

ANOKA COUNTY DEPARTMENT OF PARKS AND RECREATION

CONSTRUCTION PLAN FOR BRIDGE NO. 02565 & BRIDGE NO. 02X03 PEDESTRIAN BRIDGE, PEDESTRIAN UNDERPASS, AND PATHWAY CONNECTIONS

SECTIONS 12, 13 & 15 T30N R24W

5/19/99

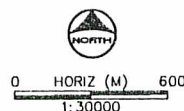
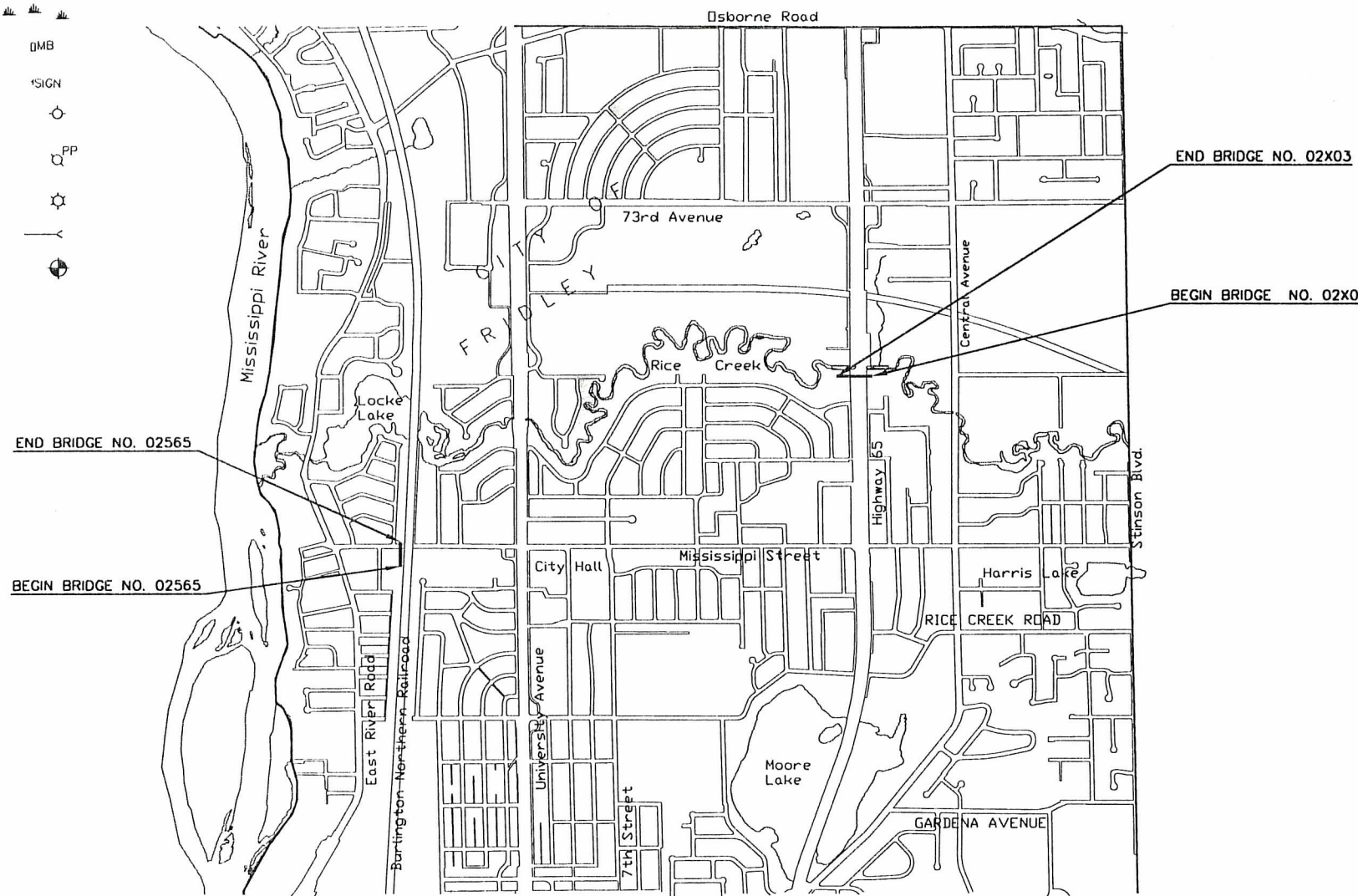
PLAN SYMBOLS

SECTION LINE	----	TREES	
QUARTER LINE	----	BRUSH OR SHRUBS	
SIXTEENTH LINE	----	HEDGE	
RIGHT OF WAY	----	CONIFERS	
PERMANENT EASEMENTS	----	SWAMP	
TEMPORARY EASEMENTS	----	MAILBOX	
CENTER LINE	----	SIGN	
FENCE LINE	-x-x-	HYDRANT	
CHAIN LINK FENCE	-xc-xc-	POWER OR TELEPHONE POLE	
IRON PICKET FENCE	-o-o-	LIGHT POLE	
RIVER OR CREEK		ANCHOR	
LAKE OR POND		SOIL BORING	
CULVERT			
BRIDGE			
RETAINING WALL			

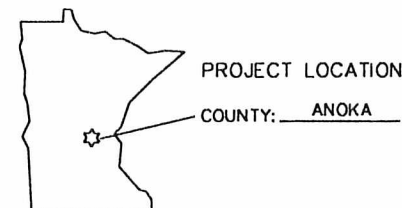
UTILITIES SYMBOLS

SANITARY SEWER	
STORM SEWER	
WATERMAIN	
GAS LINE	
POWER LINE	
SILT FENCE	
MANHOLE	
CATCH BASIN	
VALVE	

THE 1995 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATION FOR CONSTRUCTION" SHALL GOVERN.



Howard R. Green Company
CONSULTING ENGINEERS
1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389



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42-42A	WINGWALL FENCE DETAILS
43	UNDERPASS DROPWALL DETAIL
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46	UNDERPASS WINGWALL REINFORCEMENT
47	UNDERPASS LIGHTING PLAN
48	EROSION AND SEDIMENT CONTROL DETAILS

THIS PLAN SET CONTAINS 51 SHEETS

NOTE:
PURSUANT TO THE REQUIREMENTS OF M.S.216D.04, THE GOPHER STATE ONE-CALL NOTIFICATION CENTER WAS CONTACTED ON MAY 18, 1999 AND THESE PLANS INCLUDE THE TYPE, SIZE AND GENERAL LOCATION OF THE UNDERGROUND FACILITIES AS REPORTED BY THE AFFECTED OPERATORS OF THOSE FACILITIES AS OF MAY 20, 1999, THE DATE OF THE COMPLETION OF THIS FINAL DRAWING. THIS INFORMATION MAY NOT BE RELIED ON AS WARRANTING THE ACTUAL PRESENCE, CHARACTERISTICS, OR LOCATION OF THE UNDERGROUND FACILITIES AND DOES NOT RELIEVE ANY PERSON FROM COMPLYING WITH STATE NOTIFICATION AND LOCATION REQUIREMENTS PRIOR TO EXCAVATION.

I HEREBY CERTIFY THAT SHEETS 1-14, 32, 34-39A, 42-42A AND 48 OF THIS PLAN, SPECIFICATION, OR REPORT WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE _____ REG. NO. _____

I HEREBY CERTIFY THAT SHEETS 15-28, 30-31, 33, 40, 41 AND 43-46 OF THIS PLAN, SPECIFICATION, OR REPORT WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE _____ REG. NO. _____

I HEREBY CERTIFY THAT SHEETS 29 AND 47 OF THIS PLAN, SPECIFICATION, OR REPORT WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE _____ REG. NO. _____

APPROVED _____ ANOKA COUNTY ENGINEER DATE _____

STATEMENT OF ESTIMATED QUANTITIES

NOTES	SPEC. REF.	ITEM DESCRIPTION	UNIT	PEDESTRIAN BRIDGE BRIDGE NO. 0265 QUANTITIES	PEDESTRIAN UNDERPASS BRIDGE NO. 02X03 QUANTITIES	WEST TRAIL EXTENSION	SOUTH TRAIL EXTENSION	TOTAL QUANTITIES
	2021.501	MOBILIZATION	LUMP SUM					
	2101.502	CLEARING	TREE					
	2101.507	GRUBBING	TREE					
	2104.503	REMOVE BITUMINOUS PAVEMENT	m2					
	2104.513	SAWING BITUMINOUS PAVEMENT	m					
	2105.501	COMMON EXCAVATION	m3					
	2105.523	COMMON BORROW (CV)	m3					
	2211.501	AGGREGATE BASE CLASS 5	t					
	2340.508	TYPE 41 WEARING COURSE MIXTURE	t					
	2340.514	TYPE 31 BASE COURSE MIXTURE	t					
	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	L					
	2401.501	STRUCTURAL CONCRETE (3Y33)	m3					
	2401.501	STRUCTURAL CONCRETE (3Y43)	m3					
	2401.512	BRIDGE SLAB CONCRETE (3Y33)	m2					
	2401.541	REINFORCEMENT BARS	kg					
	2401.541	REINFORCEMENT BARS (EPOXY COATED)	kg					
	2401.601	STRUCTURE EXCAVATION	LUMP SUM					
	2401.604	SPECIAL SURFACE FINISHING	m2					
	2402.521	STRUCTURAL STEEL (3306)	kg					
	2402.595	BEARING ASSEMBLY	EACH					
	2403.XXX	RECYCLED PLASTIC TIMBERS	m3					
	2405.502	PRESTRESSED CONCRETE BEAMS 1600 mm	m					
	2411.604	STONE MASONRY VENEER 4" THICK	m2					
	2411.604	CONC RETAINING WALL (SPECIAL)	m2					
	2412.511	3660 mm X 3050 mm PRECAST CONC BOX CULV	m					
	2412.512	3050 mm x 1520 mm PC C BOX CULV END SECT	EA					
	2452.510	STEEL H-PILING DRIVEN 250 mm	m					
	2452.510	STEEL H-PILING DRIVEN 300 mm	m					
	2452.511	STEEL H-PILING DELIVERED 250 mm	m					
	2452.511	STEEL H-PILING DELIVERED 300 mm	m					
	2452.520	TEST PILE, STEEL H-PILE 15.5 m LONG 300 mm	EACH					
	2504.602	INSTALL HYDRANT & VALVE	EA					
	2504.602	CONNECT TO EXISTING WATERMAIN	EA					
	2504.602	500 mm VALVE	EA					
	2504.602	ADJUST VALVE	EA					
	2504.603	500 mm WATERMAIN DUCTILE IRON CL 52	m					
	2504.608	DUCTILE IRON FITTINGS	kg					
	2554.501	TRAFFIC BARRIER DESIGN B8307	m					
	2557.501	WIRE FENCE DESIGN 1.8-9322	m					
	2557.501	WIRE FENCE DESIGN 2.4V-9322	m					
	2557.523	METAL BRACE ASSEMBLY (CH LINK FE)	EACH					
	2557.527	ELECTRICAL GROUND	EACH					
	2557.603	INSTALL RUB RAILING	m					
	2557.603	TEMPORARY FENCING	m					
	2557.603	INSTALL CHAIN LINK FENCE	m					
	2563.601	TRAFFIC CONTROL	LUMP SUM					
	2575.501	SEEDING	HECTARE					
	2575.502	SEED MIXTURE TYPE 50A	kg					
	2575.511	MULCH MATERIAL TYPE 1	t					
	2575.519	DISK ANCHORING	HECTARE					
	2575.523	EROSION CONTROL BLANKETS CATEGORY 3	m2					
	2575.531	COMMERCIAL FERT ANALYSIS 10-10-10	t					

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

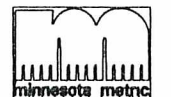
MN/DOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
M7036D	PEDESTRIAN CURB RAMP
M8000I	STANDARD BARRICADES
M8307P	STEEL PLATE BEAM GUARDRAIL
M9322J	CHAIN LINK FENCE

BASIS OF ESTIMATED QUANTITIES	
AGGREGATE BASE CLASS 3 & 5	2,160 t/m3
BITUMINOUS MIXTURE	2,400 t/m3
BITUMINOUS MATERIAL FOR TACK COAT	0.23 L/m2
SEED MIXTURE 50A	50 kg/ha
MULCH MATERIAL TYPE 1	4.5 t/ha
COMMERCIAL FERTILIZER ANALYSIS 10-10-10	560 kg/ha

EARTHWORK SUMMARY			
COMMON EXCAVATION	733 m3 (EV)	REGULAR	383 m3 (EV)
		TOPSOIL	350 m3 (EV)
EMBANKMENT	2366 m3 (CV)	TOPSOIL	350 m3 (CV)
		MAT. FROM EXCAV. [383/1.3]	295 m3 (CV)
		COMMON BORROW	1721 m3 (CV)

QUANTITY NOTES

- 351 FOR ACCESS PAVING.
- 191 FOR ACCESS PAVING.
- FOR TIMBER RUB RAILING
- BROWN VINYL CHAIN LINK FENCE.
- TWO 457 mm x 457 mm STOP SIGNS
- INCLUDES 3 m OF CURB AND GUTTER
- SHREDDED HARDWOOD MULCH



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: 11/18/99 12:29:58 PM
 CAD FILE: 8126001.dwg

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 DATE: 5/16/99 REG. NO. 23801

NO.	DATE	BY	REVISION DESCRIPTION



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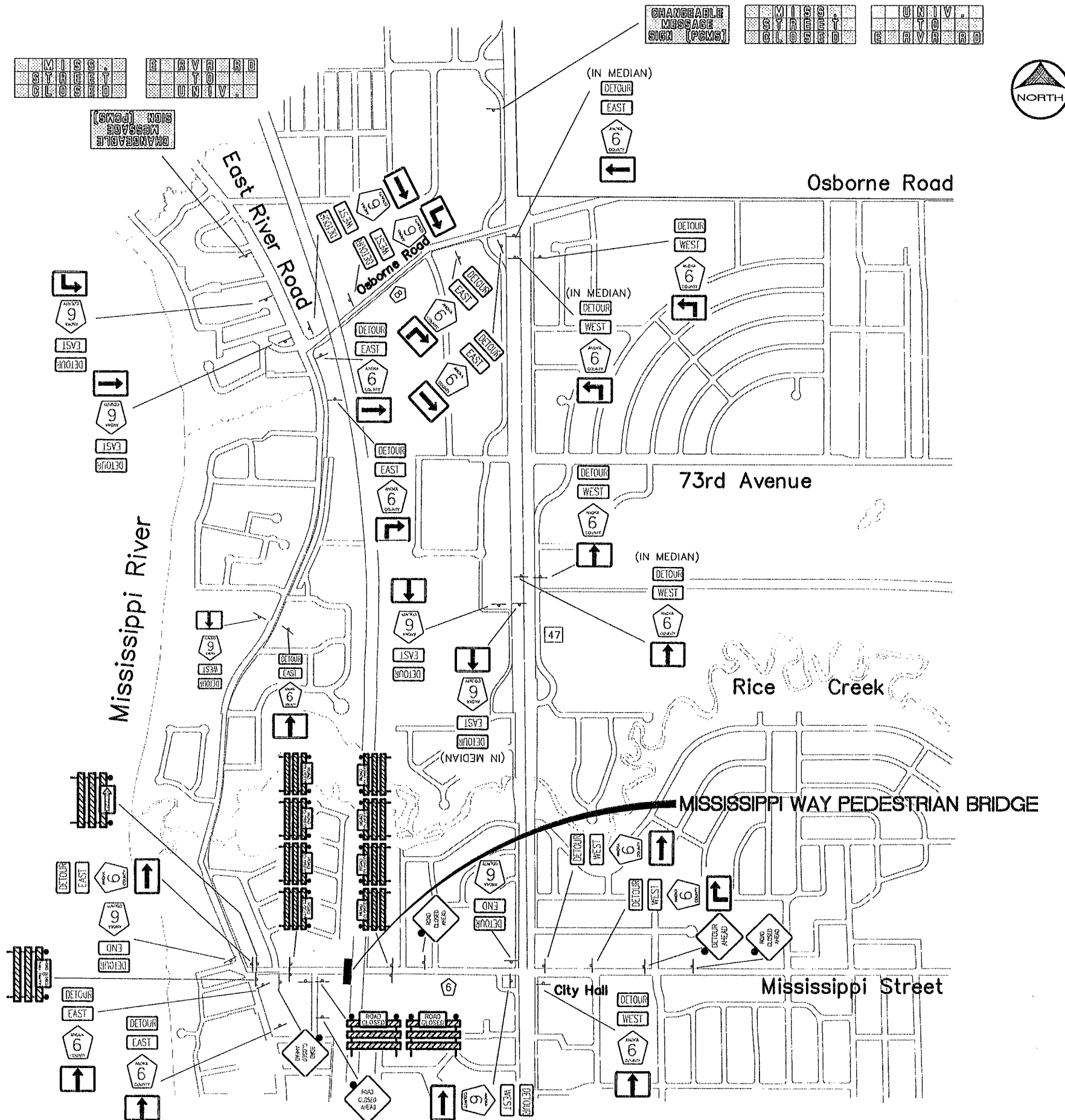
ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

STATEMENT OF ESTIMATED QUANTITIES

SHEET NO.
 2
 OF
 48

MUTCD	SIZE INCHES	SIZE METRIC	PANEL FT 2	AREA M 2	INSERT	QUANTITY EAST	QUANTITY WEST
W20-2A	48"x48"	1200 mm x 1200 mm	16	1.44			1
W20-3	48"x48"	1200 mm x 1200 mm	16	1.44		2	2
R11-2	48"x30" TYPE III 8.0'	1200 mm x 750 mm	10	0.90		6	4
M4-10	48"x30" TYPE III 8.0'	1200 mm x 750 mm	10	0.90		1	
R11-4	48"x30" TYPE III 8.0'	1200 mm x 750 mm	10	0.90		1	
M4-8	24" x12"	600 x 300	2.0	0.18			
M3-2	24" x12"	600 x 300	2.0	0.18			
M1-6	24" x24"	600 x600	4.0	0.36		13	
M5-1L	21" x15"	525 x 375	2.18	0.20		1	
M6-1L	21" x15"	525 x 375	2.18	0.20		2	
M6-1R	21" x15"	525 x 375	2.18	0.20		3	
M5-1L	21" x15"	525 x 375	2.18	0.20		2	
M6-3	21" x15"	525 x 375	2.18	0.20		5	
M4-8	24" x12"	600 x 300	2.0	0.18			11
M3-2	24" x12"	600 x 300	2.0	0.18			3
M1-6	24" x24"	600 x600	4.0	0.36			2
M5-1L	21" x15"	525 x 375	2.18	0.20			1
M6-1L	21" x15"	525 x 375	2.18	0.20			1
M6-1R	21" x15"	525 x 375	2.18	0.20			4
M5-1L	21" x15"	525 x 375	2.18	0.20			
M6-3	21" x15"	525 x 375	2.18	0.20			
M4-6	24" x12"	600 x 300	2.0	0.18		1	1
M4-8	24" x12"	600 x 300	2.0	0.18		1	
M1-6	24" x12"	600 x 600	4.0	0.36		1	
						1	1

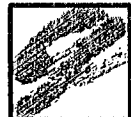
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT ADDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL DATED JANUARY 1998.



DESIGNED BY: _____ DRAWN BY: *gry*
 APPROVED: _____ JOB NUMBER: 805600J
 CAD DATE: May 06, 1999 12:40:58 p.m.
 CAD FILE: 805600J\TUNNEL\MISC\BRIDGE_DETOUTR.DWG

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 DATE: 5/11/99 REG. NO. 23801

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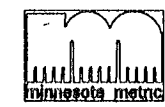
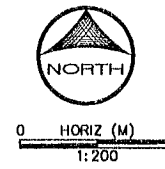
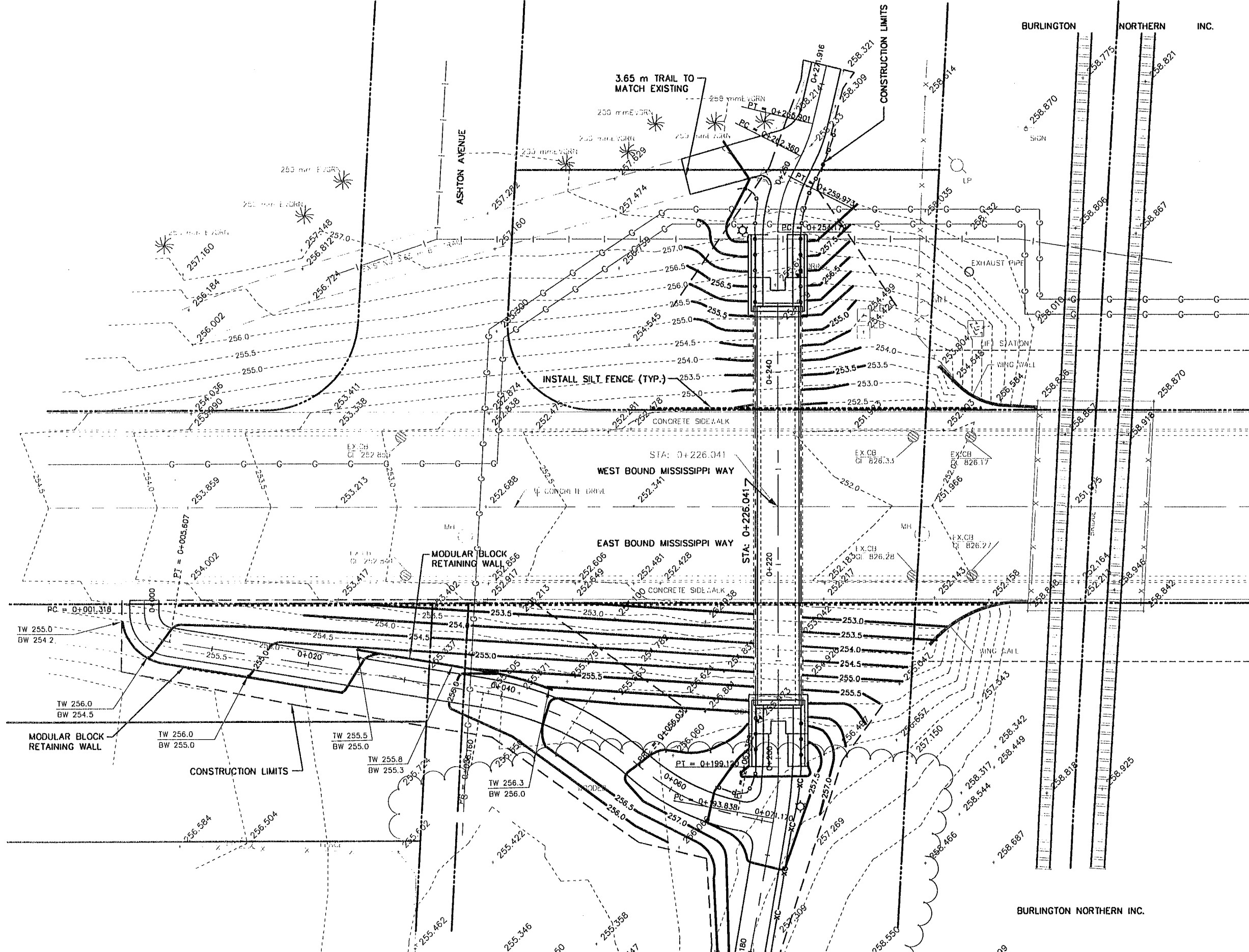
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 (651) 644-4389

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE
 DETOUR PLAN

SHEET NO.
 4
 OF
 48

BRIDGE NO.
 02565



- NOTES:
- ALL DISTURBED AREAS FROM STA. 0+177 TO STA. 0+271 ALONG THE NORTH/SOUTH TRAIL SHALL BE SODDED.
 - ALL DISTURBED AREAS ALONG EAST/WEST TRAIL SHALL BE SODDED.

DESIGNED BY: --- DRAWN BY: RKM
 APPROVED: --- JOB NUMBER 805600J
 CAD DATE: ---
 CAD FILE: AIRPORT BRIDGE AND UNDERPASS

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 DATE 5/19/97 REG. NO. 23801

NO.	DATE	BY	REVISION DESCRIPTION

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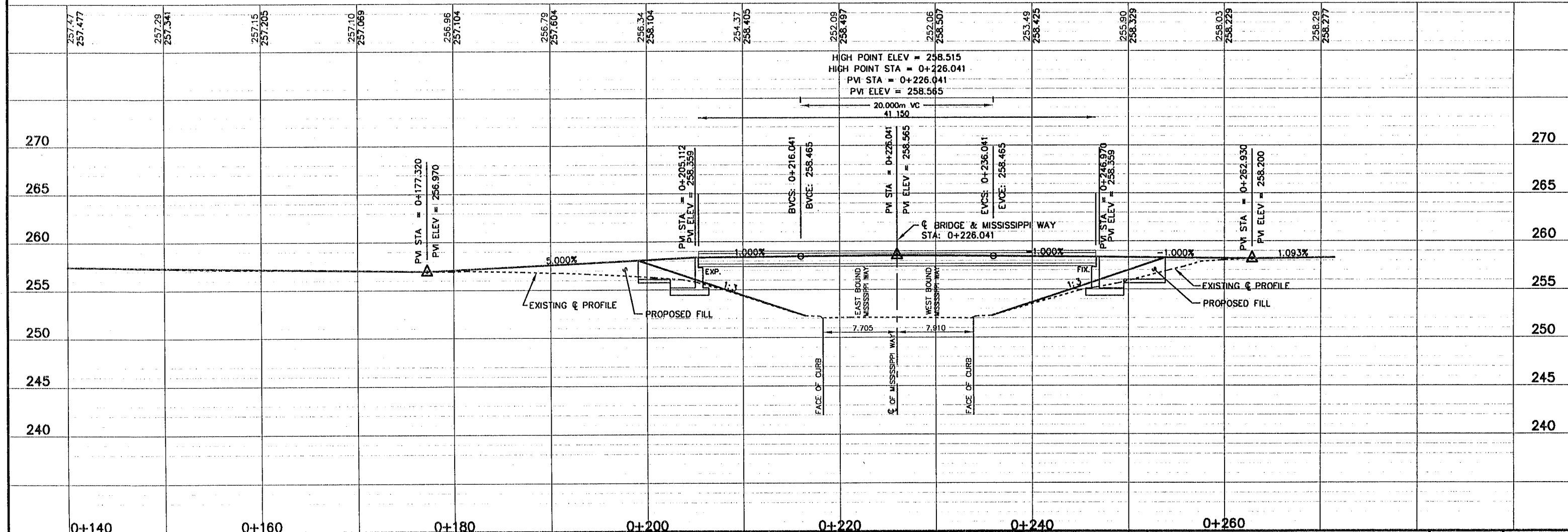
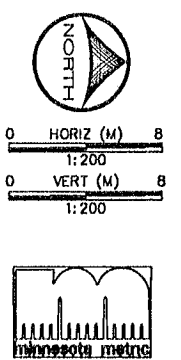
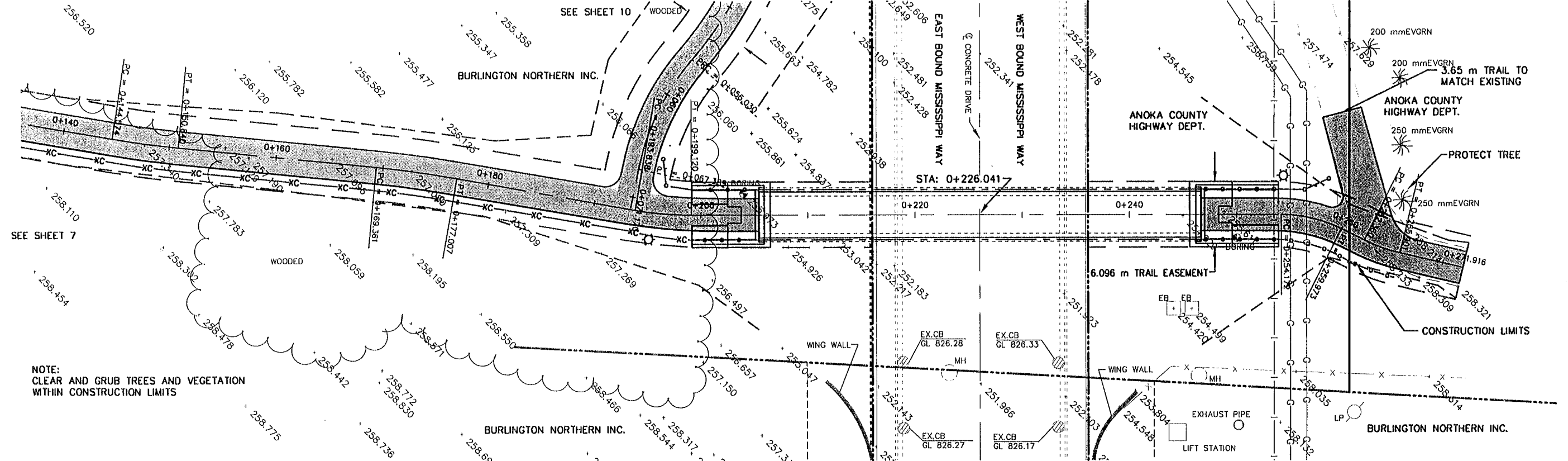
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

SOUTH AND NORTH APPROACHES
 GRADING PLAN

SHEET NO.
5
 OF
48

BRIDGE NO.
02565



DESIGNED BY: --- DRAWN BY: RKM
APPROVED: --- JOB NUMBER 805600J
CAD DATE: ---
CAD FILE: ---

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DATE 5/18/97 REG. NO. 23001

NO.	DATE	BY	REVISION DESCRIPTION

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(651) 644-4389

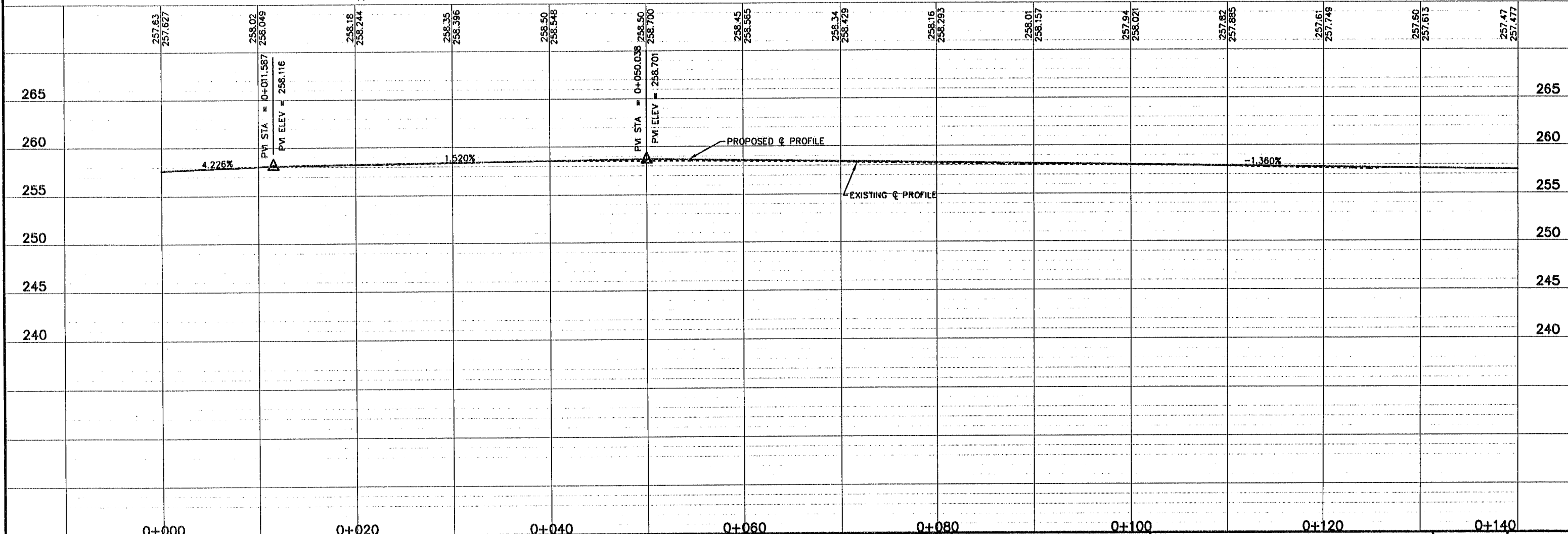
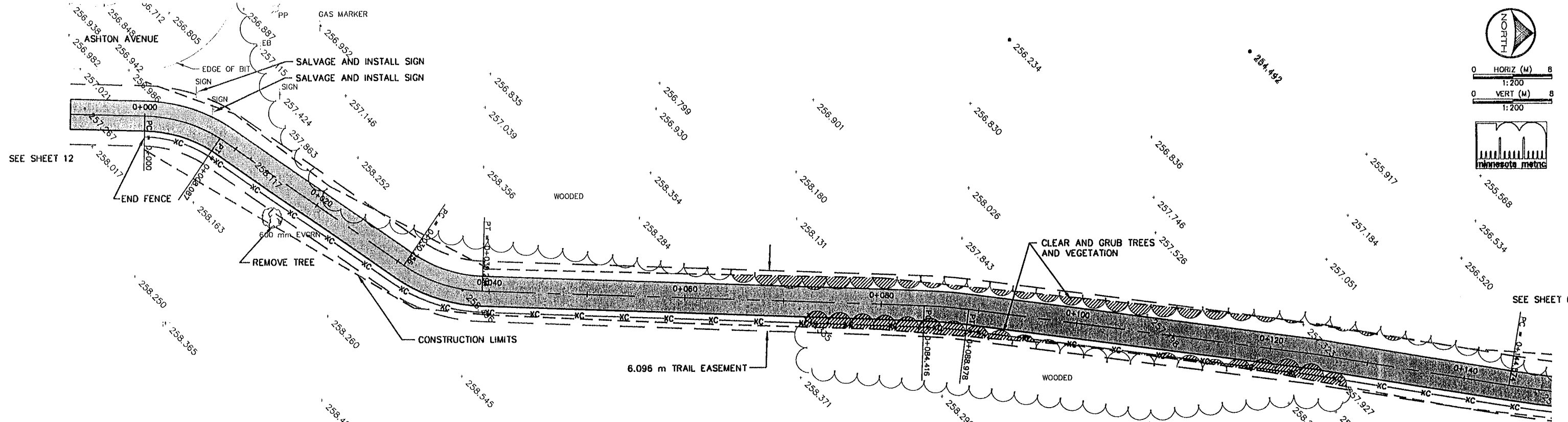
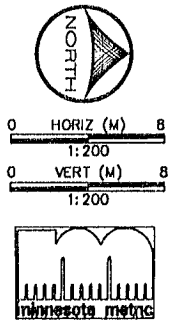
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ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE
PLAN AND PROFILE

SHEET NO.
6
OF
48


BRIDGE NO.
02565



DESIGNED BY: --- DRAWN BY: RKM
 APPROVED: --- JOB NUMBER B05600J
 CAD DATE: Mar. 18, 1999 9:31:43 a.m.
 CAD FILE: B:\B05600\B05600-1.dwg

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 DATE 5/10/99 REG. NO. 23801

NO.	DATE	BY	REVISION DESCRIPTION

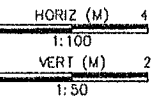
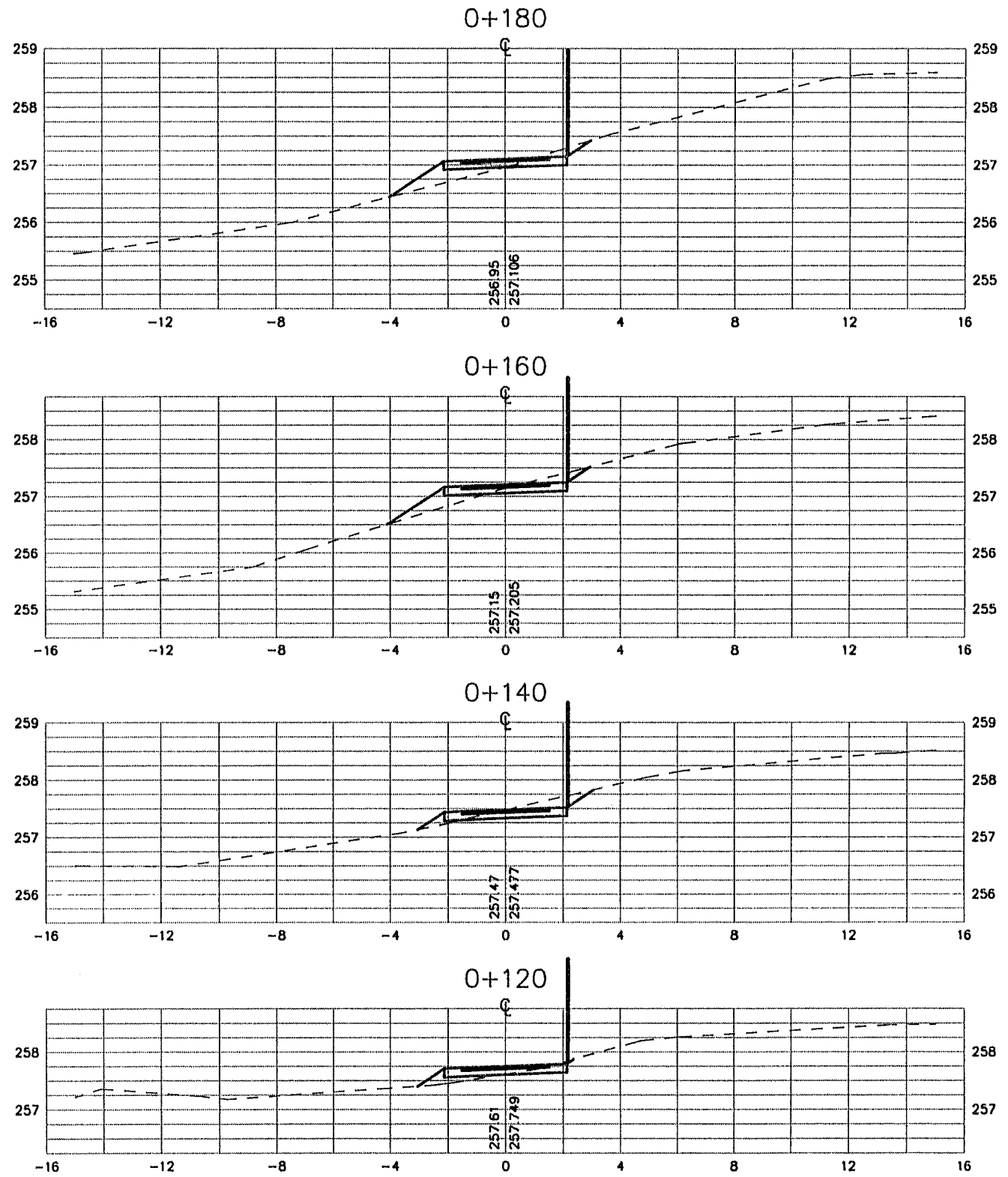
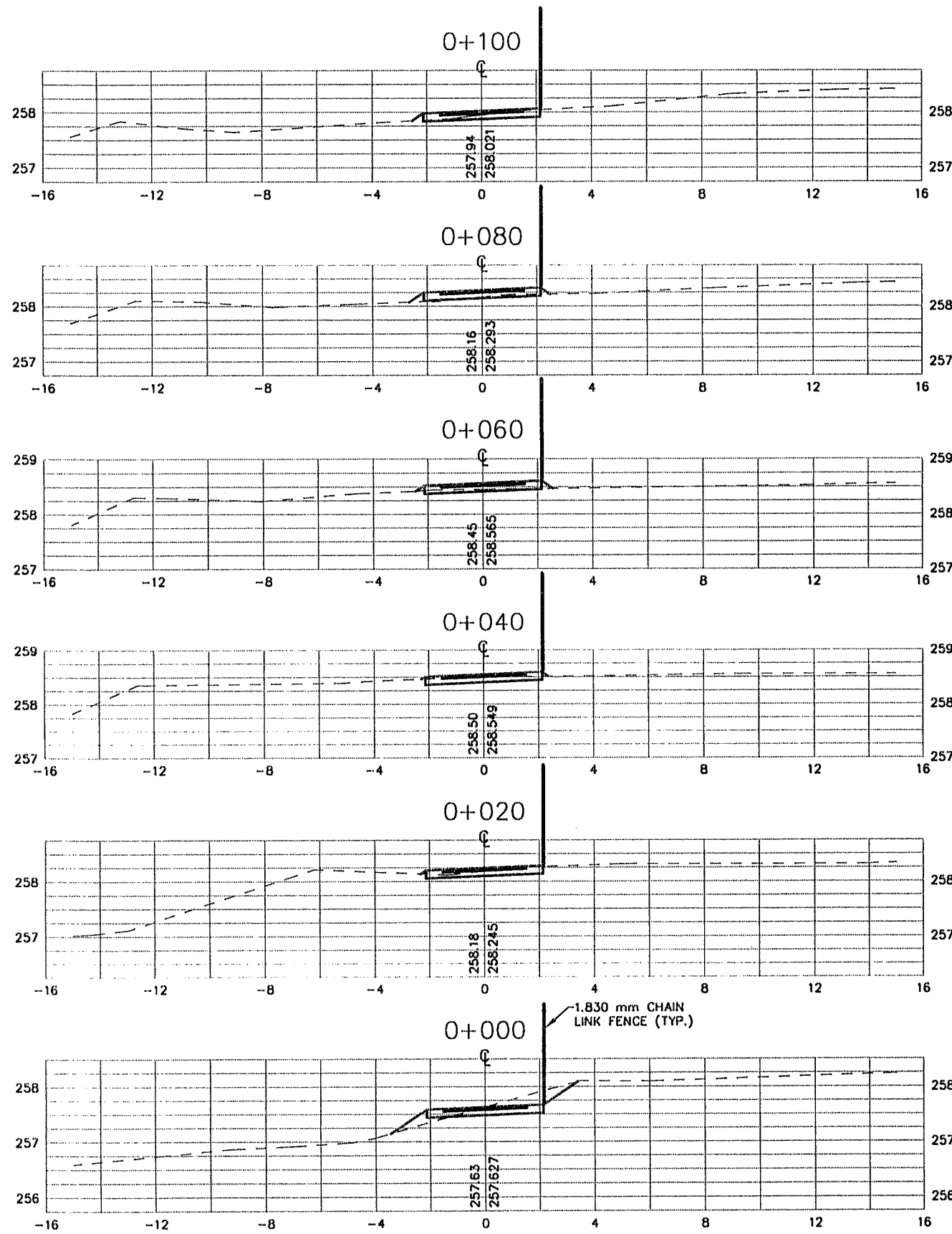
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

SOUTH TRAIL EXTENSION
 PLAN AND PROFILE

SHEET NO.
 7
 OF
 48

BRIDGE NO.
 02565



DESIGNED BY: --- DRAWN BY: RKM
 APPROVED: --- JOB NUMBER B05600J
 CAD DATE: Nov. 18, 1999 9:51:17 am
 CAD FILE: B056 211.dwg

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 DATE 3/18/99 REG. NO. 23801

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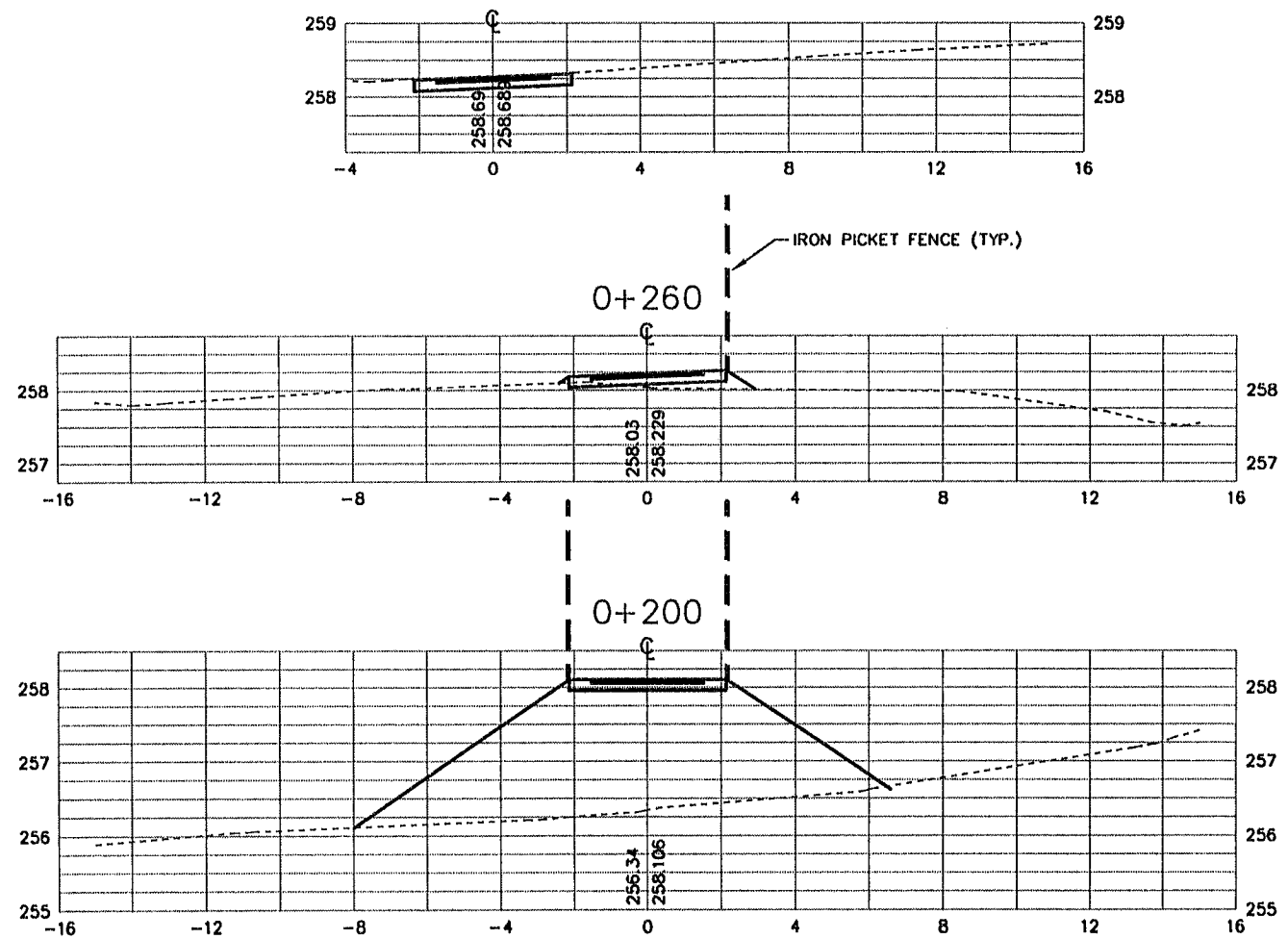
ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

SOUTH TRAIL EXTENSION
 CROSS SECTIONS

SHEET NO.
8
 OF
48

BRIDGE NO.
02565

0 HORIZ (M) 4
 1:100
 0 VERT (M) 2
 1:50



DESIGNED BY: _____ DRAWN BY: RKM
 APPROVED: _____ JOB NUMBER 805600J
 CAD DATE: _____
 CAD FILE: _____

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 DATE 5/18/99 REG. NO. 23801

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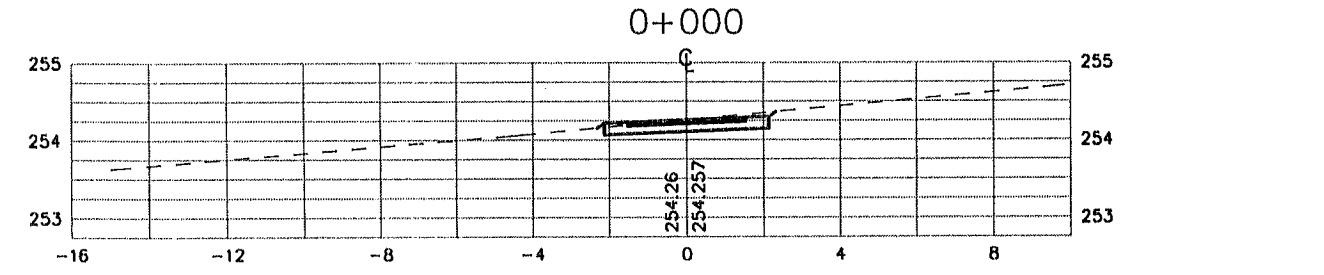
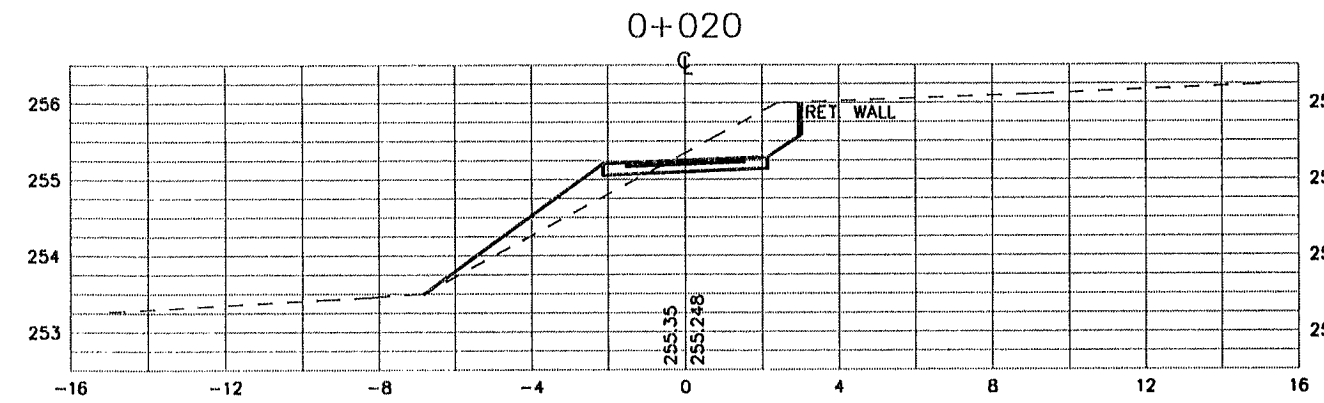
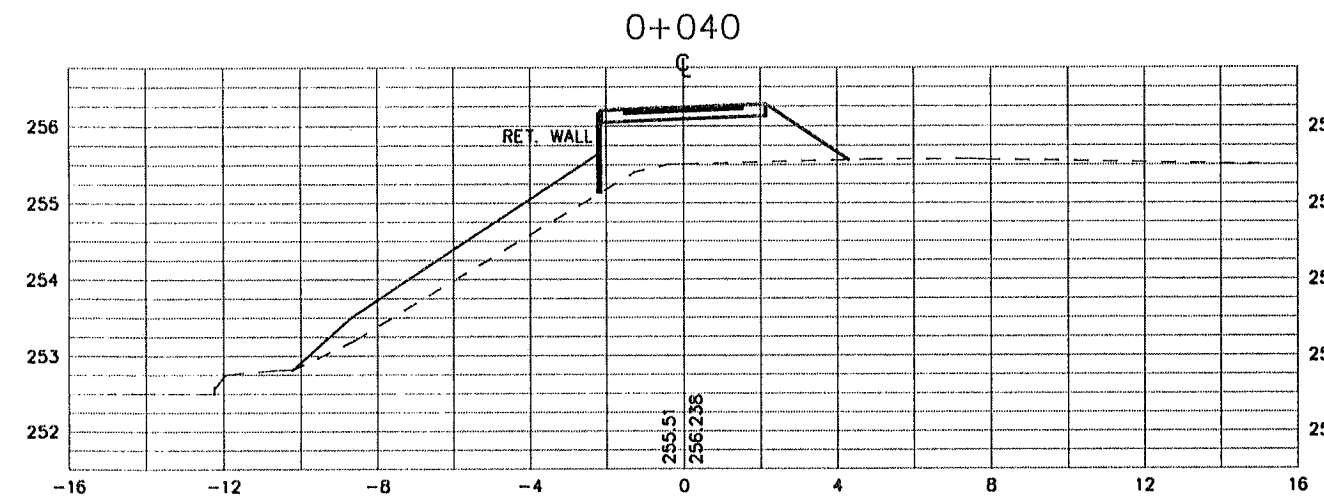
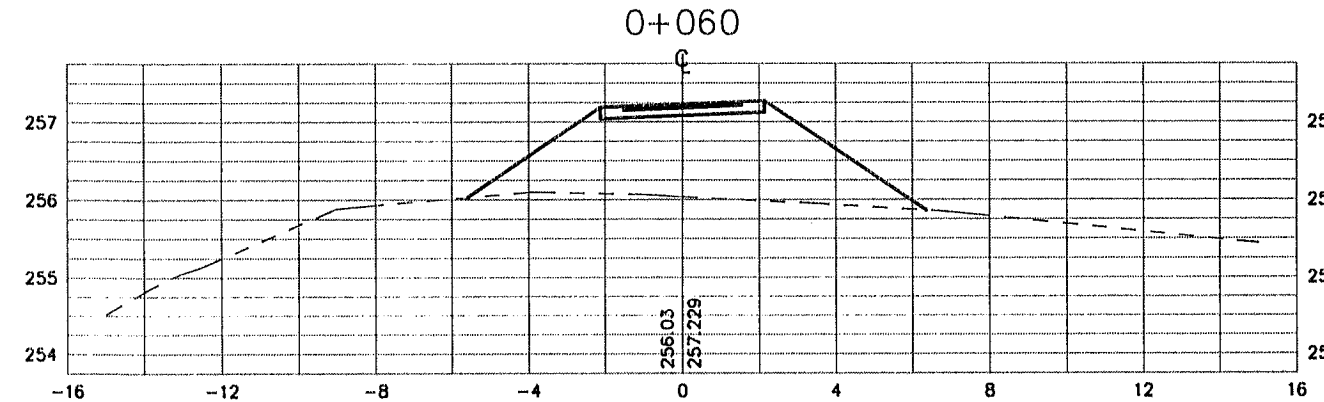
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

SOUTH TRAIL EXTENSION
 CROSS SECTIONS

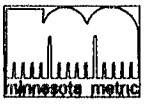
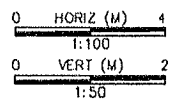
SHEET NO.
 9
 OF
 48

BRIDGE NO.
 02565



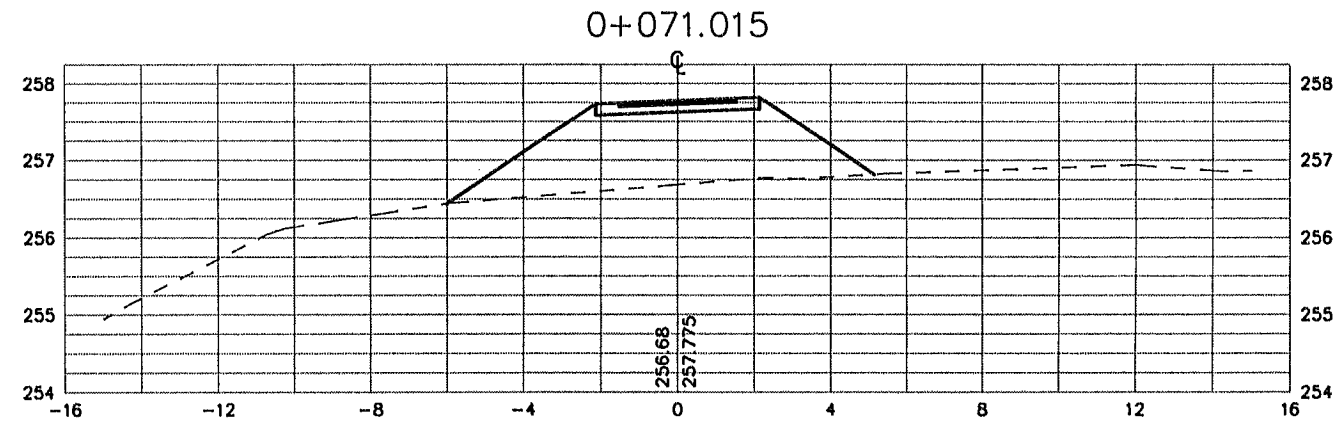
WEST TRAIL VOLUMES

STATION	AREAS		VOLUMES		CUMULATIVE VOLUMES	
	Square Meters		Cubic Meters		Cubic Meters	
	CUT	FILL	CUT	FILL	CUT	FILL
0+000	0.645	0.005	26.484	15.643	26.484	15.643
0+020	2.003	1.559	20.034	133.707	46.518	149.350
0+040	0.000	11.811	0.000	221.338	46.518	370.687
0+060	0.000	9.029	0.000	93.205	46.518	463.892
0+071.015	0.000	7.857	0.000	0.000	46.518	463.892



BRIDGE AND NORTH/SOUTH TRAIL VOLUMES

STATION	AREAS		VOLUMES		CUMULATIVE VOLUMES	
	Square Meters		Cubic Meters		Cubic Meters	
	CUT	FILL	CUT	FILL	CUT	FILL
0+000	0.840	0.210	12.302	2.183	12.302	2.183
0+020	0.391	0.008	7.912	0.210	20.214	2.393
0+040	0.401	0.013	5.568	0.580	25.782	2.973
0+060	0.156	0.045	2.396	1.334	28.178	4.307
0+080	0.083	0.088	3.941	1.150	32.120	5.457
0+100	0.311	0.027	5.041	2.724	37.161	8.181
0+120	0.193	0.246	9.359	3.636	46.520	11.817
0+140	0.743	0.118	12.890	5.944	59.410	17.761
0+160	0.531	0.491	8.942	11.337	68.353	29.098
0+180	0.376	0.617	3.764	167.200	72.117	196.297
0+200	0.000	16.103	0.000	133.110	72.117	329.408
0+205.395	0.000	33.242	0.000	242.753	72.117	572.160
0+220	0.000	0.000	0.000	0.000	72.117	572.160
0+240	0.000	0.000	0.000	0.000	72.117	572.160
0+246.642	0.000	44.525	0.000	147.866	72.117	720.026
0+260	0.061	0.301	0.410	299.392	72.527	1019.418
0+270	0.703	0.000	3.615	1.575	76.142	1020.994
0+271.870	0.000	0.000	0.657	0.000	76.799	1020.994
0+271.871	0.000	0.000	0.000	0.000	76.799	1020.994



DESIGNED BY: _____ DRAWN BY: RKM
 APPROVED: _____ JOB NUMBER 805600J
 CAD DATE: May 13, 1999 11:41:26 a.m.
 CAD FILE: ANOKA COUNTY BRIDGE 805600J.dwg

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 DATE 5/18/99 REG. NO. 23801

NO.	DATE	BY	REVISION DESCRIPTION

1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

Howard R. Green Company
 CONSULTING ENGINEERS

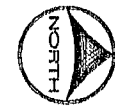
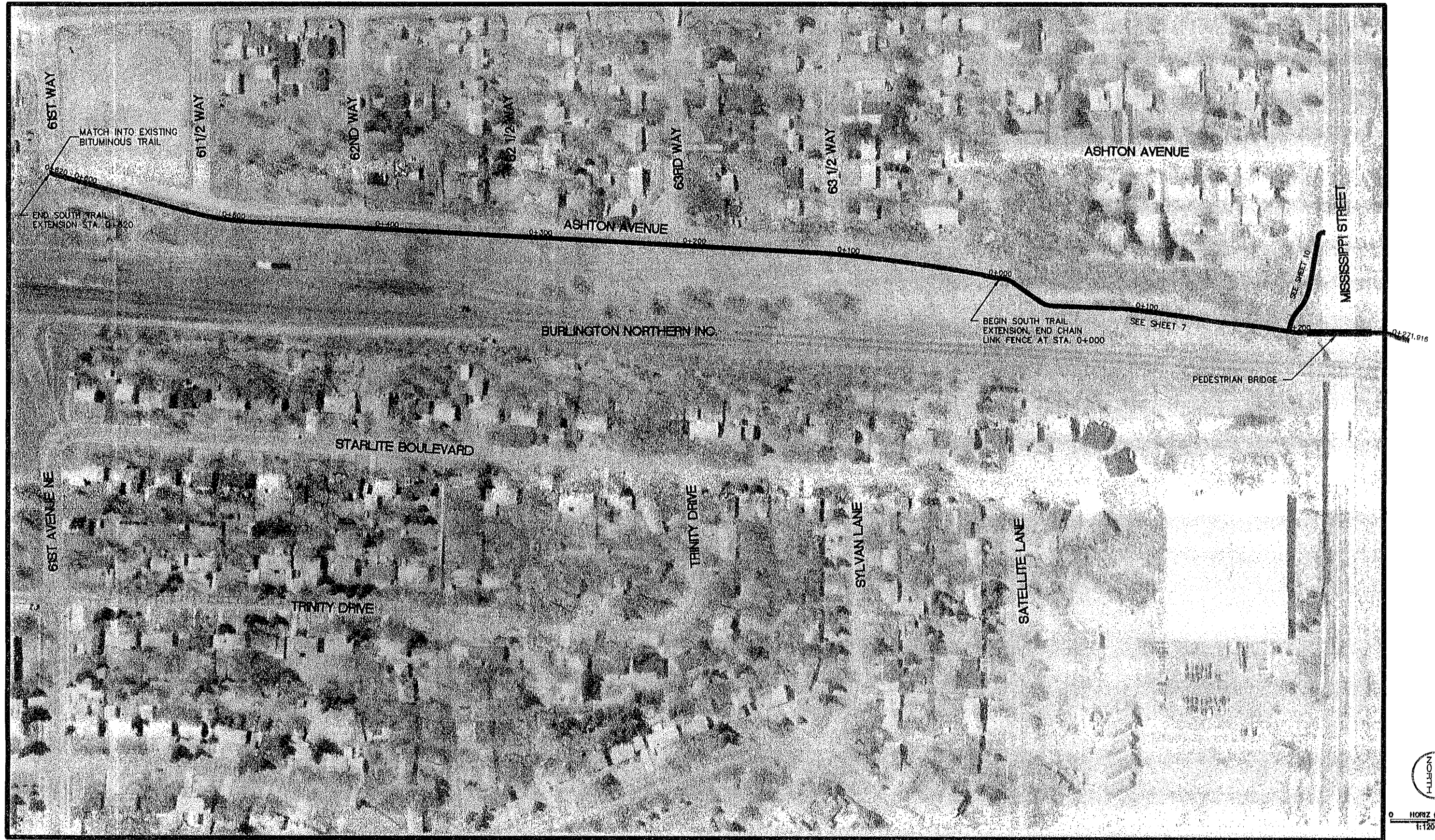
ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

WEST TRAIL EXTENSION CROSS SECTIONS

SHEET NO.
 11
 OF
 48

BRIDGE NO.
 02565

MISSISSIPPI STREET SOUTH TRAIL EXTENSION



0 HORIZ (M) 49
1:1250

DESIGNED BY: --- DRAWN BY: *gcb*
 APPROVED: --- JOB NUMBER 805600P
 CAD DATE: May 18, 1999 3:12:44 p.m.
 CAD FILE: 805600J\MISSISSIPPI-MET.DWG

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Howard R. Green
 DATE 5/19/99 REG. NO. 23801

NO.	DATE	BY	REVISION DESCRIPTION

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 (651) 644-4389

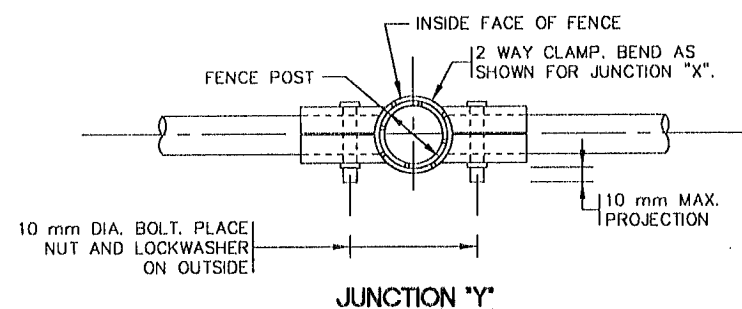
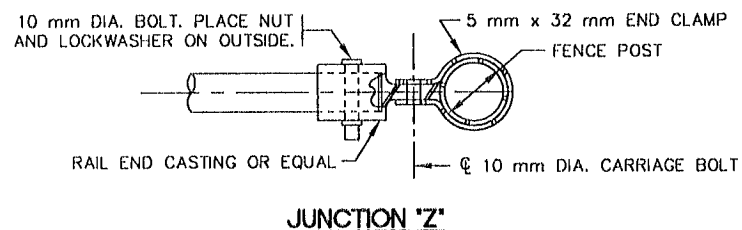
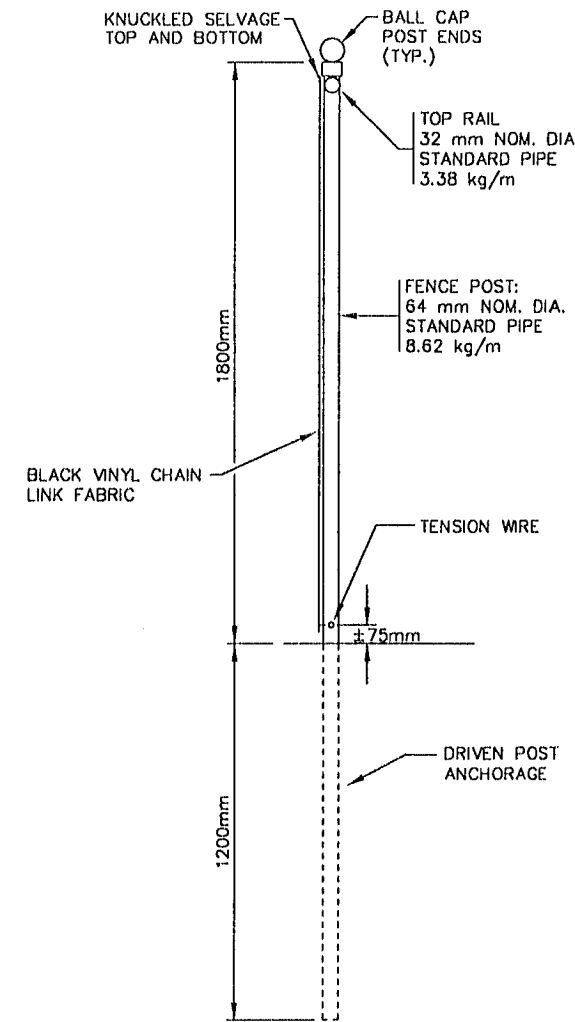
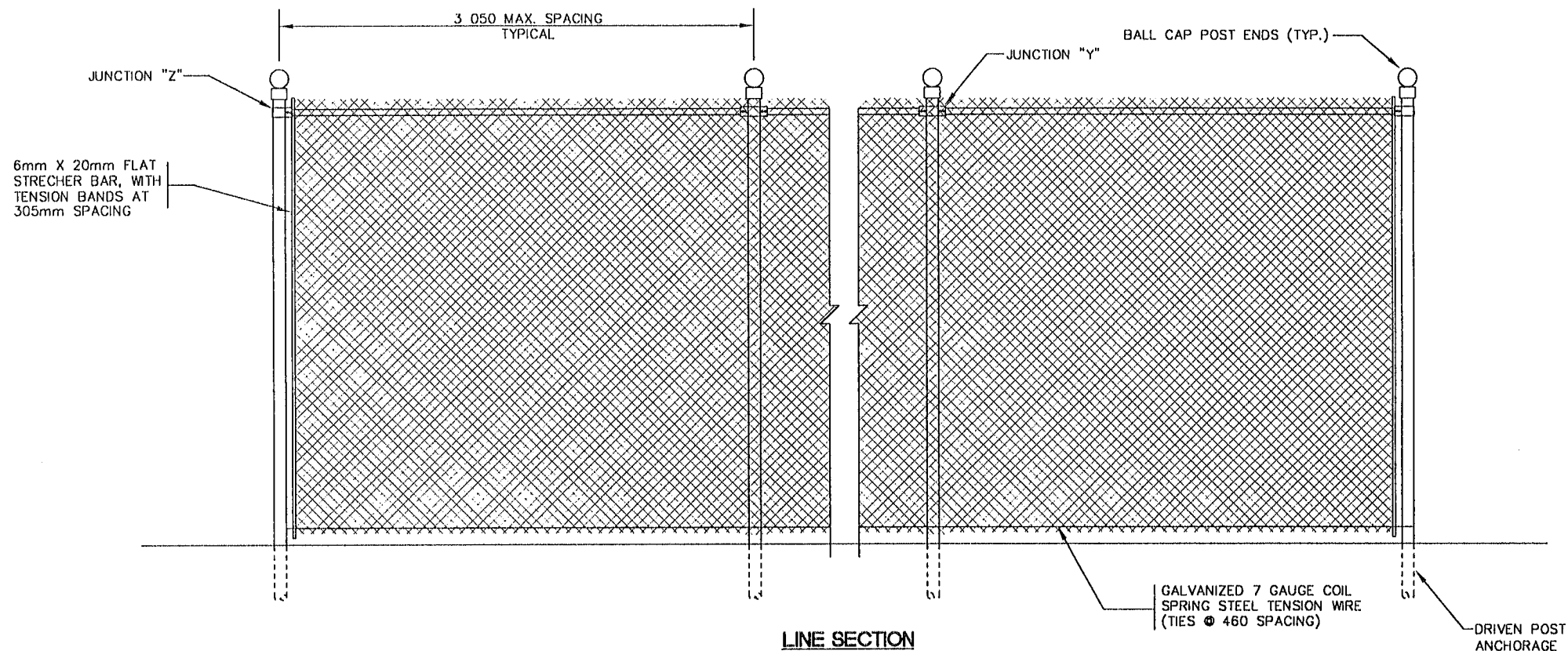
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

SOUTH TRAIL EXTENSION
 PLAN TO 61ST WAY

SHEET NO.
 12
 OF
 48

BRIDGE NO.
 02585



GENERAL NOTES:

MAXIMUM SPACING FOR 64 mm STANDARD PIPE POSTS = 3050 mm. POST SPACING OF 3050 mm IS DESIRED FOR EFFICIENT USE OF STANDARD PIPE LENGTHS.

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

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

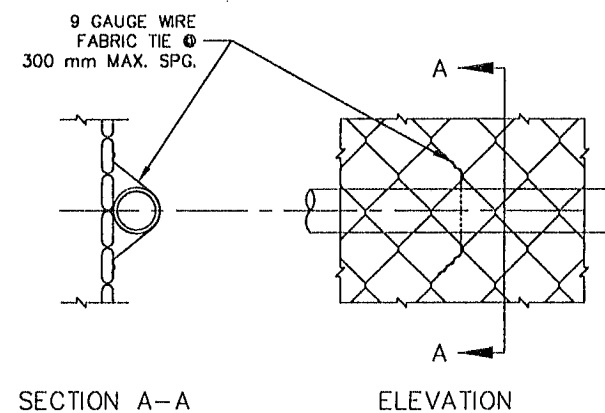
ALL POSTS SHALL HAVE A MEANS TO SECURELY HOLD THE BOTTOM TENSION WIRE IN POSITION AND ALLOW FOR THE REMOVAL OF A POST WITHOUT DAMAGING THE BOTTOM WIRE.

WIRE TIES MAY BE 9 GAUGE GALVANIZED STEEL OR 5 mm MIN. ALUMINUM ALLOY CONFORMING TO ASTM B211.ALOY 1100-H18. USE 12.5 GAUGE GALVANIZED HOG RINGS FOR TENSION WIRE TIES.

CHAIN LINK FABRIC SHALL BE 9 GA., 50mm MESH WITH KNUCKLED SELVAGE TOP AND BOTTOM, AND CONFORM TO THE REQUIREMENTS OF AASHTO M 181 TYPE IV, VINYL COATED.

Ø OF FENCE POST ANCHORAGE TO BE A MINIMUM OF 150 mm FROM JOINTS

ALL FENCE MATERIAL, INCLUDING ALL CHAIN LINK FABRIC, POSTS, HARDWARE, JUNCTIONS, AND MISCELLANEOUS ITEMS SHALL HAVE A BLACK VINYL COATING APPLIED.



FABRIC TIE



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 APPROVED: JOB NUMBER 805800J
 CAD DATE: May 17, 1999 11:43 am
 CAD FILE: 805800.dwg

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 DATE: 5/18/99 REG. NO. 23901

NO.	DATE	BY	REVISION DESCRIPTION



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 (651) 644-4389
Howard R. Green Company
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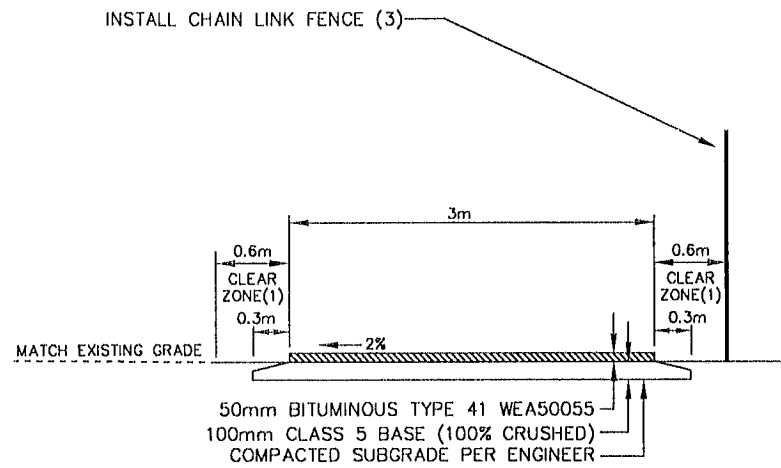
ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

WIRE FENCE
 PLAN AND DETAILS

SHEET NO.
13
 OF
48

BRIDGE NO.
02565

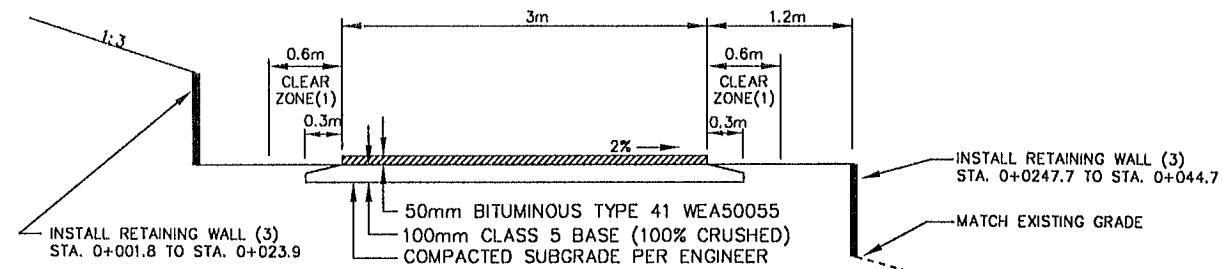
SOUTH TRAIL EXTENSION



TYPICAL BITUMINOUS TRAIL SECTION

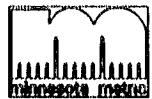
- (1) NO OBJECTS ALLOWED WITHIN 0.6m CLEAR ZONE OF TRAIL
- (2) TRAIL DRAINS 2% RIGHT OF LEFT AS DIRECTED BY THE ENGINEER
- (3) INSTALL 1.8m HIGH CHAIN LINK FENCE ALONG EAST SIDE OF TRAIL
STA 0+000 TO 0+199.175

WEST TRAIL EXTENSION



TYPICAL BITUMINOUS TRAIL SECTION

- (1) NO OBJECTS ALLOWED WITHIN 0.6m CLEAR ZONE OF TRAIL
- (2) TRAIL DRAINS 2% RIGHT OF LEFT AS DIRECTED BY THE ENGINEER
- (3) INSTALL MODULAR BLOCK RETAINING WALL
STA 0+001.825 TO 0+023.935
STA. 0+024.685 TO 0+044.655



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: 5/1/99
 CAD FILE: 805600J.dwg

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 DATE 5/1/99 REG. NO. 37801

NO.	DATE	BY	REVISION DESCRIPTION



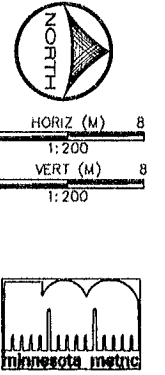
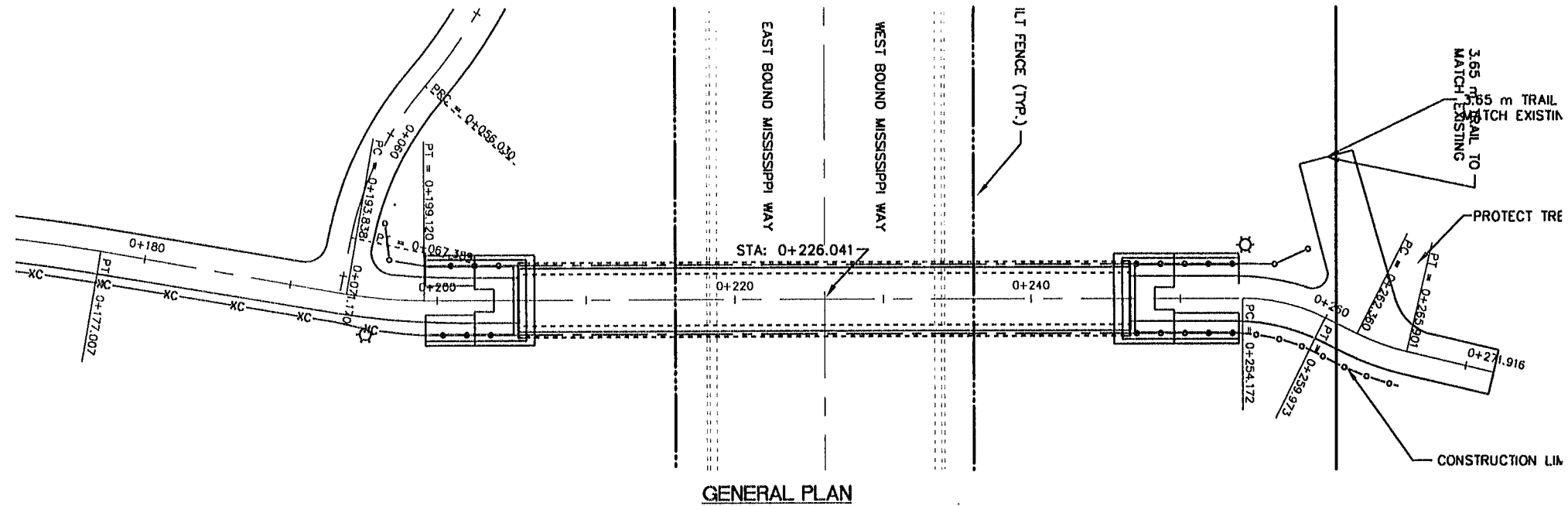
1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389
 Howard R. Green Company
 CONSULTING ENGINEERS

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

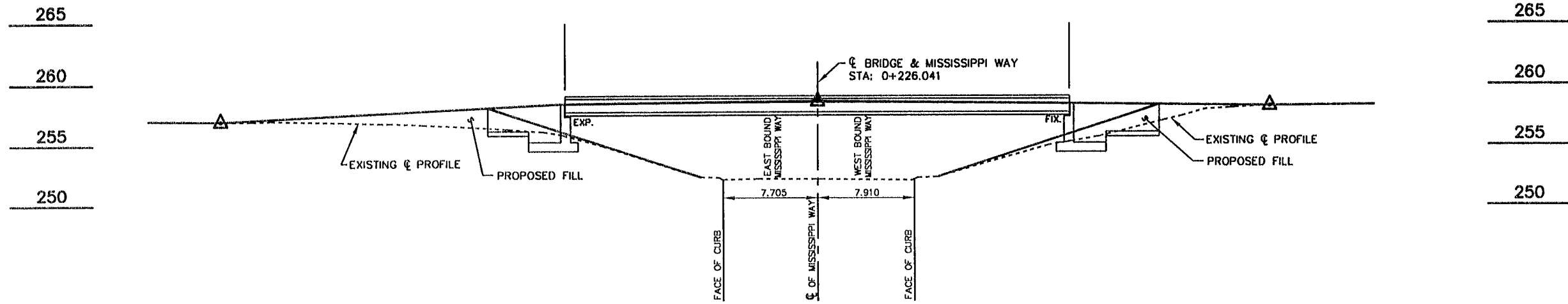
PEDESTRIAN BRIDGE
 TYPICAL SECTIONS
 AND MISCELLANEOUS DETAILS

SHEET NO.
 14
 OF
 48

BRIDGE NO.
 02585

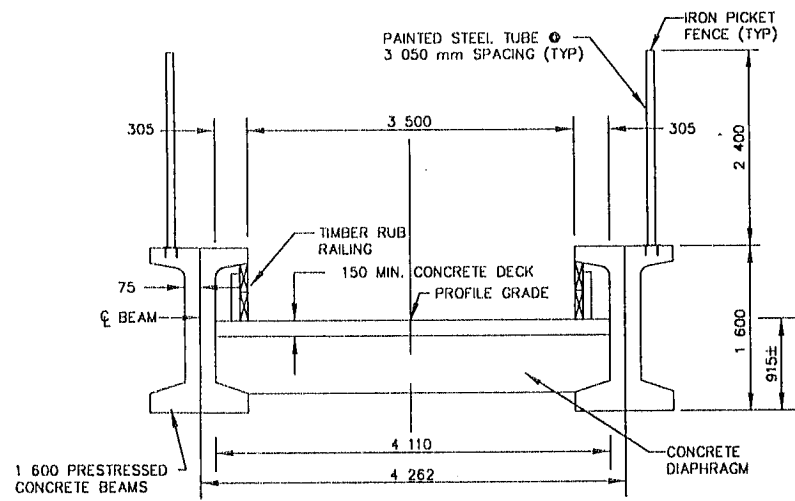


GENERAL PLAN



GENERAL ELEVATION

ALL DIMENSIONS ARE IN MILLIMETERS (mm)
AND ALL ELEVATIONS ARE IN METERS (m)
EXCEPT AS NOTED.



TRANSVERSE SECTION THRU SLAB

SPEC. REF.	ITEM	UNIT	QUANTITY
2401.501	STRUCTURAL CONCRETE (1A43)	m ³	
2401.501	STRUCTURAL CONCRETE (3Y33)	m ³	
2401.501	STRUCTURAL CONCRETE (3Y43)	m ³	
2401.512	BRIDGE SLAB CONCRETE (3Y33)	m ²	
2401.541	REINFORCEMENT BARS	kg	
2401.541	REINFORCEMENT BARS, EPOXY COATED	kg	
2401.604	SPECIAL SURFACE FINISH	m ²	
2402.521	STRUCTURAL STEEL (3306)	kg	
2402.595	BEARING ASSEMBLY	EA	
2403.502	TREATED TIMBER	m ³	
2405.502	PRESTRESSED CONCRETE BEAMS 1600 mm	m	
2405.511	DIAPHRAGMS FOR TYPE 1600 mm PREST BEAMS	m	
2452.507	C-I-P CONCRETE PILING DELIVERED 305 mm	m	
2452.508	C-I-P CONCRETE PILING DRIVEN 305 mm	m	
2452.519	C-I-P CONCRETE PILE 18 m LONG 305 mm	EA	
2554.501	TRAFFIC BARRIER DESIGN B8307	m	
2557.501	WIRE FENCE DESIGN S-1 VINYL COATED	m	
2563.601	TRAFFIC CONTROL	LS	

CONSTRUCTION NOTES

THE 1995 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMMENDED BY THE NOVEMBER 20, 1995 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

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

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH 3301.

DESIGN DATA

1996 (AND CURRENT INTERIM) A.A.S.H.T.O. DESIGN SPECIFICATIONS.
DESIGN LIVE LOAD = 3.0 kN/m² (MAIN BEAMS)
4.1 kN/m² (LOCAL MEMBERS)
OR 44.6 kN MAINT. VEHICLE W/ IMPACT

LOAD FACTOR DESIGN METHOD
DEAD LOAD INCLUDES 0.82 kN/m² ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.

MAXIMUM ALLOWABLE DESIGN STRESSES:
REINFORCED CONCRETE:
f'_c = 28 MPa n=8
F_y = 414 MPa (REINFORCEMENT)

PRESTRESSED CONCRETE:
f'_c = 48 MPa n=6
F_y = 1860 MPa (LOW RELAXATION STANDARDS)

SLAB AREA = 325 m²
DESIGN SPEED = 30 km/h

APPROVED: _____
ANOKA COUNTY ENGINEER

DATED: _____

BRIDGE NO. 02565

PATHWAY OVER MISSISSIPPI WAY
.64 km WEST OF T.H. 47
IN THE CITY OF FRIDLEY

41 150 mm PRESTRESSED BEAM SPAN
3 500 mm CLEAR PATH

SPAN IDENTIFICATION NO. _____
SEC 15 T30N R24W
CITY OF FRIDLEY
ANOKA COUNTY

DESIGNED BY: SPL DRAWN BY: RKM
APPROVED: _____ JOB NUMBER 805600J
CAD DATE: May 18 1999 11:14:33 am
CAD FILE: 5300.DWG

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Howard R. Green
DATE 5/18/99 REG. NO. 13970

NO.	DATE	BY	REVISION DESCRIPTION

1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389

Howard R. Green Company
CONSULTING ENGINEERS

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

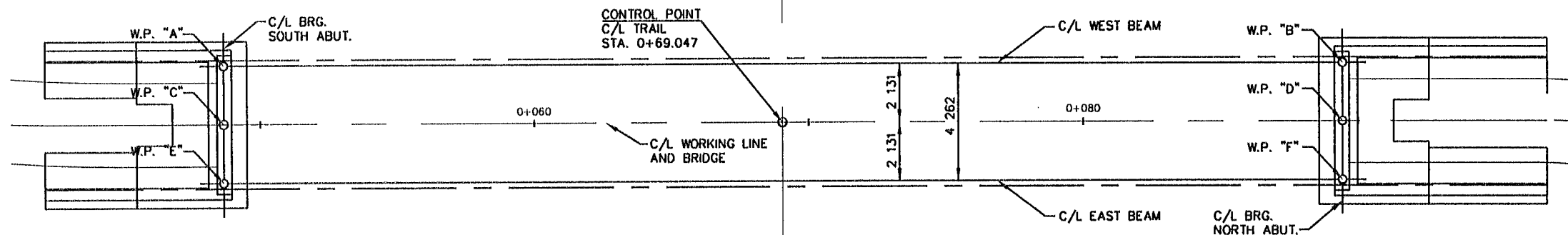
PEDESTRIAN BRIDGE
GENERAL PLAN AND ELEVATION

SHEET NO.
15
OF
48

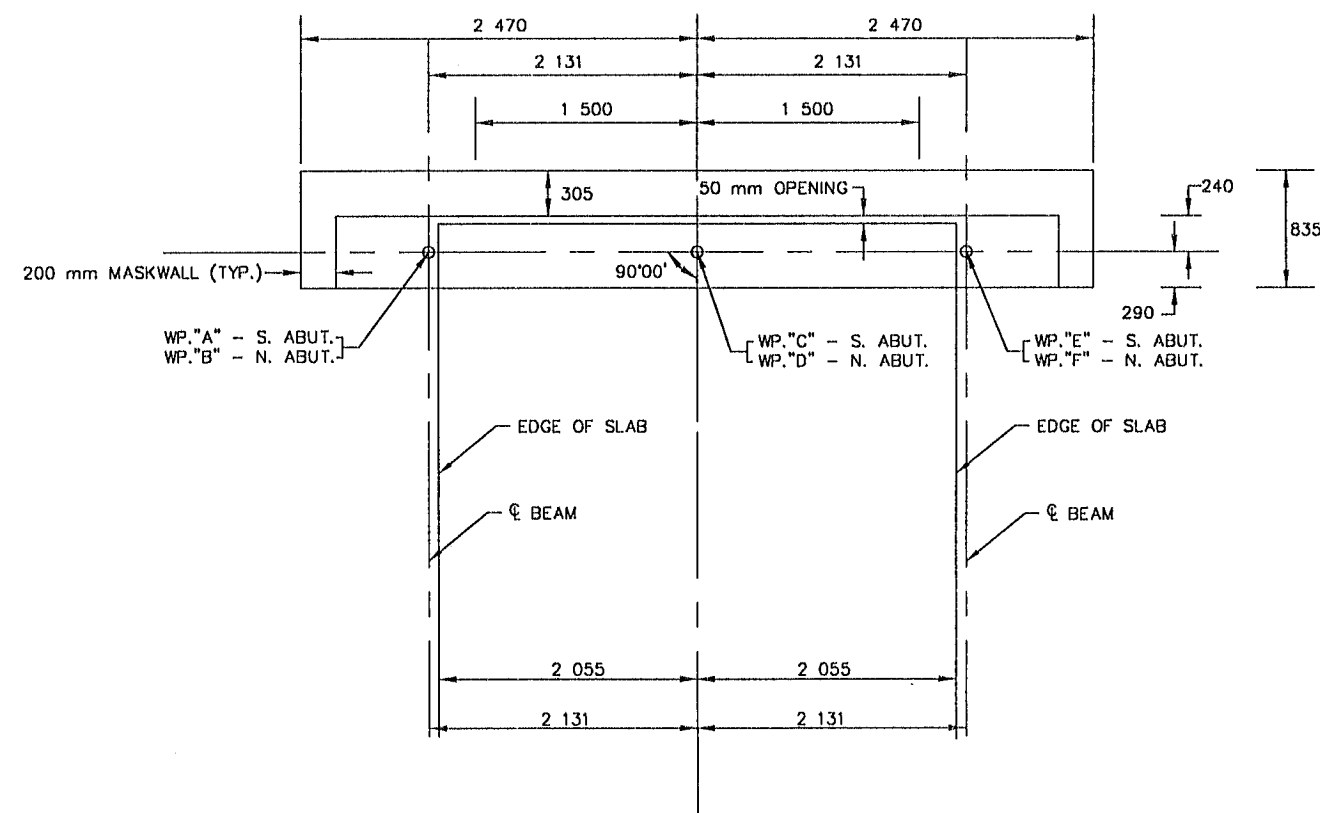
BRIDGE NO. 02565



0 HORIZ (M) 4
1:100
0 VERT (M) NA



WORKING POINT LAYOUT



TYPICAL ABUTMENT DETAIL

POINT	STATION	DIMENSIONS BETWEEN WORKING POINTS						COORDINATES		POINT
		A	B	C	D	E	F	X-COORDINATES	Y-COORDINATES	
A	0+048.663		40 768	2 131	40 824	4 262	40 990	3278.489	1503.583	A
B	0+089.436	40 768		40 824	2 131	4 262	40 990	3278.489	1544.351	B
C	0+048.663	2 131	40 824		40 768	2 131	40 824	3280.620	1503.583	C
D	0+089.436	40 824	2 131	40 768		40 824	2 131	3280.620	1544.351	D
E	0+048.663	4 262	40 990	2 131	40 824		40 768	3282.751	1503.583	E
F	0+089.436	40 990	4 262	40 824	2 131	40 768		3282.751	1544.351	F

THESE COORDINATES ARE SPECIFIC TO THIS PROJECT AND NOT PART OF THE STATE PLANE COORDINATE SYSTEM.

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 APPROVED: JOB NUMBER 805800J
 CAD DATE: 12/15/99
 CAD FILE:

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 DATE 5/18/99 REG. NO. 13970

NO.	DATE	BY	REVISION DESCRIPTION



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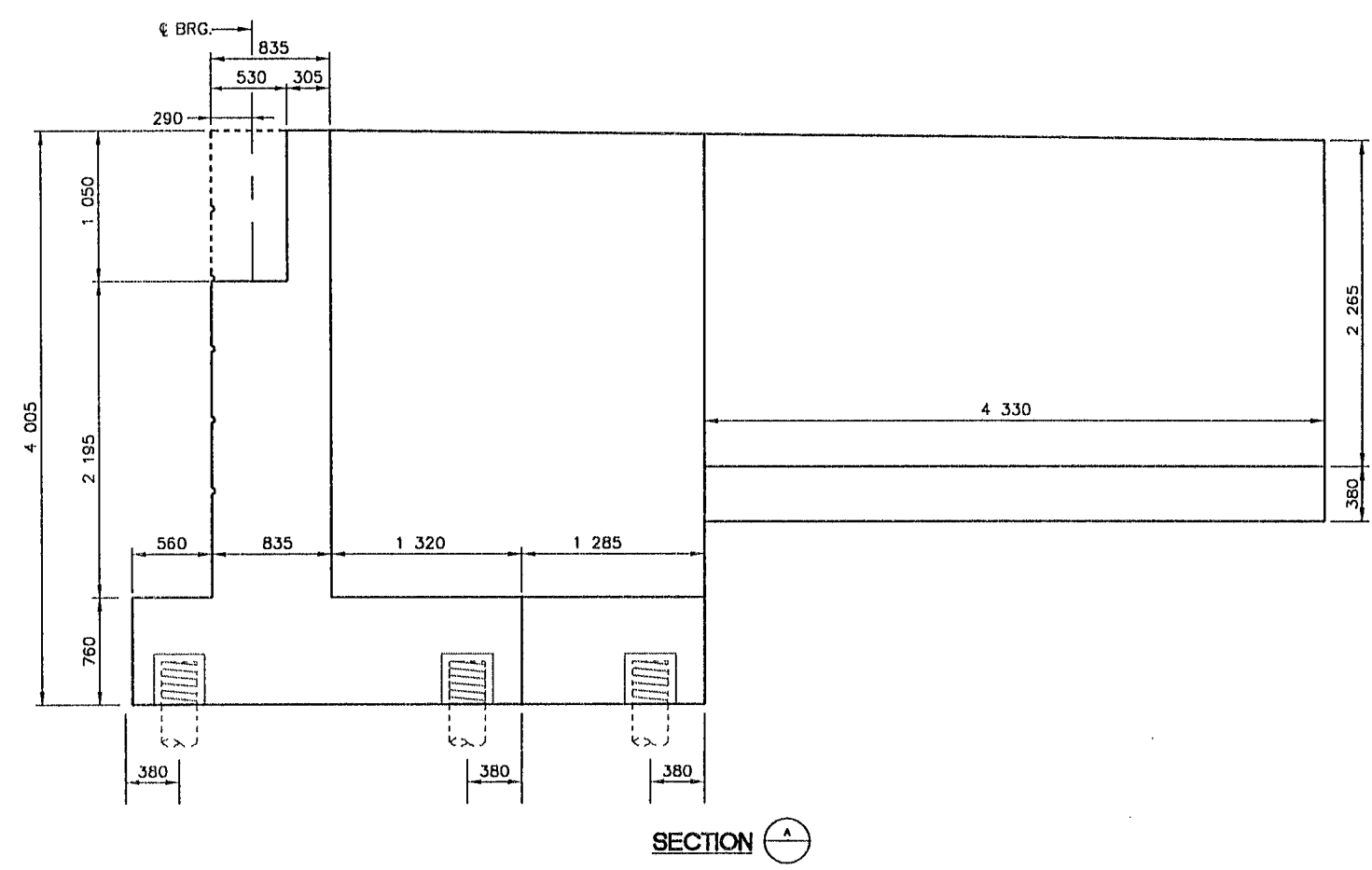
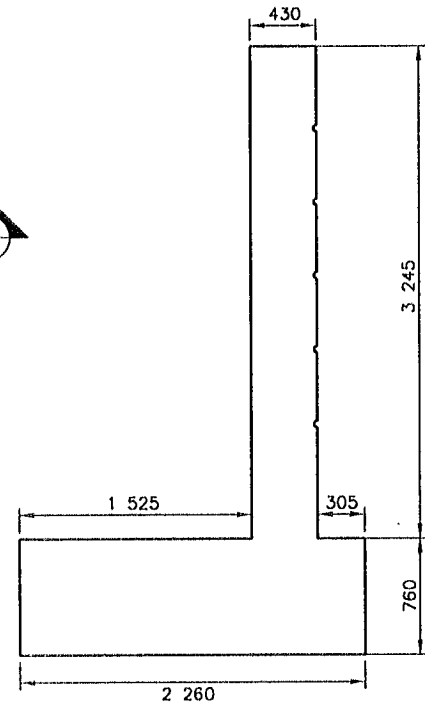
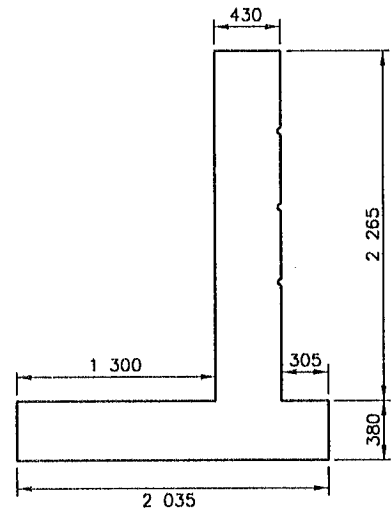
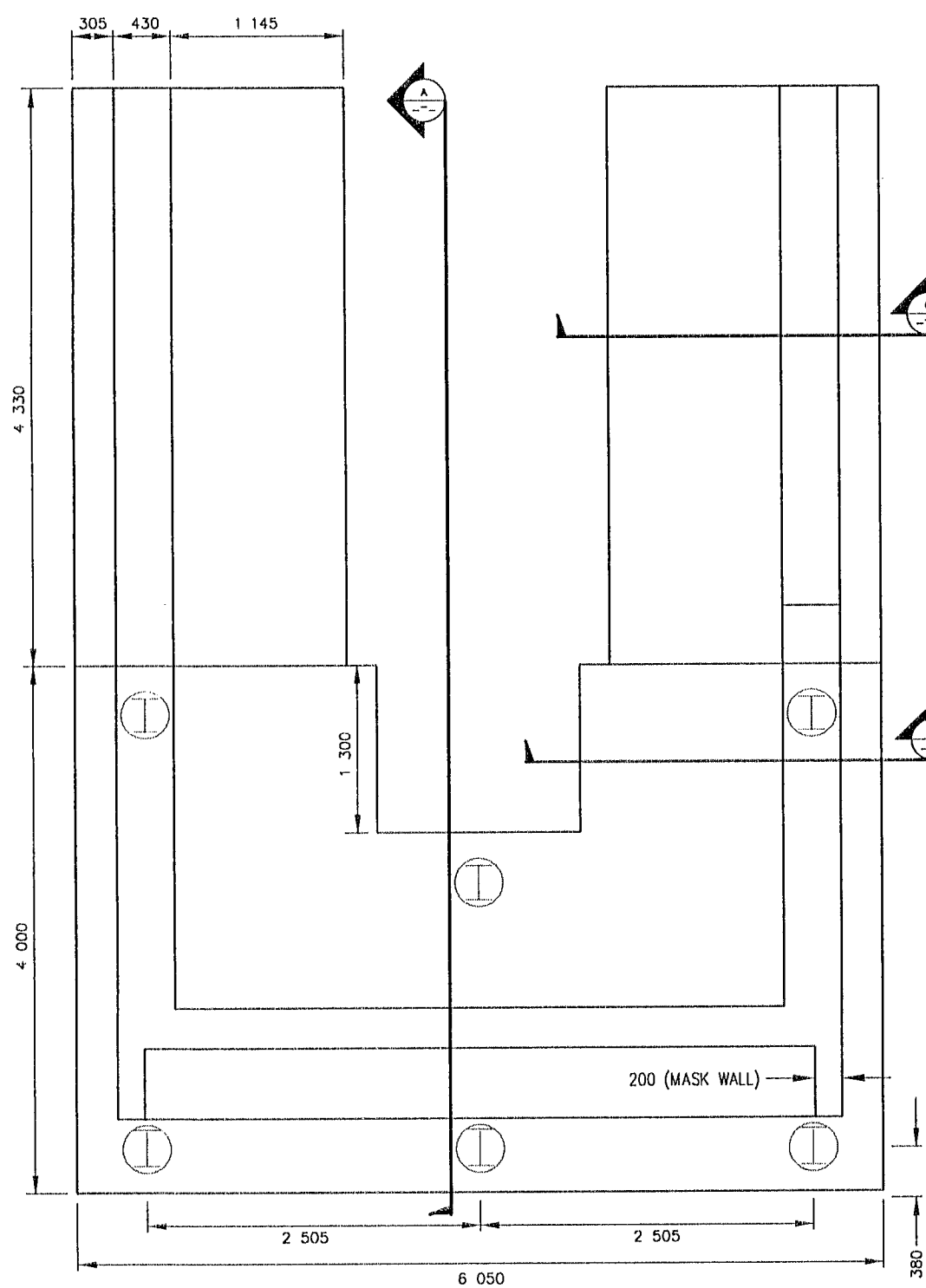
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE LAYOUT

SHEET NO.
 16
 OF
 48

BRIDGE NO.
 02565



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805800J
 CAD DATE: April 27, 1999 12:44:27 pm
 CAD FILE: g59c00j.bridg\805800.dwg

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 DATE: _____ REG. NO. _____

NO.	DATE	BY	REVISION DESCRIPTION

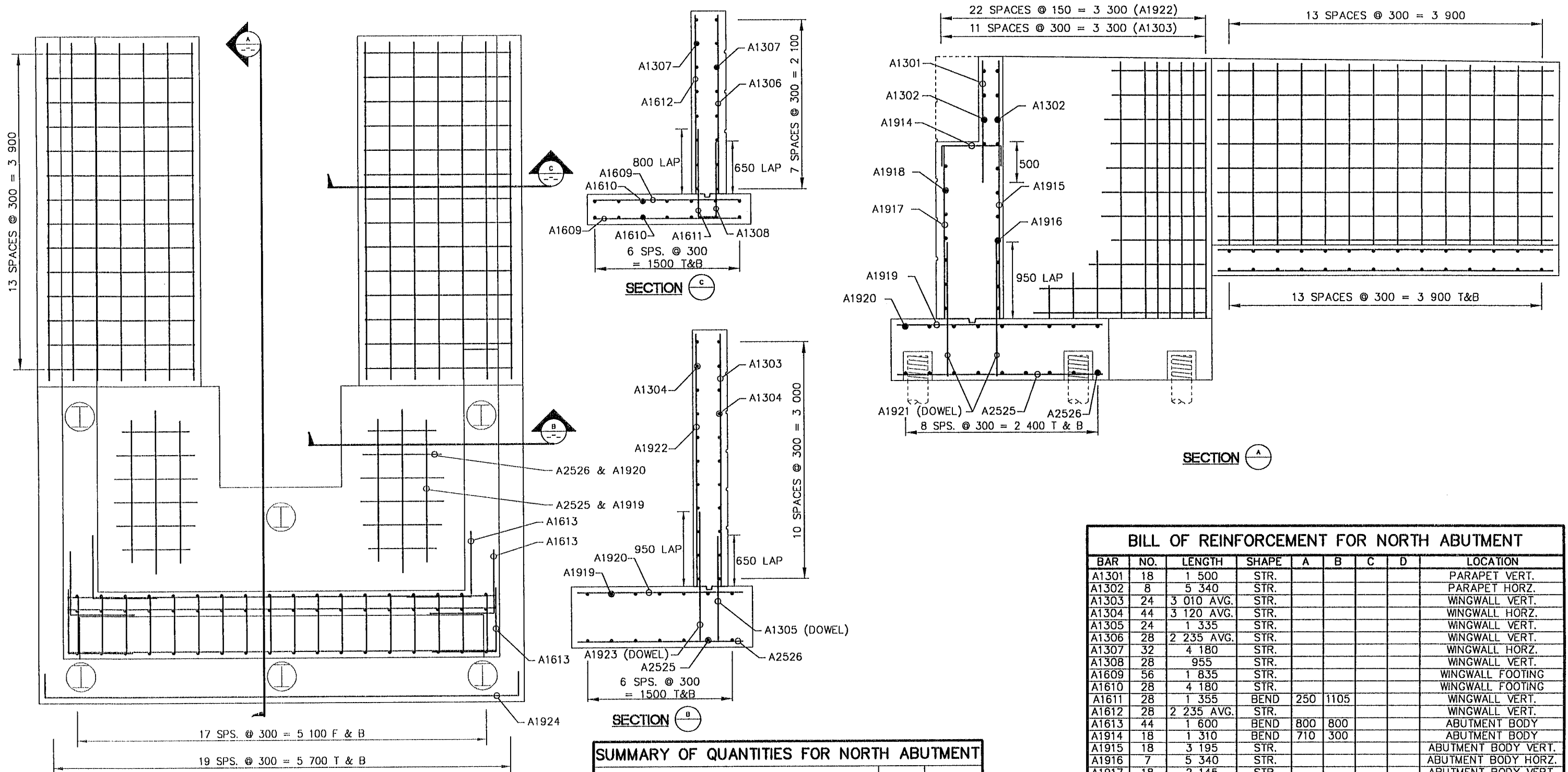
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

NORTH ABUTMENT
 DETAILS

SHEET NO.
17
 OF
48

BRIDGE NO.
02585



SECTION A

SECTION C

SECTION B

PLAN

BAR BEND DETAILS

NOTE: DIMENSIONS ARE GIVEN OUT TO OUT

SUMMARY OF QUANTITIES FOR NORTH ABUTMENT

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (3Y43)	m ³	52.0
REINFORCEMENT BARS	KG	3027.5
STRUCTURAL STEEL	KG	100.1
SPECIAL SURFACE FINISHING	m ²	42.2
STEEL H PLING DELVD.	m	
STEEL H PILING DRIVEN	m	
TEST PILE, STEEL H-PILE	EACH	1

BILL OF REINFORCEMENT FOR NORTH ABUTMENT

BAR NO.	LENGTH	SHAPE	A	B	C	D	LOCATION
A1301	1 500	STR.					PARAPET VERT.
A1302	5 340	STR.					PARAPET HORIZ.
A1303	3 010 AVG.	STR.					WINGWALL VERT.
A1304	3 120 AVG.	STR.					WINGWALL HORIZ.
A1305	1 335	STR.					WINGWALL VERT.
A1306	2 235 AVG.	STR.					WINGWALL VERT.
A1307	4 180	STR.					WINGWALL HORIZ.
A1308	955	STR.					WINGWALL VERT.
A1609	1 835	STR.					WINGWALL FOOTING
A1610	4 180	STR.					WINGWALL FOOTING
A1611	1 355	BEND	250	1105			WINGWALL VERT.
A1612	2 235 AVG.	STR.					WINGWALL VERT.
A1613	1 600	BEND	800	800			ABUTMENT BODY
A1914	1 310	BEND	710	300			ABUTMENT BODY
A1915	3 195	STR.					ABUTMENT BODY VERT.
A1916	5 340	STR.					ABUTMENT BODY HORIZ.
A1917	2 145	STR.					ABUTMENT BODY VERT.
A1918	5 340	STR.					ABUTMENT BODY HORIZ.
A1919	3 415 AVG.	STR.					ABUTMENT FOOTING
A1920	3 905 AVG.	STR.					ABUTMENT FOOTING
A1921	1 635	STR.					ABUTMENT BODY VERT.
A1922	3 010 AVG.	STR.					WINGWALL VERT.
A1923	1 635	STR.					WINGWALL VERT.
A1924	6 500	BEND	5900	300			FOOTING
A2525	3 415 AVG.	STR.					FOOTING
A2526	3 905 AVG.	STR.					FOOTING
AW527	-	SPIRAL					FOOTING

DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: May 19, 1999
 CAD FILE: 805600.dwg

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 DATE: _____ REG. NO. _____

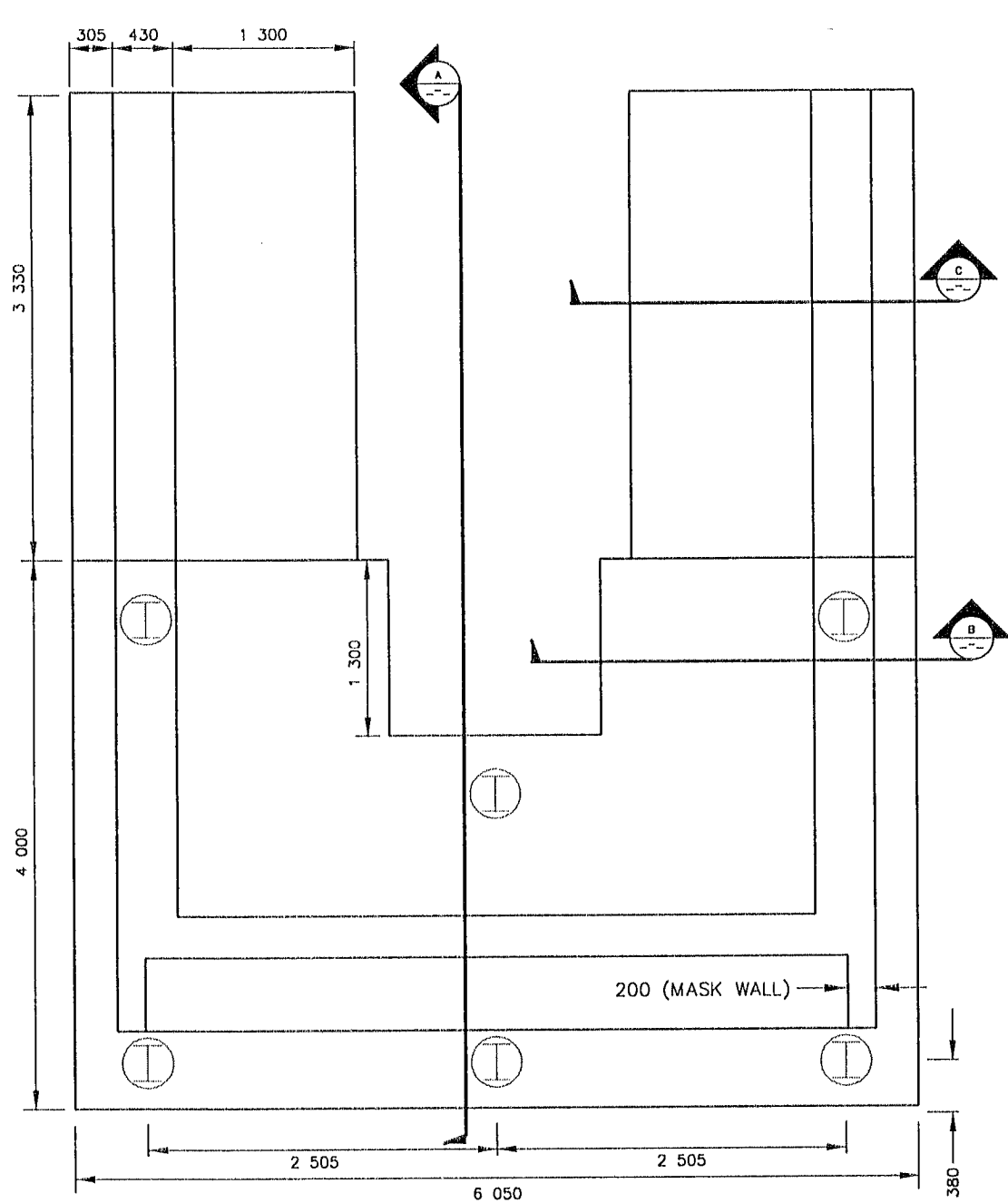
NO.	DATE	BY	REVISION DESCRIPTION

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 (651) 644-4389
Howard R. Green Company
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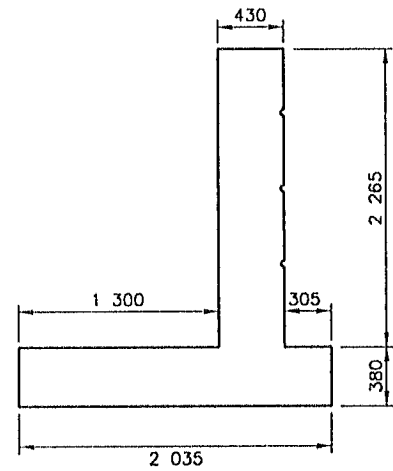
ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

NORTH ABUTMENT
 DETAILS

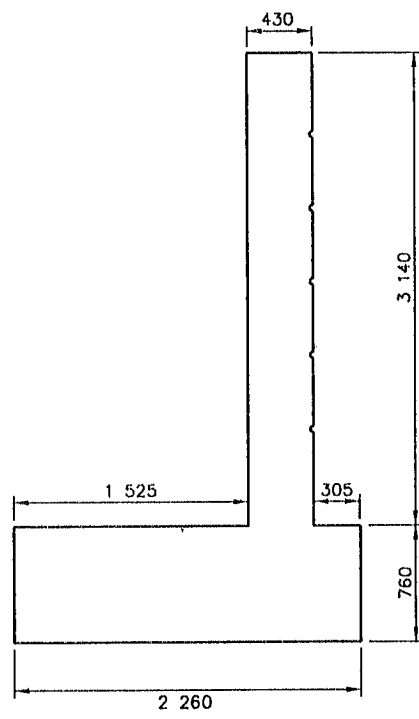
SHEET NO.
18
 OF
48
 BRIDGE NO.
02565



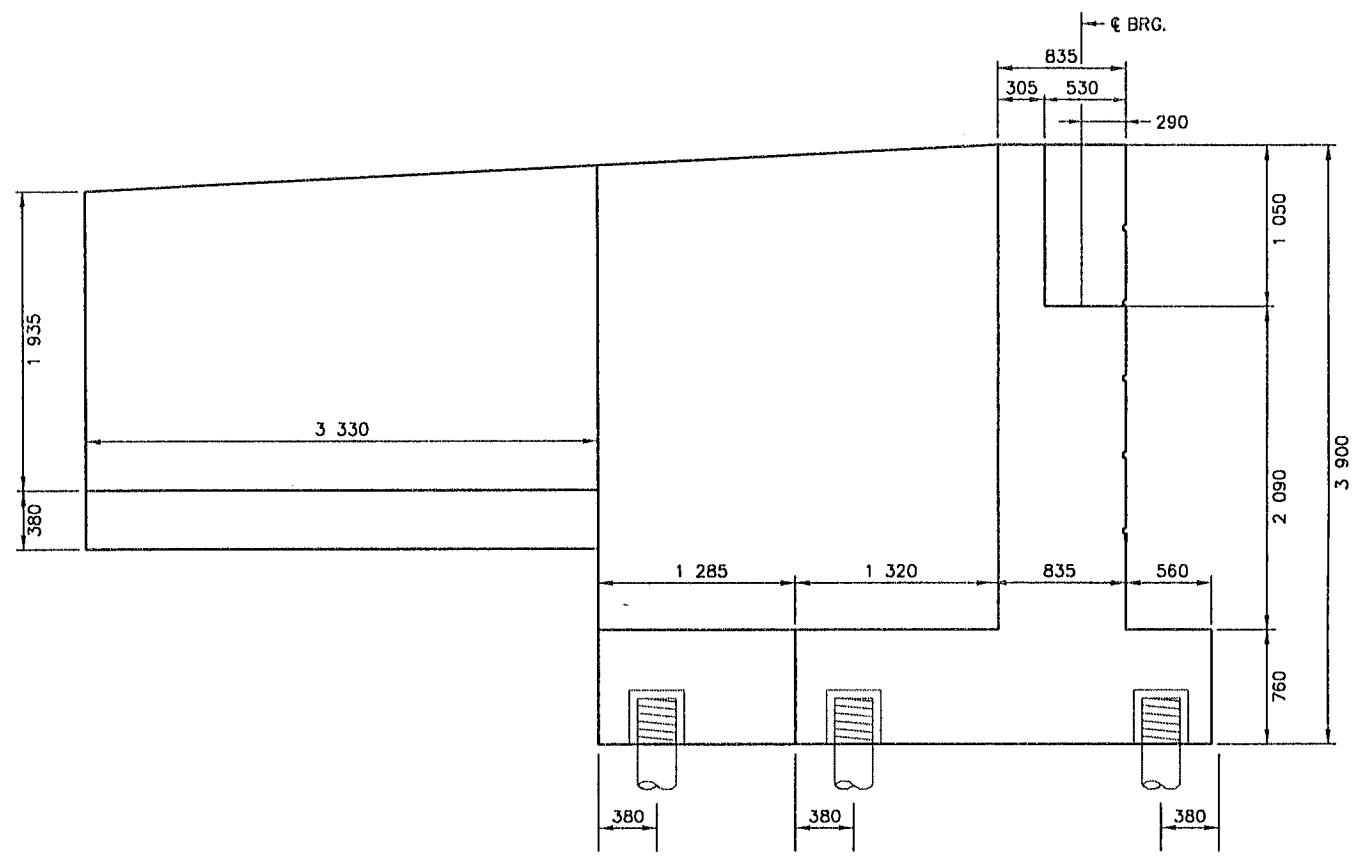
PLAN



SECTION C



SECTION B



SECTION A



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: CAD FILE:

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 DATE: REG. NO.:

NO.	DATE	BY	REVISION DESCRIPTION

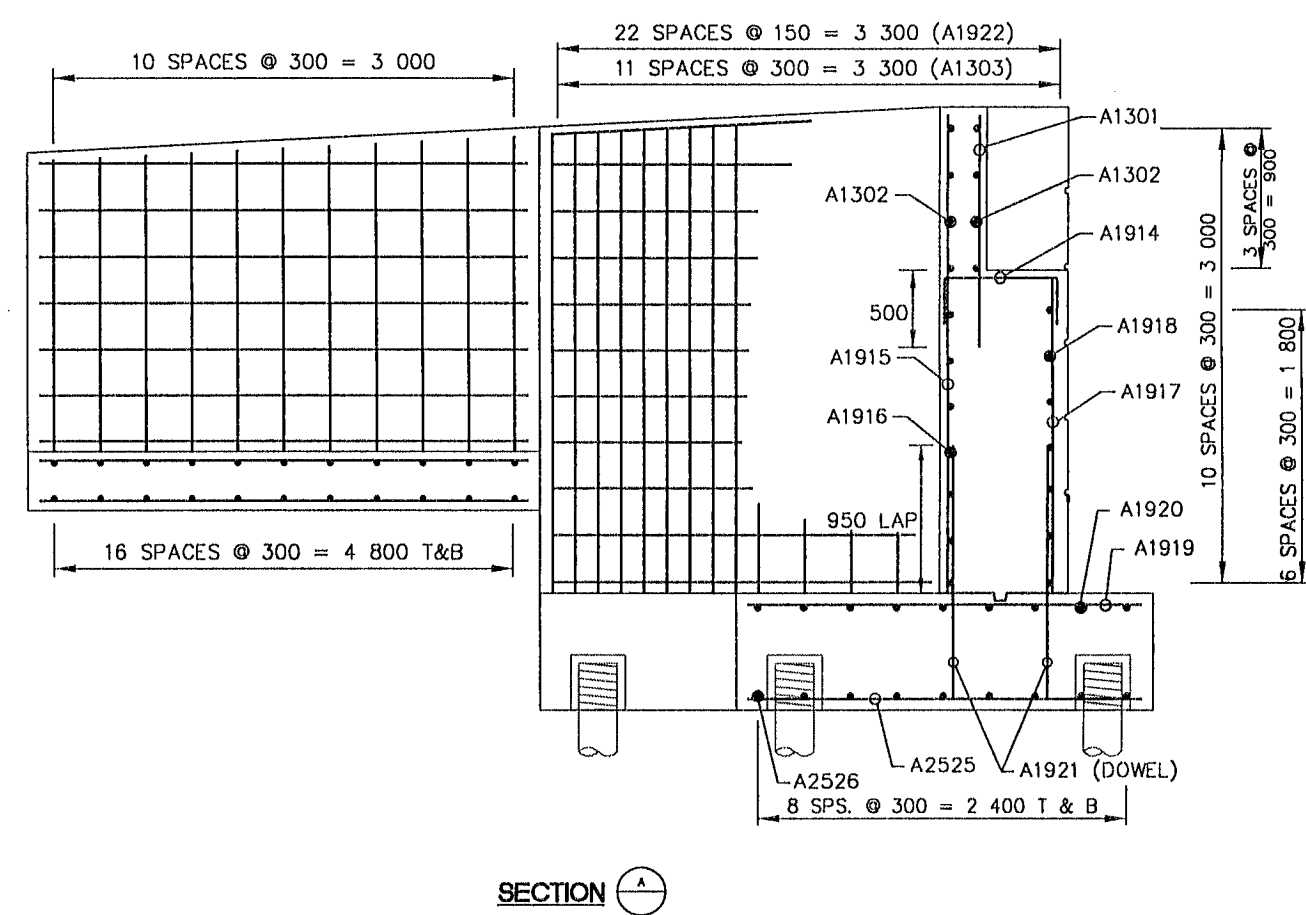
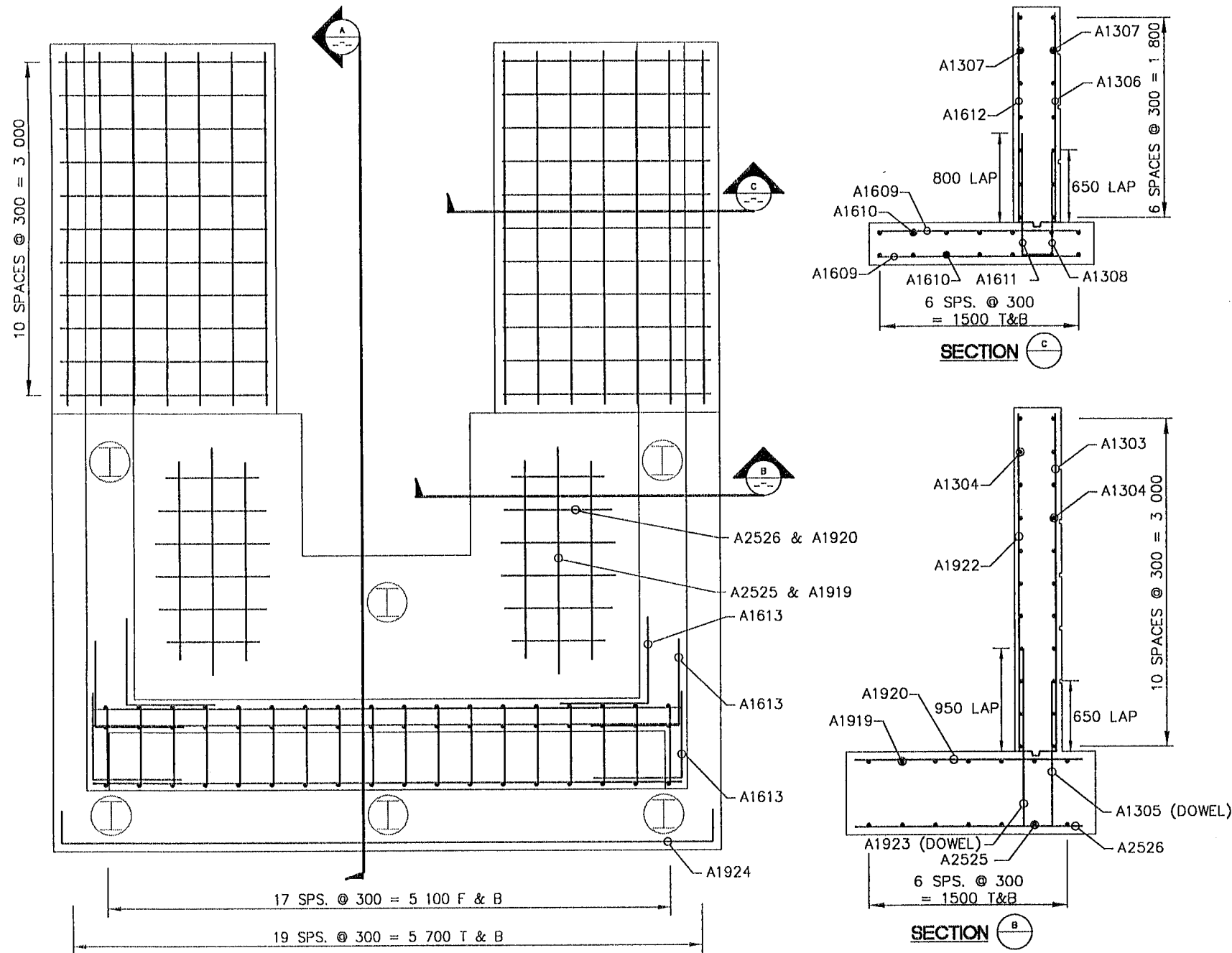
1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389
Howard R. Green Company
 CONSULTING ENGINEERS

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

**SOUTH ABUTMENT
 DETAILS**

SHEET NO.
19
 OF
48

BRIDGE NO.
02565



PLAN

SECTION A

SECTION B

SECTION C

BILL OF REINFORCEMENT FOR SOUTH ABUTMENT

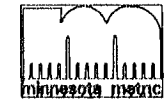
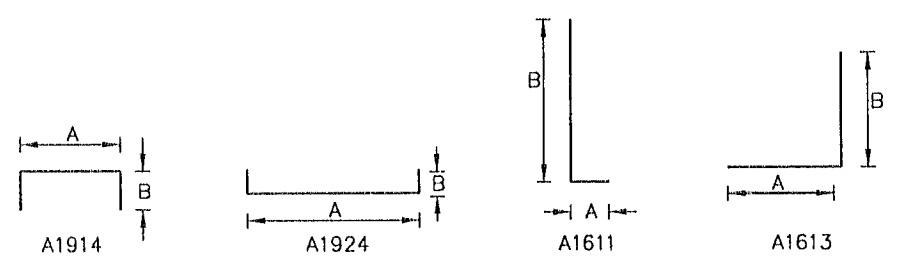
BAR NO.	LENGTH	SHAPE	A	B	C	D	LOCATION
A1301	18	1 500	STR.				PARAPET VERT.
A1302	8	5 340	STR.				PARAPET HORZ.
A1303	24	2 865 AVG.	STR.				WINGWALL VERT.
A1304	44	3 220 AVG.	STR.				WINGWALL HORZ.
A1305	24	1 335	STR.				WINGWALL VERT.
A1306	22	1 965 AVG.	STR.				WINGWALL VERT.
A1307	28	3 185	STR.				WINGWALL HORZ.
A1308	22	955	STR.				WINGWALL VERT.
A1609	44	1 885	STR.				FOOTING
A1610	28	3 180	STR.				FOOTING
A1611	22	1 355	BEND	250	1105		WINGWALL VERT.
A1612	22	1 965 AVG.	STR.				WINGWALL VERT.
A1613	44	1 600	BEND	800	800		BODY
A1914	18	1 310	BEND	710	300		BODY
A1915	18	3 090	STR.				BODY VERT.
A1916	7	5 340	STR.				BODY HORZ.
A1917	18	2 040	STR.				BODY VERT.
A1918	7	5 340	STR.				BODY HORZ.
A1919	20	3 510 AVG.	STR.				FOOTING
A1920	19	3 905 AVG.	STR.				FOOTING
A1921	36	1 635	STR.				BODY VERT.
A1922	46	2 865 AVG.	STR.				WINGWALL VERT.
A1923	24	1 635	STR.				WINGWALL VERT.
A1924	2	6 500	BEND	5900	300		FOOTING
A2525	20	3 510 AVG.	STR.				FOOTING
A2526	19	3 905 AVG.	STR.				FOOTING
A-----	--	--	SPIRAL				FOOTING

SUMMARY OF QUANTITIES FOR SOUTH ABUTMENT

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (3Y43)	m3	40.6
REINFORCEMENT BARS	KG	2830.9
STRUCTURAL STEEL	KG	100.1
SPECIAL SURFACE FINISHING	m2	39.1
STEEL H PILING DELVD.	m	
STEEL H PILING DRIVEN	m	
TEST PILE, STEEL H-PILE	EACH	1

BAR BEND DETAILS

NOTE: DIMENSIONS ARE GIVEN OUT TO OUT



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: April 27, 1998 10:42:04 a.m.
 CAD FILE: 805600J-88001-1.dwg

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 DATE: REG. NO.:

NO.	DATE	BY	REVISION DESCRIPTION

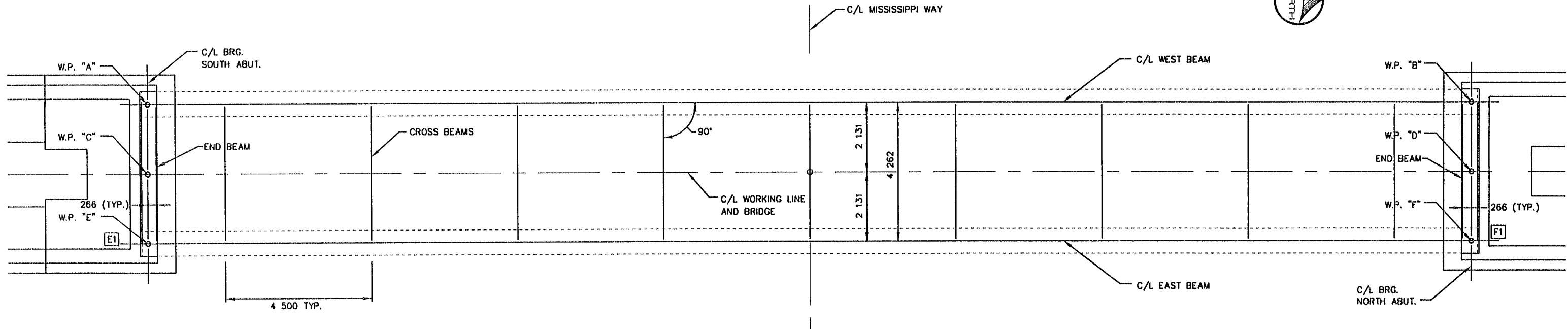
1326 ENERGY PARK DRIVE
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 BRIDGE AND UNDERPASS

SOUTH ABUTMENT
 DETAILS

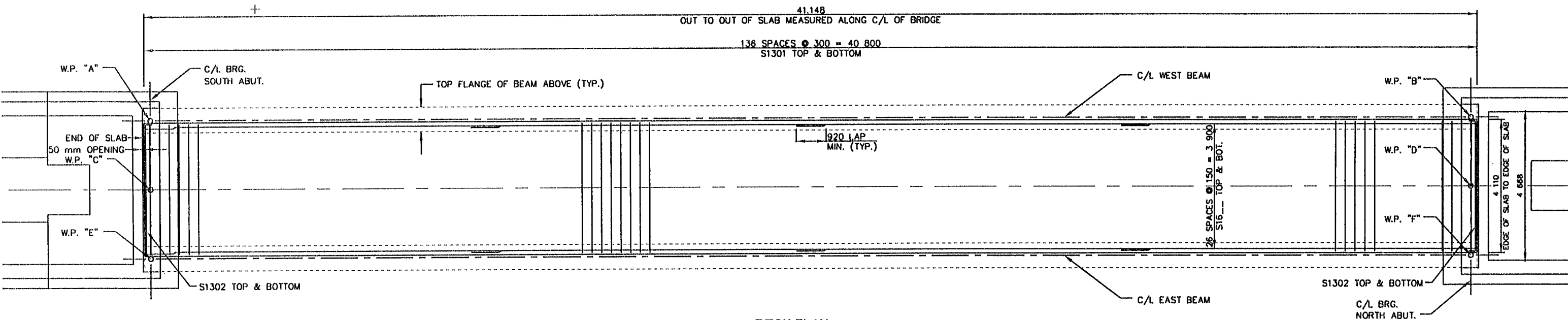
SHEET NO.
20
 OF
48

BRIDGE NO.
02565



FRAME PLAN
NO SCALE

NOTES:
E1 = EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE 1.
F1 = FIXED CURVED PLATE BEARING ASSEMBLY, TYPE 1.
 FOR SECTIONS A-A AND B-B SEE SHEET ___



DECK PLAN
NO SCALE



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: May 18, 1999 11:06:49 a.m.
 CAD FILE: 270003.dwg

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Howard R. Green
 DATE 5/18/99 REG. NO. 13470

NO.	DATE	BY	REVISION DESCRIPTION

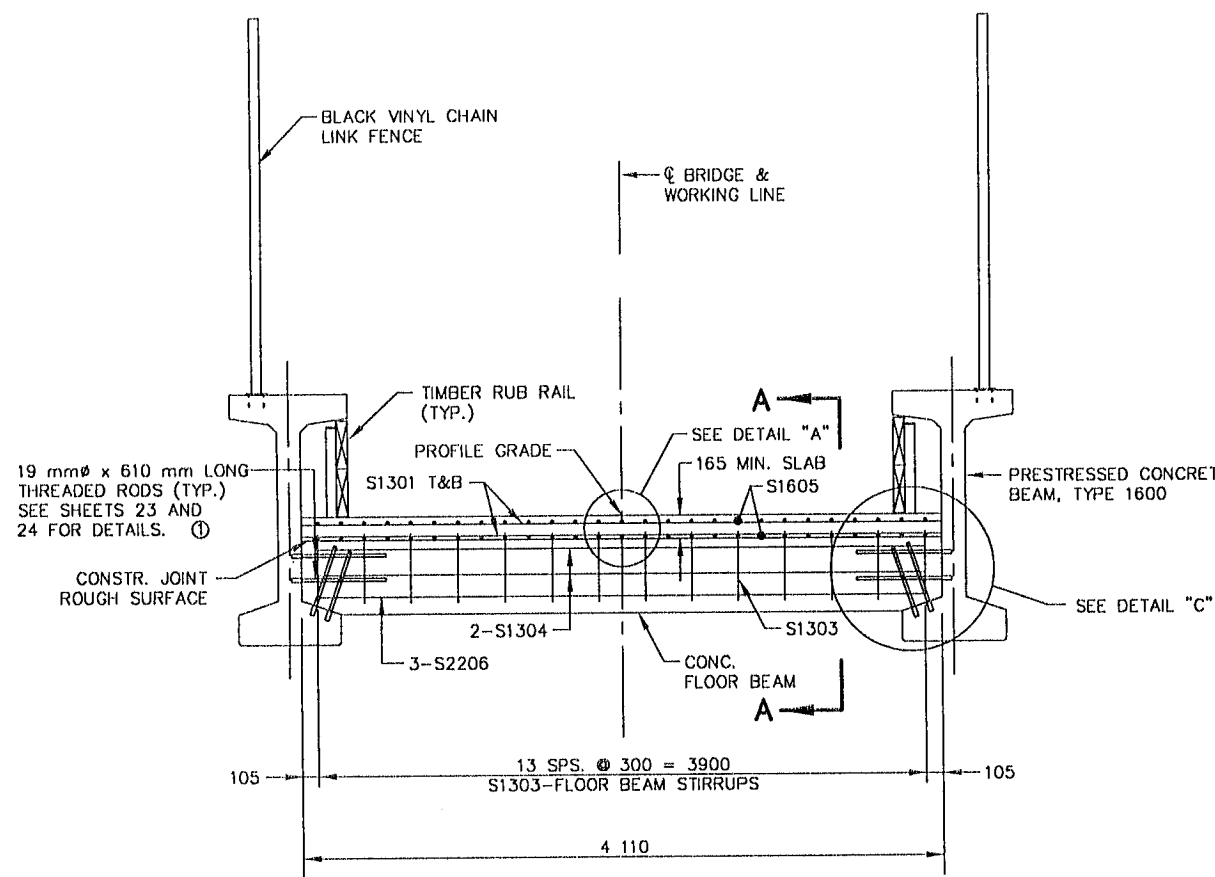
1326 ENERGY PARK DRIVE
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

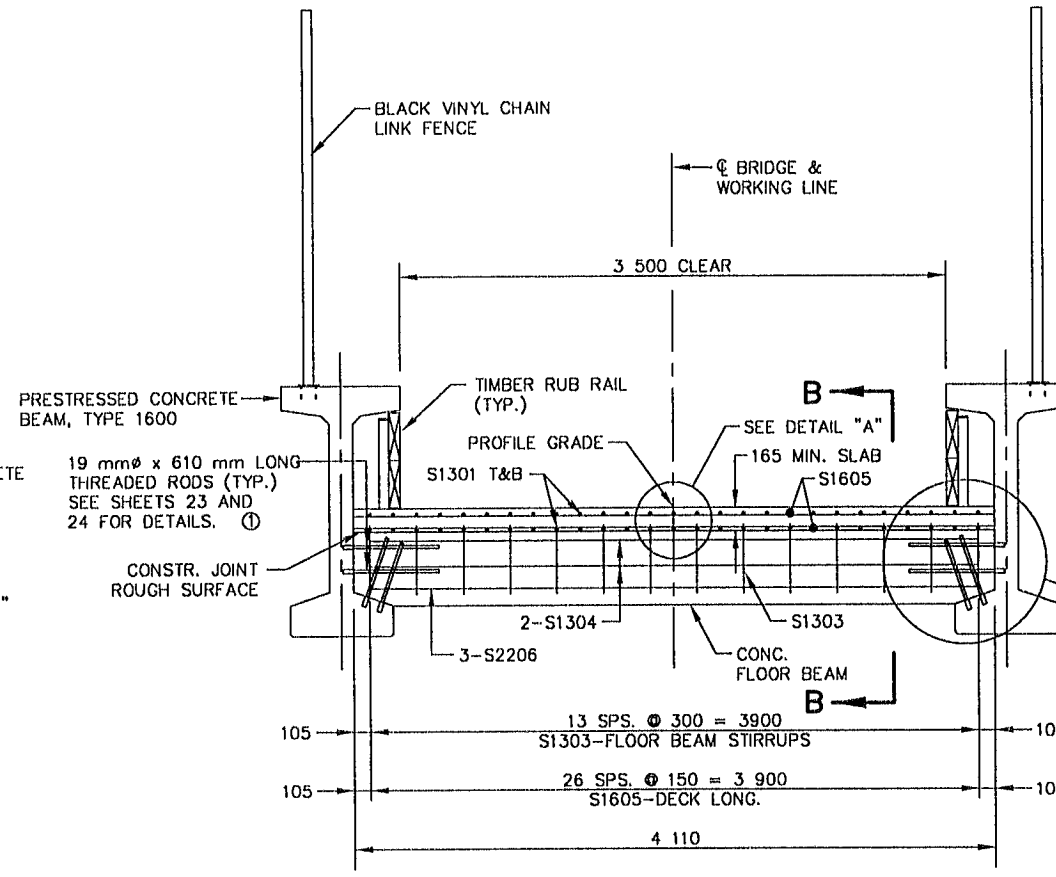
PEDESTRIAN BRIDGE
 DECK AND FRAME PLAN

SHEET NO.
21
 OF
48

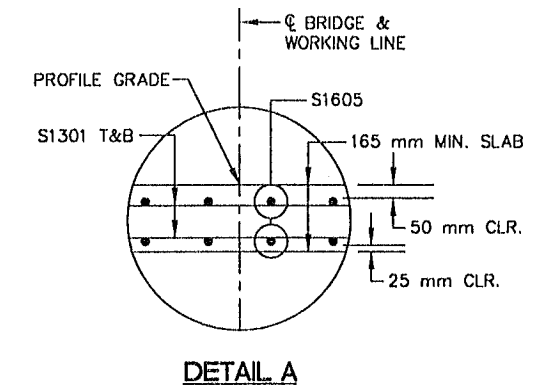
BRIDGE NO.
02565



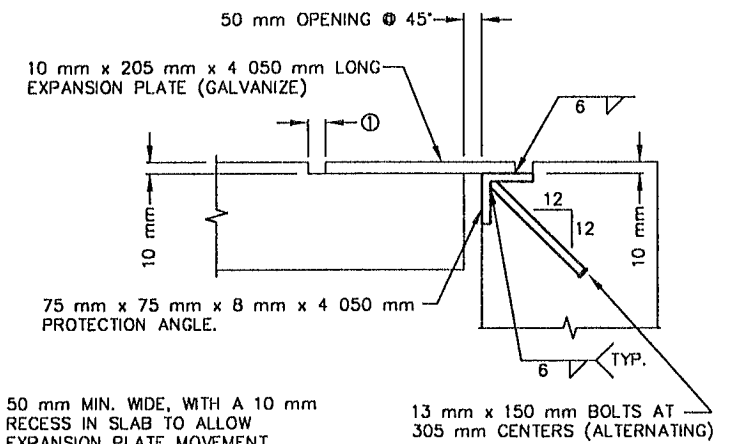
TRANSVERSE SECTION
(END FLOOR BEAMS)
(PERPENDICULAR TO SKEW)



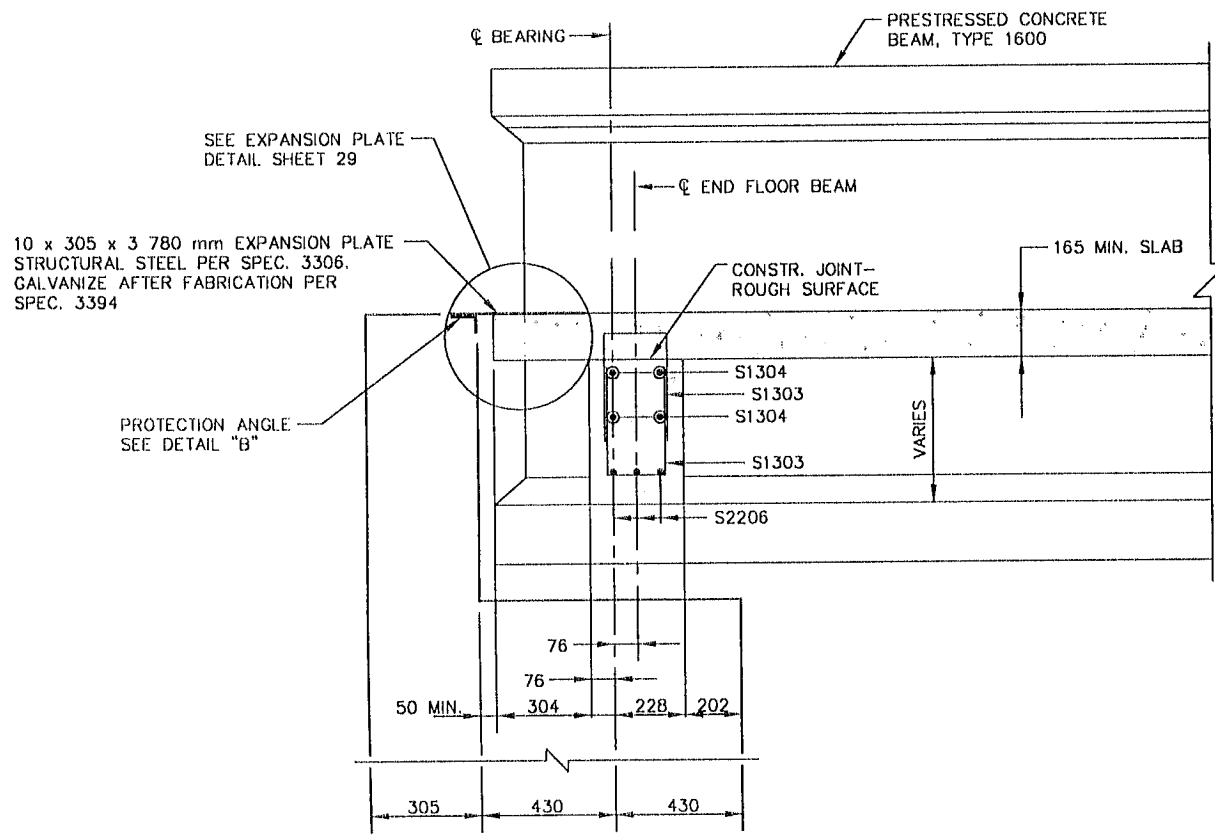
TRANSVERSE SECTION
(INTERMEDIATE FLOOR BEAMS)



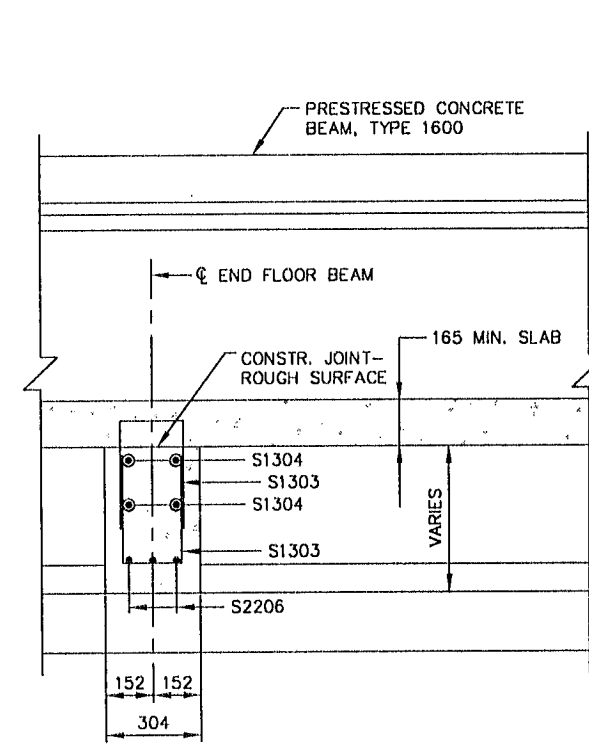
DETAIL A



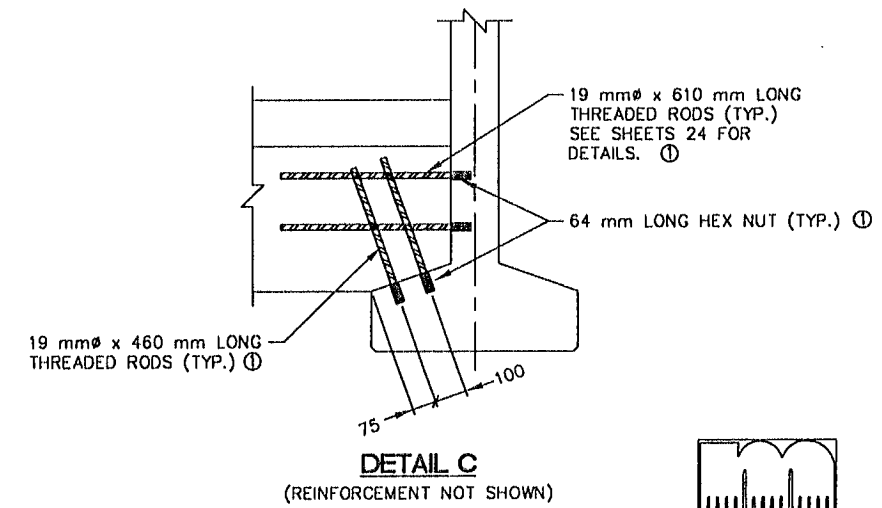
DETAIL B



SECTION A-A

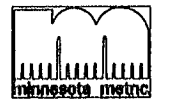


SECTION B-B



DETAIL C
(REINFORCEMENT NOT SHOWN)

① INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE BEAMS, TYPE 1600



DESIGNED BY: SPL	DRAWN BY: RKM
APPROVED: _____	JOB NUMBER: B05600J
CAD DATE: May 18, 1999 11:35:52 a.m.	
CAD FILE: B05600J.BRIDGE.DWG	

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DATE: 5/18/99 REG. NO. 13972

NO.	DATE	BY	REVISION DESCRIPTION

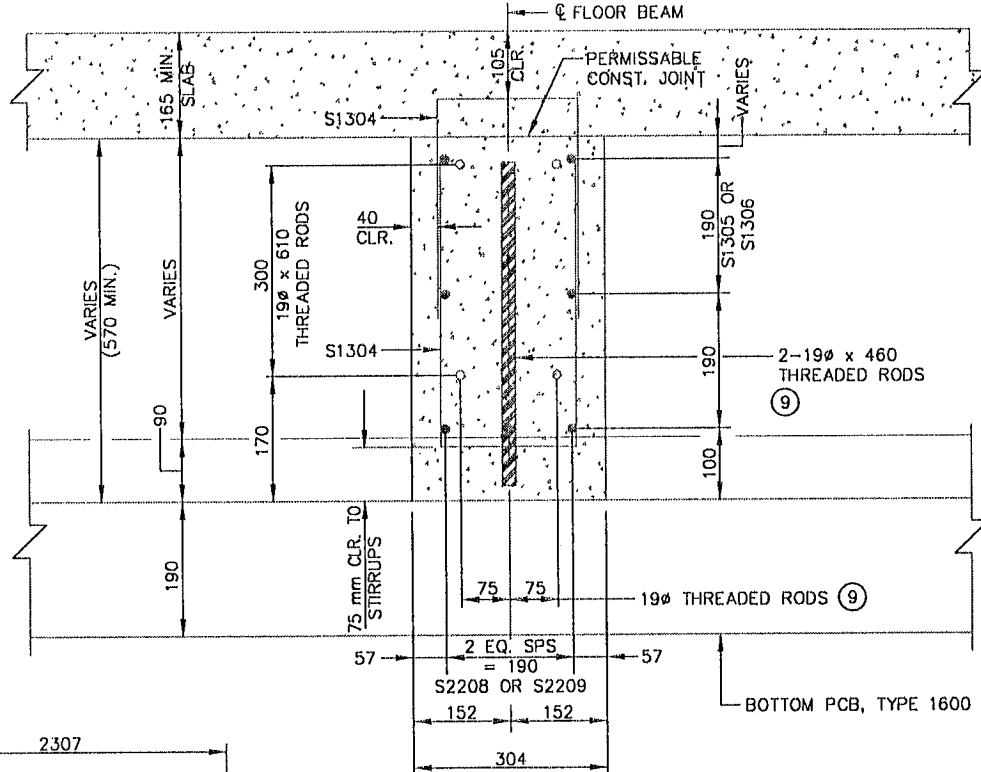
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CONSULTING ENGINEERS

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE
SUPERSTRUCTURE DETAILS

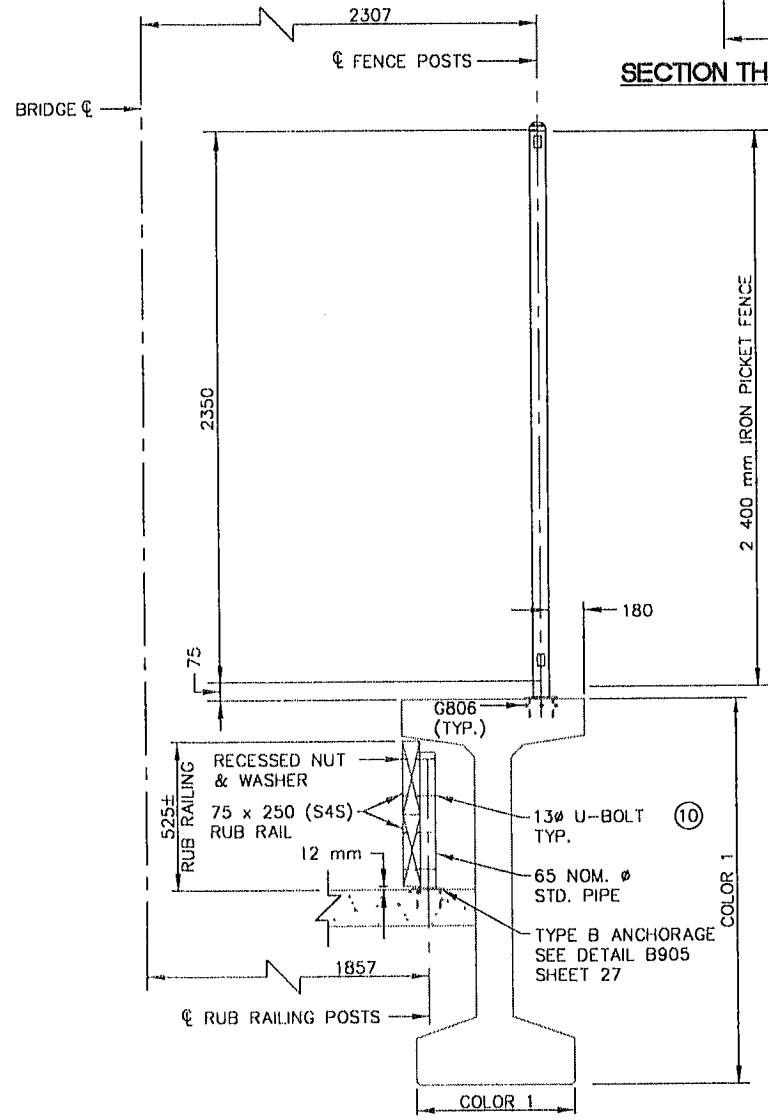
SHEET NO.	BRIDGE NO.
22	02565
OF	
48	



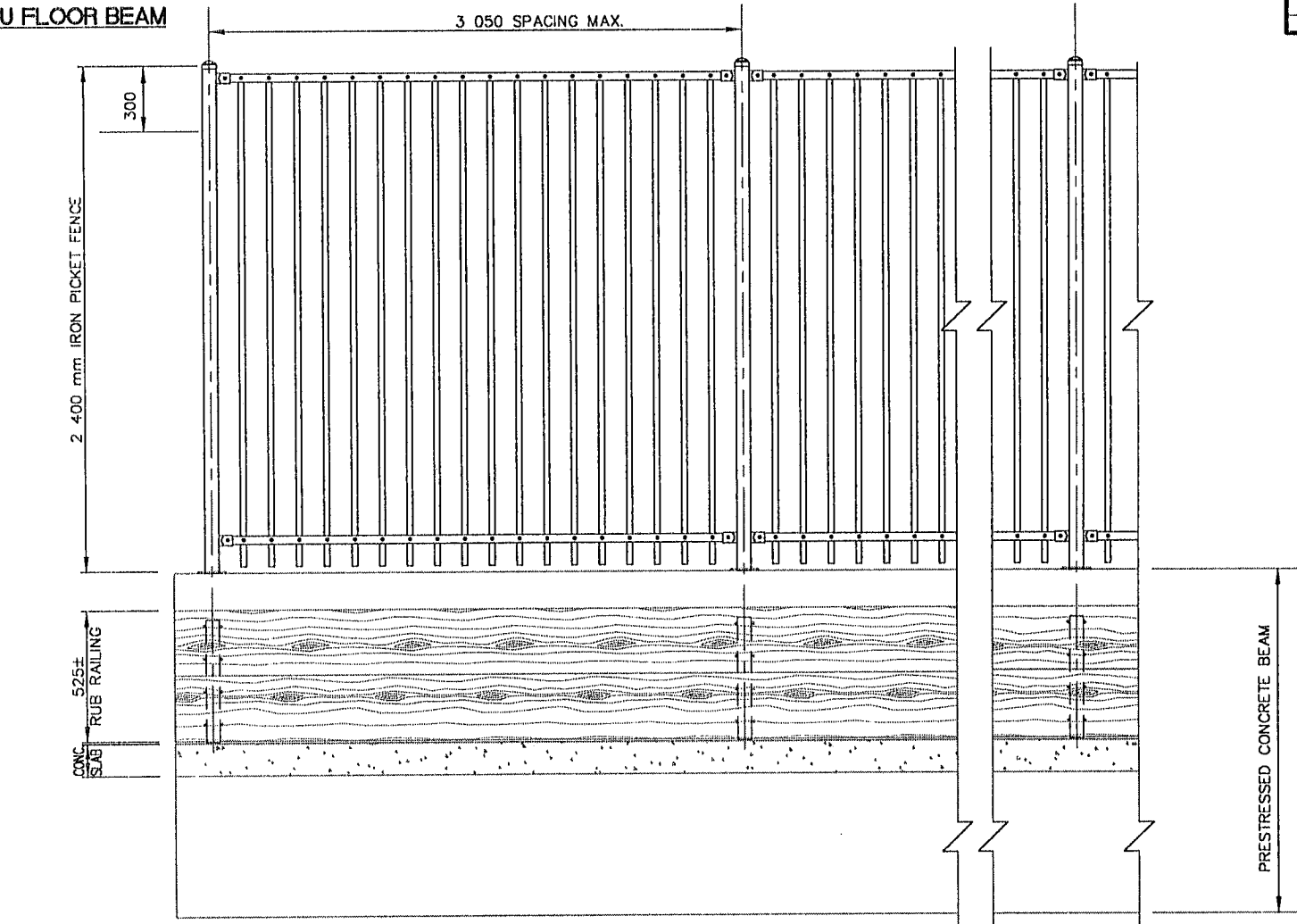
- NOTES:**
- ① THE APPROXIMATE CONCRETE VOLUME IS 60.3 m³
 - ② INCLUDES SLAB AND FLOOR BEAM REINFORCEMENT
 - ③ INCLUDES:
FIXED CURVED PLATE BRG. ASSY. TYPE F1 2 EACH
EXP. CURVED PLATE BRG. ASSY. TYPE E1 2 EACH
 - ④ INCLUDES 2 P.C.B. TYPE 1600-41500
 - ⑤ INCLUDES APPROXIMATELY:
6.4 m³ CONCRETE FOR 9 INTERMEDIATE FLOOR BEAMS
AND 1.4 m³ CONCRETE FOR 2 END FLOOR BEAMS.
 - ⑥ IRON PICKET FENCE SHALL CONFORM TO THE PROVISIONS OF MN/DOT SPEC. 3376.2C. THE COLOR SHALL BE BROWN, SEE SPECIAL PROVISIONS.
 - ⑦ INCLUDES INSTALLATION OF FENCE POSTS, ANCHORAGES, U-BOLTS AND TIMBER RUB RAIL, SEE SPECIAL PROVISIONS.
 - ⑧ QUANTITY INCLUDES AREA FOR COLOR 1 (898 m²) SEE SPECIAL PROVISIONS.
 - ⑨ SEE SHEETS 22 AND 24 FOR DETAILS. INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE BEAMS, TYPE 1600.
 - ⑩ FASTEN 75 mm x 250 mm TIMBER RUB RAILS TO RAILING POST WITH TWO 13 mm ϕ U-BOLTS W/ RECESSED NUTS AND WASHERS.

SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE		
ITEM	UNIT	QUANTITY
① BRIDGE SLAB CONCRETE (3Y33)	m ²	169.1
② REINFORCEMENT BARS (EPOXY COATED)	kg	5865
③ BEARING ASSEMBLY	EACH	4
④ PRESTRESSED CONCRETE BEAMS 1600 mm	m	82.4
⑤ STRUCTURAL CONCRETE (3Y33)	m ³	7.8
⑥ IRON PICKET FENCE	m	82.4
⑦ INSTALL RUB RAILING	m	82.4
⑧ SPECIAL SURFACE FINISH	m ²	232.4
⑨ TREATED TIMBER	m ³	1.73

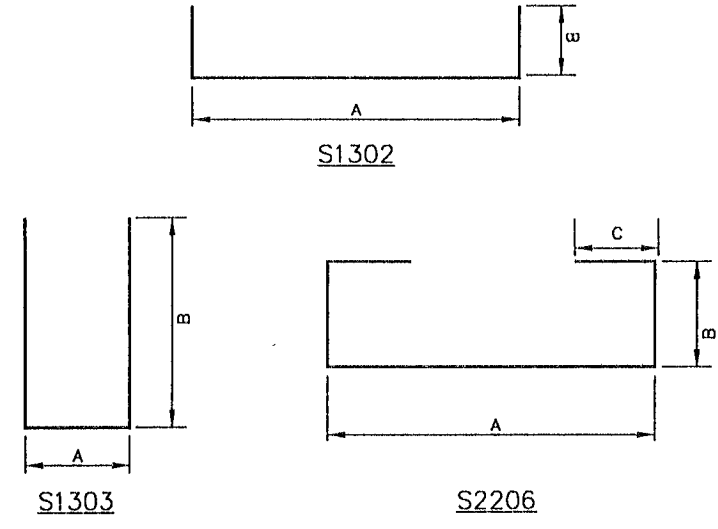
BILL OF REINFORCEMENT FOR SUPERSTRUCTURE							
BAR	NO.	LENGTH	SHAPE	A	B	C	LOCATION
S1301	274	4 010	STR.				SLAB TRANS. T & B
S1302	4	4 410	BEND	4 010	200		SLAB END T & B
S1303	308	1 140	BEND	230	455		FLOOR BEAM TIE
S1304	44	4 010	STR.				INTER. FLOOR BEAM
S1605	216	10 950	STR.				SLAB LONG. T & B
S2206	44	5 580	BEND	4 010	455	355	FLOOR BEAM



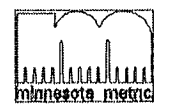
RUB RAILING AND FENCE DETAIL



RUB RAILING AND FENCE SIDE ELEVATION



BAR BEND DETAIL
NOTE: BAR DIMENSIONS GIVEN OUT TO OUT.



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: 5/18/99
 CAD FILE: 805600J.dwg

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 DATE 5/18/99 REG. NO. 13972

NO.	DATE	BY	REVISION DESCRIPTION

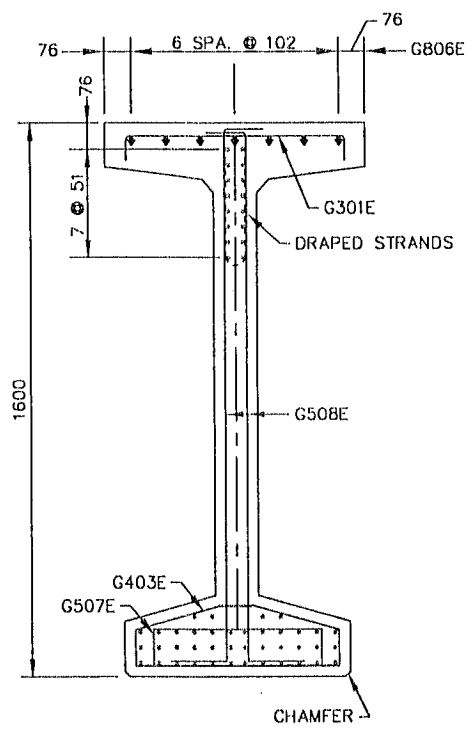
1326 ENERGY PARK DRIVE
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 (651) 644-4389
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 CONSULTING ENGINEERS

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE
 SUPERSTRUCTURE DETAILS

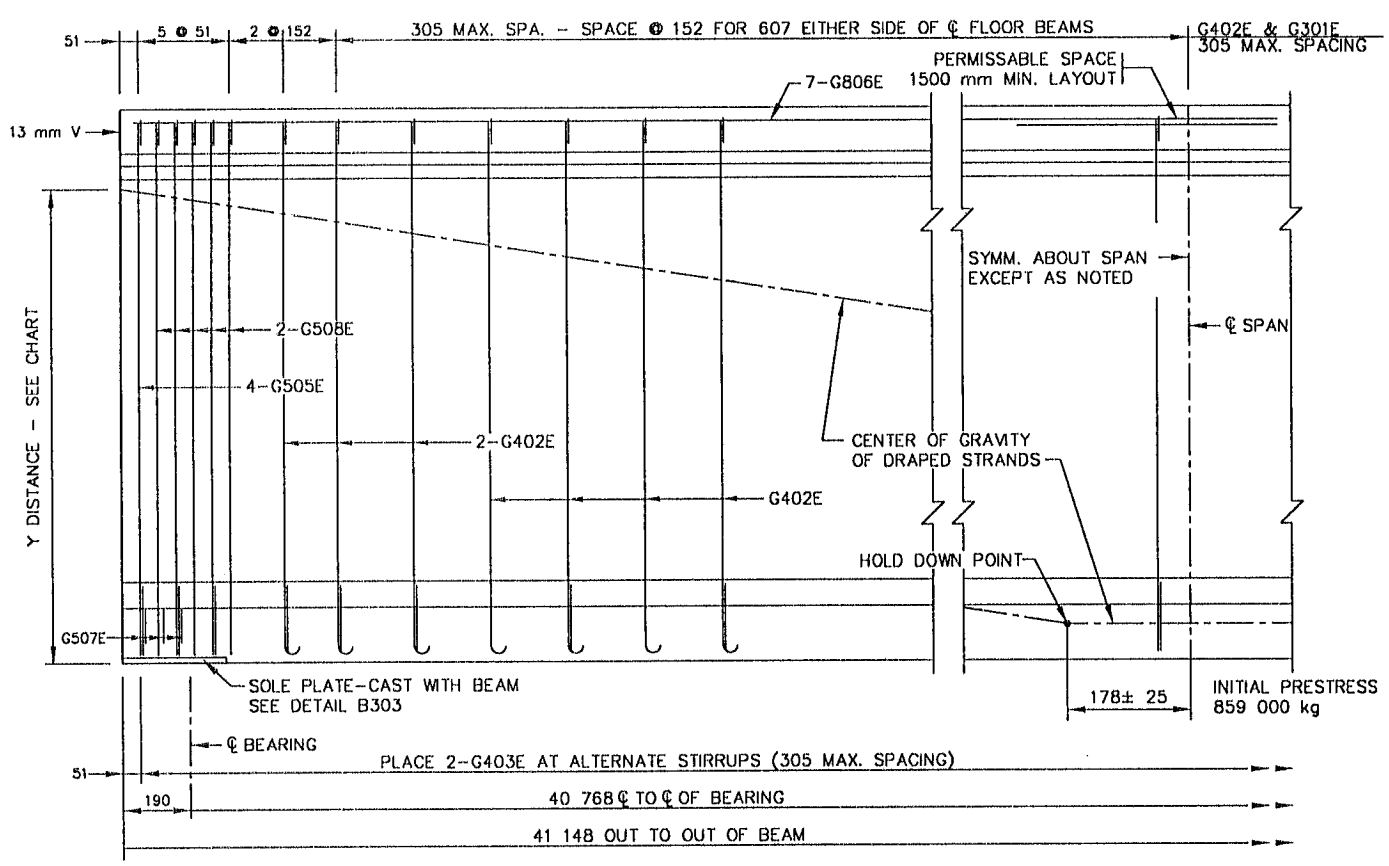
SHEET NO.
23
 of
48

BRIDGE NO.
02585

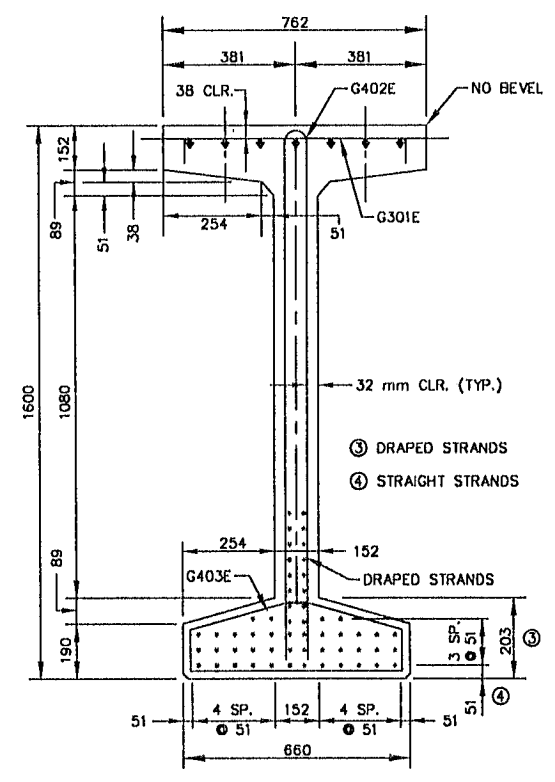


END VIEW

CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.



BEAM ELEVATION

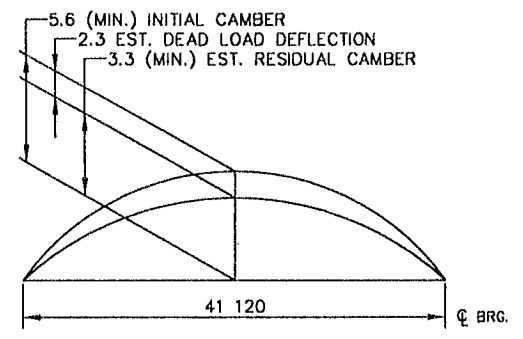


SECTION AT ϕ SPAN

Y DISTANCES IN MILLIMETERS			
	NO.	ϕ SPAN	END
STRAIGHT STRANDS	30	4.00	
DRAPED STRANDS	12	8.00	55.00
TOTAL STRANDS	42	5.14	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 50 mm CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

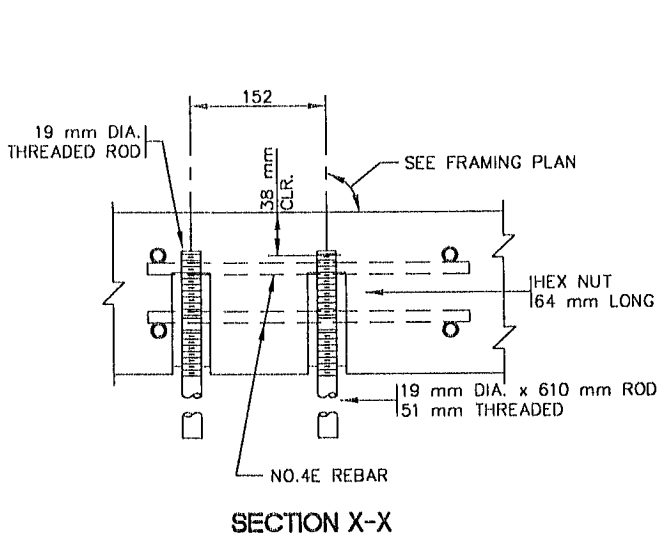
* A TOLERANCE OF XXX WILL BE PERMITTED IN THIS DIMENSION.



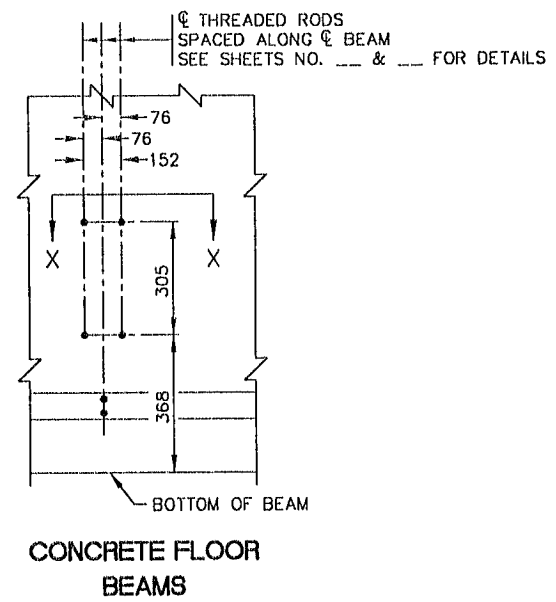
INITIAL CAMBER IS GIVEN AFTER FLOOR BEAMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB & RAILING.

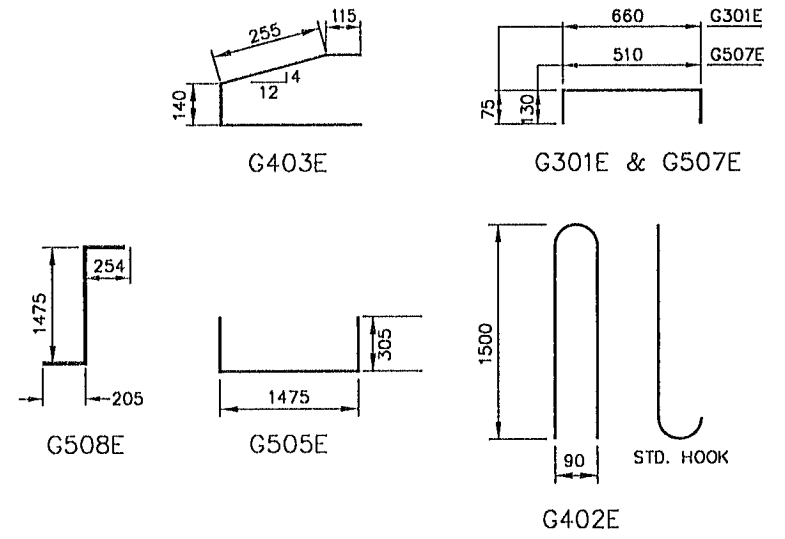
ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.



SECTION X-X



CONCRETE FLOOR BEAMS



BAR BEND DETAILS

GENERAL NOTES:

- PRESTRESSING STRANDS SHALL BE 13 mm OVERSIZE (AREA=108 mm²/STRANDS) 7-WIRE LOW RELAXATION STRAND CONFORMING TO ASTM A416, GRADE 270.
- TOPS OF BEAMS SHALL BE SMOOTH FINISHED.
- 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. 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.
- USE STRUCTURAL CONCRETE MIX NO. XXXXX.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS, SEE SPEC. 2405.
- SEE FRAMING PLAN FOR FLOOR BEAM SPACING
- APPROXIMATE WEIGHT OF BEAM IS 48.7 METRIC TONS.
- AS AN ALTERNATE TO THE 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 67 kN PER ANCHORAGE.

MINIMUM CONCRETE STRENGTH - MPa		
	① f' _{ci}	② f' _c
REQUIRED MINIMUM CONCRETE STRENGTH	48.3	56.5

- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESSED TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED. A 45 DAY MIN. CURE TIME IS REQUIRED BEFORE INSTALLATION.

DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805800J
 CAD DATE: May 18, 1998 11:58:44 am
 CAD FILE: 805800j.dwg

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 DATE 5/18/99 REG. NO. 13970

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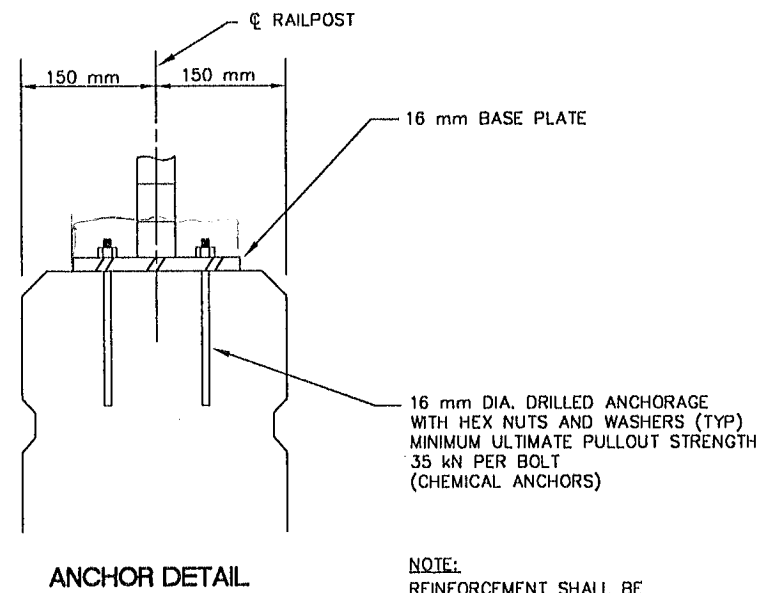
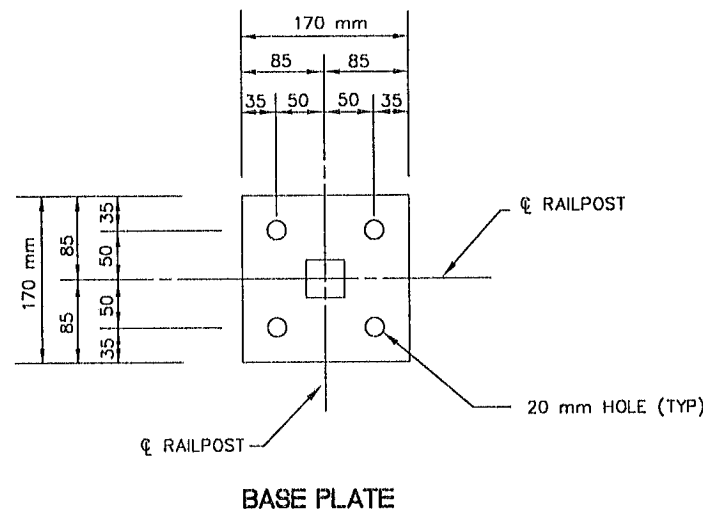
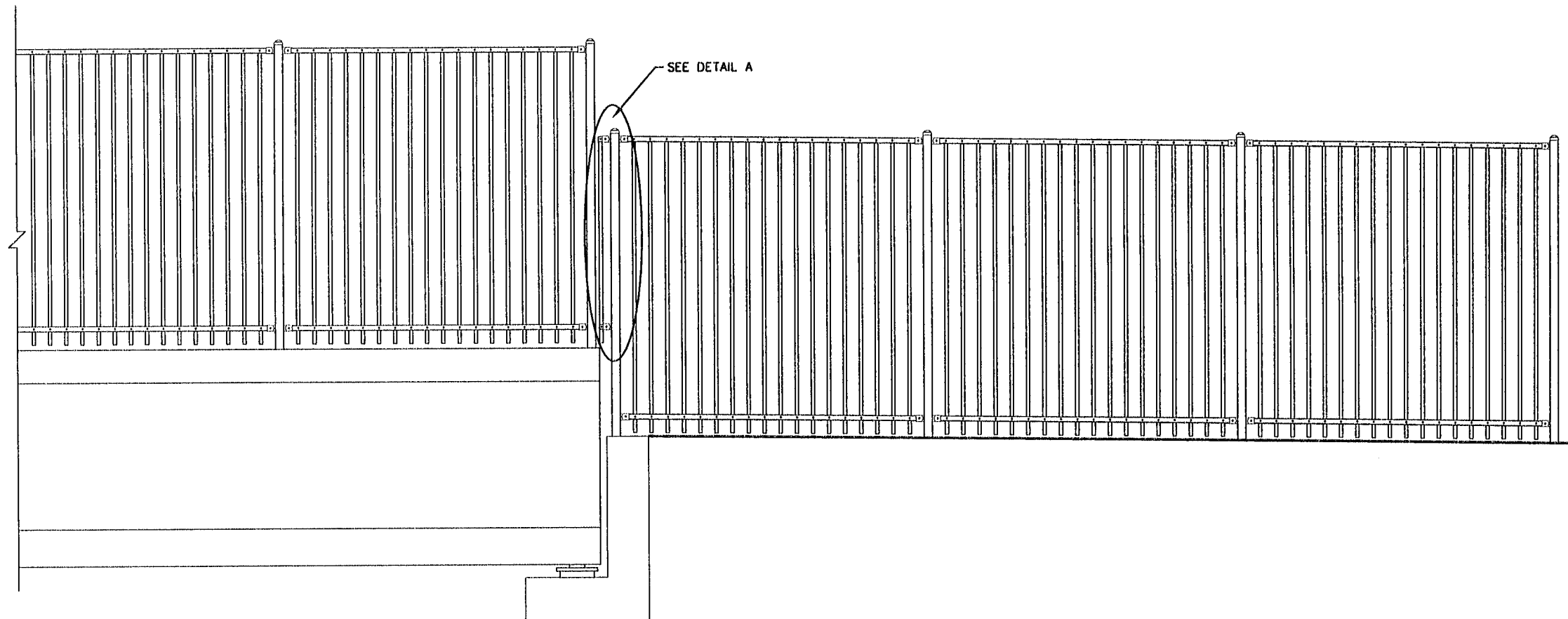
1326 ENERGY PARK DRIVE
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 BRIDGE AND UNDERPASS

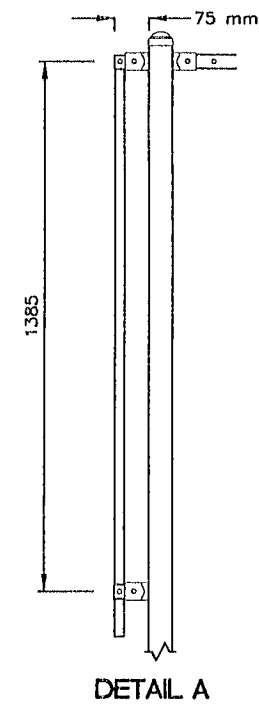
1 600 mm PRESTRESSED CONCRETE BEAM
 (PRETENSIONED) TYPE 1600-41 500

SHEET NO.
24
 OF
48

BRIDGE NO.
02565



NOTE:
REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID ANCHOR RODS.



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: _____ JOB NUMBER 805800J
 CAD DATE: May 18, 1999 11:23:58 am
 CAD FILE: H:\CADD\BRIDGE\990518\990518.dwg

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 DATE _____ REG. NO. _____

NO.	DATE	BY	REVISION DESCRIPTION



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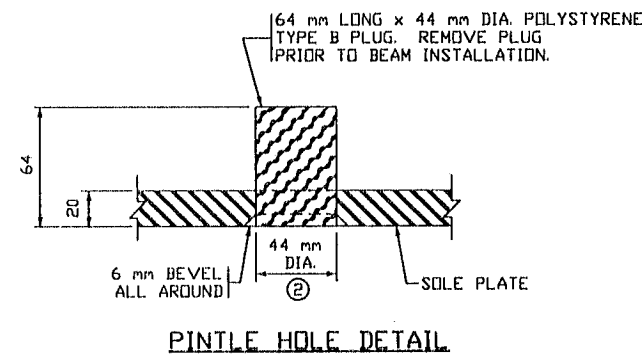
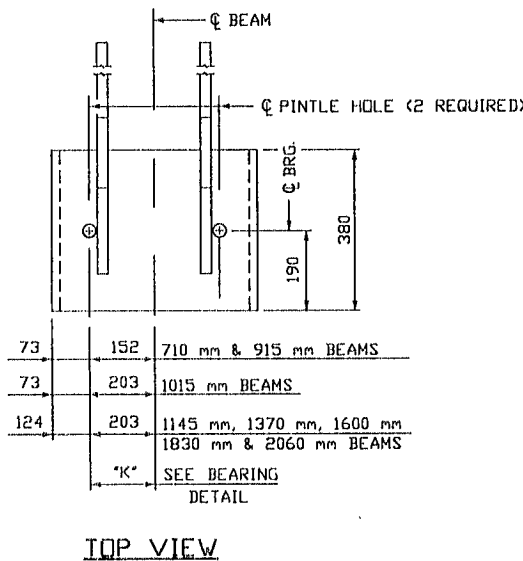
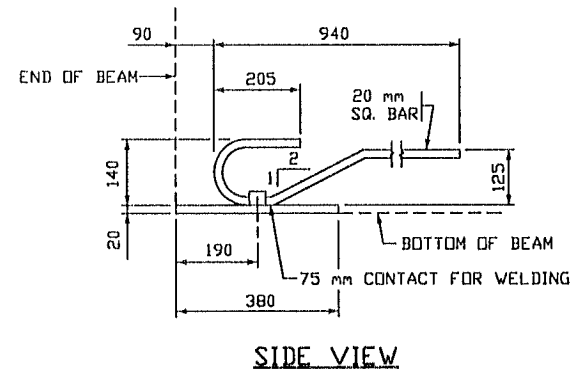
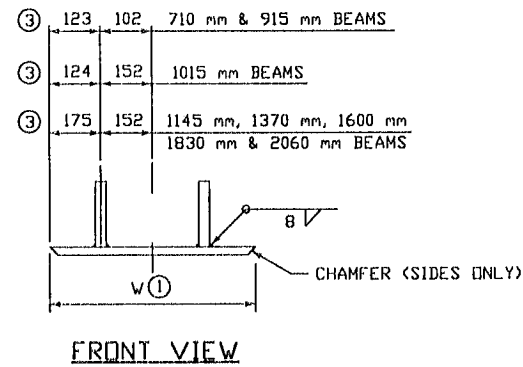
1326 ENERGY PARK DRIVE
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ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE
 IRON PICKET FENCE DETAILS

SHEET NO.
 25
 of
 48

BRIDGE NO.
 02565



BEAM SIZE	① W VALUE (mm)
710 mm, 915 mm	450
1015 mm	552
1145 mm, 1370 mm 1600 mm, 1830 mm, 2060 mm	654

- NOTES:
- MATERIAL TO BE STRUCTURAL STEEL PER SPEC. 3306.
- SOLE PLATE FOR BEARING ASSEMBLY TO BE HOT DIPPED GALVANIZED PER 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 6 mm.
- ② FOR 38 mm DIA. PINTLES.
- ③ THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS, HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED

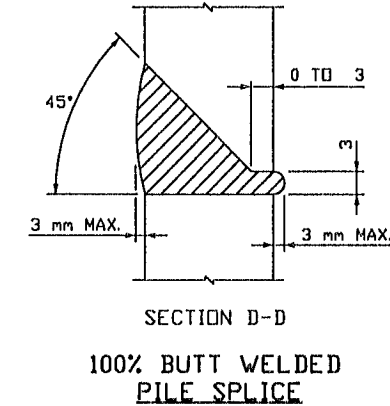
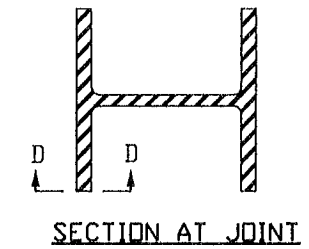


APPROVED: APRIL 2, 1997
Donald J. Fleming
 STATE BRIDGE ENGINEER

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

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

REVISION
 DETAIL NO.
 B303M



- NOTES:
- A.W.S. TYPE E7016 OR E7018 (LOW-HYDROGEN) ELECTRODES SHALL BE USED FOR 100% BUTT WELDED SPLICES.
- 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 121° C.
- 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 -18° C. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 0° C., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 21° C. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED

APPROVED: APRIL 2, 1997
Donald J. Fleming
 STATE BRIDGE ENGINEER

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

PILE SPLICE
 (STEEL H BEARING PILES 250 mm TO 360 mm)

REVISION
 DETAIL NO.
 B202M

DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: March 24, 1999 1:01:22 p.m.
 CAD FILE: 207321.tbl, 207321.dwg, 03.14.99

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

Donald J. Fleming
 DATE 5/10/99 REG. NO. 13972

NO.	DATE	BY	REVISION DESCRIPTION



1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

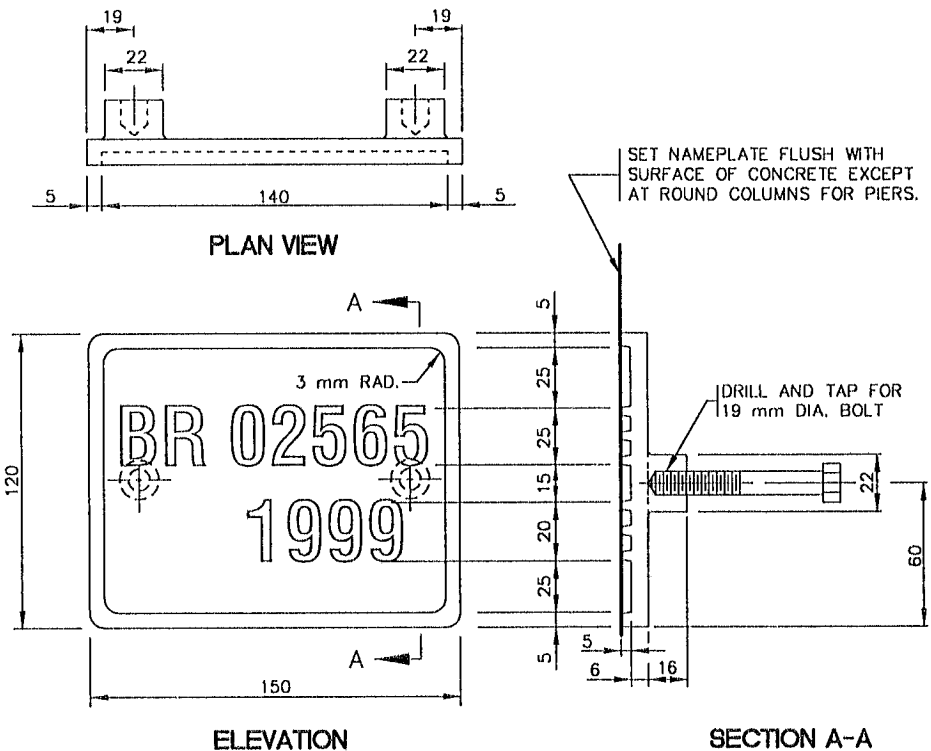
Howard R. Green Company
 CONSULTING ENGINEERS

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

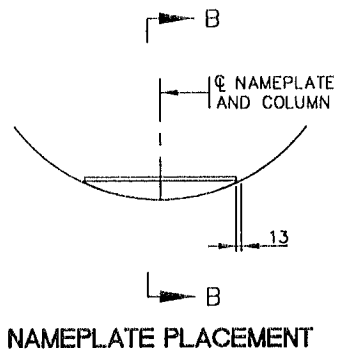
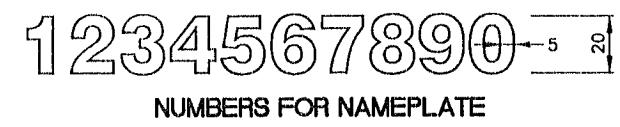
PEDESTRIAN BRIDGE DETAILS

SHEET NO.
 26
 of
 48

BRIDGE NO.
 02565

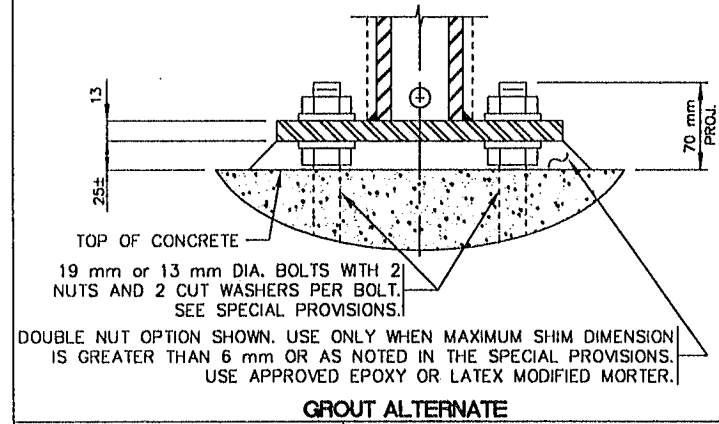
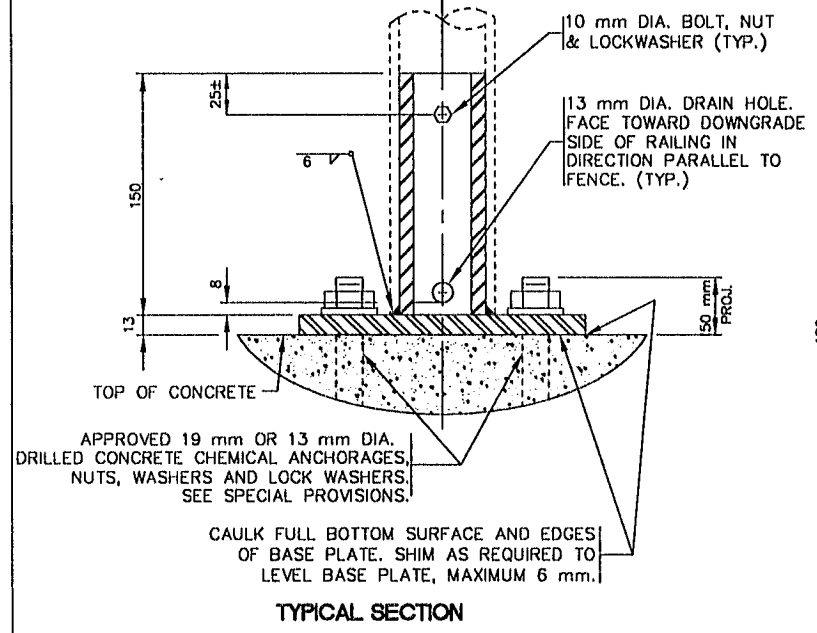
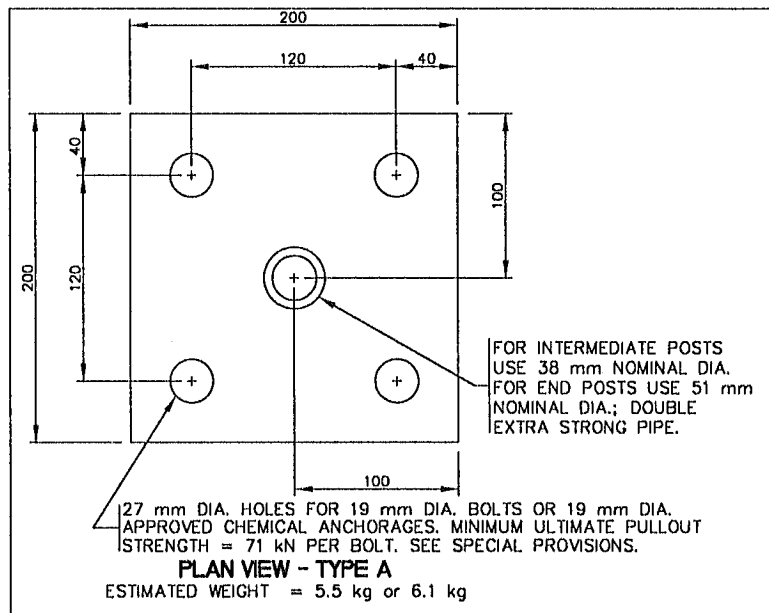


DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:
 BRIDGE 02565
 YEAR 1999

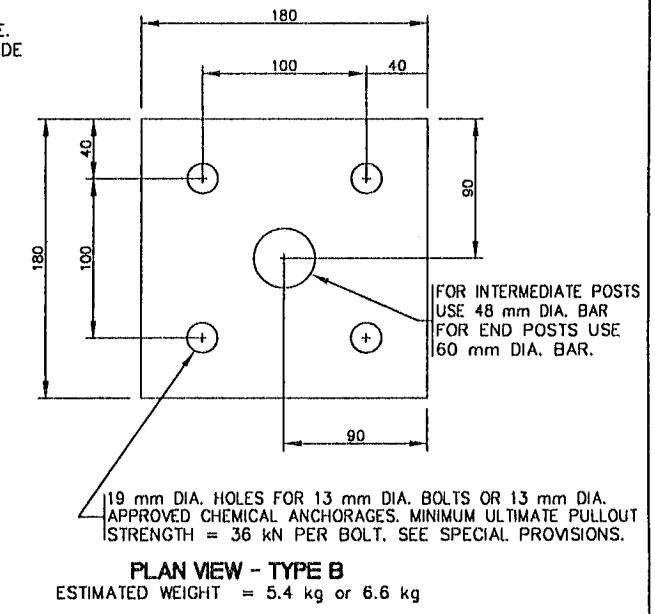
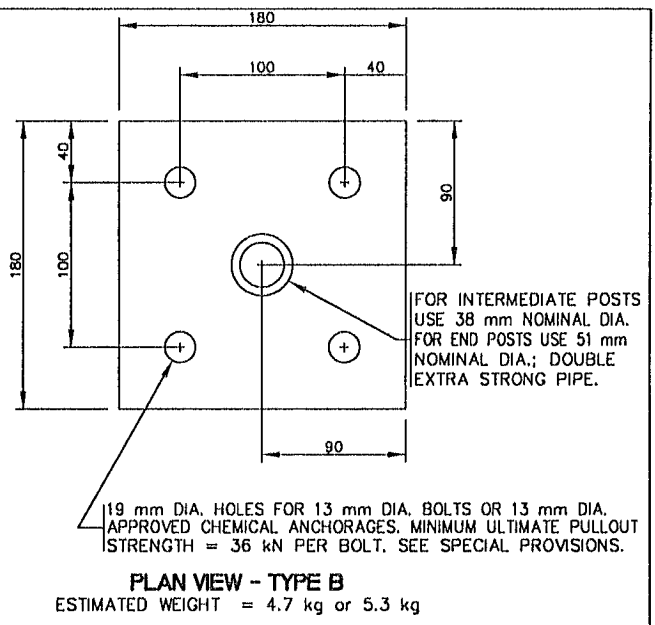


NOTES:
 NO SHOP DRAWING REQUIRED.
 MATERIAL SHALL COMPLY WITH SPEC. 3327.
 LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
 DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 75 mm IN 305 mm.
 HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
 TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
 FURNISH 2 STEEL BOLTS 10 mm DIA. x 75 mm LONG WITH EACH PLATE.
 ALL DIMENSIONS FOR 19 mm HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 25 mm HIGH LETTERS AND NUMBERS.

APPROVED: APRIL 2, 1997	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE NAMEPLATE FOR NEW BRIDGES	REVISION	DETAIL NO. B101M
STATE BRIDGE ENGINEER			



APPROVED: APRIL 2, 1997	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION FENCE POST ANCHORAGE	REVISION	DETAIL NO. B905M
STATE BRIDGE ENGINEER			



NOTES:
 STRUCTURAL STEEL PER SPEC. 3306
 STRUCTURAL PIPE PER SPEC. 3362
 GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER SPEC. 3394. GALVANIZE THE FASTNERS PER SPEC. 3392
 DOUBLE EXTRA STRONG PIPE WEIGHTS:
 38 mm NOMINAL DIA. = 9.56 kg/m
 50 mm NOMINAL DIA. = 13.44 kg/m



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600J
 CAD DATE: April 05, 1999 11:14:16 a.m.
 CAD FILE: 805600J.tbl; 805600.tbl; 805600.dwg

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 DATE: 5/18/99 REG. NO. 13970

NO.	DATE	BY	REVISION DESCRIPTION

1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389
Howard R. Green Company
 CONSULTING ENGINEERS

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE DETAILS

SHEET NO.
27
 OF
48

BRIDGE NO.
 02565

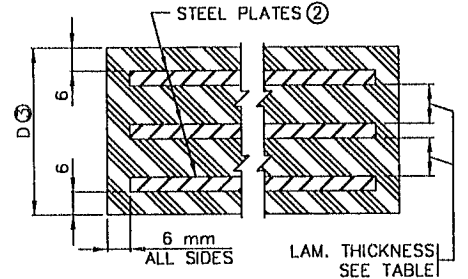
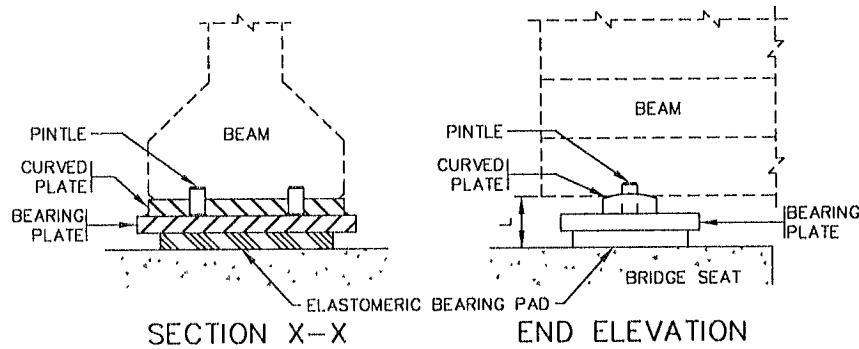
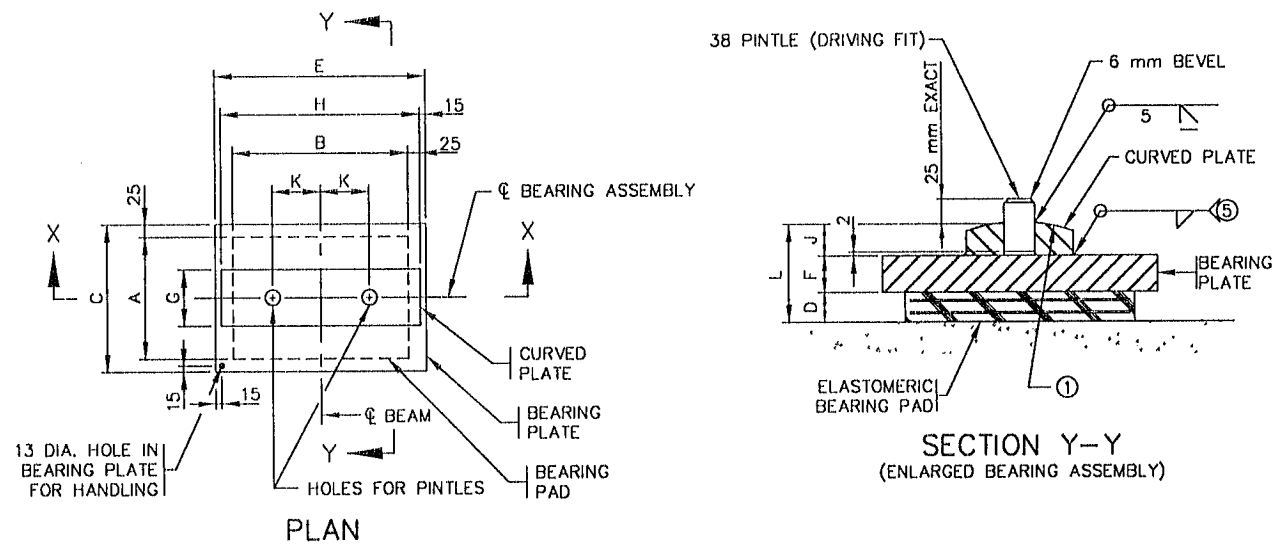


TABLE (ALL DIMENSIONS IN mm)

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			
			K	L	M														
E1	ABUTMENTS	1600	254	610	47	3	3	2	13	7.1	305	686	25	114	660	25	38	203	98

NOTES:

ELASTOMERIC MATERIALS & PAD CONSTRUCTION SHALL COMPLY WITH SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH SPEC. 3306

ALL PLATES SHALL BE FLAT AFTER FABRICATION AND GALVANIZING. WELDING DISTORTION OF BEARING PLATES SHALL BE STRAIGHTENED TO WITHIN 2 mm OF FLATNESS BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.

PINTLES SHALL COMPLY WITH SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER 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 400 mm MINIMUM AND 600 mm MAXIMUM. FINISH TO 6.35 MICROMETERS. THE FINISHED THICKNESS OF THE PLATE MAY BE 2 mm LESS THAN SHOWN.

② DO NOT GALVANIZE THESE PLATES.

③ THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.

④ SEE DETAIL B303M FOR PINTLE DISTANCE K.

⑤ WELDING PER SPEC. 2471.

DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 312 kN FOR 38 mm DIA. PINTLES

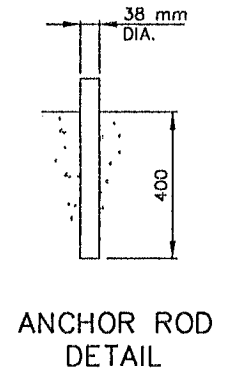
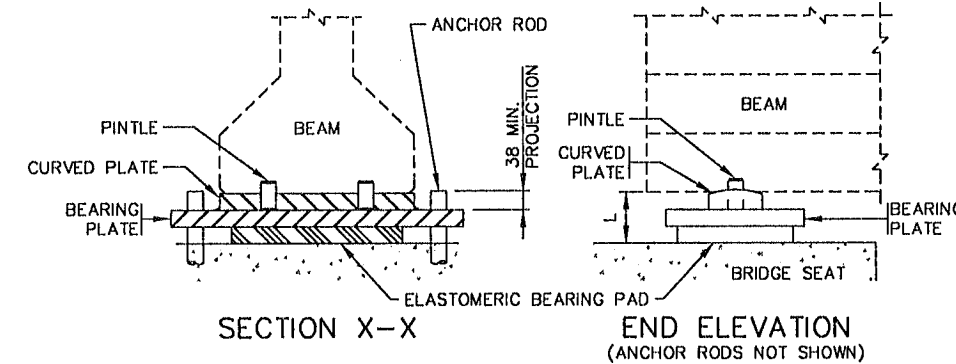
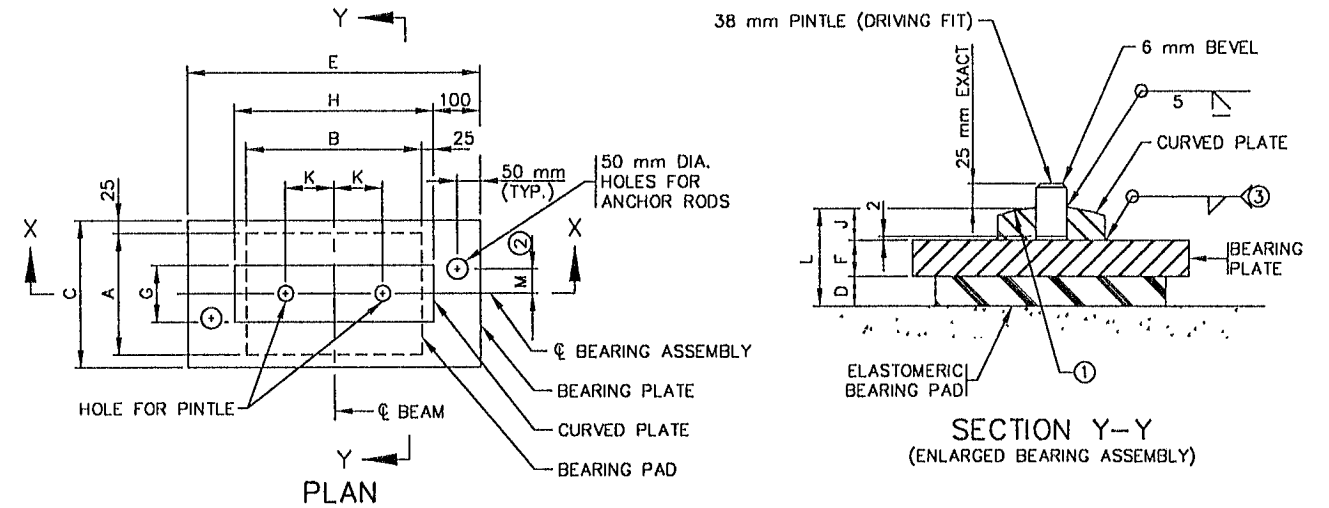


TABLE (ALL DIMENSIONS IN mm)

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				
			K	L	M											
F1	PIERS	1600	254	610	47	7.1	305	863	25	114	660	25	38	203	NONE	98

NOTES:

ELASTOMERIC MATERIALS & PAD CONSTRUCTION SHALL COMPLY WITH SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH SPEC. 3306

ANCHOR RODS SHALL COMPLY WITH SPEC. 3385 TYPE A. GALVANIZE PER SPEC. 3392.

ALL PLATES SHALL BE FLAT AFTER FABRICATION AND GALVANIZING. WELDING DISTORTION OF BEARING PLATES SHALL BE STRAIGHTENED TO WITHIN 2 mm OF FLATNESS BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.

PINTALES SHALL COMPLY WITH SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER 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 405 mm MINIMUM AND 610 mm MAXIMUM. FINISH TO 6.35 MICROMETERS. THE FINISHED THICKNESS OF THE PLATE MAY BE 2 mm LESS THAN SHOWN.

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

③ WELDING PER SPEC. 2471.

④ SEE DETAIL B303 FOR PINTLE DISTANCE K.

DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 312 kN FOR 38 mm DIA. PINTLES



APPROVED: APRIL 2, 1997

OFFICE of BRIDGES and STRUCTURES

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
CURVED PLATE BEARING ASSEMBLY
(PRESTRESSED CONCRETE BEAMS)
(EXPANSION)

REVISION
DETAIL NO.
B311M

APPROVED: APRIL 2, 1997

OFFICE of BRIDGES and STRUCTURES

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
CURVED PLATE BEARING ASSEMBLY
(PRESTRESSED CONCRETE BEAMS)
(FIXED)

REVISION
7/19/94 NKL
4/13/95 REH
DETAIL NO.
B310M

DESIGNED BY: SPL DRAWN BY: RKM
APPROVED: JOB NUMBER B05600J
CAD DATE: 5/18/99
CAD FILE: B311M.dwg

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/18/99 REG. NO. 13970

NO.	DATE	BY	REVISION DESCRIPTION



Howard R. Green Company
CONSULTING ENGINEERS

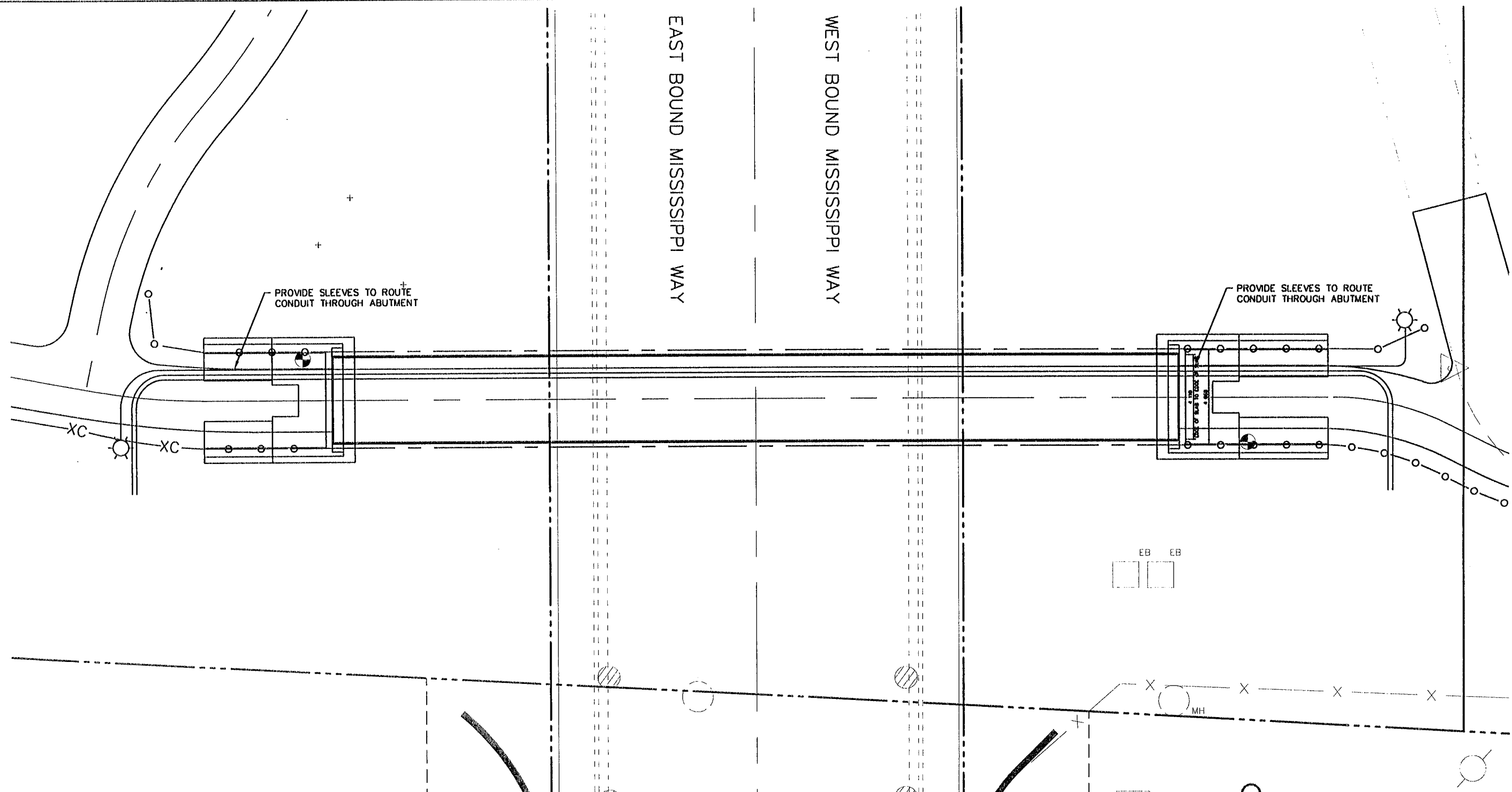
1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

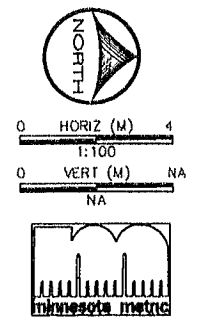
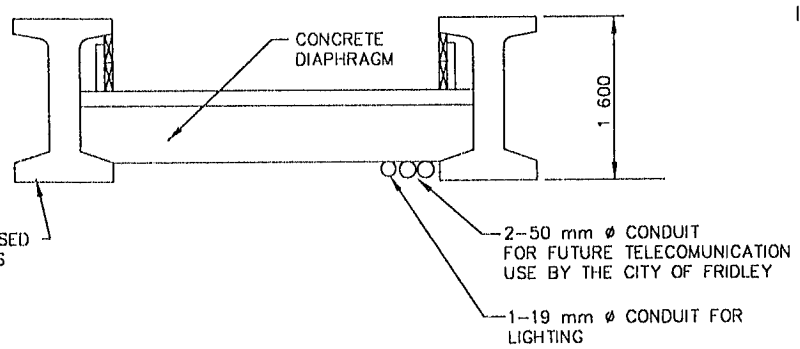
PEDESTRIAN BRIDGE DETAILS

SHEET NO.
28
of
48

BRIDGE NO.
02565



GENERAL PLAN



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER B05600J
 CAD DATE: 08-16-1999 5:27:43 p.m.
 CAD FILE: 2256002.dwg 11-23-99 11:12:00

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 DATE: REG. NO.:

NO.	DATE	BY	REVISION DESCRIPTION

1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

Howard R. Green Company
 CONSULTING ENGINEERS

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

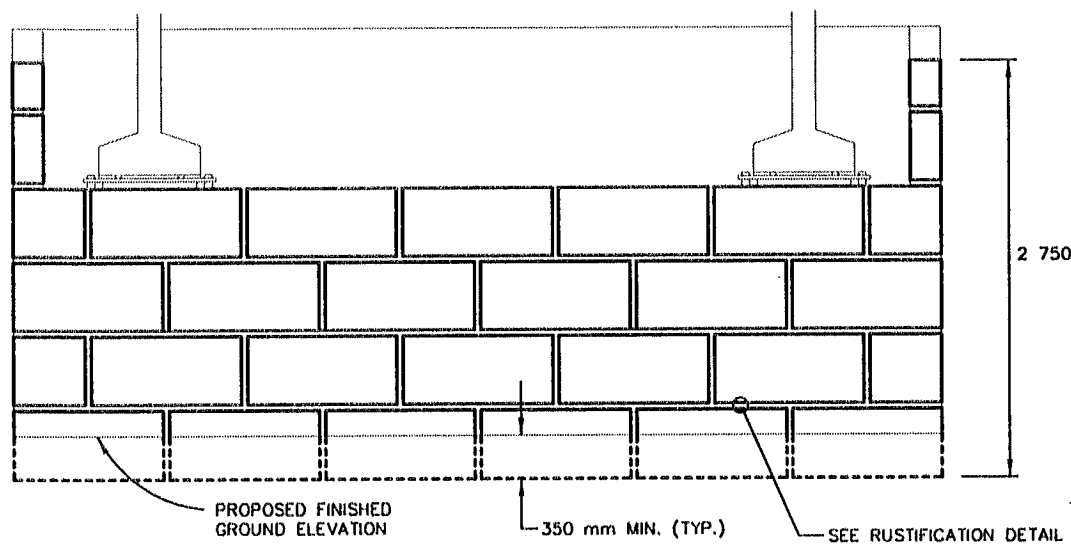
PEDESTRIAN BRIDGE
 ELECTRIC PLAN

SHEET NO.
29
 OF
48

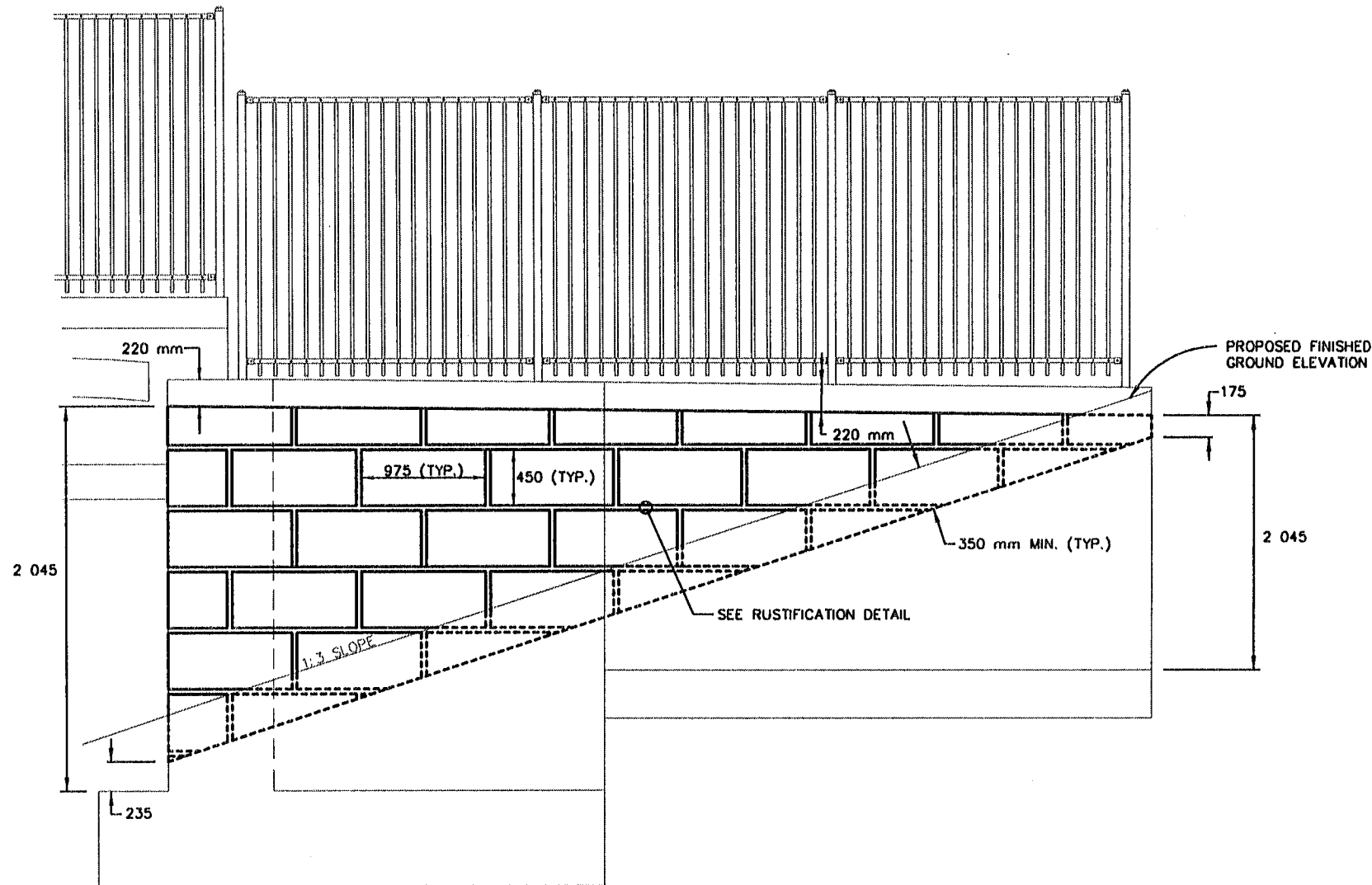
BRIDGE NO.
02565



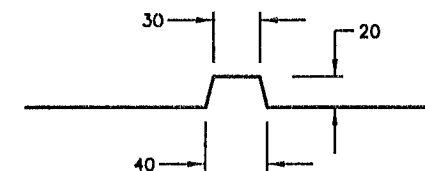
0 HORIZ (M) 1
1:25
0 VERT (M) 1
1:25



END VIEW



PROFILE VIEW



RUSTICATION DETAIL

DESIGNED BY: SPL DRAWN BY: RKM
APPROVED: JOB NUMBER 805600J
CAD DATE: May 15, 1999 12:04:59 p.m.
CAD FILE: 805600J.dwg

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Howard R. Green
DATE 5/18/99 REG. NO. 13970

NO.	DATE	BY	REVISION DESCRIPTION



Howard R. Green Company
CONSULTING ENGINEERS

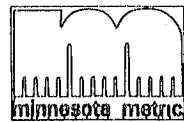
1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

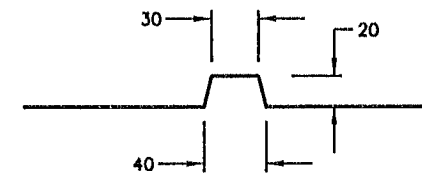
PEDESTRIAN BRIDGE
RUSTICATION DETAILS
NORTH ABUTMENT

SHEET NO.
30
OF
48

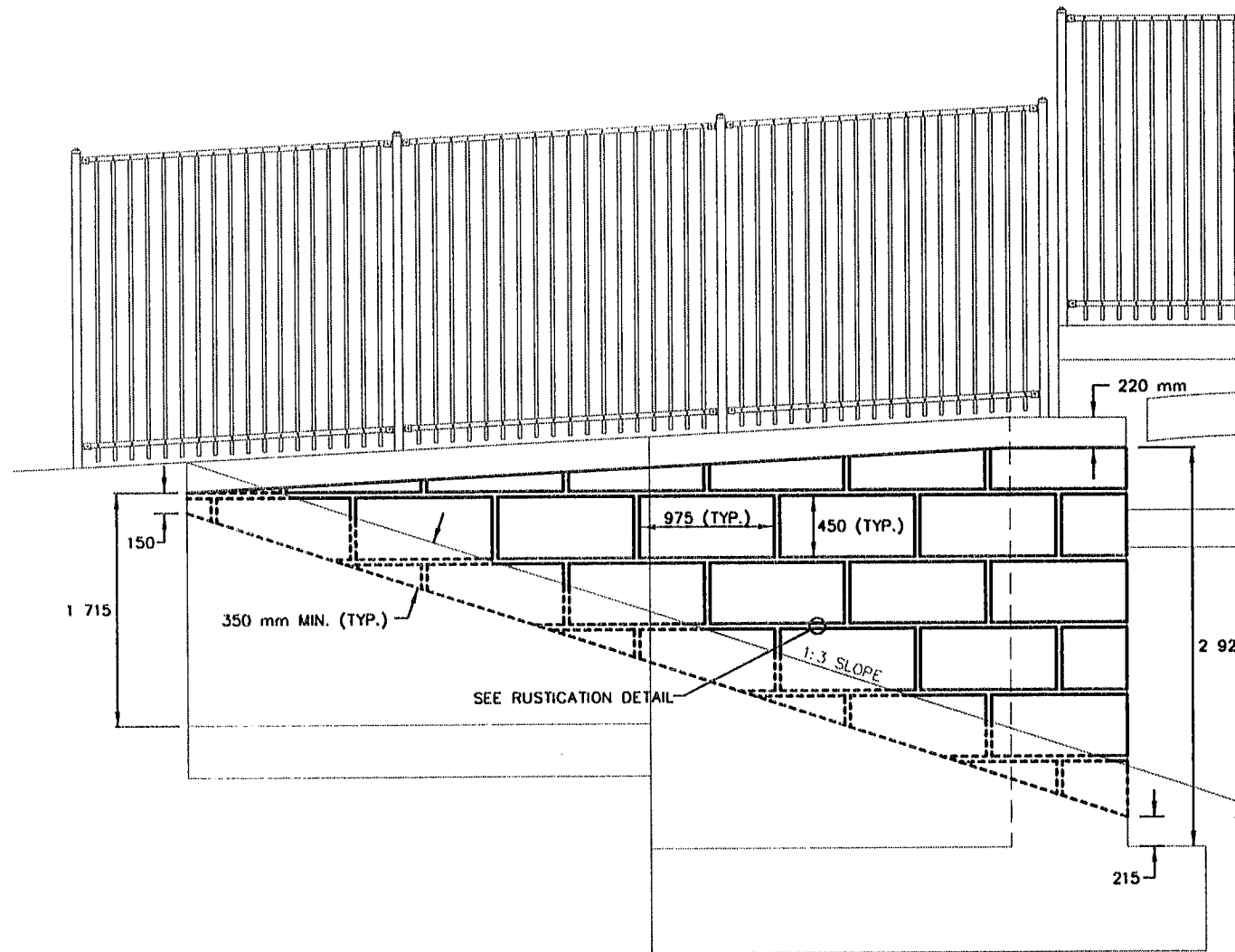
BRIDGE NO.
02565



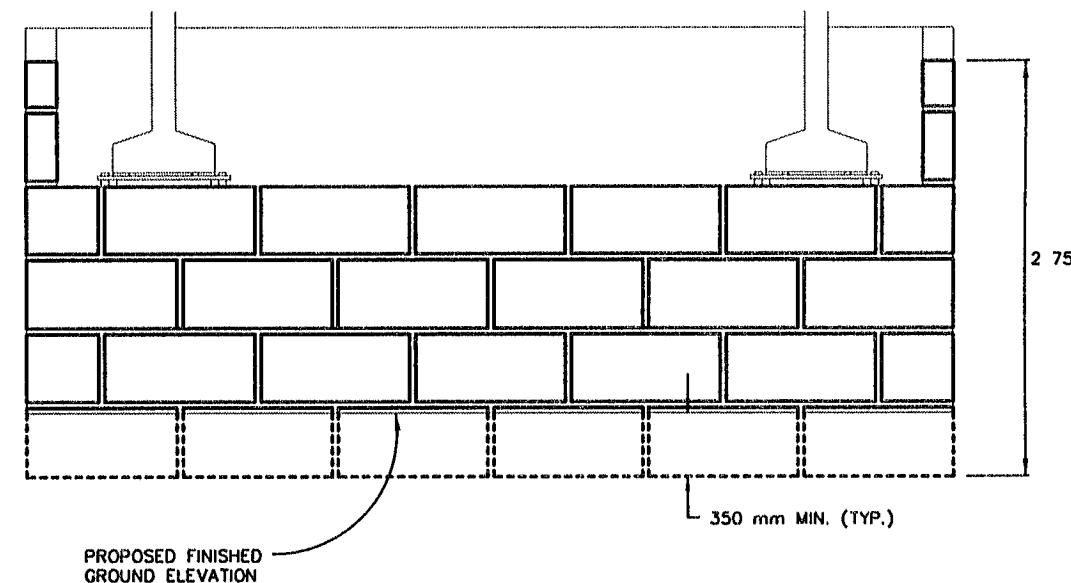
0 HORIZ (M) 1
1:25
0 VERT (M) 1
1:25



RUSTICATION DETAIL



PROFILE VIEW



END VIEW

DESIGNED BY: SPL DRAWN BY: RKM
APPROVED: JOB NUMBER 805600J
CAD DATE: May 18, 1999 12:13:52 p.m.
CAD FILE: 805600J\BRIDGE\BRICK\02137.CAD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Howard R. Green
DATE 5/18/99 REG. NO. 13970

NO.	DATE	BY	REVISION DESCRIPTION



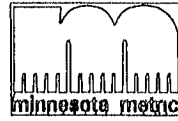
1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389
Howard R. Green Company
CONSULTING ENGINEERS

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

PEDESTRIAN BRIDGE
RUSTICATION DETAILS
SOUTH ABUTMENT

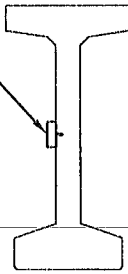
SHEET NO.
31
OF
48

BRIDGE NO.
02565



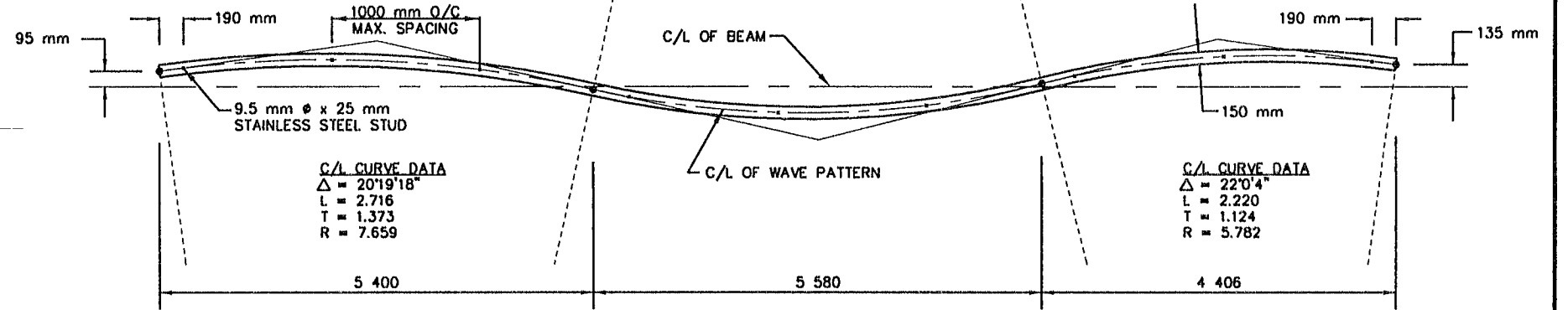
0 HORIZ (M) 4
1:80
0 VERT (M) 4
1:80

9.5 mm ϕ x 25 mm
STAINLESS STEEL STUD,
DRILLED AND PERMANENTLY
CHEMICALLY BONDED
TO CONCRETE.

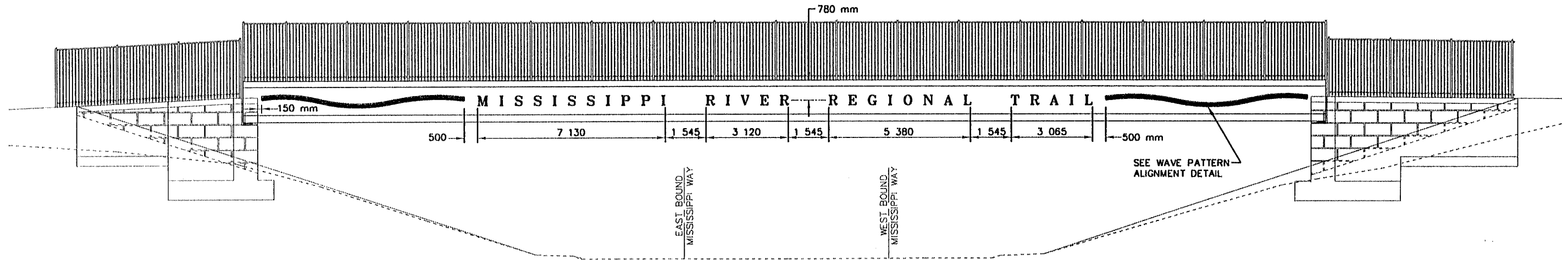


NOTE:
LEFT SIDE IS SYMETRICAL
ABOUT C/L OF THE SPAN.

C/L CURVE DATA
 $\Delta = 26'40''18''$
L = 2.816
T = 1.434
R = 6.049



WAVE PATTERN ALIGNMENT
(RIGHT SIDE SHOWN)



- LETTERS SHALL BE 380 mm HIGH CAST ALUMINUM WITH A BAKED ENAMEL FINISH. THE COLOR OF THE FINISH SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
- LETTERS SHALL BE "TIMES BOLD" FONT.
- LETTERS AND WAVE PATTERNS ARE TO BE APPLIED TO THE EXTERIOR FACE OF BOTH SIDES OF THE BRIDGE.
- WAVE PATTERN SHALL BE MADE OF 6 mm STEEL PLATE CUT TO ALIGNMENT AS SHOWN. JOINTS SHALL BE WELDED TOGETHER. THE EXTERIOR SURFACE SHALL BE MACHINED FLAT.
- STAINLESS STEEL STUDS 9.5 mm IN DIAMETER AND 25 mm LONG SHALL BE WELDED TO THE BACK SIDE OF THE PATTERN. STUD SPACING SHALL BE AS DETAILED.
- WAVE PATTERN SHALL HAVE A BAKED ENAMEL FINISH, THE COLOR OF THE FINISH SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.

DESIGNED BY: SPL DRAWN BY: RKM
APPROVED: JOB NUMBER 805600J
CAD DATE: May 17, 1999 9:23:22 a.m.
CAD FILE: 8056002-PROJECT-EXHIB-1.DWG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DAILY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/18/99 REG. NO. 27901

NO.	DATE	BY	REVISION DESCRIPTION



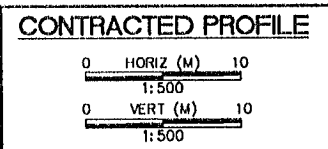
1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389
Howard R. Green Company
CONSULTING ENGINEERS

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

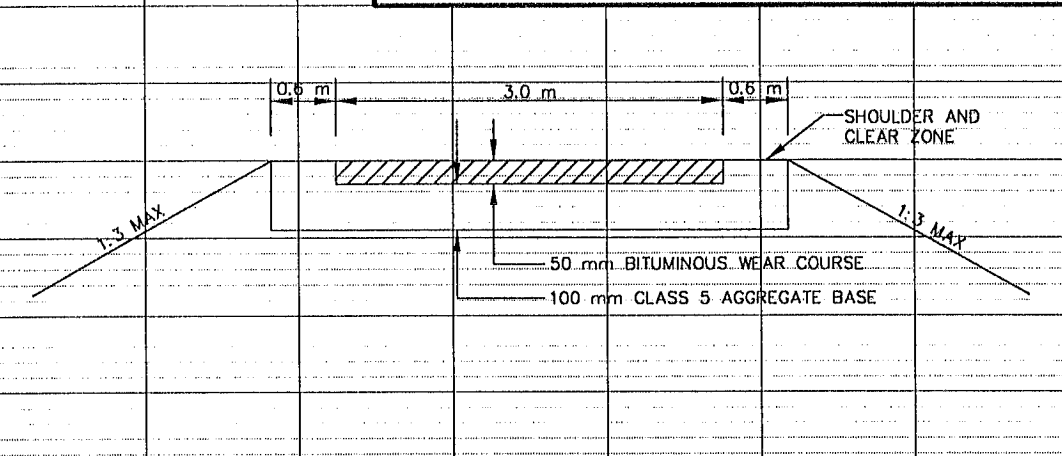
PEDESTRIAN BRIDGE
ARCHITECTURAL
DETAILS

SHEET NO.
32
OF
48

BRIDGE NO.
02565

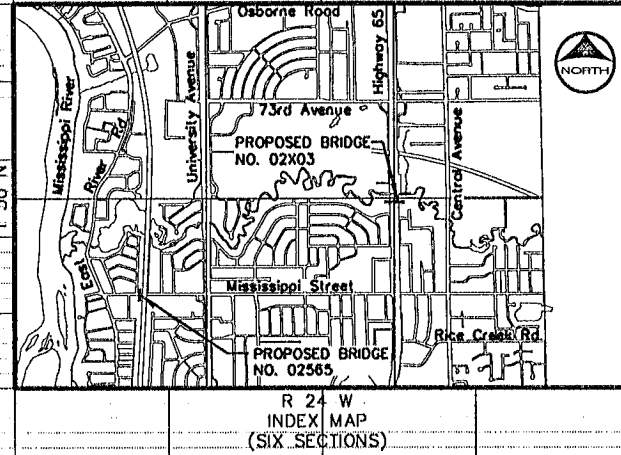
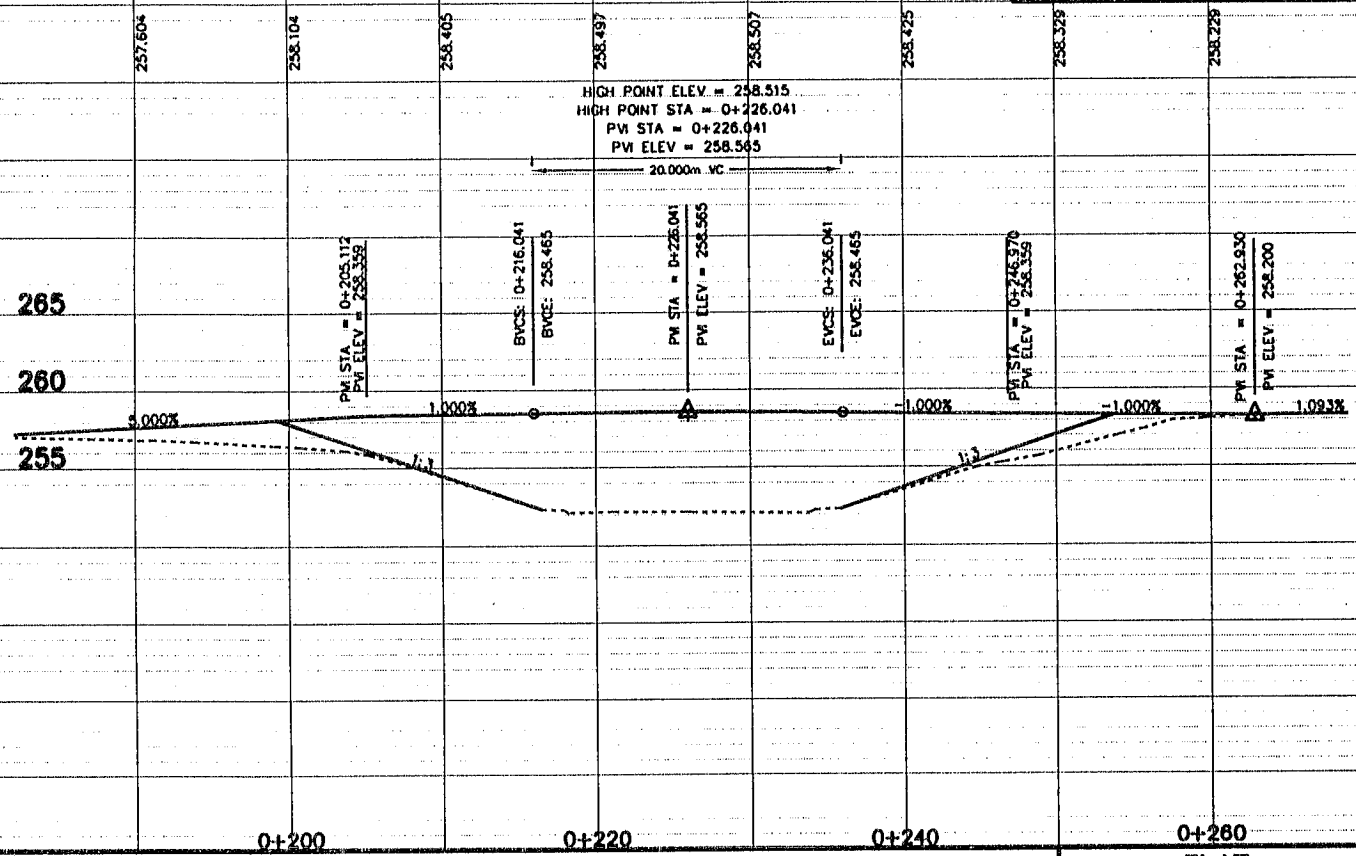


TYPICAL BITUMINOUS PATHWAY APPROACH SECTION
SCALES AS SHOWN



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- SPECIAL FEATURES, WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
- OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE WATER, CROSS-SECTIONAL AREA ETC.
- APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM _____
- OTHER DATA, APPROX. VELOCITY OF WATER AT TIME OF SURVEY _____

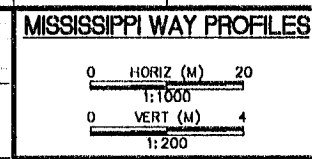
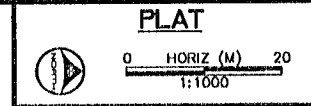
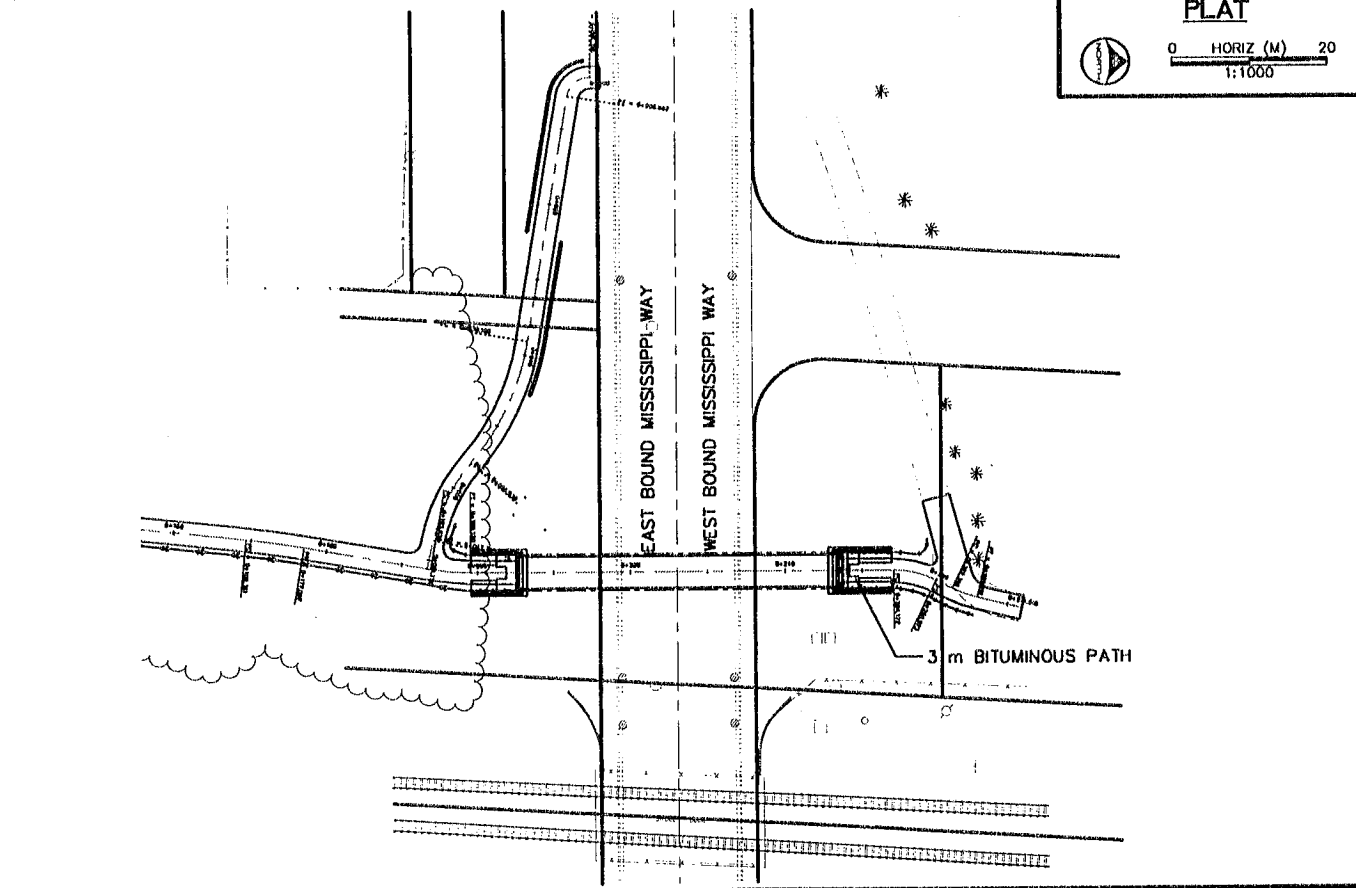


HYDRAULIC ENGINEERS RECOMENDATION
DATE _____

STREAM OR DITCH DESIGNATION _____
DRAINAGE AREA _____
MAX. FLOOD ON RECORD _____ DESIGN FLOOD (____YR. FREQ.) _____ m³/s.
MAX. OBSERVED HIGHWATER ELEV. _____ DESIGN HIGHWATER ELEV. _____
DESIGN MEAN VELOCITY THROUGH STRUCTURE _____ m/s.
LOW SUPERSTRUCTURE AT OR ABOVE ELEV. _____
FLOWLINE ELEV. _____ SKEW ANGLE _____
WATERWAY AREA REQ'D BELOW ELEV. _____ = 50. m AT RT. ANGLES TO CHANNEL _____

IN THE INTEREST OF FLOOD PLAIN ZONING THE REGIONAL FLOOD (100 YR. FREQ.) IS _____ m³/s. AT STAGE _____ AND MEAN OF VELOCITY OF _____ m/s. WITH _____ m SWELLHEAD _____

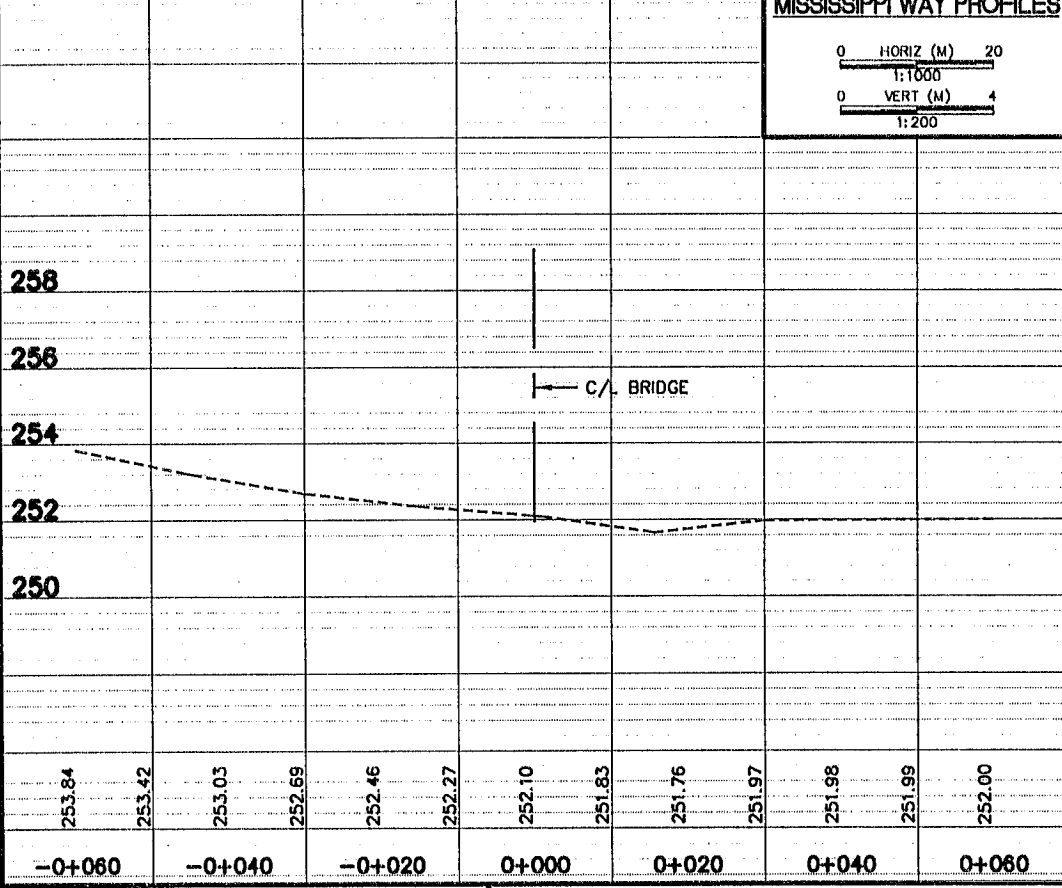
THE ABOVE RECOMENDATION WILL PROVIDE A STRUCTURE OF ADEQUATE WATERWAY TO PASS THE REGIONAL FLOOD WITHIN CRITERIA ESTABLISHED BY THE DEPT. OF NATURAL RESOURCES.



FOUNDATION ENGINEERS RECOMENDATION
DATE _____

BRIDGE SURVEY SHEETS MADE FROM _____

BENCH MARK ELEVATION _____ (M.S.L. 1929 ADJ.)
LOCATION _____



ALL DIMENSIONS ARE IN MILLIMETERS (mm) & ALL ELEVATIONS ARE IN METERS (m) EXCEPT AS NOTED

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT KILOMETER POINT _____ ON _____ PATHWAY _____
PROPOSED BRIDGE LOCATED _____ KM _____

SEC. _____ TWP. 30N _____ R. 24W
CITY FRIDLEY COUNTY ANOKA

BRIDGE NO. 02565

DESIGNED BY: _____ DRAWN BY: RKM
APPROVED: _____ JOB NUMBER 805600J
CAD DATE: _____
CAD FILE: _____

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

DATE _____ REG. NO. _____

NO.	DATE	BY	REVISION DESCRIPTION

1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389

Howard R. Green Company
CONSULTING ENGINEERS

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

DESIGNED BY: ---
 DRAWN BY: *gfb*
 JOB NUMBER: 805600J
 CAD FILE: 805600J\TUNNEL\MISC\TUNNEL_DETOUR.DWG
 CAD DATE: May 18, 1999 12:13:38 p.m.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, SPECIFICATION AND THAT I AM A duly REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Howard R. Green
 DATE: 5/18/99
 REG. NO.: 23901

NO.	DATE	BY	REVISION DESCRIPTION

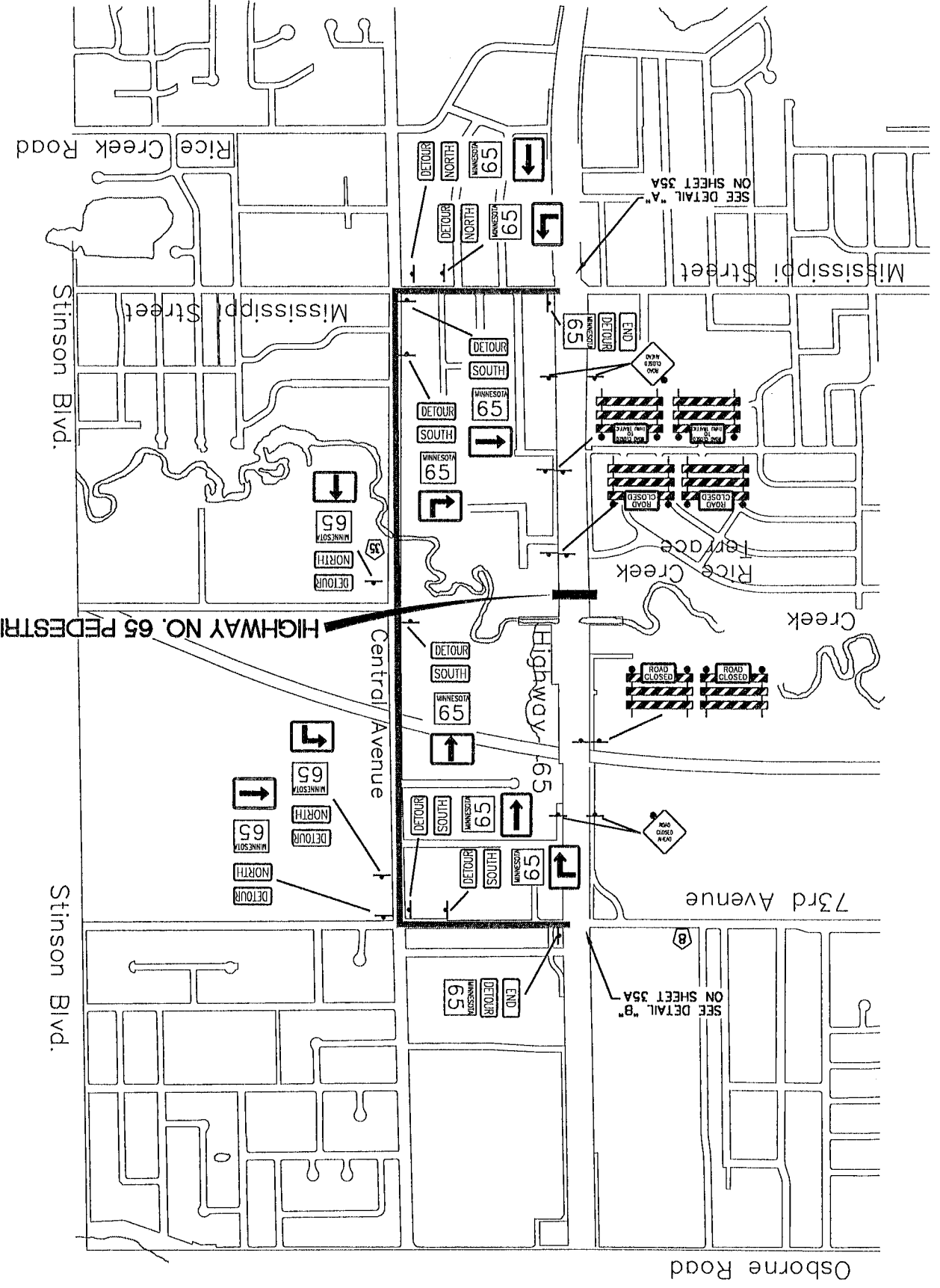
Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

HIGHWAY NO. 65 PEDESTRIAN UNDERPASS
 DETOUR PLAN

BRIDGE NO. 02X03
 SHEET NO. 34
 OF 48

MUTCD	SIZE INCHES	SIZE METRIC	PANEL AREA	QUANTITY		INSERT
				NORTH BOUND	SOUTH BOUND	
W20-1	48"x48"	1200 mm x 1200 mm	1.44	16	2	ROAD AHEAD CLOSED
W20-2A	48"x48"	1200 mm x 1200 mm	1.44	16	2	DETOUR AHEAD
W20-3	48"x48"	1200 mm x 1200 mm	1.44	16	2	ROAD AHEAD CLOSED
R11-4	48"x30"	1200 mm x 750 mm	0.90	10	2	ROAD CLOSED
R11-2	48"x30"	1200 mm x 750 mm	0.90	10	2	ROAD CLOSED
M4-10	48"x30"	1200 mm x 750 mm	0.90	10	5	ROAD CLOSED
M4-8	24"x12"	600 x 300	2.0	5	5	DETOUR
M3-2	24"x12"	600 x 300	2.0	5	5	DETOUR
M1-6	24"x24"	600 x 600	4.0	5	5	DETOUR
M5-1L	21"x15"	525 x 375	2.18	2	2	DETOUR
M6-1L	21"x15"	525 x 375	2.18	2	2	DETOUR
M6-1R	21"x15"	525 x 375	2.18	2	2	DETOUR
M5-1L	21"x15"	525 x 375	2.18	2	2	DETOUR
M6-1R	21"x15"	525 x 375	2.18	2	2	DETOUR
M5-1L	21"x15"	525 x 375	2.18	2	2	DETOUR
M6-3	21"x15"	525 x 375	2.18	2	2	DETOUR
M4-8	24"x12"	600 x 300	2.0	5	5	DETOUR
M3-2	24"x12"	600 x 300	2.0	5	5	DETOUR
M1-6	24"x24"	600 x 600	4.0	5	5	DETOUR
M5-1L	21"x15"	525 x 375	2.18	2	2	DETOUR
M6-1L	21"x15"	525 x 375	2.18	2	2	DETOUR
M6-1R	21"x15"	525 x 375	2.18	2	2	DETOUR
M5-1L	21"x15"	525 x 375	2.18	2	2	DETOUR
M4-6	24"x12"	600 x 300	2.0	1	1	DETOUR
M4-8	24"x12"	600 x 300	2.0	1	1	DETOUR
M1-6	24"x12"	600 x 600	4.0	1	1	DETOUR



HIGHWAY NO. 65 PEDESTRIAN UNDERPASS



DESIGNED BY: *ogt*
 DRAWN BY: *ogt*
 JOB NUMBER: 805600J
 CAD FILE: 805600J\TUNNEL\MISC\TUNNEL_DET_INT.DWG
 CAD DATE: May 10, 1999 11:51:39 a.m.
 APPROVED: _____
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE: 5/18/99
 23801
 10822

NO.	DATE	BY	REVISION DESCRIPTION

Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

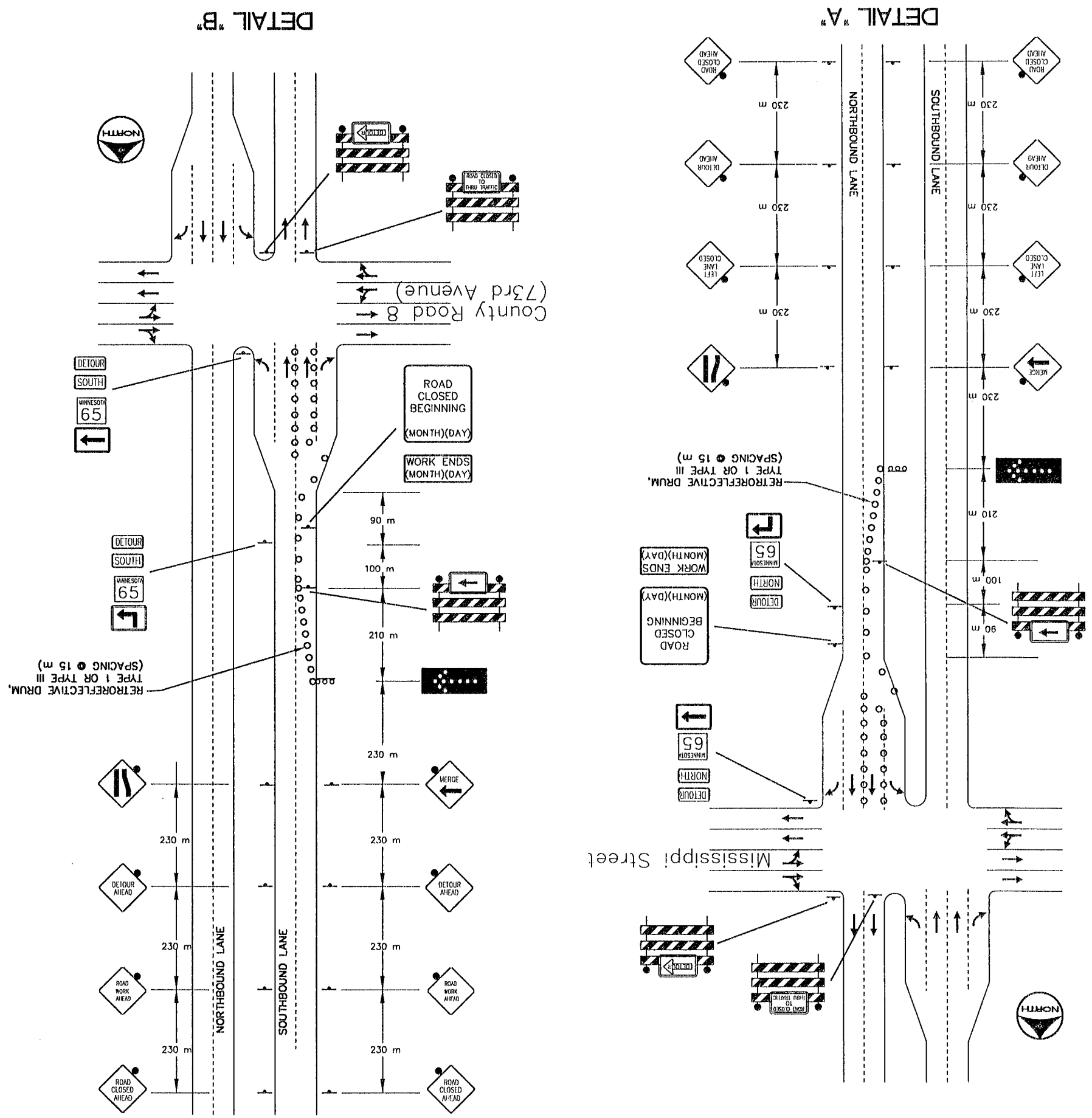
ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

HIGHWAY NO. 65 PEDESTRIAN UNDERPASS
 DETOUR PLAN

BRIDGE NO. 02X03
 SHEET NO. 35 OF 48

NOTE:
 1. IF 1200 x 1200 mm ADVANCE WARNING SIGNS WILL NOT FIT ON THE LEFT SIDE BECAUSE OF A NARROW MEDIAN (LESS THAN APPROXIMATELY 1.8 m)
 A. REDUCE THE LEFT SIDE SIGN SIZES OR ELIMINATE THE LEFT SIDE SIGNING, USE ADDITIONAL "RIGHT LANE CLOSED" SIGNS ON THE RIGHT, AND DISPLAY THE FLASHING ARROWBOARD ON THE SHOULDER.
 B. ELIMINATE THE LEFT SIDE SIGNING, USE ADDITIONAL "LEFT LANE CLOSED" SIGNS ON THE RIGHT, AND DISPLAY THE FLASHING ARROWBOARD ON THE SHOULDER.
 2. IF 1200 x 1200 mm ADVANCE WARNING SIGNS WILL NOT FIT ON THE LEFT BECAUSE OF A NARROW MEDIAN (LESS THAN 1.8 m):
 A. REDUCE THE LEFT SIDE SIGN SIZES OR ELIMINATE THE LEFT SIDE SIGNING, USE ADDITIONAL "LEFT LANE CLOSED" SIGNS ON THE RIGHT, AND DISPLAY THE FLASHING ARROWBOARD ON THE SHOULDER.
 B. ELIMINATE THE LEFT SIDE SIGNING, USE ADDITIONAL "LEFT LANE CLOSED" SIGNS ON THE RIGHT, AND DISPLAY THE FLASHING ARROWBOARD ON THE SHOULDER.

MUTCD	SIZE INCHES	SIZE METRIC	PANEL AREA	INSERT	QUANTITY NORTH BOUND	QUANTITY SOUTH BOUND
G20-X1	2285 mm x 90" x 78"	1980 mm x 48.75"	4.53	ROAD CLOSED BEGINNING (MONTH)(DAY)	1	1
G20-X3	1525 mm x 60" x 24"	610 mm x 10"	0.93	WORK ENDS (MONTH)(DAY)	1	1
W4-2L	1200 mm x 48" x 48"	1200 mm x 16"	1.44	ROAD CLOSED AHEAD	1	1
W4-2R	1200 mm x 48" x 48"	1200 mm x 16"	1.44	ROAD CLOSED AHEAD	1	1
W20-2A	1200 mm x 48" x 48"	1200 mm x 16"	1.44	DETOUR AHEAD	2	2
W20-3	1200 mm x 48" x 48"	1200 mm x 16"	1.44	ROAD CLOSED AHEAD	2	2
W20-X3L	1200 mm x 48" x 48"	1200 mm x 16"	1.44	MERGE	1	1
W20-X3R	1200 mm x 48" x 48"	1200 mm x 16"	1.44	MERGE	1	1
W21-X5L	1200 mm x 48" x 48"	1200 mm x 16"	1.44	LEFT LANE CLOSED	2	2
W21-X5R	1200 mm x 48" x 48"	1200 mm x 16"	1.44	RIGHT LANE CLOSED	2	2
R11-4	48" x 30" TYPE III 8.0"	1200 mm x 750 mm	0.90	ROAD CLOSED	1	1
M4-10	48" x 30" TYPE III 8.0"	1200 mm x 750 mm	0.90	ROAD CLOSED	1	1
---	48" x 30" TYPE III 8.0"	1200 mm x 750 mm	0.90	ROAD CLOSED	1	1
M4-B	24" x 12" 600 x 300	2.0	0.18	DETOUR	2	2
M3-2	24" x 12" 600 x 300	2.0	0.18	NORTH	2	2
M1-6	24" x 24" 600 x 600	4.0	0.36	65	2	2
M6-1R	21" x 15" 525 x 375	2.18	0.20	DETOUR	1	1
M5-1L	21" x 15" 525 x 375	2.18	0.20	DETOUR	1	1
M4-B	24" x 12" 600 x 300	2.0	0.18	DETOUR	2	2
M3-2	24" x 12" 600 x 300	2.0	0.18	SOUTH	2	2
M1-6	24" x 24" 600 x 600	4.0	0.36	65	2	2
M5-1L	21" x 15" 525 x 375	2.18	0.20	DETOUR	1	1
M6-1L	21" x 15" 525 x 375	2.18	0.20	DETOUR	1	1



DETAIL "B"

DETAIL "A"

DESIGNED BY: *[Signature]*
 DRAWN BY: *[Signature]*
 JOB NUMBER: B05600J
 CAD FILE: B05600J\TUNNEL\HWY_65MFI.DWG

DATE: 1/18/19
 PROJECT NO: 25801
 I HAVE CHECKED THIS PLAN, SPECIFICATION OR REPORT 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

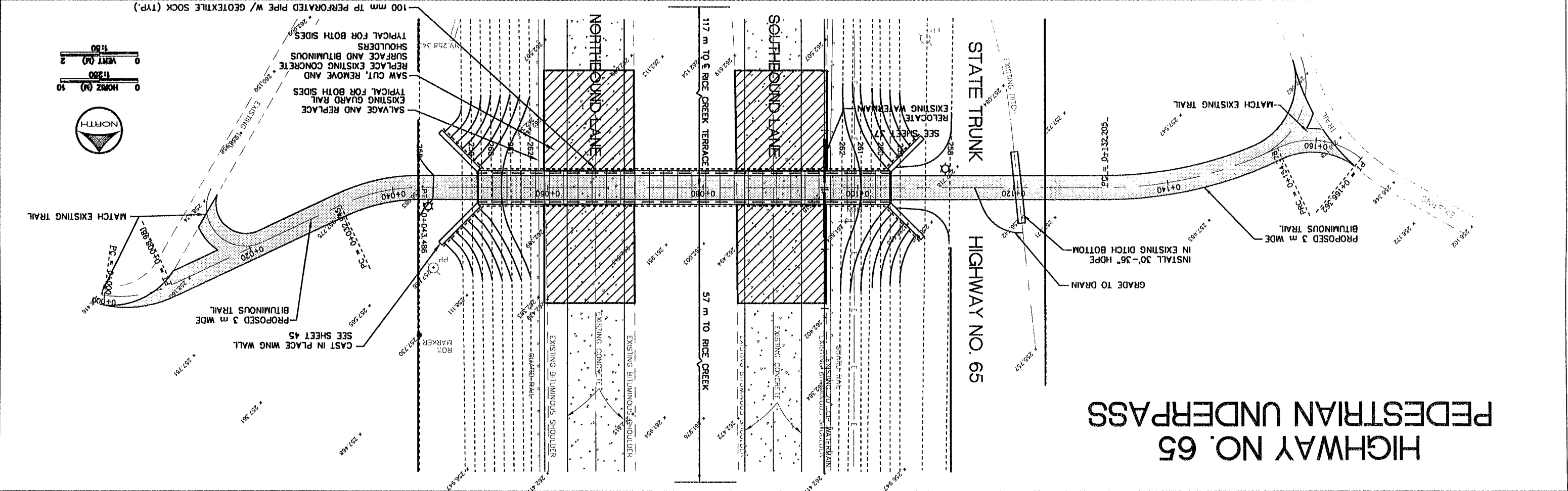
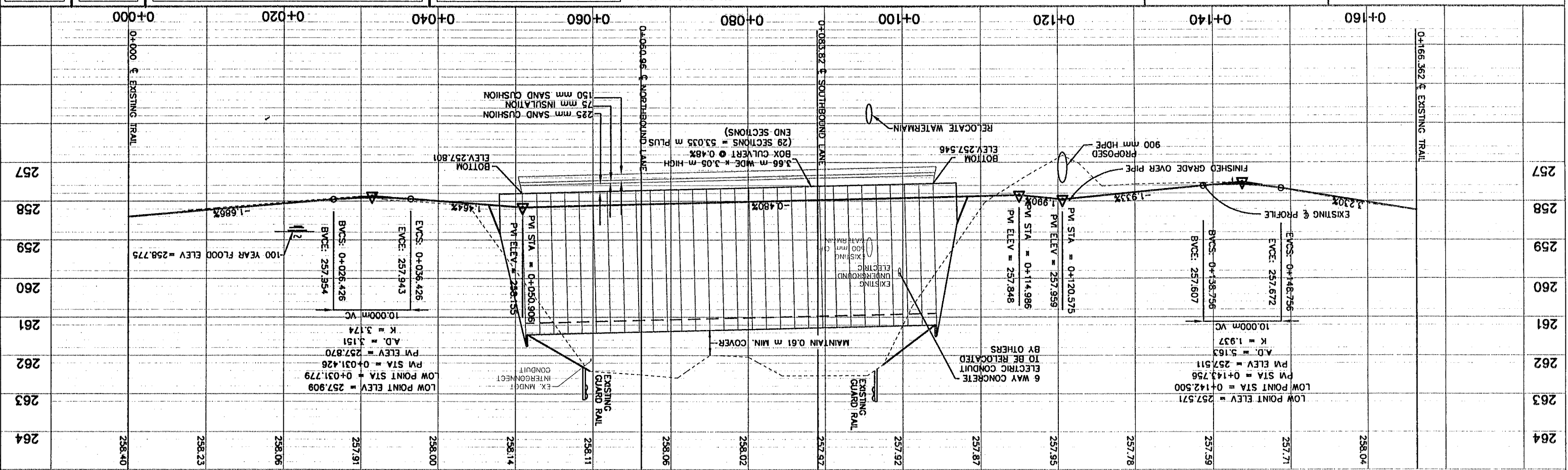
NO.	DATE	BY	REVISION DESCRIPTION

Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (612) 644-4389

ANKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PEDESTRIAN UNDERPASS
 HIGHWAY 65
 PLAN AND PROFILE

SHEET NO. **36** OF **48**
 BRIDGE NO. **02X03**



DESIGNED BY: *[Signature]*
 DRAWN BY: *[Signature]*
 APPROVED: _____
 JOB NUMBER: B05600J
 CAD DATE: April 30, 1999 7:54:11 a.m.
 CAD FILE: B05600J\TUNNEL\TUNNEL_SEG.DWG

DATE: 5/18/99
 REVISION NO. 23801
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NO.	DATE	BY	REVISION DESCRIPTION

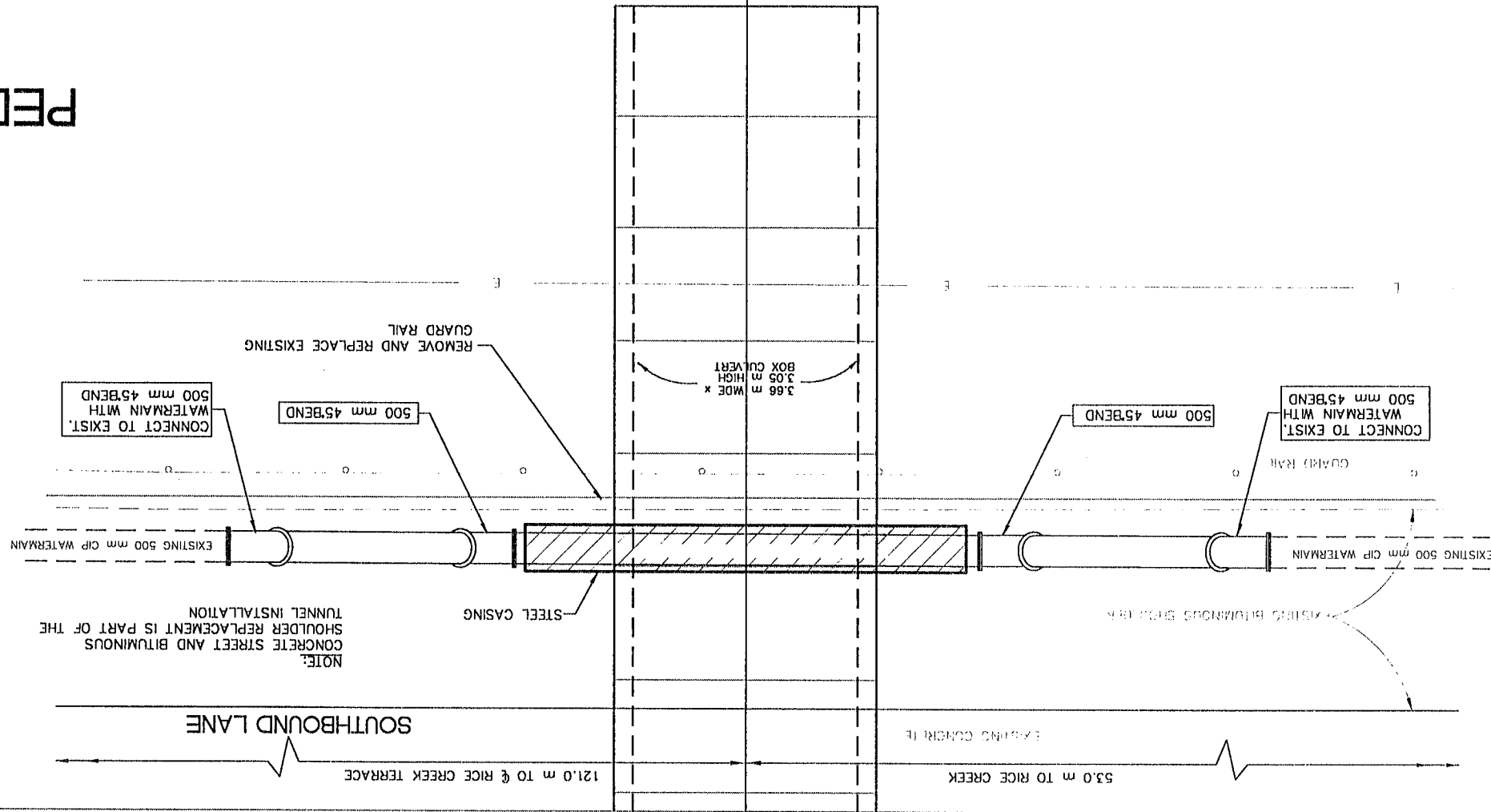
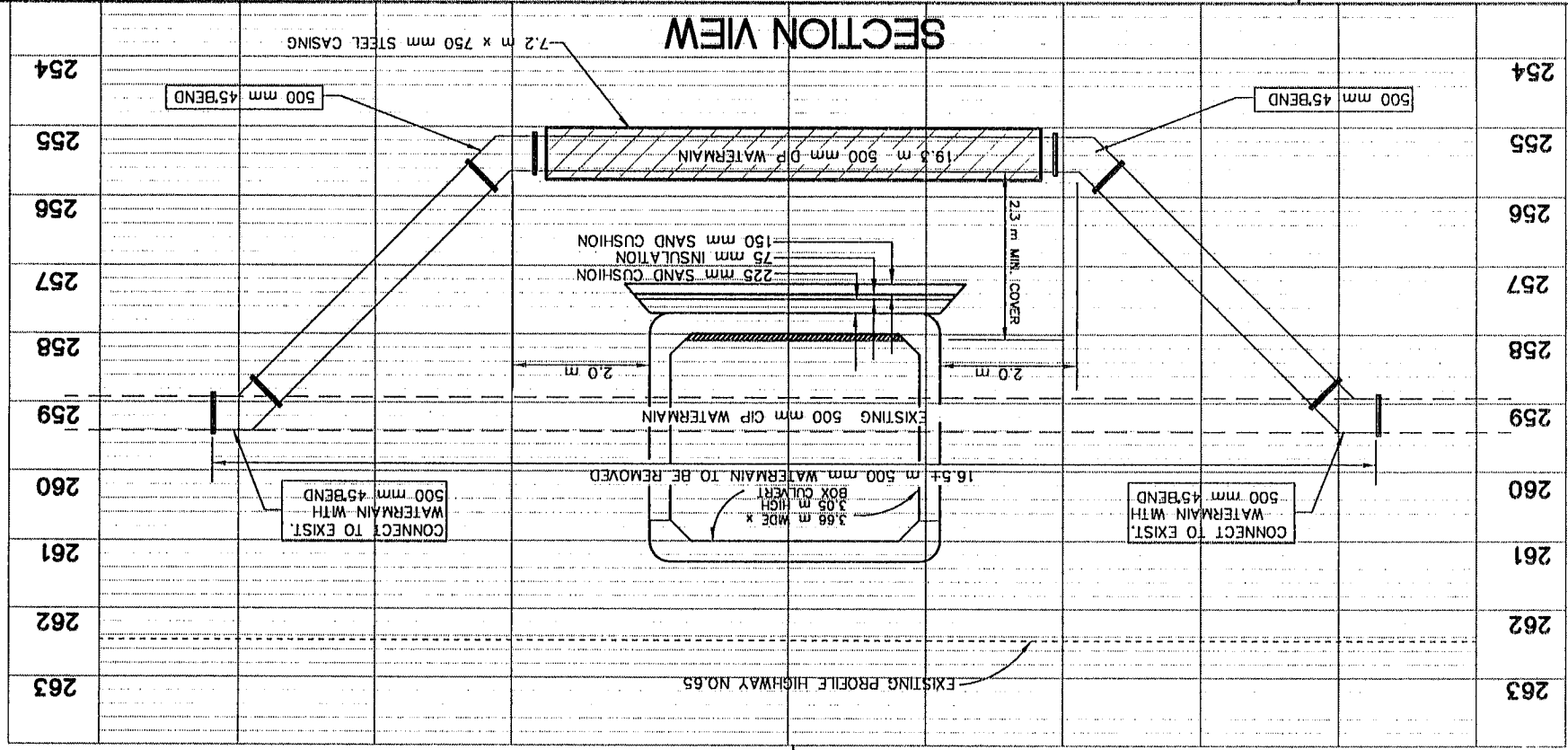
Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (612) 644-4389

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PEDESTRIAN UNDERPASS
 SECTION VIEW
 WATERMAIN RELOCATION

SHEET NO. 37
 OF 48

BRIDGE NO. 02X03



HIGHWAY NO. 65
 PEDESTRIAN UNDERPASS

1:50
 0 2
 VERT (M)

1:50
 0 2
 HORIZ (M)



NOTE:
 CONCRETE STREET AND BITUMINOUS
 SHOULDER REPLACEMENT IS PART OF THE
 TUNNEL INSTALLATION



DESIGNED BY: SPL DRAWN BY: RKM
 APPROVED: JOB NUMBER 805600
 CAD DATE: 18. 1999 13:17:24
 CAD FILE: P:\2000\DESIGN\BRIDGE\BRIDGE.DWG

DATE: 5/18/99
 REG. NO. 23801
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT PROFESSIONAL ENGINEER IN THE STATE OF MINNESOTA.

NO.	DATE	BY	REVISION DESCRIPTION

Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PAVEMENT DETAILS

BRIDGE NO. 02X03
 SHEET NO. 38
 OF 48

PAVEMENT REPLACEMENT, TWO LANE, (TYPE D-1)

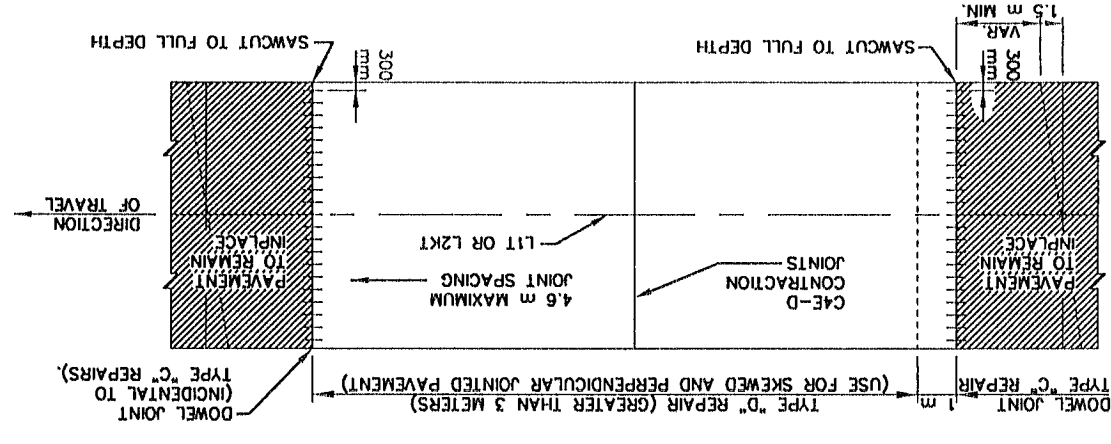
DESCRIPTION: REMOVE CONCRETE, RESTORE BASE, PLACE DOWELS AND REINFORCEMENT, FURNISH AND PLACE CONCRETE, SAW AND SEAL JOINTS.

1. SAW FULL DEPTH & REMOVE CONCRETE PAVEMENT. (INCIDENTAL)
2. PLACE GRAVEL (CL5) & RESTORE BASE TO GRADE BY QUALITY COMPACTION (INCIDENTAL)
3. FURNISH & INSTALL 25 mm DIAMETER SMOOTH DOWEL BAR PARALLEL TO CENTERLINE.
4. PLACE DOWEL BARS FOR C4E-D CONTRACTION JOINTS.
5. CLEAN INPLACE VERTICAL SLAB SURFACE. PLACE CONC. AND REINF. FOR LIT OR L2KT. FINISH TO REQUIRED GRADE, SLOPE AND TEXTURE. APPLY CURE, LIT AND L2KT BARS SHALL BE NO. 16 x 900 mm SPACED AT 900 mm. FOR ADDITIONAL REINFORCEMENT OVER CURBVERTS, SEE STANDARD PLATE M1070.
6. RESTORE JOINTS BY GREEN SAWING OR BY OTHER METHODS APPROVED BY THE ENGINEER.
7. SAW C4E-D CONTRACTION JOINTS (INCIDENTAL).
8. SEAL JOINTS AND CRACKS WITH APPROPRIATE SEALER.

- 2301.603 (APPROPRIATE TYPE "C" REPAIR) METER
- 2301.501 CONCRETE PAVEMENT (TYPE D) SQUARE METER
- 2301.529 REINF. THE BARS, KILOGRAMS
- 2301.538 DOWEL BARS, EACH
- 2301.603 (APPROPRIATE TYPE "A" REPAIR) METER
- 2301.606 SEAL CONC. PAVEMENT (POLYMERIC) LITER
- 2301.608 SEAL CONC. PAVT. (3720) KILOGRAMS.

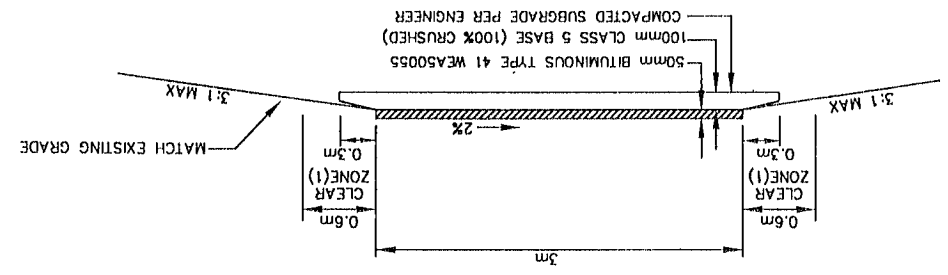
WORK TO BE DONE

WORK TO BE DONE

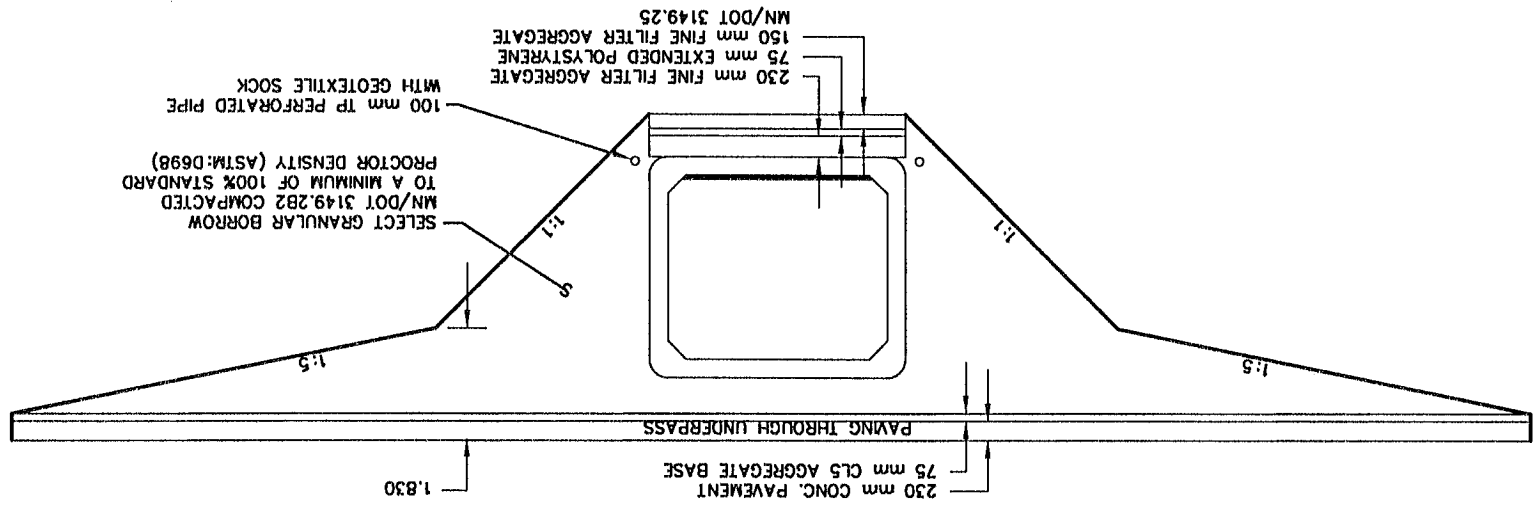


TYPICAL BITUMINOUS TRAIL SECTION

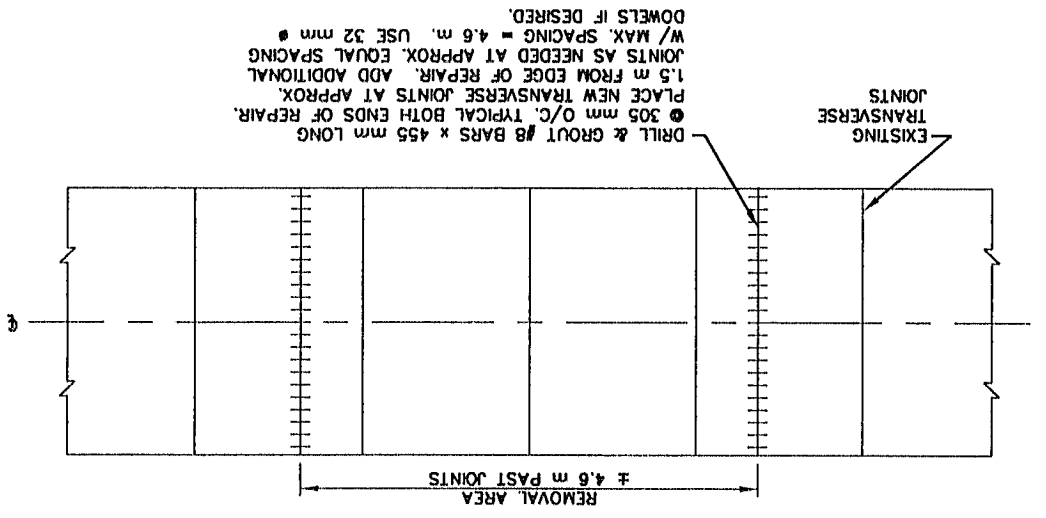
- (1) NO OBJECTS ALLOWED WITHIN 0.6m CLEAR ZONE OF TRAIL
- (2) TRAIL DRAINS 2% RIGHT OF LEFT AS DIRECTED BY THE ENGINEER



TYPICAL CULVERT EXCAVATION SECTION



TYPICAL JOINT WITH EXISTING PAVEMENT



NO.	DATE	BY	REVISION DESCRIPTION

Howard R. Green Company
 CONSULTING ENGINEERS
 1226 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

PAVEMENT JOINTS
 CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

STANDARD SHEET NO. 5-297.221M (1 OF 2)
 STANDARD APPROVED: JANUARY 25, 1993
 REVISION DATE: 4-20-99

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

EXPANSION JOINTS DESIGN E

LEGEND

E4D-1	E1-1	A	(2)
E2D-1	E2-1	B	(2)
E2B	E2B	C	(2)
E4D-1	E4-1	D	(2)
E	E	E	(2)

EXAMPLE

NOTES:

- PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
- JOINT SEALER SPEC. 3723. TOP OF SEALER, FLUSH TO 3 mm BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE ± 3 mm.
- DOWEL BAR ASSEMBLY, SEE STANDARD PLATE M1103.
- JOINT WIDTH IS EQUAL TO HALF OF THE JOINT NUMBER IN 13 mm. INTERVALS (1.e. E1 = 13 mm, E2 = 25 mm, E3 = 38 mm, E4 = 50 mm, E8 = 100 mm).
- SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.

EXPANSION JOINTS

CLASS DESIGNATION

E4D-1	E1-1	A	(2)
E2D-1	E2-1	B	(2)
E2B	E2B	C	(2)
E4D-1	E4-1	D	(2)
E	E	E	(2)

LEGEND

E4D-1	E1-1	A	(2)
E2D-1	E2-1	B	(2)
E2B	E2B	C	(2)
E4D-1	E4-1	D	(2)
E	E	E	(2)

EXAMPLE

LEGEND

E4D-1	E1-1	A	(2)
E2D-1	E2-1	B	(2)
E2B	E2B	C	(2)
E4D-1	E4-1	D	(2)
E	E	E	(2)

EXAMPLE

CONTRACTION JOINT

DEPTH & DOWEL BAR TABLE

CONCRETE THICKNESS	PAVEMENT THICKNESS	CONCRETE JOINT DEPTH	DOWEL BAR DIAMETER
150-160	32	32	25
165-265	50	50	32
270-320	—	—	38
325-355	—	—	44

CLASS DESIGNATION

C1A	C1A-D	A	UNSEALED
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	POLYMERIC

LEGEND

C	CONTRACTION JOINT
NO.	SEALANT TYPE
1	UNSEALED
2	3725
3	3721
4	MOISTURE CURED POLYMERIC
LETTER	DETAIL
X	MORE THAN 1 DETAIL
-D	DOWEL BARS

EXAMPLE

NOTES:

- DESIGN C2X OR C3X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.
- DESIGN C2X OR C3X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.
- WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 5 mm MORE THAN THE PREFORMED SEALER, TO FIT THE JOINT DESIGN WIDTH.
- THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING, PRIOR TO SEALING THE JOINT, A 13 mm DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 13 mm BELOW THE SURFACE OF THE PAVEMENT. POLYMERIC SHALL BE TOoled INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 5 mm.
- FOR UNBONDED OVERLAYS, THE JOINT DEPTH "g" SHALL BE 1/3 mm.
- FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE 1/4 mm.

CONTRACTION JOINT SEALER

TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

LEGEND

3721	SPEC. REFERENCE
------	-----------------

NOTES:

"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 3 mm, NOR MORE THAN 7 mm BELOW THE PAVEMENT SURFACE.

SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

REQUIRED DIMENSIONS

JOINT TYPE	NOMINAL SEALER SIZE	USE IN ALL JOINTS	A	B	C	D	WEB AND WALL THICKNESS	UNLESS NOTED
TRANSVERSE	21 mm	USE IN ALL JOINTS	20 mm +3.6 -1.3	2 mm 0.5	15 mm MIN.	20 mm MIN.	0.8 mm MIN.	

CONTRACTION JOINTS DESIGN C

GENERAL NOTES:

SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEET FOR ADDITIONAL DETAILS:
 DOWEL BAR ASSEMBLY, M1103; CONSTRUCTION OF HEADER JOINTS, M1150; AND CONCRETE MAINLINE/RAMP PAVEMENT ON 5-297.217M & 219M.
 SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

CONTRACTION JOINT NOTES:

IN CONCRETE BASE CONSTRUCTION THE CONTRACTION JOINTS SHALL BE SPACED AT 9 m INTERVALS AND AT RIGHT ANGLES TO THE LONGITUDINAL JOINTS, EXCEPT AS NOTED BELOW.
 WHERE THE CONCRETE BASE IS CONSTRUCTED ADJACENT TO EXISTING PAVEMENT OR BASE, THE CONTRACTION JOINTS IN THE NEW BASE SHALL MATCH THOSE IN THE EXISTING PAVEMENT OR BASE, EXCEPT THAT THE SPACING SHALL NOT BE LESS THAN 4.6 m, NOR MORE THAN 9 m. JOINT WIDTH TOLERANCES: + 2 mm AND - 1 mm.

CONTRACTION JOINT SEALER

PREFORMED ELASTIC TYPE

LEGEND

C1A	C1A-D	A	UNSEALED
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	POLYMERIC

EXAMPLE

LEGEND

C	CONTRACTION JOINT
NO.	SEALANT TYPE
1	UNSEALED
2	3725
3	3721
4	MOISTURE CURED POLYMERIC
LETTER	DETAIL
X	MORE THAN 1 DETAIL
-D	DOWEL BARS

EXAMPLE

NOTES:

- DESIGN C2X OR C3X-D - PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.
- DESIGN C2X OR C3X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 13 mm FOR A DEPTH OF 20 mm, + 3 mm, BY SAWING ALONG THE FULL LENGTH OF WIDTH OF 13 mm FOR A DEPTH OF 20 mm, + 3 mm. THE SEALER SHALL BE FILLED TO THE SAME DEPTH AS SHOWN IN DETAIL B.
- WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 5 mm MORE THAN THE PREFORMED SEALER, TO FIT THE JOINT DESIGN WIDTH.
- THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING, PRIOR TO SEALING THE JOINT, A 13 mm DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 13 mm BELOW THE SURFACE OF THE PAVEMENT. POLYMERIC SHALL BE TOoled INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 5 mm.
- FOR UNBONDED OVERLAYS, THE JOINT DEPTH "g" SHALL BE 1/3 mm.
- FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE 1/4 mm.

CONTRACTION JOINT

CLASS DESIGNATION

C1A	C1A-D	A	UNSEALED
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	POLYMERIC

LEGEND

C	CONTRACTION JOINT
NO.	SEALANT TYPE
1	UNSEALED
2	3725
3	3721
4	MOISTURE CURED POLYMERIC
LETTER	DETAIL
X	MORE THAN 1 DETAIL
-D	DOWEL BARS

EXAMPLE

NOTES:

- DESIGN C2X OR C3X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.
- DESIGN C2X OR C3X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 13 mm FOR A DEPTH OF 20 mm, + 3 mm, BY SAWING ALONG THE FULL LENGTH OF WIDTH OF 13 mm FOR A DEPTH OF 20 mm, + 3 mm. THE SEALER SHALL BE FILLED TO THE SAME DEPTH AS SHOWN IN DETAIL B.
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- FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE 1/4 mm.

CONTRACTION JOINT SEALER

TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

LEGEND

3721	SPEC. REFERENCE
------	-----------------

NOTES:

"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 3 mm, NOR MORE THAN 7 mm BELOW THE PAVEMENT SURFACE.

SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

REQUIRED DIMENSIONS

JOINT TYPE	NOMINAL SEALER SIZE	USE IN ALL JOINTS	A	B	C	D	WEB AND WALL THICKNESS	UNLESS NOTED
TRANSVERSE	21 mm	USE IN ALL JOINTS	20 mm +3.6 -1.3	2 mm 0.5	15 mm MIN.	20 mm MIN.	0.8 mm MIN.	

CONTRACTION JOINT SEALER

PREFORMED ELASTIC TYPE

LEGEND

C	CONTRACTION JOINT
NO.	SEALANT TYPE
1	UNSEALED
2	3725
3	3721
4	MOISTURE CURED POLYMERIC
LETTER	DETAIL
X	MORE THAN 1 DETAIL
-D	DOWEL BARS

EXAMPLE

NOTES:

- DESIGN C2X OR C3X-D - PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.
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- FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE 1/4 mm.

CONTRACTION JOINTS DESIGN C

GENERAL NOTES:

SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEET FOR ADDITIONAL DETAILS:
 DOWEL BAR ASSEMBLY, M1103; CONSTRUCTION OF HEADER JOINTS, M1150; AND CONCRETE MAINLINE/RAMP PAVEMENT ON 5-297.217M & 219M.
 SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

CONTRACTION JOINT NOTES:

IN CONCRETE BASE CONSTRUCTION THE CONTRACTION JOINTS SHALL BE SPACED AT 9 m INTERVALS AND AT RIGHT ANGLES TO THE LONGITUDINAL JOINTS, EXCEPT AS NOTED BELOW.
 WHERE THE CONCRETE BASE IS CONSTRUCTED ADJACENT TO EXISTING PAVEMENT OR BASE, THE CONTRACTION JOINTS IN THE NEW BASE SHALL MATCH THOSE IN THE EXISTING PAVEMENT OR BASE, EXCEPT THAT THE SPACING SHALL NOT BE LESS THAN 4.6 m, NOR MORE THAN 9 m. JOINT WIDTH TOLERANCES: + 2 mm AND - 1 mm.

CONTRACTION JOINT SEALER

PREFORMED ELASTIC TYPE

LEGEND

C1A	C1A-D	A	UNSEALED
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	POLYMERIC

EXAMPLE

LEGEND

C	CONTRACTION JOINT
NO.	SEALANT TYPE
1	UNSEALED
2	3725
3	3721
4	MOISTURE CURED POLYMERIC
LETTER	DETAIL
X	MORE THAN 1 DETAIL
-D	DOWEL BARS

EXAMPLE

NOTES:

- DESIGN C2X OR C3X-D - PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.
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CONTRACTION JOINT

CLASS DESIGNATION

C1A	C1A-D	A	UNSEALED
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C4E	C4E-D	E	POLYMERIC

LEGEND

C	CONTRACTION JOINT
NO.	SEALANT TYPE
1	UNSEALED
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4	MOISTURE CURED POLYMERIC
LETTER	DETAIL
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EXAMPLE

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- DESIGN C2X OR C3X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.
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CONTRACTION JOINT SEALER

TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

LEGEND

3721	SPEC. REFERENCE
------	-----------------

NOTES:

"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 3 mm, NOR MORE THAN 7 mm BELOW THE PAVEMENT SURFACE.

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REQUIRED DIMENSIONS

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CONTRACTION JOINT SEALER

PREFORMED ELASTIC TYPE

LEGEND

C	CONTRACTION JOINT
NO.	SEALANT TYPE
1	UNSEALED
2	3725
3	3721
4	MOISTURE CURED POLYMERIC
LETTER	DETAIL
X	MORE THAN 1 DETAIL
-D	DOWEL BARS

EXAMPLE

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- FOR UNBONDED OVERLAYS, THE JOINT DEPTH "g" SHALL BE 1/3 mm.
- FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE 1/4 mm.

PEDESTRIAN UNDERPASS
BARREL DETAILS

ANOKA COUNTY
DEPT. OF PARKS AND REC.
BRIDGE AND UNDERPASS

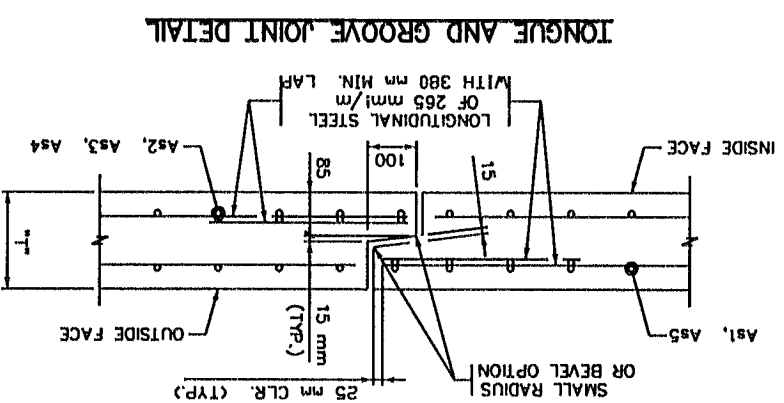
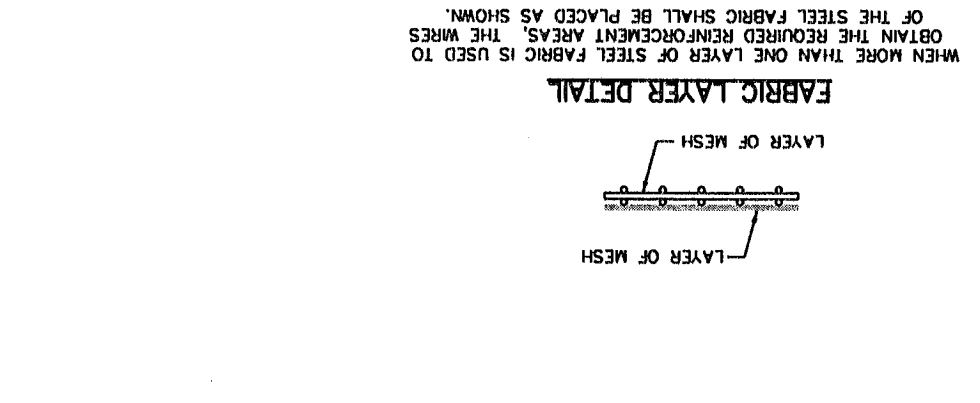
1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 844-4389
HOWARD R. GREEN COMPANY
CONSULTING ENGINEERS



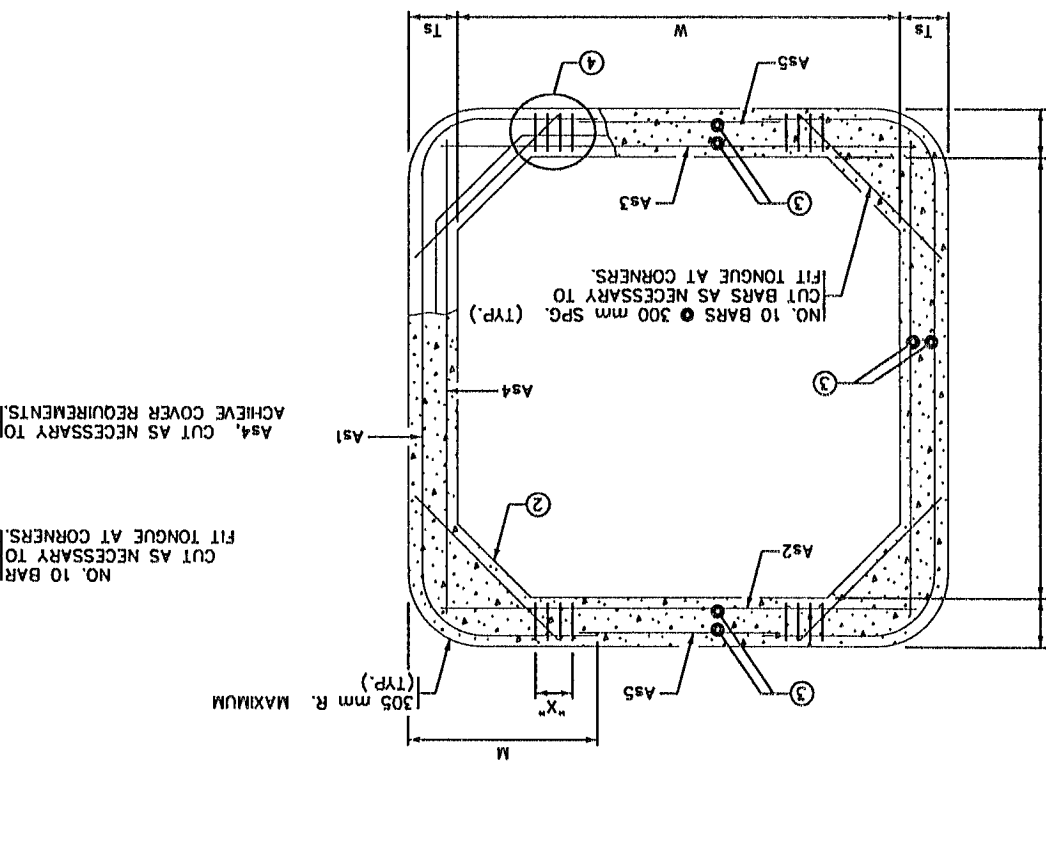
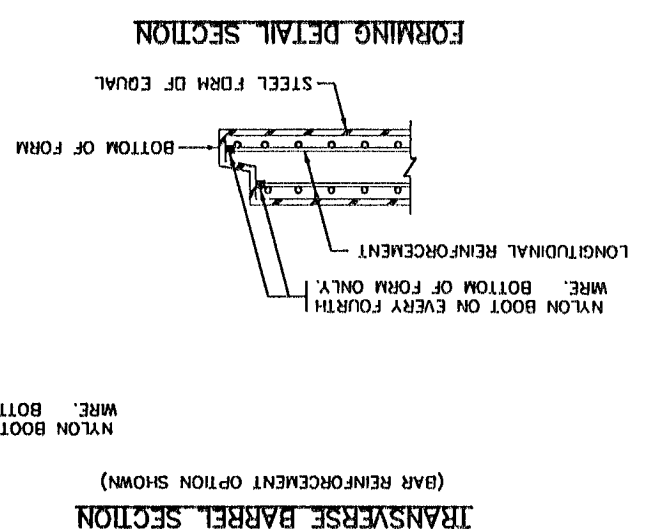
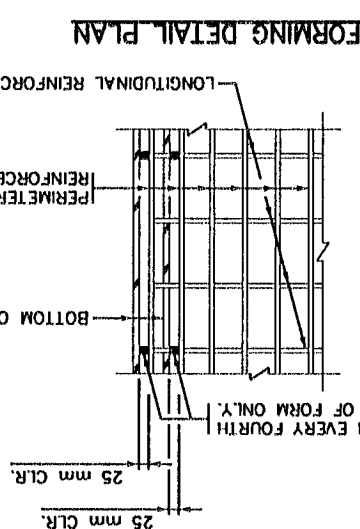
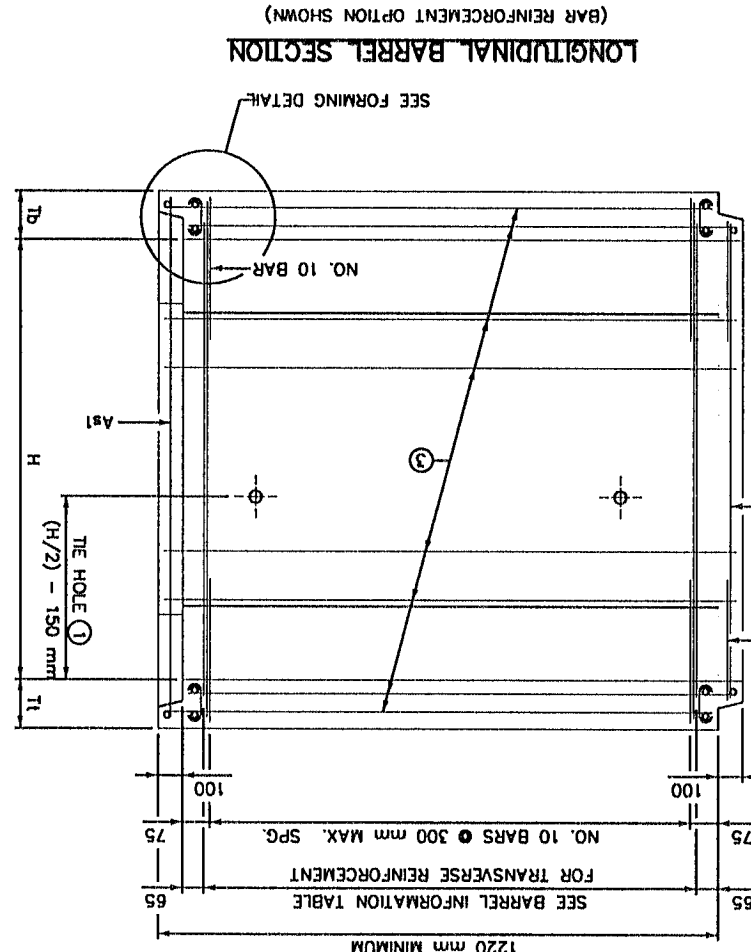
NO.	DATE	BY	REVISION DESCRIPTION

DESIGNED BY: SPL
DRAWN BY: RKM
JOB NUMBER: 805600J
APPROVED: _____
CAD DATE: MAY 18, 1999 3:01:34 P.M.
CAD FILE: 805600J\TUNNEL\805600-BARREL.DWG

BARREL INFORMATION																	
SIZE	f'c	OVER-LIMITS			DIMENSIONS			STEEL FABRIC REINFORCEMENT									
		TI	Tb	Ts	MASS	AS1	AS2	AS3	AS4	AS5	AS LENGTH (mm)	AS LENGTH (mm)					
3660 x 3050	35	0-600	225	250	200	7800	1440	6550	1700	2860	3875	2240	3875	420	3250	470	1275



- CONSTRUCTION NOTES
- CULVERT TIES ARE TO BE 25 mm DIAMETER RODS. SEE STANDARD PLATE NO. M3145 FOR CONNECTION DETAILS.
 - CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED. WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL. WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.
 - THE SPACING CENTER TO CENTER OF THE TRANSVERSE WRES SHALL NOT BE LESS THAN 50 mm NOR MORE THAN 100 mm. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WRES SHALL NOT BE MORE THAN 200 mm.
 - THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 15 mm DIAMETER PER LAYER (MAXIMUM OF 2 LAYERS).
 - ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
 - 1 OR 2 LAYERS OF MESH, OR
 - 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS, OR
 - 1 LAYER OF REINFORCEMENT BARS.
 THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.
 - THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 15 mm DIAMETER PER LAYER (MAXIMUM OF 2 LAYERS).
 - 40 mm MINIMUM AND 50 mm MAXIMUM CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.
 - ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
 - 1 OR 2 LAYERS OF MESH, OR
 - 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS, OR
 - 1 LAYER OF REINFORCEMENT BARS.
 THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.
 - THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 15 mm DIAMETER PER LAYER (MAXIMUM OF 2 LAYERS).
 - 50 mm NOR MORE THAN 100 mm. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WRES SHALL NOT BE MORE THAN 200 mm.
 - WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.
 - WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.
 - CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.
 - CULVERT TIES ARE TO BE 25 mm DIAMETER RODS. SEE STANDARD PLATE NO. M3145 FOR CONNECTION DETAILS.
 - MINIMUM LONGITUDINAL STEEL SHALL BE 130 mm/m.
 - SEE STANDARD PLATE NO. M3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 150 mm.
 - SHOP DRAWING APPROVAL PER SPEC. 3238.2A IS REQUIRED.



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 CAD DATE: May 08, 1999 2:09:39 p.m.
 APPROVED: _____
 JOB NUMBER: 805600J
 DESIGNED BY: _____ DRAWN BY: _____

DATE: 5/18/99 REG. NO. 13470
 STATE OF MINNESOTA
 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE
 SUPERIOR AND THAT I AM A DULY REGISTERED
 OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION,
 AND REPORT WAS PREPARED BY ME OR UNDER MY DIRECT

NO.	DATE	BY	REVISION DESCRIPTION

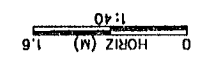
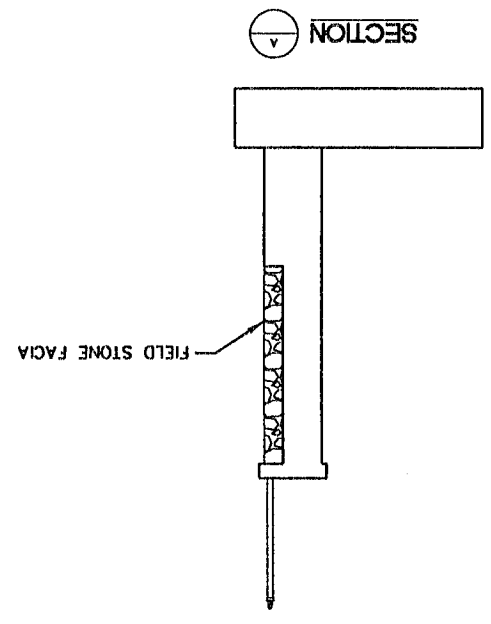
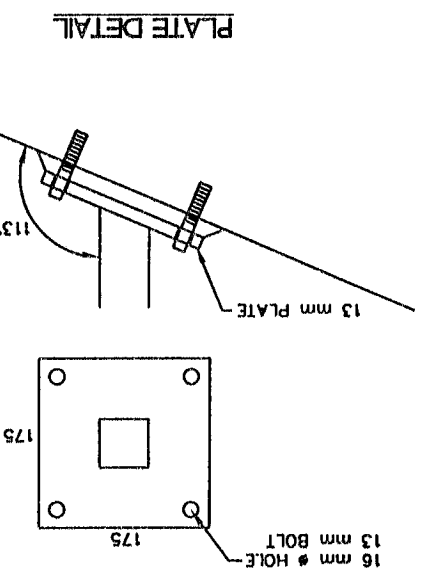
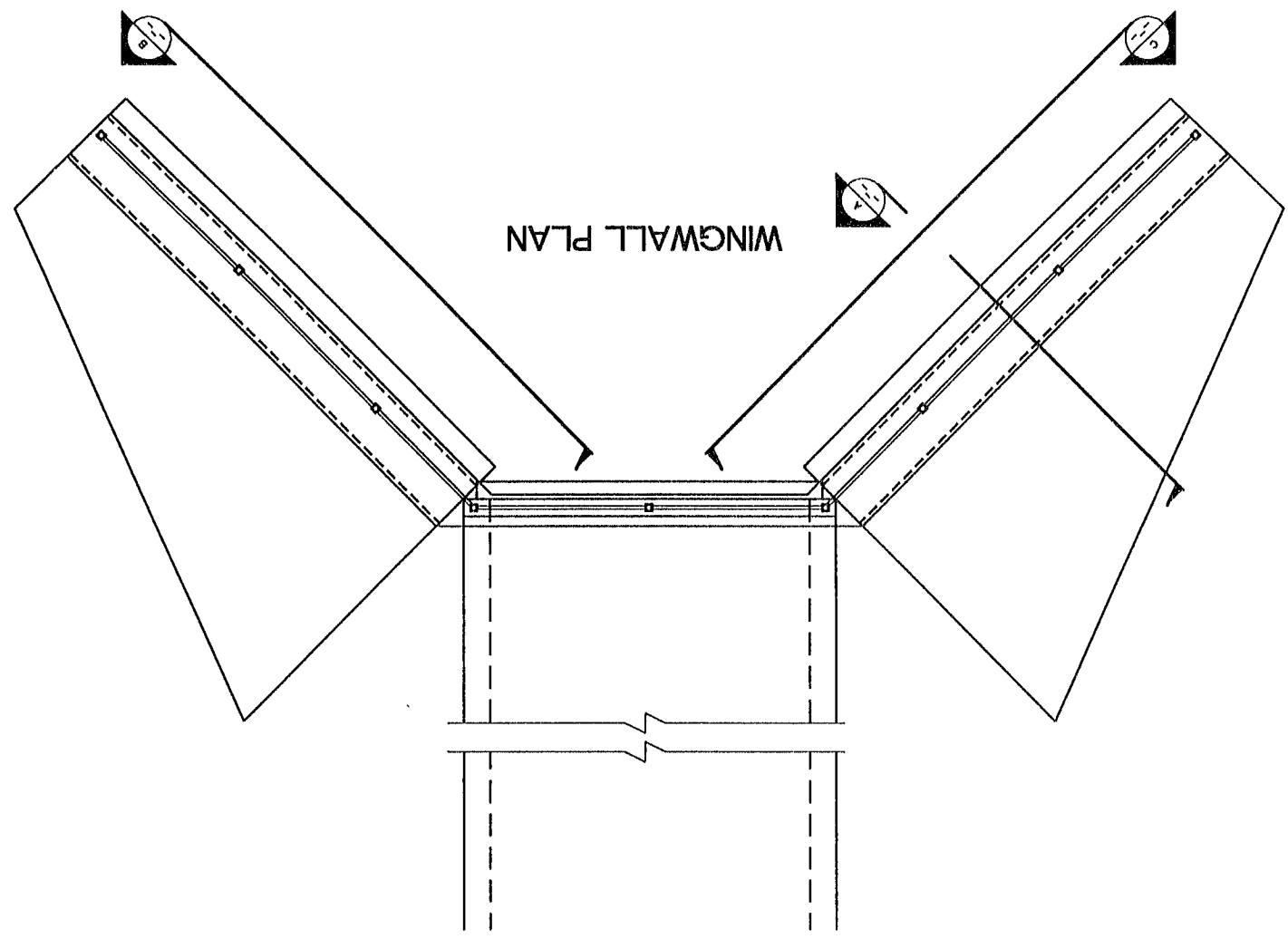
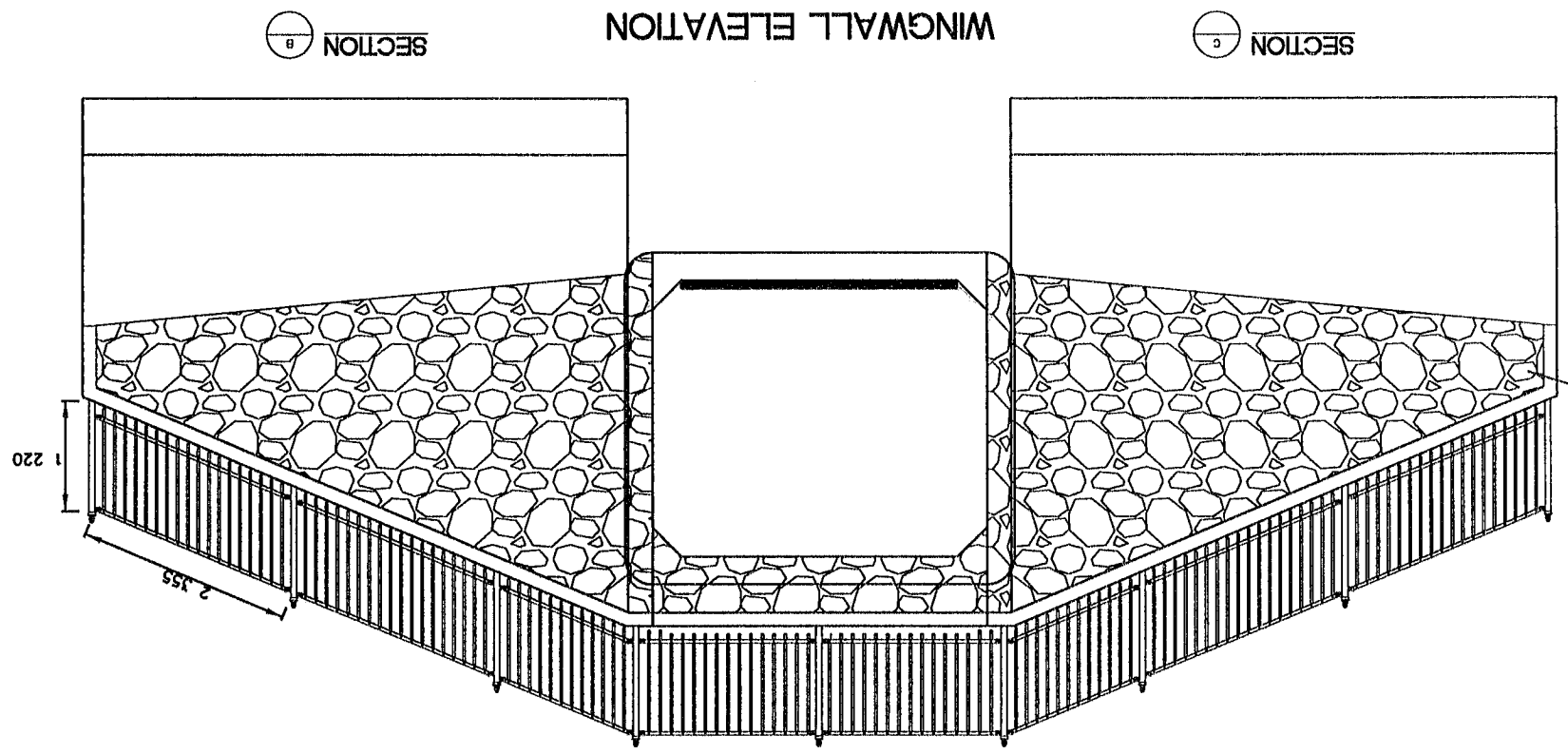


Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

UNDERPASS WINGWALL (WEST)
 FENCE DETAILS

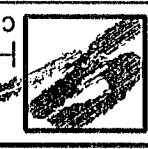
42
 or
 48
 SHEET NO.
 BRIDGE NO. 02X03



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 CAD DATE: May 17, 1999 10:23:40 a.m.
 APPROVED: _____
 DESIGNED BY: _____
 DRAWN BY: _____
 JOB NUMBER B05600J

DATE 5/18/99 REG. NO. 13970
 STATE OF MINNESOTA
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION,
 OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT
 SUPERVISION AND THAT I AM A DULY REGISTERED
 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE

NO.	DATE	BY	REVISION DESCRIPTION

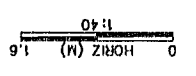
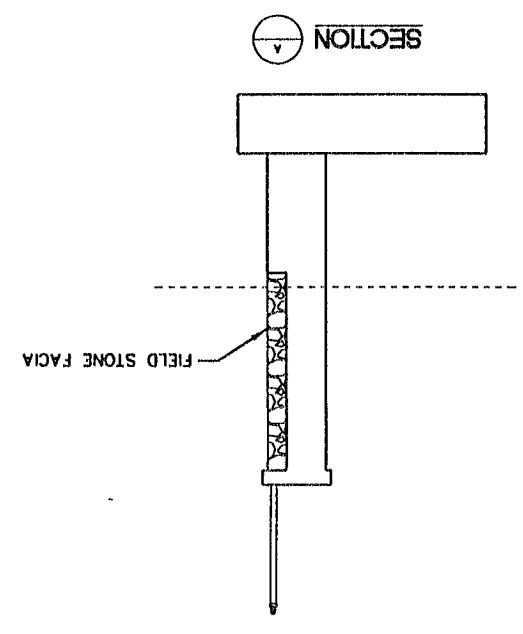
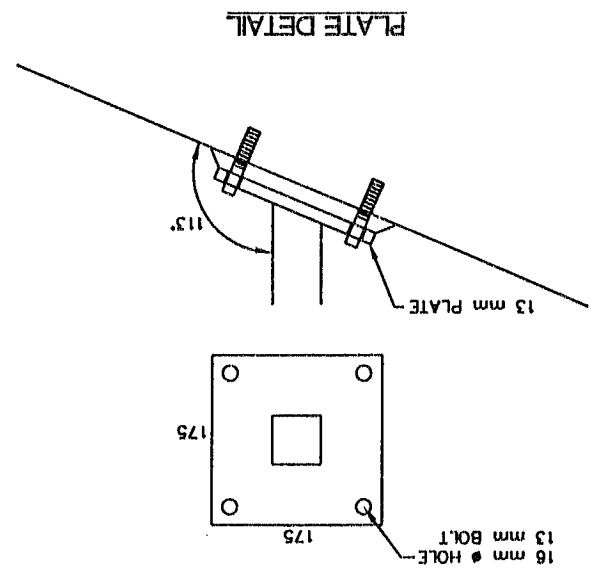
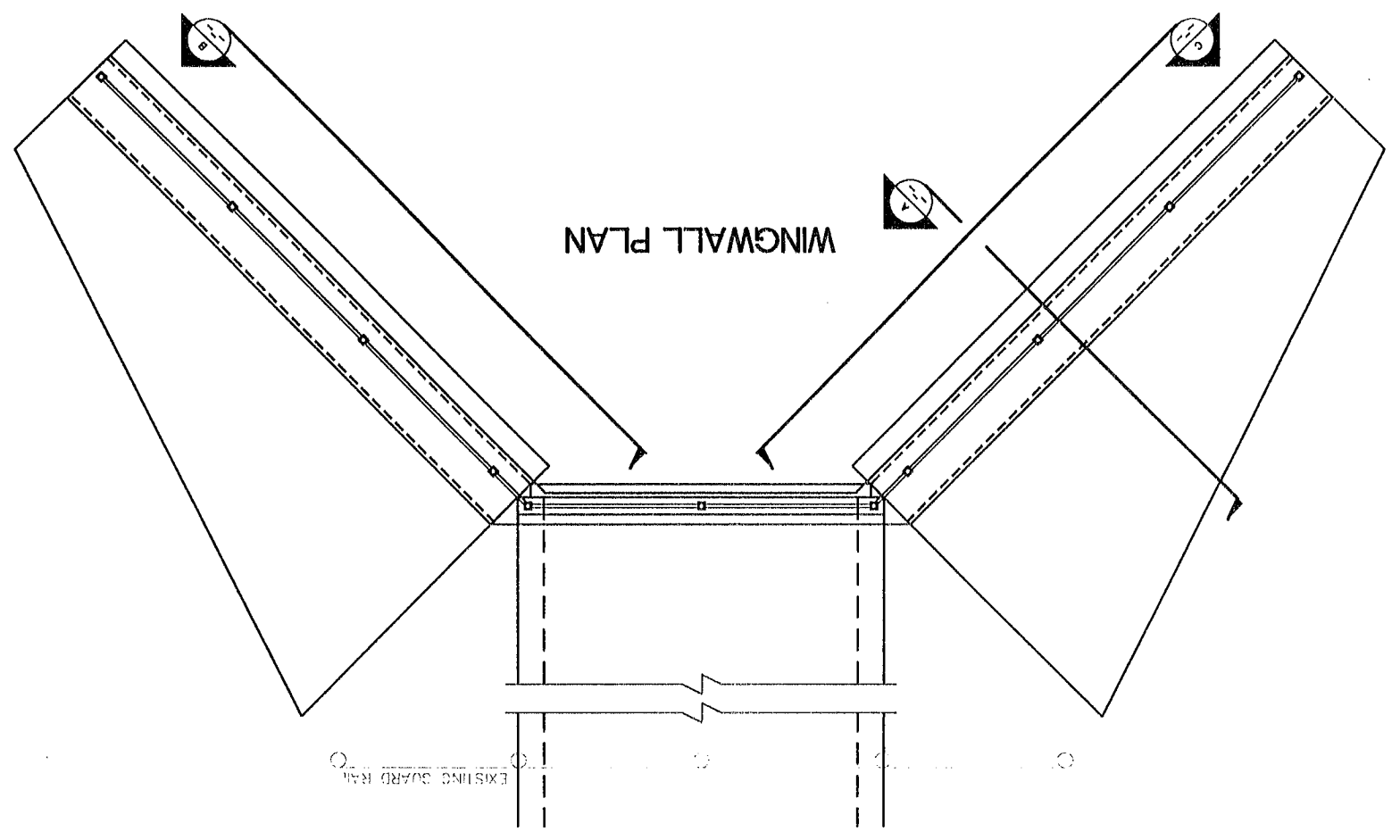
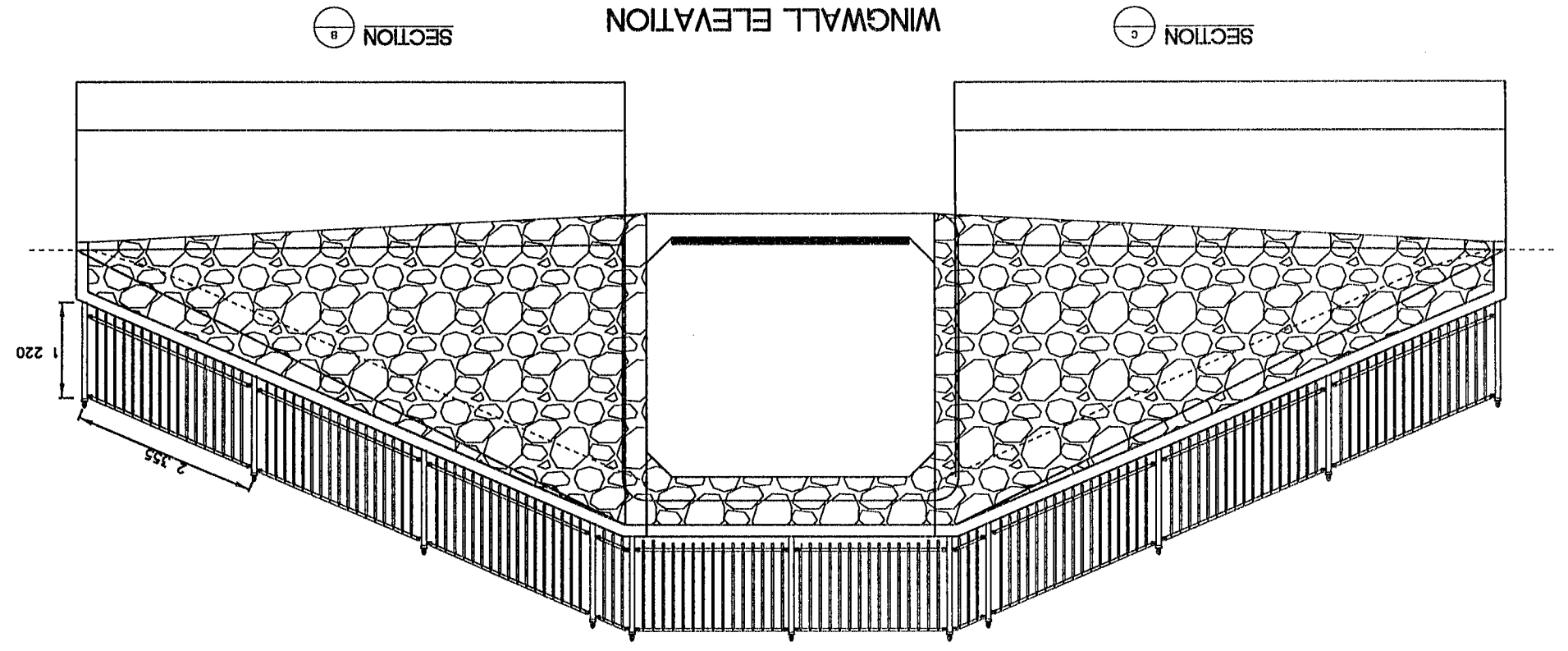


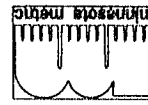
Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 844-4388

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

UNDERPASS WINGWALL (EAST)
 FENCE DETAILS

42A
 or
 48
 SHEET NO.
 BRIDGE NO. 02X03





DESIGNED BY: SPL
 DRAWN BY: RKM
 JOB NUMBER: 805600J
 APPROVED: _____
 CAD DATE: MAY 1995
 CAD FILE: 805600J.LIN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 REG. NO. _____
 DATE _____

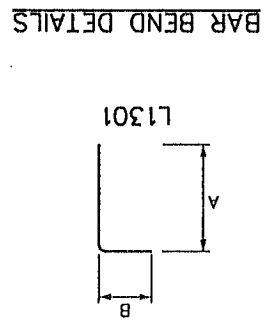
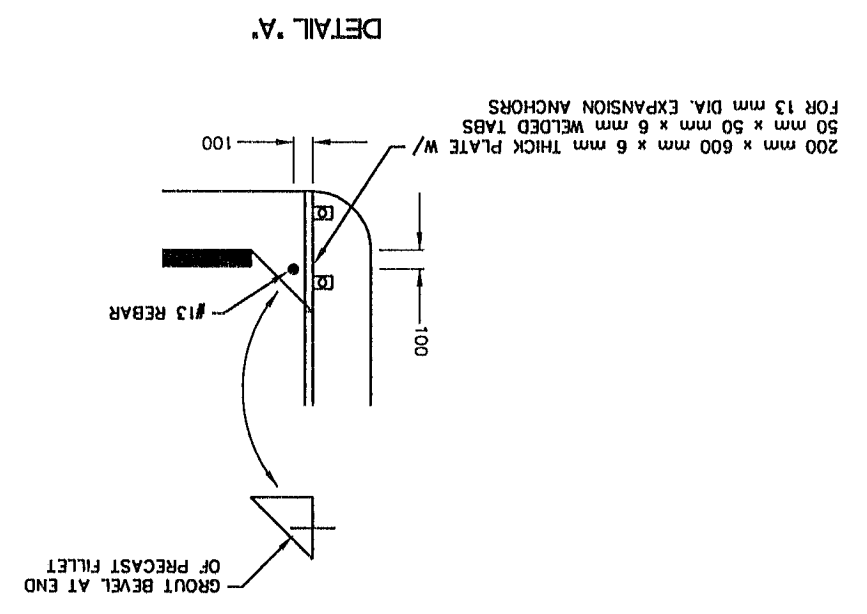
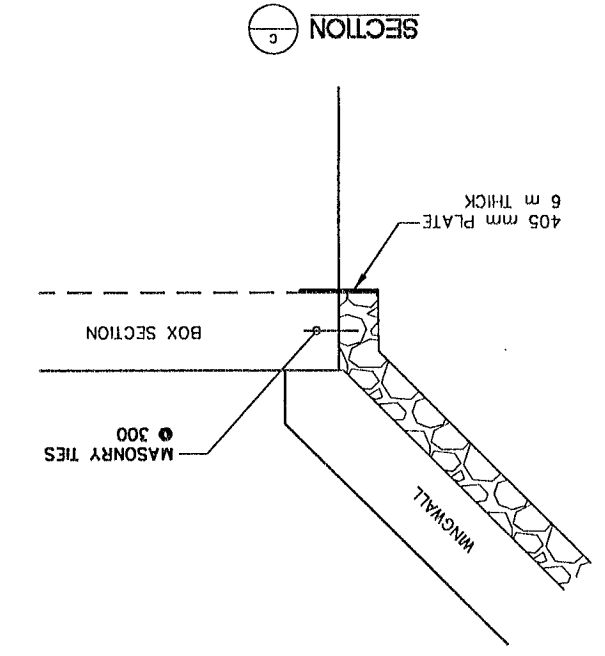
NO.	DATE	BY	REVISION DESCRIPTION

Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (651) 644-4389

ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

LINTEL BEAM DETAILS

SHEET NO. **43**
 OF **48**
 BRIDGE NO. 02X03

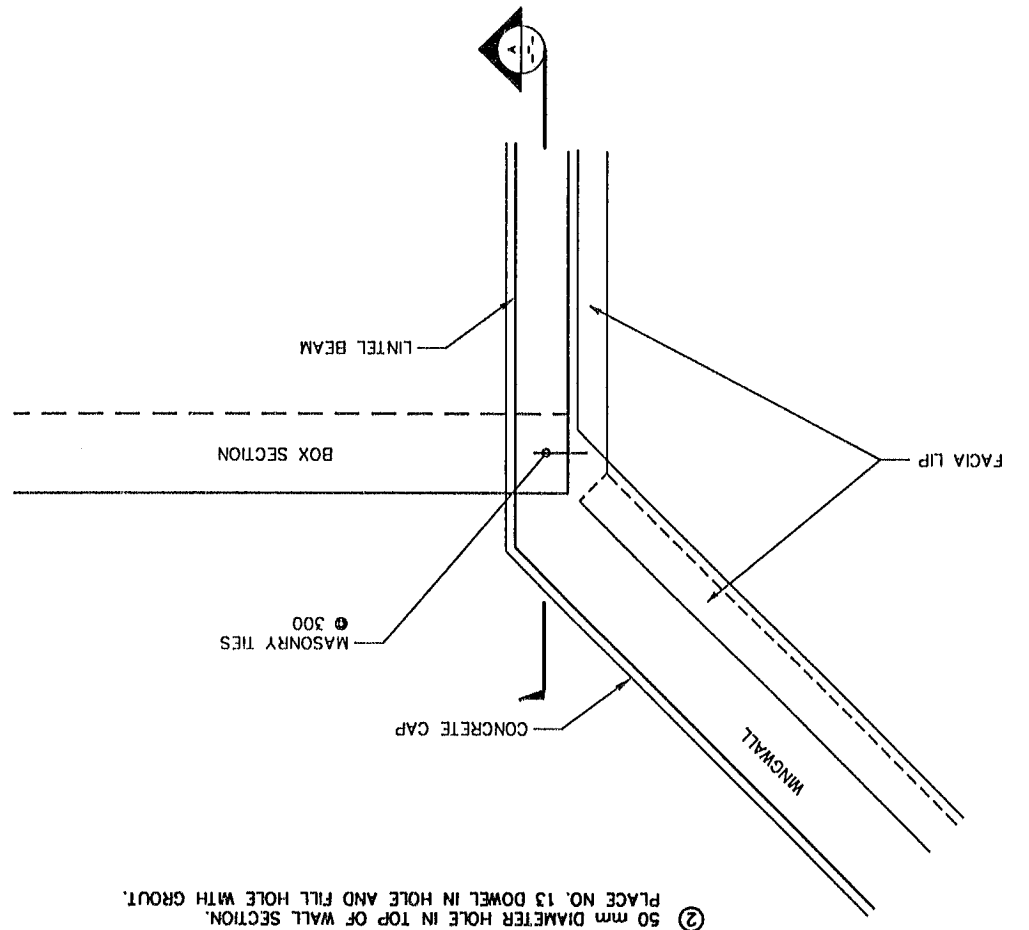
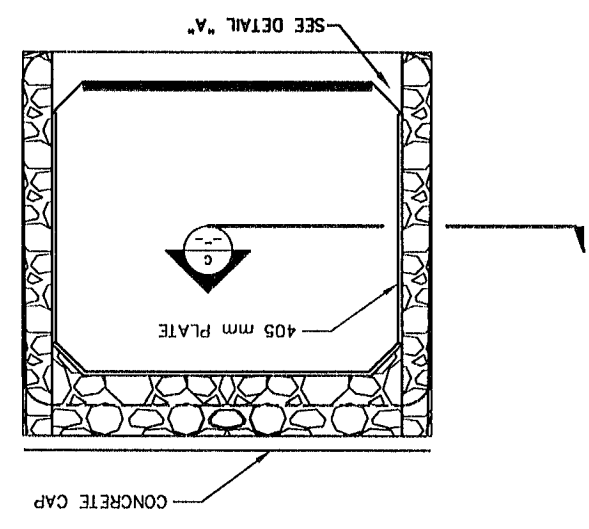
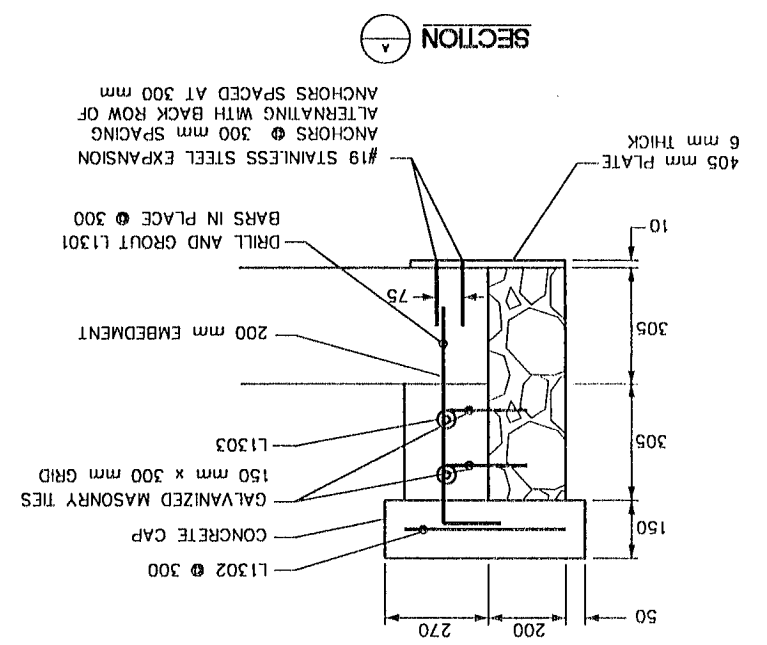


BILL OF REINFORCEMENT (BOTH ENDS)

BAR NO.	LENGTH	SHAPE	A	B	C	D	LOCATION
L1301	28	BEND	775		200		LINTEL BEAM VERT.
L1302	28	STR.	420				CONC. CAP HORIZ.
L1303	4	STR.	4 165				LINTEL BEAM HORIZ.

SUMMARY OF QUANTITIES (BOTH ENDS)

ITEM	UNIT	QUANTITY
CONCRETE	m ³	0.50
REINFORCING STRUCTURAL STEEL	kg	380
ROCK FACIA	m ²	4.8



- ① GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE IA AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 100 mm.
- ② 50 mm DIAMETER HOLE IN TOP OF WALL SECTION.

GENERAL NOTES

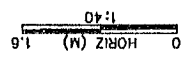
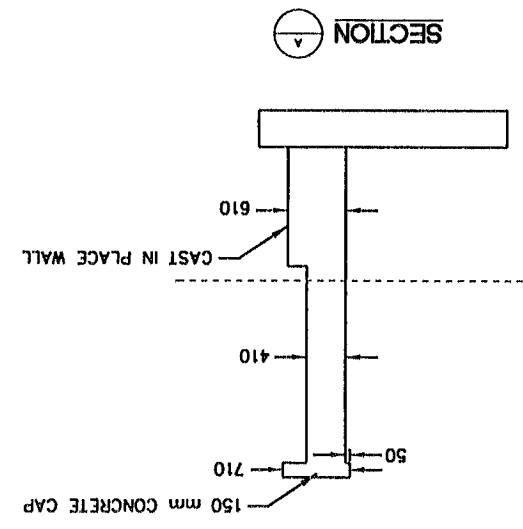
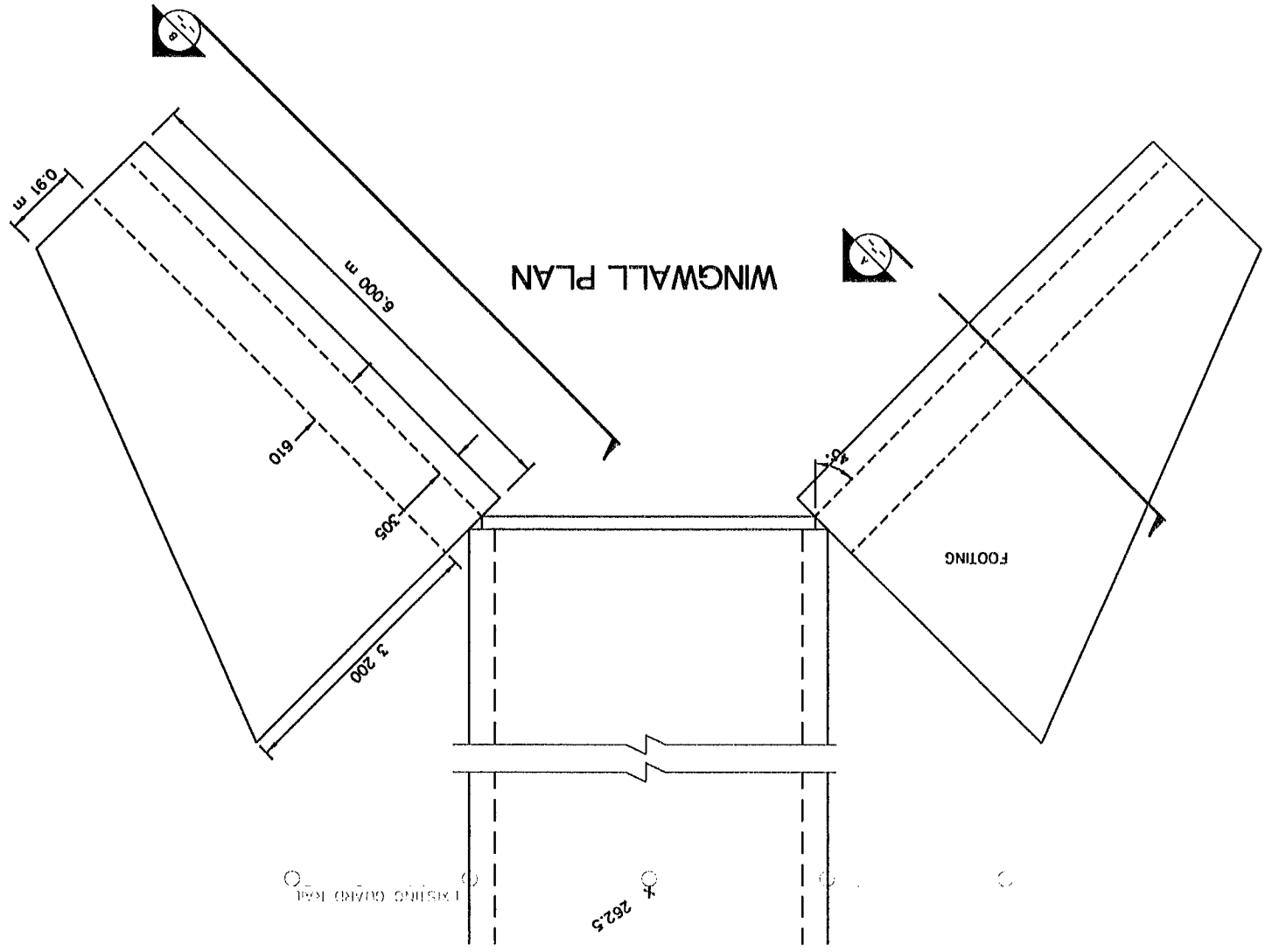
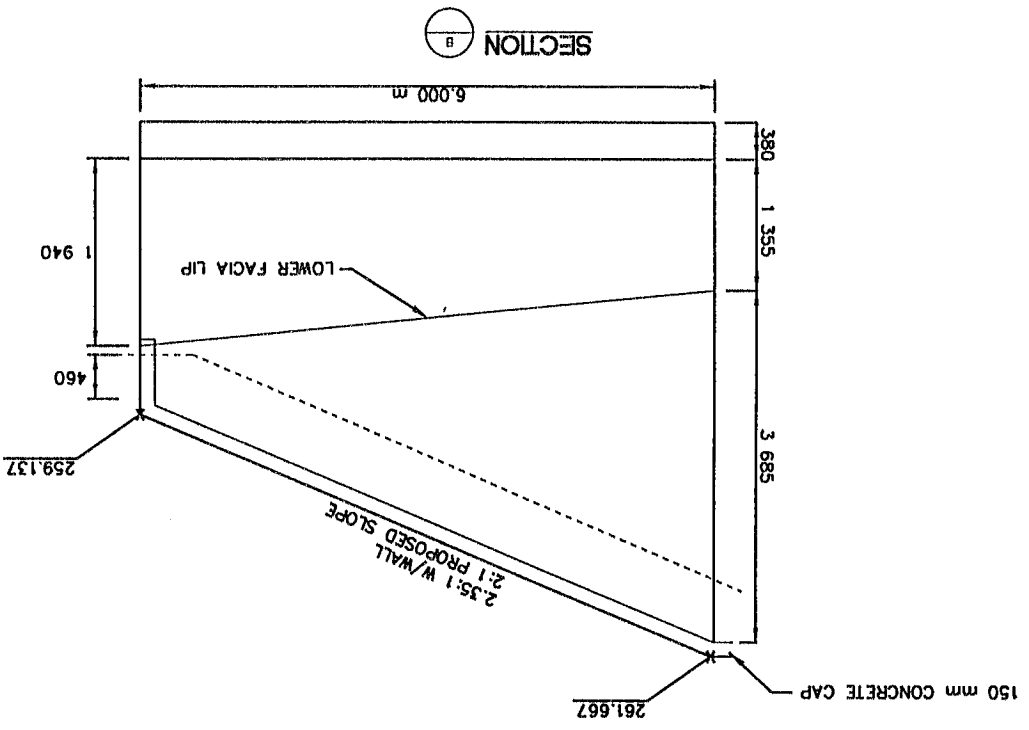
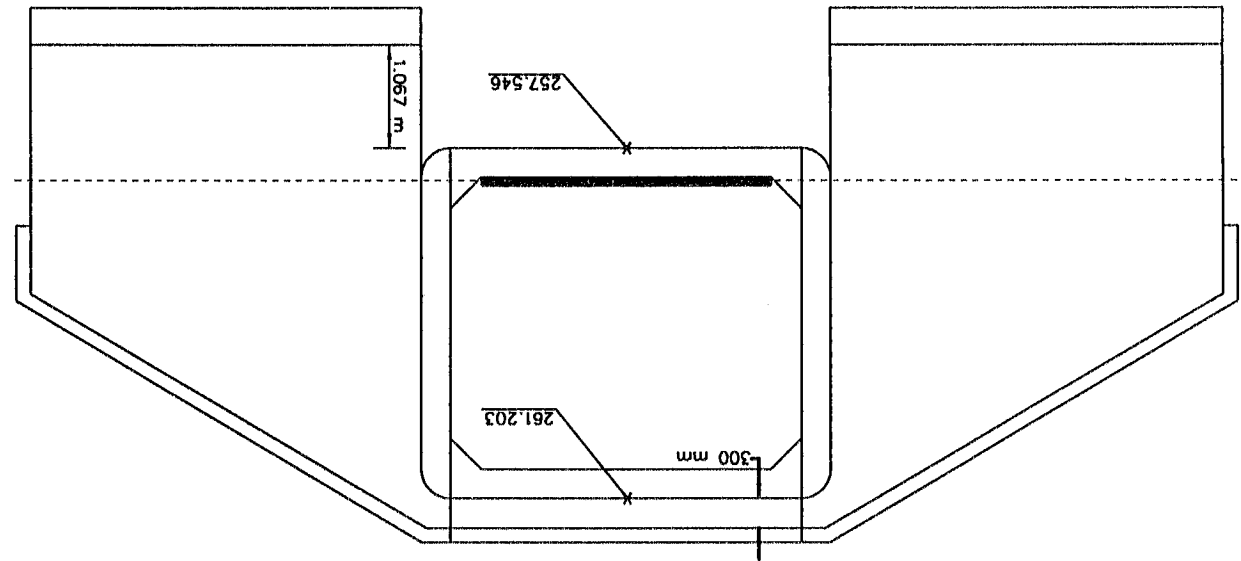


NO.	DATE	BY	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A ONLY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE: 5/18/99
REG. NO. 13970

DESIGNED BY: _____
DRAWN BY: _____
JOB NUMBER: 805600J
CAD FILE: 805600J\TUNNEL\805600-WW.W1.DWG
CAD DATE: May 12, 1999 2:30:11 p.m.
APPROVED: _____

WINGWALL ELEVATION

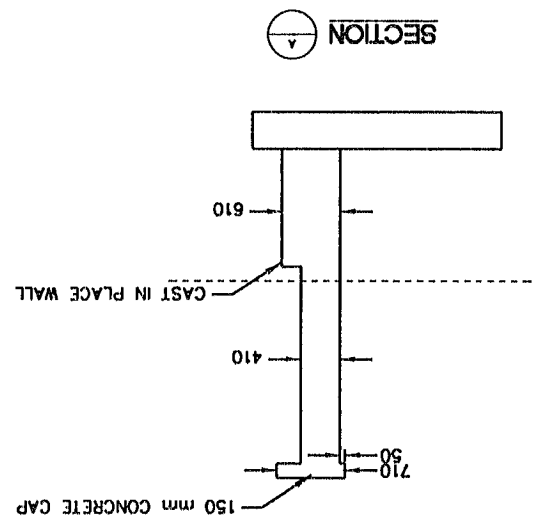
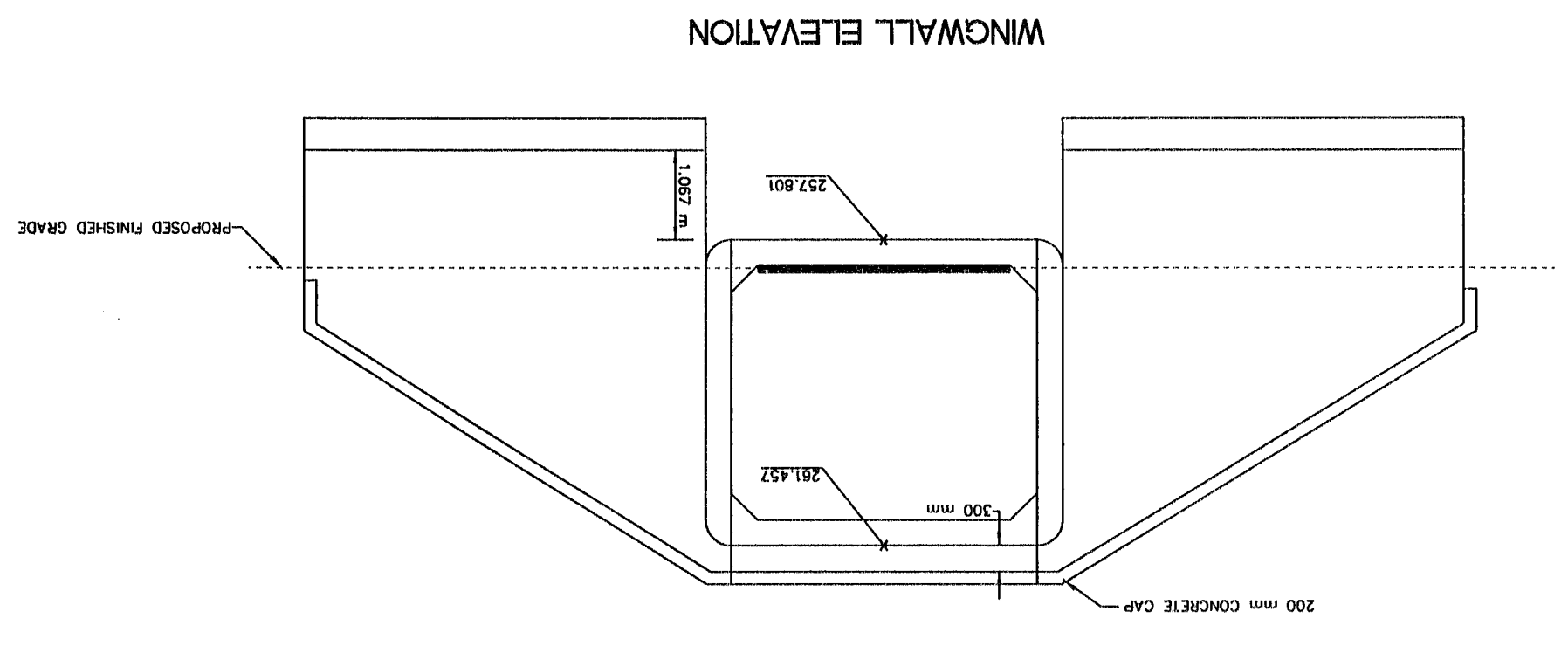
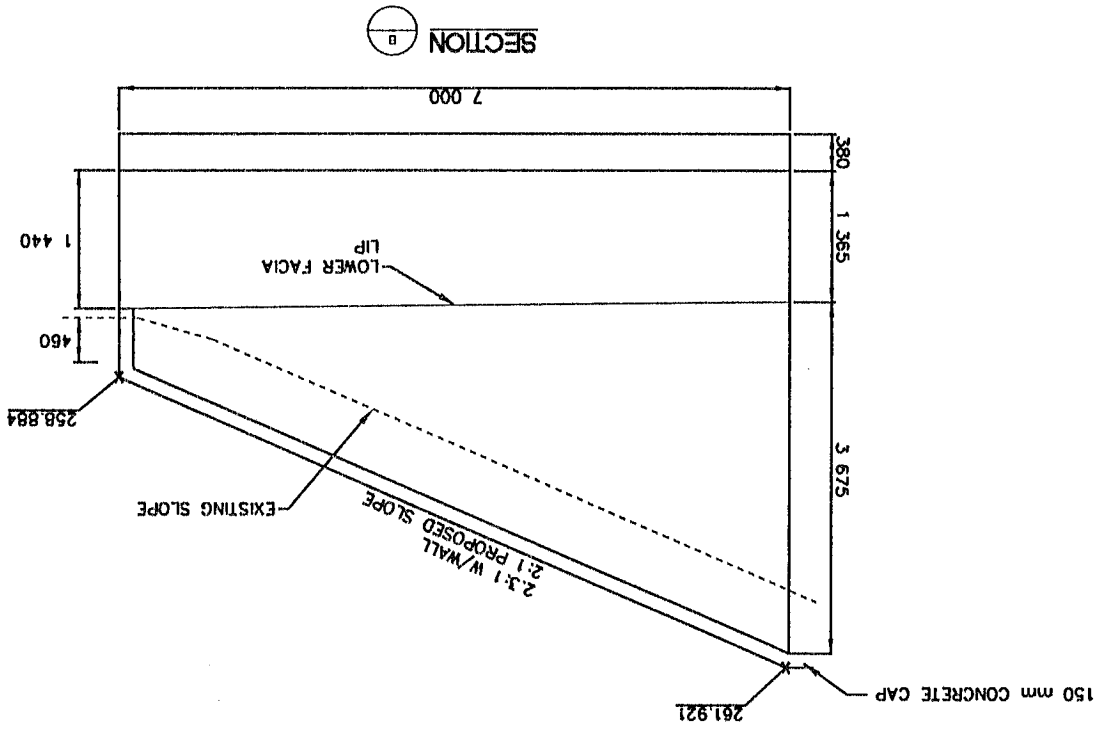




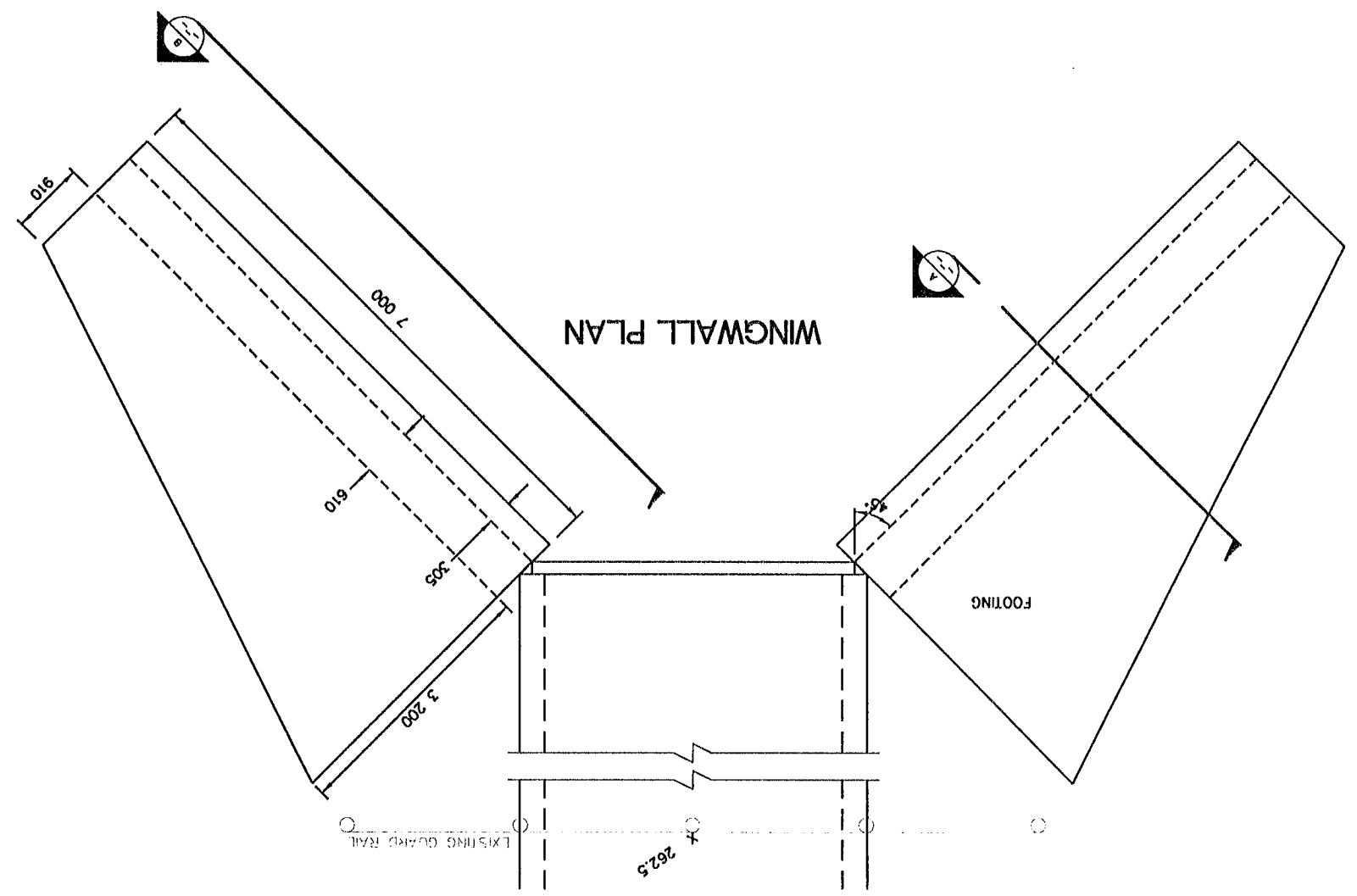
NO.	DATE	BY	REVISION DESCRIPTION

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DATE: 5/18/99 REG. NO. 13970

DESIGNED BY: _____
DRAWN BY: _____
JOB NUMBER: B05600J
APPROVED: _____
CAD DATE: May 12, 1999 2:33:20 p.m.
CAD FILE: B05600J\TUNNEL\B05600-WW-ET.DWG



1:40
0 HORIZ (M) 1.6

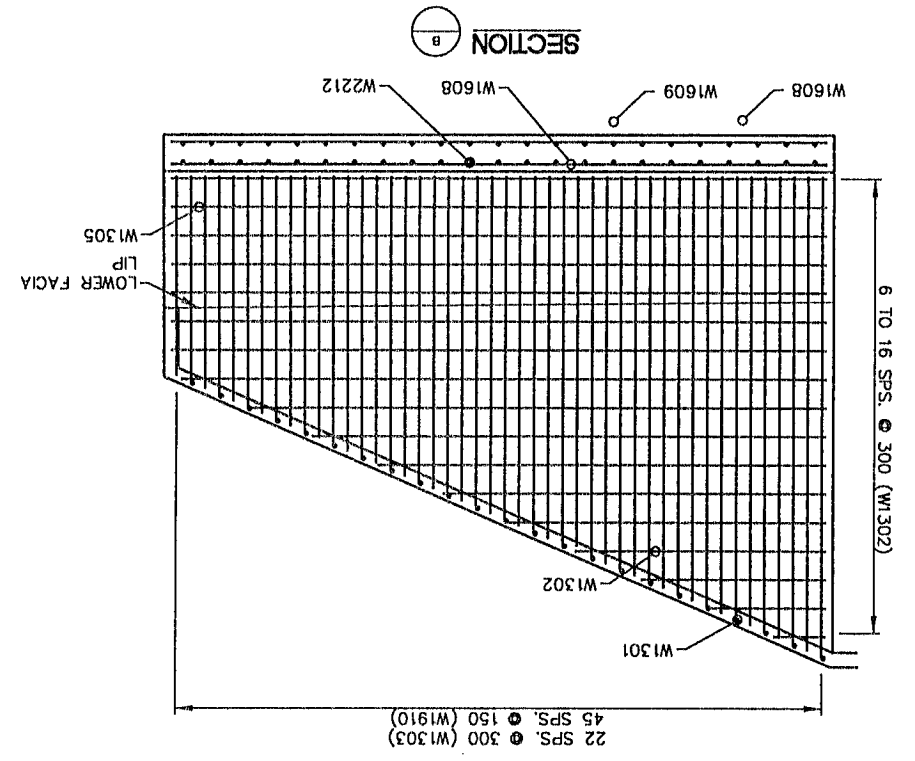




NO.	DATE	BY	REVISION DESCRIPTION

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SUPERVISION AND THAT I AM A DULY REGISTERED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE
STATE OF MINNESOTA.
DATE 5/18/99 REG. NO. 13970

DESIGNED BY: ---
DRAWN BY: ---
JOB NUMBER: 805600J
CAD FILE: 805600J\TUNNEL\805600-WW_E2.DWG
CAD DATE: April 30, 1999 11:41:05 a.m.

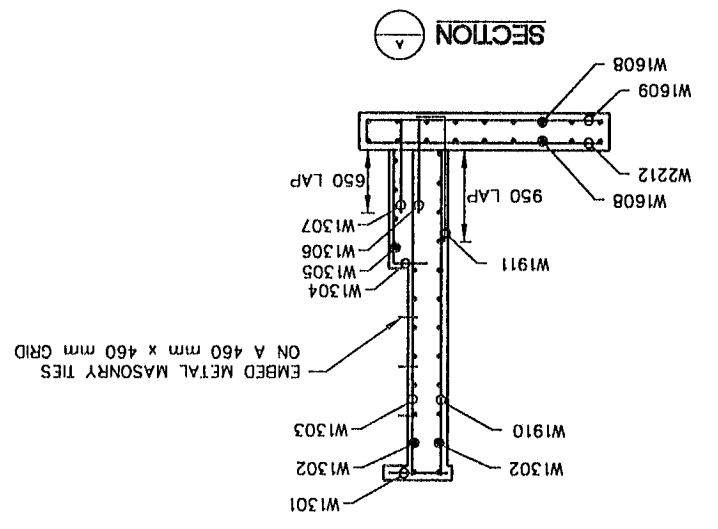


BILL OF REINFORCEMENT FOR EAST WINGWALL

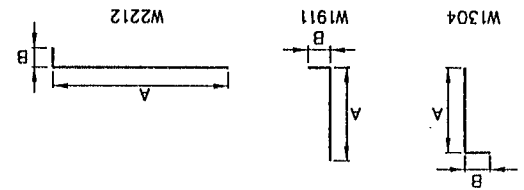
BAR NO.	LENGTH	SHAPE	A	B	C	D	LOCATION
W1301	46	STR.					WINGWALL CAP
W1302	58	STR.					WINGWALL HORIZ.
W1303	46	STR.					WINGWALL VERT.
W1304	46	BEND	VARIES	200			WINGWALL VERT.
W1305	10	STR.					WINGWALL HORIZ.
W1306	46	STR.					WINGWALL VERT.
W1307	46	STR.					WINGWALL VERT.
W1608	52	STR.					FOOTING
W1609	46	STR.					FOOTING
W1910	92	STR.					WINGWALL VERT.
W1911	92	BEND	1 555	300			WINGWALL VERT.
W2212	92	BEND	3 045 AVG.	VARIES	230		FOOTING

SUMMARY OF QUANTITIES FOR EAST WINGWALL

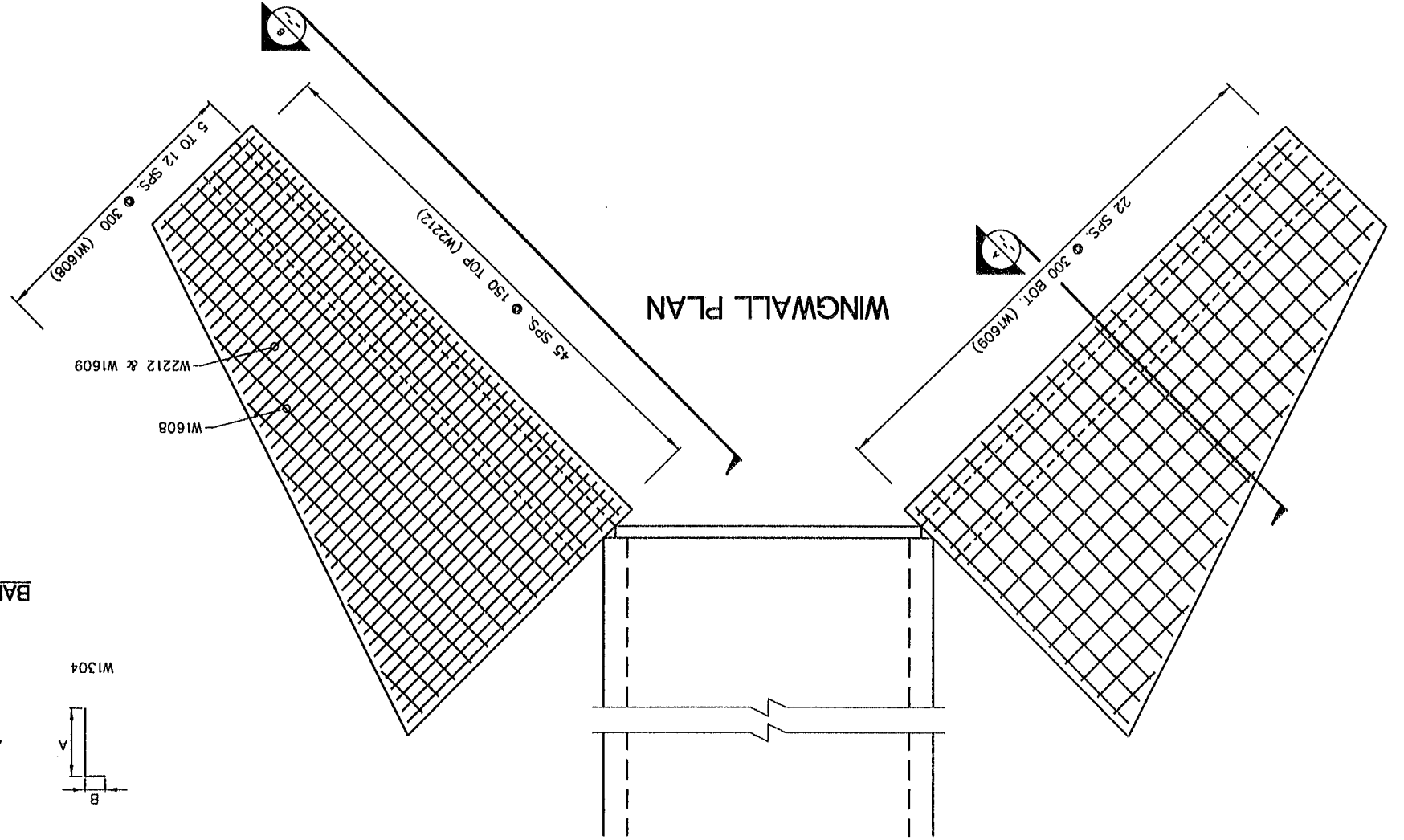
ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (3Y43)	m ³	41.6
REINFORCEMENT BARS	KG	3194
STONE VENEER	m ²	29.6



BAR BEND DETAILS



0 1.6
HORIZ (M)
1:40



DESIGNED BY:
 DRAWN BY:
 JOB NUMBER 805600
 CAD FILE: 805600\TUNNEL\LIGHTING.DWG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 REG. NO.
 DATE

NO.	DATE	BY	REVISION DESCRIPTION

Howard R. Green Company
 CONSULTING ENGINEERS
 1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (612) 644-4389

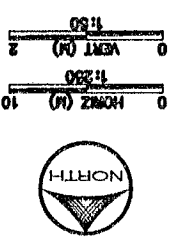
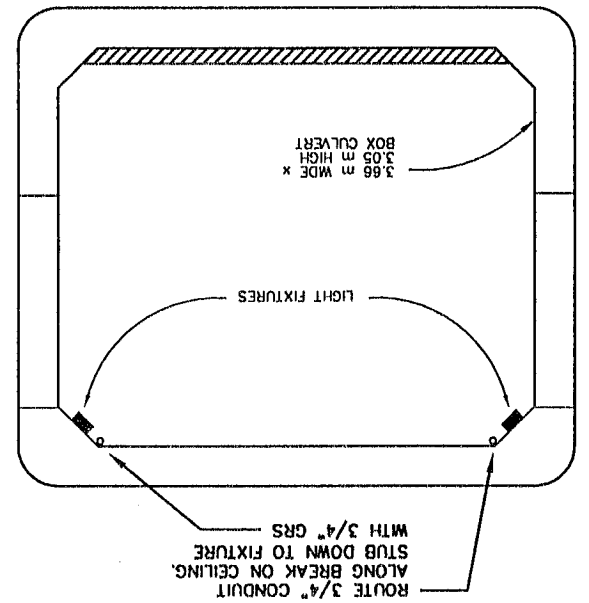
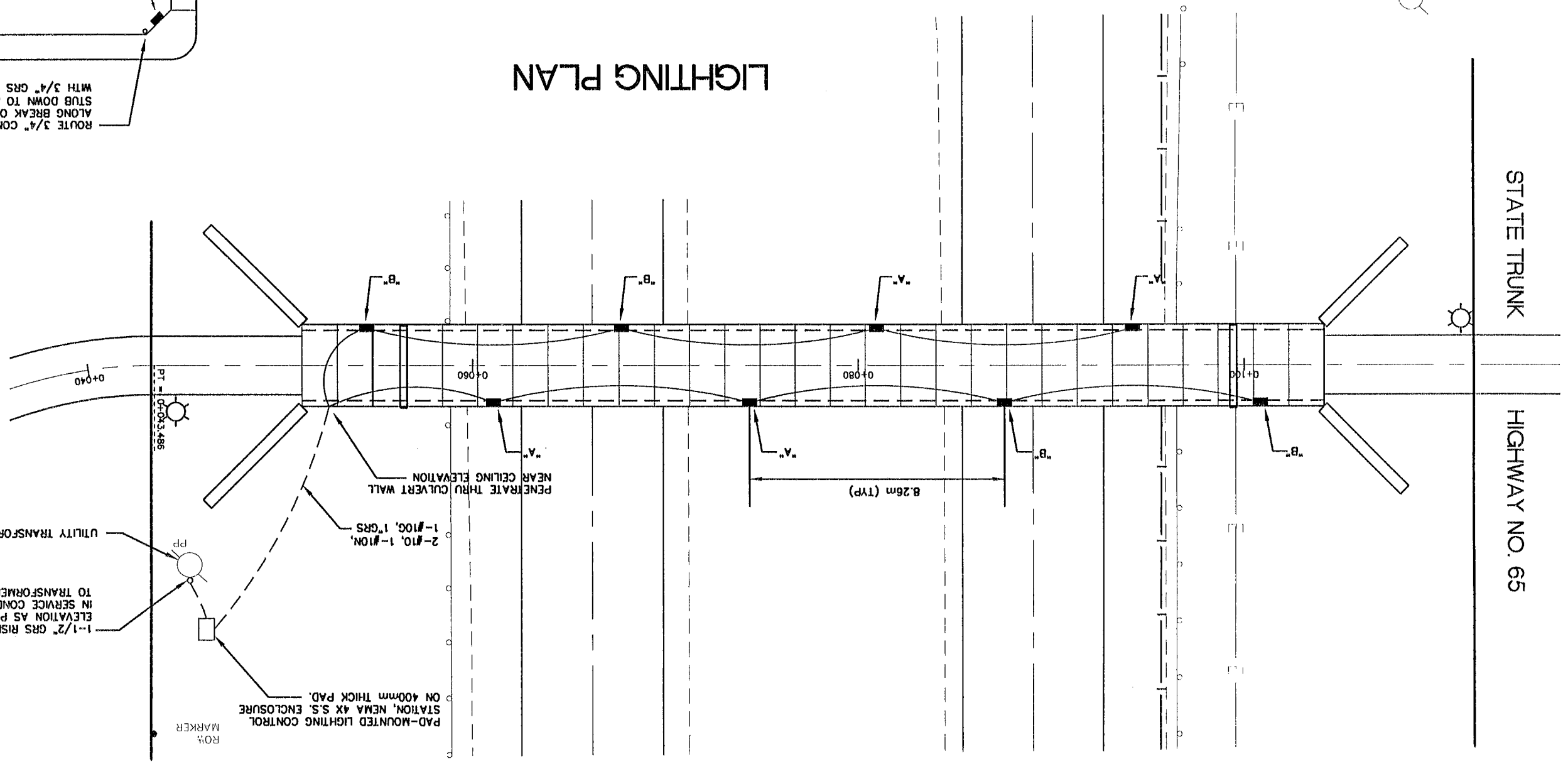
ANOKA COUNTY
 DEPT. OF PARKS AND REC.
 BRIDGE AND UNDERPASS

UNDERPASS LIGHTING PLAN

SHEET NO. 47 of 48

- NOTES:
- CONDUIT IN TUNNEL SHALL BE SURFACE RUN GALVANIZED RIGID STEEL (GRS) WITH CAST METAL BOXES/BODIES. MOUNT TO SURFACE WITH GALVANIZED STRAPS AND STAINLESS STEEL EXPANSION ANCHORS.
 - CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE INSTALLATION WITH THE UTILITY AND SHALL COORDINATE ELECTRICAL INSTALLATION WITH OTHER TRADES SUCH THAT UNDERGROUND WORK IS INSTALLED PRIOR TO FINISH GRADING, PAVING, AND LANDSCAPING.
 - ADJUST LOCATION OF LUMINAIRES SUCH THAT THEY ARE NOT MOUNTED DIRECTLY ON A JOINT BETWEEN CULVERT SECTIONS.
 - UNDERGROUND CIRCUIT RUNS SHALL BE BURIED A MINIMUM OF 1m BELOW FINISHED GRADE.
 - LUMINAIRES: RECTANGULAR, SURFACE-MOUNTED, 100W HIGH PRESSURE SODIUM, DIE-CAST ALUMINUM BODY WITH SURFACE CONDUIT HUB, ALUMINUM OR GRAY FINISH, POLYCARBONATE LENS, 120V, COLD WEATHER BALLAST.
 - HUBBEL TYPE NRG-41358-P, KENALL TYPE 5761, GUTH TYPE B17625/120, ENGINEER APPROVED EQUIVALENT
 - LUMINAIRES WITH PLAN MARK "A" SHALL BE LIT CONTINUOUSLY, LUMINAIRES WITH PLAN MARK "B" SHALL BE CONTROLLED BY PHOTOCELL AT CONTROL STATION. SEE DIAGRAM.

LIGHTING PLAN



1-1/2" GRS RISER WITH WEATHERHEAD AT ELEVATION AS PER UTILITY. LEAVE SLACK IN SERVICE CONDUCTORS FOR TERMINATION TO TRANSFORMER BY UTILITY.

UTILITY TRANSFORMER POLE

PAD-MOUNTED LIGHTING CONTROL MARKER

STATION, NEMA 4X S.S. ENCLOSURE ON 400mm THICK PAD.

2-#10, 1-#10N, 1-#10G, 1"GRS

PENETRATE THRU CULVERT WALL NEAR CEILING ELEVATION



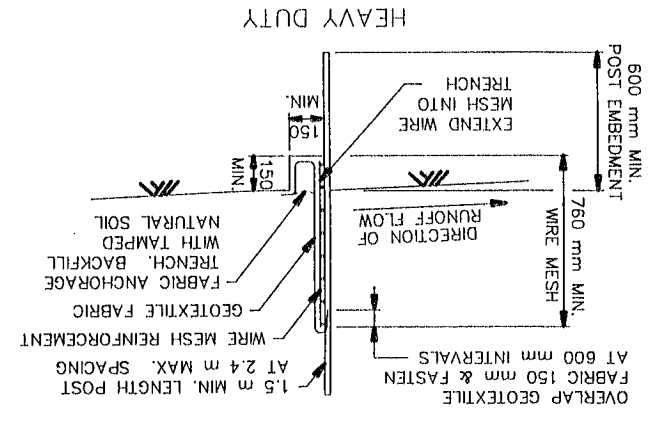
NO.	DATE	BY	REVISION DESCRIPTION

DATE: 5/18/94
5/18/94
23807
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

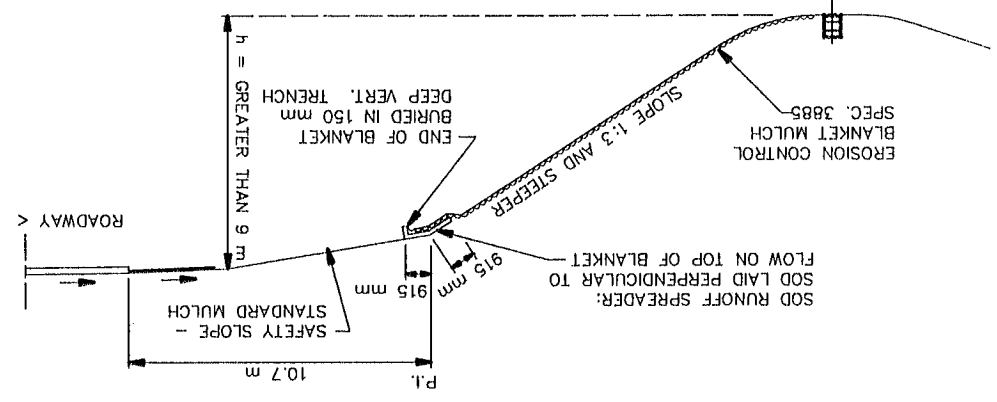
DESIGNED BY: JMA
DRAWN BY: PBK
JOB NUMBER: 805600J
DEN
CAD FILE: B566231.MXD
CAD DATE: March 28, 1999 12:50:07 p.m.

SILT FENCE DETAILS

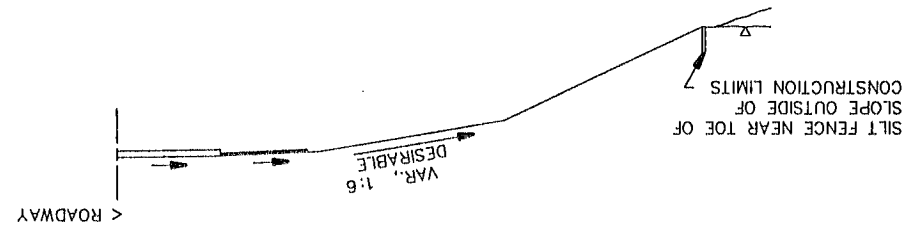
TO PROTECT AREAS FROM SHEET FLOW
(SEE SPEC. 3886)
DESIGN CRITERIA:
MAXIMUM CONTRIBUTING AREA: 1.2 ha



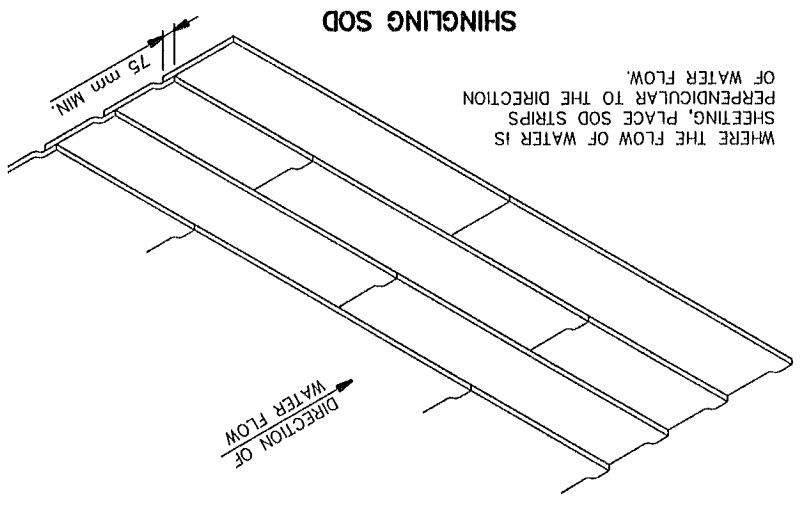
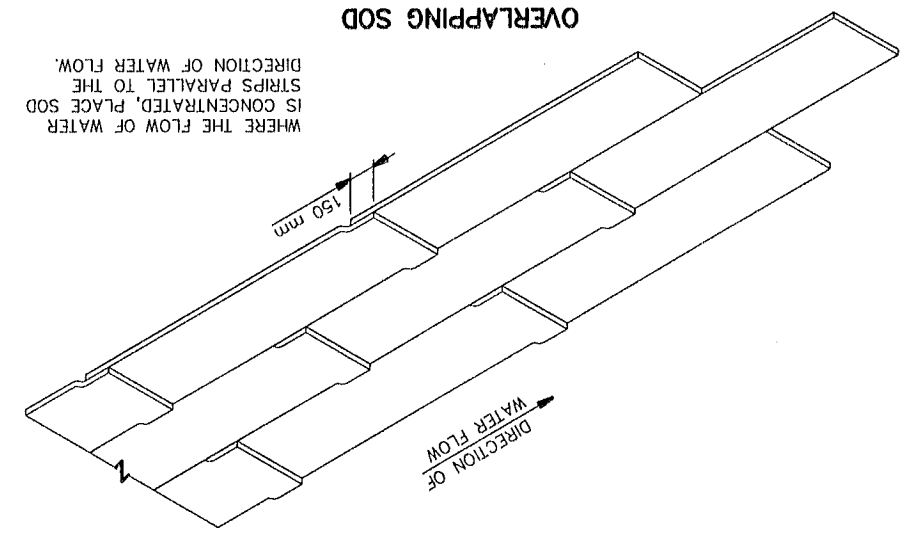
EROSION CONTROL BLANKET INSTALLATION ON AN INSLOPE



ROADWAY EMBANKMENT



SPECIAL SOD PLACEMENT TECHNIQUES



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

