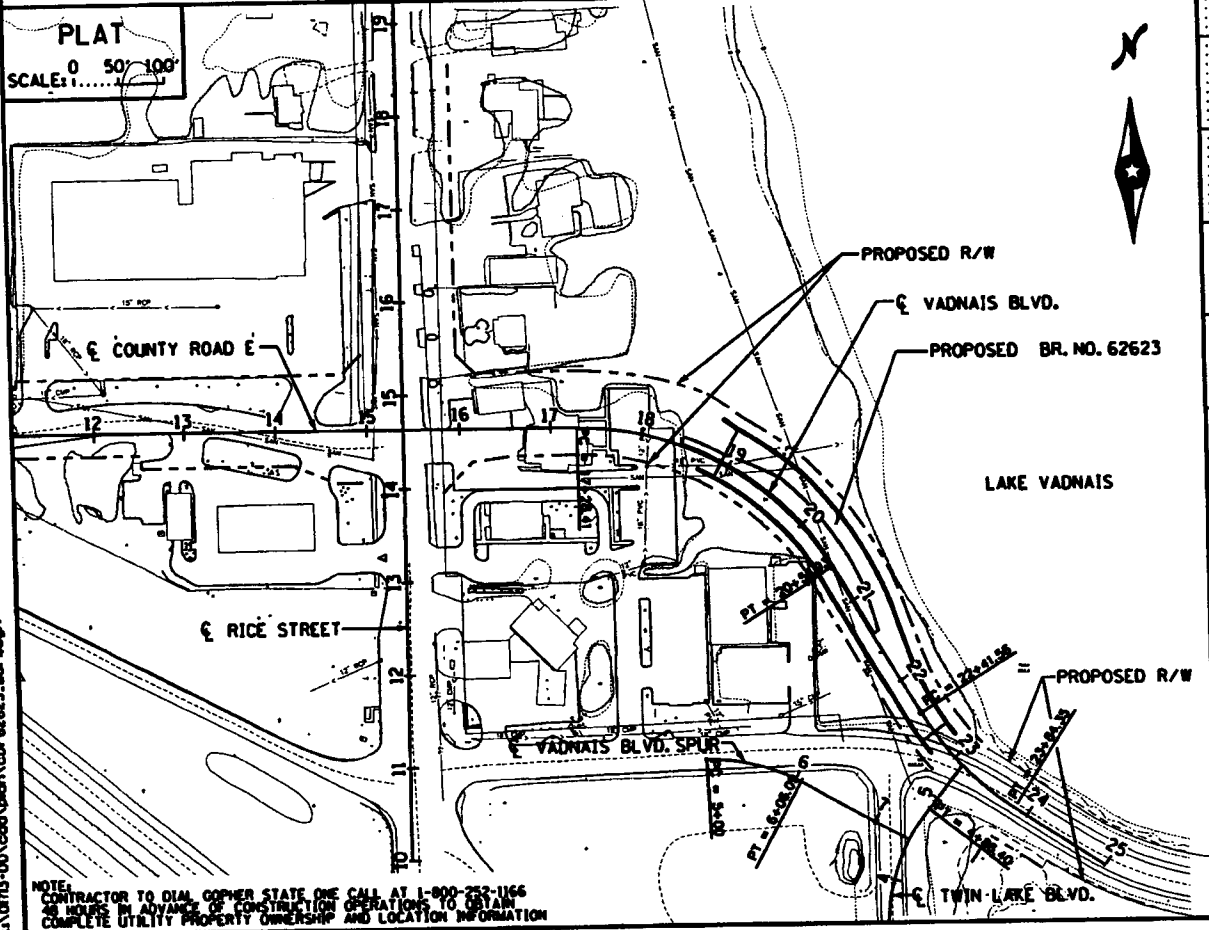
HYDRAULIC ENGINEERS RECOMMENDATION
DATE: _____

STREAM OR DITCH DESIGNATION: _____
DRAINAGE AREA: 11.2 SQ. MILES
MA. FLOOD ON RECORD: (UNKNOWN)
MAXIMUM OBSERVED HIGHWATER ELEVATION: 1016.00
DESIGN FLOOD (100 YR. FREQ.): 1000 C.F.S.
DESIGN STAGE ELEVATION: 1011.10 FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: 7.7 F.P.S.
TOTAL STAGE INCREASE: 2.1 FT.
LOW MEMBER AT OR ABOVE ELEVATION: 1018.00 FT.
WATERWAY AREA REQUIRED BELOW ELEV. 1014.10 = 130 SQ. FT. AT RIGHT ANGLES TO CHANNEL
BASIC FLOOD (100 YR. FREQ.): 1000 C.F.S.
STAGE ELEVATION: 1011.10 FT.
TOTAL STAGE INCREASE: 2.7 FT.
MEAN VELOCITY THROUGH STRUCTURE: 7.7 F.P.S.
FLOWLINE ELEVATION: 1007.00 FT. SKEW ANGLE: 0°
ESTIMATED DEPTH OF PIER SCOUR = N/A (100 YR. FREQ.)

BRIDGE SURVEY SHEETS MADE FROM:
RAMSEY COUNTY SURVEY DATA FROM DECEMBER 2006

BENCH MARK ELEVATION 927.311 (M.S.L. 1929 ADJ.)
LOCATION: SE CORNER OF THE RICE STREET
BRIDGE OVER I-694
X = 571638.530
Y = 192522.193

(N.A.D. 83 (1988) HORIZ - N.G.V.D. 29 VERT.)



INDEX MAP
(ONE SECTION)

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

PROPOSED BRIDGE LOCATED 0.10 MILES
EAST OF RICE ST ON VADNAIA BLVD.
IN THE CITY OF VADNAIA HEIGHTS

SEC 31 T 30 N R 22 W
COUNTY: RAMSEY
CITY OF VADNAIA HEIGHTS

BRIDGE NO. 62623

