

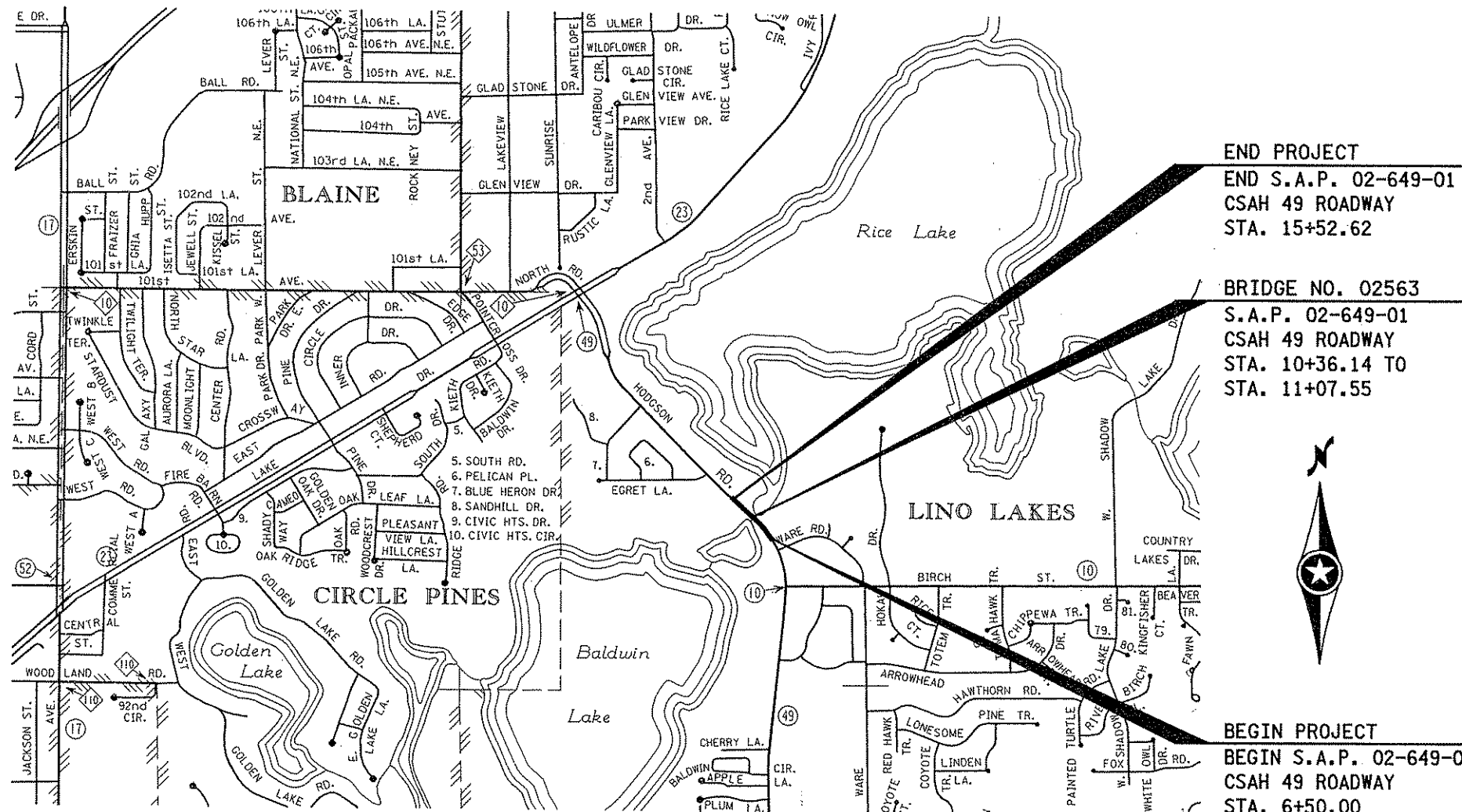
# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

### CONSTRUCTION PLAN FOR BRIDGE, GRADING, AGGREGATE BASE, BITUMINOUS SURFACE, SIGNING AND STRIPING

LOCATED ON CSAH 49 FROM 3550 FT S. OF CSAH 23 TO 650 FT N. OF CSAH 10

STATE AID PROJ. NO.	02-649-01	
GROSS LENGTH	902.62 FEET	0.171 MILES
BRIDGES-LENGTH	71.41 FEET	0.014 MILES
EXCEPTIONS-LENGTH	0 FEET	0 MILES
NET LENGTH	831.21 FEET	0.157 MILES



**END PROJECT**  
 END S.A.P. 02-649-01  
 CSAH 49 ROADWAY  
 STA. 15+52.62

**BRIDGE NO. 02563**  
 S.A.P. 02-649-01  
 CSAH 49 ROADWAY  
 STA. 10+36.14 TO  
 STA. 11+07.55

**BEGIN PROJECT**  
 BEGIN S.A.P. 02-649-01  
 CSAH 49 ROADWAY  
 STA. 6+50.00

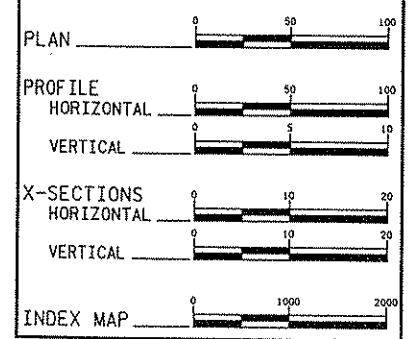
#### PLAN SYMBOLS

- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT OF WAY LINE
- SLOPE EASEMENT
- PRESENT RIGHT OF WAY
- PROPERTY LINE
- CORPORATE OR CITY LIMITS
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT OF WAY
- RIVER OR CREEK
- DRAINAGE DITCH
- CULVERT
- DROP INLET
- GAUGE RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- WOOD FENCE
- STONE WALL OR FENCE
- HEDGE
- LOWLAND
- TIMBER ORCHARD
- BRUSH NURSERY
- CATTLE GAIRD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame)
- F-FRAME C-CONCRETE
- S-STONE T-TILE
- B-BRICK ST-STUCCO
- RAILROAD CROSSING BELL
- RAILROAD CROSSING GATE
- MANHOLE
- CATCH BASIN
- FIRE HYDRANT
- CAST IRON MONUMENT
- IRON PIN
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY

#### UTILITY SYMBOLS

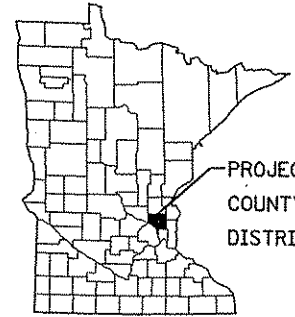
- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE & POWER ON POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL (Cable Terminal)
- GAS MAIN
- WATERMAIN
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- AERIAL TELEPHONE CABLE
- SEWER (Sanitary)
- SEWER (Storm)
- SEWER MANHOLE

#### SCALES

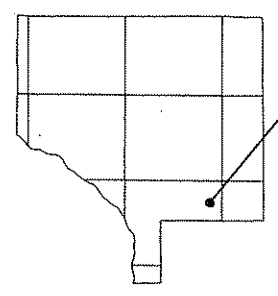


#### DESIGN DESIGNATION

ADT (2006)=	15,522
Proj. ADT (2026)=	23,282
Proj. HCADT (2026)=	866
ESALS	3,000,000
R VALUE	75
DESIGN	10 TON DESIGN
Shoulder Width	8'
Functional Classification	"A" MINOR ARTERIAL
Design	RURAL
No. of Traffic Lanes	2
No. of Parking Lanes	0
Design Speed	50 MPH
Based on Stopping Sight Distance	
Height of eye	3.5'
Height of object	2.0'
Design Speed not achieved at:	N/A
STA.	N/A TO STA. N/A MPH N/A



PROJECT LOCATION  
 COUNTY: ANOKA  
 DISTRICT: METRO



ANOKA COUNTY

#### GOVERNING SPECIFICATIONS

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.  
 ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

#### INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-3	ESTIMATED QUANTITIES
4	QUANTITY TABULATIONS
5	EARTHWORK TABULATION
6	TYPICAL SECTIONS
7	SURCHARGE PLAN
8	PORTABLE CONCRETE BARRIER DETAILS
9-14	STANDARD PLANS
15	DETOUR PLAN
16	INPLACE TOPOGRAPHY AND REMOVALS PLAN
17	CONSTRUCTION PLAN AND PROFILE
18	SUPERELEVATION PLAN
19	STRIPING PLAN AND DETAILS
20	TEMPORARY EROSION CONTROL & TURF ESTABLISHMENT PLAN
21	PERMANENT EROSION CONTROL & TURF ESTABLISHMENT PLAN
22-23	EROSION CONTROL DETAILS
24	WATERMAIN PLAN AND PROFILE
X1-X7	CROSS SECTIONS
B1-B26	BRIDGE NO. 02563 PLANS

THIS PLAN CONTAINS 57 SHEETS

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

### TKDA

ENGINEERS-ARCHITECTS-PLANNERS

SIGNATURE: *Joseph M. Weaver* TYPED OR PRINTED NAME: JOSEPH M. WEAVER  
 DESIGN ENGINEER: I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE: 5-30-06 LICENSE NUMBER 22705

Approved: *[Signature]* ANOKA COUNTY ENGINEER  
 Recommended for Approval: *[Signature]* 6/6/06  
 Approved: *[Signature]* 6/7/06 JAMES S. SHULTZ CITY OF LINO LAKES  
 Reviewed for Compliance with State Aid Rules/Policy: *[Signature]* 6/12/06 DISTRICT STATE AID ENGINEER  
 Approved for State Aid Funding: *[Signature]* 6/12/06 STATE AID ENGINEER  
 Recommended for Approval: *[Signature]* 6/9/06 STATE BRIDGE ENGINEER FOR

### ESTIMATED QUANTITIES

TAB. LETTER	ITEM NUMBER	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	ANOKA COUNTY S.A.P. 02-649-01 BRIDGE	ANOKA COUNTY S.A.P. 02-649-01 ROADWAY	LINO LAKES LOCAL FUNDS
	2021.501	MOBILIZATION	LUMP SUM	1		1	
	2031.501	FIELD OFFICE TYPE D	EACH	1		1	
A	2101.502	CLEARING	TREE	6		6	
A	2101.507	GRUBBING	TREE	6		6	
B	2104.501	REMOVE CABLE FENCE BARRIER	LIN FT	365		365	
B	2104.501	REMOVE GUARDRAIL - PLATE BEAM	LIN FT	353		353	
(1) B	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	3347		3347	
B	2104.509	REMOVE ANCHORAGE ASSEMBLY - PLATE BEAM	EACH	4		4	
	2104.509	REMOVE MANHOLE	EACH	1			1
C	2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	72		72	
	2104.601	REGULATED WASTE EVALUATION (BRIDGE)	LUMP SUM	1	1		
	2104.603	REMOVE/ABANDON WATER MAIN	LIN FT	1324			1324
H	2105.501	COMMON EXCAVATION (P)	CU YD	412	✓	412	
H	2105.522	SELECT GRANULAR BORROW (LV)	CU YD	9498	✗	9498	
H	2105.523	COMMON BORROW (LV)	CU YD	1410		1410	
H	2105.525	TOPSOIL BORROW (LV)	CU YD	448	✗	448	
	2105.602	SETTLEMENT PLATES	EACH	6		6	
	2105.604	GEOTEXTILE FABRIC TYPE V	SQ YD	2417		2417	
	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	20		20	
D	2211.503	AGGREGATE BASE (CV) CLASS 5 (P)	CU YD	644		644	
	2301.551	BRIDGE APPROACH PANELS	EACH	2	2		
D	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	175		175	
D	2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,F)	TON	794		794	
D	2360.502	TYPE SP 19 NON WEAR COURSE MIX (4,B)	TON	447		447	
	2401.501	STRUCTURAL CONCRETE (3Y43) (P)	CU YD	160	160		
	2401.501	STRUCTURAL CONCRETE (3Y36) (P)	CU YD	72	72		
	2401.512	BRIDGE SLAB CONCRETE (3Y36) (P)	SQ FT	6493	6493		
	2401.513	TYPE F RAILING CONCRETE (3Y46) (P)	LIN FT	91	91		
	2401.513	TYPE F-SW RAILING CONCRETE (3Y46) (P)	LIN FT	112	112		
	2401.541	REINFORCEMENT BARS (EPOXY COATED) (P)	POUND	66500	66500		
	2401.601	STRUCTURE EXCAVATION	LUMP SUM	1	1		
	2402.59	ELASTOMERIC BEARING PAD	EACH	20	20		
	2404.501	CONCRETE WEARING COURSE (3U17A)	SQ FT	8356	8356		
	2405.502	PRESTRESSED CONCRETE BEAMS TYPE 36M	LIN FT	710	710		
	2405.511	DIAPHRAGMS FOR TYPE36M PRESTRESSED BEAMS	LIN FT	85	85		
	2442.501	REMOVE OLD BRIDGE (NON PARTICIPATING)	LUMP SUM	1	1		
H	2451.513	FINE FILTER AGGREGATE (LV)	CU YD	1313		1313	
	2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN FT	960	960		
	2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN FT	960	960		
	2452.519	C-I-P CONCRETE TEST PILE 70 FT. LONG	EACH	2	2		
	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	2			2
	2504.602	16" GATE VALVE AND BOX	EACH	1			1
	2504.603	16" WATERMAIN DUCTILE IRON CL 52	LIN FT	440			440
	2504.603	16" WATERMAIN HDPE (DIRECTIONALLY DRILLED)	LIN FT	902			902
	2504.608	DUCTILE IRON FITTINGS	POUND	404			404

**NOTES:**

- (P) DENOTES PLAN QUANTITY.
- (1) THICKNESS VARIES FROM 6" TO 8" (AVERAGES 7").

INDEX OF TABULATIONS		
TAB. LETTER	SHEET NO.	DESCRIPTION
A	4	CLEARING AND GRUBBING
B	4	MISCELLANEOUS REMOVALS
C	4	SAWCUTS
D	4	AGGREGATE AND BITUMINOUS SUMMARY
E	4	TRAFFIC BARRIERS
F	4	PAVEMENT MARKINGS
G	4	TURF ESTABLISHMENT AND EROSION CONTROL
H	5	EARTHWORK PAY ITEM SUMMARY

NO	DATE	BY	CKD	APPR	REVISION
NAME: k:\a-f\anoka\1159201\hwy-brdg\hwy\pin-shr_surcharge\est-quant.dgn 5/31/2006					
I HEREBY CERTIFY THAT THIS PLAN 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. <i>Joseph Warner</i> DATE 5-16-06 REG. NO. 22405			DRAWN BY TJV DATE 5-16-06 DESIGN BY JMW DATE 5-16-06 CHECKED BY JMW DATE 5-16-06	STATE PROJECT NO.  S.A.P. 02-649-01	ANOKA COUNTY ESTIMATED QUANTITIES CSAH 49 RECONSTRUCTION
					<b>TKDA</b> TOLTZ, KING, OUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA
					SHEET 2 OF 31

## ESTIMATED QUANTITIES

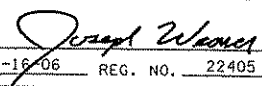
TAB. LETTER	ITEM NUMBER	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	ANOKA COUNTY S.A.P. 02-649-01 BRIDGE	ANOKA COUNTY S.A.P. 02-649-01 ROADWAY	LINO LAKES LOCAL FUNDS
G	2511.501	RANDOM RIPRAP CLASS II	CU YD	2		2	
	2511.501	RANDOM RIPRAP, CLASS III	CU YD	394	394		
	2511.511	GRANULAR FILTER	CU YD	86	86		
	2521.501	4" CONCRETE WALK	SQ FT	443	443		
	2533.504	CONCRETE MEDIAN BARRIER DESIGN 8337	LIN FT	225	225		
	2545.509	CONDUIT SYSTEM	LUMP SUM	1	1		
E	2554.501	TRAFFIC BARRIER DESIGN B8307	LIN FT	500		500	
E	2554.511	TRAFFIC BARRIER DESIGN B8307 (SPECIAL)	LIN FT	100		100	
E	2554.521	ANCHORAGE ASSEMBLY-PLATE BEAM	EACH	4		4	
E	2554.523	END TREATMENT-ECCENTRIC LOADER BCT	EACH	4		4	
E	2554.602	IMPACT ATTENUATOR BARRELS	EACH	48		48	
	2557.501	WIRE FENCE (DESIGN W-1)	LIN FT	91	91		
	2563.601	TRAFFIC CONTROL	LUMP SUM	1		1	
F	2564.603	4" SOLID LINE WHITE-EPOXY	LIN FT	1805		1805	
F	2564.603	4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	903		903	
(2)(5) G	2573.501	BALE CHECK	EACH	505		505	
G	2573.502	SILT FENCE, TYPE HEAVY DUTY	LIN FT	668		668	
(3) G	2573.505	FLOATATION SILT CURTAIN, TYPE STILL WATER	LIN FT	464		464	
G	2573.507	TEMPORARY PIPE DOWN DRAIN	LIN FT	200		200	
	2573.601	EROSION CONTROL SUPERVISOR	LUMP SUM	1		1	
G	2575.501	SEEDING	ACRE	3.53		3.53	
G	2575.502	SEED MIXTURE 150	POUND	71		71	
G	2575.502	SEED MIXTURE 250	POUND	24		24	
G	2575.502	SEED MIXTURE 350	POUND	65		65	
G	2575.502	SEED MIXTURE 310	POUND	55		55	
(4) G	2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	17076		17076	
(4)(5) G	2575.523	EROSION CONTROL BLANKETS CATEGORY 4	SQ YD	1346		1346	
G	2575.532	COMMERCIAL FERT ANALYSIS 10-10-20	POUND	354		354	
G	2575.532	COMMERCIAL FERT ANALYSIS 22-5-10	POUND	404		404	

**NOTES:**

- (P) DENOTES PLAN QUANTITY.
- (2) INCLUDES REMOVING SEDIMENT BUILD-UP AND REPAIRING, REPLACING, OR SUPPLEMENTING WHEN NON FUNCTIONAL.
- (3) 4' AVERAGE DEPTH.
- (4) ALL NATURAL NETTING AND STITCHING.
- (5) BALE BARRIER, SEE TEMPORARY EROSION CONTROL DETAILS.

AN ADDITIONAL QUANTITY OF 20% OF THE SEEDED AREA HAS BEEN ADDED TO THE TEMPORARY SEED MIXTURE 150 ITEM FOR MISCELLANEOUS TEMPORARY STABILIZATION MEASURES.

AN ADDITIONAL QUANTITY OF 30% OF THE SEEDED AREA HAS BEEN ADDED TO THE TYPE 3 MULCH ITEM FOR MISCELLANEOUS TEMPORARY STABILIZATION MEASURES.

	I HEREBY CERTIFY THAT THIS PLAN 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 <u>5-16-06</u> REG. NO. <u>22405</u>	DRAWN BY <u>TJV</u> DATE <u>5-16-06</u> STATE PROJECT NO.  DESIGN BY <u>JMW</u> DATE <u>5-16-06</u>  CHECKED BY <u>JMW</u> DATE <u>5-16-06</u>	S.A.P. 02-649-01	<b>TKDA</b> TOLTZ, KING, DUVAL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	ANOKA COUNTY ESTIMATED QUANTITIES CSAH 49 RECONSTRUCTION	SHEET 3 OF 31
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NO	DATE	BY	CHKD	APPR	REVISION

CLEARING AND GRUBBING (A)				
CSAH 49 ROADWAY STATION TO STATION	CLEARING		GRUBBING	
	TREE	ACRE	TREE	ACRE
6+50.00 TO 10+16.14	6		6	
11+27.55 TO 15+52.62	6		6	
<b>PROJECT TOTAL</b>	12	0	12	0

MISCELLANEOUS REMOVALS (B)				
CSAH 49 ROADWAY STATION TO STATION	REMOVE CABLE FENCE BARRIER	REMOVE PLATE BEAM GUARDRAIL	REMOVE PAVEMENT	REMOVE ANCHORAGE ASSEMBLY
	LIN FT	LIN FT	SQ YD	EACH
6+50.00 TO 10+36.97		177	1550	2
11+07.57 TO 15+52.62	365	176	1797	2
<b>PROJECT TOTAL</b>	365	353	3347	4

SAWCUTS (C)		
CSAH 49 ROADWAY STATION TO STATION	OFFSETS	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
		LIN FT
6+50.00	19' LT TO 17' RT	36
15+52.62	18' RT TO 18' RT	36
<b>PROJECT TOTAL</b>		72

AGGREGATE AND BITUMINOUS SUMMARY (D)				
CSAH 49 ROADWAY STATION TO STATION	AGG. BASE (CV) CLASS 5	TACK COAT	TYPE SP 12.5 WEARING COURSE MIXTURE (4,F) (SPWEB440F)	TYPE SP 19 NON WEARING COURSE MIXTURE (4,B) (SPNWC430B)
			TON	TON
	CU YD	GAL.		
6+50.00 TO 10+16.14	298	81	368	207
11+27.55 TO 15+52.62	346	94	426	240
<b>PROJECT TOTAL</b>	644	175	794	447

TRAFFIC BARRIERS (E)					
CSAH 49 ROADWAY STATION TO STATION	IMPACT ATTENUATOR BARRILES	TRAFFIC BARRIER DESIGN B8307	TRAFFIC BARRIER DESIGN 8307 (SPECIAL)	ANCHORAGE ASSEMBLY PLATE BEAM	END TREATMENT ECCENTRIC LOADER BCT
	EACH	LIN FT	LIN FT	EACH	EACH
6+50.00 TO 10+16.14	24	250	50	2	2
11+27.55 TO 15+52.62	24	250	50	2	2
<b>PROJECT TOTAL</b>	48	500	100	4	4

PAVEMENT MARKINGS (F)		
CSAH 49 ROADWAY STATION TO STATION	4" SOLID LINE WHITE EPOXY (1)	4" DBLE SOLID YELLOW EPOXY (2)
	LIN FT	LIN FT
6+50.00 TO 15+52.62	1805	903
<b>PROJECT TOTAL</b>	1805	903

NOTES:  
(1) INCLUDES 223 LF STRIPING ON BRIDGE AND APPROACH PANELS.  
(2) INCLUDES 112 LF STRIPING ON BRIDGE AND APPROACH PANELS.

TURF ESTABLISHMENT AND EROSION CONTROL (G)														
CSAH 49 ROADWAY STATION TO STATION	BALE CHECK (9)	SILT FENCE TYPE HEAVY DUTY	FLOTA- TION SILT CURTAIN	RANDOM RIPRAP CL. II (1)	TEMP. PIPE DOWN DRAIN (2)	SEEDING	SEED MIX 150 (3)	SEED MIX 250 (4)	SEED MIX 350 (5)	SEED MIX 310 (5)	EROSION CONTROL BLANKET CAT. 3	EROSION CONTROL BLANKET CAT. 4 (9)	COMM. FERT. ANALYSIS 10-10-20 (7)	COMM. FERT. ANALYSIS 22-5-10 (8)
	EACH	LIN FT	LIN FT	CU. YD.	LIN FT	ACRE	POUND	POUND	POUND	POUND	SQ YD	SQ YD	POUND	POUND
6+50.00 TO 10+16.14	291		247	2.0	100	1.41	28	11	17	30	6827	775	140	166
11+27.55 TO 15+52.62	214	668	217		100	2.12	43	13	48	25	10249	571	214	238
<b>PROJECT TOTAL</b>	505	668	464	2.0	200	3.53	71	24	65	55	17076	1346	354	404

NOTES:  
(1) TO BE USED AT THE DOWNSTREAM END OF TEMP. PIPE DOWN DRAIN.  
(2) TO BE USED AT BRIDGE ABUTMENT CORNERS. SEE DETAIL ON SHEET NO. 23.  
(3) APPLIED AT A RATE OF 40 POUND/ACRE.  
(4) APPLIED AT A RATE OF 70 POUND/ACRE.  
(5) APPLIED AT A RATE OF 84.5 POUND/ACRE.  
(6) APPLIED AT A RATE OF 2 TON/ACRE.  
(7) APPLIED AT A RATE OF 200 POUND/ACRE FOR SEED MIX 150.  
(8) APPLIED AT A RATE OF 350 POUND/ACRE FOR SEED MIX 250; 200 LBS FOR SEED MIXTURE 350 AND 310.  
(9) BALE CHECK AND EROSION CONTROL BLANKET CAT. 4 ARE BASED ON 1514 LIN. FT. OF BALE BARRIER USING 36" LONG BALES AND 8' WIDE BLANKETS.

I HEREBY CERTIFY THAT THIS PLAN 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. <i>Joseph W. Jones</i> DATE 5-16-06 REG. NO. 22405					DRAWN BY SFH DATE 5-16-06 DESIGN BY TJV DATE 5-16-06 CHECKED BY JMW DATE 5-16-06		STATE PROJECT NO.  S.A.P. 02-649-01		<b>TKDA</b> TOLTZ, KING, DUVAL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA		ANOKA COUNTY QUANTITY TABULATIONS CSAH 49 RECONSTRUCTION		SHEET 4 OF 31
NO	DATE	BY	CKD	APPR	REVISION								
NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\pin-shd_surcharge\tab.dgn					5/31/2006								

ROADWAY EARTHWORK VOLUMES BY STATIONS					
STATION	EXCAVATION (E.V.)		EMBANKMENT (C.V.)		
	COMMON		TOPSOIL	SELECT GRANULAR	FILTER AGGREGATE
	TOPSOIL (1)	SUITABLE			
	(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)
<b>CSAH 49</b>					
6+50.00					
7+00.00	18	1	30	173	0
7+50.00	18	1	31	204	0
8+00.00	18	1	32	236	0
8+50.00	17	1	35	323	0
9+00.00	17	1	43	501	0
9+04.00	1	0	4	40	9
9+50.00	20	1	48	433	216
10+00.00	29	1	59	685	275
10+16.14	9	0	21	297	104
11+27.59					
11+50.00	18	0	28	401	118
11+90.00	32	0	47	566	165
12+00.00	8	0	11	140	17
12+50.00	36	1	50	748	0
13+00.00	25	1	44	593	0
13+50.00	19	1	36	405	0
14+00.00	21	1	31	295	0
14+50.00	20	1	30	230	0
15+00.00	19	1	29	160	0
15+50.00	19	1	24	94	0
15+52.62	1	1	1	3	0
<b>TOTALS</b>	<b>365</b>	<b>15</b>	<b>634</b>	<b>6528</b>	<b>904</b>

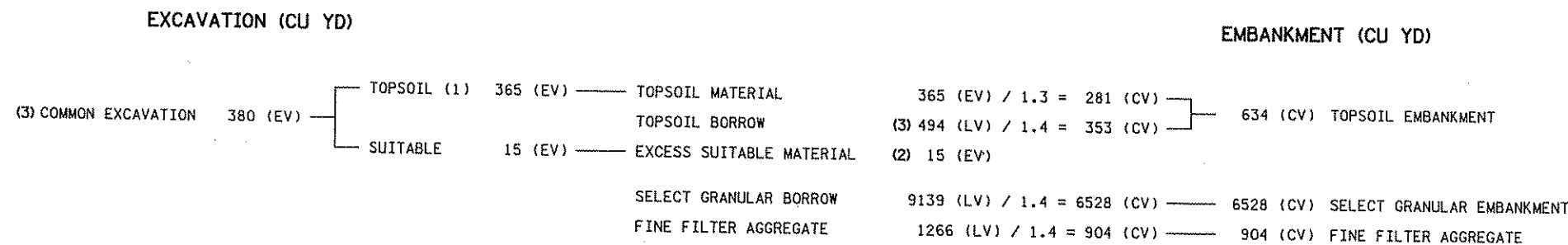
**NOTES**

- (1) FOR EARTHWORK PURPOSES, THE AVERAGE THICKNESS OF TOPSOIL STRIPPING WAS DETERMINED TO BE 4" IN ALL AREAS.
- (2) EXCESS MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE THE RIGHT-OF-WAY.
- (3) PAY ITEM

**CONSTRUCTION/SOILS NOTES**

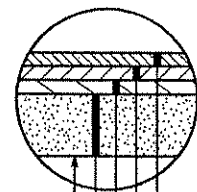
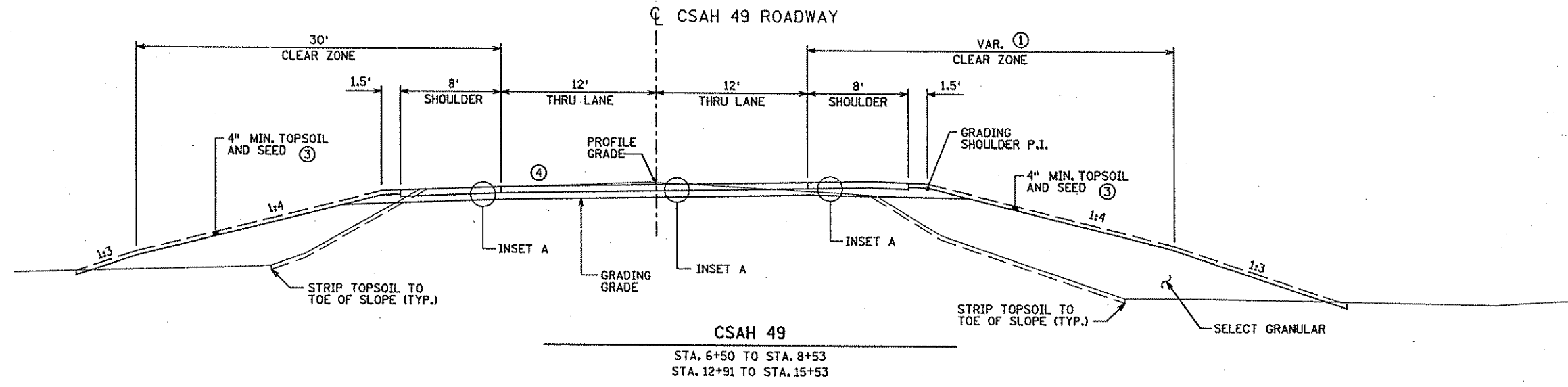
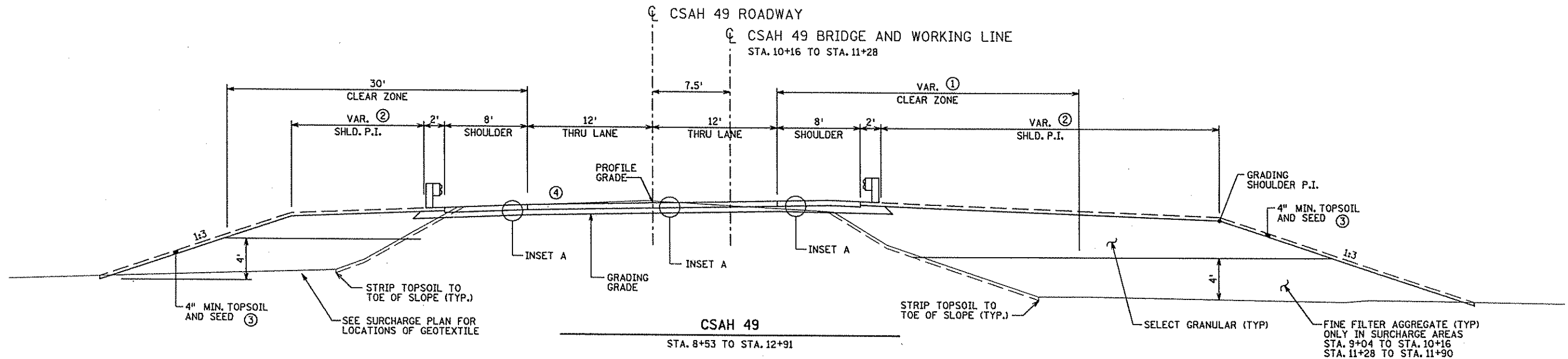
1. SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF SLOPE DRESSING, DEBRIS, ORGANIC MATERIAL, MUCK AND OTHER UNSUITABLE MATERIAL.
2. ITEMS REFERRED TO AS INCIDENTAL ON THIS PROJECT SHALL BE CONSIDERED INCIDENTAL WITH NO DIRECT COMPENSATION MADE THEREFORE.
3. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2B2.
4. BITUMINOUS AND CONCRETE ITEMS REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED OR DISPOSED OF OFF THE PROJECT, IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2104.3C3 WITH NO DIRECT COMPENSATION MADE THEREFORE.
5. UNSUITABLE MATERIALS SHALL BE PLACED IN EMBANKMENTS AT THE LOCATIONS SHOWN ON THE TYPICAL SECTIONS. DISPOSITION OF EXCESS EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2105.3D WITH NO DIRECT COMPENSATION THEREFORE.
6. COMPACTION OF THE GRADING ITEMS OF THIS PROJECT BELOW THE UPPER 3 FEET SHALL BE BY THE "QUALITY COMPACTION METHOD". COMPACTION OF THE UPPER 3 FEET SHALL BE BY THE " SPECIFIED DENSITY METHOD".
7. COMPACTION OF THE AGGREGATE BASE ITEMS OF THIS PROJECT SHALL BE BY THE "SPECIFIED DENSITY METHOD" EXCEPT WHEN THE CONTRACTOR ELECTS TO USE RECYCLED MATERIALS FOR THE AGGREGATE BASE ITEMS, THEN THE "PENETRATION INDEX METHOD" SHALL BE UTILIZED.
8. COMPACTION OF THE BITUMINOUS ITEMS OF THIS PROJECT, BOTH PERMANENT AND TEMPORARY, SHALL BE BY THE "MAXIMUM SPECIFIED DENSITY METHOD", IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2360.
9. WHERE WIDENING ADJACENT TO EXISTING PAVEMENT, CUT VERTICALLY TO THE BOTTOM OF THE CLASS 5 AGGREGATE BASE AND THEN AT A 1V:1/2H SLOPE TO THE BOTTOM OF THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION (AS SHOWN ON THE TYPICAL SECTIONS AND THE CROSS SECTIONS). BACKFILL PROMPTLY TO AVOID UNDERMINING THE EXISTING PAVEMENT.
10. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND WHERE CONCRETE CURBING ABUTS BITUMINOUS MIXTURES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.05 GAL./SQ. YD. BETWEEN BITUMINOUS LAYERS. APPLICATION RATES ARE APPLICABLE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY). ASPHALT EMULSIONS MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPEC. 2357.
11. STRIP AND REUSE AS SLOPE DRESSING ALL EXISTING TOPSOIL, WHERE PRESENT, IN AREAS TO BE DISTURBED BY CONSTRUCTION. TOPSOIL STRIPPING IS CONSIDERED TO BE COMMON EXCAVATION. APPROXIMATE DIMENSIONS ENCOUNTERED ARE 4 INCHES.
12. PLACE A MINIMUM OF 4 INCHES OF SLOPE DRESSING ON ALL AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT. ALL EXCESS TOPSOIL SHALL BE CONSIDERED UNSUITABLE MATERIAL AND PLACED AT LOCATIONS SHOWN ON THE TYPICAL SECTIONS.
13. TOE OF FILL, CUT RUNOUTS, AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.
14. BITUMINOUS QUANTITIES ARE BASED ON: 113\*/SQ. YD.-IN. THE BOTTOM LAYER OF BITUMINOUS IS INCREASED IN THICKNESS BY 1/4 INCH FOR QUANTITY DETERMINATION.
15. SOIL BORINGS ALONG THE PROJECT INDICATE THE EXISTING CSAH 49 BITUMINOUS PAVEMENT AVERAGES 7 INCHES THICK THE CONTRACTOR SHALL INVESTIGATE AND MAKE OWN DETERMINATION OF ACTUAL PAVEMENT DEPTHS.
16. GRADING GRADE ON THIS PROJECT SHALL BE DEFINED AS THE BOTTOM OF THE AGGREGATE BASE AS SHOWN ON THE TYPICAL SECTIONS.
17. SLOPES DELINEATED IN THIS PROJECT AS "X": "Y" MEANS "X" VERTICALLY TO "Y" HORIZONTALLY.
18. ALL SILT FENCING AS SHOWN IN THE PLANS SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF GRADING OPERATIONS.

**ROADWAY EARTHWORK BALANCE**



EARTHWORK PAY ITEM SUMMARY (H)					
	COMMON EXCAVATION	TOPSOIL BORROW	SELECT GRANULAR	FILTER AGGREGATE	COMMON BORROW
ROADWAY PLANS (THIS SHEET)	380	494	9139	1266	0
SURCHARGE PLAN (SHEET 7)	0	0	1510	47	1410
<b>TOTALS</b>	<b>380</b>	<b>494</b>	<b>10649</b>	<b>1313</b>	<b>1410</b>

NO	DATE	BY	CRD	APPR
REVISION				
NAME: K:\a-f\AnokaCty\1159201\hwy-brdg\hwy\p1n-sht_surcharge\p_0w.dgn				
I HEREBY CERTIFY THAT THIS PLAN 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.				
DRAWN BY <u>TJV</u> DATE <u>5-16-06</u>		STATE PROJECT NO.		
DESIGN BY <u>JMW</u> DATE <u>5-16-06</u>		<b>TKDA</b> TOLTZ, KING, OUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA		
CHECKED BY <u>JMW</u> DATE <u>5-16-06</u>		S.A.P. 02-649-01		
<b>ANOKA COUNTY</b> <b>EARTHWORK TABULATION</b> <b>CSAH 49 RECONSTRUCTION</b>				<b>SHEET</b> <b>5</b> <b>OF</b> <b>31</b>



**INSET A**  
CSAH 49

- SPEC 2360 2" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440E (PG 64-28)
- SPEC 2360 2" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB440E (PG 64-28)
- SPEC 2360 2" TYPE SP 19 NON-WEARING COURSE MIXTURE SPNWC430B (PG 58-28)
- SPEC 2211 6" AGGREGATE BASE (CV), CLASS 5
- GRADING GRADE

**NOTE:**

- ① CLEAR ZONES: (RIGHT SIDE)  
STA. 6+50 TO STA. 8+70 - 37'  
STA. 8+70 TO STA. 10+90 - TRANS. 37' TO 30'  
STA. 10+90 TO STA. 15+53 - 30'
- ② SEE SURCHARGE PLAN, CROSS SECTIONS AND STANDARD PLATE 8329H FOR GRADING P.I. LOCATIONS AT GUARDRAIL AND SURCHARGE AREAS.
- ③ ALL 1:4 SLOPES AND FLATTER SHALL HAVE SEED MIX 250. SLOPES STEEPER THAN 1:4 SHALL HAVE SEED MIX 350. ALL AREAS BEYOND TOE OF SLOPE IN WETLAND AREAS TO HAVE SEED MIX 310.
- ④ SEE SUPERELEVATION PLAN FOR PAVEMENT CROSS SECTION.
- ⑤ DIMENSION TO P.I. VARIES. SEE STANDARD PLATE 8329.

**GENERAL NOTES:**

- MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- SEE CONSTRUCTION PLANS FOR GUARDRAIL LOCATIONS.
- SEE CROSS SECTIONS FOR SLOPE TRANSITIONS. IMPACTS TO WETLANDS SHALL BE LIMITED TO THOSE CORRESPONDING TO SLOPES SHOWN ON THE CROSS SECTIONS
- SEE PLAN AND CROSS SECTIONS FOR NEW RIGHT-OF-WAY.

NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\Anoka\ty\1159201\hwy-brdg\hwy\pin-shr\_surcharga\typ\col.dgn 6/9/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph Weaver*  
DATE 5-16-06 REG. NO. 22405

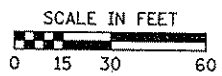
DRAWN BY TJV DATE 5-16-06  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
S.A.P. 02-649-01

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

ANOKA COUNTY  
TYPICAL SECTIONS  
CSAH 49 RECONSTRUCTION

SHEET  
6  
OF  
31

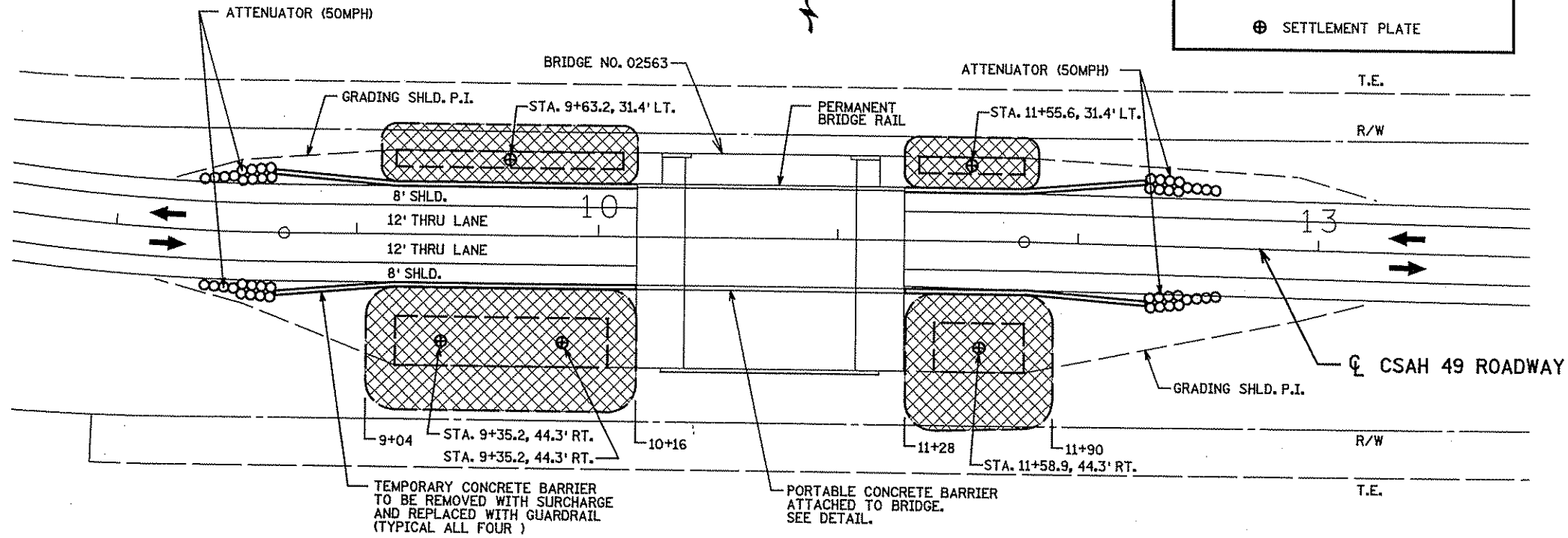


**LEGEND**

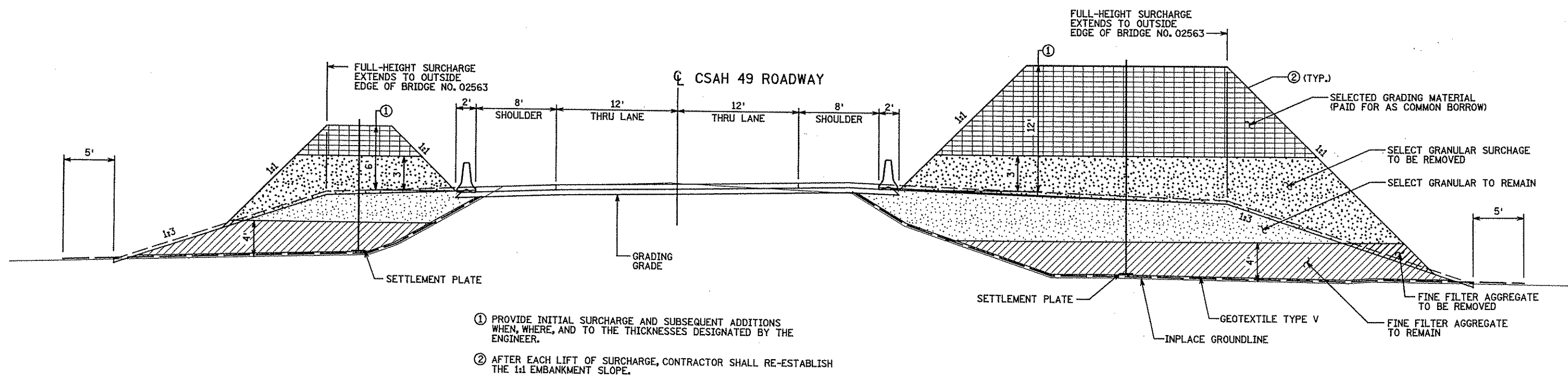
AREA OF SURCHARGE

SETTLEMENT PLATE

STATION	FINE FILTER AGGREGATE		SELECT GRANULAR		SELECTED GRADING	
	END AREA	VOLUME C.Y.	END AREA	VOLUME C.Y.	END AREA	VOLUME C.Y.
9+04	0		0		0	
9+16	8	2	262	58	257	57
9+50	8	10	262	330	257	324
10+04	2	10	267	530	260	518
10+16	0	1	0	60	0	58
11+28	0	3	0	64	0	58
11+40	13	18	287	404	261	367
11+78	13	3	287	64	261	58
11+90	0		0		0	
<b>TOTAL</b>		<b>47</b>		<b>1510</b>		<b>1410</b>



**NOTE:**  
SEE SPECIAL PROVISIONS FOR SURCHARGE INSTALLATION AND MAINTENANCE REQUIREMENTS.



- 1 PROVIDE INITIAL SURCHARGE AND SUBSEQUENT ADDITIONS WHEN, WHERE, AND TO THE THICKNESSES DESIGNATED BY THE ENGINEER.
- 2 AFTER EACH LIFT OF SURCHARGE, CONTRACTOR SHALL RE-ESTABLISH THE 1:1 EMBANKMENT SLOPE.

**TYPICAL SECTION**  
STA. 9+04 TO STA. 10+16  
STA. 11+28 TO STA. 11+90

NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\Anoka Cty\1159201\hwy-brdg\hwy\p1n-shf\_surcharga\surcharga.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

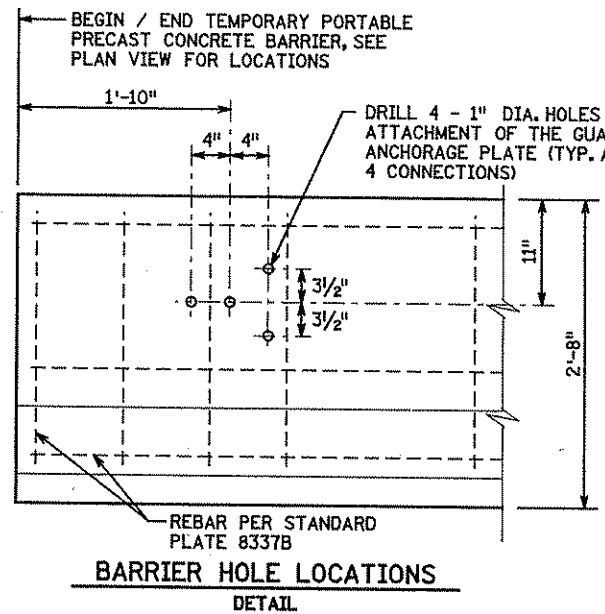
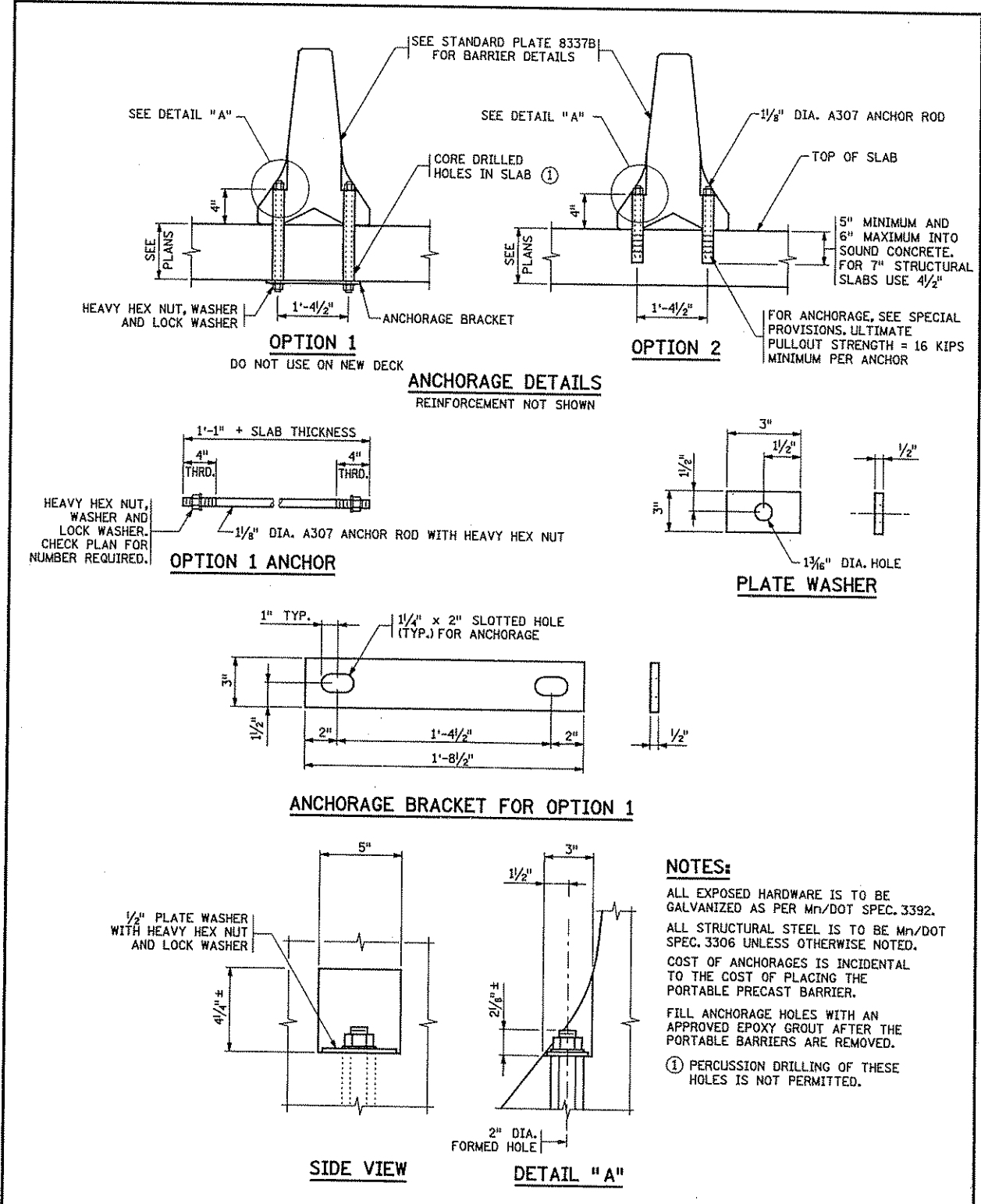
*Joseph Warner*  
DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
S.A.P. 02-649-01

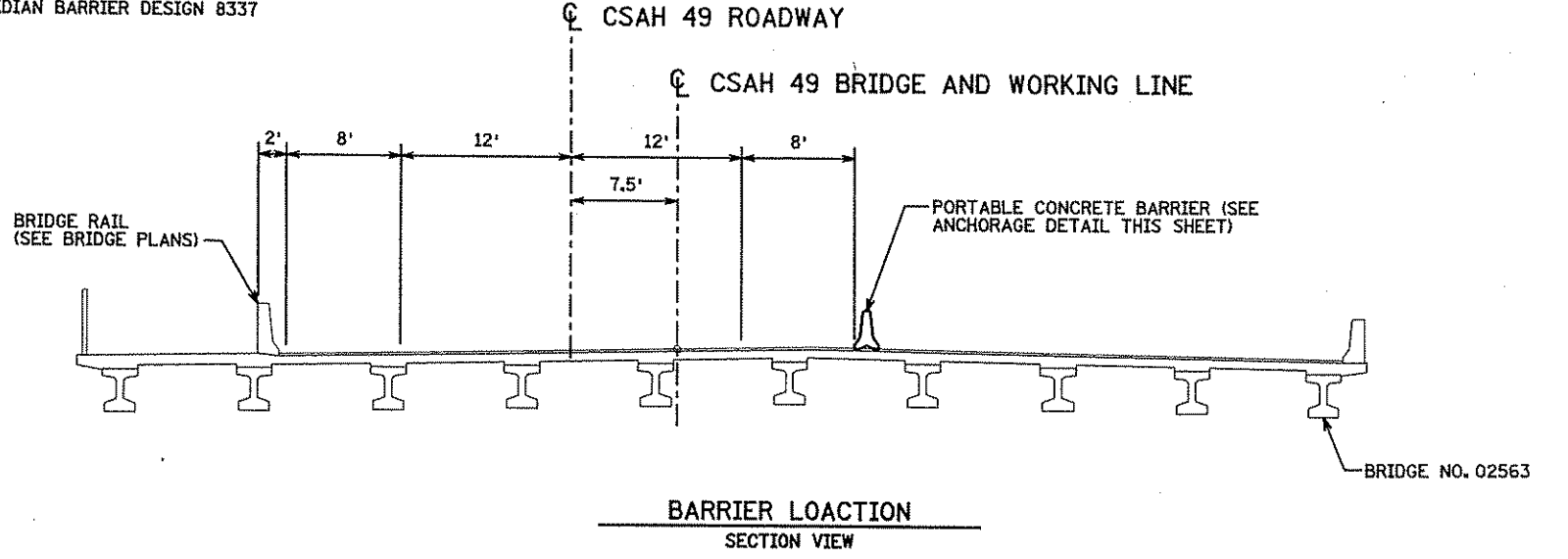
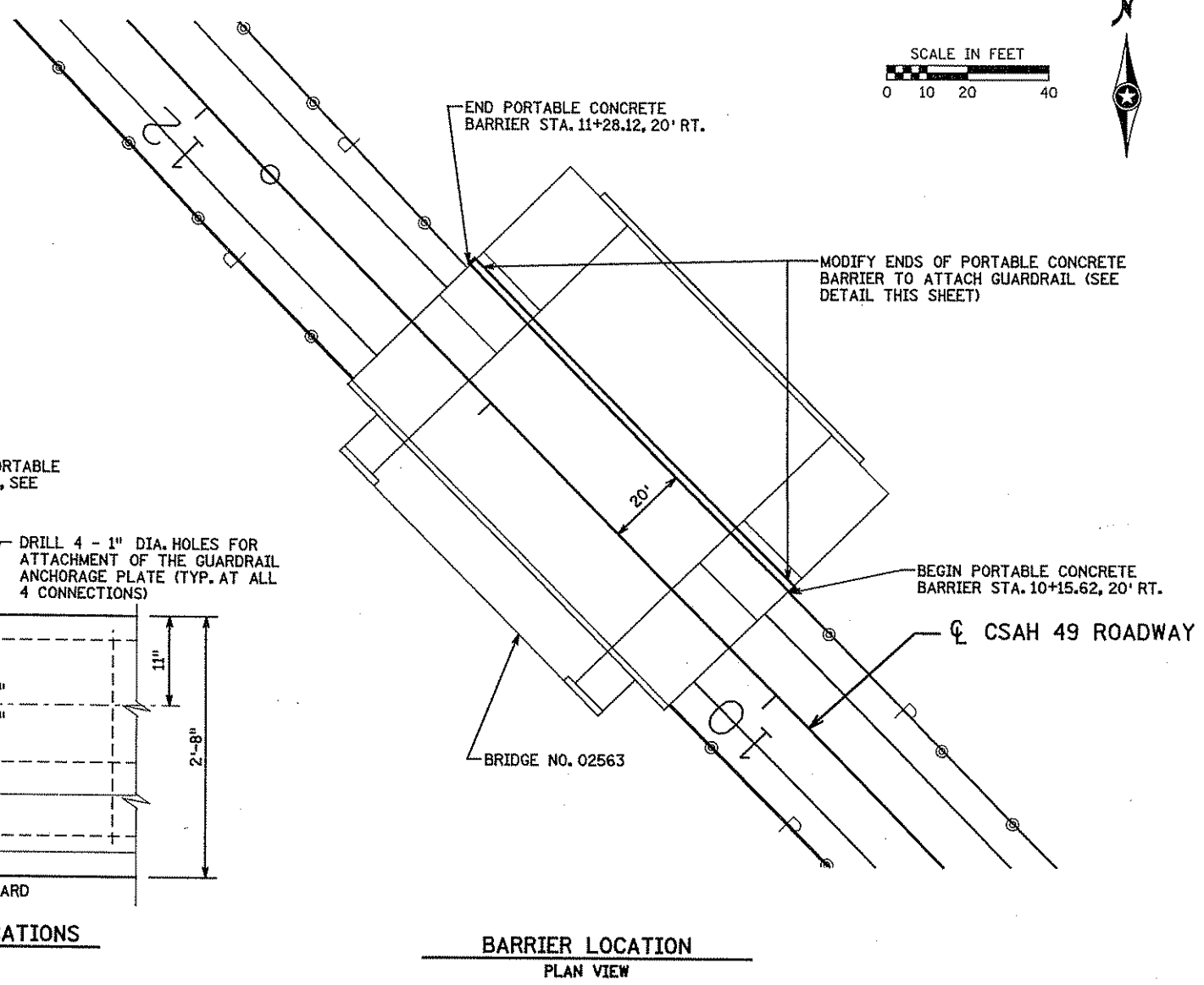
**TKDA**  
TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED  
ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

**ANOKA COUNTY**  
**SURCHARGE PLAN**  
**CSAH 49 RECONSTRUCTION**  
**STA. 9+00 TO 12+00**



**NOTES:**

1. DRILLING OF HOLES TO BE INCIDENTAL TO CONCRETE MEDIAN BARRIER DESIGN 8337



APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 07-29-2003	DETAIL NO. MODIFIED
<i>Daniel J. Bergman</i> STATE BRIDGE ENGINEER	<b>PORTABLE PRECAST BARRIER ANCHORAGE</b> (TEMPORARY USAGE IN LIMITED BARRIER DISPLACEMENT AREAS)		<b>B920</b>

NO	DATE	BY	CHKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\pin-shf\_surcharga\detail104.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. Womack*  
DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
S.A.P. 02-649-01

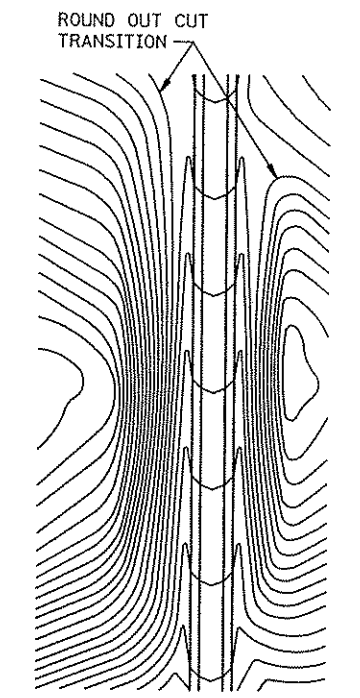
**TKDA**  
TOLTZ, KING, DUVALL, ANDERSON  
AND ASSOCIATES, INCORPORATED  
ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY  
**PORTABLE CONCRETE BARRIER DETAILS**  
CSAH 49 RECONSTRUCTION

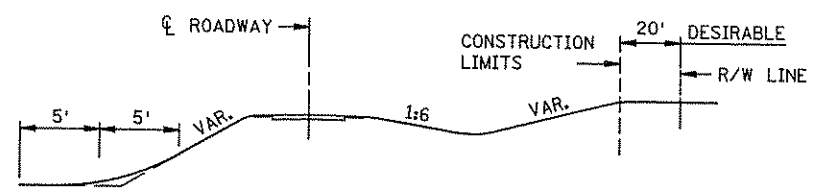
SHEET  
8  
OF  
31



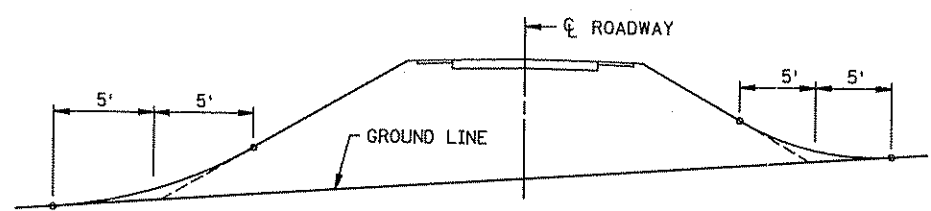
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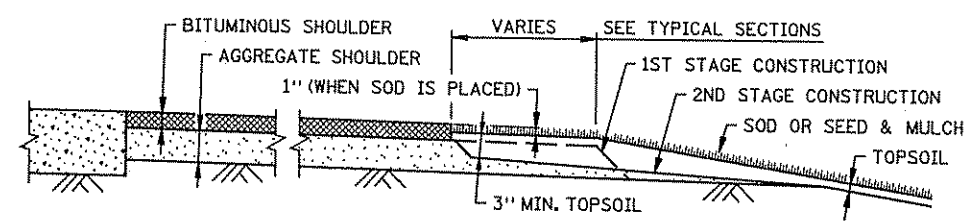
CONTOURING ROAD CUTS



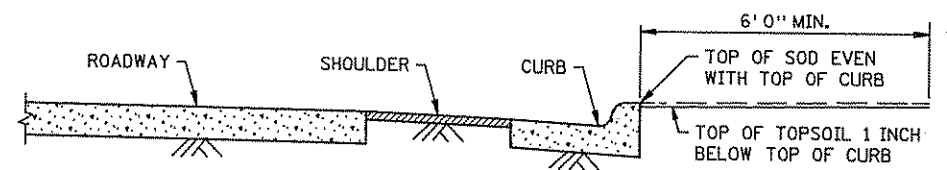
ROUNDING SHOULDERS AND BACKSLOPES



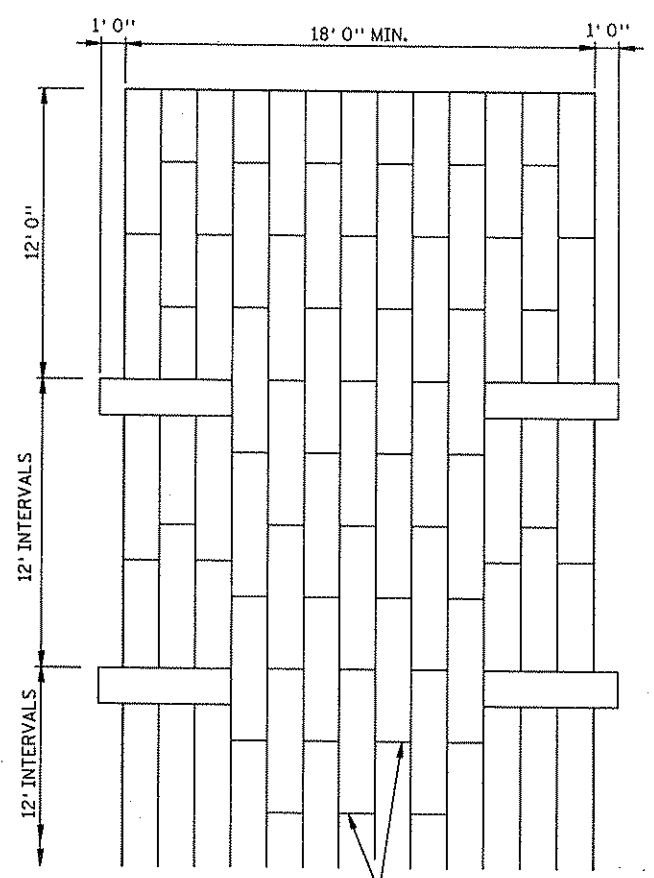
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



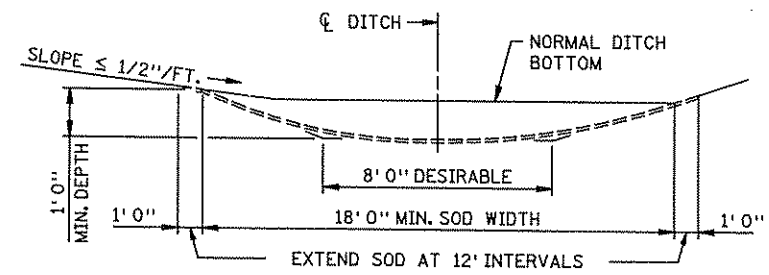
SHAPING AND TOPSOILING INSLOPES



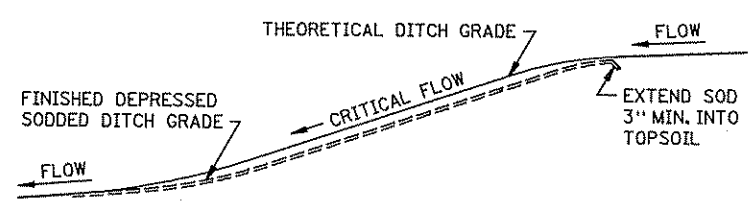
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



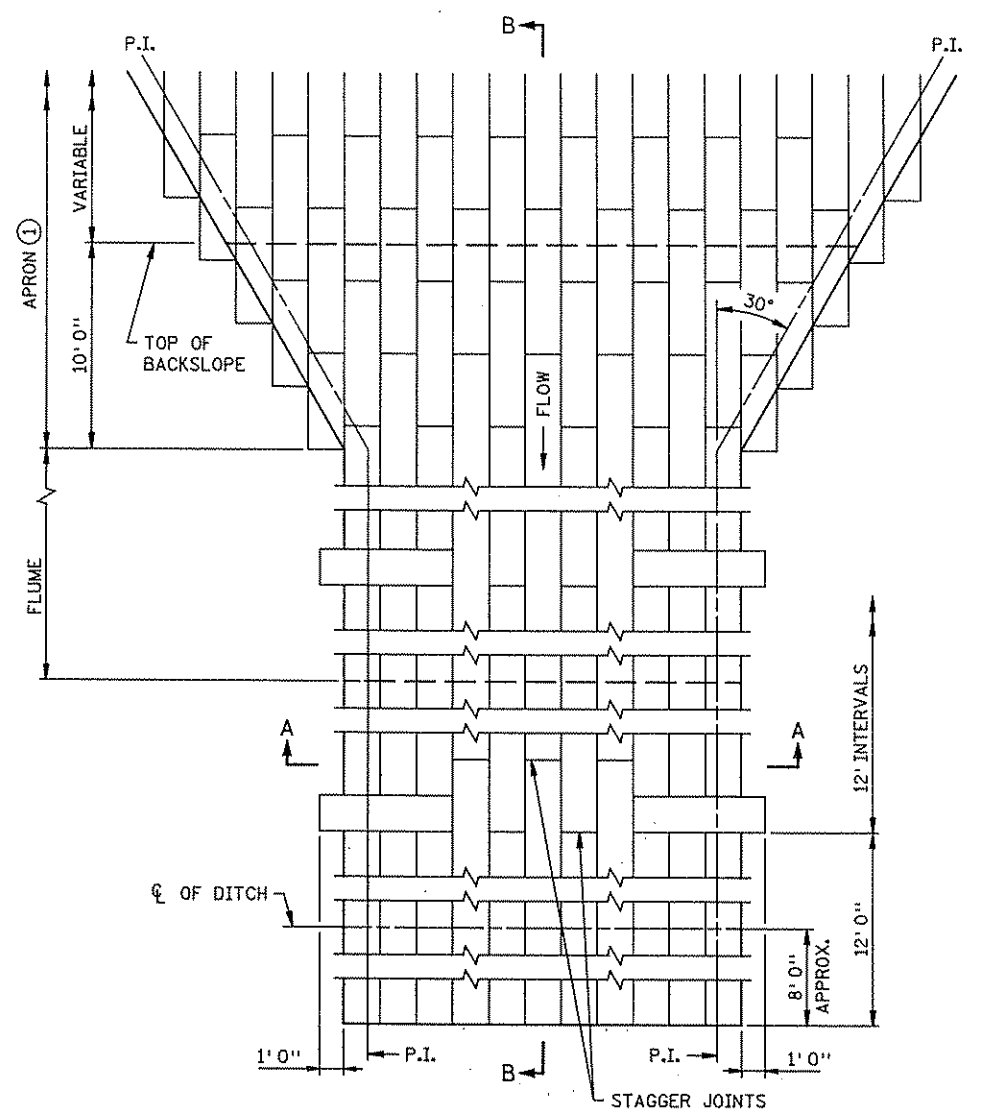
PLAN VIEW



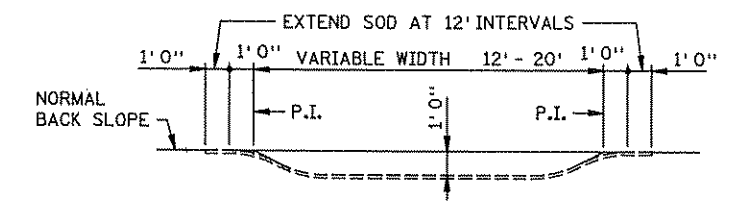
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



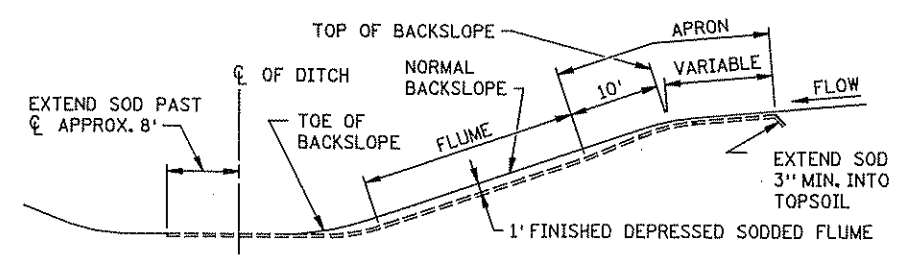
DITCH PROFILE  
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



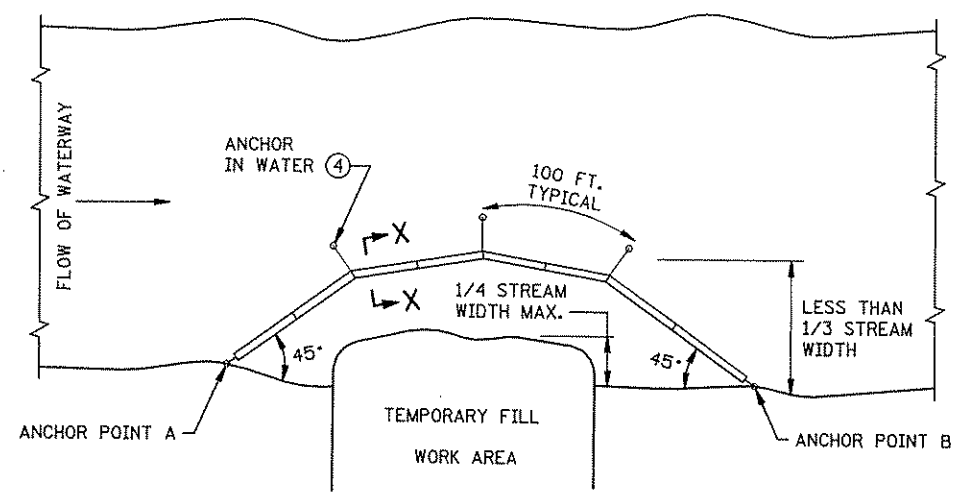
SECTION B-B

SODDED FLUME DETAILS

**NOTES:**  
 SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
 ① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

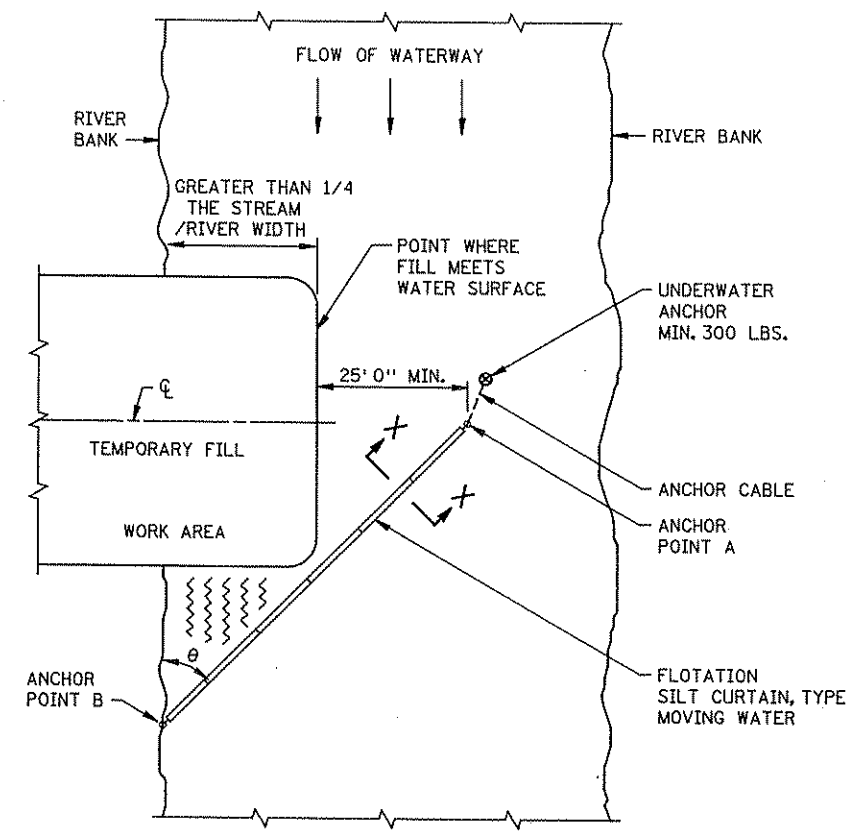
STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: NOVEMBER 20, 2002	
S.A.P. 02-649-01	SHEET NO. 9 OF 31 SHEETS

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 5/30/2006  
 PLOTTED/REVISED:



**PLAN VIEW**  
**FLOTATION SILT CURTAIN - TYPE WORK AREA**  
 (SPEC. 3887)  
 FOR CONTAINING OVERFLOWS FROM WEIRS, STANDPIPES, SETTLING PONDS

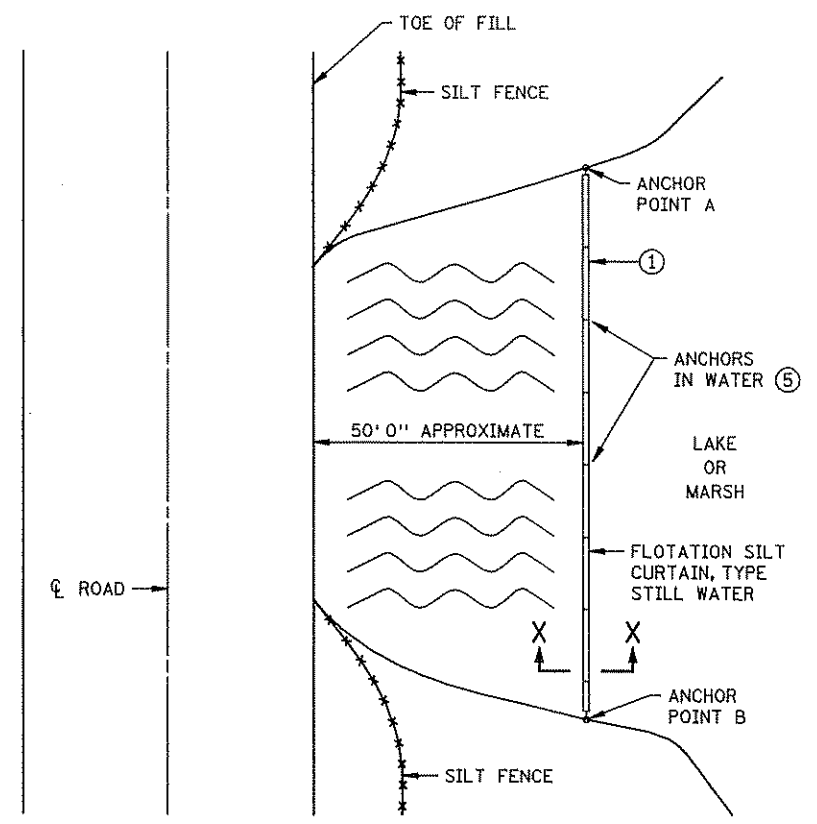
**DESIGN GUIDELINES:**  
 WHEN TEMPORARY FILL ENCLOSES LESS THAN 1/4 OF THE WIDTH OF STREAM.  
 MAXIMUM WATER VELOCITY: 5 FT./SEC.  
 MAXIMUM WATER DEPTH: 11 FT.



$\angle \theta$	RIVER VELOCITY
45°	SLOW, LESS THAN 3 FT./SEC.
35°	MODERATE, 3 - 5 FT./SEC.

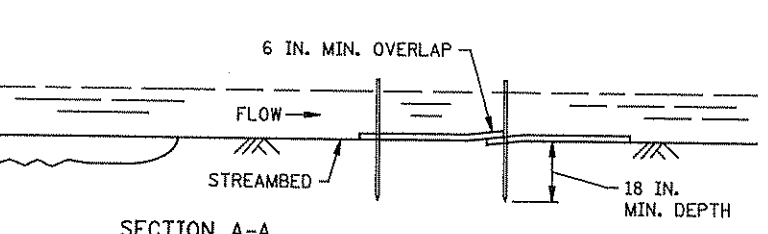
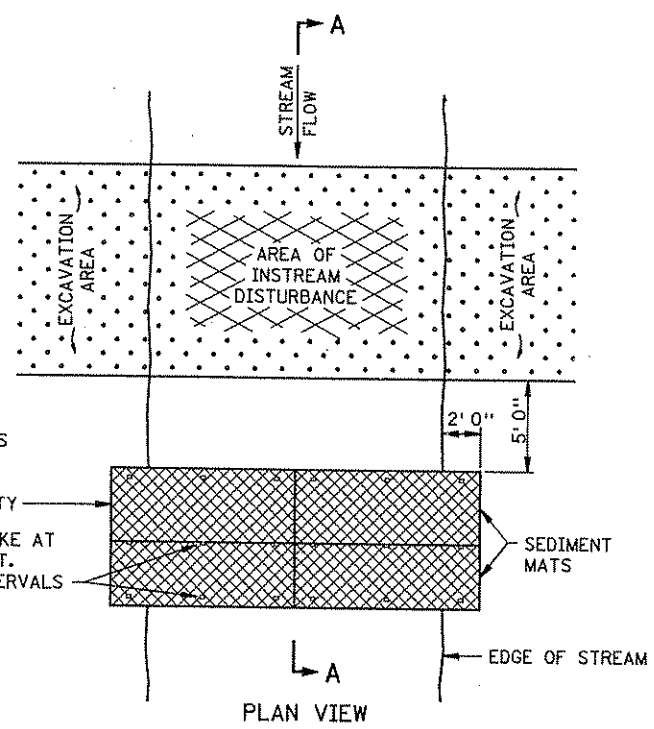
**PLAN VIEW**  
**FLOTATION SILT CURTAIN - TYPE MOVING WATER**  
 (SPEC. 3887)

**DESIGN GUIDELINES:**  
 WHEN TEMPORARY FILL ENCLOSES MORE THAN 1/4 BUT LESS THAN 1/3 WIDTH OF THE STREAM.  
 MAXIMUM WATER DEPTH: 11 FT. ①  
 MINIMUM WATER DEPTH: 3 FT.  
 MAXIMUM WATER VELOCITY: 5 FT./SEC.



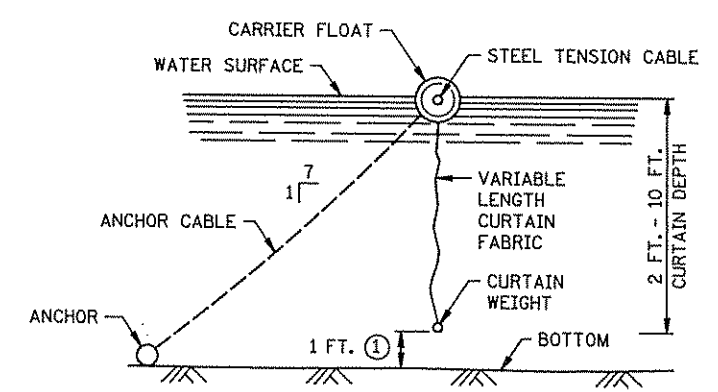
**PLAN VIEW**  
**FLOTATION SILT CURTAIN - TYPE STILL WATER**  
 (SPEC. 3887)

**DESIGN GUIDELINES:**  
 MAXIMUM WATER DEPTH: 11 FT. ①  
 MINIMUM WATER DEPTH: 3 FT.

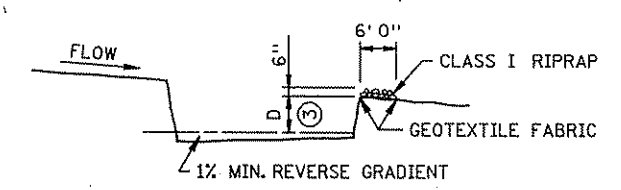
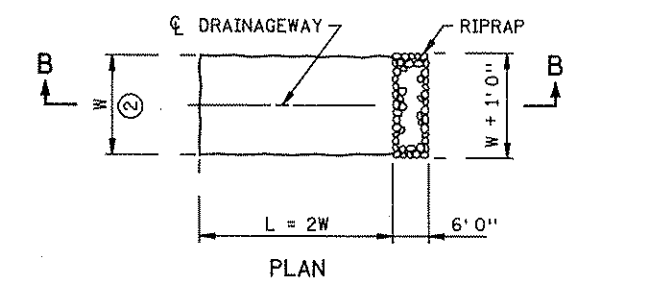


**SECTION A-A**  
**SEDIMENT MAT**  
 (SPEC. 3894)  
 TYPICAL STREAMBED INSTALLATION

**DESIGN GUIDELINES:**  
 MAXIMUM FLOW VELOCITY: 5 FT./SEC.  
 MAXIMUM FLOW DEPTH: 2 FT.



**SECTION X-X**  
**FLOTATION SILT CURTAINS**  
 (SPEC. 3887)

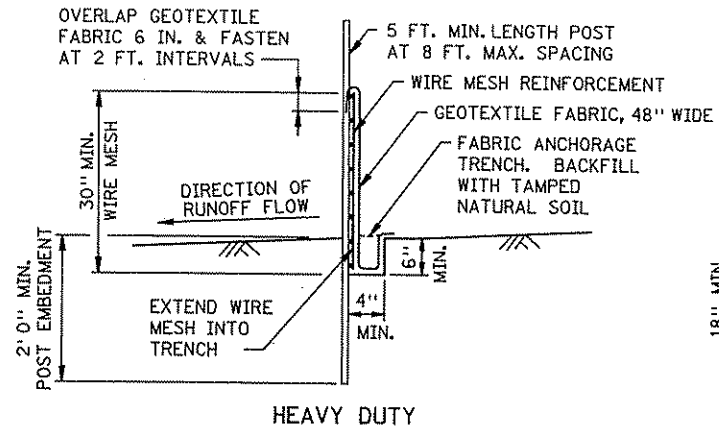


**SECTION B-B**  
**SEDIMENT TRAP DETAIL**  
 (SPEC. 2573)

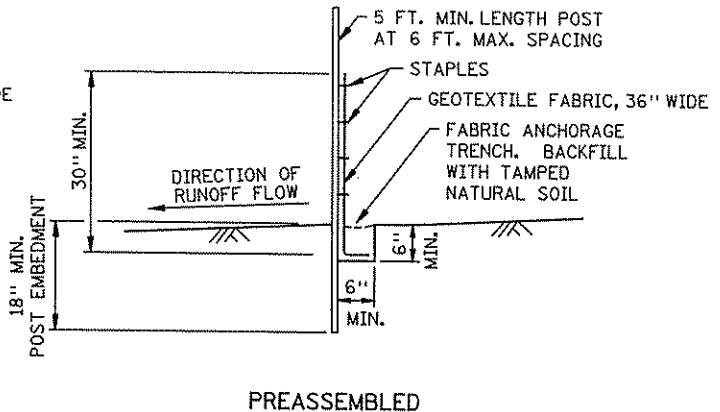
- NOTES:**  
 SEE SPECS. 2573, 3887 & 3894.
- ① CURTAIN 1 FT. FROM BOTTOM
  - ② W = 10 FT. MIN., 20 FT. MAX.
  - ③ D = 2 FT.
  - ④ 100 FT. MAX. SPACING BETWEEN ANCHORS, MIN. 40 LBS.
  - ⑤ USE ENOUGH ANCHORS TO HOLD SILT CURTAIN IN PLACE.

STANDARD SHEET NO. 5-297.405 (1 OF 4)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: July 30, 2001	
S.A.P. 02-649-01	SHEET NO. 10 OF 31 SHEETS

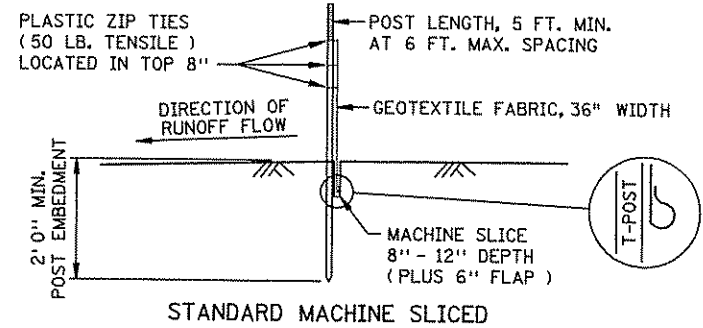
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HEAVY DUTY



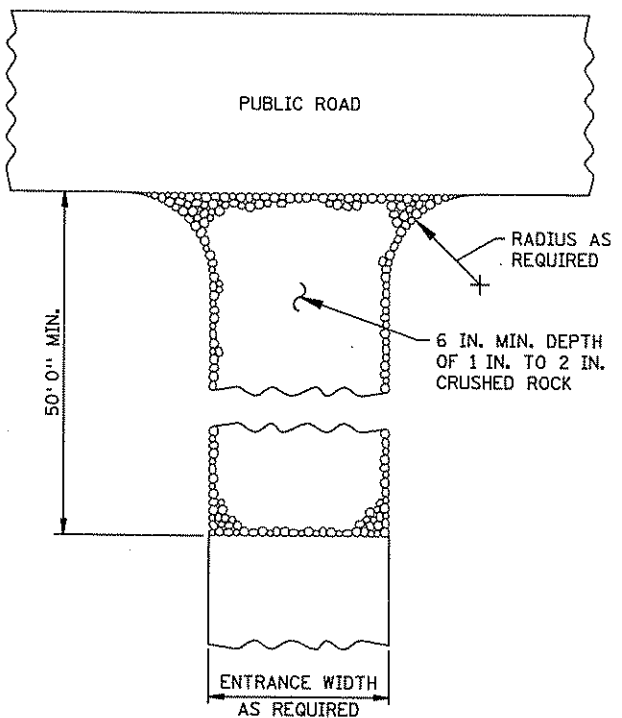
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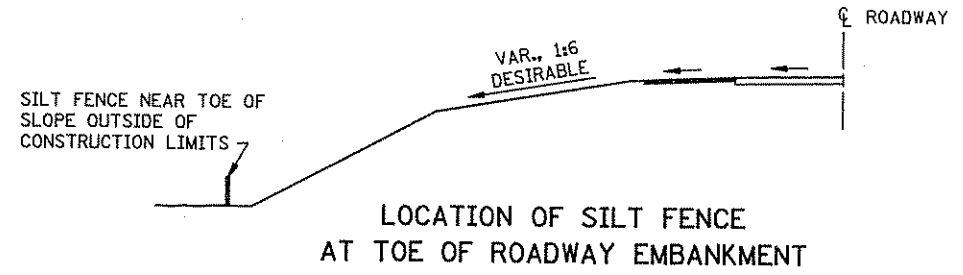
STANDARD MACHINE SLICED

DESIGN GUIDELINES:  
 MAXIMUM CONTRIBUTING AREA: 3 ACRES

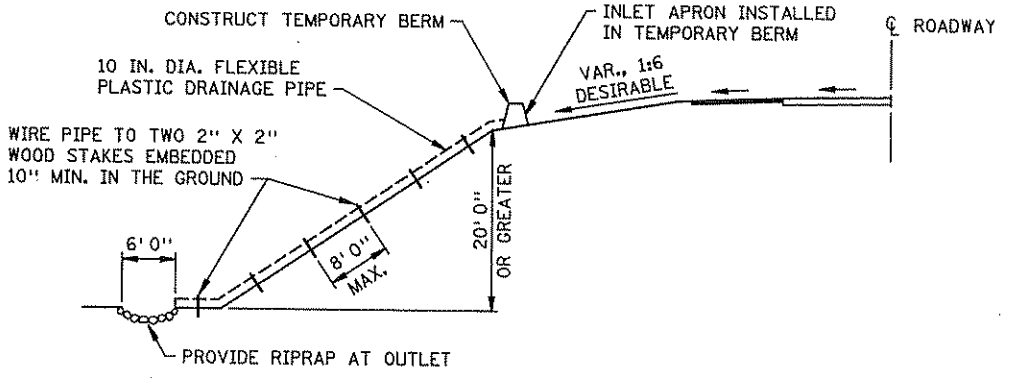
SILT FENCE DETAILS  
 TO PROTECT AREAS FROM SHEET FLOW  
 (SEE SPEC. 3886)



ROCK CONSTRUCTION ENTRANCE ①

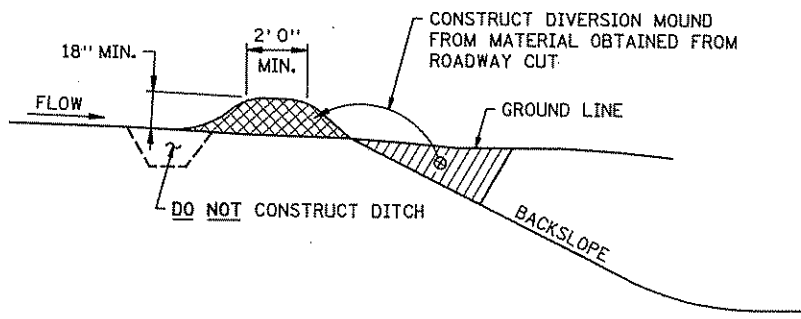


LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



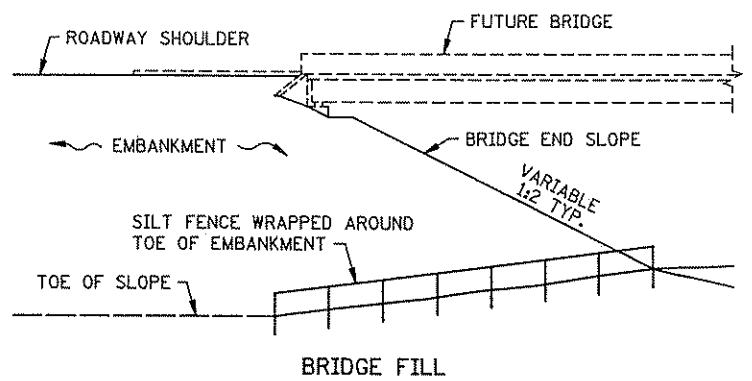
TEMPORARY DRAIN ON FILL SLOPE

DESIGN GUIDELINES:  
 STORM FREQUENCY: 2 YEAR - 24 HOUR  
 MAXIMUM DRAINAGE AREA: 3 ACRES



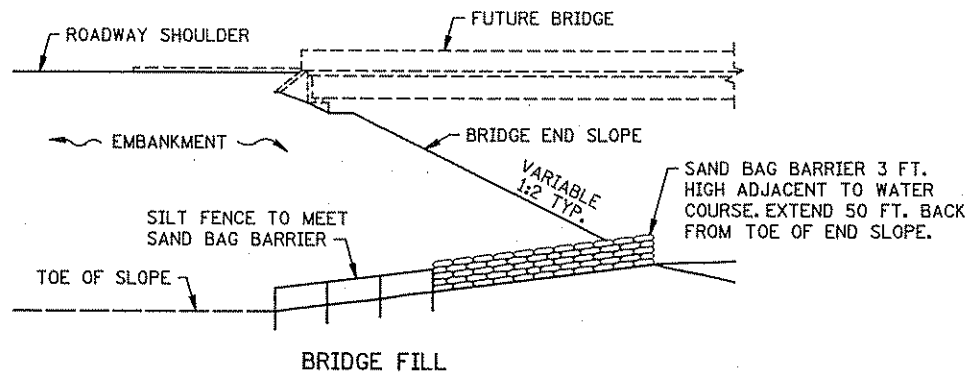
DIVERSION MOUND

DESIGN GUIDELINES:  
 STORM FREQUENCY: 10 YEAR - 24 HOUR  
 MAXIMUM DRAINAGE AREA: 5 ACRES  
 MAXIMUM DIVERSION: GRADE 5%



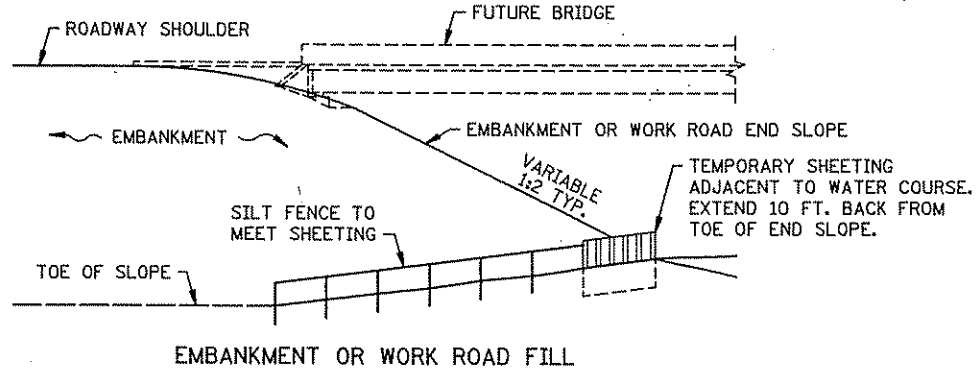
BRIDGE FILL

DESIGN GUIDELINES:  
 WATER COURSE FLOW VELOCITY: STAGNANT  
 CONTRIBUTING SLOPE AREA: 1/2 ACRE



BRIDGE FILL

DESIGN GUIDELINES:  
 MAX. WATER COURSE FLOW VELOCITY: 7 FT./SEC.  
 CONTRIBUTING SLOPE AREA: 1 ACRE



EMBANKMENT OR WORK ROAD FILL

DESIGN GUIDELINES:  
 MAX. WATER COURSE FLOW VELOCITY: 15 FT./SEC.  
 CONTRIBUTING SLOPE AREA: 3 ACRES

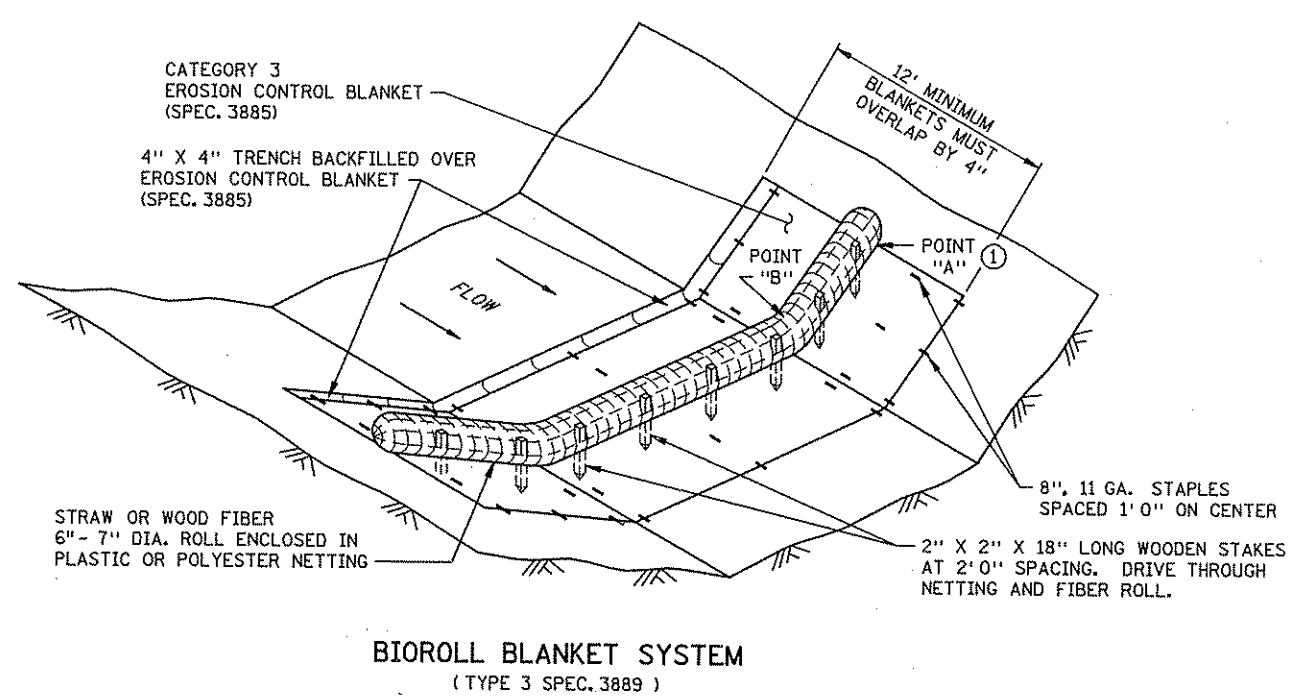
SILT FENCE AT BRIDGE EMBANKMENT

NOTES:  
 SEE SPECS. 2573 & 3886.

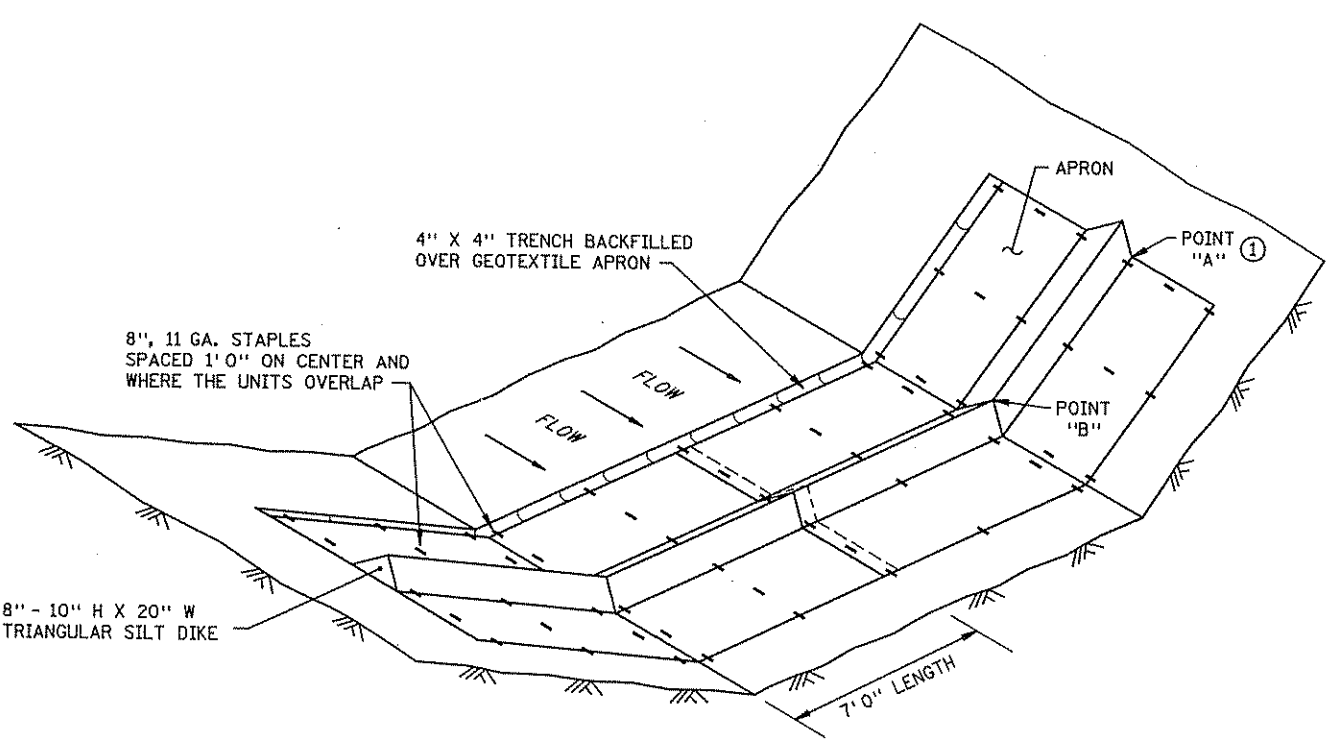
① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE DRIVING ON MAIN ROAD. THIS WILL PREVENT AUTO DAMAGE. WE NEED TO KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS.

STANDARD SHEET NO. 5-297.405 (2 OF 4)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: JULY 30, 2001	
S.A.P. 02-649-01	SHEET NO. 11 OF 31 SHEETS

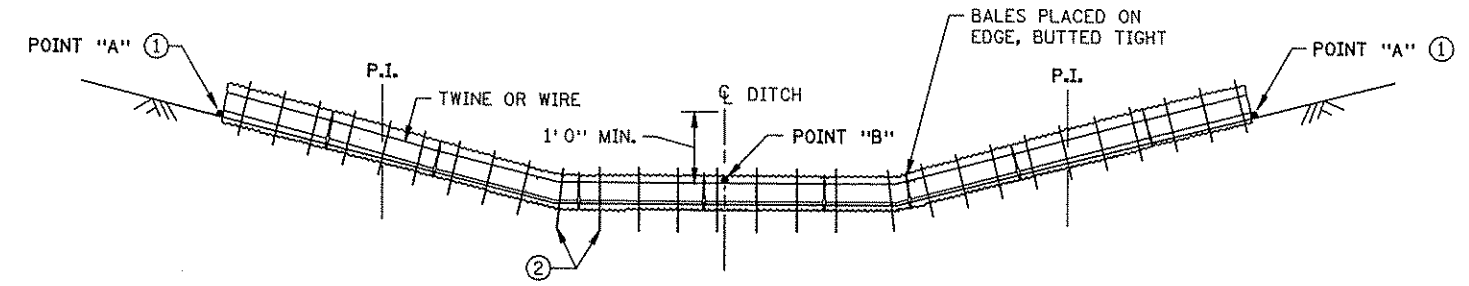
I P L O T N A M E : s s @ I P L O T N A M E @ s s  
 P A T H & F I L E N A M E : \\o-f\anokoc\ty\1159201\hwy-brdg\hwy\p\in-sht\_sur\char\ge\4053k02.sps  
 P L O T T E D / R E V I S E D : 5 / 3 0 / 2 0 0 6  
 F I L E N A M E : S 4 0 5 3 K 0 2 . S P N



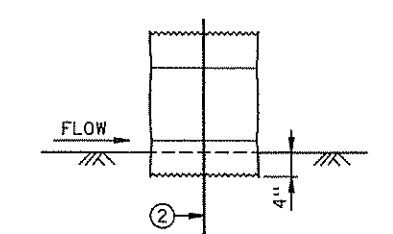
**BIOROLL BLANKET SYSTEM**  
(TYPE 3 SPEC. 3889)



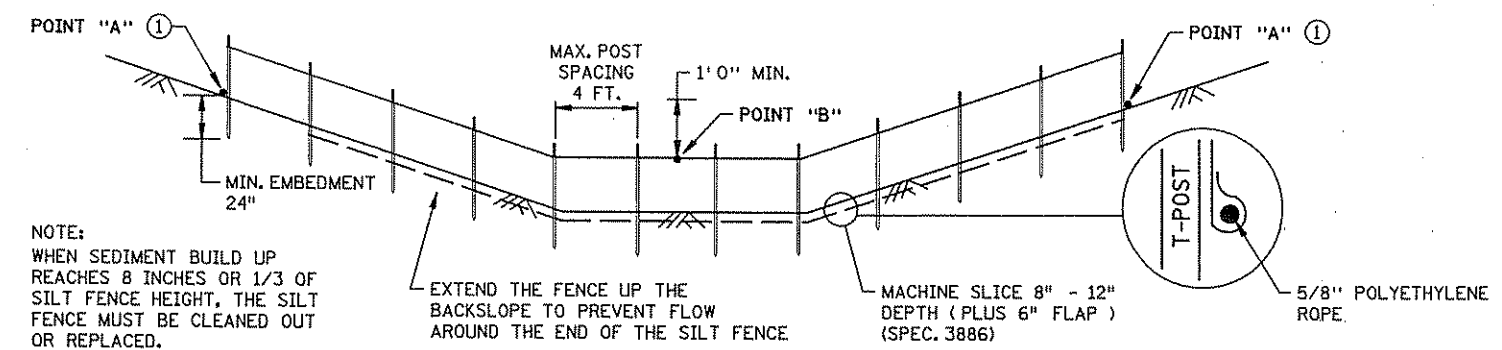
**GEOTEXTILE TRIANGULAR DIKE**  
(TYPE 6 SPEC. 3889)



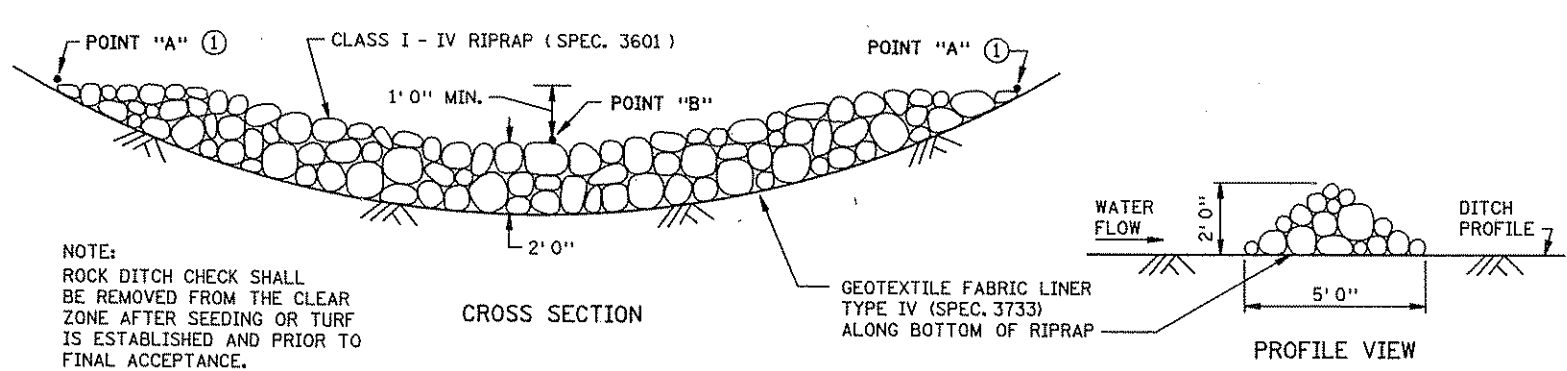
**BALE DITCH CHECK**  
(USED ON ROUGH GRADED SOIL. REMOVE AFTER ROUGH GRADING IS COMPLETED. CAN BE USED AT WETLAND PERIMETERS ANYTIME)



**EMBEDMENT METHOD BALE CHECK DETAIL**



**MACHINE SLICED SILT FENCE**  
(TYPE 1 SPEC. 3889)



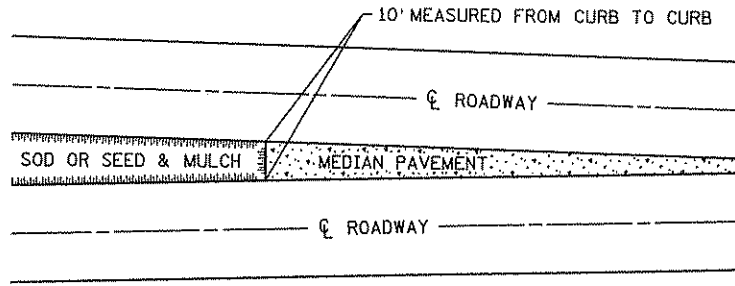
NOTE:  
 ROCK DITCH CHECK SHALL BE REMOVED FROM THE CLEAR ZONE AFTER SEEDING OR TURF IS ESTABLISHED AND PRIOR TO FINAL ACCEPTANCE.

**ROCK CHECK**  
(TYPE 7 SPEC. 3889)

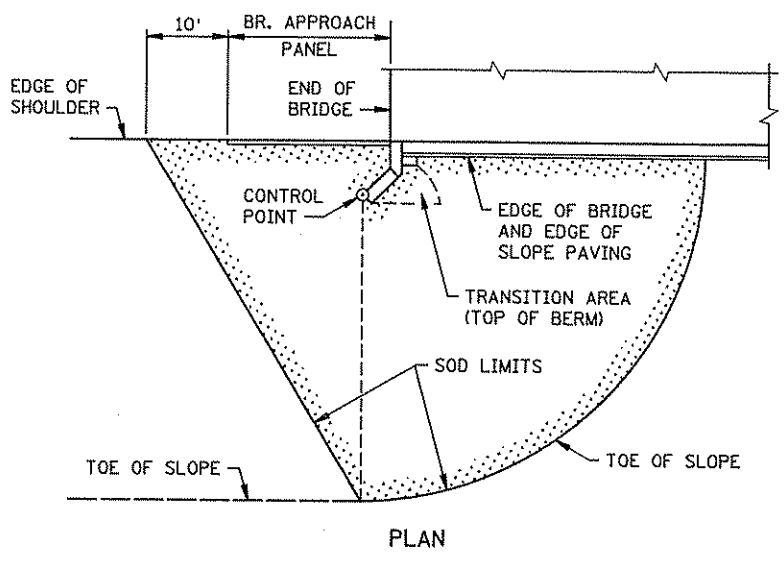
**NOTES:**  
 SEE SPECS. 2573, 3882, 3885, 3886 & 3889.  
 SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM SPACING FORMULA:  

$$\text{SPACING OF DITCH CHECKS (FT)} = \left( \frac{\text{HEIGHT OF DITCH CHECK (FT)} \times 100}{\text{DITCH GRADE IN PERCENT}} \right)$$
 ① POINT A MUST BE 1' 0" MIN. HIGHER THAN POINT B TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.  
 ② TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10 IN. MINIMUM.

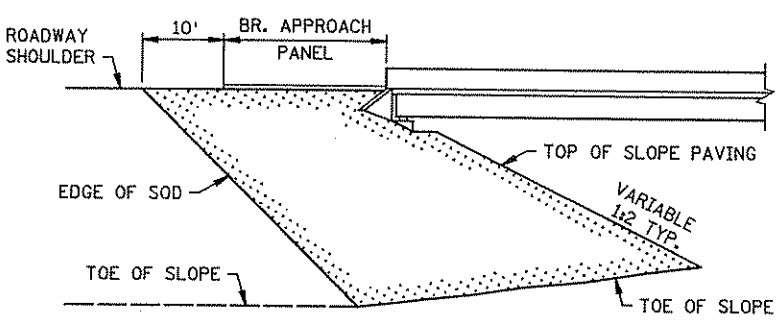
STANDARD SHEET NO. 5-297.405 (3 OF 4)	TITLE: <b>TEMPORARY EROSION CONTROL DITCH CHECKS</b>
STANDARD APPROVED: NOVEMBER 5, 2002	
S.A.P. 02-649-01	SHEET NO. 12 OF 31 SHEETS



SODDING LIMITS AT GORE AREA

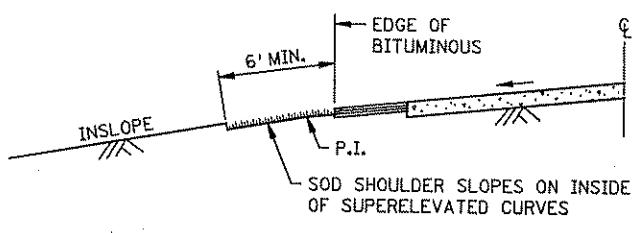


PLAN

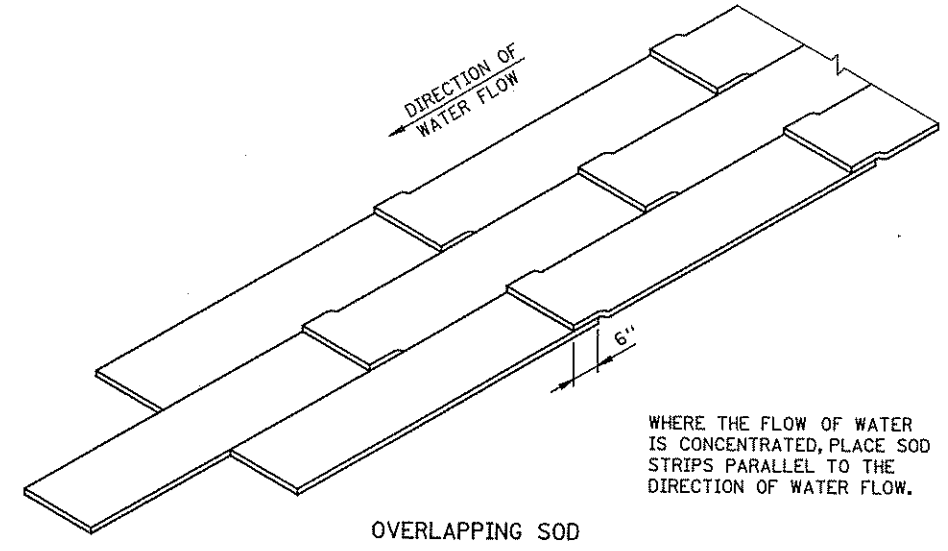


ELEVATION

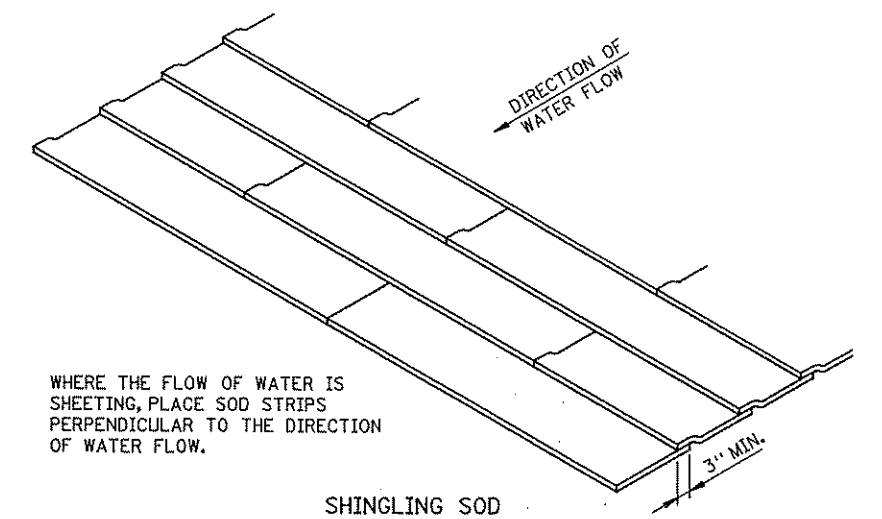
SODDING LIMITS AT BRIDGE APPROACH FILLS



SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

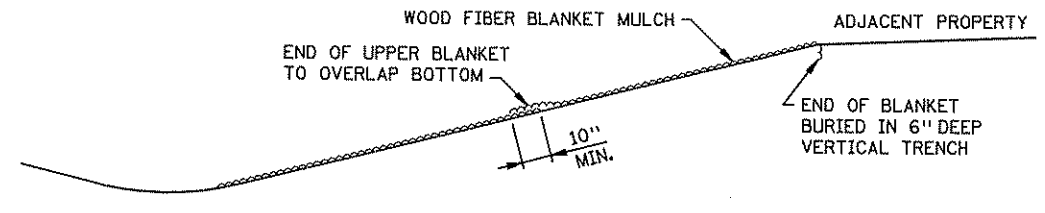


SHINGLING SOD

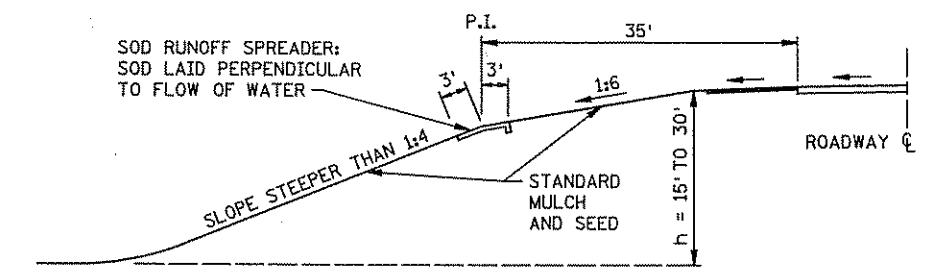
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

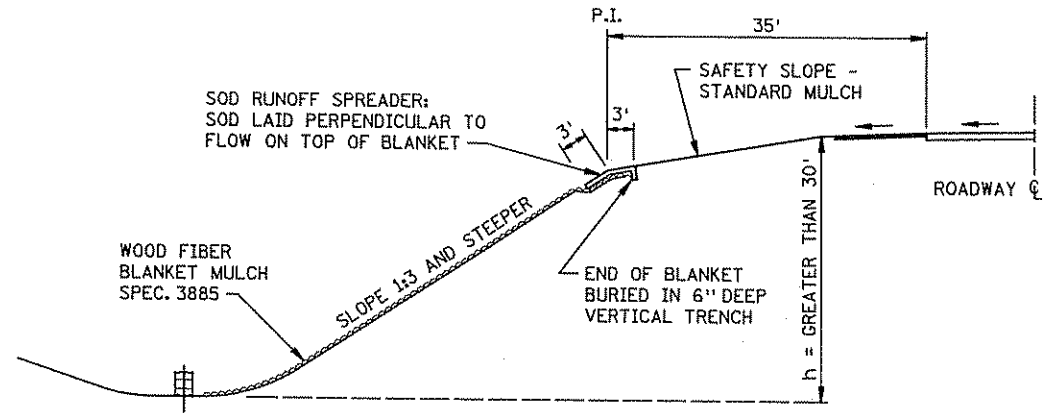
SPECIAL SOD PLACEMENT TECHNIQUES



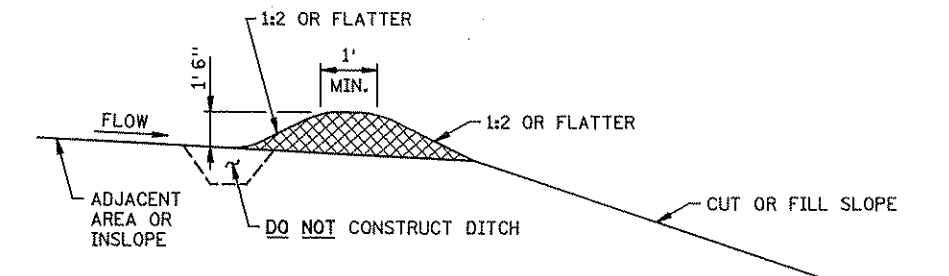
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE

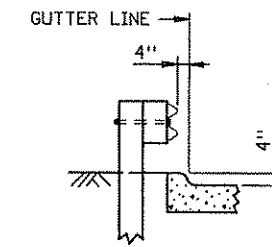
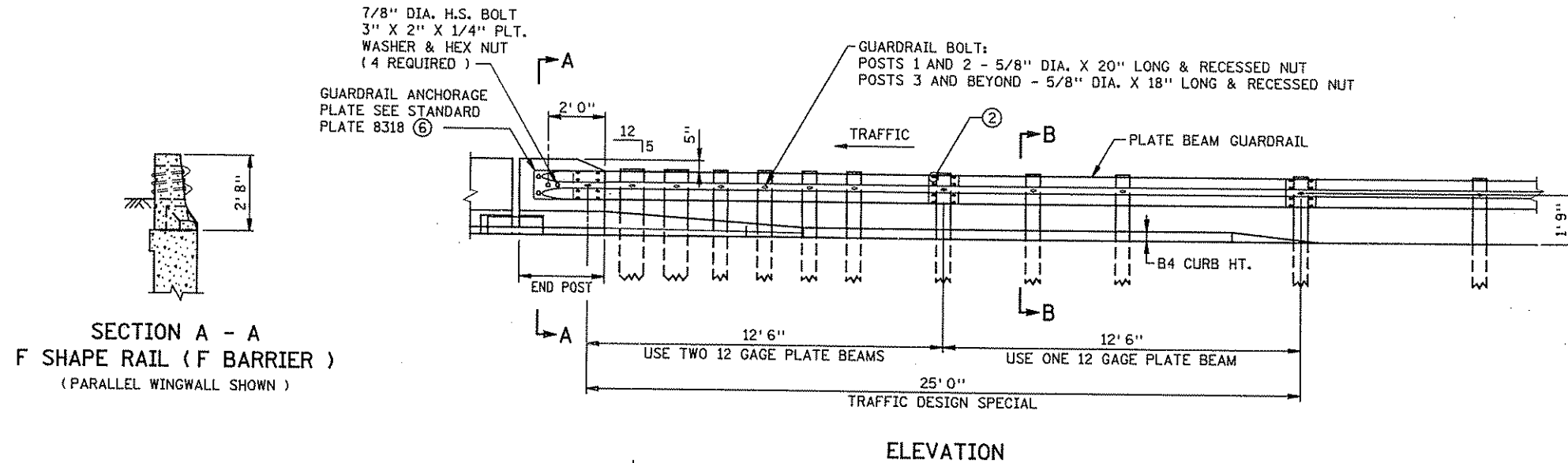
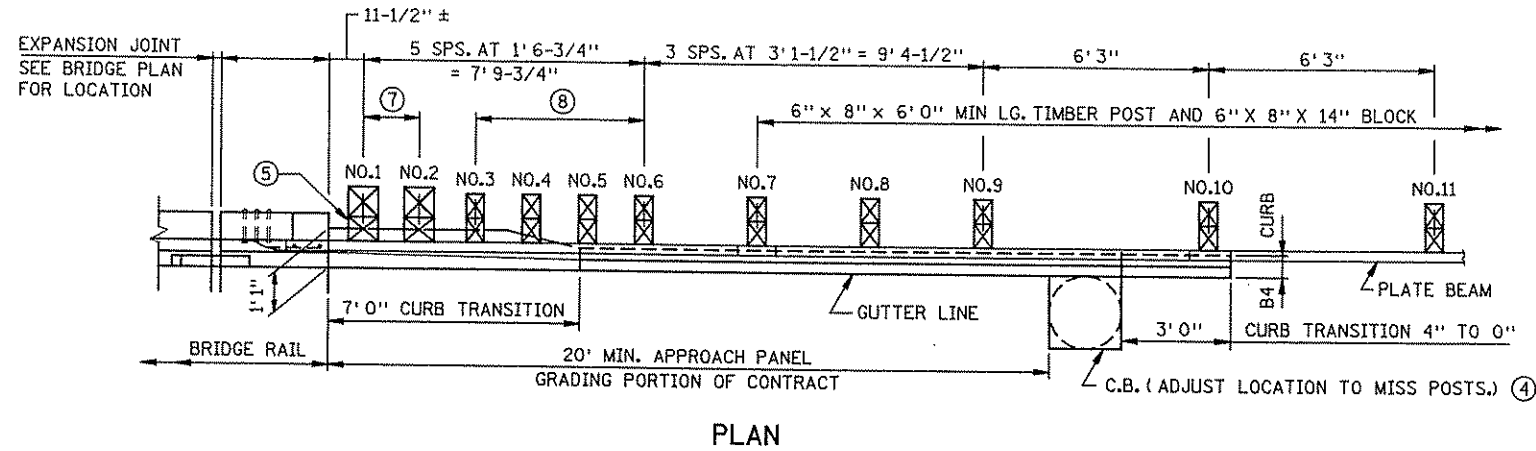


WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)

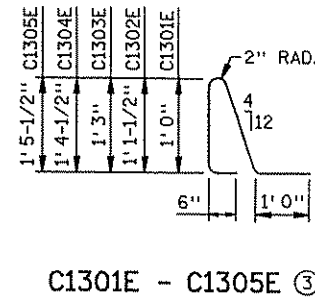
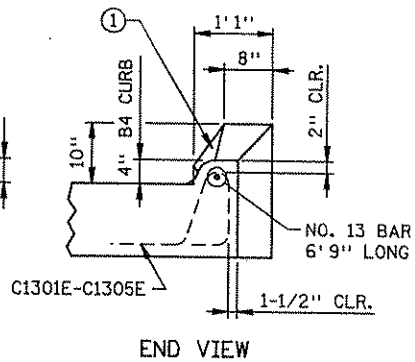
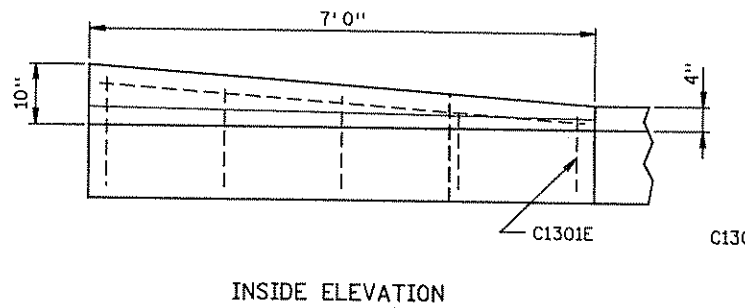
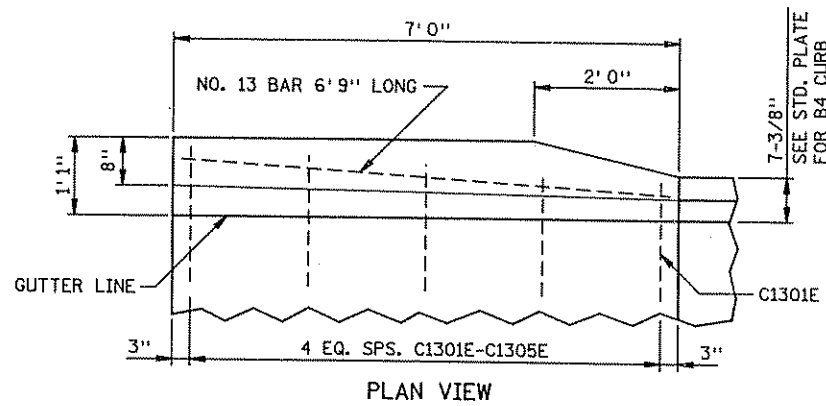


PERMANENT SLOPE PROTECTION DIKE

STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL
STANDARD APPROVED: JANUARY 31, 1985	ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
REVISION DATE 10-26-2000	SHEET NO. 13 OF 31 SHEETS
S.A.P. 02-649-01	



SECTION A - A  
F SHAPE RAIL ( F BARRIER )  
( PARALLEL WINGWALL SHOWN )



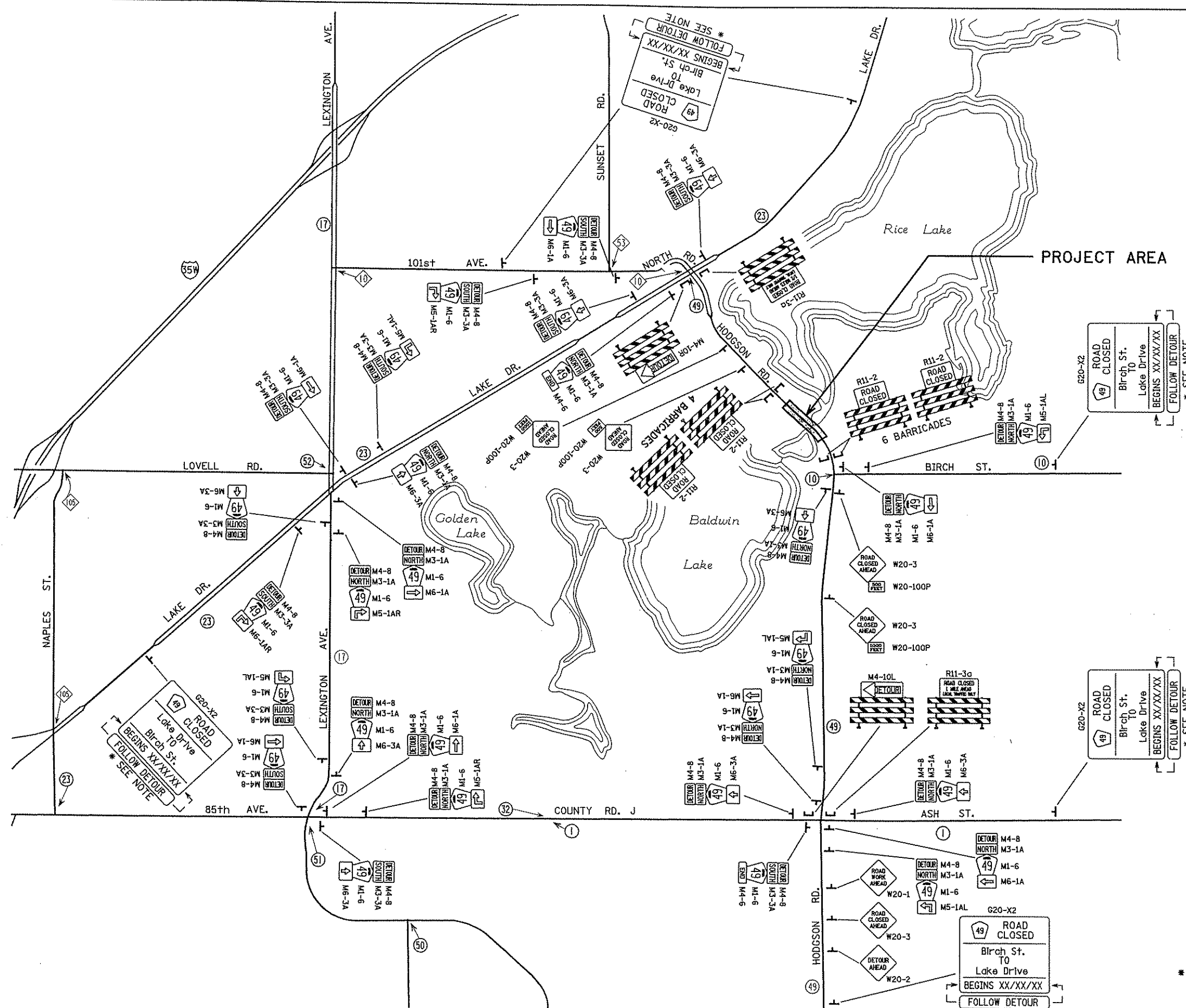
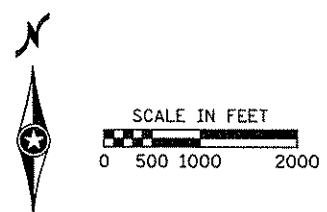
NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

- ① END OF TRANSITION TO MATCH BRIDGE RAIL SURFACE.
- ② 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
- ③ REINFORCEMENT TO BE EPOXY COATED AS PER SPEC. 3301.
- ④ SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
- ⑤ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.
- ⑥ SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.
- ⑦ POSTS 1 AND 2 TO BE 10" X 10" X 8'0" MINIMUM LONG TIMBER POST AND 10" X 8" X 14" BLOCK.
- ⑧ POSTS 3, 4, 5, AND 6 TO BE 6" X 8" X 7'0" MINIMUM LONG TIMBER POST AND 6" X 8" X 14" BLOCK.

TRAFFIC BARRIER DESIGN SPECIAL

STANDARD SHEET NO. 5-297.605	TITLE: NEW W-BEAM TRANSITION TO CONCRETE F-SHAPE SAFETY RAIL WITH APPROACH CURB ( WOOD POST )
STANDARD APPROVED: APRIL 19, 2001	
REVISION DATE 10-05-01	S.A.P. 02-649-01
SHEET NO. 14 OF 31 SHEETS	



**NOTE:**  
 \*INSTALL 10 DAYS PRIOR TO CLOSURE.  
 AT THE TIME OF CLOSURE, CHANGE  
 BOTTOM PANEL TO: "FOLLOW DETOUR"

NO	DATE	BY	CHKD	APPR	REVISION
NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-shft_surcharga\detour.dgn					
5/30/2006					

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph Womack*  
 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

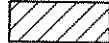
STATE PROJECT NO.  
 S.A.P. 02-649-01


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

**ANOKA COUNTY**  
 DETOUR PLAN / TRAFFIC CONTROL  
 CSAH 49 RECONSTRUCTION


**SHEET**  
 15  
 OF  
 31

**LEGEND**

 REMOVE BITUMINOUS PAVEMENT

 CLEAR AND GRUB (TREE)

- NOTES:
1. ALL UTILITY LOCATIONS ARE APPROXIMATE AND MUST BE VERIFIED BY THE CONTRACTOR
  2. THE EXACT LIMITS OF CLEARING AND GRUBBING WILL BE STAKED IN THE FIELD
  3. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE

SCALE IN FEET  
  
 0 25 50 100



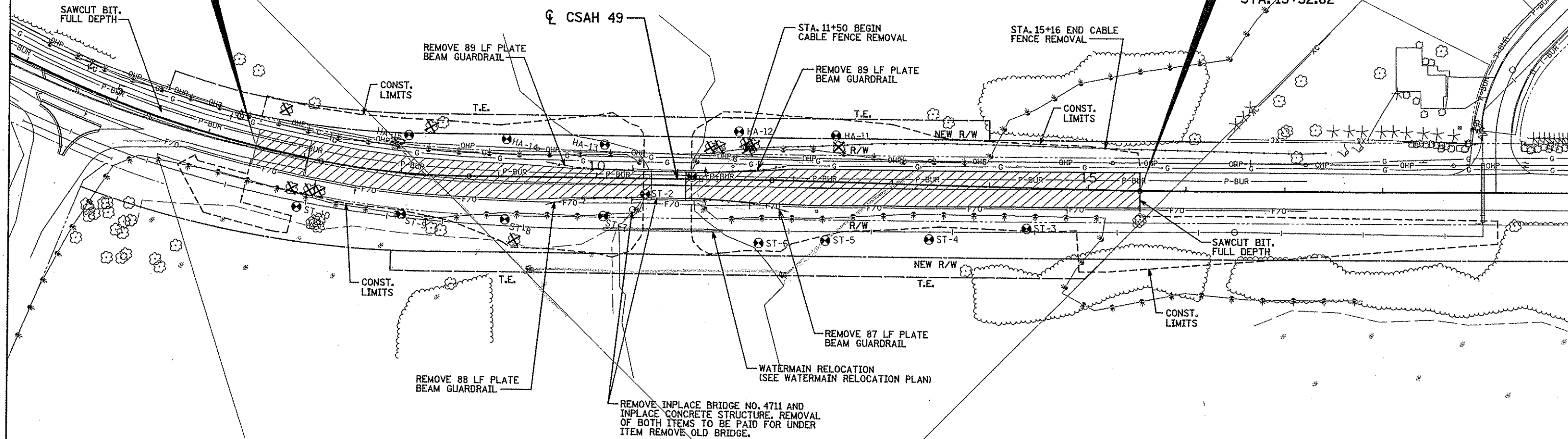
**BEGIN CONSTRUCTION**  
 CSAH 49 ROADWAY  
 S.A.P. 02-649-01  
 STA. 6+50.00

**END CONSTRUCTION**  
 CSAH 49 ROADWAY  
 S.A.P. 02-649-01  
 STA. 15+52.62

BALDWIN LAKE

CSAH 49

RICE LAKE



NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-shf\_surchargo\topo.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. W...*  
 DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
 S.A.P. 02-649-01

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

ANOKA COUNTY  
 INPLACE TOPOGRAPHY AND REMOVALS PLAN  
 CSAH 49 RECONSTRUCTION  
 STA. 6+50 TO 15+53

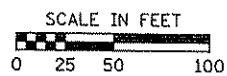
SHEET  
 16  
 OF  
 31



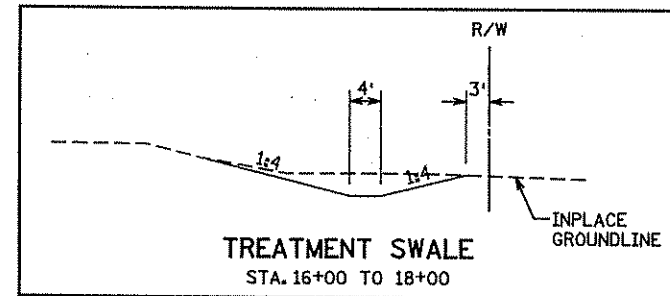
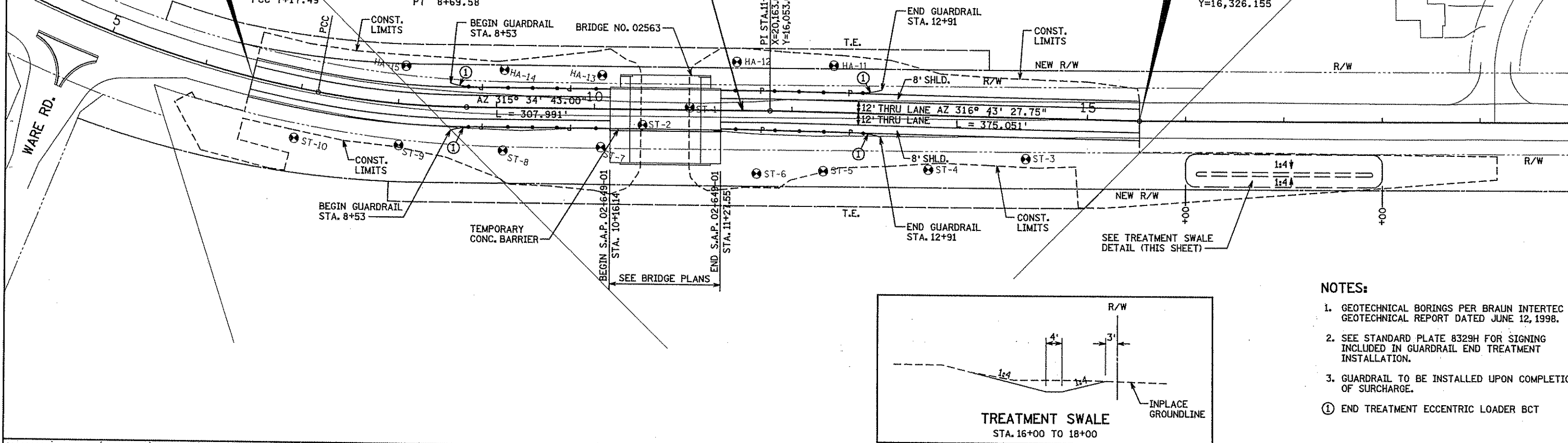
BEGIN CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 6+50.00  
X=20,511.097  
Y=15,658.675

CURVE P 49-1  
PI 3+71.62  
X 20,682.079  
Y 15,410.260  
A 35° 02' 24.05" (LT)  
D 4° 54' 05.15"  
T 369.020'  
L 714.893'  
R 1,168.960'  
PC 0+02.80  
PCC 7+17.49

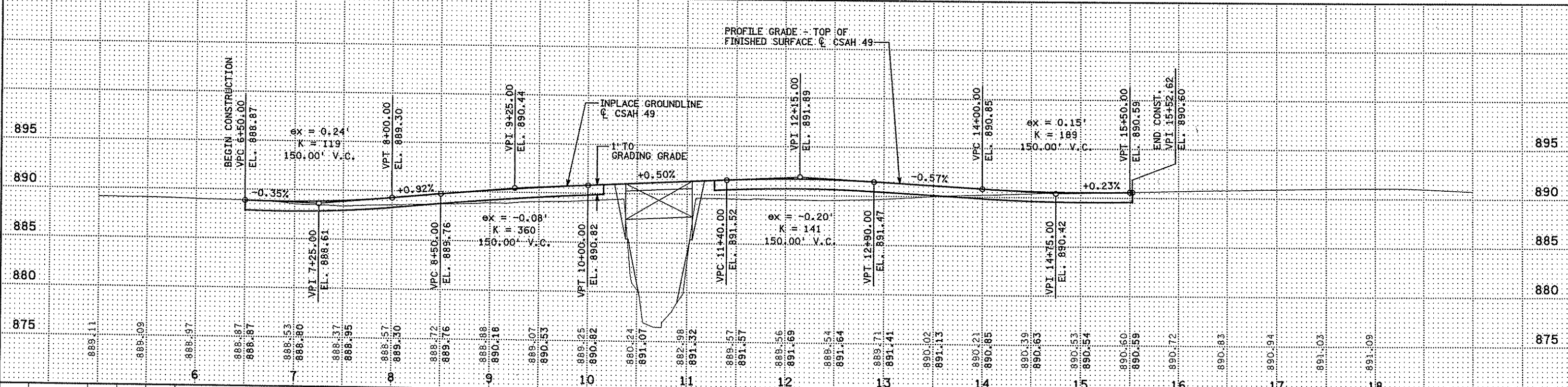
CURVE P 49-2  
PI 7+93.74  
X 20,431.997  
Y 15,778.665  
A 10° 15' 06.53" (LT)  
D 6° 44' 26.45"  
T 76.248'  
L 152.089'  
R 850.000'  
PC 7+17.49  
PT 8+69.58



END CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 15+52.62  
X=19,905.957  
Y=16,326.155



- NOTES:**
1. GEOTECHNICAL BORINGS PER BRAUN INTERTEC GEOTECHNICAL REPORT DATED JUNE 12, 1998.
  2. SEE STANDARD PLATE 8329H FOR SIGNING INCLUDED IN GUARDRAIL END TREATMENT INSTALLATION.
  3. GUARDRAIL TO BE INSTALLED UPON COMPLETION OF SURCHARGE.
- ① END TREATMENT ECCENTRIC LOADER BCT



NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\In-sht\_surcharge\const.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. W...*  
DATE 5-16-06 REG. NO. 22405

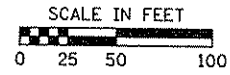
DRAWN BY TJV DATE 5-16-06  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO. \_\_\_\_\_  
S.A.P. 02-649-01

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

ANOKA COUNTY  
CONSTRUCTION PLAN AND PROFILE  
CSAH 49 RECONSTRUCTION  
STA. 6+50 TO 15+53

SHEET 17 OF 31

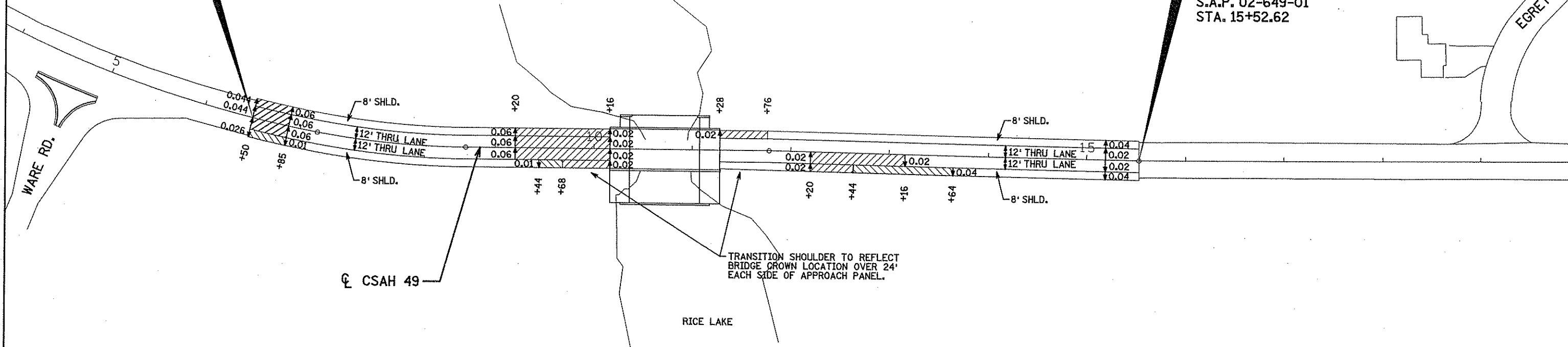


BEGIN CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 6+50.00

END CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 15+52.62

BALDWIN LAKE

EGRET LA.



CSAH 49

TRANSITION SHOULDER TO REFLECT  
BRIDGE CROWN LOCATION OVER 24'  
EACH SIDE OF APPROACH PANEL.

RICE LAKE

NO	DATE	BY	CHKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-shf\_surchargo\super.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph Whelan*  
DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06

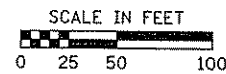
STATE PROJECT NO.  
S.A.P. 02-649-01

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

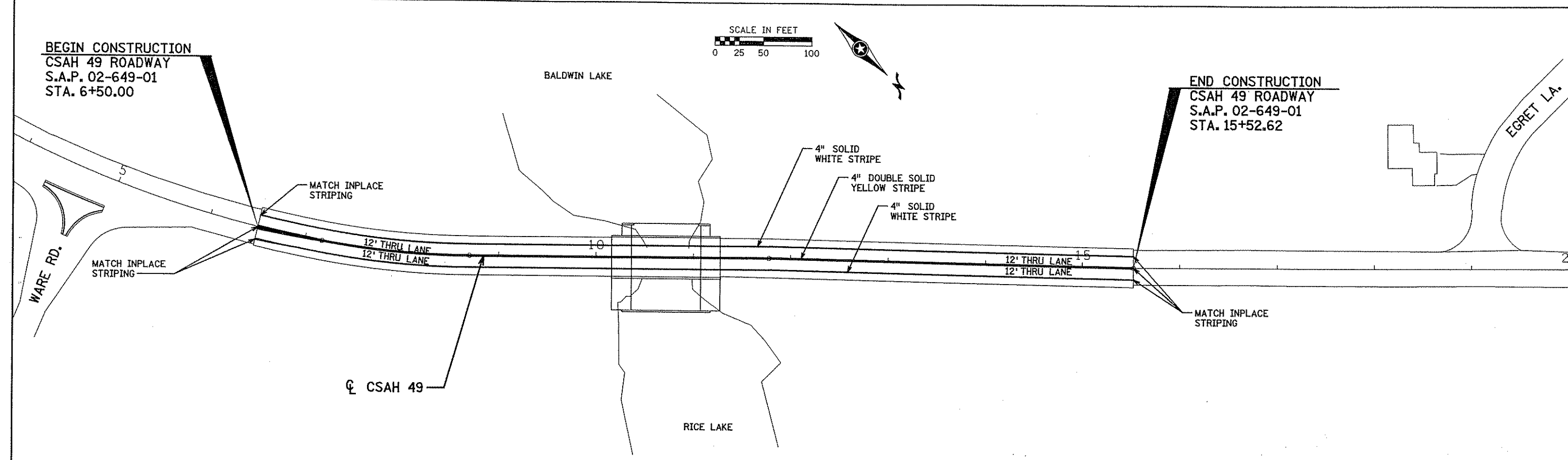
ANOKA COUNTY  
SUPERELEVATION PLAN  
CSAH 49 RECONSTRUCTION  
STA. 6+50 TO 15+53

SHEET  
18  
OF  
31

BEGIN CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 6+50.00



END CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 15+52.62



**GENERAL REQUIREMENTS**

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD SPOTTING, LOCATION AND INSPECTION. THE ENGINEER WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. BROKEN LINE INTERVALS WILL NOT BE MARKED. LONGITUDINAL JOINTS, PAVEMENT EDGES, AND EXISTING MARKINGS SHALL SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN, OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4" OVER OR UNDER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 6" FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 2". MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINT. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

**EPOXY**

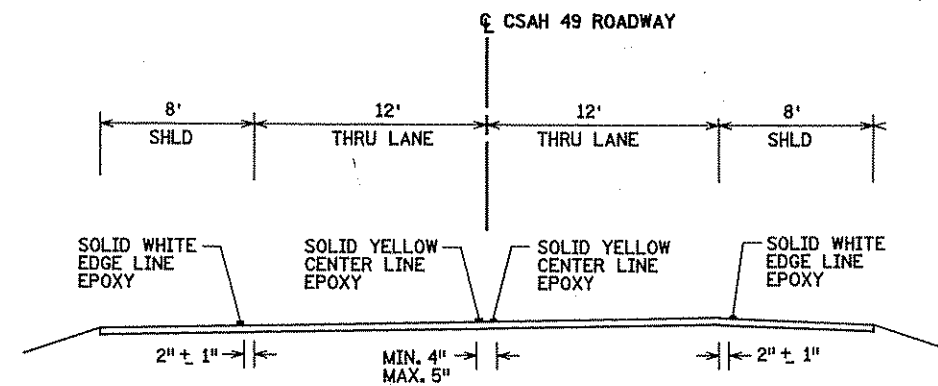
THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NONMETALLIC), OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4 INCHES WIDE AND 15 MIL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF (1) GAL OF COMPONENTS FOR 320 FT OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50°F OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY MARKINGS.



**TYPICAL STRIPING DETAILS**

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph Wanner*  
REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06

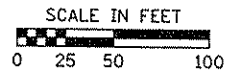
STATE PROJECT NO.

S.A.P. 02-649-01

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

ANOKA COUNTY  
STRIPING PLAN AND DETAILS  
CSAH 49 RECONSTRUCTION  
STA. 6+50 TO 15+53

SHEET  
19  
OF  
31



LEGEND	
	SURFACE FLOW DIRECTION
	SILT FENCE (HEAVY DUTY)
	BALE BARRIER (SEE DETAIL)
	FLOTATION SILT CURTAIN
	TEMPORARY ROCK BERM
	SEED MIXTURE 150 STRAW BLANKET (CAT 3) 10-10-20 FERTILIZER

**BALDWIN LAKE (DNR #13P)**  
 ENVIRONMENTALLY SENSITIVE AREA  
 ORDINARY HIGH WATER (OHW) = 883.1  
 FLOODPLAIN ELEV. = 886.1  
 FLOODPLAIN FILL VOLUME = 1378 CY

BALDWIN LAKE

**END CONSTRUCTION**  
 CSAH 49 ROADWAY  
 S.A.P. 02-649-01  
 STA. 15+52.62

**BEGIN CONSTRUCTION**  
 CSAH 49 ROADWAY  
 S.A.P. 02-649-01  
 STA. 6+50.00

WETLAND B  
 TYPE 4  
 0.21 AC IMPACT

WETLAND C  
 TYPE 3 / 4  
 0.16 AC IMPACT

CSAH 49

FLOW

CONST. LIMITS

CONST. LIMITS

BRIDGE NO. 02563

WETLAND D  
 TYPE 3 / 4  
 0.19 AC IMPACT

**RICE LAKE (DNR #8P)**  
 ENVIRONMENTALLY SENSITIVE AREA  
 ORDINARY HIGH WATER (OHW) = 883.1  
 FLOODPLAIN ELEV. = 886.0  
 FLOODPLAIN FILL VOLUME = 1276 CY

**NOTES:**

- SILT FENCE SHALL FOLLOW, AS CLOSELY AS POSSIBLE, TO A SINGLE CONTOUR LINE. SILT FENCE AND FLOTATION SILT CURTAIN SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING ACTIVITIES.
- ALL EROSION CONTROL BLANKETS SHALL BE STAPLED AS PER THE DETAILS ON SHEET NO. 23.
- ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED AS DIRECTED BY THE EROSION CONTROL SUPERVISOR OR THE PROJECT ENGINEER AFTER TURF IS SUFFICIENTLY ESTABLISHED IN ACCORDANCE WITH PART IV, G OF THE NPDES PERMIT.
- PROVIDE TEMPORARY PIPE DOWN DRAINS AT BRIDGE ENDS AS DIRECTED BY THE EROSION CONTROL SUPERVISOR. SEE DETAIL ON SHEET NO. 23.

- A SITE PLAN WILL BE REQUIRED BY THE CONTRACTOR AS PER MN/DOT SPEC. 1803.51 PRIOR TO ANY CONSTRUCTION RELATED ACTIVITY ADJACENT TO WETLANDS AND BEFORE DEMOLITION OF EXISTING BRIDGE.
- SILT FENCE MAY BE USED IN PLACE OF BALE BARRIER IF NO STANDING WATER EXISTS. FLOTATION SILT CURTAIN SHALL BE USED IF WATER DEPTH EXCEEDS 0.5 FEET.
- AFTER EACH LIFT OF SURCHARGE, APPLY APPROPRIATE SEED MIXTURE PER PLAN. IF EXISTING TURF AND/OR BLANKET IS DISTURBED DURING LIFT OPERATION, CONTRACTOR SHALL REPAIR THESE AREAS PER PLAN. THIS REPAIR SHALL BE CONSIDERED INCIDENTAL.

**NOTES:**

- ① SEE BRIDGE PLANS, GENERAL PLAN AND ELEVATION SHEET FOR ABUTMENT RIPRAP DETAILS. UTILIZE ABUTMENT RIPRAP FOR THE CONSTRUCTION OF THE TEMPORARY ROCK BERM. (INCIDENTAL) SEE DETAIL ON SHEET NO. 23.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: k:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-shf\_surcharge\nt-eroston.dgn 5/31/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. Wanner*  
 DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.

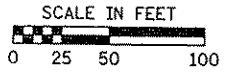
S.A.P. 02-649-01

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

ANOKA COUNTY

TEMPORARY EROSION CONTROL & TURF ESTABLISHMENT PLAN  
 CSAH 49 RECONSTRUCTION  
 STA. 6+50 TO 15+53

SHEET  
 20  
 OF  
 31

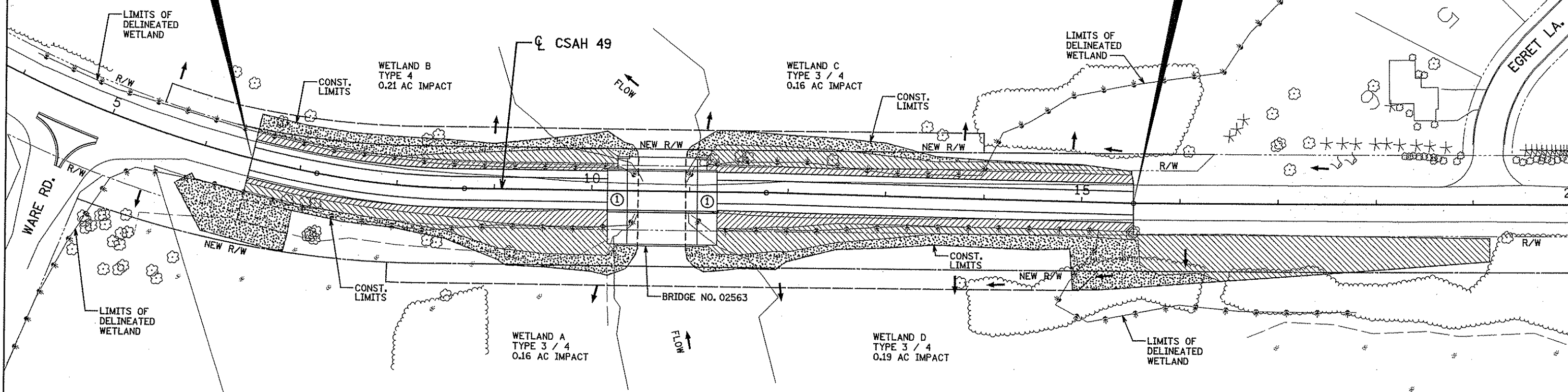


LEGEND	
	SURFACE FLOW DIRECTION
	SEED MIXTURE 250 STRAW BLANKET (CAT 3) 22-5-10 FERTILIZER
	SEED MIXTURE 350 STRAW BLANKET (CAT 3) 22-5-10 FERTILIZER
	SEED MIXTURE 310 STRAW BLANKET (CAT 3) 22-5-10 FERTILIZER

**BALDWIN LAKE (DNR #13P)**  
 ENVIRONMENTALLY SENSITIVE AREA  
 ORDINARY HIGH WATER (OHW) = 883.1  
 FLOODPLAIN ELEV. = 886.1  
 FLOODPLAIN FILL VOLUME = 1378 CY

**END CONSTRUCTION**  
 CSAH 49 ROADWAY  
 S.A.P. 02-649-01  
 STA. 15+52.62

**BEGIN CONSTRUCTION**  
 CSAH 49 ROADWAY  
 S.A.P. 02-649-01  
 STA. 6+50.00



**RICE LAKE (DNR #8P)**  
 ENVIRONMENTALLY SENSITIVE AREA  
 ORDINARY HIGH WATER (OHW) = 883.1  
 FLOODPLAIN ELEV. = 886.0  
 FLOODPLAIN FILL VOLUME = 1276 CY

LAND FEATURE CHANGES (ACRES)	
TOTAL PROJECT SURFACE AREA	2.50 ACRES
TOTAL EXISTING IMPERVIOUS SURFACE AREA OF PROJECT	0.72 ACRES
TOTAL EXISTING PERVIOUS SURFACE AREA OF PROJECT	1.78 ACRES
TOTAL POST-CONSTRUCTION IMPERVIOUS SURFACE AREA OF PROJECT	0.95 ACRES
TOTAL POST-CONSTRUCTION PERVIOUS SURFACE AREA OF PROJECT	1.55 ACRES

**NOTES:**

- ① SEE BRIDGE PLANS, GENERAL PLAN AND ELEVATION SHEET FOR ABUTMENT RIPRAP DETAILS.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\In-shft\_surchargo\p-eros\on.dgn 5/31/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph Whelan*  
 DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
 S.A.P. 02-649-01

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

ANOKA COUNTY  
 PERMANENT EROSION CONTROL & TURF ESTABLISHMENT PLAN  
 CSAH 49 RECONSTRUCTION  
 STA. 6+50 TO 15+53

SHEET  
 21  
 OF  
 31

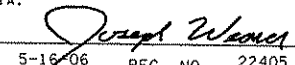

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NOTES**

1. THE RECEIVING WATERS FOR STORM WATER FROM THIS PROJECT INCLUDE BALDWIN LAKE (DNR PROTECTED WATER 13P) AND RICE LAKE (DNR PROTECTED WATER 8P), NONE OF WHICH ARE CLASSIFIED AS IMPAIRED OR SPECIAL WATERS.
2. THE CONTRACTOR MUST IDENTIFY A PERSON (EROSION CONTROL SUPERVISOR) KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs).
3. THE EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP, AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION.
4. THE CONTRACTOR MUST KEEP THE SWPPP, ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS AT THE SITE DURING CONSTRUCTION.
5. THE CONTRACTOR SHALL DEVELOP A CHAIN OF RESPONSIBILITY WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION HAS BEEN SUBMITTED TO THE MPCA.
6. THE CONTRACTOR SHALL PROVIDE FOR TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPs AS SHOWN IN THE PLANS AND THEY SHALL BE KEPT IN A FUNCTIONAL CONDITION AT ALL TIMES THROUGHOUT CONSTRUCTION. THESE MEASURES MAY BE MODIFIED AS APPROPRIATE FOR CONSTRUCTION STAGING AS DIRECTED BY THE EROSION CONTROL SUPERVISOR OR THE PROJECT ENGINEER. THE CONTRACTOR SHALL REMAIN IN COMPLIANCE WITH ALL NPDES AND OTHER PERMIT REQUIREMENTS AT ALL TIMES.
7. ALL EXPOSED SOIL AREAS WITH A CONTINUOUS POSITIVE SLOPE WITHIN 200 LINEAL FEET OF A SURFACE WATER MUST HAVE TEMPORARY OR PERMANENT COVER FOR THE EXPOSED SOIL AREAS YEAR ROUND, ACCORDING TO THE FOLLOWING TABLE OF SLOPES AND TIME FRAMES:
 

TYPE OF SLOPE	TIME *	* MAXIMUM TIME AN AREA CAN REMAIN OPEN WHEN THE AREA IS NOT ACTIVELY BEING WORKED.
STEEPER THAN 1:3	7 DAYS	
FROM 1:10 TO 1:3	14 DAYS	
FLATTER THAN 1:10	21 DAYS	

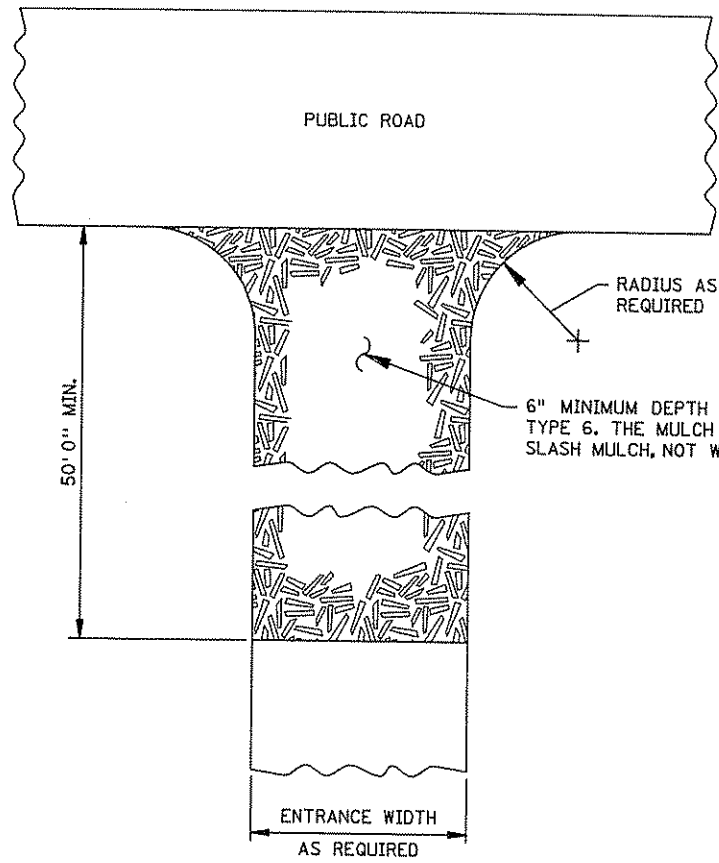
THESE AREAS INCLUDE ANY EXPOSED SOIL AREAS WITH A POSITIVE SLOPE TO A STORM WATER CONVEYANCE SYSTEM, SUCH AS A CURB AND GUTTER SYSTEM, STORM SEWER INLET, TEMPORARY OR PERMANENT DRAINAGE DITCH, OR OTHER NATURAL OR MAN MADE SYSTEMS THAT DISCHARGE TO A SURFACE WATER. THESE AREAS MUST BE KEPT STABILIZED AT ALL TIMES.
8. ALL EXPOSED SOIL AREAS WILL BE STABILIZED PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED OR SNOW BLANKETED AND SNOW SEEDED.
9. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE, OR DIVERTS WATER AROUND A SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER. THESE AREAS MUST BE KEPT STABILIZED AT ALL TIMES.
10. SEDIMENT CONTROL DEVICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UPGRADIENT LAND DISTURBING ACTIVITIES BEGIN. THESE DEVICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED IN ACCORDANCE WITH PART IV.G OF THE NPDES PERMIT. THE TIMING OF THE INSTALLATION OF SEDIMENT CONTROL DEVICES MAY BE ADJUSTED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING AND GRUBBING, OR PASSAGE OF VEHICLES. ANY SHORT-TERM ACTIVITY MUST BE COMPLETED AS QUICKLY AS POSSIBLE AND THE SEDIMENT CONTROL DEVICES MUST BE INSTALLED IMMEDIATELY AFTER THE ACTIVITY IS COMPLETED. HOWEVER, SEDIMENT CONTROL DEVICES MUST BE INSTALLED BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE ACTIVITY IS NOT COMPLETE.
11. TEMPORARY SOIL STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN SURFACE WATERS.
12. VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE MUST BE MINIMIZED BY BMPs SUCH AS A SLASH MULCH PAD, CONCRETE OR STEEL WASH RACKS, OR EQUIVALENT SYSTEMS IN ACCORDANCE WITH MN/DOT SPEC. 2573. STREET SWEEPING MUST BE USED IF SUCH BMPs ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET.
13. DEWATERING RELATED TO THE CONSTRUCTION ACTIVITY THAT MAY HAVE TURBID OR SEDIMENT LADEN DISCHARGE WATER MUST BE DISCHARGED TO A TEMPORARY SEDIMENTATION BASIN ON THE PROJECT SITE WHENEVER POSSIBLE. IF THE WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN PRIOR TO ENTERING THE SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BMPs, SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER DOWNSTREAM LANDOWNERS. THE CONTRACTOR MUST ENSURE THAT DISCHARGE POINTS ARE ADEQUATELY PROTECTED FROM EROSION AND SCOUR. THE DISCHARGE MUST BE DISPERSED OVER NATURAL ROCK RIPRAP, SAND BAGS, PLASTIC SHEETING OR OTHER ENERGY DISSIPATION MEASURES APPROVED BY THE EROSION CONTROL SUPERVISOR OR THE PROJECT ENGINEER. ADEQUATE SEDIMENTATION CONTROL MEASURES ARE REQUIRED FOR DISCHARGE WATER THAT CONTAINS SUSPENDED SOLIDS.
14. ANY FUEL OR CHEMICAL TANK STORED ON THE PROJECT AREA MUST BE PROTECTED BY A SOIL BERM OR HAVE A NEGATIVE GRADIENT TO ANY WATER RESOURCE AREA. A CONTINGENCY PLAN MUST BE CREATED BY THE CONTRACTOR IN THE EVENT OF A SPILL OR LEAK OF ANY CHEMICAL, INCLUDING PETROCHEMICALS, DEEMED HARMFUL TO THE ENVIRONMENT, AND HAVE ON HAND THE MATERIALS NECESSARY TO CAPTURE AND CONTAIN SAID CHEMICALS.
15. THE CONTRACTOR WILL USE CONTINUOUS AND PROGRESSIVE SEEDING PROCESSES. DORMANT SEEDING WILL NOT ALLOW THE NOTICE OF TERMINATION TO BE FILED WITH THE MPCA UNTIL 70 PERCENT OF THE PERENNIAL VEGETATIVE COVER IS ACHIEVED.
16. THE EROSION CONTROL SUPERVISOR MUST ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.
17. ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION MUST BE RECORDED IN WRITING AND THESE RECORDS MUST BE RETAINED WITH THE SWPPP IN ACCORDANCE WITH PART III.D OF THE NPDES PERMIT.
18. WHERE PARTS OF THE CONSTRUCTION SITE HAVE UNDERGONE FINAL STABILIZATION, BUT WORK REMAINS ON OTHER PARTS OF THE SITE, INSPECTIONS OF THE STABILIZED AREAS MAY BE REDUCED TO ONCE PER MONTH. WHERE WORK HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, THE REQUIRED INSPECTIONS AND MAINTENANCE MUST TAKE PLACE AS SOON AS RUNOFF OCCURS AT THE SITE OR PRIOR TO RESUMING CONSTRUCTION, WHICHEVER COMES FIRST.
19. ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs MUST BE INSPECTED BY THE CONTRACTOR TO ENSURE INTEGRITY AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPs MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPs AS DIRECTED BY THE EROSION CONTROL SUPERVISOR OR THE PROJECT ENGINEER.
20. ALL SILT FENCE MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/3 OF THE HEIGHT OF THE FENCE. THESE REPAIRS MUST BE MADE WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.
21. SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF SEDIMENT BEING DEPOSITED BY EROSION. THE CONTRACTOR MUST REMOVE ALL SEDIMENT DEPOSITED IN SURFACE WATERS AND RESTABILIZE THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. THE REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN 7 DAYS OF DISCOVERY.
22. THE CONTRACTOR IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT BMPs, AS WELL AS ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs, FOR THE DURATION OF THE CONSTRUCTION WORK AT THE SITE.
23. SOLID WASTE SUCH AS COLLECTED SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS, AND OTHER WASTES MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS. CONCRETE TRUCK WASHING WILL NOT BE ALLOWED WITHIN THE PROJECT LIMITS.
24. HAZARDOUS MATERIALS SUCH AS OIL, GASOLINE, AND PAINT MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.
25. ALL DITCHES AND SLOPES SHALL BE KEPT IN A SMOOTH ROUGH GRADED CONDITION FOR CORRECT APPLICATION OF EROSION CONTROL MULCHES AND BLANKETS.
26. CONTACT NAMES:
 

MN POLLUTION CONTROL AGENCY	BRIAN GOVE	(651) 296-7036
RICE CREEK WATERSHED DISTRICT	KEN POWELL	(763) 398-3078
U.S. CORPS OF ENGINEERS	TIM FELL	(651) 290-5360
MN DEPARTMENT OF NATURAL RESOURCES	TOM HOVEY	(651) 772-7923
ANOKA COUNTY HIGHWAY DEPARTMENT	LYNDON ROBJENT	(763) 862-4237

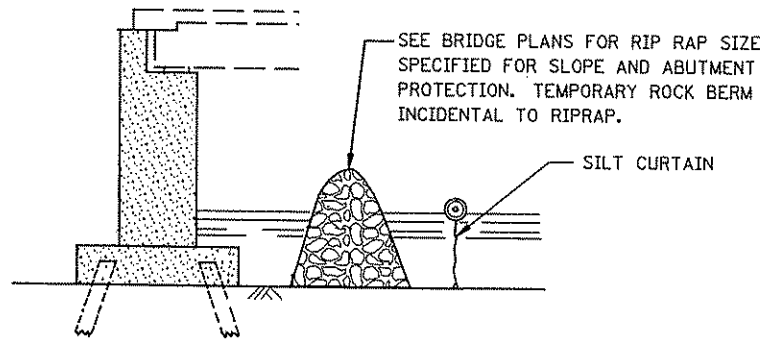
	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  DATE 5-16-06 REG. NO. 22405	DRAWN BY TJV DATE 5-16-06 DESIGN BY JMW DATE 5-16-06 CHECKED BY JMW DATE 5-16-06	STATE PROJECT NO.  S.A.P. 02-649-01	 TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA	<b>ANOKA COUNTY</b> EROSION CONTROL DETAILS CSAH 49 RECONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN NOTES	SHEET 22 OF 31
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NO	DATE	BY	CHKD	APPR	REVISION

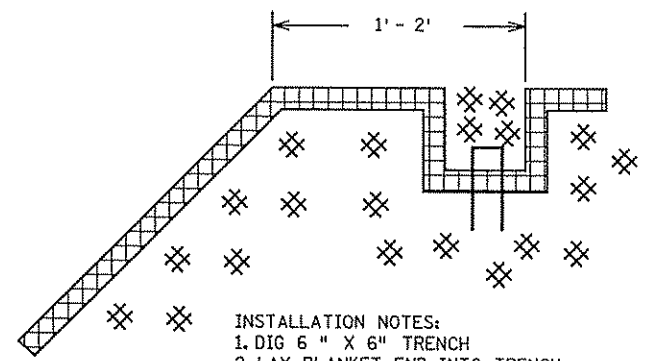
NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-shf\_surcharge\defa1103.dgn 5/30/2006



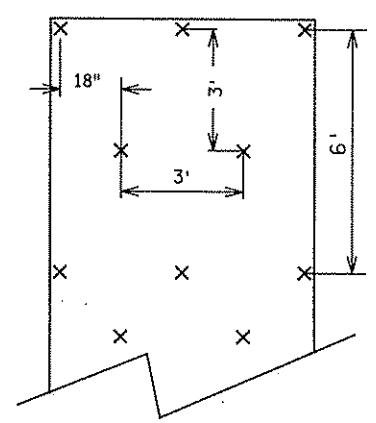
CONSTRUCTION EXIT PAD OPTION (SPEC. 2573)



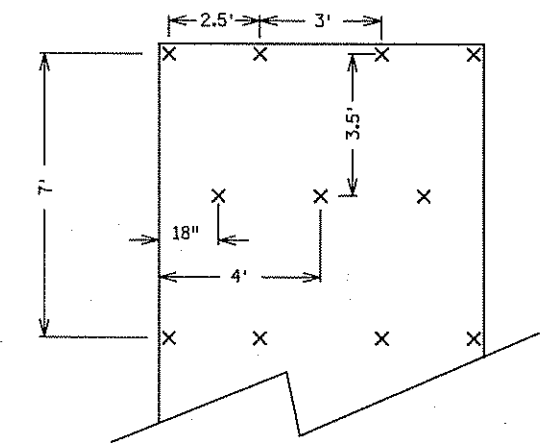
TEMPORARY ROCK BERM FOR SEDIMENT CONTROL



CHECK TRENCH

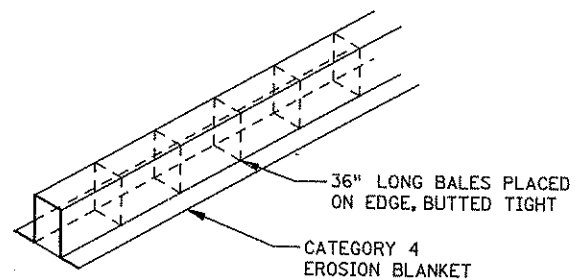


STANDARD 6' BLANKET

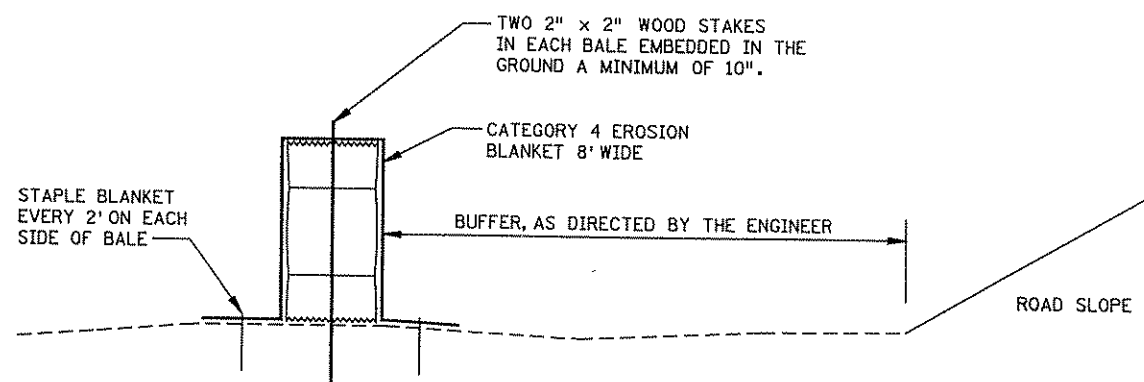


STANDARD 8' BLANKET

BLANKET STAPLING PATTERN

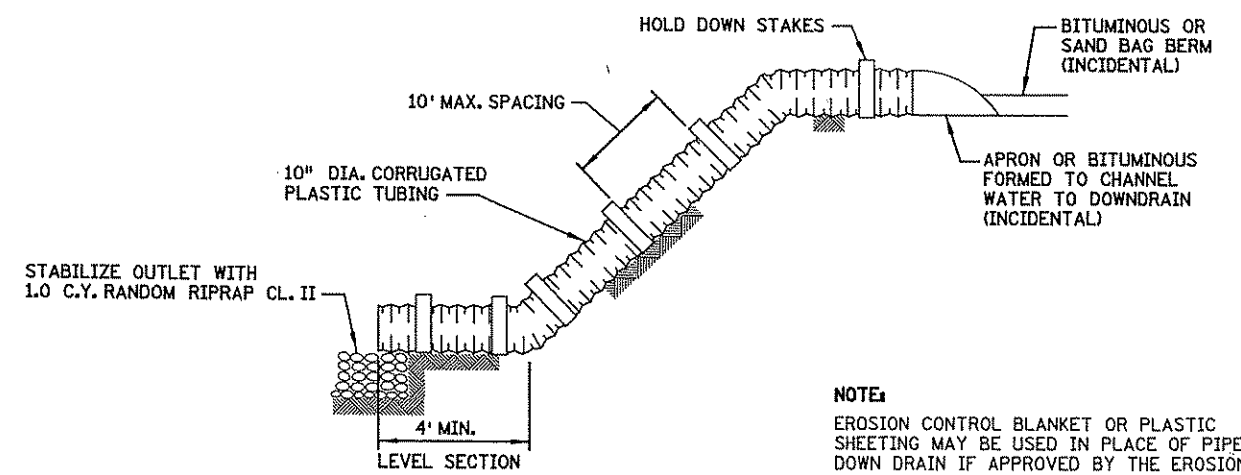


PERSPECTIVE



SECTION BALE BARRIER

USE PAY ITEMS - BALE CHECK AND EROSION CONTROL BLANKETS CATEGORY 4.



NOTE:  
 EROSION CONTROL BLANKET OR PLASTIC SHEETING MAY BE USED IN PLACE OF PIPE DOWN DRAIN IF APPROVED BY THE EROSION CONTROL SUPERVISOR OR THE PROJECT ENGINEER.

TEMPORARY PIPE DOWN DRAIN

NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\In-shft\_surcharga\defat1102.dgn 5/31/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. Womack*

DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
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STATE PROJECT NO. \_\_\_\_\_  
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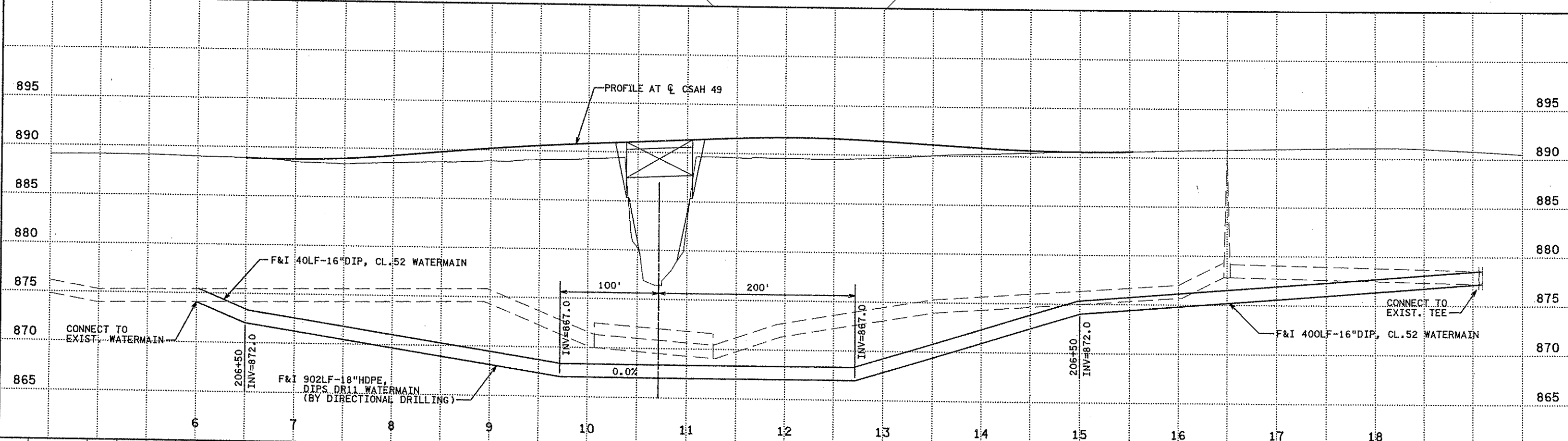
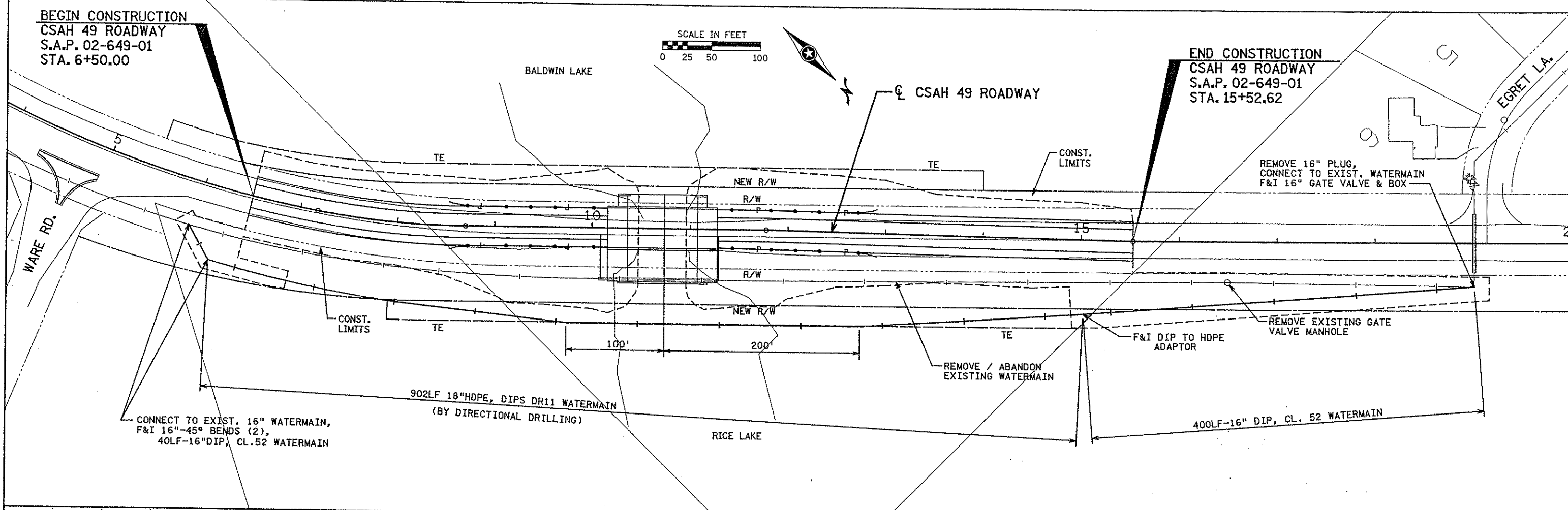
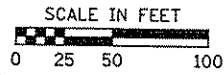
**TKDA**  
 TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INCORPORATED  
 ENGINEERS-ARCHITECTS-PLANNERS SAINT PAUL, MINNESOTA

ANOKA COUNTY  
 EROSION CONTROL DETAILS  
 CSAH 49 RECONSTRUCTION

SHEET 23 OF 31

BEGIN CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 6+50.00

END CONSTRUCTION  
CSAH 49 ROADWAY  
S.A.P. 02-649-01  
STA. 15+52.62



NO	DATE	BY	CHKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN 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 5-16-06 REG. NO. 22300

DRAWN BY RDJ DATE 5-16-06  
DESIGN BY RDJ DATE 5-16-06  
CHECKED BY LDB DATE 5-16-06

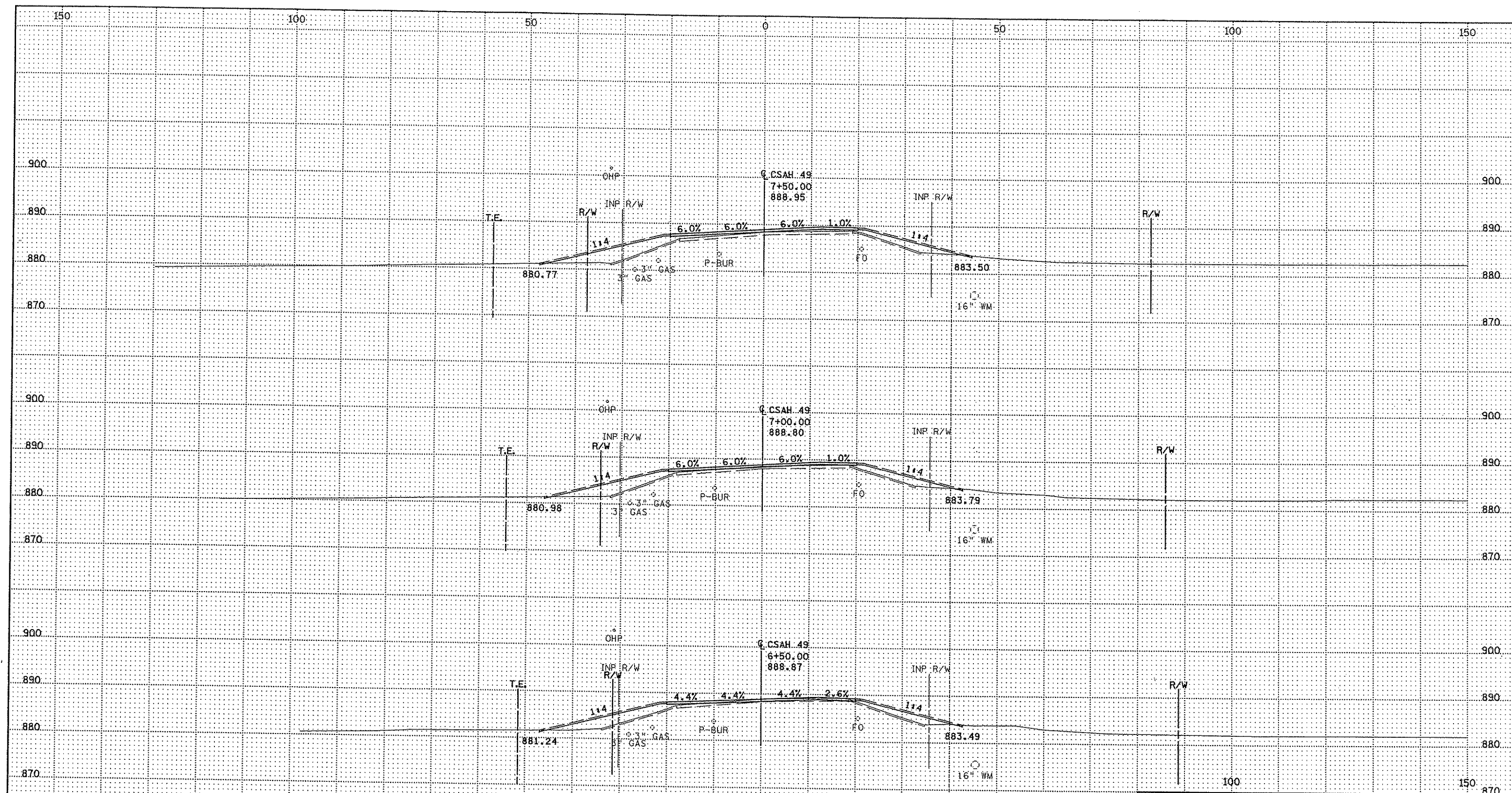
STATE PROJECT NO.  
S.A.P. 02-649-01

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

ANOKA COUNTY  
WATERMAIN PLAN AND PROFILE  
CSAH 49 RECONSTRUCTION  
STA. 6+50 TO 15+53

SHEET 24 OF 31





BEGIN CONSTRUCTION CSAH 49  
S.A.P. 02-649-01 STA. 6+50

- GENERAL CROSS SECTION NOTES:**
- ALL UTILITIES AND DRAINAGE STRUCTURES SHOWN ON THE CROSS SECTIONS ARE INPLACE.
  - UTILITY ELEVATIONS AND LOCATIONS ARE APPROXIMATE.
  - SOME UTILITIES MAY HAVE BEEN REMOVED OR ABANDONED. SOME NEW UTILITIES MAY HAVE BEEN RECENTLY CONSTRUCTED AND MAY NOT BE SHOWN.
  - GEOTECHNICAL BORINGS PER BRAUN INTERTEC GEOTECHNICAL REPORT DATED JUNE 12, 1998.

NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\pln-shft\_surcharge\psur49\_xp1.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

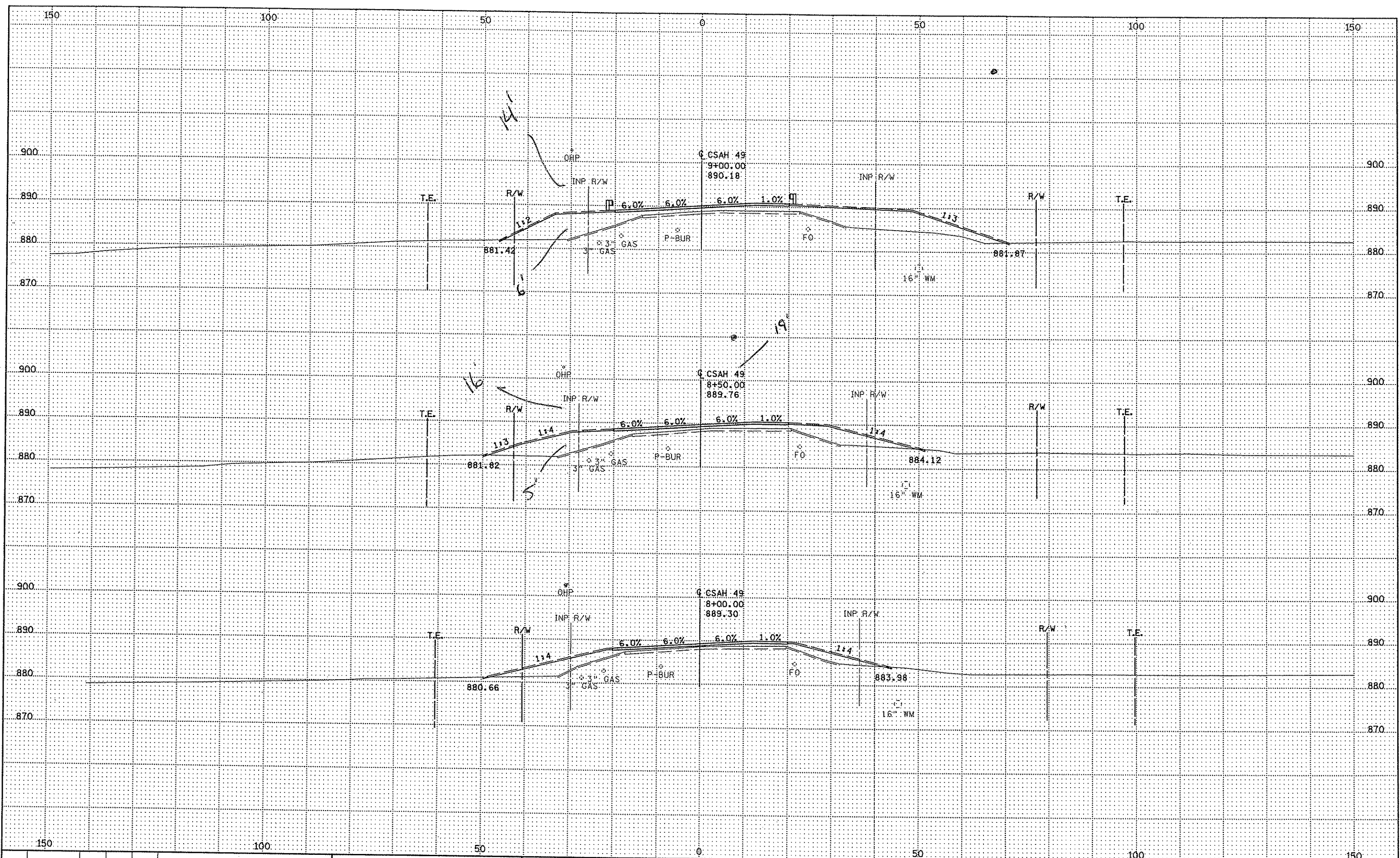
*Joseph W. Wacker*  
DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06 STATE PROJECT NO.  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06 S.A.P. 02-649-01

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

ANOKA COUNTY  
CROSS SECTIONS  
C.S.A.H. 49 RECONSTRUCTION  
STA. 6+50 TO STA. 7+50

SHEET X1 OF 31



NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-sht\_surchargo\psur49\_xpl.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. W...*  
 DATE 5-16-06 REG. NO. 22405

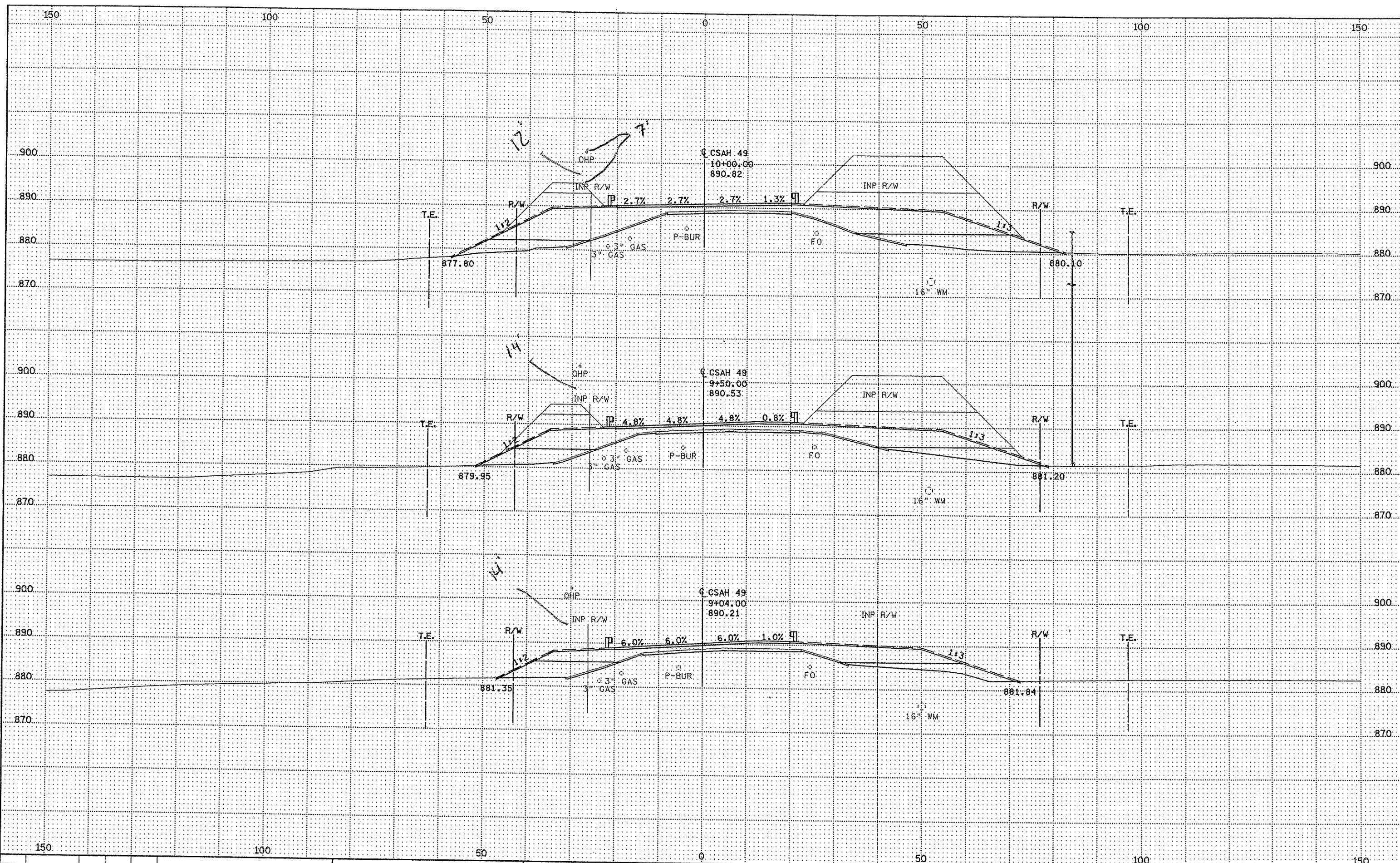
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 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
 S.A.P. 02-649-01

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

ANOKA COUNTY  
 CROSS SECTIONS  
 C.S.A.H. 49 RECONSTRUCTION  
 STA. 8+00 TO STA. 9+00

SHEET  
 X2  
 OF  
 31



NO	DATE	BY	CKD	APPR	REVISION
NAME: X:\d-f\AnokaCity\1159201\hwy-brdg\hwy\p\In-shft_surchargo\psur49_xpl.dgn 5/30/2006					

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph Wagner*  
 DATE 5-16-06 REG. NO. 22405

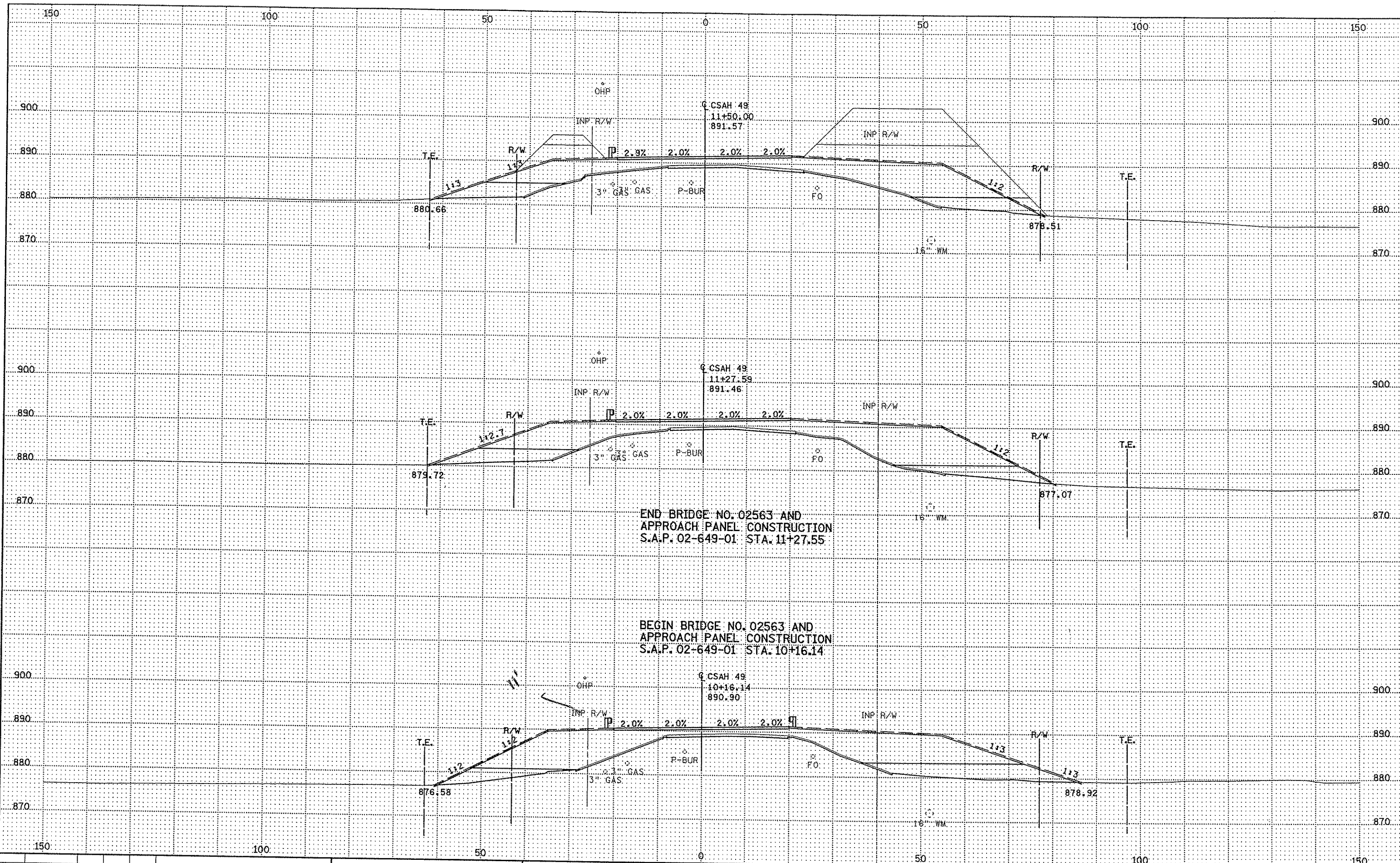
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 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
 S.A.P. 02-649-01

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

ANOKA COUNTY  
 CROSS SECTIONS  
 C.S.A.H. 49 RECONSTRUCTION  
 STA. 9+04 TO STA. 10+00

SHEET  
 X3  
 OF  
 31



END BRIDGE NO. 02563 AND  
 APPROACH PANEL CONSTRUCTION  
 S.A.P. 02-649-01 STA. 11+27.55

BEGIN BRIDGE NO. 02563 AND  
 APPROACH PANEL CONSTRUCTION  
 S.A.P. 02-649-01 STA. 10+16.14

NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p1n-shf\_surcharga\psur49.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. [Signature]*

DATE 5-16-06 REG. NO. 22405

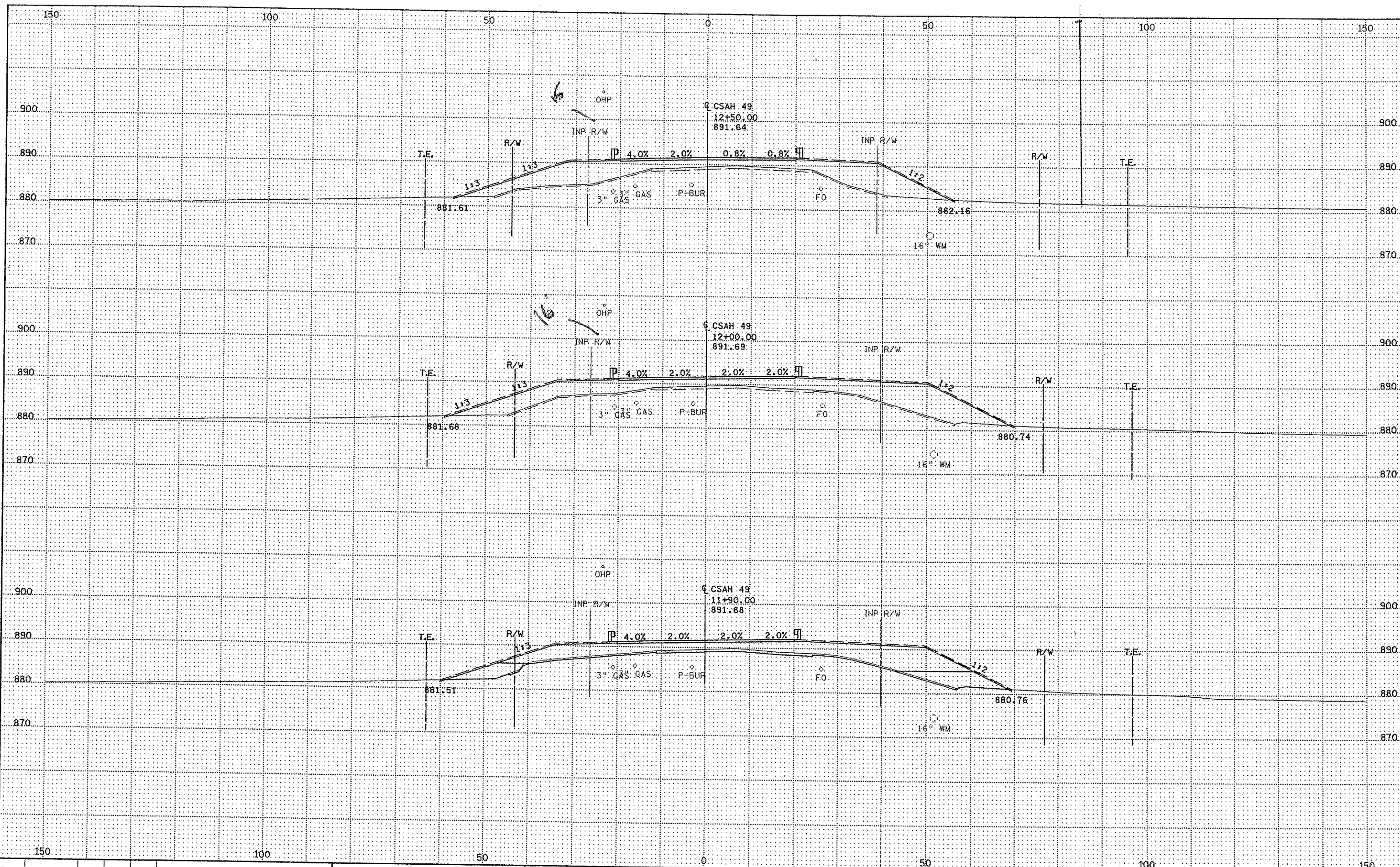
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 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
 S.A.P. 02-649-01

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

ANOKA COUNTY  
 CROSS SECTIONS  
 C.S.A.H. 49 RECONSTRUCTION  
 STA. 10+16.14 TO STA. 11+50

SHEET  
 X4  
 OF  
 31



NO	DATE	BY	CKD	APPR	REVISION

NAME: K:\g-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-shf\_surchg\psur49\_xpl.dgn 5/30/2006

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. [Signature]*  
 DATE 5-16-06 REG. NO. 22405

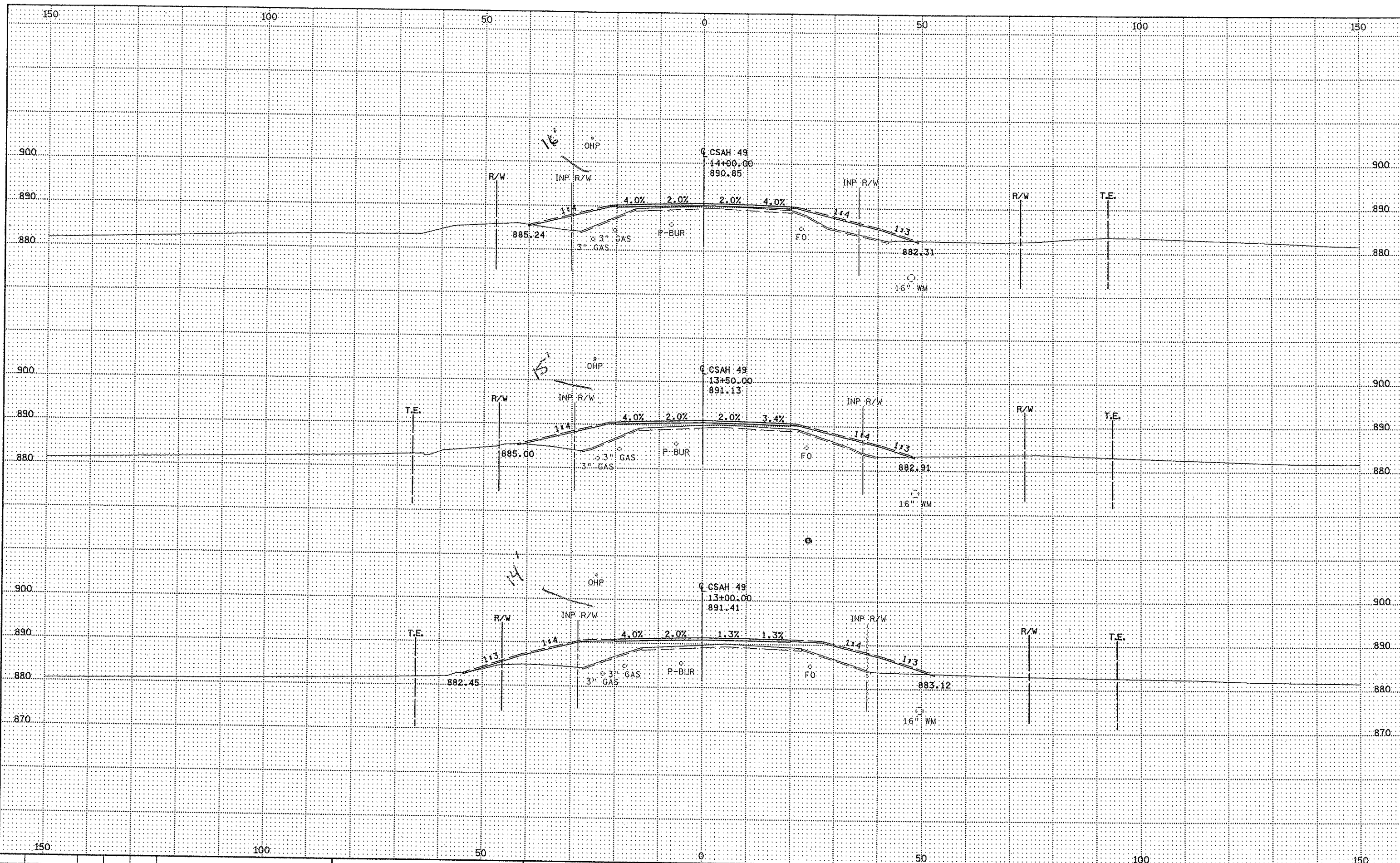
DRAWN BY TJV DATE 5-16-06  
 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
 S.A.P. 02-649-01

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

ANOKA COUNTY  
 CROSS SECTIONS  
 C.S.A.H. 49 RECONSTRUCTION  
 STA. 11+90 TO STA. 12+50

SHEET  
 X5  
 OF  
 31



NO	DATE	BY	CKD	APPR	REVISION
NAME: K:\a-f\AnokaCity\1159201\hwy-brdg\hwy\p\in-shf_surchargo\psur49_xpl.dgn 5/30/2006					

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph W. Wenzel*  
 DATE 5-16-06 REG. NO. 22405

DRAWN BY TJV DATE 5-16-06  
 DESIGN BY JMW DATE 5-16-06  
 CHECKED BY JMW DATE 5-16-06

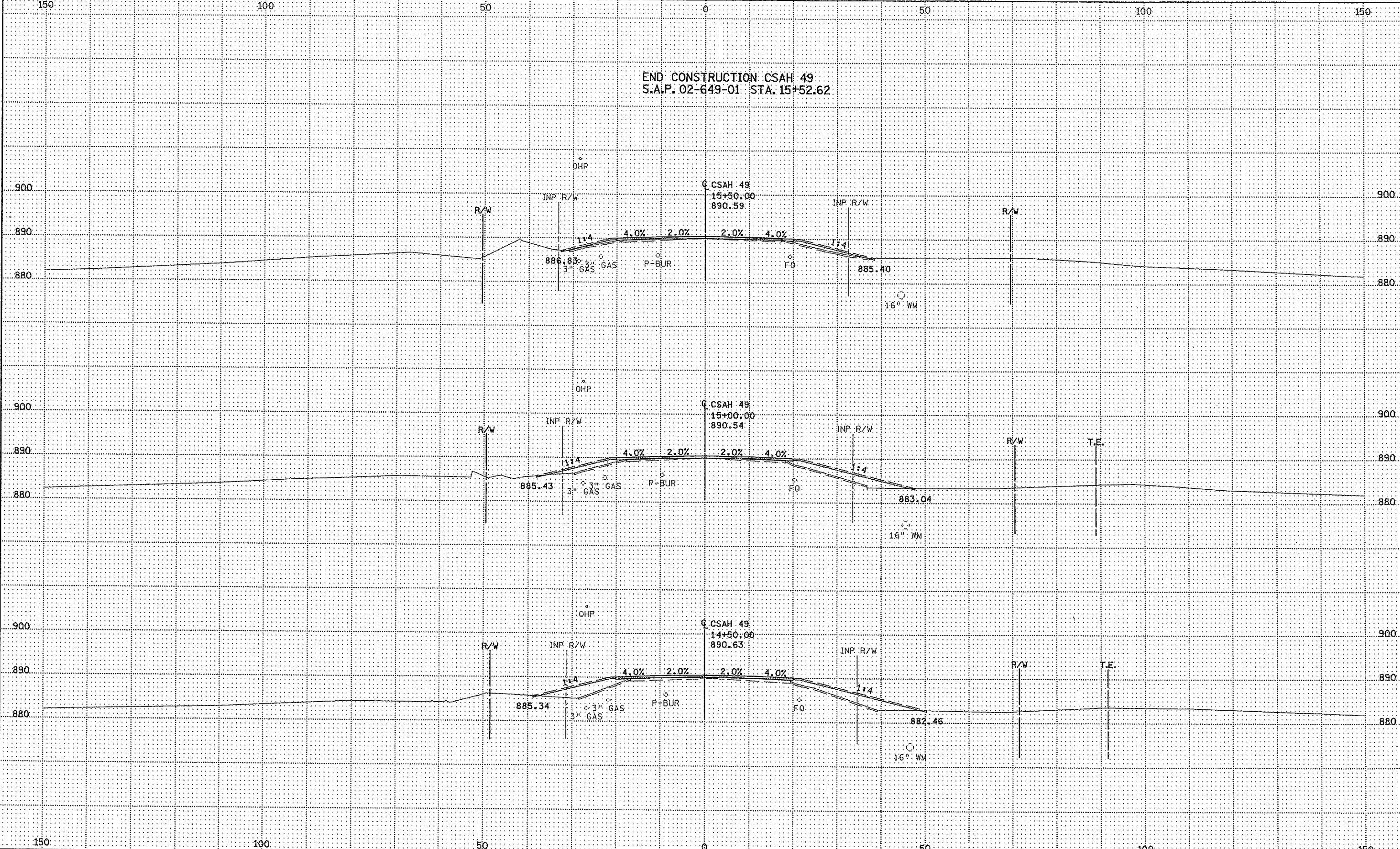
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 S.A.P. 02-649-01

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

ANOKA COUNTY  
 CROSS SECTIONS  
 C.S.A.H. 49 RECONSTRUCTION  
 STA. 13+00 TO STA. 14+00

SHEET  
 X6  
 OF  
 31

END CONSTRUCTION CSAH 49  
S.A.P. 02-649-01 STA. 15+52.62



NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN 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.

*Joseph Warner*  
DATE 5-16-06 REG. NO. 22405

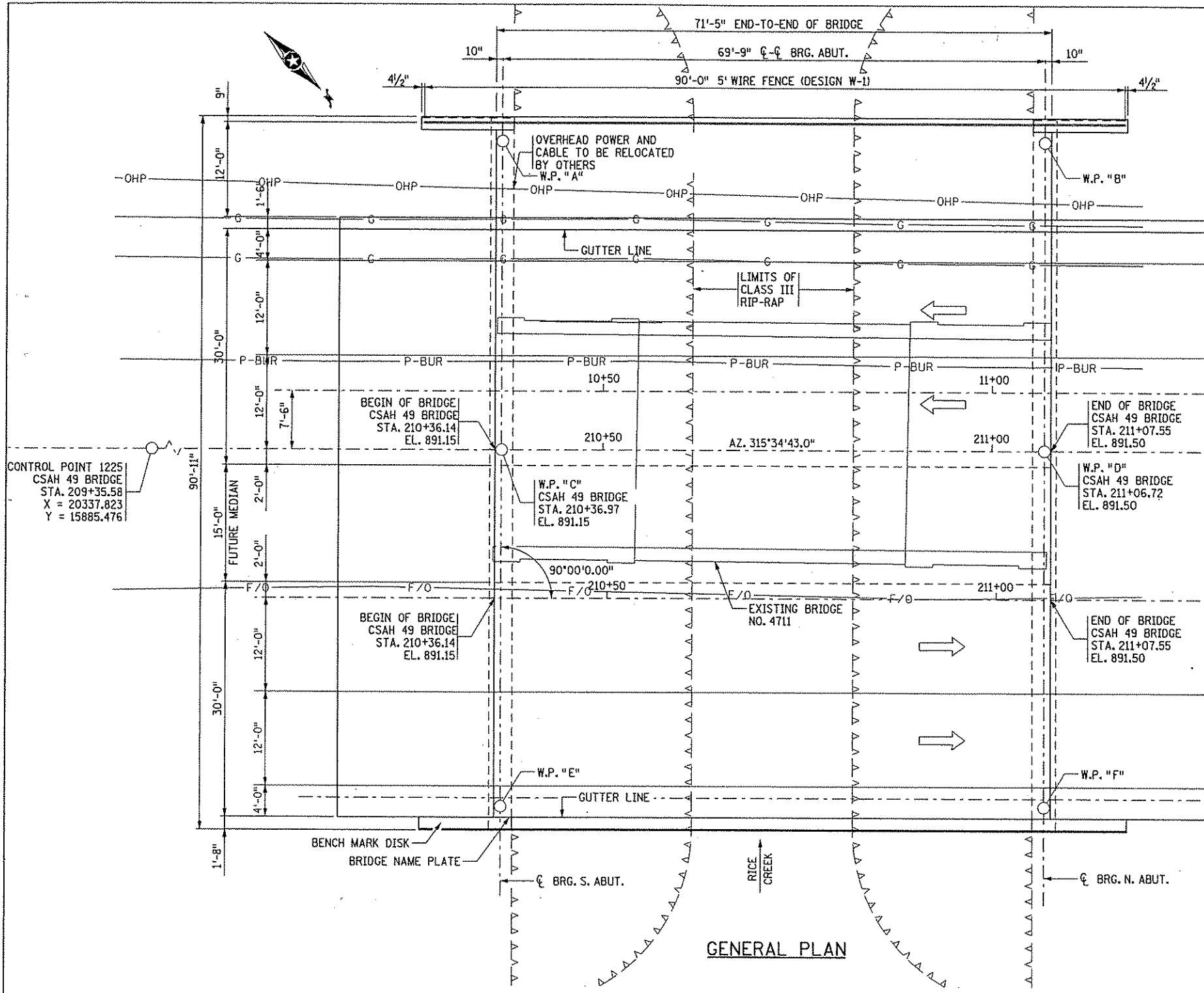
DRAWN BY TJV DATE 5-16-06  
DESIGN BY JMW DATE 5-16-06  
CHECKED BY JMW DATE 5-16-06

STATE PROJECT NO.  
S.A.P. 02-649-01

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

ANOKA COUNTY  
CROSS SECTIONS  
C.S.A.H. 49 RECONSTRUCTION  
STA. 14+50 TO STA. 15+50

SHEET X7 OF 31



**CONSTRUCTION NOTES:**

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

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 SPEC. 3301.

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

SAP 02-649-01

**DESIGN DATA**

1998 AND CURRENT INTERIM A.A.S.H.T.O. LRFD BRIDGE DESIGN SPECIFICATIONS  
LOAD AND RESISTANCE FACTOR DESIGN METHOD  
HL 93 LIVE LOAD  
DEAD LOAD INCLUDES 20PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

**MATERIAL DESIGN PROPERTIES:**

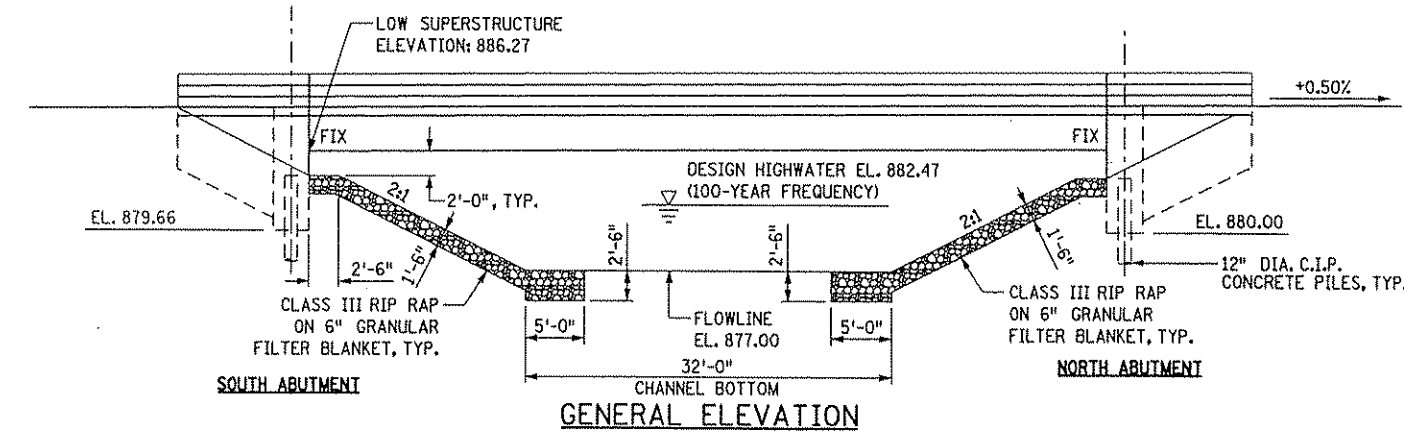
REINFORCED CONCRETE:  
f'c = 4 ksi; n = 8  
fy = 60 ksi for reinforcement  
PRESTRESSED CONCRETE:  
f'c = 9 ksi n = 1  
fpu = 270 ksi

DECK AREA = 6493 SQUARE FEET  
12,272 CURRENT ADT  
17,180 PROJECTED ADT FOR YEAR 2023  
DESIGN SPEED = 55 MPH  
BRIDGE OPERATING RATING HS-41.8

**LIST OF SHEETS**

NO.	SHEET TITLE
1	GENERAL PLAN AND ELEVATION
2	TYPICAL SECTION AND QUANTITIES
3	WORKING POINT LAYOUT
4	FOUNDATION LAYOUT PLAN
5	SOUTH ABUTMENT PLAN AND ELEVATION
6	SOUTH ABUTMENT REINFORCEMENT
7	NORTH ABUTMENT PLAN AND ELEVATION
8	NORTH ABUTMENT REINFORCEMENT
9	ABUTMENT DETAILS
10	ABUTMENT BARLISTS AND QUANTITIES
11	FRAMING PLAN
12	PRESTRESSED CONCRETE BEAMS, TYPE 36M
13	ABUTMENT CORNER DETAILS
14	SOUTH END DIAPHRAGM REINFORCEMENT
15	NORTH END DIAPHRAGM REINFORCEMENT
16	DECK REINFORCEMENT
17	RAILING ELEVATIONS
18	BRIDGE APPROACH PANEL DETAILS
19	SUPERSTRUCTURE BARLIST AND QUANTITIES
20	CONCRETE RAILING TYPE F
21	CONCRETE RAILING TYPE F-SW
22	5 FT. WIRE FENCE (DESIGN W-1)
23	STANDARD DETAILS B101 & B201
24	STANDARD DETAILS B403 & B905
25	BRIDGE SURVEY
26	BRIDGE SURVEY PLAN AND PROFILE

**GENERAL PLAN**



**GENERAL ELEVATION**

APPROVED: \_\_\_\_\_  
ANOKA COUNTY ENGINEER  
DATE: \_\_\_\_\_

**TKDA**  
ENGINEERS • ARCHITECTS • PLANNERS SAINT PAUL, MINNESOTA

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
SIGNED *Matthew J. Christensen* MATTHEW J. CHRISTENSEN REG. NO. 43076  
DATE *6/5/06*

BENCH MARK ELEVATION 900.537 (M.S.L. 1929 ADJ)  
LOCATION: ON WARE ROAD 42' NORTH OF BIRCH STEET (CO. 10)

C.S.A.H. 49 ANOKA COUNTY  
MINNESOTA  
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02563  
C.S.A.H. 49 (HODGSON ROAD)  
OVER RICE CREEK, CITY OF LINO LAKES

BRIDGE TYPE ID NUMBER: 501  
GENERAL PLAN  
SEC. 30 TWP. 31 N. R. 22 W.  
CITY OF LINO LAKES ANOKA COUNTY

APPROVED: *Kevin Westerm* DATE: *6/9/06*  
STATE BRIDGE ENGINEER

DES: MJC DR: MJC  
CHK: GM CHK: GM 02563

JOB NO. \_\_\_\_\_

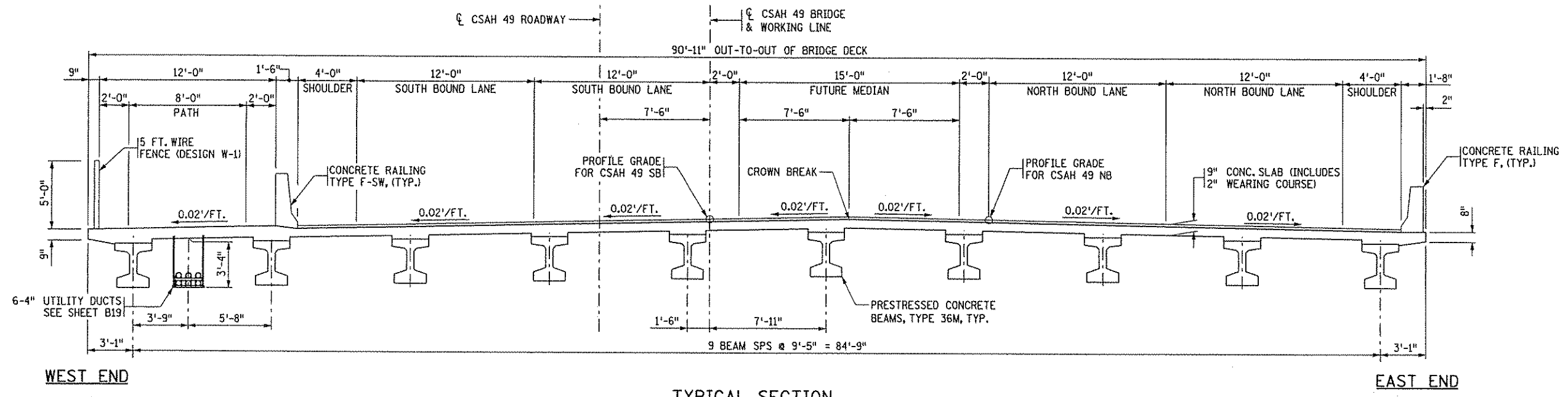
REVIEWED BY: \_\_\_\_\_

STATE AID PROJ. NO. 02-649-01

Sheet No. B1 of B26 Sheets



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 DATE: 5/15/2006 TIME: 1:44:28 PM



WEST END

TYPICAL SECTION

EAST END

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
2021.501	MOBILIZATION	LUMP SUM	1
2301.551	BRIDGE APPROACH PANELS	EACH	2
2401.501	STRUCTURAL CONCRETE (3Y43)	CU. YD.	160 (P)
2401.501	STRUCTURAL CONCRETE (3Y36)	CU. YD.	72 (P)
2401.512	BRIDGE SLAB CONCRETE (3Y36)	SQ. FT.	6493 (P)
2401.513	TYPE F RAILING CONCRETE (3Y46)	LIN. FT.	91 (P)
2401.513	TYPE F-SW RAILING CONCRETE (3Y46)	LIN. FT.	112 (P)
2401.541	REINFORCEMENT BARS (EPOXY COATED)	LB	66500 (P)
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
2402.590	ELASTOMERIC BEARING PAD	EACH	20
2404.501	CONCRETE WEARING COURSE (3U17A)	SQ. FT.	8356
2405.502	PRESTRESSED CONCRETE BEAMS TYPE 36M	LIN. FT.	710
2405.511	DIAPHRAGMS FOR TYPE 36M PRESTRESSED BEAMS	LIN. FT.	85
2442.501	REMOVE OLD BRIDGE (NON PARTICIPATING)	LUMP SUM	1
① 2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN. FT.	960
2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN. FT.	960
① 2452.519	C-I-P CONCRETE TEST PILE 70 FT. LONG	EACH	2
2511.501	RANDOM RIPRAP, CLASS III	CU. YD.	394
2511.511	GRANULAR FILTER	CU. YD.	86
2521.501	4" CONCRETE WALK	SQ. FT.	443
2545.509	CONDUIT SYSTEM	LUMP SUM	1
2557.501	WIRE FENCE (DESIGN W-1)	LIN. FT.	91

① PILES TO HAVE A NOMINAL DIAMETER OF 12" WITH A MINIMUM WALL THICKNESS OF 0.3125". (ASTM A252, GRADE 3 OR BETTER).

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SIGNED: *Matthew J. Christensen*  
 DATE: 5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS  
 1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

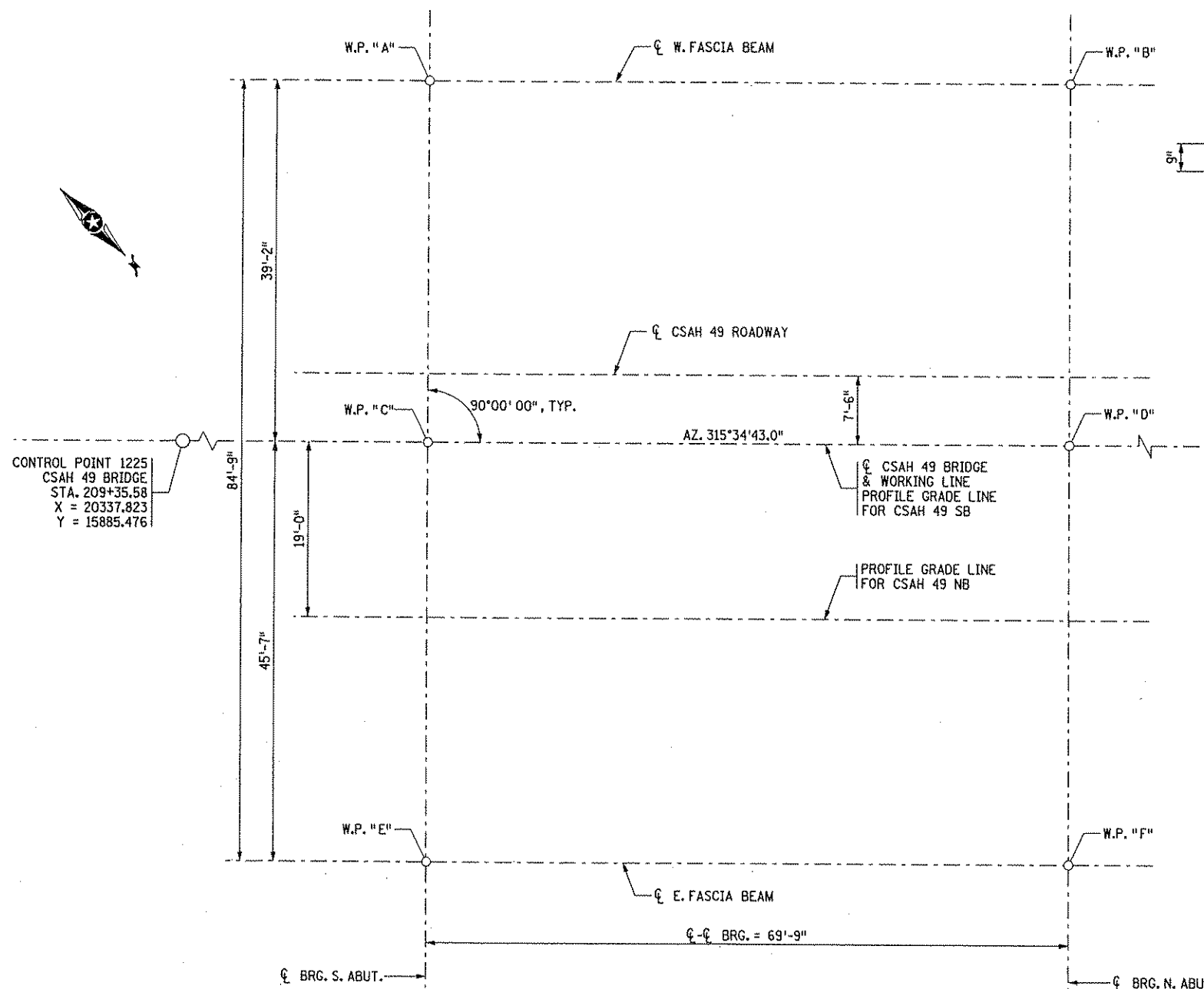
TITLE:  
 TYPICAL SECTION AND QUANTITIES

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

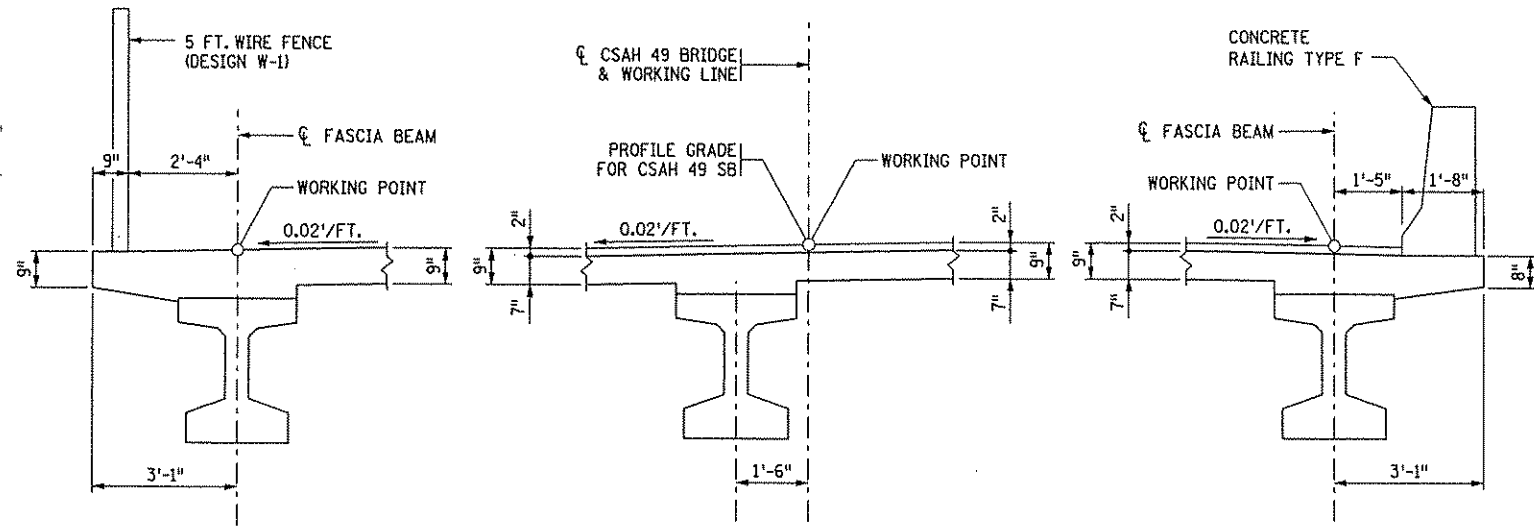
Sheet No. B2 of B26 Sheets

Bridge No.  
 02563

FILENAME: k:\a\anoka\15920\hwy-brdg\brdg\general\poblayout.dgn  
 DATE: 5/8/2006 TIME: 3:07:33 PM



WORKING POINT LAYOUT



WEST WORKING POINTS

TYPICAL SECTION

EAST WORKING POINTS

TOP OF ROADWAY TO BRIDGE SEAT		
	S. ABUT.	N. ABUT.
SLAB THICKNESS	9"	9"
STOOL HEIGHT	4 1/4"	4 1/4"
BEAM HEIGHT	36"	36"
BEARING HEIGHT	1/2"	1/2"
TOTAL	49 3/4"	49 3/4"

DIMENSIONS BETWEEN WORKING POINTS										ELEVATIONS			
POINT	STATION	X-COORD.	Y-COORD.	A	B	C	D	E	F	TOP OF ROADWAY	TOP/RDWAY TO BR. SEAT	BRIDGE SEAT	POINT
A	210+36.97	20,238.8513	15,930.5087		69.75	39.17	79.99		109.76	890.37	4.14	886.23	A
B	211+06.72	20,190.0311	15,980.3250				39.17	109.76		890.72	4.14	886.57	B
C	210+36.97	20,266.8246	15,957.9227				69.75	45.58	83.32	891.15			C
D	211+06.72	20,218.0044	16,007.7390						45.58	891.50			D
E	210+36.97	20,299.3807	15,989.8278					69.75		890.62	4.14	886.48	E
F	211+06.72	20,250.5605	16,039.6441							890.97	4.14	886.83	F

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
 SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN REG. NO. 43076  
 DATE: 5-8-2006

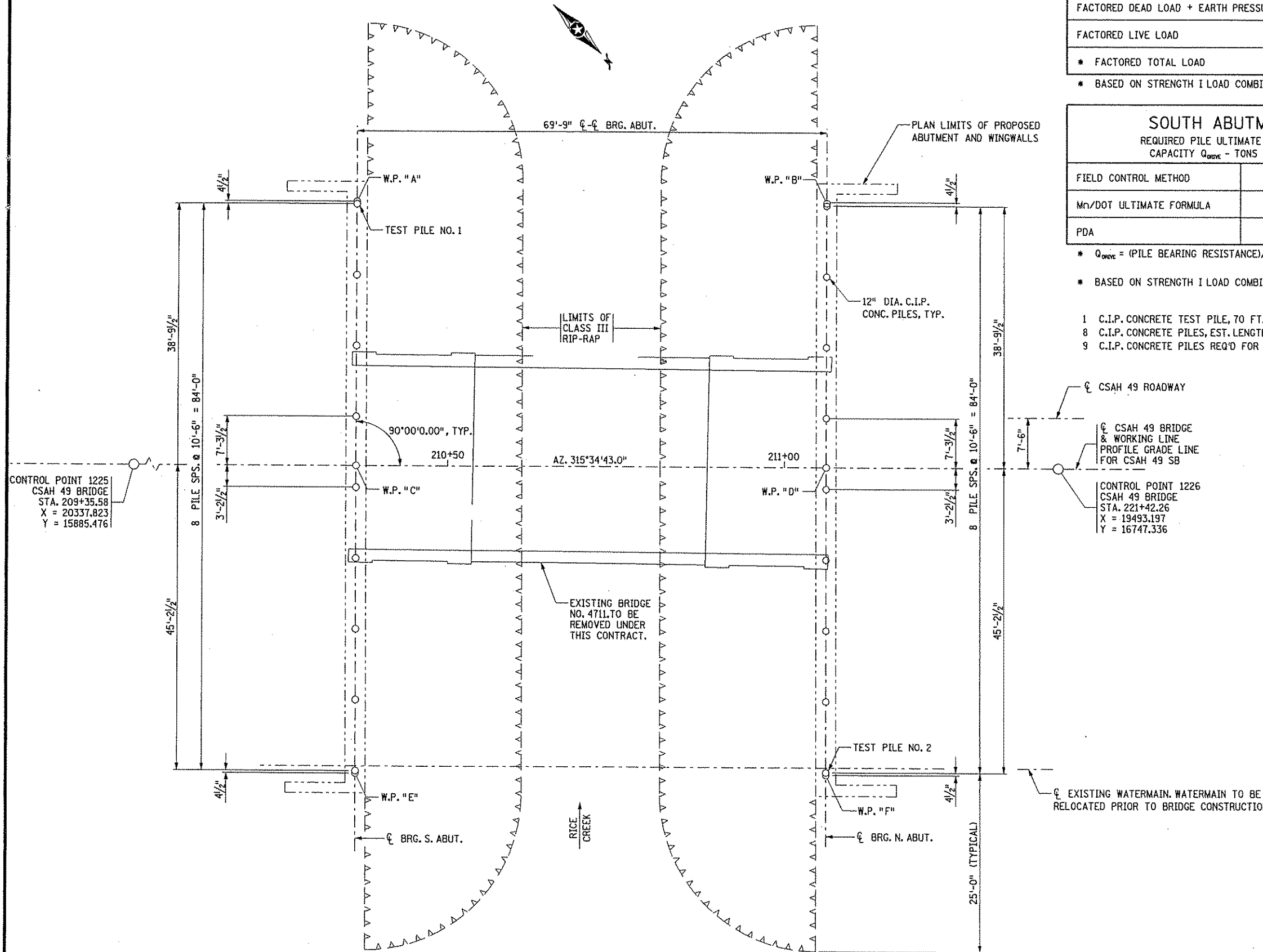
**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS  
 1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE: WORKING POINT LAYOUT

DES: MJC DR: MJC APPROVED  
 CHK: GM CHK: GM  
 Sheet No. B3 of B26 Sheets  
 Bridge No. 02563

FILENAME: K:\A\Anoka\City\15920\hwy-brdg\brdg\Abuts\Foundatn\Layout.dgn  
 DATE: 5/18/2006 TIME: 2:48:44 PM



FOUNDATION LAYOUT PLAN

SOUTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	92.4
FACTORED LIVE LOAD	23.5
* FACTORED TOTAL LOAD	115.9

NORTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	92.4
FACTORED LIVE LOAD	23.5
* FACTORED TOTAL LOAD	115.9

SOUTH ABUTMENT REQUIRED PILE ULTIMATE BEARING CAPACITY $Q_{DRIVE}$ - TONS / PILE		
FIELD CONTROL METHOD	$\phi_{DRIVE}$	* $Q_{DRIVE}$
Mn/DOT ULTIMATE FORMULA	0.40	289.8
PDA	0.60	193.2

NORTH ABUTMENT REQUIRED PILE ULTIMATE BEARING CAPACITY $Q_{DRIVE}$ - TONS / PILE		
FIELD CONTROL METHOD	$\phi_{DRIVE}$	* $Q_{DRIVE}$
Mn/DOT ULTIMATE FORMULA	0.40	289.8
PDA	0.60	193.2

- \*  $Q_{DRIVE} = (\text{PILE BEARING RESISTANCE}) / \phi_{DRIVE}$
- \* BASED ON STRENGTH I LOAD COMBINATION
- 1 C.I.P. CONCRETE TEST PILE, 70 FT. LONG
- 8 C.I.P. CONCRETE PILES, EST. LENGTH 60 FT.
- 9 C.I.P. CONCRETE PILES REQ'D FOR SOUTH ABUTMENT

- \*  $Q_{DRIVE} = (\text{PILE BEARING RESISTANCE}) / \phi_{DRIVE}$
- \* BASED ON STRENGTH I LOAD COMBINATION
- 1 C.I.P. CONCRETE TEST PILE, 70 FT. LONG
- 8 C.I.P. CONCRETE PILES, EST. LENGTH 60 FT.
- 9 C.I.P. CONCRETE PILES REQ'D FOR NORTH ABUTMENT

**PILE NOTES:**  
 PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.  
 PILES TO HAVE A NOMINAL DIAMETER OF 12" WITH A MINIMUM WALL THICKNESS OF 0.3125". (ASTM A252, GRADE 3 OR BETTER).  
 FOR PILE SPLICE DETAILS SEE STANDARD DETAIL B201.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SIGNED: *Matthew J. Christensen*  
 DATE: 6-5-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS  
 1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

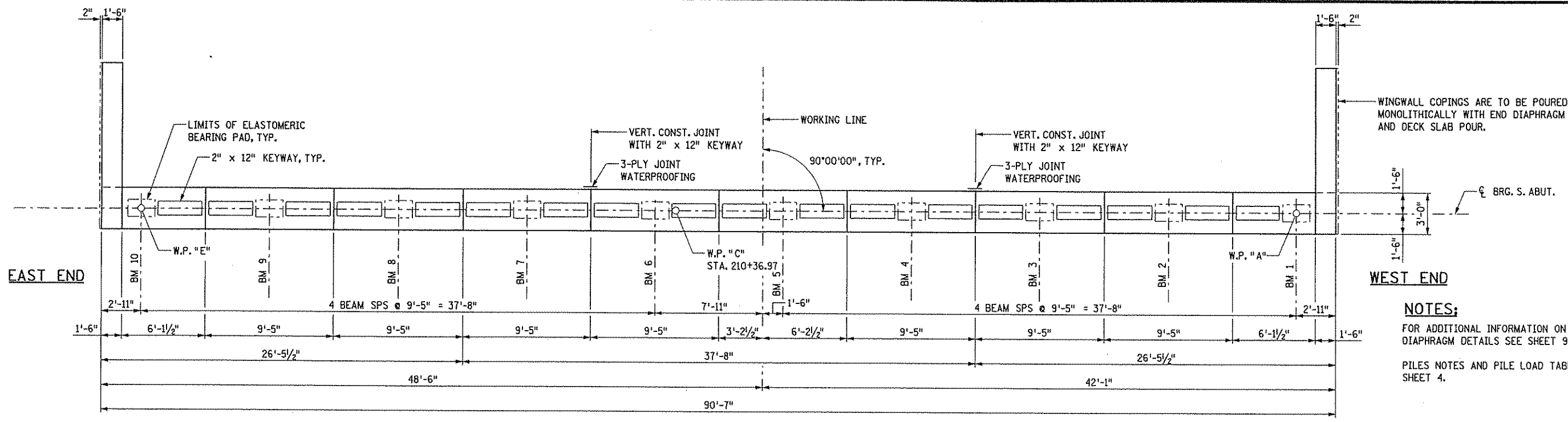
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DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B4 of B26 Sheets

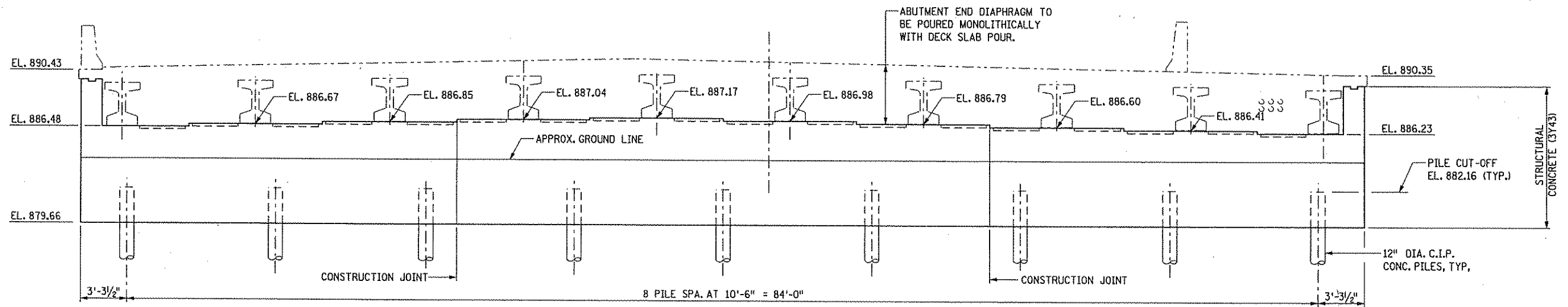
Bridge No.  
 02563

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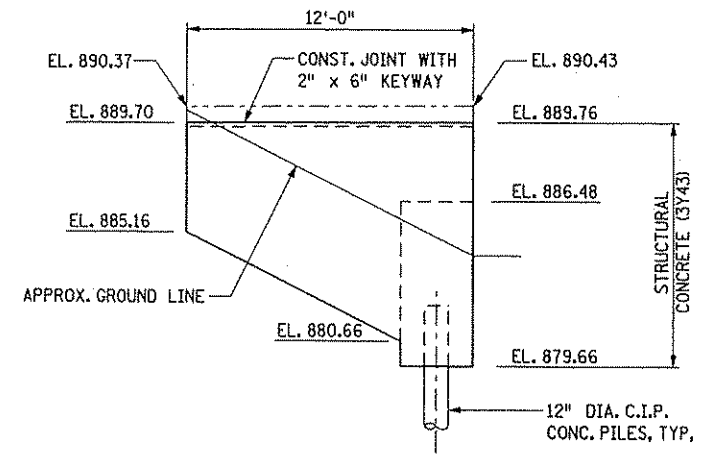


PLAN VIEW

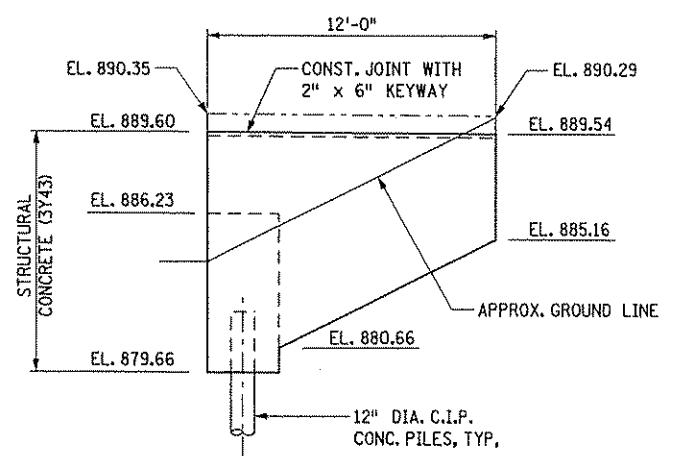
**NOTES:**  
 FOR ADDITIONAL INFORMATION ON ABUTMENT AND END DIAPHRAGM DETAILS SEE SHEET 9.  
 PILES NOTES AND PILE LOAD TABLES ARE SHOWN ON SHEET 4.



ELEVATION VIEW



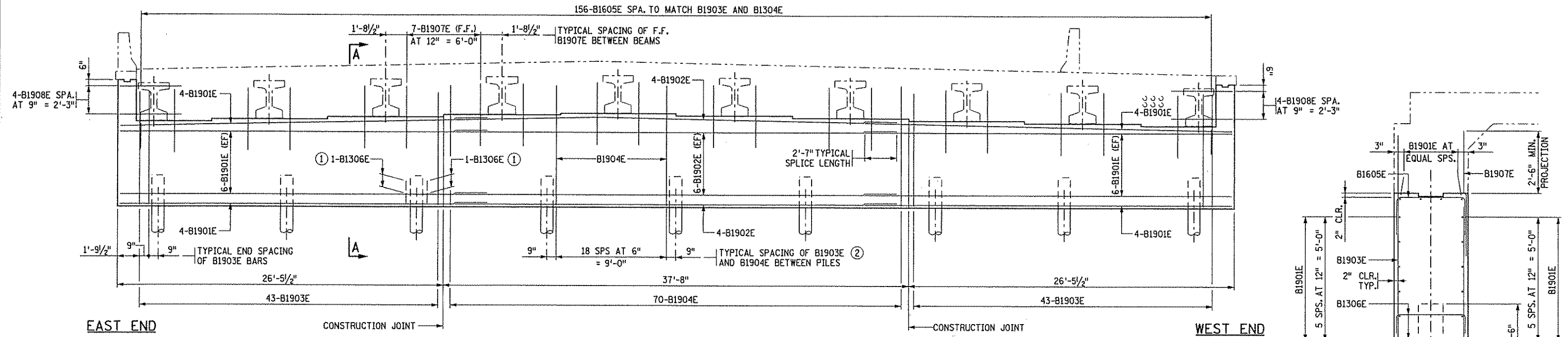
SOUTHEAST WINGWALL



SOUTHWEST WINGWALL

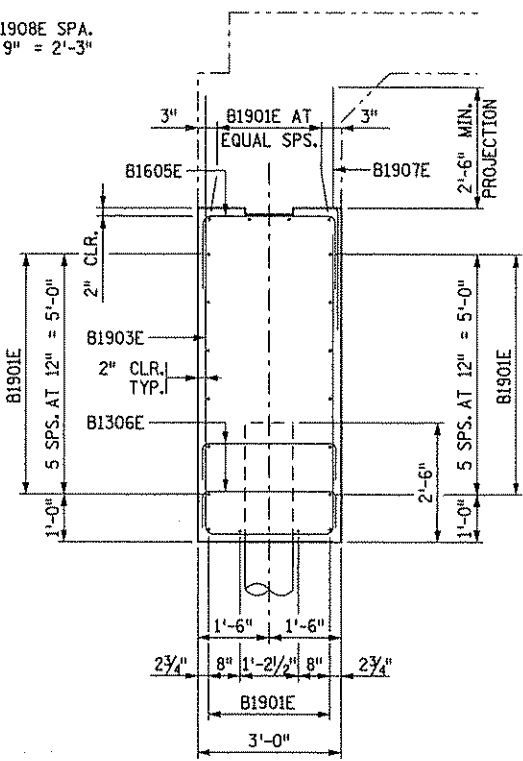
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. SIGNED: <i>Matthew J. Christensen</i> DATE: 6-5-2006 MATTHEW J. CHRISTENSEN REG. NO. 43076				<b>TKDA</b> ENGINEERS • ARCHITECTS • PLANNERS 1500 PIPER JAFFRAY PLAZA 444 CEDAR STREET SAINT PAUL, MINNESOTA		CSAH 49 OVER RICE CREEK ANOKA COUNTY, MINNESOTA S.A.P. 02-649-01		TITLE: SOUTH ABUTMENT PLAN AND ELEVATION		DES: MJC DR: MJC APPROVED CHK: GM CHK: GM Sheet No. B5 of B26 Sheets		Bridge No. 02563	
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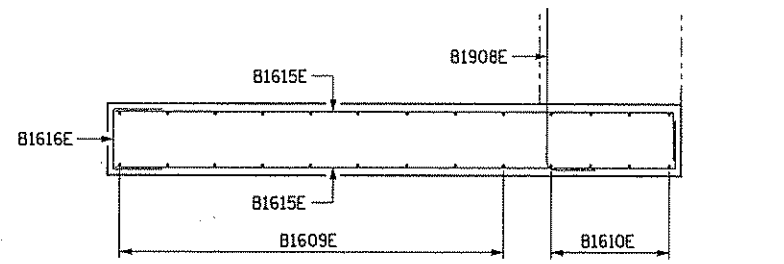


**SOUTH ABUTMENT REINFORCEMENT**

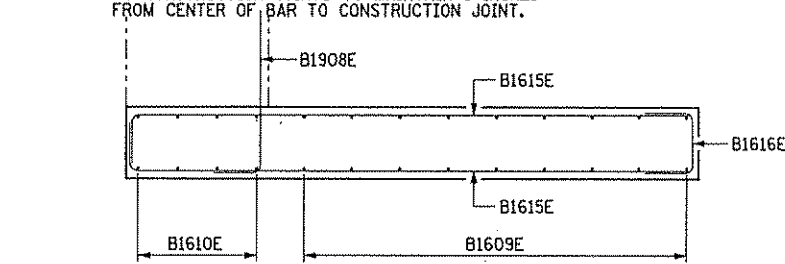
- ① TYPICAL PLACEMENT OF B1306E AT ALL PILES
- ② ADJUST PLACEMENT OF B1903E AND B1904E BARS AT CONSTRUCTION JOINTS TO MAINTAIN 3 INCHES FROM CENTER OF BAR TO CONSTRUCTION JOINT.



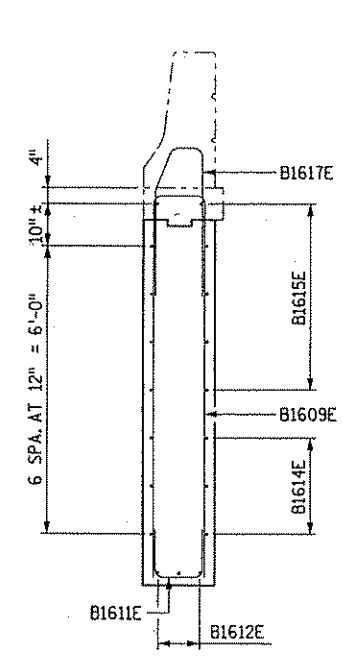
**SECTION A-A**



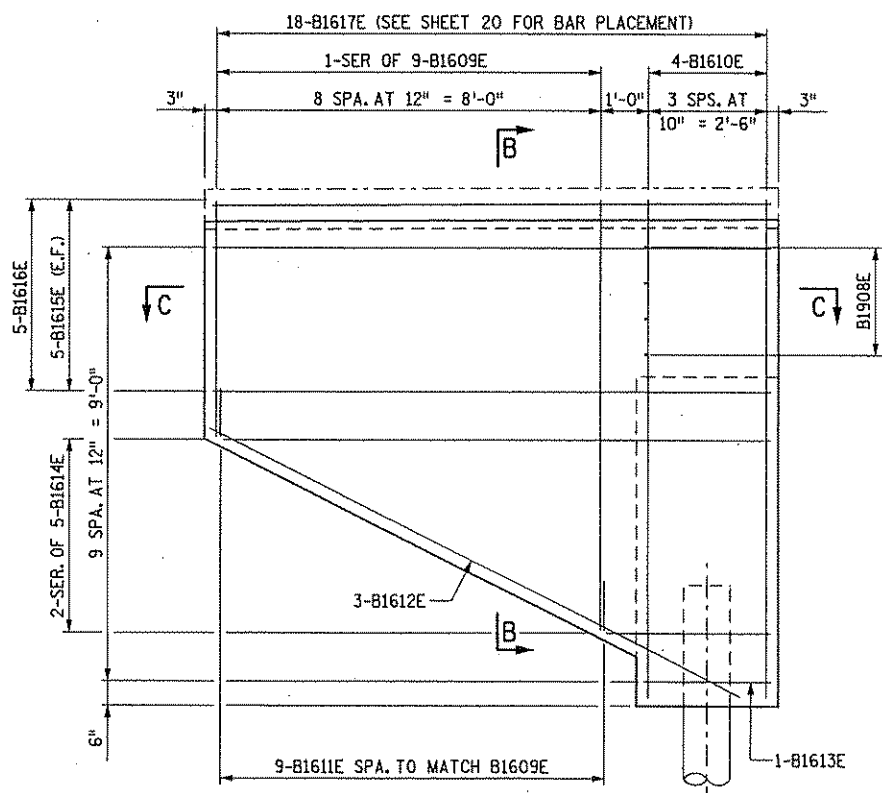
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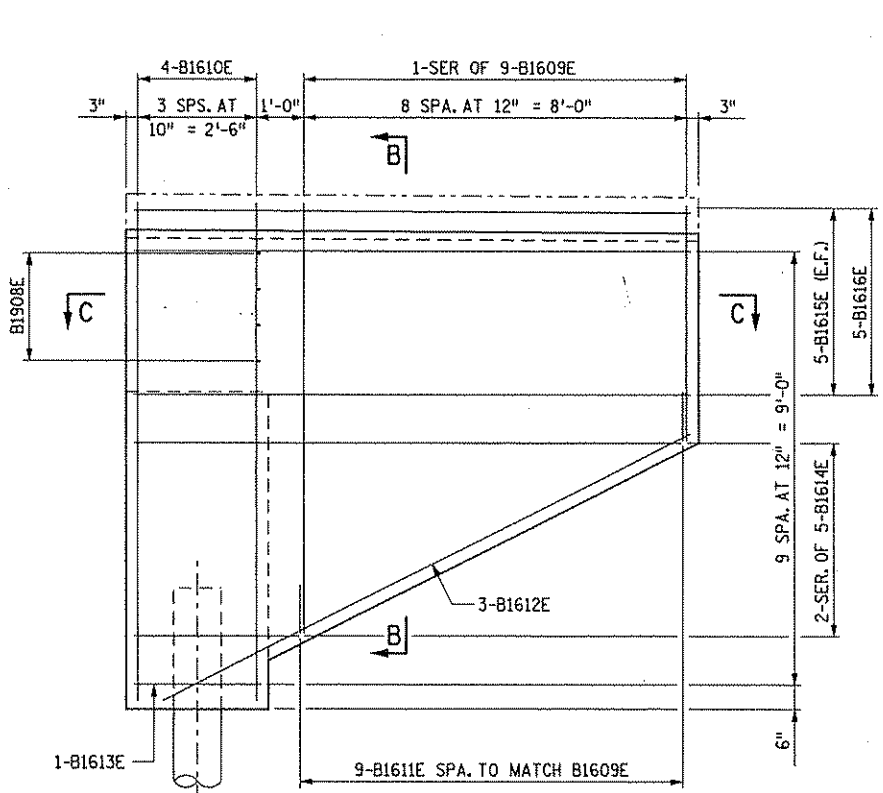
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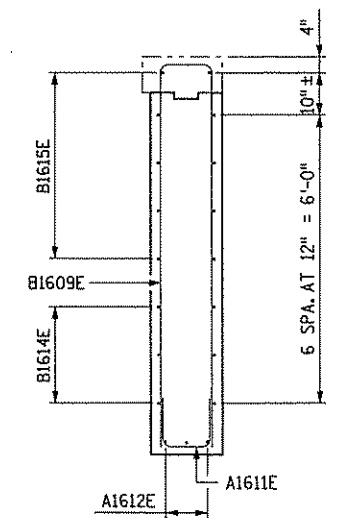
**SECTION B-B**



**SOUTHEAST WINGWALL REINFORCEMENT**



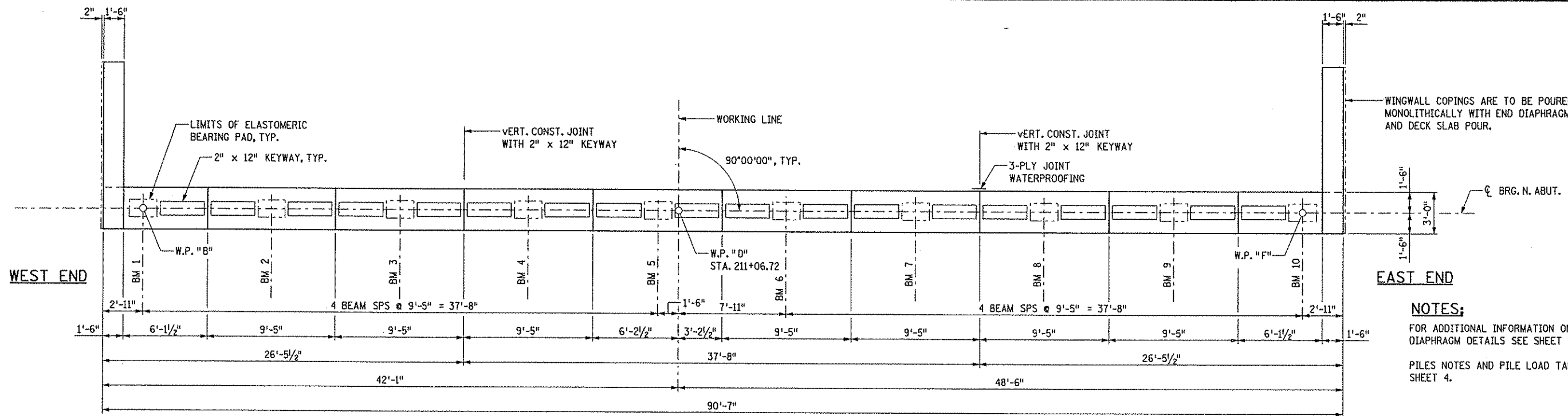
**SOUTHWEST WINGWALL REINFORCEMENT**



**SECTION B-B**

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. SIGNED: <i>Matthew J. Christensen</i> MATTHEW J. CHRISTENSEN REG. NO. 43076		<b>TKDA</b> ENGINEERS • ARCHITECTS • PLANNERS	1500 PIPER JAFFRAY PLAZA 444 CEDAR STREET SAINT PAUL, MINNESOTA	CSAH 49 OVER RICE CREEK ANOKA COUNTY, MINNESOTA S.A.P. 02-649-01	TITLE: SOUTH ABUTMENT REINFORCEMENT	DES: MJC CHK: GM	DR: MJC CHK: GM	APPROVED: _____	Bridge No. 02563
NO. DATE BY DESCRIPTION OF REVISIONS		DATE: 5-8-2006		SHEET NO. B6 OF B26 SHEETS		Sheet No. B6 of B26 Sheets			

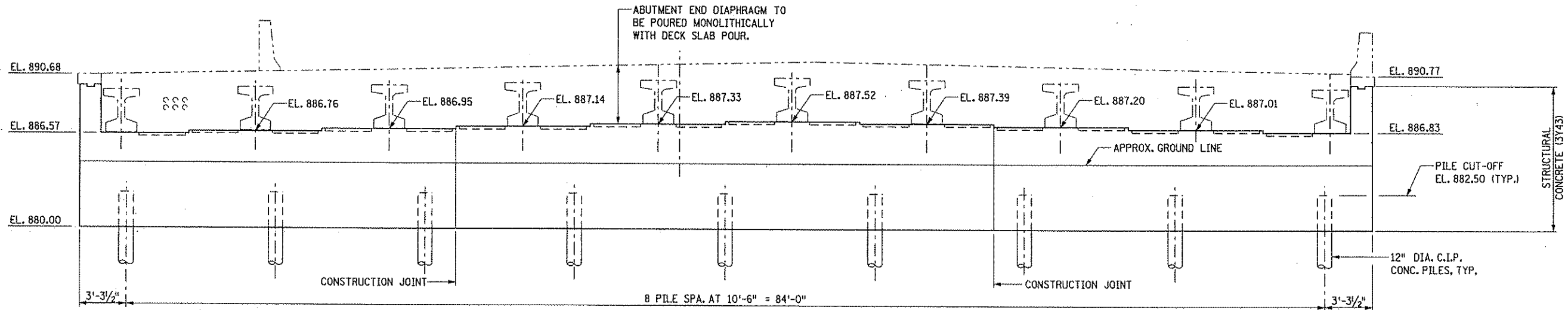
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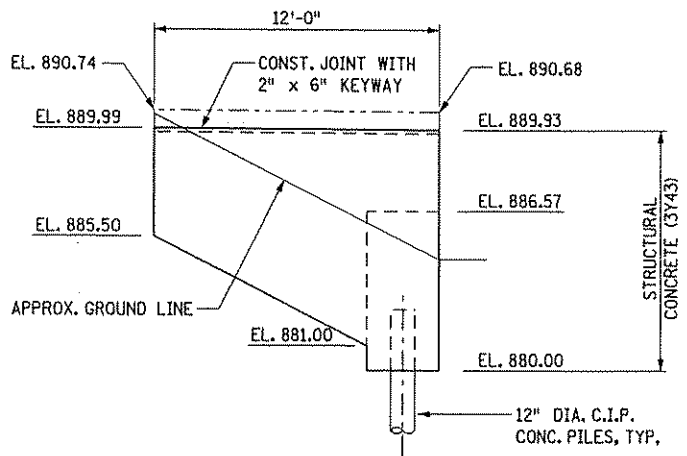
PLAN VIEW

WINGWALL COPINGS ARE TO BE POURED MONOLITHICALLY WITH END DIAPHRAGM AND DECK SLAB POUR.

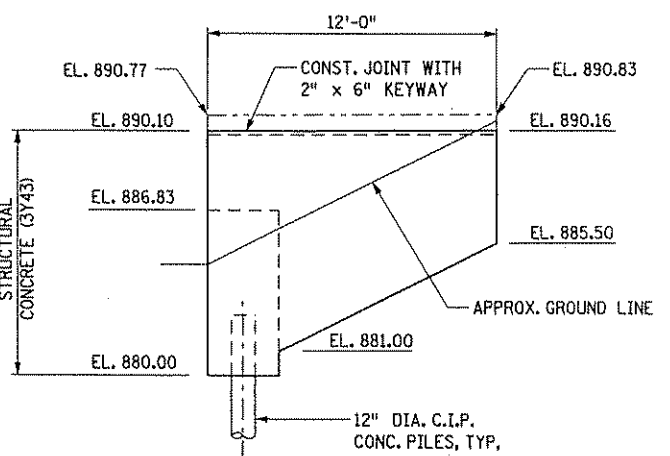
NOTES:  
 FOR ADDITIONAL INFORMATION ON ABUTMENT AND END DIAPHRAGM DETAILS SEE SHEET 9.  
 PILES NOTES AND PILE LOAD TABLES ARE SHOWN ON SHEET 4.



ELEVATION VIEW



NORTHWEST WINGWALL



NORTHEAST WINGWALL

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED: *Matthew J. Christensen*  
 DATE: 5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

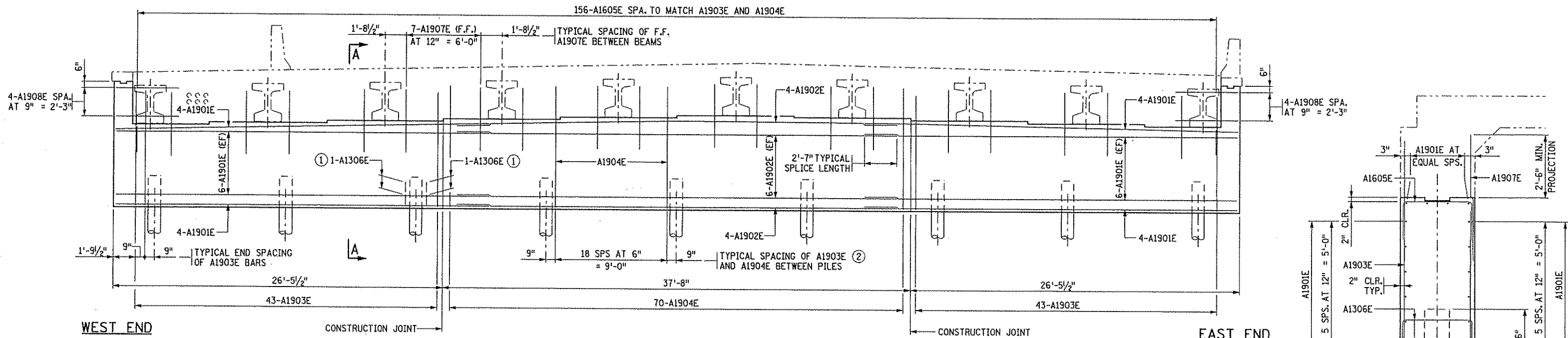
TITLE:  
**NORTH ABUTMENT  
 PLAN AND ELEVATION**

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

Sheet No. B7 of B26 Sheets

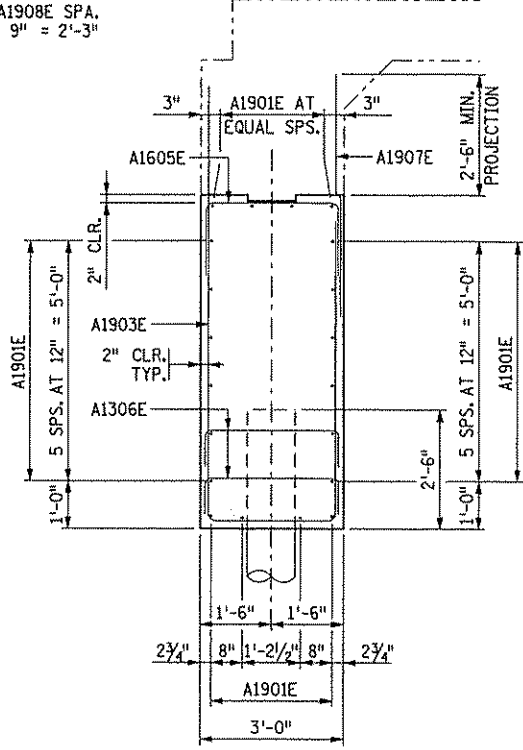
Bridge No.  
 02563

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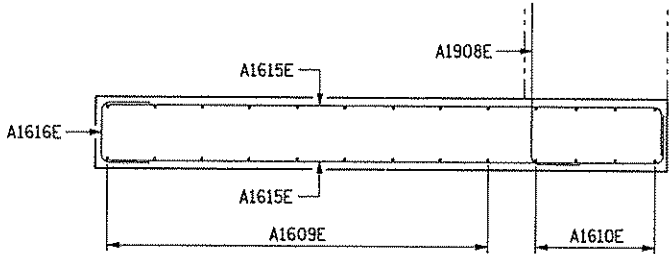


**NORTH ABUTMENT REINFORCEMENT**

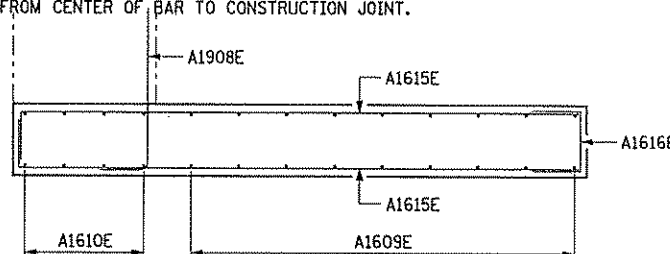
- ① TYPICAL PLACEMENT OF A1306E AT ALL PILES
- ② ADJUST PLACEMENT OF A1903E AND A1904E BARS AT CONSTRUCTION JOINTS TO MAINTAIN 3 INCHES FROM CENTER OF BAR TO CONSTRUCTION JOINT.



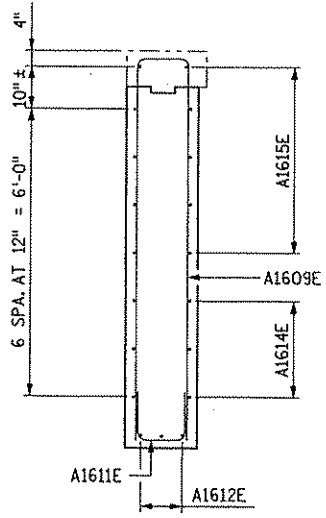
**SECTION A-A**



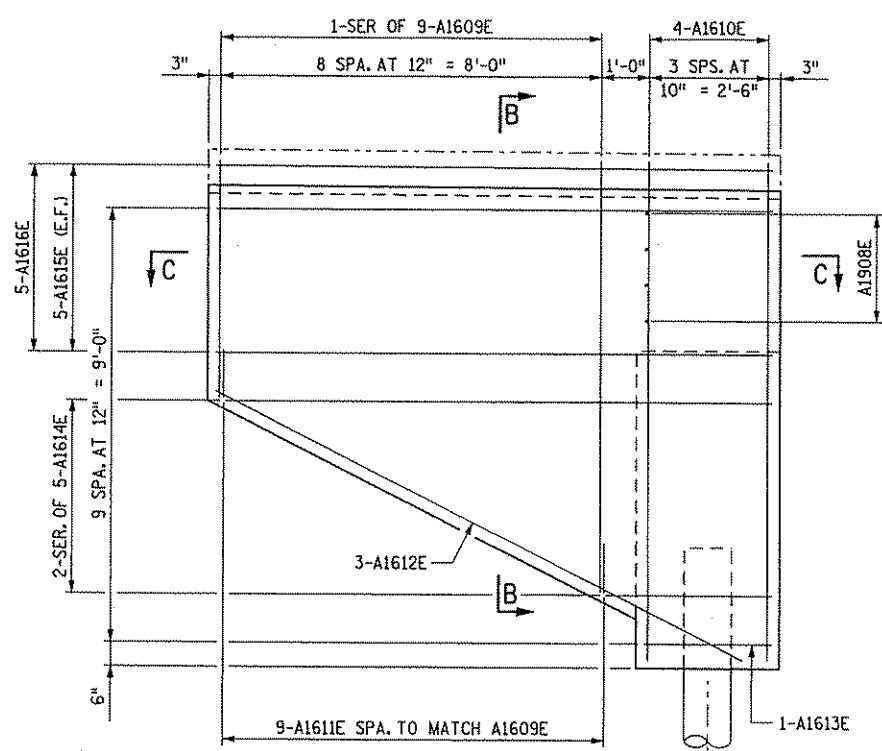
**SECTION C-C**



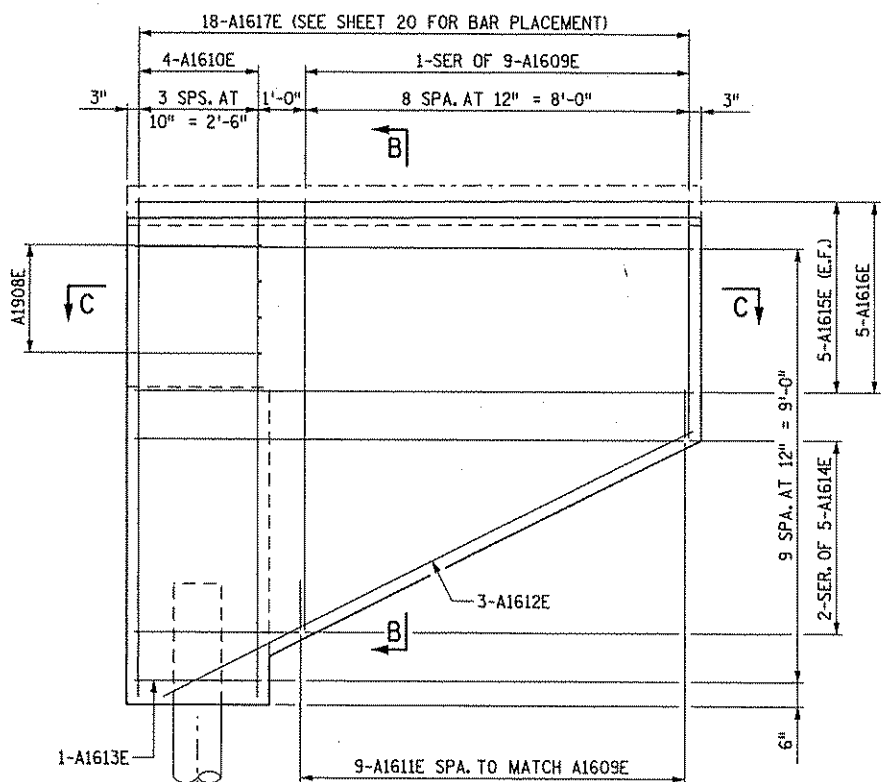
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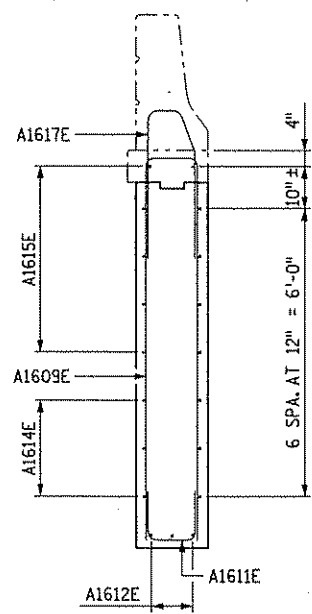
**SECTION B-B**



**NORTHWEST WINGWALL REINFORCEMENT**



**NORTHEAST WINGWALL REINFORCEMENT**



**SECTION B-B**

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN REG. NO. 43076  
 DATE: 5-8-2006

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

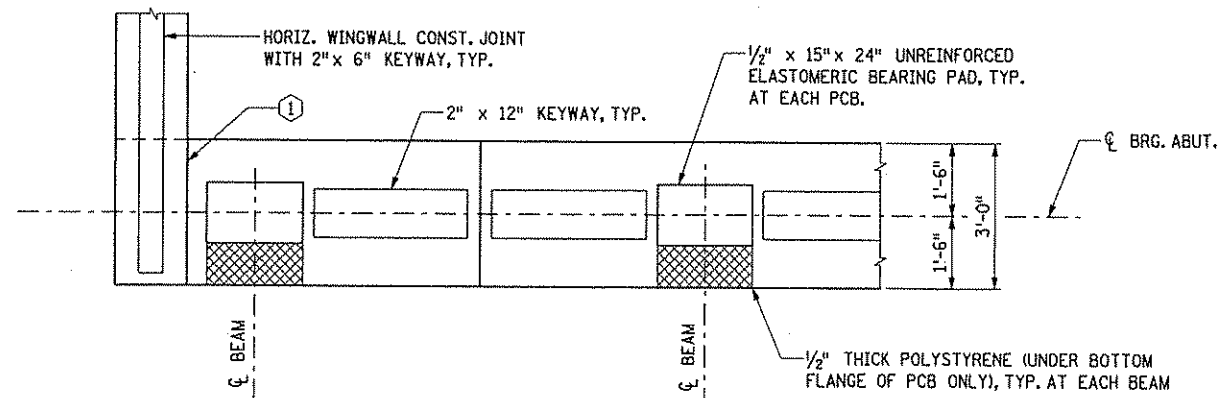
CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE: **NORTH ABUTMENT REINFORCEMENT**

DES: MJC OR: MJC APPROVED  
 CHK: GM CHK: GM  
 Sheet No. B8 of B26 Sheets

Bridge No. 02563

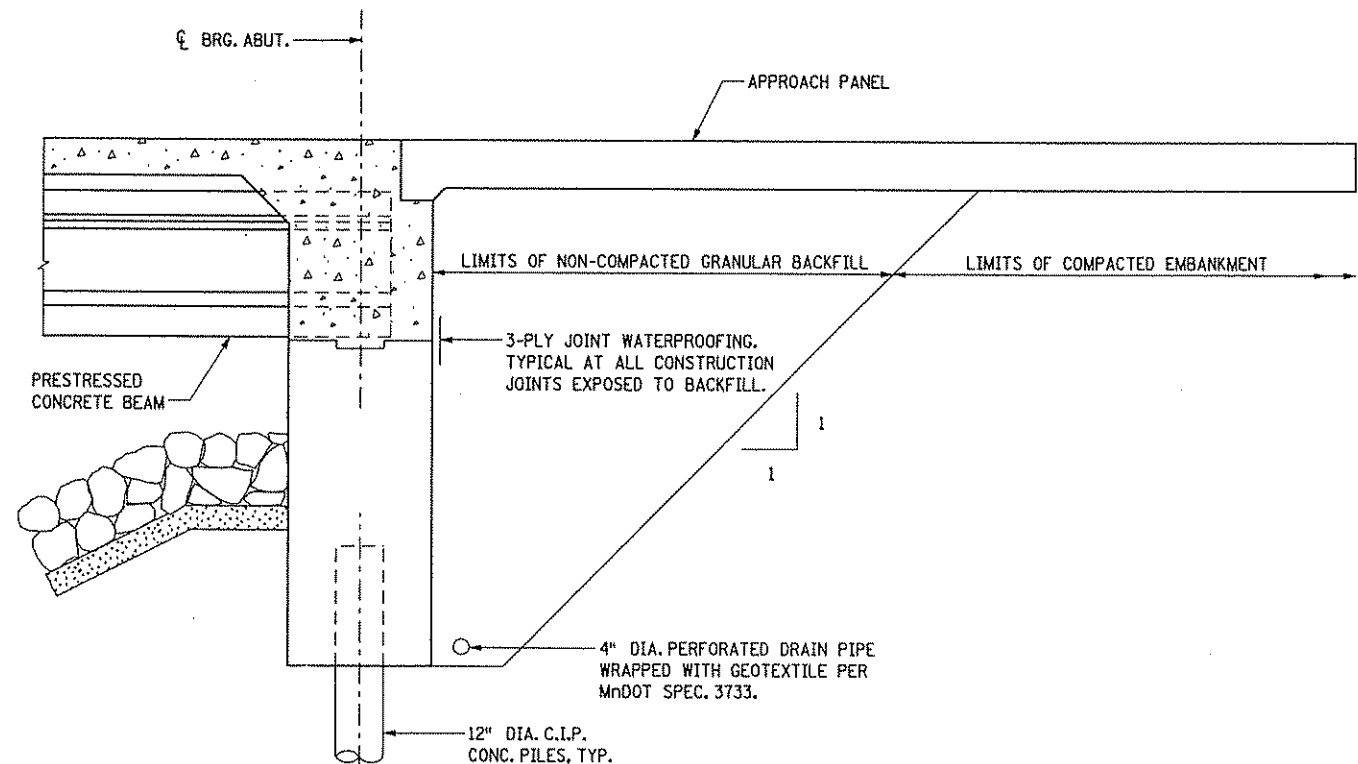
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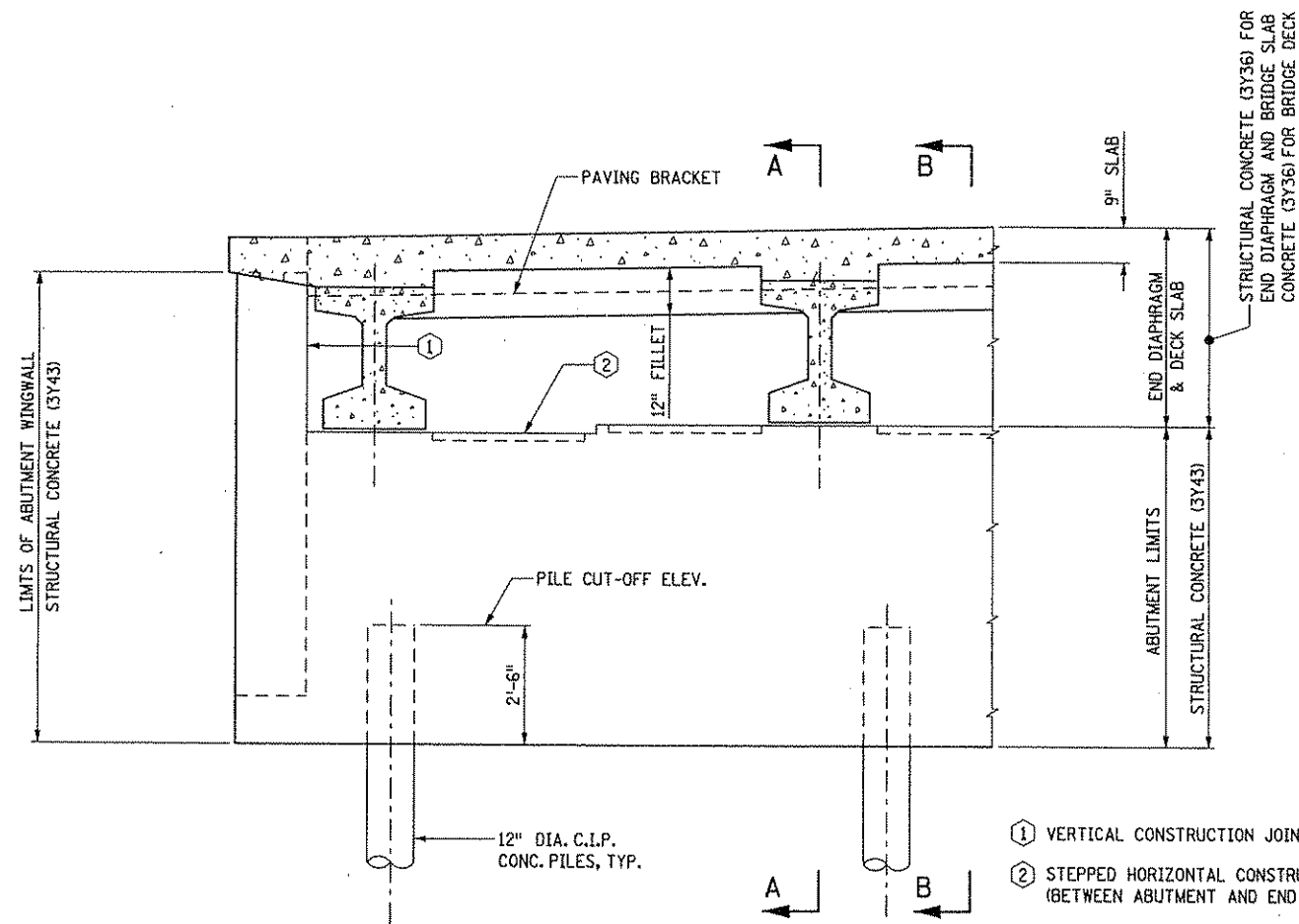
TYPICAL BRIDGE SEAT DETAIL

REQUIRED CONSTRUCTION SEQUENCE:

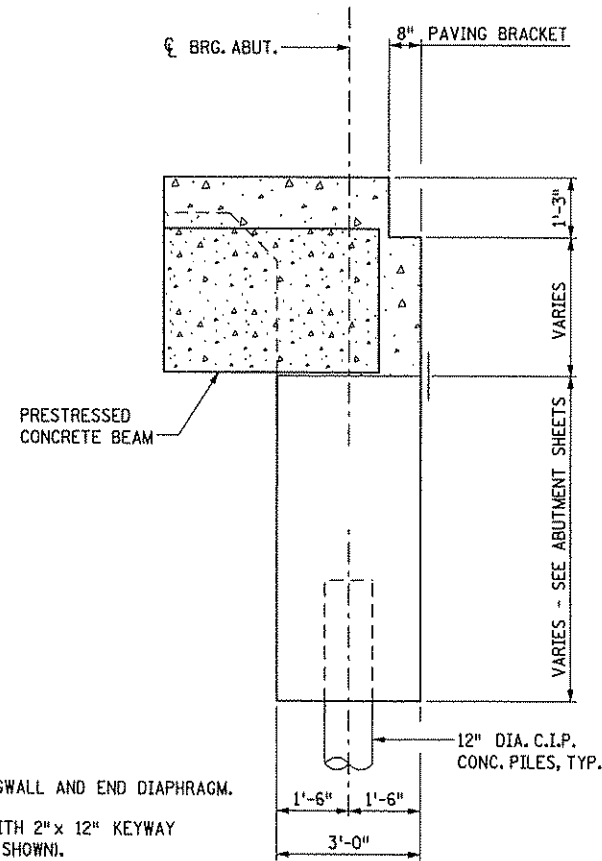
- ① CONSTRUCT ABUTMENT AND WINGWALLS UP TO THE CONSTRUCTION JOINTS IDENTIFIED ON THIS PLAN.
- ② AFTER PLACING BEARING PADS AND POLYSTYRENE, ERECT PRESTRESSED CONCRETE BEAMS.
- ③ CONCRETE FOR BRIDGE DECK SLAB, END DIAPHRAGMS AND WINGWALL COPINGS IS TO BE POURED IN ONE MONOLITHIC POUR.
- ④ APPROACH PANELS, RAISED CONCRETE MEDIAN, CONCRETE RAILINGS AND CONCRETE WEARING COURSE MAY BE POURED IN ANY LOGICAL SEQUENCE.



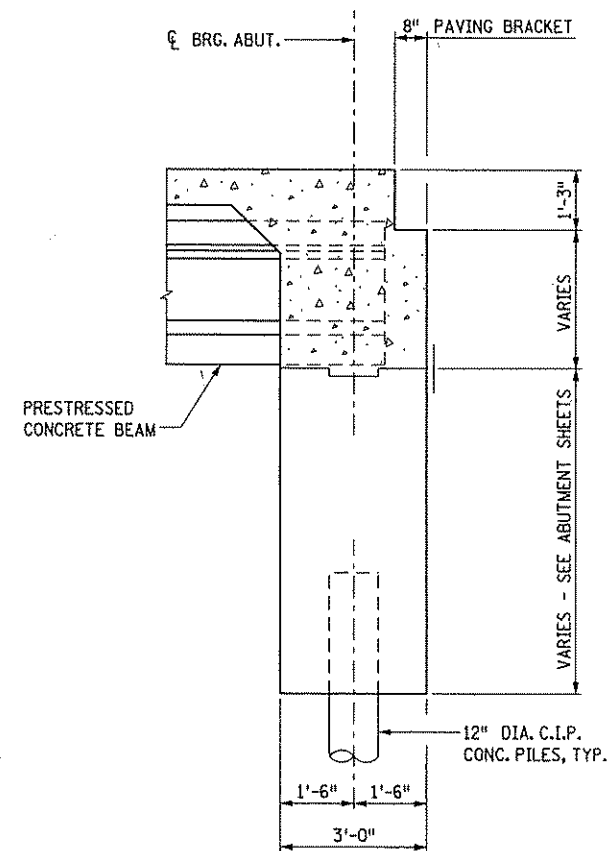
BACKFILL AND DRAINAGE DETAILS



(END DIAPHRAGM NOT SHOWN)  
TYPICAL ABUTMENT ELEVATION DETAIL



TYPICAL SECTION A-A



TYPICAL SECTION B-B

- ① VERTICAL CONSTRUCTION JOINT BETWEEN WINGWALL AND END DIAPHRAGM.
- ② STEPPED HORIZONTAL CONSTRUCTION JOINT WITH 2" x 12" KEYWAY (BETWEEN ABUTMENT AND END DIAPHRAGM AS SHOWN).

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN  
 DATE: 5-8-2006 REG. NO. 43076

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE:  
 ABUTMENT DETAILS

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

Sheet No. B9 of B26 Sheets

Bridge No.  
 02563



FILENAME: k:\a-f\anoka\15920\hwy-brdg\brdg\dgn\abuts\subbar.dgn  
 DATE: 5/8/2006 TIME: 9:42:31 AM

### SUMMARY OF QUANTITIES FOR ABUTMENTS

NOTE	ITEM	UNIT	SOUTH ABUTMENT	NORTH ABUTMENT	TOTAL
	STRUCTURAL CONCRETE (3Y43)	CU. YD.	80	80	160
	REINFORCEMENT BARS (EPOXY COATED)	LB	10350	10350	20700
	STRUCTURE EXCAVATION	LS	(PART)	(PART)	1
1	C-I-P CONCRETE PILING DELIVERED 12"	LIN. FT.	480	480	960
1	C-I-P CONCRETE PILING DRIVEN 12"	LIN. FT.	480	480	960
	C-I-P CONCRETE TEST PILE 70 FT. LONG	EACH	1	1	2
	REMOVE OLD BRIDGE	LUMP SUM	---	---	1
2	PREFORMED JOINT FILLER	(PART)	(PART)	(PART)	---

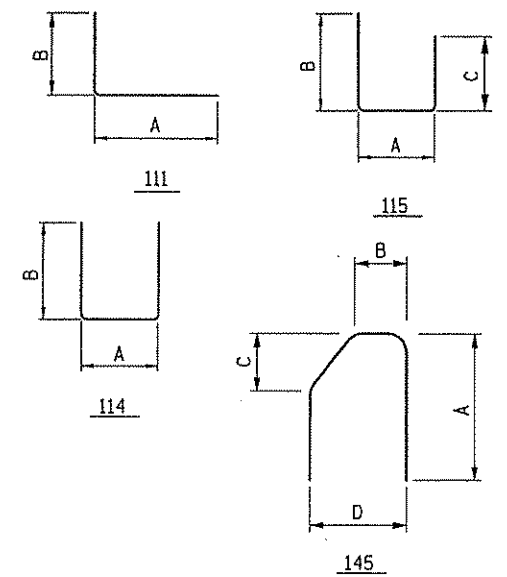
**NOTES:**

- DOES NOT INCLUDE TEST PILES.
- TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

### BARLISTS

BAR MARK	NO.	SERIES NO.	NO. OF	LENGTH FT	IN	SIZE	TYPE	DIMENSIONS				LOCATION
								A	B	C	D	
SOUTH ABUTMENT												
B1901E	40			30	0	19	STR					ABUTMENT, HORIZ.
B1902E	20			35	9	19	STR					ABUTMENT, HORIZ.
B1903E	48			17	10	19	115	2'-8"	9'-0"	6'-2"		ABUTMENT STIRRUPS
B1904E	36			19	0	19	115	2'-8"	9'-7"	6'-9"		ABUTMENT STIRRUPS
B1605E	86			7	8	16	114	2'-8"	2'-6"			ABUTMENT SEAT TIES
B1306E	36			4	8	13	114	2'-8"	1'-0"			TIES AT PILES
B1907E	63			5	6	19	STR					VERT. DOWELS (F.F.)
B1908E	8			6	0	19	111	5'-0"	1'-0"			HORIZ. DOWELS
B1609E		2	SER	10	10	16	114	1'-0"	4'-11"			WINGWALL, VERT.
		OF		9	18	10			8'-11"			
B1610E	8			21	8	16	114	1'-0"	10'-4"			WINGWALL, VERT.
B1611E	18			3	0	16	114	1'-0"	1'-0"			WINGWALL TIE, BOTT.
B1612E	6			12	4	16	STR					WINGWALL, BOTTOM
B1613E	2			4	8	16	114	2'-8"	1'-0"			ABUTMENT END
B1614E		4	SER	4	5	16	111	3'-5"	1'-0"			WINGWALL, HORIZ.
		OF		5	12	5			11'-5"			
B1615E	20			12	8	16	111	11'-8"	1'-0"			WINGWALL, HORIZ.
B1616E	10			3	2	16	114	1'-2"	1'-0"			WINGWALL TIE, HORIZ.
B1617E	18			7	6	16	145	3'-4"	9"	10"	1'-0"	RAILING, VERT.
NORTH ABUTMENT												
A1901E	40			30	0	19	STR					ABUTMENT, HORIZ.
A1902E	20			35	9	19	STR					ABUTMENT, HORIZ.
A1903E	48			17	10	19	115	2'-8"	9'-0"	6'-2"		ABUTMENT STIRRUPS
A1904E	36			19	0	19	115	2'-8"	9'-7"	6'-9"		ABUTMENT STIRRUPS
A1605E	84			7	8	16	114	2'-8"	2'-6"			ABUTMENT SEAT TIES
A1306E	36			4	8	13	114	2'-8"	1'-0"			TIES AT PILES
A1907E	63			5	6	19	STR					VERT. DOWELS (F.F.)
A1908E	8			6	0	19	111	5'-0"	1'-0"			HORIZ. DOWELS
A1609E		2	SER	10	10	16	114	1'-0"	4'-11"			WINGWALL, VERT.
		OF		9	18	10			8'-11"			
A1610E	8			21	8	16	114	1'-0"	10'-4"			WINGWALL, VERT.
A1611E	18			3	0	16	114	1'-0"	1'-0"			WINGWALL TIE, BOTT.
A1612E	6			12	4	16	STR					WINGWALL, BOTTOM
A1613E	2			4	8	16	114	2'-8"	1'-0"			ABUTMENT END
A1614E		4	SER	4	5	16	111	3'-5"	1'-0"			WINGWALL, HORIZ.
		OF		5	12	5			11'-5"			
A1615E	20			12	8	16	111	11'-8"	1'-0"			WINGWALL, HORIZ.
A1616E	10			3	2	16	114	1'-2"	1'-0"			WINGWALL TIE, HORIZ.
A1617E	18			7	6	16	145	3'-4"	9"	10"	1'-0"	RAILING, VERT.

### BAR BENDING DIAGRAMS



**NOTES:**

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

\* DENOTES STANDARD STIRRUP HOOK DIMENSIONS PER CRSI.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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SIGNED: *Matthew J. Christensen*  
 DATE: 5-8-2006

MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

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CSAH 49 OVER RICE CREEK  
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 S.A.P. 02-649-01

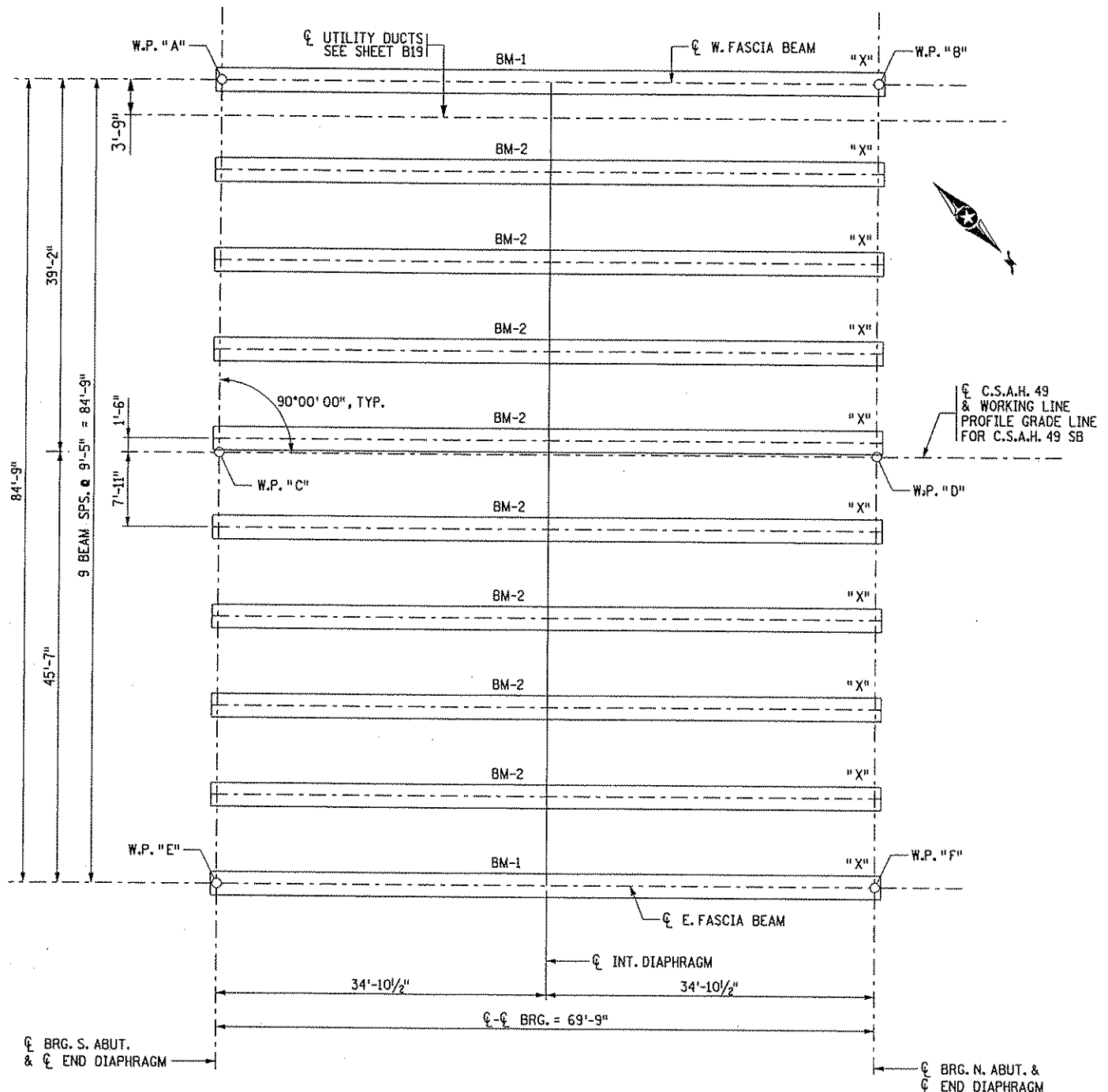
TITLE: ABUTMENT BARLISTS AND QUANTITIES

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

Sheet No. B10 of B26 Sheets

Bridge No. 02563

FILENAME: k:\a-nanokacty\15920\hwy-brdg\brdg\super\framing.dgn  
 DATE: 5/8/2006 TIME: 9:42:33 AM



**FRAMING NOTES:**

ALL BEAMS ARE PRESTRESSED CONCRETE BEAMS, TYPE 36M.  
 BEAMS ARE TO BE SET ON 1/2" THICK ELASTOMERIC BEARING PADS. PLACE 1/2" THICK POLYSTYRENE AS SHOWN IN BRIDGE SEAT DETAIL.

☐ C.S.A.H. 49 & WORKING LINE PROFILE GRADE LINE FOR C.S.A.H. 49 SB

**FRAMING PLAN**

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS  
 1500 PIPER JAFFRAY PLAZA  
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 SAINT PAUL, MINNESOTA

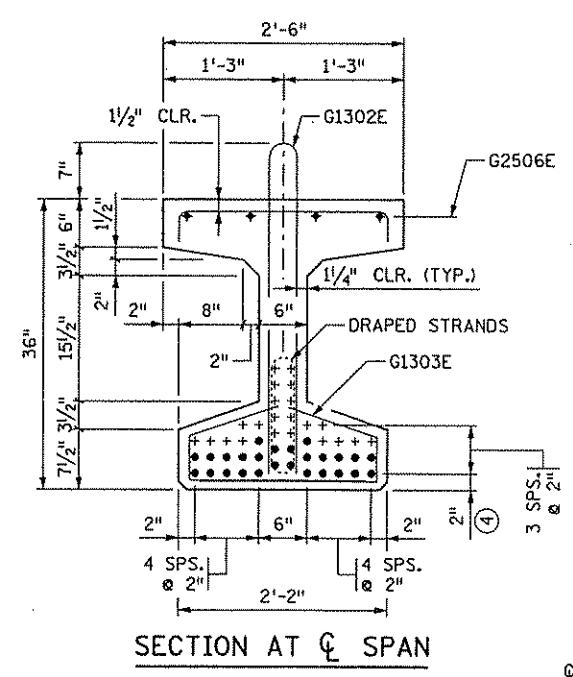
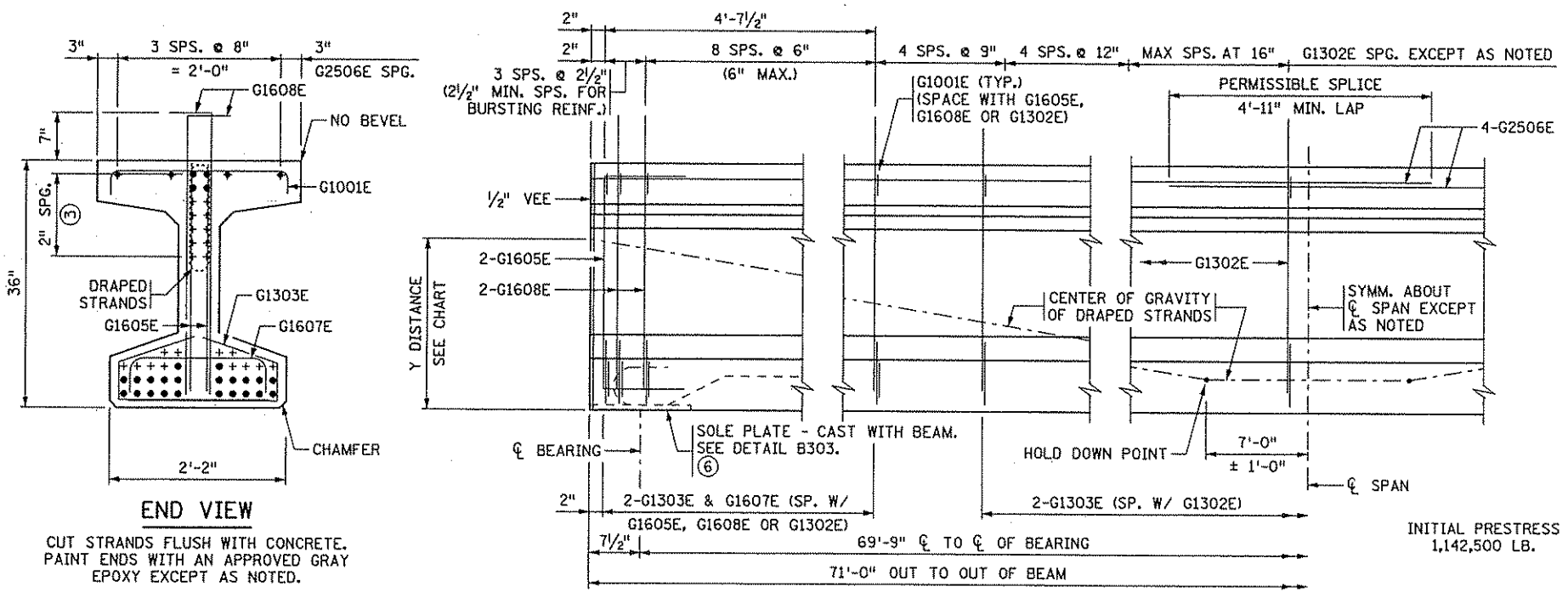
CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE: **FRAMING PLAN**

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

Bridge No. 02563  
 Sheet No. B11 of B26 Sheets

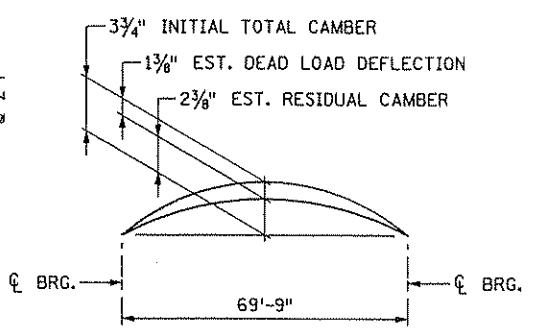
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DATE: 5/8/2006 TIME: 9:42:35 AM



Y DISTANCES (IN INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	22	3.27	
DRAPED STRANDS	4	4.00	33.00
TOTAL STRANDS	26	3.38	

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

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

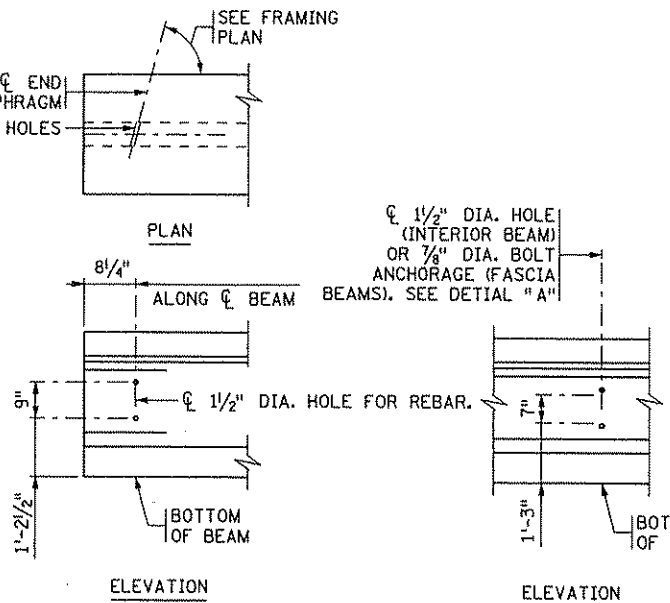
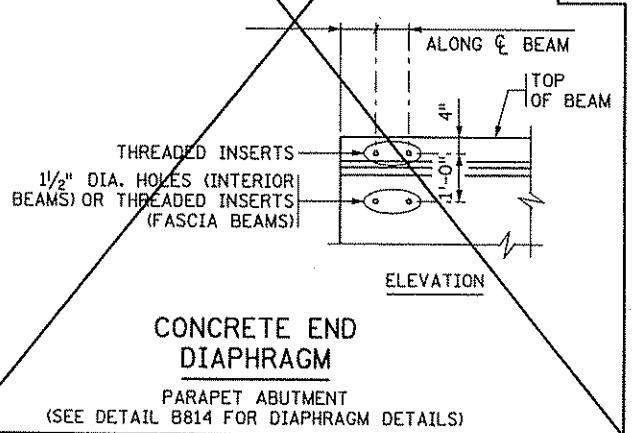
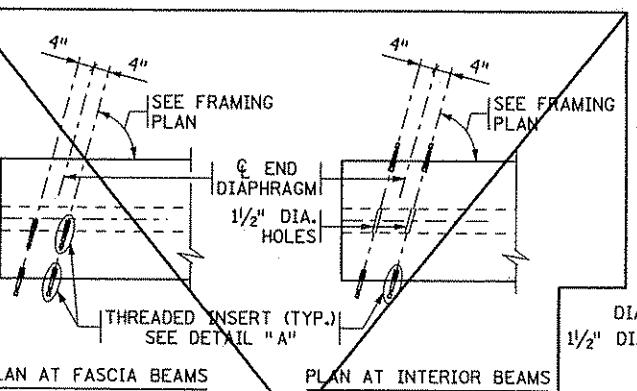


INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

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

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

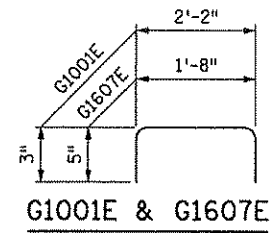
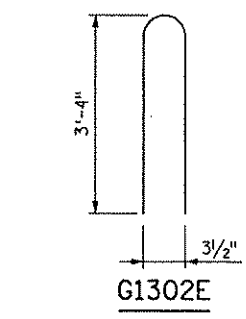
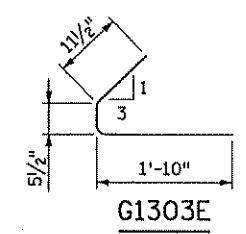
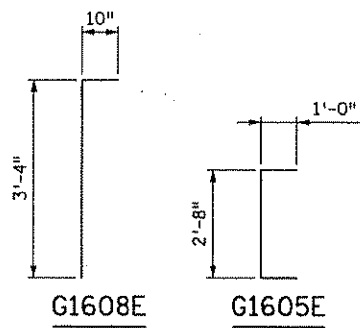
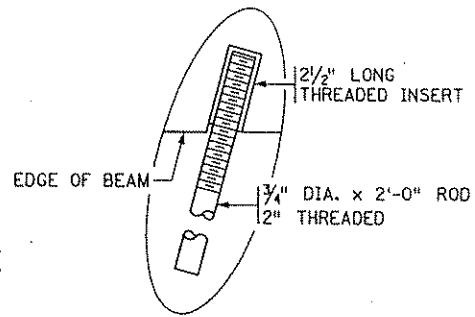
**END VIEW**  
CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.



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

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

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



**GENERAL NOTES**

- TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND. PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.
- EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405. SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING. APPROXIMATE WEIGHT OF BEAM IS 22 TONS.
- AS AN ALTERNATE TO THE DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.
- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ FOR INTEGRAL ABUTMENT. SOLE PLATE CAN BE ELIMINATED OR BE REPLACED WITH APPROVED PROTECTED PLATE.

REVISED:  
APPROVED: APRIL 29, 2003  
STATE BRIDGE ENGINEER

CONTRACTION OR INTEGRAL ABUTMENT (SEE DETAIL B811 OR B815 FOR DIAPHRAGM DETAILS)  
STEEL INTERMEDIATE DIAPHRAGM (SEE DETAIL B403 FOR DIAPHRAGM DETAILS)

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
SIGNED: *Matthew J. Christensen*  
DATE: 15-8-2006  
MATTHEW J. CHRISTENSEN  
REG. NO. 43076

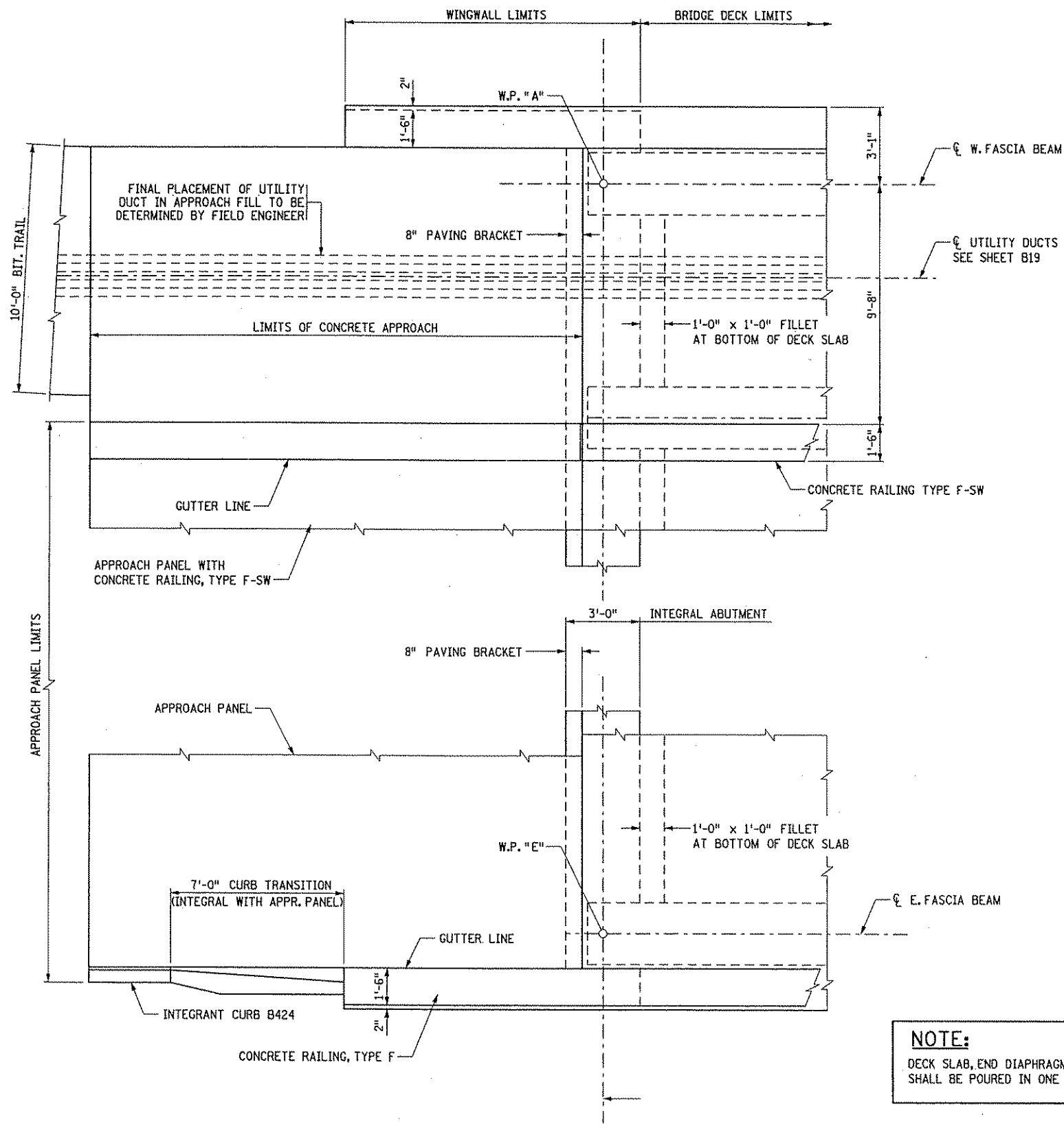
**TKDA**  
ENGINEERS • ARCHITECTS • PLANNERS  
1500 PIPER JAFFRAY PLAZA  
444 CEDAR STREET  
SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
ANOKA COUNTY, MINNESOTA  
S.A.P. 02-649-01

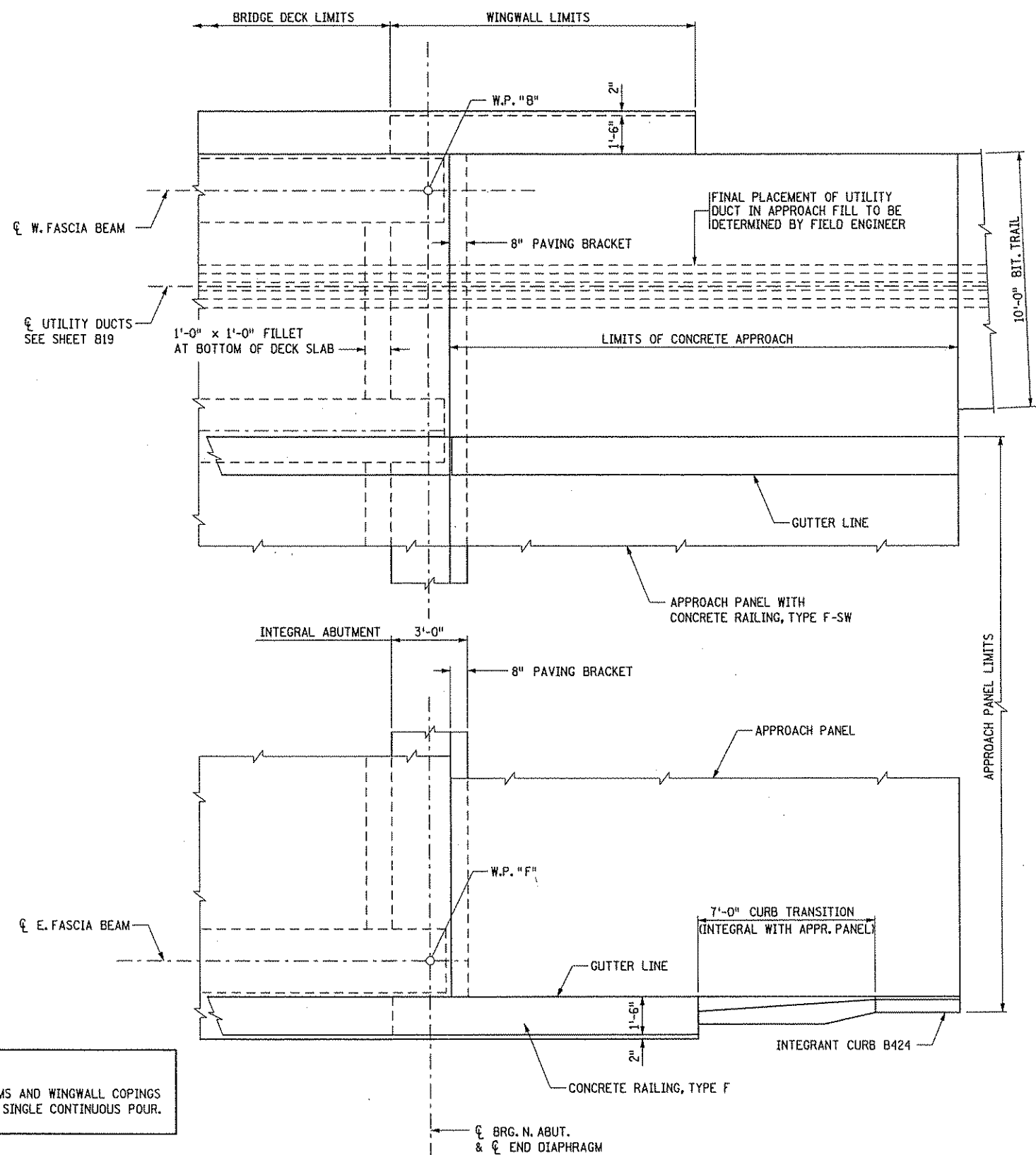
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BEAM BM-1 & BM-2  
FIG. 5-397.505  
DES: MJC DR: MJC APPROVED  
CHK: GM CHK: GM  
Sheet No. B12 of B26 Sheets  
Bridge No. 02563

FILENAME: k:\a-nanokaat\15920\wy-brdg\brdg\super\corner-detail1.s.dgn  
 DATE: 5/8/2006 TIME: 9:42:37 AM



**SOUTH ABUTMENT CORNER DETAILS**



**NORTH ABUTMENT CORNER DETAILS**

**NOTE:**  
 DECK SLAB, END DIAPHRAGMS AND WINGWALL COPINGS SHALL BE POURED IN ONE SINGLE CONTINUOUS POUR.

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 SIGNED: *Matthew J. Christensen*  
 DATE: 5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

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 S.A.P. 02-649-01

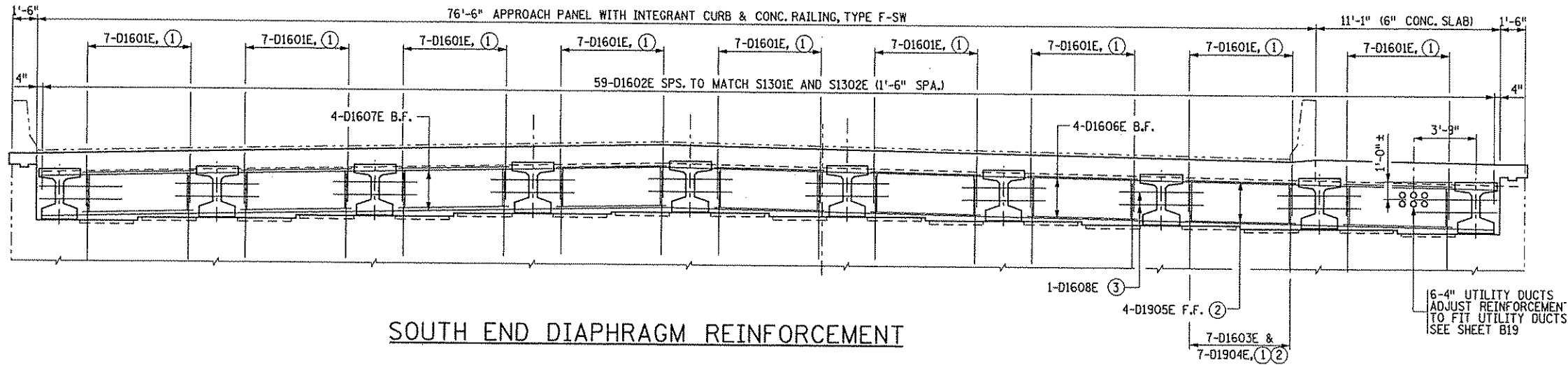
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**ABUTMENT CORNER DETAILS**

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CHK: GM	CHK: GM	

Sheet No. B13 of B26 Sheets

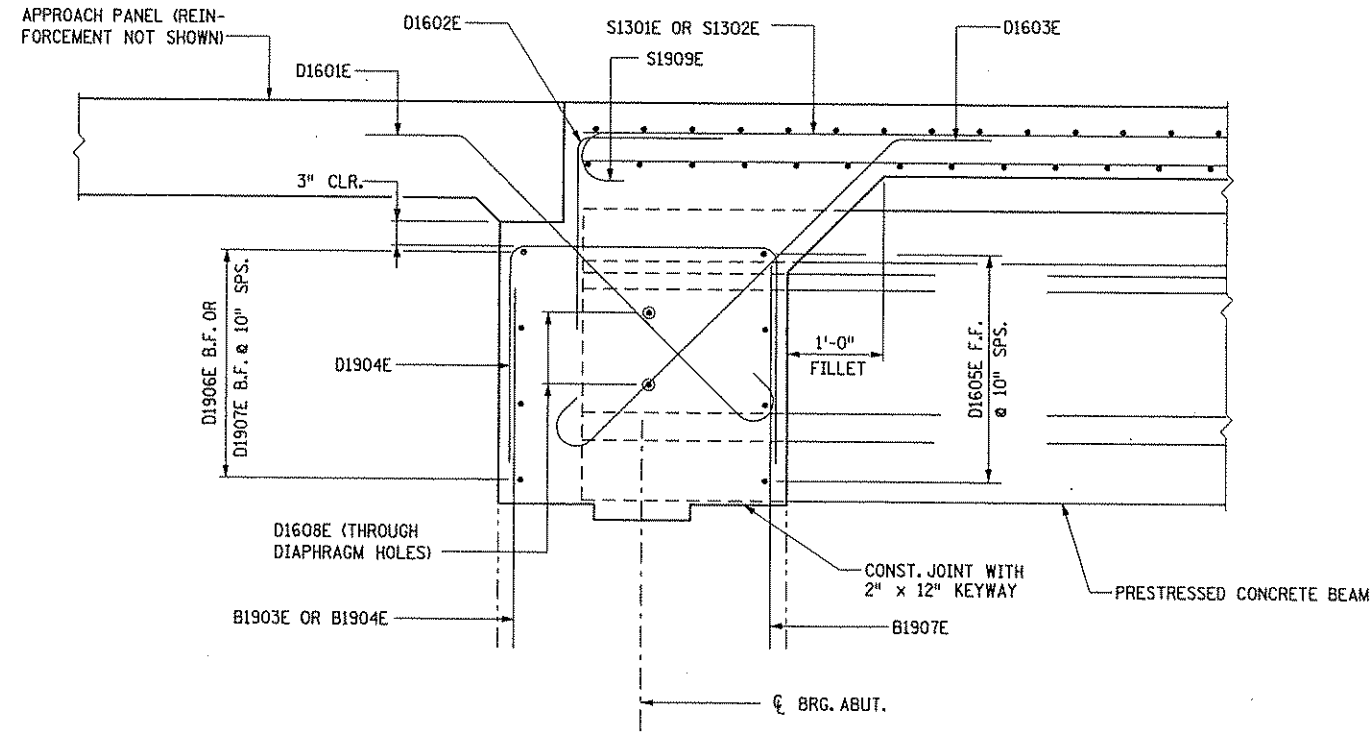
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 DATE: 5/8/2006 TIME: 9:59:18 AM



**SOUTH END DIAPHRAGM REINFORCEMENT**

- ① BAR SPACING TO MATCH B1907E (VERTICAL ABUTMENT BARS, F.F.)
- ② TYPICAL FOR 9 (NINE) BEAM BAYS
- ③ THREAD THROUGH DIAPHRAGM HOLES. TYPICAL AT ALL BEAM ENDS.



**TYPICAL SECTION**

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 DATE: 5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

**TKDA**  
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1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

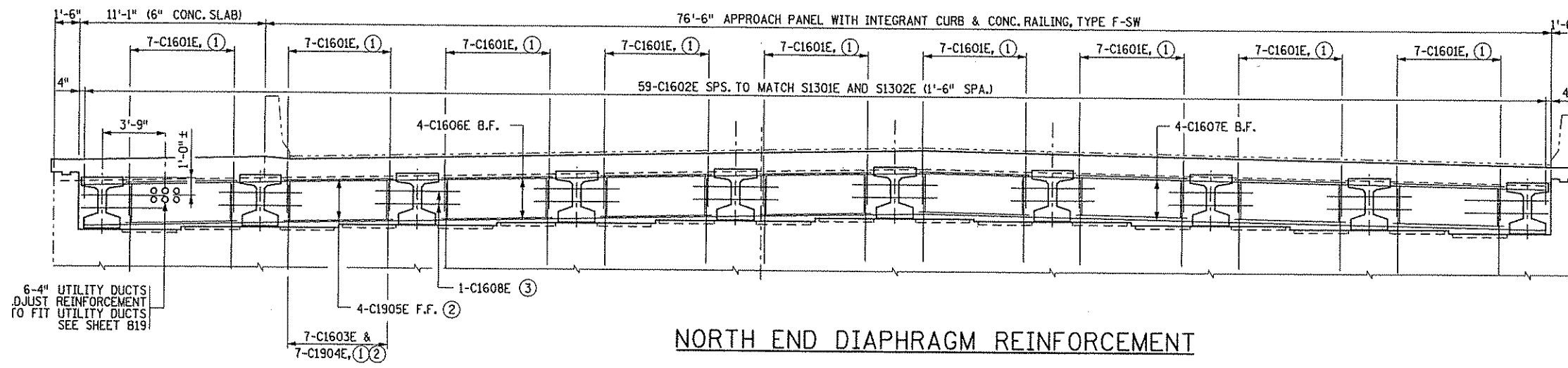
CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE: SOUTH END DIAPHRAGM REINFORCEMENT

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CHK: GM	CHK: GM	

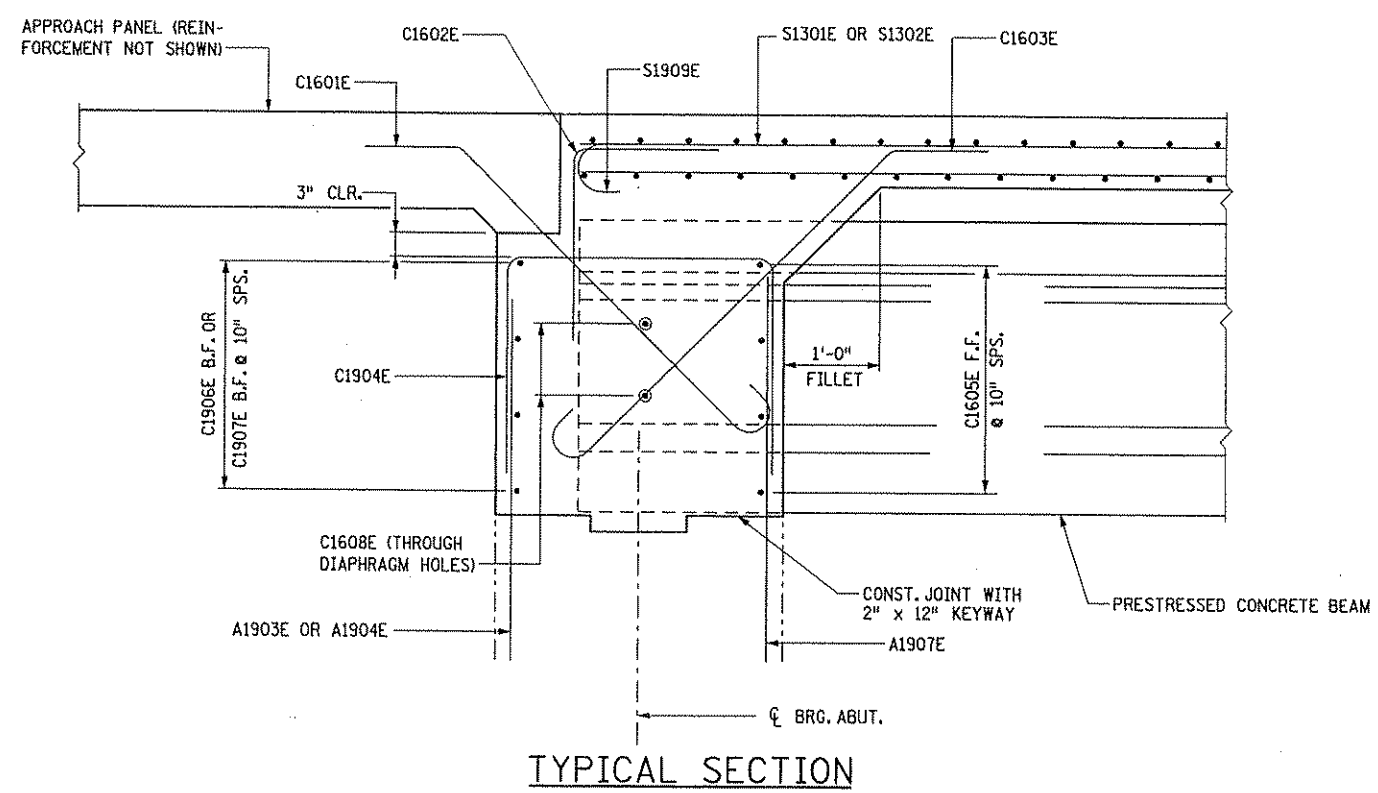
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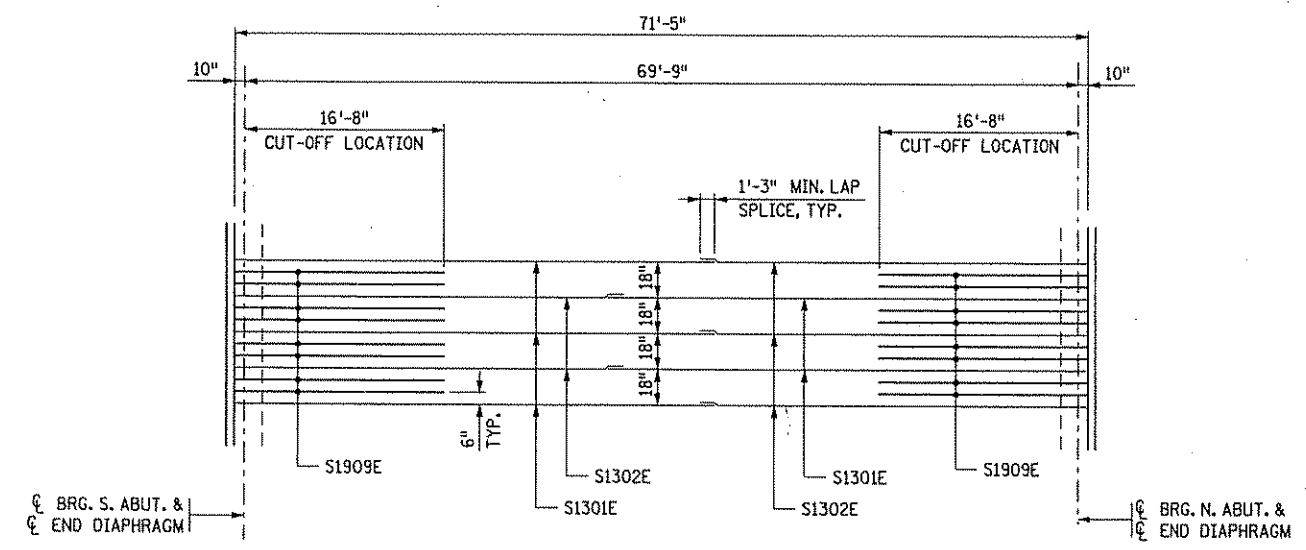


**NORTH END DIAPHRAGM REINFORCEMENT**

- ① BAR SPACING TO MATCH A1907E (VERTICAL ABUTMENT BARS, F.F.)
- ② TYPICAL FOR 9 (NINE) BEAM BAYS
- ③ THREAD THROUGH DIAPHRAGM HOLES. TYPICAL AT ALL BEAM ENDS.



**TYPICAL SECTION**



**SCHEMATIC LAYOUT OF LONGITUDINAL TOP DECK REINFORCEMENT**

(SCHEMATIC - NOT TO SCALE)

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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
 SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN  
 DATE: 5-8-2006 REG. NO. 43076

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 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

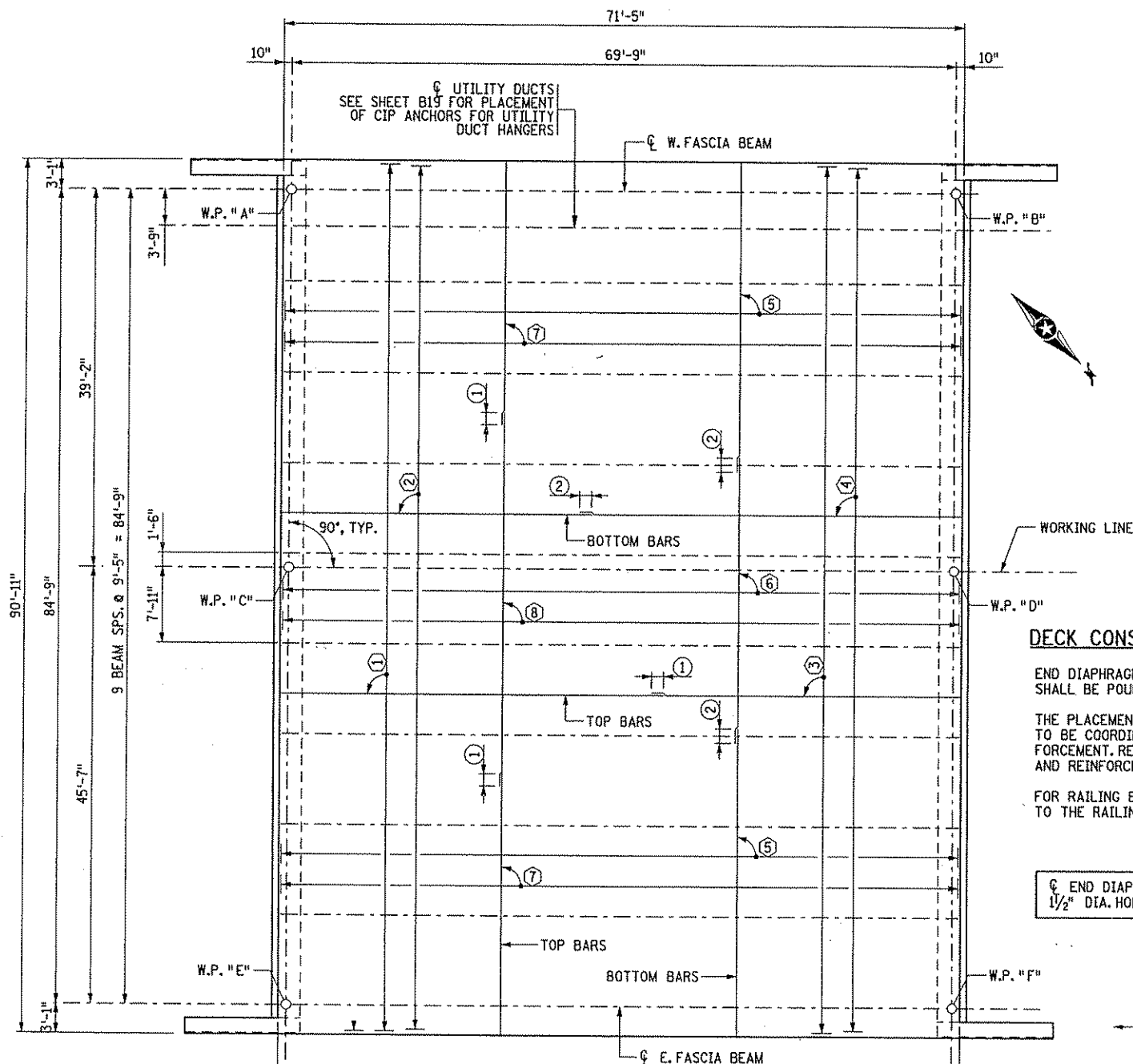
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DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B15 of B26 Sheets

Bridge No. 02563

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**DECK REINFORCEMENT**

**BAR CALL-OUTS:**

- ① 31-S1301E ALT. WITH 30-S1302E AND 60-S1909E (TOP) SEE SCHEMATIC LAYOUT ON SHEET 15.
- ② 55-S1603E AND 54-S1604E ALTERNATE S1603E AND S1604E SPS. AT 10" = 89'-9" (BOTTOM)
- ③ 31-S1302E ALT. WITH 30-S1301E AND 60-S1909E (TOP) SEE SCHEMATIC LAYOUT ON SHEET 15.
- ④ 55-S1604E AND 54-S1603E ALTERNATE S1604E AND S1603E SPS. AT 10" = 89'-9" (BOTTOM)
- ⑤ 132-S1605E SPS. AT 6 1/2" MAX. = 70'-11" (BOTTOM)
- ⑥ 132-S1606E SPS. AT 6 1/2" MAX. = 70'-11" (BOTTOM)
- ⑦ 143-S1307E SPS. AT 6" MAX. = 70'-11" (TOP)
- ⑧ 143-S1308E SPS. AT 6" MAX. = 70'-11" (TOP)
- ⑨ 60-S1609E SPS. BETWEEN S1301E AND S1302E (9" SPS. BETWEEN BARS.)

**BAR SPLICES:**

- ① 1'-3" MIN. LAP #13 TOP BAR
- ② 1'-6" MIN. LAP #16 BOTTOM BAR

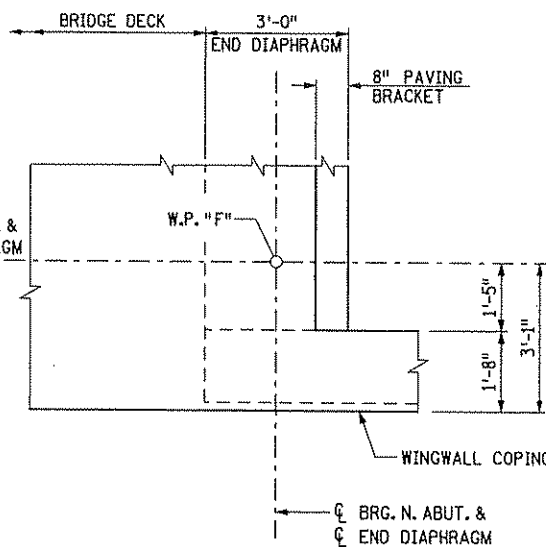
**DECK CONSTRUCTION NOTES:**

END DIAPHRAGMS, WINGWALL COPINGS AND DECK SLAB SHALL BE POURED IN ONE SINGLE CONTINUOUS POUR.

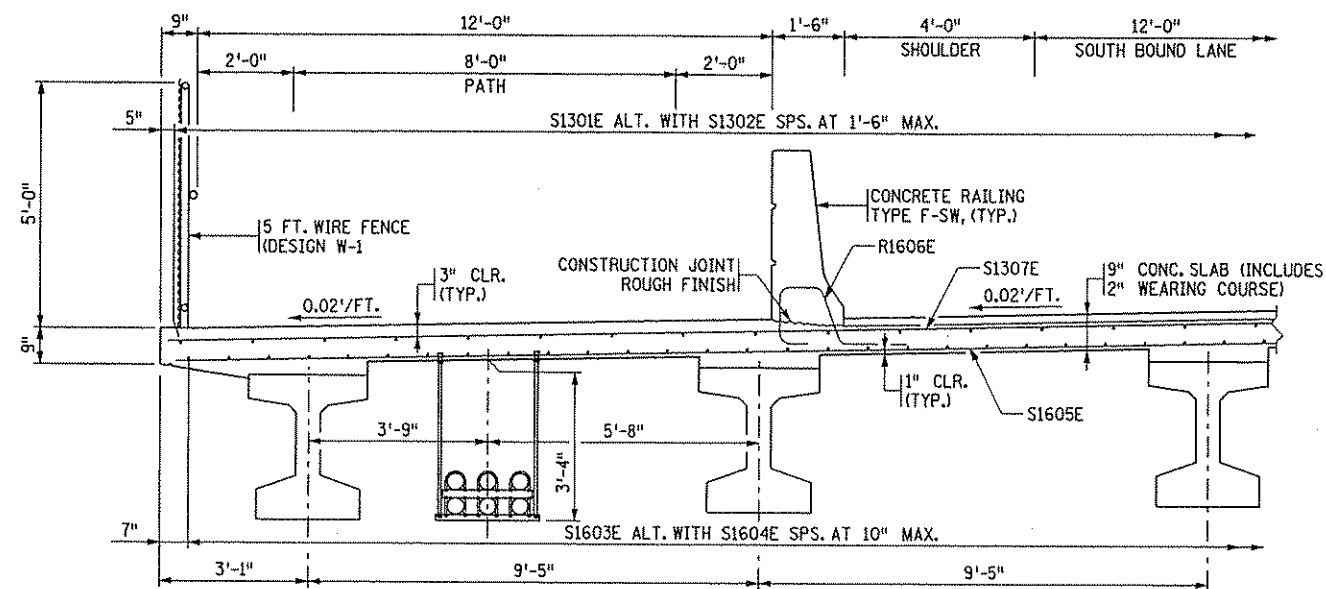
THE PLACEMENT OF THE DECK REINFORCEMENT NEEDS TO BE COORDINATED WITH THE END DIAPHRAGM REINFORCEMENT. REFER TO END DIAPHRAGM DETAILS AND REINFORCEMENT.

FOR RAILING BARS EMBEDDED IN THE DECK SLAB, REFER TO THE RAILING SHEETS.

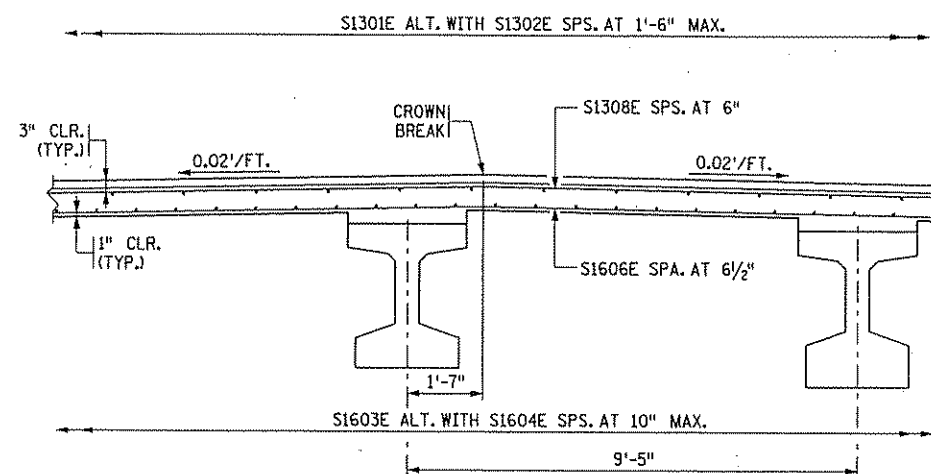
END DIAPHRAGM AND CL OF 1 1/2" DIA. HOLES DO NOT COINCIDE.



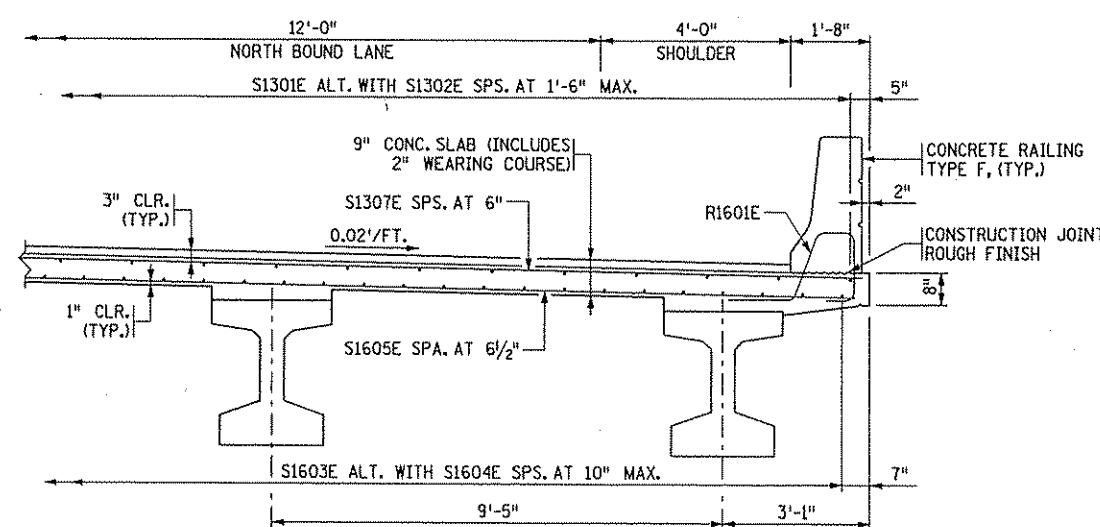
**SLAB CORNER GEOMETRY**  
 NORTHEAST CORNER SHOWN, ALL OTHERS SIMILAR



**WEST END**



**CROWN BREAK**



**EAST END**  
**TYPICAL SECTION**

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED: *Matthew J. Christensen*  
 DATE: 5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS  
 1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

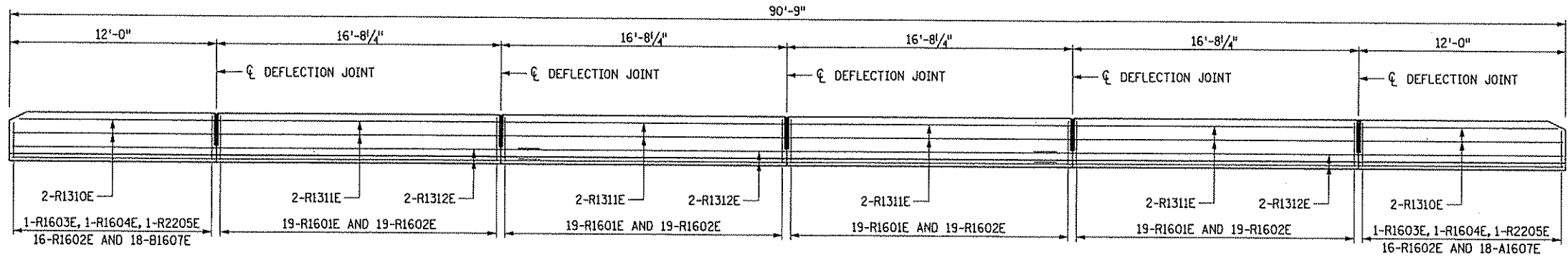
CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE: **DECK REINFORCEMENT**

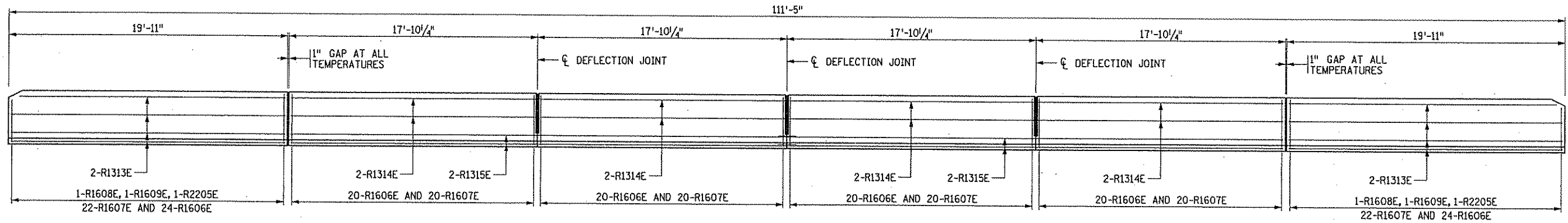
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CHK: GM	CHK: GM	

Bridge No. 02563  
 Sheet No. B16 of B26 Sheets

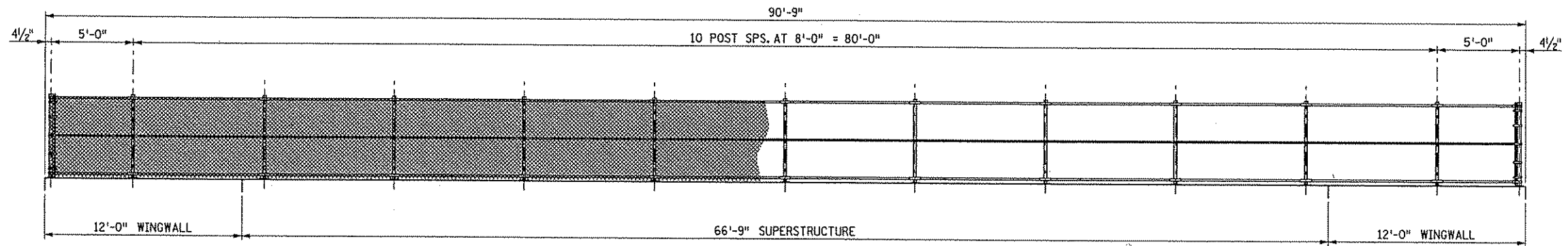
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**ELEVATION VIEW OF RAILING, TYPE F**  
 FRONT FACE OF RAILING SHOWN



**ELEVATION VIEW OF CONCRETE RAILING, TYPE F-SW**  
 FRONT FACE OF RAILING SHOWN



**ELEVATION VIEW OF WIRE FENCE (DESIGN W-1)**

**NOTE:**

FOR ADDITIONAL DETAILS AND INFORMATION ON BAR PLACEMENT, REFER TO THE APPROPRIATE PLAN SHEET.

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 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE: RAILING ELEVATIONS

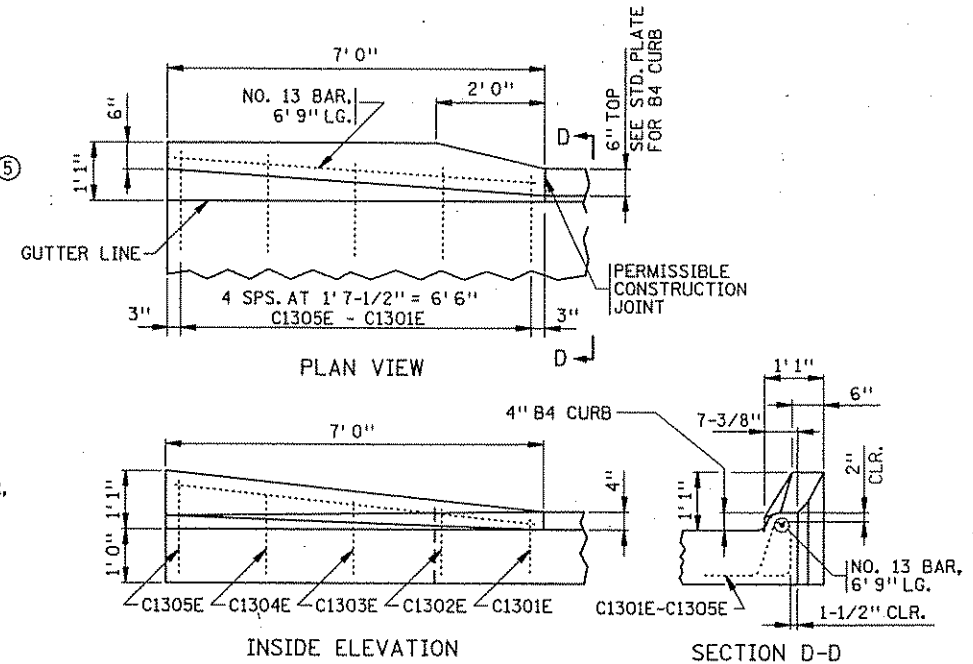
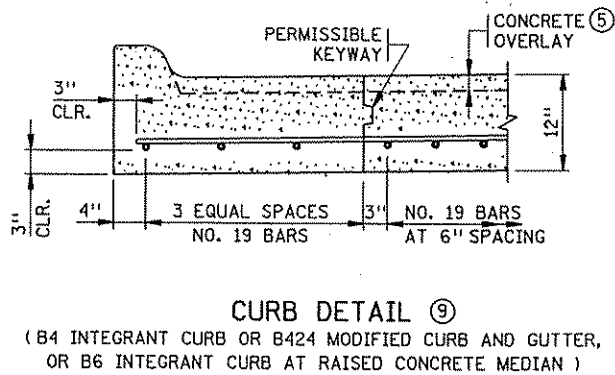
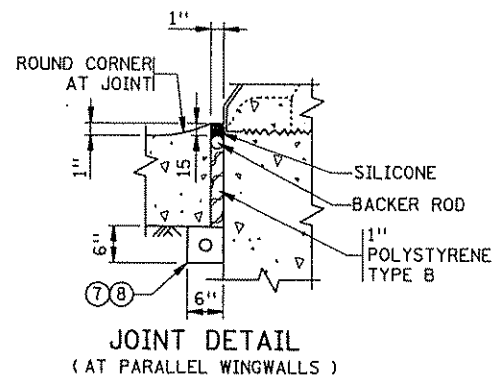
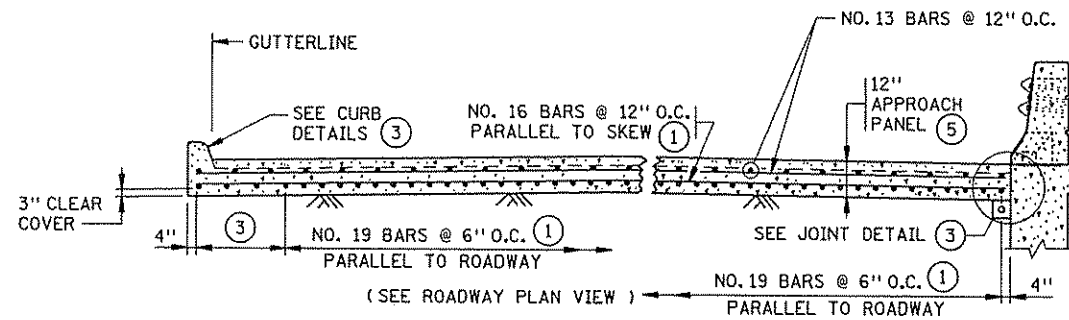
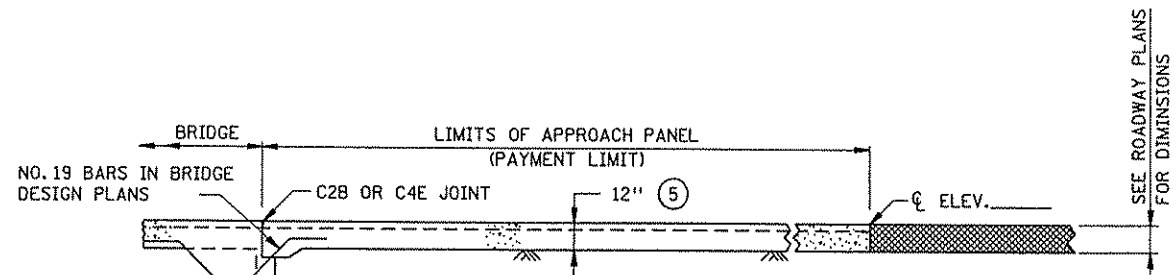
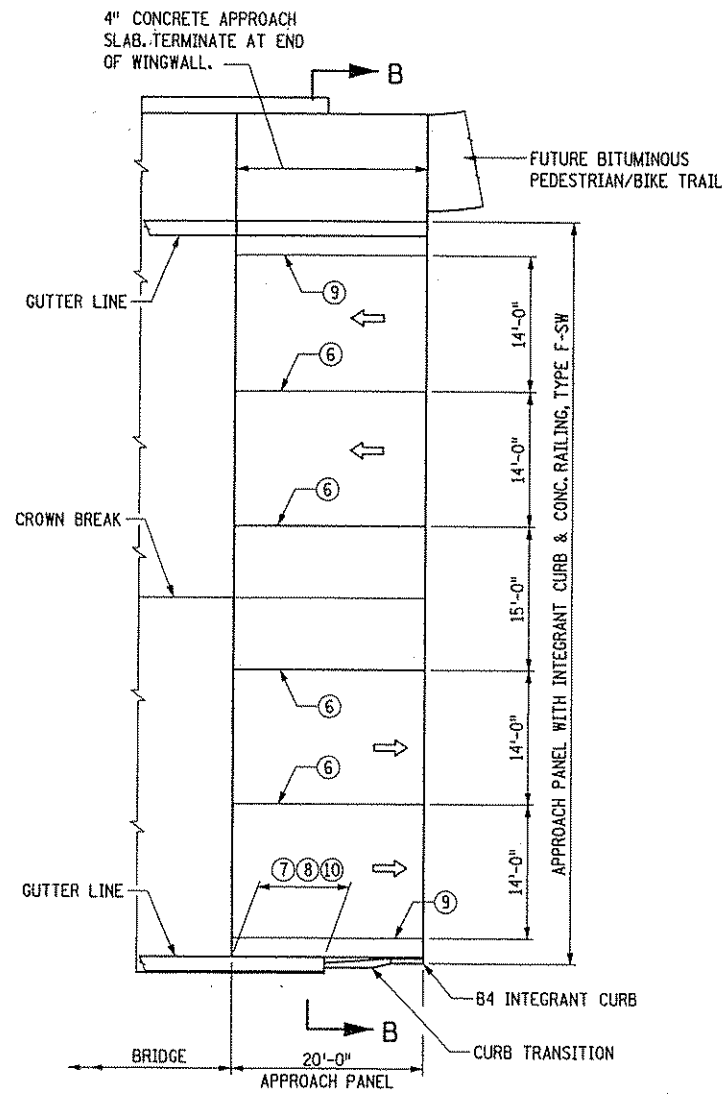
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CHK: GM	CHK: GM	

Bridge No. 02563

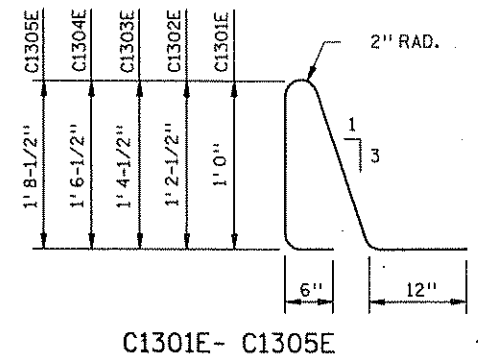
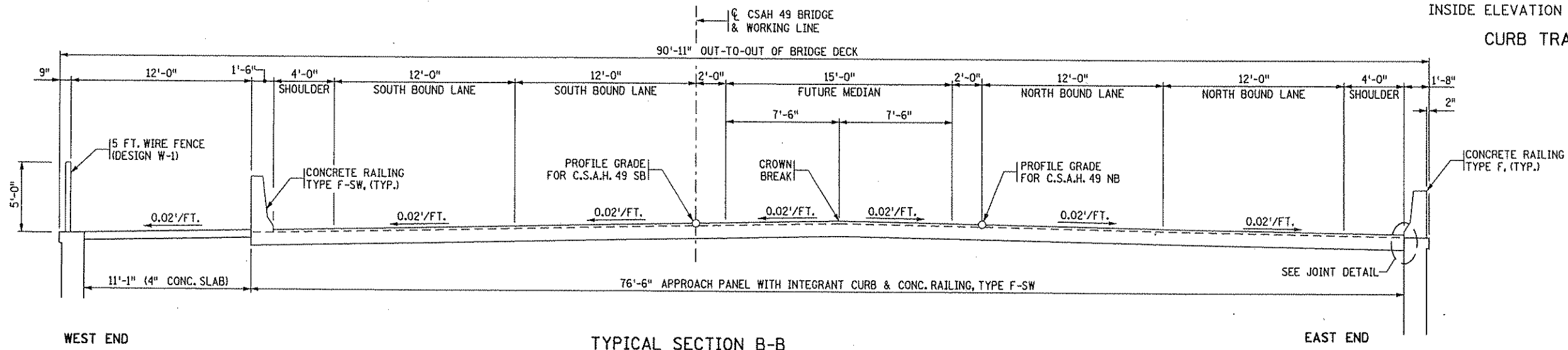
Sheet No. B17 of B26 Sheets



FILENAME: k:\a-nanokacty\15920\hwy-brdg\std\standards\approachpanel.dgn  
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- NOTES:
- ALL REINFORCEMENT IN APPROACH PANEL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.
  - TRANSITION FACE OF 4" CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAILS.
  - SEE CURB TRANSITION DETAILS ON THIS SHEET.
  - LOCATE CATCH BASINS BETWEEN GUARD RAIL POSTS OR AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL, CHAPTER 7 FOR CATCH BASIN INFORMATION.
  - APPROACH SLAB THICKNESS SHOWN INCLUDES CONCRETE WEARING COURSE. CONCRETE WEARING COURSE IS INCLUDED IN BRIDGE QUANTITIES AND IS TO BE DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.
  - L2KT OR L1T LONGITUDINAL JOINT IS REQUIRED. SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.
  - 2" NOMINAL DIA. THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. FURNISHING AND INSTALLING DRAIN SYSTEM SHALL BE INCIDENTAL, WITH NO DIRECT PAYMENT. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8" PER 12" MINIMUM SLOPE.
  - BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0-3% PASSING A NO. 200 SIEVE.
  - SEE CURB DETAIL ON THIS SHEET.
  - LIMITS OF JOINT DETAIL. ALSO REFER TO NOTES 7 & 8.



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SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

DATE: 5-8-2006

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
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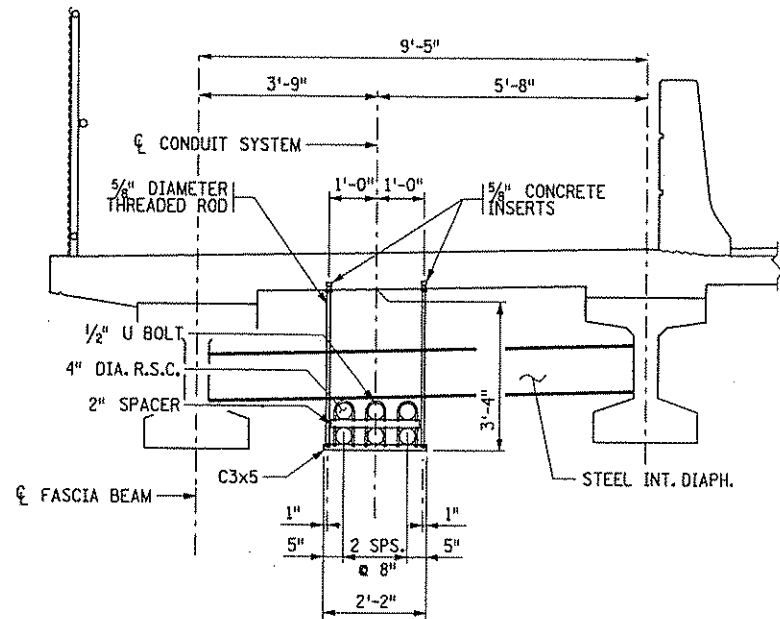
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CHK: MJC	CHK: MJC	

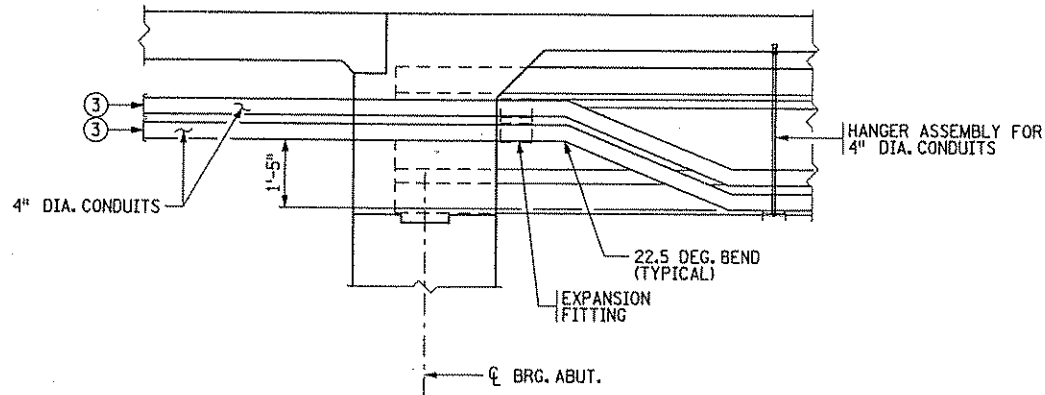
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Sheet No. B18 of B26 Sheets

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CONDUIT HANGER



LONGITUDINAL SECTION

CONDUIT SYSTEM

SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM

ITEM	UNIT	QUANTITY
HANGER ASSEMBLY	EACH	12
CONDUIT CAP	EACH	12
EXPANSION FITTING	EACH	12
① 4" DIAMETER RIDIG STEEL CONDUIT	LIN.FT.	900

ALL MATERIAL LISTED ABOVE IS INCLUDED IN PRICE BID FOR "CONDUIT SYSTEM"

① LENGTH OF R.S.C. EXTENDS 20 FEET BEYOND END OF BOTH APPROACH PANELS. BID PRICE TO INCLUDE ALL BENDS AND FITTINGS NEEDED TO PLACE CONDUIT AS PER THE DIRECTION OF THE FIELD ENGINEER.

GENERAL NOTES

RODS SHALL COMPLY WITH Mn/DOT SPEC. 3313, TYPE I.

FLAT BARS AND ANCHORAGES SHALL COMPLY WITH Mn/DOT SPEC. 3306.

CONCRETE INSERTS SHALL BE APPROVED TYPE MALLEABLE IRON. MATERIAL AS PER Mn/DOT SPEC. 3324, GRADE 35018. TAP AFTER GALVANIZING.

GALVANIZE BOLTS, NUTS, WASHERS, RODS, AND INSERTS AS PER Mn/DOT SPEC. 3392. GALVANIZE OTHER MATERIAL AS PER Mn/DOT SPEC. 3394 AFTER FABRICATION.

PIPE SLEEVES SHALL COMPLY WITH Mn/DOT SPEC. 3362.

② SPACE INSERTS AT 10'-0" MAXIMUM CENTERS.

③ CAP ENDS.

SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE

NOTE	ITEM	UNIT	QUANTITY
	BRIDGE APPROACH PANELS	EACH	2
1	STRUCTURAL CONCRETE (3Y36)	CU. YD.	72
2	BRIDGE SLAB CONCRETE (3Y36)	SQ. FT.	6493
3	TYPE F RAILING CONCRETE (3Y46)	LIN. FT.	91
4	TYPE F-SW RAILING CONCRETE (3Y46)	LIN. FT.	112
5	REINFORCEMENT BARS (EPOXY COATED)	LB	45950
	ELASTOMERIC BEARING PADS	EACH	20
6	CONCRETE WEARING COURSE (3U17A)	SQ. FT.	8356
7	PRESTRESSED CONCRETE BEAMS, TYPE 36-71	EACH	10
	DIAPHRAGMS FOR TYPE 36M PRESTRESSED BEAMS	LIN. FT.	85
8	6" CONCRETE WALK	SQ. FT.	976
	CONDUIT SYSTEM	LUMP SUM	1
	WIRE FENCE (DESIGN W-1)	LIN. FT.	91
9	BENCH MARK DISK	EACH	1
10	BRIDGE NAME PLATE	EACH	1

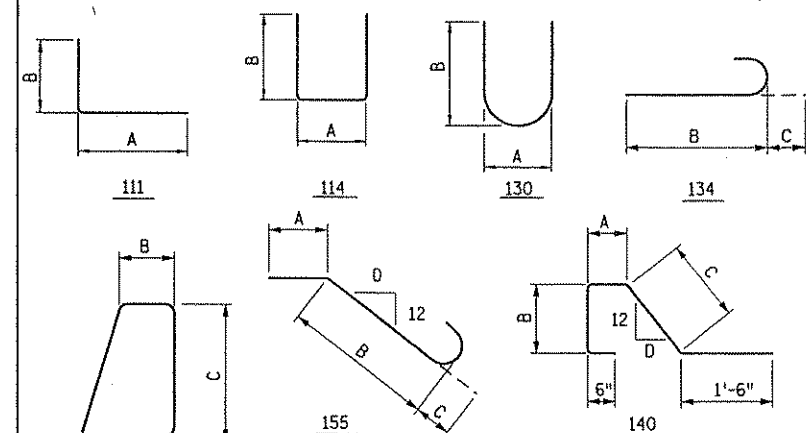
NOTES:

- REPRESENTS QUANTITY FOR END DIAPHRAGMS, SLAB FILLETS AND WINGWALL COPINGS.
- BRIDGE SLAB CONCRETE (3Y36) VOLUME IS APPROXIMATELY 154 CU. YD.
- TYPE F RAILING CONCRETE (3Y46) VOLUME IS APPROXIMATELY 11 CU. YD.
- TYPE F-SW RAILING CONCRETE (3Y46) VOLUME IS APPROXIMATELY 16 CU. YD.
- REINFORCEMENT QUANTITY INCLUDES SLAB, END DIAPHRAGMS AND RAILING REINFORCEMENT.
- CONCRETE WEARING COURSE (3U17A) VOLUME IS APPROXIMATELY 52 CU. YD. AND INCLUDES THE QUANTITY FOR 2 APPROACH PANELS.
- PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS 36M" PER LINEAL FOOT.
- 6" CONCRETE WALK VOLUME IS APPROXIMATELY 21 CU. YD.
- STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACEMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

BARLISTS

BAR MARK	NO.	SERIES NO.	LENGTH FT	IN	SIZE	TYPE	DIMENSIONS				LOCATION
							A	B	C	D	
SOUTH ABUTMENT END DIAPHRAGM											
D1601 E	63		5	11	16	155	1'-0"	4'-4"	0'-7"	12	APPR. PANEL DOWEL
D1602 E	59		4	0	16	111	2'-0"	2'-0"			APPR. PANEL CORNER
D1603 E	63		6	4	16	155	1'-0"	4'-9"	0'-7"	12	FILLET
D1904 E	63		7	8	19	114	2'-8"	2'-6"			VERT. TIE
D1905 E	36		6	4	19	STR					HORIZ. F.F
D1906 E	4		50	0	19	STR					HORIZ. B.F
D1907 E	4		40	0	19	STR					HORIZ. B.F
D1608 E	20		5	0	16	STR					DIAPHRAGM HOLES
NORTH ABUTMENT END DIAPHRAGM											
C1601 E	63		5	11	16	155	1'-0"	4'-4"	0'-7"	12	APPR. PANEL DOWEL
C1602 E	59		4	0	16	111	2'-0"	2'-0"			APPR. PANEL CORNER
C1603 E	63		6	4	16	155	1'-0"	4'-9"	0'-7"	12	FILLET
C1904 E	63		7	8	19	114	2'-8"	2'-6"			VERT. TIE
C1905 E	36		6	4	19	STR					HORIZ. F.F
C1906 E	4		50	0	19	STR					HORIZ. B.F
C1907 E	4		40	0	19	STR					HORIZ. B.F
C1608 E	20		5	0	16	STR					DIAPHRAGM HOLES
DECK SLAB REINFORCEMENT											
S1301 E	61		40	0	13	STR					TOP LONGITUDINAL
S1302 E	61		32	4	13	STR					TOP LONGITUDINAL
S1603 E	109		32	7	16	STR					BOTTOM LONGITUDINAL
S1604 E	109		40	0	16	STR					BOTTOM LONGITUDINAL
S1605 E	264		31	9	16	STR					BOTTOM TRANSVERSE
S1606 E	132		30	0	16	STR					BOTTOM TRANSVERSE
S1307 E	286		26	9	13	STR					TOP TRANSVERSE
S1308 E	143		40	0	13	STR					TOP TRANSVERSE
S1909 E	120		13	2	13	134	12'-6"	0'-8"			TOP LONG AT BRIDGE ENDS
CONCRETE RAILING, TYPES F & F-SW											
R1601 E	76		5	5	16	140	9"	1'-3"	1'-4"	4	VERTICAL
R1602 E	108		6	7	16	152	9 1/2"	6"	2'-6"		VERTICAL
R1603 E	2		6	1	16	152	9 1/2"	6 1/2"	2'-3"		VERTICAL
R1604 E	2		5	11	16	152	9 1/2"	6 1/2"	2'-2"		VERTICAL
R2205 E	4		6	6	22	130	1'-0"	3'-0"			GUARD RAIL CONNECTION
R1606 E	128		5	4	16	140	9"	1'-2"	1'-3"	4	VERTICAL
R1607 E	124		8	4	16	152	8"	5 1/2"	3'-4"		VERTICAL
R1608 E	2		7	10	16	152	8"	6"	3'-1"		VERTICAL
R1609 E	2		7	8	16	152	8"	6"	3'-0"		VERTICAL
R1310 E	8		11	7	13	STR					HORIZONTAL
R1311 E	16		16	2	13	STR					HORIZONTAL
R1312 E	12		31	0	13	STR					HORIZONTAL
R1313 E	16		19	6	13	STR					HORIZONTAL
R1314 E	16		17	5	13	STR					HORIZONTAL
R1315 E	8		36	2	13	STR					HORIZONTAL

BAR BENDING DIAGRAMS



NOTES:

BENT BAR DIMENSIONS GIVEN ARE OUT-TO-OUT ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON THE DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS ARE SHOWN FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY  
 \* DENOTES STANDARD STIRRUP HOOK DIMENSIONS PER CRSI.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
 SIGNED: *Matthew J. Christensen*  
 DATE: 6-5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

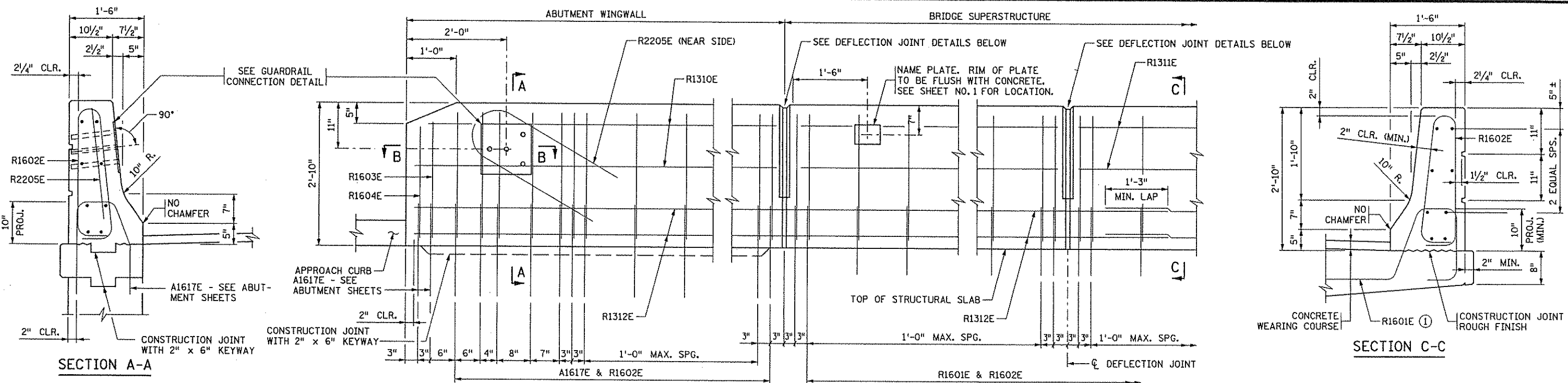
**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. Q2-649-01

TITLE: SUPERSTRUCTURE BARLISTS AND QUANTITIES

DES: MJC DR: MJC APPROVED  
 CHK: GM CHK: GM  
 Bridge No. 02563  
 Sheet No. B19 of B26 Sheets



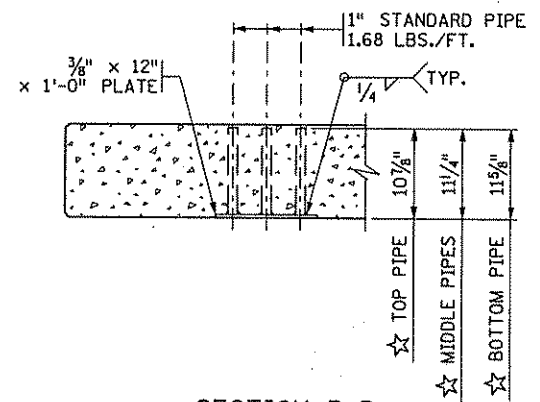
SECTION C-C

DEFLECTION JOINT AT WINGWALL DEFLECTION JOINT

INSIDE ELEVATION OF RAILING

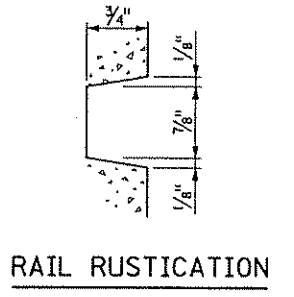
(CONCRETE WEARING COURSE NOT SHOWN)

RAIL MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350.

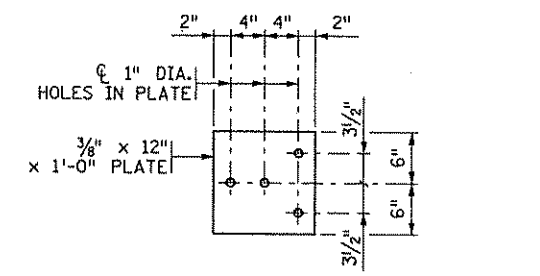


SECTION B-B

(REINFORCEMENT NOT SHOWN)  
☆ DIMENSIONS INCLUDE 3/8\"/>

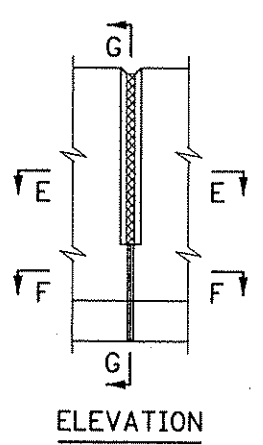


RAIL RUSTICATION

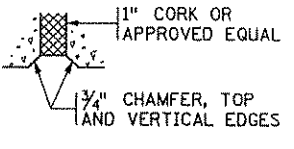


GUARDRAIL CONNECTION DETAIL

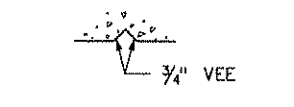
GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394  
ESTIMATED WEIGHT = 22 LBS



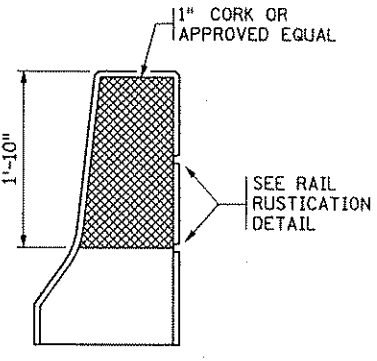
ELEVATION



SECTION E-E

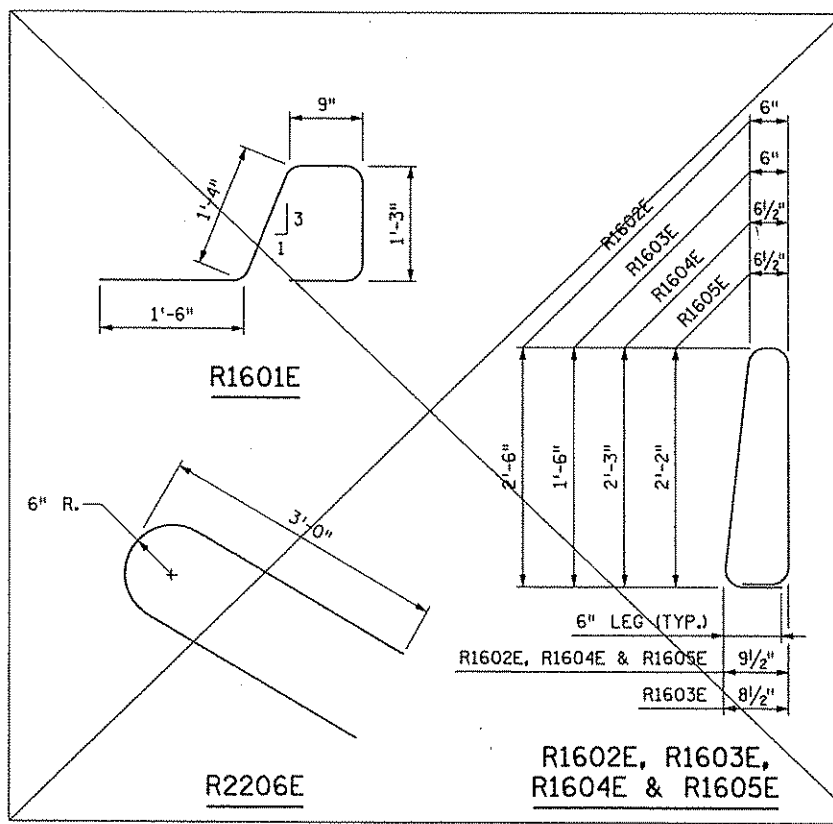


SECTION F-F



SECTION G-G

DEFLECTION JOINT DETAILS



BILL OF REINFORCEMENT FOR RAILING

BAR	NO.	LENGTH	SHAPE	LOCATION
R1601E		5'-5"		RAIL DOWEL
R1602E		6'-7"		RAIL VERTICAL
R1603E		4'-7"		RAIL VERTICAL
R1604E		6'-1"		RAIL VERTICAL
R1605E		5'-11"		RAIL VERTICAL
R2206E		6'-6"		RAIL VERTICAL
R1307E				RAIL LONGITUDINAL
R1308E				RAIL LONGITUDINAL
R1309E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL

GENERAL NOTES

- LENGTH OF "TYPE F RAILING CONCRETE (3Y46 OR 3Y46A)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAIL.
- CONCRETE RAILING = 477 LBS./FT. (0.117 CU. YDS./FT.)
- FINISH ALL EDGES OF RAIL WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.
- MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.
- SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.
- GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, Mn/DOT SPEC. 3306.
- GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
- ① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT.

MODIFIED FIG. 5-397.117

REVISED:  
APPROVED: DECEMBER 18, 2003  
*Matthew J. Christensen*  
STATE BRIDGE ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN  
DATE: 12-18-2003 REG. NO. 43076

**TKDA**  
ENGINEERS • ARCHITECTS • PLANNERS  
1500 PIPER JAFFRAY PLAZA  
444 CEDAR STREET  
SAINT PAUL, MINNESOTA

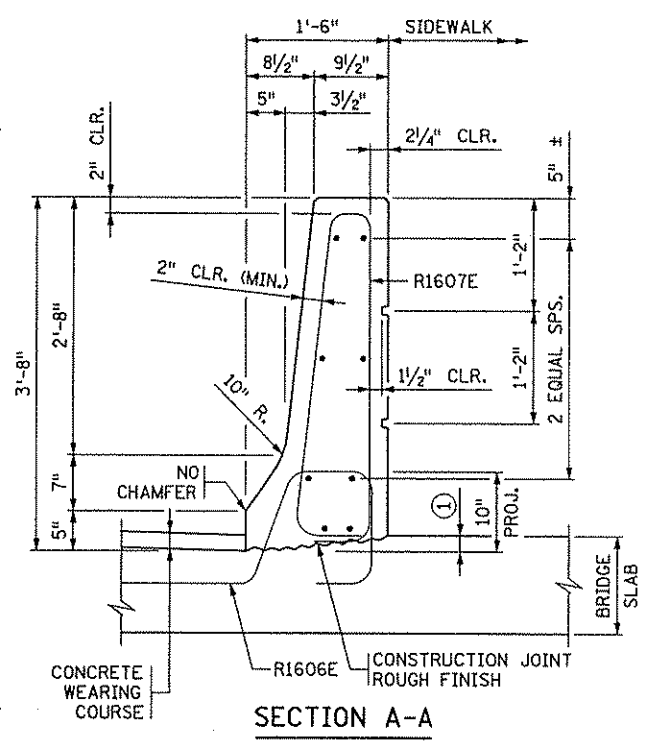
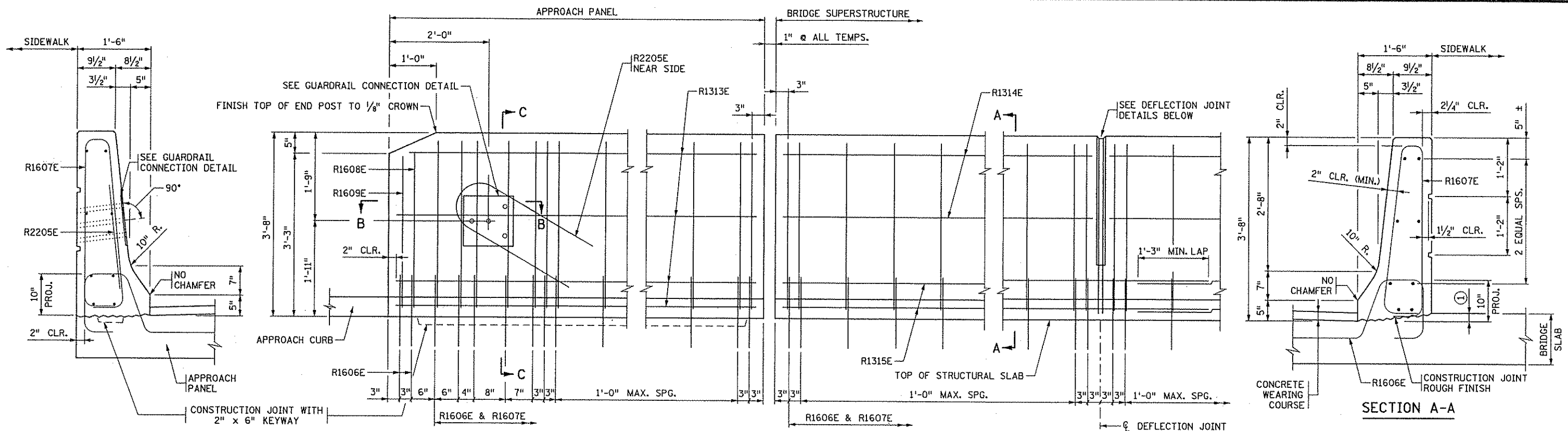
CSAH 49 OVER RICE CREEK  
ANOKA COUNTY, MINNESOTA  
S.A.P. 02-649-01

TITLE: CONCRETE RAILING (TYPE F)  
WITH INTEGRAL END POST  
(WITH CONCRETE WEARING COURSE)

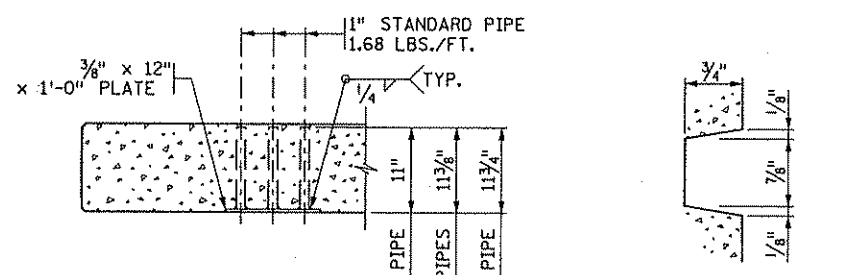
DES: GM DR: GM APPROVED  
CHK: MJC CHK: MJC  
Sheet No. B20 of B26 Sheets Bridge No. 02563

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 DATE: 5/8/2006 TIME: 9:42:52 AM

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 DATE: 5/8/2006 TIME: 9:42:53 AM



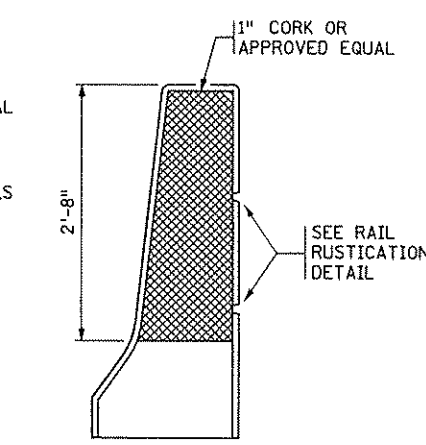
SECTION C-C



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

INSIDE ELEVATION OF RAILING  
 (CONCRETE WEARING COURSE NOT SHOWN)

RAIL RUSTICATION



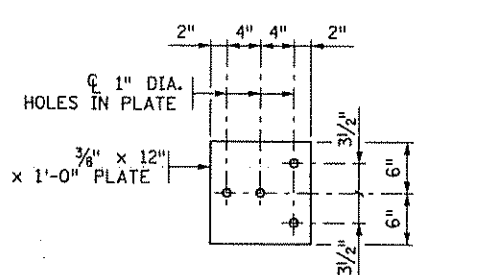
SECTION E-E

SECTION F-F

SECTION G-G

ELEVATION

DEFLECTION JOINT DETAILS



GUARDRAIL CONNECTION DETAIL

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

BILL OF REINFORCEMENT FOR RAILING

BAR	NO.	LENGTH	SHAPE	LOCATION
R1601E		5'-4"		RAIL DOWEL
R1602E		8'-4"		RAIL VERTICAL
R1603E		6'-6"		RAIL VERTICAL
R1604E		7'-10"		RAIL VERTICAL
R1605E		7'-8"		RAIL VERTICAL
R2206E		6'-7"		RAIL VERTICAL
R1307E				RAIL LONGITUDINAL
R1308E				RAIL LONGITUDINAL
R1309E				RAIL LONGITUDINAL

GENERAL NOTES

LENGTH OF "TYPE F-SW RAILING CONCRETE (3Y46)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAIL.  
 CONCRETE RAILING = 580 LBS./FT. (0.143 CU. YDS./FT.)  
 FINISH ALL EDGES OF RAIL WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.  
 MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.  
 SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.  
 GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, Mn/DOT SPEC. 3306.  
 GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.  
 RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

① DIMENSIONS TO BE DETERMINED BASED ON THE BRIDGE SLAB SLOPE.

REVISION: 03-04-03  
 APPROVED: NOVEMBER 26, 1985  
 KEITH V. BENTHIN  
 STATE BRIDGE ENGINEER

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
 SIGNED: *Matthew J. Christensen*  
 DATE: 1.5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

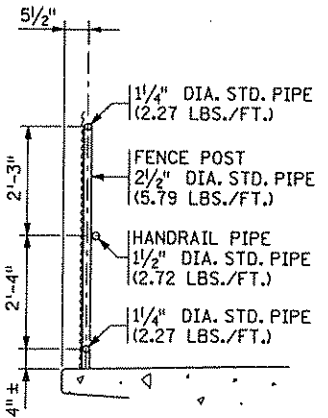
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 1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

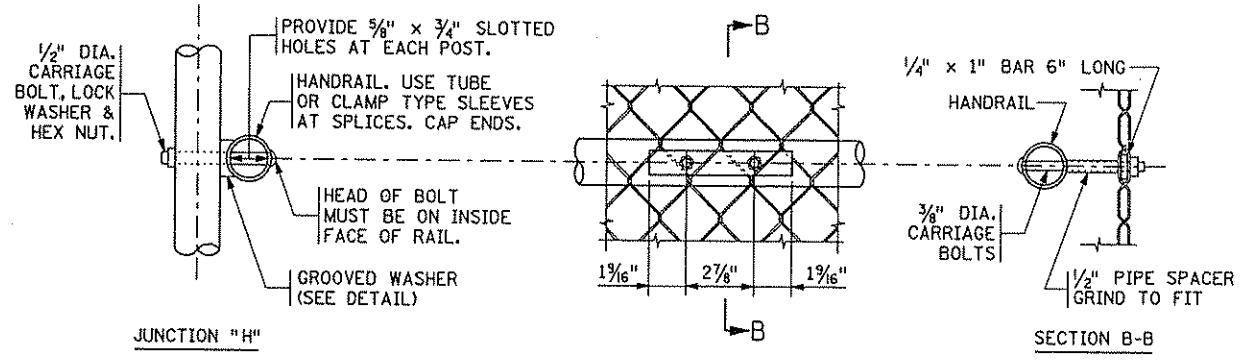
TITLE: CONCRETE RAILING (TYPE F-SW)  
 WITH BRIDGE SLAB SIDEWALK AND INTEGRAL END POST (WITH CONCRETE WEARING COURSE)

DES: GM DR: GM APPROVED  
 CHK: MJC CHK: MJC  
 Bridge No. 02563  
 Sheet No. B21 of B26 Sheets

FIG. 5-397.122



TYPICAL SECTION THROUGH WALKWAY



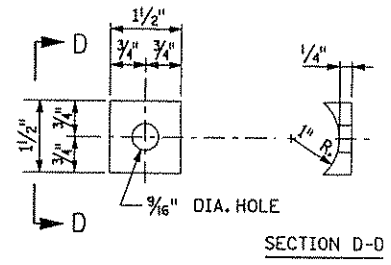
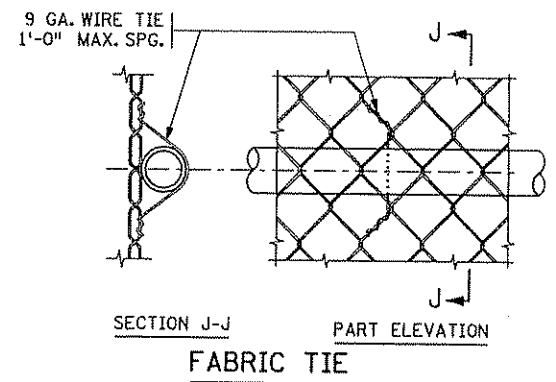
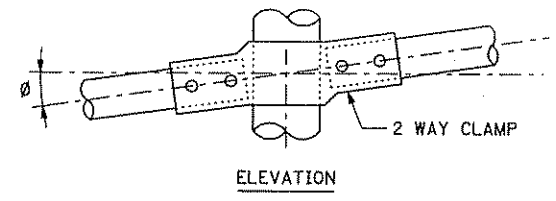
HANDRAIL

GENERAL NOTES

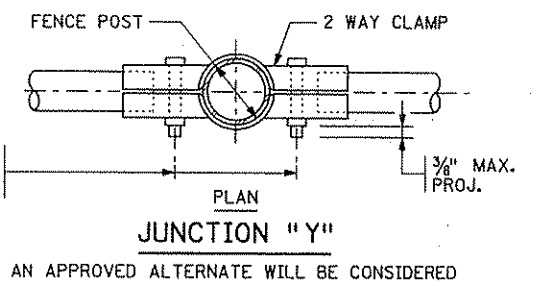
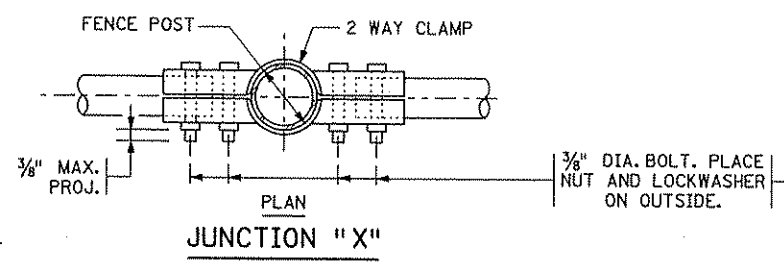
LENGTH OF "WIRE FENCE, DESIGN W-1" FOR PAYMENT SHALL BE MEASURED BETWEEN THE CENTERS OF THE END RAILPOSTS.  
 MAXIMUM SPACING FOR 2 1/2" STANDARD PIPE POSTS IS 8 FT.  
 ALL PIPE DIAMETERS ARE NOMINAL.  
 FENCE POSTS AND ANCHORAGES SHALL BE SET VERTICAL UNLESS OTHERWISE NOTED. AT BOLT TYPE ANCHORAGES, PACK SPACE BETWEEN BASE PLATE AND CONCRETE WITH APPROVED MORTAR AFTER NUTS HAVE BEEN ADJUSTED AND TIGHTENED.  
 FOR POST SPACING AND LOCATION, SEE SHEET NO. 17.  
 SEE DETAIL B905 "FENCE POST ANCHORAGE"

2 WAY CLAMP BENDING TABLE

GRADE OF FENCE	Ø
0° TO 2°	0"
2° TO 6°	4"
6° TO 10°	8"



GROOVED WASHER  
 AN APPROVED ALTERNATE WILL BE CONSIDERED



FILENAME: k:\anoka\15920\hwy-brdg\brdg\standards\w\references\standard.dgn  
 DATE: 5/8/2006 TIME: 9:42:55 AM

REVISION: 04-23-2003  
 APPROVED: NOVEMBER 26, 1985  
 [Signature]  
 STATE BRIDGE ENGINEER

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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

SIGNED [Signature] MATTHEW J. CHRISTENSEN  
 DATE 6-5-2006 REG. NO. 43076

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

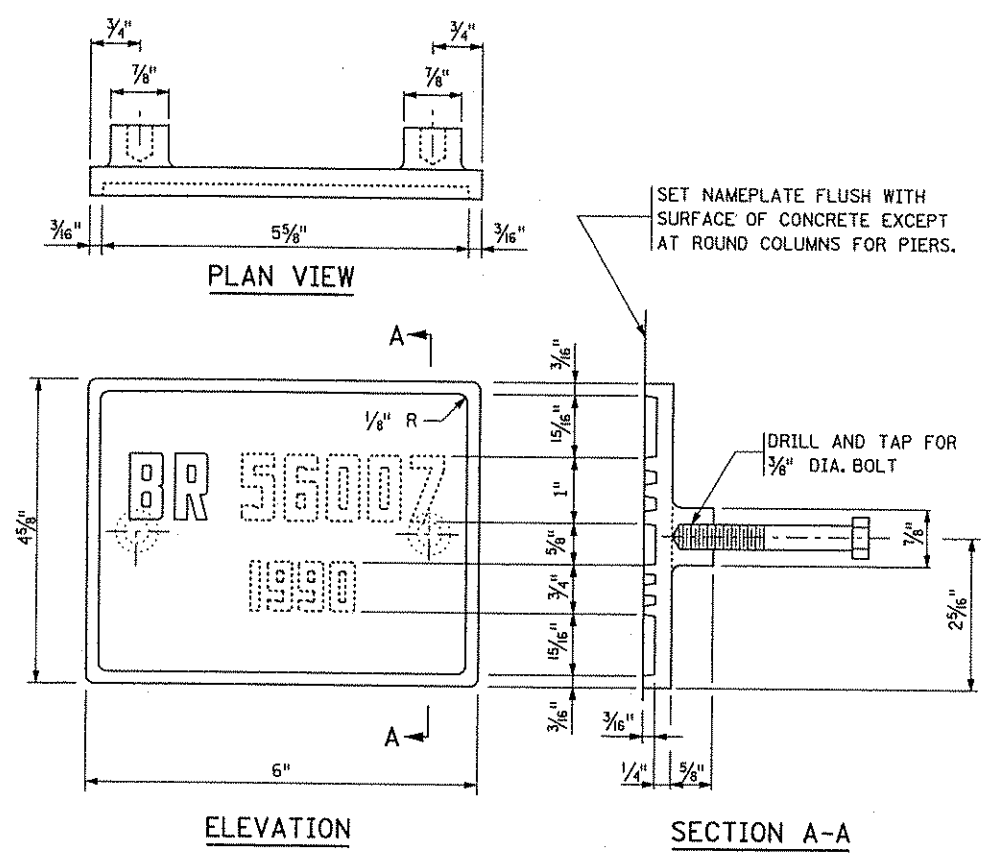
CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE:  
 5 FT. WIRE FENCE (DESIGN W-1)  
 FOR PEDESTRIAN BRIDGES

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

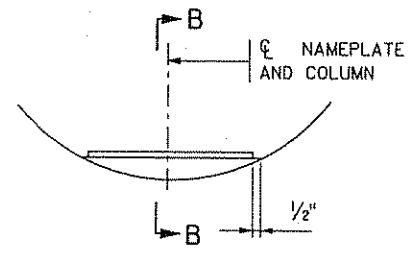
Sheet No. B22 of B26 Sheets

FIG. 5-397.202  
 Bridge No. 02563

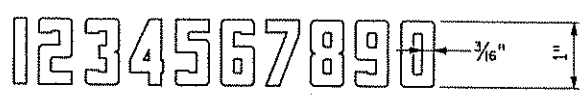


THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 02563  
YEAR 2006



NAMEPLATE PLACEMENT  
(ROUND CONCRETE PIER COLUMNS)



NUMBERS FOR NAMEPLATE

- NOTES:**
- NO SHOP DRAWING REQUIRED.
  - MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.
  - LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
  - DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
  - HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
  - TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
  - FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
  - ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002

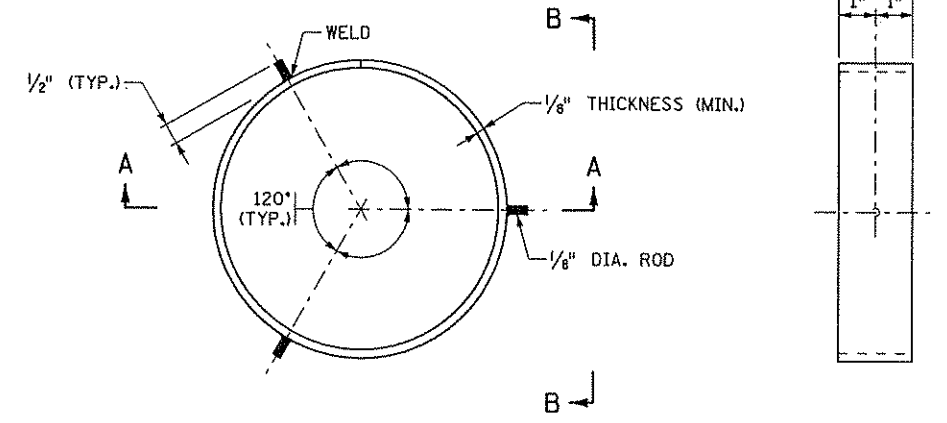
*Daniel J. Morgan*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

BRIDGE NAMEPLATE  
(FOR NEW BRIDGES)

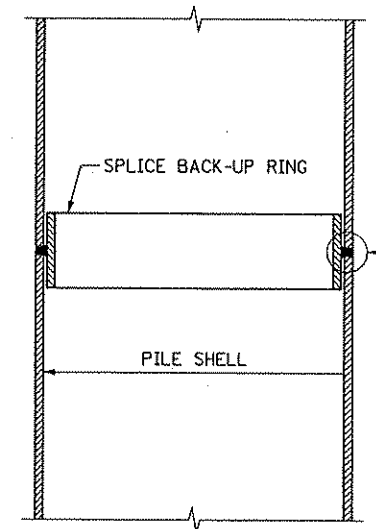
REVISION  
DETAIL NO.

B101



PLAN VIEW SPLICE  
PILE NOT SHOWN

SECTION B-B  
PILE NOT SHOWN



SECTION A-A

**NOTES:**

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.
- WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
- ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
- WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.
- ① FOR PILE SHELL THICKNESSES GREATER THAN 1/2", USE A B-U4g WELD CONFIGURATION.

APPROVED: NOVEMBER 22, 2002

*Daniel J. Morgan*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

PILE SPLICE  
(CAST-IN-PLACE CONCRETE PILES)

REVISION  
DETAIL NO.

B201

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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

SIGNED *Matthew J. Christensen* MATTHEW J. CHRISTENSEN  
DATE 5-8-2006 REG. NO. 43076

**TKDA**  
ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA  
444 CEDAR STREET  
SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
ANOKA COUNTY, MINNESOTA  
S.A.P. 02-649-01

TITLE:  
STANDARD DETAILS B101 & B201

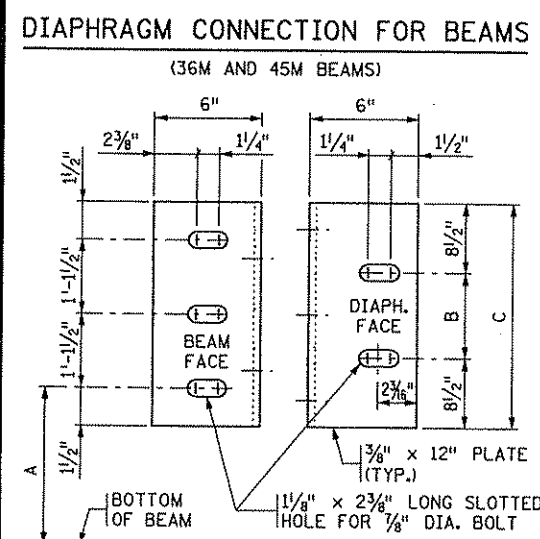
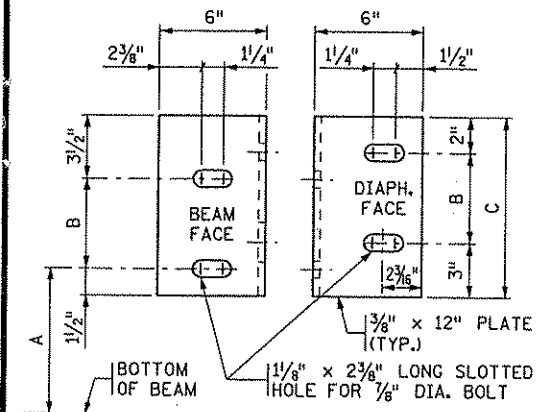
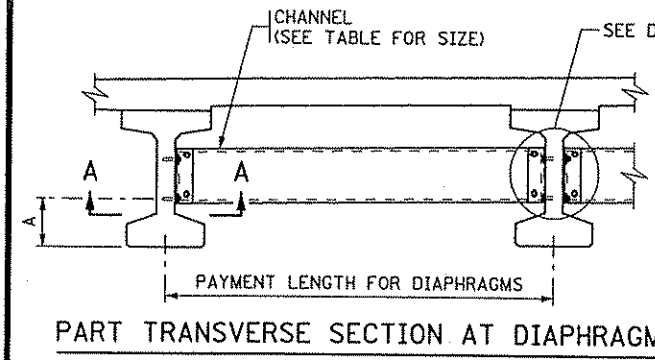
DES:	GM	DR:	GM	APPROVED
CHK:	MJC	CHK:	MJC	

Bridge No.  
02563

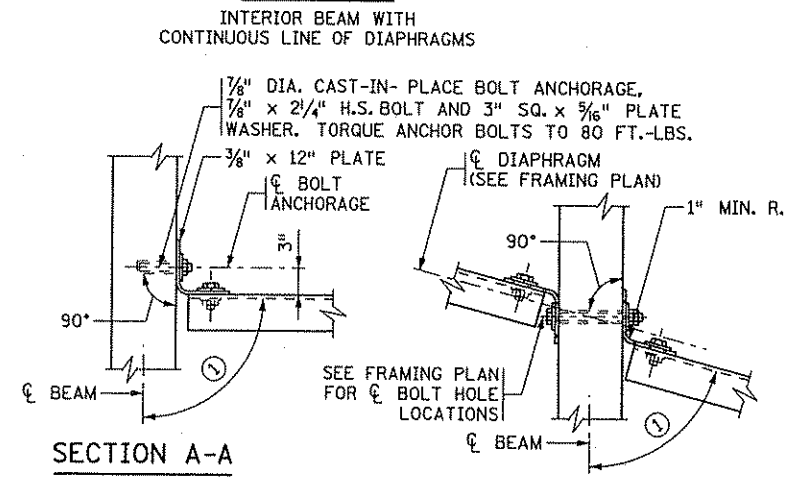
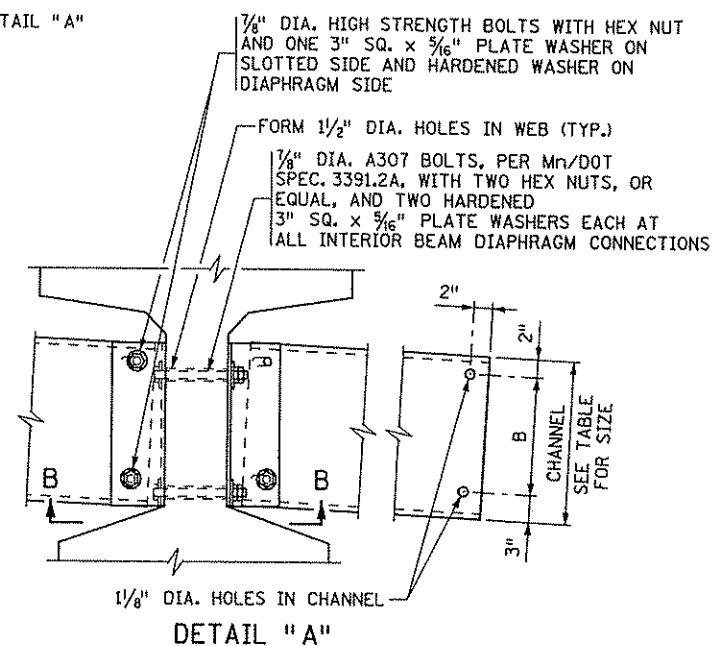
Sheet No. B23 of B26 Sheets

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FILENAME: k:\a\anokacy\15920\hwy-brdg\brdg\standards\standard-b403&b905.dgn  
 DATE: 5/8/2006 TIME: 9:42:59 AM



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



**NOTES:**

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

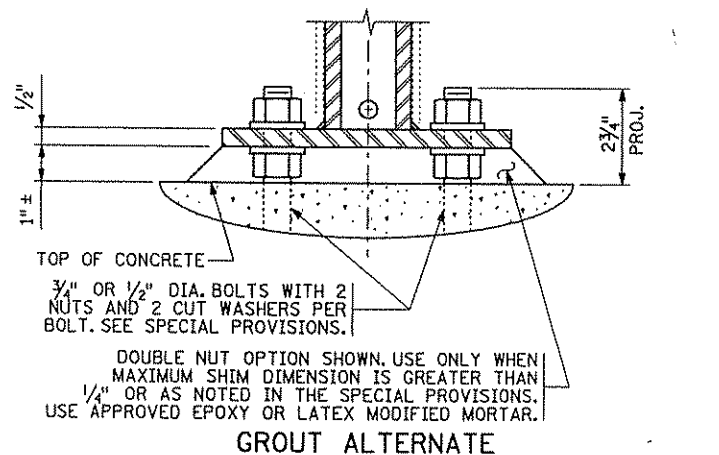
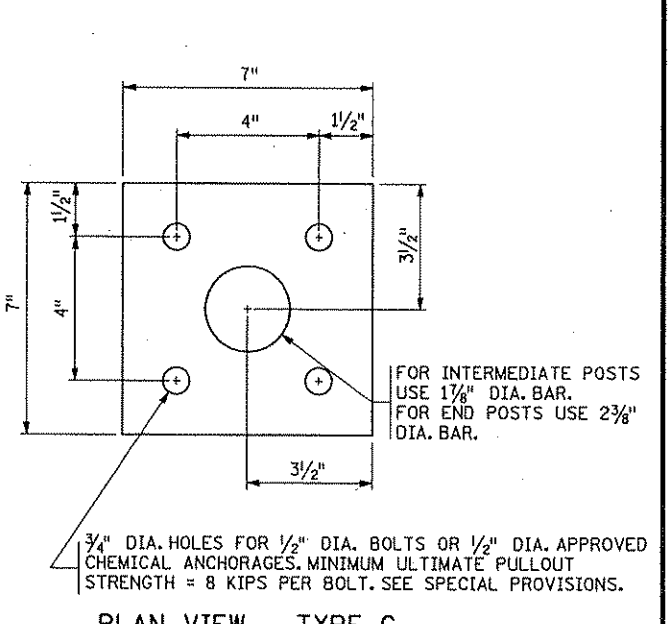
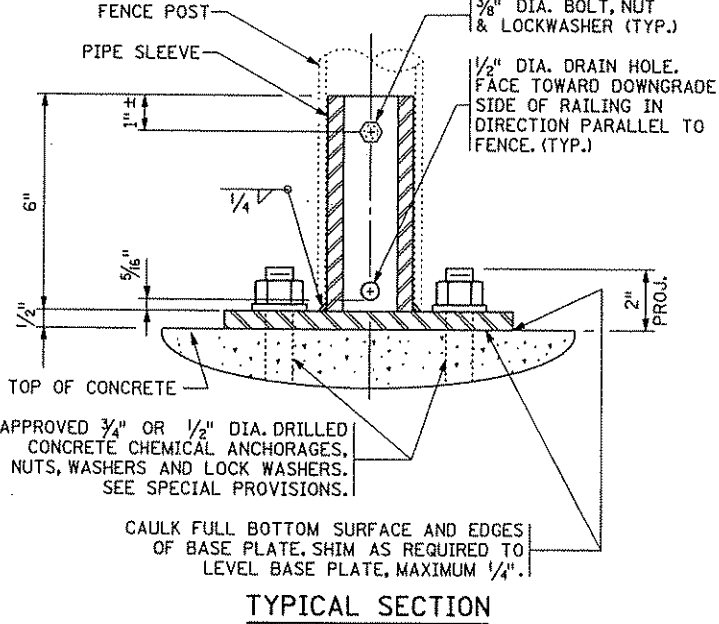
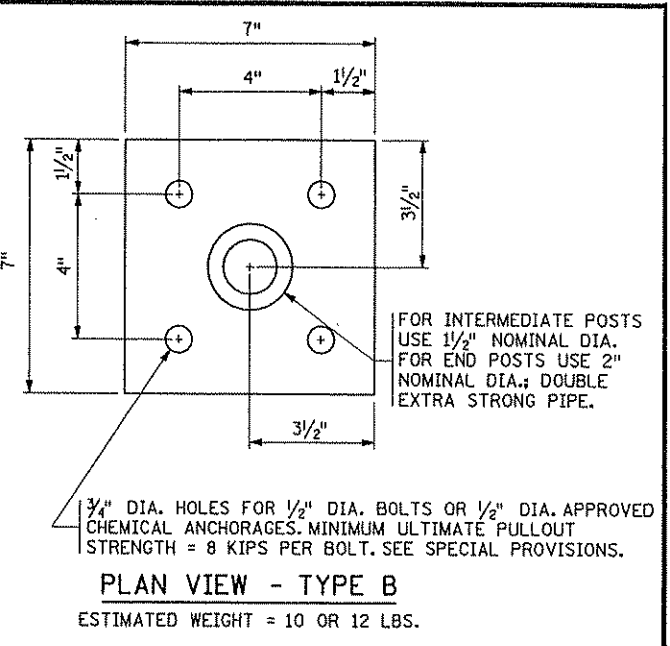
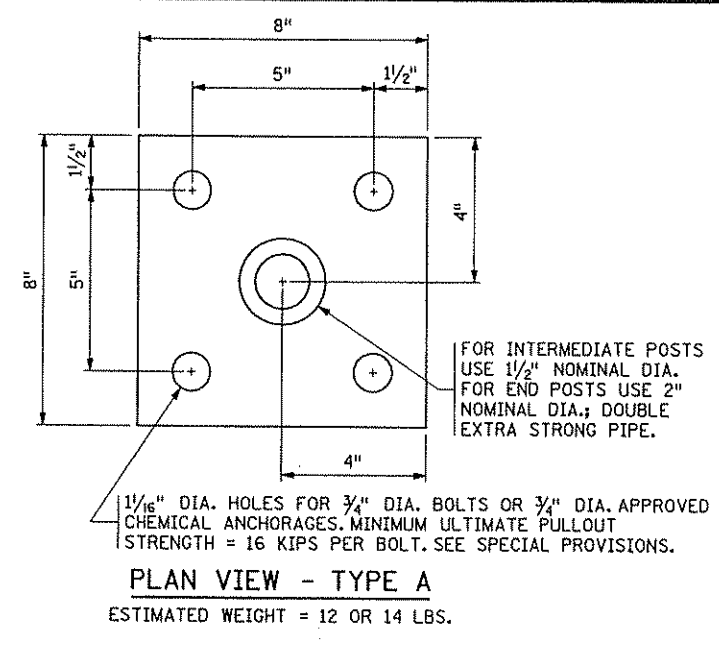
SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION.

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

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

BENT PLATES MAY BE USED IN PLACE OF CHANNELS. THE BENT PLATES MUST BE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, BE 5/16" IN THICKNESS, AND HAVE LEGS 5" LONG.

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



**NOTES:**

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306

STRUCTURAL PIPE PER Mn/DOT SPEC. 3362

GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER Mn/DOT SPEC. 3394. GALVANIZE THE FASTENERS PER Mn/DOT SPEC. 3392.

DOUBLE EXTRA STRONG PIPE WEIGHTS:  
 1 1/2" NOMINAL DIA. = 6.41 LBS./FT.  
 2" NOMINAL DIA. = 9.03 LBS./FT.

APPROVED: NOVEMBER 22, 2002

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISION 09-09-2003

DETAIL NO. MODIFIED

*Daniel J. Morgan*  
STATE BRIDGE ENGINEER

STEEL INTERMEDIATE DIAPHRAGM  
(FOR 36M - 54M PRESTRESSED CONCRETE BEAMS)

B403

APPROVED: NOVEMBER 22, 2002

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISION

DETAIL NO.

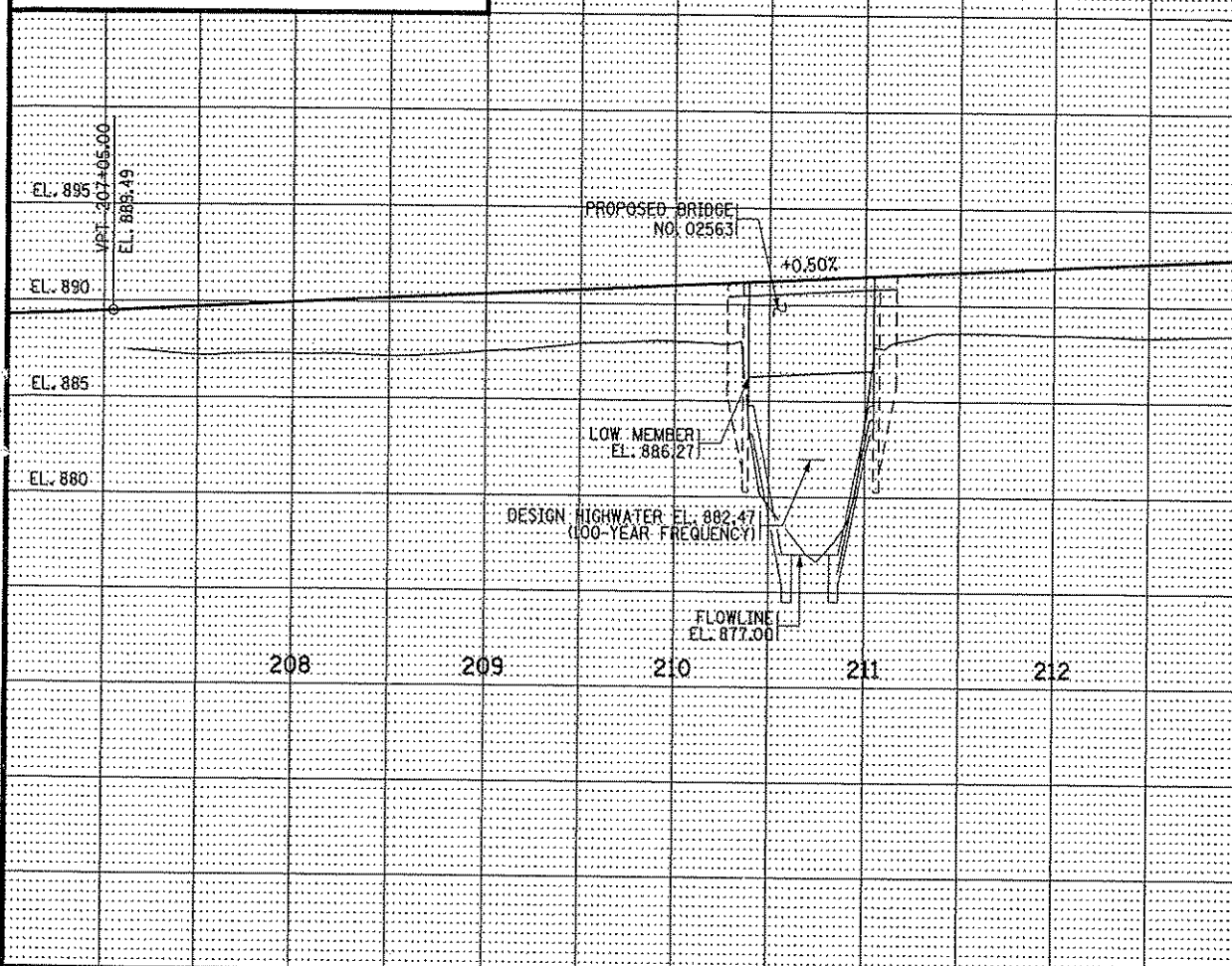
*Daniel J. Morgan*  
STATE BRIDGE ENGINEER

FENCE POST ANCHORAGE

B905

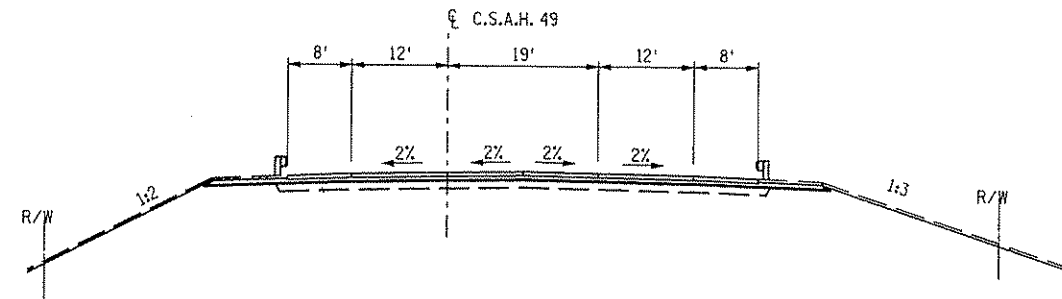
**CONTRACTED PROFILE**

SCALE: HORIZ: 1"=50' VERT: 1"=5'



**TYPICAL SECTIONS & PERTINENT DATA**

SCALES AS SHOWN



**TYPICAL APPROACH SECTION**

FED. PROJ. SP 02-649-01

**LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE**

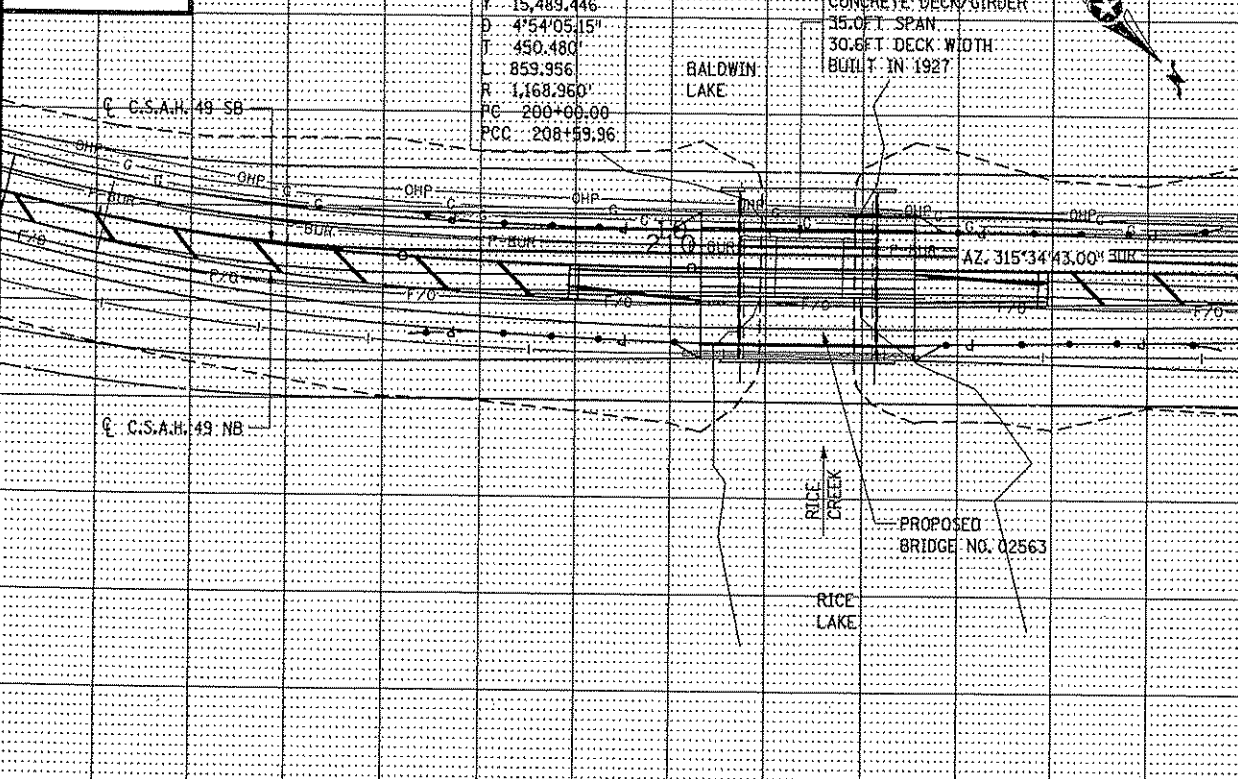
1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area etc.
3. Apparent highwater elevation: Obtained from
4. Other data: Approx. velocity of water at time of survey

**HYDRAULIC ENGINEER'S RECOMMENDATION**  
DATE: 10/12/2004

Stream or ditch designation: RICE CREEK  
 Drainage area: 127 SQ. MI.  
 Max. flood on record: 1450 CFS Design flood (100 yr. freq.) 733 C.F.S.  
 Max. observed highwater elevation: 885.2'  
 Design highwater elevation: 882.83'  
 Design mean velocity through structure ...3.0... F.P.S.  
 Low superstructure at or above elevation: 882.7'  
 Flowline elevation: 877.0' Skew angle: 0°  
 Waterway area req'd. below elevation 882.6 = 284 Sq. Ft. at Rt. angles to channel.  
 In the interest of flood plain zoning the regional flood (10-day snow melt or 100 yr. + freq.) is 1511 C.F.S. at stage 886.1 and mean velocity of 3.1 F.P.S. with 0.23 Ft. swellhead.  
 The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources and Rice Creek Watershed District.

**PLAT**

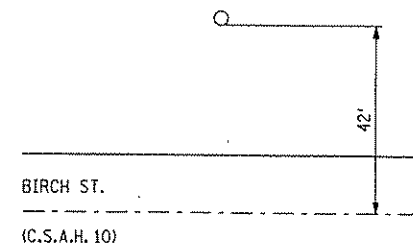
SCALE 1"=50'



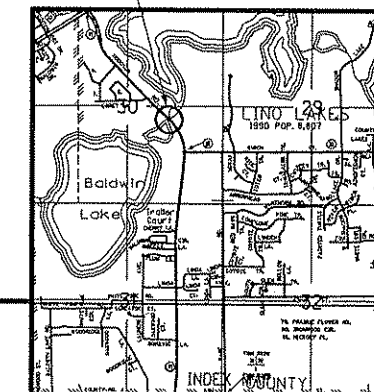
**CERTIFICATE OF BENCHMARK LOCATION**

ANOKA COUNTY SURVEYORS OFFICE, ANOKA, MN

LOCATION: SOUTHWEST QUARTER SECTION: 29 TOWNSHIP: 31 RANGE: 22  
 VERTICAL ELEVATION NGVD 29: 900.537  
 DESCRIPTION: SECOND ORDER BENCHMARK SET IN COVERED TUBE, STAMPED ON TOP BENCHMARK #45 ANOKA COUNTY SURVEYORS OFFICE



PROPOSED BR. NO. 02563



**FOUNDATION ENGINEER'S RECOMMENDATION**

SEE SOIL REPORT FROM BRAUN INTERTEC  
 DATE: JUNE 12, 1998

Bridge survey sheets made from:

Bench mark elevation ...900.537... (M.S.L. 1929 Adj.)  
 Location: ON WARE ROAD, 42 FEET NORTH OF BIRCH ST.  
 (C.A.S.H. 10)

MINNESOTA  
 DEPARTMENT OF TRANSPORTATION

**BRIDGE SURVEY**

C.S.A.H. 49 (HODGSON ROAD)  
 PROPOSED BRIDGE LOCATED 0.2 MILES N. OF  
 JCT. OF CASH 49 (HODGSON ROAD)  
 & CSAH 10 (BIRCH STREET)

SEC. 30 TWP 31 N R 22 W  
 CITY: LINO LAKES COUNTY: ANOKA COUNTY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  
 SIGNED: *Mark Christensen*  
 DATE: 12-8-2006 REG. NO. 43076

**TKDA**

ENGINEERS ARCHITECTS PLANNERS SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE:

BRIDGE SURVEY

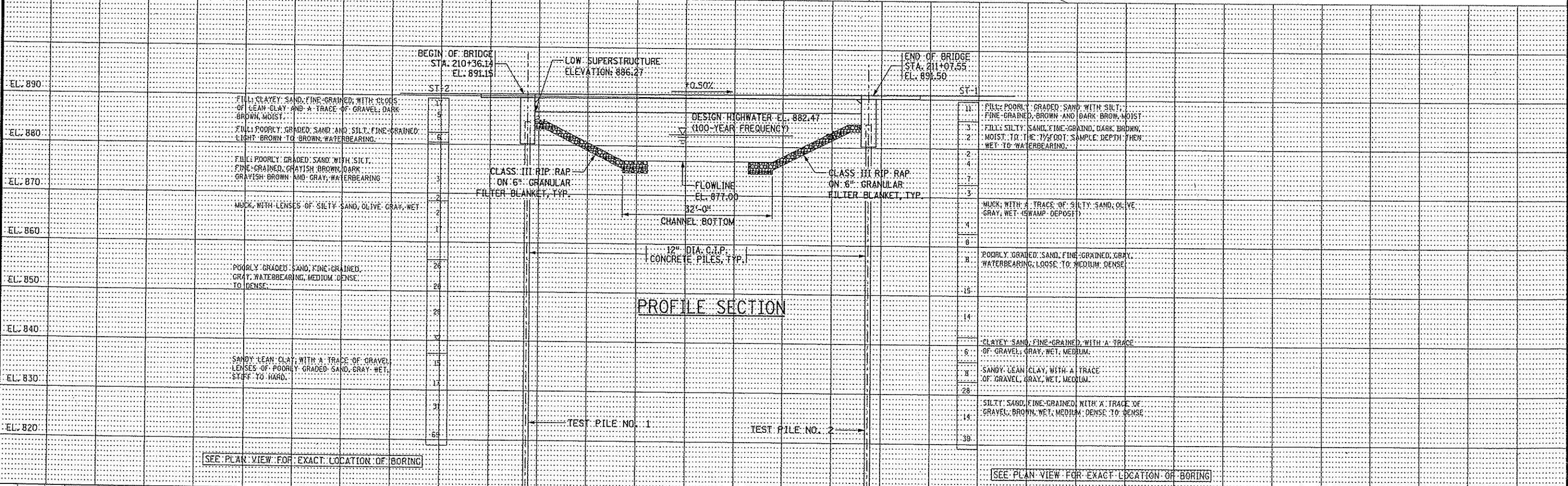
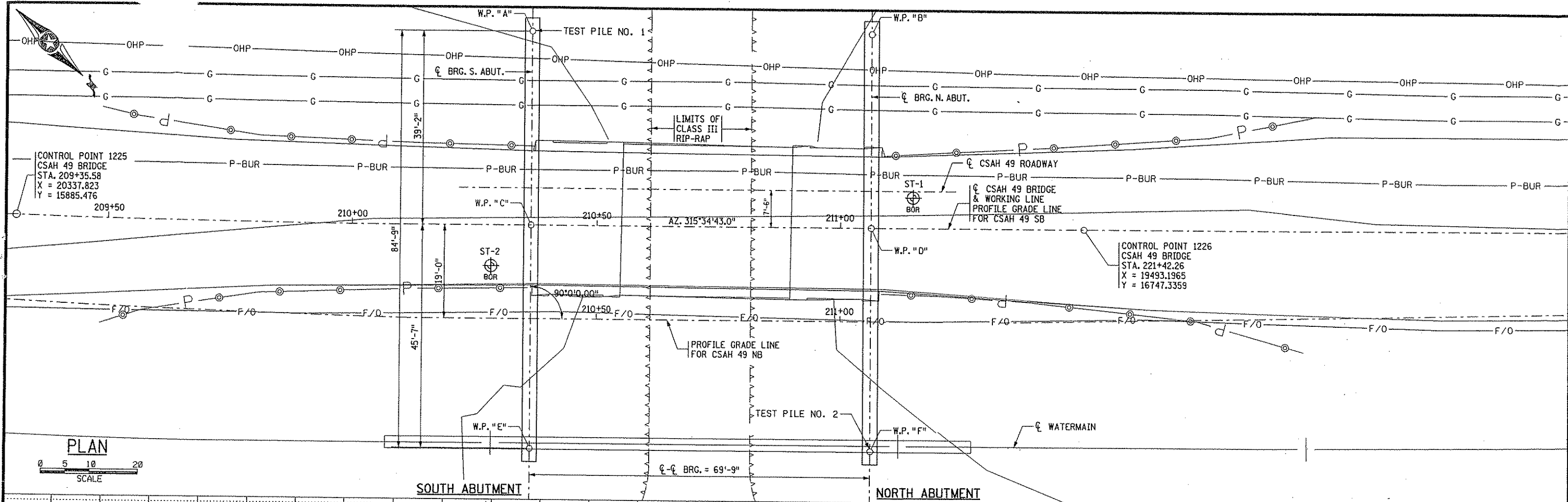
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 CHK: GM CHK: GM  
 Sheet No. B25 of B26 Sheets

Bridge No.  
 02563

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 DATE: 5/18/2006 TIME: 2:57:24 PM



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 SIGNED: *Matthew J. Christensen*  
 DATE: 5-8-2006  
 MATTHEW J. CHRISTENSEN  
 REG. NO. 43076

**TKDA**  
 ENGINEERS • ARCHITECTS • PLANNERS  
 1500 PIPER JAFFRAY PLAZA  
 444 CEDAR STREET  
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK  
 ANOKA COUNTY, MINNESOTA  
 S.A.P. 02-649-01

TITLE:  
**BRIDGE SURVEY AND PROFILE**

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

Bridge No. 02563  
 Sheet No. B26 of B26 Sheets