

DESIGN DATA

1996 AND CURRENT INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS. LOAD FACTOR DESIGN METHOD. DESIGN LOADING: HS 25 LOAD DEAD LOAD INCLUDES 17 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.

MAXIMUM ALLOWABLE DESIGN STRESSES: REINFORCED CONCRETE: f'c = 4000 psi; n = 8 fy = 60,000 psi; (REINFORCEMENT) PRESTRESSED CONCRETE: f'c = 8500 psi; n = 1 fy = 270,000 psi; FOR 0.6"Ø LOW RELAXATION STRANDS

A.D.T. DATA: 15232 (1999), 25545 (2021) - OVER D.H.V. (2021): 2170 H.C.A.D.T. (2021): 1405 DESIGN SPEED = 50 M.P.H. (OVER) DECK AREA = 23067 SQ. FT. OPERATING RATING = HS-51

FOR 'LIST OF SHEETS' SEE SHEET 2.

CONSTRUCTION NOTES

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

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

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE. (IN MILLIMETERS) BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

NOTES:

THE DESIGN ALIGNMENT DATA FOR EXISTING T.H. 35W DOES NOT AGREE WITH THE AS-BUILT CONDITION. THE ALIGNMENT DATA SHOWN ON THESE PLANS REPRESENTS BEST-FIT CURVES BASED ON SURVEY INFORMATION ON THE EXISTING PAVEMENT. THE FUTURE ALIGNMENT OF T.H. 35W IS TO BE SHIFTED BY 6 FEET, BUT THE EXACT ALIGNMENT WILL HAVE TO BE DETERMINED IN THE CONTEXT OF THE FUTURE T.H. 35W REALIGNMENT PROJECT.

EXISTING BRIDGE NO. 9829 WILL BE REMOVED IN ITS ENTIRETY PRIOR TO THE CONSTRUCTION OF PROPOSED BRIDGE NO. 02566. THE FINAL BRIDGE PLAN SHEETS WILL BE DETAILED SUCH THAT THE BRIDGE CAN BE CONSTRUCTED IN TWO STAGES. THE CONTRACTOR WILL NOT BE REQUIRED TO FOLLOW THE STAGED CONSTRUCTION. THE ONLY REQUIREMENT IS TO HAVE THE NORTH PORTION OF THE BRIDGE OPEN TO TRAFFIC BY A DATE TO BE SPECIFIED IN THE SPECIAL PROVISIONS. AESTHETIC TREATMENT PER E-MAIL CORRESPONDENCE FROM DAVE HALL ON 2/23/2001.

BENCH MARK ELEVATION: EL. 911.008 (M.S.L. 1929 ADJ.)

LOCATION: I.P. 9025 LOCATED ON THE SOUTH SIDE OF C.S.A.H. 52, 93 FEET EAST OF NAPLES.

C.S.A.H. 52 ANOKA COUNTY MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02566

C.S.A.H. 52 (RADISSON ROAD) OVER T.H. 35W 54' PRESTRESSED CONCRETE BEAM SPANS (109-FT & 120-FT), 29'46'07" SKEW, 83'-0" ROADWAY (INCLUDING SHOULDERS) 12'-0" SIDEWALK. BRIDGE I.D. NO. 501

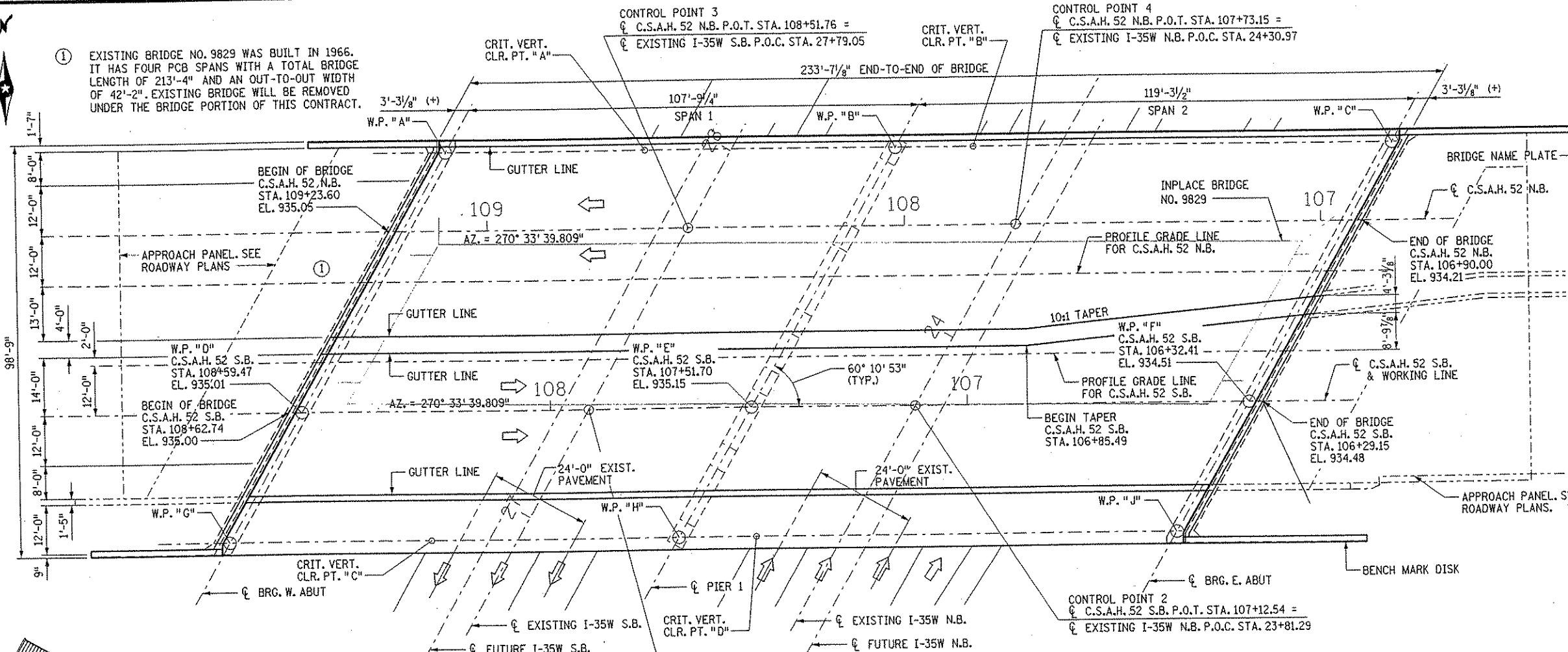
GENERAL PLAN AND ELEVATION

SEC. 27 TWP. 31N R. 23W CITY OF BLAINE ANOKA COUNTY

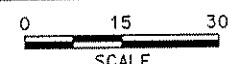
APPROVED: [Signature] 1/24/02 STATE BRIDGE ENGINEER DATE:

DES: GM DR: SJS 02566 CHK: MJC CHK: GM

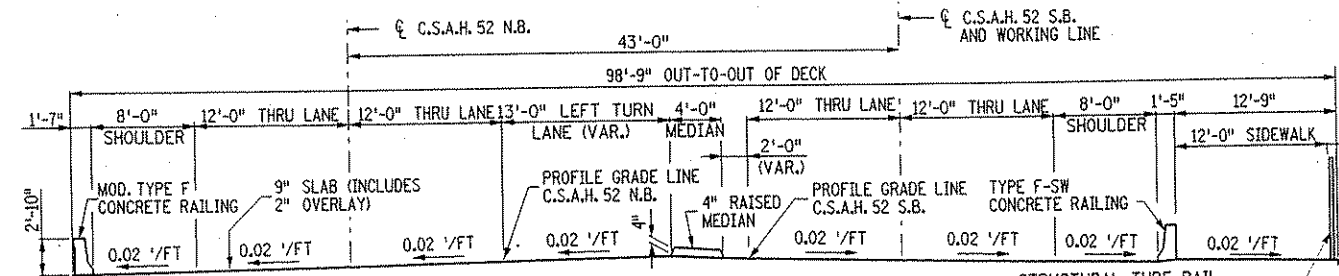
Sheet No. 1 of 56 Sheets



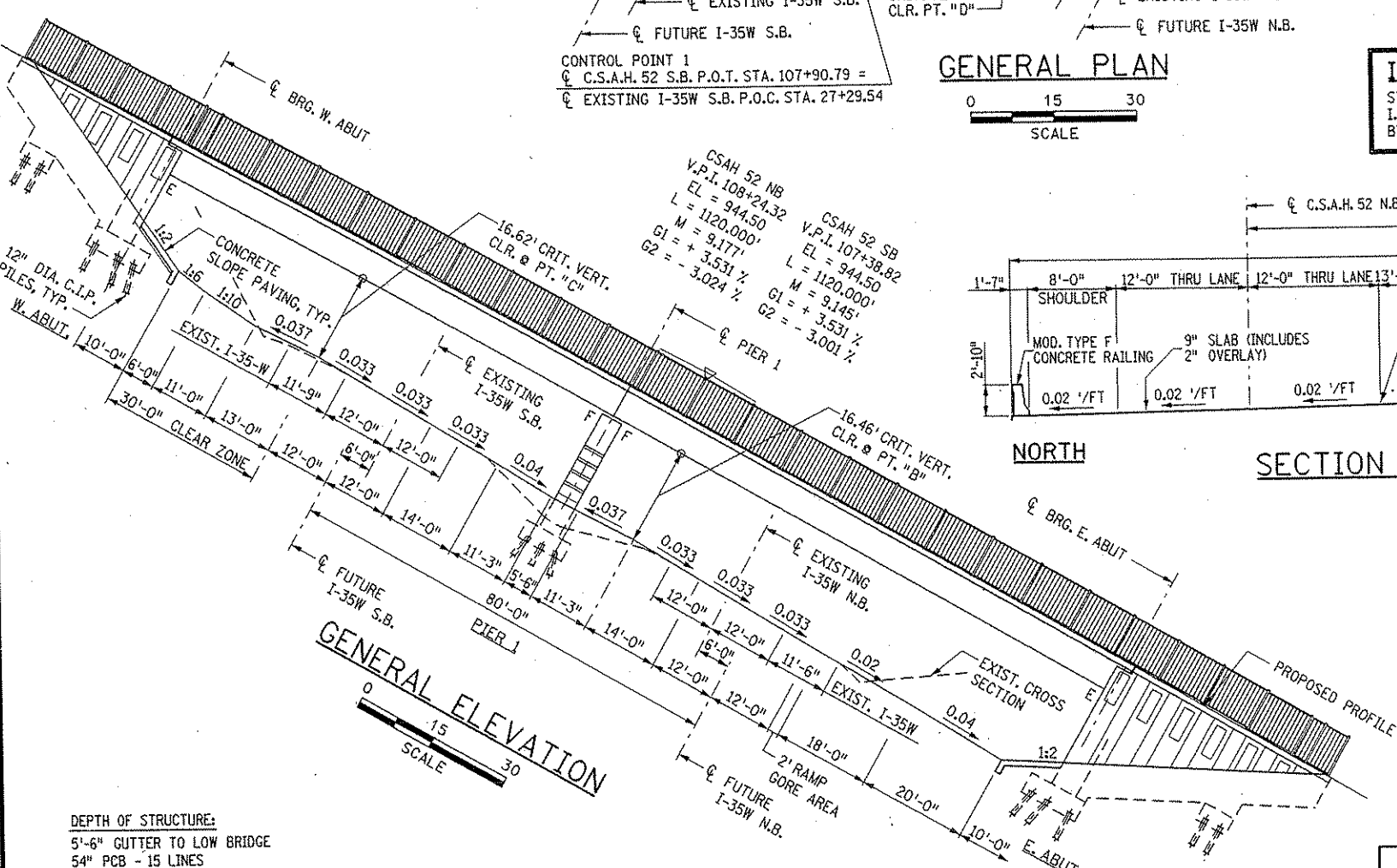
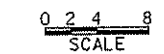
GENERAL PLAN



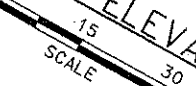
IMPORTANT NOTE: STATIONING FOR BRIDGE RUNS FROM RIGHT TO LEFT, I.E. FROM EAST TO WEST. STATIONING IS GOVERNED BY STATIONING FOR C.S.A.H. 52 (RADISSON ROAD).



SECTION THROUGH FINISHED BRIDGE DECK



GENERAL ELEVATION

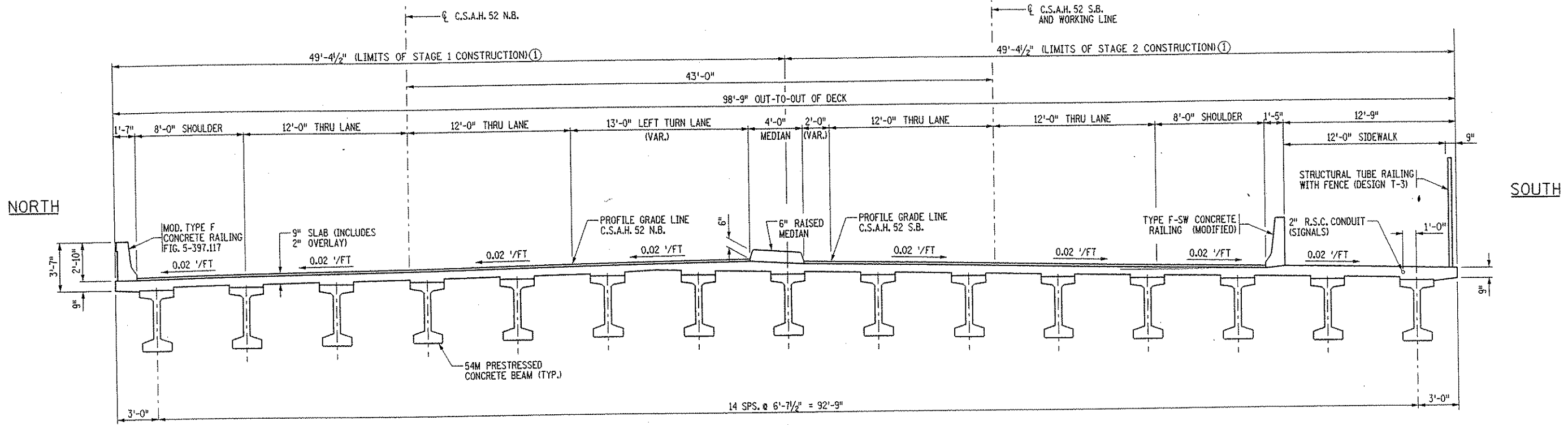


DEPTH OF STRUCTURE: 5'-6" GUTTER TO LOW BRIDGE 54" PCB - 15 LINES

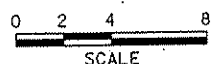
Professional Engineer stamp for TKDA (Toltz, King, O'Connell, Anderson and Associates, Inc.) with signature of Gottfried Millner, dated 01/22/2002.

S.P. 02-652-03 S.P. 0280-50

DATE: 01/22/2002 TIME: 01:52:44 PM FILENAME: k:\d-f-anokacy\17490\hwy-brdg\part4\brdge\finale.dgn



TYPICAL SECTION



① THESE BRIDGE PLANS HAVE BEEN DEVELOPED FOR THE STAGED CONSTRUCTION LIMITS SHOWN ABOVE. HOWEVER, DUE TO THE PROJECT CONSTRUCTION SCHEDULE, THE CONTRACTOR WILL BE REQUIRED TO COMPLETE BOTH BRIDGE CONSTRUCTION STAGES WITHIN PROJECT STAGE A1 AS SHOWN IN THE ROADWAY STAGING PLAN AND IN THE SPECIAL PROVISIONS, DIVISION S. THE WORK DESCRIBED IN BRIDGE STAGES 1 & 2 MAY PROCEED CONCURRENTLY.

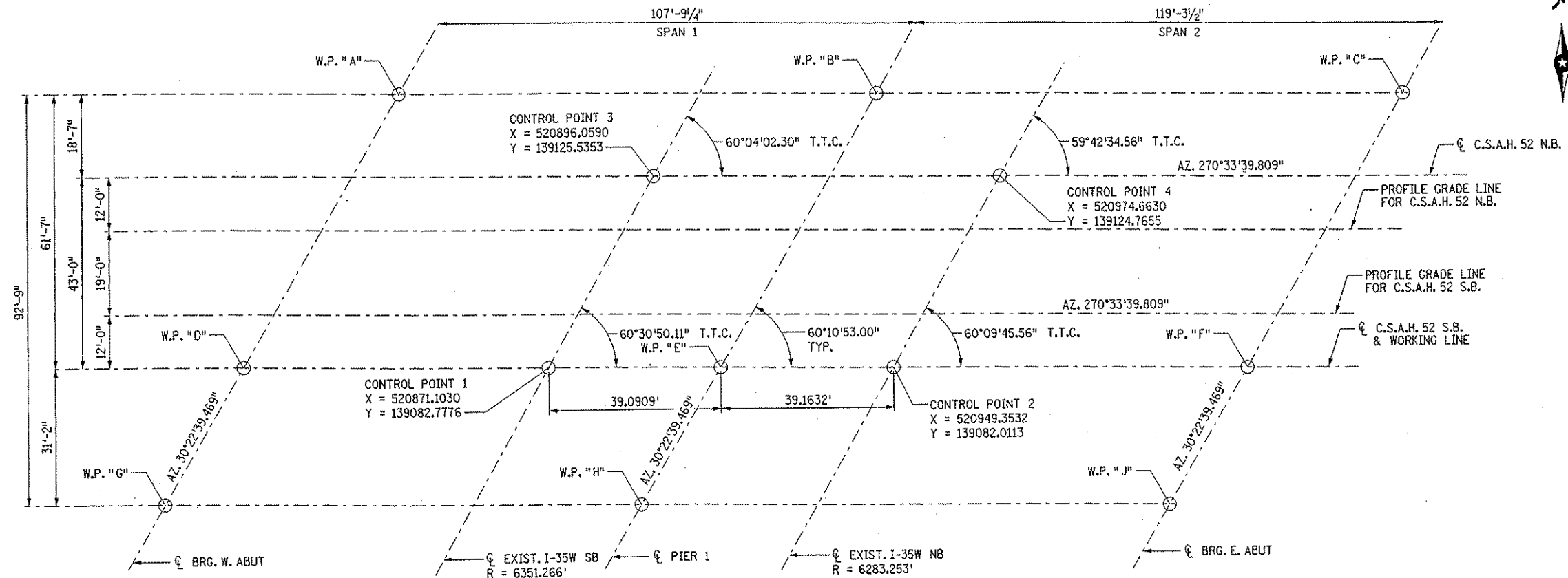
SUMMARY OF QUANTITIES FOR ENTIRE BRIDGE			
ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY
2401.501	STRUCTURAL CONCRETE (1A43)	CU.YD.	483 (P)
2401.501	STRUCTURAL CONCRETE (3Y43)	CU.YD.	1062 (P)
2401.512	BRIDGE SLAB CONCRETE (3Y36)	SQ.FT.	23060 (P)
2401.513	TYPE F MODIFIED RAILING CONCRETE (3Y46)	LIN.FT.	306 (P)
2401.513	TYPE F-SW RAILING CONCRETE (3Y46)	LIN.FT.	234 (P)
2401.516	RAISED MEDIAN CONCRETE (3Y46)	SQ.FT.	950 (P)
2401.541	REINFORCEMENT BARS	POUND	44320 (P)
2401.541	REINFORCEMENT BARS (EPOXY-COATED)	POUND	192670 (P)
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
2402.591	EXPANSION JOINT DEVICES TYPE 4	LIN.FT.	224 (P)
2402.595	BEARING ASSEMBLY	EACH	60
2402.603	STRUCTURAL TUBE RAILING WITH FENCE (DESIGN T-3)	LIN.FT.	305
2404.501	CONCRETE WEARING COURSE (3U17A)	SQ.FT.	26710 (P)
2405.502	PRESTRESSED CONCRETE BEAMS 54"	LIN.FT.	3423 (P)
2405.511	DIAPHRAGMS FOR TYPE 54" PRESTRESSED BEAMS	LIN.FT.	558 (P)
2442.501	REMOVE OLD BRIDGE	LUMP SUM	1
2452.507	CAST-IN-PLACE CONCRETE PILING DELIVERED 12"	LIN.FT.	12010
2452.508	CAST-IN-PLACE CONCRETE PILING DRIVEN 12"	LIN.FT.	12010
2452.519	CAST-IN-PLACE CONCRETE TEST PILE 90' LONG 12"	EACH	12
2452.802	PILE REDRIVING	EACH	6
2514.501	CONCRETE SLOPE PAVING	SQ.YD.	289 (P)
2545.509	CONDUIT SYSTEM (LIGHTING)	LUMP SUM	1
2545.509	CONDUIT SYSTEM (SIGNALS)	LUMP SUM	1
2502.801	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1

② NON-PARTICIPATING ITEM

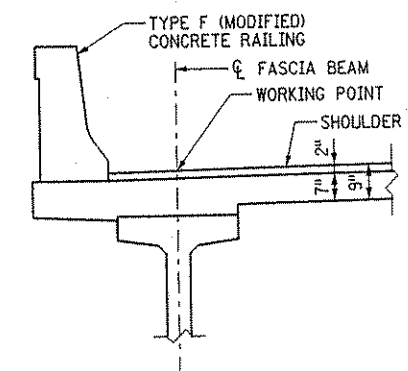
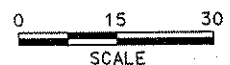
LIST OF SHEETS			
1	GENERAL PLAN AND ELEVATION	29	FRAMING PLAN - STAGE 2
2	TYPICAL SECTION AND QUANTITIES	30	PRESTRESSED BEAM TYPE 54M-109
3	BRIDGE LAYOUT	31	PRESTRESSED BEAM TYPE 54M-120
4	W. ABUTMENT - STAGE 1 PLAN & ELEVATION	32	SLAB REINFORCEMENT - STAGE 1
5	W. ABUTMENT - STAGE 1 FOOTING PLAN & REINFORCEMENT	33	SLAB REINFORCEMENT - STAGE 2
6	W. ABUTMENT - STAGE 1 REINFORCEMENT	34	SUPERSTRUCTURE DETAILS
7	W. ABUTMENT - STAGE 2 WINGWALL DETAILS	35	ABUTMENT CORNER DETAILS
8	W. ABUTMENT - STAGE 2 PLAN & ELEVATION	36	SUPERSTRUCTURE QUANTITIES
9	W. ABUTMENT - STAGE 2 FOOTING PLAN & REINFORCEMENT	37	SUPERSTRUCTURE BARLIST
10	W. ABUTMENT - STAGE 2 REINFORCEMENT	38	ELEVATION FOR TYPE F MODIFIED CONCRETE RAILING
11	W. ABUTMENT - STAGE 2 WINGWALLS	39	CONCRETE RAILING (TYPE F MODIFIED)
12	E. ABUTMENT - STAGE 1 PLAN & ELEVATION	40	ELEVATION FOR CONCRETE RAILING (TYPE F-SW)
13	E. ABUTMENT - STAGE 1 FOOTING PLAN & REINFORCEMENT	41	CONCRETE RAILING (TYPE F-SW)
14	E. ABUTMENT - STAGE 1 REINFORCEMENT	42	ELEVATION FOR STRUCTURAL TUBE RAILING WITH FENCE (DESIGN T-3)
15	E. ABUTMENT - STAGE 1 WINGWALL DETAILS	43	STRUCTURAL TUBE RAILING WITH FENCE (DESIGN T-3)
16	E. ABUTMENT - STAGE 2 PLAN & ELEVATION	44	WATERPROOF EXPANSION DEVICE WITH TYPE F BARRIER
17	E. ABUTMENT - STAGE 2 FOOTING PLAN & REINFORCEMENT	45	WATERPROOF EXPANSION DEVICE WITH SIDEWALK
18	E. ABUTMENT - STAGE 2 REINFORCEMENT	46	WATERPROOF EXPANSION DEVICE SNOW PLOW PROTECTION
19	E. ABUTMENT - STAGE 2 WINGWALLS ELEVATION & REINFORCEMENT	47	CONDUIT SYSTEM (TRAFFIC LIGHTS)
20	ABUTMENT DETAILS	48	STD. DETAILS B101 & B201
21	PIER 1 - STAGE 1 PLAN & ELEVATION	49	STD. DETAILS B310 & B311
22	PIER 1 - STAGE 1 REINFORCEMENT	50	STD. DETAIL B830
23	PIER 1 - STAGE 2 PLAN & ELEVATION	51	STD. DETAILS B403 & B814
24	PIER 1 - STAGE 2 REINFORCEMENT	52	STD. DETAILS B303 & B910
25	SUBSTRUCTURE QUANTITIES	53	CONCRETE SLOPE PAVING UNDER BRIDGES
26	SUBSTRUCTURE BARLISTS (1 OF 2)	54	AS-BUILT BRIDGE DATA
27	SUBSTRUCTURE BARLISTS (2 OF 2)	55	BRIDGE SURVEY
28	FRAMING PLAN - STAGE 1	56	BRIDGE SURVEY PLAN & PROFILE

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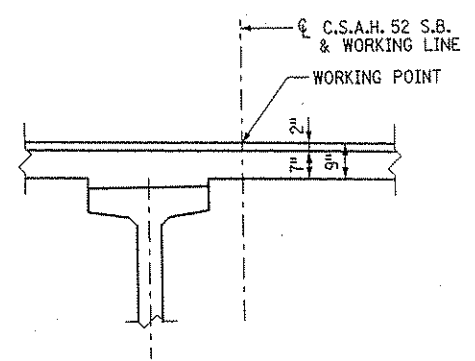
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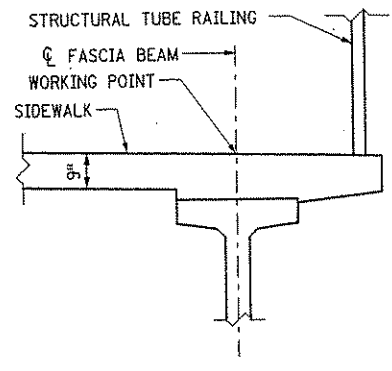
WORKING POINT LAYOUT



NORTH WORKING POINTS



☉ WORKING POINTS



SOUTH WORKING POINTS

WORKING POINT LOCATIONS

TOP OF RDWY TO BR. SEAT				
	W. ABUT.	PIER 1		E. ABUT.
		EXP.	FIX.	
SLAB THICKNESS	9"	9"	9"	9"
STOOL HEIGHT	3 1/4"	4 1/4"	4 1/4"	4 1/4"
BEAM HEIGHT	54"	54"	54"	54"
BEARING HEIGHT	4 5/8"	3 5/8"	2 3/4"	5 1/8"
TOTAL	70 1/8"	70 1/8"	70"	72 3/8"

IN SPAN 2, THE EIGHTH BEAM FROM THE NORTH REQUIRES A STOOL HEIGHT OF 4 3/4"

POINT	STATION (N.B.)	STATION (S.B.)	X-COORD.	Y-COORD.	DIMENSIONS BETWEEN WORKING POINTS								ELEVATIONS				
					A	B	C	D	E	F	G	H	J	TOP OF ROADWAY	TOP/RDWAY TO BR. SEAT	BRIDGE SEAT	POINT
A	109+09.68	108+24.18	520,838.325	139,144.685		107.77		70.98	95.11			107.83	197.09	934.71	5.90	928.81	A
B	108+01.91	107+16.41	520,946.089	139,143.630			119.29		70.98	104.15	185.74		113.91	934.64	5.91	928.73	B
C	106+82.82	105+97.12	521,085.374	139,142.461						70.98	295.17	95.81		933.76	6.03	927.73	C
D		108+59.47	520,802.428	139,083.450					107.77		35.92	95.16		935.01	-	-	D
E		107+51.70	520,910.192	139,082.395								119.29		935.15	-	-	E
F		106+32.41	521,029.477	139,081.227										934.51	-	-	F
G		108+77.33	520,784.261	139,052.460								107.77		934.30	5.90	928.40	G
H		107+69.56	520,892.025	139,051.405									119.29	934.55	5.91	928.64	H
J		106+50.27	521,011.310	139,050.236										934.03	6.03	928.00	J

ALL WORKING POINT STATIONS ARE AS SHOWN IN THE TABLE. ELEVATIONS OF WORKING POINTS "A", "B" & "C" ARE WITH RESPECT TO P.G.L. OF C.S.A.H. 52 N.B. THE ELEVATIONS FOR ALL OTHER WORKING POINTS ARE DEFINED WITH RESPECT TO THE P.G.L. OF C.S.A.H. 52 S.B.

NO.	DATE	BY	DESCRIPTION OF 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
 SIGNED: *Gottfried Millner* GOTTFRIED MILLNER
 DATE: 01/22/2002 REG. NO. 19879

TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

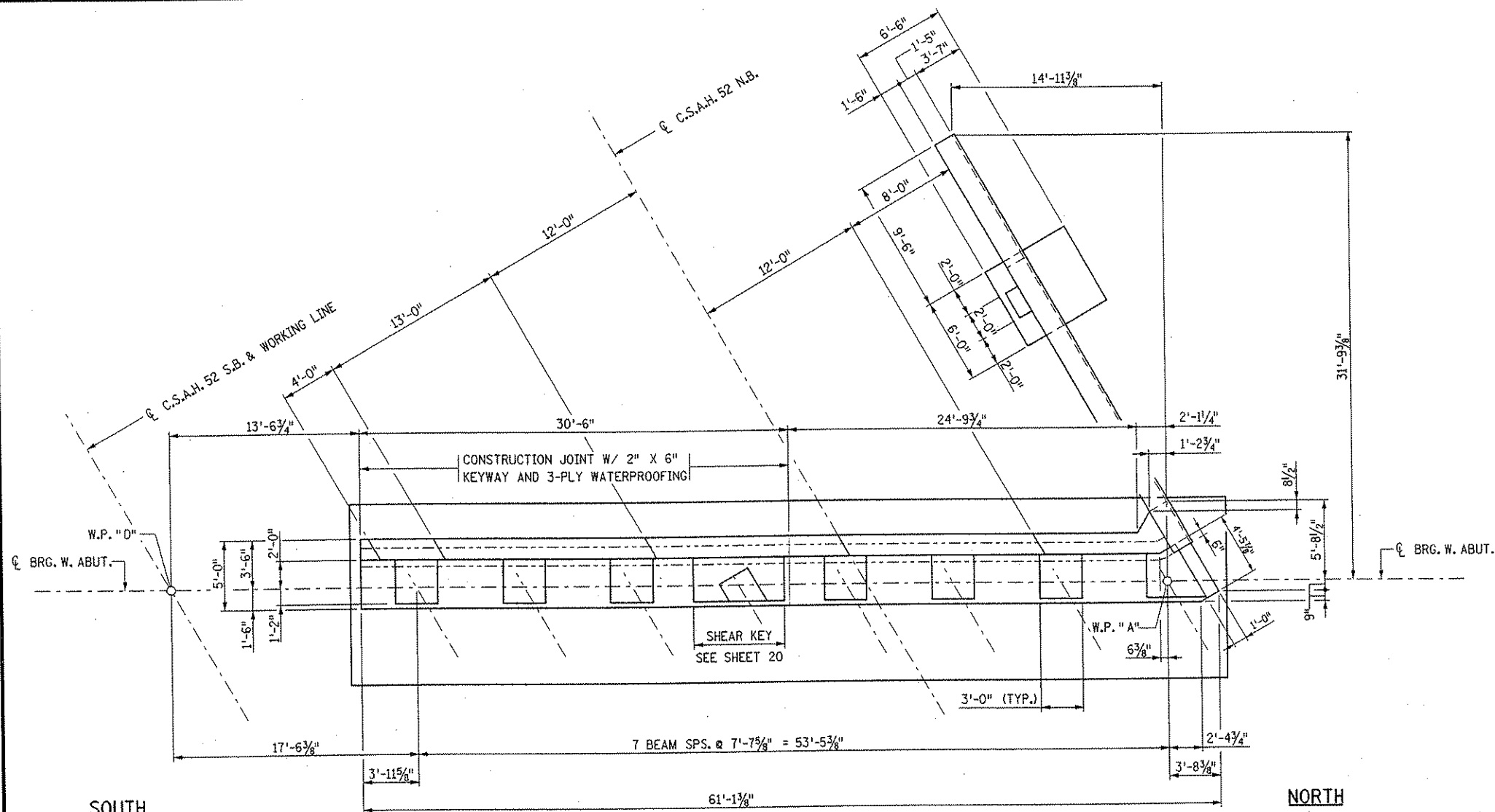
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DES: GM	DR: SJS	APPROVED
CHK: MJC	CHK: GM	

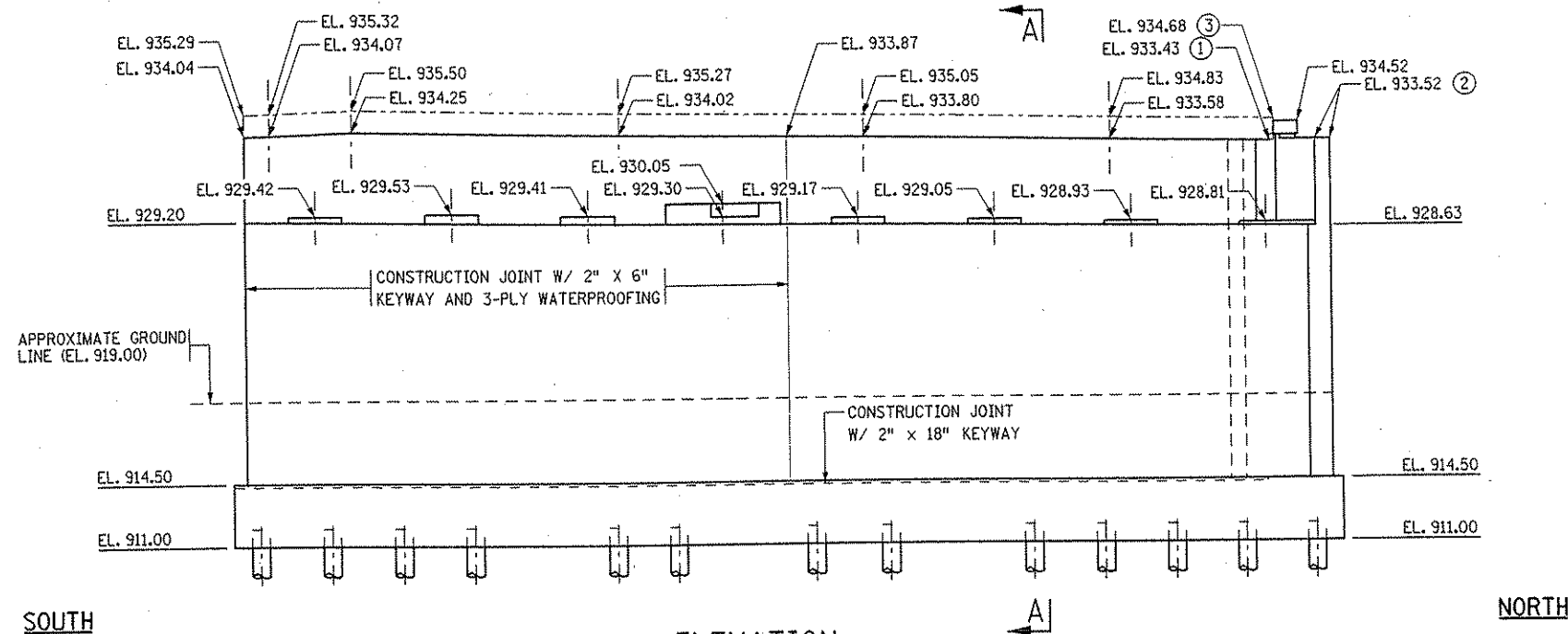
Sheet No. 3 of 56 Sheets

Bridge No. 02566

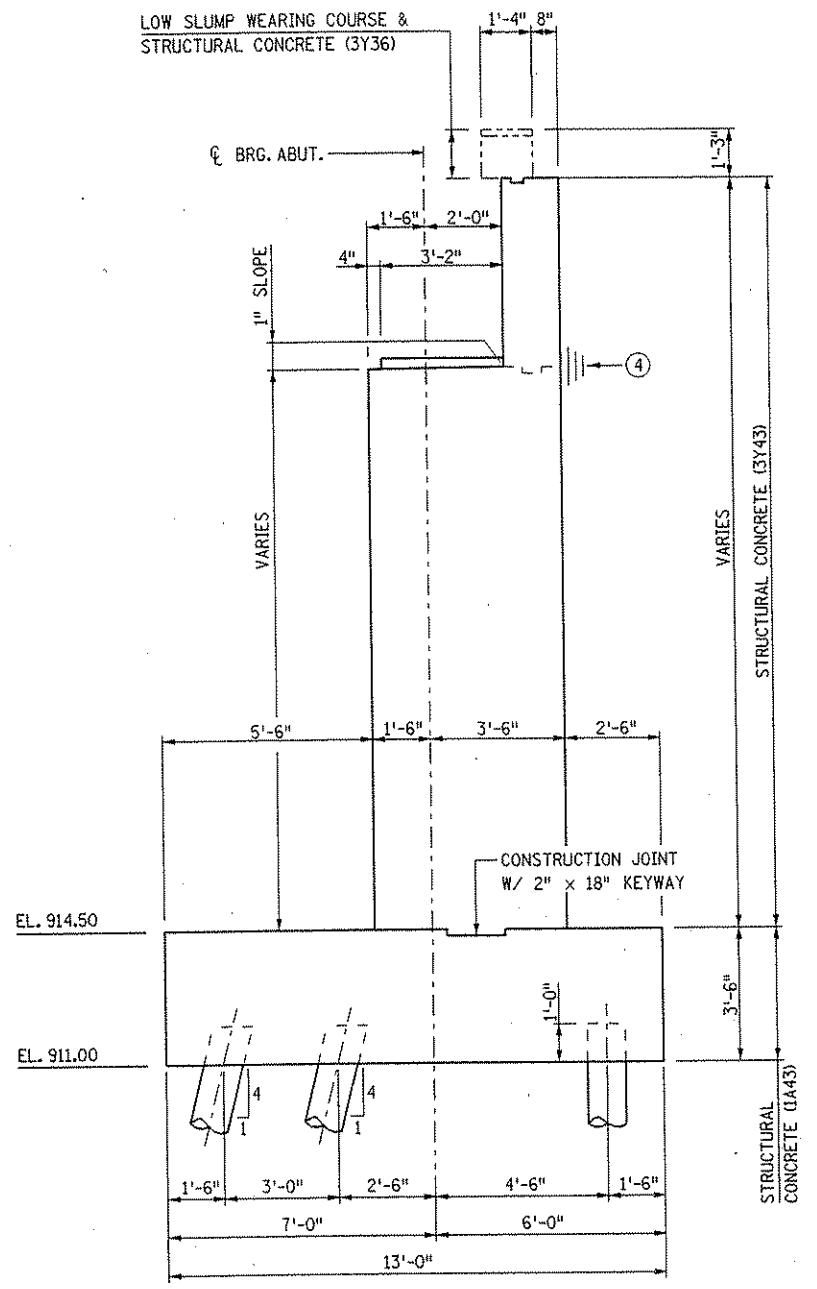
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PLAN



ELEVATION



TYPICAL SECTION A-A

- NOTES:**
- ① ELEVATION AT FRONT FACE OF BACKWALL
 - ② ELEVATION AT TOP OF MASK WALL
 - ③ ELEVATION AT FRONT FACE OF END BLOCK
 - ④ PERMISSIBLE CONSTRUCTION JOINT W/ 2" x 6" KEYWAY & 3 PLY WATERPROOFING

	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: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE: 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: WEST ABUTMENT - STAGE 1 PLAN AND ELEVATION	DES: SVC CHK: MJC	DR: SVC CHK: MJC	APPROVED Sheet No. 4 of 56 Sheets	Bridge No. 02566
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COMPUTED PILE LOADS

WEST ABUTMENT, STAGE 1 - (TONS PER PILE)

DEAD LOAD	55.3
LIVE LOAD	3.85
TOTAL LOAD	59.15
*DESIGN LOAD	59.15

* 59.15/1.0 REDUCTION PER AASHTO 3.22.1 GROUP 1 LOADING

NOTES:

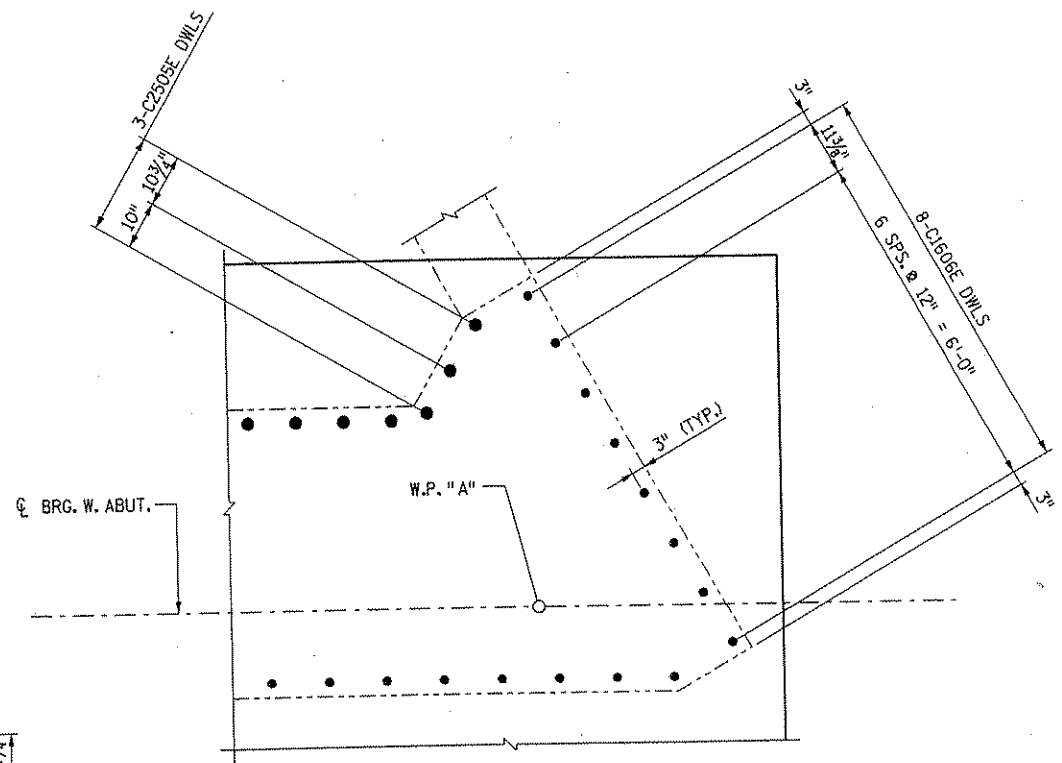
- 7-C3203 @ 6" SPS. = 3'-0" (B)
- PILES MARKED THUS (C) ARE NOT REQUIRED IF STAGED CONSTRUCTION NOT USED.

PILE NOTES:

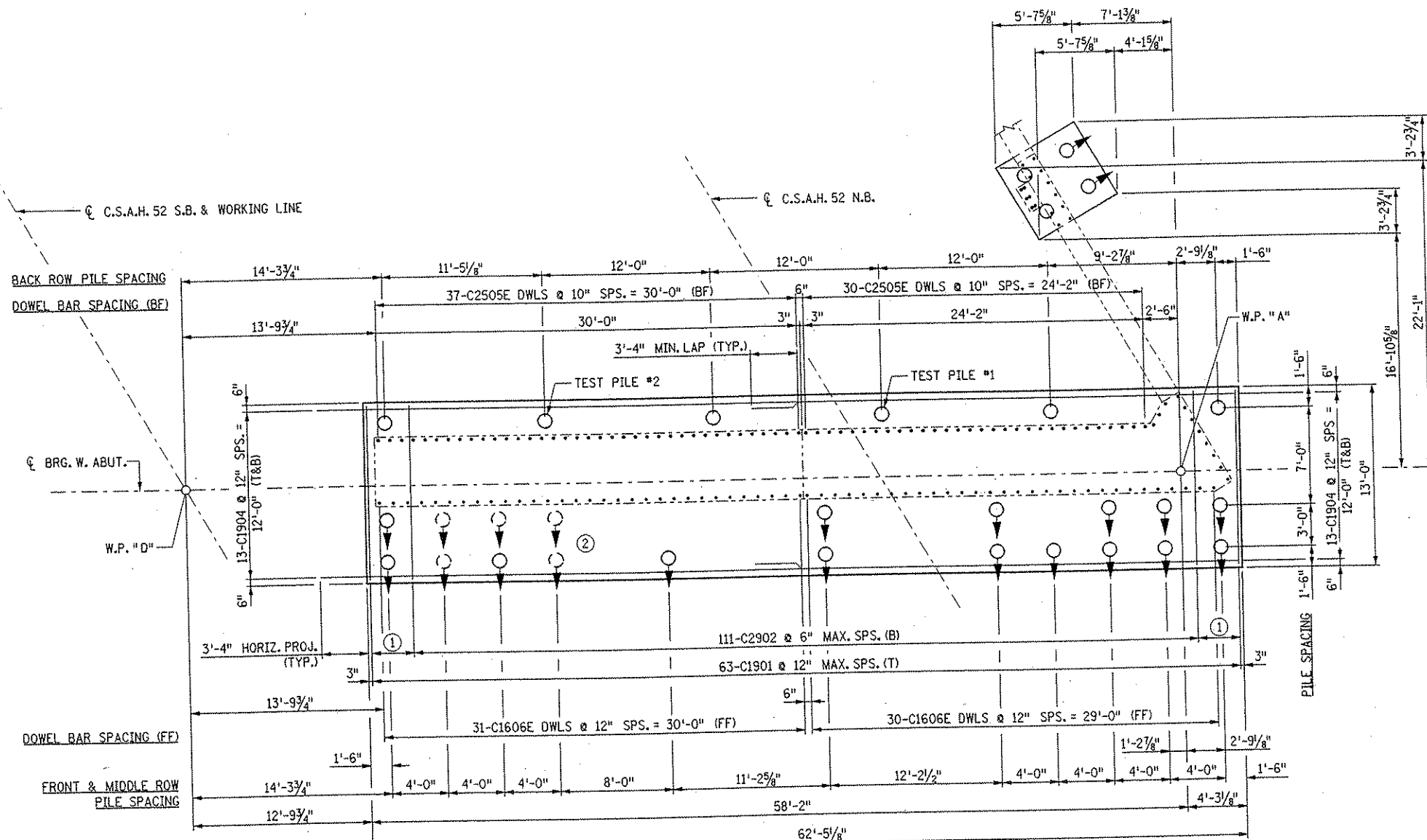
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS (C) TO BE BATTERED 3 INCHES PER FOOT IN DIRECTION SHOWN.

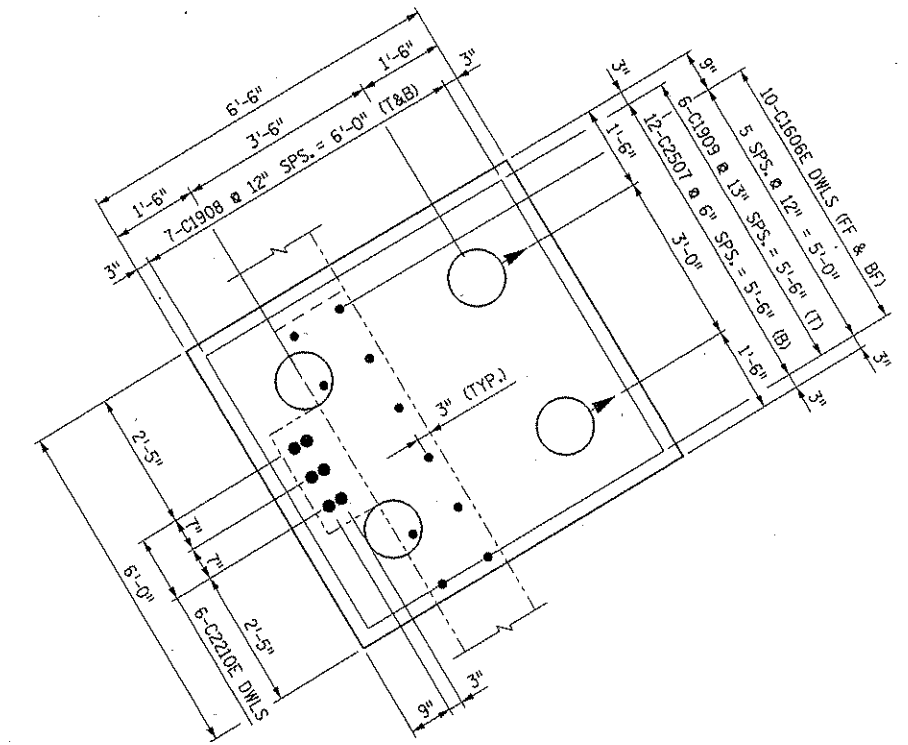
PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES.
 28 CAST-IN-PLACE PILES EST. LENGTH 80 FEET LONG
 2 CAST-IN-PLACE CONCRETE TEST PILES 90 FEET LONG
 30 CAST-IN-PLACE CONCRETE PILES REQ'D FOR THE WEST ABUTMENT, STAGE 1



NORTH CORNER ABUTMENT DETAIL



PLAN

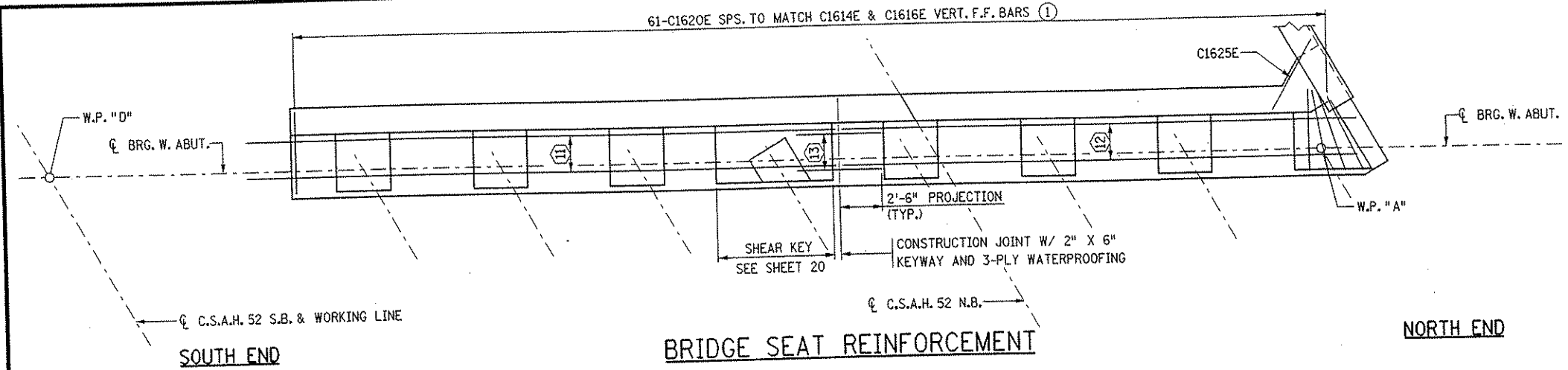


WINGWALL FOOTING PLAN

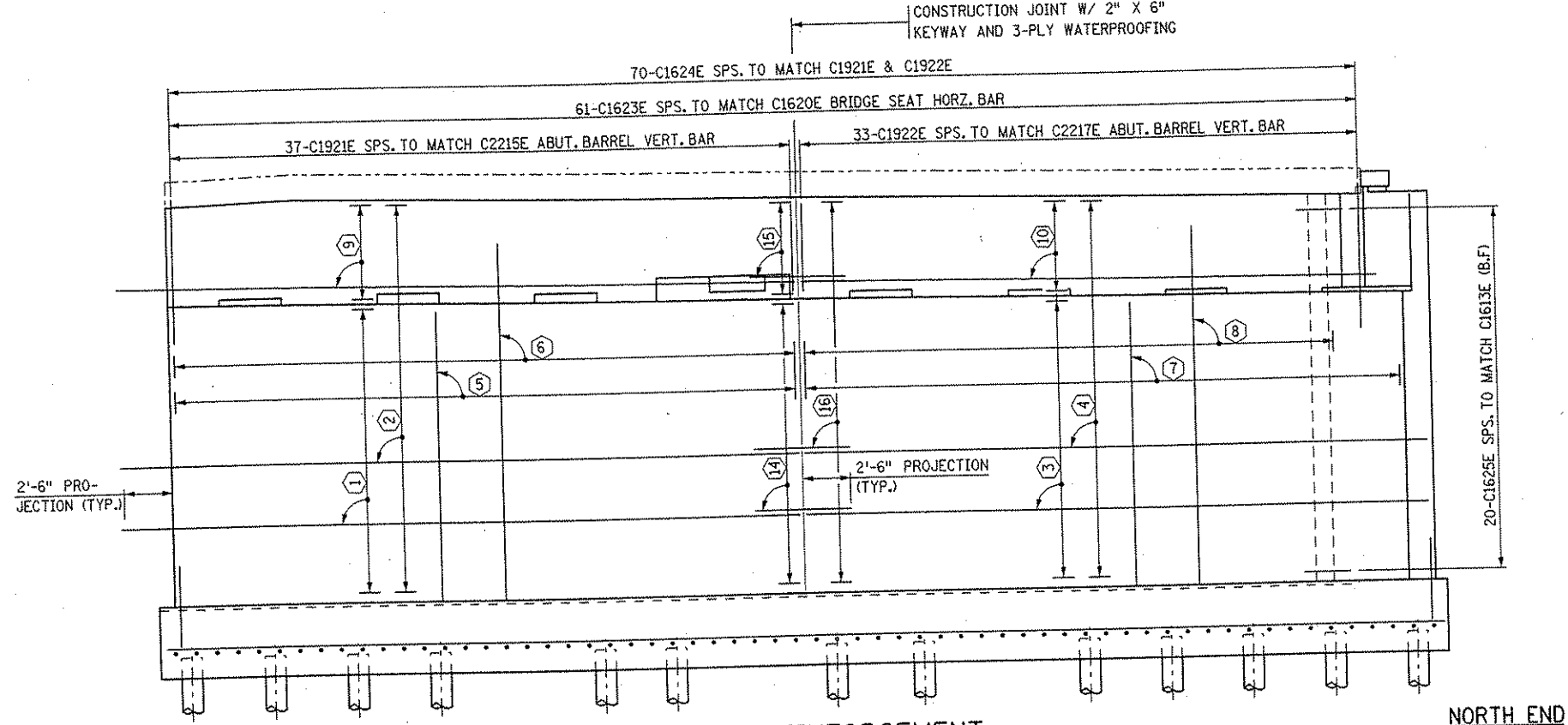
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							Sheet No. 5 of 56 Sheets				

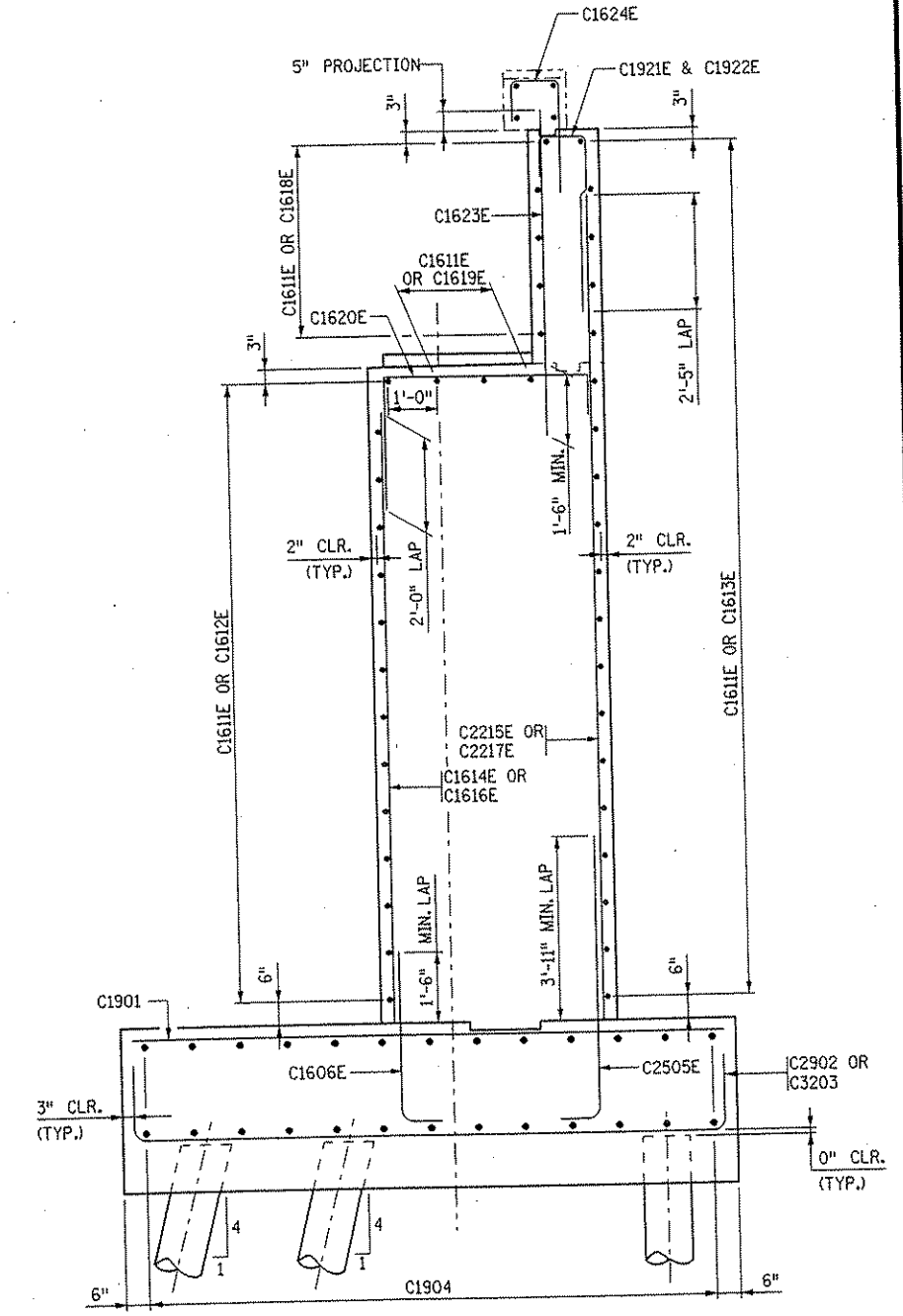
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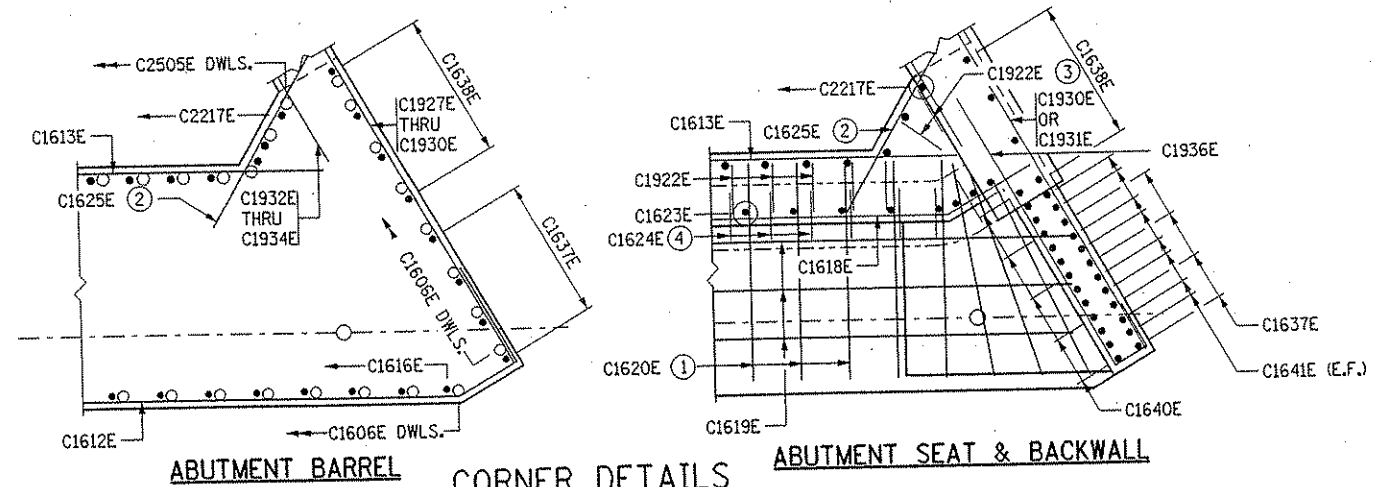
BRIDGE SEAT REINFORCEMENT



ABUTMENT REINFORCEMENT



ABUTMENT REINFORCEMENT



ABUTMENT BARREL

CORNER DETAILS

ABUTMENT SEAT & BACKWALL

NOTES:

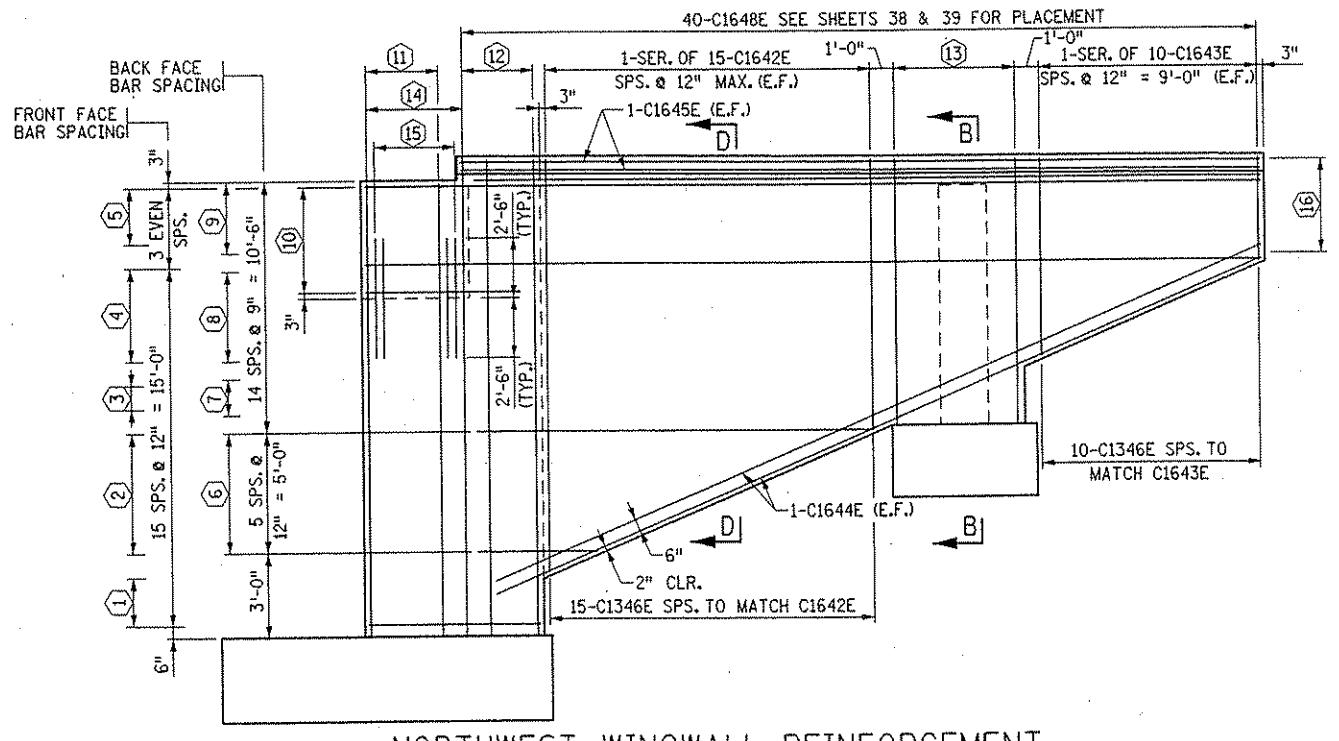
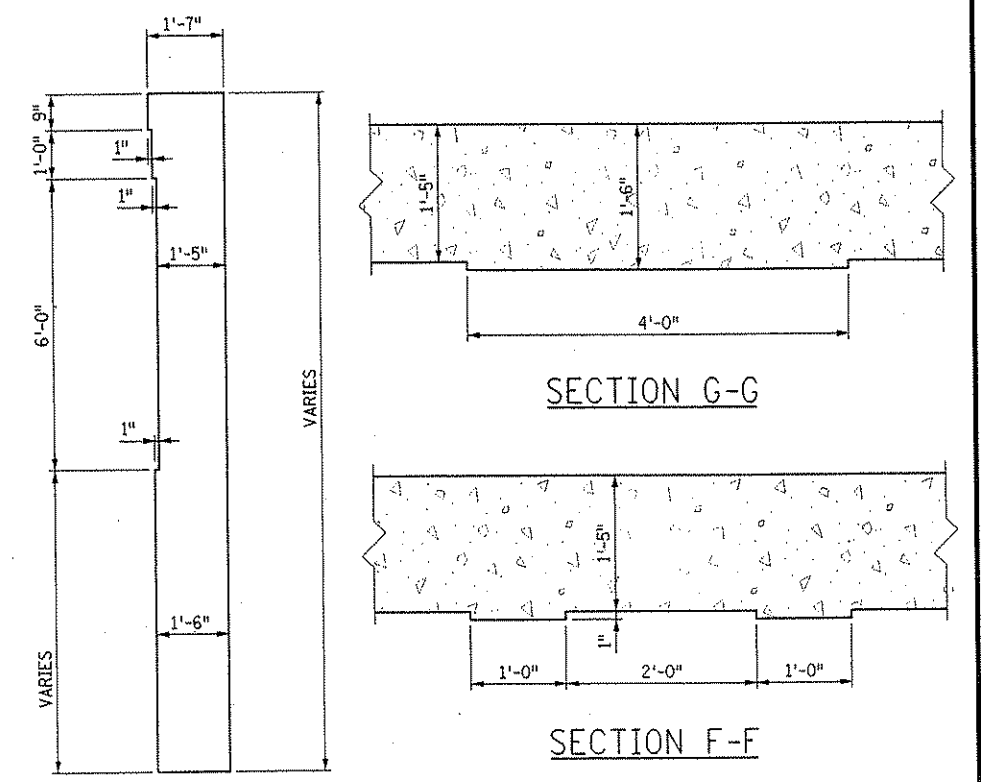
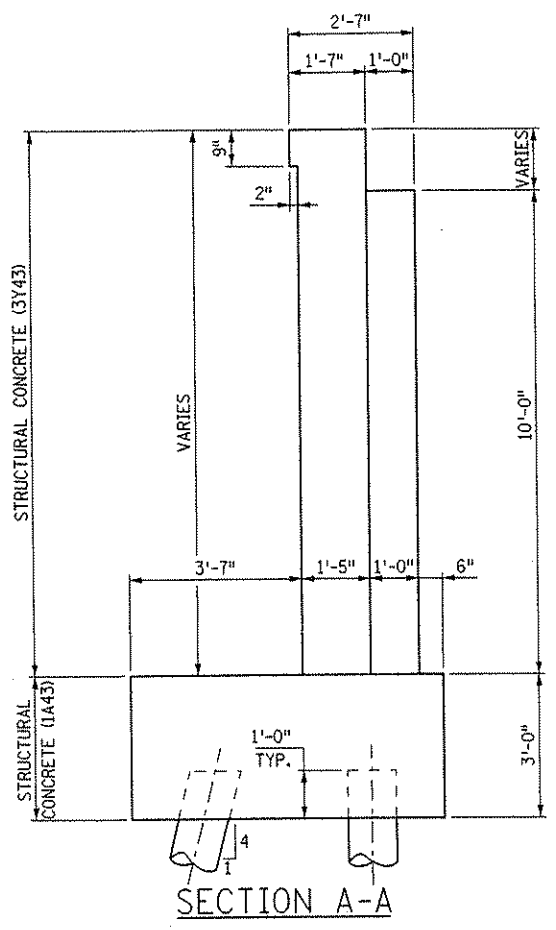
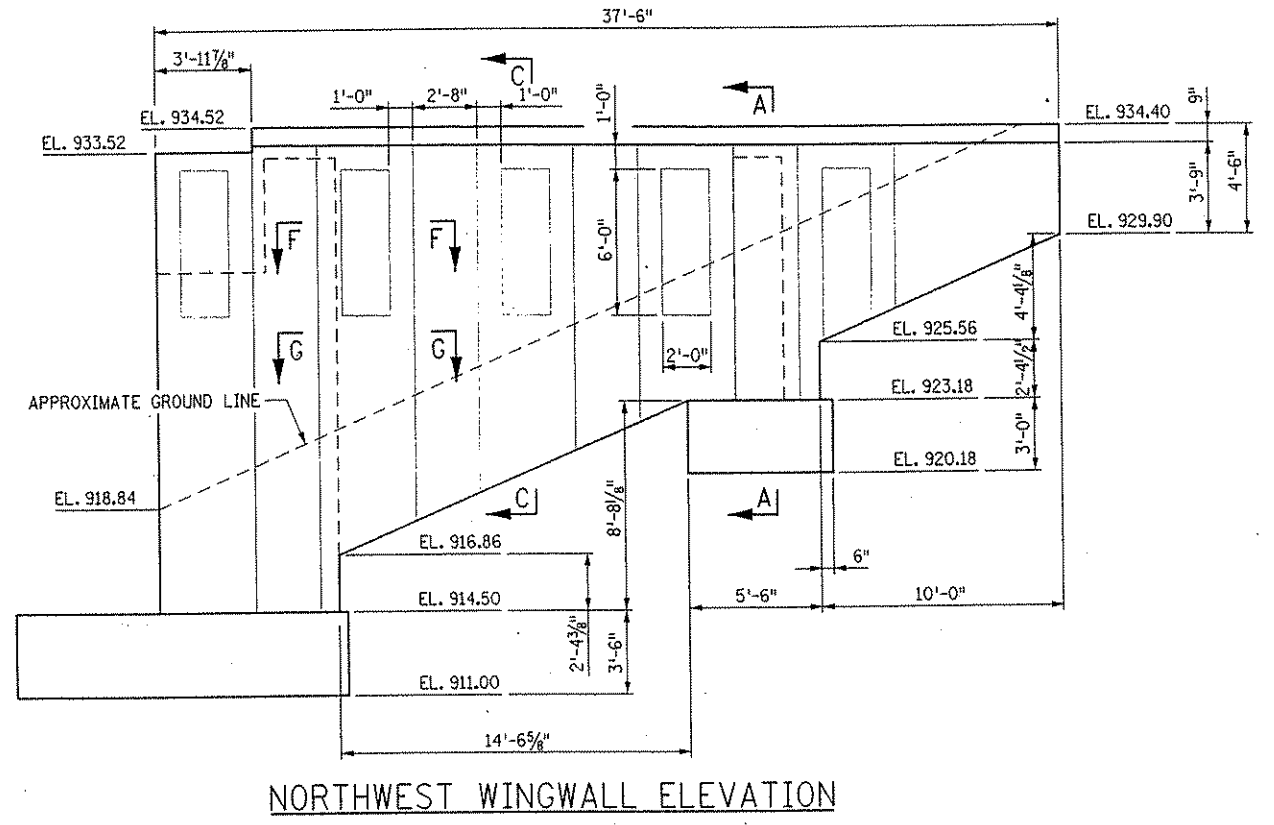
- FOR LONGITUDINAL REINFORCEMENT IN ABUTMENT ENDBLOCK SEE DETAILS ON SHEET 32.
- FOR ADDITIONAL REINFORCEMENT IN CONCRETE PADS SEE DETAILS ON SHEET 20.
- ① ADJUST C1620E BARS AT NORTH END OF BRIDGE SEAT AS SHOWN IN CORNER DETAIL.
- ② ADJUST C1625E NEAR TOP OF FOOTING AS NEEDED TO MAINTAIN 2" CLEARANCE.
- ③ PLACE LAST TWO NORTHERN C1922E IN FILLET AS SHOWN IN CORNER DETAIL.
- ④ PLACE LAST TWO NORTHERN C1624E RADIALLY IN END BLOCK SPS. TO MATCH C1623E AS SHOWN IN CORNER DETAIL.

BAR CALL-OUTS:

- ① 15-C1611E SPS. @ 12" MAX. (F.F.)
- ② 20-C1611E SPS. @ 12" MAX. (B.F.)
- ③ 15-C1612E SPS. @ 12" MAX. (F.F.)
- ④ 20-C1613E SPS. @ 12" MAX. (B.F.)
- ⑤ 31-C1614E SPS. TO MATCH C1606E DWLS. (F.F.)
- ⑥ 37-C2215E SPS. TO MATCH C2505E DWLS. (B.F.)
- ⑦ 30-C1616E SPS. TO MATCH C1606E DWLS. (F.F.)
- ⑧ 33-C2217E SPS. TO MATCH C2505E DWLS. (B.F.)
- ⑨ 5-C1611E SPS. @ 12" MAX. (F.F.)
- ⑩ 5-C1618E SPS. @ 12" MAX. (F.F.)
- ⑪ 3-C1611E SPS. @ 12" MAX.
- ⑫ 3-C1619E SPS. @ 12" MAX.
- ⑬ 3-C1626E SPS. TO MATCH C1611E & C1619E
- ⑭ 15-C1626E SPS. TO MATCH C1611E & C1612E (F.F.)
- ⑮ 5-C1626E SPS. TO MATCH C1611E & C1618E (F.F.)
- ⑯ 20-C1626E SPS. TO MATCH C1611E & C1613E (B.F.)

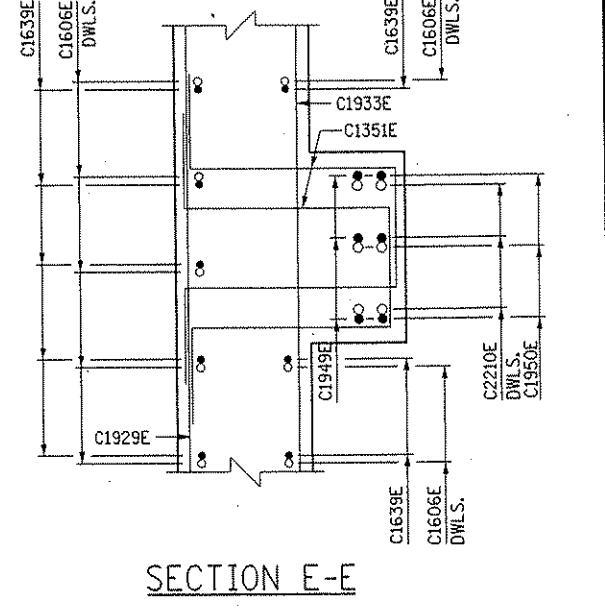
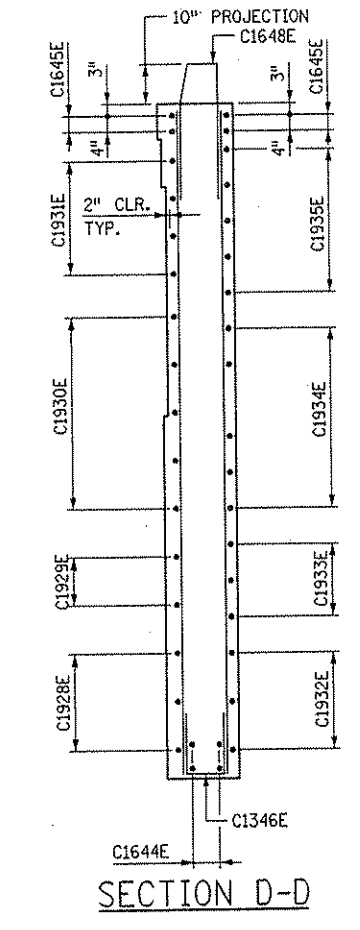
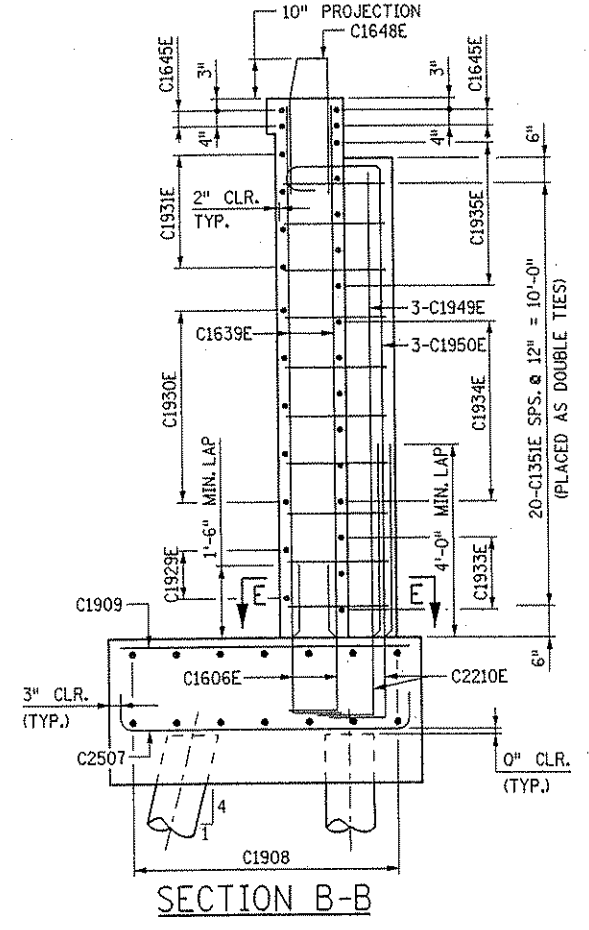
	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. SIGNED: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE: 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: WEST ABUTMENT - STAGE 1 REINFORCEMENT	DES: MJC DR: MJC APPROVED CHK: GM CHK: GM Sheet No. 6 of 56 Sheets	Bridge No. 02566
NO.	DATE	BY	DESCRIPTION OF REVISIONS			

DATE: 01/22/2002 TIME: 01:54:27 PM
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BAR CALL-OUTS:

- ① 3-C1927E (F.F.)
- ② 1-SER. OF 6-C1928E (F.F.)
- ③ 2-C1929E (F.F.)
- ④ 1-SER. OF 5-C1930E (F.F.)
- ⑤ 4-C1931E (F.F.)
- ⑥ 1-SER. OF 6-C1932E (B.F.)
- ⑦ 3-C1933E (B.F.)
- ⑧ 1-SER. OF 6-C1934E (B.F.)
- ⑨ 5-C1935E (B.F.)
- ⑩ 6-C1936E (B.F.)
- ⑪ 4-C1637E SPS. TO MATCH C1606E DWLS. (F.F.)
- ⑫ 4-C1638E SPS. TO MATCH C1606E DWLS. (F.F.)
- ⑬ 10-C1639E SPS. TO MATCH (6-F.F., 4-B.F.)
- ⑭ 5-C1640E (B.F.)
- ⑮ 16-C1641E ①
- ⑯ 6-C1347E SPS. TO MATCH C1931E & C1645E



NOTES:

- ① AS SHOWN IN CORNER DETAIL ON SHEET 6, PLACE 2-C1641E (4 THUS) SPS. EVENLY BETWEEN C1637E AND C1638E IN F.F. OF MASK WALL AND PLACE 2-C1641E (4 THUS) SPS. EVENLY BETWEEN C1640E IN B.F. OF MASK WALL.
- ② PILES AND FOOTING REINFORCEMENT ARE NOT SHOWN FOR CLARITY.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

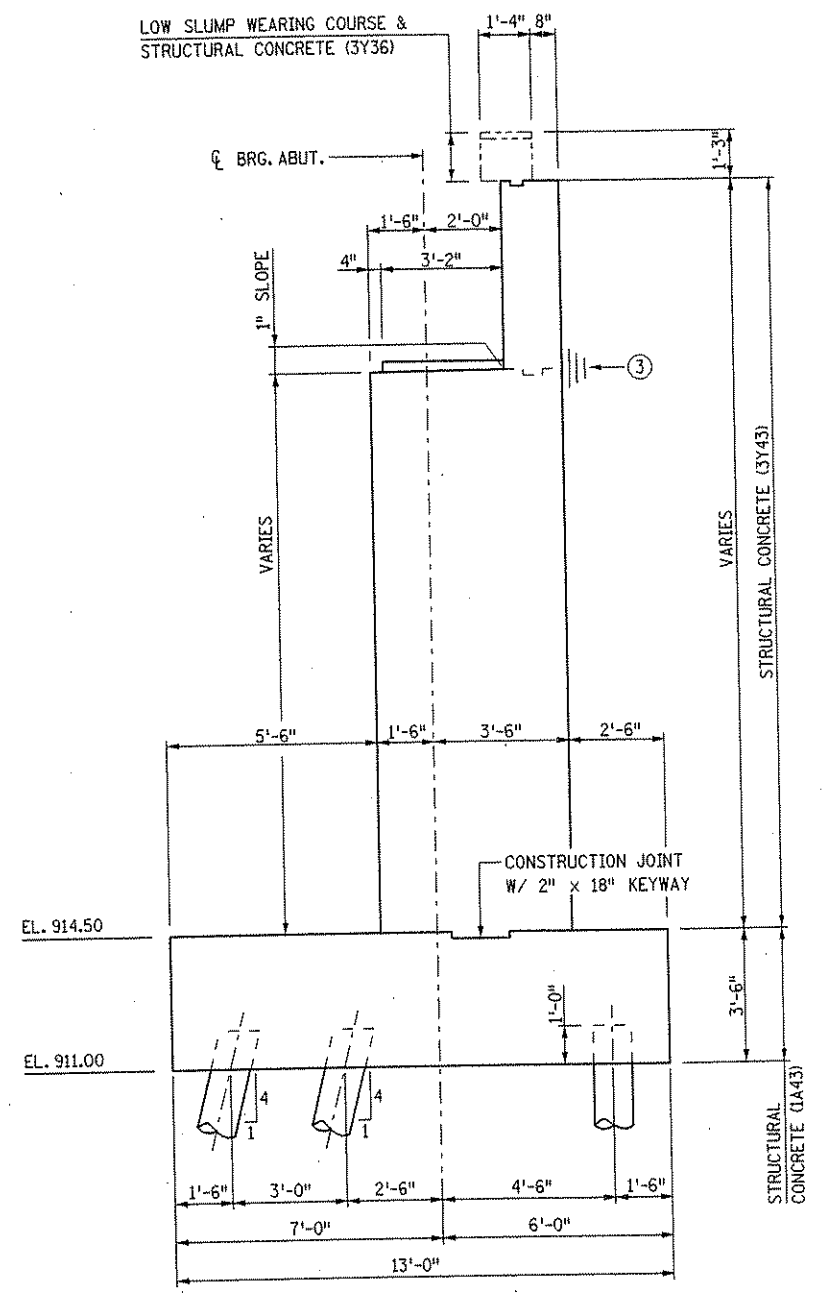
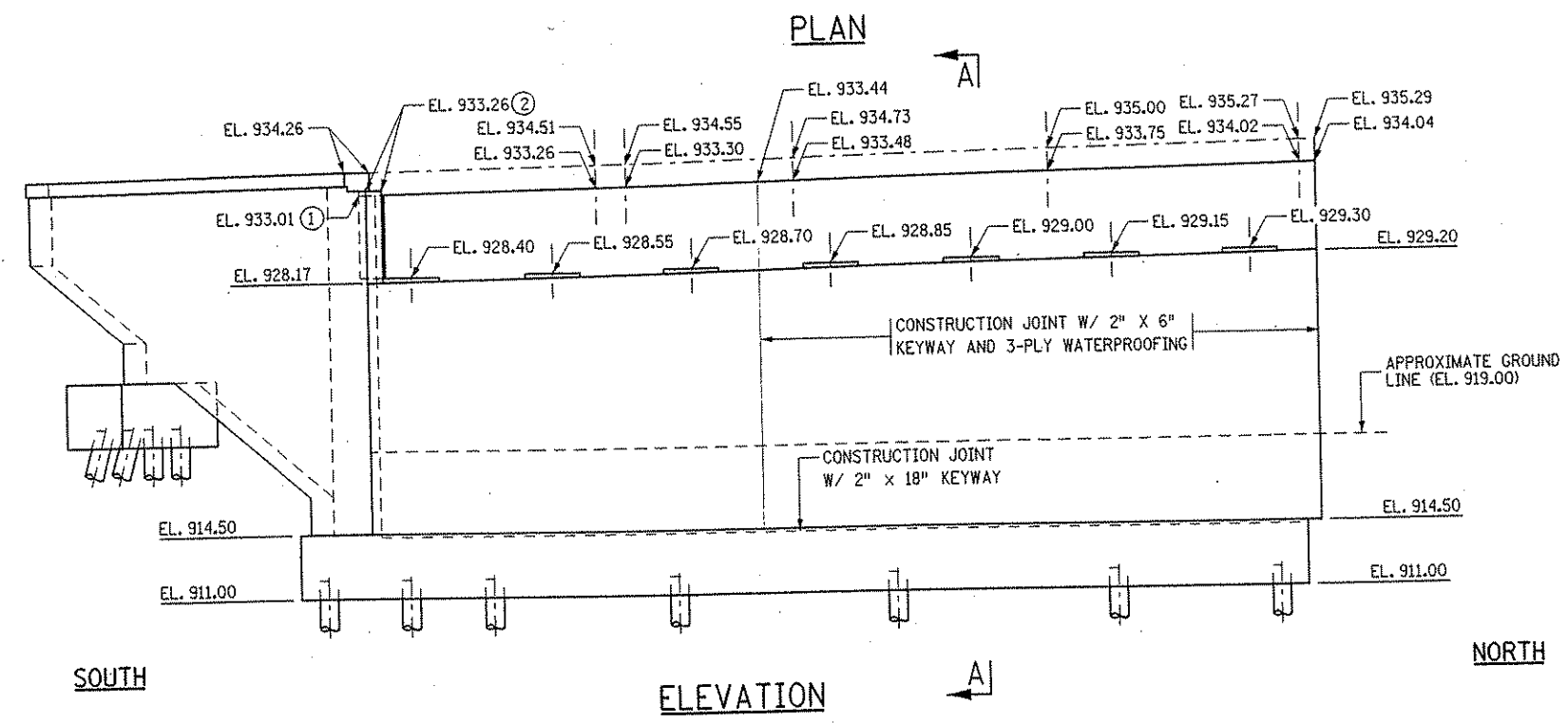
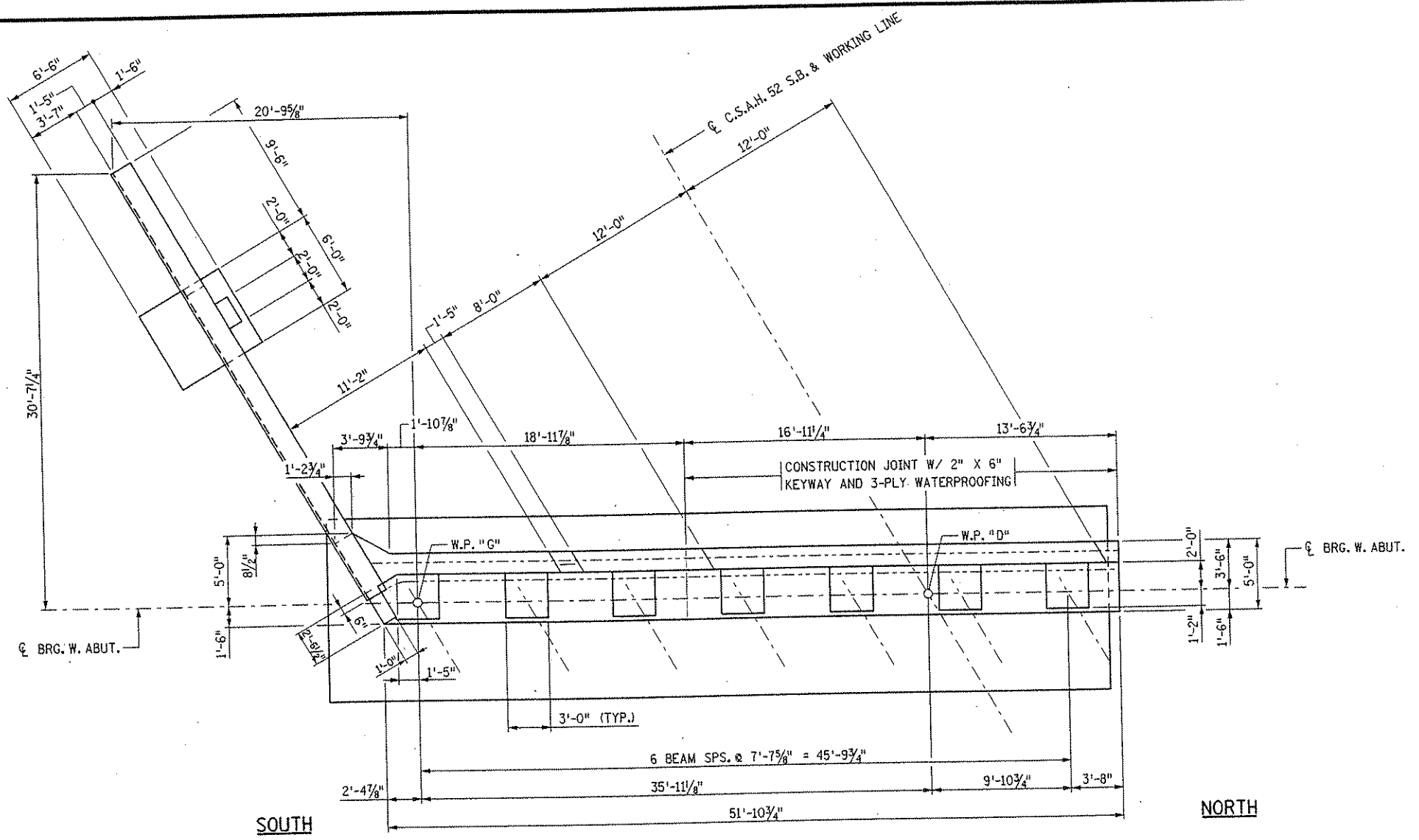
TITLE: WEST ABUTMENT - STAGE 1
 WINGWALL DETAILS

DES: HLE	DR: HLE	APPROVED
CHK: MJC	CHK: MJC	

Sheet No. 7 of 56 Sheets

Bridge No. 02566

DATE: 01/22/2002 TIME: 01:54:42 PM
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TYPICAL SECTION A-A

NOTES:

- ① ELEVATION AT FRONT FACE OF BACKWALL
- ② ELEVATION AT TOP OF MASK WALL
- ③ PERMISSIBLE CONSTRUCTION JOINT W/ 2" X 6" KEYWAY & 3 PLY WATERPROOFING

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION OF REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	BY	DESCRIPTION OF REVISIONS					<p>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</p> <p>SIGNED: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE: 01/22/2002 REG. NO. 19879</p>	<p>TKDA <small>TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED</small> ENGINEERS • ARCHITECTS • PLANNERS SAINT PAUL, MINNESOTA</p>	<p>ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50</p>	<p>TITLE: WEST ABUTMENT - STAGE 2 PLAN AND ELEVATION</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DES: SVC</td> <td>DR: SVC</td> <td>APPROVED</td> </tr> <tr> <td>CHK: MJC</td> <td>CHK: MJC</td> <td> </td> </tr> </table>	DES: SVC	DR: SVC	APPROVED	CHK: MJC	CHK: MJC		<p>Bridge No. 02566</p> <p>Sheet No. 8 of 56 Sheets</p>
NO.	DATE	BY	DESCRIPTION OF REVISIONS																	
DES: SVC	DR: SVC	APPROVED																		
CHK: MJC	CHK: MJC																			

COMPUTED PILE LOADS

WEST ABUTMENT, STAGE 2 - (TONS PER PILE)

DEAD LOAD	55.65
LIVE LOAD	4.35
TOTAL LOAD	60.0
*DESIGN LOAD	60.0

* 60.0/1.0 REDUCTION PER AASHTO 3.22.1 GROUP 1 LOADING

NOTES:

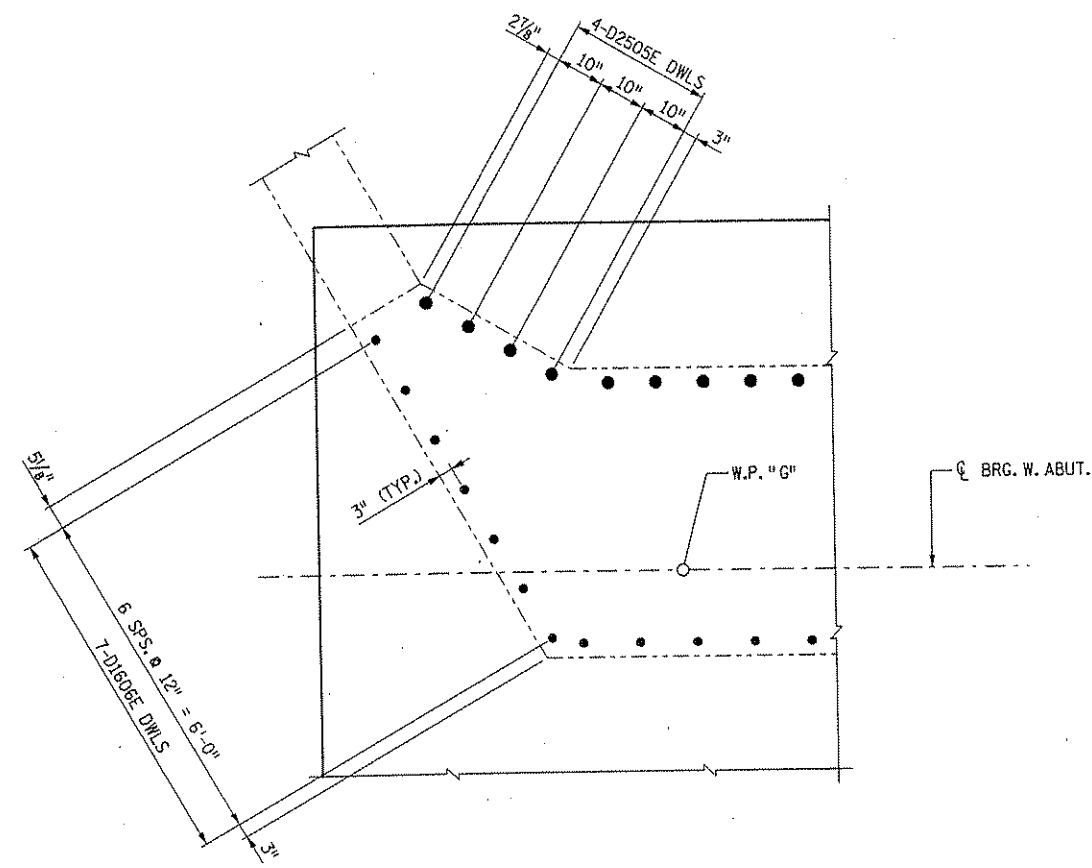
① 7-03203 @ 6" SPS. = 3'-0" (B)

PILE NOTES:

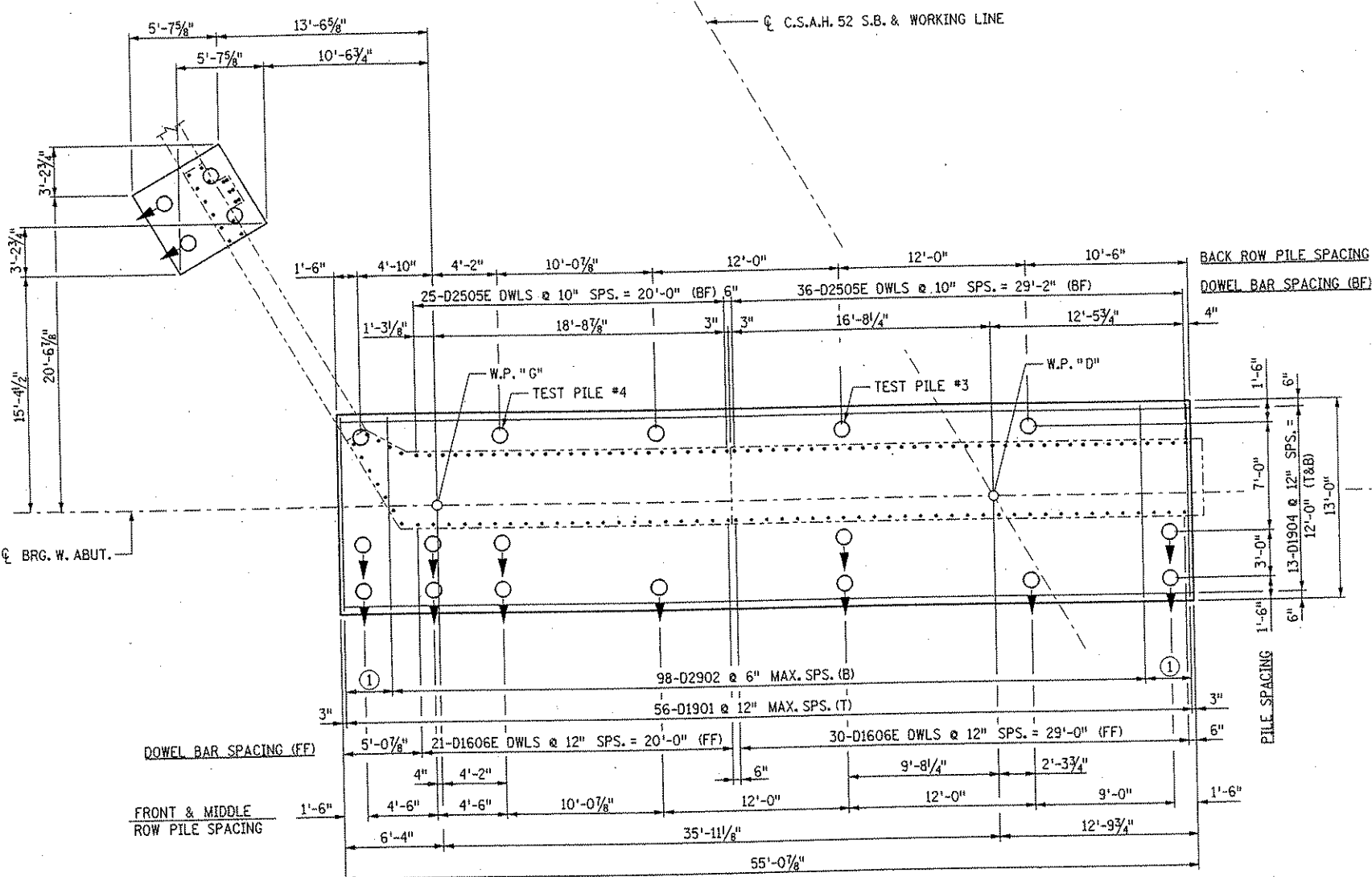
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THIS  TO BE BATTERED 3 INCHES PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES
 19 CAST-IN-PLACE PILES EST. LENGTH 80 FEET LONG
 2 CAST-IN-PLACE CONCRETE TEST PILE 90 FEET LONG
 21 CAST-IN-PLACE CONCRETE PILES REQ'D FOR THE WEST ABUTMENT, STAGE 2



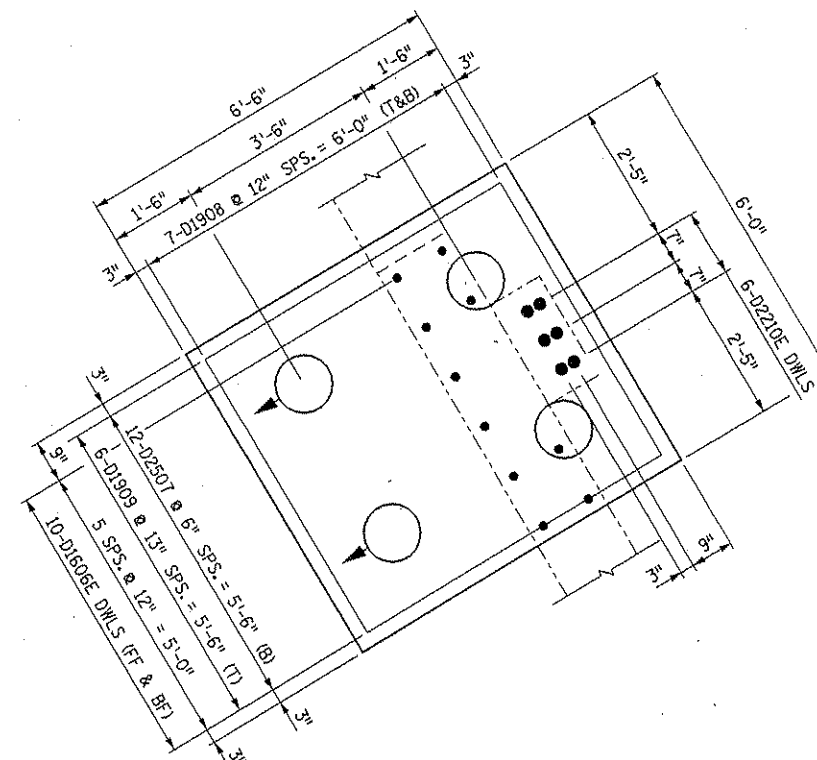
SOUTH CORNER ABUTMENT DETAIL



SOUTH

NORTH


PLAN



WINGWALL FOOTING PLAN

DATE: 01/22/2002 TIME: 01:54:17 PM
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NO.	DATE	BY	DESCRIPTION OF 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
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 DATE 01/22/2002 REG. NO. 19879

TKDA
 TOLTZ, KING, OUVALL, ANDERSON
 AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

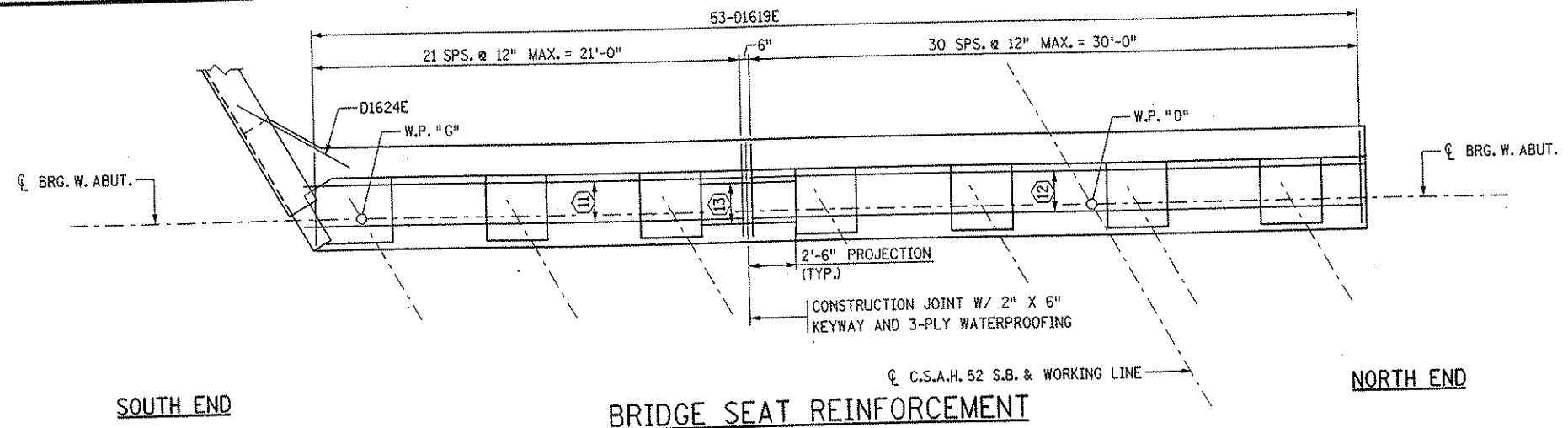
TITLE
**WEST ABUTMENT - STAGE 2
 FOOTING PLAN & REINFORCEMENT**

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CHK: MJC	CHK: MJC	

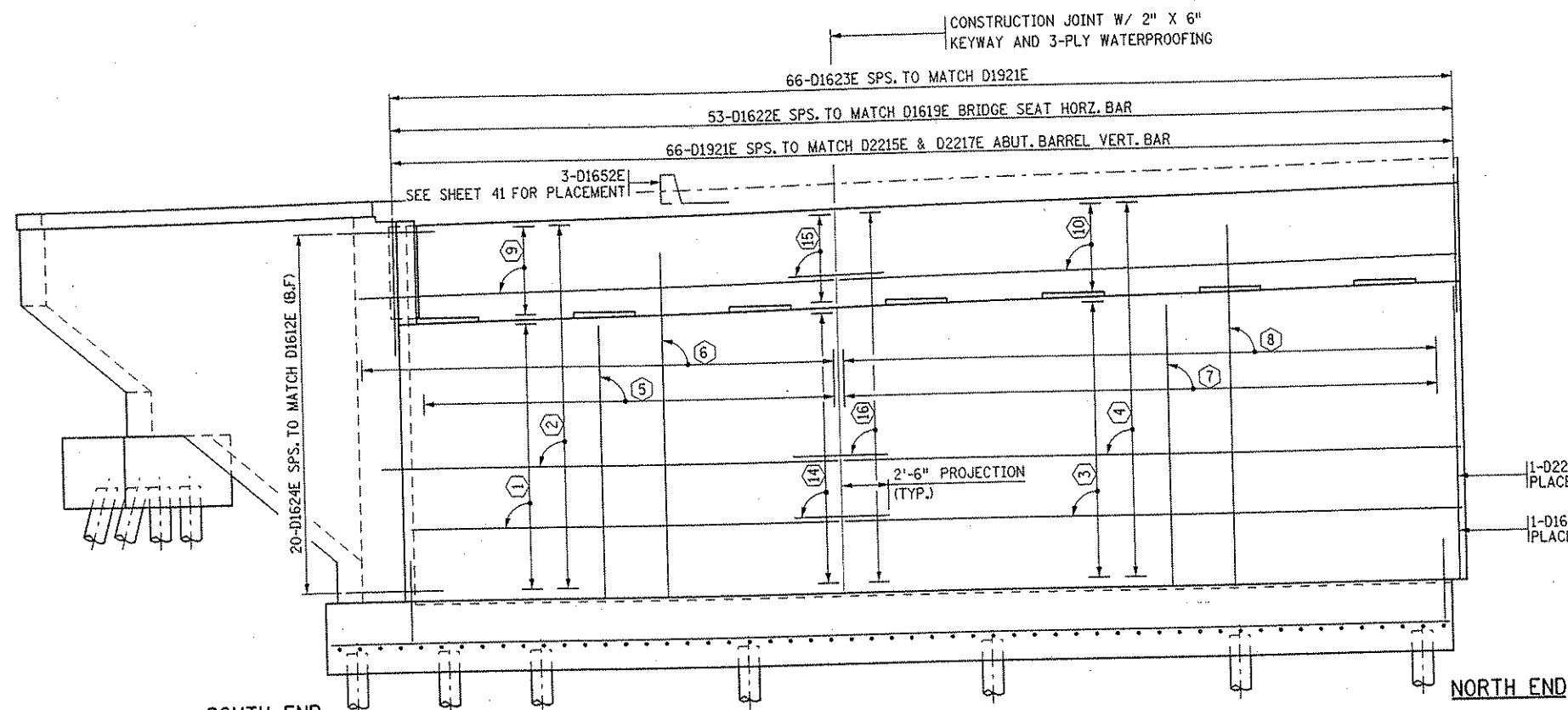
Sheet No. 9 of 56 Sheets

Bridge No.
 02566

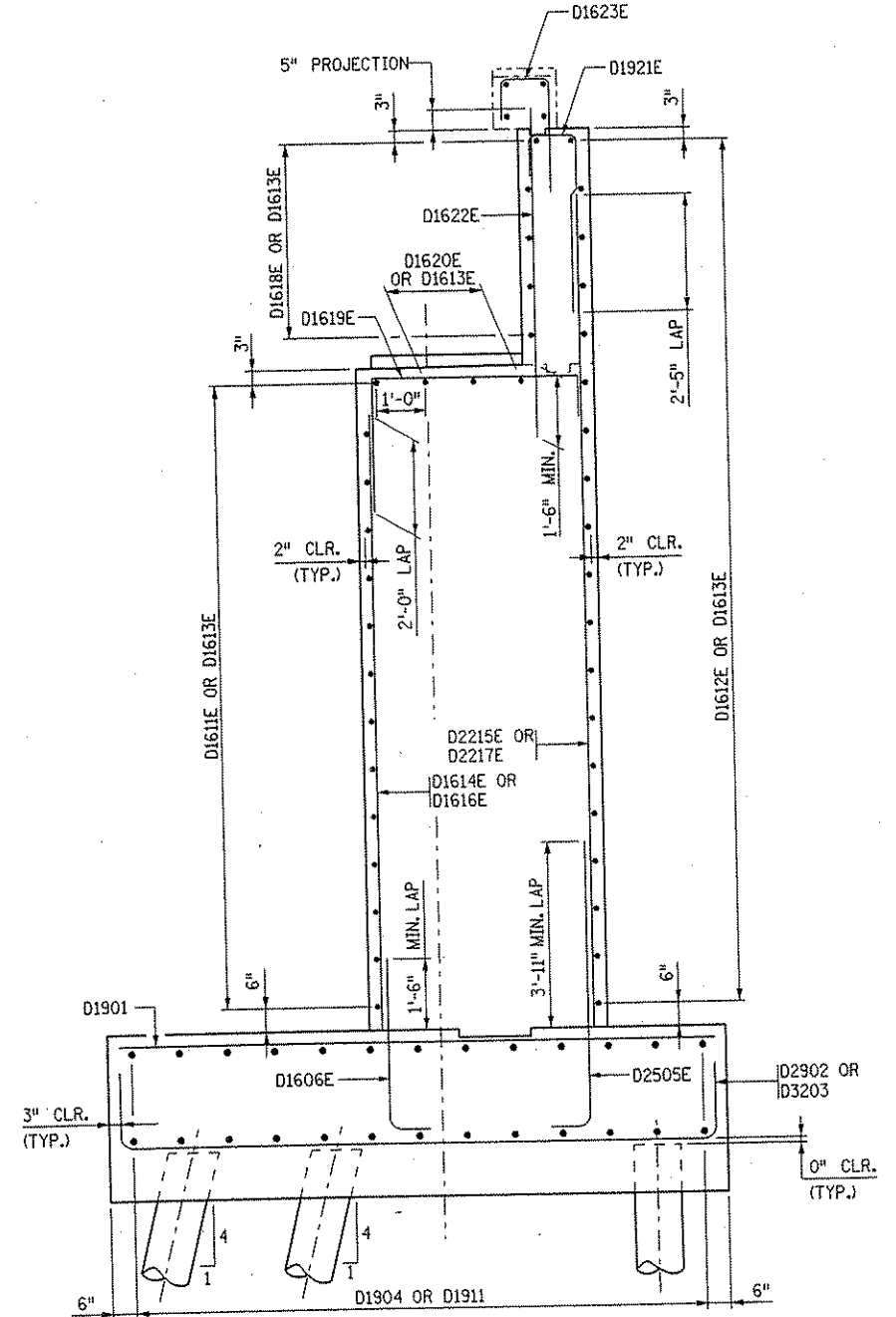
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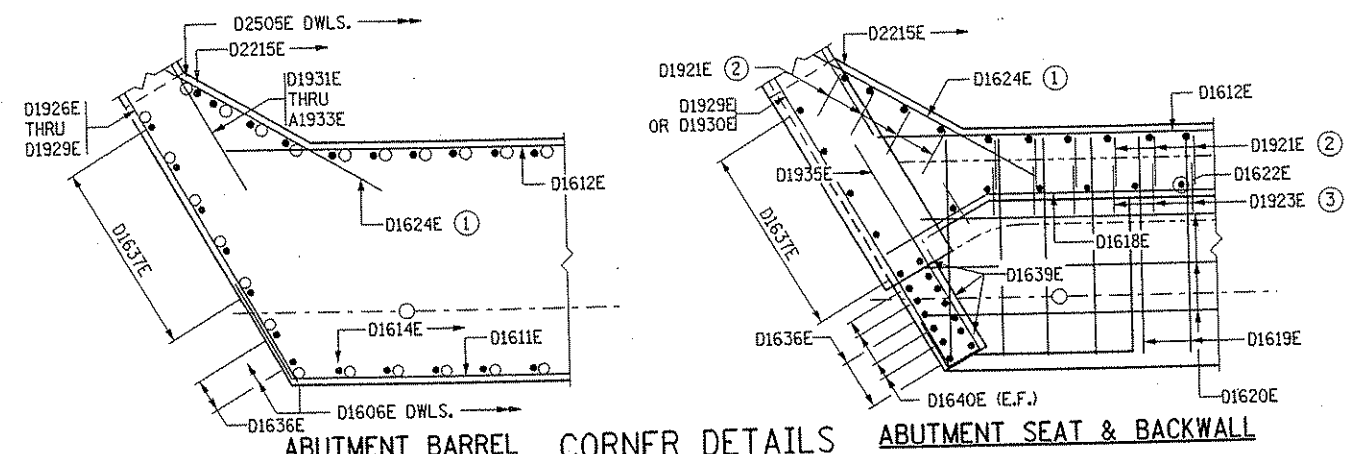
BRIDGE SEAT REINFORCEMENT



ABUTMENT REINFORCEMENT



ABUTMENT REINFORCEMENT



ABUTMENT BARREL CORNER DETAILS ABUTMENT SEAT & BACKWALL

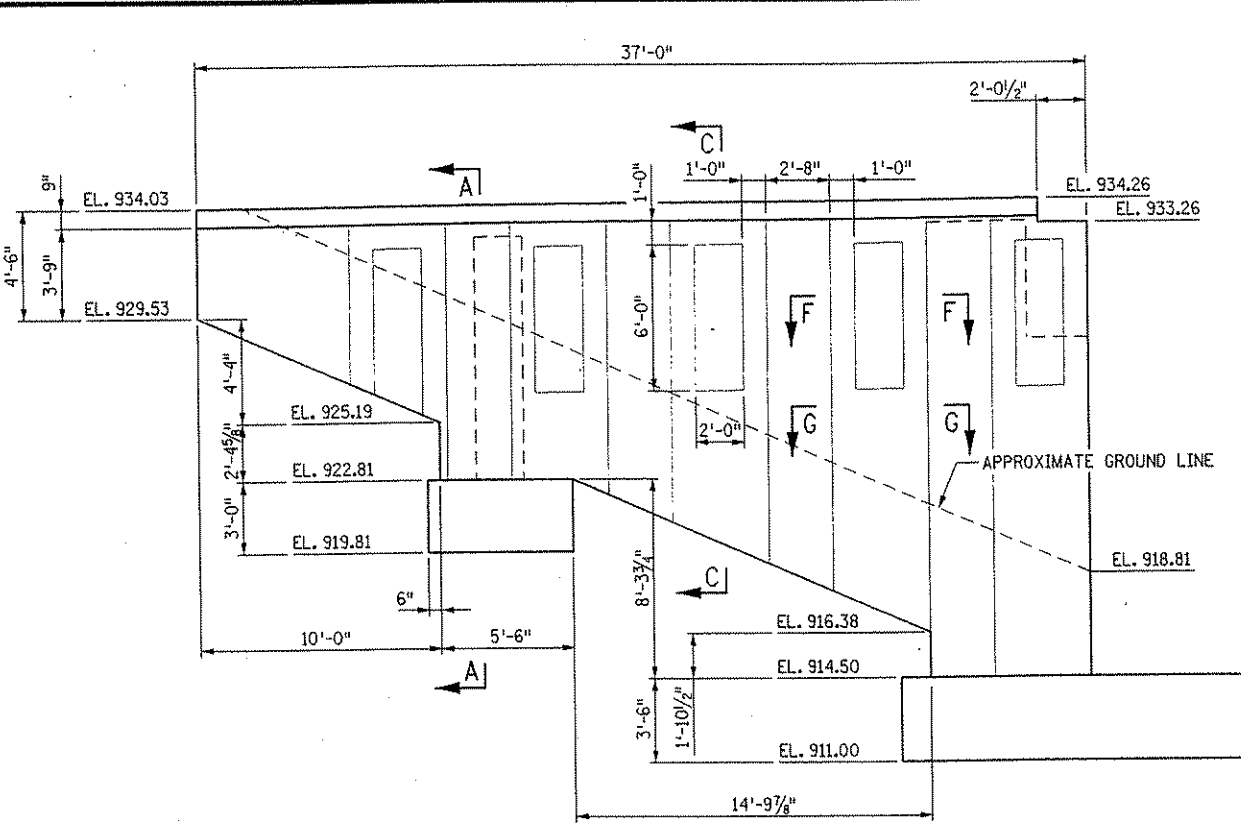
NOTES:

- FOR LONGITUDINAL REINFORCEMENT IN ABUTMENT ENDBLOCK SEE DETAILS ON SHEET 33.
- FOR ADDITIONAL REINFORCEMENT IN CONCRETE PADS SEE DETAILS ON SHEET 20.
- ① ADJUST D1624E NEAR TOP OF FOOTING AS NEEDED TO MAINTAIN 2" CLEARANCE.
- ② PLACE LAST FOUR SOUTHERN D1921E IN FILLET AS SHOWN IN CORNER DETAIL.
- ③ PLACE LAST SOUTHERN D1623E RADIALLY IN END BLOCK SPS. TO MATCH D1622E AS SHOWN IN CORNER DETAIL.

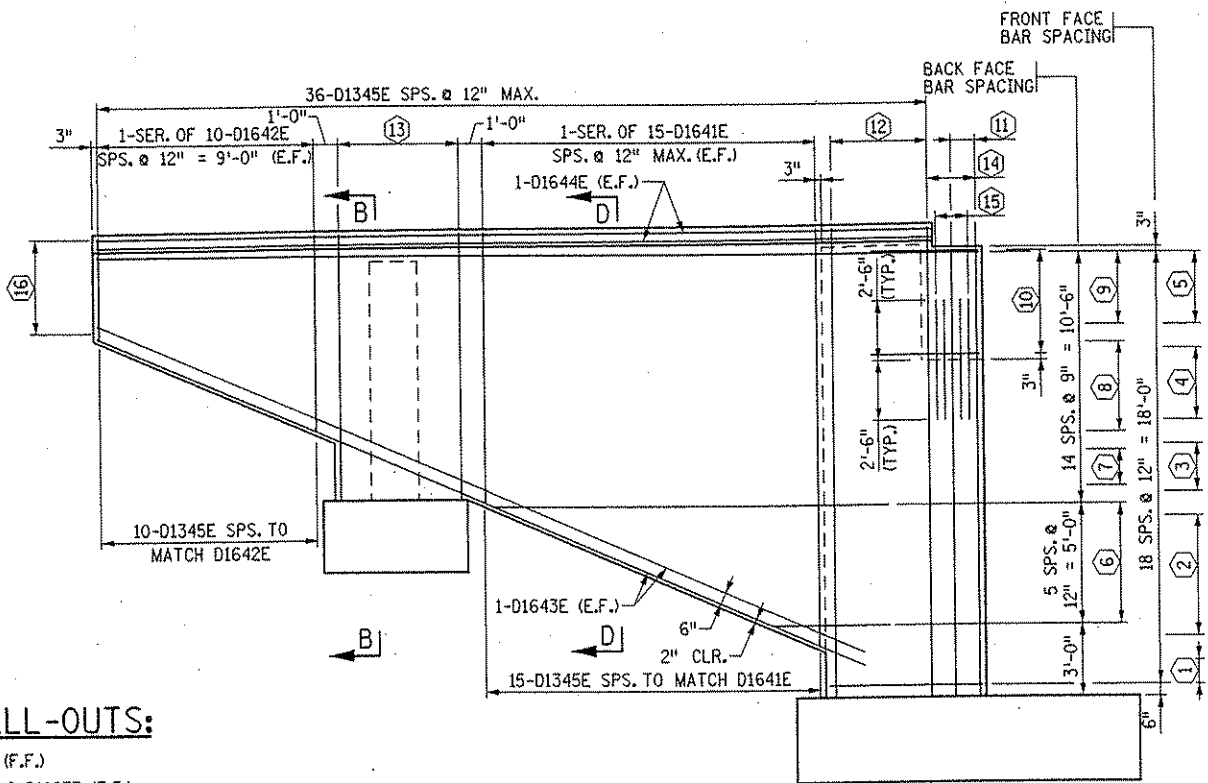
BAR CALL-OUTS:

- ① 14-D1611E SPS. @ 12" MAX. (F.F.)
- ② 19-D1612E SPS. @ 12" MAX. (B.F.)
- ③ 15-D1613E SPS. @ 12" MAX. (F.F.)
- ④ 20-D1613E SPS. @ 12" MAX. (B.F.)
- ⑤ 21-D1614E SPS. TO MATCH D1606E DWLS. (F.F.)
- ⑥ 29-D2215E SPS. TO MATCH D2505E DWLS. (B.F.)
- ⑦ 30-D1616E SPS. TO MATCH D1606E DWLS. (F.F.)
- ⑧ 36-D2217E SPS. TO MATCH D2505E DWLS. (B.F.)
- ⑨ 5-D1618E SPS. @ 12" MAX. (F.F.)
- ⑩ 5-D1613E SPS. @ 12" MAX. (F.F.)
- ⑪ 3-D1620E SPS. @ 12" MAX.
- ⑫ 3-D1613E SPS. @ 12" MAX.
- ⑬ 3-D1625E SPS. TO MATCH D1613E & D1620E
- ⑭ 15-D1625E SPS. TO MATCH D1611E & D1613E (F.F.)
- ⑮ 5-D1625E SPS. TO MATCH D1613E & D1618E (F.F.)
- ⑯ 20-D1625E SPS. TO MATCH D1612E & D1613E (B.F.)

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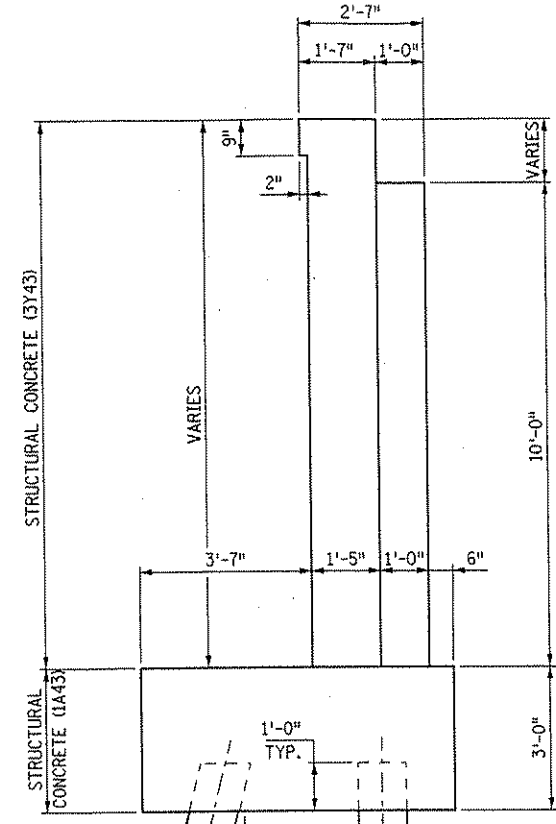


SOUTHWEST WINGWALL ELEVATION ②

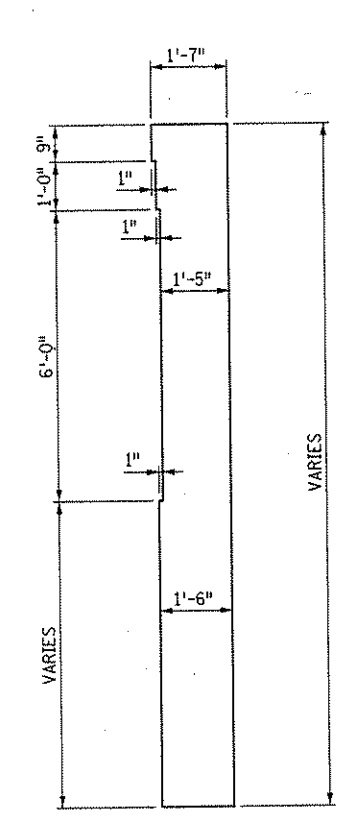


SOUTHWEST WINGWALL REINFORCEMENT ②

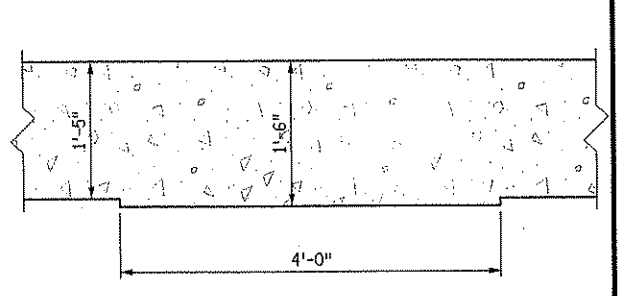
- BAR CALL-OUTS:**
- ① 2-D1926E (F.F.)
 - ② 1-SER. OF 6-D1927E (F.F.)
 - ③ 3-D1928E (F.F.)
 - ④ 1-SER. OF 4-D1929E (F.F.)
 - ⑤ 4-D1930E (F.F.)
 - ⑥ 1-SER. OF 6-D1931E (B.F.)
 - ⑦ 3-D1932E (B.F.)
 - ⑧ 1-SER. OF 6-D1933E (B.F.)
 - ⑨ 5-D1934E (B.F.)
 - ⑩ 6-D1935E (B.F.)
 - ⑪ 2-D1636E SPS. TO MATCH D1606E DWLS. (F.F.)
 - ⑫ 5-D1637E SPS. TO MATCH D1606E DWLS. (F.F.)
 - ⑬ 10-D1638E SPS. TO MATCH D1606E (6-F.F., 4-B.F.)
 - ⑭ 3-D1639E SPS. @ 12" MAX. (B.F. OF MASK WALL)
 - ⑮ 8-D1640E ①
 - ⑯ 6-D1346E SPS. TO MATCH D1930E & D1644E



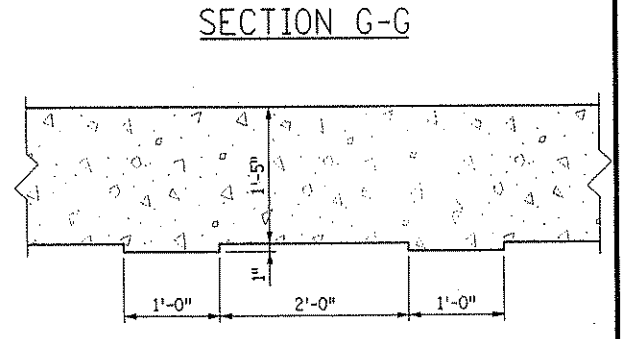
SECTION A-A



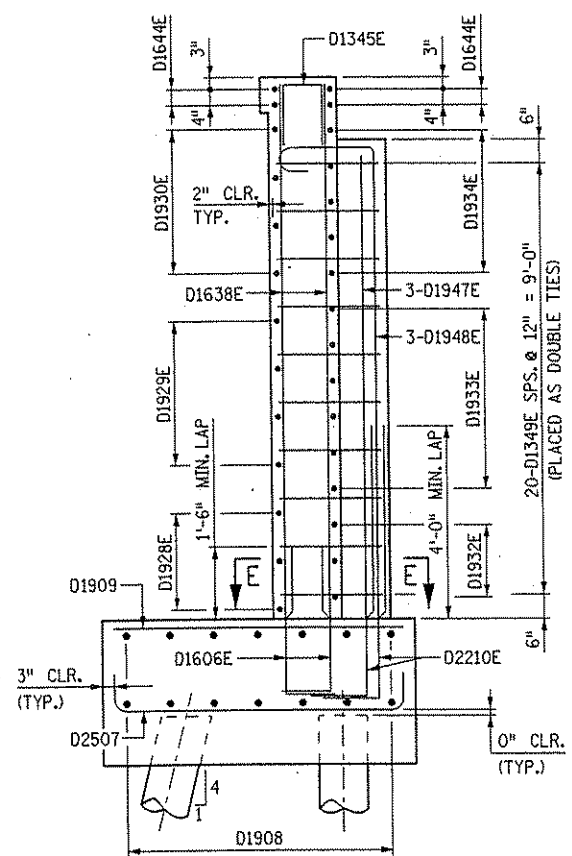
SECTION C-C



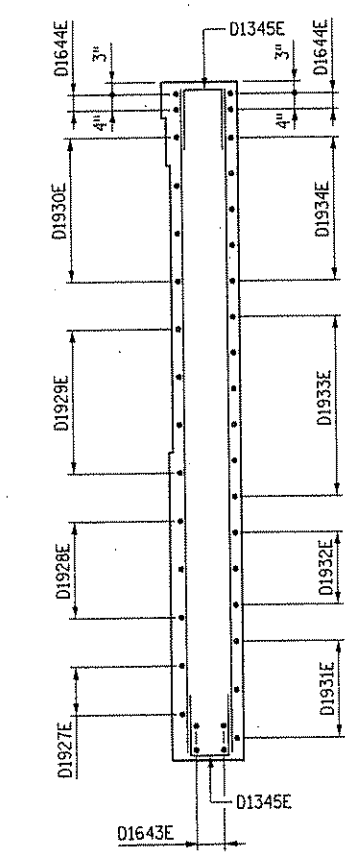
SECTION G-G



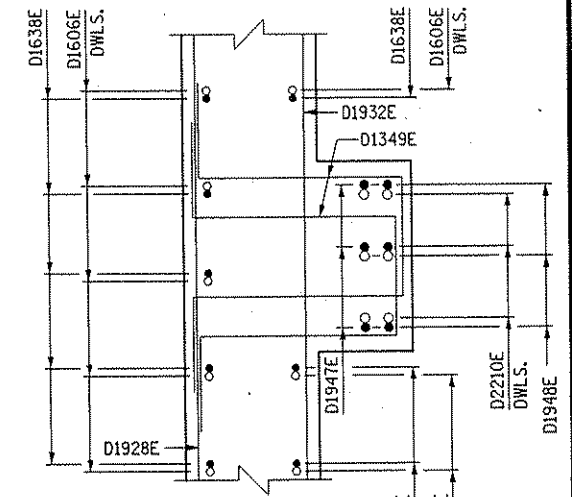
SECTION F-F



SECTION B-B



SECTION D-D



SECTION E-E

- NOTES:**
- ① AS SHOWN IN CORNER DETAIL ON SHEET 10, PLACE 2-D1640E (2 THUS) SPS. EVENLY BETWEEN D1636E AND D1638E IN F.F. OF MASK WALL AND PLACE 2-D1640E (2 THUS) SPS. EVENLY BETWEEN D1639E IN B.F. OF MASK WALL.
 - ② PILES AND FOOTING REINFORCEMENT ARE NOT SHOWN FOR CLARITY.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 DATE 01/22/2002 REG. NO. 19879

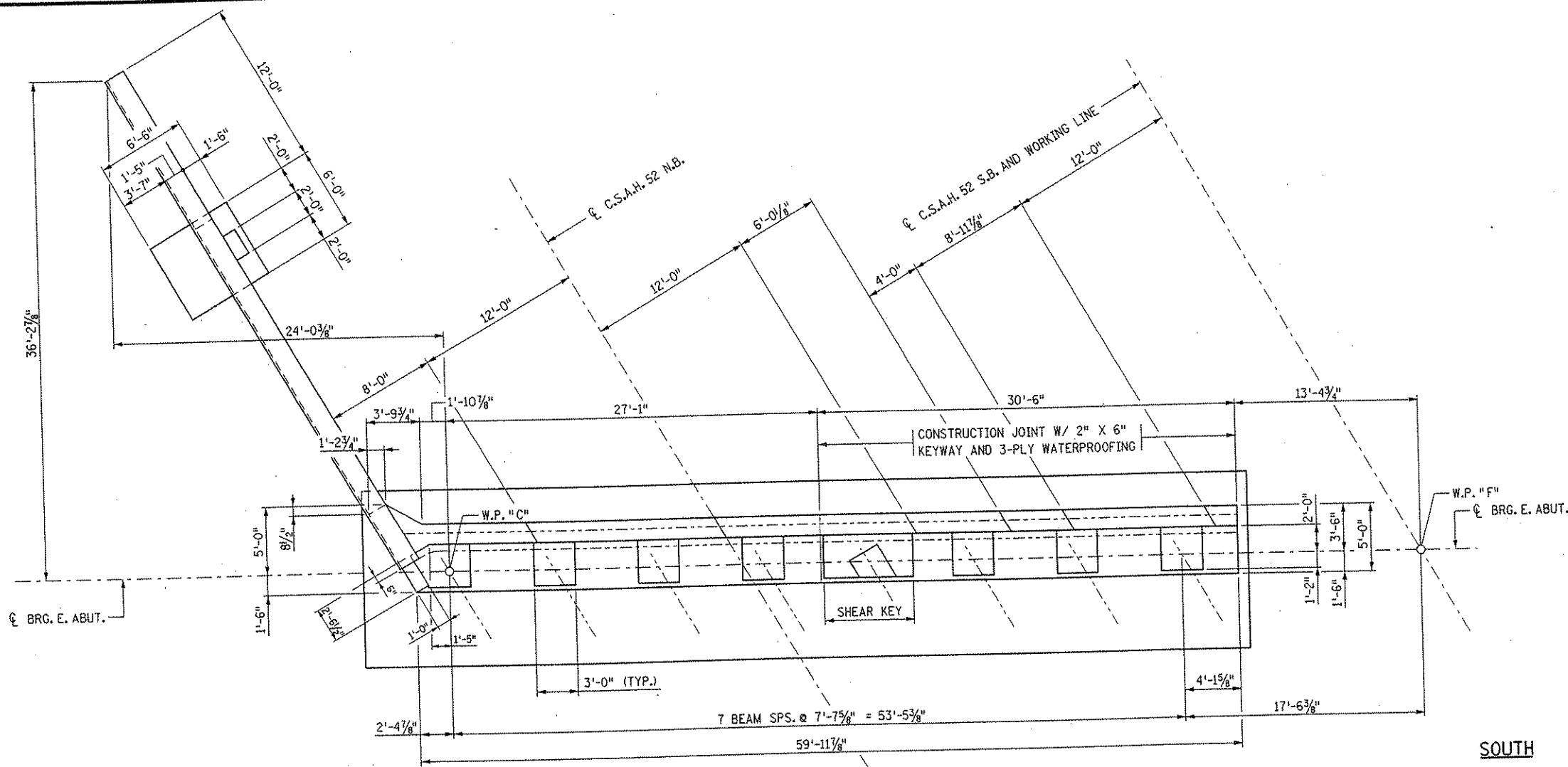
TKDA
 TOLTZ, KING, DUVALL, ANDERSON
 AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE
 WEST ABUTMENT - STAGE 2
 WINGWALL DETAILS

DES: MJC	DR: MJC	APPROVED	Bridge No.
CHK: GM	CHK: GM		02566
Sheet No. 11 of 56 Sheets			

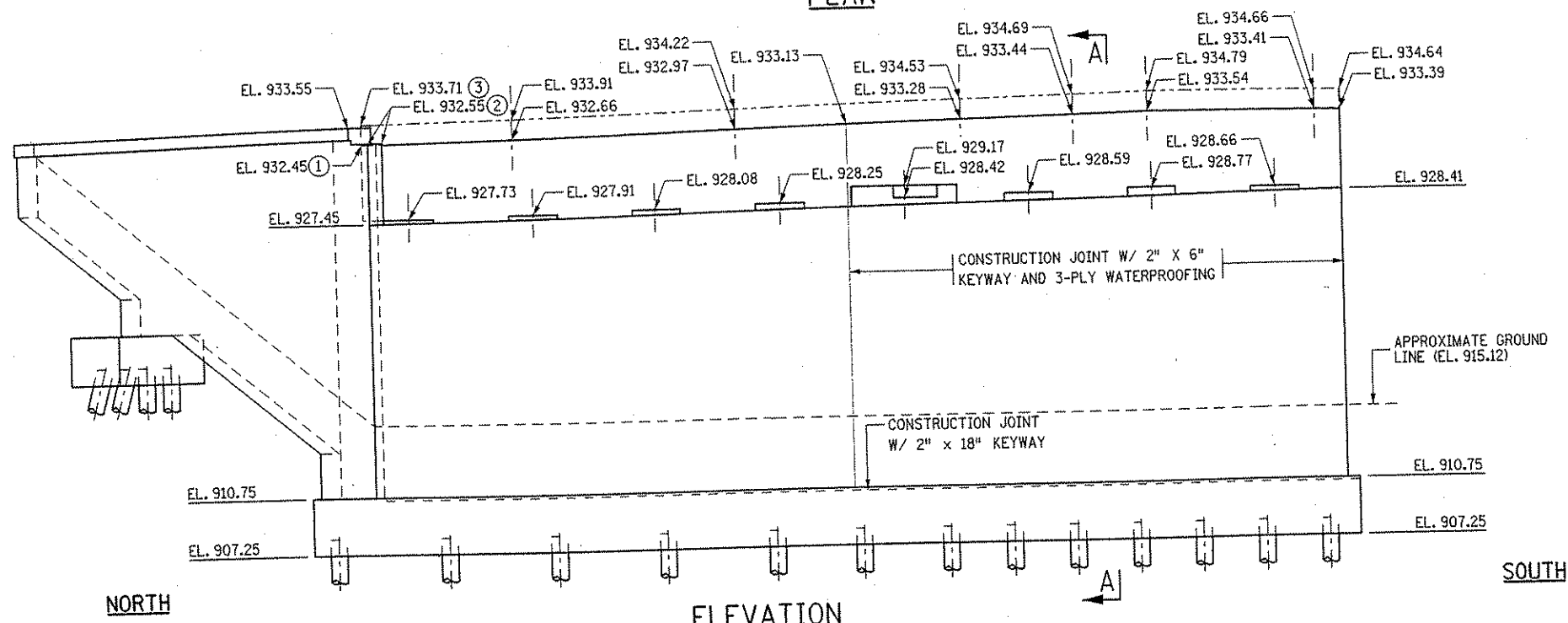
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NORTH

PLAN

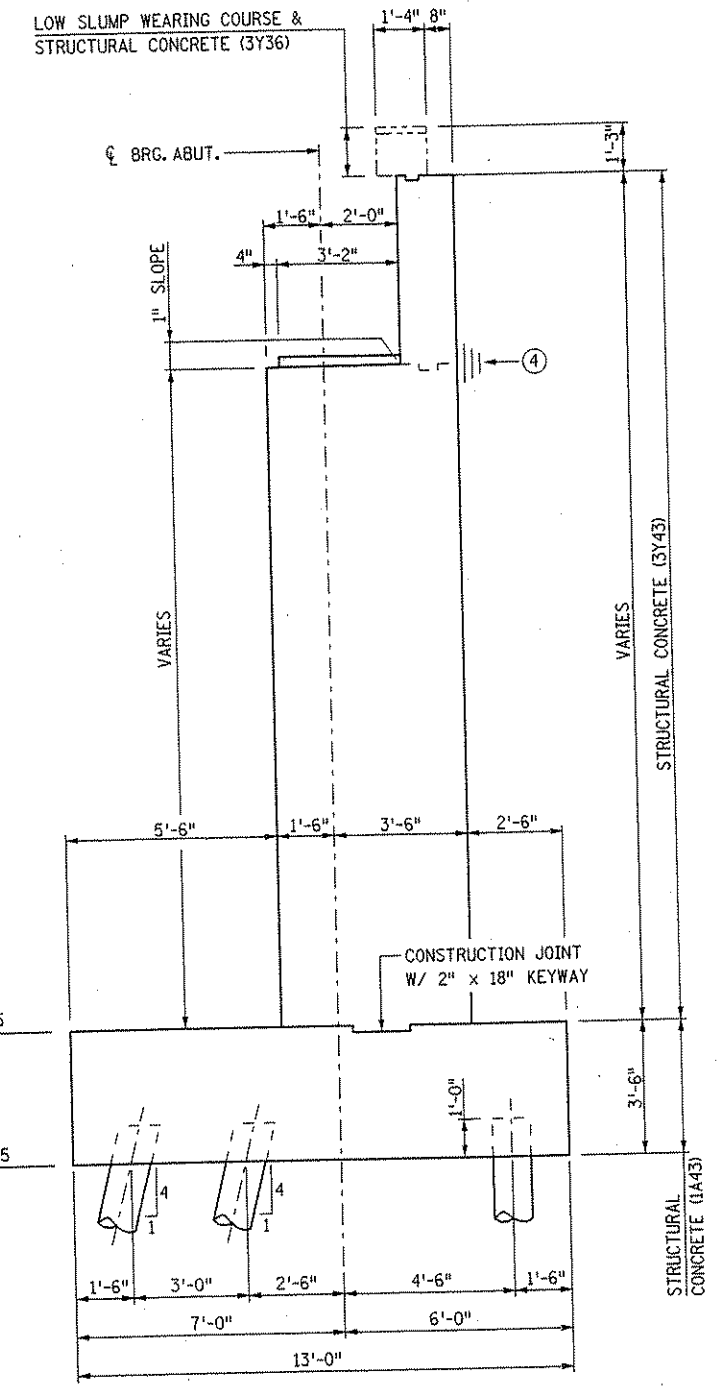
SOUTH



NORTH

ELEVATION

SOUTH



TYPICAL SECTION A-A

NOTES:

- ① ELEVATION AT FRONT FACE OF BACKWALL
- ② ELEVATION AT TOP OF MASK WALL
- ③ ELEVATION AT FRONT FACE OF END BLOCK
- ④ PERMISSIBLE CONSTRUCTION JOINT W/ 2" x 6" KEYWAY & 3 PLY WATERPROOFING

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE:
**EAST ABUTMENT - STAGE 1
 PLAN AND ELEVATION**

DES: SVC	DR: SVC	APPROVED
CHK: MJC	CHK: MJC	
Sheet No. 12 of 56 Sheets		

Bridge No.
02566

COMPUTED PILE LOADS


EAST ABUTMENT, STAGE 1 - (TONS PER PILE)

DEAD LOAD	55.7
LIVE LOAD	3.8
TOTAL LOAD	59.5
*DESIGN LOAD	59.5

* 59.5/1.0 REDUCTION PER AASHTO 3.22.1 GROUP 1 LOADING

PILE NOTES:

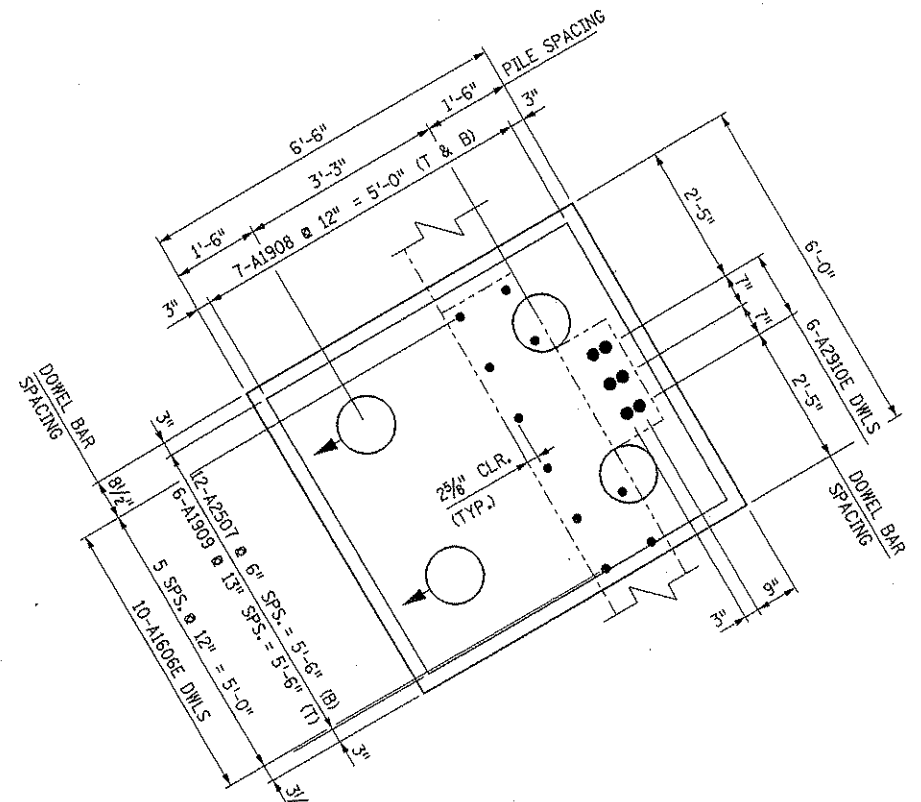
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING

PILES MARKED THUS  TO BE BATTERED 3 INCHES PER FOOT IN DIRECTION SHOWN.

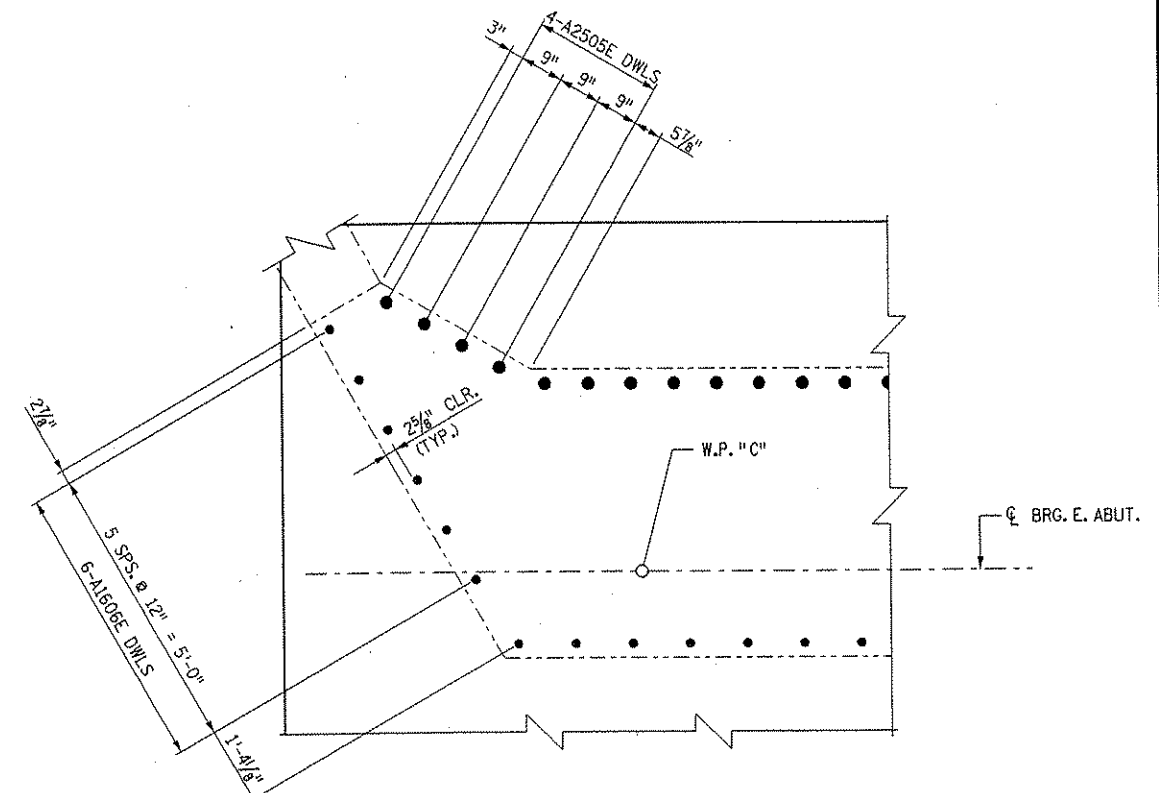
PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES.
 28 CAST-IN-PLACE PILES EST. LENGTH 80 FEET LONG
 2 CAST-IN-PLACE CONCRETE TEST PILE 90 FEET LONG
 30 CAST-IN-PLACE CONCRETE PILES REQ'D FOR THE EAST ABUTMENT, STAGE 1

NOTES

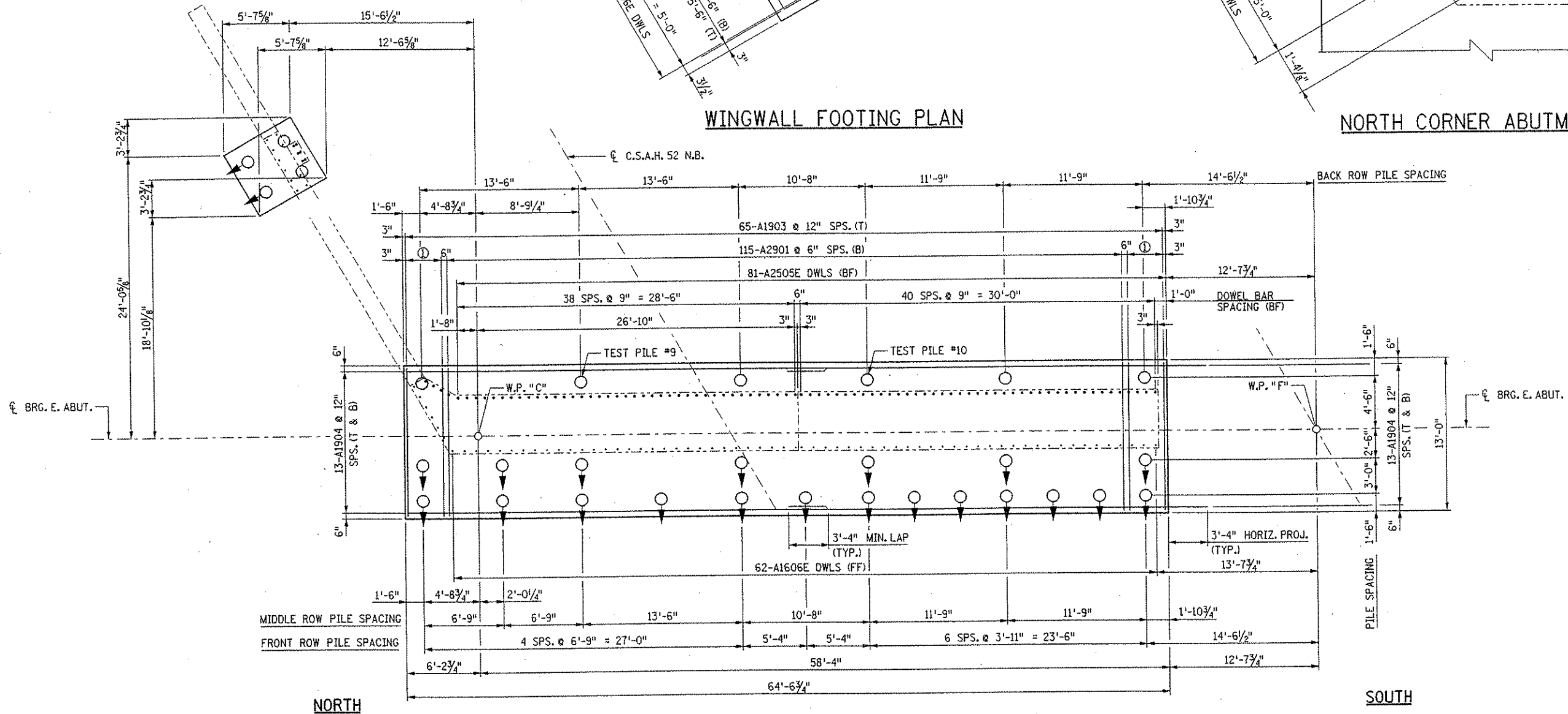
① 7-B3202 @ 6" SPS = 3'-0" (B)



WINGWALL FOOTING PLAN



NORTH CORNER ABUTMENT DETAIL

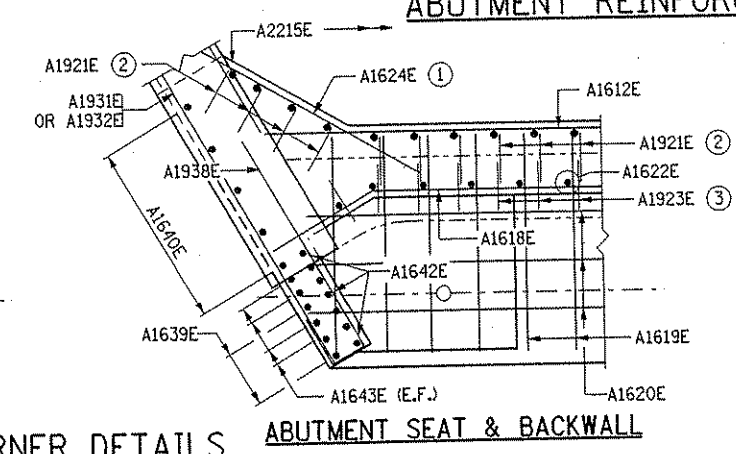
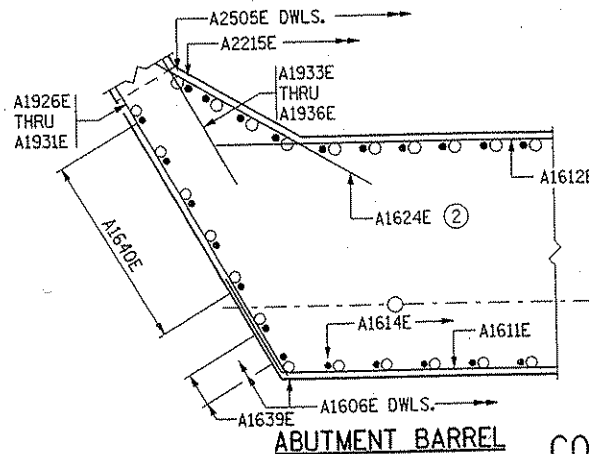
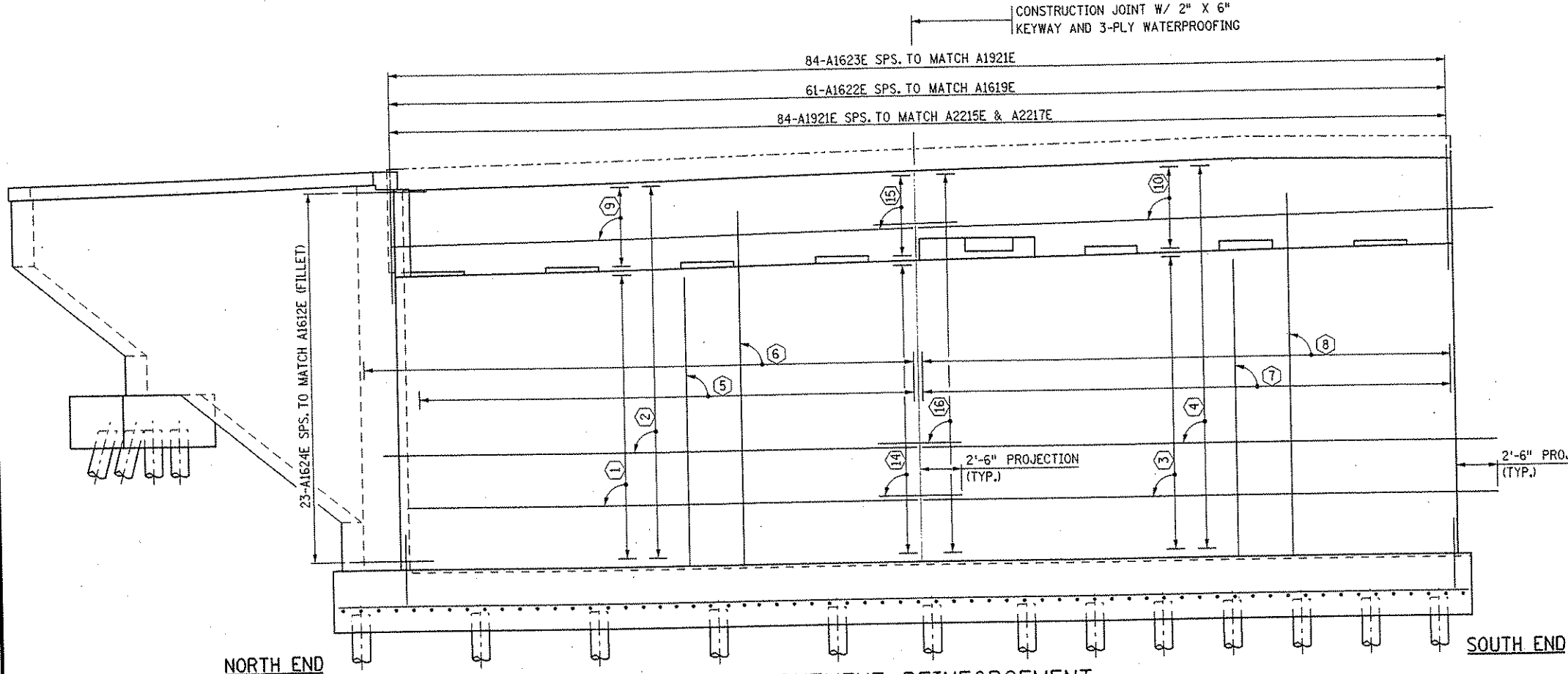
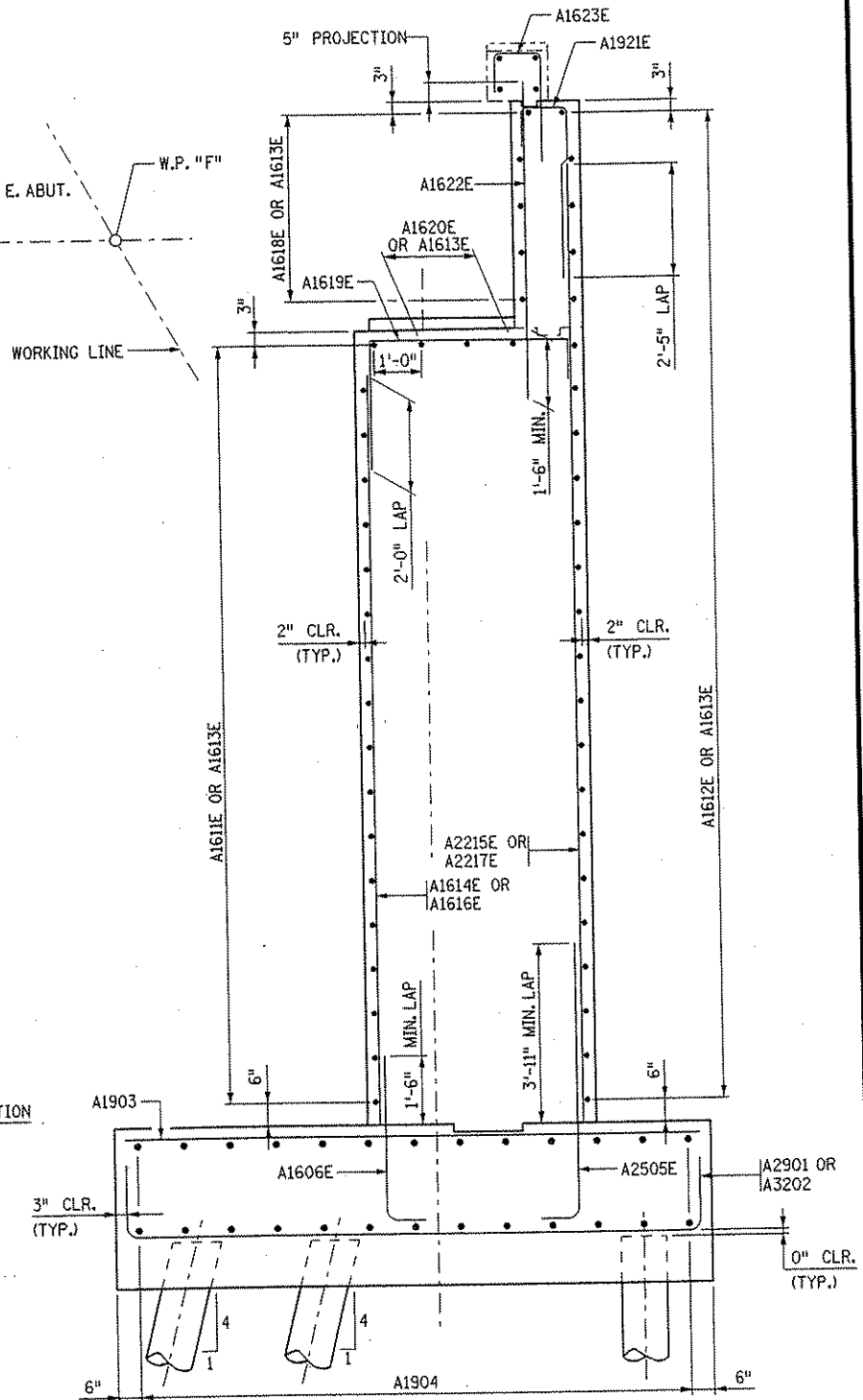
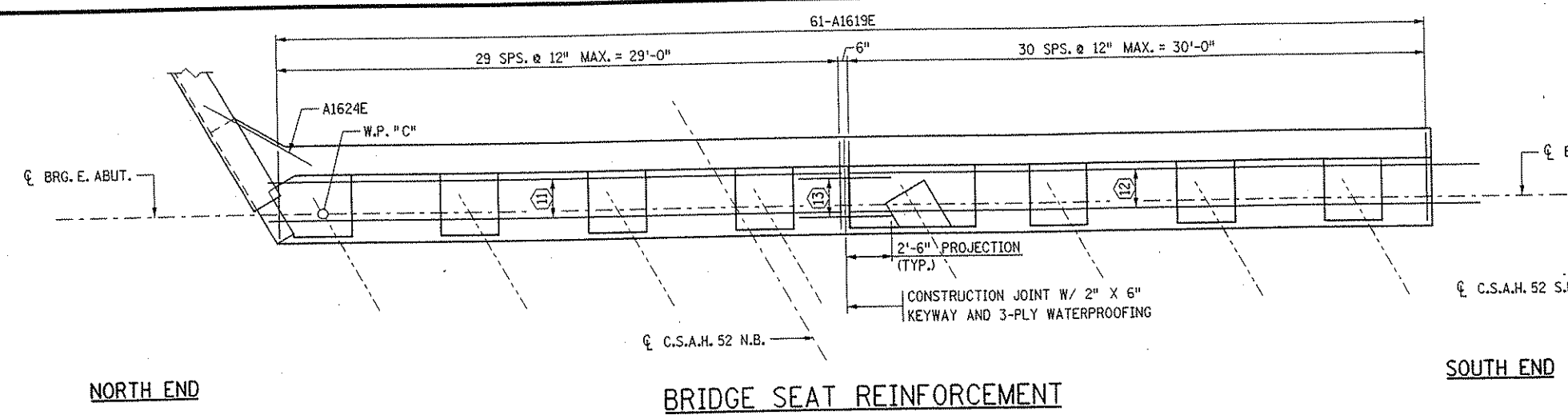


PLAN

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NO.	DATE	BY	DESCRIPTION OF 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 SIGNED <i>Gottfried Millner</i> DATE 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: EAST ABUTMENT - STAGE 1 FOOTING PLAN & REINFORCEMENT	DES: SVC	DR: SVC	APPROVED	Bridge No. 02566
								CHK: MJC	CHK: MJC	Sheet No. 13 of 56 Sheets	

DATE: 01/22/2002 TIME: 01:53:53 PM
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NOTES:

- FOR LONGITUDINAL REINFORCEMENT IN ABUTMENT ENDBLOCK SEE DETAILS ON SHEET 32.
- FOR ADDITIONAL REINFORCEMENT IN CONCRETE PADS SEE DETAILS ON SHEET 20.
- ① ADJUST A1624E NEAR TOP OF FOOTING AS NEEDED TO MAINTAIN 2" CLEARANCE.
- ② PLACE LAST FOUR NORTHERN A1921E IN FILLET AS SHOWN IN CORNER DETAIL.
- ③ PLACE LAST NORTHERN A1623E RADIALLY IN END BLOCK SPS. TO MATCH A1622E AS SHOWN IN CORNER DETAIL.

BAR CALL-OUTS:

- ① 18-A1611E SPS. @ 12" MAX. (F.F.)
- ② 23-A1612E SPS. @ 12" MAX. (B.F.)
- ③ 18-A1613E SPS. @ 12" MAX. (F.F.)
- ④ 23-A1613E SPS. @ 12" MAX. (B.F.)
- ⑤ 29-A1614E SPS. TO MATCH A1606E DWLS. (F.F.)
- ⑥ 43-A2215E SPS. TO MATCH A2505E DWLS. (B.F.)
- ⑦ 31-A1616E SPS. TO MATCH A1606E DWLS. (F.F.)
- ⑧ 41-A2217E SPS. TO MATCH A2505E DWLS. (B.F.)
- ⑨ 5-A1618E SPS. @ 12" MAX. (F.F.)
- ⑩ 5-A1613E SPS. @ 12" MAX. (F.F.)
- ⑪ 3-A1620E SPS. @ 12" MAX.
- ⑫ 3-A1613E SPS. @ 12" MAX.
- ⑬ 3-A1625E SPS. TO MATCH A1613E & A1620E
- ⑭ 18-A1625E SPS. TO MATCH A1611E & A1613E (F.F.)
- ⑮ 5-A1625E SPS. TO MATCH A1613E & A1618E (F.F.)
- ⑯ 23-A1625E SPS. TO MATCH A1612E & A1613E (B.F.)

NO.	DATE	BY	DESCRIPTION OF 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

SIGNED: *Gottfried Millner* GOTTFRIED MILLNER
 DATE: 01/22/2002 REG. NO. 19879

TKDA
 TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS • ARCHITECTS • PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

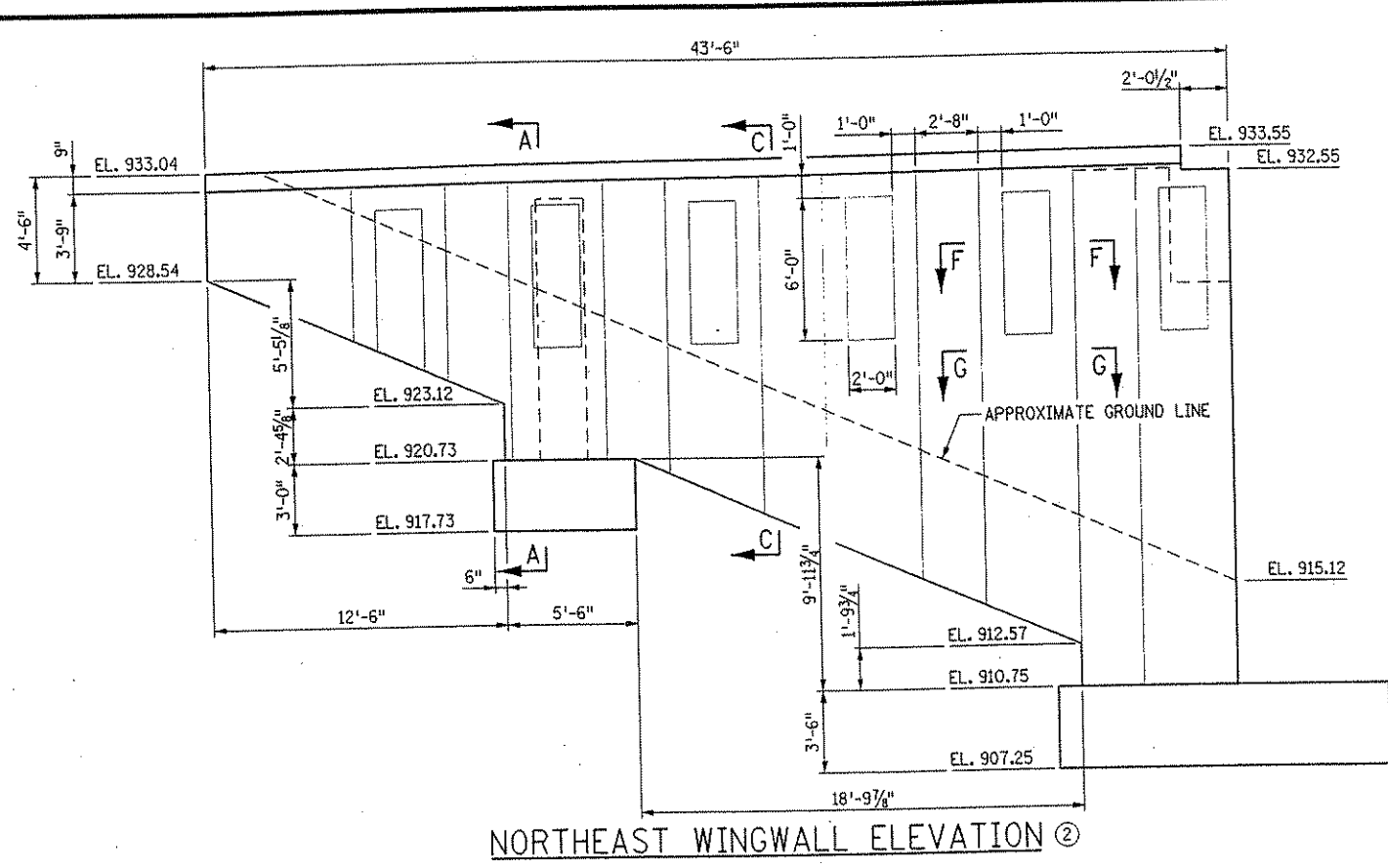
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CHK: GM	CHK: GM	

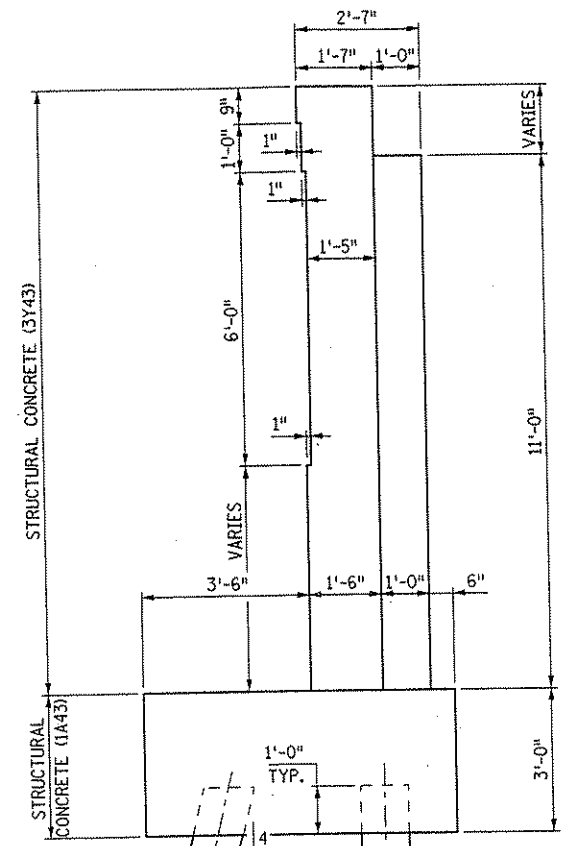
Sheet No. 14 of 56 Sheets

Bridge No. 02566

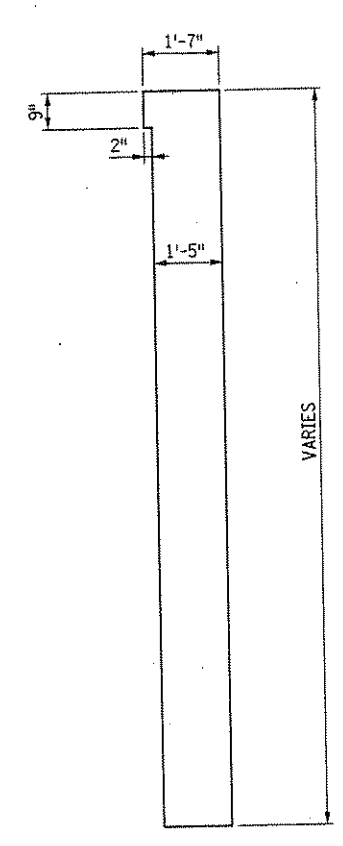
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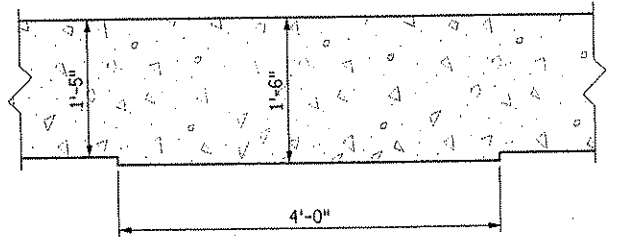
NORTHEAST WINGWALL ELEVATION ②



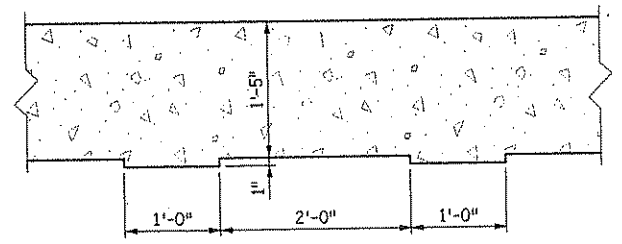
SECTION A-A



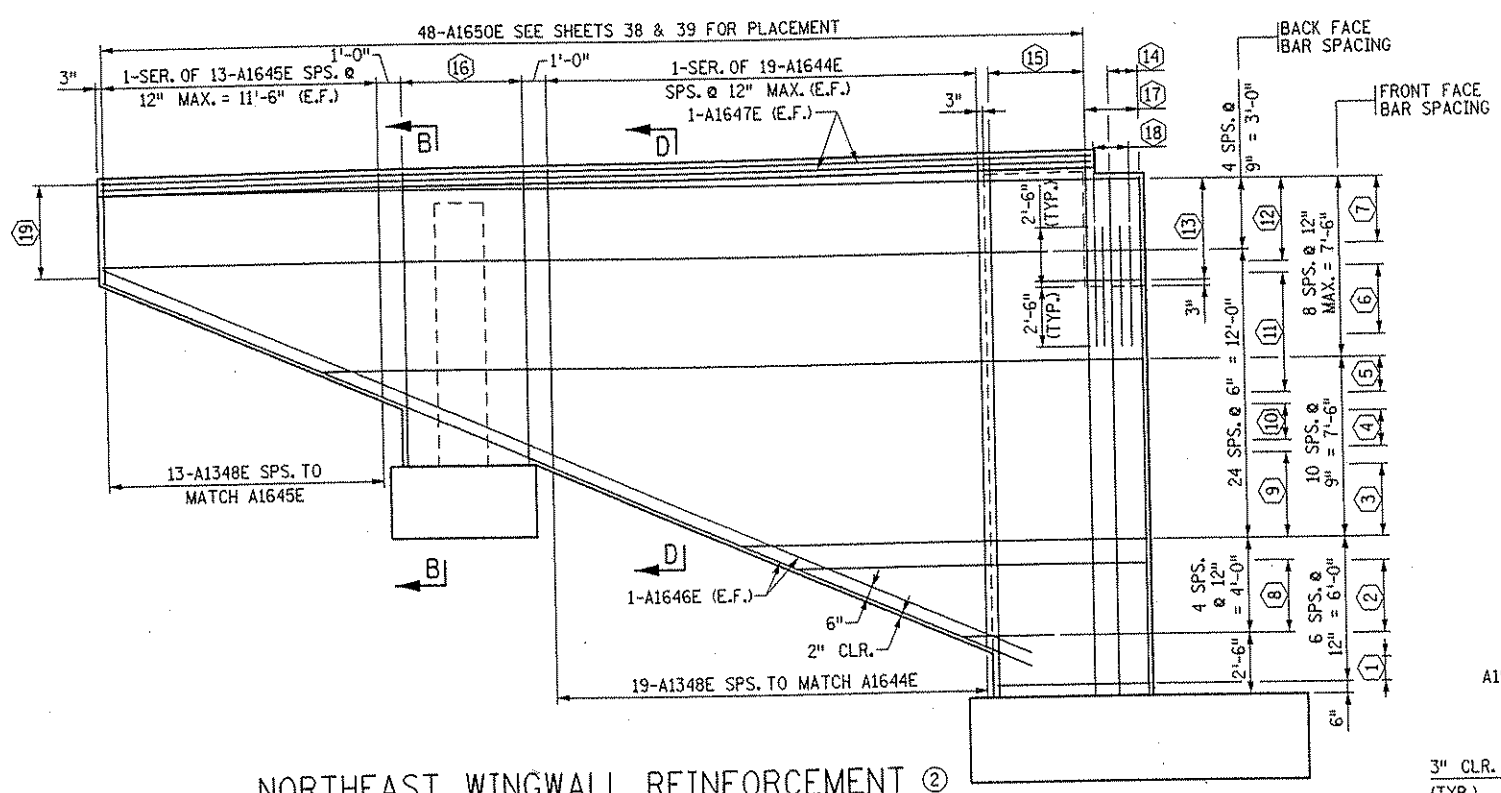
SECTION C-C



SECTION G-G



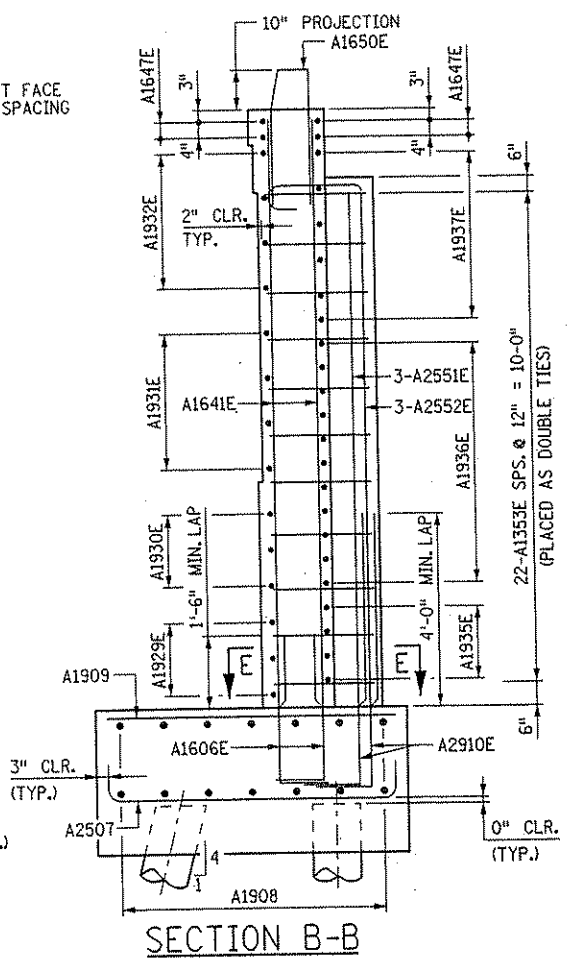
SECTION F-F



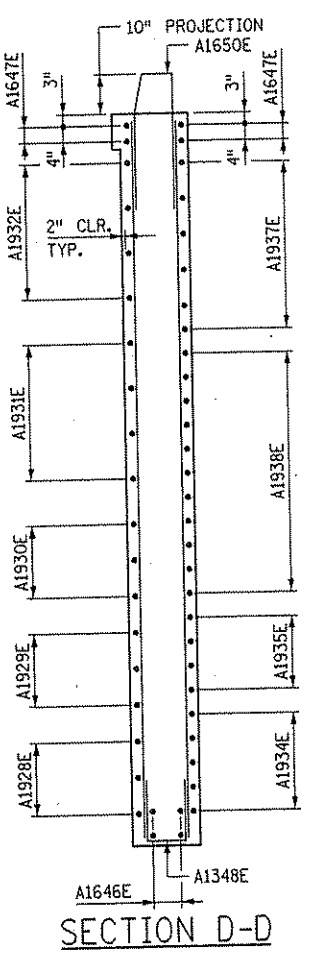
NORTHEAST WINGWALL REINFORCEMENT ②

BAR CALL-OUTS:

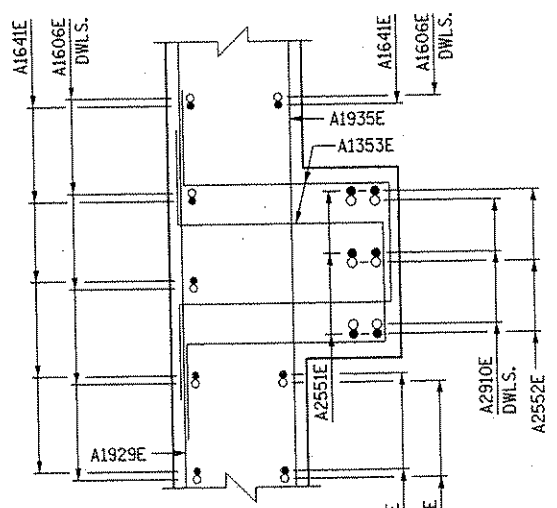
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|-----------------------------|-----------------------------|--|---|
| ① 2-A1926E (F.F.) | ⑥ 1-SER. OF 4-A1931E (F.F.) | ⑪ 1-SER. OF 11-A1936E (B.F.) | ⑮ 10-A1641E SPS. TO MATCH A1606E DWLS. (6-F.F., 4-B.F.) |
| ② 1-SER. OF 4-A1927E (F.F.) | ⑦ 4-A1932E (F.F.) | ⑫ 6-A1937E (B.F.) | ⑯ 3-A1642E SPS. EVENLY IN MASK WALL (B.F.) |
| ③ 1-SER. OF 5-A1928E (F.F.) | ⑧ 1-SER. OF 4-A1933E (B.F.) | ⑬ 6-A1938E SPS. @ 12" MAX. (B.F.) | ⑰ 8-A1643E ① |
| ④ 3-A1929E (F.F.) | ⑨ 1-SER. OF 8-A1934E (B.F.) | ⑭ 2-A1639E SPS. TO MATCH A1606E DWLS. (F.F.) | ⑱ 6-A1649E SPS. TO MATCH A1647E & A1932E |
| ⑤ 1-SER. OF 3-A1930E (F.F.) | ⑩ 4-A1935E (B.F.) | ⑮ 5-A1640E SPS. TO MATCH A1606E DWLS. (F.F.) | |



SECTION B-B



SECTION D-D



SECTION E-E

- NOTES:**
- AS SHOWN IN CORNER DETAIL ON SHEET 14, PLACE 2-A1643E (2 THUS) SPS. EVENLY BETWEEN A1639E AND A1640E IN F.F. OF MASK WALL AND PLACE 2-A1643E (2 THUS) SPS. EVENLY BETWEEN A1642E IN B.F. OF MASK WALL.
 - PILES AND FOOTING REINFORCEMENT ARE NOT SHOWN FOR CLARITY.

NO.	DATE	BY	DESCRIPTION OF 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
 SIGNED *Gottfried Millner* GOTTFRIED MILLNER
 DATE 01/22/2002 REG. NO. 19879

TKDA
 TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

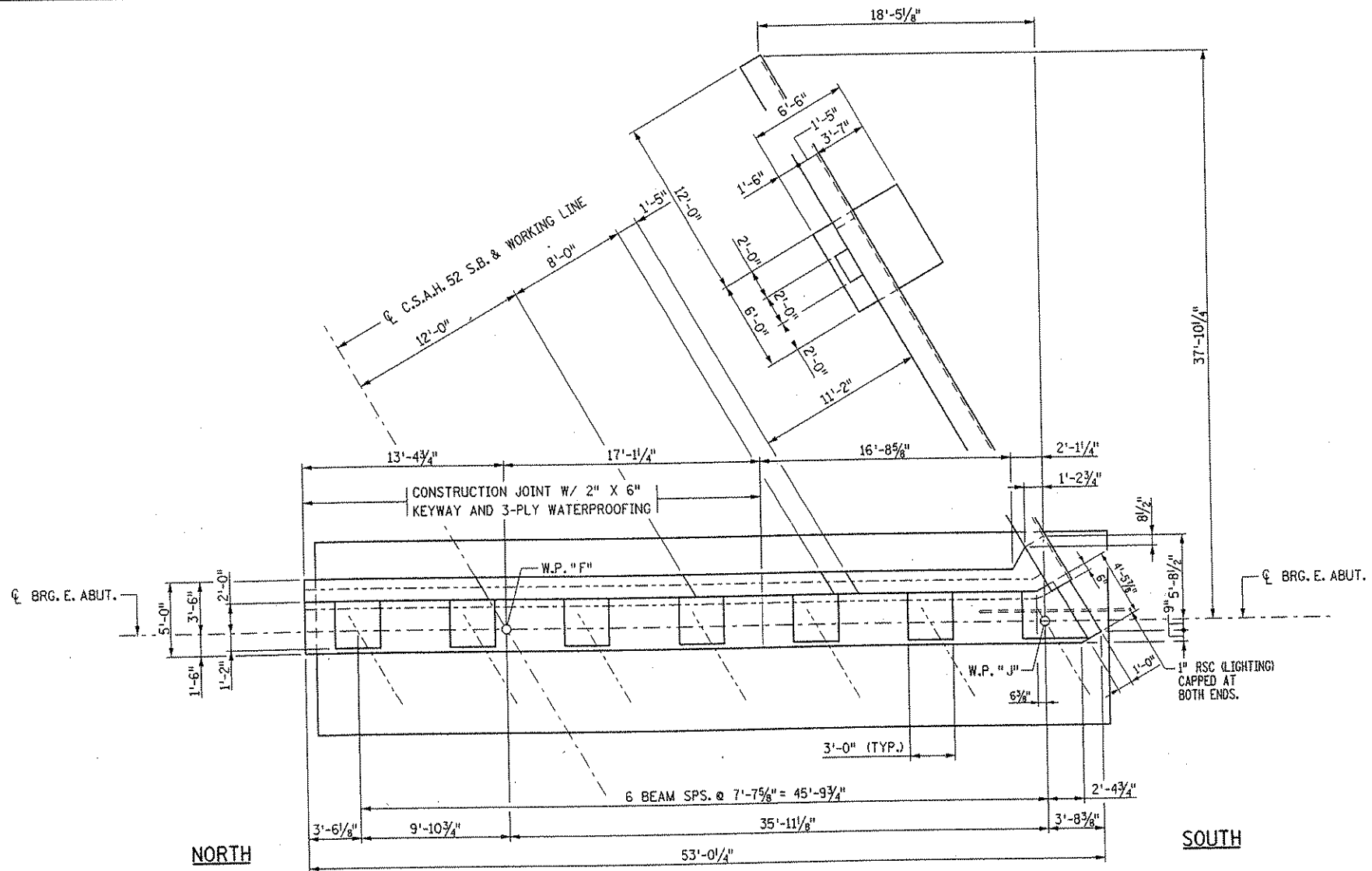
ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE
EAST ABUTMENT - STAGE 1 WINGWALL DETAILS

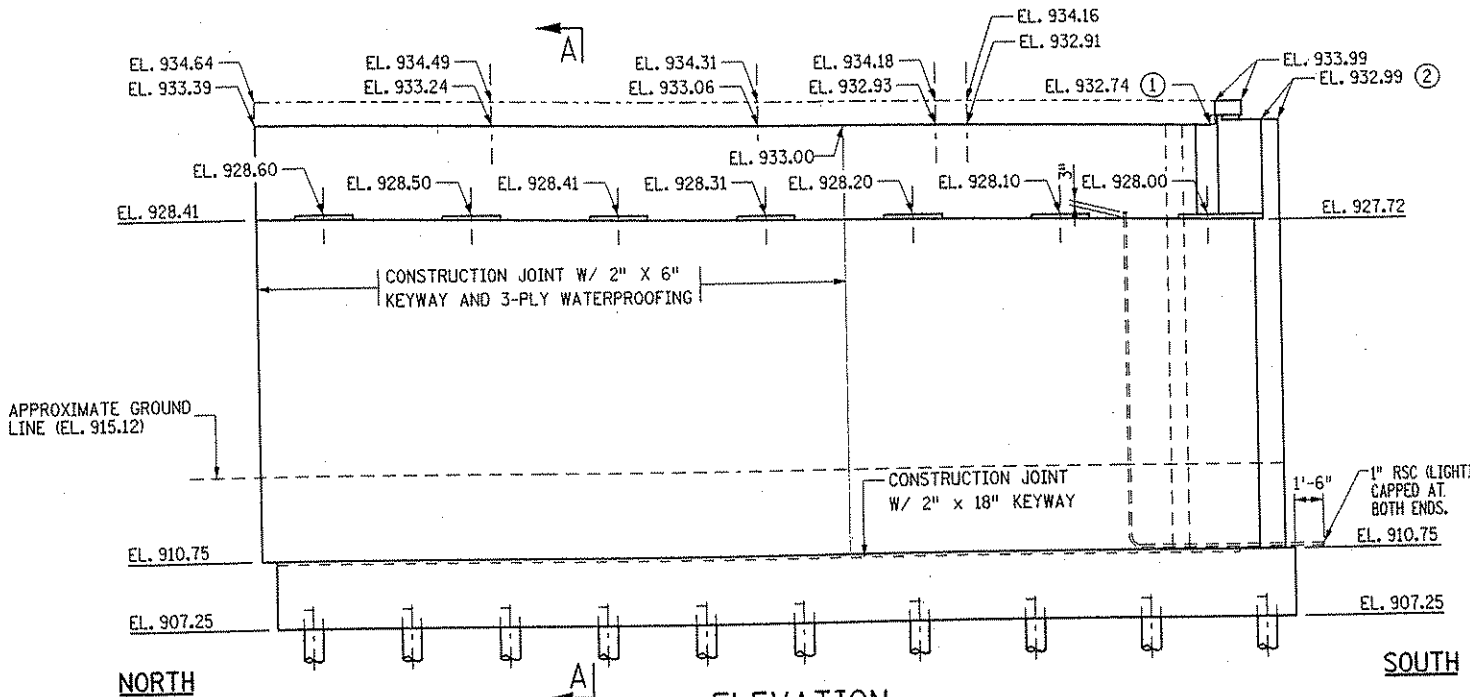
DES: MJC DR: MJC APPROVED
 CHK: GM CHK: GM
 Sheet No. 15 of 56 Sheets

Bridge No.
 02566

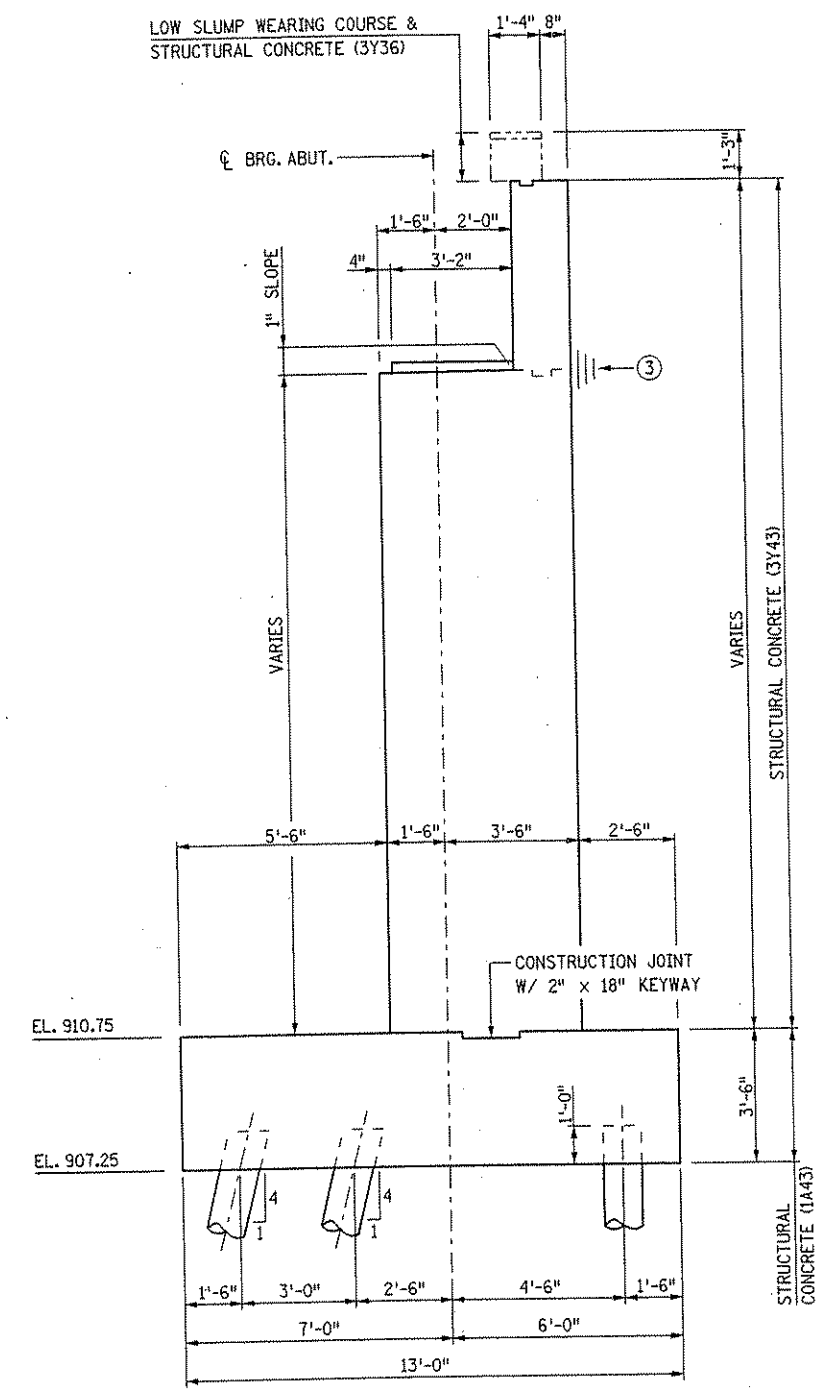
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PLAN



ELEVATION



TYPICAL SECTION A-A

NOTES:

- ① ELEVATION AT FRONT FACE OF BACKWALL
- ② ELEVATION AT TOP OF MASK WALL
- ③ PERMISSIBLE CONSTRUCTION JOINT W/ 2" x 6" KEYWAY & 3 PLY WATERPROOFING

	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: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE: 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: EAST ABUTMENT - STAGE 2 PLAN AND ELEVATION	DES: SVC CHK: MJC DR: SVC CHK: MJC APPROVED: _____ Sheet No. 16 of 56 Sheets	Bridge No. 02566
NO.	DATE	BY	DESCRIPTION OF REVISIONS			

COMPUTED PILE LOADS


EAST ABUTMENT, STAGE 2 - (TONS PER PILE)

DEAD LOAD	55.4
LIVE LOAD	4.6
TOTAL LOAD	60.0
*DESIGN LOAD	60.0

* 60.0/1.0 REDUCTION PER AASHTO 3.22.1
GROUP 1 LOADING

PILE NOTES:

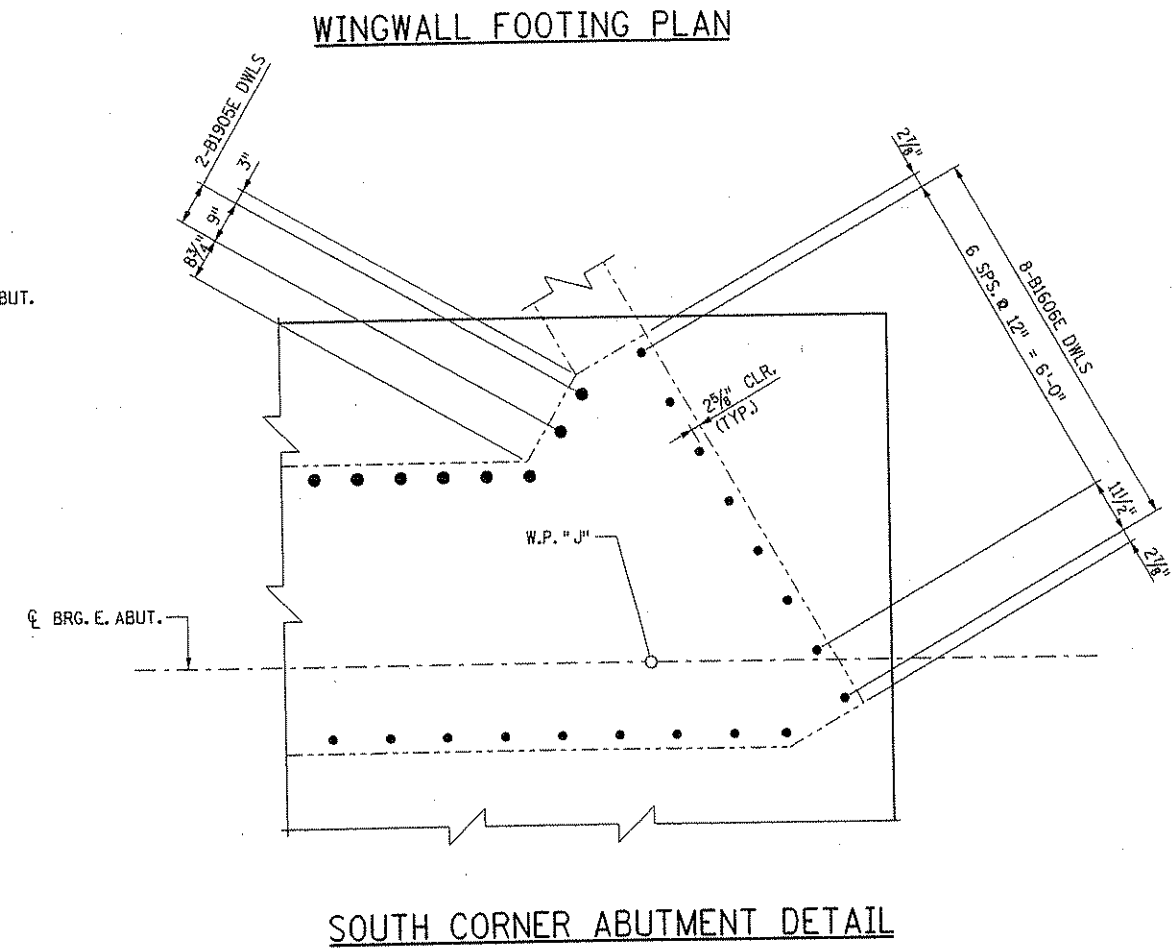
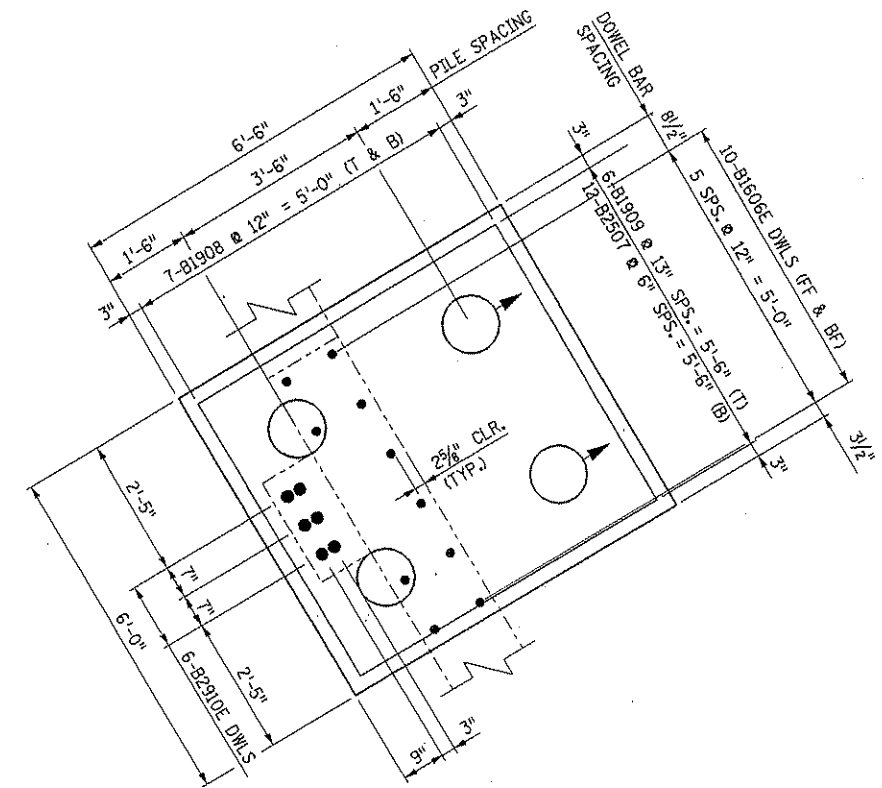
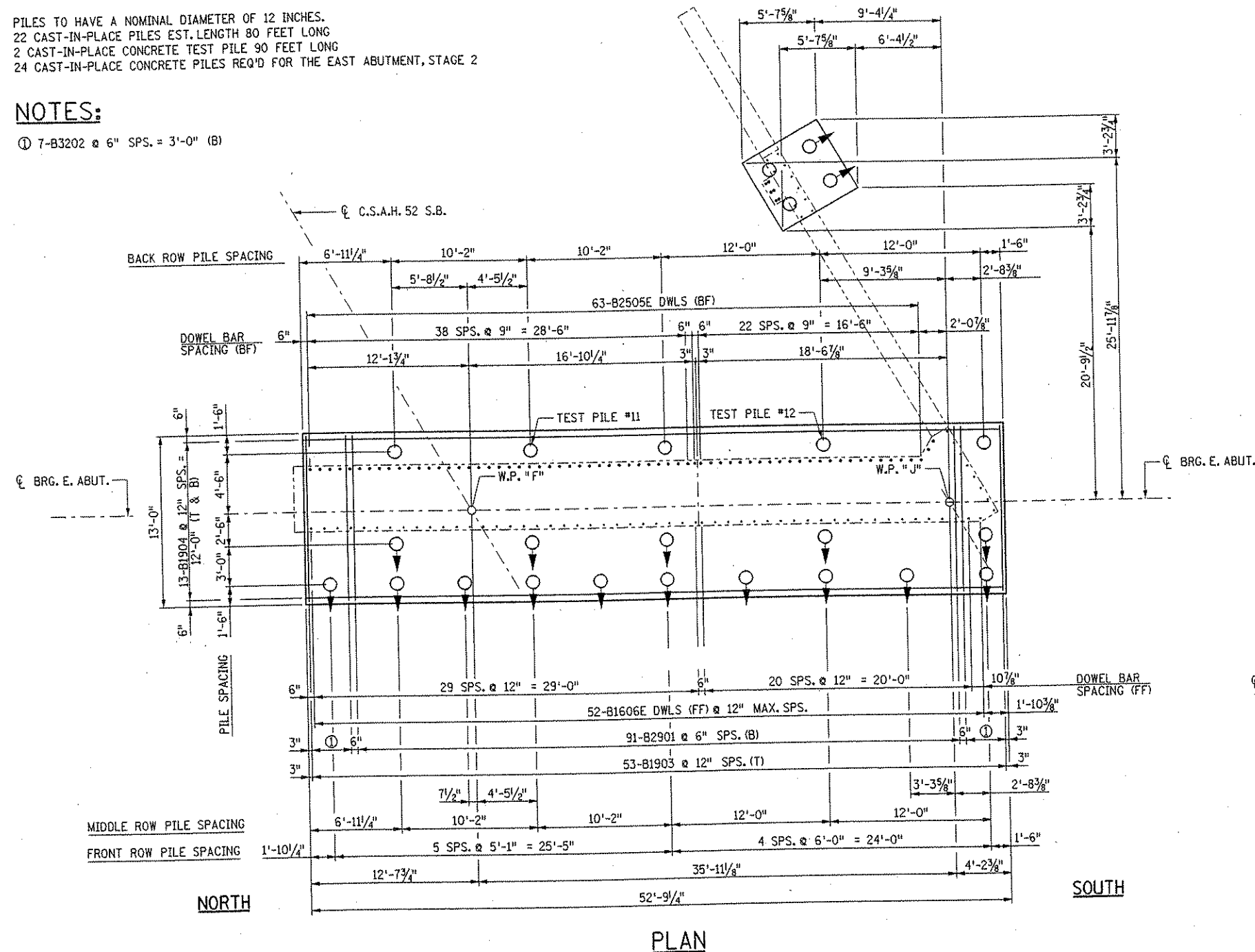
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING

PILES MARKED THIS  TO BE BATTERED
3 INCHES PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES.
22 CAST-IN-PLACE PILES EST. LENGTH 80 FEET LONG
2 CAST-IN-PLACE CONCRETE TEST PILE 90 FEET LONG
24 CAST-IN-PLACE CONCRETE PILES REQ'D FOR THE EAST ABUTMENT, STAGE 2

NOTES:

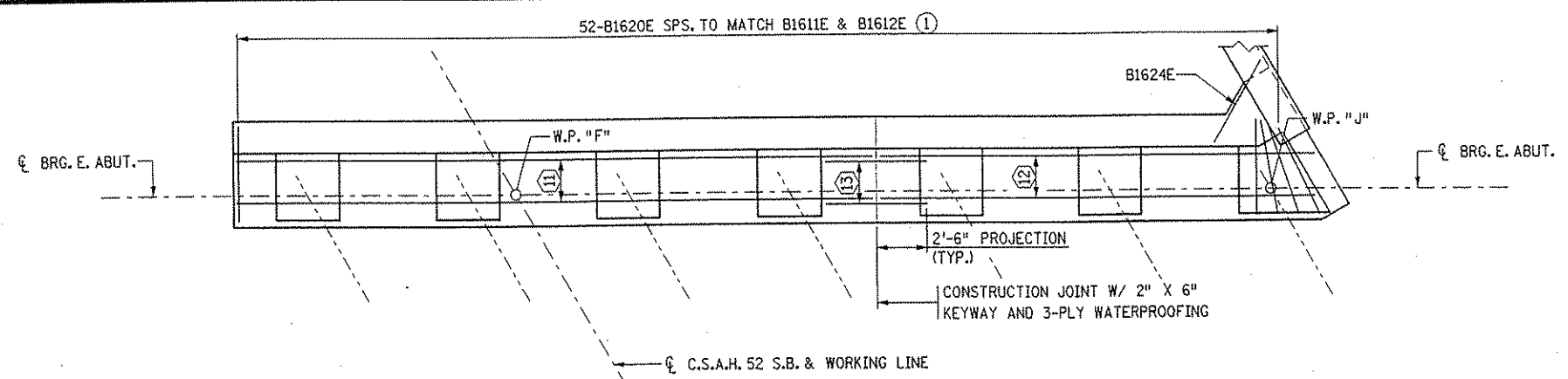
① 7-B3202 @ 6" SPS. = 3'-0" (B)



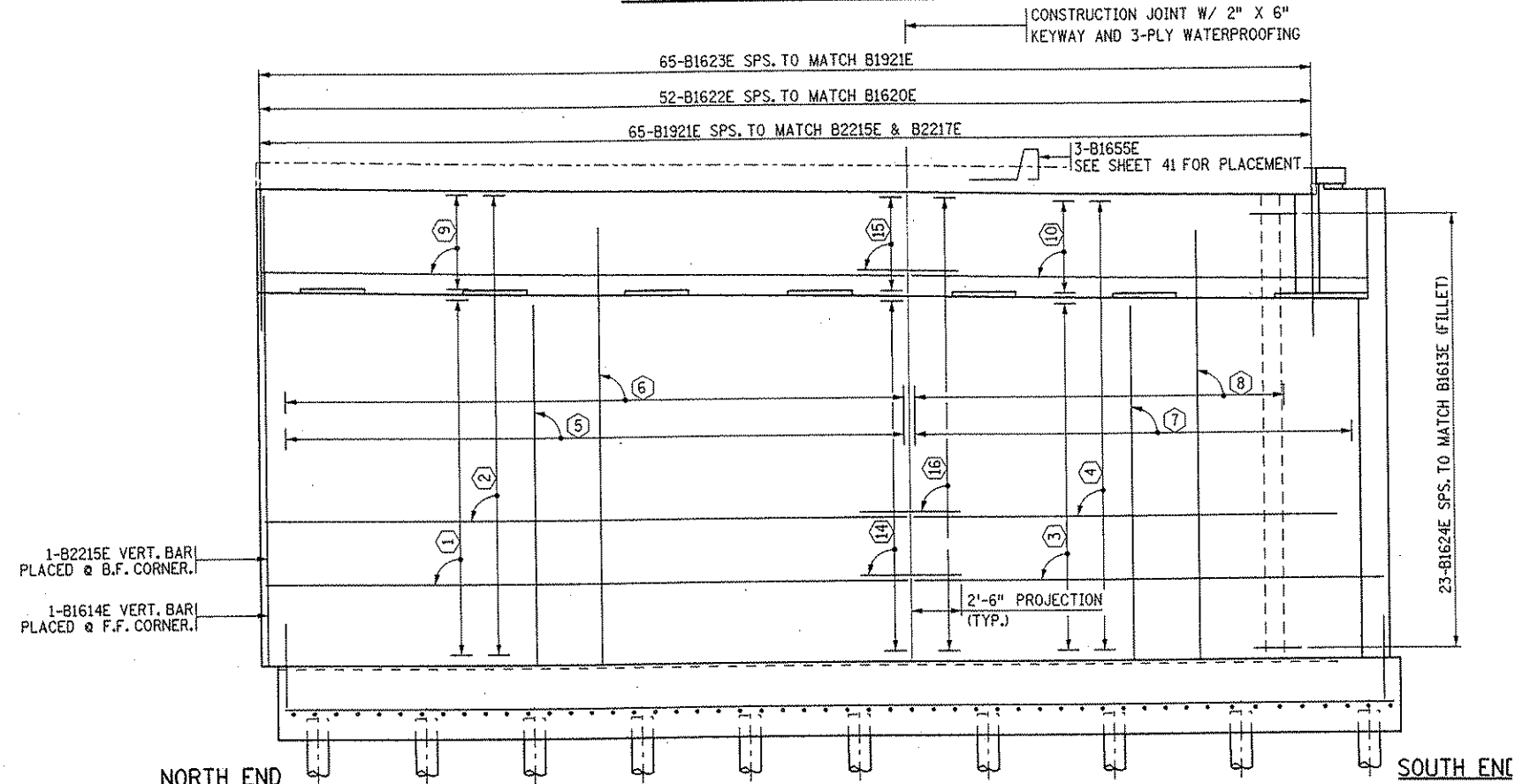
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NO.	DATE	BY	DESCRIPTION OF REVISIONS	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA SIGNED <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE EAST ABUTMENT - STAGE 2 FOOTING PLAN & REINFORCEMENT	DES: SVC	DR: SVC	APPROVED	Bridge No. 02566
								CHK: MJC	CHK: MJC	Sheet No. 17 of 56 Sheets	

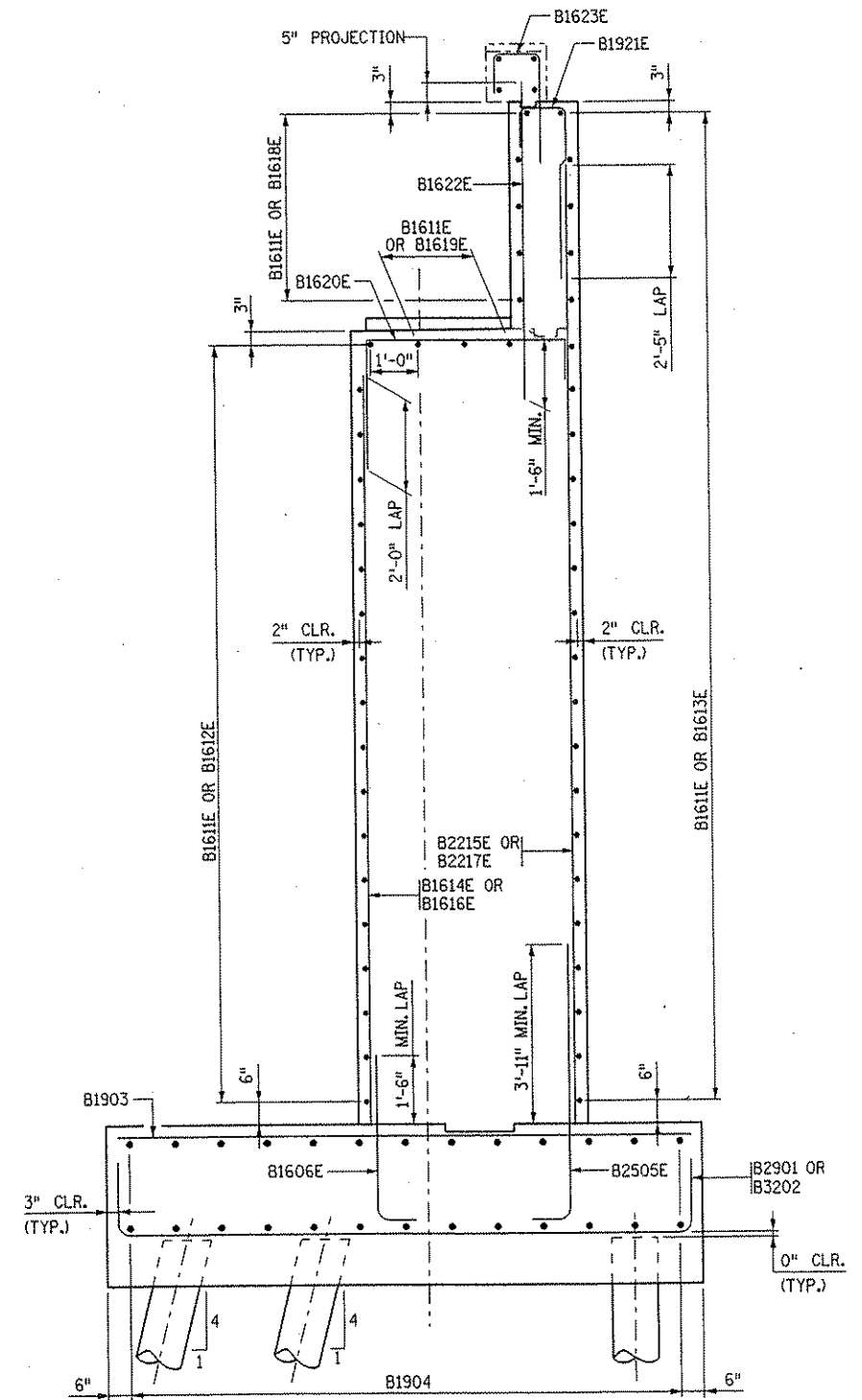
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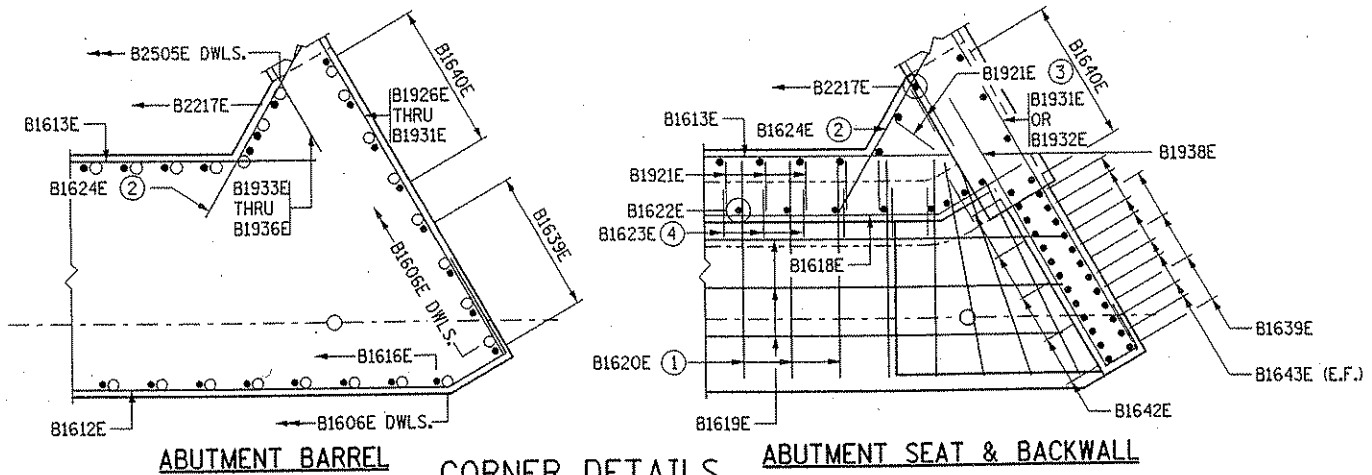
NORTH END BRIDGE SEAT REINFORCEMENT SOUTH END



NORTH END ABUTMENT REINFORCEMENT SOUTH END



ABUTMENT REINFORCEMENT



ABUTMENT BARREL CORNER DETAILS ABUTMENT SEAT & BACKWALL

NOTES:

- FOR LONGITUDINAL REINFORCEMENT IN ABUTMENT ENDBLOCK SEE DETAILS ON SHEET 33.
 FOR ADDITIONAL REINFORCEMENT IN CONCRETE PADS SEE DETAILS ON SHEET 20.
- ① ADJUST B1620E BARS AT SOUTH END OF BRIDGE SEAT AS SHOWN IN CORNER DETAIL.
 - ② ADJUST B1624E NEAR TOP OF FOOTING AS NEEDED TO MAINTAIN 2" CLEARANCE.
 - ③ PLACE LAST TWO SOUTHERN B1921E IN FILLET AS SHOWN IN CORNER DETAIL.
 - ④ PLACE LAST TWO SOUTHERN B1623E RADIALLY IN END BLOCK SPS. TO MATCH B1622E AS SHOWN IN CORNER DETAIL.

BAR CALL-OUTS:

- | | |
|---|--|
| ① 18-B1611E SPS. @ 12" MAX. (F.F.) | ⑨ 5-B1611E SPS. @ 12" MAX. (F.F.) |
| ② 23-B1611E SPS. @ 12" MAX. (B.F.) | ⑩ 5-B1618E SPS. @ 12" MAX. (F.F.) |
| ③ 18-B1612E SPS. @ 12" MAX. (F.F.) | ⑪ 3-B1611E SPS. @ 12" MAX. |
| ④ 23-B1613E SPS. @ 12" MAX. (B.F.) | ⑫ 3-B1619E SPS. @ 12" MAX. |
| ⑤ 30-B1614E SPS. TO MATCH B1606E DWLS. (F.F.) | ⑬ 3-B1625E SPS. TO MATCH B1611E & B1619E |
| ⑥ 40-B2215E SPS. TO MATCH B2505E DWLS. (B.F.) | ⑭ 18-B1625E SPS. TO MATCH B1611E & B1612E (F.F.) |
| ⑦ 22-B1616E SPS. TO MATCH B1606E DWLS. (F.F.) | ⑮ 5-B1625E SPS. TO MATCH B1611E & B1618E (F.F.) |
| ⑧ 25-B2217E SPS. TO MATCH B2505E DWLS. (B.F.) | ⑯ 23-B1625E SPS. TO MATCH B1611E & B1613E (B.F.) |

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SIGNED	GOTTFRIED MILLNER
DATE	01/22/2002
REG. NO.	19879

TKDA
 TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

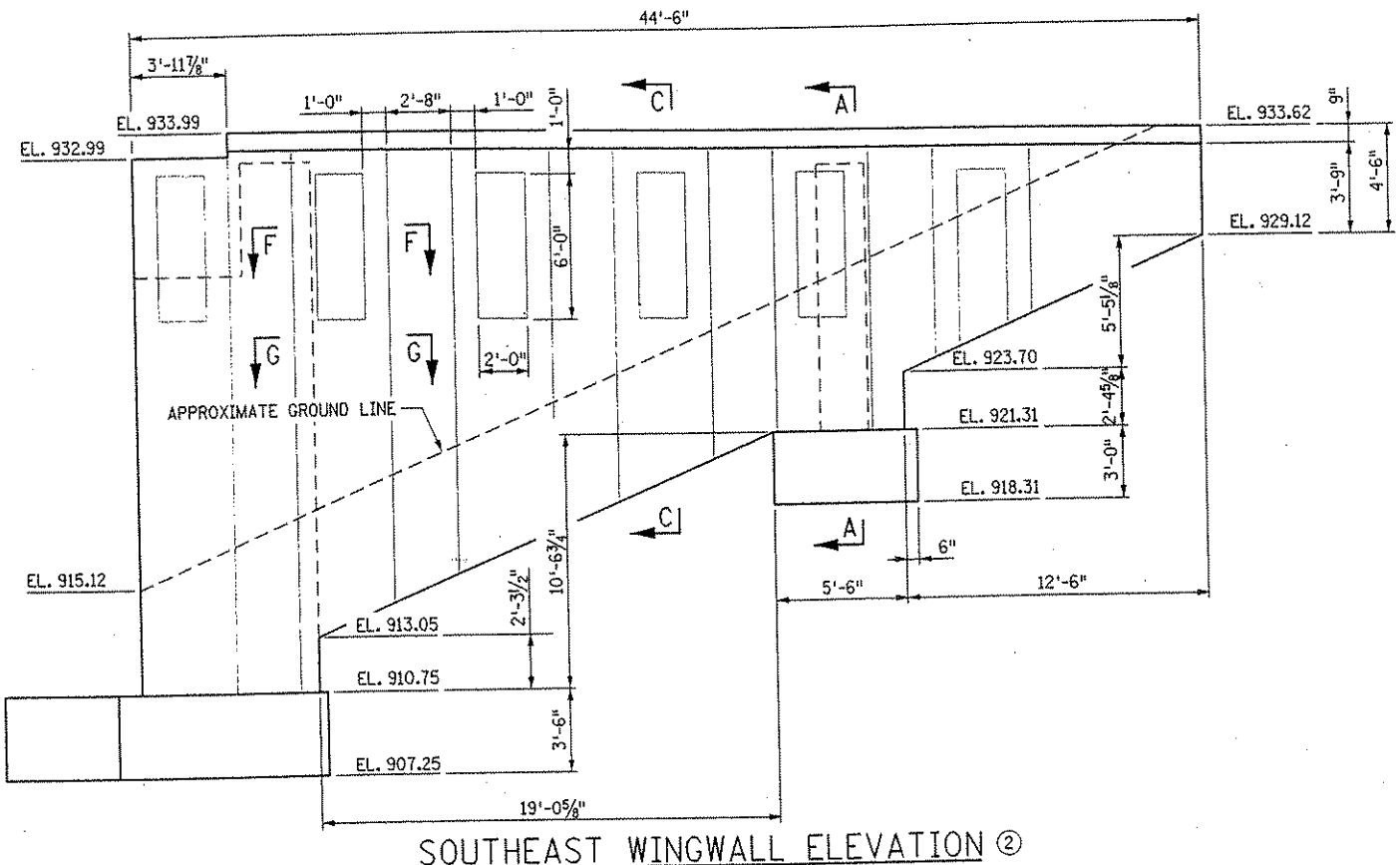
ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE
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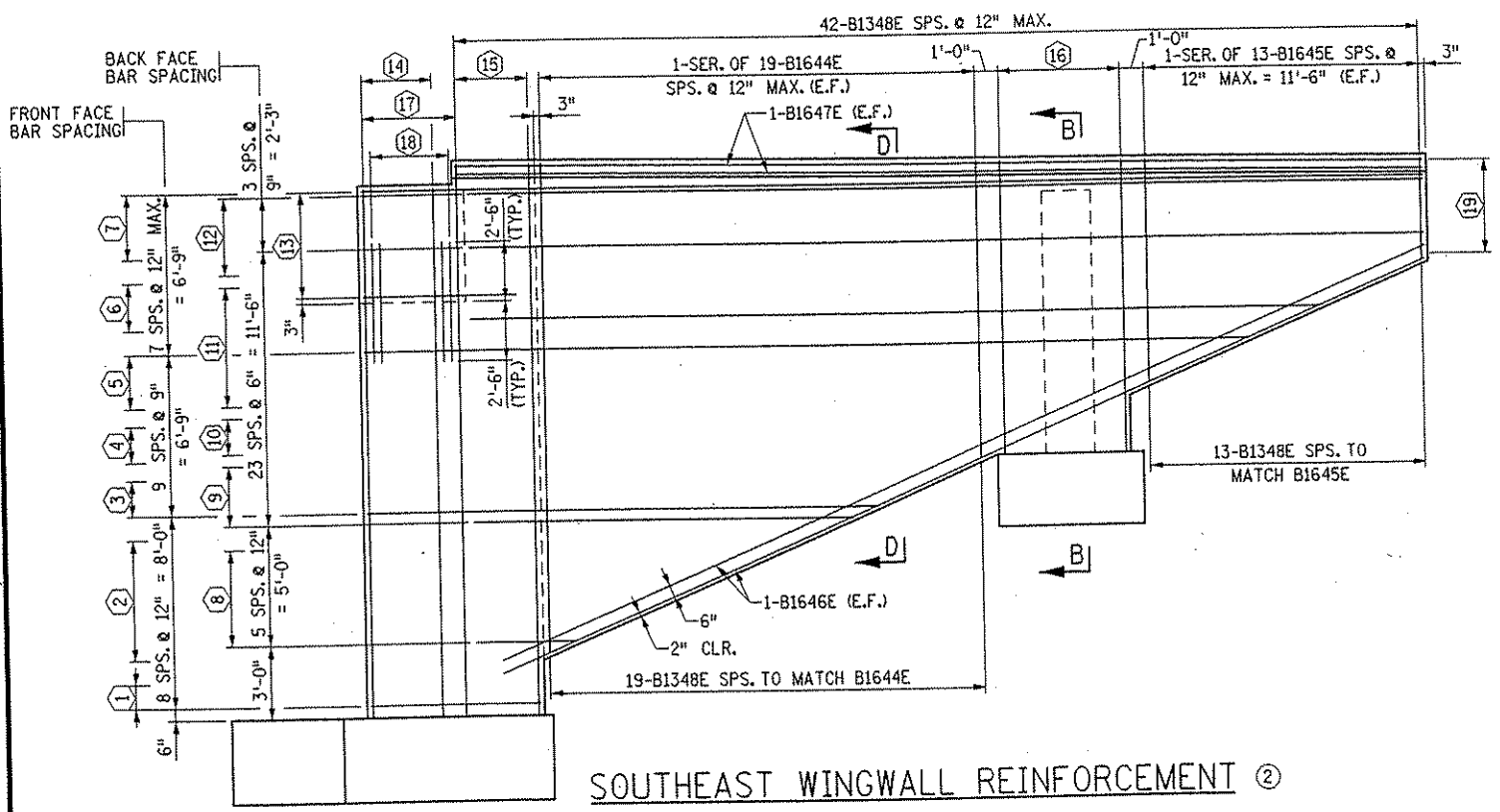
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Sheet No. 18 of 56 Sheets		

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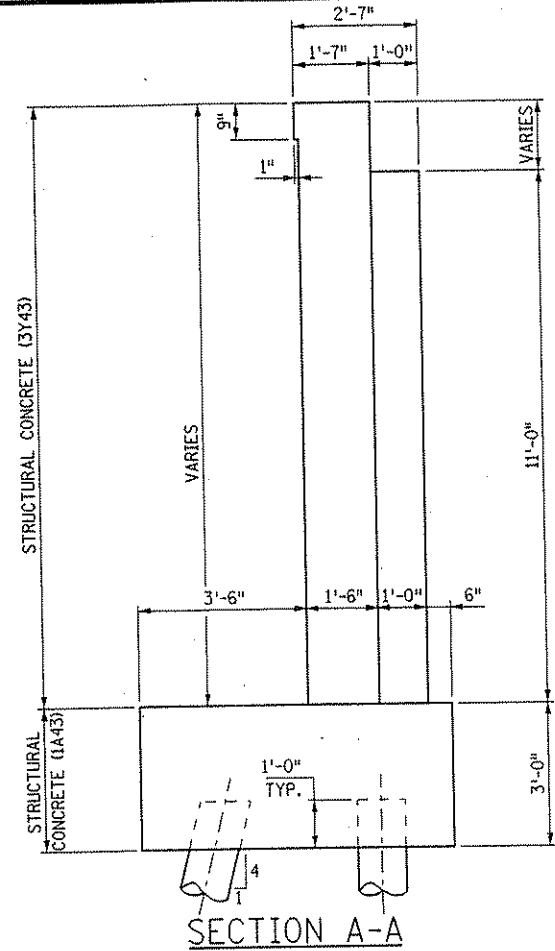
SOUTHEAST WINGWALL ELEVATION ②



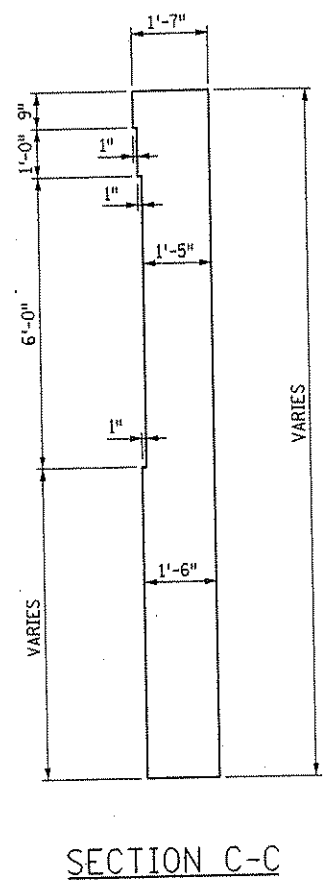
SOUTHEAST WINGWALL REINFORCEMENT ②

BAR CALL-OUTS:

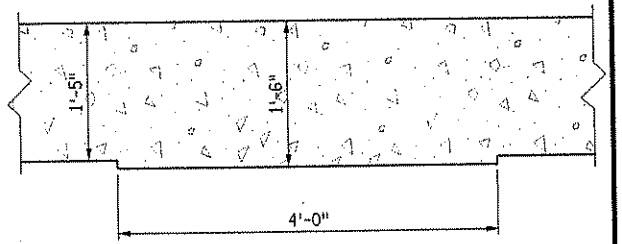
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| ② 1-SER. OF 6-B1927E (F.F.) | ⑦ 4-B1932E (F.F.) | ⑫ 6-B1937E (B.F.) | ⑳ 5-B1642E SPS. @ 12" MAX (B.F. OF MASKWALL) |
| ③ 1-SER. OF 3-B1928E (F.F.) | ⑧ 1-SER. OF 5-B1933E (B.F.) | ⑬ 6-B1938E SPS. @ 12" MAX. (B.F.) | ㉑ 16-B1643E (1) |
| ④ 3-B1929E (F.F.) | ⑨ 1-SER. OF 6-B1934E (B.F.) | ⑭ 4-B1639E SPS. TO MATCH B1606E DWLS. (F.F.) | ㉒ 6-B1349E SPS. TO MATCH B1647E & B1932E |
| ⑤ 1-SER. OF 4-B1930E (F.F.) | ⑩ 4-B1935E (B.F.) | ⑮ 4-B1640E SPS. TO MATCH B1606E DWLS. (F.F.) | |



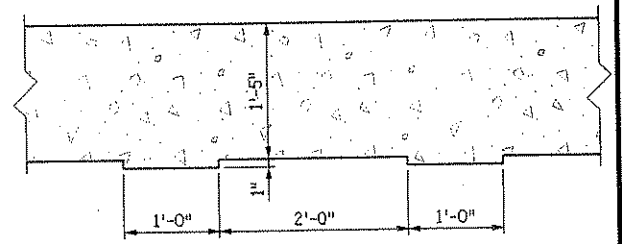
SECTION A-A



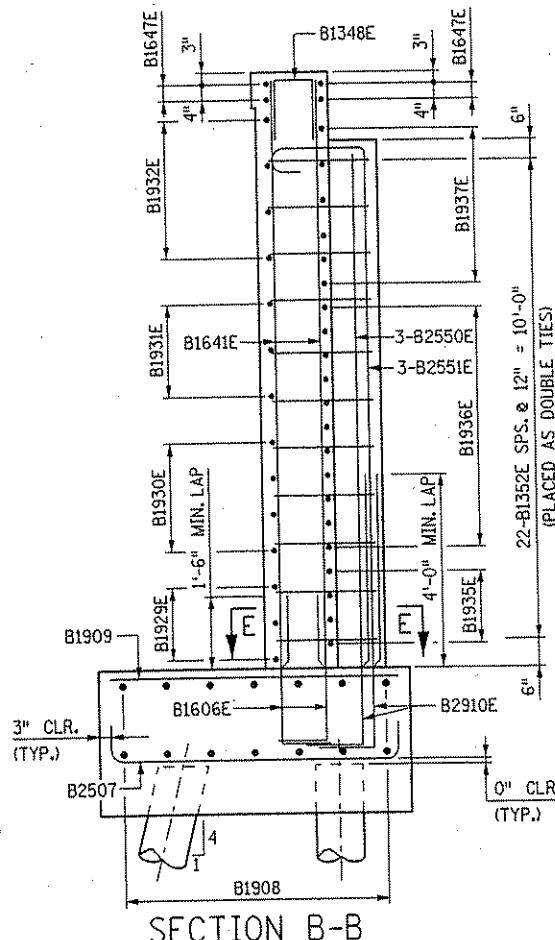
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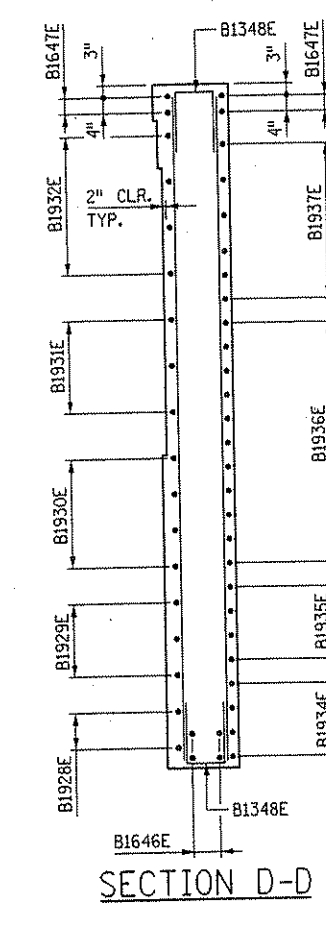
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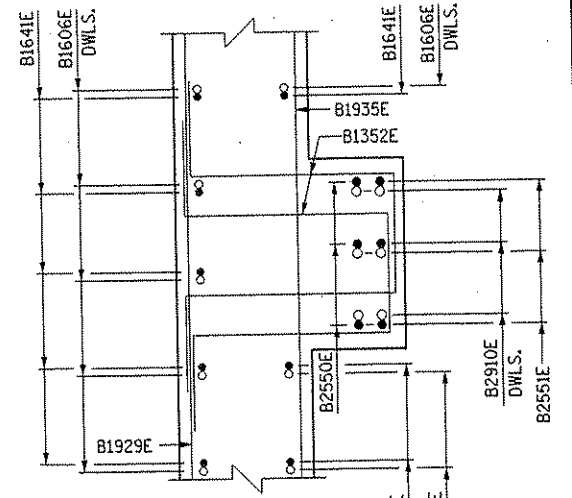
SECTION F-F



SECTION B-B



SECTION D-D



SECTION E-E

NOTES:

- AS SHOWN IN CORNER DETAIL ON SHEET 18, PLACE 2-B1643E (4 THUS) SPS. EVENLY BETWEEN B1639E IN F.F. OF MASK WALL AND PLACE 2-B1643E (4 THUS) SPS. EVENLY BETWEEN B1642E IN B.F. OF MASK WALL.
- PILES AND FOOTING REINFORCEMENT ARE NOT SHOWN FOR CLARITY.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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TKDA
 TOLTZ, KING, DUVALL, ANDERSON
 AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

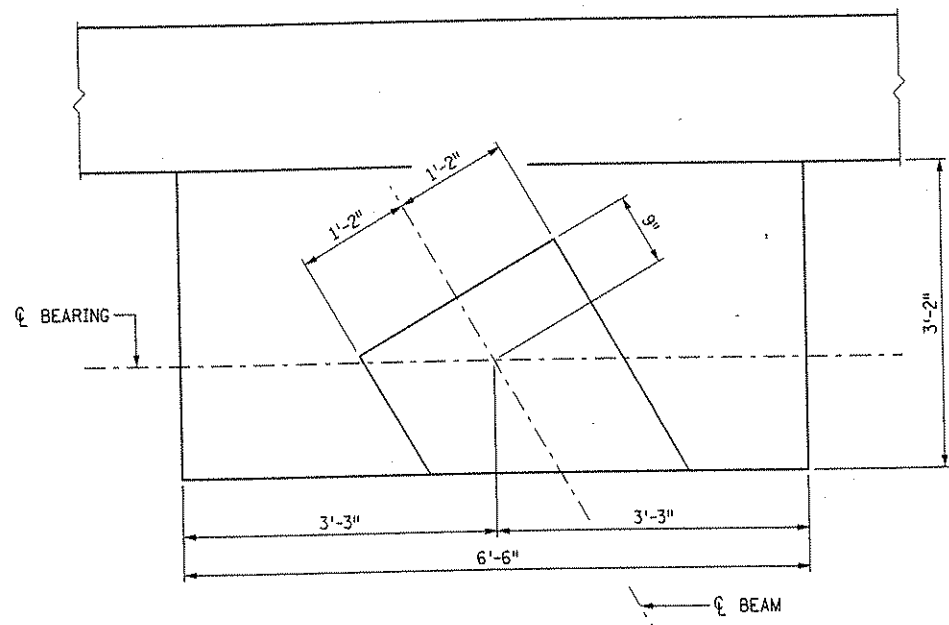
ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: EAST ABUTMENT - STAGE 2
 WINGWALL DETAILS

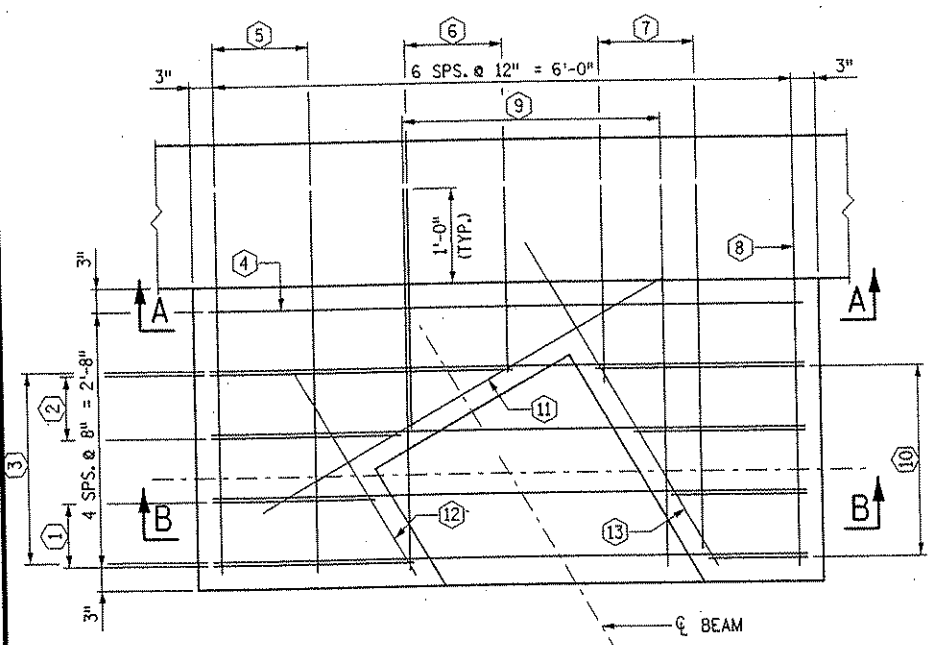
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CHK: GM	CHK: GM		

Sheet No. 19 of 56 Sheets

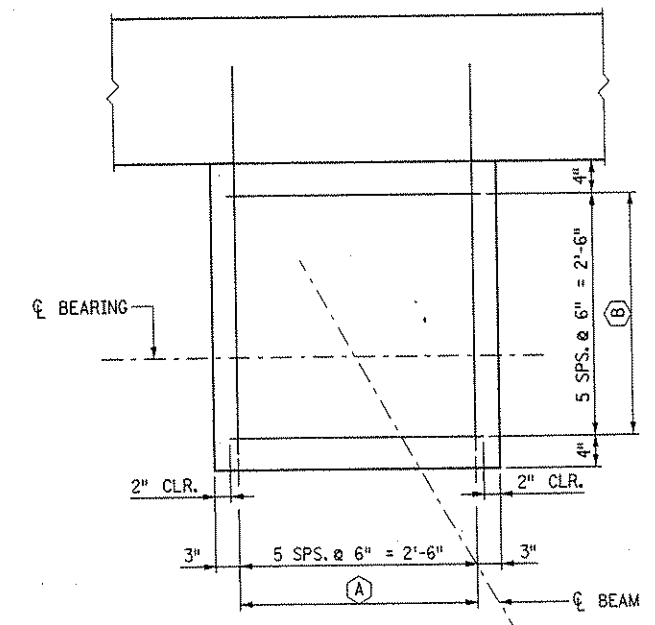
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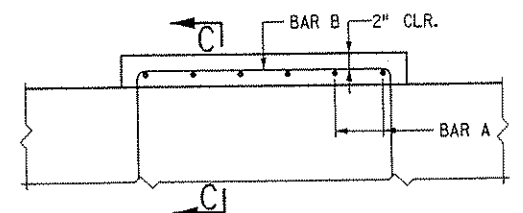
SHEAR KEY PLAN



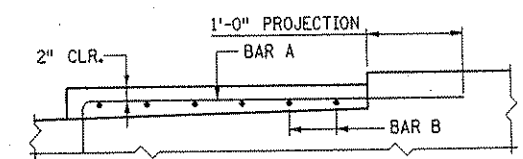
SHEAR KEY REINFORCEMENT PLAN



TYPICAL PEDESTAL REINFORCEMENT PLAN



TYPICAL PEDESTAL REINFORCEMENT ELEVATION



SECTION C-C

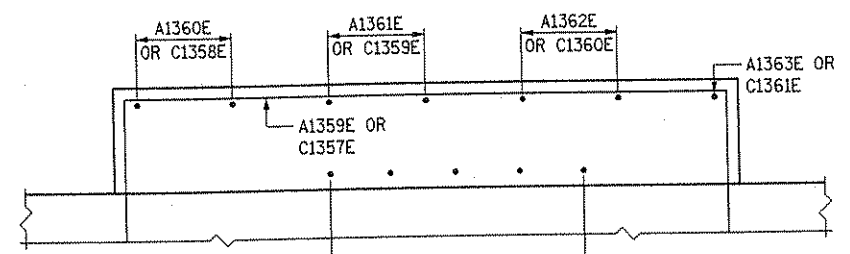
BAR CALL-OUTS:

EAST ABUTMENT

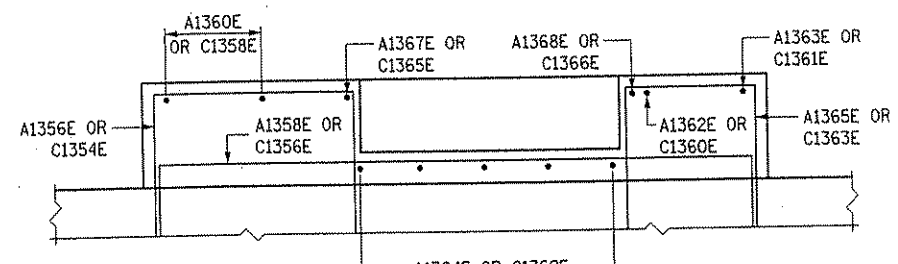
- 1 1-SER. OF 2-A1356E
- 2 1-SER. OF 2-A1357E
- 3 4-A1358E
- 4 1-A1359E
- 5 2-A1360E
- 6 1-SER. OF 2-A1361E
- 7 1 SER. OF 2-A1362E
- 8 1-A1363E
- 9 5-A1364E SPS. @ 8" = 2'-8"
- 10 1-SER. OF 4-A1365E
- 11 1-A1366E
- 12 1-A1367E
- 13 1-A1368E

WEST ABUTMENT

- 1 1-SER. OF 2-C1354E
- 2 1-SER. OF 2-C1355E
- 3 4-C1356E
- 4 1-C1357E
- 5 2-C1358E
- 6 1-SER. OF 2-C1359E
- 7 1 SER. OF 2-C1360E
- 8 1-C1361E
- 9 5-C1362E SPS. @ 8" = 2'-8"
- 10 1-SER. OF 4-C1363E
- 11 1-C1364E
- 12 1-C1365E
- 13 1-C1366E



SECTION A-A



SECTION B-B

BAR CALL-OUTS:

	(A)	(B)
EAST ABUTMENT STAGE 1	6-A1354E	6-A1355E
EAST ABUTMENT STAGE 2	6-B1353E	6-B1354E
WEST ABUTMENT STAGE 1	6-C1352E	6-C1353E
WEST ABUTMENT STAGE 2	6-D1350E	6-D1351E

NO.	DATE	BY	DESCRIPTION OF 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
 SIGNED: *Gottfried Millner* GOTTFRIED MILLNER
 DATE 01/22/2002 REG. NO. 19879

TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

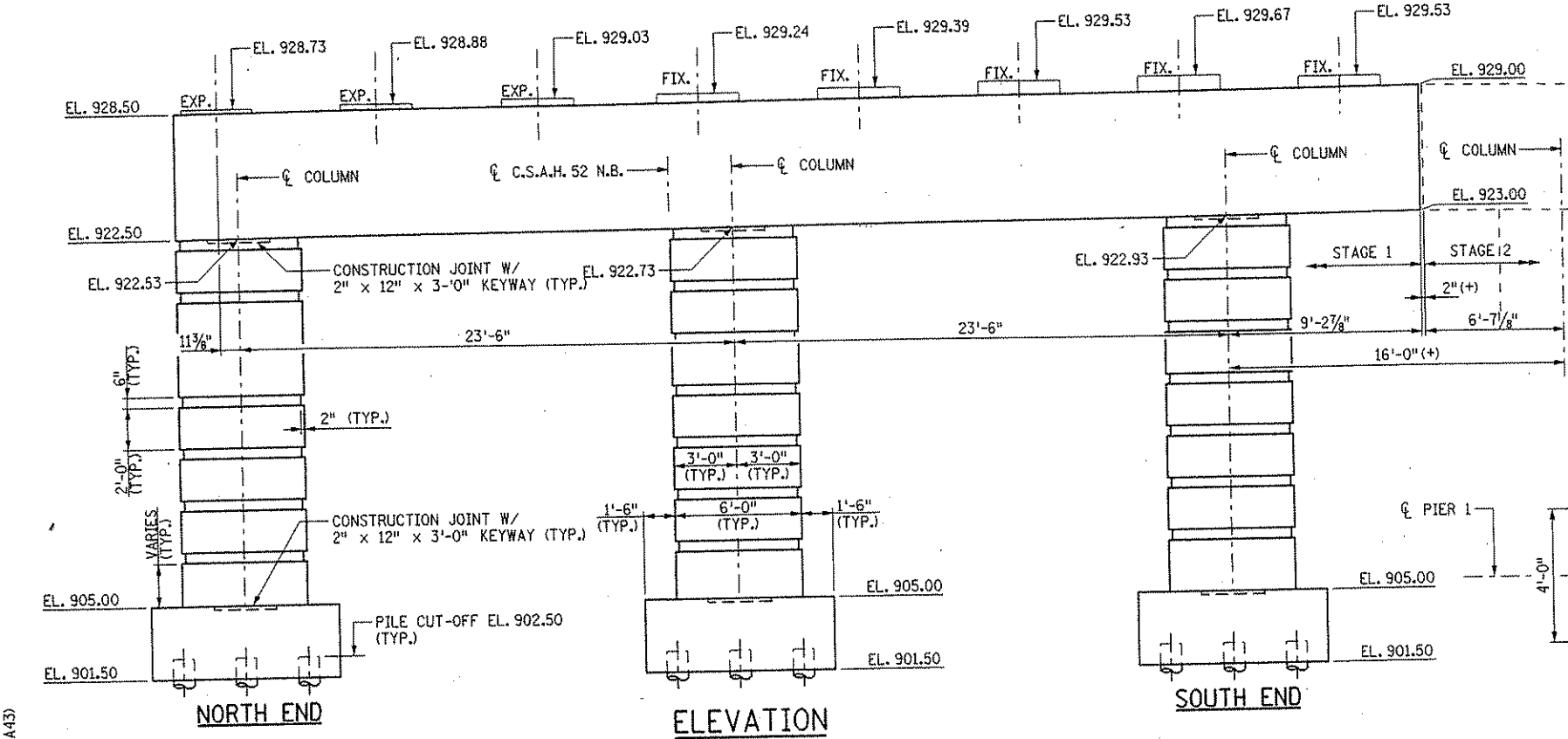
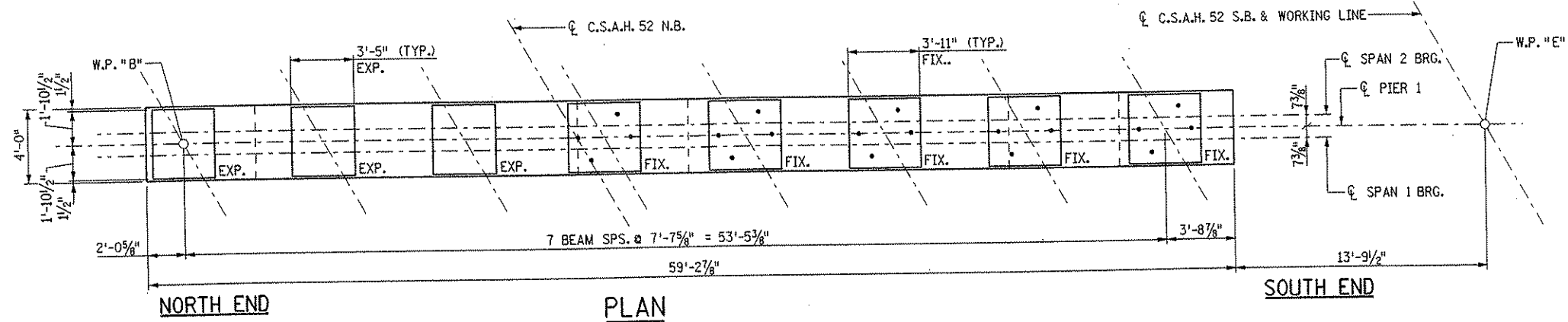
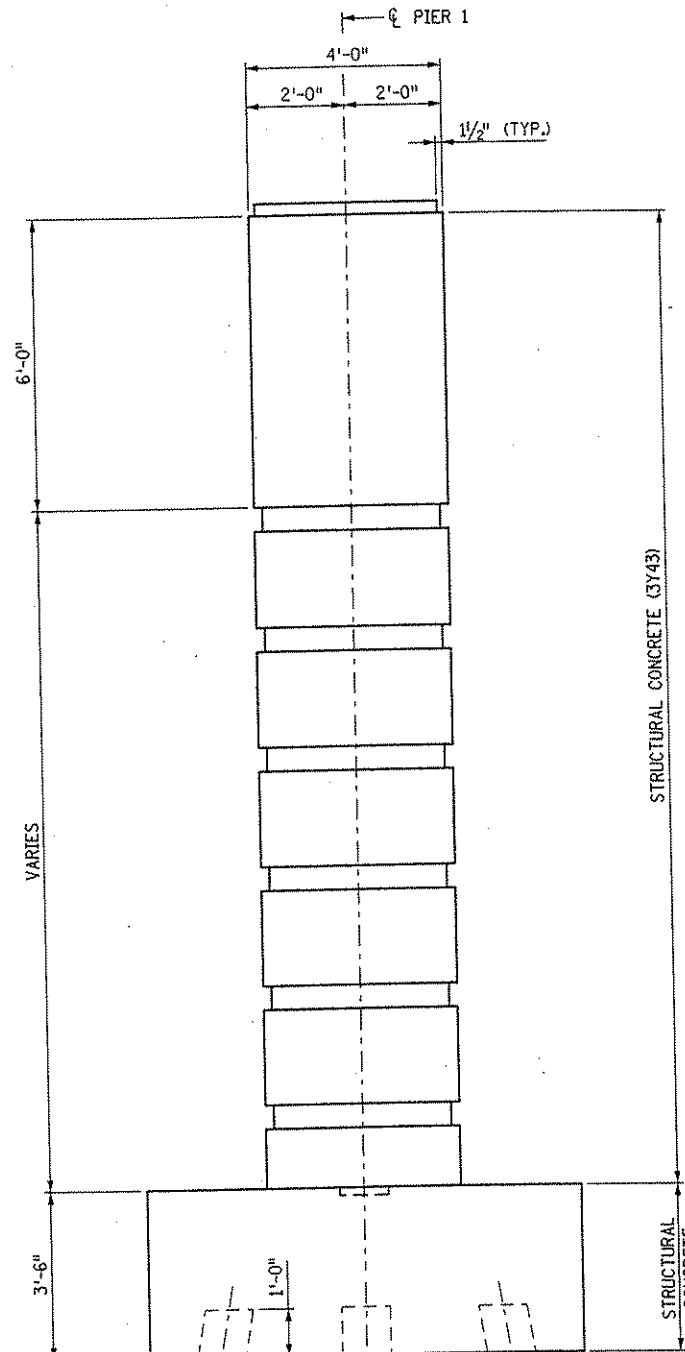
ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: **ABUTMENT DETAILS**

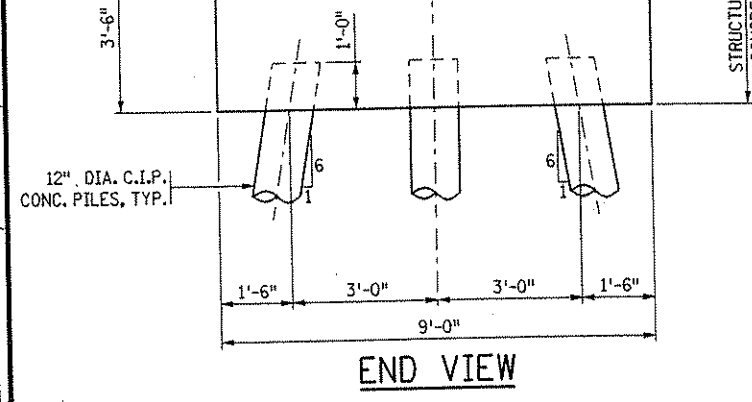
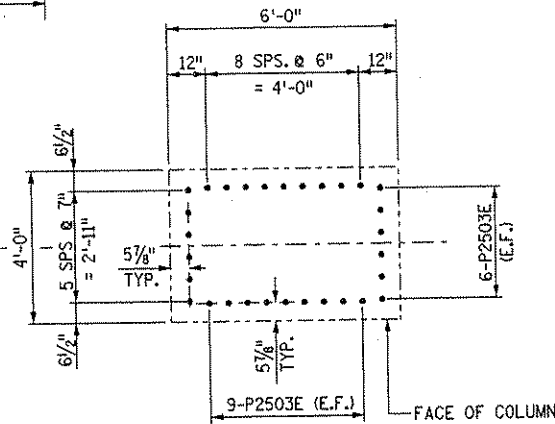
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 CHK: GM CHK: GM
 Sheet No. 20 of 56 Sheets

Bridge No. 02566

DATE: 01/23/2002 TIME: 07:42:43 AM
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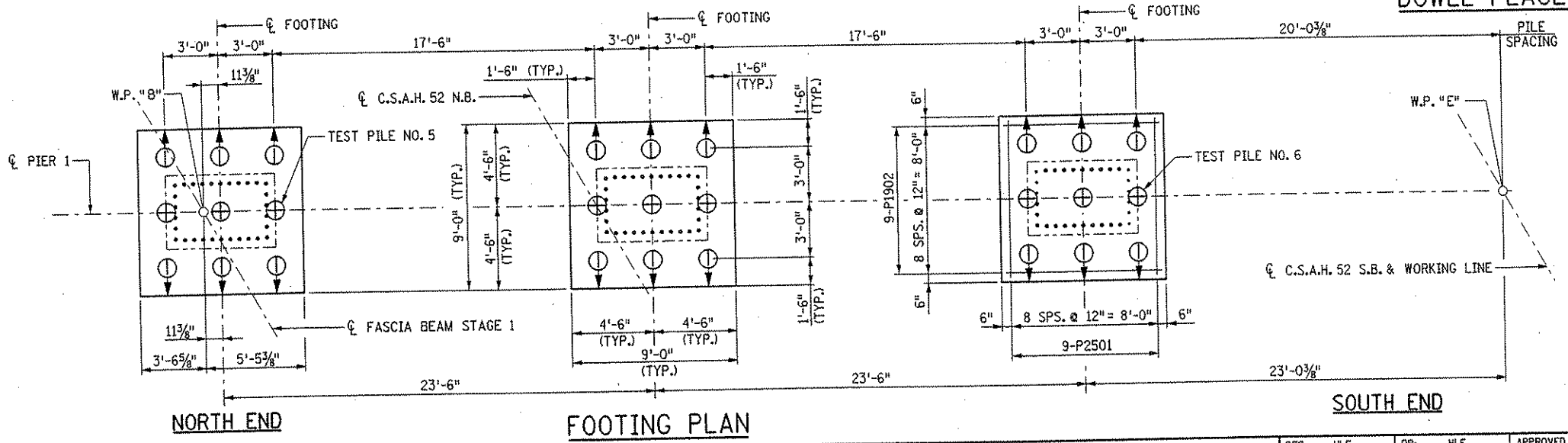


PILE NOTES
 PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
 PILES MARKED THUS → TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.
 PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES
 25 CAST-IN-PLACE PILES EST. LENGTH 85 FEET LONG
 2 CAST-IN PLACE CONCRETE TEST PILES 95 FEET LONG
 27 CAST-IN-PLACE CONCRETE PILES REQ'D FOR PIER 1, STAGE 1 FOOTING



COMPUTED PILE LOADS PIER 1, STAGE 1 - (TONS PER PILE)	
DEAD LOAD + EARTH PRESSURE	49.7
LIVE LOAD	7.9
TOTAL LOAD	57.6
* DESIGN LOAD	57.6

* 57.6/1.0 REDUCTION PER AASHTO 3.22.1 GROUP 1 LOADING



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: *Gottfried Millner* GOTTFRIED MILLNER
 DATE: 01/22/2002 REG. NO. 19879

TKDA
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ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

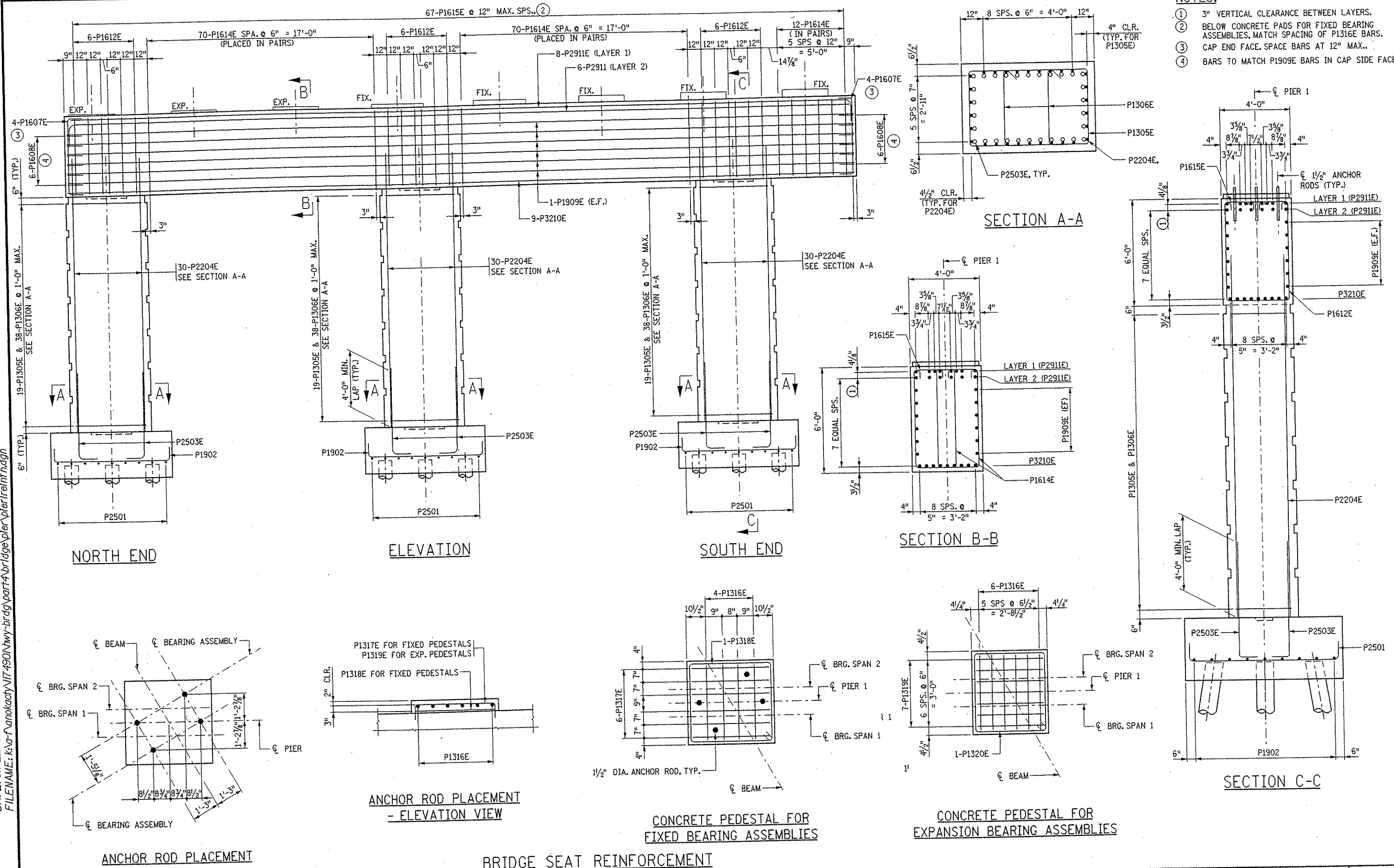
TITLE: PIER 1 - STAGE 1
 PLAN AND ELEVATION

DES: HLE DR: HLE APPROVED
 CHK: MJC CHK: MJC
 Sheet No. 21 of 56 Sheets

Bridge No. 02566

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DATE: 01/22/2002 TIME: 01:54:41 PM
 FILE NAME: \\s:\nanokacy\j\1490\my-brdg\part14\bridge\pier\rein\ndgn



- NOTES:**
- ① 3" VERTICAL CLEARANCE BETWEEN LAYERS.
 - ② BELOW CONCRETE PADS FOR FIXED BEARING ASSEMBLIES, MATCH SPACING OF P1316E BARS. CAP END FACE. SPACE BARS AT 12" MAX..
 - ③ BARS TO MATCH P1909E BARS IN CAP SIDE FACES.

NORTH END

ELEVATION

SOUTH END

SECTION A-A

SECTION B-B

SECTION C-C

ANCHOR ROD PLACEMENT

ANCHOR ROD PLACEMENT - ELEVATION VIEW

CONCRETE PEDESTAL FOR FIXED BEARING ASSEMBLIES

CONCRETE PEDESTAL FOR EXPANSION BEARING ASSEMBLIES

BRIDGE SEAT REINFORCEMENT

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED: *Gottfried Millner* GOTTFRIED MILLNER
 DATE 01/22/2002 REG. NO. 19879

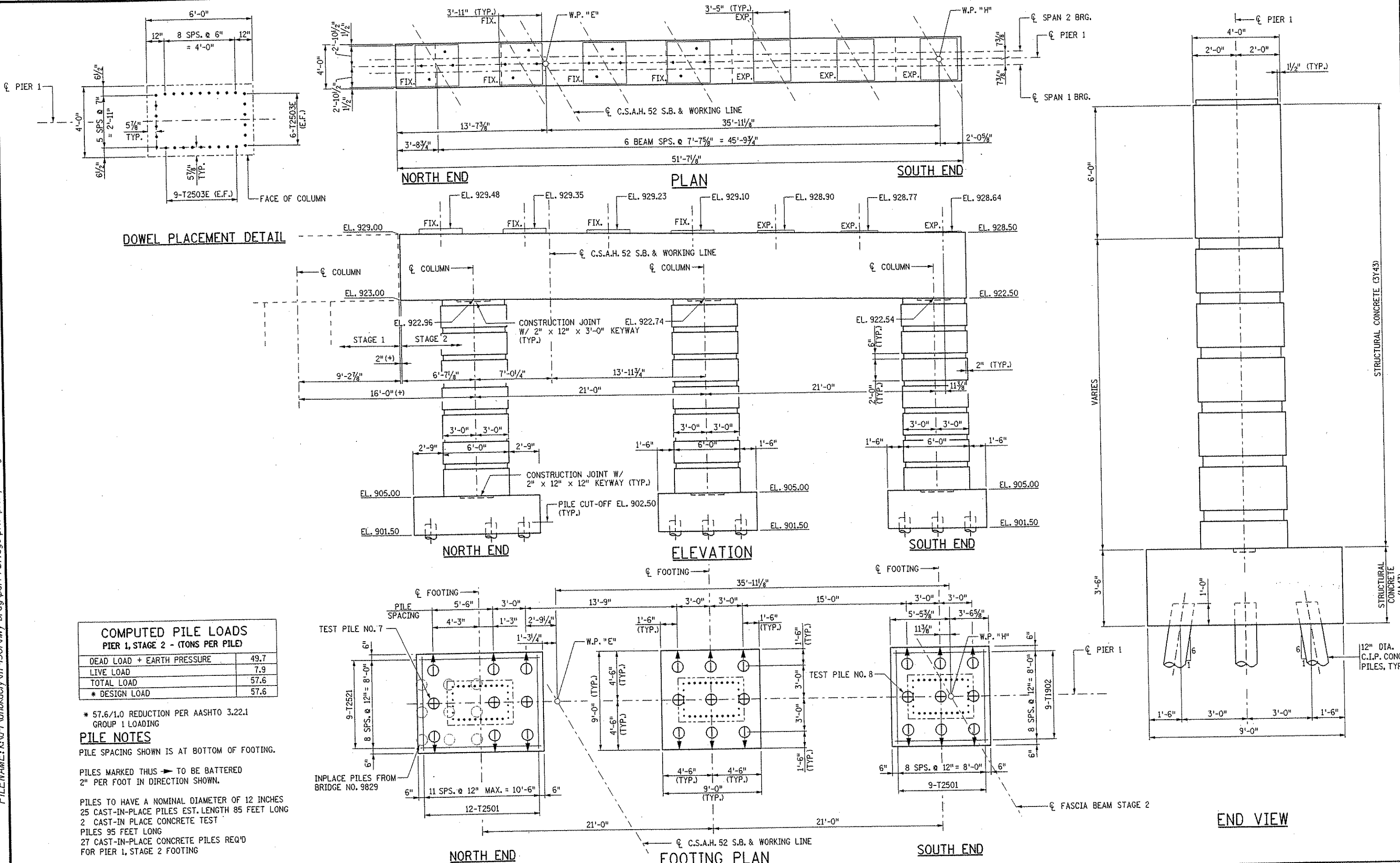
TKDA TOLTZ, KING, OJVAL, ANDERSON AND ASSOCIATES, INCORPORATED
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ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: **PIER 1 - STAGE 1 REINFORCEMENT**

DES: HLE	DR: HLE	APPROVED	Bridge No. 02566
CHK: MJC	CHK: MJC		
Sheet No. 22 of 56 Sheets			

DATE: 01/22/2002 TIME: 01:54:38 PM
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DOWEL PLACEMENT DETAIL

COMPUTED PILE LOADS PIER 1, STAGE 2 - (TONS PER PILE)	
DEAD LOAD + EARTH PRESSURE	49.7
LIVE LOAD	7.9
TOTAL LOAD	57.6
* DESIGN LOAD	57.6

* 57.6/1.0 REDUCTION PER AASHTO 3.22.1
 GROUP 1 LOADING

PILE NOTES
 PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THIS → TO BE BATTERED
 2" PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES
 25 CAST-IN-PLACE PILES EST. LENGTH 85 FEET LONG
 2 CAST-IN PLACE CONCRETE TEST
 PILES 95 FEET LONG
 27 CAST-IN-PLACE CONCRETE PILES REQ'D
 FOR PIER 1, STAGE 2 FOOTING

NO.	DATE	BY	DESCRIPTION OF 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

SIGNED: *Gottfried Millner* GOTTFRIED MILLNER
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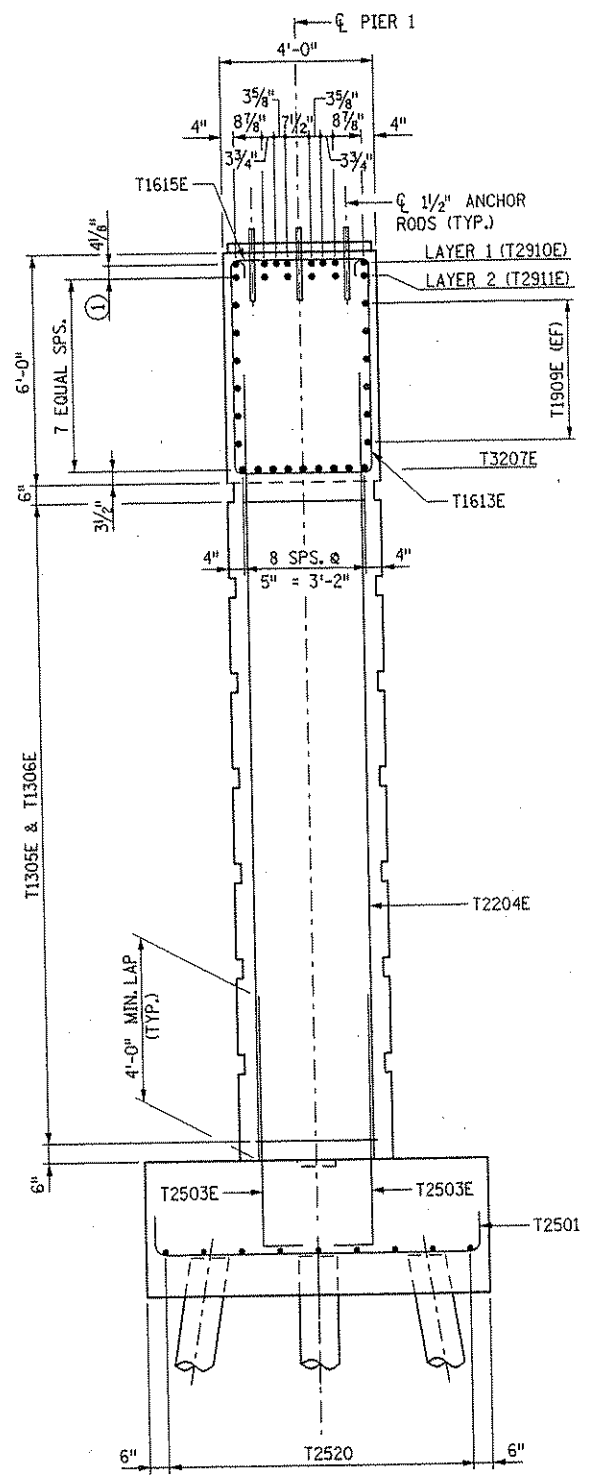
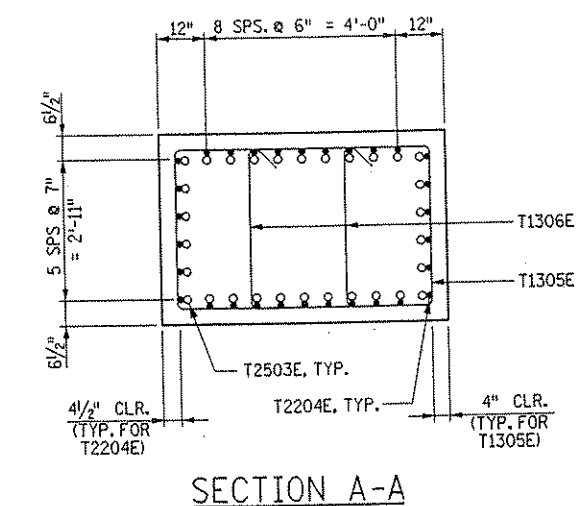
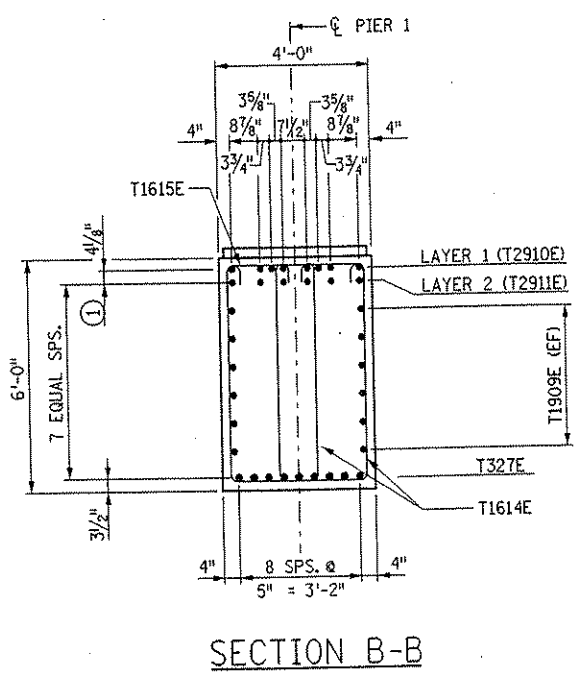
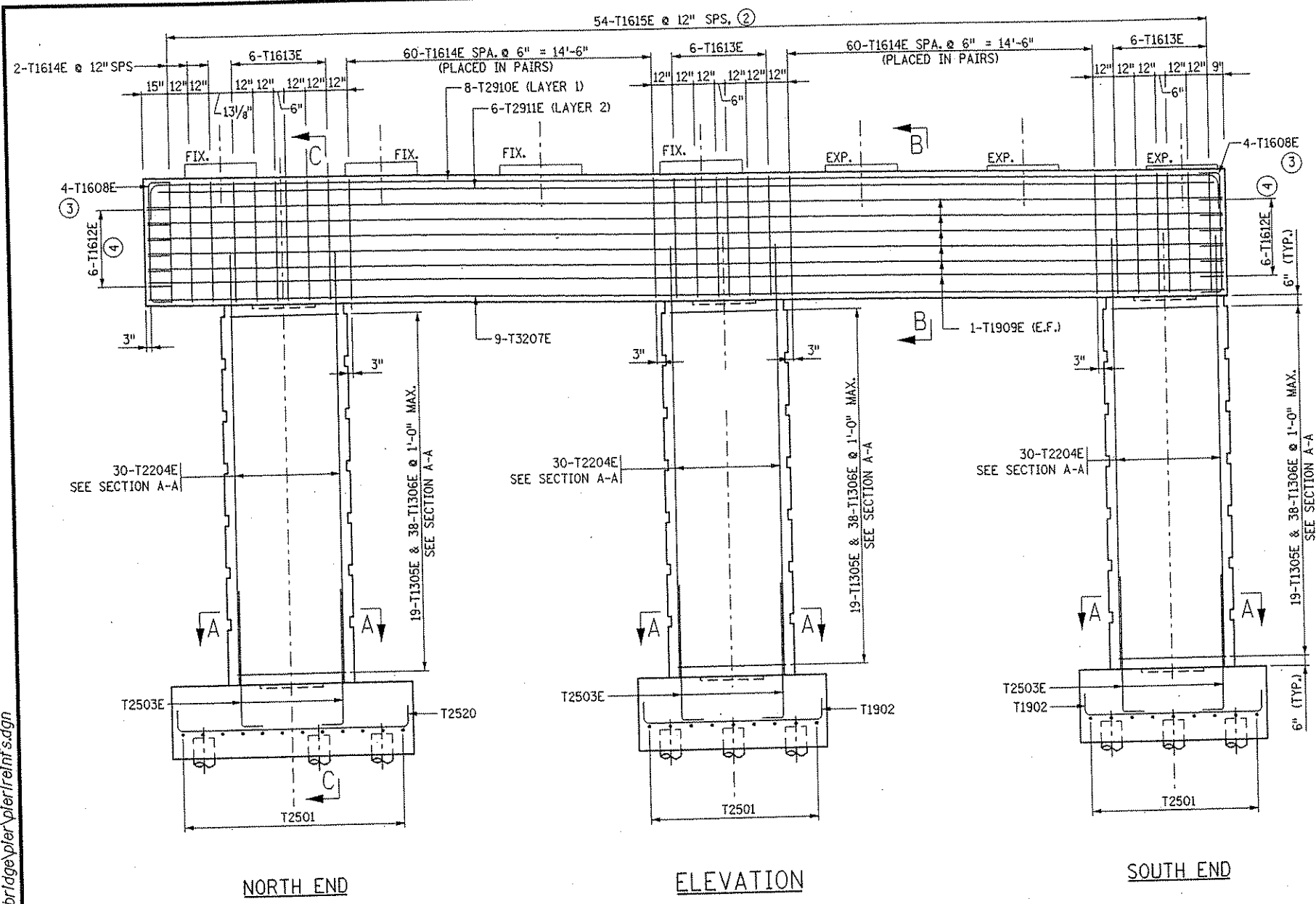
TKDA
 TOLTZ, KING, DUVALL, ANDERSON
 AND ASSOCIATES, INCORPORATED
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ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

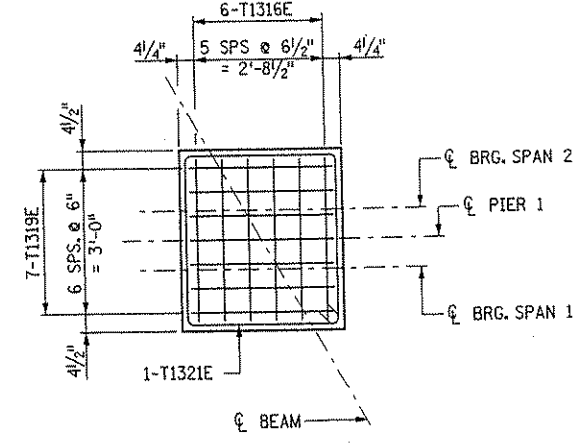
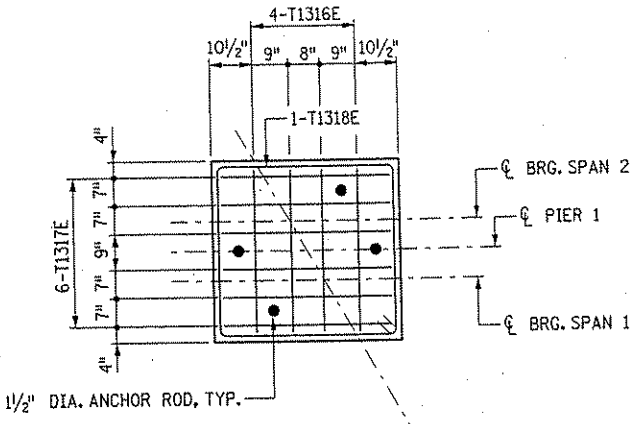
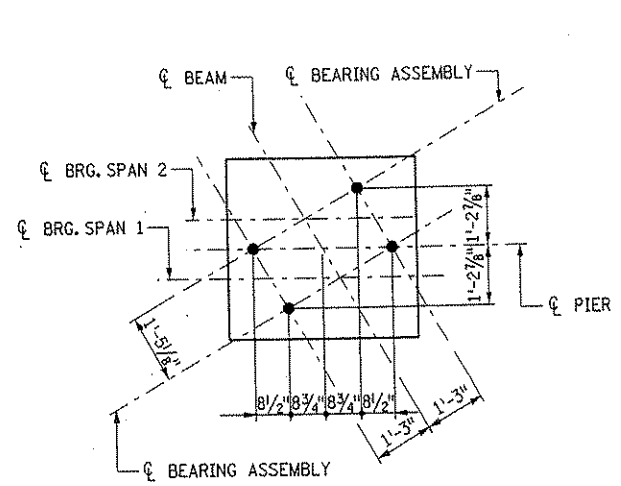
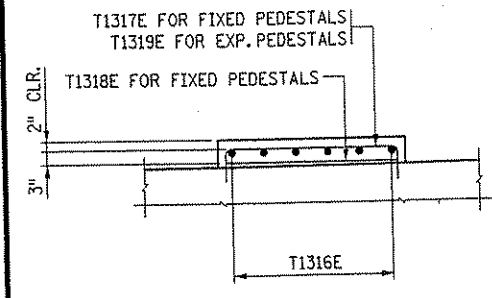
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**PIER 1 - STAGE 2
 PLAN AND ELEVATION**

DES: HLE	DR: HLE	APPROVED	Bridge No. 02566
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Sheet No. 23 of 56 Sheets			

DATE: 01/22/2002 TIME: 01:54:44 PM
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- NOTES:**
- ① 3" VERTICAL CLEARANCE BETWEEN LAYERS.
 - ② BELOW CONCRETE PADS FOR FIXED BEARING ASSEMBLIES, MATCH SPACING OF T1316E BARS. CAP END FACE. SPACE BARS AT 12" MAX..
 - ③ CAP END FACE. SPACE BARS AT 12" MAX..
 - ④ BARS TO MATCH T1909E BARS IN CAP SIDE FACES.



ANCHOR ROD PLACEMENT - ELEVATION VIEW

ANCHOR ROD PLACEMENT

CONCRETE PEDESTAL FOR FIXED BEARING ASSEMBLIES

CONCRETE PEDESTAL FOR EXPANSION BEARING ASSEMBLIES

BRIDGE SEAT REINFORCEMENT

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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TKDA
 TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: **PIER 1 - STAGE 2 REINFORCEMENT**

DES: HLE	DR: HLE	APPROVED
CHK: MJC	CHK: MJC	

Bridge No. 02566
 Sheet No. 24 of 56 Sheets

SUMMARY OF QUANTITIES FOR WEST ABUTMENT, STAGE 1

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (1A43)	CU.YD.	110
STRUCTURAL CONCRETE (3Y43)	CU.YD.	217
REINFORCEMENT BARS	POUND	11220
REINFORCEMENT BARS (EPOXY-COATED)	POUND	14050
STRUCTURE EXCAVATION	LUMP SUM	0.19
CAST-IN-PLACE CONCRETE PILING DELIVERED 12"	LIN.FT.	2240
CAST-IN-PLACE CONCRETE PILING DRIVEN 12"	LIN.FT.	2240
CAST-IN-PLACE CONCRETE TEST PILE 90" LONG 12"	EACH	2
PILE REDRIVING	EACH	1
CONCRETE SLOPE PAVING	SQ.FT.	650
DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	0.27

SUMMARY OF QUANTITIES FOR WEST ABUTMENT, STAGE 2

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (1A43)	CU.YD.	98
STRUCTURAL CONCRETE (3Y43)	CU.YD.	178
REINFORCEMENT BARS	POUND	9740
REINFORCEMENT BARS (EPOXY-COATED)	POUND	12560
STRUCTURE EXCAVATION	LUMP SUM	0.16
CAST-IN-PLACE CONCRETE PILING DELIVERED 12"	LIN.FT.	1520
CAST-IN-PLACE CONCRETE PILING DRIVEN 12"	LIN.FT.	1520
CAST-IN-PLACE CONCRETE TEST PILE 90" LONG 12"	EACH	2
PILE REDRIVING	EACH	1
CONCRETE SLOPE PAVING	SQ.FT.	650
DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	0.24

SUMMARY OF QUANTITIES FOR EAST ABUTMENT, STAGE 1

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (1A43)	CU.YD.	114
STRUCTURAL CONCRETE (3Y43)	CU.YD.	245
REINFORCEMENT BARS	POUND	11520
REINFORCEMENT BARS (EPOXY-COATED)	POUND	18270
STRUCTURE EXCAVATION	LUMP SUM	0.2
CAST-IN-PLACE CONCRETE PILING DELIVERED 12"	LIN.FT.	2240
CAST-IN-PLACE CONCRETE PILING DRIVEN 12"	LIN.FT.	2240
CAST-IN-PLACE CONCRETE TEST PILE 90" LONG 12"	EACH	2
PILE REDRIVING	EACH	1
CONCRETE SLOPE PAVING	SQ.FT.	650
DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	0.27

SUMMARY OF QUANTITIES FOR EAST ABUTMENT, STAGE 2

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (1A43)	CU.YD.	94
STRUCTURAL CONCRETE (3Y43)	CU.YD.	213
REINFORCEMENT BARS	POUND	9300
REINFORCEMENT BARS (EPOXY-COATED)	POUND	15260
STRUCTURE EXCAVATION	LUMP SUM	0.15
CAST-IN-PLACE CONCRETE PILING DELIVERED 12"	LIN.FT.	1760
CAST-IN-PLACE CONCRETE PILING DRIVEN 12"	LIN.FT.	1760
CAST-IN-PLACE CONCRETE TEST PILE 90" LONG 12"	EACH	2
PILE REDRIVING	EACH	1
CONCRETE SLOPE PAVING	SQ.FT.	650
DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	0.22

SUMMARY OF QUANTITIES FOR PIER 1, STAGE 1

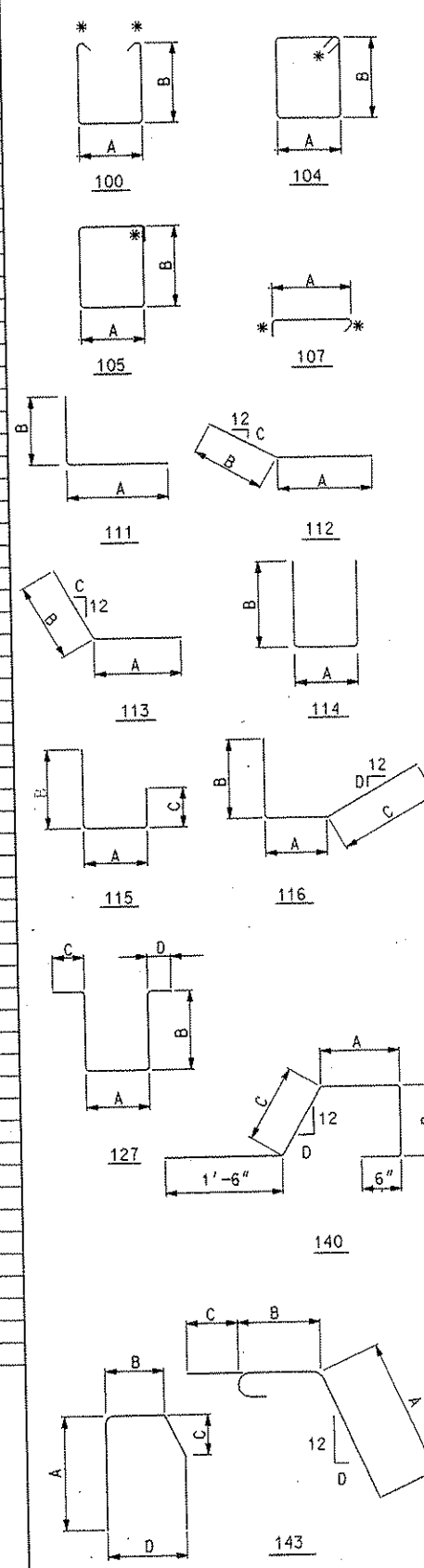
ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (1A43)	CU.YD.	32
STRUCTURAL CONCRETE (3Y43)	CU.YD.	101
REINFORCEMENT BARS	POUND	1240
REINFORCEMENT BARS (EPOXY-COATED)	POUND	16340
STRUCTURE EXCAVATION	LUMP SUM	0.13
CAST-IN-PLACE CONCRETE PILING DELIVERED 12"	LIN.FT.	2125
CAST-IN-PLACE CONCRETE PILING DRIVEN 12"	LIN.FT.	2125
CAST-IN-PLACE CONCRETE TEST PILE 95" LONG 12"	EACH	2
PILE REDRIVING	EACH	1

SUMMARY OF QUANTITIES FOR PIER 1, STAGE 2

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (1A43)	CU.YD.	35
STRUCTURAL CONCRETE (3Y43)	CU.YD.	94
REINFORCEMENT BARS	POUND	1300
REINFORCEMENT BARS (EPOXY-COATED)	POUND	15020
STRUCTURE EXCAVATION	LUMP SUM	0.17
CAST-IN-PLACE CONCRETE PILING DELIVERED 12"	LIN.FT.	2125
CAST-IN-PLACE CONCRETE PILING DRIVEN 12"	LIN.FT.	2125
CAST-IN-PLACE CONCRETE TEST PILE 95" LONG 12"	EACH	2
PILE REDRIVING	EACH	1

BAR MARK	NO.	SERIES NO. OF	LENGTH FT IN	SIZE	TYPE	DIMENSIONS				LOCATION
						A	B	C	D	
WEST ABUTMENT REINFORCEMENT, STAGE 1										
C1901	E	63	12 6	19	STR					TOP FOOTING MAIN
C2902	E	111	15 8	29	114	12'-6"	1'-7"			BOTTOM FOOTING MAIN
C3203	E	14	16 2	32	114	12'-6"	1'-10"			BOTTOM FOOTING MAIN
C1904	E	52	34 6	19	STR					T & B FOOTING LONG.
C2505	E	70	7 9	25	111	1'-4"	6'-5"			FOOTING DOWEL
C1606	E	79	5 0	18	111	1'-0"	4'-0"			FOOTING DOWEL
C2507	E	12	8 8	25	114	6'-0"	1'-4"			TOP FOOTING WINGWALL
C1908	E	14	5 6	19	STR					T & B FOOTING LONG.
C1909	E	6	6 0	19	STR					BOTTOM FOOTING WW
C2210	E	6	8 4	22	111	1'-2"	6'-0"			FOOTING DOWEL
C1611	E	43	32 10	16	STR					BARREL HORZ.
C1612	E	15	32 7	16	112	1'-3"	2'-3"	29'-1"	6.88	BARREL HORZ. (F.F.)
C1613	E	20	26 5	16	STR					BARREL HORZ. (B.F.)
C1614	E	31	14 1	16	STR					BARREL VERT. (F.F.)
C2215	E	37	17 6	22	STR					BARREL VERT. (B.F.)
C1616	E	30	13 10	16	STR					BARREL VERT. (F.F.)
C2217	E	33	17 7	22	STR					BARREL VERT. (B.F.)
C1618	E	5	28 1	16	112	26'-1"	2'-0"	6.88		BARREL HORZ. (F.F.)
C1619	E	3	28 8	16	STR					BRIDGE SEAT
C1620	E	61	7 8	16	115	4'-6"	2'-4"	10"		BRIDGE SEAT
C1921	E	37	6 7	19	115	1'-0"	4'-7"	1'-0"		BACKWALL VERT.
C1922	E	33	6 1	19	115	1'-0"	4'-1"	1'-0"		BACKWALL VERT.
C1623	E	61	7 1	16	STR					BACKWALL VERT.
C1624	E	70	4 4	16	115	1'-0"	2'-8"	10"		END BLOCK
C1625	E	20	4 4	16	STR					FILLET HORZ.
C1626	E	43	5 0	16	STR					HORZ. DWL
C1927	E	3	7 1	19	STR					NO. WW. HORZ. (F.F.)
C1928	E	1	9 5	19	STR					NO. WW. HORZ. (F.F.)
		OF 6	20 11							
C1929	E	2	27 1	19	STR					NO. WW. HORZ. (F.F.)
C1930	E	1	27 11	19	STR					NO. WW. HORZ. (F.F.)
		OF 5	37 1							
C1931	E	4	37 1	19	STR					NO. WW. HORZ. (F.F.)
C1932	E	1	4 10	19	STR					NO. WW. HORZ. (B.F.)
		OF 6	16 5							
C1933	E	3	22 7	19	STR					NO. WW. HORZ. (B.F.)
C1934	E	1	23 4	19	STR					NO. WW. HORZ. (B.F.)
		OF 6	31 11							
C1935	E	5	32 7	19	STR					NO. WW. HORZ. (B.F.)
C1936	E	6	8 1	19	115	8"	6'-5"	1'-0"		NO. WW. HORZ. (B.F.)
C1637	E	4	18 10	16	STR					NO. WW. VERT. (F.F.)
C1638	E	4	19 10	16	STR					NO. WW. VERT. (F.F.)
C1639	E	10	11 0	16	STR					NO. WW. VERT.
C1640	E	5	8 10	16	115	6 1/2"	7'-3"	1'-0"		MASK WALL VERT. (B.F.)
C1641	E	16	5 0	16	STR					MASK WALL VERT.
C1642	E	2	11 3	16	STR					NO. WW. VERT.
		OF 15	17 2							
C1643	E	2	4 3	16	STR					NO. WW. VERT.
		OF 10	8 2							
C1644	E	4	34 9	16	STR					NO. WW.
C1645	E	4	33 2	16	STR					NO. WW.
C1346	E	25	3 6	13	114	11 1/2"	1'-3"			END TIE
C1347	E	6	3 7	13	114	1'-1"	1'-3"			END TIE
C1648	E	40	6 6	16	145	2'-10"	8 1/2"	10"	11 1/2"	VERT. BARRIER DOWEL
C1949	E	3	9 7	19	STR					COUNTERFORT VERT.
C1950	E	3	12 4	19	143	9'-9"	1'-11"	8"	0	COUNTERFORT VERT.
C1351	E	20	6 8	13	127	1'-2"	2'-1"	8"	8"	COUNTERFORT TIE
C1352	E	42	5 3	13	111	4'-0"	1'-3"			PEDSTAL
C1353	E	42	5 2	13	114	2'-8"	1'-3"			PEDSTAL

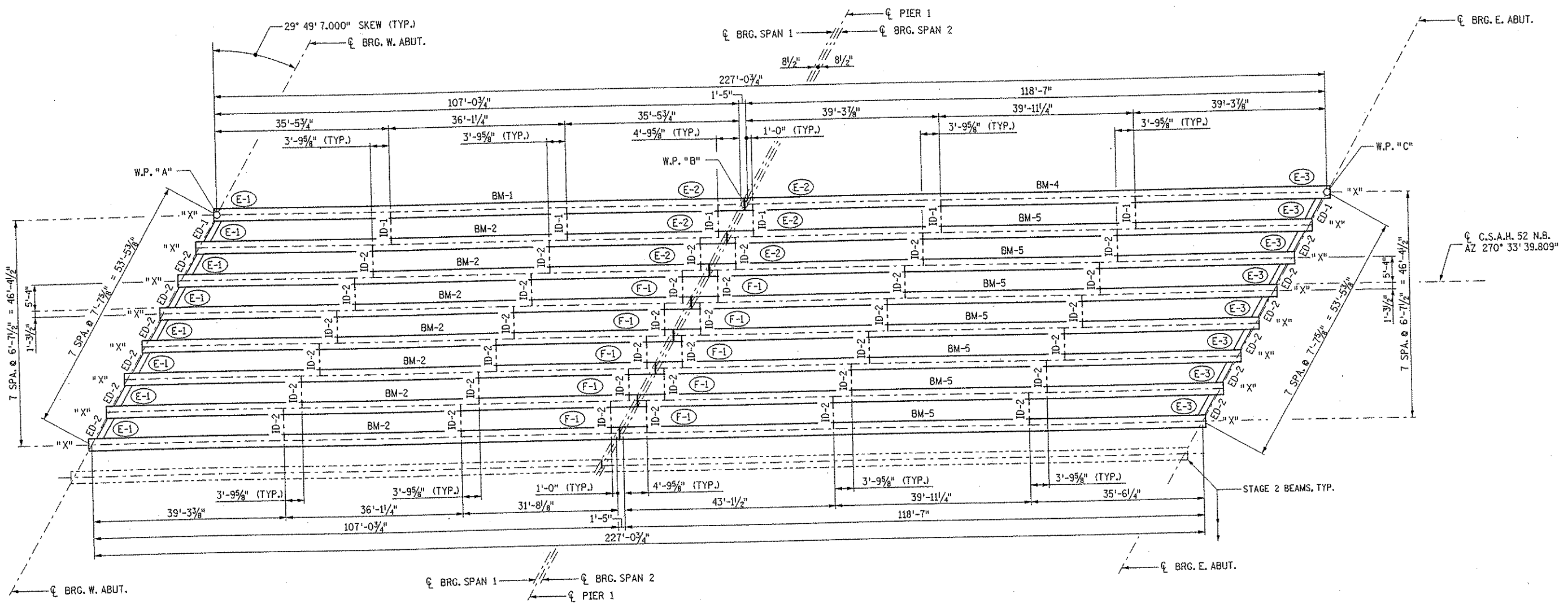
BAR BENDING DIAGRAMS



NOTE
 BENT BAR DIMENSIONS GIVEN ARE OUT-TO-OUT. ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON THE DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS ARE SHOWN FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY.

DATE: 01/22/2002 TIME: 01:53:08 PM FILENAME: k:\n\anokacy\17490N\hwy-brdg\part4\brldge\subquantities.dgn

NO. DATE BY DESCRIPTION OF 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 SIGNED: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE: 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUWALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: SUBSTRUCTURE QUANTITIES	DES: HLE	DR: HLE	APPROVED	Bridge No. 02566
					CHK: GM	CHK: GM	Sheet No. 25 of 56 Sheets	



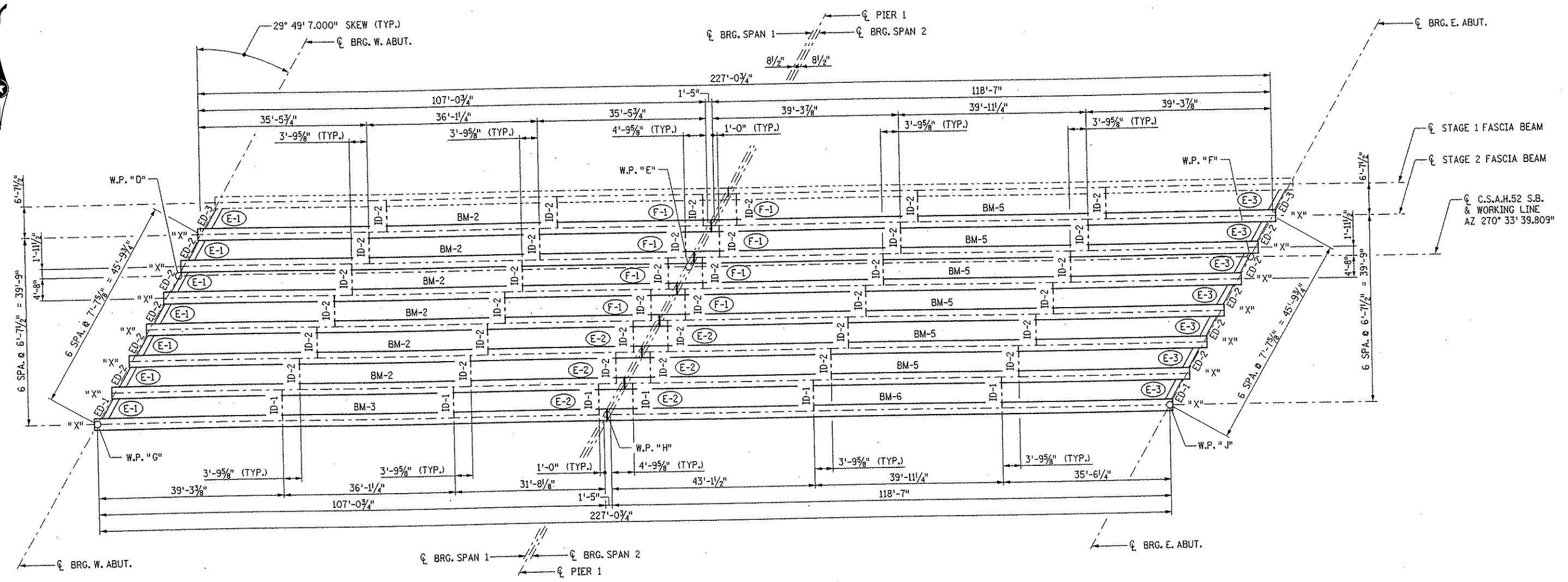
FRAMING PLAN

- LEGEND:**
- (E-1) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 1
 - (E-2) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 2
 - (E-3) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 3
 - (F-1) DENOTES FIXED BEARING ASSEMBLY, TYPE 1
 - ID-1 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 1
 - ID-2 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 2
 - ED-1 DENOTES END DIAPHRAGM, TYPE 1
 - ED-2 DENOTES END DIAPHRAGM, TYPE 2

DATE: 01/22/2002 TIME: 01:54:55 PM
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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 SIGNED <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: FRAMING PLAN STAGE 1	DES: HLE CHK: MJC	DR: HLE CHK: MJC	APPROVED 	Bridge No. 02566	
Sheet No. 28 of 56 Sheets									
NO.	DATE	BY	DESCRIPTION OF REVISIONS						

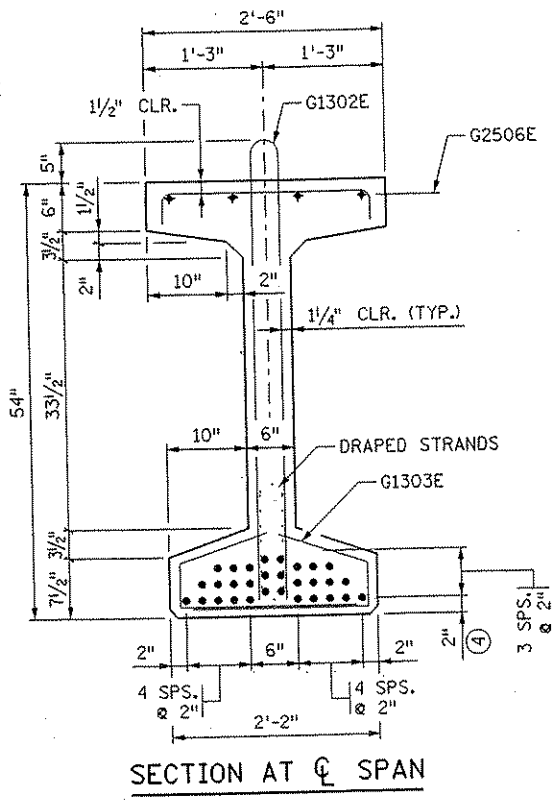
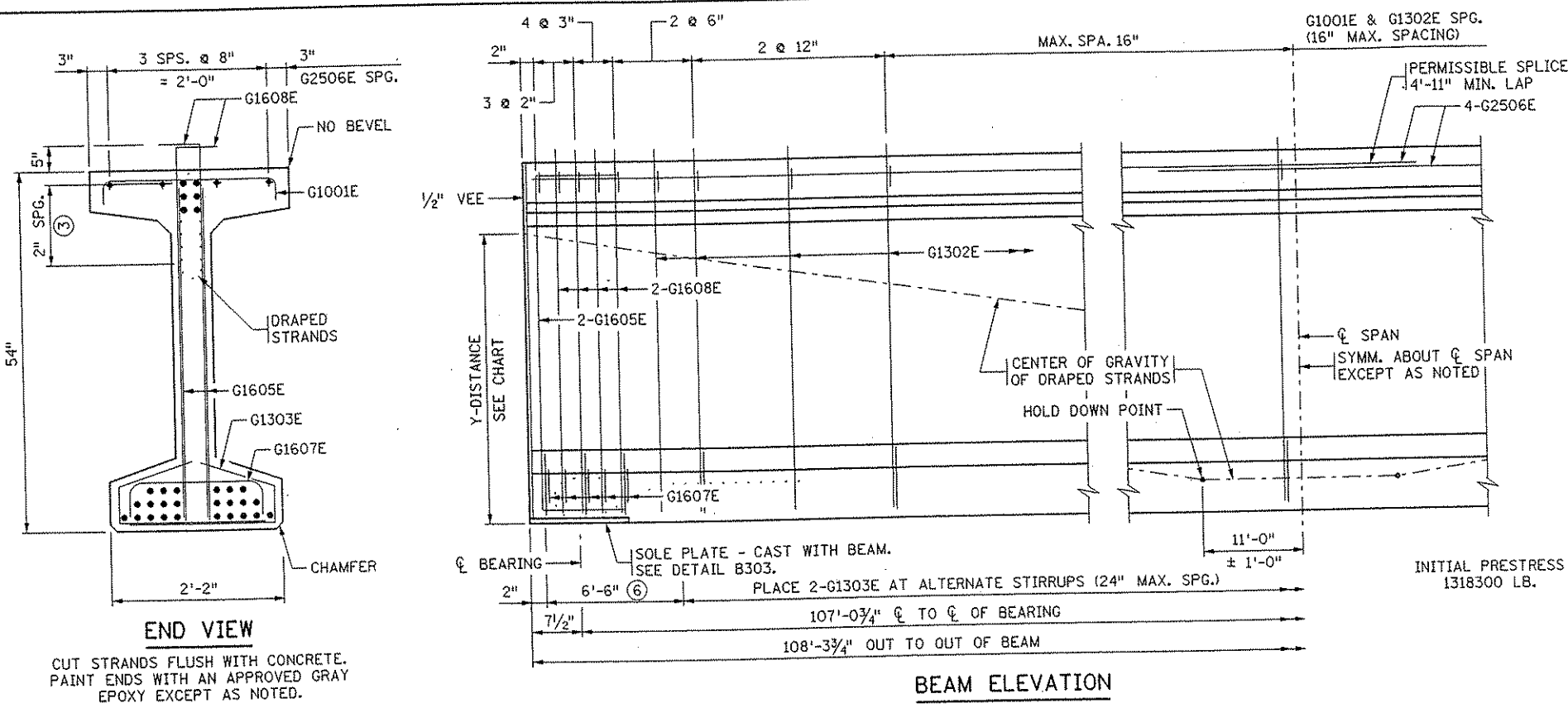
DATE: 01/22/2002 TIME: 01:54:57 PM
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FRAMING PLAN

- LEGEND:**
- (E-1) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 1
 - (E-2) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 2
 - (E-3) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 3
 - (F-1) DENOTES FIXED BEARING ASSEMBLY, TYPE 1
 - ID-1 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 1
 - ID-2 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 2
 - ED-1 DENOTES END DIAPHRAGM, TYPE 1
 - ED-2 DENOTES END DIAPHRAGM, TYPE 2
 - ED-3 DENOTES END DIAPHRAGM, TYPE 3

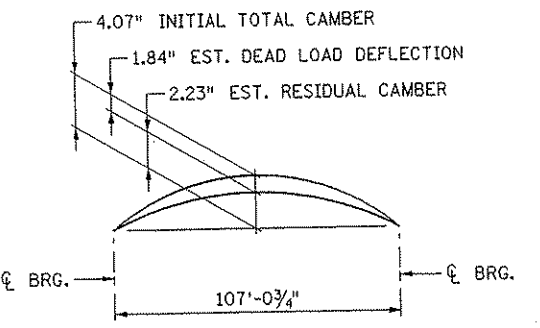
NO. DATE BY DESCRIPTION OF REVISIONS	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA SIGNED <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: FRAMING PLAN STAGE 2	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DES: HLE</td> <td>DR: HLE</td> <td>APPROVED</td> </tr> <tr> <td>CHK: MJC</td> <td>CHK: MJC</td> <td></td> </tr> </table>	DES: HLE	DR: HLE	APPROVED	CHK: MJC	CHK: MJC		Bridge No. 02566 Sheet No. 29 of 56 Sheets
DES: HLE	DR: HLE	APPROVED										
CHK: MJC	CHK: MJC											



Y DISTANCES (IN INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	24	3.67	
DRAPED STRANDS	6	5	49
TOTAL STRANDS	30	3.93	

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.

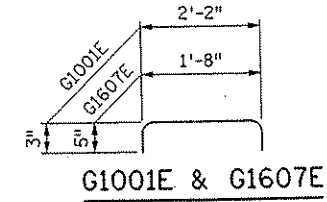
A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



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.

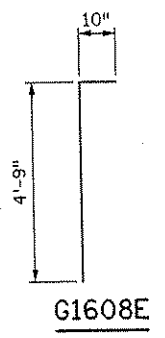
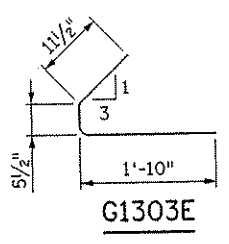
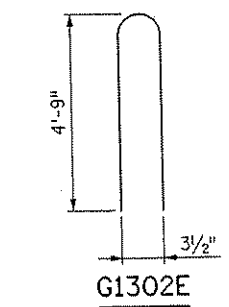


MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'cl	② f'c
REQUIRED MIN. CONCRETE STRENGTH	7000	8500

PRESTRESSING STRAND DIAMETER	
⑤	1/2" □
⑥	0.60" ☒

PLACE AN "X" IN THE APPROPRIATE BOX TO INDICATE THE STRAND DIAMETER USED FOR THE DESIGN.

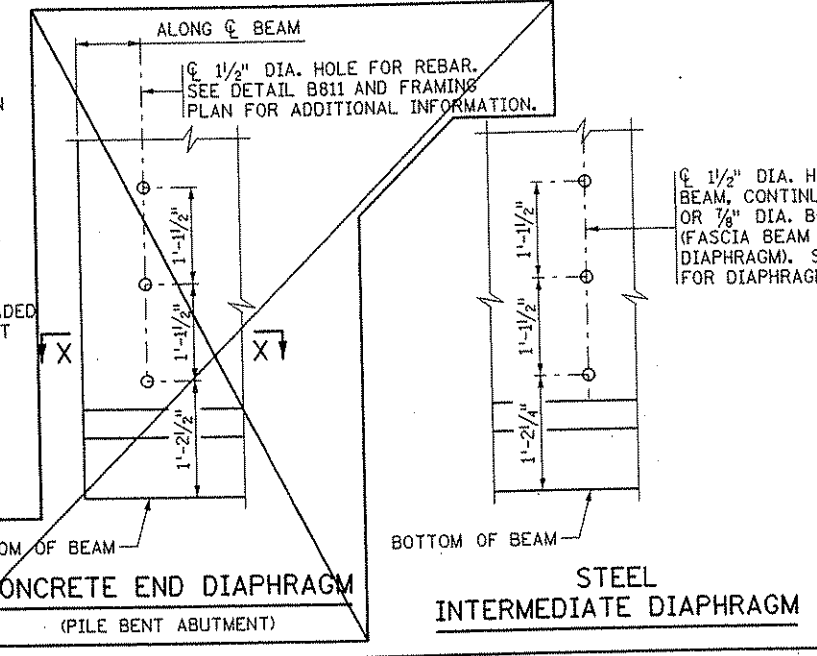
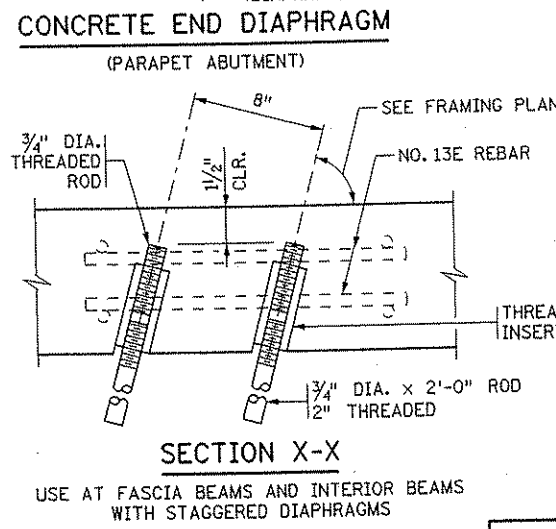
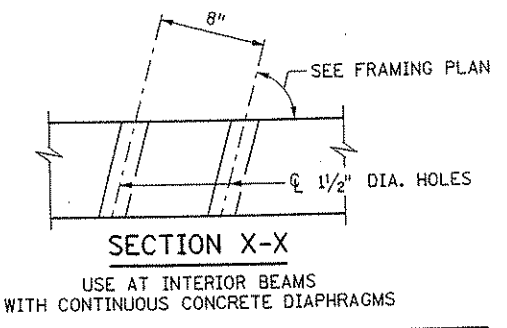
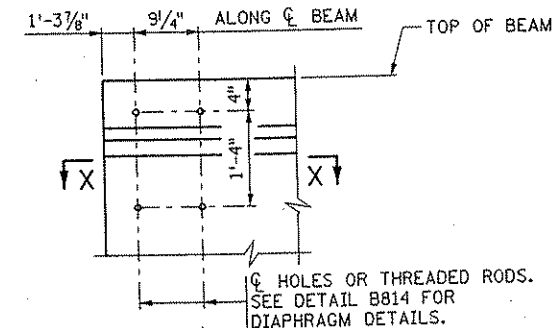
CL 1/2" DIA. HOLE (INTERIOR BEAM, CONTINUOUS DIAPHRAGM) OR 3/8" DIA. BOLT ANCHORAGE (FASCIA BEAM AND STAGGERED DIAPHRAGM). SEE DETAIL B403 FOR DIAPHRAGM DETAILS.



GENERAL NOTES

- TOPS OF BEAMS SHALL BE INTENTIONALLY ROUGHENED 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 39.5 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 A 416, GRADE 270.
- ⑥ PLACE 2-G1303E WITH STIRRUPS (6" MAX. SPG.)



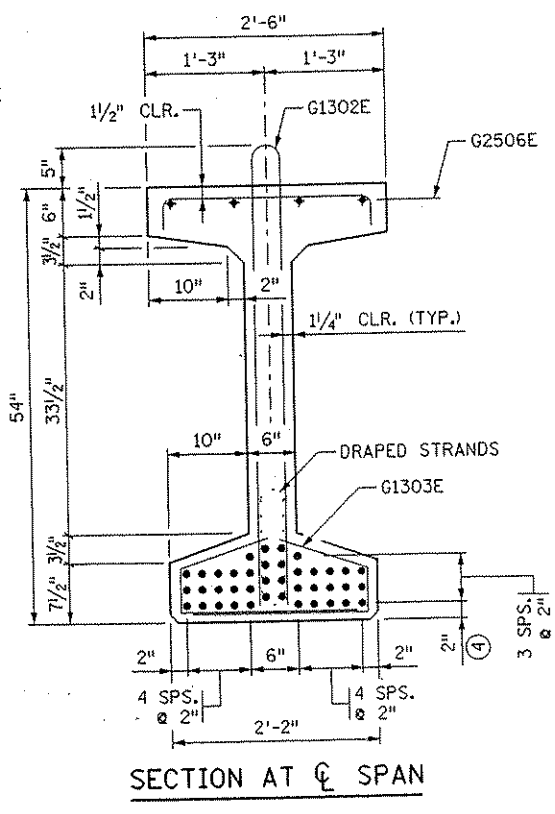
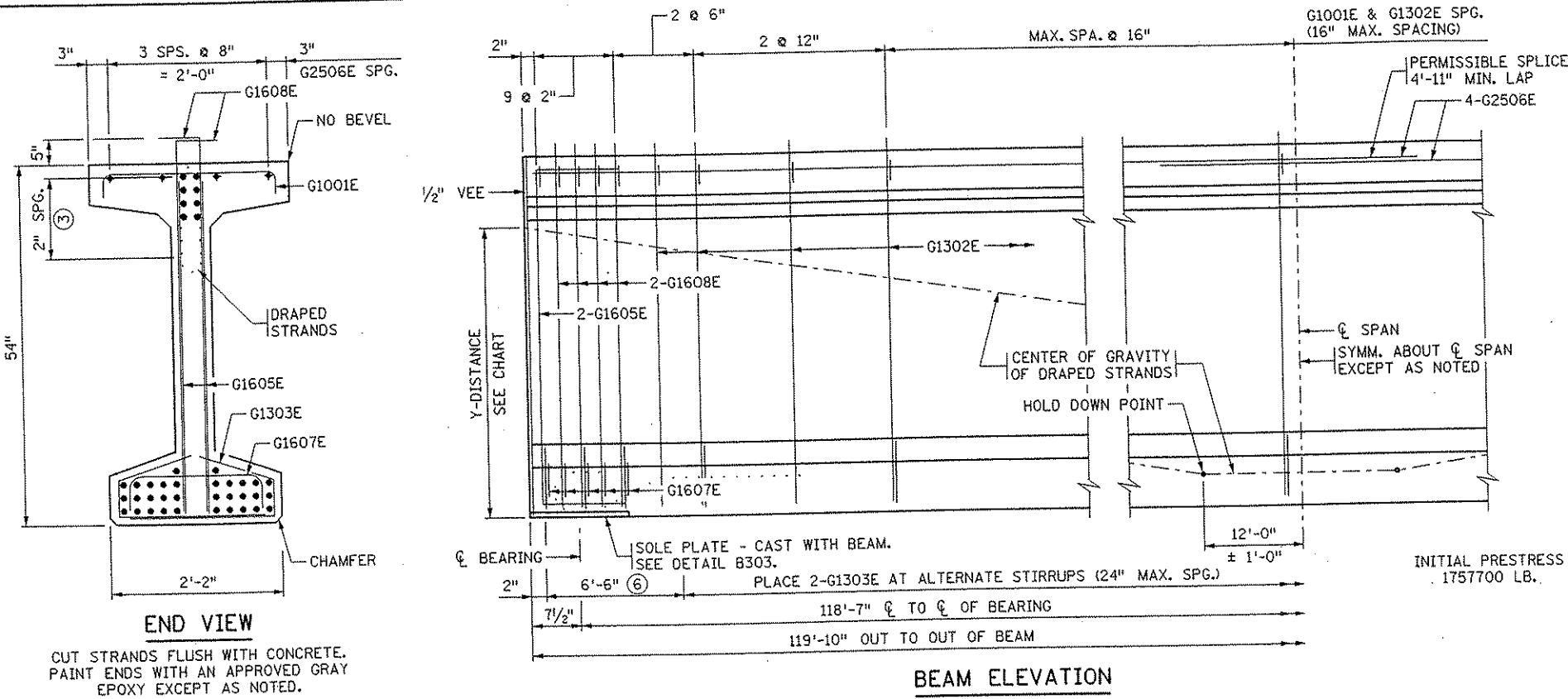
CERTIFIED BY *Gottfried Millner* 01/22/2002
 LICENSED PROFESSIONAL ENGINEER
 NAME: GOTTFRIED MILLNER LIC. NO. 19879

54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 54M-109

DES: SVC		DR: SVC		APPROVED:	BRIDGE NO. 02566
CHK: MJC		CHK: MJC			
SHEET NO. 30 OF 56 SHEETS				FIG. 5-397.515	

DATE: 01/22/2002 TIME: 01:55:41 PM FILENAME: I:\a\p\m\ok\ok\117450\m\brdg\part\A\bridge\standards\pcbl.dgn

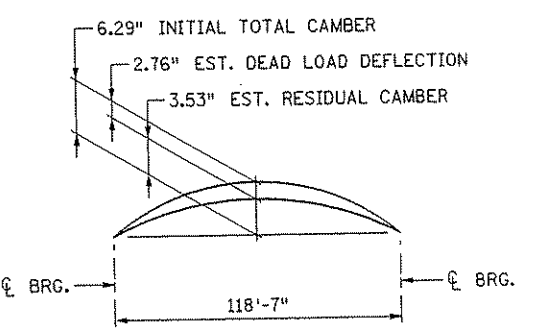
REVISION: 02-11-00
 APPROVED: NOVEMBER 6, 1995
D. M. ...
 STATE BRIDGE ENGINEER



Y DISTANCES (IN INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	32	4.25	
DRAPED STRANDS	8	6.0	48.0
TOTAL STRANDS	40	4.6	

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.

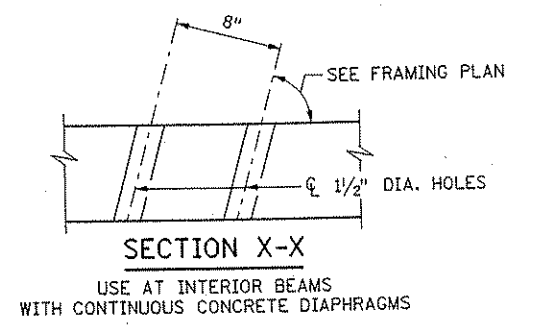
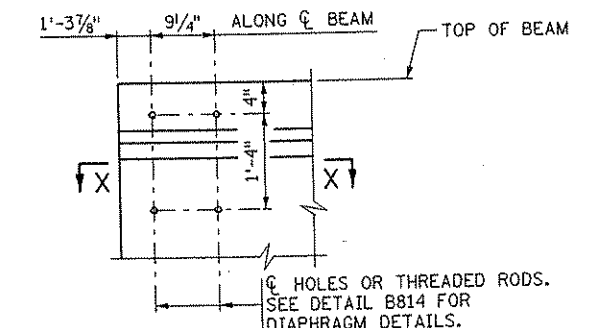
□ A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



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.

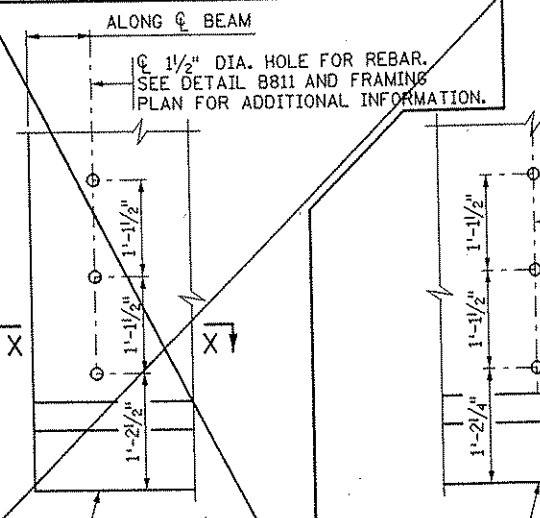
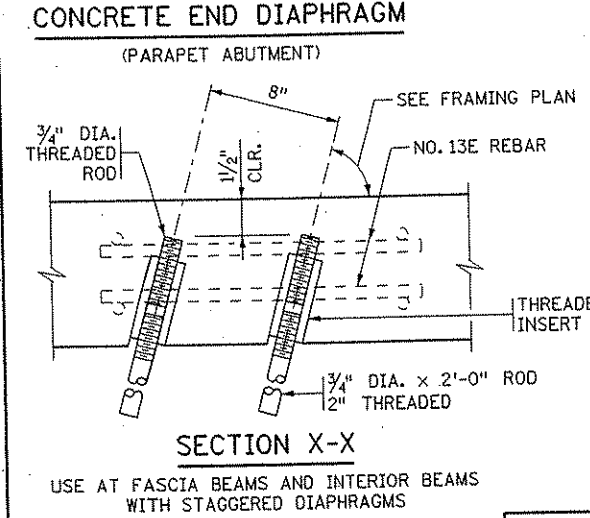
ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.



MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'cl	② f'c
REQUIRED MIN. CONCRETE STRENGTH	7400	8500

PRESTRESSING STRAND DIAMETER	
⑤	1/2" □
⑥	0.60" ☒

PLACE AN "X" IN THE APPROPRIATE BOX TO INDICATE THE STRAND DIAMETER USED FOR THE DESIGN.



CL 1/2" DIA. HOLE (INTERIOR BEAM, CONTINUOUS DIAPHRAGM) OR 3/8" DIA. BOLT ANCHORAGE (FASCIA BEAM AND STAGGERED DIAPHRAGM). SEE DETAIL B403 FOR DIAPHRAGM DETAILS.

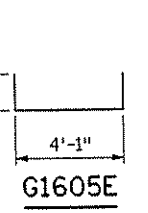
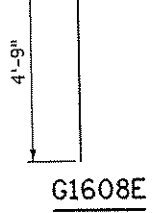
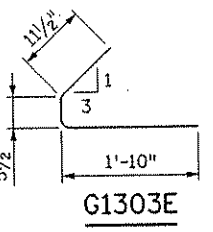
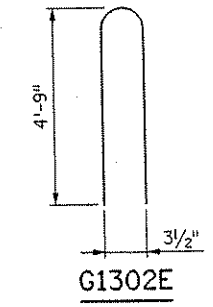
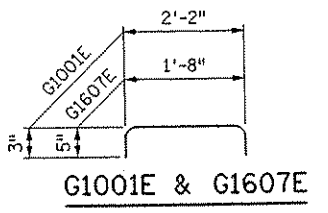
REVISION: 02-11-00

APPROVED: NOVEMBER 6, 1995

D. M. J. Planning
STATE BRIDGE ENGINEER

STEEL INTERMEDIATE DIAPHRAGM

BOTTOM OF BEAM



GENERAL NOTES

TOPS OF BEAMS SHALL BE INTENTIONALLY ROUGHENED 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 STENCILED 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 43.7 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 A 416, GRADE 270.

⑥ PLACE 2-G1303E WITH STIRRUPS (6" MAX. SPG.)

CERTIFIED BY *Gottfried Millner* 01/22/2002
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GOTTFRIED MILLNER LIC. NO. 19879

54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 54M-120

BEAMS B4, B5, B6

FIG. 5-397.515

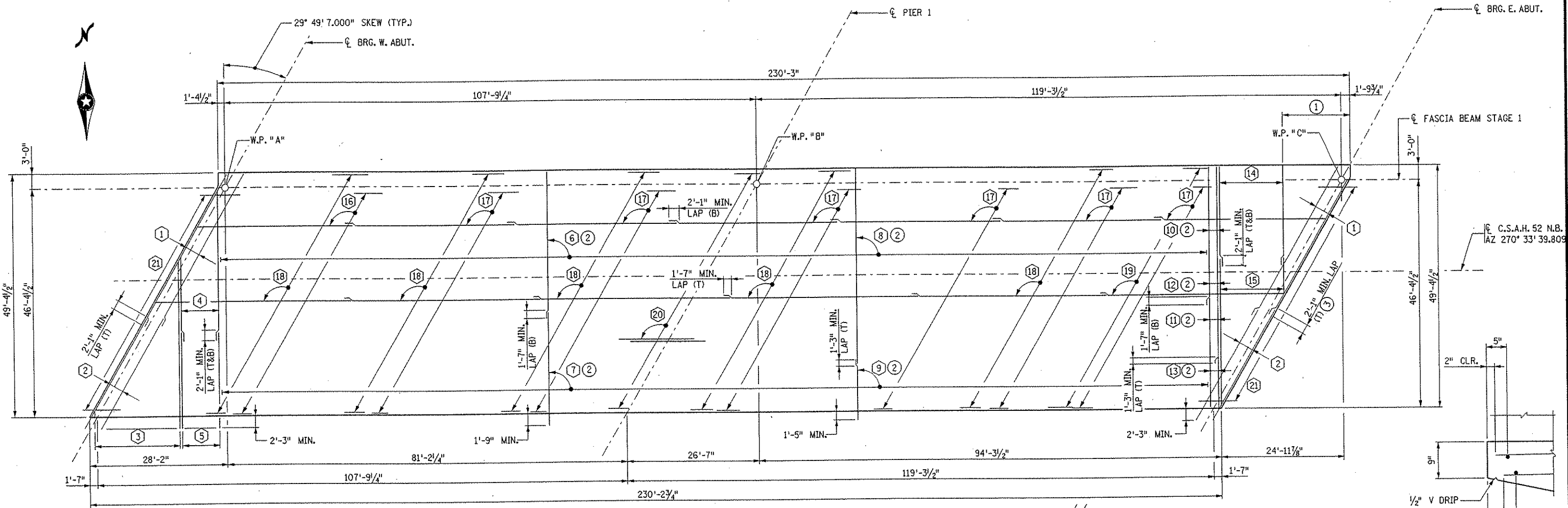
APPROVED: _____

BRIDGE NO. 02566

SHEET NO. 31 OF 56 SHEETS

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DATE: 01/25/2002 TIME: 08:15:54 AM
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SLAB REINFORCEMENT

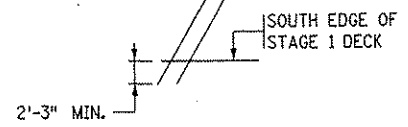
BAR CALL-OUTS:

- ① 4-S1301E (T). SEE STAGE 1 SLAB CORNER DETAILS ON SHEET 34 FOR PLACEMENT.
- ② 4-S1302E (T). SEE STAGE 1 SLAB CORNER DETAILS ON SHEET 34 FOR PLACEMENT.
- ③ 1 SER. OF 33-S1303E (T&B) @ 6/2" MAX. SEE STAGE 1 SLAB CORNER DETAILS ON SHEET 34 FOR PLACEMENT.
- ④ 1 SER. OF 15-S1304E (T&B) @ 6/2" MAX.
- ⑤ 15-S1305E (T&B) @ 6/2" MAX.
- ⑥ 371-S1308E (B) @ 6/2" MAX.
- ⑦ 371-S1309E (B) @ 6/2" MAX.
- ⑧ 371-S1306E (T) @ 6/2" MAX.
- ⑨ 371-S1307E (T) @ 6/2" MAX.
- ⑩ 4-S1312E (B) @ 6/2" MAX.
- ⑪ 4-S1313E (B) @ 6/2" MAX.
- ⑫ 4-S1310E (T) @ 6/2" MAX.
- ⑬ 4-S1311E (T) @ 6/2" MAX.
- ⑭ 25-S1305E (T&B) @ 6/2" MAX.
- ⑮ 1 SER. OF 25-S1314E (T&B) @ 6/2" MAX.
- ⑯ 42-S1322E (B)
- ⑰ 42-S1321E (B)
- ⑱ 36-S1319E (T) @ 18" MAX. QUANTITY INCLUDES (B) BARS IN CANTILEVER PORTION OF SLAB.
- ⑲ 36-S1320E (T) @ 18" MAX. QUANTITY INCLUDES (B) BARS IN CANTILEVER PORTION OF SLAB.
- ⑳ 66-S1923E (T). SEE BAR STAGGER DETAIL ON SHEET 34 FOR PLACEMENT.
- ㉑ 35-S1624E

NOTES:

- ① SEE DETAIL "A" ON SHEET 34 FOR CORNER REINFORCEMENT.
- ② ALTERNATE (FLIP) BAR MARKS TO PRODUCE STAGGERED SPLICE LOCATIONS.
- ③ INCREASE SPLICE LENGTH FOR BARS IN CORNER SLAB SECTION.

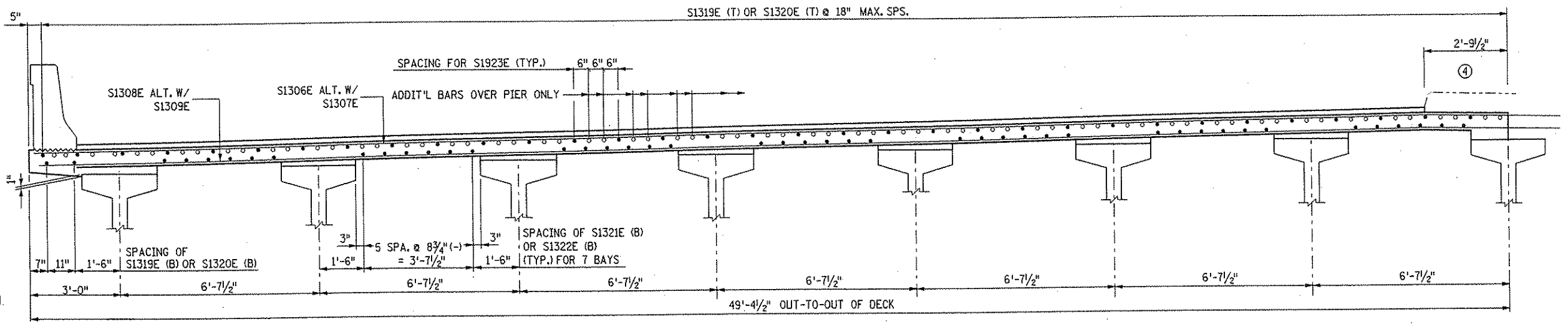
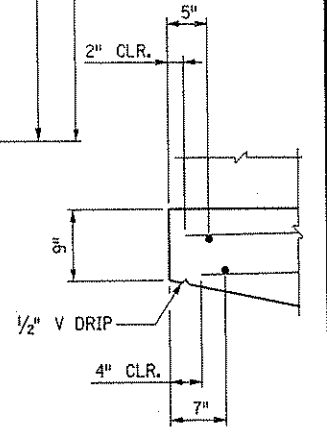
EAST END 1-S1625E (T&B)
 WEST END 1-S1626E (T&B)



END BLOCK REINFORCEMENT

④ 2'-9/2" DIMENSION APPLIES ONLY TO WESTERN PORTION OF BRIDGE. RAISED MEDIAN TAPERS IN EASTERN PORTION OF BRIDGE. REFER TO SHEET 1 OF 56.

EDGE DETAIL



TYPICAL SECTION

NO.	DATE	BY	DESCRIPTION OF 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.
 SIGNED *Gottfried Millner* GOTTFRIED MILLNER
 DATE 01/25/2002 REG. NO. 19879

TKDA
 TOLTZ, KING, DUVAL, ANDERSON
 AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

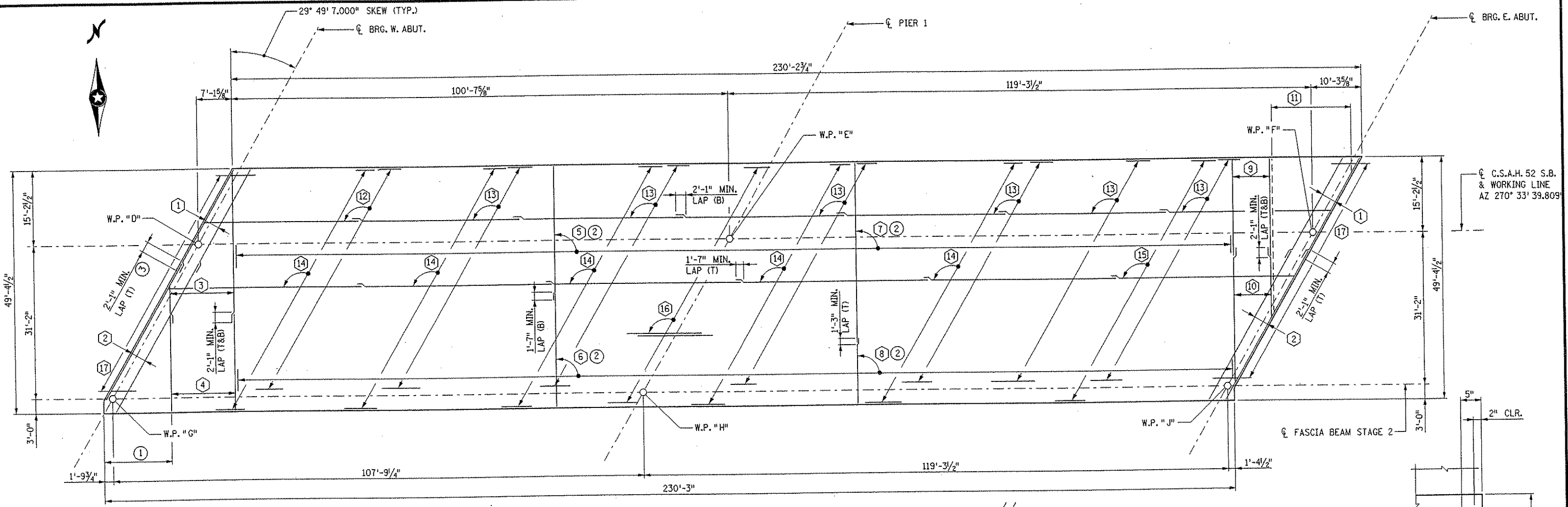
ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: **SLAB REINFORCEMENT STAGE 1**

DES: HLE OR: HLE APPROVED
 CHK: MJC CHK: MJC
 Sheet No. 32 of 56 Sheets

Bridge No. 02566

DATE: 01/22/2002 TIME: 01:54:53 PM
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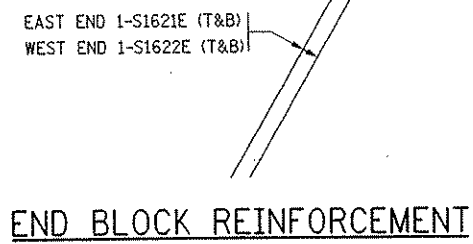
BAR CALL-OUTS:

- ① 4-S1301E (T); SEE STAGE 2 SLAB CORNER DETAILS ON SHEET 34 FOR PLACEMENT.
- ② 4-S1302E (T); SEE STAGE 2 SLAB CORNER DETAILS ON SHEET 34 FOR PLACEMENT.
- ③ 1 SER. OF 25-S1307E (T&B) @ 6/2" MAX.
- ④ 25-S1312E (T&B) @ 6/2" MAX.
- ⑤ 375-S1310E (B) @ 6/2" MAX.
- ⑥ 375-S1311E (B) @ 6/2" MAX.
- ⑦ 375-S1308E (T) @ 6/2" MAX.
- ⑧ 375-S1309E (T) @ 6/2" MAX.
- ⑨ 15-S1312E (T&B) @ 6/2" MAX.
- ⑩ 1 SER. OF 15-S1313E (T&B) @ 6/2" MAX.
- ⑪ 1 SER. OF 31-S1314E (T&B) @ 6/2" MAX.
- ⑫ 42-S1318E (B)
- ⑬ 42-S1317E (B)
- ⑭ 36-S1315E (T) @ 18" MAX. QUANTITY INCLUDES (B) BARS IN CANTILEVER PORTION OF SLAB.
- ⑮ 36-S1316E (T) @ 18" MAX. QUANTITY INCLUDES (B) BARS IN CANTILEVER PORTION OF SLAB.
- ⑯ 66-S1919E (T); SEE BAR STAGGER DETAIL ON SHEET 34 FOR PLACEMENT.
- ⑰ 35-S1620E

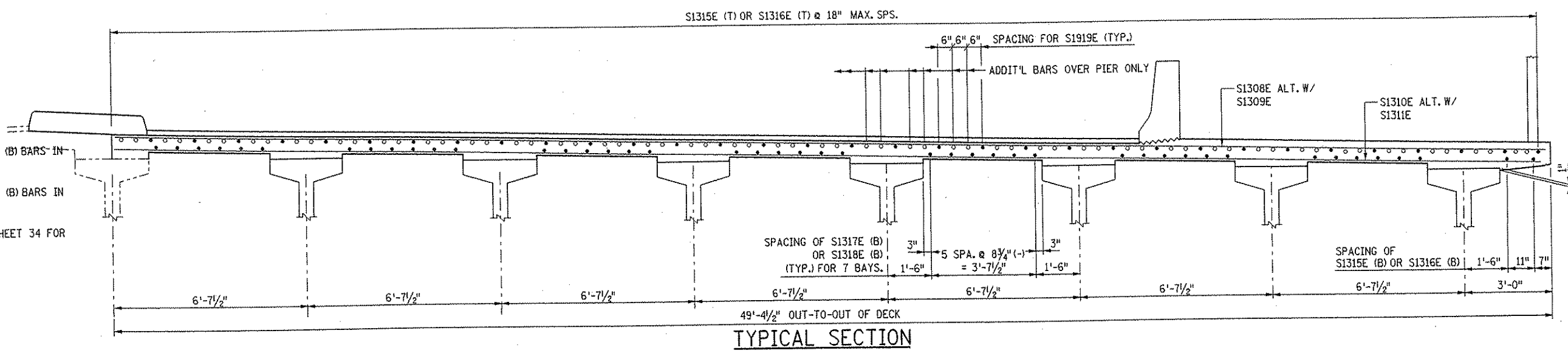
NOTES:

- ① SEE DETAIL "A" ON SHEET 34 FOR CORNER REINFORCEMENT.
- ② ALTERNATE (FLIP) BAR MARKS TO PRODUCE STAGGERED SPLICE LOCATIONS.
- ③ INCREASE SPLICE LENGTH FOR BARS IN CORNER SLAB SECTION.

SLAB REINFORCEMENT



EDGE DETAIL



NO.	DATE	BY	DESCRIPTION OF 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
 SIGNED *Gottfried Millner* GOTTFRIED MILLNER
 DATE 01/22/2002 REG. NO. 19879

TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: **SLAB REINFORCEMENT STAGE 2**

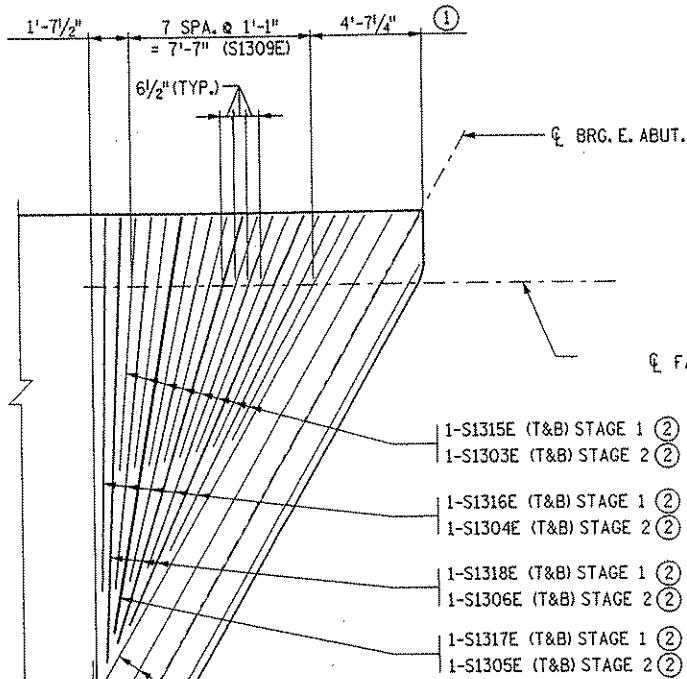
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CHK: MJC	CHK: MJC	

Sheet No. 33 of 56 Sheets

Bridge No. 02566

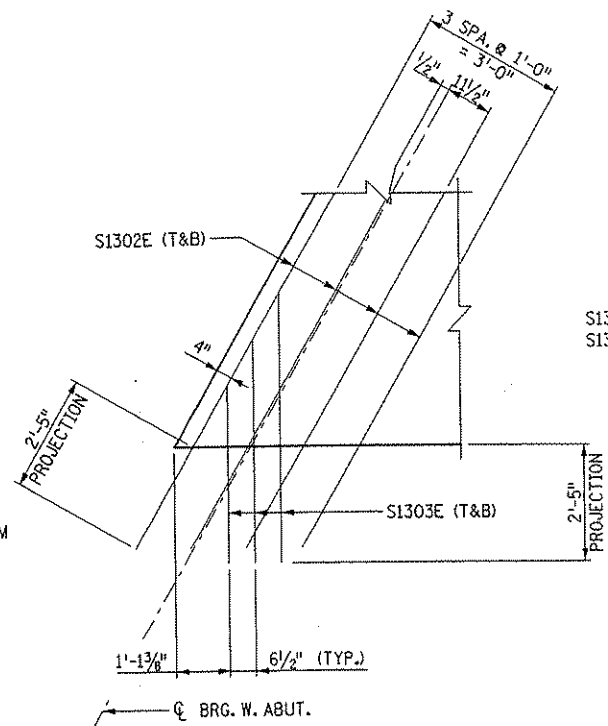
NOTES

- ① DIMENSIONS SHOWN ARE ALONG ϕ FASCIA BEAM.
- ② 2 3/4" MIN. BETWEEN FLARED BARS. PLACE AS SHOWN.

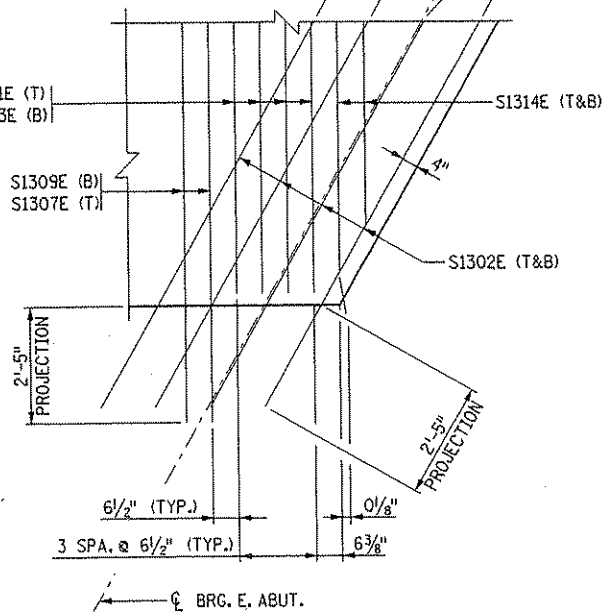


DETAIL "A"

STAGE 1 NORTHEAST CORNER SHOWN, STAGE 2 SOUTHWEST CORNER SIMILAR.

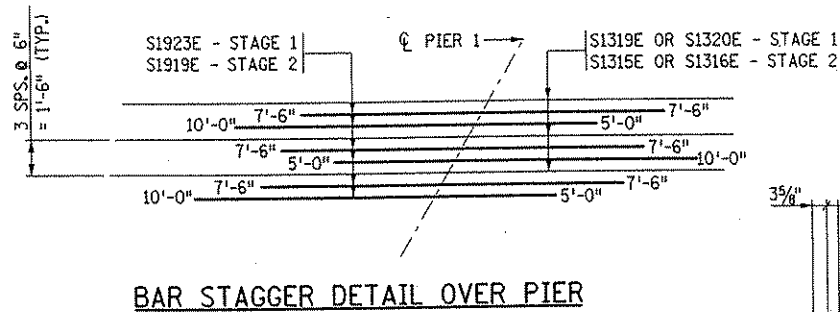


SOUTHWEST CORNER

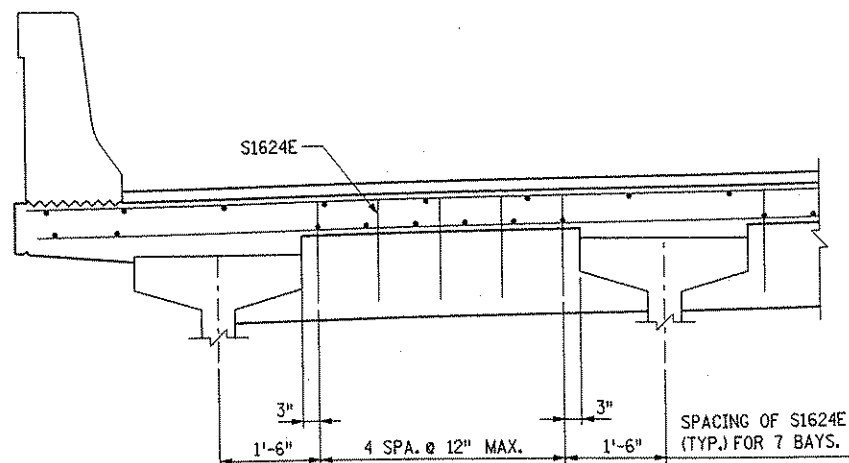


SOUTHEAST CORNER

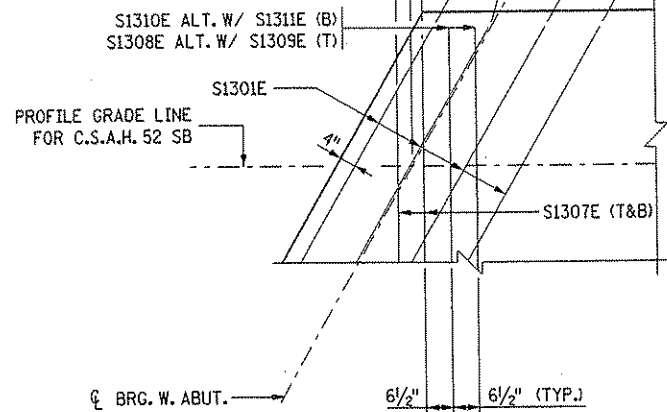
STAGE 1 SLAB CORNER DETAILS AT LONGITUDINAL CONSTRUCTION JOINT



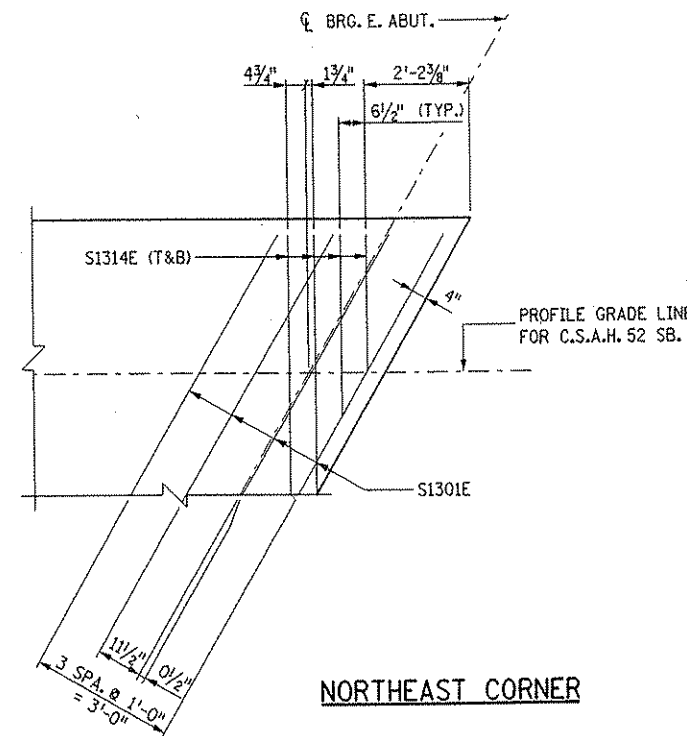
BAR STAGGER DETAIL OVER PIER



TYPICAL SECTION NEAR ABUTMENT END DIAPHRAGM

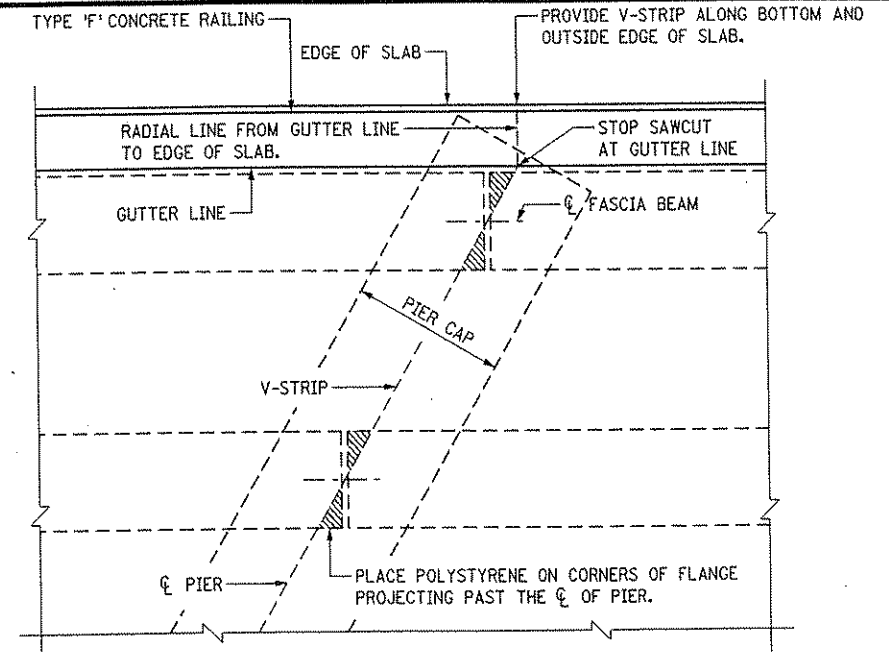


NORTHWEST CORNER

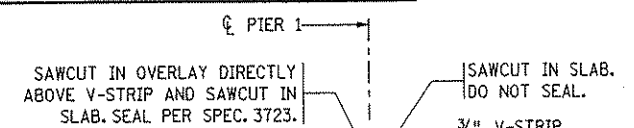


NORTHEAST CORNER

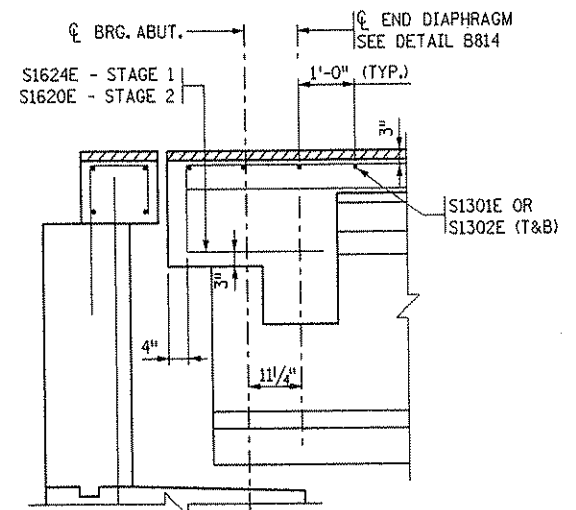
STAGE 2 SLAB CORNER DETAILS AT LONGITUDINAL CONSTRUCTION JOINT



SAW CUT DETAIL - PLAN



SAW CUT DETAIL - ELEVATION



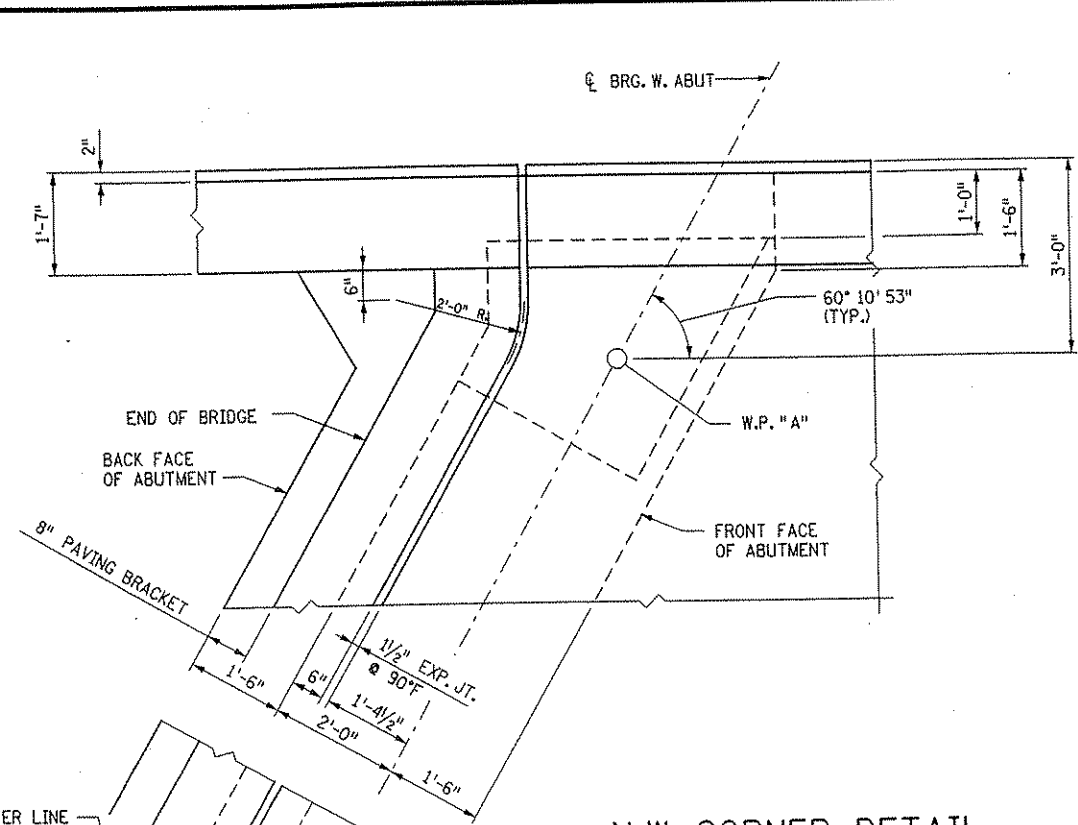
PART LONGITUDINAL SECTION

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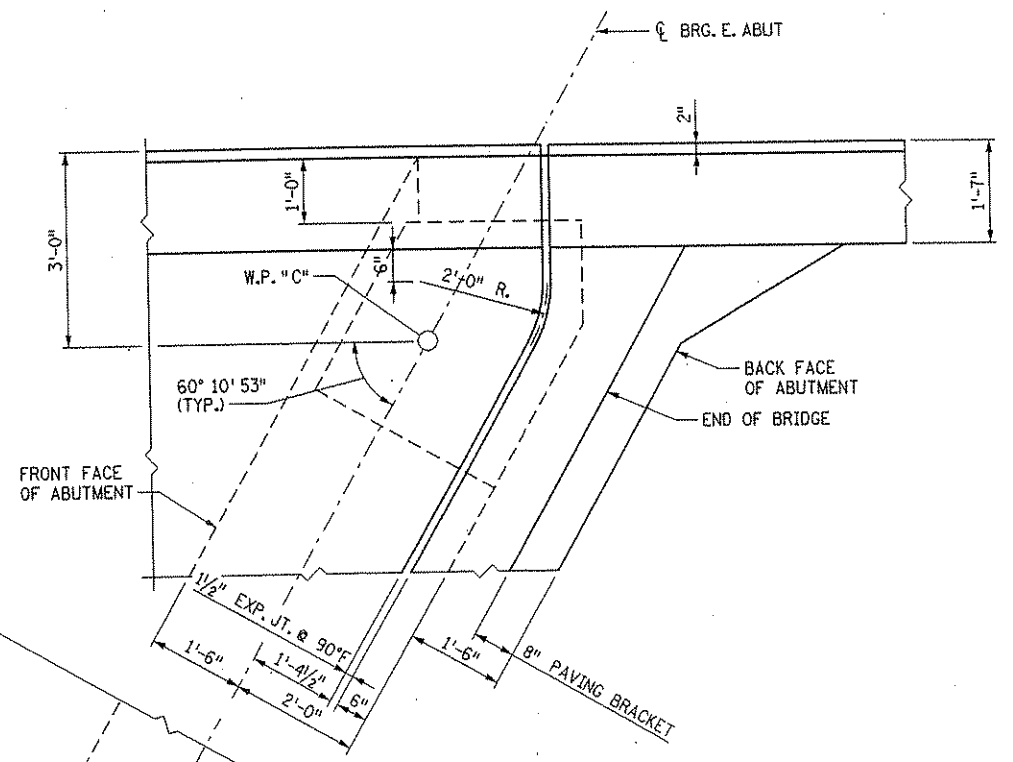
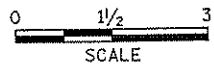
<p>I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA</p> <p>SIGNED <i>Gottfried Millner</i> GOTTFRIED MILLNER</p> <p>DATE 01/22/2002 REG. NO. 19879</p>				<p>TKDA TOLTZ, KING, OUYALL, ANDERSON AND ASSOCIATES, INCORPORATED</p> <p>ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA</p>		<p>ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50</p>		<p>TITLE: SUPERSTRUCTURE DETAILS</p>		<p>DES: HLE DR: HLE APPROVED CHK: MJC CHK: MJC</p>		<p>Bridge No. 02566</p>	
<p>NO. DATE BY DESCRIPTION OF REVISIONS</p>								<p>Sheet No. 34 of 56 Sheets</p>					



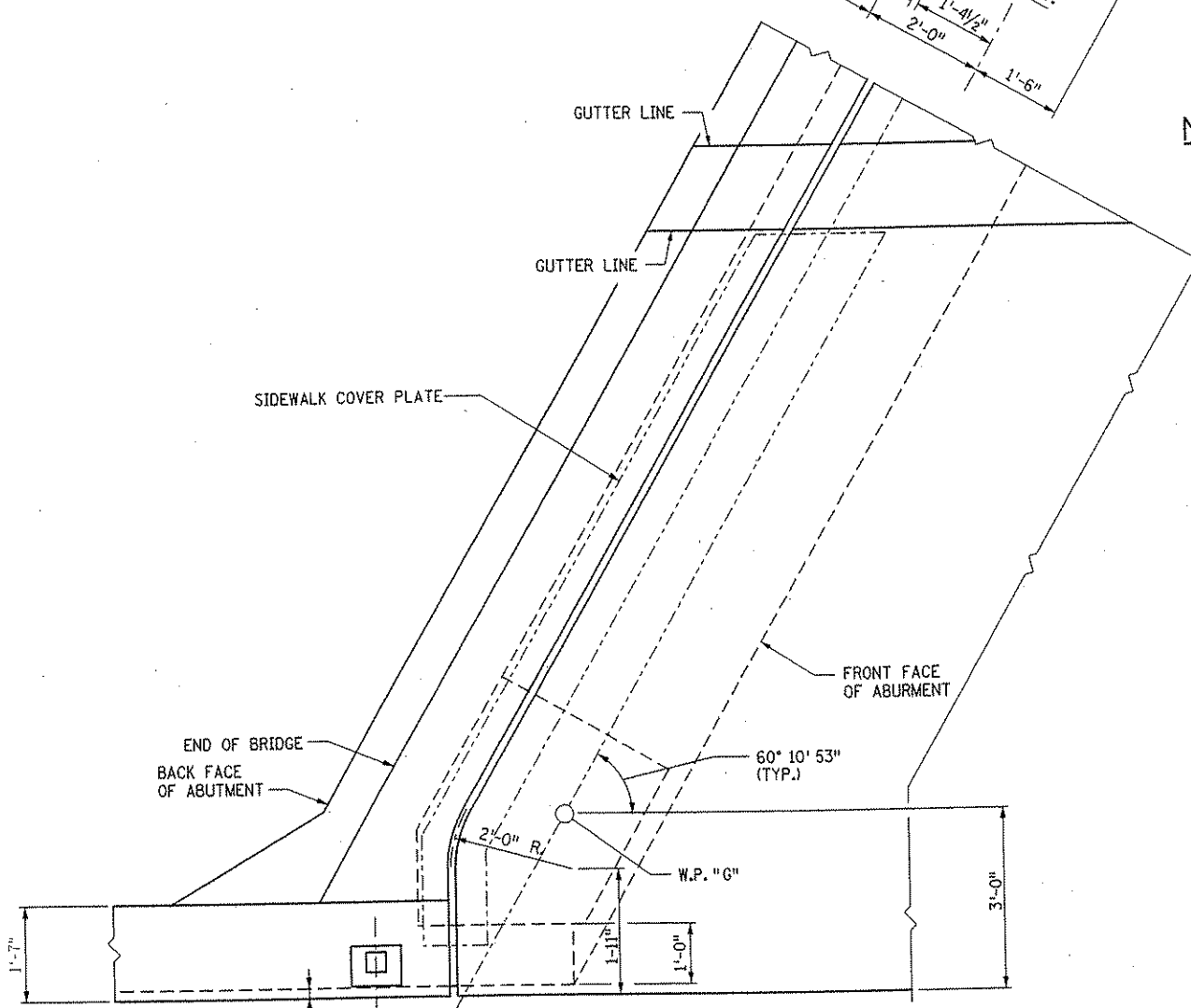
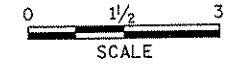
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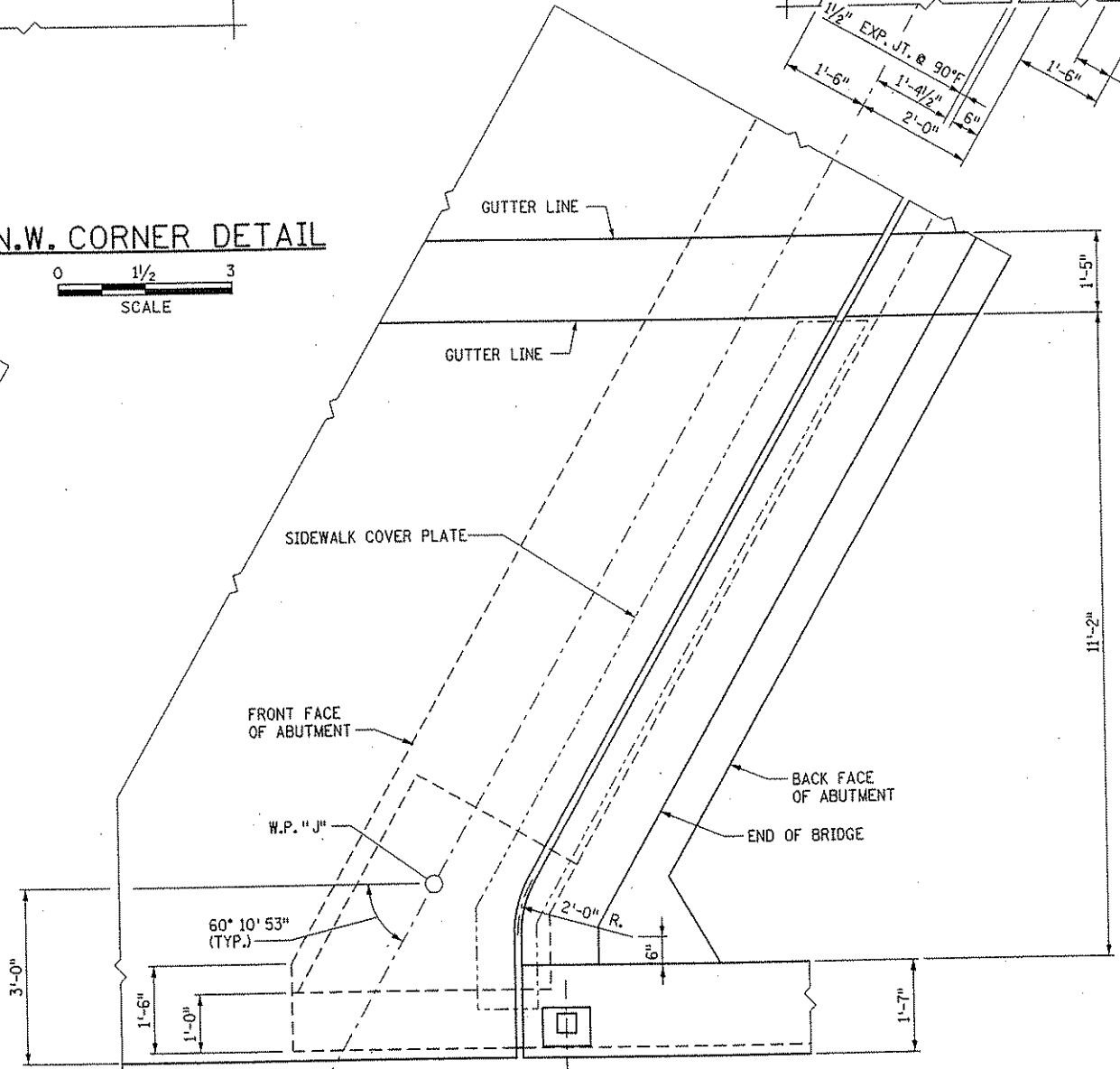
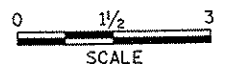
N.W. CORNER DETAIL



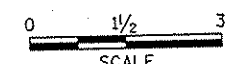
N.E. CORNER DETAIL



S.W. CORNER DETAIL



S.E. CORNER DETAIL



NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED: *Gottfried Millner*
 DATE: 01/22/2002 REG. NO. 19879

TKDA
 TOLTZ, KING, DUVALL, ANDERSON
 AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE:
ABUTMENT CORNER DETAILS

DES: GM	DR: SJS	APPROVED
CHK: MJC	CHK: GM	

Sheet No. 35 of 56 Sheets

Bridge No.
 02566

DATE: 01/23/2002 TIME: 08:13:34 AM
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SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE, STAGE 1 CONSTRUCTION

ITEM	UNIT	QUANTITY
7 STRUCTURAL CONCRETE (3Y43)	CU.YD.	7
3 BRIDGE SLAB CONCRETE (3Y36)	SQ.FT.	11530
5 TYPE F MODIFIED RAILING CONCRETE (3Y46)	LIN.FT.	306
6 RAISED MEDIAN CONCRETE (3Y46)	SQ.FT.	950
2 REINFORCEMENT BARS (EPOXY-COATED)	POUND	51840
EXPANSION JOINT DEVICES TYPE 4.0"	LIN.FT.	112
9 FIXED CURVED PLATE BEARING ASSEMBLY TYPE F1	EACH	10
8 EXP. CURVED PLATE BEARING ASSEMBLY TYPE E1	EACH	8
8 EXP. CURVED PLATE BEARING ASSEMBLY TYPE E2	EACH	6
8 EXP. CURVED PLATE BEARING ASSEMBLY TYPE E3	EACH	8
4 CONCRETE WEARING COURSE (3U17A)	SQ.FT.	14490
8 PRESTRESSED CONCRETE BEAMS TYPE 54M-109	EACH	8
8 PRESTRESSED CONCRETE BEAMS TYPE 54M-120	EACH	8
DIAPHRAGMS FOR TYPE 54" PRESTRESSED BEAMS	LIN.FT.	279
1 CORK FILLER	SQ.FT.	23
1 BRIDGE NAME PLATE	EACH	1

STAGE 1 QUANTITIY NOTES

- TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- INCLUDES REINFORCEMENT FOR SLAB, END DIAPHRAGMS, RAISED MEDIAN, SIDEWALK, AND RAILING.
- BRIDGE SLAB CONCRETE (3Y36) VOLUME IS APPROXIMATELY 260 CU. YD., USING THE LOW-SLUMP CONCRETE WEARING COURSE ALTERNATE, AND AN AVERAGE STOOOL HEIGHT OF 2 INCHES. INCLUDES END BLOCKS.
- "WEARING COURSE CONCRETE (3U17A)" VOLUME IS APPROXIMATELY 90 CU. YD. INCLUDES BRIDGE APPROACH PANELS
- TYPE F MODIFIED RAILING CONCRETE (3Y46) VOLUME IS APPROXIMATELY 34 CU. YD.
- RAISED MEDIAN CONCRETE (3Y46) VOLUME IS APPROXIMATELY 18 CU. YD.
- END DIAPHRAGM CONCRETE ONLY.
- PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS TYPE 54M" PER LIN. FT.
- PAYMENT FOR BEARINGS INCLUDED IN ITEM "BEARING ASSEMBLY" PER EACH.

SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE, STAGE 2 CONSTRUCTION

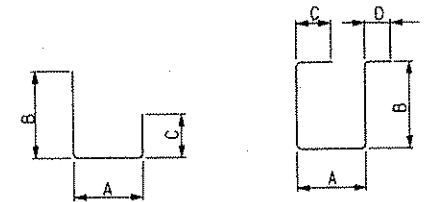
ITEM	UNIT	QUANTITY
6 STRUCTURAL CONCRETE (3Y43)	CU.YD.	7
3 BRIDGE SLAB CONCRETE (3Y36)	SQ.FT.	11530
5 TYPE F-SW RAILING CONCRETE (3Y46)	LIN.FT.	234
2 REINFORCEMENT BARS (EPOXY-COATED)	POUND	49330
EXPANSION JOINT DEVICES TYPE 4.0"	LIN.FT.	112
8 FIXED CURVED PLATE BEARING ASSEMBLY TYPE F1	EACH	8
8 EXP. CURVED PLATE BEARING ASSEMBLY TYPE E1	EACH	7
8 EXP. CURVED PLATE BEARING ASSEMBLY TYPE E2	EACH	6
8 EXP. CURVED PLATE BEARING ASSEMBLY TYPE E3	EACH	7
STRUCTURAL TUBE RAILING WITH FENCE (DESIGN T-3)	LIN.FT.	305
4 CONCRETE WEARING COURSE (3U17A)	SQ.FT.	12220
7 PRESTRESSED CONCRETE BEAMS TYPE 54M-109	EACH	7
7 PRESTRESSED CONCRETE BEAMS TYPE 54M-120	EACH	7
DIAPHRAGMS FOR TYPE 54" PRESTRESSED BEAMS	LIN.FT.	279
CONDUIT SYSTEM	LUMP SUM	1
9 BENCH MARK DISK	EACH	1
1 CORK FILLER	SQ.FT.	28
1 BRIDGE NAME PLATE	EACH	1

STAGE 2 QUANTITIY NOTES

- TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- INCLUDES REINFORCEMENT FOR SLAB, END DIAPHRAGMS, RAISED MEDIAN, AND RAILING.
- BRIDGE SLAB CONCRETE (3Y36) VOLUME IS APPROXIMATELY 260 CU. YD. USING THE LOW-SLUMP CONCRETE WEARING COURSE ALTERNATE, AND AN AVERAGE STOOOL HEIGHT OF 2 INCHES. INCLUDES END BLOCKS.
- "WEARING COURSE CONCRETE (3U17A)" VOLUME IS APPROXIMATELY 76 CU. YD. INCLUDES BRIDGE APPROACH PANEL
- TYPE F-SW RAILING CONCRETE (3Y46) VOLUME IS APPROXIMATELY 33 CU. YD.
- END DIAPHRAGM CONCRETE ONLY.
- PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS TYPE 54M" PER LIN. FT.
- PAYMENT FOR BEARINGS INCLUDED IN ITEM "BEARING ASSEMBLY" PER EACH.
- 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.

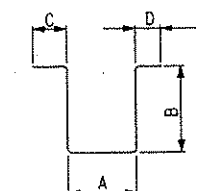
BAR MARK	NO.	SERIES NO. OF	LENGTH FT IN	SIZE	TYPE	DIMENSIONS				LOCATION
						A	B	C	D	
DECK REINFORCEMENT, STAGE 1										
S1301	E	8	35 0 13	STR						T. SLAB EDGE
S1302	E	8	26 1 13	STR						T. SLAB EDGE
S1303	E	2 SER	3 9 13	STR						W. END T&B
		OF 33	33 11							
S1304	E	2 SER	17 0 13	STR						W. END T&B
		OF 15	30 3							
S1305	E	80	20 0 13	STR						E. & W. END T&B
S1306	E	371	40 0 13	STR						T. TRANS.
S1307	E	371	12 3 13	STR						T. TRANS.
S1308	E	371	29 7 13	STR						B. TRANS.
S1309	E	371	23 6 13	STR						B. TRANS.
S1310	E	4	40 0 13	STR						T. TRANS.
S1311	E	4	10 4 13	STR						T. TRANS.
S1312	E	4	27 10 13	STR						B. TRANS.
S1313	E	4	22 6 13	STR						B. TRANS.
S1314	E	2 SER	7 10 13	STR						E. END T&B
		OF 25	30 6							
S1315	E	16	10 6 13	STR						"FAN" REGION
S1316	E	10	15 6 13	STR						"FAN" REGION
S1317	E	2	17 6 13	STR						"FAN" REGION
S1318	E	6	18 6 13	STR						"FAN" REGION
S1319	E	180	40 0 13	STR						T. LONG
S1320	E	36	37 6 13	STR						T. LONG
S1321	E	252	35 0 13	STR						B. LONG
S1322	E	42	32 1 13	STR						B. LONG
S1923	E	66	15 0 19	STR						T. LONG OVER PIER
S1624	E	70	9 5 16	115	1'-6"	5'-1"	2'-10"			END TIE LONG.
S1625	E	4	62 10 16	STR						END BLOCK
S1626	E	4	62 0 16	STR						END BLOCK
DIAPHRAGM REINFORCEMENT, STAGE 1										
E1301	E	56	7 6 13	126	1'-0"	2'-6"	9"	9"		STIRRUP
E1602	E	14	17 2 16	127	4'-2"	2'-6"	4'-0"	4'-0"		BENT BAR
E1903	E	28	6 6 19	STR						B. LONG.
E2204	E	28	5 0 22	STR						B. LONG THROUGH BEAM
E1305	E	28	4 3 13	STR						T. LONG.
TYPE F MODIFIED RAILING REINFORCEMENT										
R1601	E	258	5 2 16	140	9"	1'-2"	1'-3"	4		DECK TIE
R1602	E	346	6 6 16	152	8 1/2"	5"	2'-6"			STIRRUP
R1303	E	4	14 7 13	STR						LONGITUDINAL
R1304	E	40	19 7 13	STR						LONGITUDINAL
R1305	E	6	16 4 13	STR						LONGITUDINAL
R1306	E	2	16 1 13	STR						LONGITUDINAL
R1307	E	8	14 7 13	STR						LONGITUDINAL
R1308	E	8	9 8 13	STR						LONGITUDINAL
R1309	E	4	28 0 13	STR						LONGITUDINAL
R1310	E	28	30 0 13	STR						LONGITUDINAL
R1311	E	6	20 4 13	STR						LONGITUDINAL
R1312	E	2	20 1 13	STR						LONGITUDINAL
R1313	E	4	25 0 13	STR						LONGITUDINAL
R1314	E	4	17 1 13	STR						LONGITUDINAL
R1615	E	4	4 1 16	152	7 1/2"	5"	1'-6"			STIRRUP
R1616	E	2	6 2 16	152	8 1/2"	5"	2'-3"			STIRRUP
R1617	E	2	6 0 16	152	8 1/2"	5"	2'-2"			STIRRUP
R2218	E	2	6 7 22	130	1'-0"	3'-0"				GUARD RAIL ANCHOR

BAR BENDING DIAGRAMS

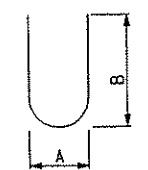


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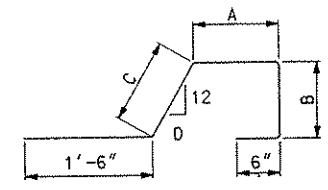
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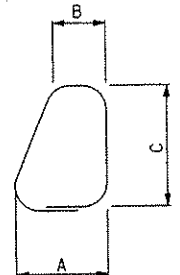
127



130



140



152

NOTE

BENT BAR DIMENSIONS GIVEN ARE OUT-TO-OUT. ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON THE DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS ARE SHOWN FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY.

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 DATE: 01/22/2002 REG. NO. 19879

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 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: SUPERSTRUCTURE QUANTITIES AND BARLISTS

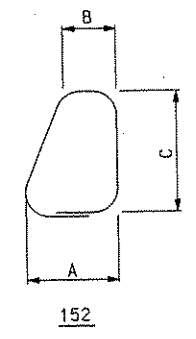
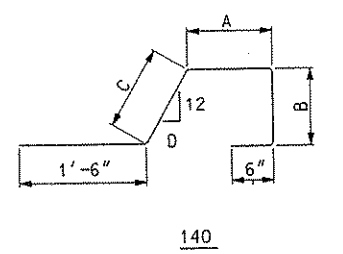
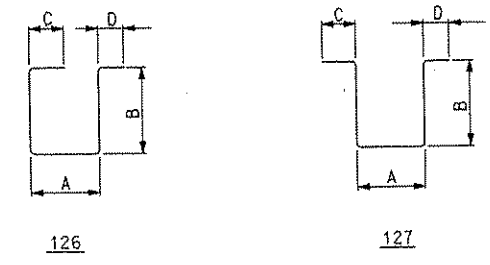
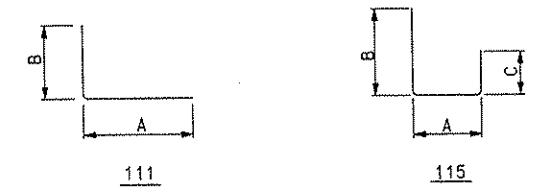
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 CHK: MJC CHK: MJC
 Sheet No. 36 of 56 Sheets

Bridge No. 02566

DATE: 01/22/2002 TIME: 01:53:11 PM
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BAR MARK	NO.	SERIES NO. OF	LENGTH FT IN	SIZE	TYPE	DIMENSIONS				LOCATION
						A	B	C	D	
DECK REINFORCEMENT, STAGE 2										
S1301	E	8	35 0	13	STR					T&B SLAB EDGE
S1302	E	8	23 4	13	STR					T&B SLAB EDGE
S1303	E	16	10 6	13	STR					"FAN" REGION
S1304	E	10	15 6	13	STR					"FAN" REGION
S1305	E	2	17 6	13	STR					"FAN" REGION
S1306	E	6	18 6	13	STR					"FAN" REGION
S1307	E	2 SER	7 9	13	STR					W. END T&B
		OF 25	30 5	13	STR					
S1308	E	375	36 9	13	STR					T. TRANS.
S1309	E	375	13 3	13	STR					T. TRANS.
S1310	E	375	27 0	13	STR					B. TRANS.
S1311	E	375	23 4	13	STR					B. TRANS.
S1312	E	80	20 0	13	STR					E. & W. END T&B
S1313	E	2 SER	14 3	13	STR					E. END T&B
		OF 15	27 6	13						
S1314	E	2 SER	2 10	13	STR					E. END T&B
		OF 31	31 2	13						
S1315	E	180	40 0	13	STR					T. LONG.
S1316	E	36	37 6	13	STR					T. LONG.
S1317	E	252	35 0	13	STR					B. LONG.
S1318	E	42	32 1	13	STR					B. LONG.
S1919	E	66	15 0	19	STR					T. LONG. OVER PIER
S1620	E	70	9 5	16	115	1'-6"	5'-1"	2'-10"		END TIE LONG.
S1621	E	4	48 10	16	STR					END BLOCK
S1622	E	4	51 9	16	STR					END BLOCK
DIAPHRAGM REINFORCEMENT, STAGE 2										
E1301	E	56	7 6	13	126	1'-0"	2'-6"	9"	9"	STIRRUP
E1602	E	12	17 2	16	127	4'-2"	2'-6"	4'-0"	4'-0"	BENT BAR
E1903	E	28	6 6	19	STR					B. LONG.
E2204	E	24	5 0	22	STR					B. LONG. THROUGH BEAM
E1305	E	28	4 3	13	STR					T. LONG.
E1606	E	2	14 5	16	127	4'-2"	2'-6"	4'-0"	1'-3"	BENT BAR (ED-3)
TYPE F-SW RAILING REINFORCEMENT										
R1601	E	257	5 1	16	140	8"	1'-2"	1'-3"	4	DECK TIE
R1602	E	263	8 2	16	152	7"	4 1/2"	3'-4"		STIRRUP
R1603	E	4	6 5	16	152	6 1/2"	4 1/2"	2'-5"		STIRRUP
R1904	E	8	4 5	19	111	3'-5"	1'-0"			END POST
R1605	E	4	3 5	16	STR					END POST
R1306	E	6	3 1	13	STR					END POST
R1307	E	8	14 3	13	STR					LONGITUDINAL
R1308	E	36	19 7	13	STR					LONGITUDINAL
R1309	E	8	10 0	13	STR					LONGITUDINAL
R1310	E	4	35 6	13	STR					LONGITUDINAL
R1311	E	20	40 0	13	STR					LONGITUDINAL

BAR BENDING DIAGRAMS



NOTE
 BENT BAR DIMENSIONS GIVEN ARE OUT-TO-OUT. ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON THE DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS ARE SHOWN FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY.

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ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
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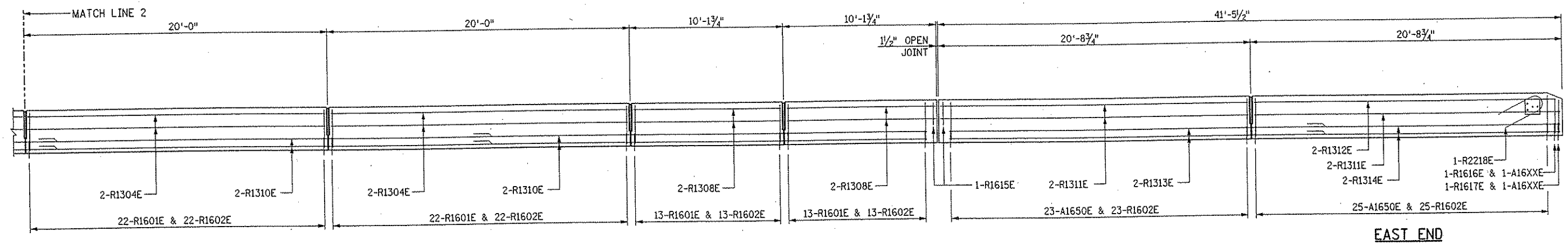
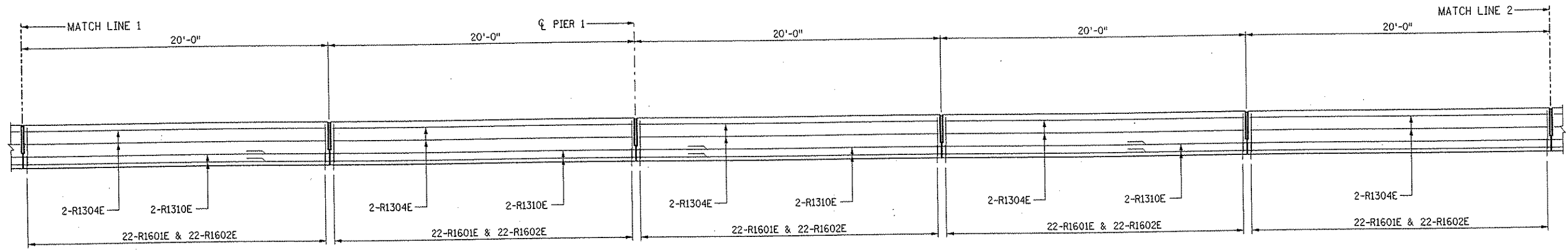
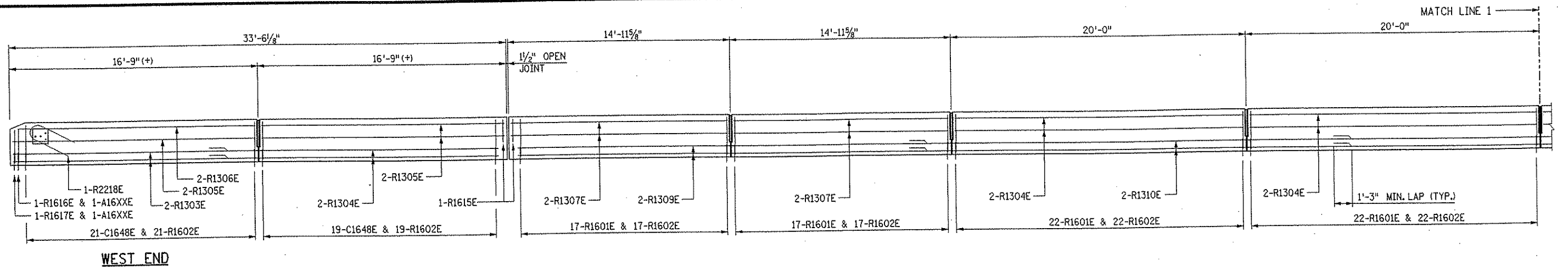
TITLE:
 SUPERSTRUCTURE BARLISTS

DES: MJC / HLE	DR: HLE	APPROVED
CHK: GM	CHK: GM	

Sheet No. 37 of 56 Sheets

Bridge No.
 02566

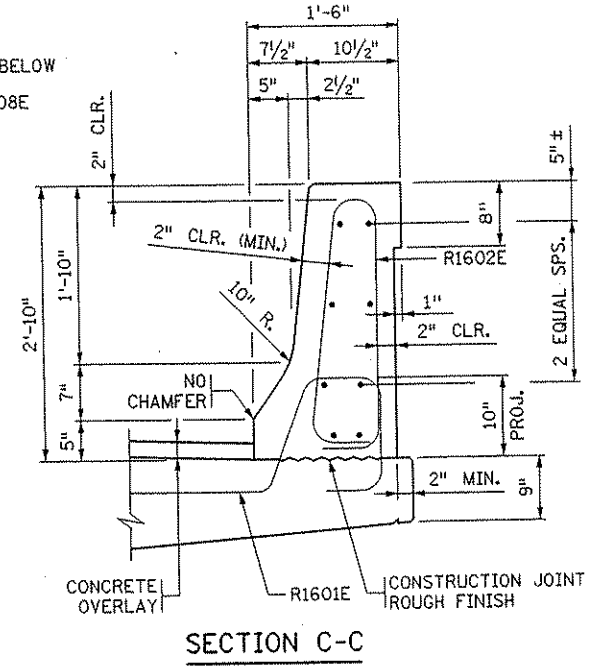
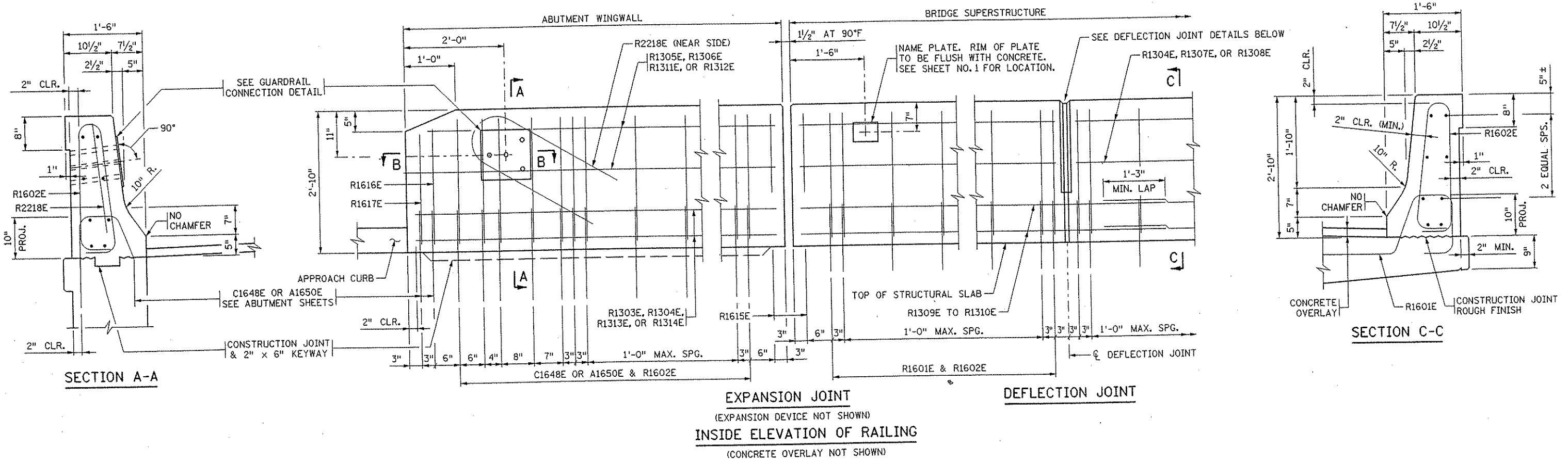
DATE: 01/22/2002 TIME: 01:55:02 PM
 FILENAME: k:\a-f\anokacy\17490\hwy-brdg\part4\bridge\super\raill.dgn



ROADSIDE (FRONT FACE) RAILING ELEVATION - STAGE 1 ①②

- NOTES:**
- ① HORIZONTAL DIMENSIONS ARE MEASURED ALONG SOUTH FACE (GUTTERLINE) OF THE RAIL BASE.
 - ② FOR BAR PLACEMENT AND SPACING, SEE SHEET 39.

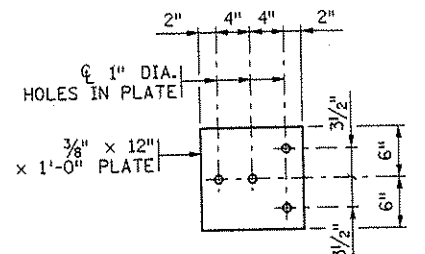
	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA SIGNED: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE: 01/22/2002 REG. NO. 19879	TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: ELEVATION FOR TYPE F MODIFIED CONCRETE RAILING	DES: HLE CHK: MJC	DR: HLE CHK: MJC	APPROVED 	Bridge No. 02566	
Sheet No. 38 of 56 Sheets									
NO. DATE BY DESCRIPTION OF REVISIONS									



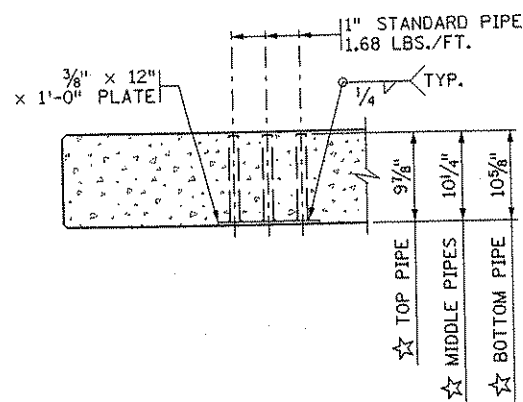
SECTION A-A

EXPANSION JOINT
(EXPANSION DEVICE NOT SHOWN)
INSIDE ELEVATION OF RAILING
(CONCRETE OVERLAY NOT SHOWN)

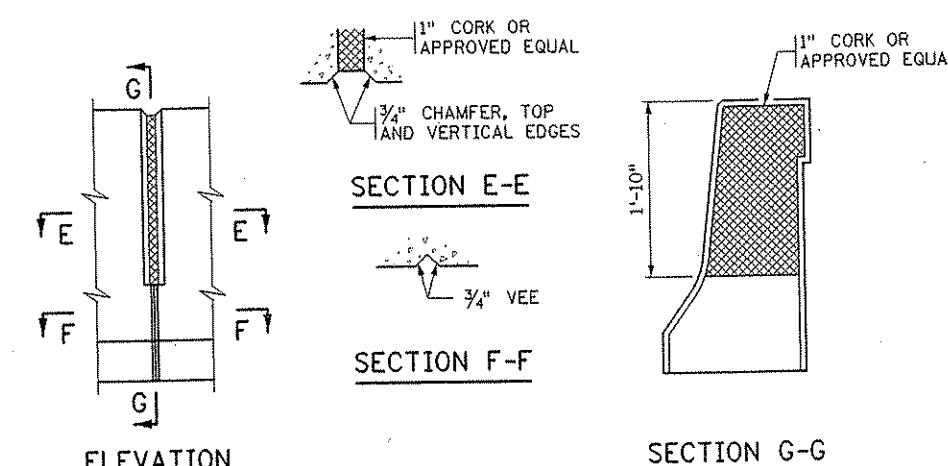
DEFLECTION JOINT



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



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



DEFLECTION JOINT DETAILS

GENERAL NOTES

LENGTH OF "TYPE F MODIFIED RAILING CONCRETE (3Y46)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAIL.

CONCRETE RAILING = 441 LBS./FT. (0.109 CU. YDS./FT.)

FINISH ALL EDGES OF RAIL 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.

GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

DATE: 01/22/2002 TIME: 01:55:13 PM FILENAME: \\s01\work\17-490N\hy-bridg\part-A\bridge_standards\711r.dgn

REVISION: 11-08-00
APPROVED: AUGUST 31, 1991
Donald J. Manning
STATE BRIDGE ENGINEER

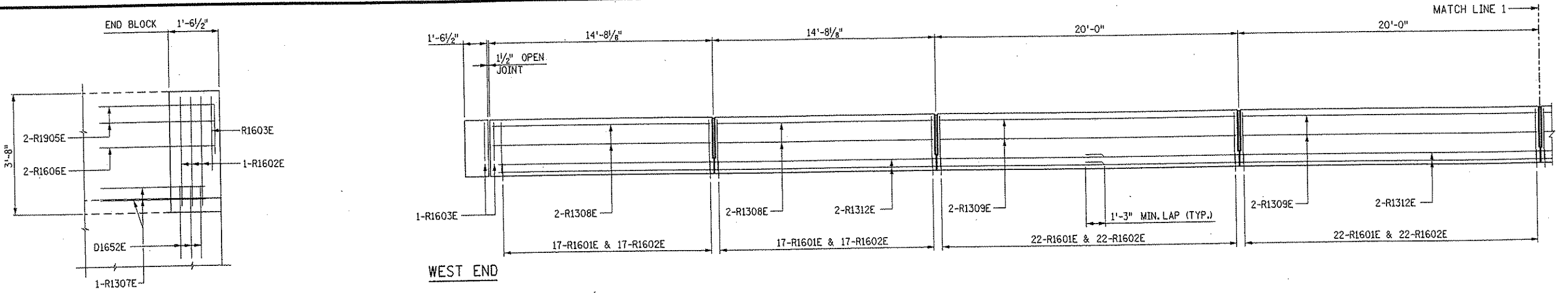
CERTIFIED BY *Gottfried Millner* 10/10/2001
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GOTTFRIED MILLNER LIC. NO. 19879

CONCRETE RAILING
(TYPE F MODIFIED)
WITH INTEGRAL END POST & CONCRETE OVERLAY

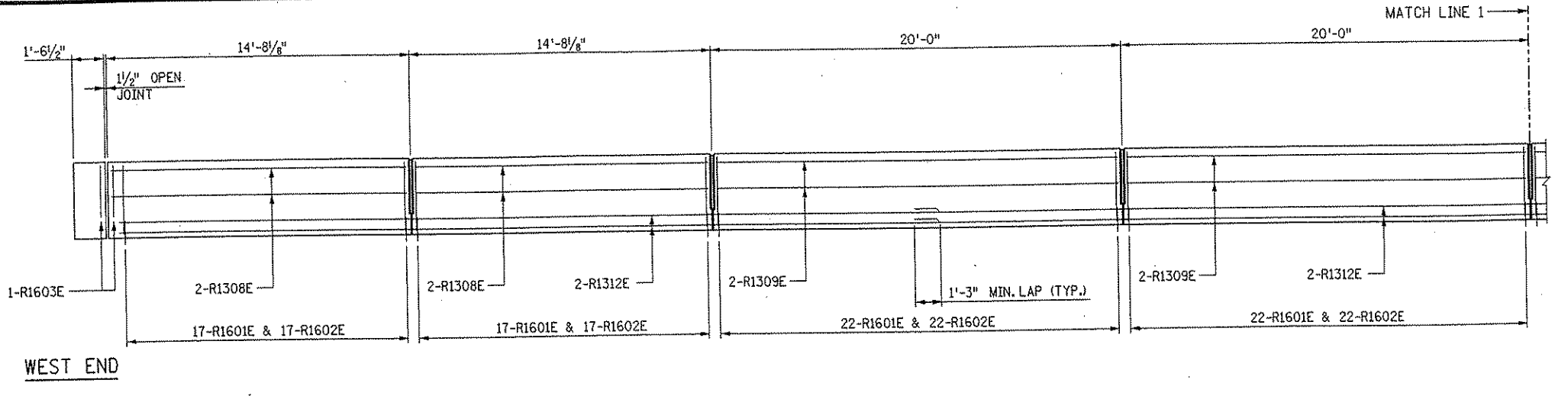
DES: HLE	DR: HLE	APPROVED: MODIFIED	BRIDGE NO. 02566
CHK: MJC	CHK: MJC		

FIG. 5-397.117
SHEET NO. 39 OF 56 SHEETS

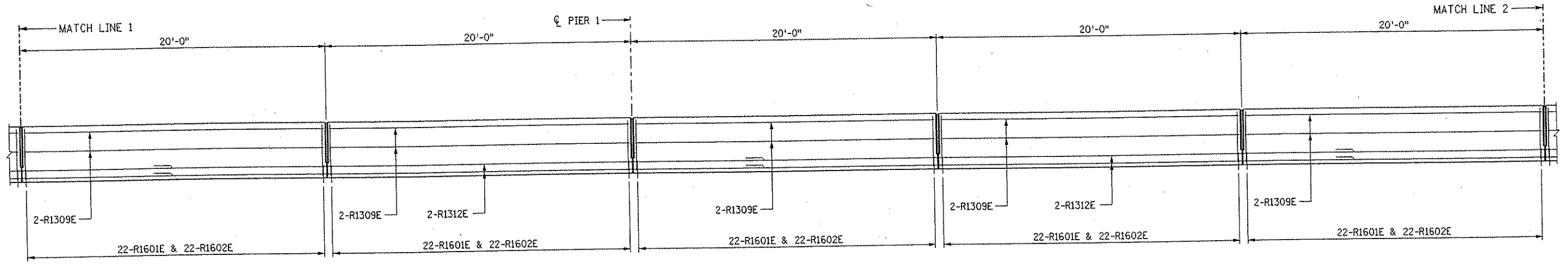
DATE: 01/22/2002 TIME: 01:55:04 PM
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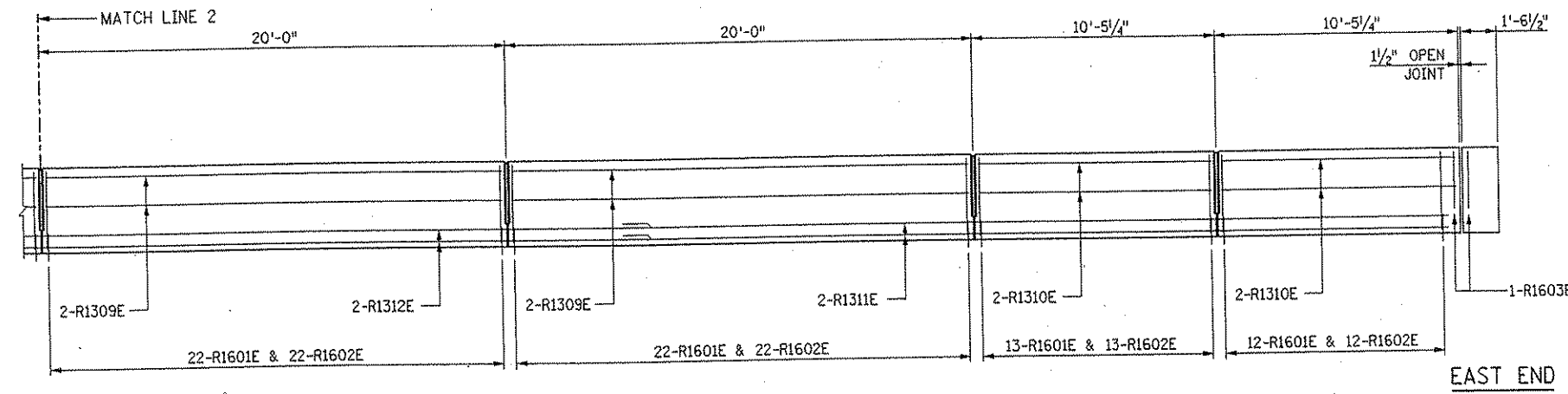
WEST END - END POST



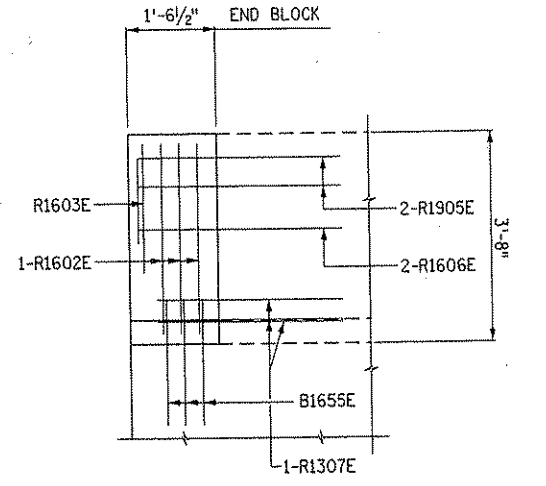
WEST END



PIER 1



EAST END

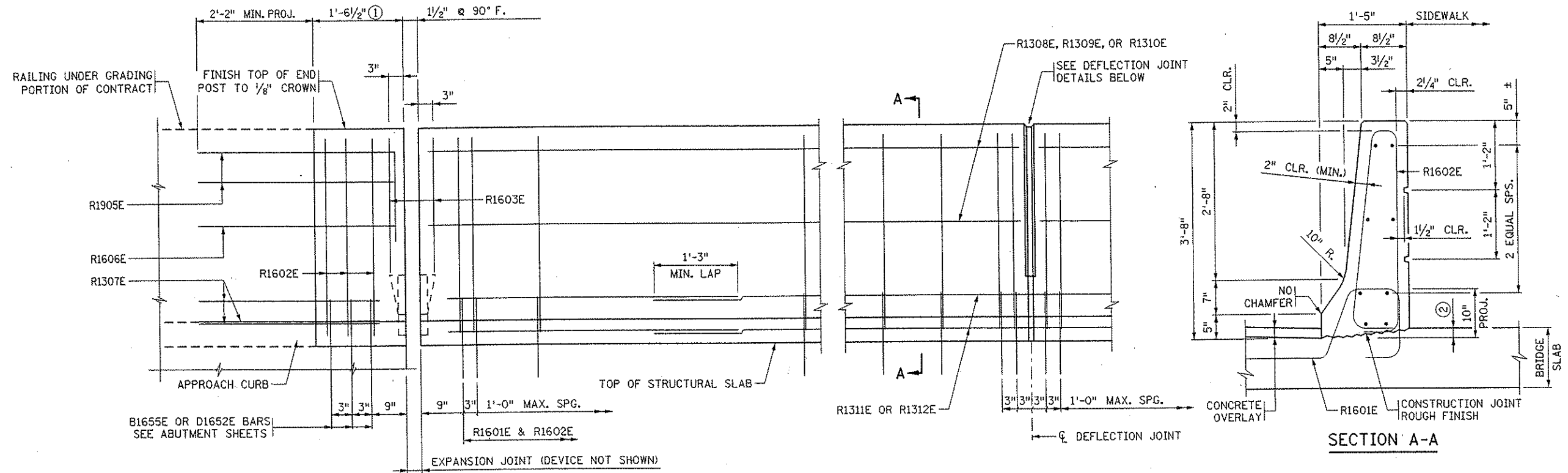


EAST END - END POST

BACKFACE RAILING ELEVATION - STAGE 2 ①②

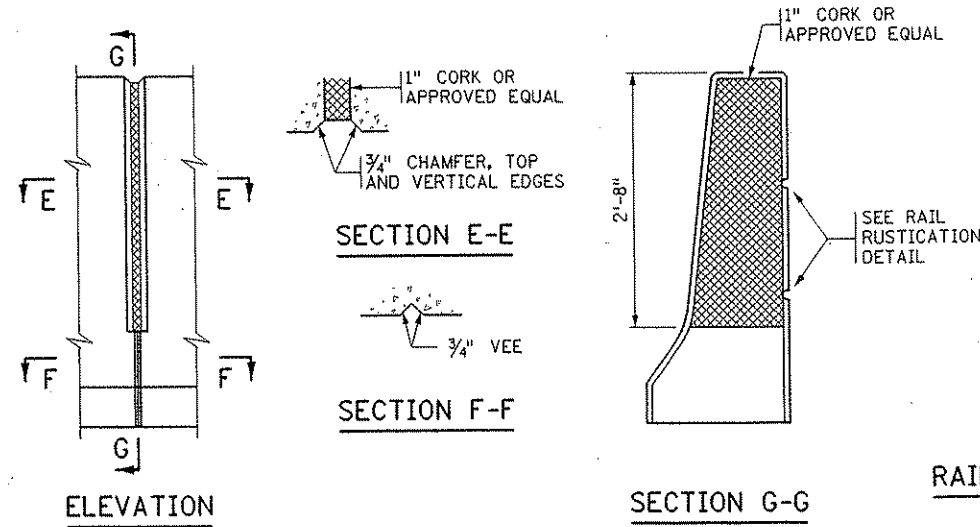
- NOTES:**
- ① HORIZONTAL DIMENSIONS ARE MEASURED ALONG NORTH FACE (GUTTERLINE) OF THE RAIL BASE.
 - ② FOR BAR PLACEMENT AND SPACING, SEE SHEET 41.

	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: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE: 01/22/2002 REG. NO. 19879	TKDA <small>TGLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED</small> ENGINEERS • ARCHITECTS • PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50	TITLE: ELEVATION FOR CONCRETE RAILING (TYPE F-SW)	DES: HLE CHK: MJC	DR: HLE CHK: MJC	APPROVED 	Bridge No. 02566	
					Sheet No. 40 of 56 Sheets				
NO.	DATE	BY	DESCRIPTION OF REVISIONS						



END POST

INSIDE ELEVATION OF RAILING
(CONCRETE OVERLAY NOT SHOWN)

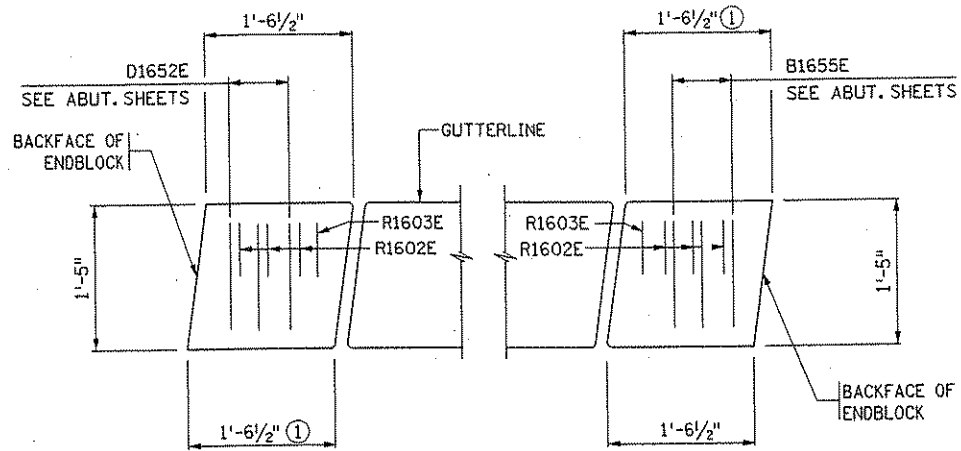


ELEVATION

DEFLECTION JOINT DETAILS

SECTION G-G

RAIL RUSTICATION



PLAN VIEW OF END POSTS

GENERAL NOTES

- LENGTH OF "TYPE F-SW RAILING CONCRETE (3Y46)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAIL.
- CONCRETE RAILING = 560 LBS./FT. (0.139 CU. YDS./FT.)
- FINISH ALL EDGES OF RAIL WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.
- MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.
- SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.
- RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
- ① END POST DIMENSIONS ARE ALONG GUTTER LINE OR OUTSIDE FACE OF END POST.
- ② DIMENSIONS TO BE DETERMINED BASED ON THE BRIDGE SLAB SLOPE.

REVISION: 10-27-00
 APPROVED: NOVEMBER 26, 1985
 KEITH V. BENTHIN
 STATE BRIDGE ENGINEER

CERTIFIED BY *Gottfried Millner* 01/22/2002
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GOTTFRIED MILLNER LIC. NO. 19879

CONCRETE RAILING (TYPE F-SW)
 WITH BRIDGE SLAB SIDEWALK AND SEPARATE
 END POST (WITH CONCRETE OVERLAY)

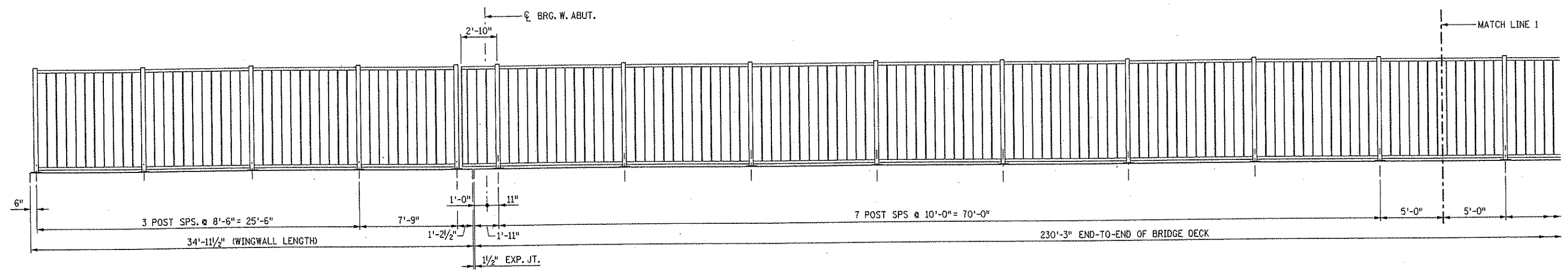
DES: HLE DR: HLE
 CHK: MJC CHK: MJC
 APPROVED: MODIFIED
 SHEET NO. 41 OF 56 SHEETS

BRIDGE NO. 02566

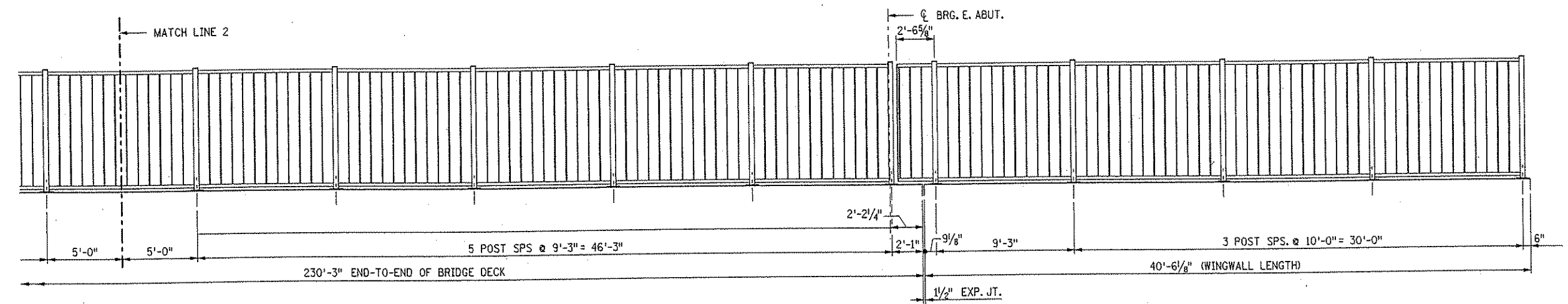
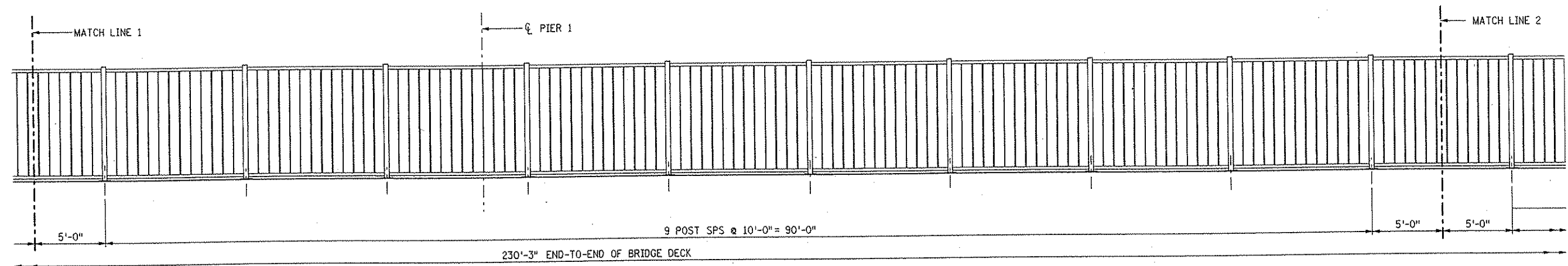
FIG. 5-397.121

DATE: 01/22/2002 TIME: 01:55:38 PM FILENAME: \\sct\anekacy\17490\Newy-bridg\part-A\bridge-standards\fig121e.dgn

DATE: 01/22/2002 TIME: 01:55:06 PM
 FILENAME: k:\a\anokacy\17490\hwy-brdg\part4\brldge\super\vr114.dgn



WEST END



EAST END

NOTES:
 FOR ADDITIONAL DETAILS SEE SHEET 43.

ELEVATION VIEWS FOR STRUCTURAL TUBE RAILING WITH FENCE (DESIGN T-3)- STAGE 2
 (FENCE NOT SHOWN - SEE SHEET 43 FOR DETAILS)

NO.	DATE	BY	DESCRIPTION OF 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
 SIGNED *Gottfried Millner* GOTTFRIED MILLNER
 DATE 01/22/2002 REG. NO. 19879

TKDA
 TOLTZ, KING, DUVALL, ANDERSON
 AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

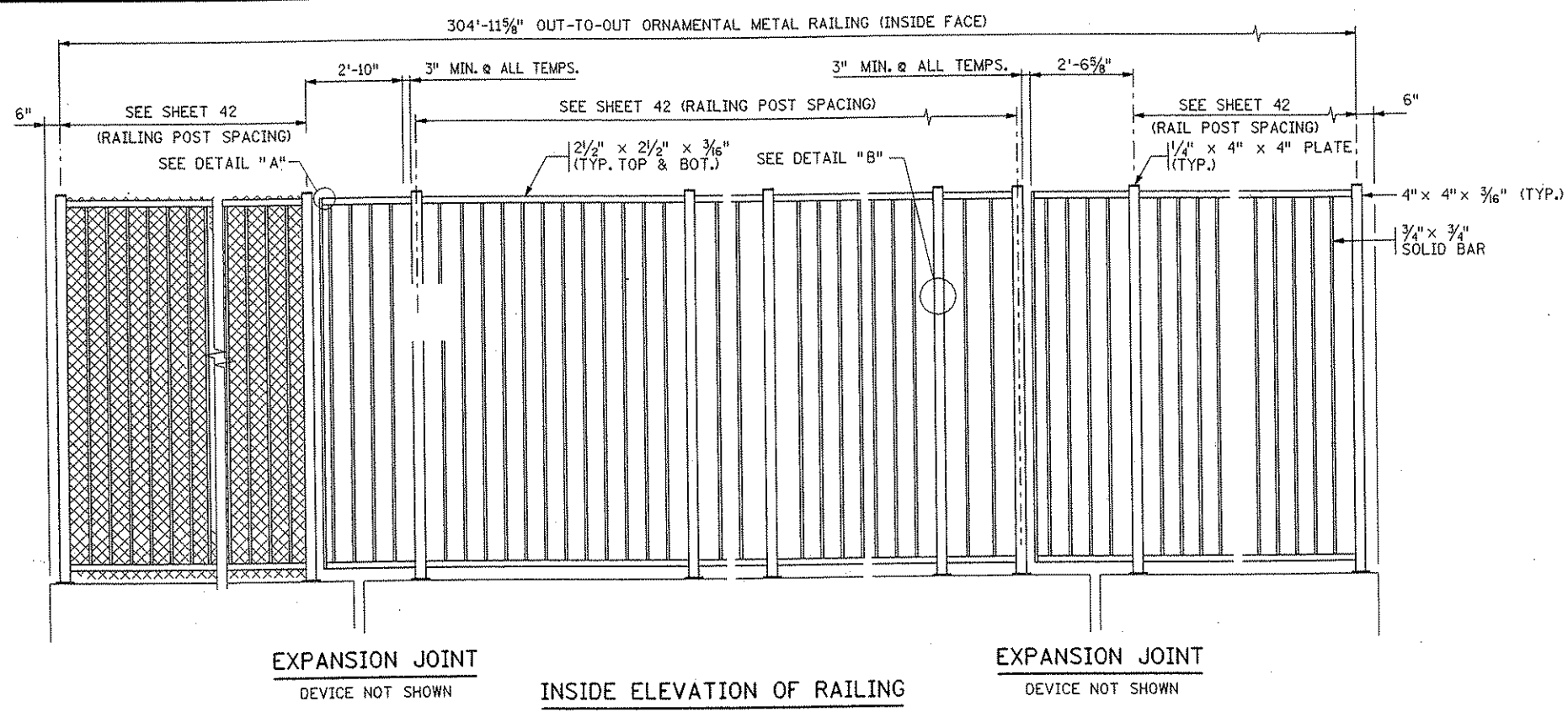
TITLE:
ELEVATION FOR STRUCTURAL TUBE RAILING WITH FENCE (DESIGN T-3)

DES: GM	DR: GM	APPROVED
CHK: HLE	CHK: HLE	

Sheet No. 42 of 56 Sheets

Bridge No.
 02566

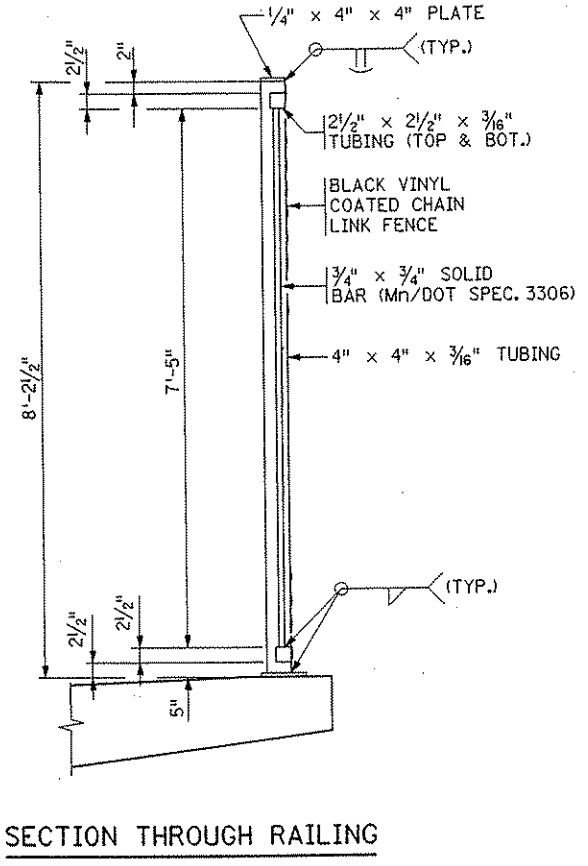
DATE: 01/22/2002 TIME: 01:55:36 PM
 FILENAME: k:\o-f\anokacy\17490\hwy-brdg\part-4\bridge\standards\mod\fig.5-397.212e.dgn



EXPANSION JOINT
 DEVICE NOT SHOWN

INSIDE ELEVATION OF RAILING

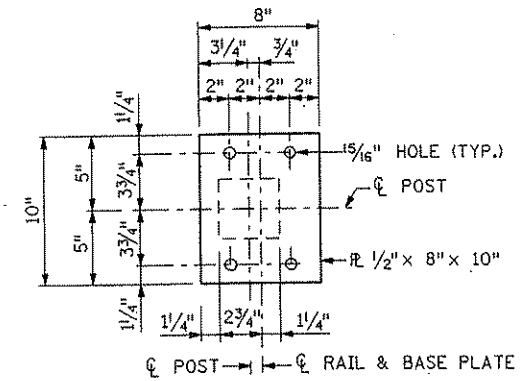
EXPANSION JOINT
 DEVICE NOT SHOWN



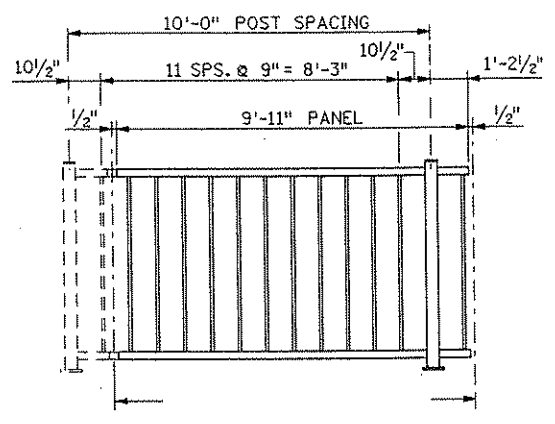
SECTION THROUGH RAILING

GENERAL NOTES

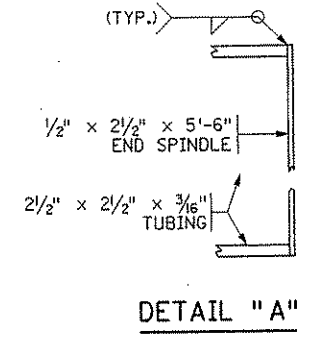
- LENGTH OF "STRUCTURAL TUBE RAILING WITH FENCE, DESIGN T-3" FOR PAYMENT SHALL BE MEASURED BETWEEN THE CENTERS OF THE END RAILPOSTS.
- ALL STRUCTURAL STEEL TUBING IN THE RAIL SHALL BE A500, GRADE B AND A513, GRADE 2.
- MATERIAL FOR CLOSURE PLATES AND BASE PLATES SHALL CONFORM TO Mn/DOT SPEC. 3306.
- FOR RAIL ANCHORAGE REQUIREMENTS SEE SPECIAL PROVISIONS.
- VENT HOLES SHALL BE DRILLED IN THE RAIL POST BASE AND THE RAIL TUBES AS NECESSARY TO FACILITATE GALVANIZING.
- RAIL POSTS AND PICKETS SHALL BE NORMAL TO GRADE. HORIZONTAL RAILS SHALL BE CAMBERED/CURVED WHERE APPLICABLE AND PARALLEL TO THE EDGE OF SIDEWALK PROFILE.
- FOR RAIL COATING SEE SPECIAL PROVISIONS.
- RAILING EXPANSION JOINTS SHALL BE PLACED IN BOTH RAILS AND IN EACH PANEL.
- THE RAILING, BASE PLATES, AND PROTRUDING PORTIONS OF BOLTS, NUTS AND WASHERS SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- THE CHAIN LINK FABRIC AND FABRIC TIES SHALL BE VINYL COATED AND CONFORM TO Mn/DOT SPEC. 3376. THE COLOR SHALL BE BLACK.
- RAILING SHALL BE GROUNDED WITH 5/8" DIA. COPPER ROD AS PER Mn/DOT SPEC. 2557.
- WIRE TIES SHALL 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 WIRE TIES.



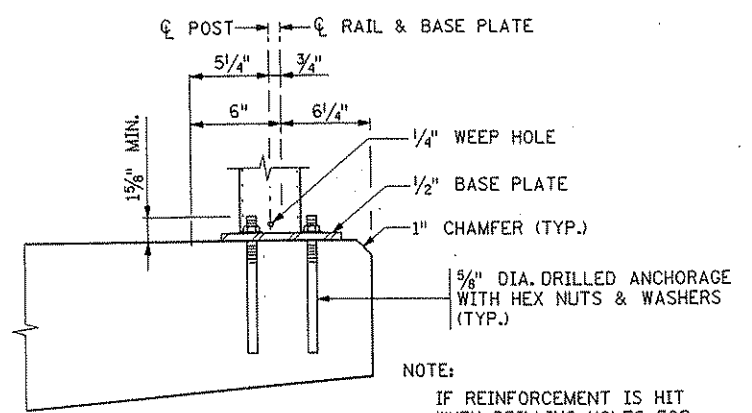
BASE PLATE



TYPICAL RAILING SPINDLE SPACING
 (OTHER PANELS LENGTHS PER ANALOGY)

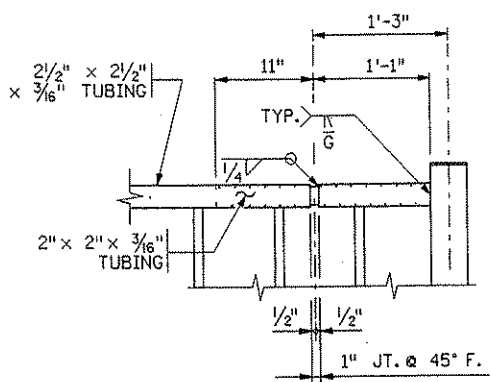


DETAIL "A"

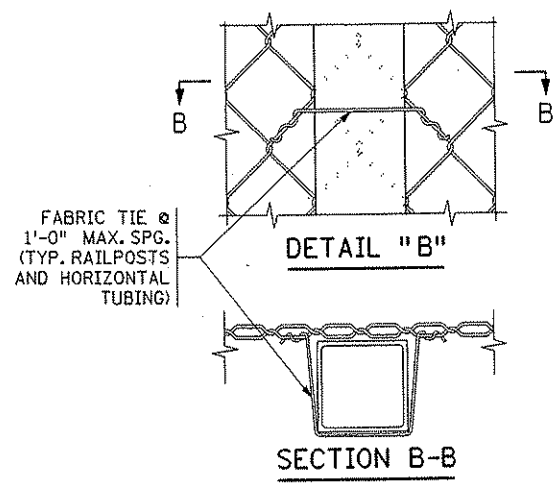


ANCHOR DETAIL

NOTE:
 IF REINFORCEMENT IS HIT WHEN DRILLING HOLES FOR ANCHORAGES, MOVE POST SLIGHTLY AND REDRILL. ALTERNATE DIRECTION OF MOVEMENT SO THAT THE OVERALL RAIL LENGTH COMES OUT THE SAME.



RAILING EXPANSION JOINT DETAIL



DETAIL "B"

SECTION B-B

REVISION: 10-24-00
APPROVED:
STATE BRIDGE ENGINEER

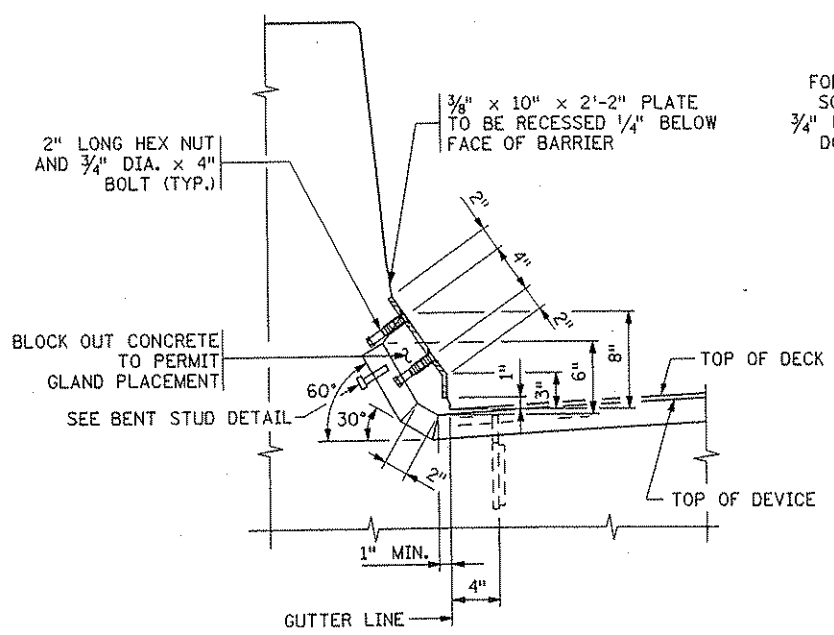
CERTIFIED BY	<i>Gottfried Millner</i>	01/22/2002
NAME: GOTTFRIED MILLNER	LIC. NO. 19879	

STRUCTURAL TUBE RAILING WITH FENCE (DESIGN T-3)

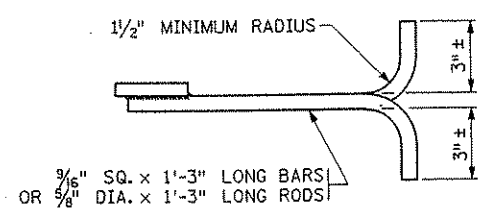
DES: GM	DR: GM	APPROVED: MODIFIED	BRIDGE NO. 02566
CHK: HLE	CHK: HLE	SHEET NO. 43 OF 56 SHEETS	

MODIFIED

FIG. 5-397.212

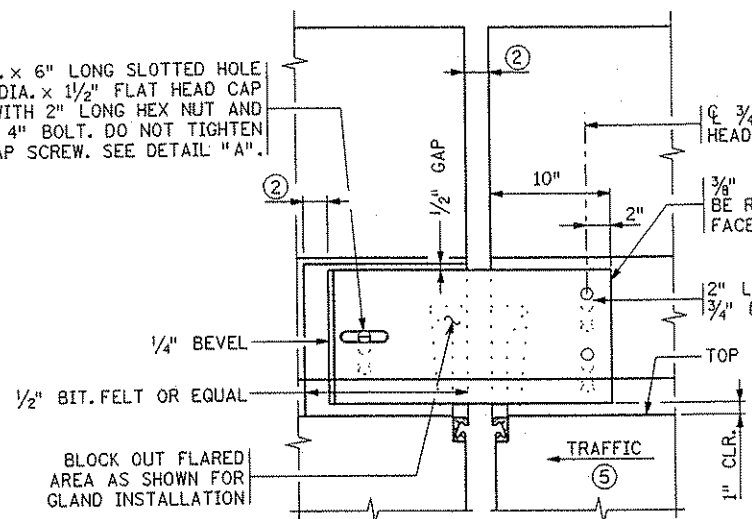


SECTION THROUGH RAILING
TYPE F RAILING

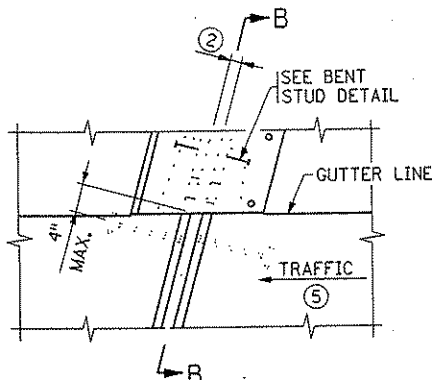


BAR-ROD DETAIL

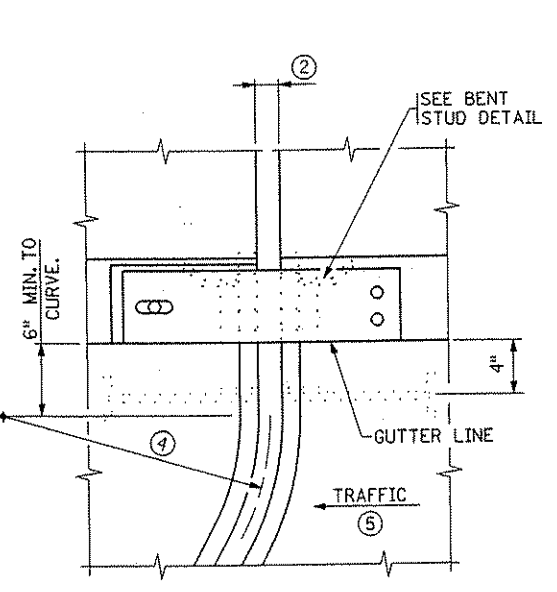
1" DIA. x 6" LONG SLOTTED HOLE FOR 3/4" DIA. x 1/2" LONG HEX NUT AND 3/4" DIA. x 4" BOLT. DO NOT TIGHTEN DOWN CAP SCREW. SEE DETAIL "A".



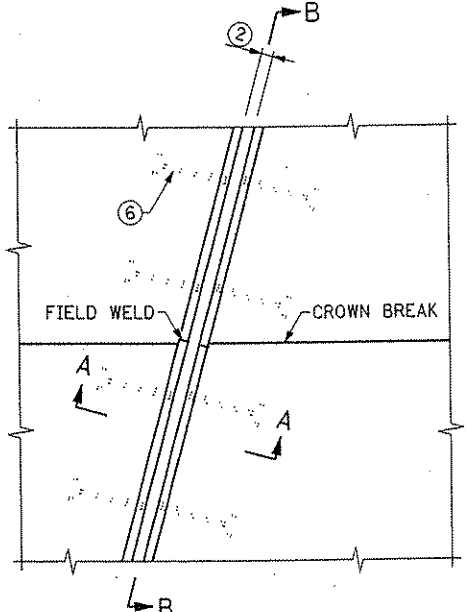
RAILING ELEVATION



PLAN VIEW @ EXPANSION DEVICE
MEDIAN OR SIDEWALK ALTERNATE

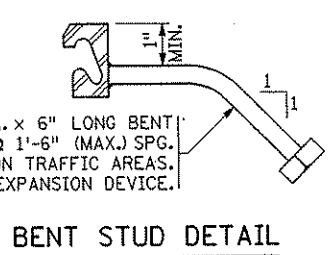
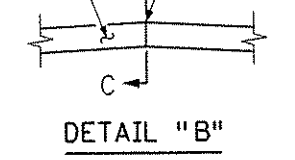


PLAN VIEW @ EXPANSION DEVICE
WITH CURVED DEVICE ALTERNATE

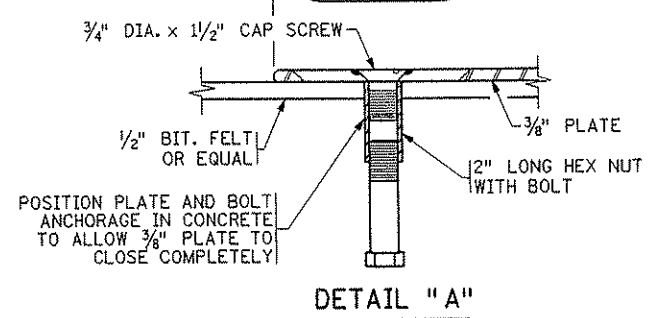
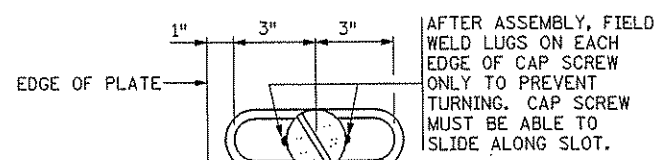


PLAN VIEW @ EXPANSION DEVICE

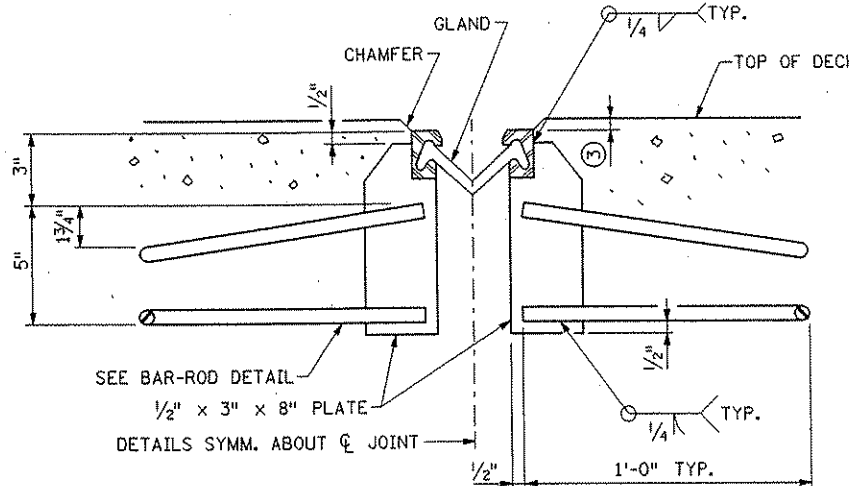
EXPANSION DEVICE CROWN BREAK OR SPLICE. FIELD FIT AND WELD



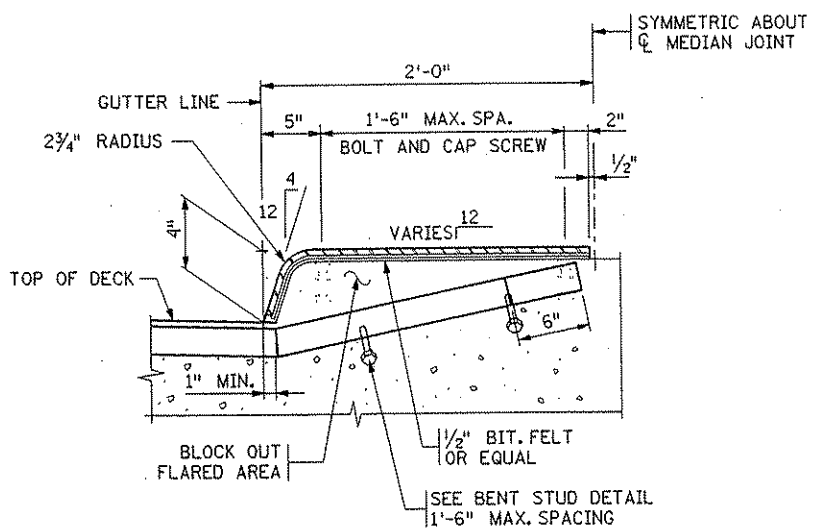
BENT STUD DETAIL



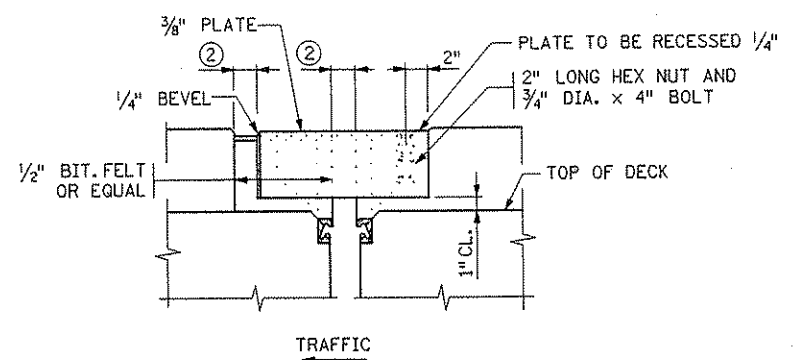
SECTION C-C



SECTION A-A



MEDIAN SECTION



MEDIAN ELEVATION

GENERAL NOTES

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER MnDOT SPEC. 3394. GALVANIZE FASTENERS AS PER MnDOT 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 MnDOT SPEC. 2471.3L.

STRUCTURAL STEEL SHALL COMPLY WITH MnDOT SPEC. 3306 OR MnDOT 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 1/2 AT 90°
- ③ 1/8" (1/4" MAX.) 1/2" (3/8" MAX.) WHEN SNOWPLOW FINGERS ARE USED. SNOWPLOW 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 CL ROADWAY.

DATE: 01/22/2002 TIME: 01:55:28 PM FILENAME: \\p01\proj\171450\hwy-brdg\part-A\bridge-standards\exp\pf.dgn

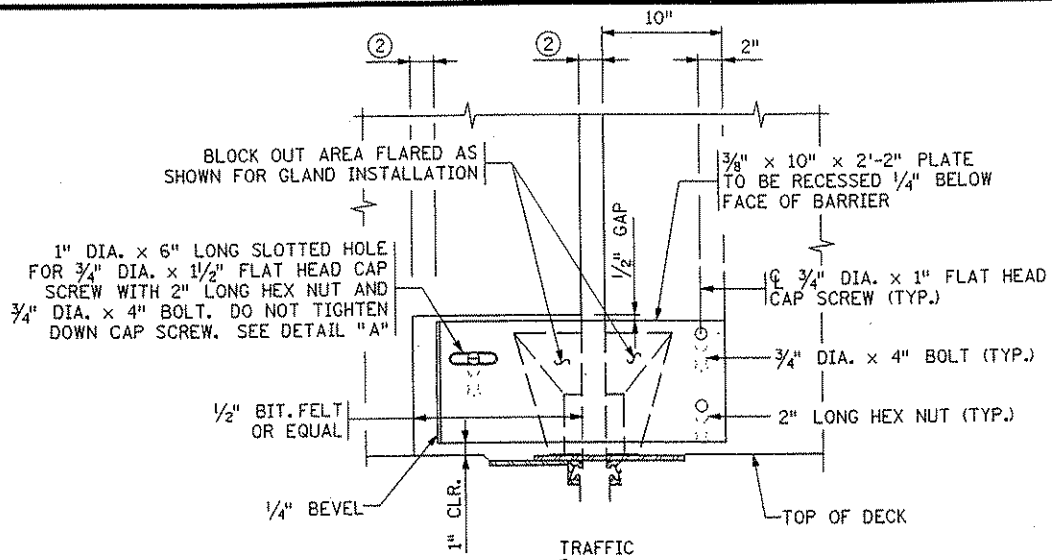
REVISION: 05-01-00
APPROVED: NOVEMBER 6, 1995
Donald P. Manning
STATE BRIDGE ENGINEER

CERTIFIED BY *Gottfried Millner* 01/22/2002
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GOTTFRIED MILLNER LIC. NO. 19879

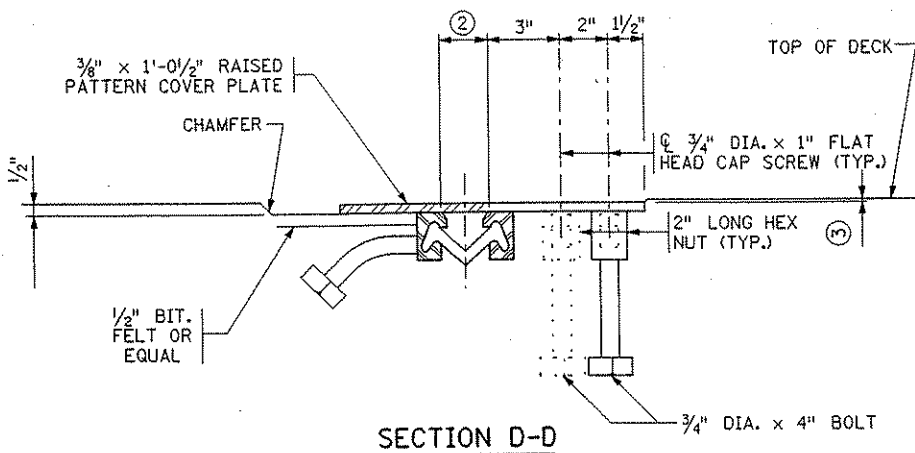
WATERPROOF EXPANSION DEVICE
WITH TYPE F BARRIER

DES: HLE DR: HLE
CHK: MJC CHK: MJC
APPROVED: MODIFIED
SHEET NO. 44 OF 56 SHEETS
BRIDGE NO. 02566

FIG. 5-397.627

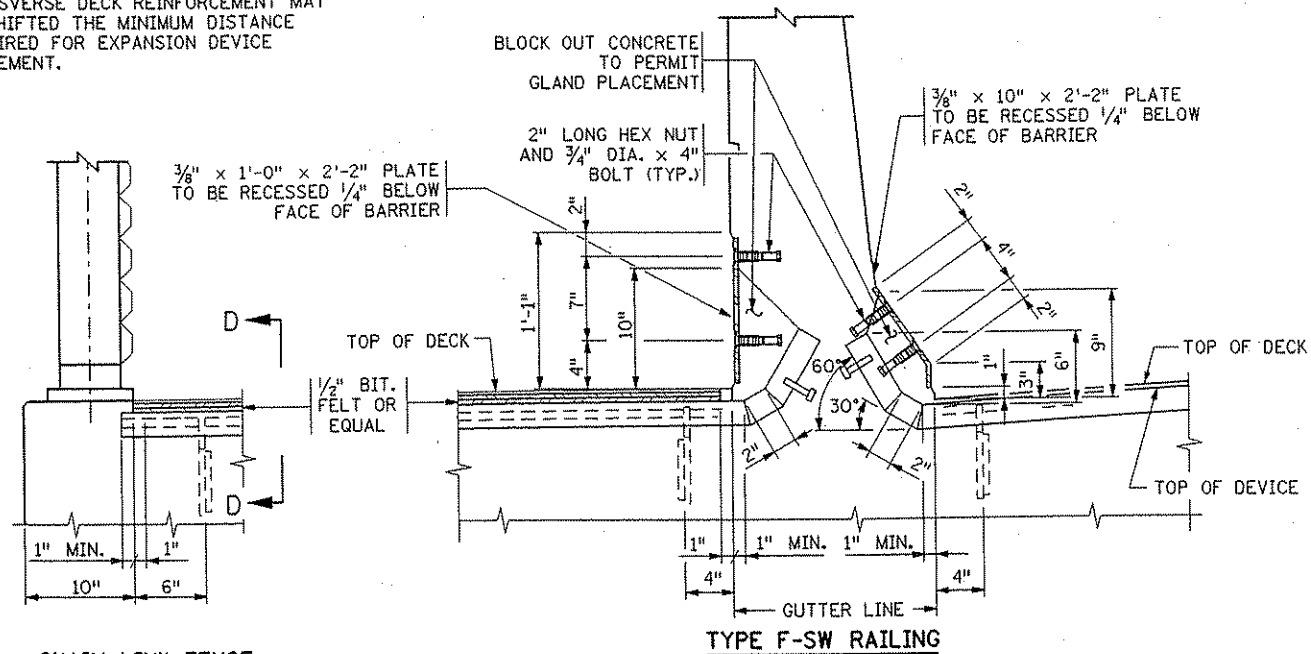


INSIDE ELEVATION
(BACK OF TYPE F-SW RAIL)



SECTION D-D

NOTE:
TRANSVERSE DECK REINFORCEMENT MAY
BE SHIFTED THE MINIMUM DISTANCE
REQUIRED FOR EXPANSION DEVICE
PLACEMENT.



CHAIN LINK FENCE

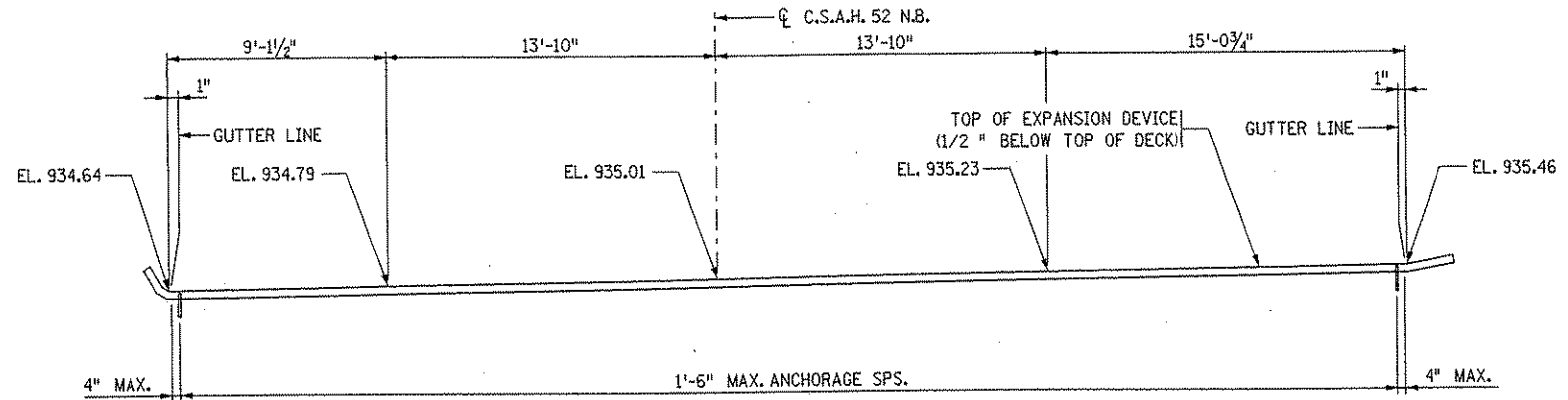
TYPE F-SW RAILING

SECTION THROUGH RAILINGS - INTEGRAL SIDEWALK

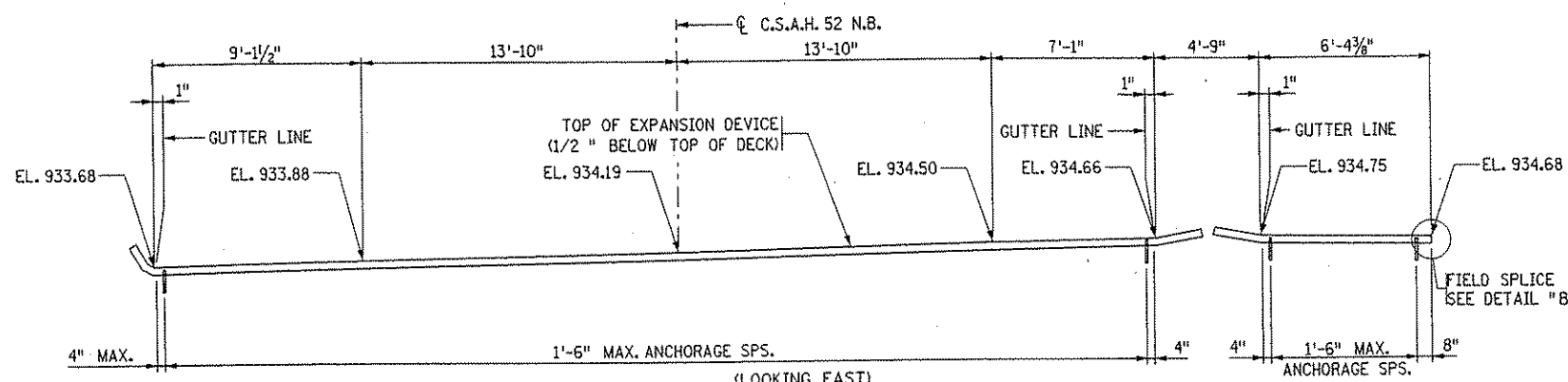
GENERAL NOTES

SEE DETAIL 5-397.627 FOR
ADDITIONAL DETAILS AND NOTES.

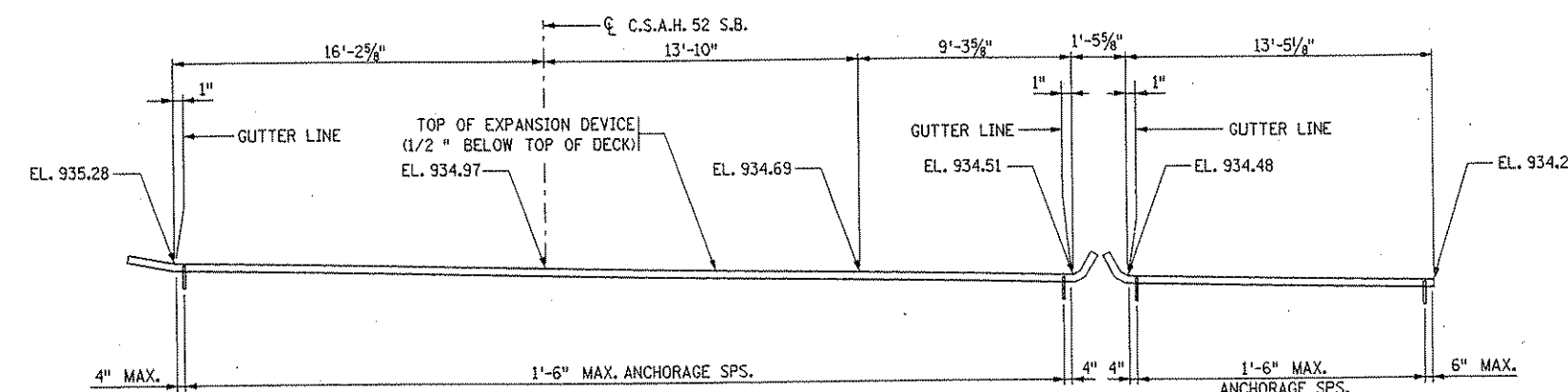
ELEVATIONS SHOWN AT ENDS OF
EXPANSION JOINTS APPLY TO THE
BREAKPOINT LOCATED 1" BEYOND
THE GUTTER LINE. LENGTHS ARE
MEASURED ALONG THE CENTERLINE
OF THE EXPANSION JOINT.



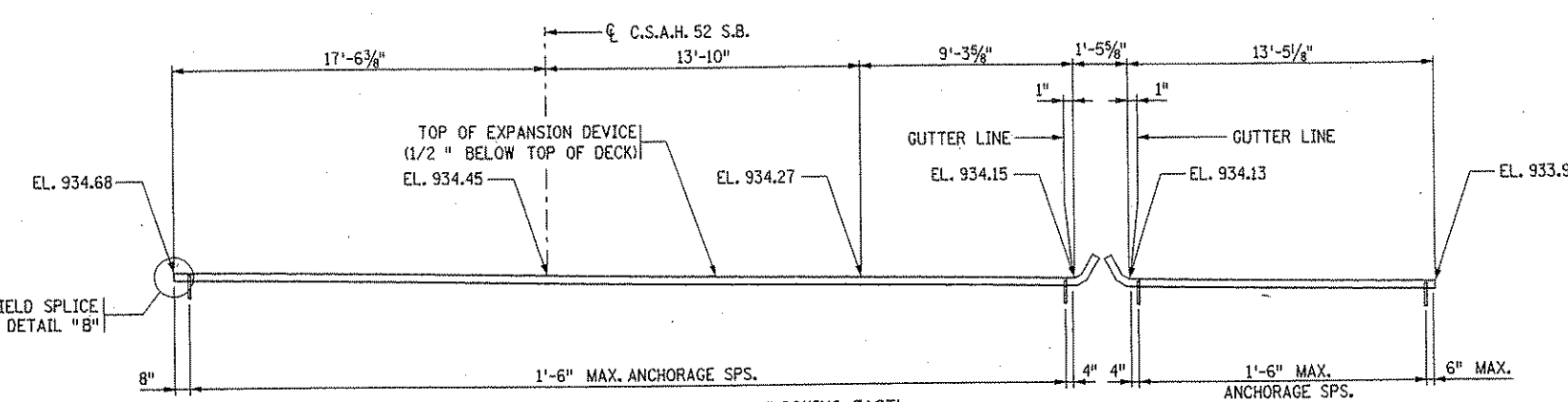
EXPANSION JOINT WEST ABUTMENT - STAGE 1



EXPANSION JOINT EAST ABUTMENT - STAGE 1



EXPANSION JOINT WEST ABUTMENT - STAGE 2

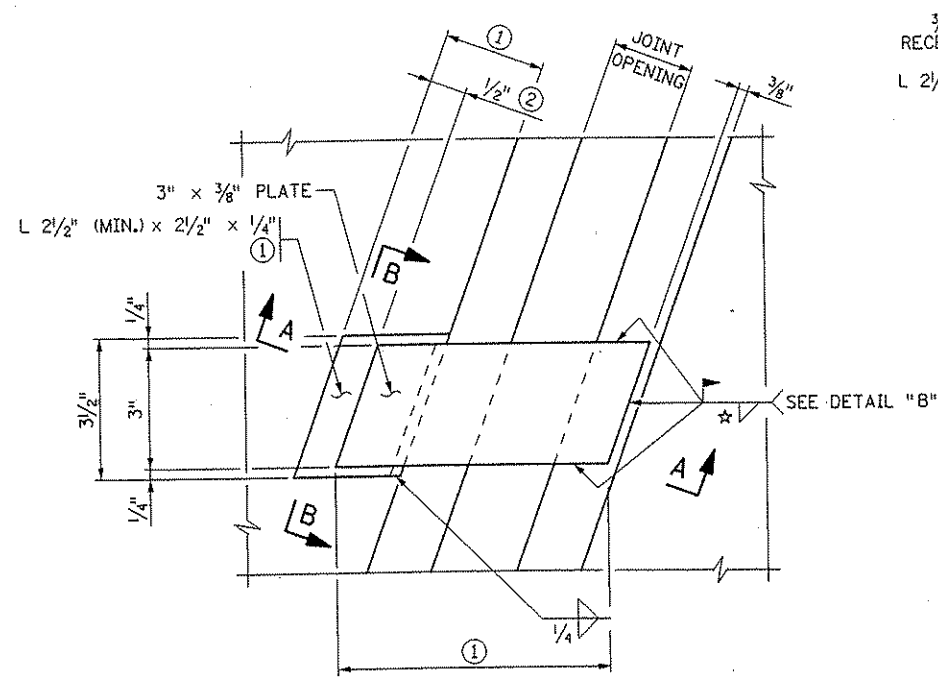


EXPANSION JOINT EAST ABUTMENT - STAGE 2

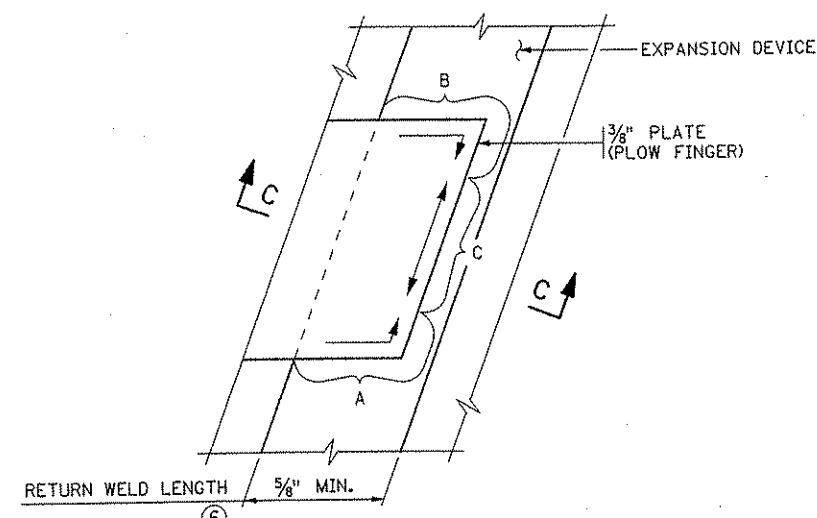
REVISION: 09-29-00
APPROVED: NOVEMBER 6, 1995
Donald J. Manning
STATE BRIDGE ENGINEER

CERTIFIED BY <i>Gottfried Millner</i> LICENSED PROFESSIONAL ENGINEER DATE 01/22/2002 NAME: GOTTFRIED MILLNER LIC. NO. 19879	WATERPROOF EXPANSION DEVICE WITH SIDEWALK	DES: HLE CHK: MJC	DR: HLE CHK: MJC	APPROVED: MODIFIED	BRIDGE NO. 02566
		SHEET NO. 45 OF 56 SHEETS		FIG. 5-397.630	

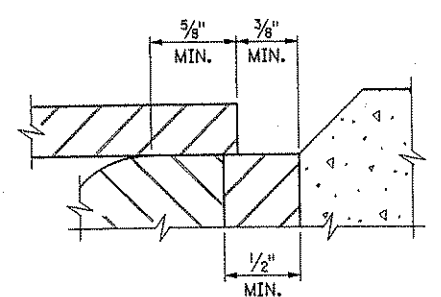
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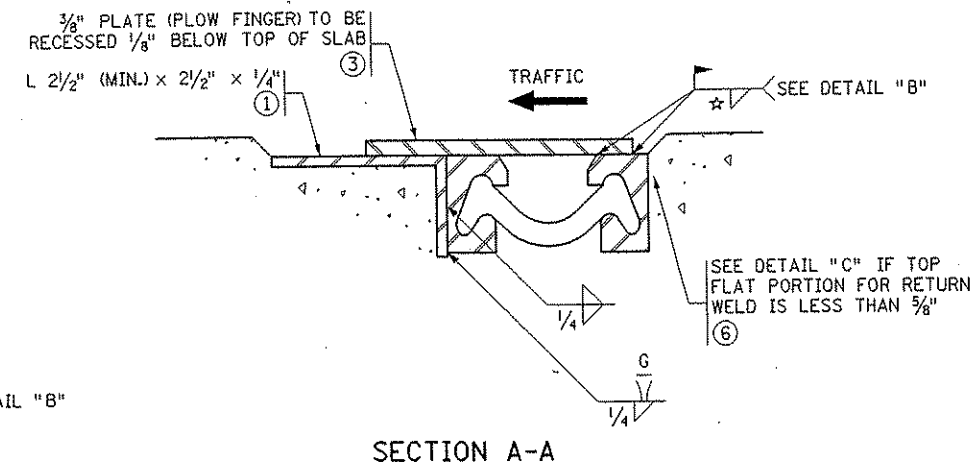
DETAIL "A"



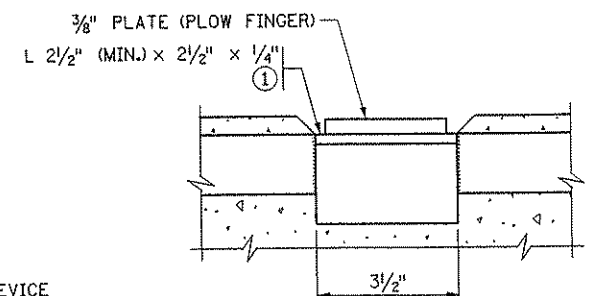
DETAIL "B"



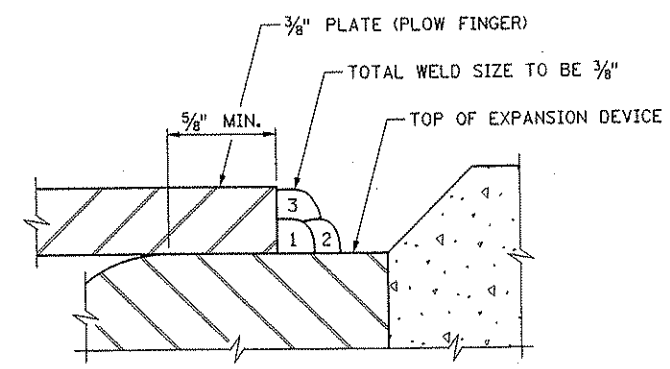
DETAIL "C"



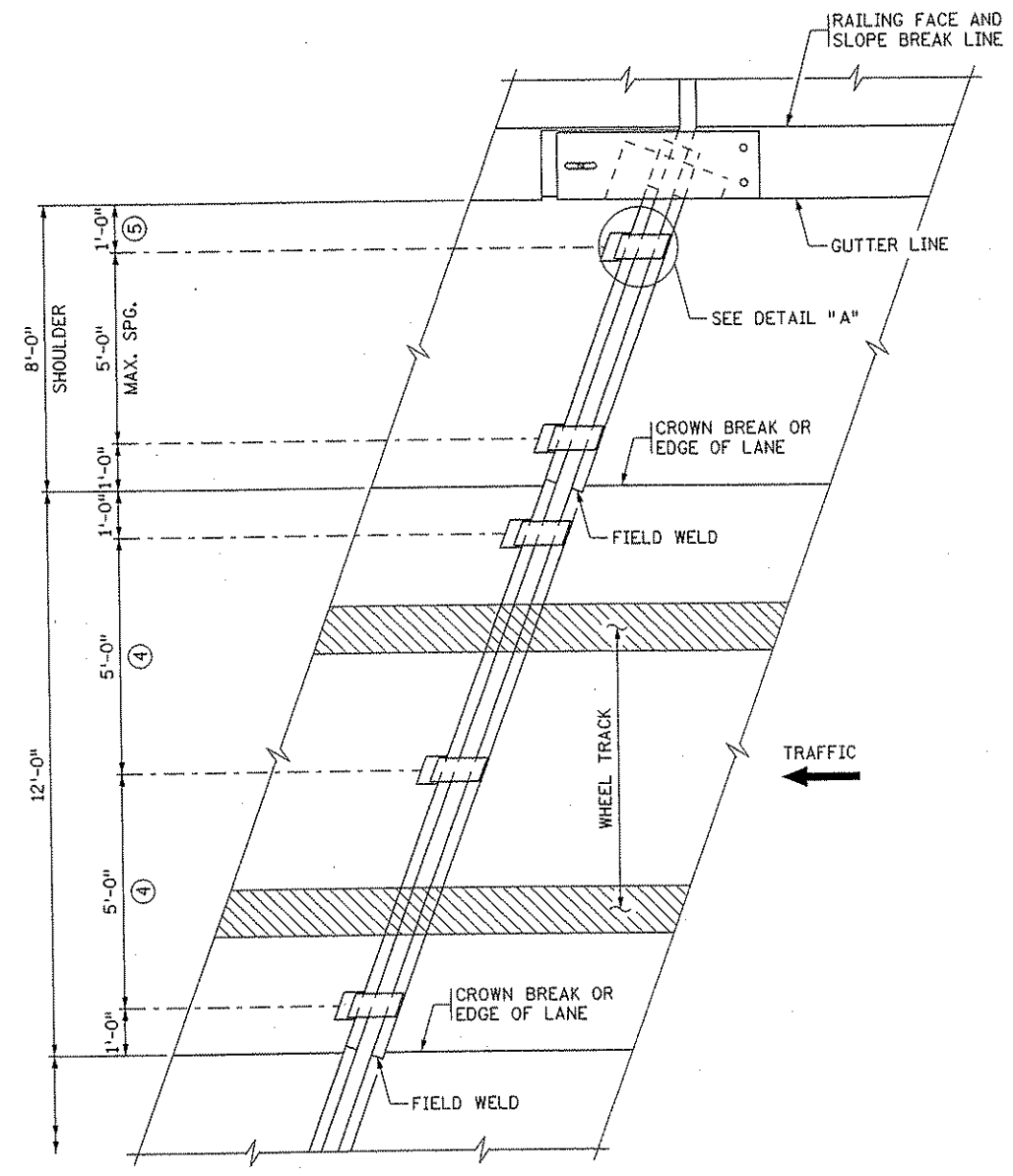
SECTION A-A



SECTION B-B



SECTION C-C



PLAN VIEW AT EXPANSION DEVICE

☆ WELDING PROCEDURE FOR PLOW FINGERS

- A. ALL WELDING SHALL BE DONE WITH 1/8" AWS MnDOT SPEC. 5.1 TYPE E7016 OR E7018 ELECTRODE.
- B. WELD PASS 1 IN AREAS A AND B FIRST, THEN AREA C, FOLLOW WITH PASSES 2 AND 3 IN SAME ORDER AS SHOWN IN DETAIL "B".
- C. REMOVE ALL WELD SLAG AND OTHER RESIDUE BETWEEN PASSES.
- D. ALLOW AT LEAST 5 MINUTES COOLING TIME BETWEEN EACH OF NINE WELD PASSES.
- E. REPAIR ALL GALVANIZING DAMAGED BY REMOVAL AND WELDING, IN ACCORDANCE WITH MnDOT SPEC. 2471.3L

GENERAL NOTES

- DO NOT GALVANIZE PLOW FINGERS.
- ① VARIES WITH SKEW AND EXPANSION OPENING.
- ② MINIMUM IN CLOSED POSITION.
- ③ EVERY SNOW PLOW FINGER SHALL HAVE FULL AND DIRECT BEARING ON THE PLATE THAT IS LOCATED UNDER THE MOVEMENT SIDE OF THE FINGER. NO CLICKING NOISE WILL BE ALLOWED.
- ④ MODIFY IF LANE WIDTH DIFFERS FROM 12 FT.
- ⑤ OMIT LAST PLOW FINGER ON DEVICE WITH CURVED END.
- ⑥ ADD BACKING BAR AS REQUIRED: 1/2" MIN. THICKNESS, 1/2" DEEP.

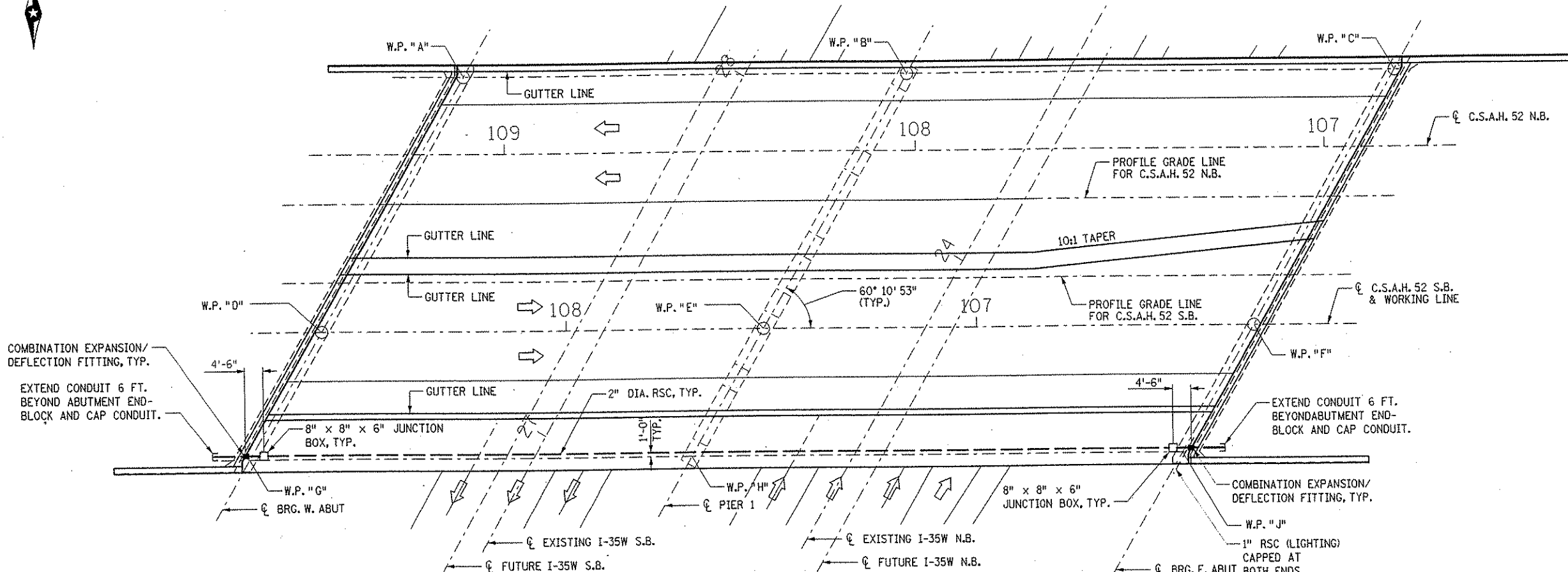
REVISION: 05-01-00
 APPROVED: NOVEMBER 6, 1995
 Donald J. Manning
 STATE BRIDGE ENGINEER

CERTIFIED BY *Gottfried Millner* 01/22/2002
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GOTTFRIED MILLNER LIC. NO. 19879

WATERPROOF EXPANSION DEVICE
 SNOW PLOW PROTECTION
 (USE ON SKEWS OVER 15° AND LESS THAN 50°)

DES: HLE DR: HLE APPROVED: MODIFIED
 CHK: MJC CHK: MJC
 SHEET NO. 46 OF 56 SHEETS

FIG. 5-397.628
 BRIDGE NO. 02566



PLAN VIEW
 0 15 30
 SCALE

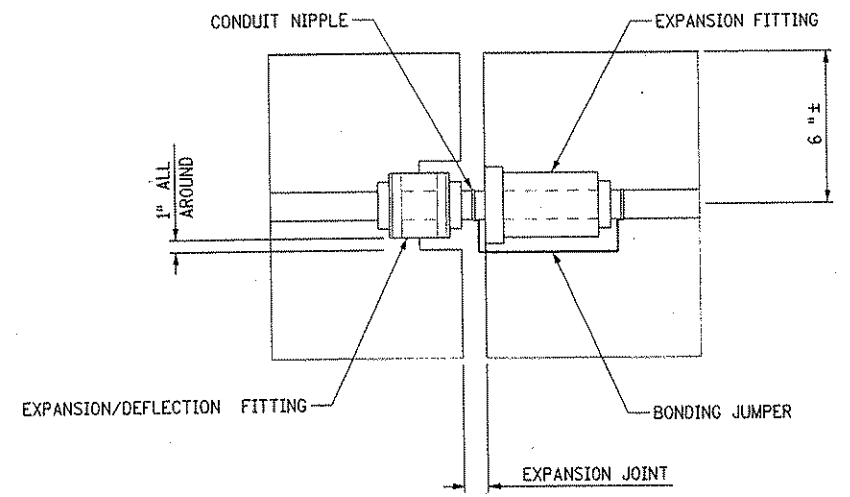
SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM (SIGNALS)	
8" x 8" x 6" CAST IRON JUNCTION BOX	2 UNITS
2" DIA. RIGID STEEL CONDUIT (RSC)	246 LIN. FT.
2" DIA. RIGID STEEL CONDUIT CAPS	2 UNITS
2" DIA. COMBINATION EXPANSION/ DEFLECTION FITTING	2 UNITS

ALL MATERIAL LISTED ABOVE SHALL BE INCLUDED IN PRICE BID FOR ITEM 2545.509 "CONDUIT SYSTEM (SIGNALS)"

SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM (LIGHTING)	
1" DIA. RIGID STEEL CONDUIT (RSC)	30 LIN. FT.
90° ELBOW FOR 1" DIA. RIGID STEEL CONDUIT	1 UNIT
CAPS FOR 1" DIA. RIGID STEEL CONDUIT	2 UNITS

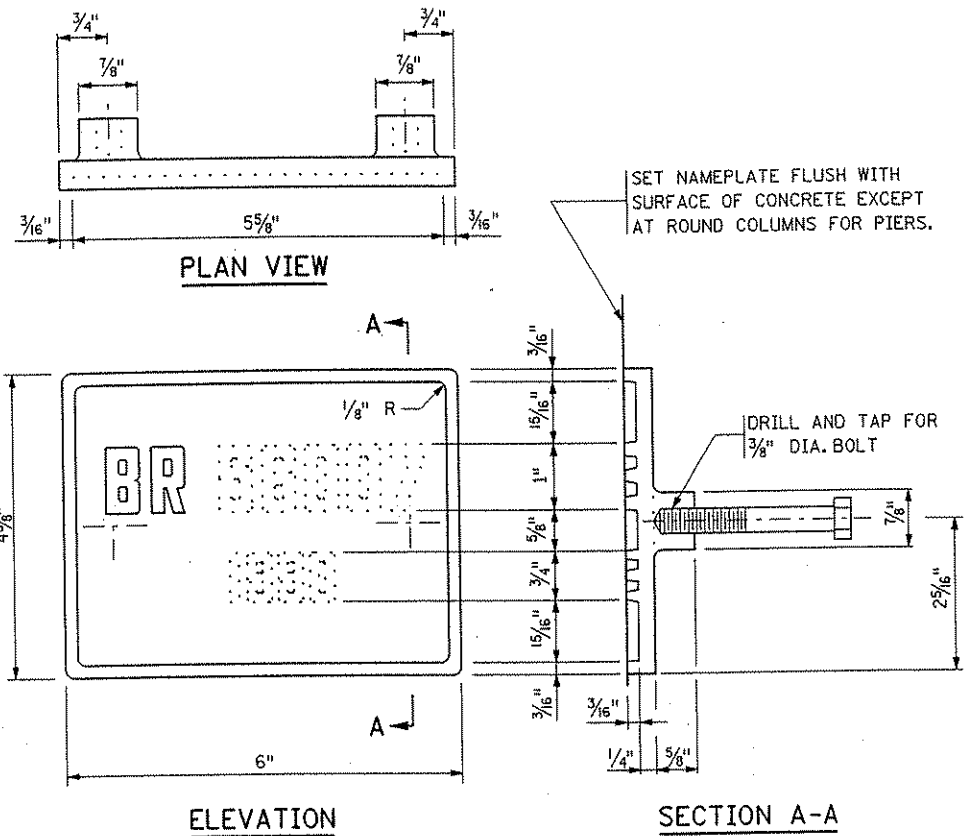
ALL MATERIAL LISTED ABOVE SHALL BE INCLUDED IN PRICE BID FOR ITEM 2545.509 "CONDUIT SYSTEM (LIGHTING)"

FOR FURTHER INFORMATION ON THE LOCATION OF "CONDUIT SYSTEM (LIGHTING)" REFER TO SHEET 16.



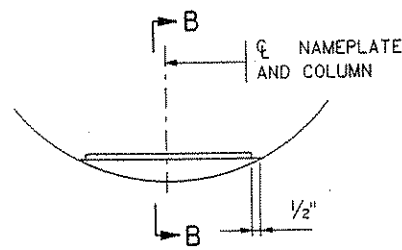
COMBINATION EXPANSION/DEFLECTION FITTING

DATE: 01/22/2002 TIME: 01:52:50 PM FILENAME: K:\n\anokacnty\17490N\hwy-brdg\part4\brldge\conduitt.dgn

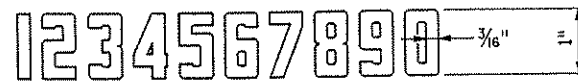


THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 02566
YEAR 2002



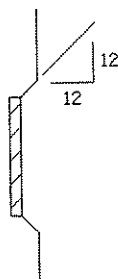
NAMEPLATE PLACEMENT
(ROUND CONCRETE PIER COLUMNS)



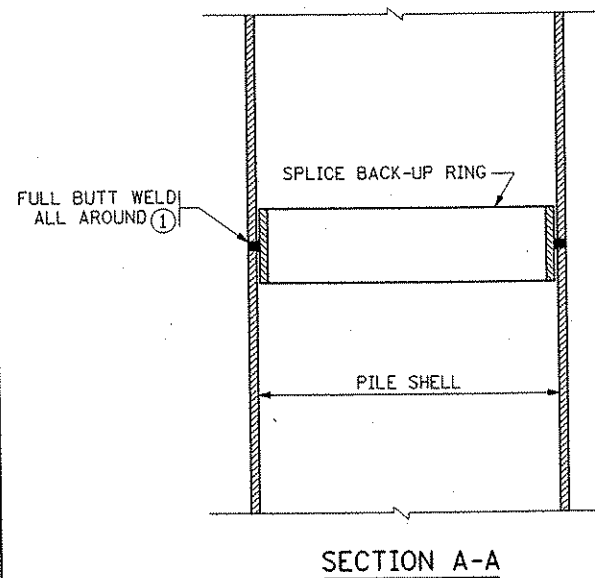
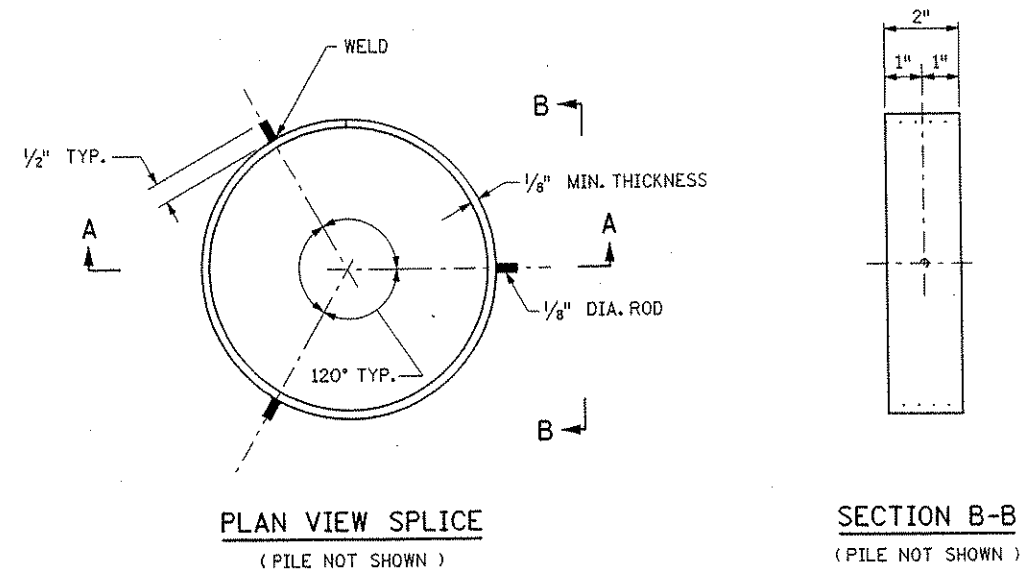
NUMBERS FOR NAMEPLATE

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 3/8" 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



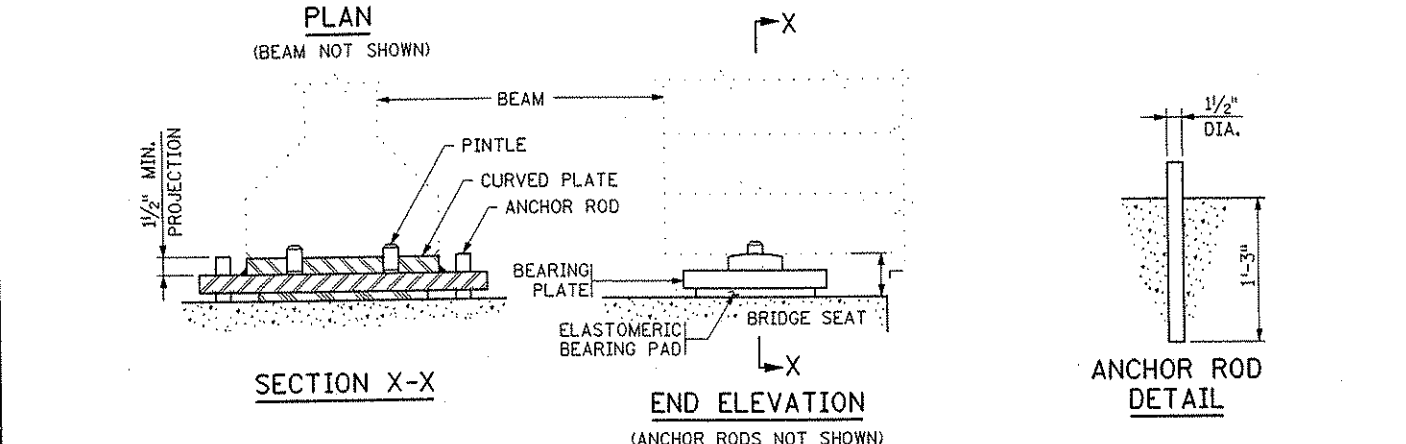
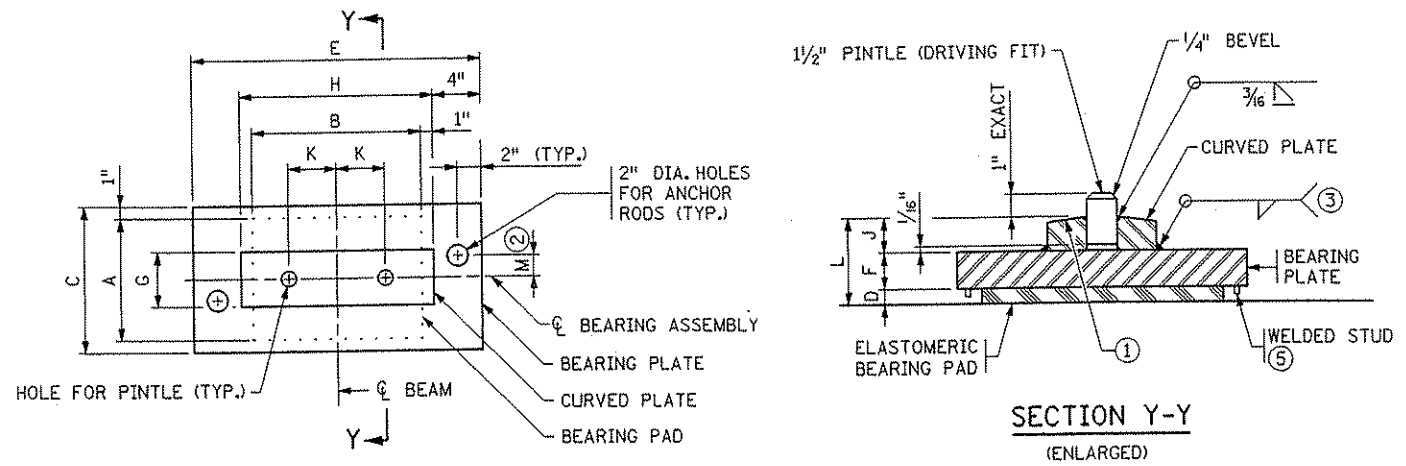
NOTES:

- 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 ELECTRODE SHALL BE A.W.S. TYPE E7016 OR E7018 (LOW-HYDROGEN).
- LOW-HYDROGEN ELECTRODES SHALL BE SUPPLIED IN HERMETICALLY (AIR-TIGHT) SEALED CONTAINERS.
- LOW-HYDROGEN ELECTRODES SHALL BE STORED IN HOLDING OVENS AT A TEMPERATURE OF NOT LESS THAN 250° F.
- LOW-HYDROGEN ELECTRODES SHALL BE PLACED IN A HOLDING OVEN FOR AT LEAST 8 HOURS IF THEY HAVE BEEN EXPOSED TO THE ATMOSPHERE FOR MORE THAN 2 HOURS.
- 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-U4g WELD CONFIGURATION.

DATE: 01/22/2002 TIME: 01:55:17 PM FILENAME: k:\a-f\anoka\j17-490N\wv-bridg\part-4\bridge\standards\B101&B201.dgn

APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.	APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION 12-01-00	DETAIL NO.
<i>Donald J. Mlemming</i> STATE BRIDGE ENGINEER	BRIDGE NAMEPLATE (FOR NEW BRIDGES)		B101	<i>Donald J. Mlemming</i> STATE BRIDGE ENGINEER	PILE SPLICE (CAST-IN-PLACE CONCRETE PILES)		B201
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				ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50			
SIGNED: <i>Gottfried Millner</i> GOTTFRIED MILLNER DATE 01/22/2002 REG. NO. 19879				TITLE: STANDARD DETAILS B101 & B201			
NO. DATE BY DESCRIPTION OF REVISIONS				DES: HLE OR: HLE APPROVED CHK: MJC CHK: MJC			
				Sheet No. 48 of 56 Sheets			
				Bridge No. 02566			
TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA							

DATE: 01/22/2002 TIME: 01:55:25 PM FILENAME: k:\a-f\anokacy\17490\hwy-bridge\part4\br1dgc\standard\br1ngs.dgn



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			PINTLE DIA.	PINTLE DISTANCE	ANCHOR ROD OFFSET	ASSY. HEIGHT
			A	B	D		C	E	F	G	H	J				
F-1	PIER 1	54M	10"	24"	1/2"	7.1	12"	34"	1"	4 1/2"	26"	1 1/4"	1 1/2"	8"	0"	2.75"

NOTES:

ELASTOMERIC MATERIALS & 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 RADIUS OF THE CURVED PLATE SHALL BE 1'-4" MINIMUM AND 2'-0" MAXIMUM. FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

② OFFSET MAY BE OPPOSITE OF THAT SHOWN. SEE ANCHOR ROD LAYOUT FOR DETAILS.

③ WELDING PER Mn/DOT SPEC. 2471.

④ SEE DETAIL B303 FOR PINTLE DISTANCE K.

⑤ 5/16" DIA. x 3/8" 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".

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

APPROVED: JULY 30, 1999

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

Donald J. Planning
STATE BRIDGE ENGINEER

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

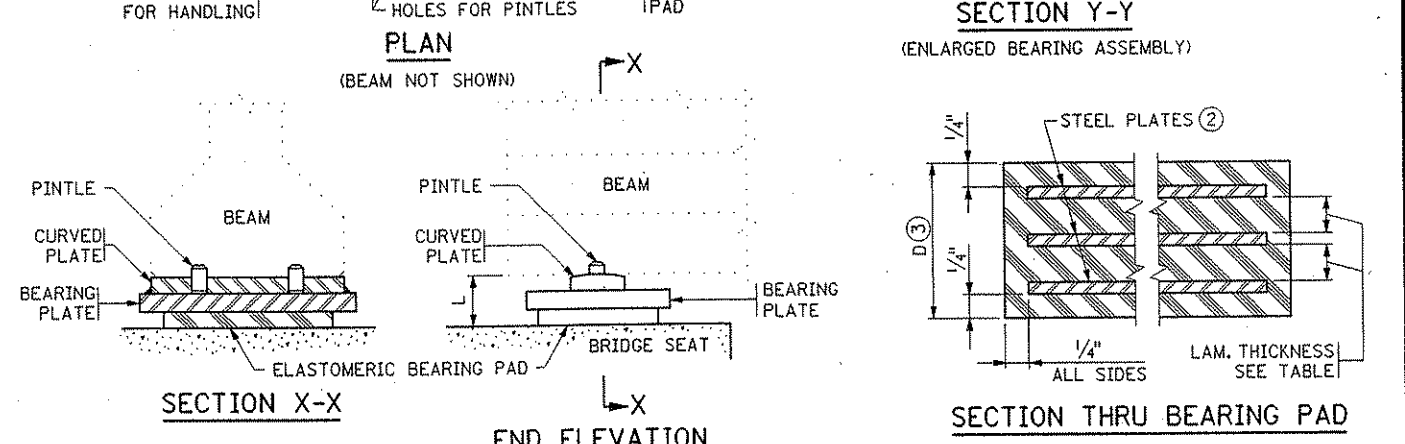
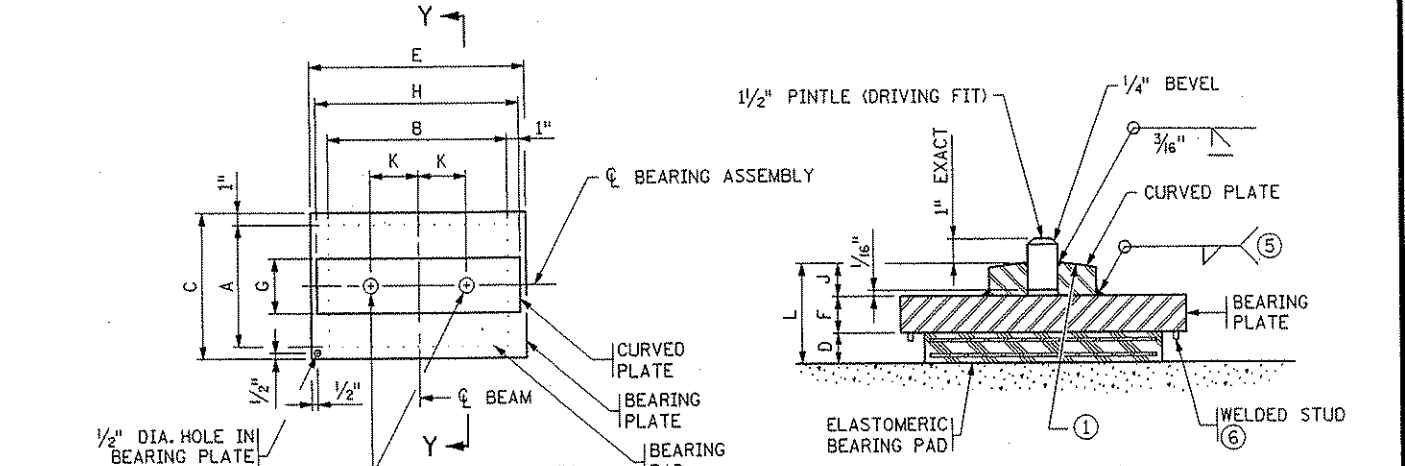
REVISION

DETAIL NO.
B310

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 *Gottfried Millner* GOTTFRIED MILLNER
DATE 01/22/2002 REG. NO. 19879

TKDA
TOLTZ, KING, OUVALL, ANDERSON
AND ASSOCIATES, INCORPORATED
ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			STEEL PLATES		LAMINATES		SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			PINTLE DIA.	PINTLE DISTANCE	ASSY. HEIGHT
			A	B	D	NO.	THICK.	NO.	THICK.		C	E	F	G	H	J			
E-1	W. ABUT.	54M	10"	24"	2 3/8"	4	1/8"	3	3/8"	9.4	12"	27"	1 1/8"	4 1/2"	26"	13 3/8"	1 1/2"	8"	4.625"
E-2	PIER 1	54M	10"	24"	1 3/8"	2	1/8"	1	3/8"	9.4	12"	27"	1 1/8"	4 1/2"	26"	13 3/8"	1 1/2"	8"	3.625"
E-3	E. ABUT.	54M	10"	24"	2 3/8"	5	1/8"	4	3/8"	9.4	12"	27"	1 1/8"	4 1/2"	26"	13 3/8"	1 1/2"	8"	5.125"

NOTES:

ELASTOMERIC MATERIALS & 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 RADIUS OF THE CURVED PLATE SHALL BE 1'-4" MINIMUM AND 2'-0" MAXIMUM. 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 SEE DETAIL B303 FOR PINTLE DISTANCE K.

⑤ WELDING PER Mn/DOT SPEC. 2471.

⑥ 5/16" DIA. x 3/8" 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".

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

APPROVED: JULY 30, 1999

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

Donald J. Planning
STATE BRIDGE ENGINEER

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

REVISION

DETAIL NO.
B311

ANOKA COUNTY
C.S.A.H. 52 OVER I-35W
S.P. 02-652-03 S.P. 0280-50

TITLE:
STANDARD DETAILS
B310 & B311

DES: SVC DR: SVC APPROVED
CHK: MJC CHK: MJC

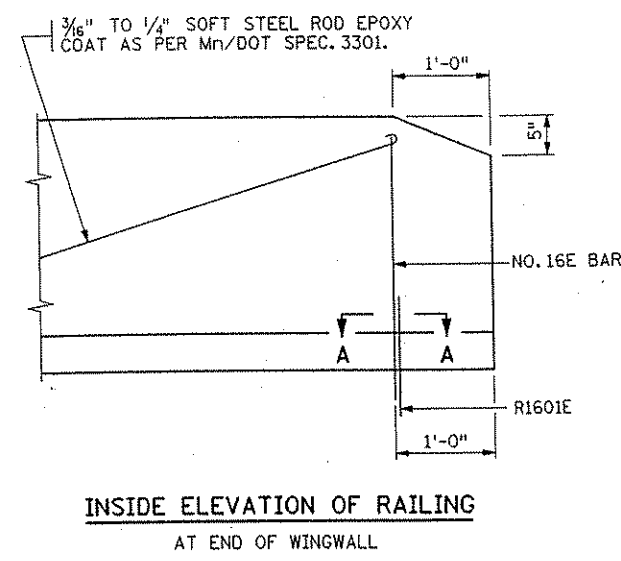
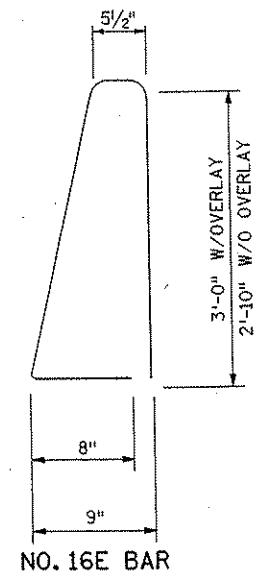
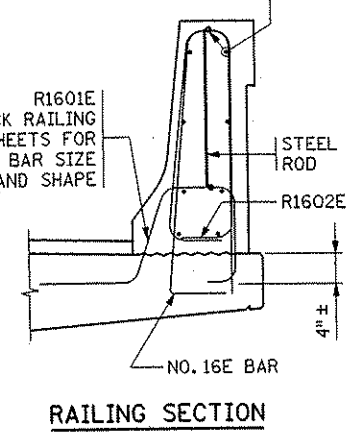
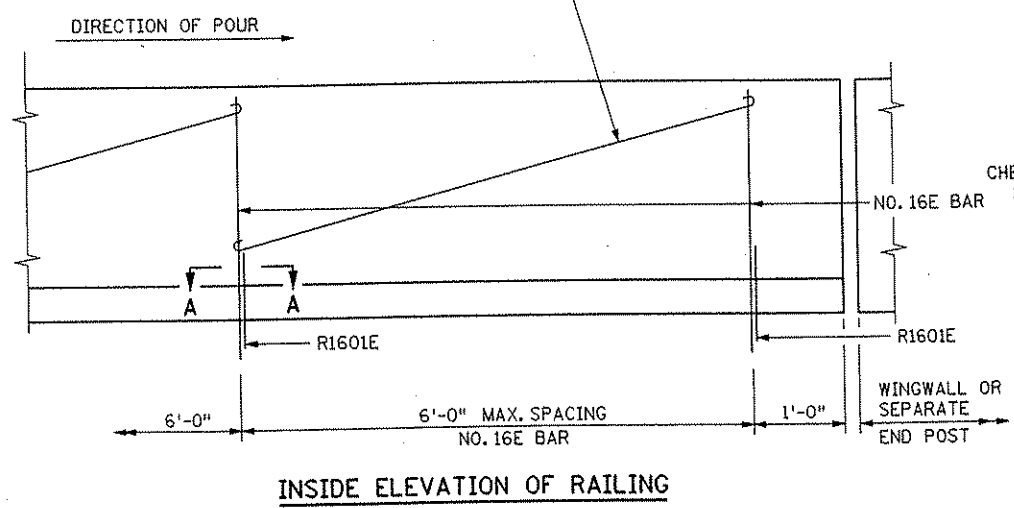
Sheet No. 49 of 56 Sheets

Bridge No.
02566

DATE: 01/22/2002 TIME: 02:57:19 PM
 FILENAME: K:\g-f\anoka\ch\17490\Nhw-brdg\part4\bridge\standards\b830&b905.dgn

3/16" TO 1/4" SOFT STEEL ROD, 10 GAGE WIRE OR APPROVED EQUAL ATTACHED TO INSIDE AND OUTSIDE FACE OF RAILING. EPOXY COAT AS PER Mn/DOT SPEC. 3301.

MOVE NO. 13E STRAIGHT BAR FROM SIDE TO TOP FOR SLIPFORMING.



NOTES:

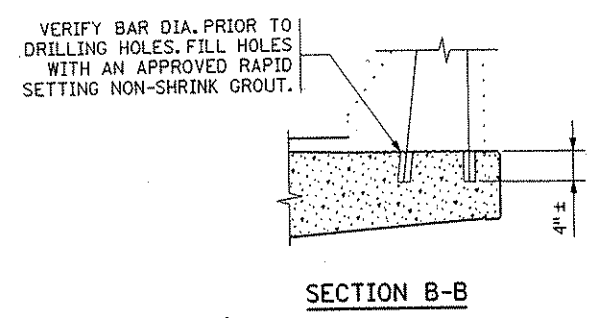
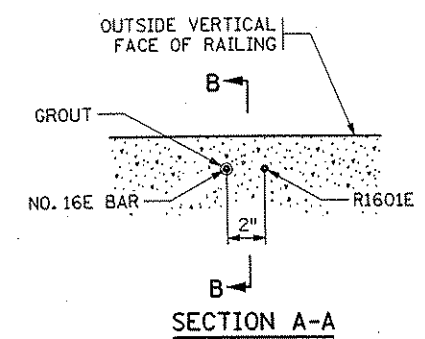
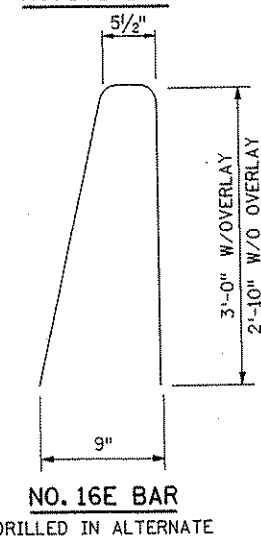
CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILING SHEET.

FORM RAIL FOR A MINIMUM OF 4' ON EACH SIDE OF EXPANSION DEVICES, LIGHT STANDARDS AND DECK DRAIN BOX OUTS.

PAY QUANTITIES WILL NOT BE ADJUSTED AS A RESULT OF SELECTING THIS ALTERNATE.

USE A SIMILAR METHOD FOR TALLER RAILINGS OR MODIFIED VERSIONS OF THIS RAILING.



INSTALLATION DETAILS FOR NO. 16E (DRILLED IN ALTERNATE)

APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Donald J. Manning</i> STATE BRIDGE ENGINEER	CONCRETE RAILING (TYPE F) (SLIPFORM ALTERNATE)		B830

NO.	DATE	BY	DESCRIPTION OF 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

SIGNED *Gottfried Millner* GOTTFRIED MILLNER
 DATE 01/22/2002 REG. NO. 19879

TKDA TOLTZ, KING, DUVAL, ANDERSON AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

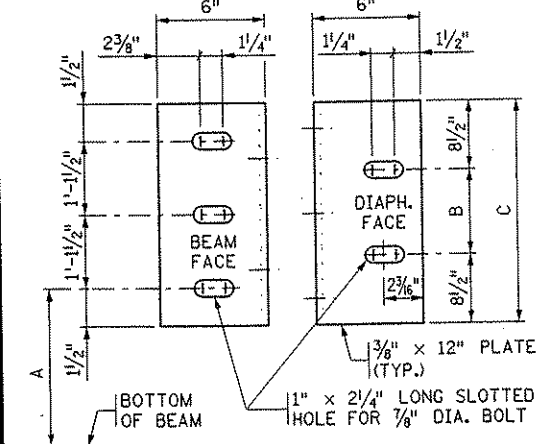
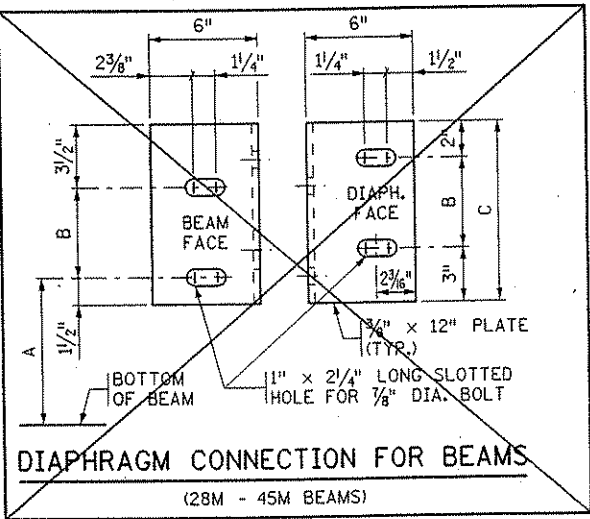
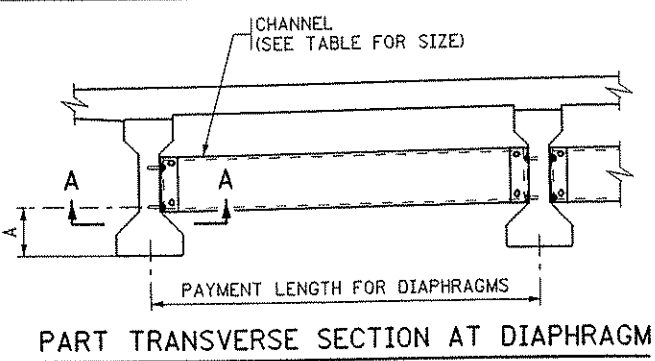
ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: **STANDARD DETAIL B830**

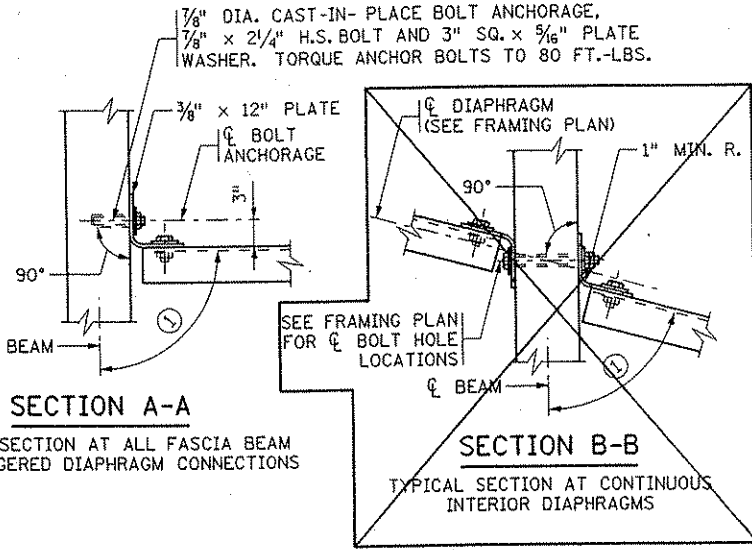
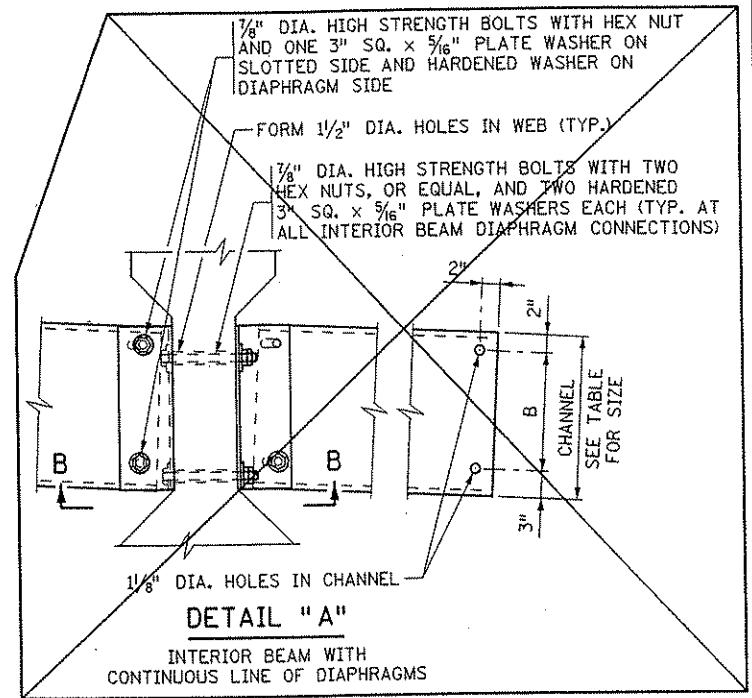
DES: SVC	DR: SVC	APPROVED
CHK: MJC	CHK: MJC	
Sheet No. 50 of 56 Sheets		

Bridge No. **02566**

DATE: 01/22/2002 TIME: 01:55:22 PM
 FILENAME: k:\p\anokacy\j\490\hwy-brdg\part4-brl\dge\standard\sb403&814.dgn



BEAM HEIGHT	DISTANCE			CHANNEL SIZE
	A	B	C	
28M	1'-0"	5"	10"	C10x15.3
36"	1'-3"	7"	1'-0"	C12x20.7
36M	1'-3"	7"	1'-0"	C12x20.7
40"	1'-5"	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



NOTES:
 ALL STEEL SHALL CONFORM TO Mn/DOT SPEC. 3306.
 SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION

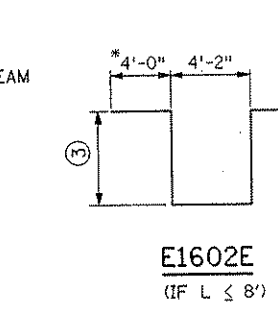
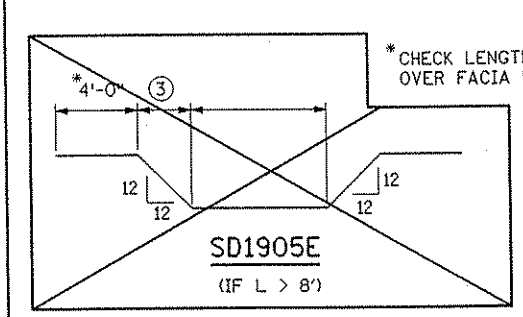
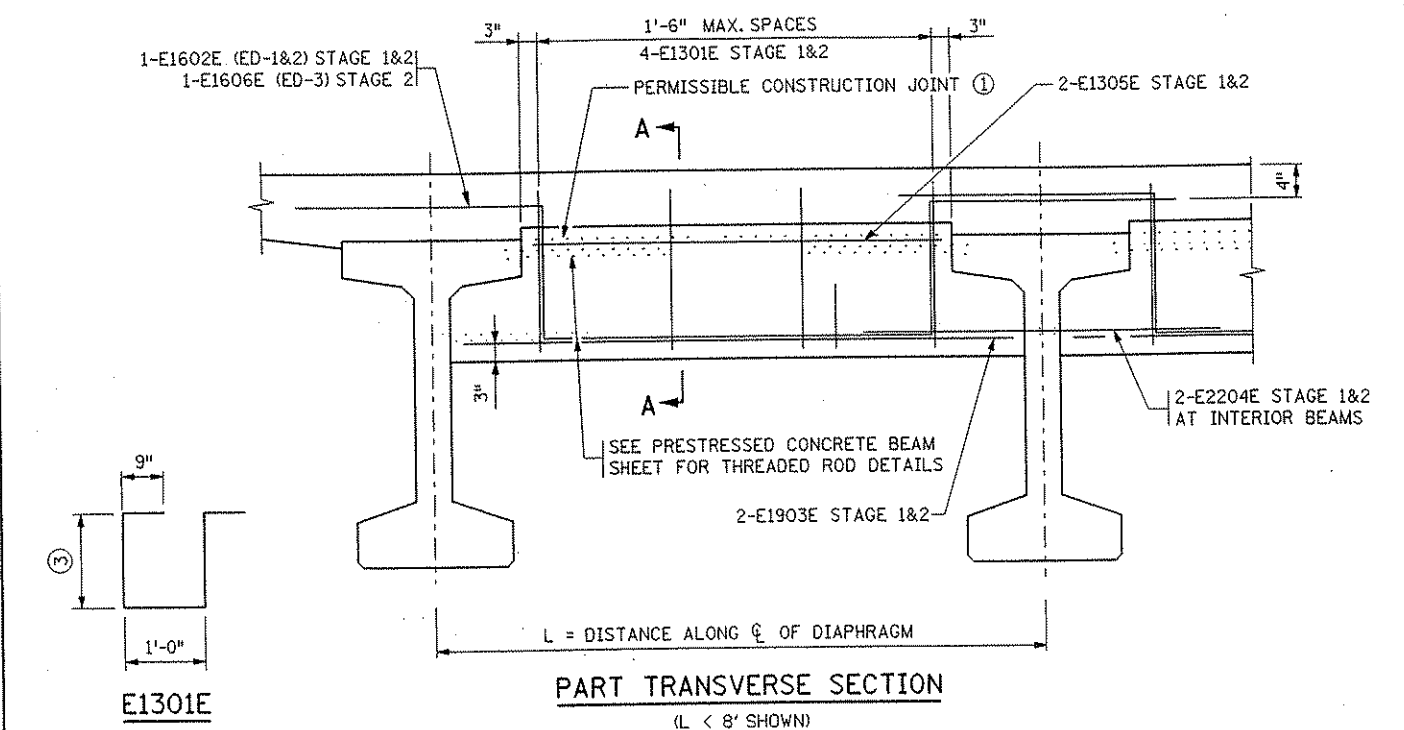
THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

FOR BOLT LENGTHS GREATER THAN 8 1/2", USE HIGH STRENGTH BOLTS PER Mn/DOT SPEC. SAE GRADE 5 OR BETTER. SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION

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°.



DISTANCE "L" ALONG CL OF DIAPHRAGM	BARS REQUIRED			
	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	32E
OVER 15' TO 18'	2	36E	1	36E

BILL OF REINFORCEMENT FOR END DIAPHRAGM				
BAR	NO.	LENGTH	SHAPE	LOCATION
SD1301E				VERTICAL TIE
SD2202E		5'-0"		LONG. THRU BEAM
SD1303E				LONG. TOP
SD_04E				LONG. BOTTOM
SD_08E				LONGITUDINAL
SD1606E				LONGITUDINAL

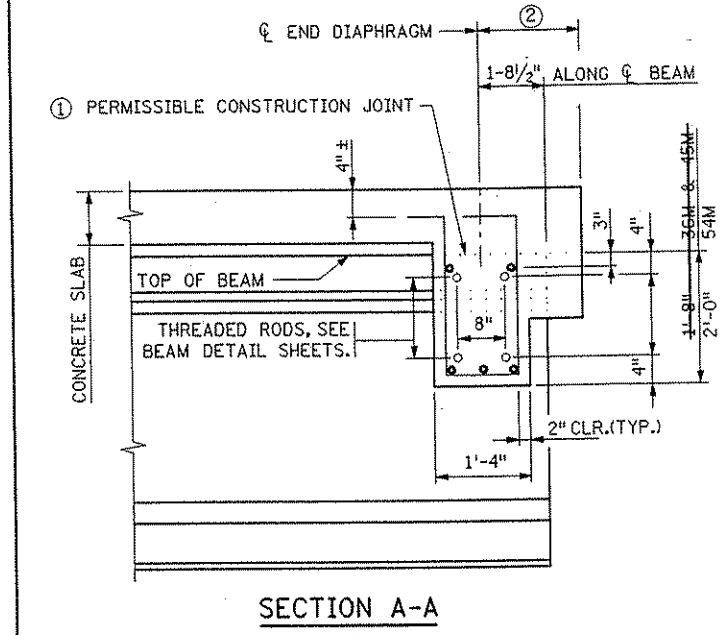
NOTES:
 DIAPHRAGM CONCRETE TO BE MIX NO. 3Y43.
 ALL DIAPHRAGM CONCRETE AND REINFORCEMENT BARS SHOWN ON THIS DETAIL TO BE INCLUDED IN PAYMENT FOR SUPERSTRUCTURE QUANTITIES.

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 INPLACE UNTIL COMPLETION OF SLAB CURING PERIOD.

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

③ 2'-2" (45M); 2'-6" (54M) BASED ON 3" STOOL AND 9" DECK.



APPROVED: JULY 30, 1999

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

REVISION: 06-16-00

DETAIL NO.: B403

Donald J. Blumming
 STATE BRIDGE ENGINEER

STEEL INTERMEDIATE DIAPHRAGM
 (FOR 28M - 54M PRESTRESSED CONCRETE BEAMS)

APPROVED: JULY 30, 1999

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

REVISION: 01-20-00 IJh

DETAIL NO.: B814

Donald J. Blumming
 STATE BRIDGE ENGINEER

CONCRETE END DIAPHRAGM
 (36M, 45M - 54M PRESTRESSED CONCRETE BEAMS)
 (PARAPET ABUTMENT)

SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM

4" DIA. PERFORATED PIPE	230 LIN. FT.
4" DIA. NON-PERFORATED PIPE	30 LIN. FT.
90° ELBOW	4 EACH
45° ELBOW	2 EACH
4" DIA. END CAP	2 EACH
① PRECAST CONCRETE HEADWALL	2 EACH

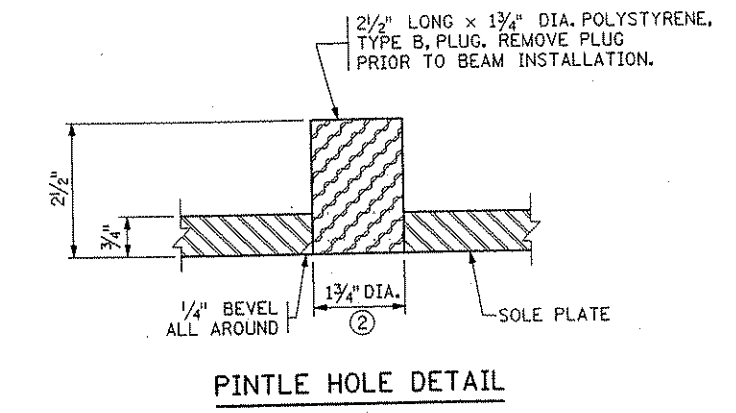
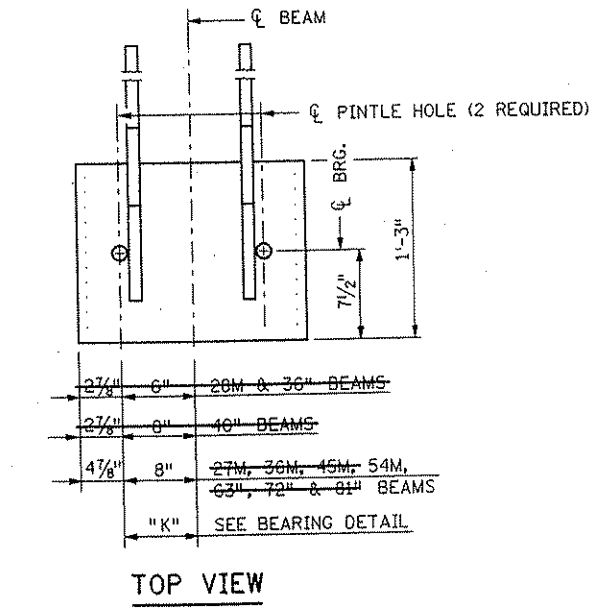
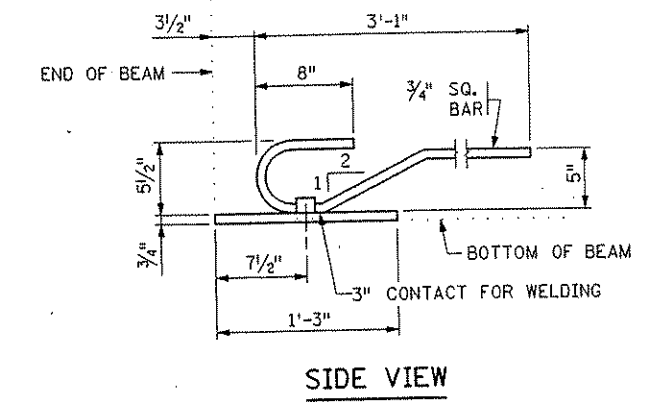
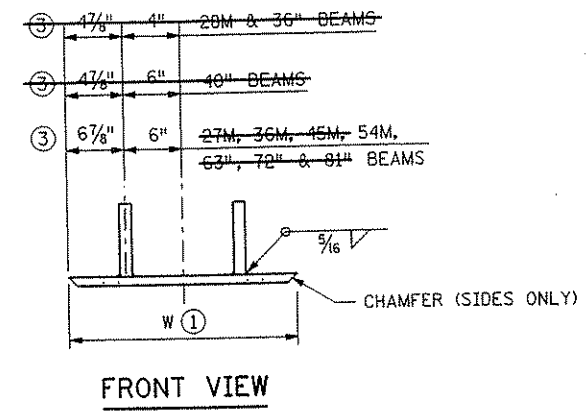
THE SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM IS AS SHOWN ABOVE. ANY ADDITIONAL MINOR ITEMS OR SLIGHT CHANGES OF QUANTITIES REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR ITEM 2502.603 DRAINAGE SYSTEM, TYPE (B910).

MATERIAL SHALL COMPLY WITH MnDOT SPEC. 3149.2B SELECT GRANULAR BORROW, MODIFIED SO THAT NO MORE THAN 10% PASSES A NO. 200 SIEVE. (UNDER GRADING PORTION OF CONTRACT)

NOTES:

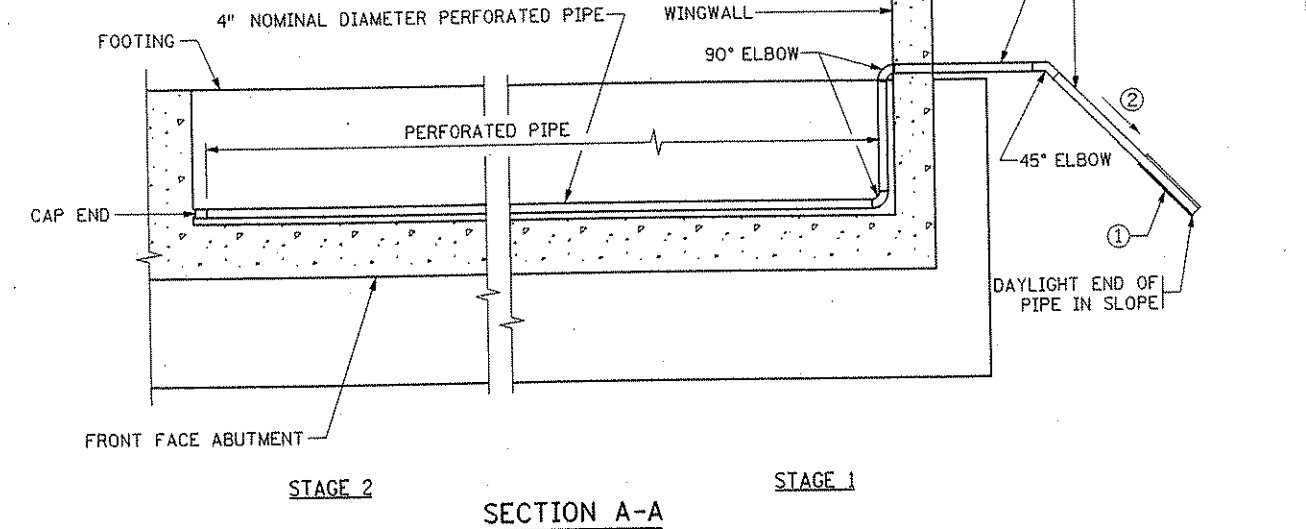
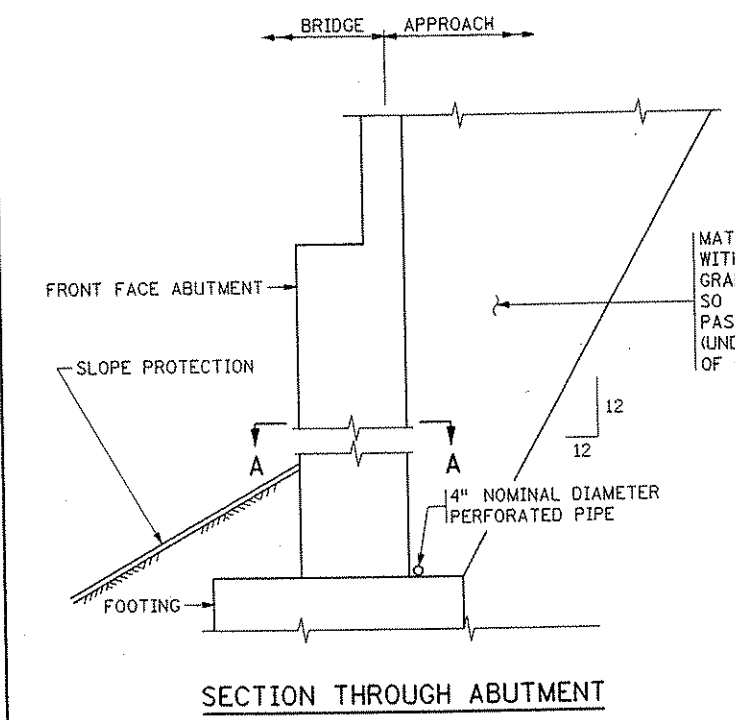
- ALL PIPE SHALL BE AS PER MnDOT SPEC. 3245.
- WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER MnDOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER MnDOT SPEC. 2502.
- ① PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.
- ② 1/8" PER FT. MINIMUM SLOPE.



NOTES:

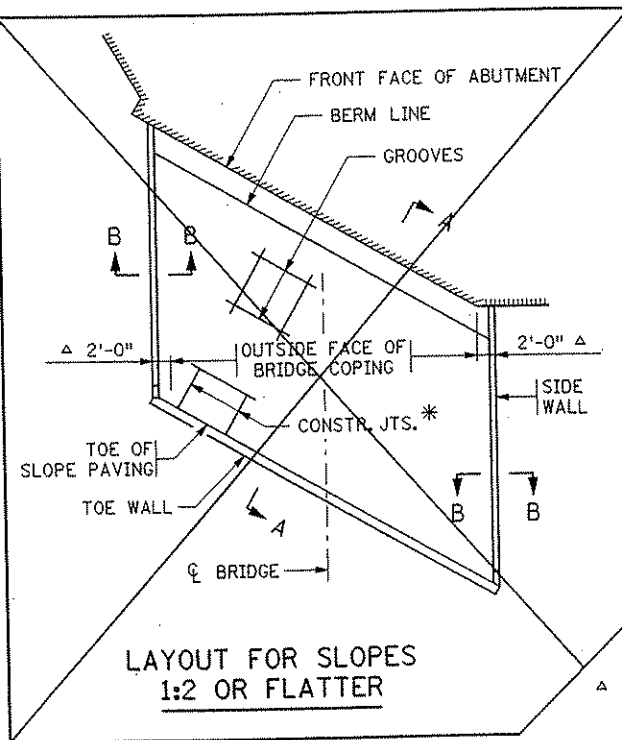
- MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.
- SOLE PLATE FOR BEARING ASSEMBLY TO BE HOT DIPPED GALVANIZED PER MnDOT SPEC. 3394 AFTER FABRICATION.
- PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.
- PAYMENT FOR SOLE PLATES TO BE INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE BEAMS.
- ① DIMENSION "W" TO BE THE WIDTH AT THE BOTTOM FLANGE OF THE BEAM MINUS 1/4".
- ② FOR 1 1/2" DIA. PINTLES.
- ③ THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.

BEAM SIZE	① W VALUE (in.)
20M, 36"	1'-5 3/4"
40"	1'-9 3/4"
27M, 36M, 45M, 54M, 63", 72", 81"	2'-1 3/4"

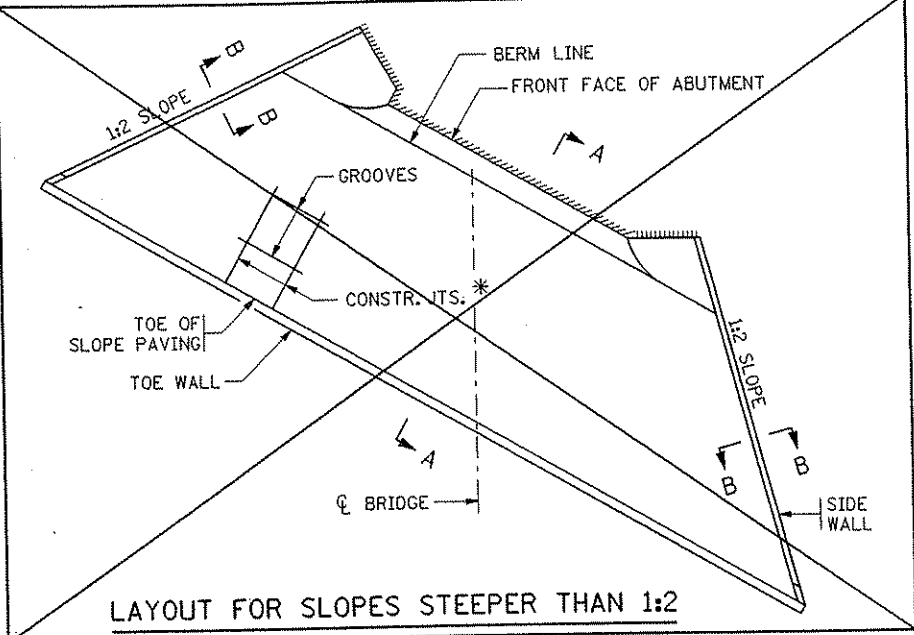


DATE: 01/22/2002 TIME: 01:55:19 PM FILENAME: k:\v-f\anokacy\j17490Nhw-bridgypart4\bridgelandstandards\3038910.dgn

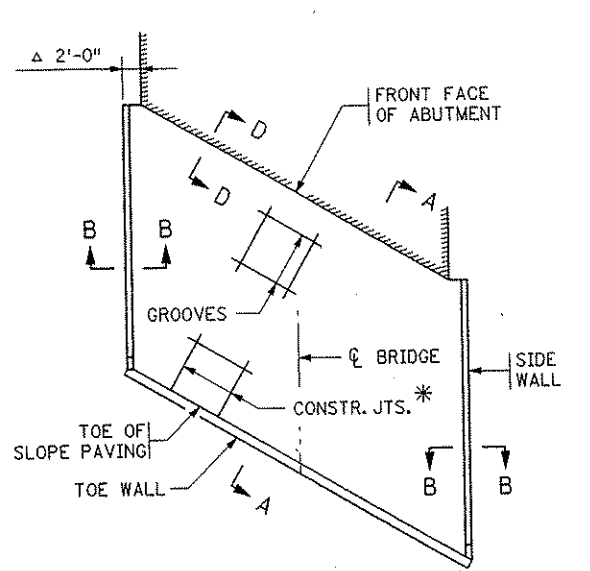
APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION 12-15-00	DETAIL NO. B303	APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION 04-03-00	DETAIL NO. B910
 STATE BRIDGE ENGINEER		SOLE PLATE (PRESTRESSED CONCRETE BEAMS) (FOR BEARINGS WITH PINTLES)		 STATE BRIDGE ENGINEER		DRAINAGE SYSTEM (FOR HIGH ABUTMENTS)	
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.				ANOKA COUNTY C.S.A.H. 52 OVER I-35W S.P. 02-652-03 S.P. 0280-50			
SIGNED: GOTTFRIED MILLNER REG. NO. 19879				TITLE: STANDARD DETAILS B303 & B910			
NO. DATE BY DESCRIPTION OF REVISIONS				DES: HLE OR: HLE APPROVED CHK: MJC CHK: MJC Sheet No. 52 of 56 Sheets			
TKDA ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA				Bridge No. 02566			



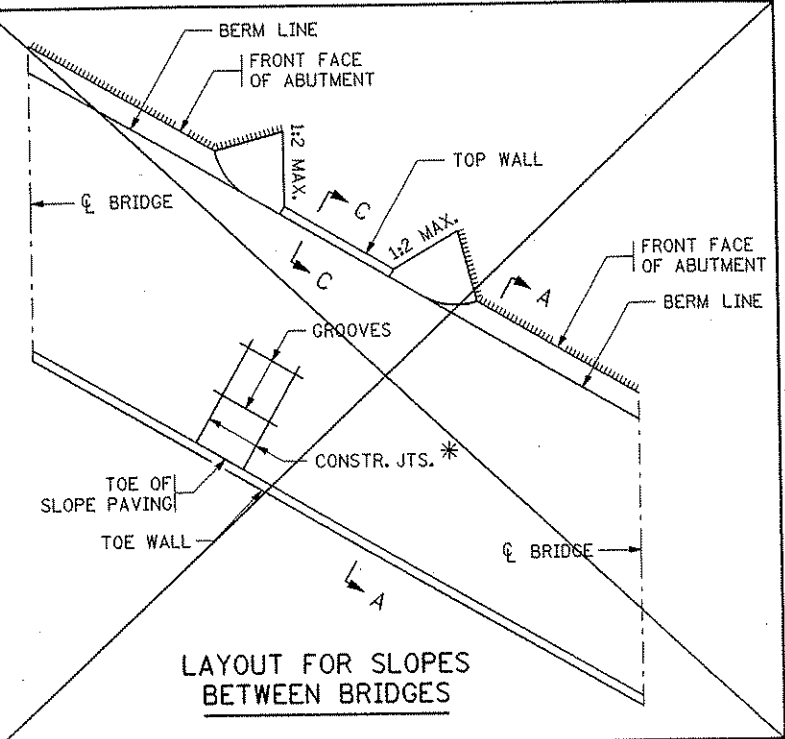
LAYOUT FOR SLOPES 1:2 OR FLATTER



LAYOUT FOR SLOPES STEEPER THAN 1:2



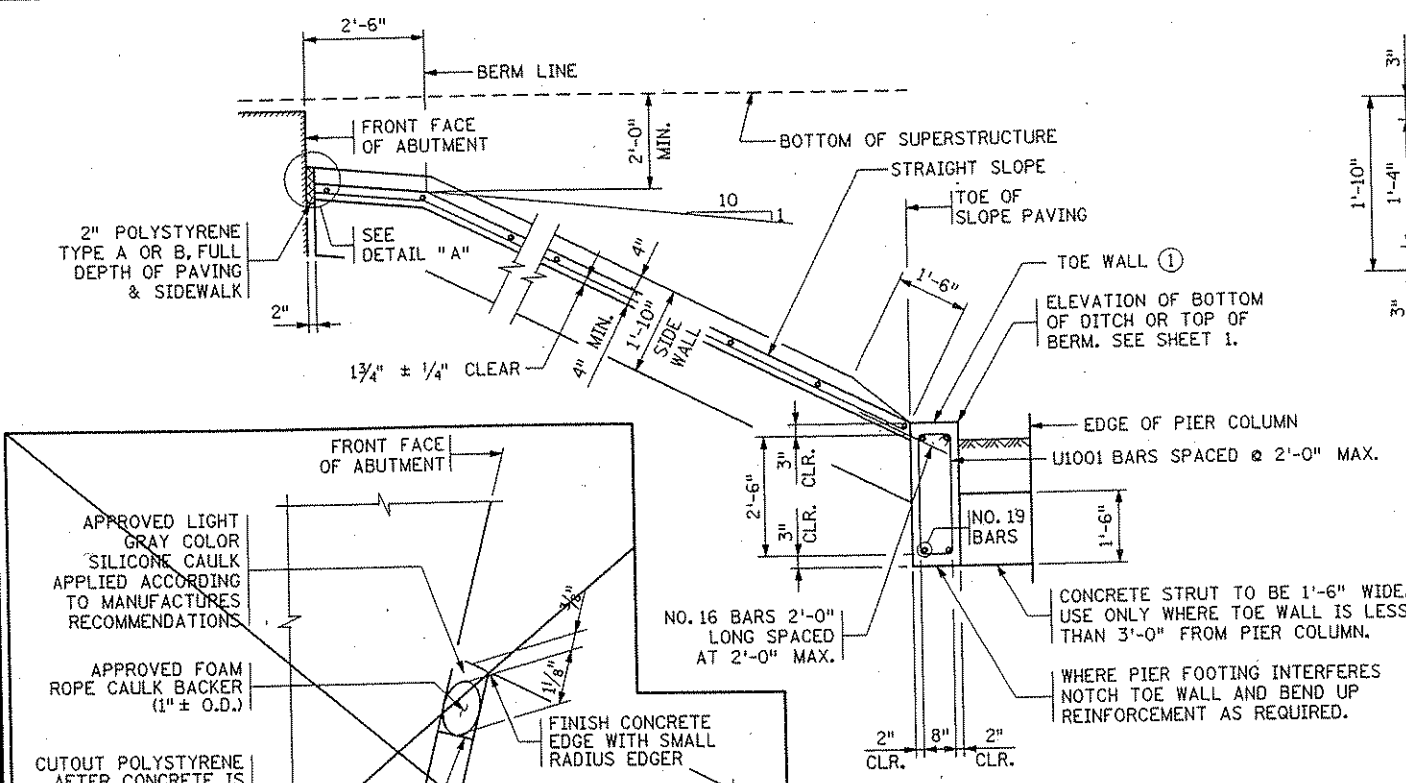
LAYOUT FOR SLOPES AT HIGH ABUTMENTS



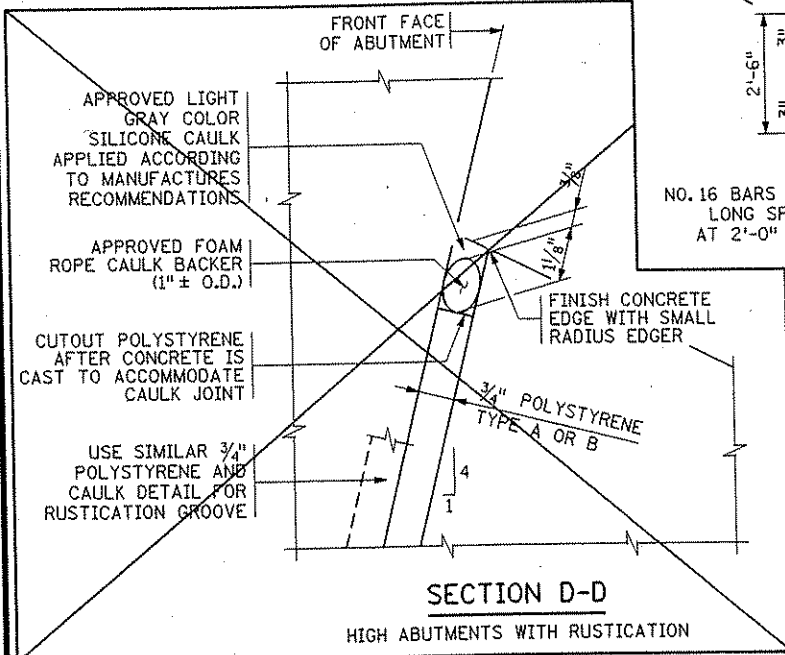
LAYOUT FOR SLOPES BETWEEN BRIDGES

▲ 2'-0" FOR TANGENT BRIDGE SUPERSTRUCTURES. VARIES 2'-0" MINIMUM FOR CURVED BRIDGE SUPERSTRUCTURE.

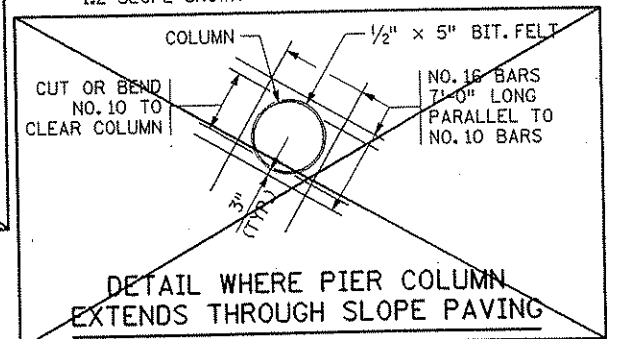
* VERTICAL CONSTRUCTION JOINTS MAY BE CONSTRUCTED PARALLEL TO ϕ OF BRIDGE FOR SKEWS TO 10° ONLY.



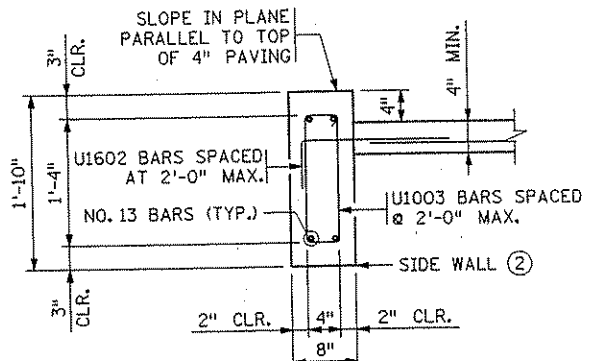
SECTION A-A
1:2 SLOPE SHOWN



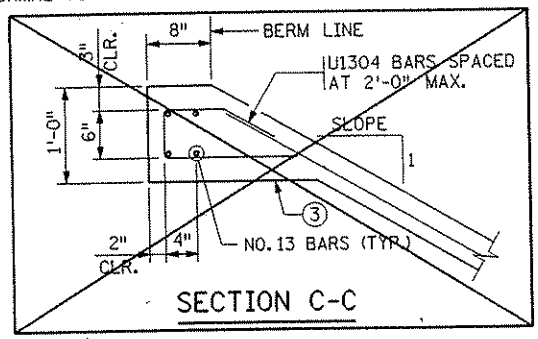
SECTION D-D
HIGH ABUTMENTS WITH RUSTICATION



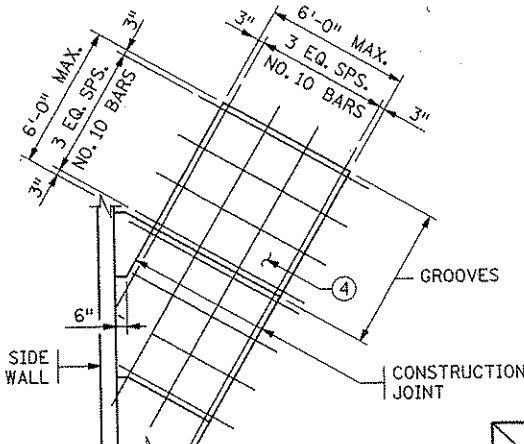
DETAIL WHERE PIER COLUMN EXTENDS THROUGH SLOPE PAVING



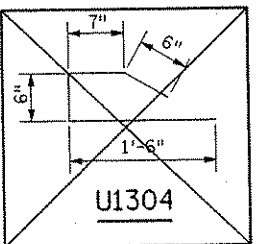
SECTION B-B
NORMAL TO SLOPE



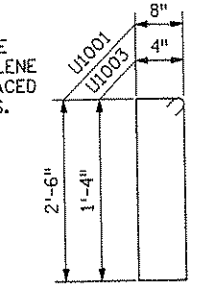
SECTION C-C



PAVING DETAIL



U1602



U1001 & U1003

CONCRETE & REINFORCEMENT UNIT QUANTITIES

- ① 0.111 CU. YD. OF CONCRETE/LIN. FT. 8.37 LBS. OF REINFORCEMENT/LIN. FT.
- ② 0.046 CU. YD. OF CONCRETE/LIN. FT. 4.46 LBS. OF REINFORCEMENT/LIN. FT.
- ③ 0.058 CU. YD. OF CONCRETE/LIN. FT. 3.70 LBS. OF REINFORCEMENT/LIN. FT. BASED ON A SLOPE OF 1:2.
- ④ 0.111 CU. YD. OF CONCRETE/SQ. YD. 4.50 LBS. OF REINFORCEMENT/SQ. YD.

GENERAL NOTE

SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE: HORIZONTAL DISTANCE.

DATE: 01/22/2002 TIME: 01:55:46 PM FILENAME: I:\p\work\117450\work\brdg\part4\bridge_standards\slppav.dgn

REVISION: 05-01-00
APPROVED: APRIL 17, 1985
KEITH V. BENTHIN
STATE BRIDGE ENGINEER

CERTIFIED BY *Gottfried Millner* 01/22/2002
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GOTTFRIED MILLNER LIC. NO. 19879

CONCRETE SLOPE PAVING UNDER BRIDGES

DES: HLE DR: HLE APPROVED: _____
CHK: MJC CHK: MJC MODIFIED: _____
SHEET NO. 53 OF 56 SHEETS BRIDGE NO. 02566

FIG. 5-397.301

SLOPE PAVING AS PER MNDOT SPEC. 2514.

CONCRETE OVERLAY

LOW SLUMP
OTHER TYPE OR MANUFACTURER

EXPANSION JOINTS

JOINT MANUFACTURER NAME AND ADDRESS (CITY, STATE)
MANUFACTURER'S IDENTIFICATION MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED
GLAND MANUFACTURER NAME AND ADDRESS (CITY, STATE)
SIZE OF GLAND
MANUFACTURER'S IDENTIFICATION MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED

BEARING PADS

NEOPRENE PAD MANUFACTURER NAME AND ADDRESS (CITY, STATE)

SPECIAL SURFACE TREATMENT

TYPE: COLOR:

FINISHING ROADWAY FACES OF BARRIER RAILING

TYPE: COLOR:

ANTI-GRAFFITI COATING

MANUFACTURER NAME AND ADDRESS (CITY, STATE)
PRODUCT NAME: LOCATION:

PAINT SYSTEM

Mn/DOT CONSTRUCTION SPECIFICATION NUMBER 2476 OR 2478 OR 2479
MANUFACTURER NAME AND ADDRESS (CITY, STATE)
PRIME COAT Mn/DOT MATERIAL SPECIFICATION NUMBER
INTERMEDIATE COAT Mn/DOT MATERIAL SPECIFICATION NUMBER
FINISH COAT Mn/DOT MATERIAL SPECIFICATION NUMBER COLOR

PLAN QUALITY

RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)
DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION.
BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS.
SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD.
(SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT.
COMMENTS:
NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: COST: \$
LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.

OTHER ITEMS

UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.
FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES NO

SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

Summary of significant as-built changes section with multiple blank lines for text entry.

AS-BUILT DETAILS (AS NEEDED)

THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:

INSPECTOR(S) DATE
CHECKED BY: PROJECT ENGINEER / SUPERVISOR DATE

SUBMIT THIS FORM WITH THE PROJECT FINAL, AND SUBMIT A COPY TO THE OFFICE OF BRIDGES AND STRUCTURES (MS610).

DATE: 01/22/2002 TIME: 01:52:47 PM
FILENAME: k:\anoka\17490\hwy-brdg\part4\brldge\asbuilt.dgn

Table with columns: REVISION, APPROVED, STATE BRIDGE ENGINEER

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: [Signature] GOTTFRIED MILLNER
DATE: 01/22/2002 REG. NO. 19879

TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED
ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

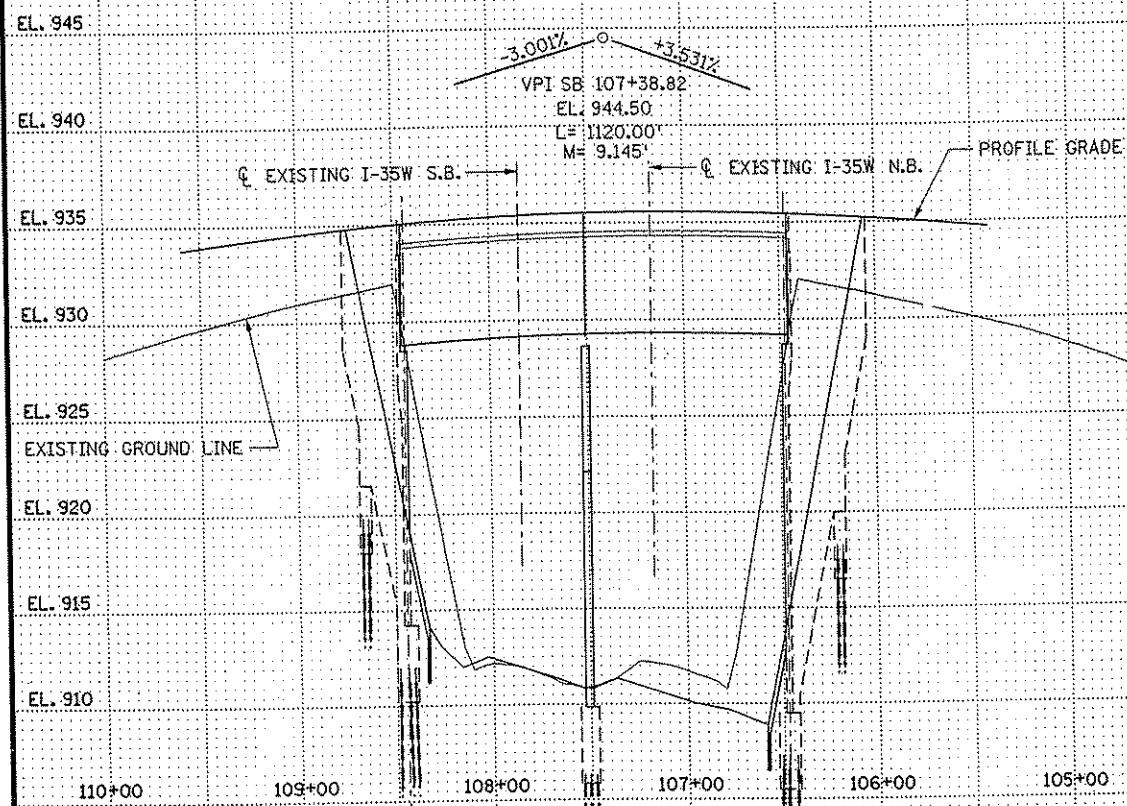
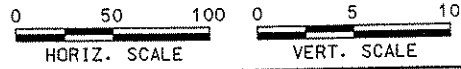
ANOKA COUNTY
C.S.A.H. 52 OVER I-35W
S.P. 02-652-03 S.P. 0280-50

TITLE: AS-BUILT BRIDGE DATA

Table with columns: DES, MnDOT, DR, MnDOT, APPROVED, Bridge No., Sheet No. 54 of 56 Sheets

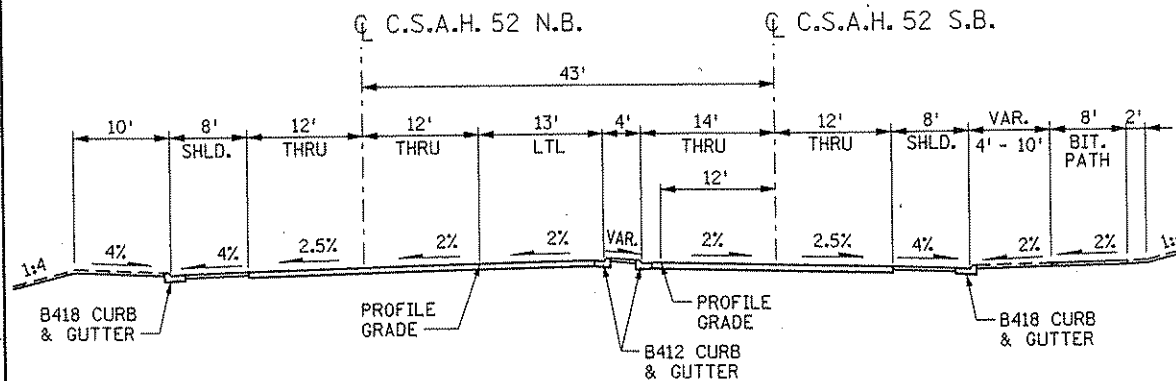
FIG. 5-397.900

CONTRACTED PROFILE

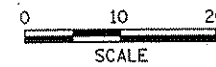


TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



ROADWAY APPROACH SECTION



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

HYDRAULIC ENGINEER'S RECOMMENDATION
DATE:

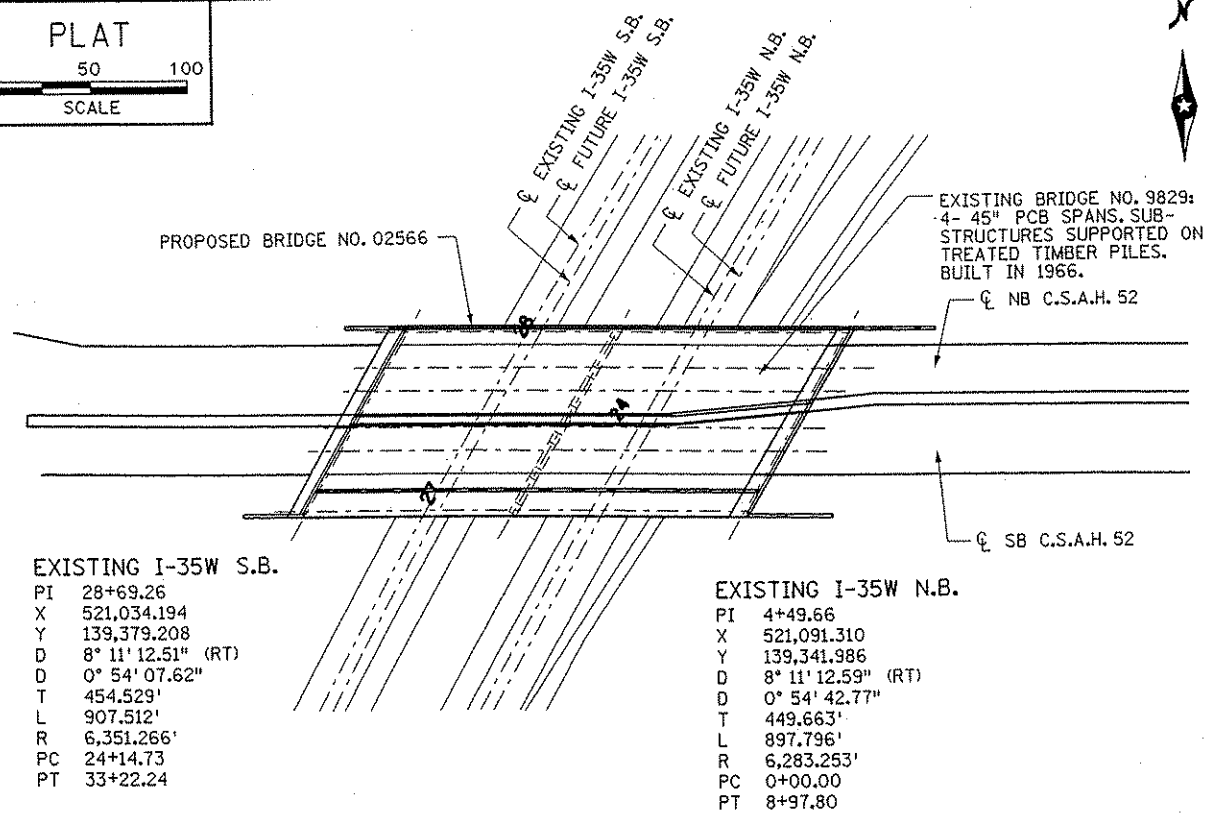
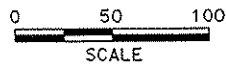
Stream or ditch designation:
Drainage area:
Max. flood on record: Design flood:
Max. observed highwater elevations:
Design highwater elevations:
Design mean velocity through structures:
Low superstructure at or above elevation:
Flowline elevation: Skew angle:

FOUNDATION ENGINEER'S RECOMMENDATION
DATE: NOV. 20, 2000
BRAUN INTERTEC CORPORATION

Bridge survey sheets made from:

Bench mark elevation: EL. 911.008 (M.S.L. 1929 Adj.)
Location: I.P. 9025 WITH COUNTY COORDINATES
X = 521615.884, Y = 139072.435, LOCATED ON THE SOUTH SIDE OF CSAH 52, 93 FEET EAST OF NAPLES

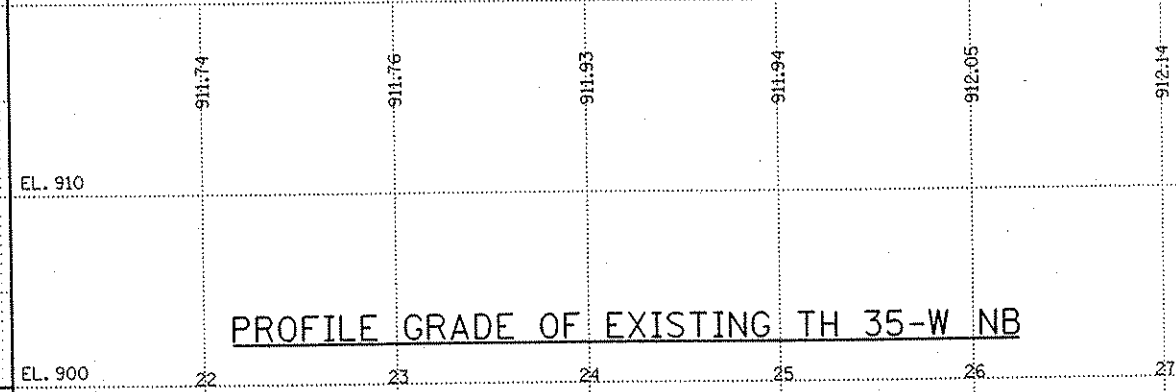
PLAT



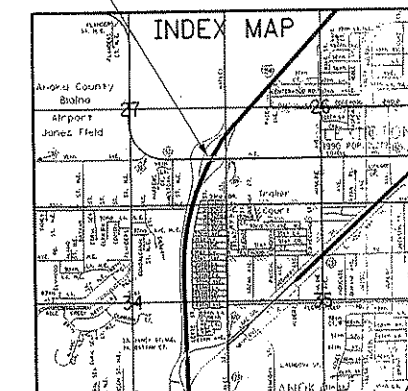
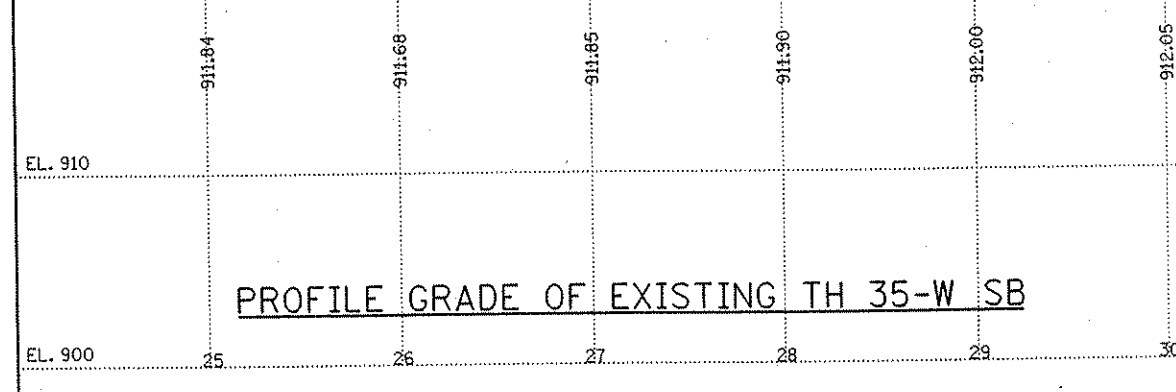
EXISTING I-35W S.B.
PI 28+69.26
X 521,034.194
Y 139,379.208
D 8° 11' 12.51" (RT)
D 0° 54' 07.62"
T 454.529'
L 907.512'
R 6,351.266'
PC 24+14.73
PT 33+22.24

EXISTING I-35W N.B.
PI 4+49.66
X 521,091.310
Y 139,341.986
D 8° 11' 12.59" (RT)
D 0° 54' 42.77"
T 449.663'
L 897.796'
R 6,283.253'
PC 0+00.00
PT 8+97.80

PROFILE GRADE OF EXISTING TH 35-W NB



PROFILE GRADE OF EXISTING TH 35-W SB



MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

BRIDGE LOCATED AT THE INTERSECTION OF
OF C.S.A.H. 52 AND I-35W

SEC. 27 TWP 31N R 23W
CITY: BLAINE COUNTY: ANOKA

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: *Gottfried Millner* GOTTFRIED MILLNER
DATE 01/22/2002 REG. NO. 19879

TKDA
TOLTZ, KING, DUVALL, ANDERSON
AND ASSOCIATES, INCORPORATED
ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
C.S.A.H. 52 OVER I-35W
S.P. 02-652-03 S.P. 0280-50

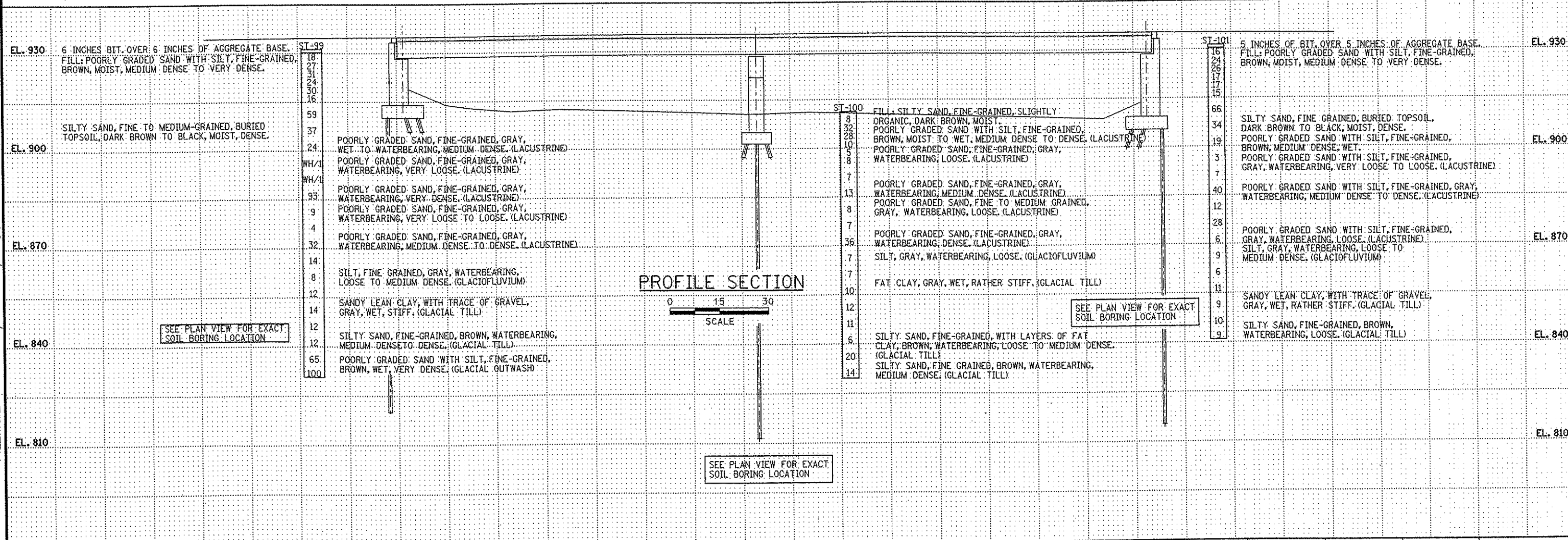
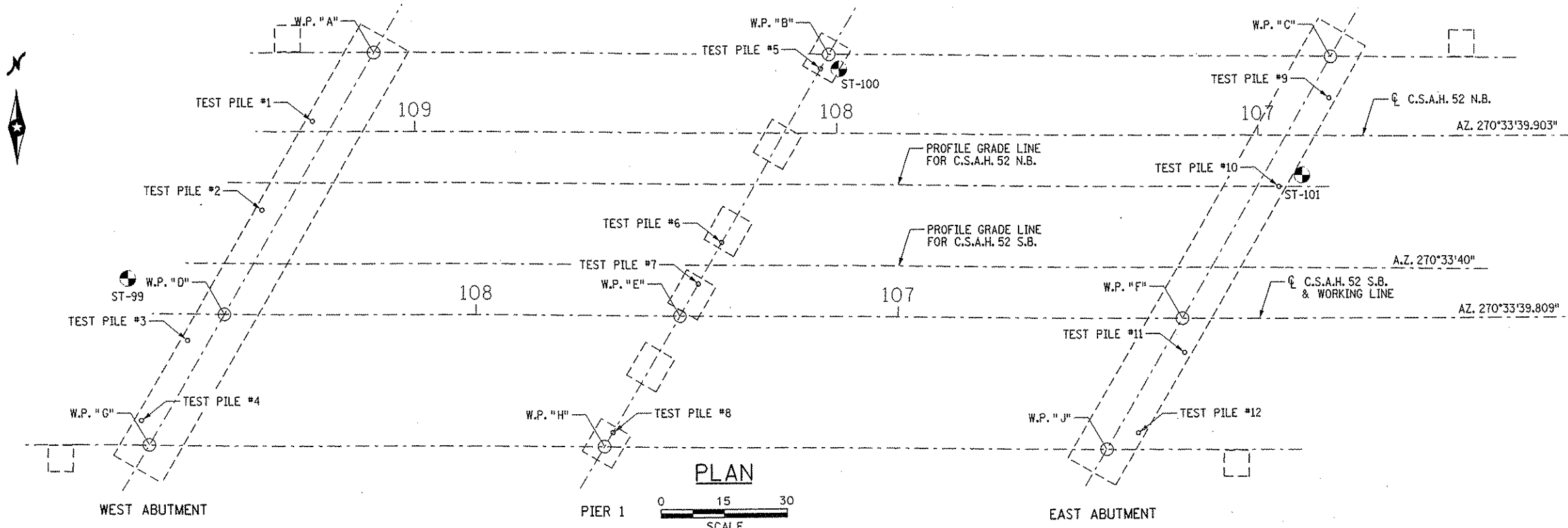
TITLE:
BRIDGE SURVEY

DES: GM DR: SJS APPROVED
CHK: MJC CHK: GM
Sheet No. 55 of 56 Sheets

Bridge No.
02566

DATE: 01/22/2002 TIME: 01:53:20 PM
FILENAME: k:\a\anokacy\17490\hwy-brdg\part4\bridge\survey.dgn

NO.	DATE	BY	DESCRIPTION OF REVISIONS



DATE: 01/22/2002 TIME: 01:53:30 PM
 FILENAME: k:\a-f\anokacy\17490\hwy-brdg\part4\bridge\survey\pp.dgn

NO.	DATE	BY	DESCRIPTION OF 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.
 SIGNED: *Gottfried Millner*
 DATE: 01/22/2002 REG. NO. 9879

TKDA
 TOLTZ, KING, DUVALL, ANDERSON
 AND ASSOCIATES, INCORPORATED
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY
 C.S.A.H. 52 OVER I-35W
 S.P. 02-652-03 S.P. 0280-50

TITLE: BRIDGE SURVEY
 PLAN AND PROFILE

DES: GM DR: SJS APPROVED
 CHK: MJC CHK: GM
 Sheet No. 56 of 56 Sheets

Bridge No. 02566