

Feb 06
ORDER OF SHEETS

- Section No. 1 Title
- Section No. 2 Typical Sections and Details
- Section No. 3 Estimate of Quantities
- Section No. 3 Miscellaneous Quantities
- Section No. 4 Right of Way Plat
- Section No. 5 Plan and Profile (Includes Erosion Control)
- Section No. 6 Standard Detail Drawings
- Section No. 7 Sign Plates
- Section No. 8 Structure Plans
- Section No. 9 Computer Earthwork Data
- Section No. 9 Cross Sections

TOTAL SHEETS = 39

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

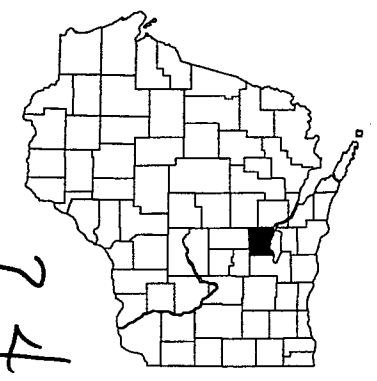
CTH M BRIDGE AND APPROACHES

TOWN OF WINNECONNE, ARROWHEAD RIVER

CTH M
WINNEBAGO COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6478-01-71	BR2006085	

STATE PROJECT NUMBER
6478-01-71



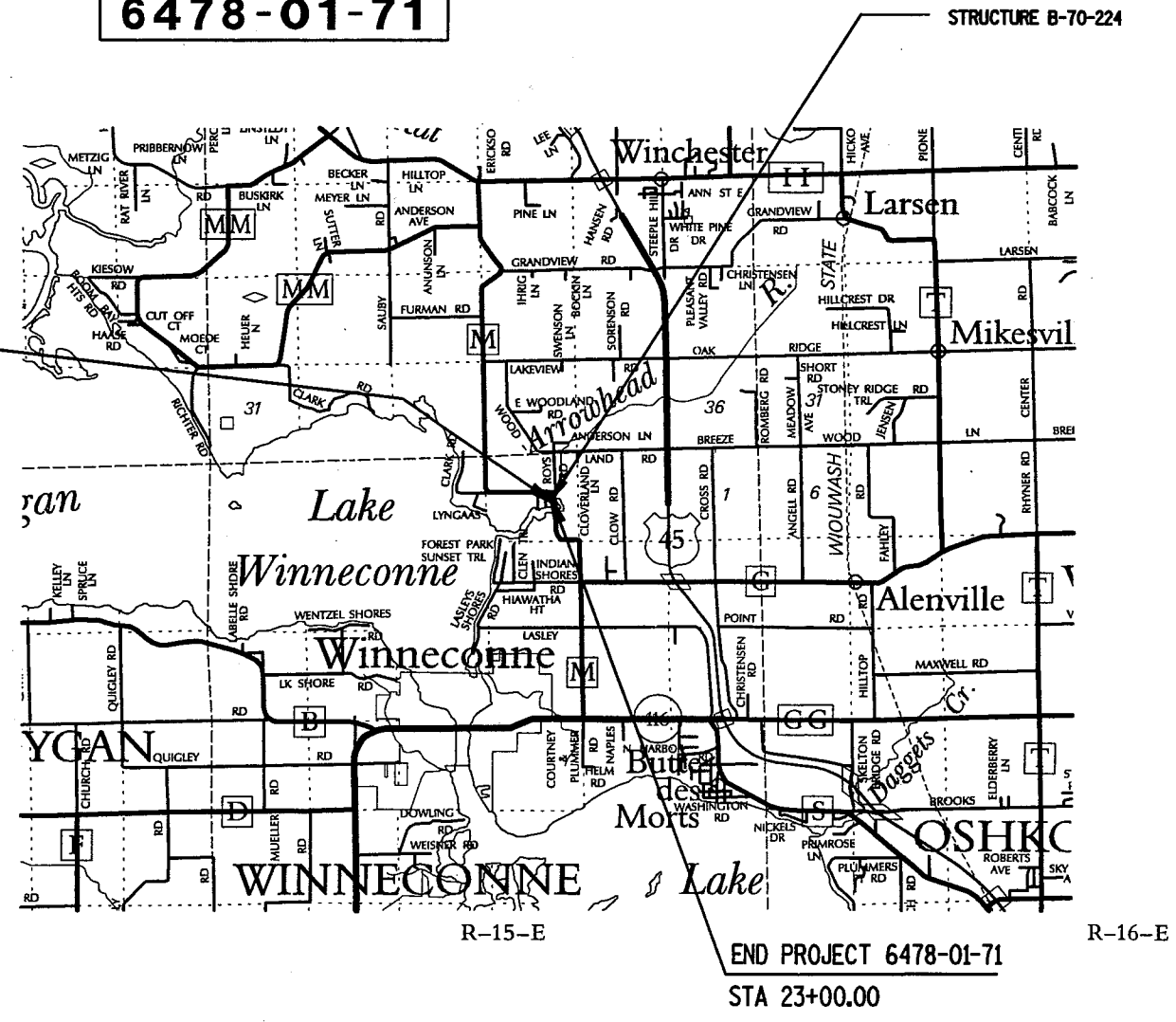
BEGIN PROJECT 6478-01-71
STA 18+00.00
Y = 784,618.99 FEET
X = 2,344,084.34 FEET

DESIGN DESIGNATION

A.A.D.T. 2006	=	870
A.A.D.T. 2026	=	1060
D.H.V.	=	110
D.D.	=	50-50
T.	=	8.0%
DESIGN SPEED	=	40 MPH
ESALS	=	175,200

CONVENTIONAL SYMBOLS

<p>PLAN</p> <p>CORPORATE LIMITS</p> <p>PROPERTY LINE</p> <p>LOT LINE</p> <p>LIMITED HIGHWAY EASEMENT</p> <p>EXISTING RIGHT OF WAY</p> <p>PROPOSED OR NEW R/W LINE</p> <p>SLOPE INTERCEPT</p> <p>REFERENCE LINE</p> <p>EXISTING CULVERT</p> <p>PROPOSED CULVERT (Box or Pipe)</p> <p>COMBUSTIBLE FLUIDS</p> <p>MARSH AREA</p> <p>WOODED OR SHRUB AREA</p>	<p>PROFILE</p> <p>GRADE LINE</p> <p>ORIGINAL GROUND</p> <p>MARSH OR ROCK PROFILE (To be noted as such)</p> <p>SPECIAL DITCH</p> <p>GRADE ELEVATION</p> <p>CULVERT (Profile View)</p> <p>UTILITIES</p> <p>ELECTRIC</p> <p>FIBER OPTIC</p> <p>GAS</p> <p>SANITARY SEWER</p> <p>STORM SEWER</p> <p>TELEPHONE</p> <p>WATER</p> <p>UTILITY PEDESTAL</p> <p>POWER POLE</p> <p>TELEPHONE POLE</p>
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LAYOUT
SCALE 0 1 MI.
TOTAL NET LENGTH OF CENTERLINE = 0.095 MI.

ACCEPTED FOR
WINNEBAGO COUNTY
6/23/05 (Date) *John M. Hesse* (Signature)

ORIGINAL PLANS PREPARED BY

OMNI ASSOCIATES

WISCONSIN PROFESSIONAL ENGINEER

JUDITH ANN WILSON
E 22940
NEENAH, WI
6/21/05

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	OMNI ASSOCIATES
Designer	OMNI ASSOCIATES
Project Manager	T. AHRENS
District Examiner	
District Supervisor	JILL MICHAELSON
C.O. Examiner	<i>DJD</i>

APPROVED FOR DISTRICT OFFICE
DATE: 6/22/05 *Jim E. Michaelson* (Signature)

ALL COORDINATES SHOWN ON THIS PLAN ARE BASED ON THE WINNEBAGO COUNTY COORDINATE SYSTEM.

UTILITIES

GAS WISCONSIN PUBLIC SERVICE
 LORI BUTRY
 700 N. ADAMS STREET
 BOX 19001
 GREEN BAY, WI 54307
 TEL (920) 433-1703
 FIELD CONTACT: PAUL SPANGLER
 3300 N. MAIN STREET
 OSHKOSH, WI 54901
 TEL (920) 236-5908

TELEPHONE SBC
 CHUCK BARTELT
 70 E. DIVISION STREET
 FOND DU LAC, WI 54935
 TEL (920) 929-1013

DNR LIAISON BOBBI JO REISER
 OSHKOSH SERVICE CENTER
 625 EAST COUNTY ROAD Y, SUITE 700
 OSHKOSH, WI 54901-9731
 TEL (920) 303-5442
 FAX (920) 424-4404

WINNEBAGO COUNTY JOHN HAESE, HIGHWAY COMMISSIONER
 901 W. COUNTY RD Y
 OSHKOSH, WI 54903
 TEL (920) 232-1700

DIGGERS HOTLINE CABLE LOCATE
 TELEPHONE: (800) 242-8511 (TOLL FREE)



Toll Free (800) 242-8511
 Milwaukee Area (414) 259-1181
 Hearing Impaired TDD (800) 542-2289
 www.DiggersHotline.com

EROSION CONTROL NOTES

RUNOFF COEFFICIENT FOR THIS PROJECT: EXISTING PAVEMENT 0.95, EXISTING SLOPES 0.30, NEW PAVEMENT 0.95, NEW SLOPES 0.30.

TOTAL PROJECT AREA = 0.89 ACRES

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES =0.62 ACRES

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

FILL AS SHOWN ON THE PLANS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM COMMON EXCAVATION. THE ALLOWANCE USED FOR EXPANDING THE FILLS TO COMPUTE THE VOLUME OF MATERIAL REQUIRED IS 30 PERCENT. ALL FILL VOLUMES SHOWN ARE THE ACTUAL VOLUMES.

THE LIMITS OF EXCAVATION BELOW SUBGRADE (EBS) WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. IF EBS IS REQUIRED, IT WILL BE MEASURED AND PAID FOR AS COMMON EXCAVATION AND BACKFILLED WITH BASE AGGREGATE DENSE 3-INCH. 12 INCHES OF EBS IS SHOWN ON THE PLANS AND INCLUDED IN THE QUANTITIES.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

WETLAND AREAS ARE SHOWN ON THE PLANS. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO WORK WITHIN THE SLOPE INTERCEPT IN WETLAND AREAS.

ALL DISTURBED AREAS, NOT OTHERWISE SURFACED, ARE TO BE TOPSOILED, FERTILIZED, SEEDED AND MULCHED.

DISTURBED AREAS SHALL BE SEEDED WITH MIXTURE NO. 20, EXCEPT WETLANDS, WHICH SHALL BE SEEDED WITH MIXTURE NO. 60.

THE EXACT LOCATIONS OF ALL EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

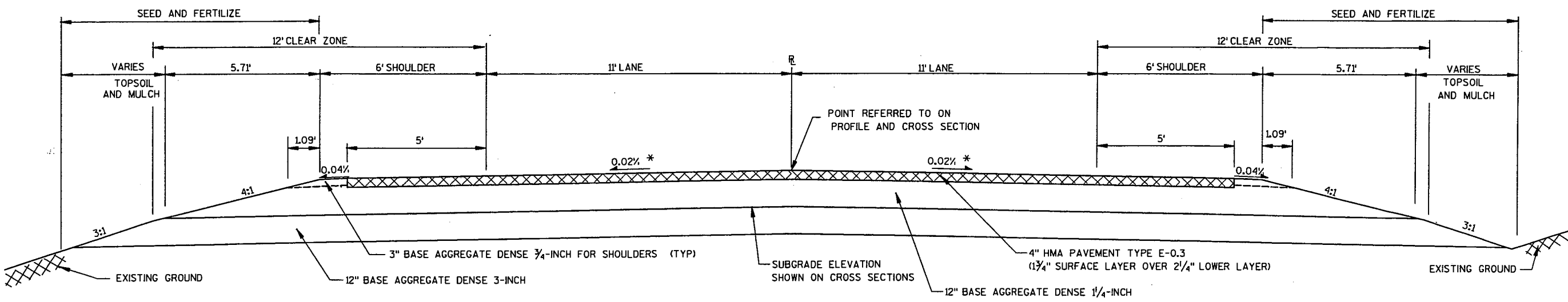
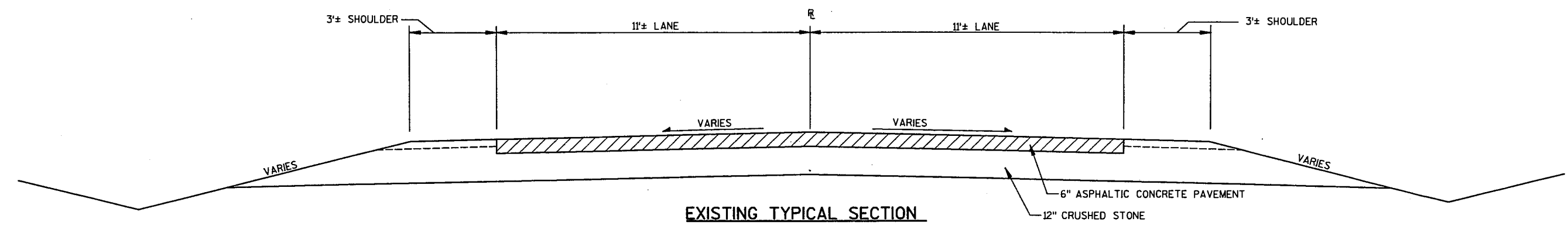
PLAN ELEVATIONS = USGS DATUM

THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT WHICH SHALL BE SET IN THE STRUCTURE AS DESIGNATED BY THE ENGINEER.

TRANSITION FROM THE EXISTING SUBGRADE ELEVATION TO THE PROPOSED SUBGRADE ELEVATION USING A 10:1 HORIZONTAL TO VERTICAL SLOPE AT THE BEGINNING AND END OF THE PROJECT.

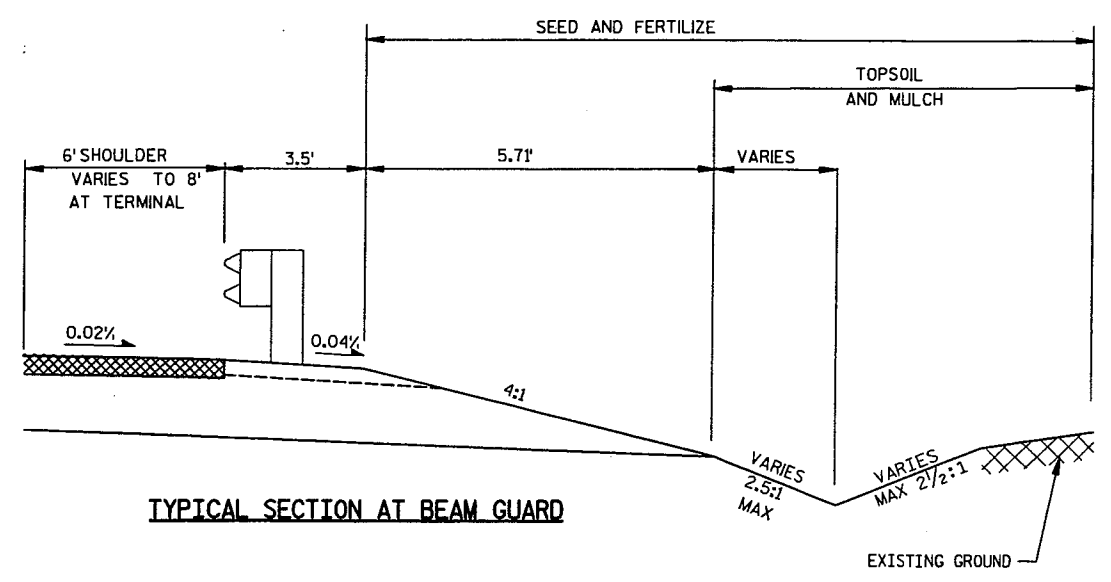
STANDARD DETAIL DRAWINGS

SDD NUMBER	TITLE
8E8-3	TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS
8E9-16	SILT FENCE
8E11-2	TURBIDITY BARRIER
8F1-11	APRON ENDWALLS FOR CULVERT PIPE
12A3-8	NAME PLATE-(STRUCTURES)
14B15-4a	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B15-4b	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-4a	STEEL PLATE BEAM GUARD, CLASS "A", (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-6a	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-7d	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F & "W"
14B24-4a,b,c	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15C2-4a	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C2-4b	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C6-4	SIGNING AND MARKING FOR TWO LANE BRIDGES
15C8-9a	PAVEMENT MARKING (MAINLINE)



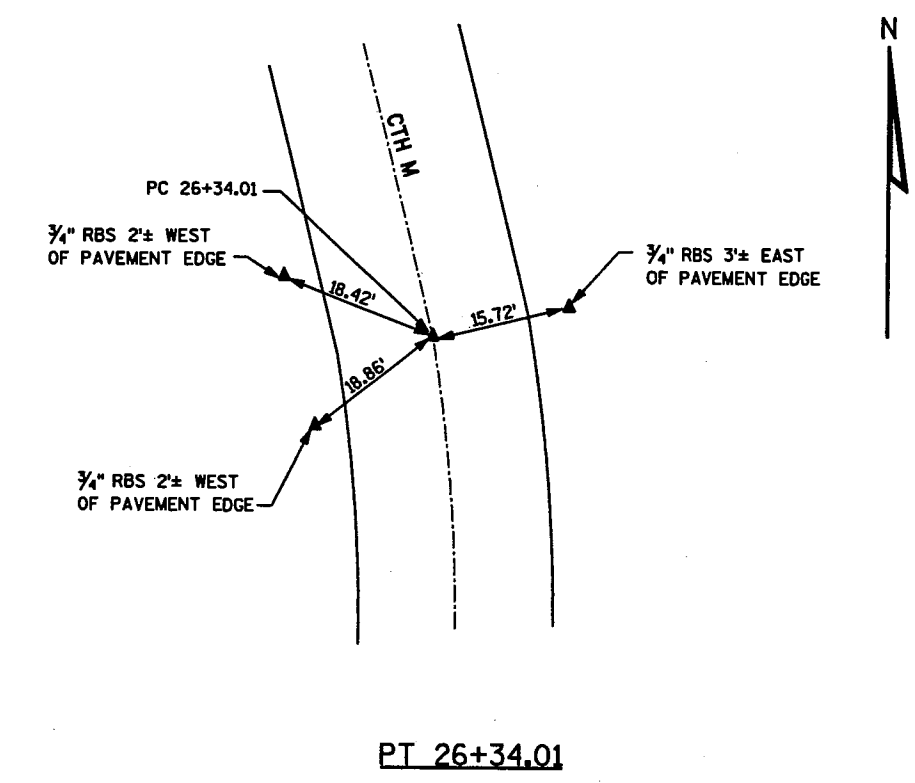
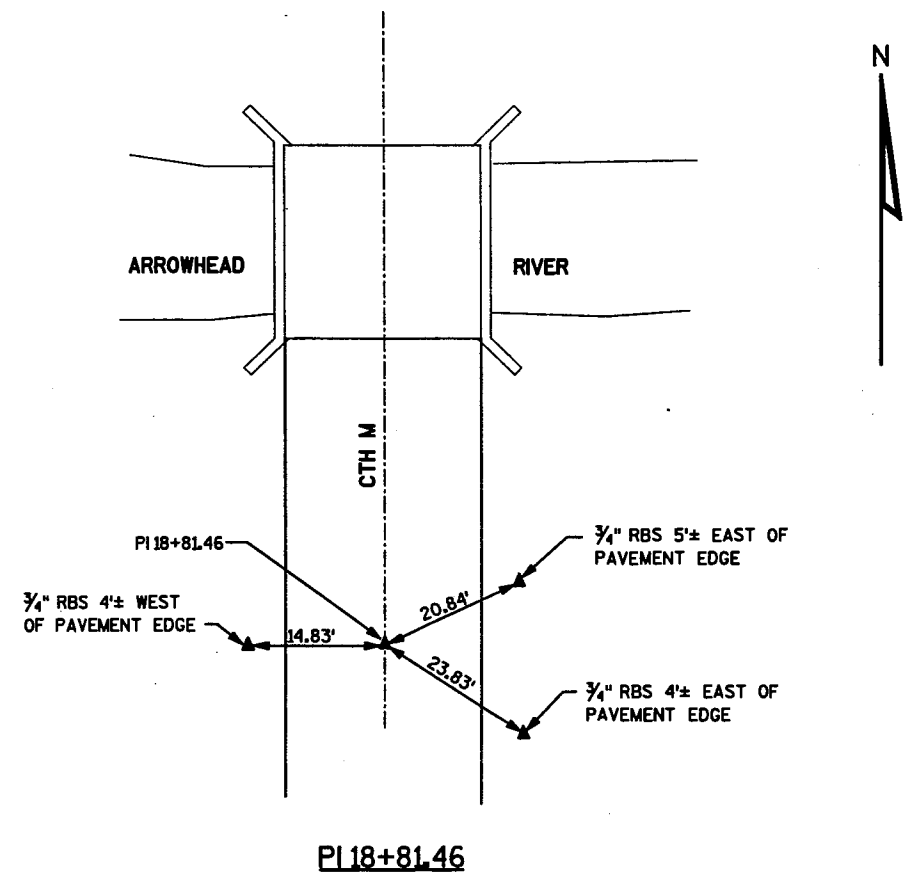
* VARIES IN SUPERELEVATION

STA 18+00 TO 23+00

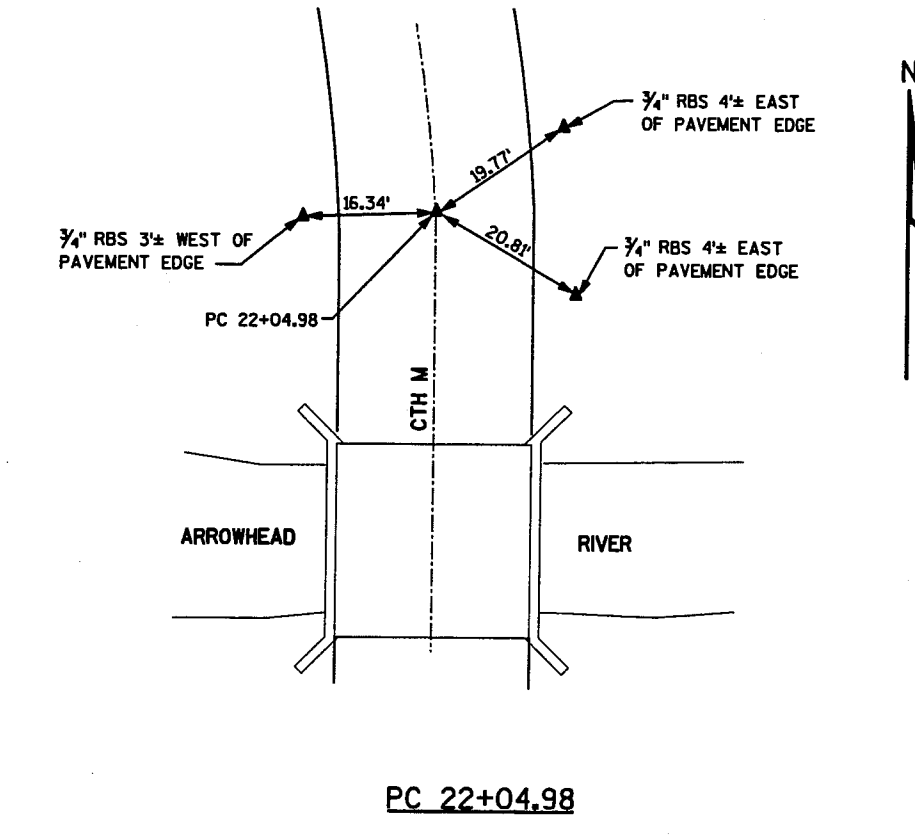
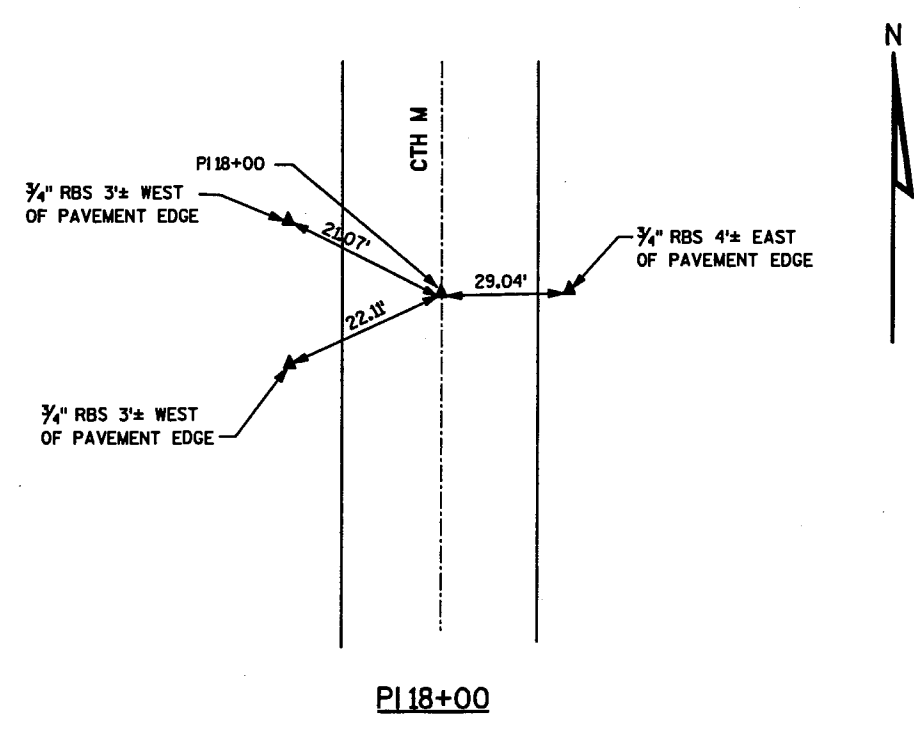


56.57, 59.

LEVELS ON - 1, 2, 3.



LEVELS ON = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63



DATE 10NOV05

ESTIMATE OF QUANTITIES

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6478-01-71 QUANTITY
0010	201.0105	CLEARING	STA	5.000	5.000
0020	201.0205	GRUBBING	STA	5.000	5.000
0030	203.0200	REMOVING OLD STRUCTURE (STATION) 01. 20+00	LS	1.000	1.000
0050	205.0100	EXCAVATION COMMON	CY	1,350.000	1,350.000
0060	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-70-224	LS	1.000	1.000
0080	206.5000	COFFERDAMS (STRUCTURE) 01. B-70-224	LS	1.000	1.000
0090	210.0100	BACKFILL STRUCTURE	CY	200.000	200.000
0100	213.0100	FINISHING ROADWAY (PROJECT) 01. 6478-01-71	EACH	1.000	1.000
0120	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	70.000	70.000
0130	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,400.000	1,400.000
0140	305.0130	BASE AGGREGATE DENSE 3-INCH	TON	1,700.000	1,700.000
0150	310.0115	BASE AGGREGATE OPEN GRADED	CY	27.000	27.000
0160	455.0105	ASPHALTIC MATERIAL PG58-28	TON	22.000	22.000
0170	455.0605	TACK COAT	GAL	40.000	40.000
0180	460.1100	HMA PAVEMENT TYPE E-0.3	TON	350.000	350.000
0190	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	250.000	250.000
0200	460.3000	QMP HMA MIXTURE	TON	350.000	350.000
0210	502.0100	CONCRETE MASONRY BRIDGES	CY	305.000	305.000
0220	502.0301.S	QMP CONCRETE STRUCTURES	CY	305.000	305.000
0230	502.0400.S	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	3,050.000	3,050.000
0240	502.3200	PROTECTIVE SURFACE TREATMENT	SY	336.000	336.000
0270	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	6,200.000	6,200.000
0280	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	37,420.000	37,420.000
0310	511.2105	PILING STEEL DELIVERED AND DRIVEN HP 10-INCH X 42 LB	LF	1,045.000	1,045.000
0320	513.4050	RAILING TUBULAR TYPE F (STRUCTURE) 01. B-70-224	LS	1.000	1.000
0340	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	16.000	16.000
0350	520.0118	CULVERT PIPE CLASS III 18-INCH	LF	120.000	120.000
0360	520.1018	APRON ENDWALLS FOR CULVERT PIPE 18-INCH	EACH	2.000	2.000
0370	606.0300	RIPRAP HEAVY	CY	110.000	110.000
0380	612.0106	PIPE UNDERDRAIN 6-INCH	LF	56.000	56.000
0390	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	20.000	20.000
0400	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	83.000	83.000
0420	614.0370	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	4.000	4.000
0430	619.1000	MOBILIZATION	EACH	0.670	0.670
0440	624.0100	WATER	MGAL	18.000	18.000
0450	625.0100	TOPSOIL ***	SY	1,200.000	1,200.000
0460	627.0200	MULCHING ***	SY	1,200.000	1,200.000
0470	628.1504	SILT FENCE	LF	840.000	840.000
0480	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2.000	2.000
0490	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0500	628.2002	EROSION MAT CLASS I TYPE A	SY	290.000	290.000
0520	628.6005	TURBIDITY BARRIERS	SY	270.000	270.000
0530	628.7504	TEMPORARY DITCH CHECKS	LF	20.000	20.000
0540	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0550	630.0120	SEEDING MIXTURE NO. 20	LB	35.000	35.000
0560	630.0160	SEEDING MIXTURE NO. 60	LB	10.000	10.000
0580	630.0200	SEEDING TEMPORARY	LB	20.000	20.000
0590	634.0412	POSTS WOOD 4X4-INCH X 12-FT	EACH	4.000	4.000

3

3

DATE 10NOV05

ESTIMATE OF QUANTITIES
6478-01-71

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0600	637.0202	SIGNS REFLECTIVE TYPE II	SF	12.000	12.000
0610	638.2602	REMOVING SIGNS TYPE II	EACH	6.000	6.000
0620	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	6.000	6.000
0630	642.5000	FIELD OFFICE TYPE B (PROJECT)	EACH	0.500	0.500
0640	643.0100	TRAFFIC CONTROL (PROJECT) 01. 6478-01-71	EACH	1.000	1.000
0660	645.0111	GEOTEXTILE FABRIC TYPE DF SCHEDULE A	SY	40.000	40.000
0670	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	130.000	130.000
0680	645.0140	GEOTEXTILE FABRIC TYPE SAS	SY	80.000	80.000
0690	646.0103	PAVEMENT MARKING PAINT 4-INCH	LF	2,400.000	2,400.000
0700	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	406.000	406.000
0710	650.5000	CONSTRUCTION STAKING BASE	LF	406.000	406.000
0720	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-70-224	LS	1.000	1.000
0740	650.9900	CONSTRUCTION STAKING INITIAL LAYOUT	LF	406.000	406.000
0750	690.0100	SAWING EXISTING PAVEMENT	LF	44.000	44.000

3

3

CLEARING & GRUBBING			
STATION	LOCATION	201.0125 CLEARING STA	201.0225 GRUBBING STA
18+00 - STRUCTURE	CTH M	2	2
STRUCTURE - 23+00	CTH M	3	3
TOTALS		5	5

YARDAGE SUMMARY				
STATION TO STATION	LOCATION	205.0100 EXCAVATION COMMON ** CY	EXPANDED FILL CY	WASTE CY
18+00 - STRUCTURE	CTH M	525	130	355
STRUCTURE - 23+00	CTH M	825	40	775
TOTALS		1350	170	1130

** INCLUDES EXCAVATION BELOW SUBGRADE (EBS)

COMMON EXCAVATION				
STATION	CUT AREA (SF)	CUT VOLUME (CY)	FILL AREA (SF)	FILL VOLUME (CY)
18+00	84		0	
18+50	103	173	33	31
19+00	97	185	38	66
19+50	80	164	0	35
SUB TOTAL		522		132
ENDS ABRUPTLY STRUCTURE				
BEGINS ABRUPTLY				
20+50	99			
21+00	98	182	2	4
21+50	86	170	11	12
22+00	78	152	4	14
22+50	85	151	3	6
23+00	100	171	0	2
SUB TOTAL		826		38
TOTALS		1348		170

BASE AGGREGATE DENSE AND WATER					
STATION TO STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	305.0130 BASE AGGREGATE DENSE 3-INCH TON	624.0100 WATER MGAL
18+00 - STRUCTURE	CTH M	30	540	650	7.0
STRUCTURE - 23+00	CTH M	40	860	1050	11.0
TOTALS		70	1400	1700	18

ALL ITEMS ARE GROUP CODE 010
UNLESS NOTED OTHERWISE.

ASPHALTIC ITEMS						
STATION TO STATION	LOCATION	460.1100 HMA PAVEMENT TYPE E-0.3 TON	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	460.3000 QMP HMA MIXTURE TON	460.2000 INCENTIVE DENSITY HMA PAVEMENT DOL
18+00 - STRUCTURE	CTH M	130	8	15	130	100
STRUCTURE- 23+00	CTH M	220	14	25	220	150
TOTALS		350	22	40	350	250

STEEL PLATE BEAM GUARD			
STATION TO STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0370 ENERGY ABSORBING TERMINAL EACH
18+76.6-19+26.6, LT	CTH M	---	1
18+76.6-19+26.6, RT	CTH M	---	1
19+26.6 - STRUCTURE, LT	CTH M	20.65	---
19+26.6 - STRUCTURE, RT	CTH M	20.65	---
STRUCTURE - 20+73.4, LT	CTH M	20.65	---
STRUCTURE - 20+73.4, RT	CTH M	20.65	---
20+73.4 - 21+23.4, LT	CTH M		1
20+73.4 - 21+23.4, LT	CTH M		1
TOTALS		82.6	4
ROUNDED TOTALS		83	

LANDSCAPING							
STATION TO STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	630.0200 SEEDING TEMPORARY LB	630.0120 SEEDING MIXTURE NO 20 LB	630.0160 SEEDING MIXTURE NO 60 LB	629.0210 FERTILIZER TYPE B CWT
17+90 - 19+55, LT	CTH M	230	230	3	6	2	0.2
17+90 - 19+55, RT	CTH M	230	230	3	6	1	0.2
20+43 - 23+10, LT	CTH M	300	300	4	8	3	0.2
20+43 - 23+10, RT	CTH M	240	240	4	7	2	0.2
UNDISTRIBUTED	CTH M	200	200	6	8	2	0.2
TOTALS		1,200	1,200	20	35	10	1.0

TURBIDITY BARRIER		
GROUP 020		
STATION	LOCATION	628.6005 SY
19+54	CTH M	130
20+46	CTH M	140
TOTAL		270

EROSION CONTROL ITEMS

ALL ITEMS ARE GROUP CODE 010
UNLESS NOTED OTHERWISE.

STATION TO STATION	LOCATION	GROUP 020		GROUP 020		GROUP 020		
		628.1504	628.1905	628.1910	628.2002	628.7504		
		MOBILIZATIONS		MOBILIZATIONS		EROSION MAT	TEMPORARY	
		SILT FENCE	EROSION CONTROL	EROSION CONTROL	CLASS I TYPE A	DITCH CHECKS		
		LF	EACH	EACH	SY	LF		
17+80 - 19+45	LT CTH M	165	---	---	60	---		
17+80 - 19+45	RT CTH M	75	---	---	45	---		
20+55 - 23+00,	LT CTH M	155	---	---	40	10		
20+55 - 23+00,	RT CTH M	245	---	---	45	---		
UNDISTRIBUTED	CTH M	200	2	2	100	10		
TOTALS		840	2	2	290	20		

SIGNS REFLECTIVE TYPE II & POSTS WOOD

STATION	LOCATION	CODE	GROUP 020		GROUP 020	
			634.0412	637.0202	SIGNS REFLECTIVE	
			SIGN SIZE	4" X 4"	TYPE II	
			HORIZ X VERT	WOOD POST	SF	
			IN X IN	12' EACH		
19+42,	RT CTH M	W5-52R	12 X 36	1	3	
19+42,	LT CTH M	W5-52L	12 X 36	1	3	
20+58,	RT CTH M	W5-52L	12 X 36	1	3	
20+58,	LT CTH M	W5-52R	12 X 36	1	3	
TOTALS				4	12	

CONSTRUCTION STAKING

STATION TO STATION	LOCATION	GROUP 020			
		650.4500	650.5000	650.9900	650.6500
		SUBGRADE	BASE	INITIAL LAYOUT	STRUCTURE LAYOUT
		LF	LF	LF	LS
18+00 - 19+53	CTH M	153	153	153	---
STRUCTURE B-70-224	CTH M	---	---	---	1
20+47 - 23+00	CTH M	253	253	253	---
TOTALS		406	406	406	1

PAVEMENT MARKING PAINT 4-INCH

STATION TO STATION	LOCATION	646.0103	
		EDGE LINE	CENTERLINE
		WHITE	DOUBLE YELLOW
		LF	LF
17+50 - 23+50	CTH M	1200	1200
PROJECT TOTAL		2,400	

REMOVING SIGNS & SMALL SIGN SUPPORTS

STATION	LOCATION	GROUP 020		REMARK
		638.2602	638.3000	
		REMOVING SIGNS	REMOVING SMALL	
		TYPE II	SIGN SUPPORTS	
		EACH	EACH	
18+40	CTH M, RT	1	1	WEIGHT LIMIT SIGN
19+50	CTH M, LT & RT	2	2	LOCATE BRIDGE SIGN
20+50	CTH M, LT & RT	2	2	LOCATE BRIDGE SIGN
20+60	CTH M, LT	1	1	WEIGHT LIMIT SIGN
TOTALS		6	6	

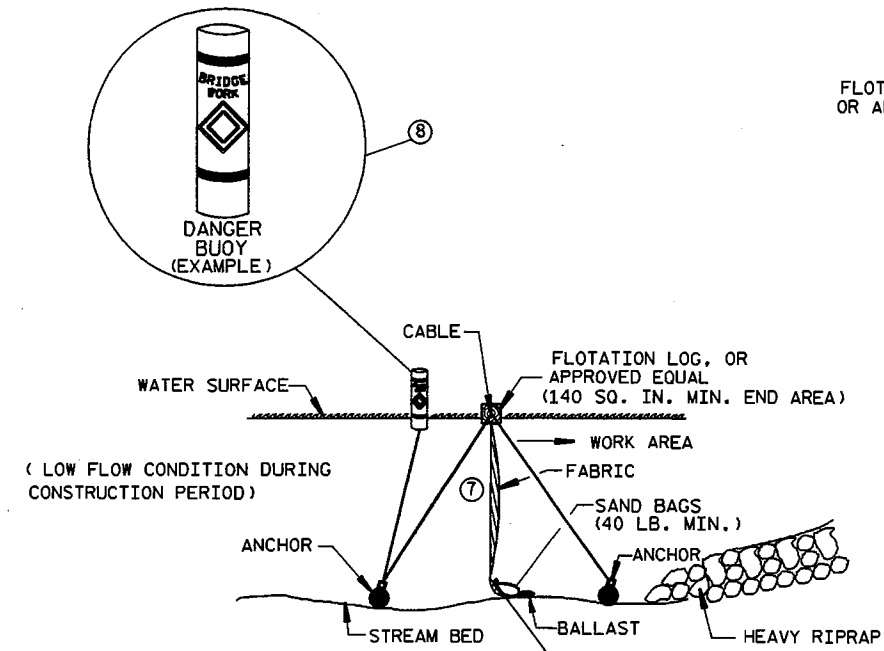
SAWING EXISTING PAVEMENT

STATION	LOCATION	690.0100 LF
18+00	CTH M	22
23+00	CTH M	22
TOTAL		44

CULVERT PIPE CLASS III AND APRON ENDWALLS

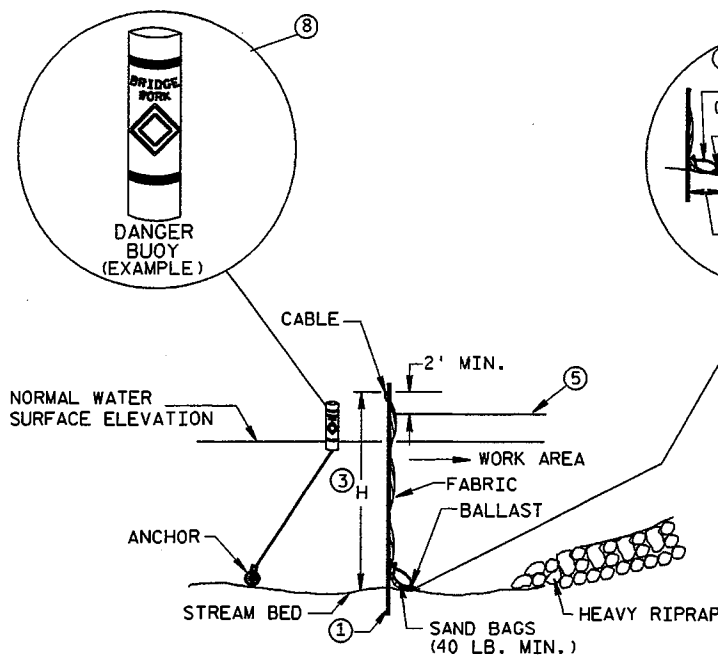
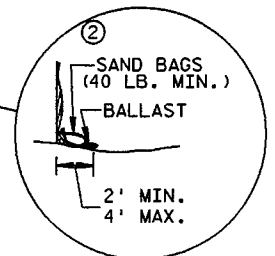
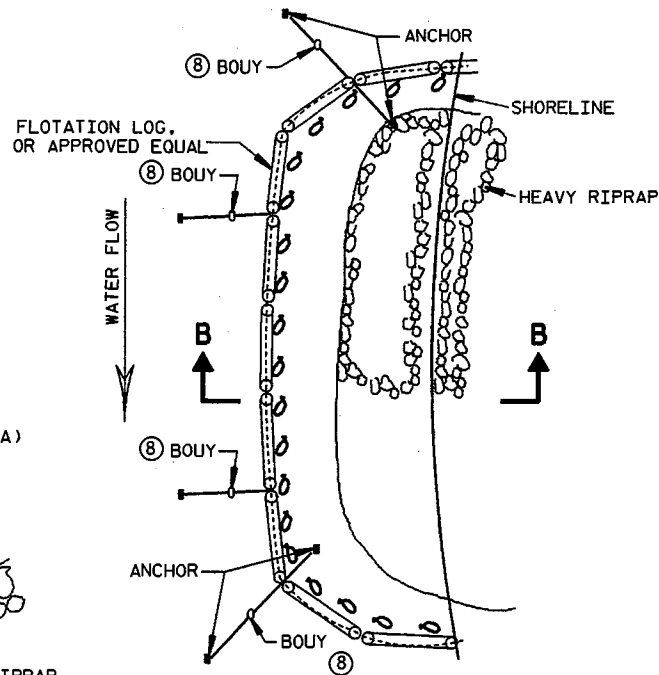
ALL ITEMS ARE GROUP CODE 010
UNLESS NOTED OTHERWISE.

STATION	LOCATION	520.0118 CULVERT PIPE CLASS III			INLET ELEVATION	DISCHARGE ELEVATION	520.1018
		18-INCH LF	THICKNESS				18-INCH EACH
			STEEL INCHES	ALUMINUM INCHES			
18+30 - 19+50, 25' RT	CTH M	120	0.064	0.060	749.60	748.00	2



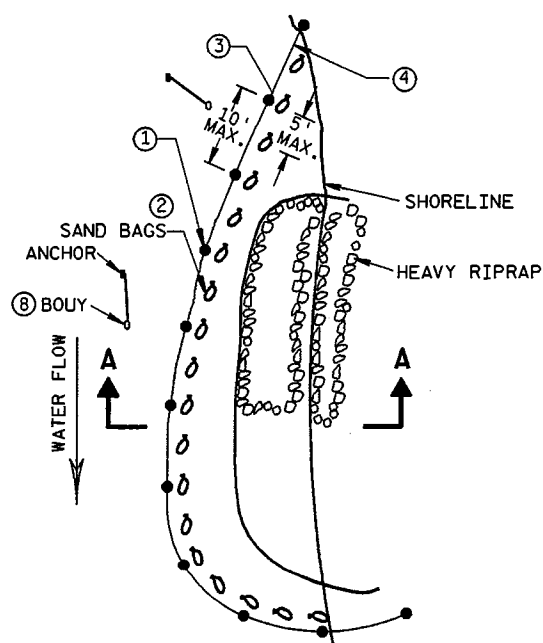
SECTION B-B

**TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6**



SECTION A-A

TURBIDITY BARRIER STANDARD POST INSTALLATION



PLAN VIEW

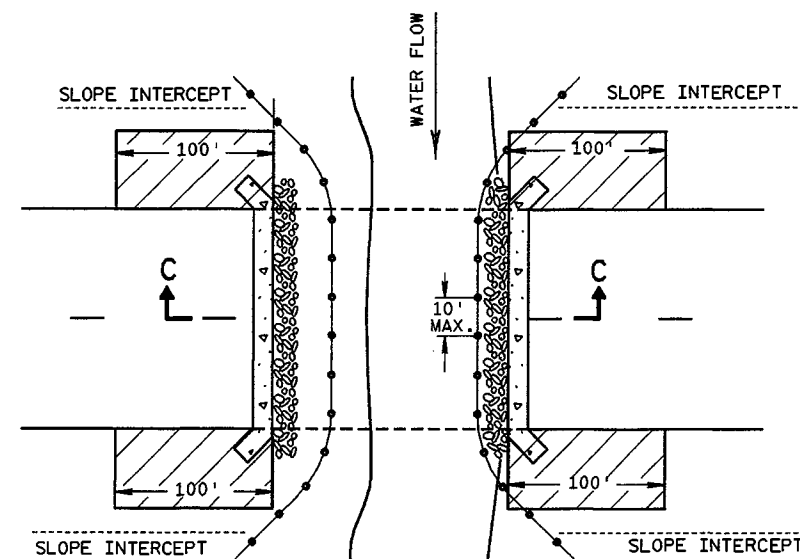
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

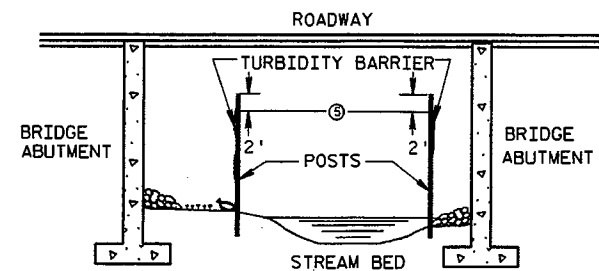
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

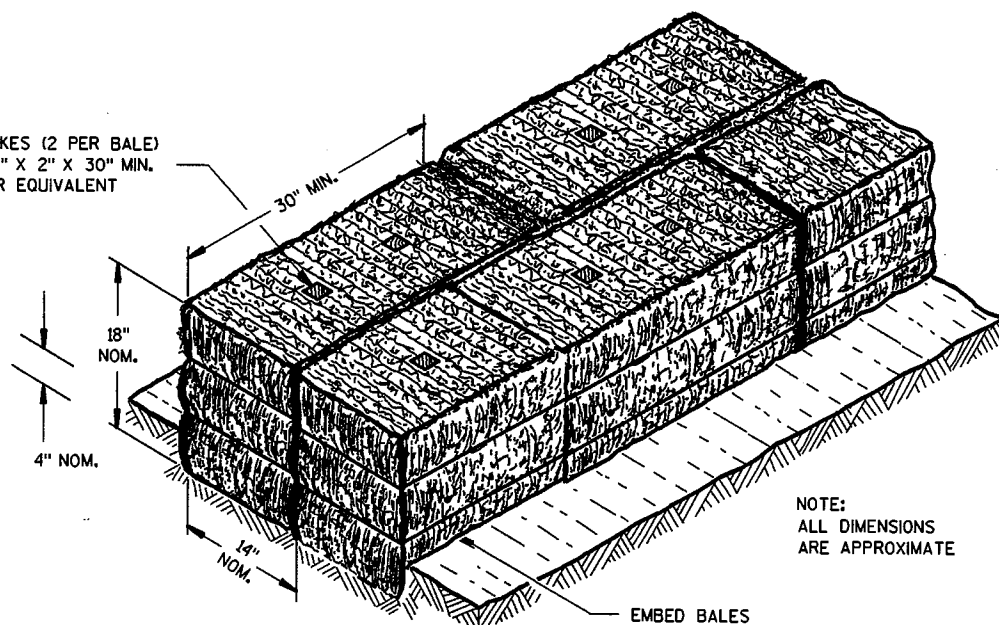
**TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES**

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

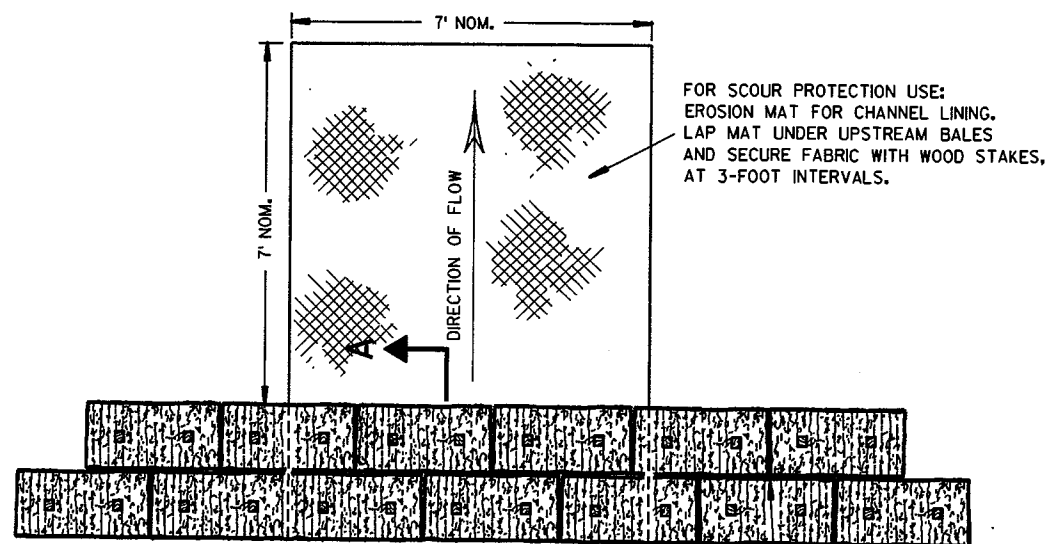
APPROVED
DATE 6/4/02
CHIEF ROADWAY DEVELOPMENT ENGINEER

WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

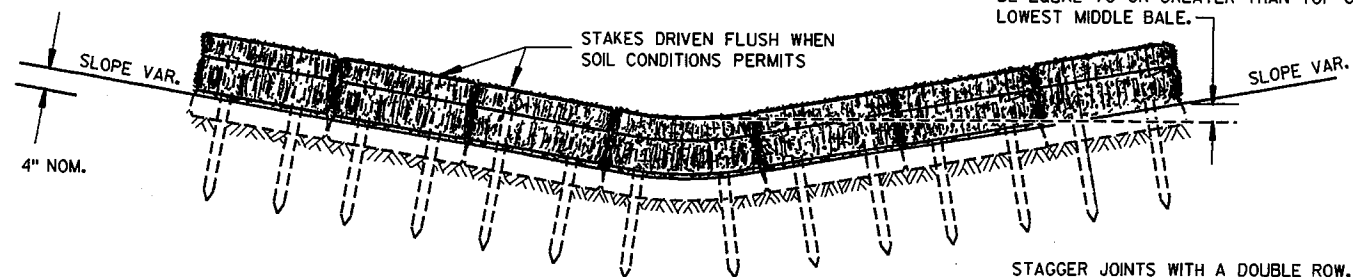
SECTION A-A



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL BE EQUAL TO OR GREATER THAN TOP OF LOWEST MIDDLE BALE.



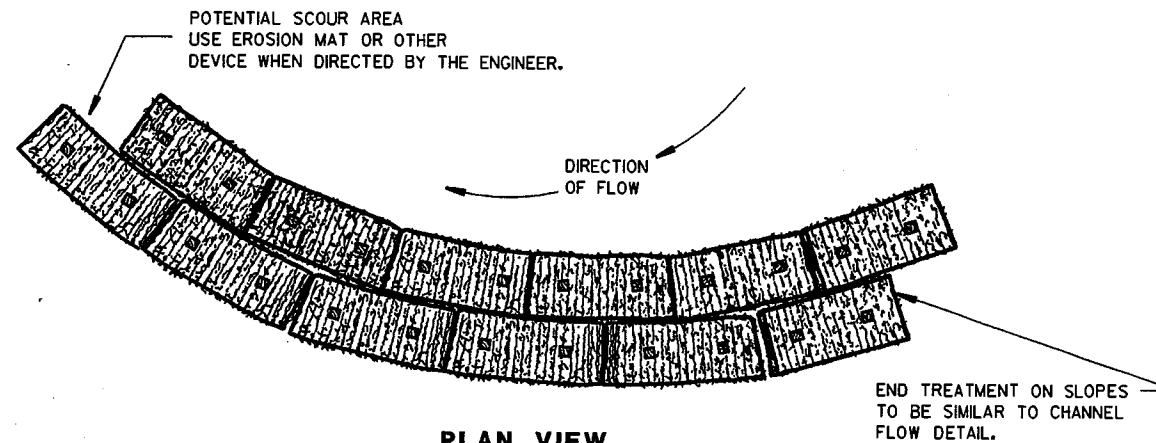
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

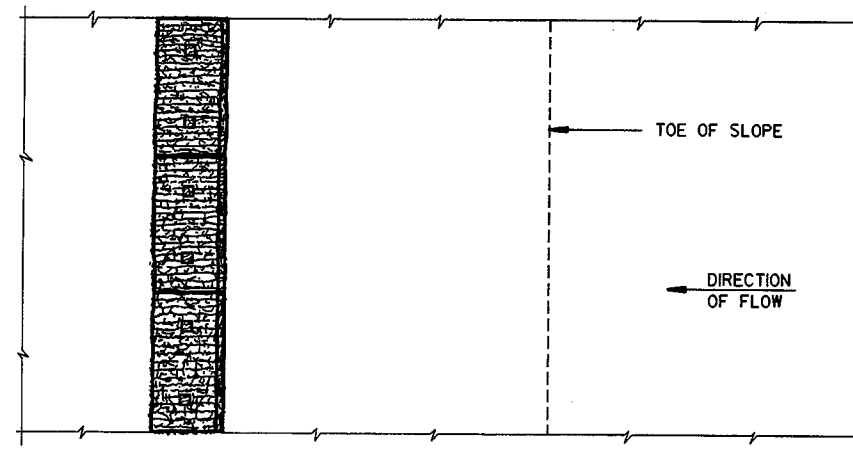
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

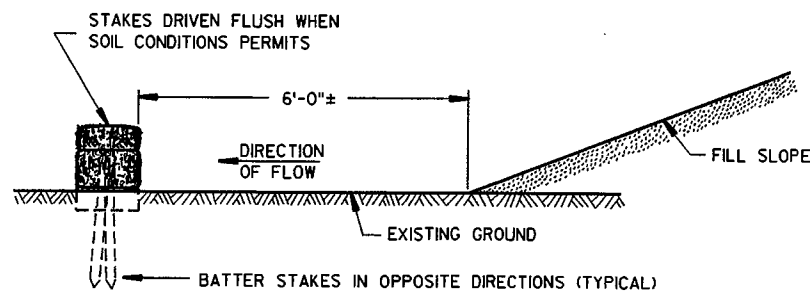


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

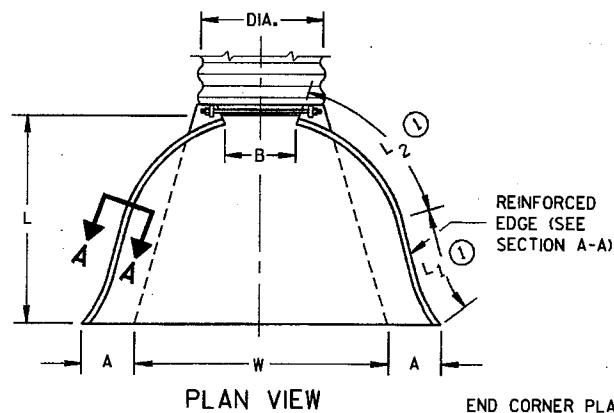
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

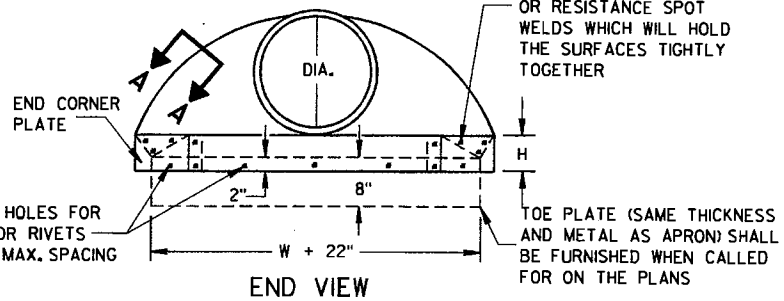
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1/2")	L1 (1)	L2 (1)	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.	

x EXCEPT CENTER PANEL SEE GENERAL NOTES



PLAN VIEW

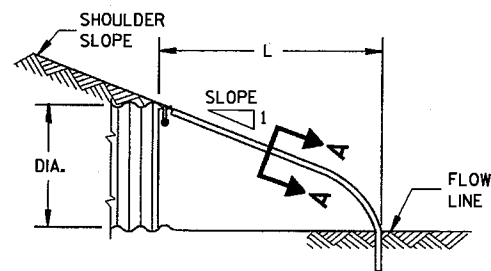
REINFORCED EDGE (SEE SECTION A-A)



END VIEW

END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER

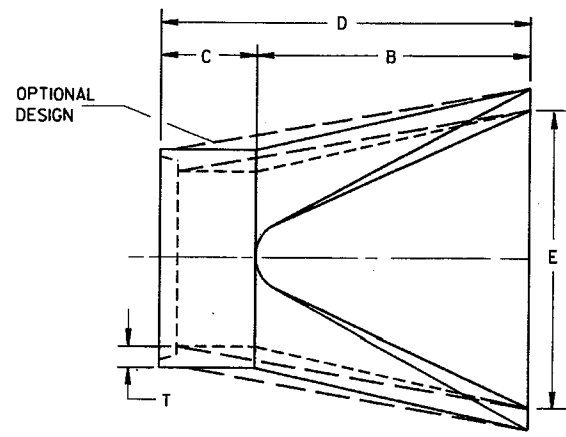
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS



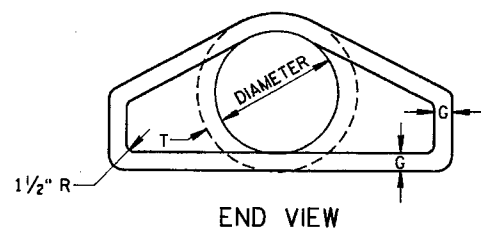
SIDE ELEVATION METAL ENDWALLS

REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1	
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1	
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1	
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1	
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	2 3/4 to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1	
72	7	24-36	78	21	99	108	6	2 to 1	
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1	
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1	
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1	

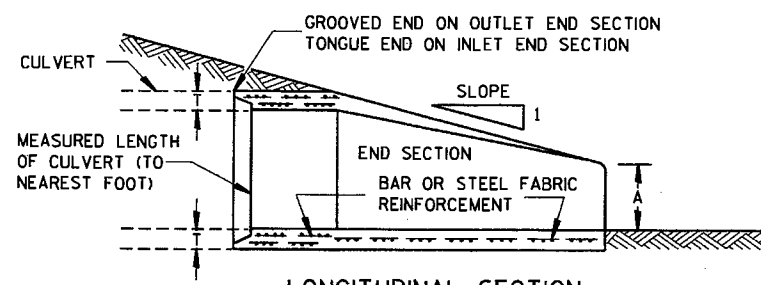
*MINIMUM
**MAXIMUM



PLAN

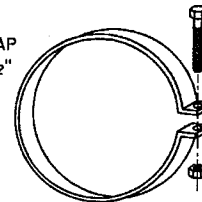


END VIEW



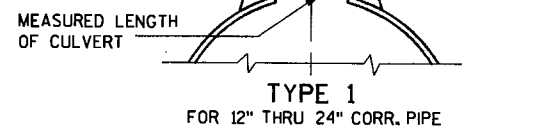
LONGITUDINAL SECTION CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT

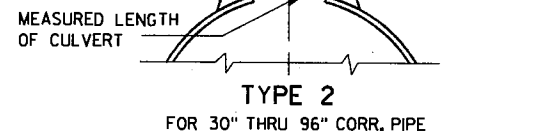


ALTERNATE FOR TYPE 1 CONNECTION END SECTION CONNECTOR STRAP

THREADED 1/8" DIA. ROD AROUND CULVERT & THROUGH TANK TYPE CONNECTOR LUG OR ALTERNATE CONNECTOR STRAP (SEE DETAIL)



THREADED 1/8" DIA. ROD OVER TOP OF APRON, SIDE LUGS TO BE RIVETED TO APRON



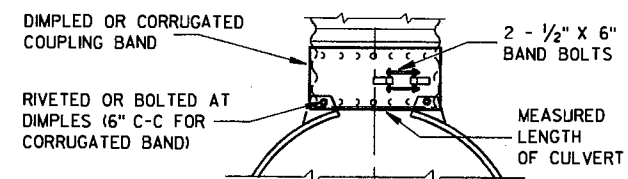
MEASURED LENGTH OF CULVERT

CONNECTOR SECTION TO BE PAID FOR AS PART OF END SECTION

COUPLING BAND REQUIRED

RIVETED OR BOLTED

TYPE 3 FOR 42" THRU 96" CORR. PIPE



TYPE 5 ALTERNATE FOR: ALL SIZES CORRUGATED CIRCULAR PIPE

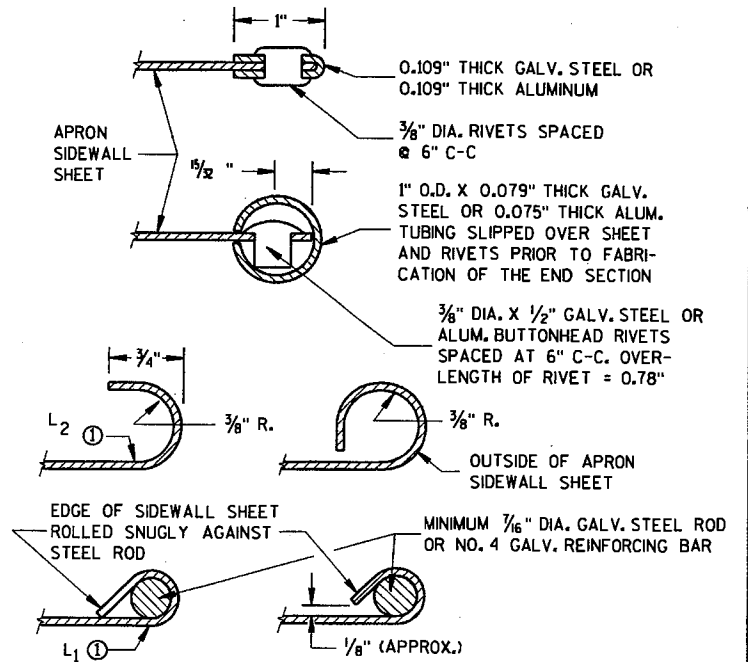
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

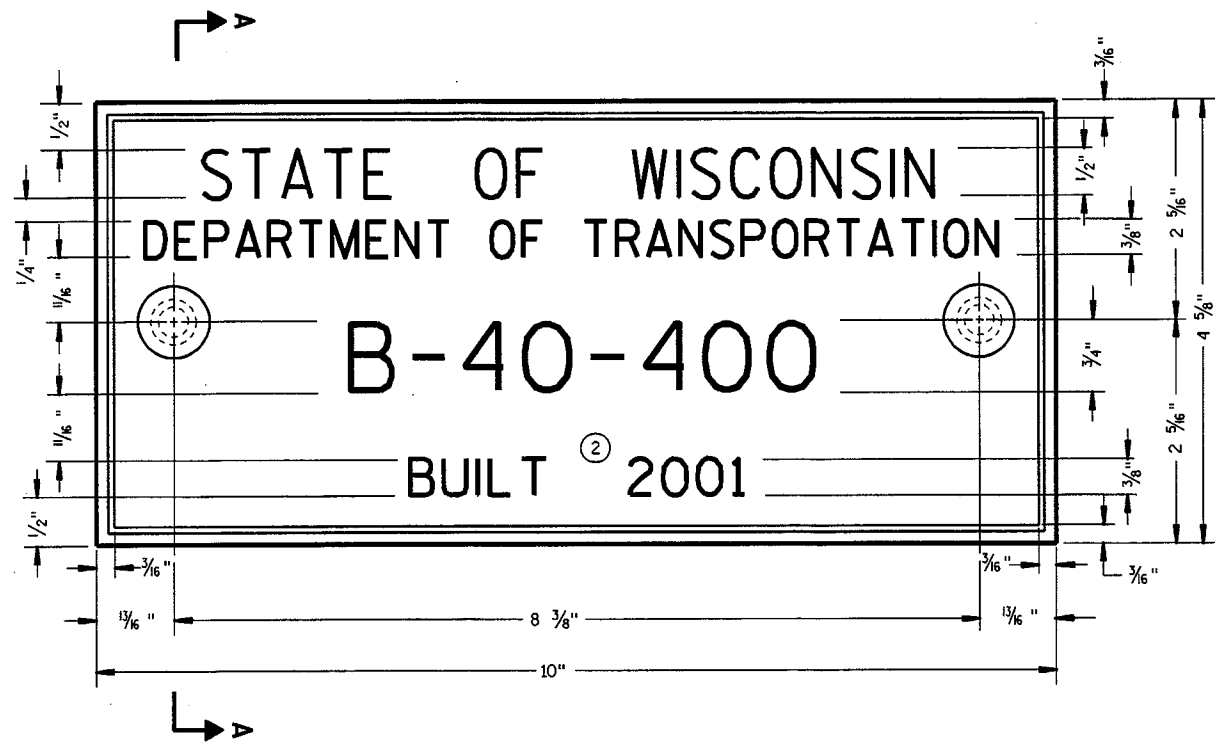
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
R. J. [Signature]
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA.



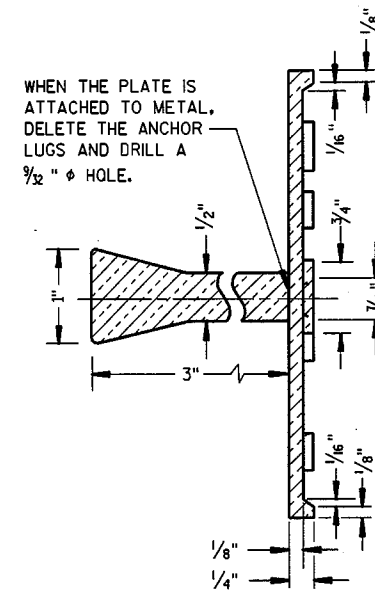
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

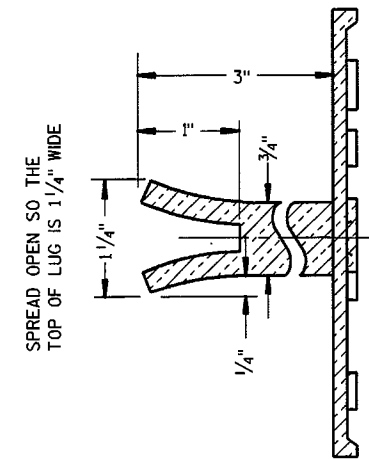
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 506.2.4 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

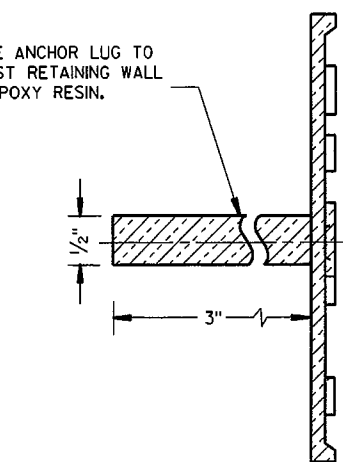
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



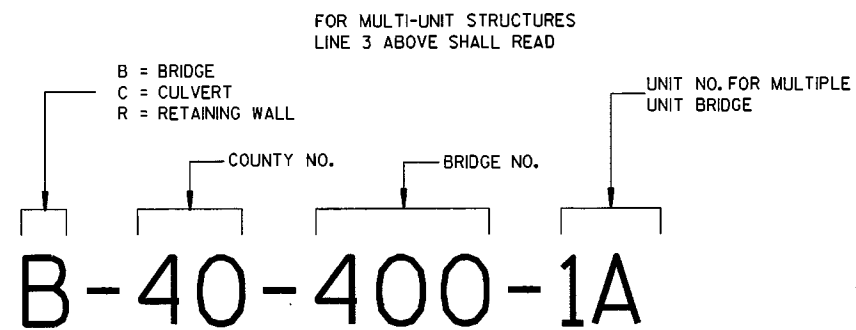
SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.

NAME PLATE
(STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/29/04
DATE
Stanley W. Woods
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

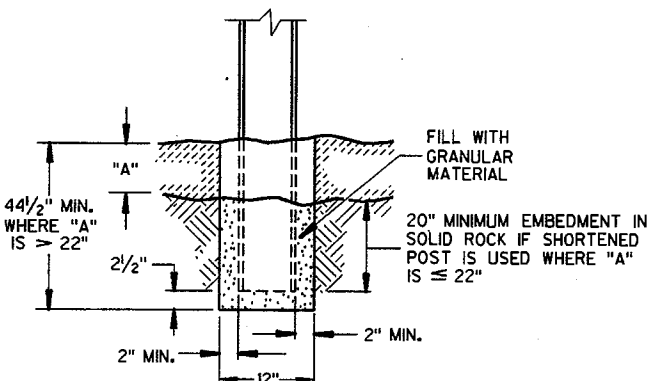
- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO AASHTO M183. GALVANIZE ACCORDING TO AASHTO M 111 EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPALTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ WHEN SPECIFIED IN THE PLANS, THE 2-FOOT MINIMUM TO HINGE POINT MAY BE REDUCED OR ELIMINATED IF EXISTING CONDITIONS DO NOT PERMIT THE DESIRABLE EARTHWORK.

INCREASE POST LENGTH TO PROVIDE A MINIMUM EMBEDMENT OF 3'-6" IF THE SHOULDER HINGE POINT IS LOCATED IN FRONT OF THE POST.

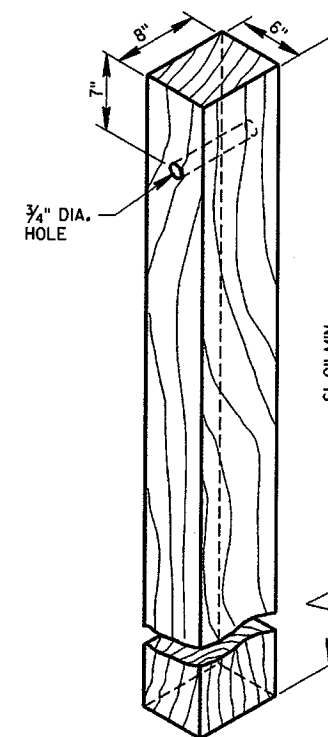
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

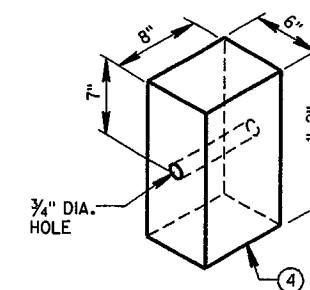
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



END VIEW SETTING STEEL OR WOOD POST IN ROCK ⑥

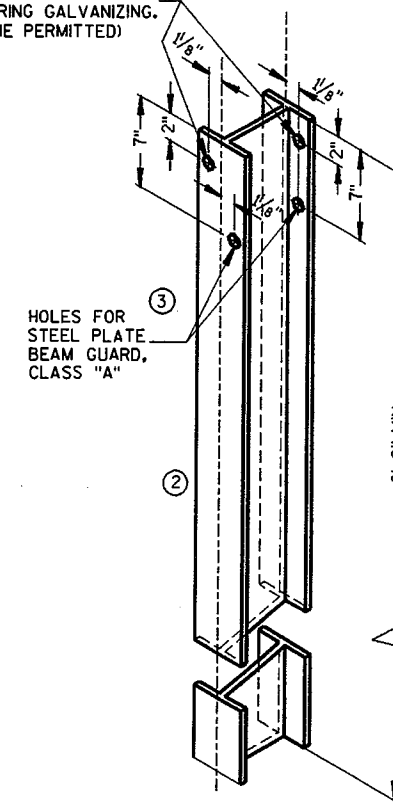


WOOD POST (6" X 8") NOMINAL



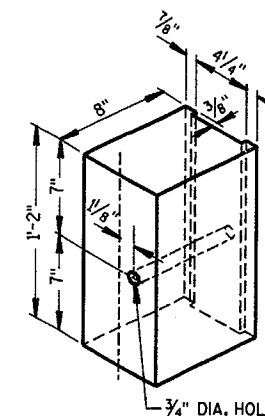
WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS

OPTIONAL 13/16" DIA. HOLE FOR HANDLING DURING GALVANIZING. (ONE PERMITTED)

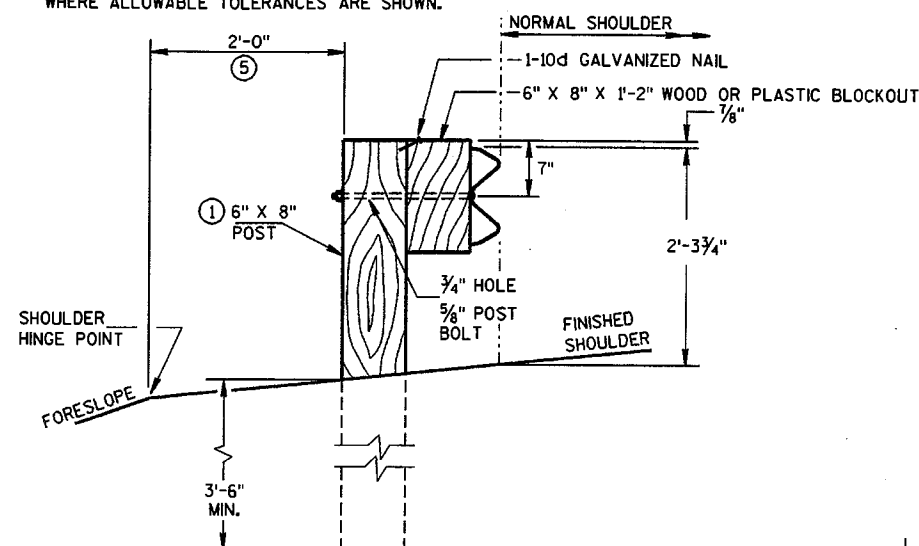


STEEL POST & HOLE PUNCHING DETAIL (W6 X 9) ①

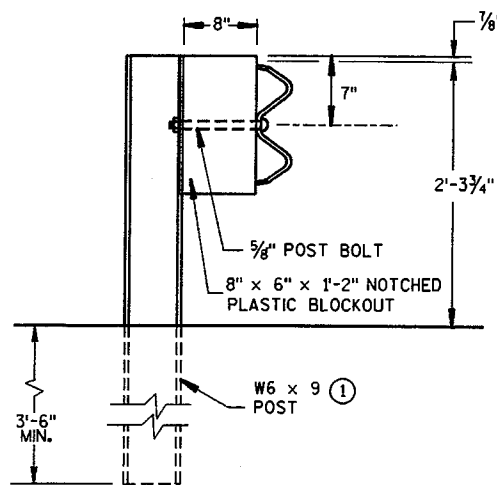
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



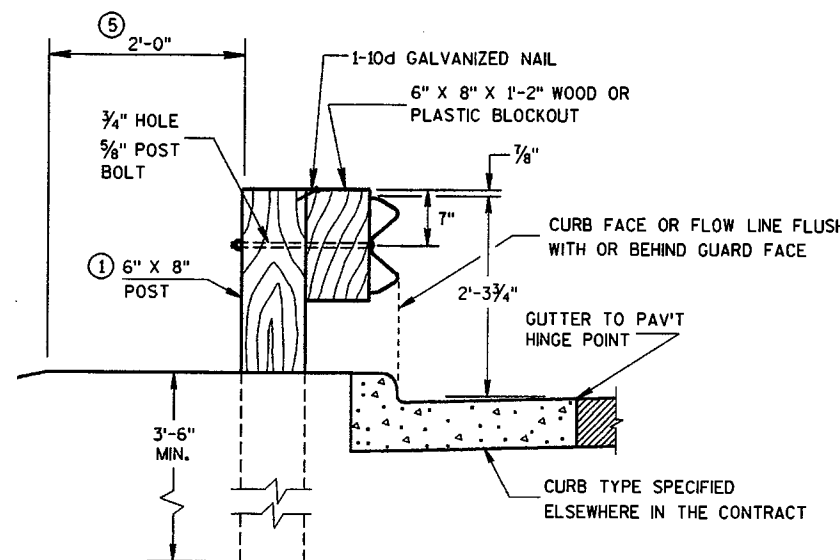
NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS



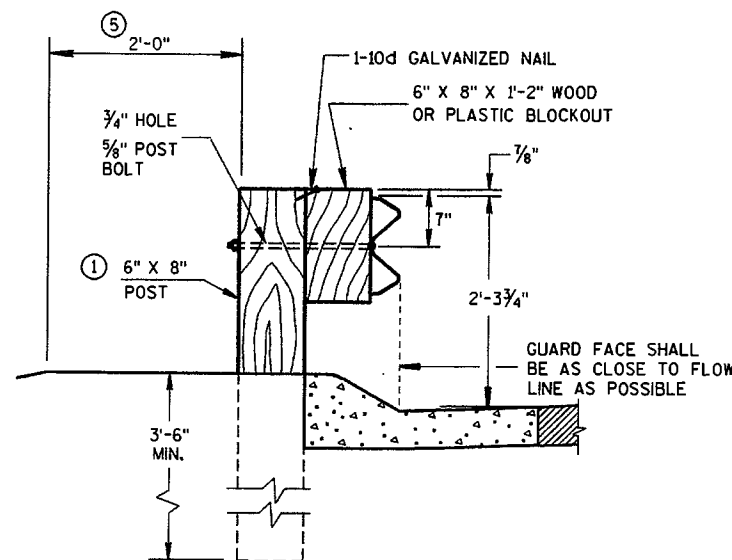
END VIEW LOCATED ALONG A ROADWAY SHOULDER



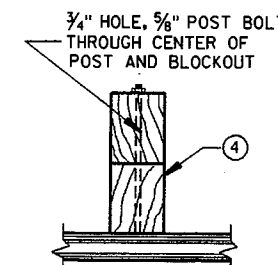
END VIEW STEEL POST & NOTCHED PLASTIC BLOCKOUT ALTERNATIVE



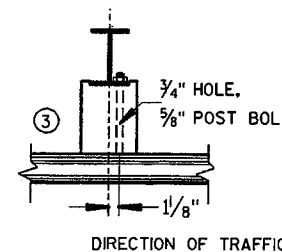
END VIEW LOCATED ALONG A CURBED ROADWAY



END VIEW LOCATED ALONG A MOUNTABLE CURBED ROADWAY



PLAN VIEW WOOD POST, BLOCKOUT & BEAM



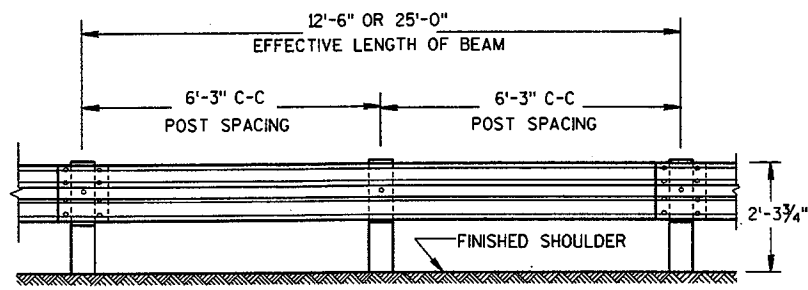
PLAN VIEW STEEL POST, NOTCHED PLASTIC BLOCKOUT & BEAM

DIRECTION OF TRAFFIC

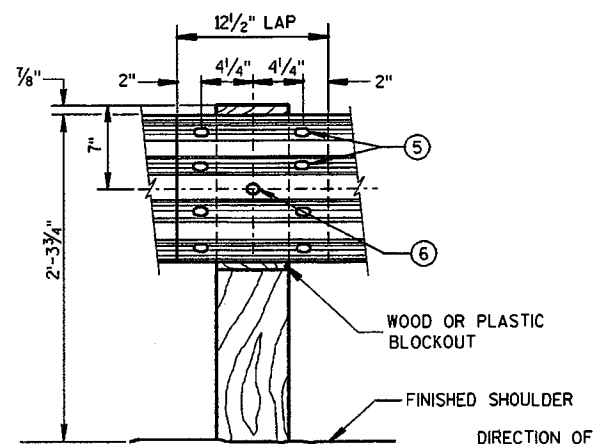
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

STEEL PLATE BEAM GUARD, CLASS 'A' INSTALLATION & ELEMENTS

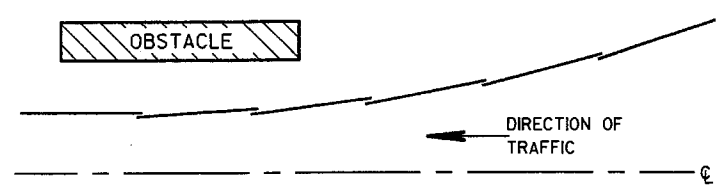
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



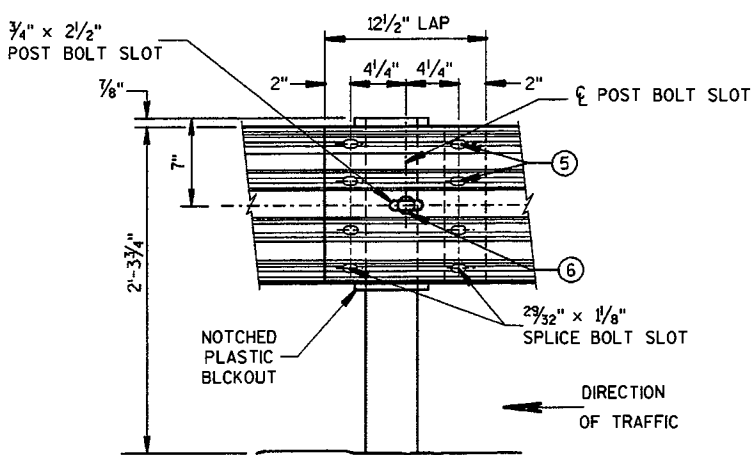
FRONT VIEW



FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



PLAN VIEW
BEAM LAPPING DETAIL

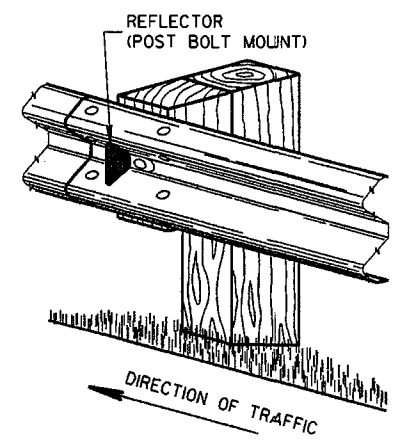


FRONT VIEW
BEAM SPLICE AT STEEL POST

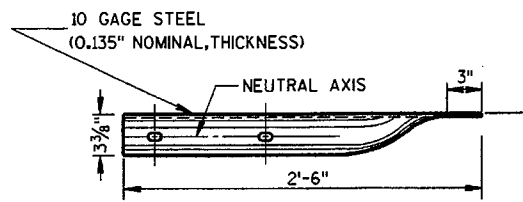
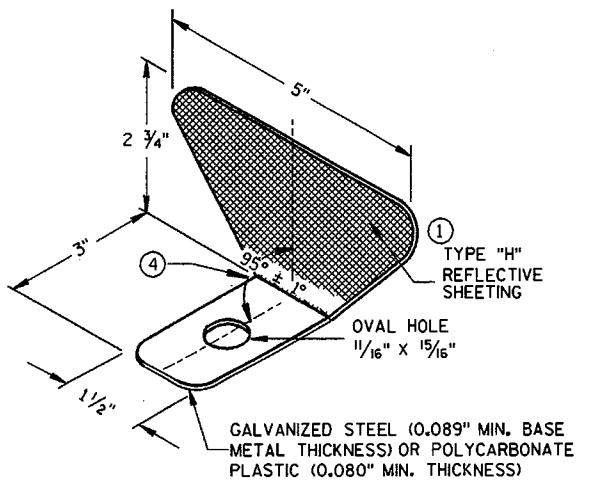
TYPICAL SPlicing DETAILS OF STEEL PLATE BEAM GUARD

REFLECTOR SPACING ②

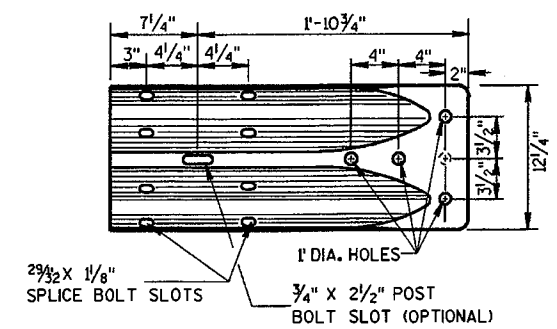
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	3
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	6
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	3



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①

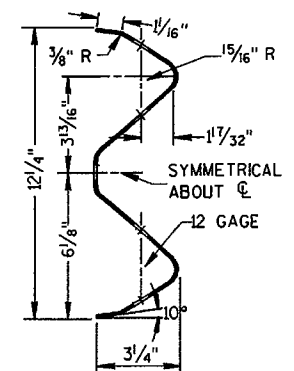


PLAN VIEW



FRONT VIEW

W BEAM TERMINAL CONNECTOR
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION THRU W BEAM

GENERAL NOTES

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - 5/8" φ X 1 1/4" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ 5/8" φ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.

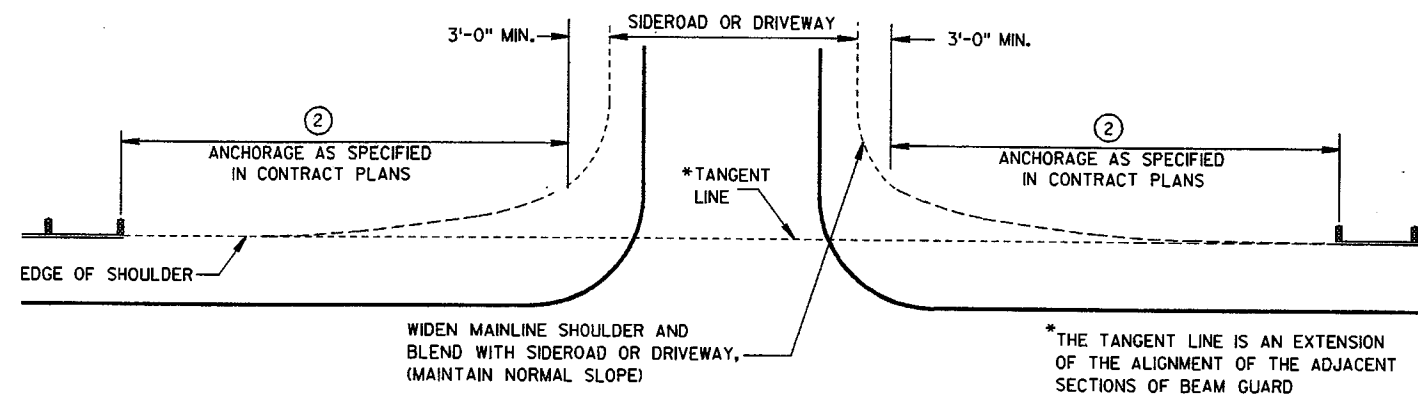
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

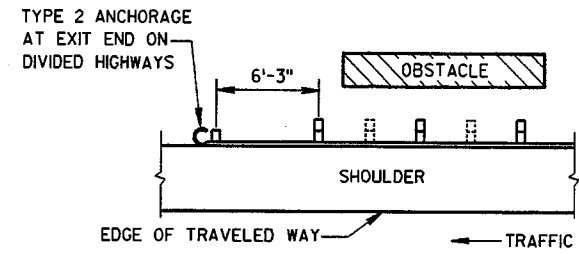
APPROVED
12/08/00
DATE
John Haverley
CHIEF ROADWAY DEVELOPMENT ENGINEER

S.D.D. 14 B 15-4b

S.D.D. 14 B 15-4b



BEAM GUARD AT SIDEROADS OR DRIVEWAYS



**BEAM GUARD AT OBSTACLES
EXIT END - ONE WAY TRAFFIC**

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

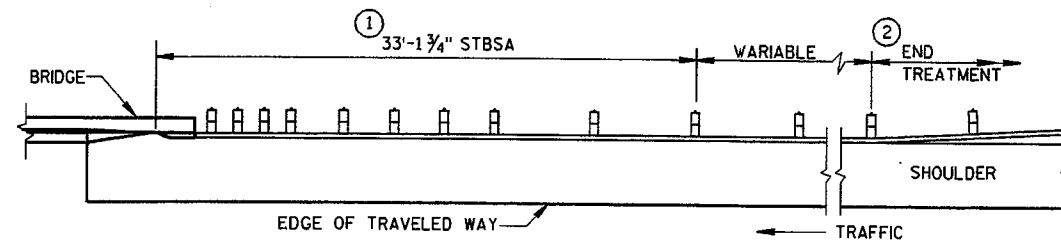
W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

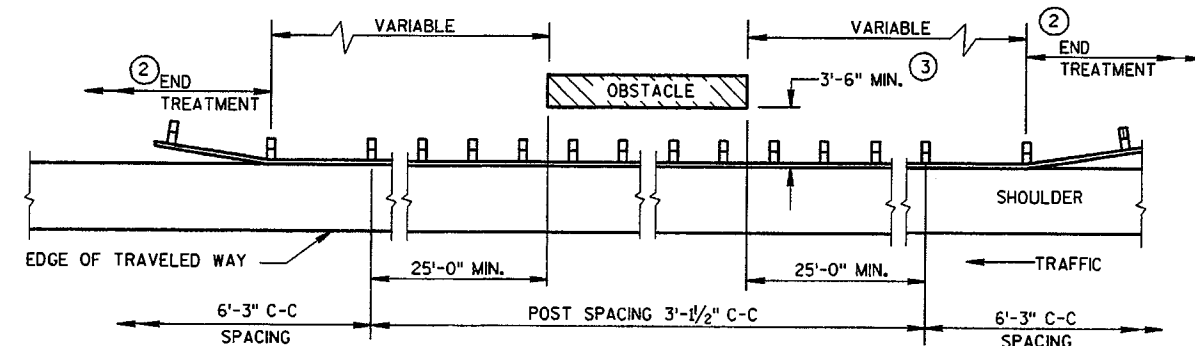
- ① USE STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA).
- ② USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

**③ DESIGN DEFLECTION OF
W-BEAM BARRIER SYSTEM**

LATERAL DISTANCE TO FIXED OBJECT	POST SPACING
3'-6" TO 4'-6"	3' - 1/2"
4'-6" AND OVER	6' - 3"

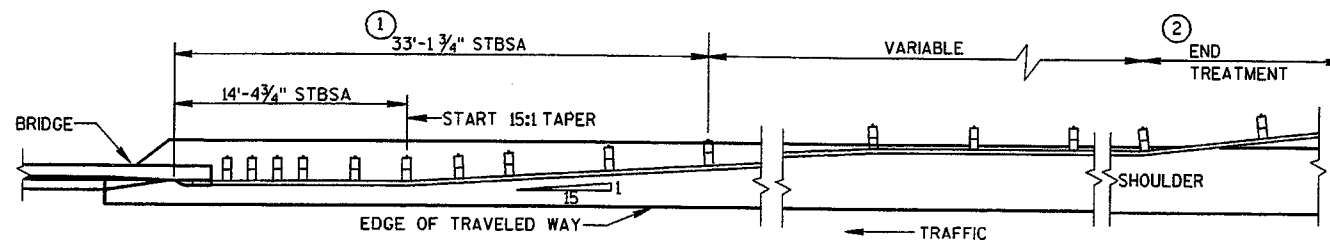


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

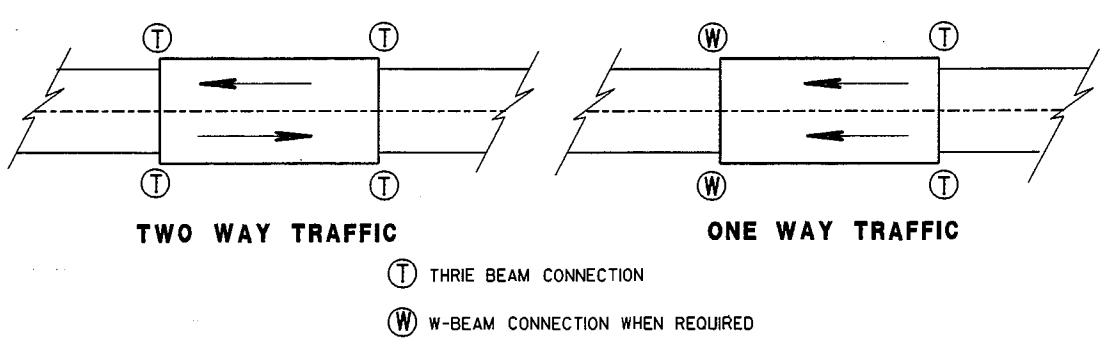
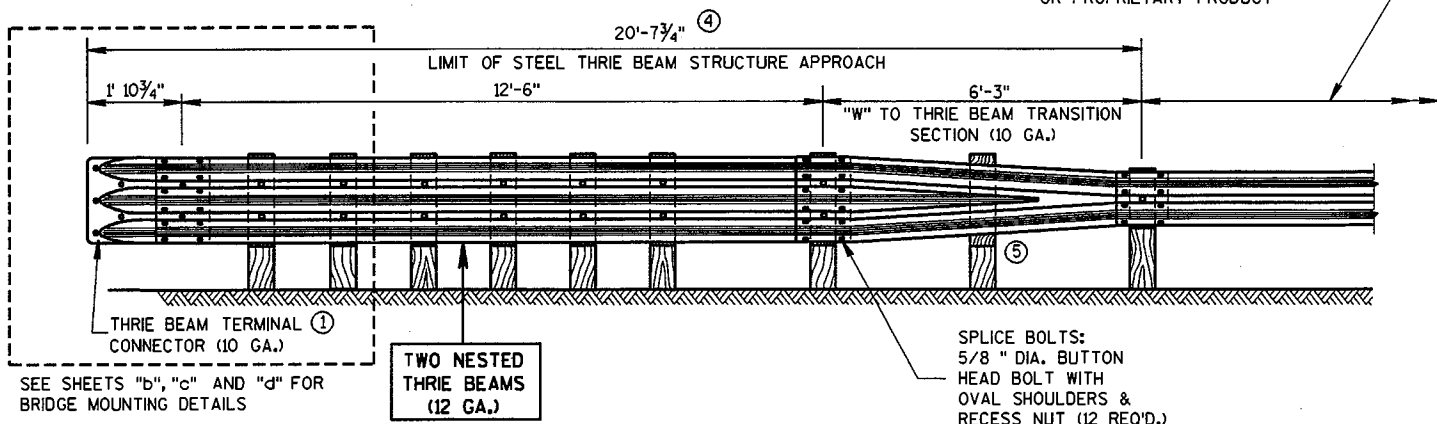
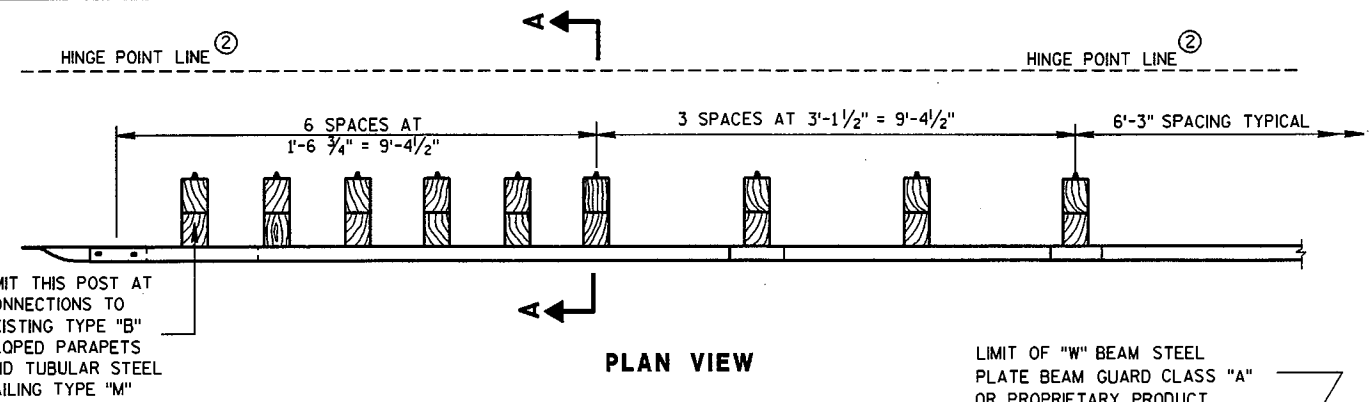


**BEAM GUARD AT NARROW BRIDGES
(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)**

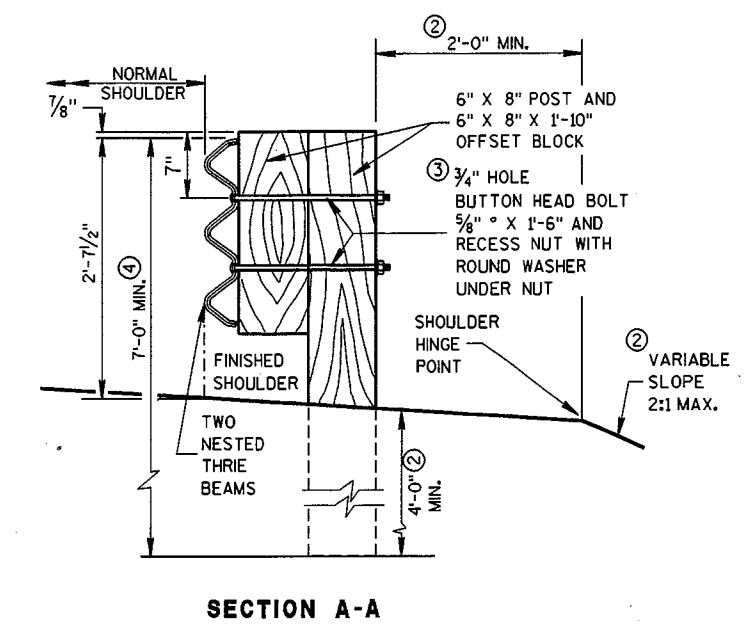
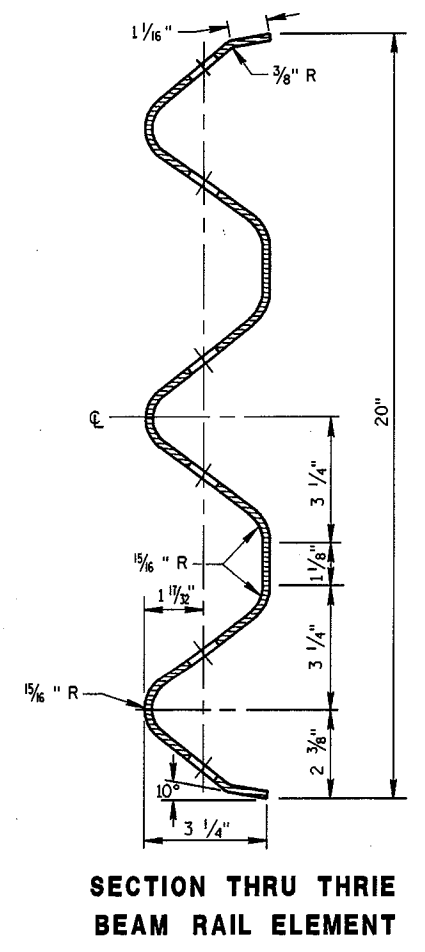
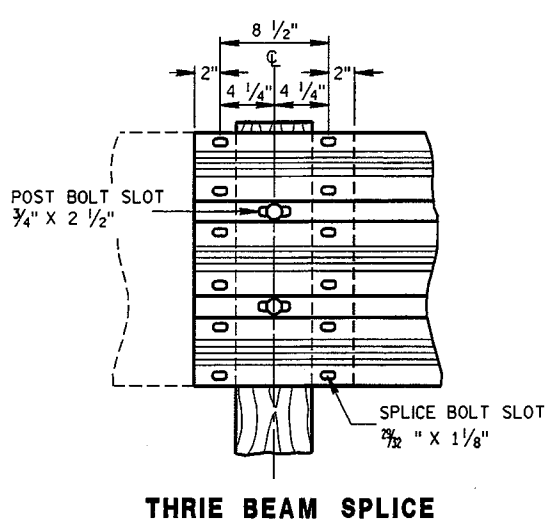
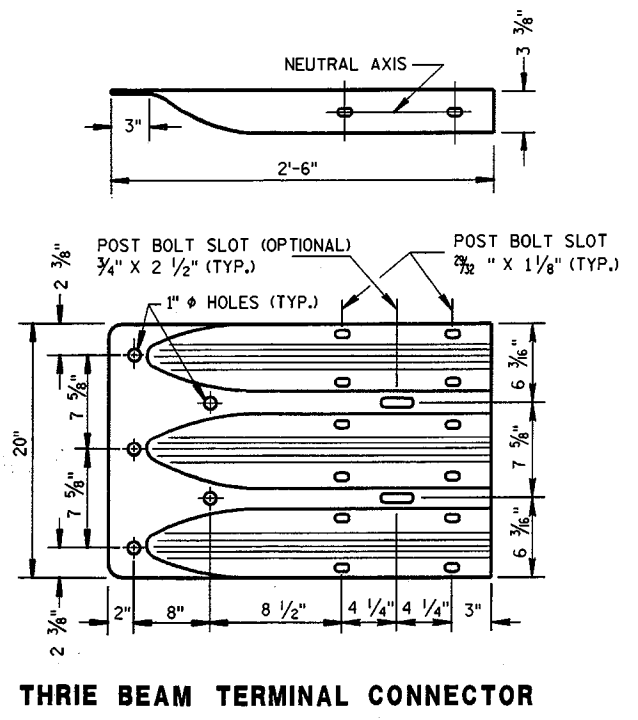
**STEEL PLATE BEAM GUARD,
CLASS 'A'
(AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/08/00
DATE
John Haverberg
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

FURNISH AND CONSTRUCT THRIE BEAM STRUCTURAL APPROACH ACCORDING TO THE REQUIREMENTS OF SECTION 614 OF THE STANDARD SPECIFICATIONS. THRIE BEAM SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M180, CLASS "A", TYPE 2.

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

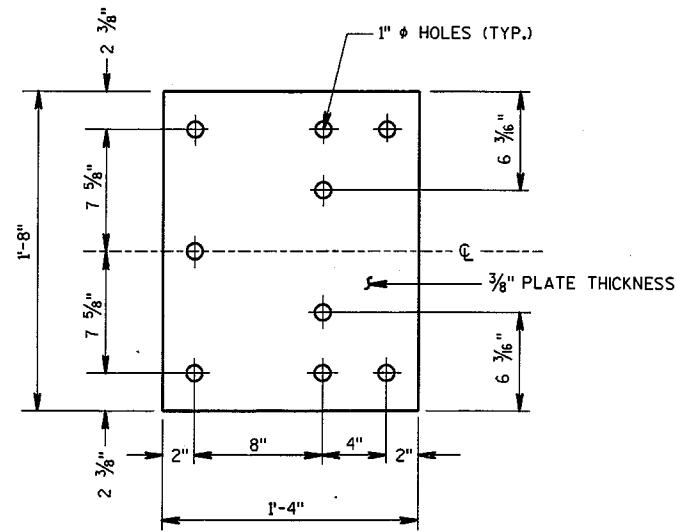
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY, (SEE SDD 14 B 15-4c).

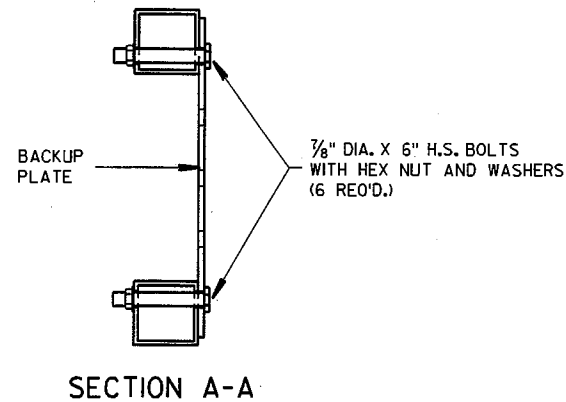
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F-1554, GRADE 55. NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-563 DH.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.
- ⑤ DO NOT ATTACH POST IN "W" TO THRIE BEAM TRANSITION SECTION.

**STEEL THRIE BEAM
STRUCTURE APPROACH**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



BACK-UP PLATE DETAIL

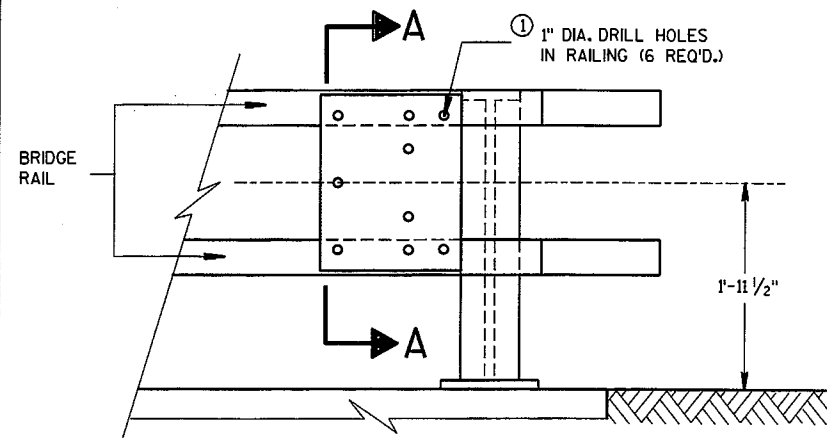


SECTION A-A

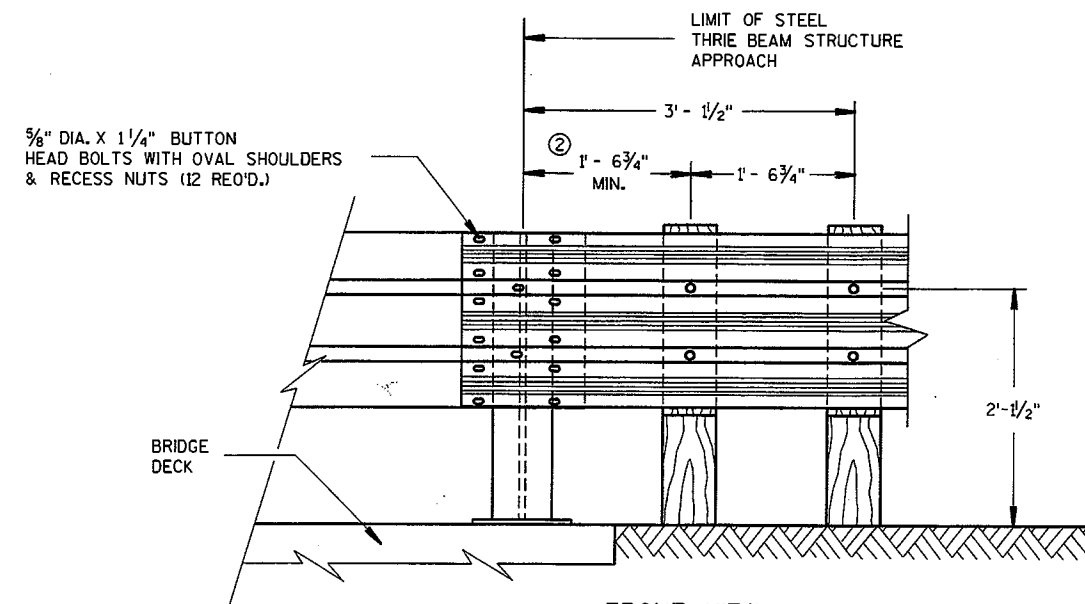
GENERAL NOTES

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

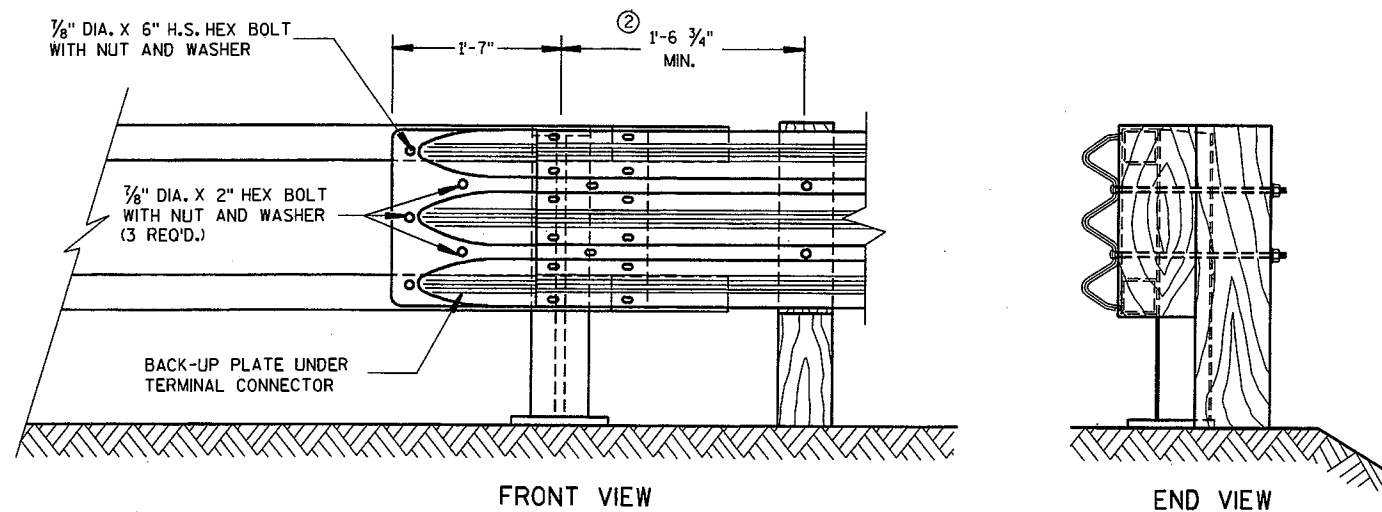
- ① INCLUDE THE PAYMENT FOR DRILLING HOLES IN RAILING IN THE ITEM "STEEL THRIE BEAM STRUCTURE APPROACH".
- ② VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL AS CLOSE AS FEASIBLE TO THE STEEL END POST.



BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW

END VIEW

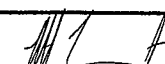
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

6

6

S.D.D. 14 B 20-7d

S.D.D. 14 B 20-7d

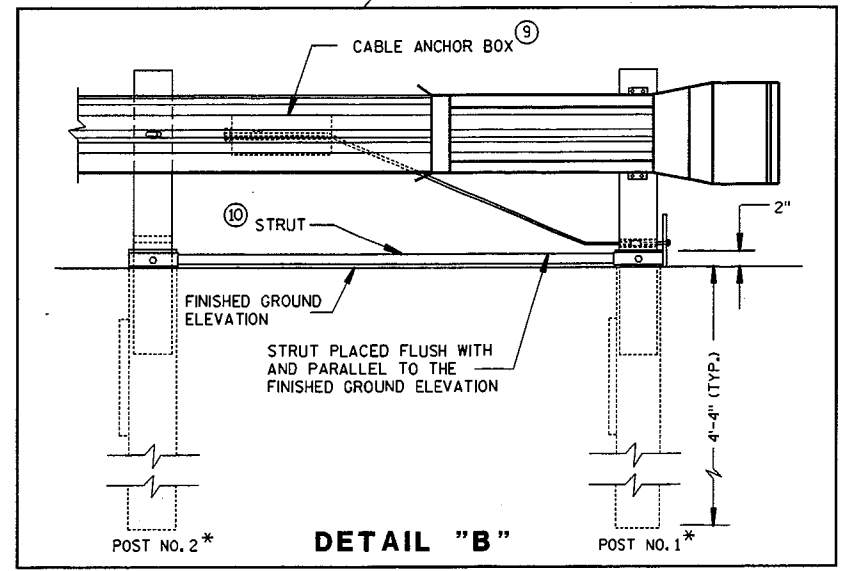
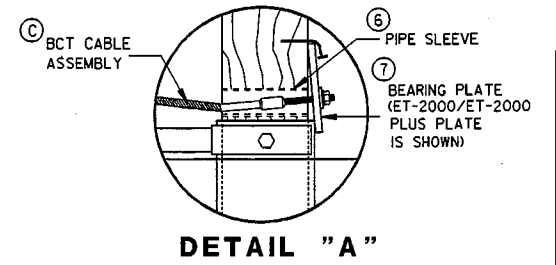
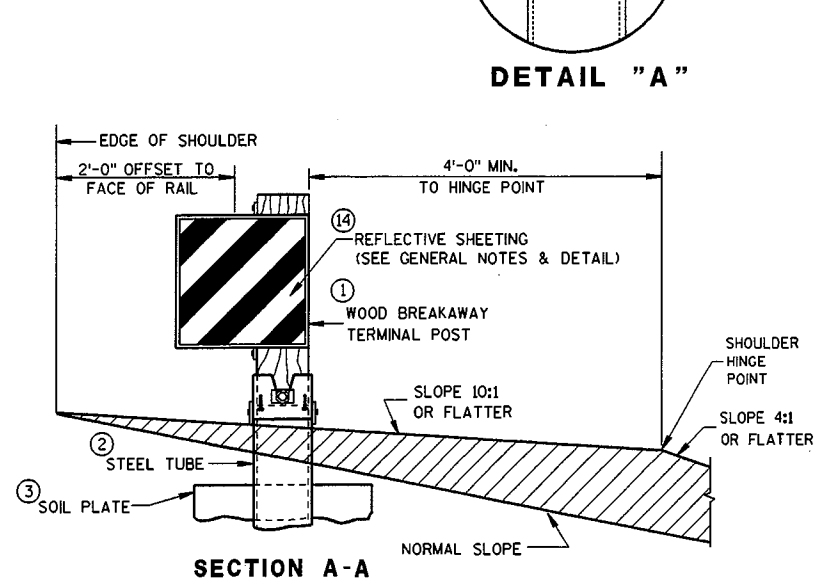
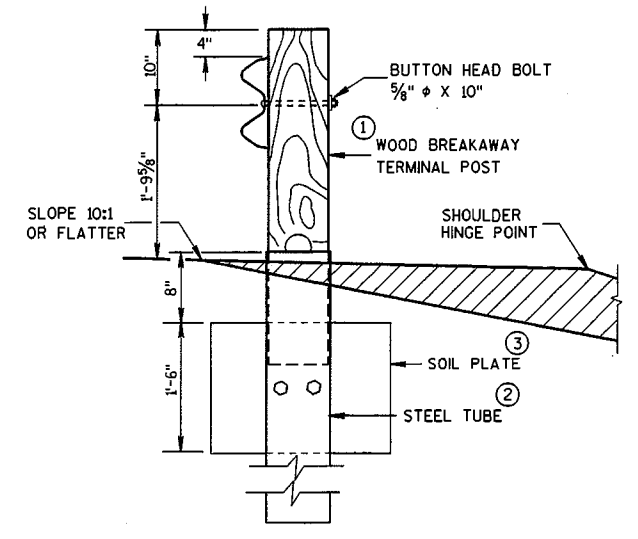
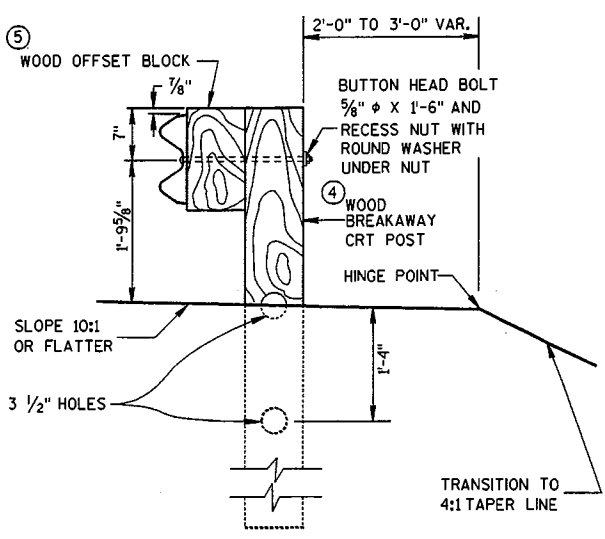
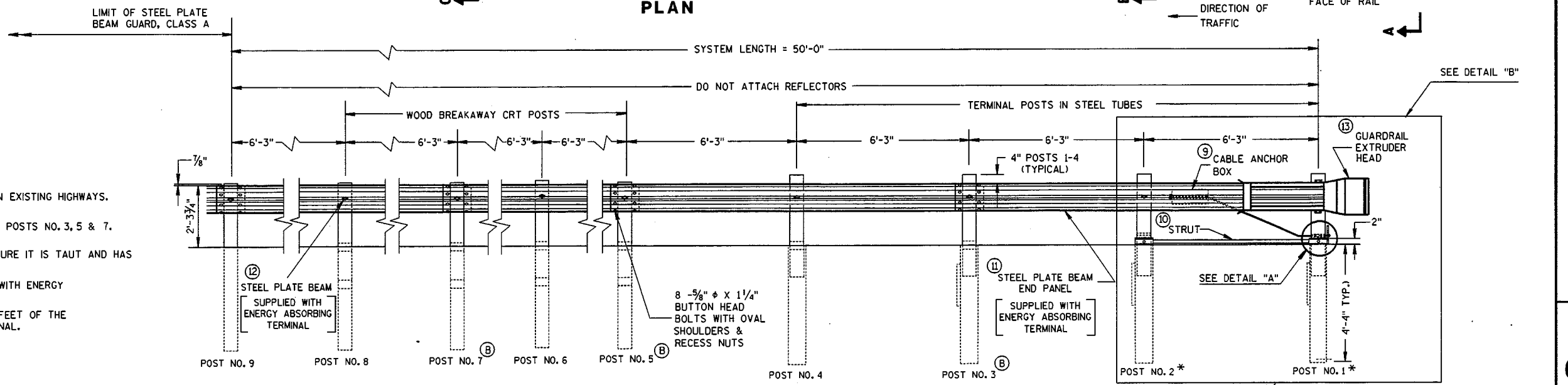
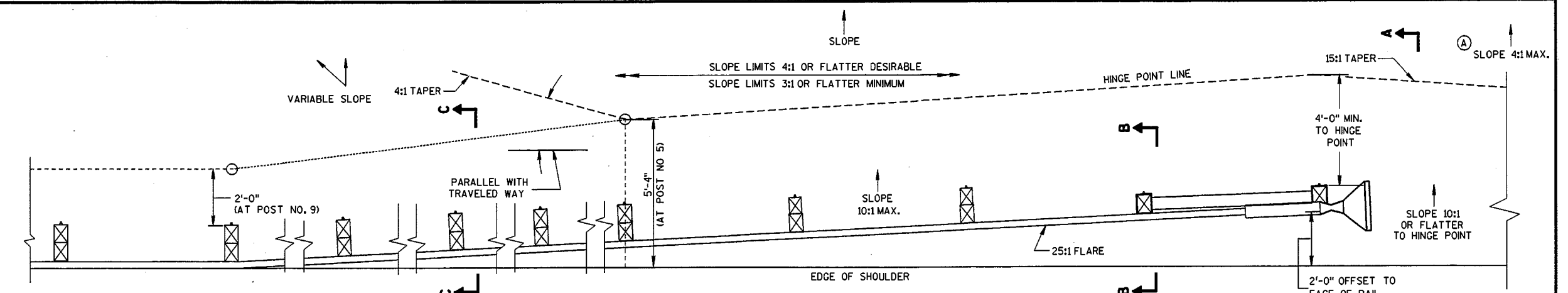
STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 08/14/04	
DATE	CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	4	STEEL TUBE: TS 8" X 6" X 0.188", 4'-6" LONG
③	4	SOIL PLATE: 2'-0" X 1'-6" X 1/4"
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6" X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING: 18" X 18"

GENERAL NOTES

- (A) USE 3:1 OR FLATTER SLOPE FOR INSTALLATION ON EXISTING HIGHWAYS.
 - (B) DO NOT ATTACH GUARDRAIL TO POST BLOCKS AT POSTS NO. 3, 5 & 7.
 - (C) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



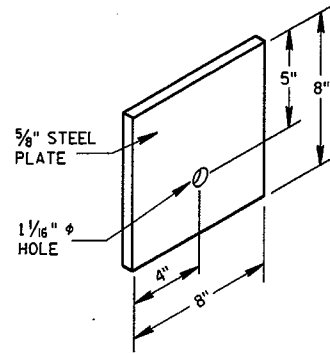
**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

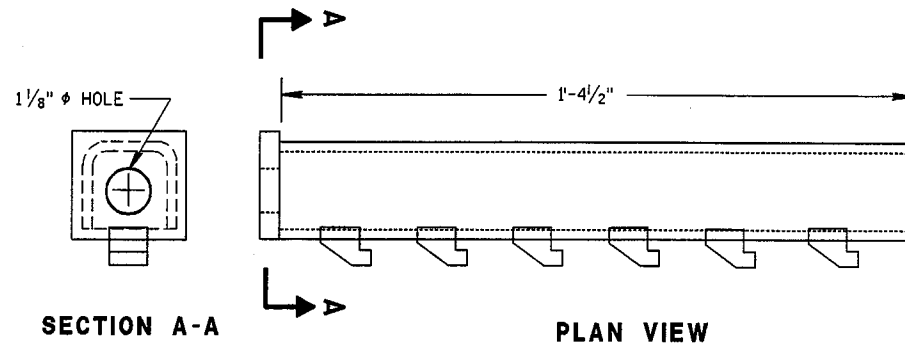
S.D.D. 14 B 24-40

6

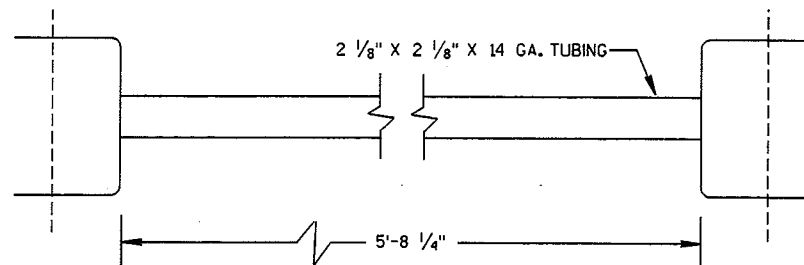
S.D.D. 14 B 24-40



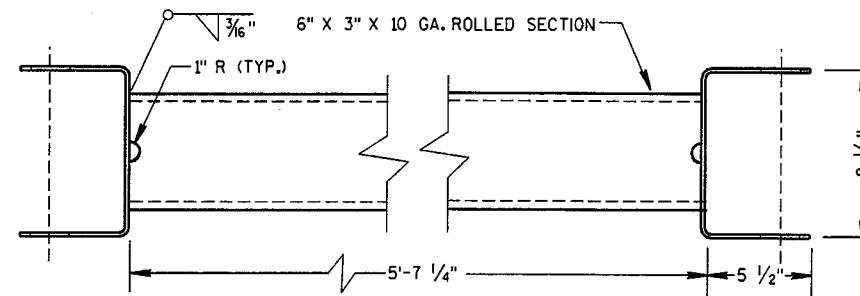
STEEL BEARING PLATE (SKT-350)



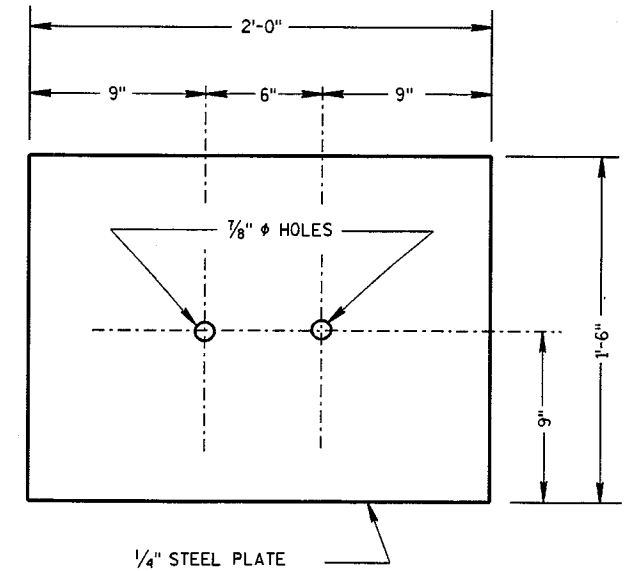
CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



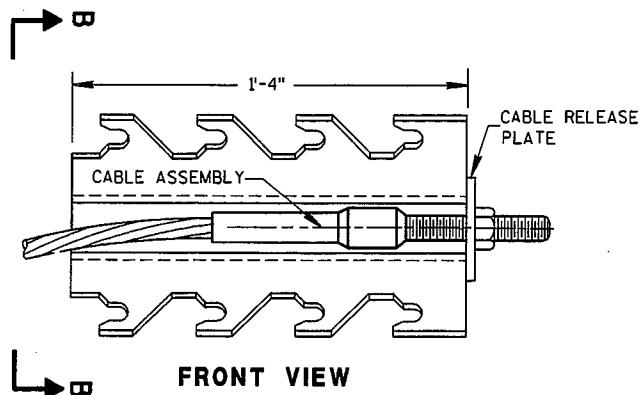
STRUT DETAIL (SKT-350)



STRUT DETAIL (ET-2000/ET-2000 PLUS)

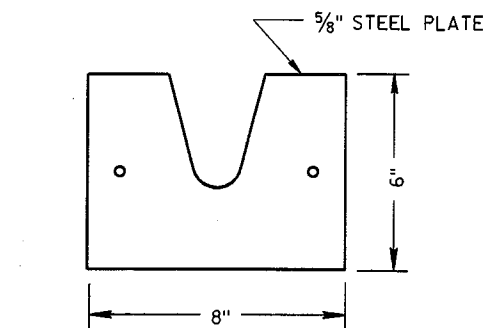


SOIL PLATE (SKT-350, ET-2000/ET-2000 PLUS)

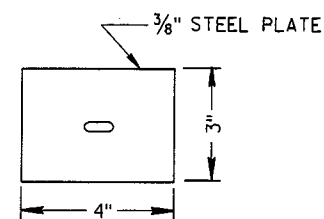


CABLE ANCHOR BOX (SKT-350)

(SKT-350)



STEEL BEARING PLATE (ET-2000/ET-2000 PLUS)

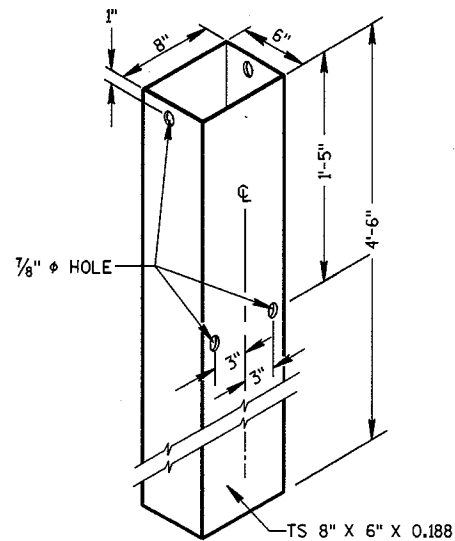


BEARING PLATE WASHER (ET-2000/ET-2000 PLUS)

(ET-2000/ET-2000 PLUS)

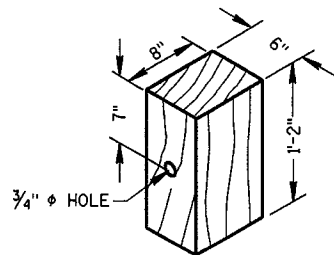
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

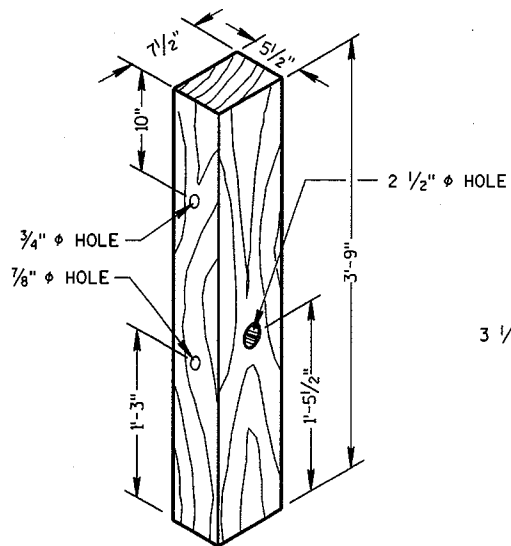


STEEL TUBE

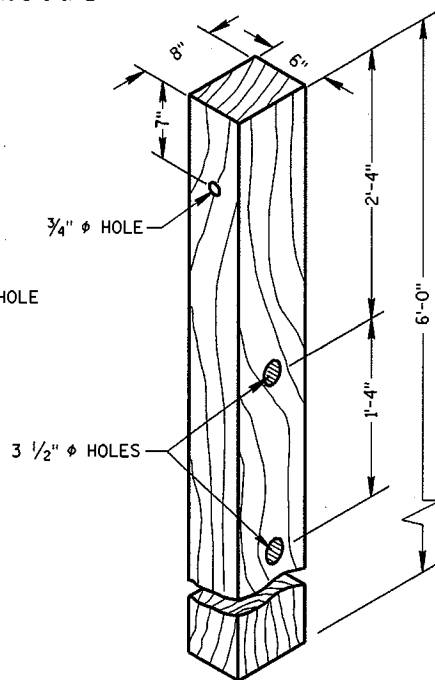
(POSTS NO. 1-4)
THE STEEL TUBE SHALL CONFORM TO REQUIREMENTS OF ASTM A500



WOOD OFFSET BLOCK
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

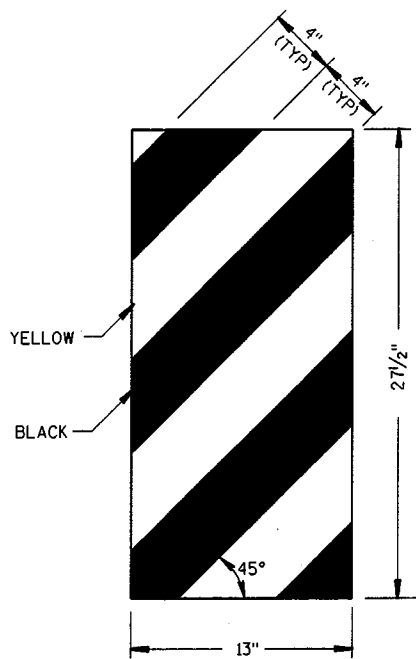


TERMINAL POST
(POSTS NO. 1-4)

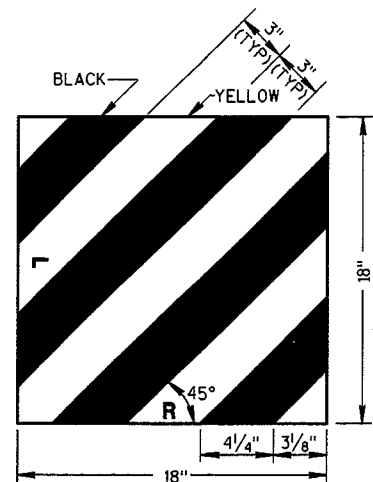


CRT POST
(POSTS NO'S 5-8)

WOOD BREAKAWAY POSTS



ET-2000 PLUS ONLY
REFLECTIVE SHEETING DETAILS



ET-2000 AND SKT-350
REFLECTIVE SHEETING DETAILS

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, APPLICABLE SPECIAL PROVISIONS AND MANUFACTURERS INSTRUCTIONS.

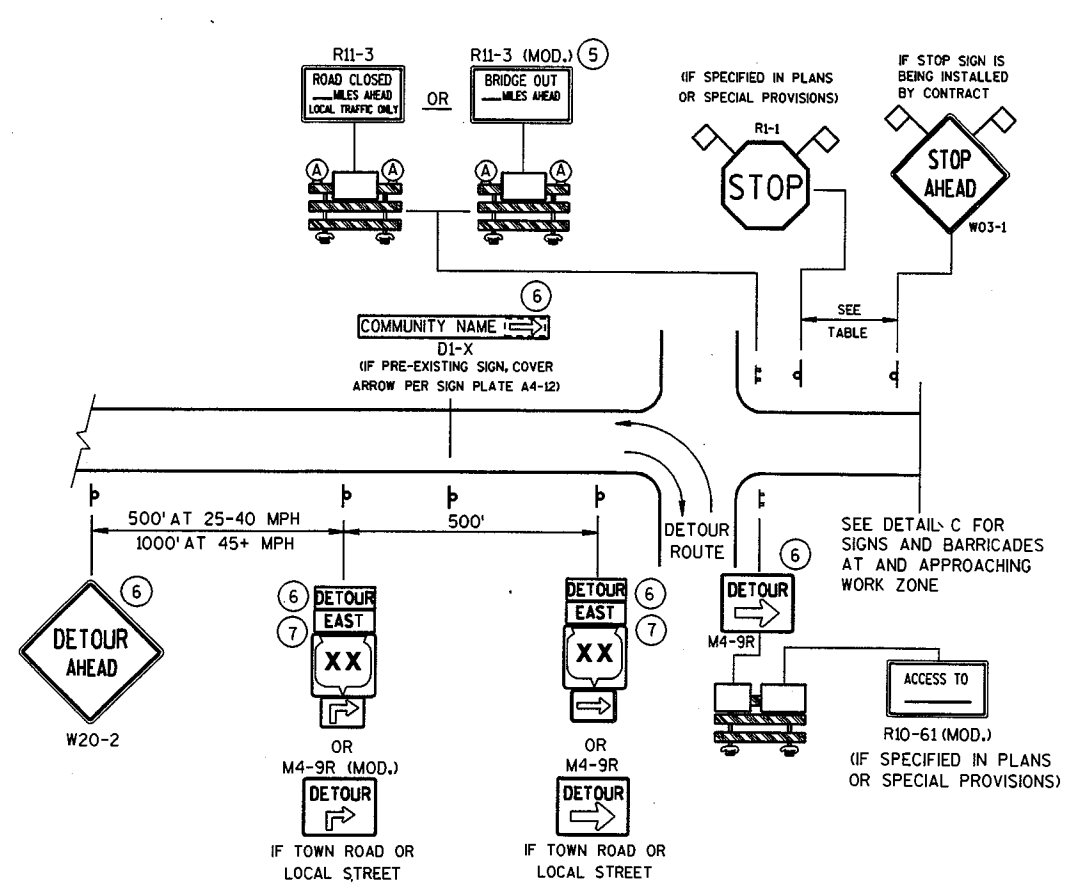
STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL SHALL BE EITHER THE EXTRUDER TERMINAL (ET-2000), OR THE SEQUENTIAL KINKING TERMINAL (SKT-350). THE CONTRACTOR SHALL NOT INTERMIX PROPRIETARY PRODUCT MATERIALS.

STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

REFLECTIVE SHEETING - SHALL CONFORM TO ASTM SPECIFICATION D4956-94, REFLECTIVE SHEETING TYPE III, BACKING CLASS 4, PERFORMANCE REQUIREMENT TYPE III. THE MESSAGE AND LINES SHALL BE APPLIED TO THE SIGNS BY THE SILK SCREEN STENCIL PROCESS USING A BLACK OR DARK STENCIL PASTE AS A TYPE APPROVED BY THE MANUFACTURER OF THE FACE MATERIAL TO WHICH IT IS TO BE APPLIED. MESSAGE UNITS CUT FROM NONREFLECTIVE SHEETING AND APPLIED TO THE SIGN FACE ARE NOT ACCEPTABLE. AFTER THE APPROACH END OF THE STEEL PLATE BEAM GUARD INSTALLATION IS COMPLETE, CLEAN THE AREA WHERE THE REFLECTIVE SHEETING WILL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION. ONCE CLEAN, APPLY REFLECTIVE SHEETING DIRECTLY TO THE STEEL PLATE BEAM GUARD AS SHOWN. THE CONTRACTOR SHALL TURN OVER THE MANUFACTURERS WARRANTY FOR THE REFLECTIVE SHEETING TO THE DEPARTMENT FOR POTENTIAL DEALING WITH THE MANUFACTURER. PAYMENT OF REFLECTIVE SHEETING IS INCIDENTAL TO STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL.

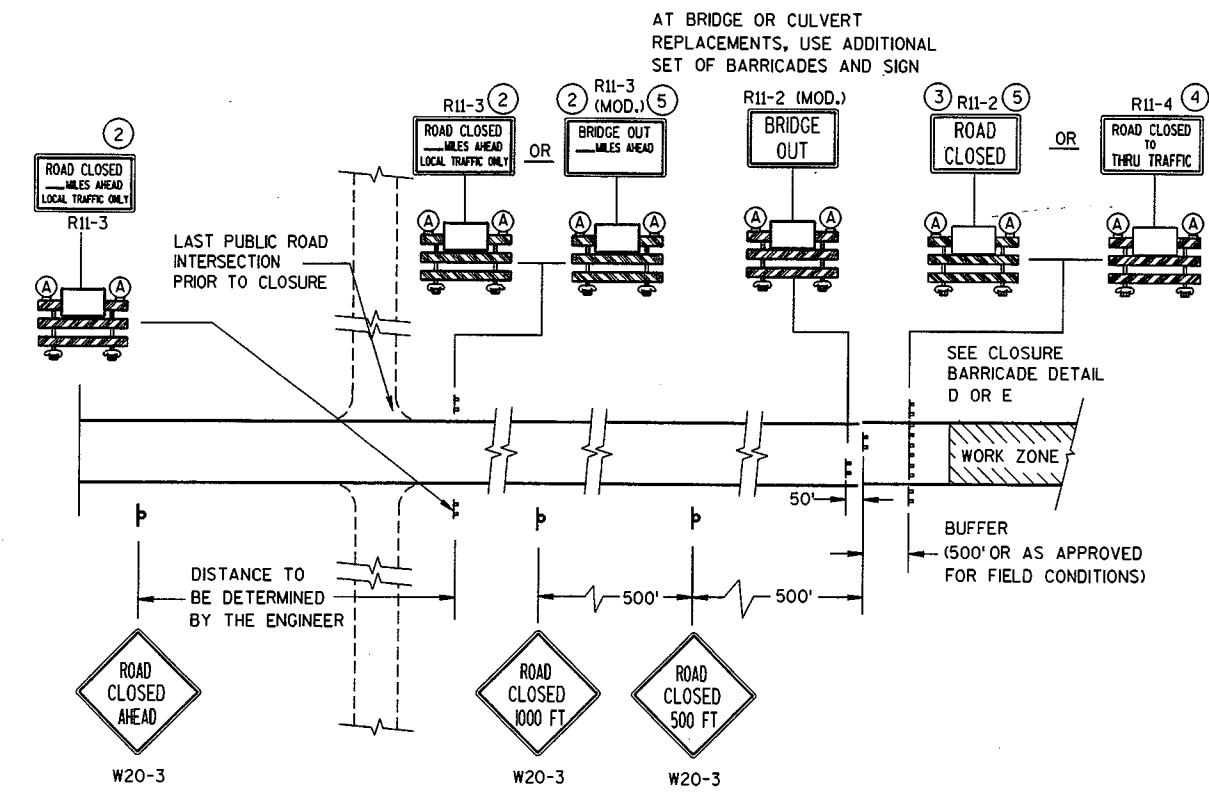
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/25/03 DATE	 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

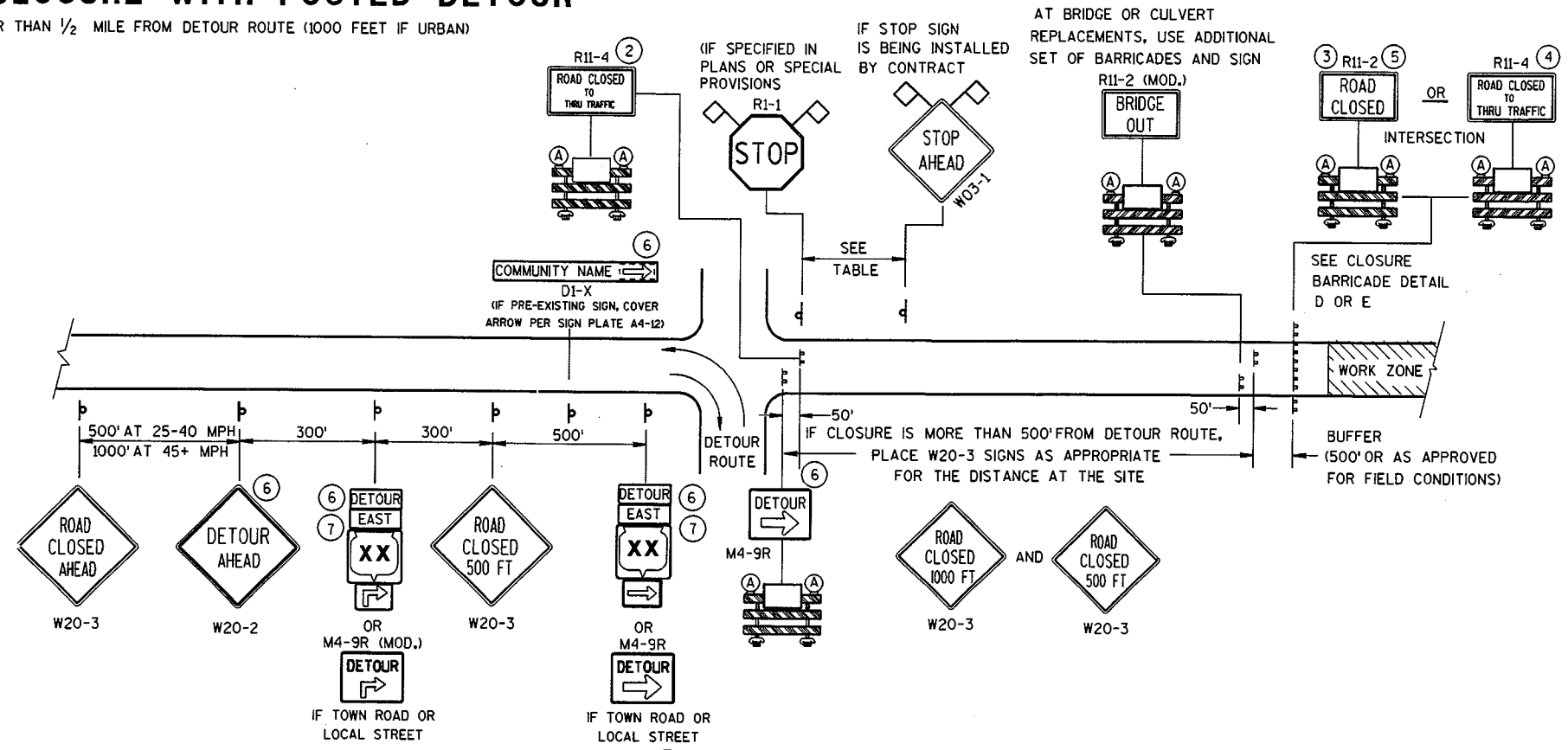
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-4b
 FOR GENERAL NOTES
 AND FOOTNOTES ① THROUGH ⑦

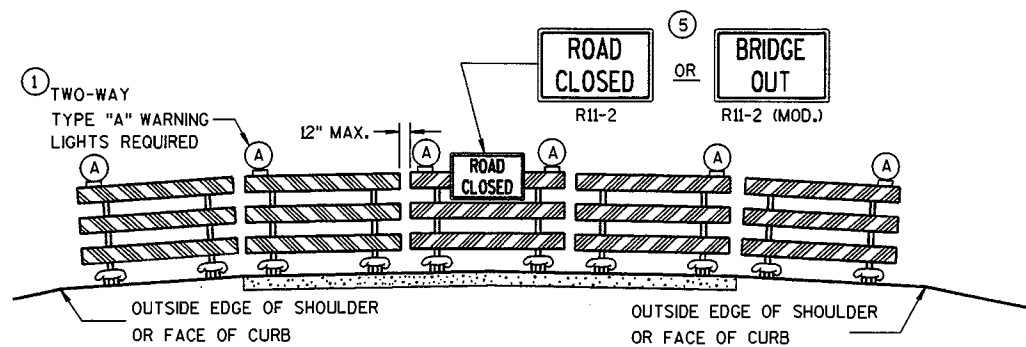


DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

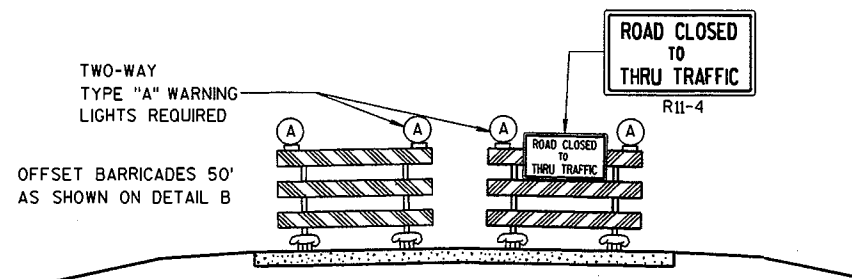
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

- LEGEND**
- ⌋ POST MOUNTED SIGN
 - ⌋ TYPE III BARRICADES
 - Ⓐ TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
 - ▨ WORK ZONE
 - DETOUR EAST M4-8 M3-X
 - XX OR COUNTY XX OR MI-4 MI-5A MI-6
 - OR M05-1 M06-1
 - ◇ FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES
 STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
 APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
 APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

**BARRICADES AND SIGNS
 FOR
 MAINLINE CLOSURES**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED

9/16/03
 DATE

Thomas N. Notbohm for
 CHIEF SIGNS AND MARKING ENGINEER

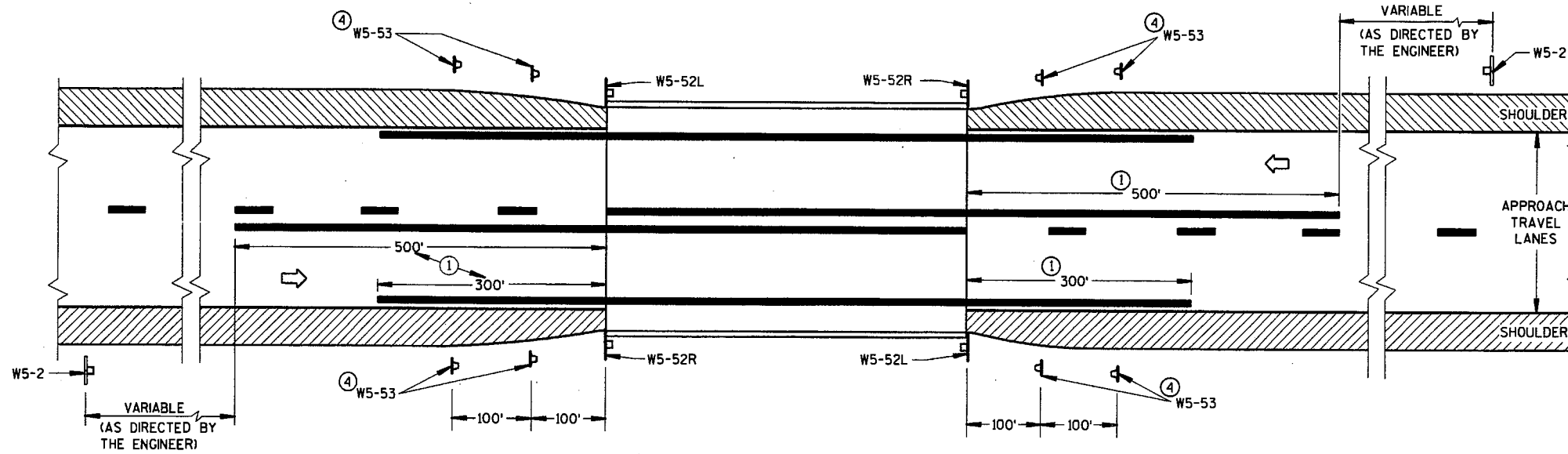
FHWA

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

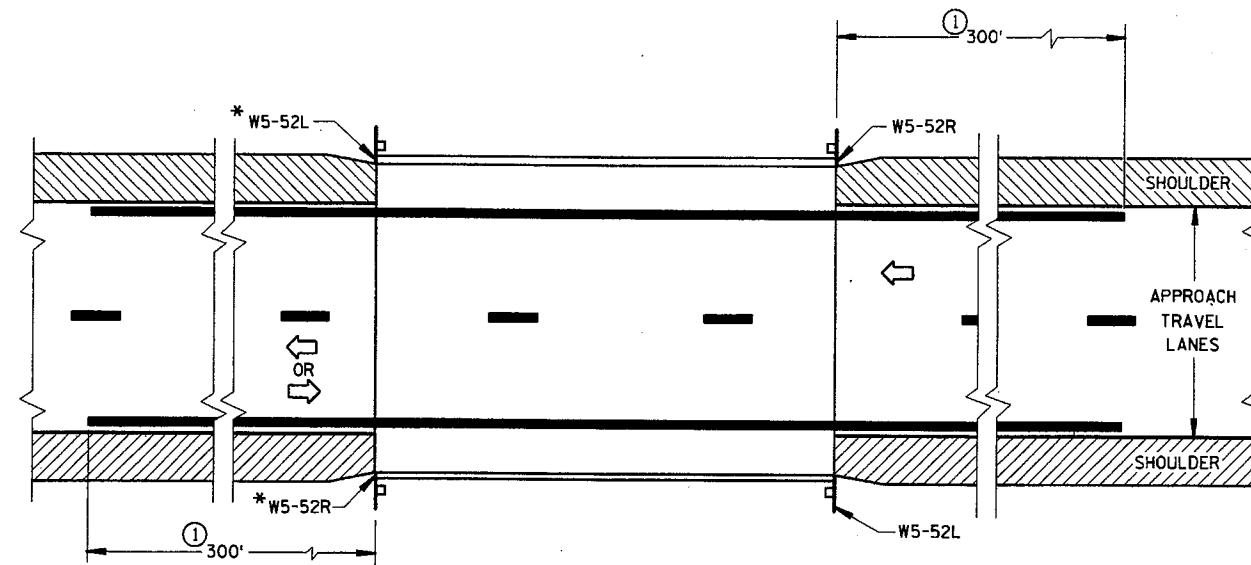
- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.
- ⑤ A 10 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.
- ⑥ NON-BID ITEM. INCIDENTAL TO OTHER ITEMS.



SITUATION 1

WARRANTING CRITERION:

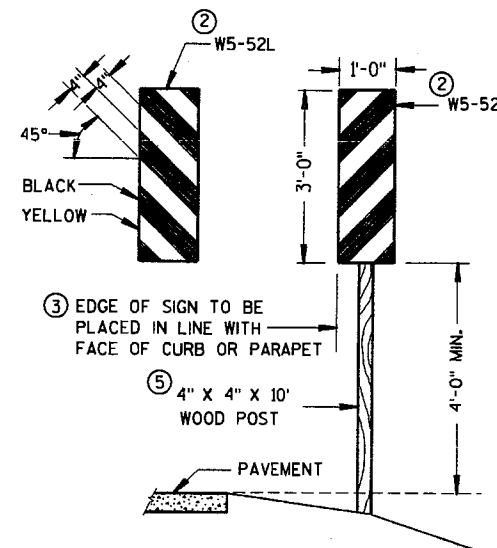
BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



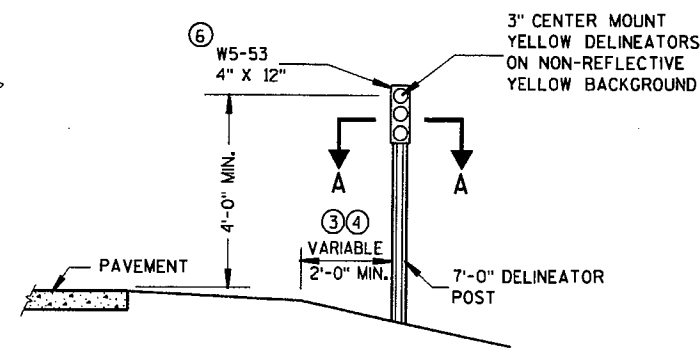
SITUATION 2

WARRANTING CRITERIA:

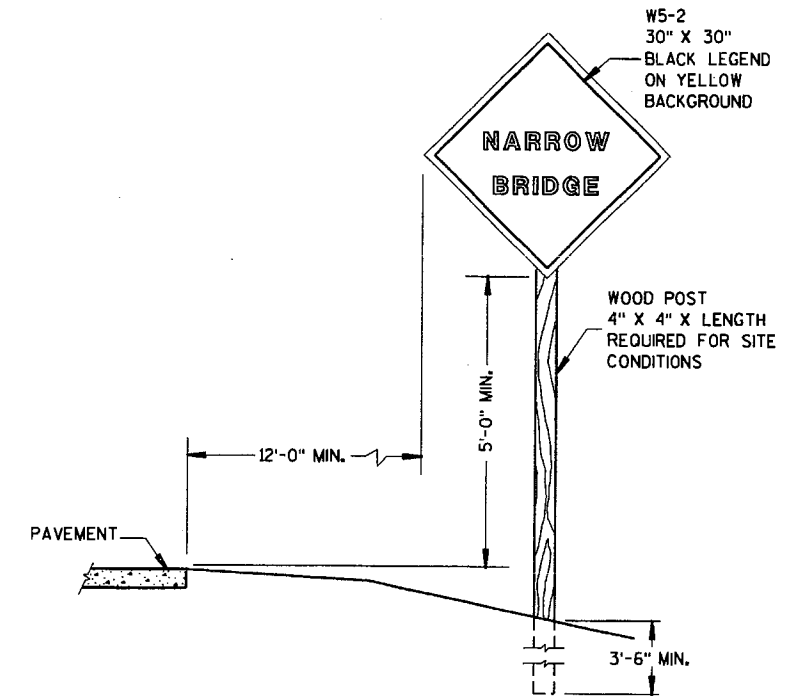
- 1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
- 2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



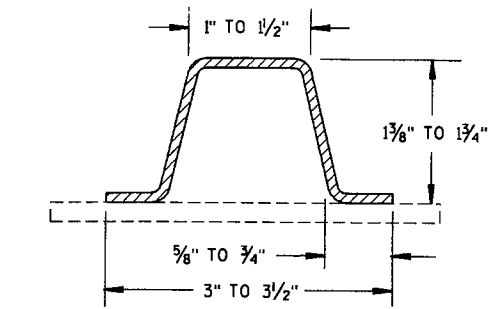
- ③ EDGE OF SIGN TO BE PLACED IN LINE WITH FACE OF CURB OR PARAPET
- ⑤ 4" X 4" X 10' WOOD POST



OBJECT MARKER PLACEMENT



SIGN PLACEMENT



SECTION A-A
(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

SIGNING & MARKING FOR TWO LANE BRIDGES

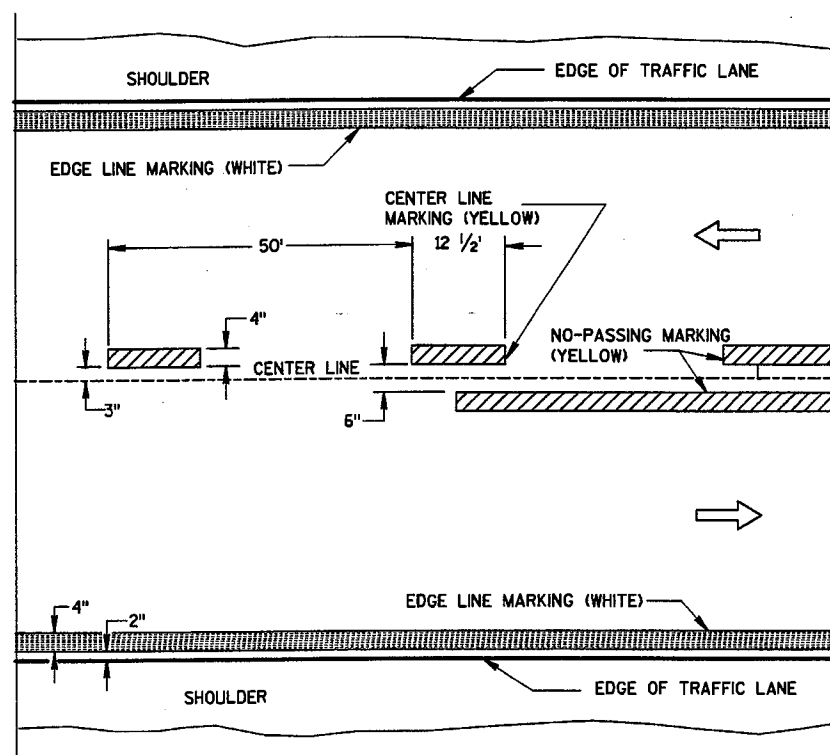
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

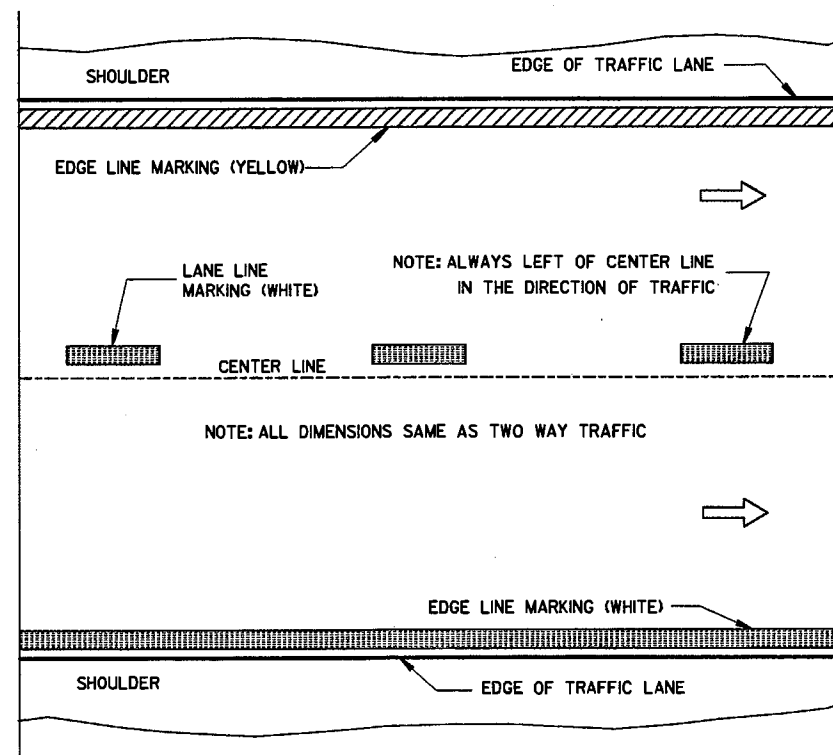
8-7-95
DATE

FHWA

Charles J. Spang
DIRECTOR, OFFICE OF TRAFFIC

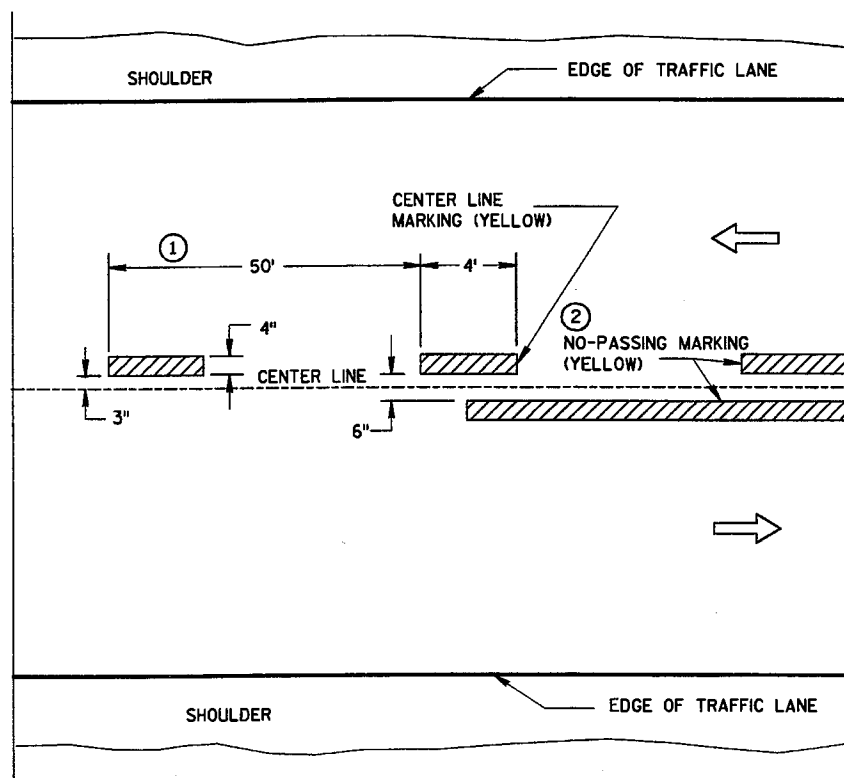


TWO WAY TRAFFIC

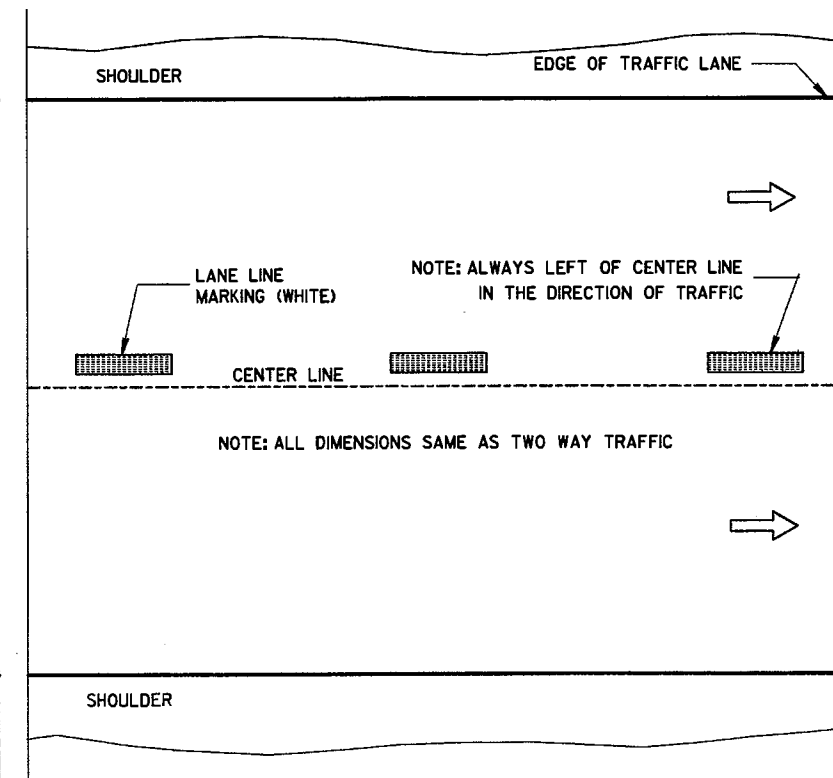


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

GENERAL NOTES

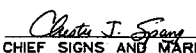
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

S.D.D. 15 C 8-9a

PAVEMENT MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2-17-00 DATE	 CHIEF SIGNS AND MARKING ENGINEER FHWA

DESIGN DATA

STRUCTURE IS DESIGNED FOR FUTURE WEARING SURFACE OF 20 #/FT²

LIVE LOAD:
 DESIGN RATING _____ HS20
 INVENTORY RATING _____ HS24
 OPERATING RATING _____ HS41
 MAX. STD. PERMIT VEHICLE LOAD _____ 250 kips

ULTIMATE DESIGN STRESSES:
 CONCRETE MASONRY SLAB _____ f'c = 4,000 psi
 ALL OTHER _____ f'c = 3,500 psi
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 _____ fy = 60,000 psi

TRAFFIC DATA

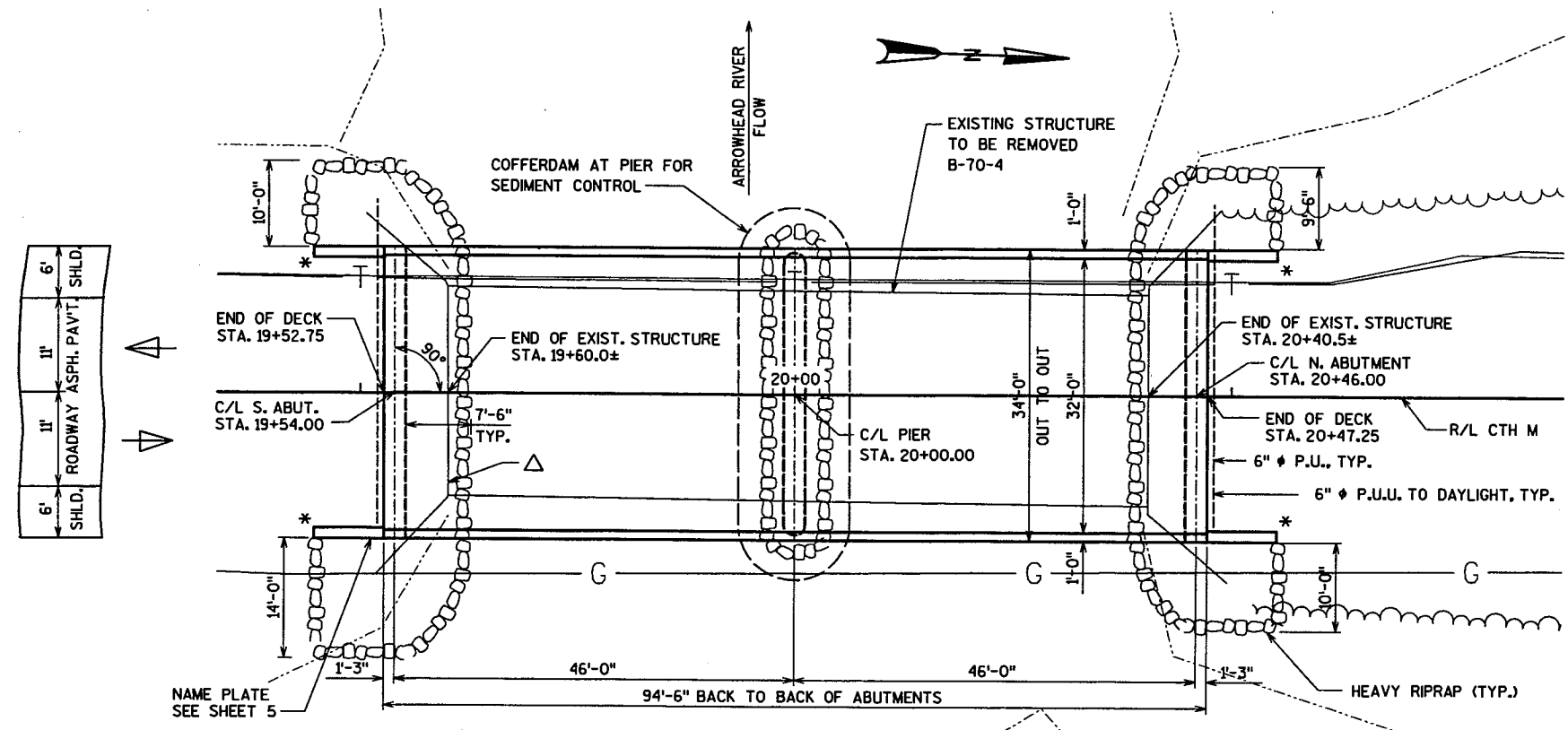
ADT = 870 (2006)
 1060 (2026)
 RDS = 40 M.P.H.

FOUNDATION DATA

ABUTMENTS AND PIERS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING, DRIVEN TO 55 TONS/PILE MINIMUM BEARING VALUE. EST. PILE LENGTH = 55' AT ABUTMENTS AND PIER.

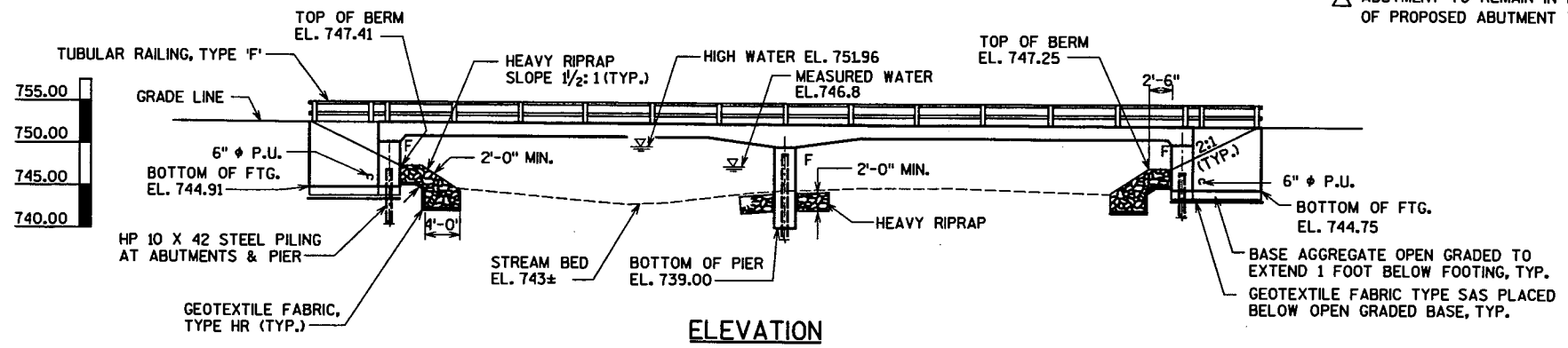
HYDRAULIC DATA

Q₁₀₀ = 4,000 C.F.S.
 VELOCITY = 7.7 F.P.S.
 HIGH WATER = EL. 751.96 (100 YEAR)
 HIGH WATER = EL. 749.37 (2 YEAR)
 WATERWAY AREA = 520 S.F.
 DRAINAGE AREA = 30.2 SQ. MILES
 SCOUR CRITICAL CODE = 5



PLAN
TWO SPAN HAUNCHED CONCRETE SLAB BRIDGE

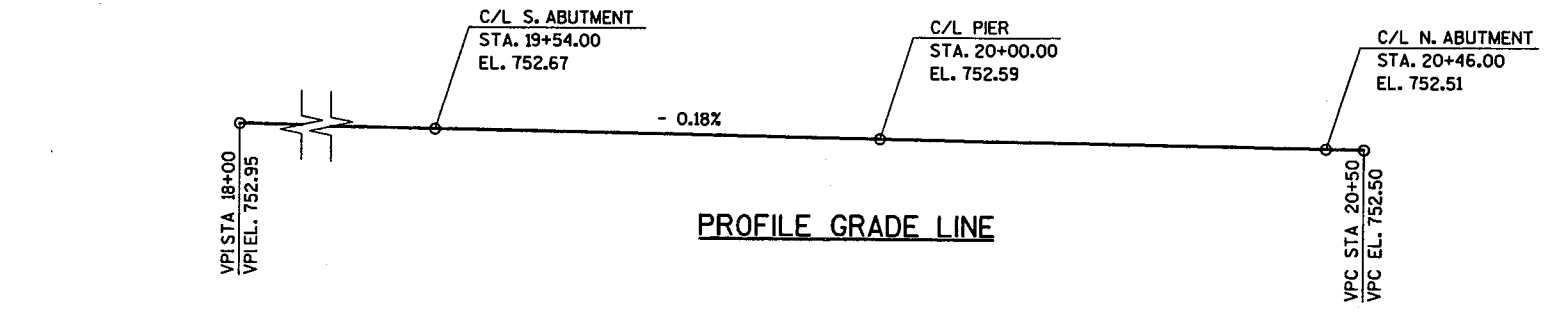
* THRIE BEAM ATTACHMENT REQUIRED
 △ ABUTMENT TO REMAIN IN PLACE DURING CONSTRUCTION OF PROPOSED ABUTMENT TO CONTROL SEDIMENT, TYP.



ELEVATION

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTIONS & QUANTITIES
3. SUBSURFACE EXPLORATIONS
4. ABUTMENTS
5. ABUTMENT DETAILS
6. PIER
7. SUPERSTRUCTURE
8. SUPERSTRUCTURE DETAILS
9. TUBULAR RAILING, TYPE "F"



PROFILE GRADE LINE

CONSULTANT CONTACT

KRISTOFER OLSON
 OMNI ASSOCIATES, INC.
 (920) 735-6900

BRIDGE OFFICE CONTACT

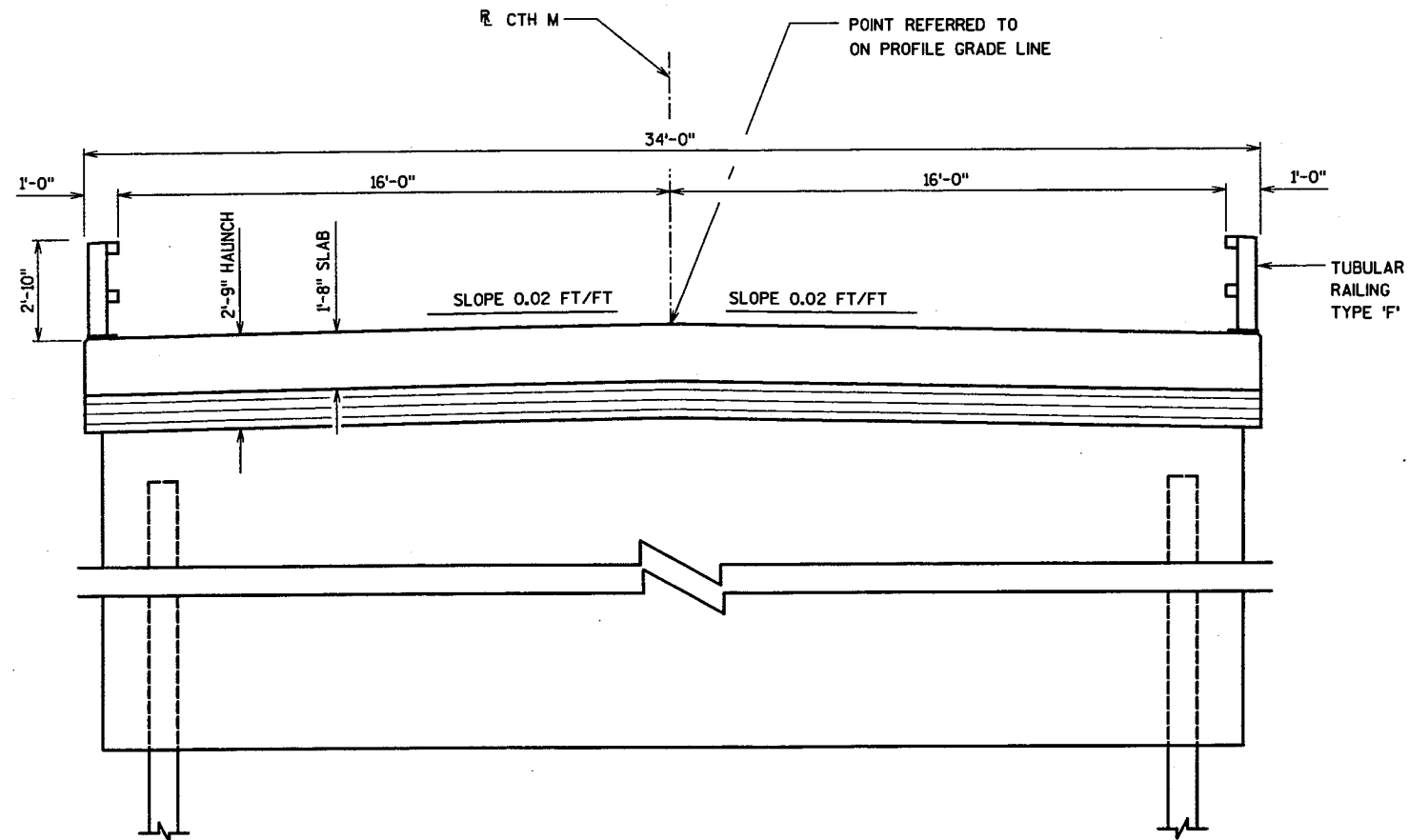
FINN HUBBARD
 (608) 266-8489



NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CTH M OVER ARROWHEAD RIVER			
COUNTY	WINNEBAGO	TOWN	WINNECONNE
DESIGN SPEC.	AASHTO 2002	LOAD	HS-20
DESIGNED BY	SSQ	CONST. SPEC.	2003
DESIGN CK'D.	KRO	DRAWN BY	SSQ
PLANS CK'D.	JAW	DATE	10-13-05
APPROVED <i>Fin Hubbard</i>		DATE	
CHIEF STRUCTURAL DESIGN ENGINEER			
GENERAL PLAN		SHEET 1 OF 9	
		28	

8

8



CROSS SECT. THRU RDWY.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

ALL REINFORCING BARS ARE ENGLISH AND THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

BEVEL EXPOSED EDGES OF CONCRETE 1" UNLESS OTHERWISE NOTED.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR SUBSTRUCTURE, UNLESS ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THE SLOPE OF FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TO THE EXTENT SHOWN ON THIS SHEET AND IN THE ABUTMENT DETAILS.

THIS STRUCTURE WILL REPLACE THE EXISTING 4 SPAN TIMBER STRINGER STRUCTURE SUPPORTED ON TIMBER ABUTMENTS AND PIERS. IT WAS BUILT IN 1947.

AT THE BACKFACE OF ABUTMENTS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

AT ABUTMENTS AND PIERS CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.6.3 OF THE STANDARD SPECIFICATIONS.

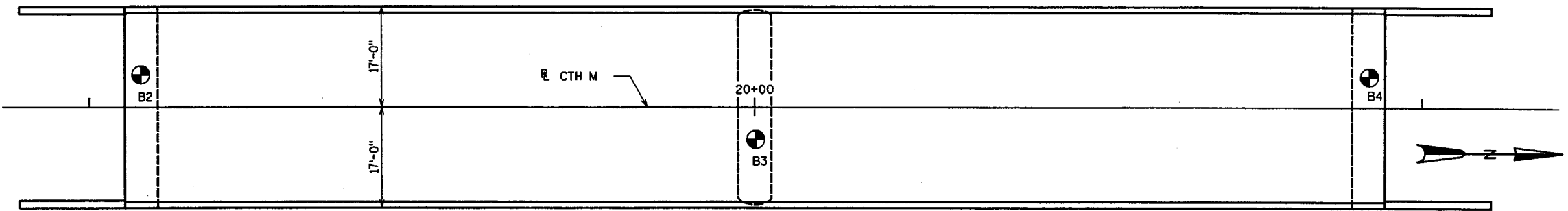
TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	PIER	NORTH ABUT.	TOTALS
REMOVING OLD STRUCTURE (STA 20+00)	LS	—	—	—	—	1
EXCAVATION FOR STRUCTURES BRIDGES (B-70-224)	LS	—	—	—	—	1
COFFERDAMS (B-70-224)	LS	—	—	—	—	1
BACKFILL STRUCTURE	CY	—	100	—	100	200
BASE AGGREGATE OPEN GRADED	CY	—	13.5	—	13.5	27
CONCRETE MASONRY BRIDGES	CY	217.7	27.7	31.9	27.7	305
PROTECTIVE SURFACE TREATMENT	SY	336	—	—	—	336
BAR STEEL REINFORCEMENT HS BRIDGES	LB	—	2,320	1,560	2,320	6,200
BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	36,560	430	—	430	37,420
PILING STEEL DELIVERED AND DRIVEN HP 10-INCH 42 POUND	LF	—	275	495	275	1,045
TUBULAR RAILING TUBULAR TYPE F (B-70-224)	LS	—	—	—	—	1
RUBBERIZED MEMBRANE WATERPROOFING	SY	—	8	—	8	16
RIPRAP HEAVY	CY	—	45	20	45	110
PIPE UNDERDRAIN 6-INCH	LF	—	28	—	28	56
PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	—	10	—	10	20
GEOTEXTILE FABRIC TYPE DF	SY	—	20	—	20	40
GEOTEXTILE FABRIC TYPE HR	SY	—	65	—	65	130
GEOTEXTILE FABRIC TYPE SAS	SY	—	40	—	40	80
OMP CONCRETE STRUCTURES	CY	217.7	27.7	31.9	27.7	305
INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	2177	277	319	277	3050
NON-BID ITEMS						
FILLER	SIZE	—	—	—	—	1/2" & 3/4"

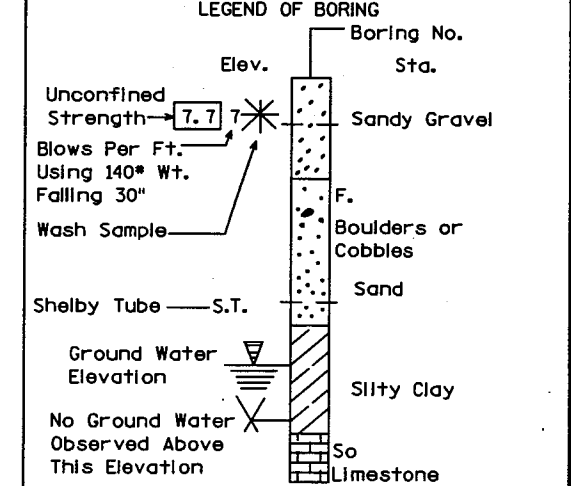
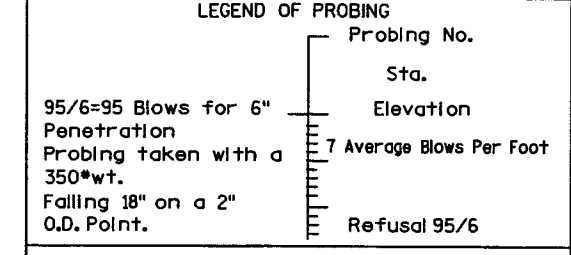
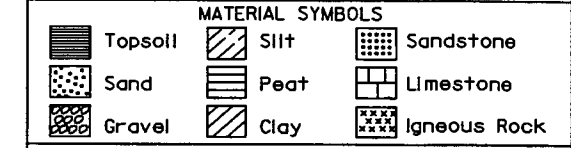
BENCH MARKS

NO.	DESCRIPTION	ELEV.
BM1	RR SPIKE IN PRP 1915-3R9 AT STA. 16+93.3, 27'± LT	753.13
BM2	60d NAIL IN 18" DIA. TREE AT STA. 18+83.1, 21'± LT	751.87
BM3	60d NAIL IN 48" DIA. TREE AT STA. 21+32.5, 51'± LT	750.17
BM4	60d NAIL IN 60" DIA. TREE AT STA. 22+79.1, 36'± RT	750.55

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CONST. SPEC.	2003	DRAWN BY SSO	PLANS CKD. KRO
CROSS SECTION & QUANTITIES			SHEET 2 OF 9
			29

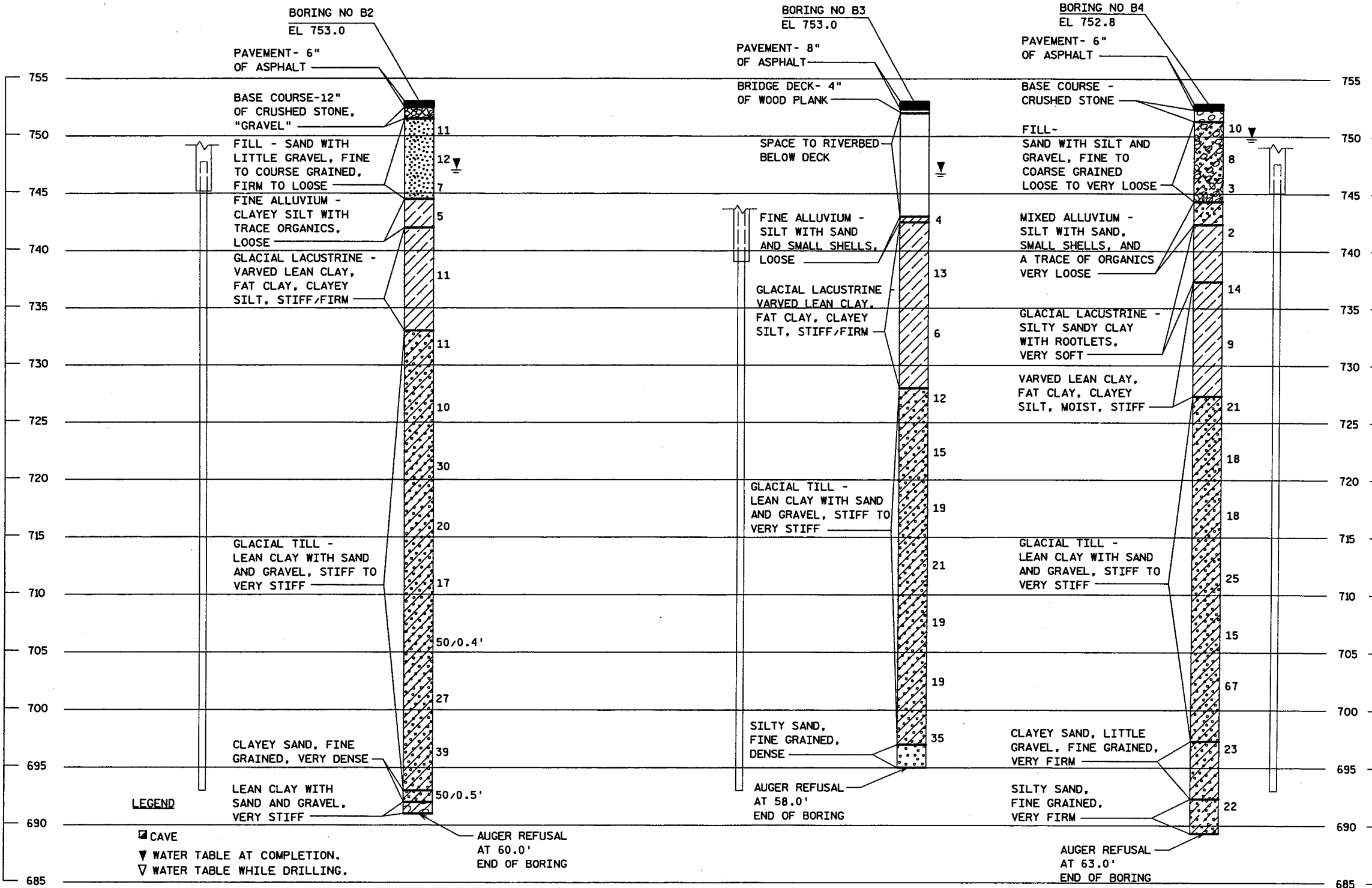


ABBREVIATIONS
 F—Fine M—Medium C—Coarse
 Ws—Weathered So—Sound



SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.



LEGEND

☐ CAVE

▼ WATER TABLE AT COMPLETION.

▽ WATER TABLE WHILE DRILLING.

AUGER REFUSAL AT 60.0' END OF BORING

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DESIGN SECTION

STRUCTURE B-70-224

CONST. SPEC.	2003	DRAWN BY	MEF	PLANS CKD.	KRO
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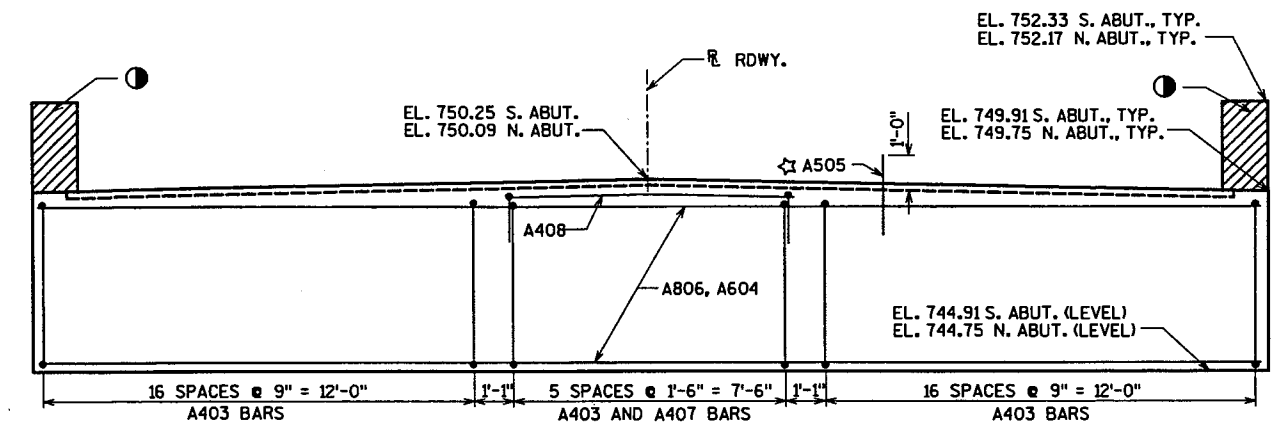
SUBSURFACE EXPLORATION

SHEET 3 OF 9

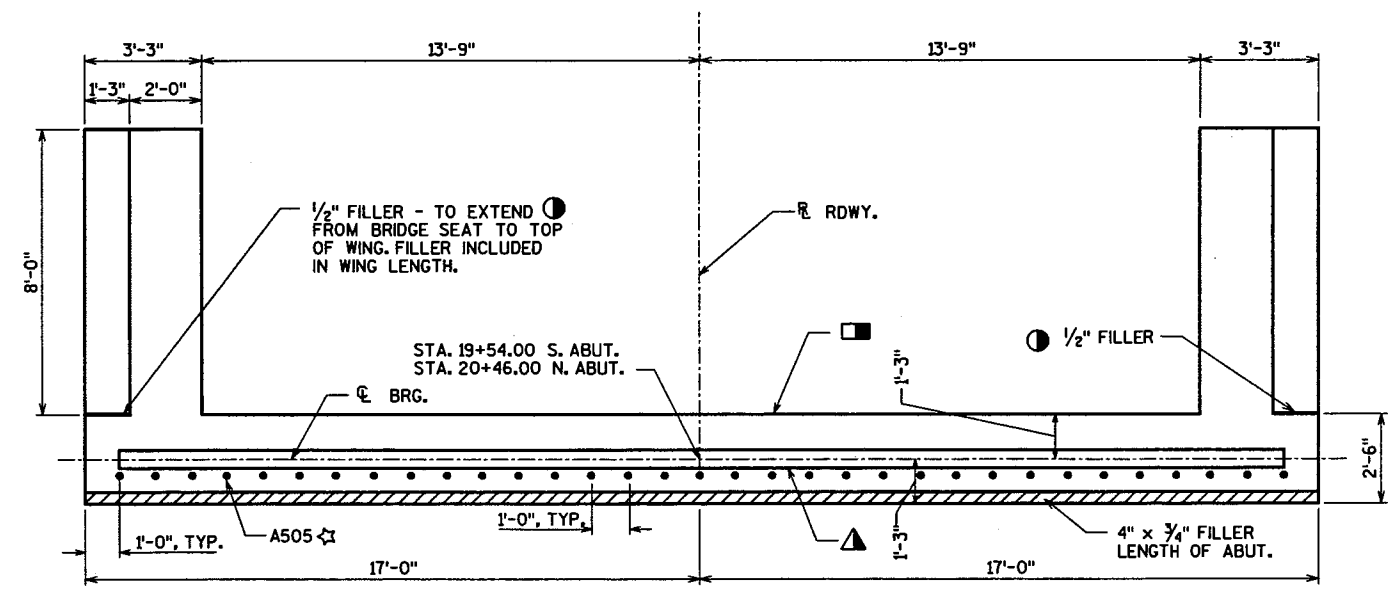
30

LEGEND

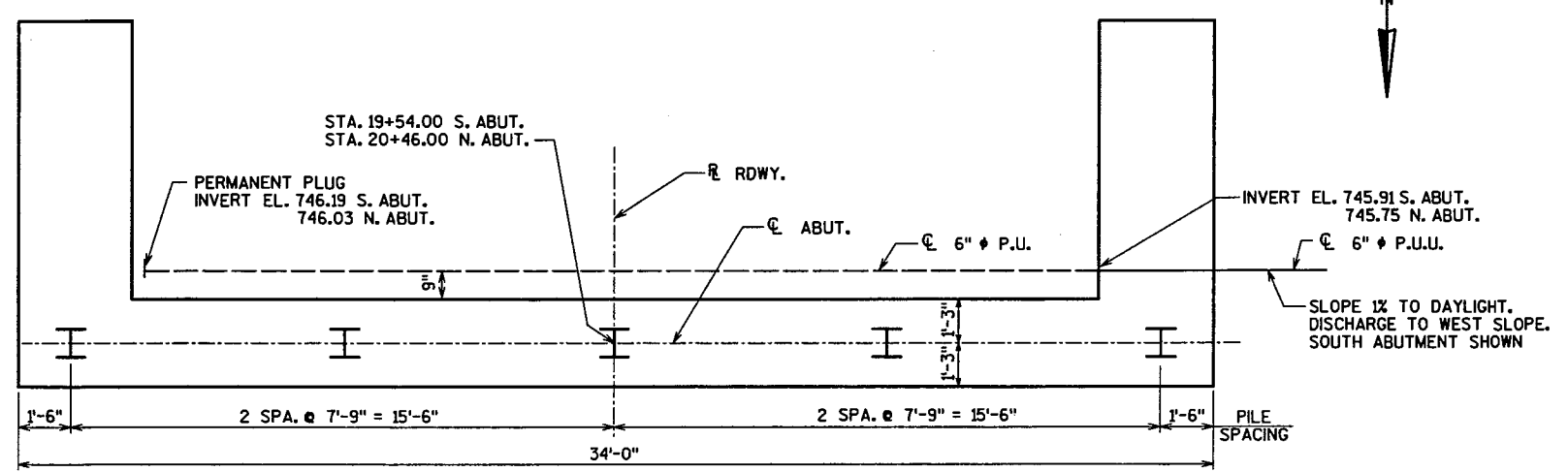
- ☆ A505 BARS AT 1'-0". THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
 - SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
 - 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
 - ▲ KEYED CONST. JOINT FORMED BY BEVELED 2" x 6".
- SEE SHEET 5 FOR WINGWALL DETAILS, BILL OF REINFORCEMENT AND BAR BENDING DIAGRAMS.



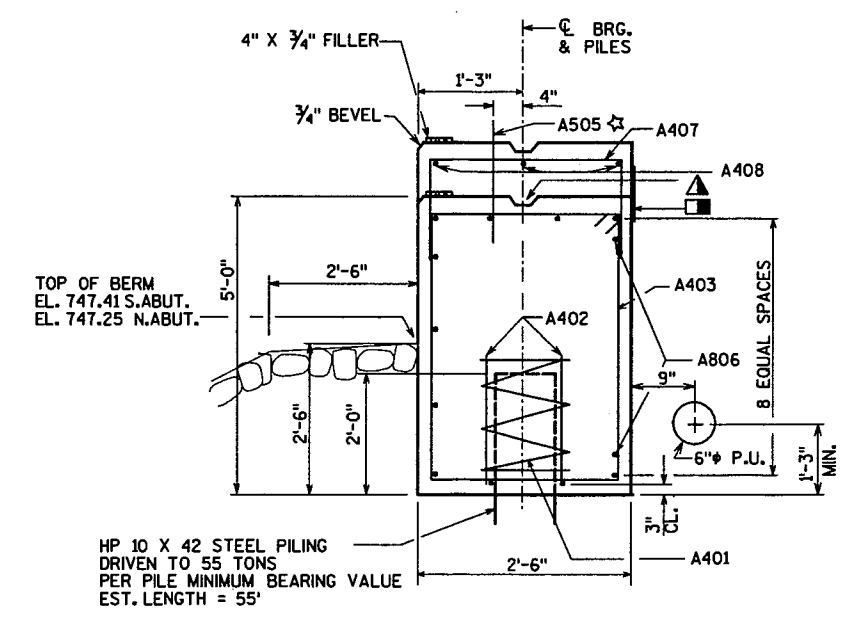
NOTE: SPACE A403 BARS TO MISS PILING
ELEVATION



PLAN

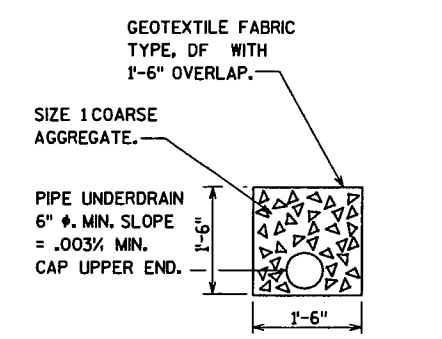


PILE PLAN



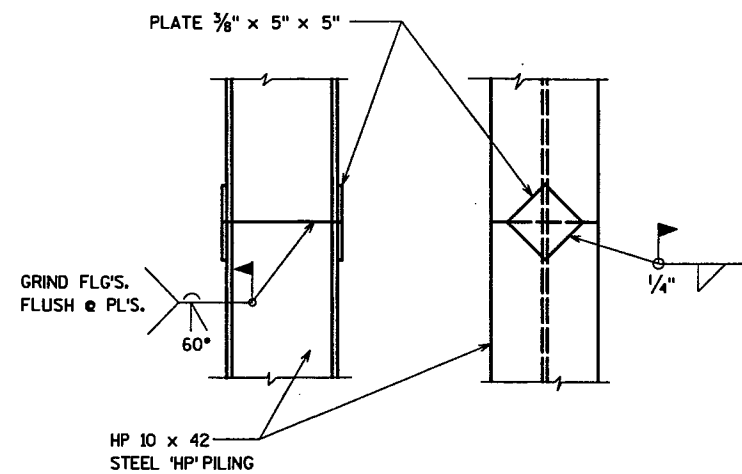
SECTION THRU BODY
HORIZ. BARS NOT OTHERWISE IDENTIFIED ARE A604 BARS

SOUTH ABUTMENT SHOWN



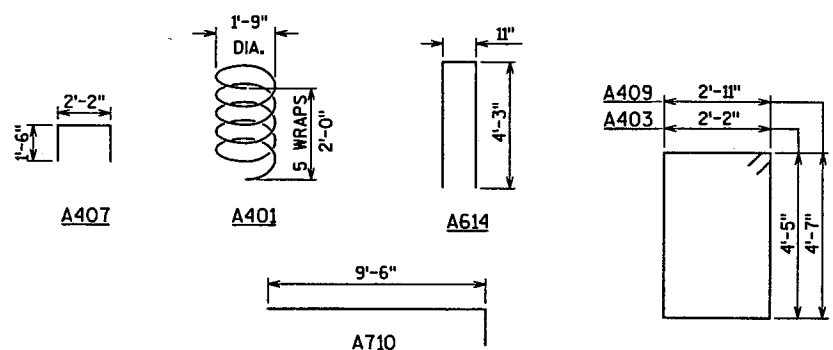
PIPE UNDERDRAIN DETAIL

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CONST. SPEC.	2003	DRAWN BY SSQ	PLANS CK'D. KRO
ABUTMENTS			SHEET 4 OF 9
			31



PILE SPLICE DETAILS

STEEL HP PILE MATERIAL SHALL BE A.S.T.M. DESIGNATION A36.

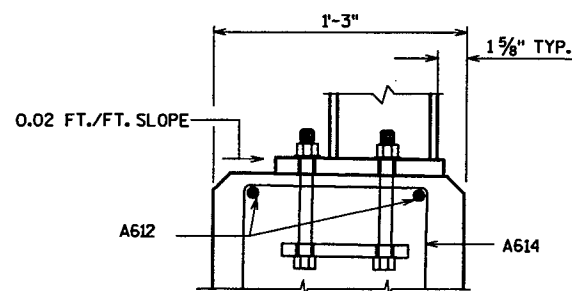


BAR BENDING DIAGRAMS

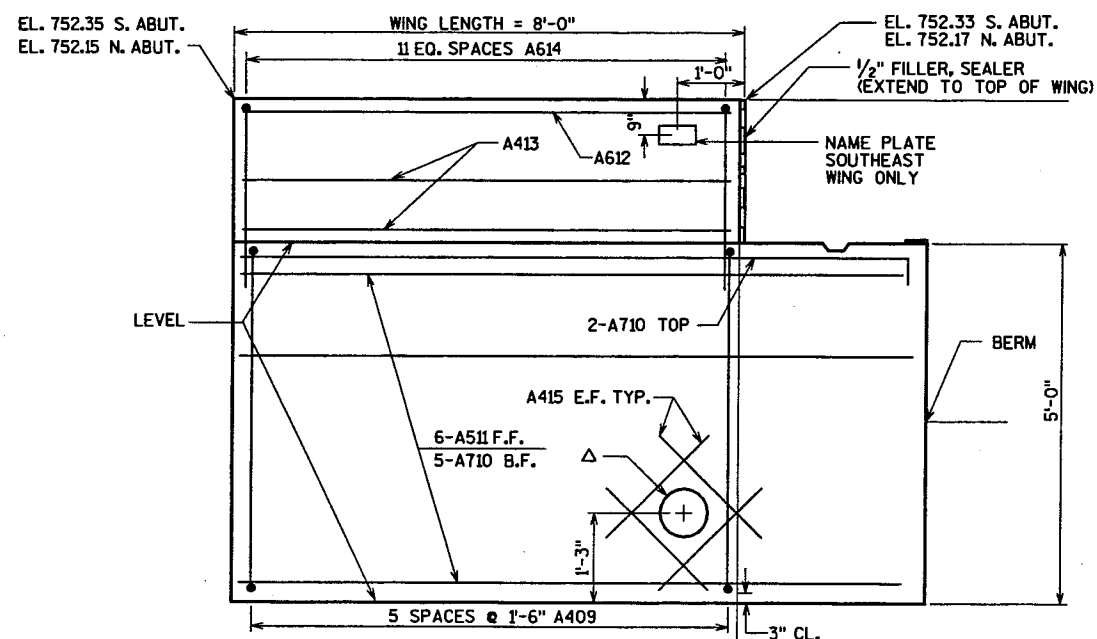
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.
(BAR TABLE APPLIES TO ONE ABUT. -2 ABUTS. REQ'D.)

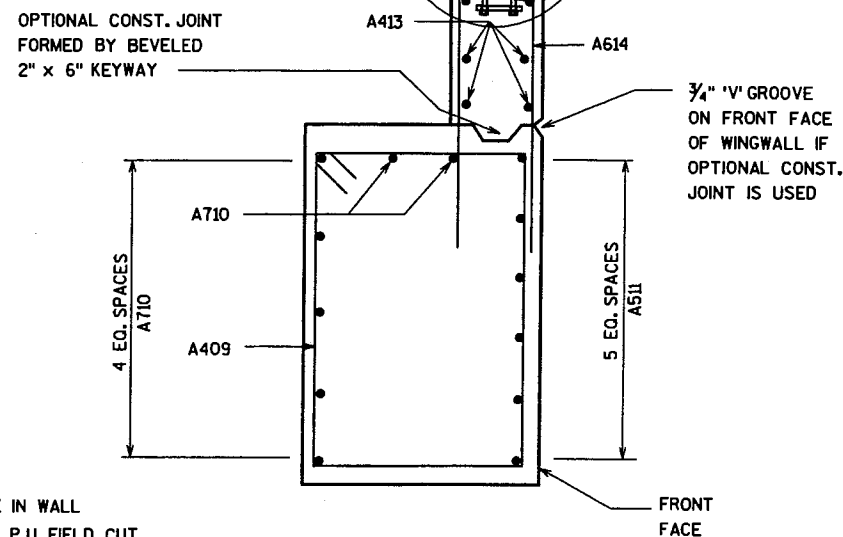
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	LOCATION
A401		5	28'-0"	X	BODY - ONE PER PILE
A402		10	2'-3"		BODY - TWO PER PILE
A403		40	13'-8"	X	BODY - STIRRUPS
A604		11	33'-8"		BODY - HORIZONTAL
A505		33	2'-0"		BODY - VERTICAL DOWELS
A806		7	33'-8"		BODY - HORIZONTAL B.F.
A407		6	5'-0"	X	BODY - STIRRUPS TOP
A408		3	8'-0"		BODY - HORIZONTAL TOP
A409		12	15'-6"	X	WINGS - STIRRUPS
A710		14	10'-6"	X	WINGS - HORIZONTAL B.F.
A511		12	10'-2"		WINGS - HORIZONTAL F.F.
A612	X	4	7'-8"		WINGS - HORIZONTAL TOP
A413	X	8	7'-8"		WINGS - HORIZONTAL
A614	X	24	9'-1"	X	WINGS - VERTICAL
A415	X	8	2'-0"		WINGS - P.U. OPENING



DETAIL "A"



WING ELEVATION

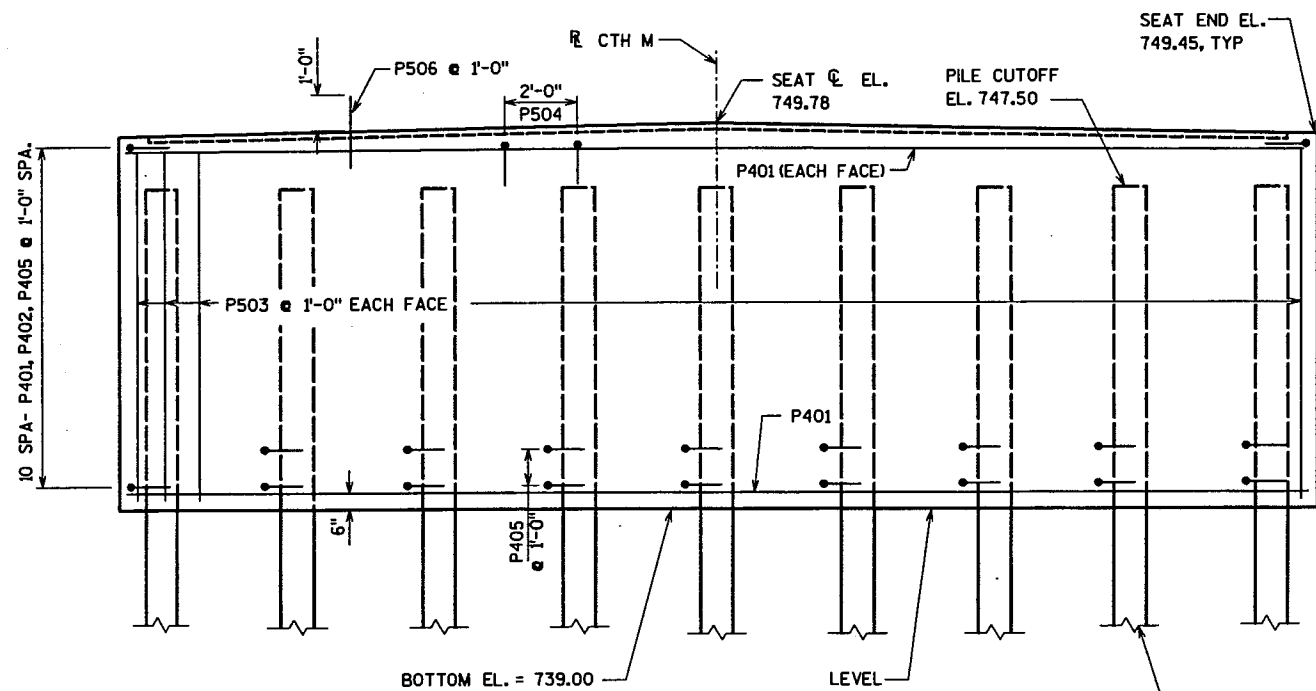


WING SECTION

△ 8" HOLE IN WALL FOR 6" P.U. FIELD CUT REINF. STEEL AS REQUIRED. WEST WINGS ONLY.

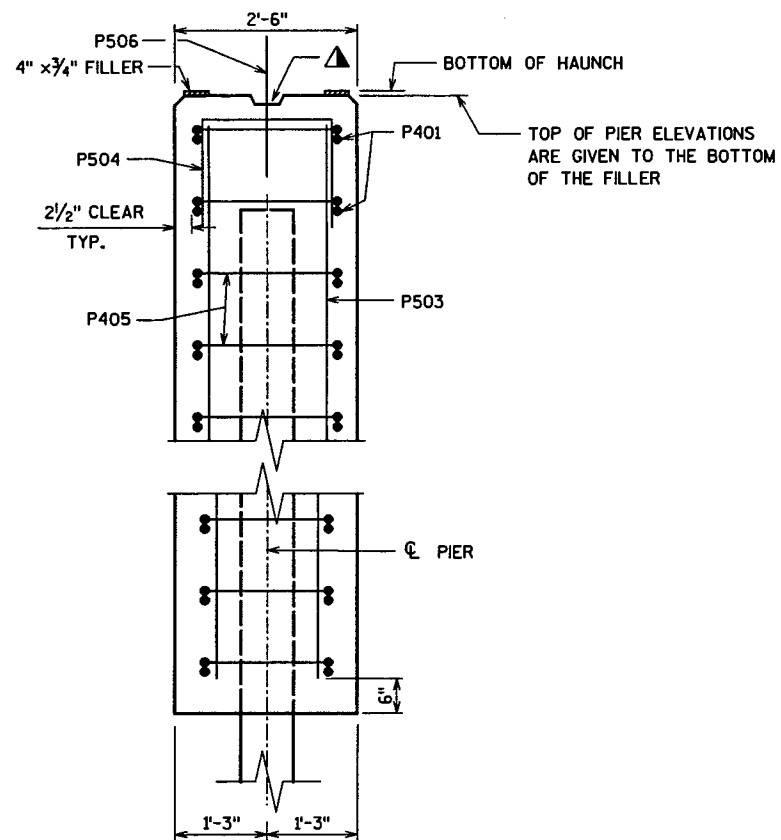
NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CONST. SPEC.	2003	DRAWN BY SSQ	PLANS CKD. KRO
ABUTMENT DETAILS			SHEET 5 OF 9

37

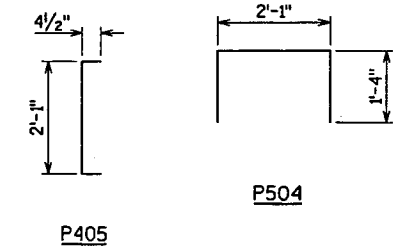


ELEVATION
(LOOKING NORTH)

HP 10 X 42 STEEL PILING DRIVEN TO 55 TONS PER PILE MIN. BRG. EST. LENGTH = 55'

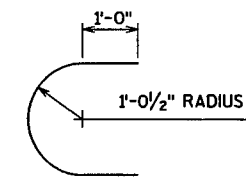


SECTION A



P504

P405



P402

BAR BENDING DIAGRAMS

BILL OF BARS

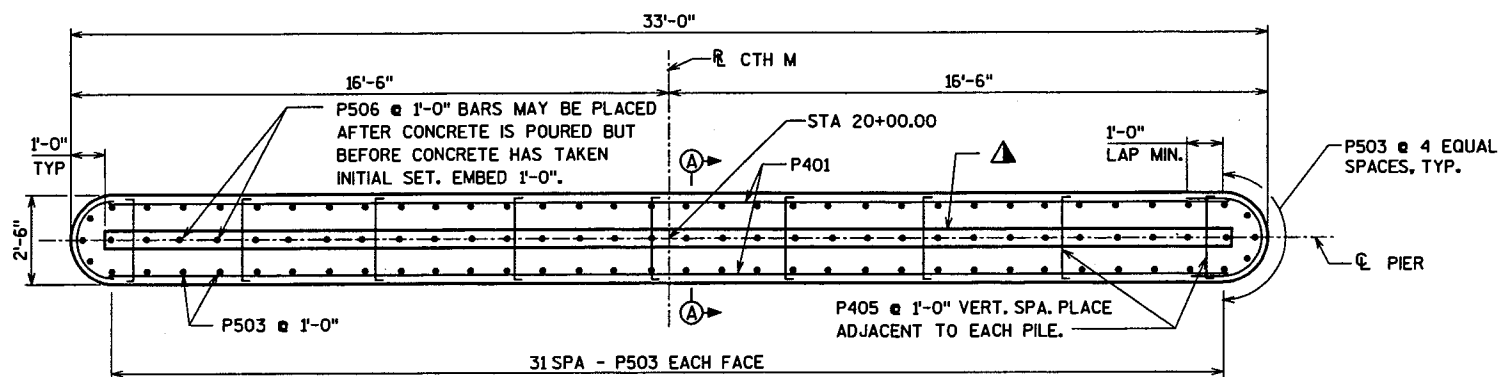
(BAR TABLE APPLIES TO ONE PIER - 4 PIERS REQ'D.)

NOTE: BAR DIMENSIONS ARE OUT TO OUT OF BAR. THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

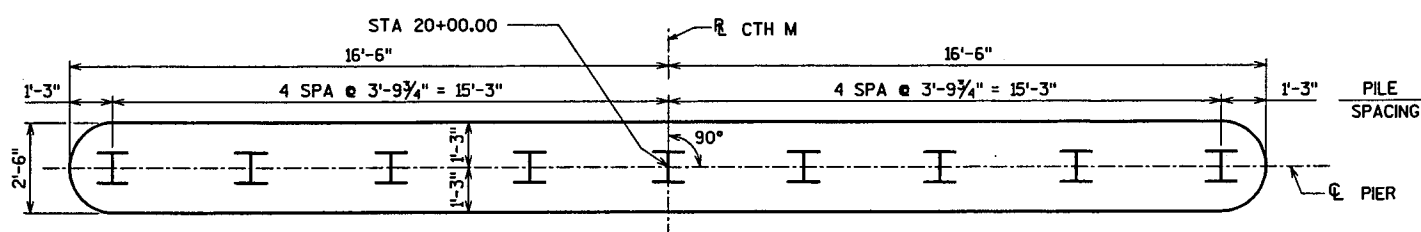
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	LOCATION
P401		22	30'-6"		SHAFT - HORIZONTAL
P402		22	5'-3"	X	SHAFT - HORIZONTAL - ENDS
P503		70	9'-10"		SHAFT - VERTICAL
P504		16	4'-6"	X	SHAFT - HORIZONTAL - TOP
P405		99	2'-8"	X	SHAFT - HORIZONTAL - TIES
P506		32	2'-0"		SEAT DOWELS

NOTES

▲ CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY SEE SHEET 5 FOR PILE SPLICE DETAILS



PLAN

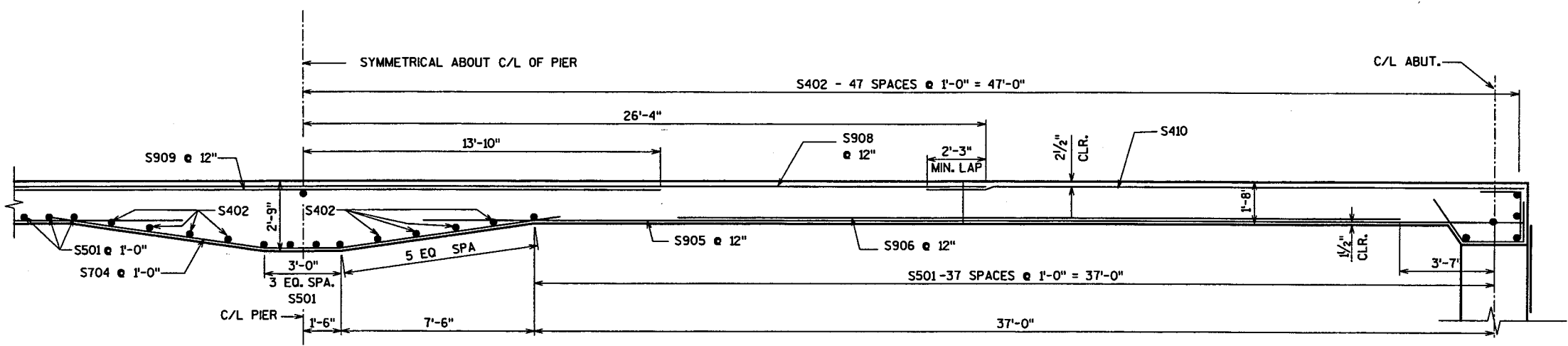


PILE PLAN

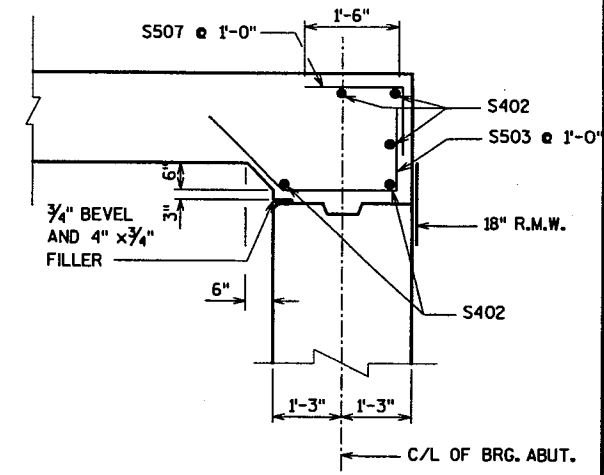
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ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CONST. SPEC.	2003	DRAWN BY SSQ	PLANS CK'D. KRO
PIER			SHEET 6 OF 9
			33

8

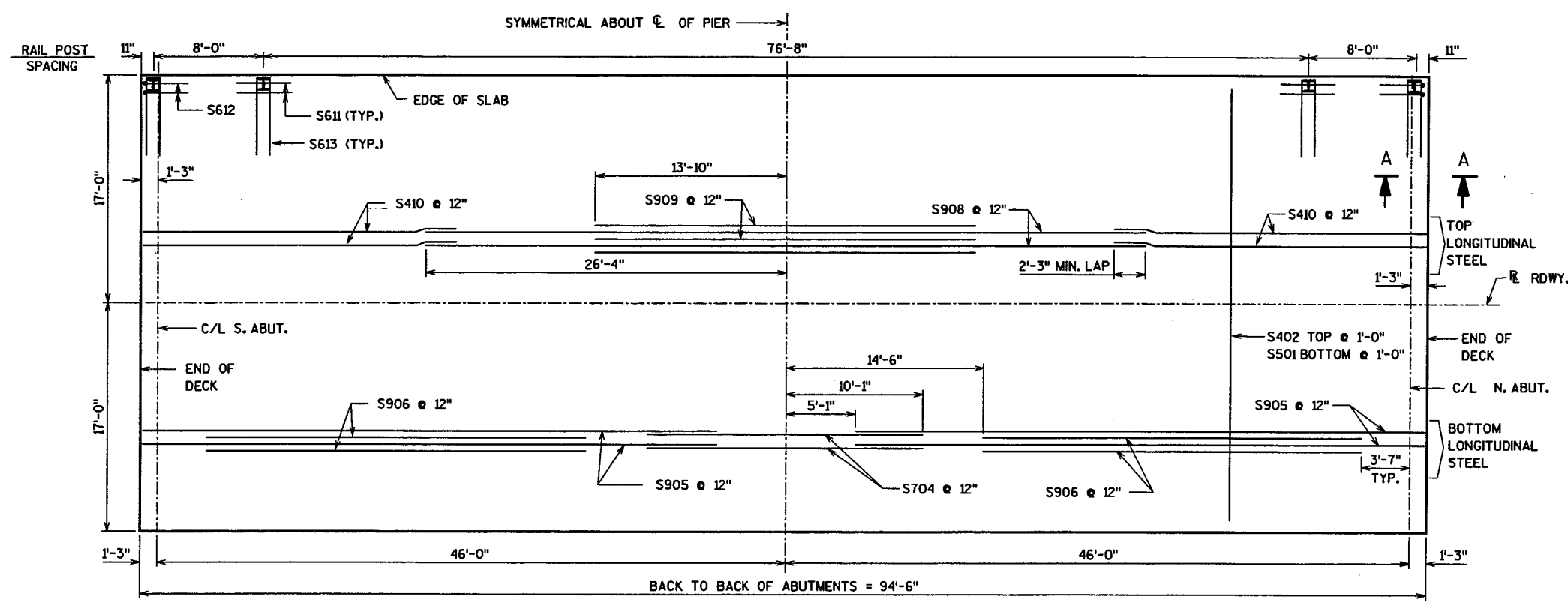
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LONGIT. SECT. THRU RDWY.



SECTION A-A

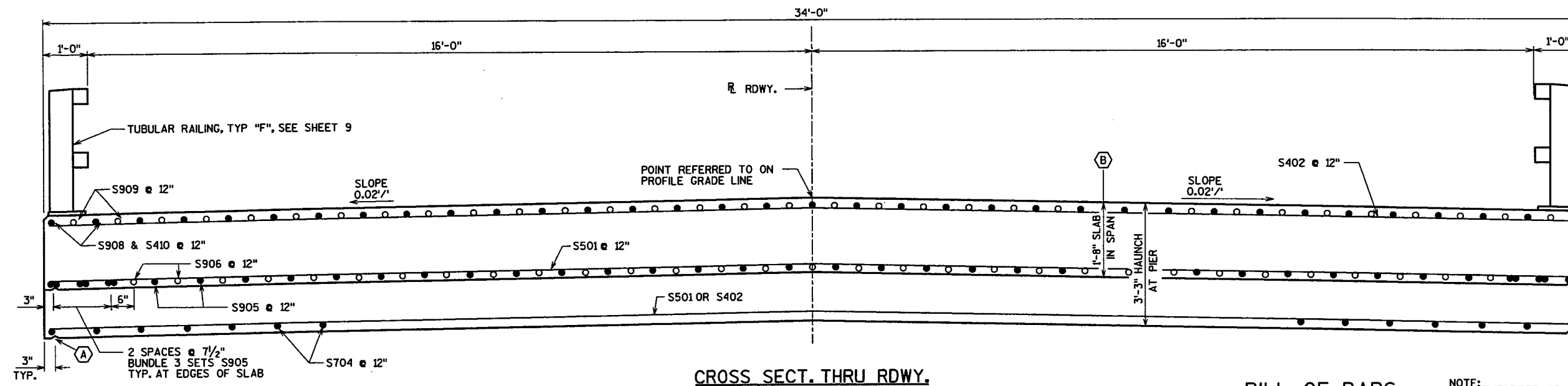


PLAN

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CONST. SPEC.	2003	DRAWN BY SSO	PLANS CKD. KRO
SUPERSTRUCTURE		SHEET 7 OF 9	
		34	

8

8



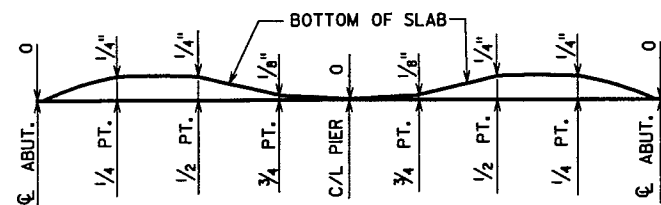
CROSS SECT. THRU RDWY.

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BUNDLE	LOCATION
S501	X	80	33'-8"			TRANS. BOT.
S402	X	109	33'-8"			TRANS. TOP, HAUNCH & ABUT.
S503	X	70	5'-7"	X		VERT., DIAPH. @ ABUTS.
S704	X	35	20'-2"	X		LONG. BOT. @ PIER
S905	X	84	42'-0"			LONG. BOT., FIRST & SECOND SPAN
S906	X	62	27'-11"			LONG. BOT., FIRST & SECOND SPAN
S507	X	70	3'-5"	X		VERT., DIAPH. @ ABUTS.
S908	X	35	52'-8"			LONG. TOP
S909	X	34	27'-8"			LONG. TOP, PIER
S410	X	70	23'-0"			LONG. TOP
S611	X	44	4'-0"			AT INTERIOR RAIL POSTS
S612	X	8	4'-0"	X		AT END RAIL POSTS
S613	X	26	12'-0"	X		AT EACH RAIL POST

BAR DIMENSIONS ARE OUT TO OUT OF BAR.



CAMBER DIAGRAM

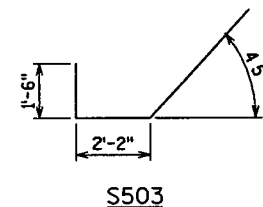
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

(A) 3/4" CONTINUOUS DRIP GROOVE SHALL END 2'-0" FROM ABUTMENTS (TYP.)

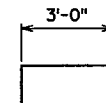
(B) SLAB THICKNESS DIMENSION IS MINIMUM. ANY TOLERANCES TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

TOP TRANS. BARS IN THE SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROX. 3'-0" CENTERS EACH WAY. BOTTOM LONG. BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROX. 4'-0" CENTERS.

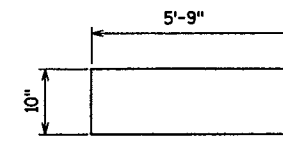
TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE C/L OF SUBSTRUCTURE UNITS.



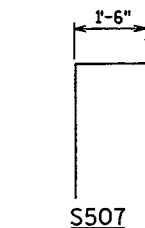
S503



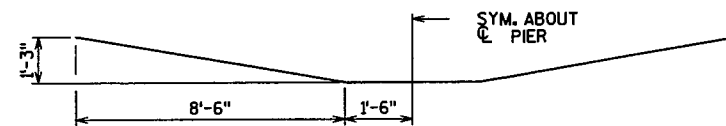
S612



S613



S507



S704

WIRE BARS TOGETHER @ 2'-0" CTR'S.



BUNDLING DETAIL

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CONST. SPEC.	2003	DRAWN BY SSO	PLANS CKD. KRO
SUPERSTRUCTURE DETAILS			SHEET 8 OF 9
			35

8

8

LEGEND

- ① W6 x 25 WITH 1/4" DIA. HOLES ON EACH SIDE OF POST FOR STUD NO. 6, CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY (OR SIDEWALK, AS APPLICABLE). PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1" x 9/2" x 10" WITH 1/16" x 1/2" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ A325 - 7/8" DIA. HEX BOLTS (GALVANIZED) WITH A325 NUT & WASHER. 14" LONG AT END POSTS AND AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 15". USE 8" LONG AT ALL OTHER LOCATIONS. 4 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
- ④ 1/4" x 8" x 8" FLAT BAR WITH 5/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 4 x 4 x 0.25 STRUCTURAL TUBING, CONFORMING TO A.S.T.M. DESIGNATION A501 OR A500 GRADE B. ATTACH TO NO. 1 WITH STUDS NO. 6.
- ⑥ 5/8" DIA. x 1/2" LONG SHOP WELDED STUDS WITH HEX NUT AND 2" WASHERS (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ PLATE 3/8" x 1-4" (1-7" ON SDWK.) x 1-8" BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5 FOR 7/8" DIA. A325 BOLTS W/HEX NUTS AND WASHERS.
- ⑨ SQUARE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 3 1/2".
- ⑩ TS 3 x 3 x 0.25 x (2'-4" AT EXPANSION JOINTS) & (1'-10" AT FIELD JOINTS) LONG. PROVIDE 1/2" DIA. SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 5. PROVIDE 3/8" DIA. x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
- ⑪ 7/8" DIA. x 1/2" LONG THREADED SHOP WELDED STUDS. (REQ'D. FOR SDWK. RAIL ONLY.)

GENERAL NOTES

BID ITEM SHALL BE "TUBULAR RAILING TYPE 'F'", WHICH INCLUDES ALL ITEMS SHOWN. RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

FOR RAILING NOT TO BE PAINTED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 4) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

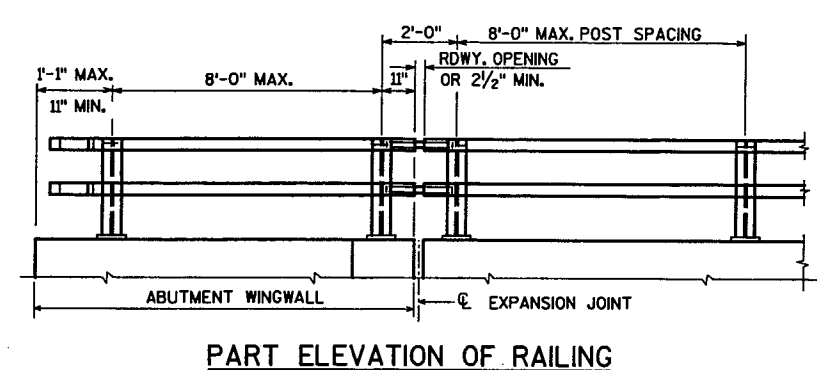
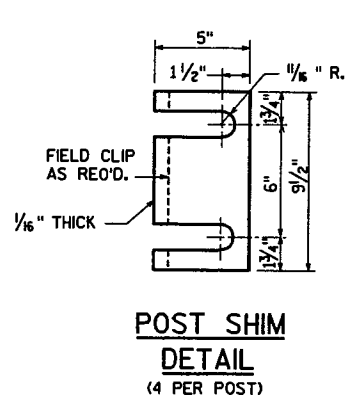
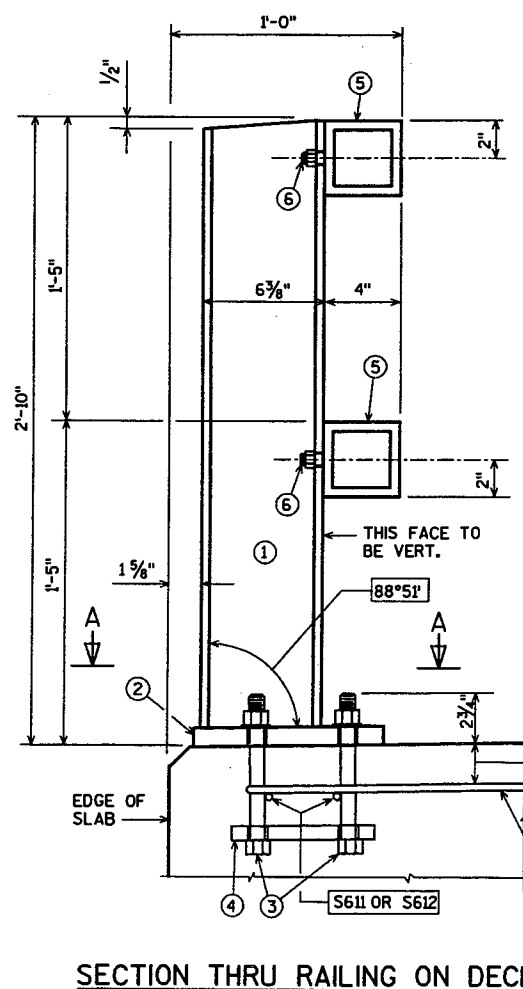
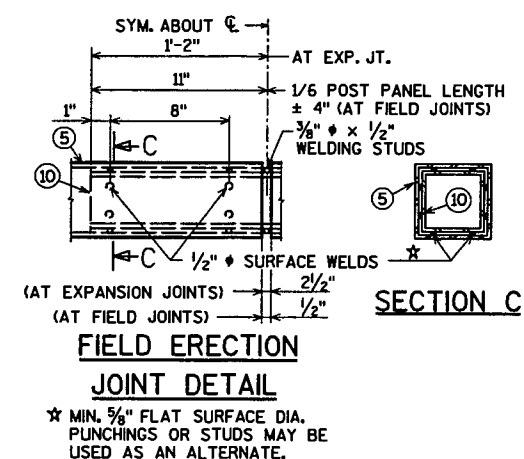
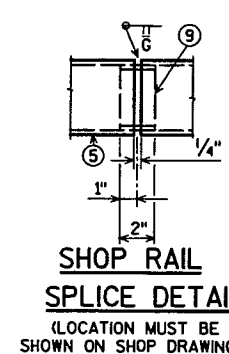
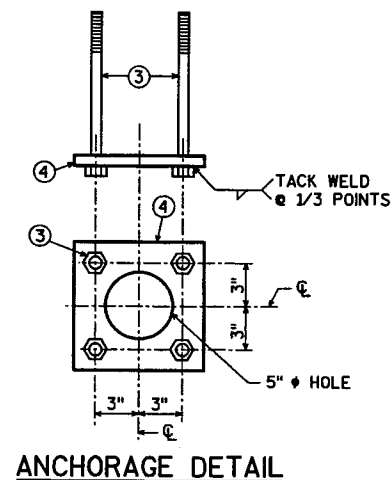
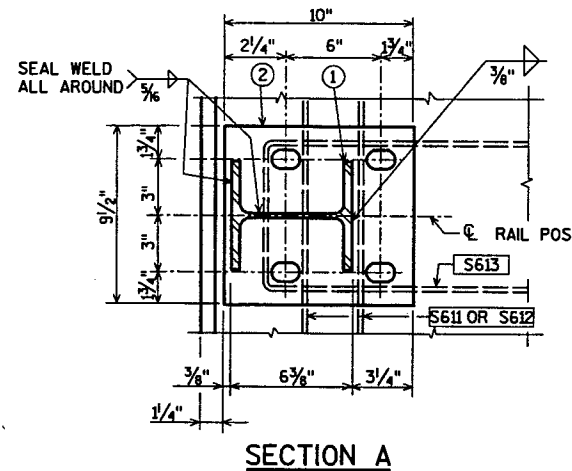
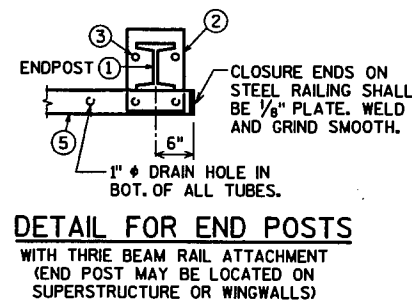
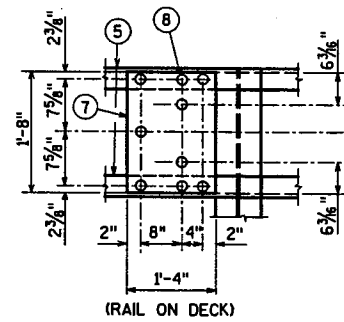
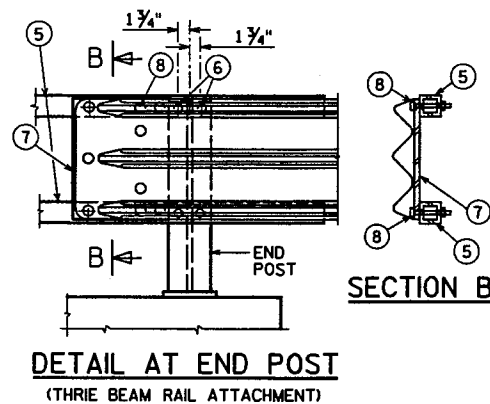
FOR RAILING TO BE PAINTED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED WITH A THREE-COAT ZINC RICH EPOXY SYSTEM. PRIOR TO PAINTING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 11 NEAR WHITE BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

ALL MATERIALS USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM A709 GRADE 36 UNLESS NOTED OTHERWISE.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

▲ TIE TO TOP MAT OF STEEL.

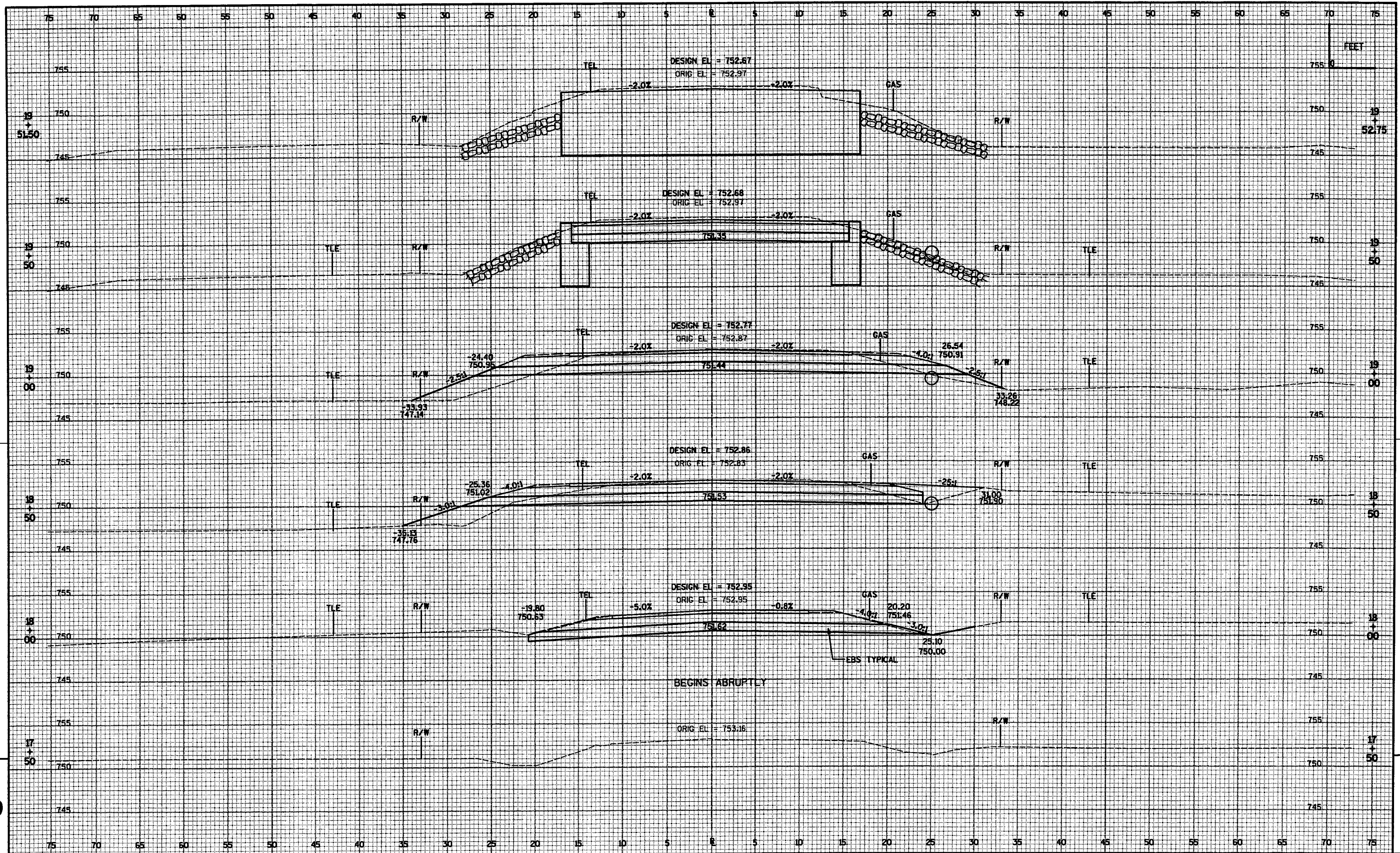


8

8

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
Omni ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-224			
CONST. SPEC.	2003	DRAWN BY SSO	PLANS CKD. KRO
TUBULAR RAILING TYPE "F"			SHEET 9 OF 9
			36

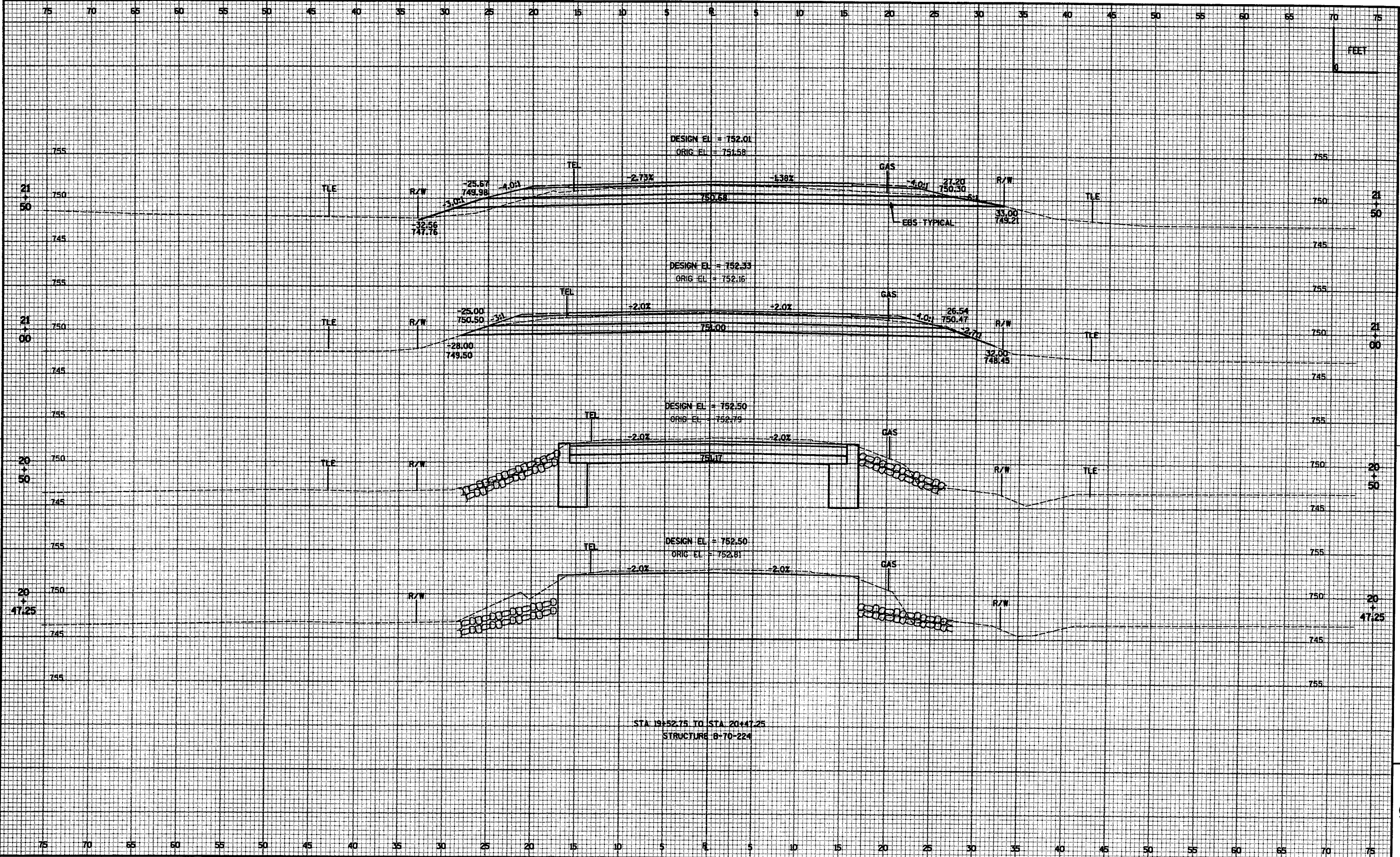
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PROJECT NUMBER: 6478-01-71 HWY: CTH M COUNTY: WINNEBAGO CROSS SECTIONS: CTH M SHEET NO: 31 E

FILE NAME : F:\Transportation\1650A04\Sheets\xsec\xsl.dgn PLOT DATE : 10/19/2005 01:15:49 PM PLOT BY : qaders PLOT NAME : ORG DATE : Originator : OMNI ASSOCIATES, INC. PLOT SCALE : **.....plotscale.....** WISDOT/CADD SHEET 21

LEVELS ON = 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH M BRIDGE AND APPROACHES

TOWN OF WINCHESTER, RAT RIVER CTH M WINNEBAGO COUNTY

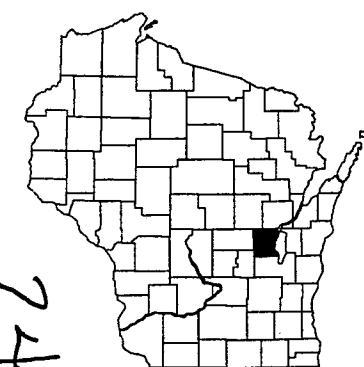
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6480-00-71	BH 2006086	

Feb 04
ORDER OF SHEETS

- Section No. 1 Title
- Section No. 2 Typical Sections and Details
- Section No. 3 Estimate of Quantities
- Section No. 3 Miscellaneous Quantities
- Section No. 4 Right of Way Plat
- Section No. 5 Plan and Profile (Includes Erosion Control)
- Section No. 6 Standard Detail Drawings
- Section No. 7 Sign Plates
- Section No. 8 Structure Plans
- Section No. 9 Computer Earthwork Data
- Section No. 9 Cross Sections

TOTAL SHEETS = 34

STATE PROJECT NUMBER
6480-00-71



BEGIN PROJECT 6480-00-71
STA 18+00.00

Y = 816,351.6 FEET
X = 2,354,869.6 FEET

DESIGN DESIGNATION

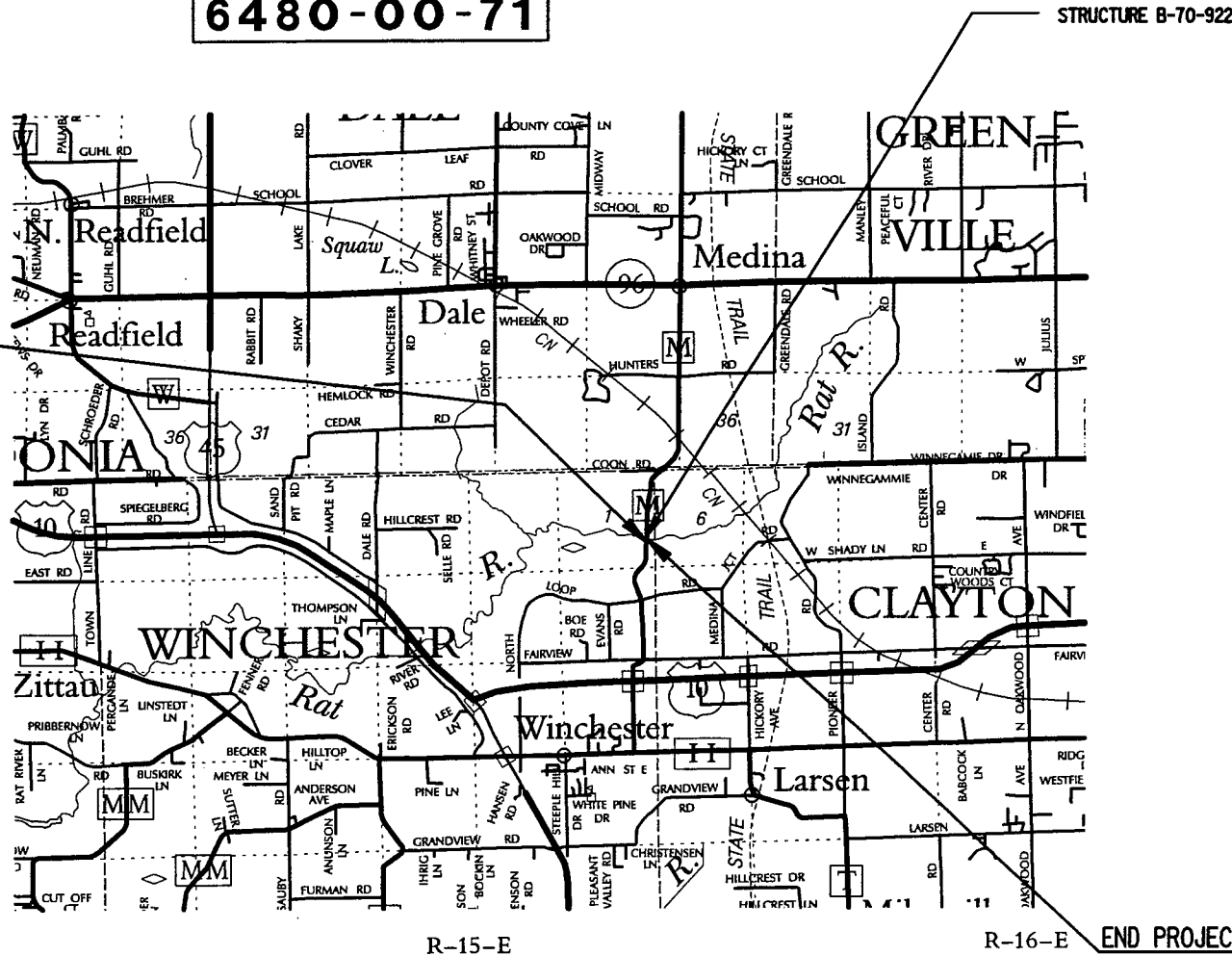
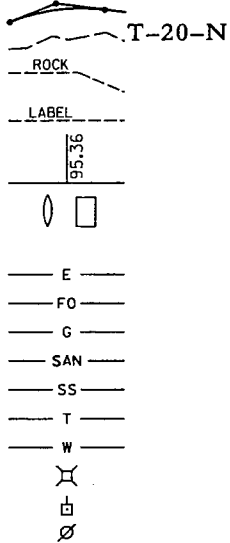
- A.A.D.T. 2006 = 575
- A.A.D.T. 2026 = 775
- D.H.V. = 80
- D.D. = 50-50
- T. = 8.0%
- DESIGN SPEED = 45 MPH
- ESALS = 116,800

CONVENTIONAL SYMBOLS

- PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such)
- SPECIAL DITCH
- GRADE ELEVATION
- CULVERT (Profile View)
- UTILITIES
- ELECTRIC
- FIBER OPTIC
- GAS
- SANITARY SEWER
- STORM SEWER
- TELEPHONE
- WATER
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

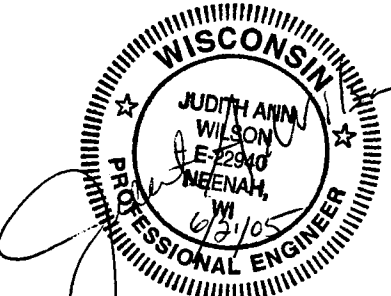


LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.076 MI.

ACCEPTED FOR
WINNEBAGO COUNTY
6/23/05 (Date) John M. Naese (Signature)

ORIGINAL PLANS PREPARED BY
OMNI ASSOCIATES



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
 Surveyor: OMNI ASSOCIATES
 Designer: OMNI ASSOCIATES
 Project Manager: T. AHRENS
 District Examiner:
 District Supervisor: JILL MICHAELSON
 C.O. Examiner: JAD

APPROVED FOR DISTRICT OFFICE
 DATE: 6/23/05 (Date) Jie Michaelson (Signature)

END PROJECT 6480-00-71
STA 22+00.00

ALL COORDINATES SHOWN ON THIS PLAN ARE BASED ON THE WINNEBAGO COUNTY COORDINATE SYSTEM.

E

UTILITIES NONE

DNR LIAISON MS. BOBBI JO REISER
 OSHKOSH SERVICE CENTER
 625 EAST COUNTY ROAD Y, SUITE 700
 OSHKOSH, WI 54901-9731
 TEL (920) 303-5442
 FAX (920) 424-4404

WINNEBAGO COUNTY JOHN HAESE, HIGHWAY COMMISSIONER
 901 W. COUNTY RD Y
 OSHKOSH, WI 54903
 TEL (920) 232-1700

DIGGERS HOTLINE CABLE LOCATE
 TELEPHONE: (800) 242-8511 (TOLL FREE)



GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

FILL AS SHOWN ON THE PLANS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM COMMON EXCAVATION. THE ALLOWANCE USED FOR EXPANDING THE FILLS TO COMPUTE THE VOLUME OF MATERIAL REQUIRED IS 30 PERCENT. ALL FILL VOLUMES SHOWN ARE THE ACTUAL VOLUMES.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

ALL DISTURBED AREAS, NOT OTHERWISE SURFACED ARE TO BE TOPSOILED, FERTILIZED, SEEDED AND MULCHED.

SEED MIXTURE NO. 75 SHALL BE USED ON ALL DISTURBED AREAS, EXCEPT WETLANDS SHALL BE SEEDED WITH MIXTURE NO 60.

THE EXACT LOCATIONS OF ALL EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

PLAN ELEVATIONS = USGS DATUM

THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT WHICH SHALL BE SET IN THE STRUCTURE AS DESIGNATED BY THE ENGINEER. AN ELEVATION SHALL BE PLACED ON THE MONUMENT IN NAVD 88 OR NGVD DATUM AND IDENTIFIED AS TO THE DATUM USED. PROVIDE BENCH MARK INFORMATION TO THE NORTHEAST REGION SURVEY DEPARTMENT.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS SHOWN ON THE CROSS SECTIONS. IF EBS IS NECESSARY, IT WILL BE MEASURED AND PAID FOR AS COMMON EXCAVATION AND BACKFILLED WITH BASE AGGREGATE DENSE 3-INCH.

TRANSITION FROM THE EXISTING SUBGRADE ELEVATION TO THE PROPOSED SUBGRADE ELEVATION USING A 10:1 HORIZONTAL TO VERTICAL SLOPE AT THE BEGINNING AND END OF THE PROJECT.

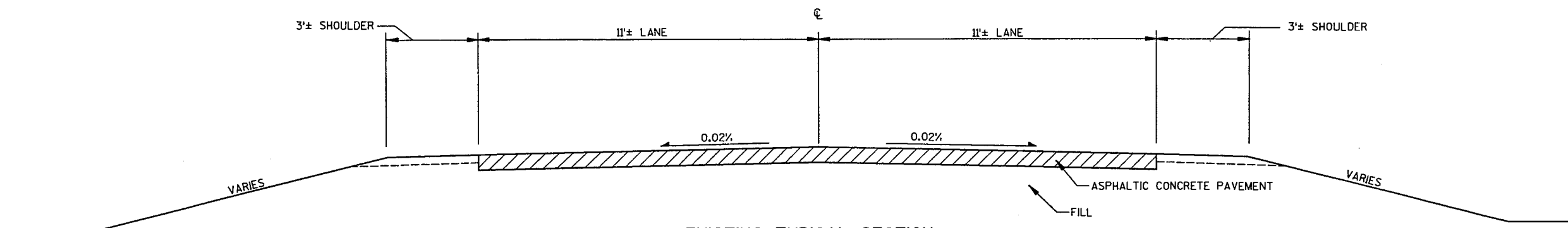
EROSION CONTROL NOTES

RUNOFF COEFFICIENT FOR THIS PROJECT: EXISTING PAVEMENT 0.95, EXISTING SLOPES 0.30, NEW PAVEMENT 0.95, NEW SLOPES 0.30.

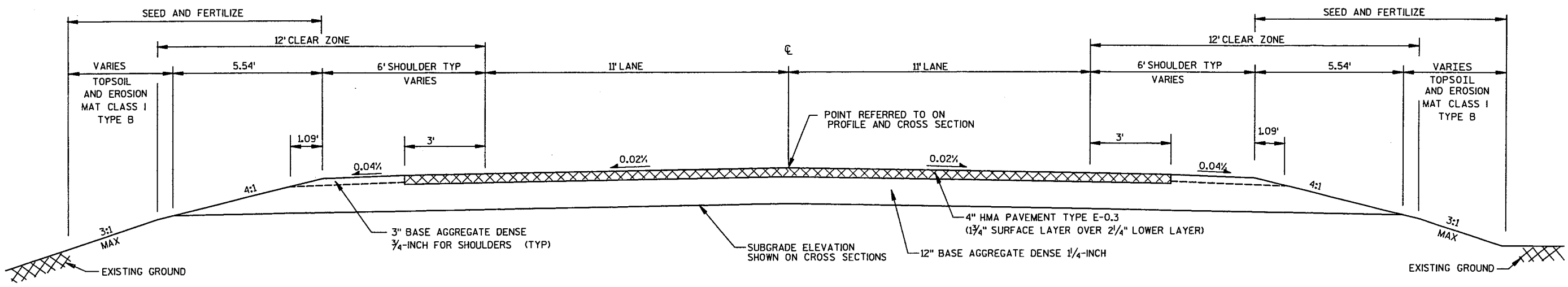
TOTAL PROJECT AREA = 0.63 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.45 ACRES

STANDARD DETAIL DRAWINGS

SDD NUMBER	TITLE
8E9-56	SILT FENCE
8E11-2	TURBIDITY BARRIER
12A3-8	NAME PLATE-(STRUCTURES)
14B15-4a	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B15-4b	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-4a	STEEL PLATE BEAM GUARD, CLASS "A", (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-6a	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-7d	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"
14B24-4a,b,c	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15C2-4a	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C2-4b	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C6-4	SIGNING AND MARKING FOR TWO LANE BRIDGES
15C8-9a	PAVEMENT MARKING (MAINLINE)

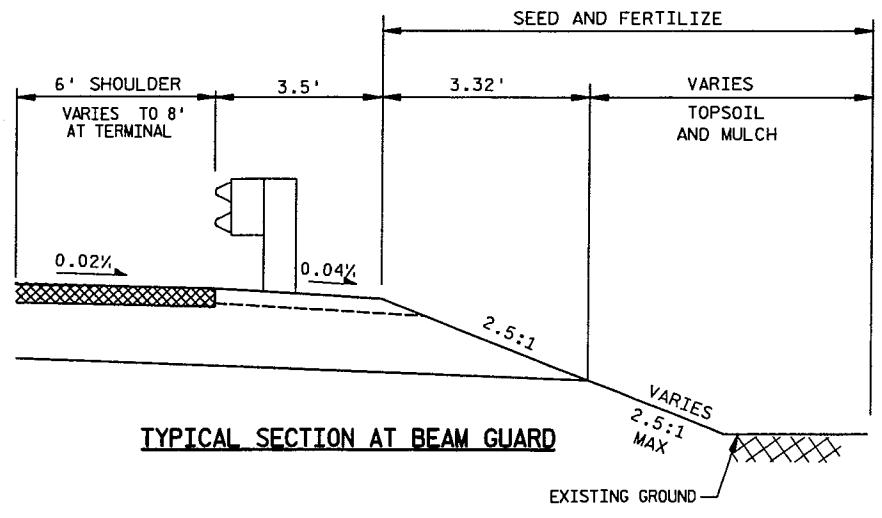


EXISTING TYPICAL SECTION



FINISHED TYPICAL SECTION

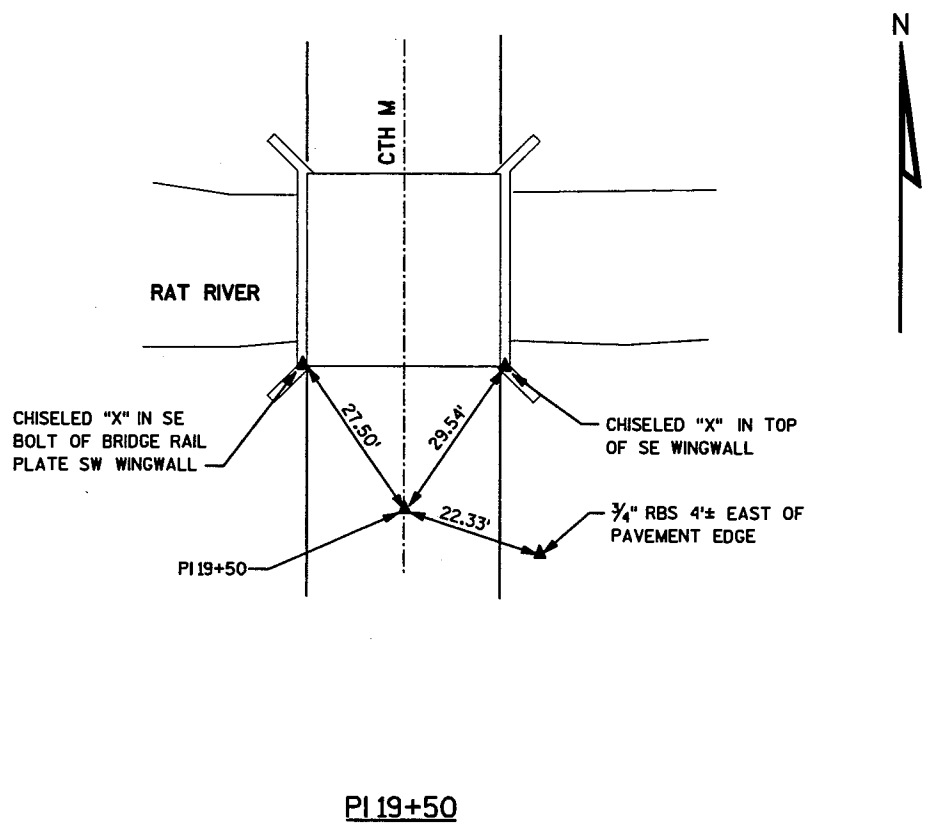
STA 18+00 TO 22+00



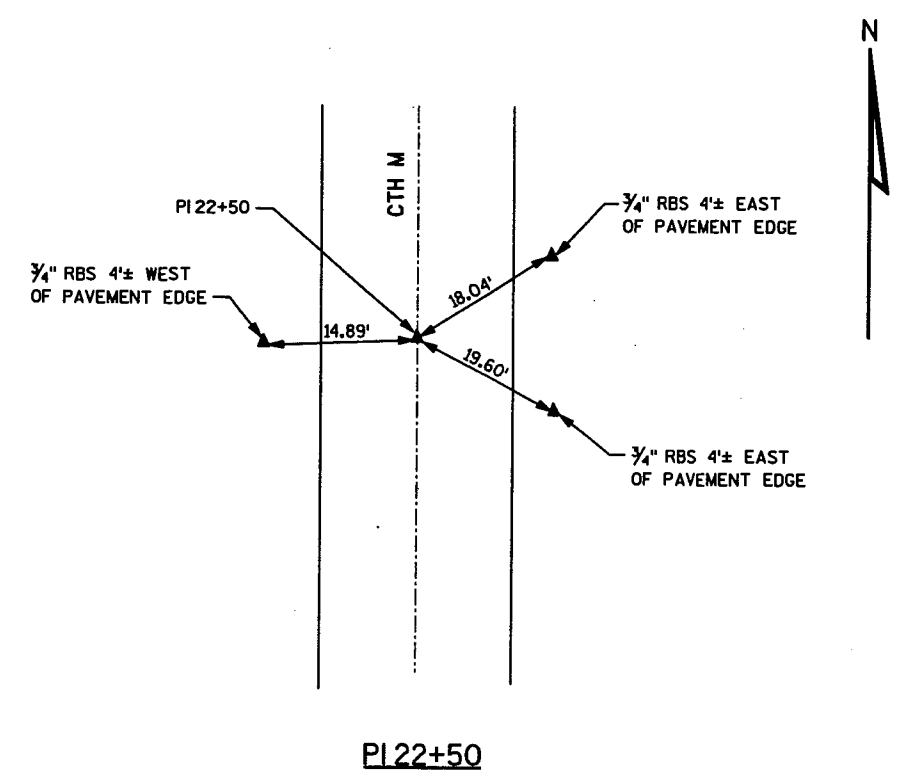
TYPICAL SECTION AT BEAM GUARD

56.57, 58

LEVELS ON - 1, 2, 3

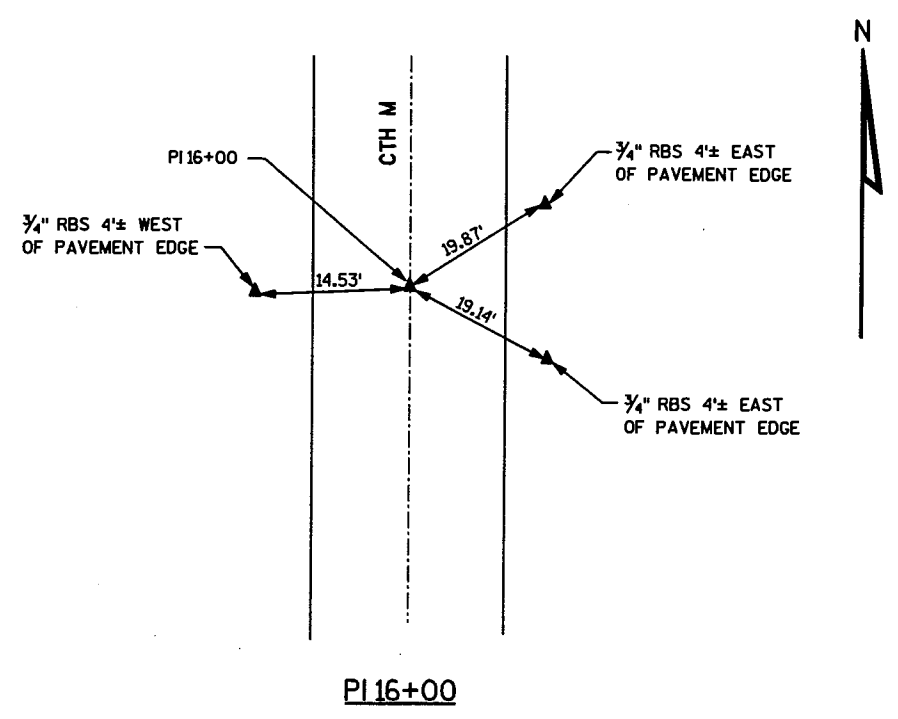


PI 19+50

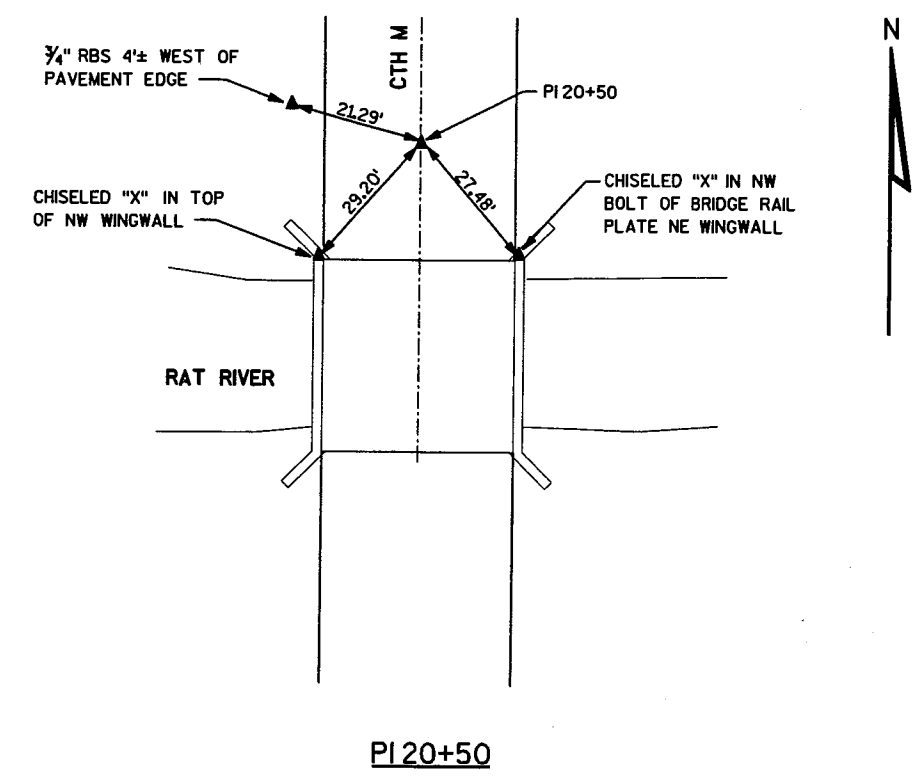


PI 22+50

LEVELS ON = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63



PI 16+00



PI 20+50

DATE 10NOV05

ESTIMATE OF QUANTITIES

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6480-00-71 QUANTITY
0010	201.0105	CLEARING	STA	3.000	3.000
0020	201.0205	GRUBBING	STA	3.000	3.000
0040	203.0200	REMOVING OLD STRUCTURE (STATION) 02. 20+00	LS	1.000	1.000
0050	205.0100	EXCAVATION COMMON	CY	780.000	780.000
0070	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 02. B-70-922	LS	1.000	1.000
0090	210.0100	BACKFILL STRUCTURE	CY	80.000	80.000
0110	213.0100	FINISHING ROADWAY (PROJECT) 02. 6480-00-71	EACH	1.000	1.000
0120	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	60.000	60.000
0130	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,200.000	1,200.000
0140	305.0130	BASE AGGREGATE DENSE 3-INCH	TON	650.000	650.000
0160	455.0105	ASPHALTIC MATERIAL PG58-28	TON	18.000	18.000
0170	455.0605	TACK COAT	GAL	30.000	30.000
0180	460.1100	HMA PAVEMENT TYPE E-0.3	TON	300.000	300.000
0190	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	200.000	200.000
0200	460.3000	QMP HMA MIXTURE	TON	300.000	300.000
0210	502.0100	CONCRETE MASONRY BRIDGES	CY	72.000	72.000
0220	502.0301.S	QMP CONCRETE STRUCTURES	CY	72.000	72.000
0230	502.0400.S	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	720.000	720.000
0240	502.3200	PROTECTIVE SURFACE TREATMENT	SY	196.000	196.000
0250	502.6105	MASONRY ANCHORS TYPE S 5/8-INCH	EACH	72.000	72.000
0260	503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	268.000	268.000
0270	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	1,130.000	1,130.000
0280	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	11,060.000	11,060.000
0290	506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	10.000	10.000
0300	506.4000	STEEL DIAPHRAGMS (STRUCTURE) 01. B-70-922	EACH	4.000	4.000
0330	513.4050	RAILING TUBULAR TYPE F (STRUCTURE) 02. B-70-922	LS	1.000	1.000
0340	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	24.000	24.000
0400	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	83.000	83.000
0410	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	100.000	100.000
0420	614.0370	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	4.000	4.000
0430	619.1000	MOBILIZATION	EACH	0.330	0.330
0440	624.0100	WATER	MGAL	8.000	8.000
0450	625.0100	TOPSOIL **p**	SY	800.000	800.000
0460	627.0200	MULCHING **p**	SY	100.000	100.000
0470	628.1504	SILT FENCE	LF	200.000	200.000
0480	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2.000	2.000
0490	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0510	628.2004	EROSION MAT CLASS I TYPE B	SY	800.000	800.000
0520	628.6005	TURBIDITY BARRIERS	SY	650.000	650.000
0540	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0560	630.0160	SEEDING MIXTURE NO. 60	LB	8.000	8.000
0570	630.0175	SEEDING MIXTURE NO. 75	LB	15.000	15.000
0580	630.0200	SEEDING TEMPORARY	LB	15.000	15.000
0590	634.0412	POSTS WOOD 4X4-INCH X 12-FT	EACH	4.000	4.000
0600	637.0202	SIGNS REFLECTIVE TYPE II	SF	12.000	12.000
0610	638.2602	REMOVING SIGNS TYPE II	EACH	6.000	6.000
0620	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	6.000	6.000
0630	642.5000	FIELD OFFICE TYPE B (PROJECT)	EACH	0.500	0.500

3

3

DATE 10NOV05
LINE

ESTIMATE OF QUANTITIES
6480-00-71

NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0650	643.0100	TRAFFIC CONTROL (PROJECT) 02. 6480-00-71	EACH	1.000	1.000
0690	646.0103	PAVEMENT MARKING PAINT 4-INCH	LF	1,130.000	1,130.000
0700	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	345.000	345.000
0710	650.5000	CONSTRUCTION STAKING BASE	LF	345.000	345.000
0730	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 02. B-70-922	LS	1.000	1.000
0740	650.9900	CONSTRUCTION STAKING INITIAL LAYOUT	LF	345.000	345.000
0750	690.0100	SAWING EXISTING PAVEMENT	LF	44.000	44.000

3

3

ALL ITEMS ARE GROUP CODE 010 UNLESS NOTED OTHERWISE.

YARDAGE SUMMARY

STATION TO STATION	LOCATION	205.0100 EXCAVATION		205.0100 EXCAVATION		WASTE CY
		COMMON CY	(EBS) CY	FILL CY	EXPANDED CY	
18+00 - STRUCTURE	CTH M	255	50	160	210	45
STRUCTURE - 22+00	CTH M	270	180	45	60	210
UNDISTRIBUTED			25	---	---	---
TOTALS		525	255	205	270	255
PROJECT TOTAL			780			

COMMON EXCAVATION

STATION	CUT AREA (SF)	CUT VOLUME (CY)	FILL AREA (SF)	FILL VOLUME (CY)	CUT AREA (EBS)		CUT VOLUME (EBS)	
					(SF)	(CY)	(SF)	(CY)
18+00	36	0	14	0	8	0		
18+50	38	69	35	45	22	28		
19+00	41	73	31	61	0	20		
19+50	43	77	13	40	0	0		
19+73	43	36	13	10	0	0		
SUB TOTAL		254		157		48		
ENDS ABRUPTLY								
STRUCTURE								
BEGINS ABRUPTLY								
20+28	42	0	3	0	0	0		
20+50	42	35	5	3	0	0		
21+00	45	80	14	18	26	24		
21+50	42	81	1	14	71	90		
22+00	38	74	9	10	0	66		
SUB TOTAL		270		44		179		
TOTALS		524		201		228		
ROUNDED TOTALS		525		205		230		

CLEARING & GRUBBING

STATION	LOCATION	201.0105	201.0205
		CLEARING STA	GRUBBING STA
18+00-19+00	CTH M	1	1
19+00-20+00	CTH M	1	1
20+00-21+00	CTH M	1	1
TOTALS		3	3

BASE AGGREGATE DENSE AND WATER

STATION TO STATION	LOCATION	305.0110	305.0120	305.0130	624.0100
		BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	BASE AGGREGATE DENSE 3-INCH TON	WATER MGAL
18+00 - STRUCTURE	CTH M	29	600	130	4.0
STRUCTURE - 22+00	CTH M	31	600	460	4.0
UNDISTRIBUTED	CTH M	---	---	60	---
TOTALS		60	1200	650	8

STEEL PLATE BEAM GUARD

STATION TO STATION	LOCATION	614.0200	614.0305	614.0370
		STEEL THRIE BEAM STRUCTURE	STEEL PLATE BEAM GUARD	ENERGY ABSORBING
		APPROACH LF	CLASS A LF	TERMINAL EACH
18+54.4 - 19+04.4, RT	CTH M	---	---	1
19+04.4 - 19+54.4, LT	CTH M	---	---	1
19+04.4 - 19+54.4, RT	CTH M	---	50	---
19+54.4 - STRUCTURE, LT	CTH M	20.65	---	---
19+54.4 - STRUCTURE, RT	CTH M	20.65	---	---
STRUCTURE - 20+45.6 LT	CTH M	20.65	---	---
STRUCTURE - 20+45.6, RT	CTH M	20.65	---	---
20+45.6 - 20+95.6, LT	CTH M	---	50	---
20+45.6 - 20+95.6, RT	CTH M	---	---	1
20+95.6 - 21+45.6, LT	CTH M	---	---	1
TOTALS		82.6	100	4
ROUNDED TOTALS		83	100	4

ASPHALTIC ITEMS

STATION TO STATION	LOCATION	455.0105		460.3000	460.2000
		460.1100	ASPHALTIC	455.0605	460.2000
		HMA PAVEMENT TYPE E-0.3 TON	MATERIAL PG58-28 TON	TACK COAT GAL	QMP HMA MIXTURE TON
18+00 - STRUCTURE	CTH M	150	9	15	150
STRUCTURE - 22+00	CTH M	150	9	15	150
TOTALS		300	18	30	300

LANDSCAPING

ALL ITEMS ARE GROUP CODE 010 UNLESS NOTED OTHERWISE.

SIGNS REFLECTIVE TYPE II & POSTS WOOD

STATION TO STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	630.0200 SEEDING TEMPORARY LB	630.0175 SEEDING NO 75 LB	630.0160 SEEDING NO 60 LB	629.0210 FERTILIZER TYPE B CWT
18+00-STRUCTURE, LT	CTH M	200	---	3	3	2	0.2
18+00-STRUCTURE, RT	CTH M	200	---	3	3	2	0.2
STRUCTURE-22+00, LT	CTH M	150	---	2	2	1	0.2
STRUCTURE-22+00, RT	CTH M	150	---	2	2	1	0.2
UNDISTRIBUTED	CTH M	100	100	5	5	2	0.2
TOTALS		800	100	15	15	8	1.0

STATION	LOCATION	CODE	SIGN SIZE HORIZ X VERT IN X IN	GROUP 020 634.0412 WOOD POST 12' EACH	GROUP 020 637.0202 SIGNS REFLECTIVE TYPE II SF
19+70, RT	CTH M	W5-52R	12 X 36	1	3
19+70, LT	CTH M	W5-52L	12 X 36	1	3
20+30, RT	CTH M	W5-52L	12 X 36	1	3
20+30, LT	CTH M	W5-52R	12 X 36	1	3
TOTALS				4	12

SAWING EXISTING PAVEMENT

TURBIDITY BARRIER

STATION	LOCATION	690.0100 LF
18+00	CTH M	22
22+00	CTH M	22
TOTAL		44

STATION TO STATION	LOCATION	GROUP 020 628.6005 SY	REMARKS
18+00 - STRUCTURE	CTH M	325	HEIGHT = 7'
STRUCTURE - 22+00	CTH M	325	HEIGHT = 7'
TOTAL		650	

REMOVING SIGNS & SMALL SIGN SUPPORTS

STATION	LOCATION	GROUP 020 638.2602 REMOVING SIGNS TYPE II EACH	GROUP 020 638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARK
19+50	CTH M, RT	1	1	WEIGHT LIMIT SIGN
19+70	CTH M, LT & RT	2	2	LOCATE BRIDGE SIGN
20+30	CTH M, LT & RT	2	2	LOCATE BRIDGE SIGN
20+45	CTH M, LT	1	1	WEIGHT LIMIT SIGN
TOTALS		6	6	

CONSTRUCTION STAKING

STATION TO STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.9900 INITIAL LAYOUT LF	GROUP 020 650.6500 STRUCTURE LAYOUT LS
18+00 - 19+72.5	CTH M	172.5	172.5	172.5	---
STRUCTURE B-70-922	CTH M	---	---	---	1
20+27.5 - 22+00	CTH M	172.5	172.5	172.5	---
TOTALS		345	345	345	1

EROSION CONTROL ITEMS

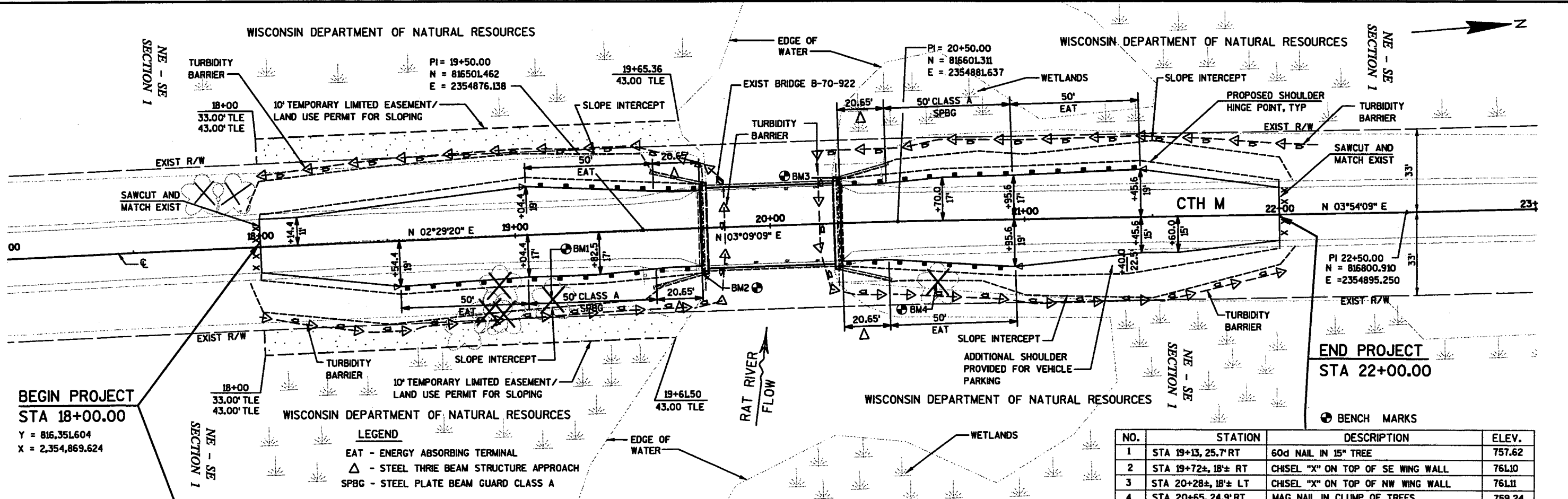
STATION TO STATION	LOCATION	GROUP 020 628.1504 SILT FENCE LF	GROUP 020 628.1905 EROSION CONTROL EACH	GROUP 020 628.1910 EROSION CONTROL EACH	628.2004 EROSION MAT CLASS I TYPE B SY
17+80 - STRUCTURE	LT CTH M	---	---	---	200
17+80 - STRUCTURE	RT CTH M	---	---	---	200
STRUCTURE - 22+00,	LT CTH M	---	---	---	150
STRUCTURE - 22+00,	RT CTH M	---	---	---	150
UNDISTRIBUTED	CTH M	200	2	2	100
TOTALS		200	2	2	800

PAVEMENT MARKING PAINT 4-INCH

STATION TO STATION	LOCATION	646.0103 EDGE LINE WHITE LF	646.0103 CENTERLINE DASHED LF
17+50-22+50	CTH M	1000	130
PROJECT TOTAL			1,130

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

WISCONSIN DEPARTMENT OF NATURAL RESOURCES



BEGIN PROJECT
STA 18+00.00
 Y = 816,351.604
 X = 2,354,869.624

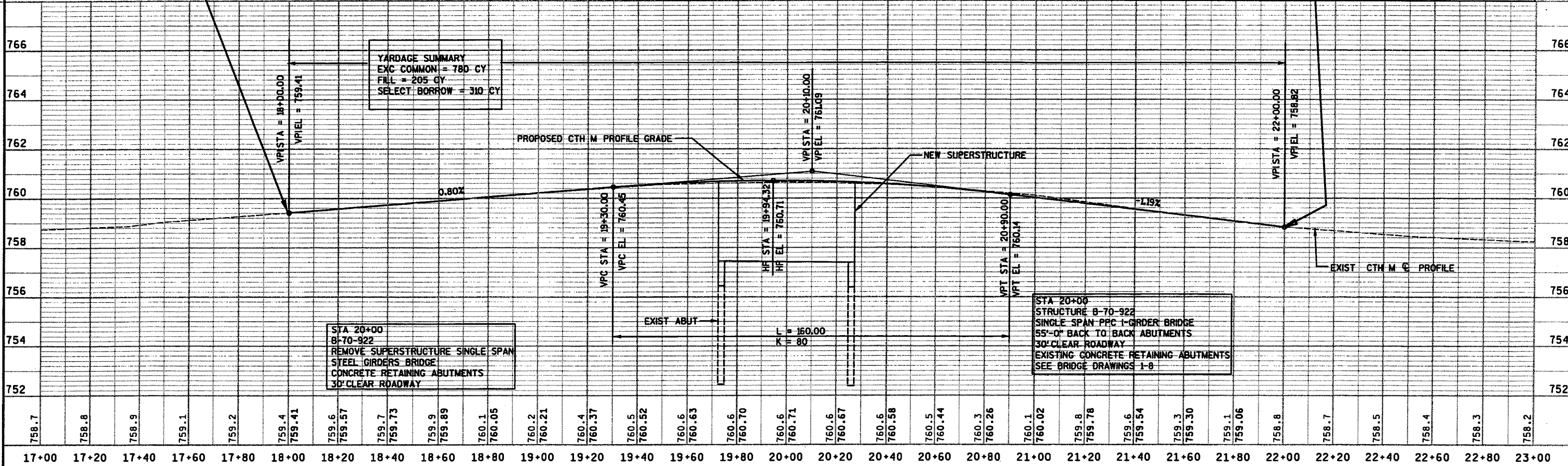
LEGEND
 EAT - ENERGY ABSORBING TERMINAL
 Δ - STEEL THREE BEAM STRUCTURE APPROACH
 SPBG - STEEL PLATE BEAM GUARD CLASS A

NO.	STATION	DESCRIPTION	ELEV.
1	STA 19+13, 25.7' RT	60d NAIL IN 15" TREE	757.62
2	STA 19+72±, 18'± RT	CHISEL "X" ON TOP OF SE WING WALL	761.10
3	STA 20+28±, 18'± LT	CHISEL "X" ON TOP OF NW WING WALL	761.11
4	STA 20+65, 24.9' RT	MAG NAIL IN CLUMP OF TREES	759.24

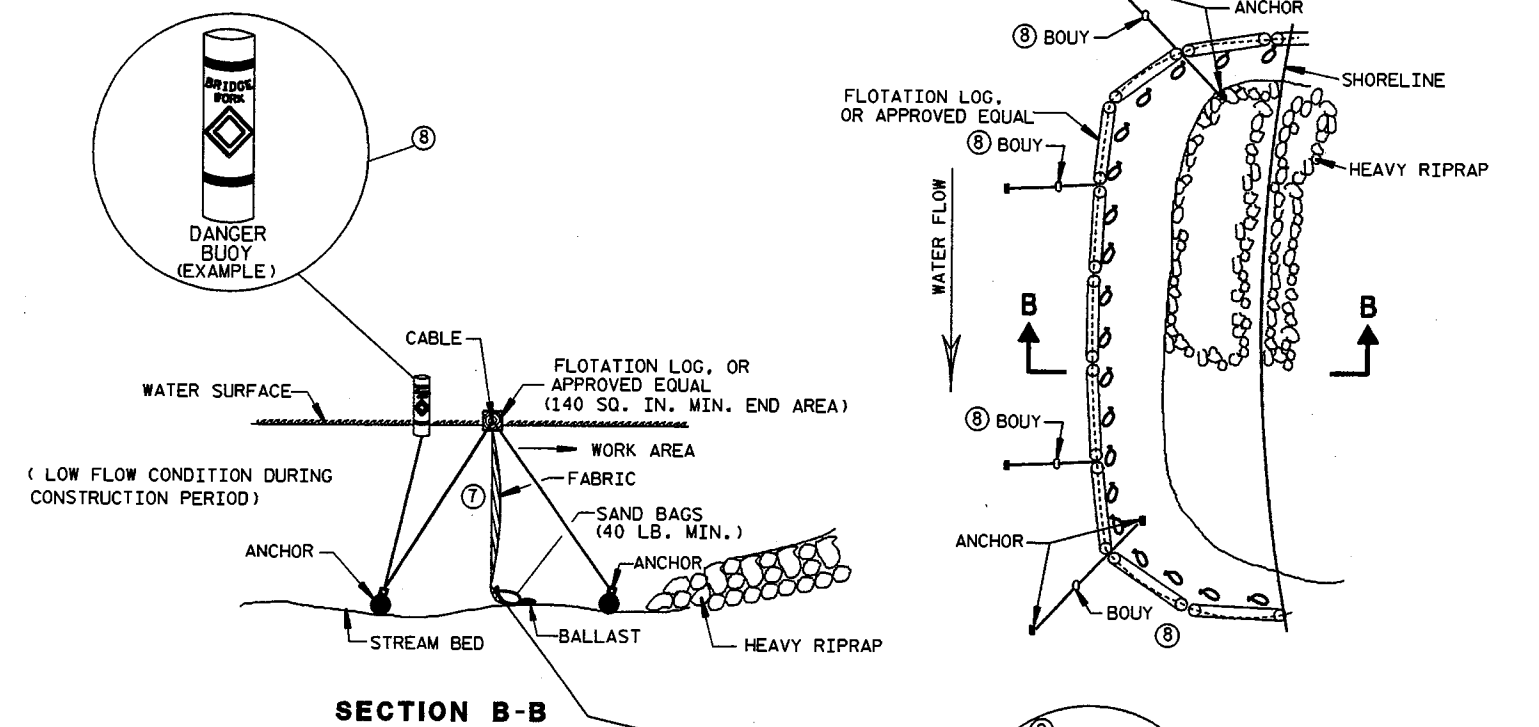
YARDAGE SUMMARY
 EXC COMMON = 780 CY
 FILL = 205 CY
 SELECT BORROW = 310 CY

STA 20+00
 8-70-922
 REMOVE SUPERSTRUCTURE SINGLE SPAN
 STEEL GIRDERS BRIDGE
 CONCRETE RETAINING ABUTMENTS
 30' CLEAR ROADWAY

STA 20+00
 STRUCTURE 8-70-922
 SINGLE SPAN PPC I-GIRDER BRIDGE
 55'-0" BACK TO BACK ABUTMENTS
 30' CLEAR ROADWAY
 EXISTING CONCRETE RETAINING ABUTMENTS
 SEE BRIDGE DRAWINGS 1-8

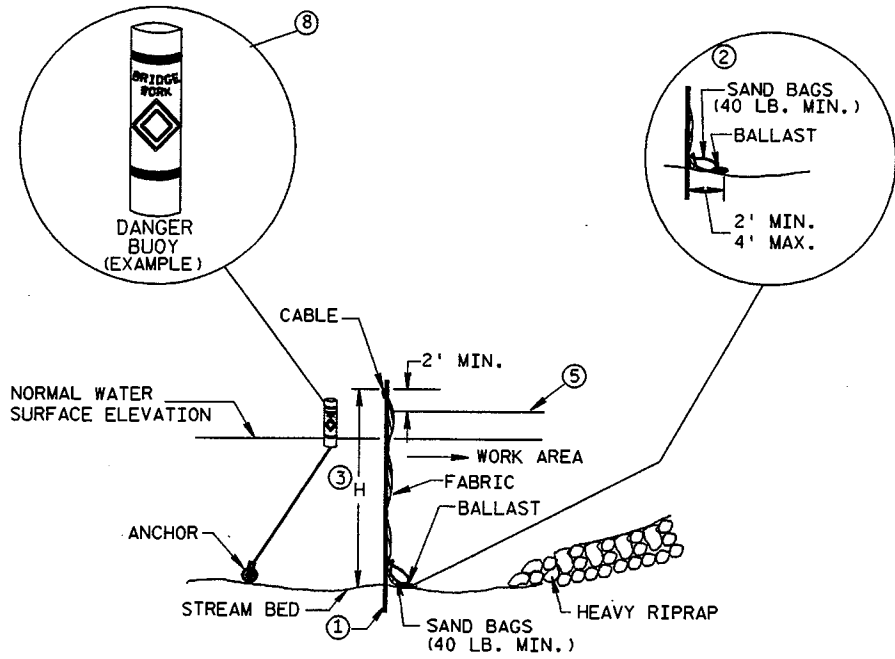
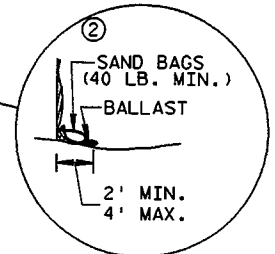


PROJECT NUMBER: 6480-00-71 HWY: CTH M COUNTY: WINNEBAGO PLAN AND PROFILE: CTH M SHEET NO: . 9 E



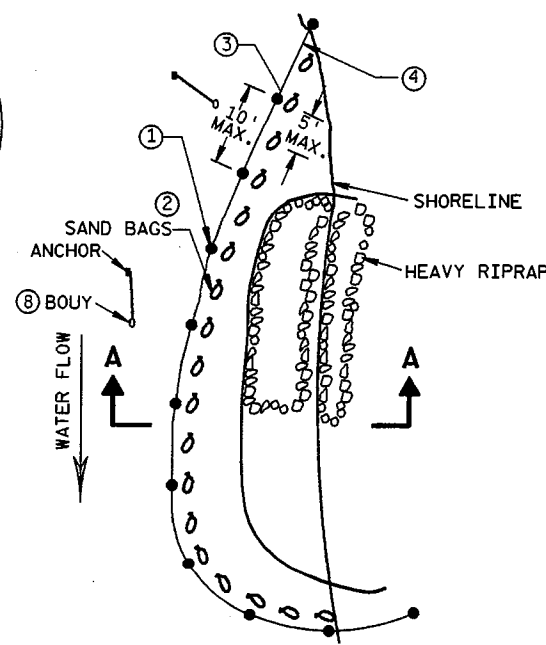
SECTION B-B

TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A

TURBIDITY BARRIER STANDARD POST INSTALLATION



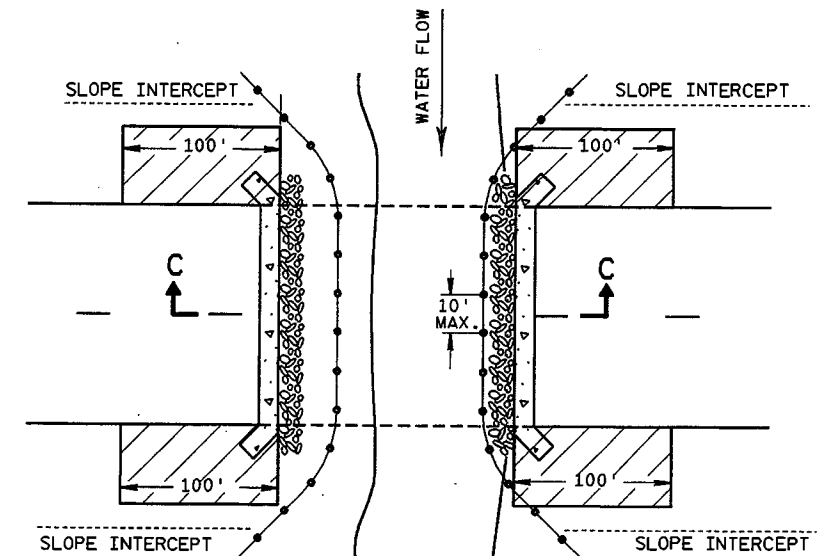
PLAN VIEW

GENERAL NOTES

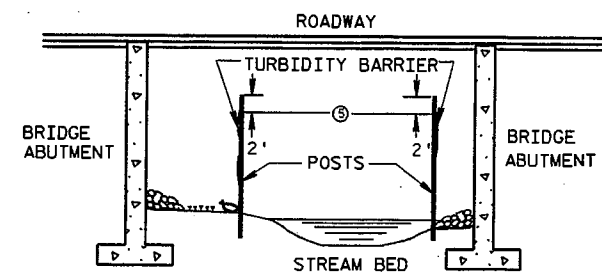
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



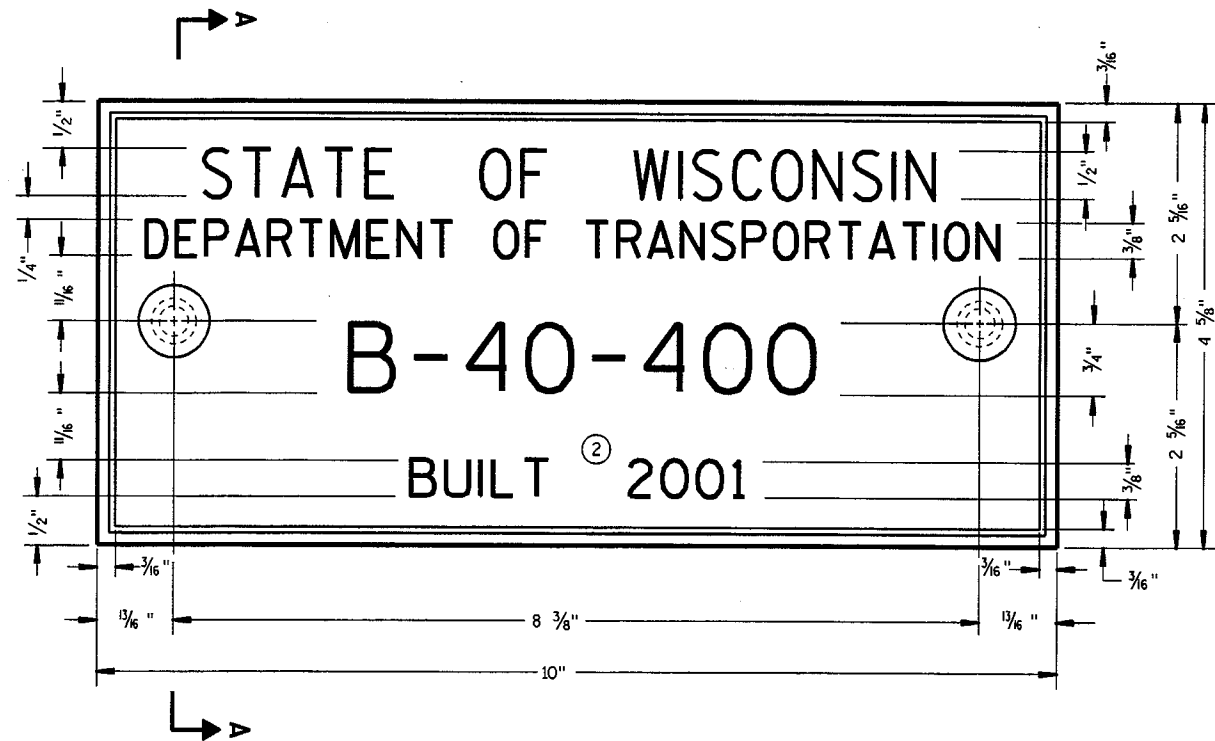
PLAN VIEW



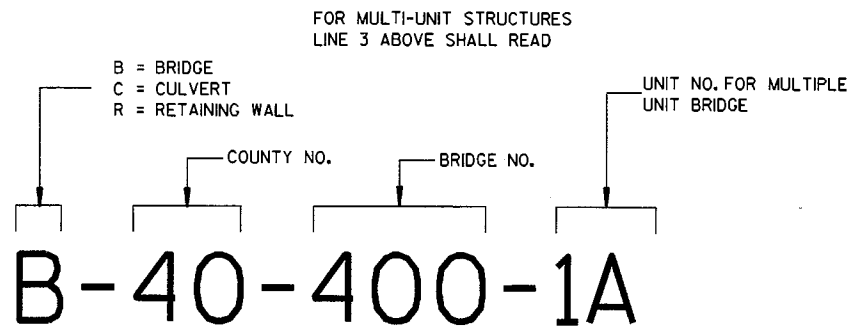
SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4/4/02 DATE	 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



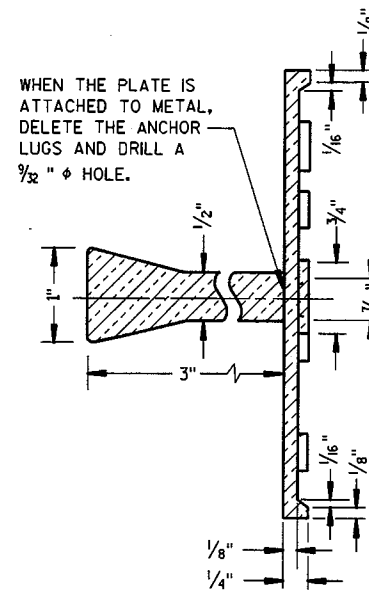
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

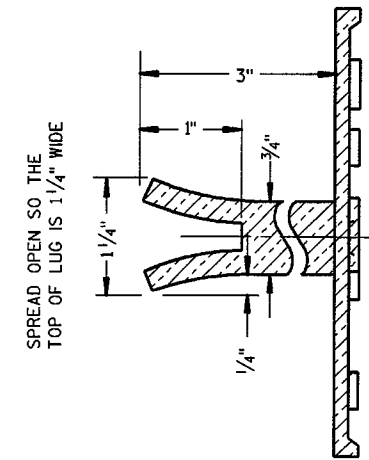
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 506.2.4 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

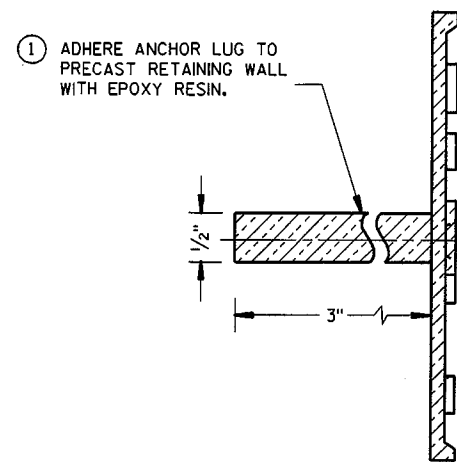
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/28/04 DATE	<i>Stanley W. Woods</i> CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

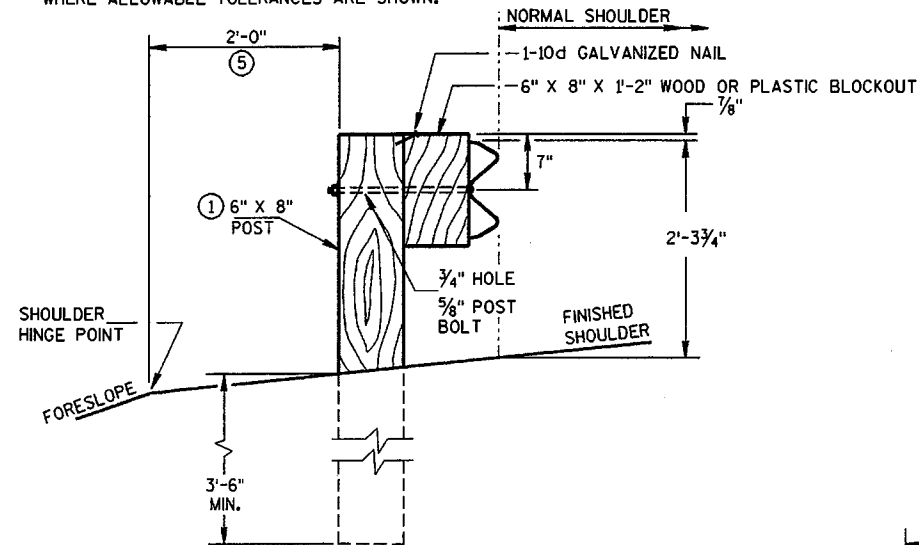
- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO AASHTO M183. GALVANIZE ACCORDING TO AASHTO M 111 EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPALTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ WHEN SPECIFIED IN THE PLANS, THE 2-FOOT MINIMUM TO HINGE POINT MAY BE REDUCED OR ELIMINATED IF EXISTING CONDITIONS DO NOT PERMIT THE DESIRABLE EARTHWORK.

INCREASE POST LENGTH TO PROVIDE A MINIMUM EMBEDMENT OF 3'-6" IF THE SHOULDER HINGE POINT IS LOCATED IN FRONT OF THE POST.

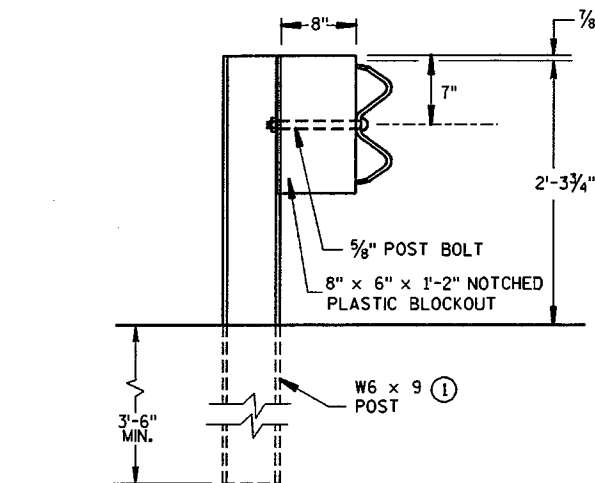
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP, CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

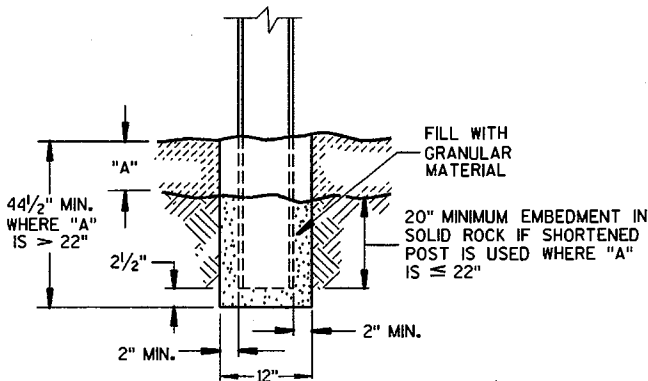
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



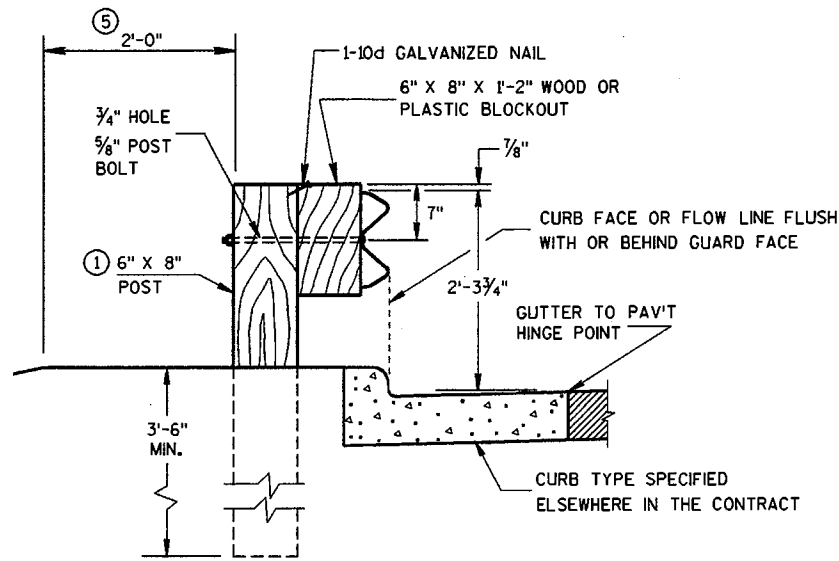
**END VIEW
LOCATED ALONG A ROADWAY SHOULDER**



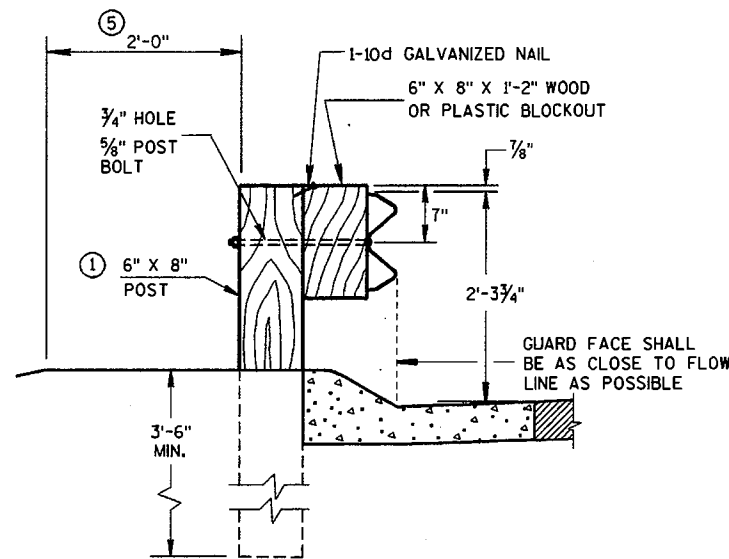
**END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE**



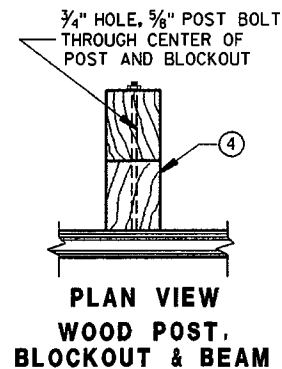
**END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥**



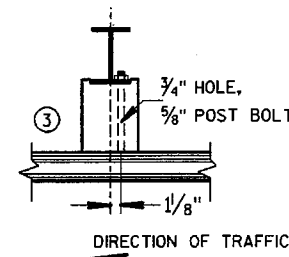
**END VIEW
LOCATED ALONG A CURBED ROADWAY**



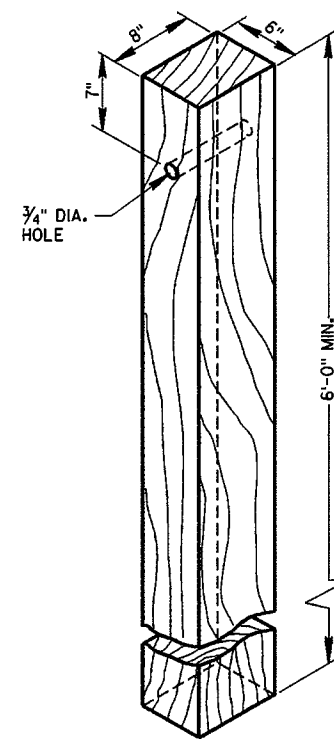
**END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY**



**PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM**

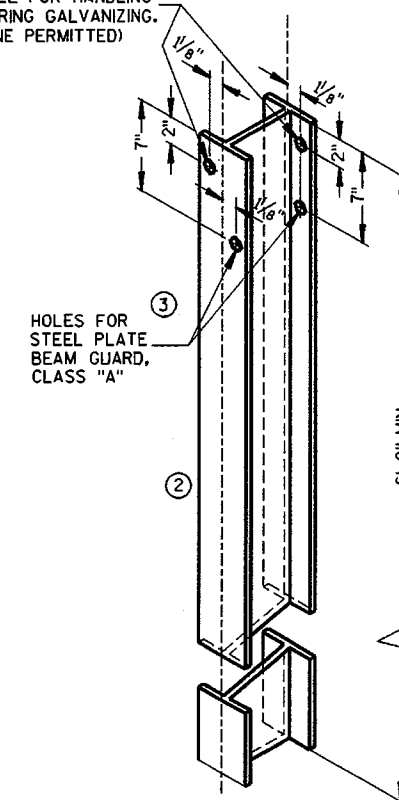


**PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM**



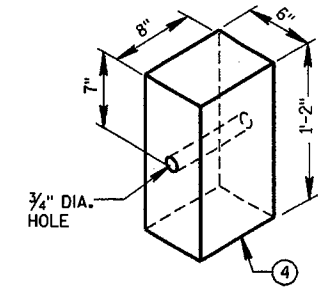
**WOOD POST
(6" X 8") NOMINAL**

OPTIONAL 1 3/16" DIA.
HOLE FOR HANDLING
DURING GALVANIZING.
(ONE PERMITTED)

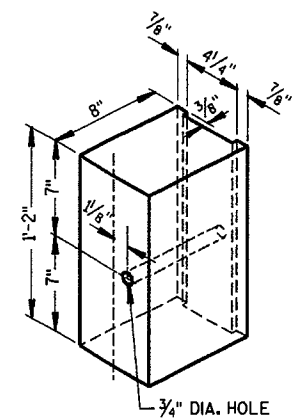


**STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) ①**

ALL HOLES 1 3/16" DIAMETER EXCEPT AS NOTED



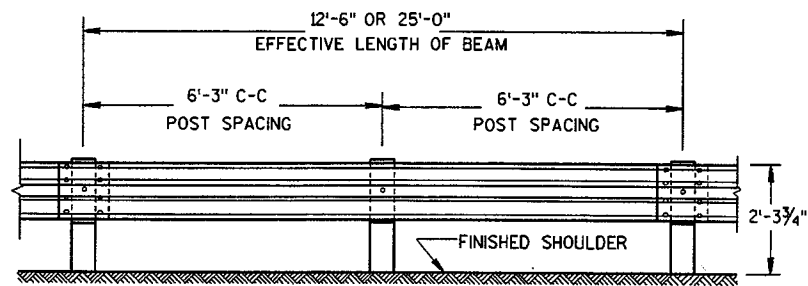
**WOOD OR PLASTIC
BLOCKOUT FOR WOOD POSTS**



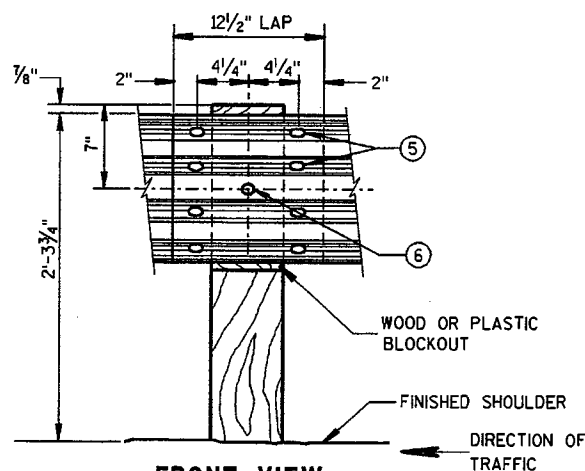
**NOTCHED PLASTIC BLOCKOUT
FOR STEEL POSTS**

**STEEL PLATE BEAM GUARD,
CLASS 'A'
INSTALLATION & ELEMENTS**

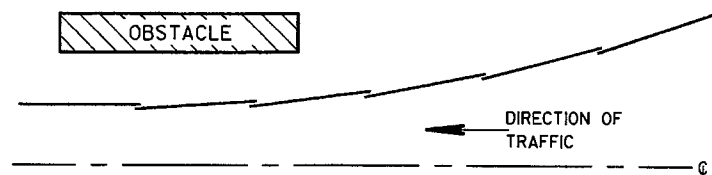
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



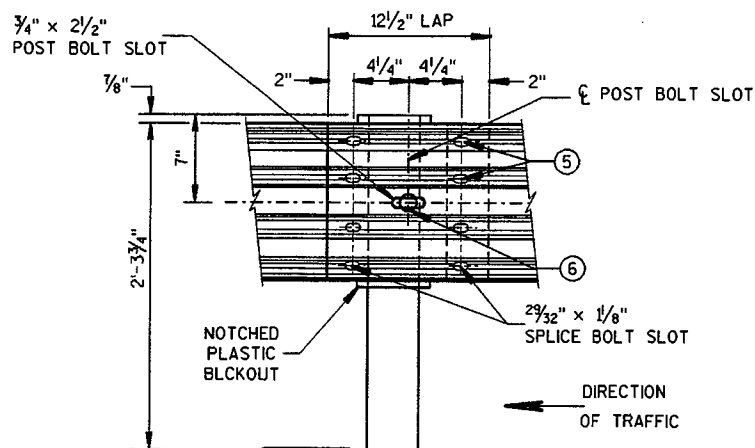
FRONT VIEW



FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



PLAN VIEW
BEAM LAPPING DETAIL

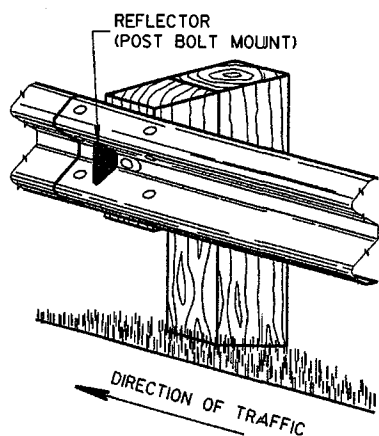


FRONT VIEW
BEAM SPLICE AT STEEL POST

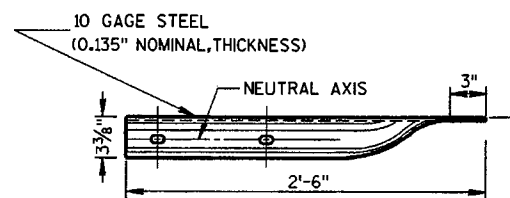
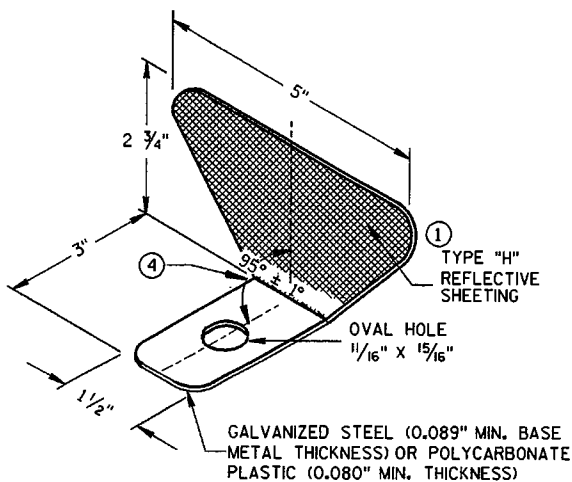
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

REFLECTOR SPACING ②

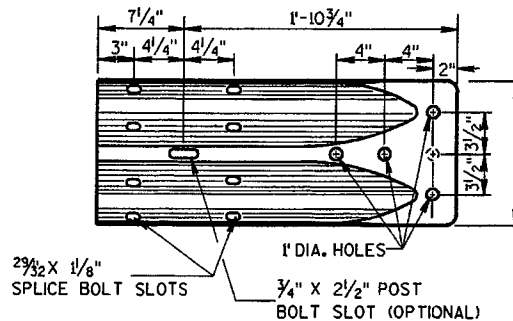
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①



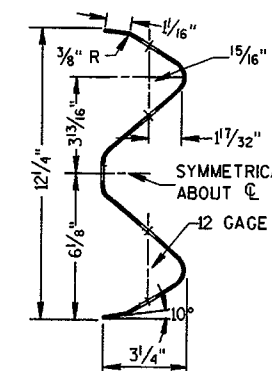
PLAN VIEW



FRONT VIEW

W BEAM TERMINAL CONNECTOR

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION THRU W BEAM

GENERAL NOTES

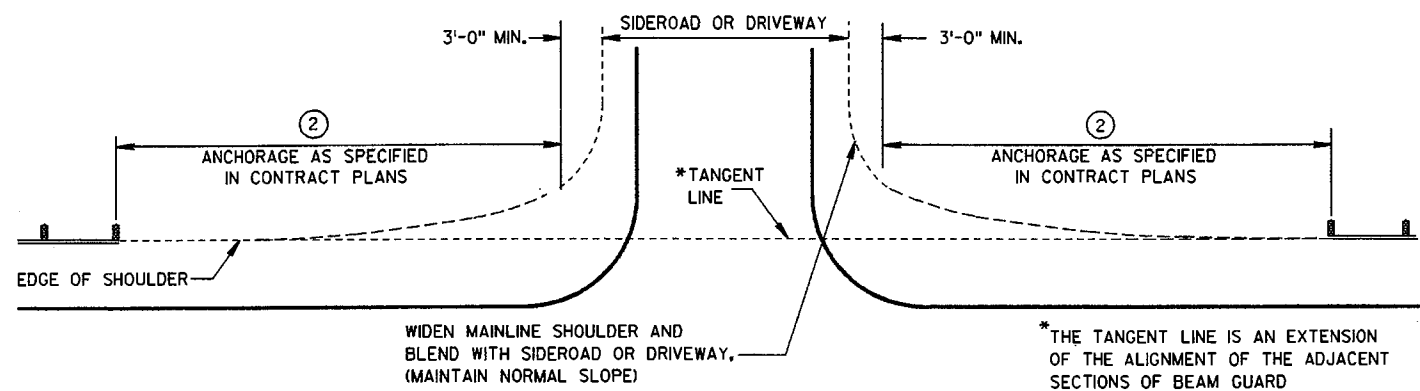
- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - 5/8" φ × 1 1/4" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ 5/8" φ × 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.

STEEL PLATE BEAM GUARD,
CLASS 'A',
INSTALLATION & ELEMENTS

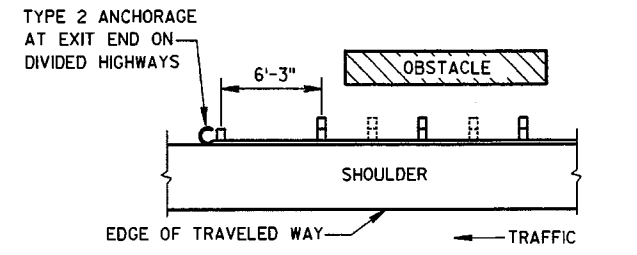
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/08/00
DATE
John Havelberg
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



BEAM GUARD AT SIDEROADS OR DRIVEWAYS



**BEAM GUARD AT OBSTACLES
EXIT END - ONE WAY TRAFFIC**

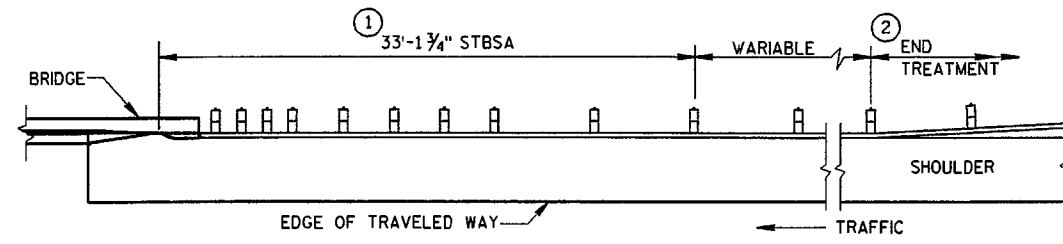
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
 W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
 THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

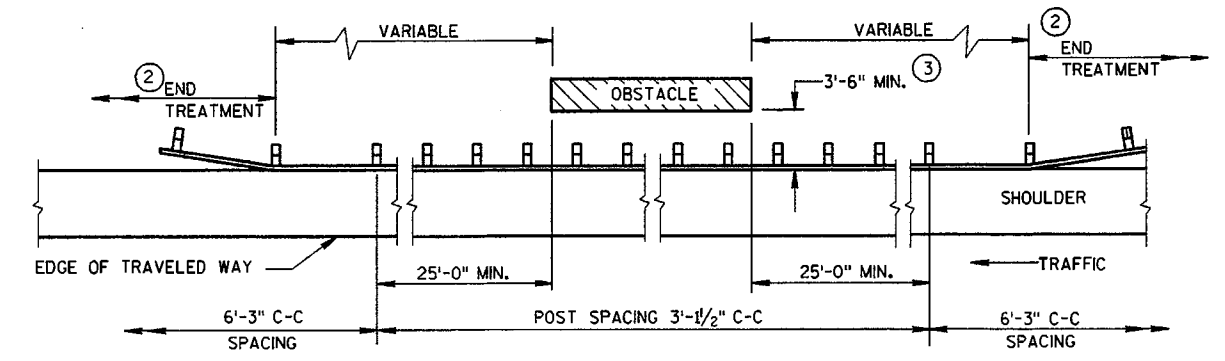
- ① USE STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA).
- ② USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

**③ DESIGN DEFLECTION OF
W-BEAM BARRIER SYSTEM**

LATERAL DISTANCE TO FIXED OBJECT	POST SPACING
3'-6" TO 4'-6"	3' - 1/2"
4'-6" AND OVER	6' - 3"

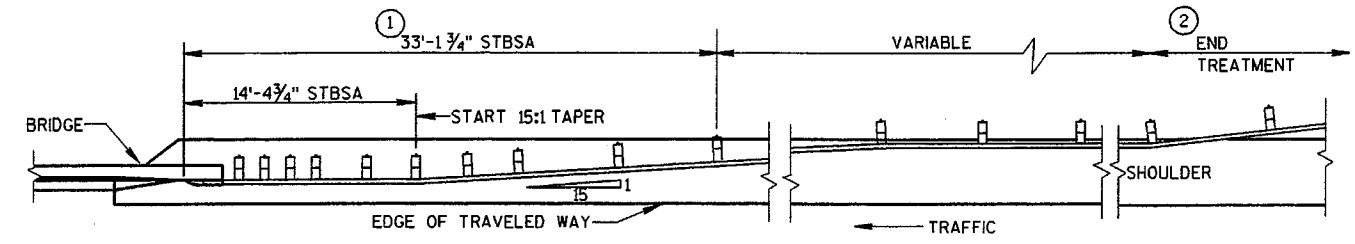


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")



**BEAM GUARD AT NARROW BRIDGES
(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)**

S.D.D. 14 B 18-4a

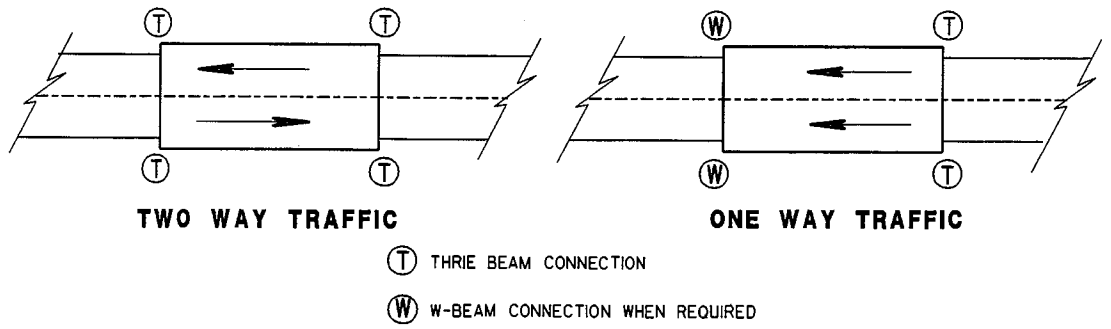
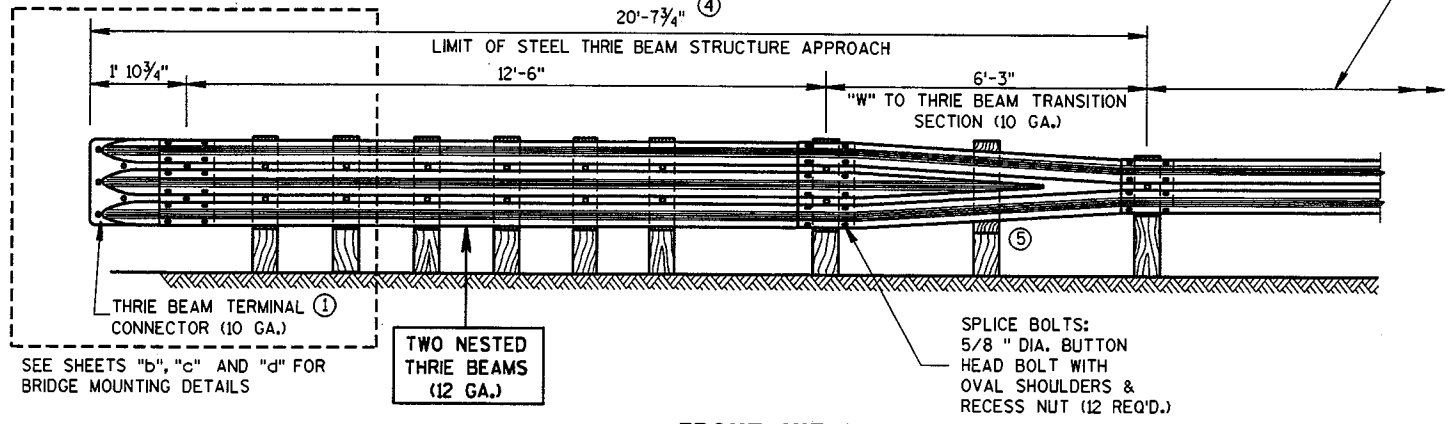
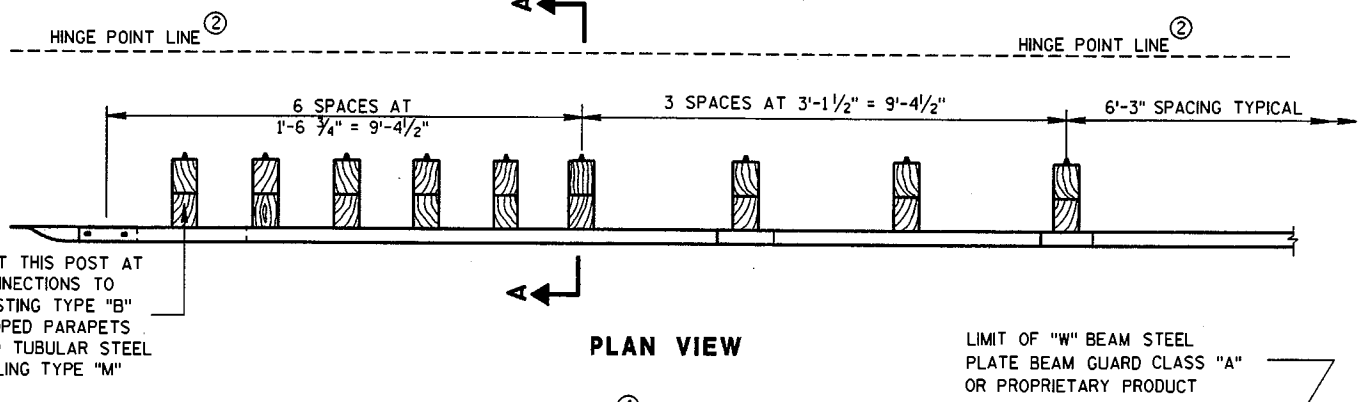
**STEEL PLATE BEAM GUARD,
CLASS 'A'
(AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

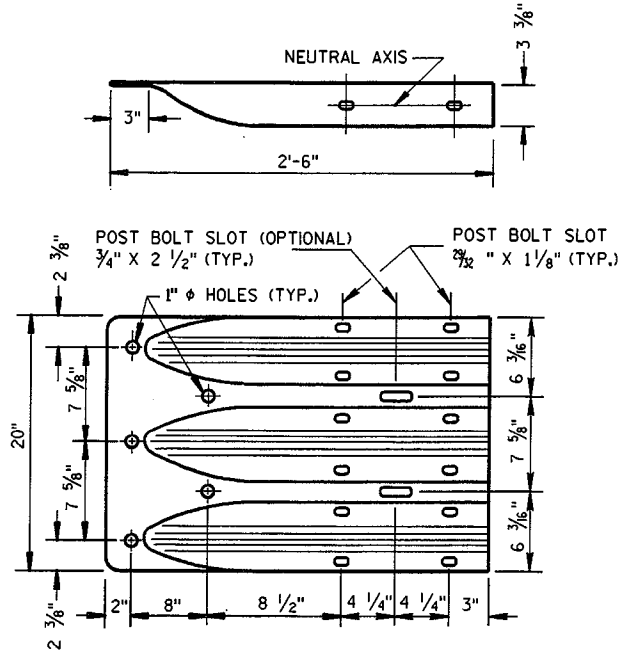
APPROVED
DATE 12/08/00
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

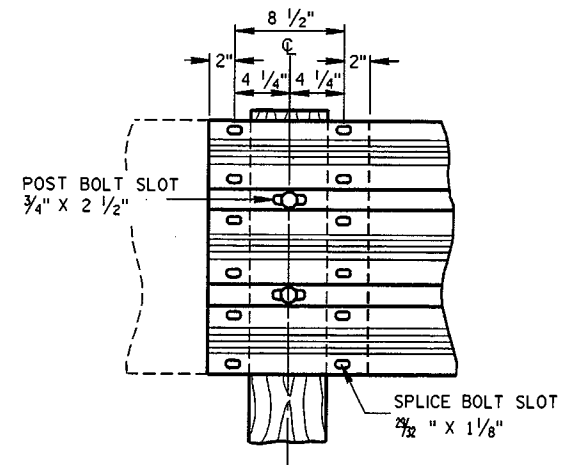
S.D.D. 14 B 18-4a



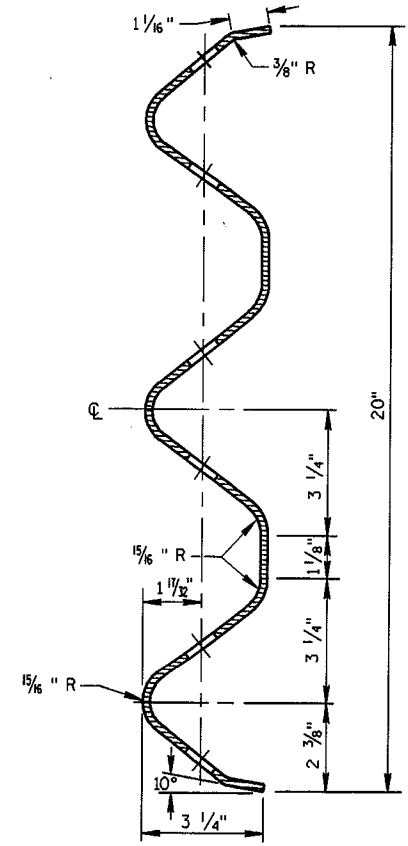
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



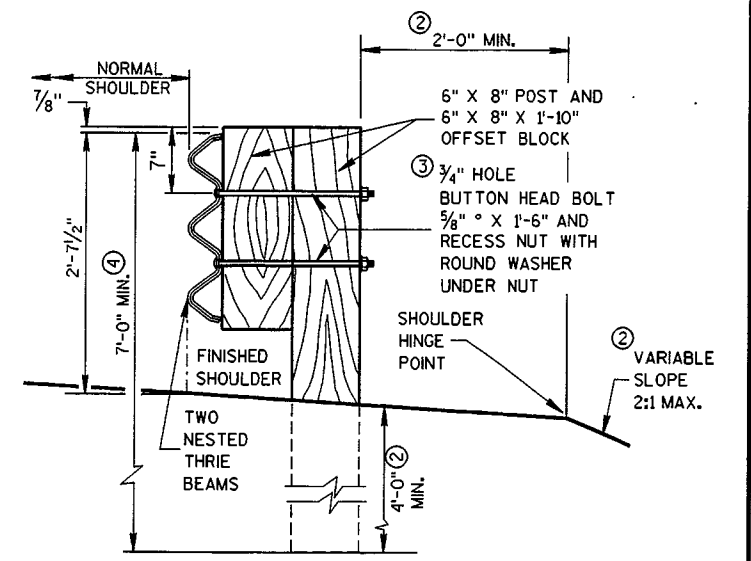
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

FURNISH AND CONSTRUCT THRIE BEAM STRUCTURAL APPROACH ACCORDING TO THE REQUIREMENTS OF SECTION 614 OF THE STANDARD SPECIFICATIONS. THRIE BEAM SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M180, CLASS "A", TYPE 2.

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

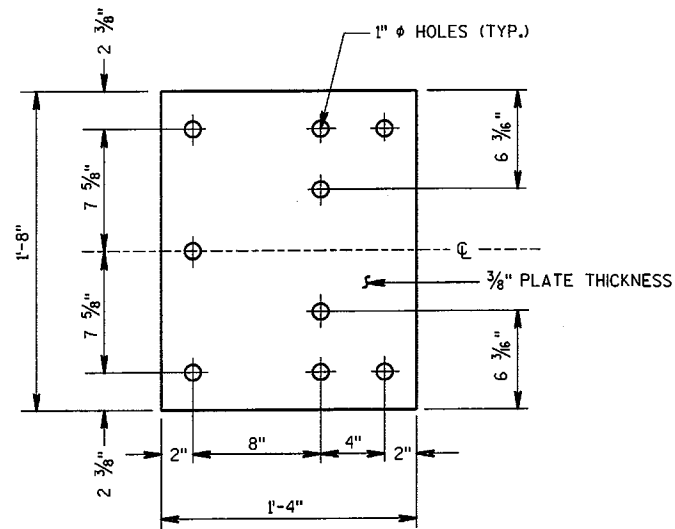
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY, (SEE SDD 14 B 15-4a).

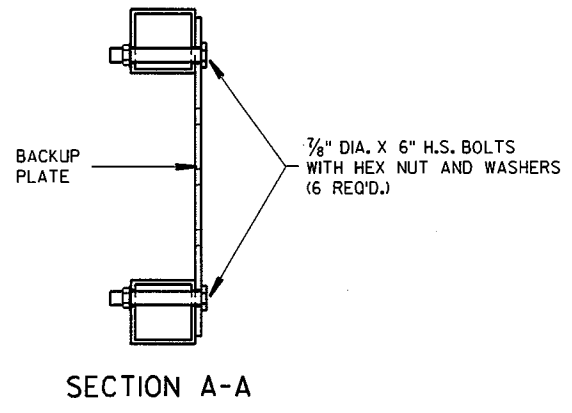
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F-1554, GRADE 55. NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-563 DH.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.
- ⑤ DO NOT ATTACH POST IN "W" TO THRIE BEAM TRANSITION SECTION.

**STEEL THRIE BEAM
STRUCTURE APPROACH**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



BACK-UP PLATE DETAIL

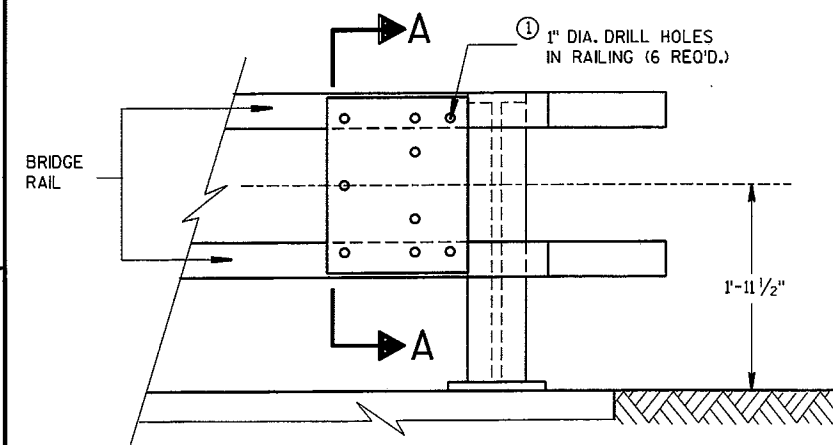


SECTION A-A

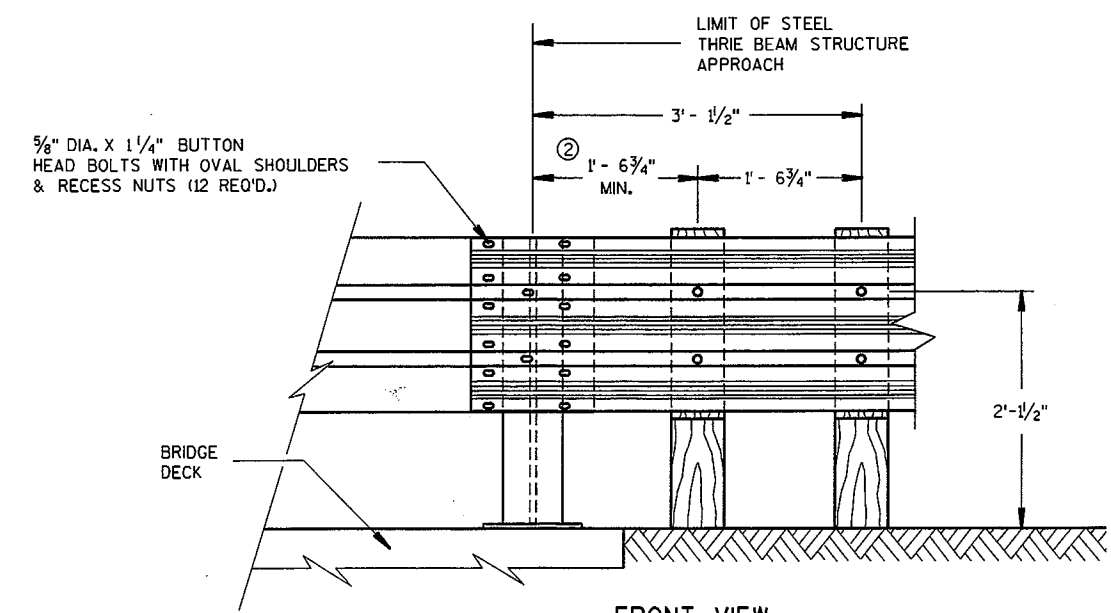
GENERAL NOTES

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

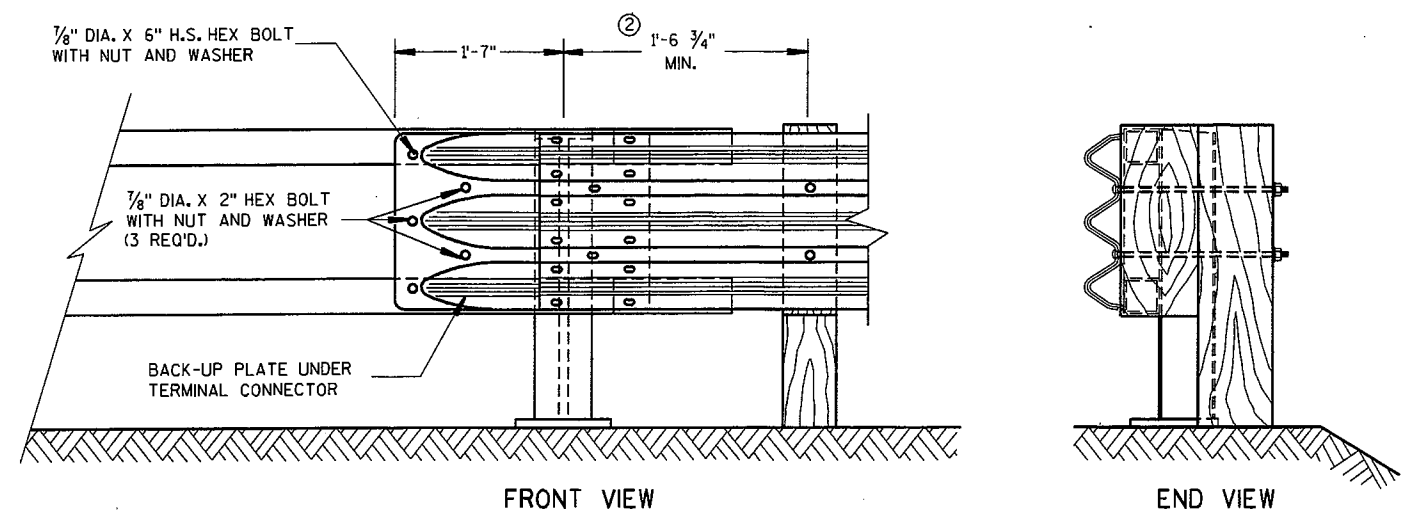
- ① INCLUDE THE PAYMENT FOR DRILLING HOLES IN RAILING IN THE ITEM "STEEL THRIE BEAM STRUCTURE APPROACH".
- ② VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL AS CLOSE AS FEASIBLE TO THE STEEL END POST.



BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW

END VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

6

6

S.D.D. 14 B 20-7d

S.D.D. 14 B 20-7d

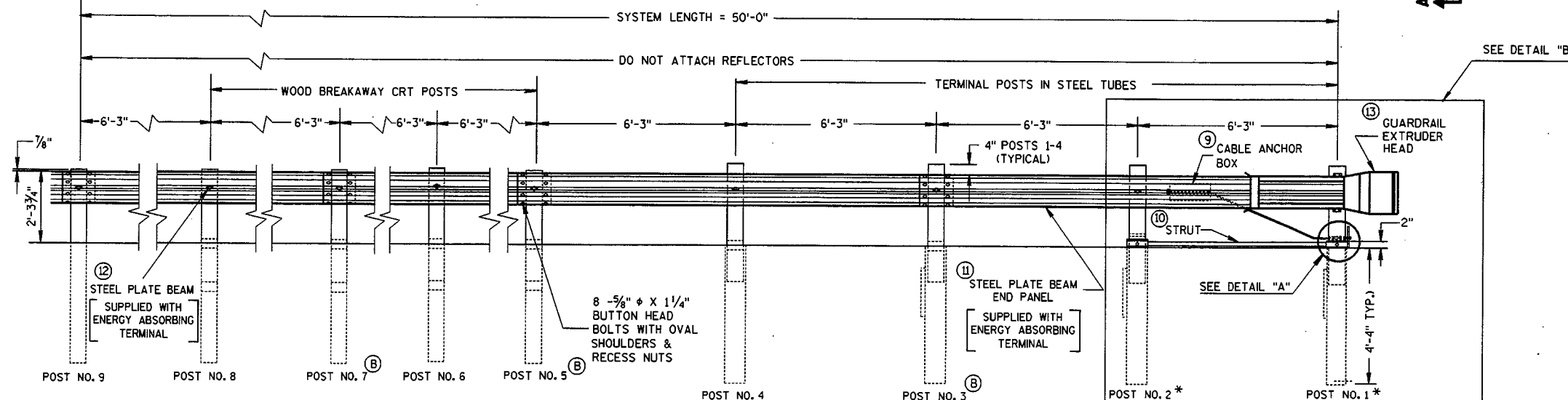
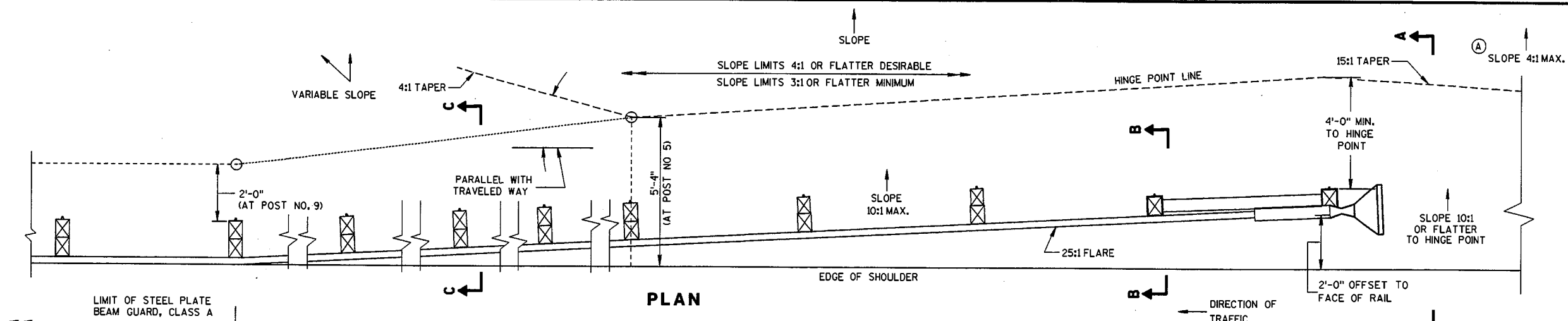
STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 08/14/04 DATE	<i>[Signature]</i> CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

BILL OF MATERIALS

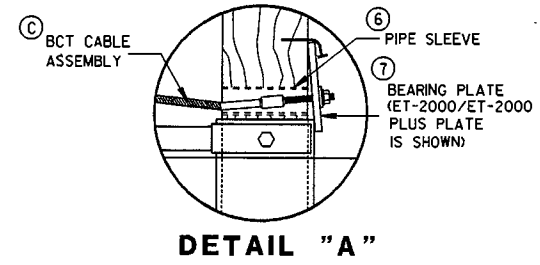
NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	4	STEEL TUBE: TS 8" X 6" X 0.188", 4'-6" LONG
③	4	SOIL PLATE: 2'-0" X 1'-6" X 1/4"
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6" X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING: 18" X 18"

GENERAL NOTES

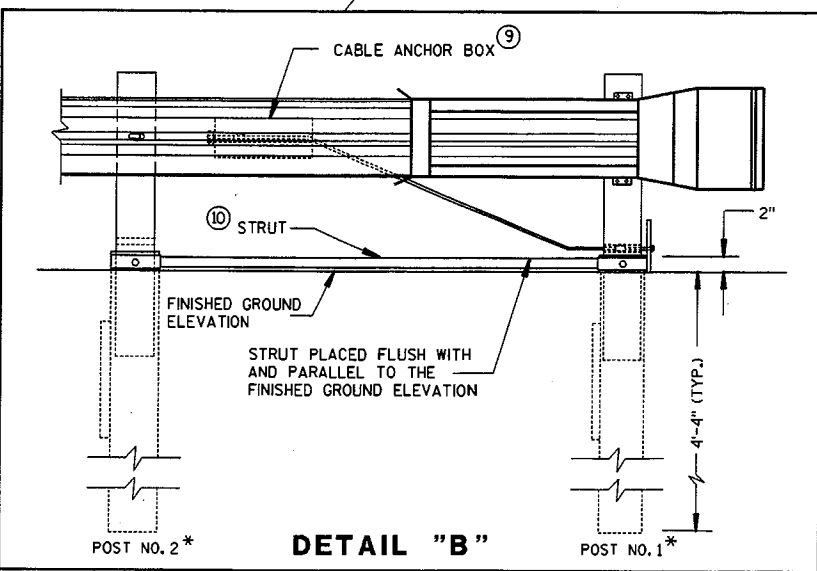
- (A) USE 3:1 OR FLATTER SLOPE FOR INSTALLATION ON EXISTING HIGHWAYS.
 - (B) DO NOT ATTACH GUARDRAIL TO POST BLOCKS AT POSTS NO. 3, 5 & 7.
 - (C) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



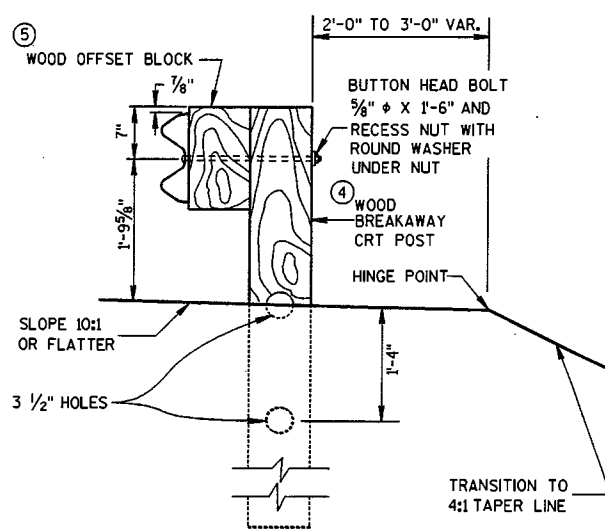
ELEVATION



DETAIL "A"

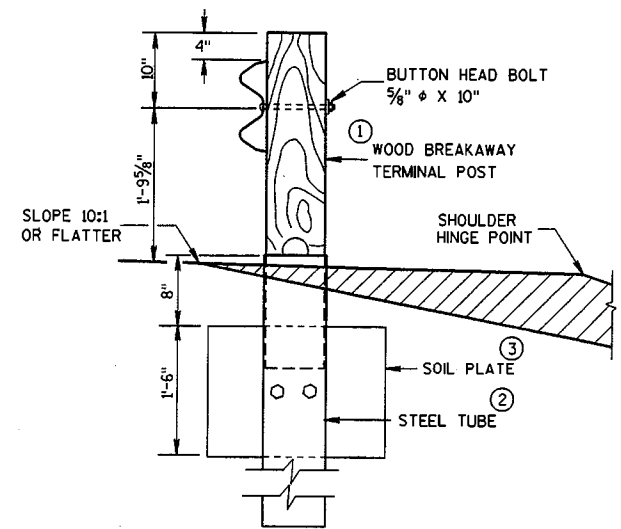


DETAIL "B"



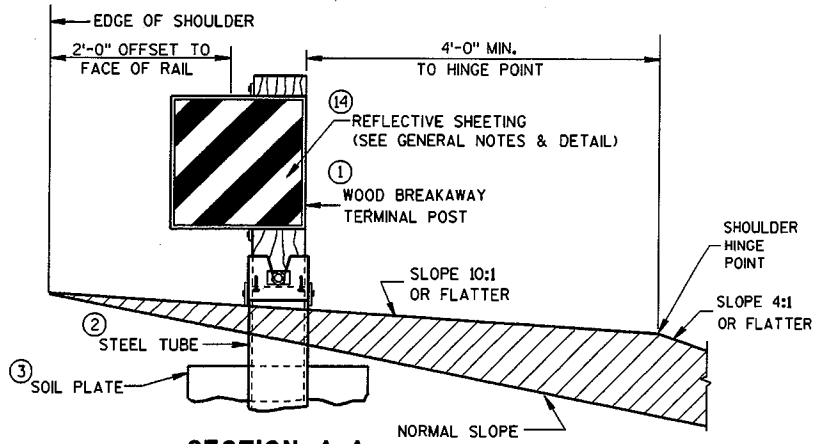
SECTION C-C

TYPICAL AT POST NOS. 4, 6, 8



SECTION B-B

TYPICAL AT POST NO. 2*



SECTION A-A

TYPICAL AT POST NO. 1*

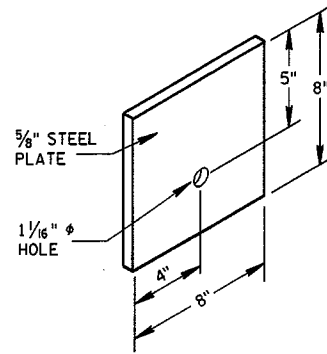
STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

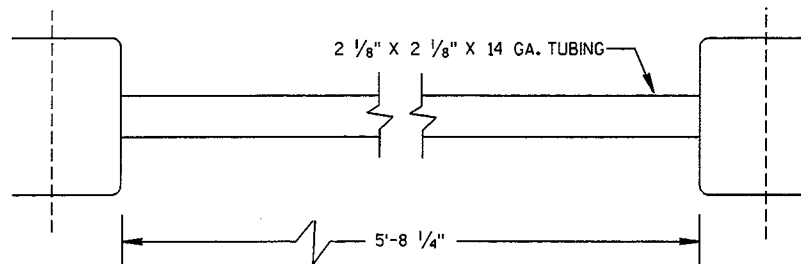
S.D.D. 14 B 24-40

6

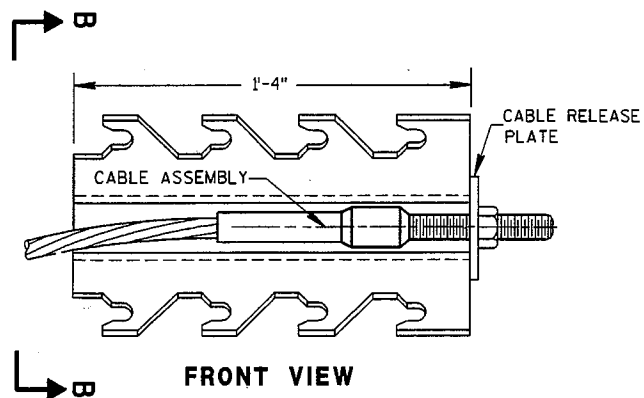
S.D.D. 14 B 24-40



STEEL BEARING PLATE (SKT-350)



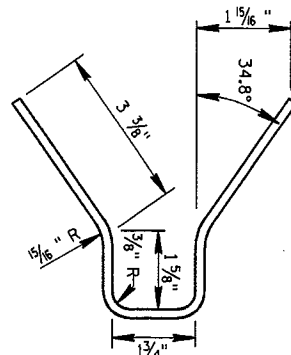
STRUT DETAIL (SKT-350)



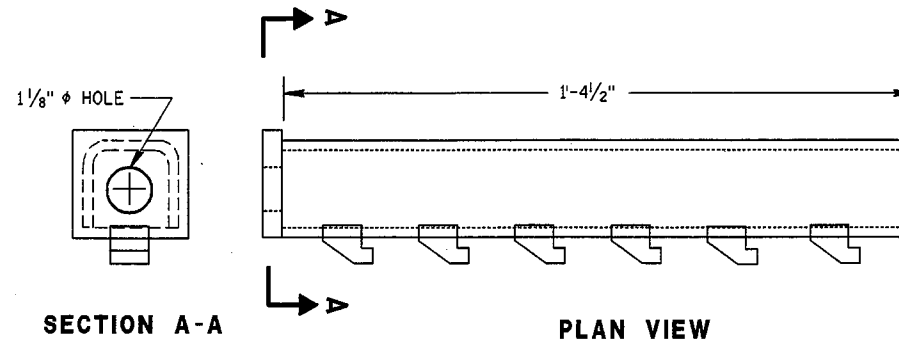
FRONT VIEW

CABLE ANCHOR BOX (SKT-350)

(SKT-350)



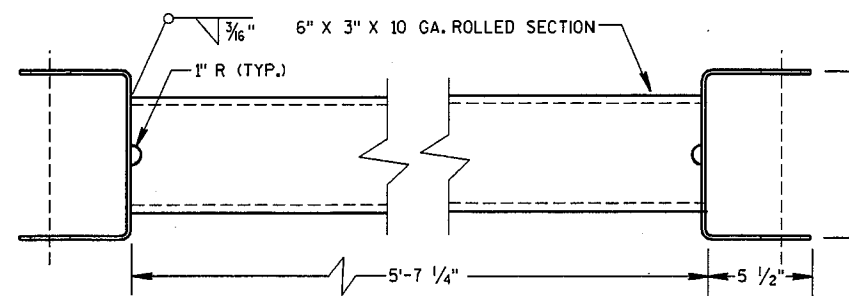
SECTION B-B



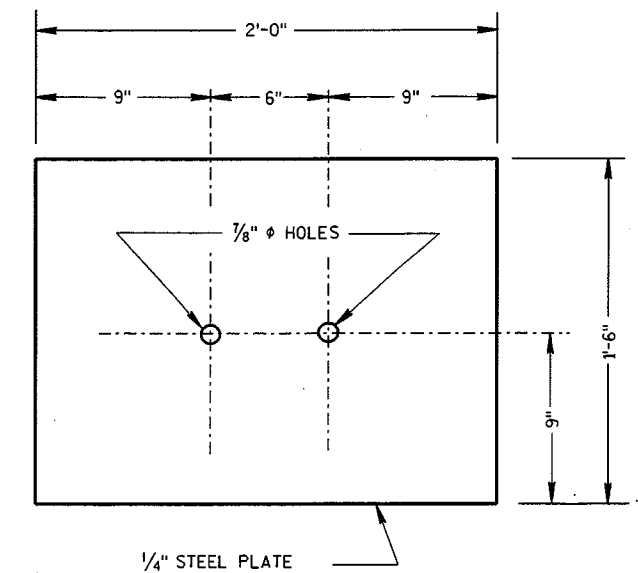
SECTION A-A

PLAN VIEW

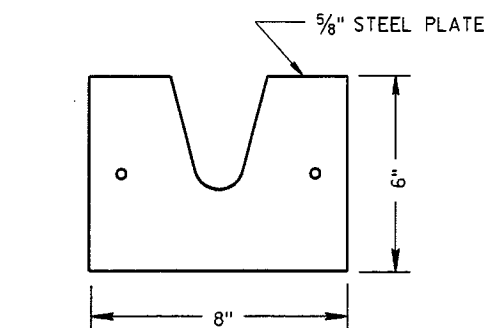
CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



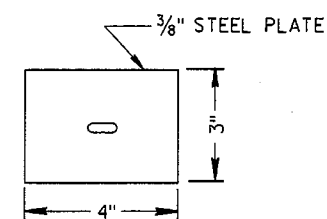
STRUT DETAIL (ET-2000/ET-2000 PLUS)



**SOIL PLATE
(SKT-350, ET-2000/ET-2000 PLUS)**



**STEEL BEARING PLATE
(ET-2000/ET-2000 PLUS)**

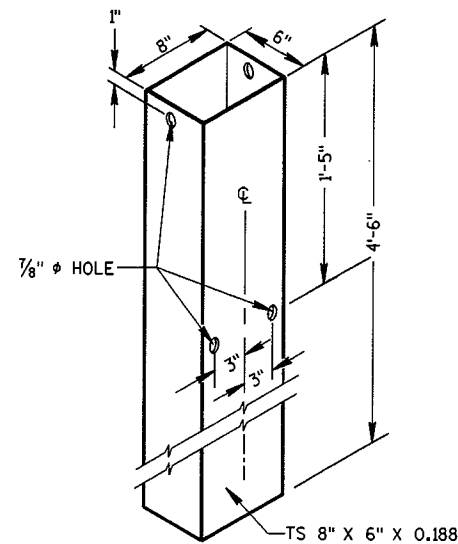


**BEARING PLATE WASHER
(ET-2000/ET-2000 PLUS)**

(ET-2000/ET-2000 PLUS)

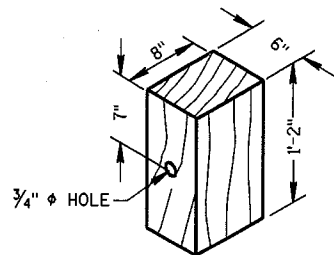
**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



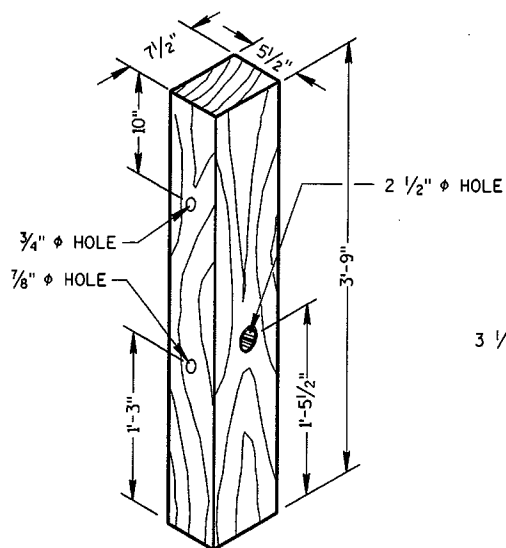
STEEL TUBE

(POSTS NO. 1-4)
THE STEEL TUBE SHALL CONFORM TO REQUIREMENTS OF ASTM A500



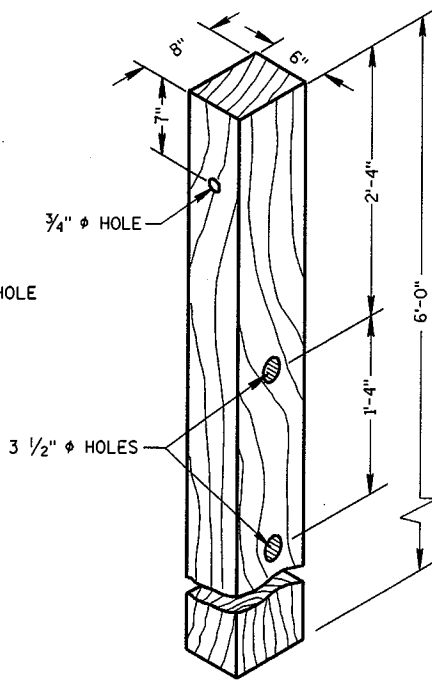
WOOD OFFSET BLOCK

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



TERMINAL POST

(POSTS NO. 1-4)



CRT POST

(POSTS NO'S 5-8)

WOOD BREAKAWAY POSTS

GENERAL NOTES

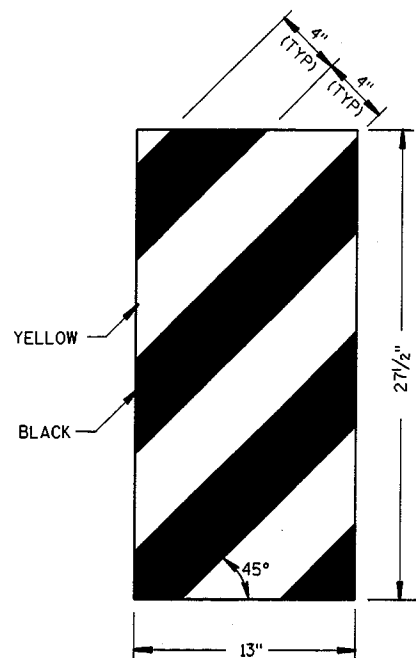
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, APPLICABLE SPECIAL PROVISIONS AND MANUFACTURERS INSTRUCTIONS.

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL SHALL BE EITHER THE EXTRUDER TERMINAL (ET-2000), OR THE SEQUENTIAL KINKING TERMINAL (SKT-350). THE CONTRACTOR SHALL NOT INTERMIX PROPRIETARY PRODUCT MATERIALS.

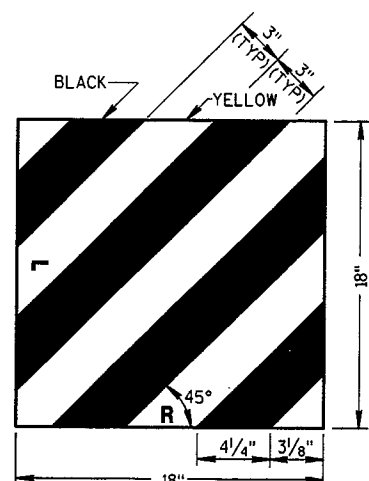
STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

REFLECTIVE SHEETING - SHALL CONFORM TO ASTM SPECIFICATION D4956-94, REFLECTIVE SHEETING TYPE III, BACKING CLASS 4, PERFORMANCE REQUIREMENT TYPE III. THE MESSAGE AND LINES SHALL BE APPLIED TO THE SIGNS BY THE SILK SCREEN STENCIL PROCESS USING A BLACK OR DARK STENCIL PASTE AS A TYPE APPROVED BY THE MANUFACTURER OF THE FACE MATERIAL TO WHICH IT IS TO BE APPLIED. MESSAGE UNITS CUT FROM NONREFLECTIVE SHEETING AND APPLIED TO THE SIGN FACE ARE NOT ACCEPTABLE. AFTER THE APPROACH END OF THE STEEL PLATE BEAM GUARD INSTALLATION IS COMPLETE, CLEAN THE AREA WHERE THE REFLECTIVE SHEETING WILL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION. ONCE CLEAN, APPLY REFLECTIVE SHEETING DIRECTLY TO THE STEEL PLATE BEAM GUARD AS SHOWN. THE CONTRACTOR SHALL TURN OVER THE MANUFACTURERS WARRANTY FOR THE REFLECTIVE SHEETING TO THE DEPARTMENT FOR POTENTIAL DEALING WITH THE MANUFACTURER. PAYMENT OF REFLECTIVE SHEETING IS INCIDENTAL TO STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL.

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



ET-2000 PLUS ONLY



ET-2000 AND SKT-350

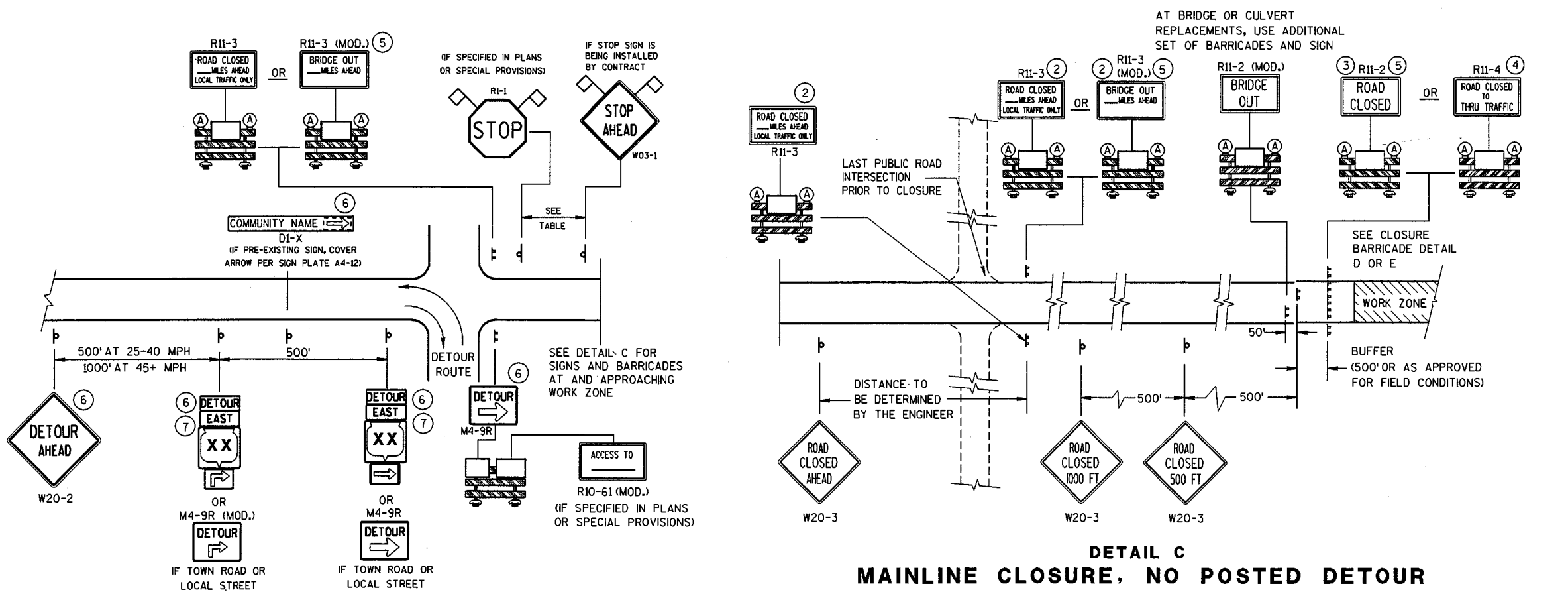
REFLECTIVE SHEETING DETAILS

**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

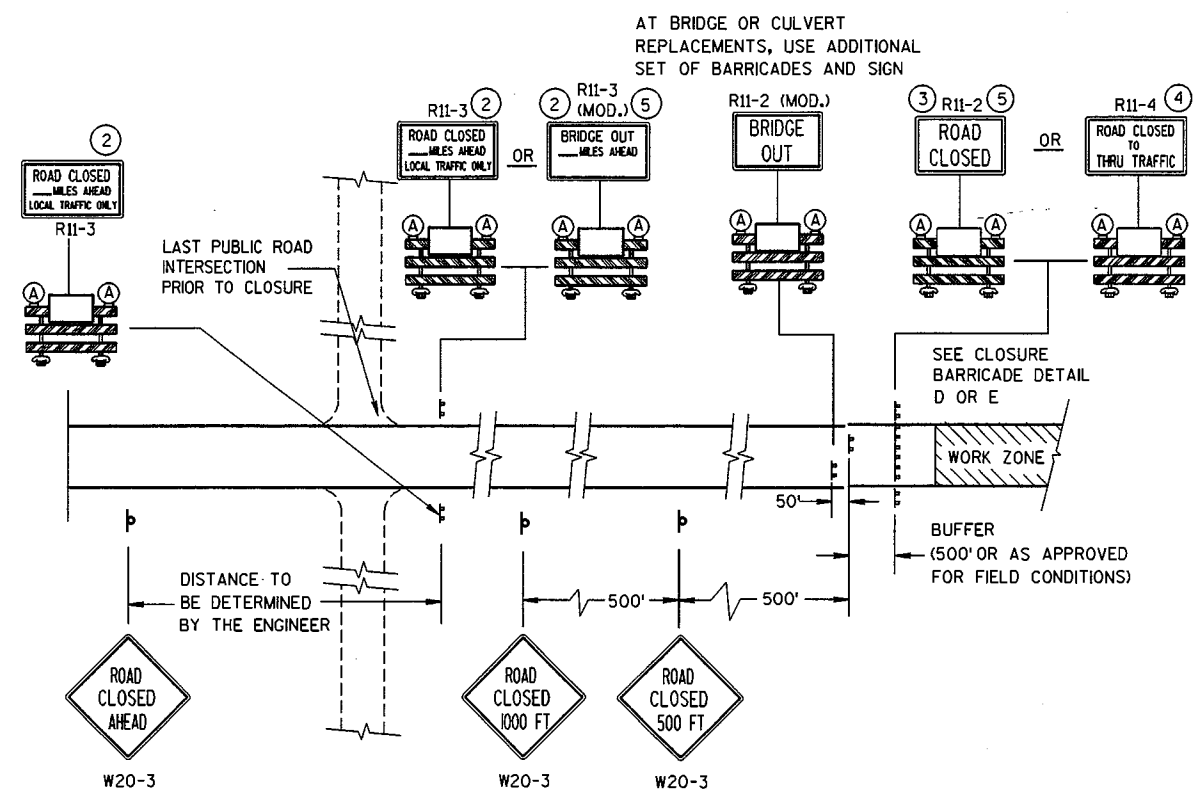
APPROVED
DATE 6/25/03
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

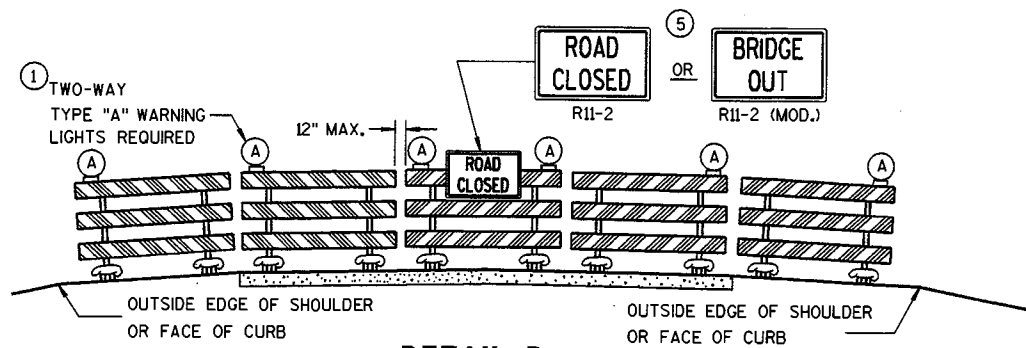
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

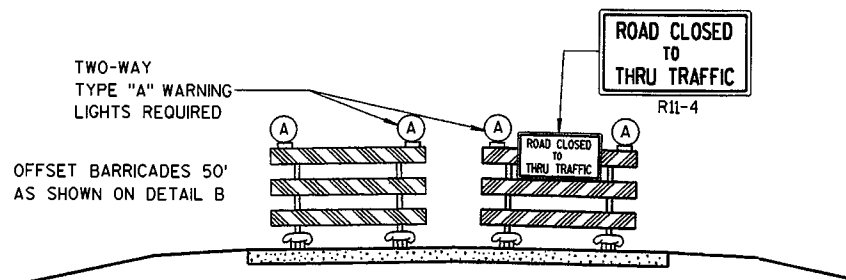
SEE SDD 15C2-4b FOR GENERAL NOTES AND FOOTNOTES ① THROUGH ⑦

- LEGEND**
- P POST MOUNTED SIGN
 - ≡ TYPE III BARRICADES
 - Ⓐ TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
 - ▨ WORK ZONE
 - DETOUR EAST M4-8 M3-X
 - M1-4 OR COUNTY XX OR M1-5A OR M1-6
 - M05-1 OR M06-1
 - ◇ FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
 APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
 APPROACH VIEW

SEE SDD 15C2-4d FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

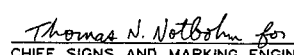
THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

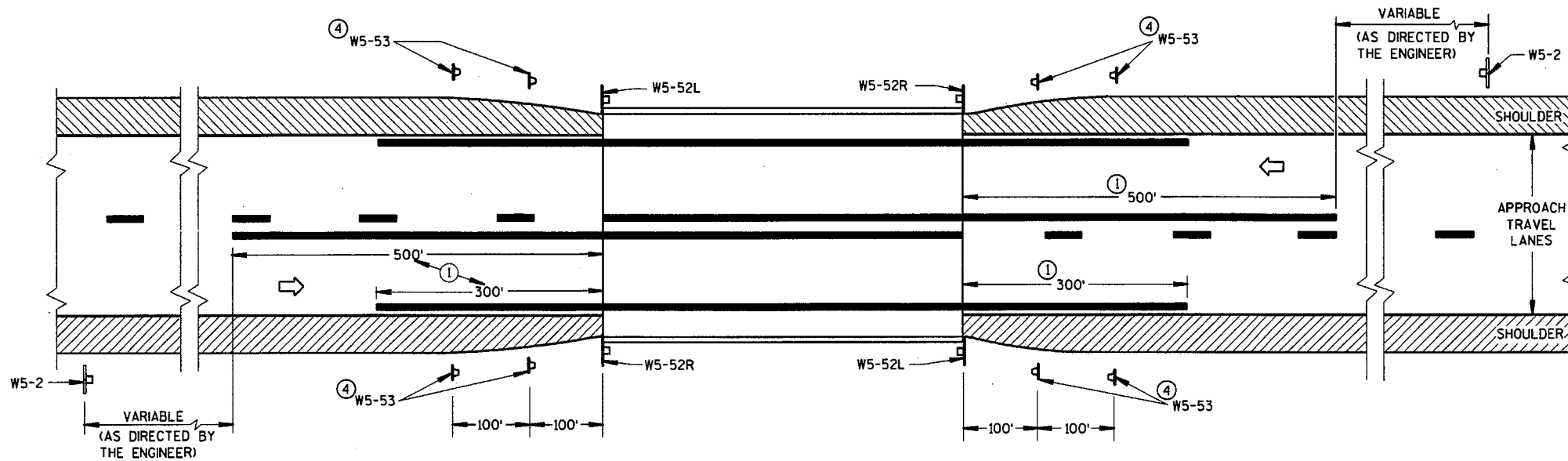
BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 9/16/03 DATE	 THOMAS N. WETBAHN FOR CHIEF SIGNS AND MARKING ENGINEER
FHWA	

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

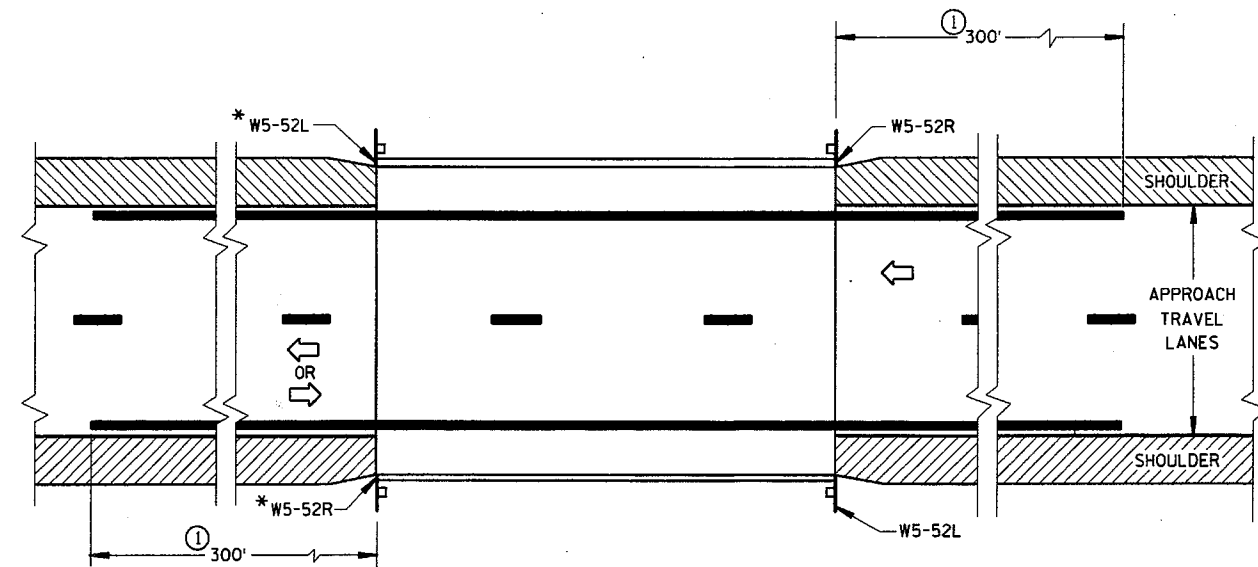
- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.
- ⑤ A 10 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.
- ⑥ NON-BID ITEM. INCIDENTAL TO OTHER ITEMS.



SITUATION 1

WARRANTING CRITERION:

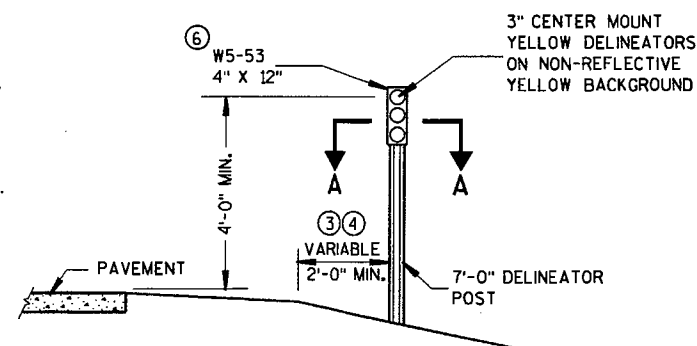
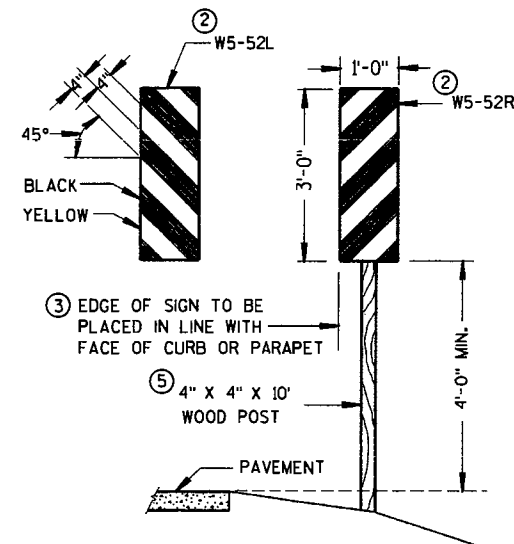
BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



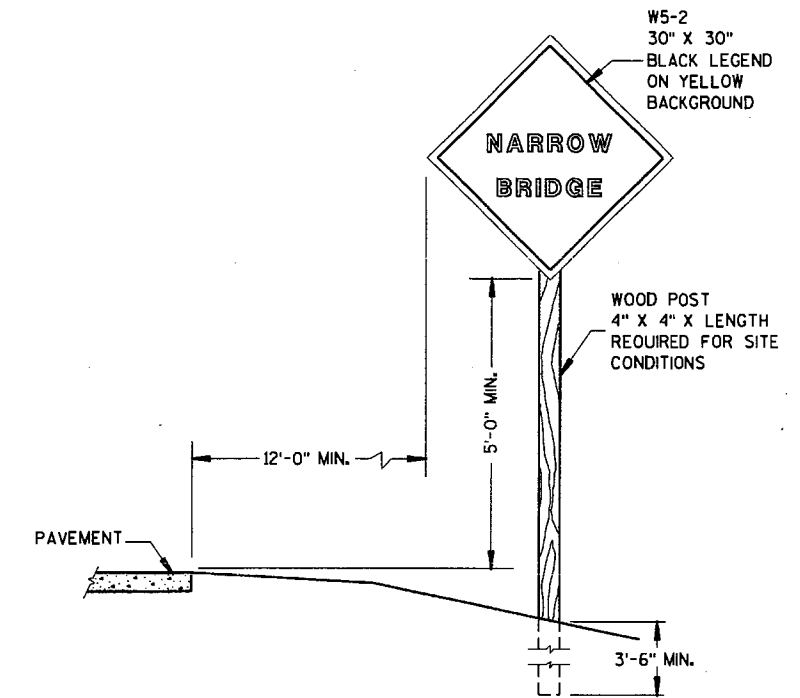
SITUATION 2

WARRANTING CRITERIA:

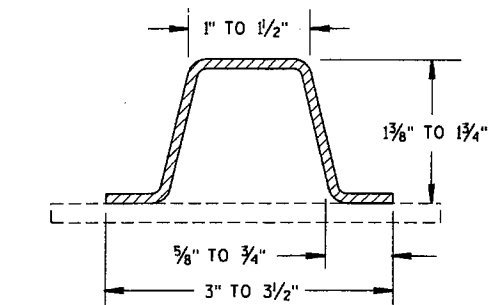
- 1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
- 2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



OBJECT MARKER PLACEMENT



SIGN PLACEMENT



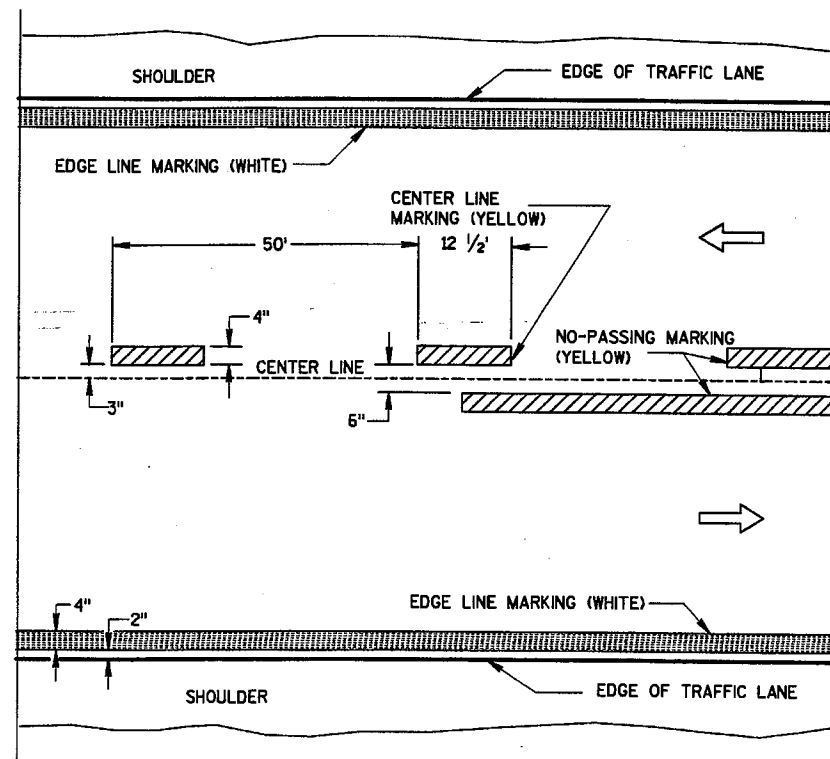
SECTION A-A
(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

SIGNING & MARKING FOR TWO LANE BRIDGES

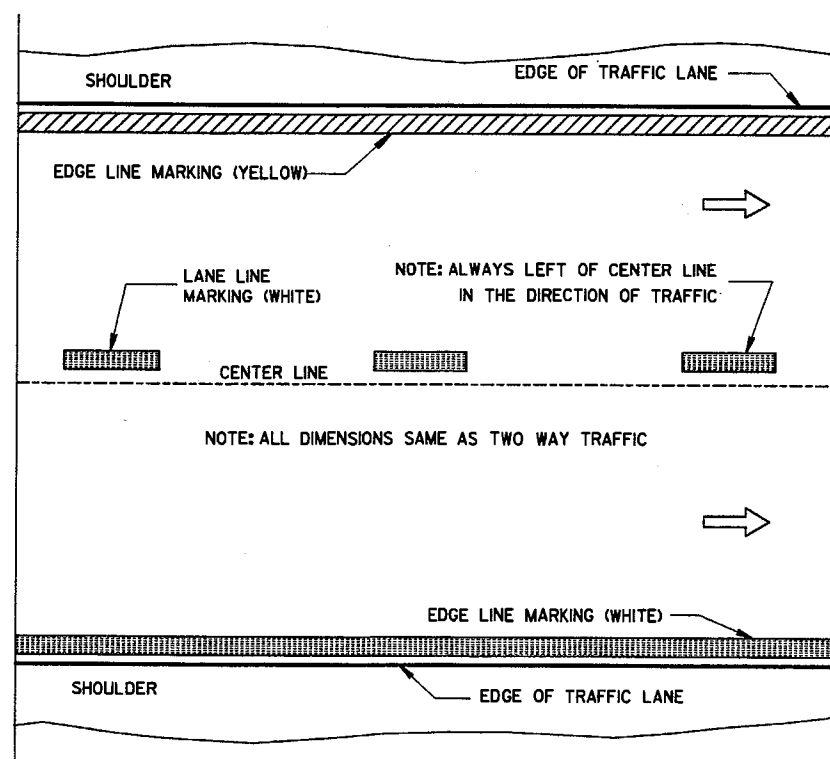
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-7-95
DATE
Charles J. Spang
DIRECTOR, OFFICE OF TRAFFIC

FHWA

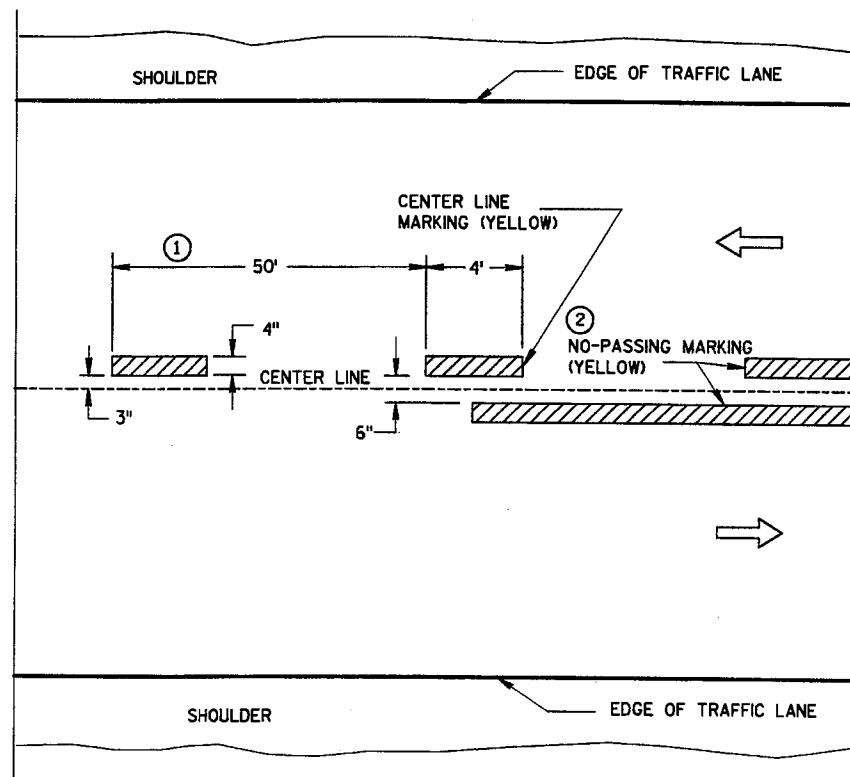


TWO WAY TRAFFIC

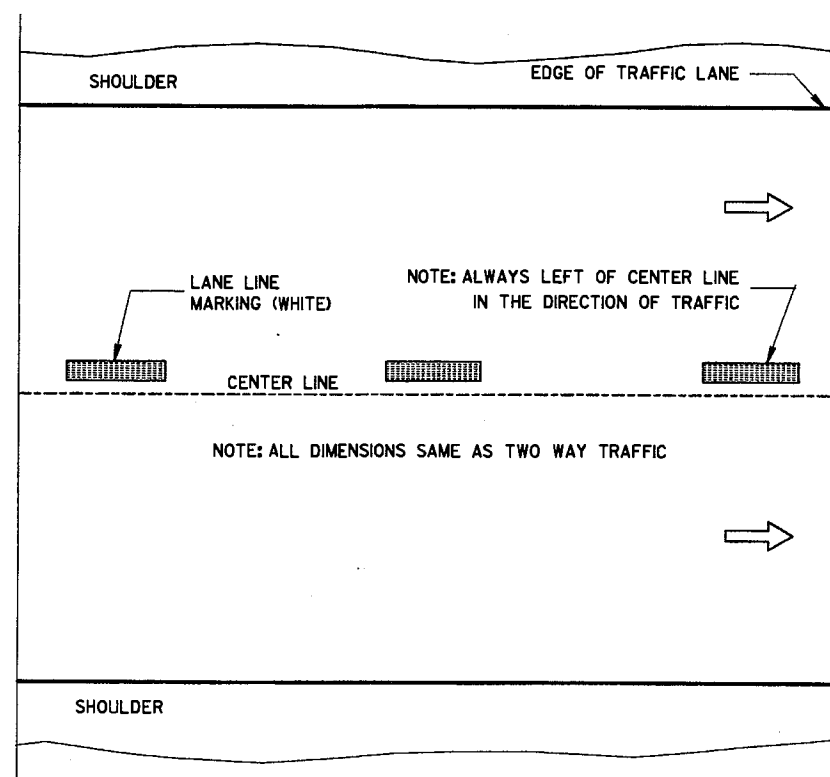


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

GENERAL NOTES

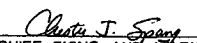
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

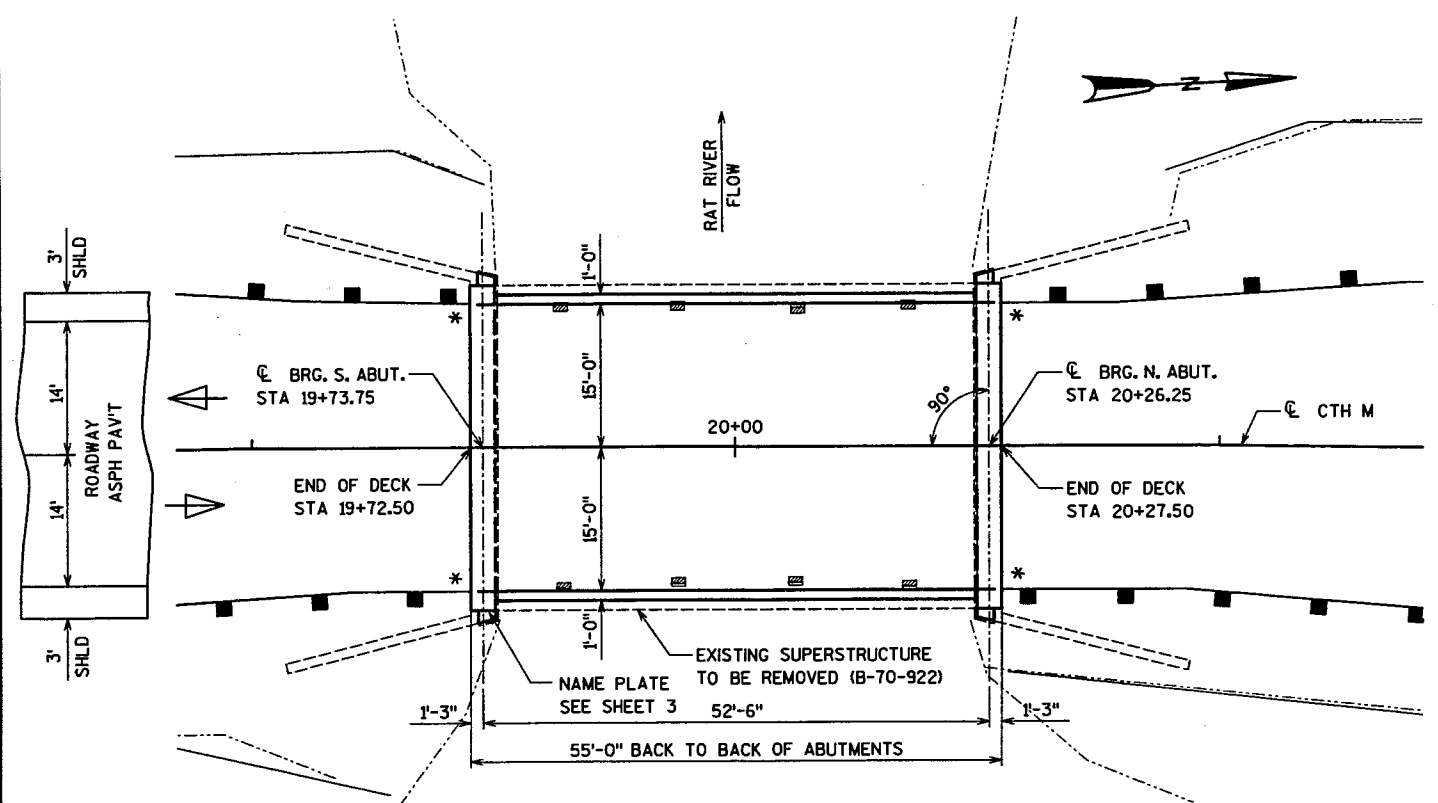
- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

S.D.D. 15 C 8-9d

PAVEMENT MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2-17-00 DATE	 CHIEF SIGNS AND MARKING ENGINEER
FHWA	



PLAN

SINGLE SPAN 28" PRESTRESSED CONCRETE GIRDER BRIDGE

* THREE BEAM ATTACHMENT REQUIRED

DESIGN DATA

STRUCTURE IS DESIGNED FOR FUTURE WEARING SURFACE OF 20"/FT²

LIVE LOAD:

- DESIGN RATING _____ HS20
- INVENTORY RATING _____ HS23
- OPERATING RATING _____ HS44
- MAX. STD. PERMIT VEHICLE LOAD _____ 250 kips

ULTIMATE DESIGN STRESSES:

- CONCRETE MASONRY SLAB _____ f'c = 4,000 psi
- ALL OTHER _____ f'c = 3,500 psi
- HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 _____ fy = 60,000 psi
- 28" PRESTRESSED GIRDERS _____ f'c = 8,000 psi
- CONCRETE MASONRY STRANDS, 0.6" ϕ WITH ULTIMATE TENSILE STRENGTH OF 270,000 psi

TRAFFIC DATA

ADT = 575 (2006)
775 (2026)
RDS = 45 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTIONS & QUANTITIES
3. ABUTMENT & BAR DETAILS
4. 28" PRESTRESSED GIRDER DETAILS
5. STEEL DIAPHRAGM
6. SLAB PLAN
7. SUPERSTRUCTURE DETAILS
8. TUBULAR STEEL RAILING, TYPE "F"

GENERAL NOTES

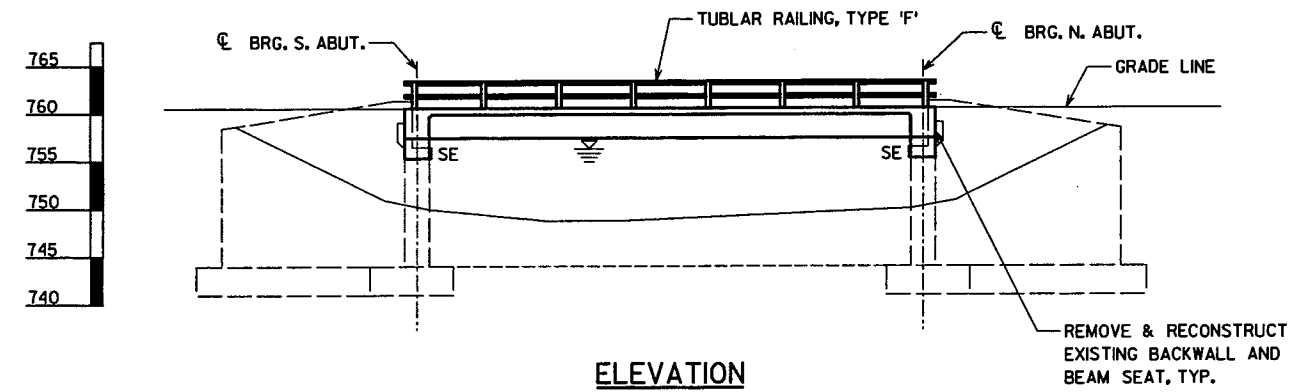
- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE EXISTING STRUCTURE IS A SINGLE SPAN BRIDGE WITH A CONCRETE DECK ON STEEL GIRDERS AND IS SUPPORTED ON CONCRETE ABUTMENTS. IT WAS BUILT IN 1933.
- ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
- BEVEL EXPOSED EDGES OF CONCRETE 1" UNLESS OTHERWISE NOTED.
- BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.
- ALL REINFORCING BARS ARE ENGLISH AND THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- THE EXISTING GROUND LINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.
- AT THE BACKFACE OF ABUTMENTS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.
- REMOVING OLD STRUCTURE SHALL CONSIST OF REMOVING THE EXISTING SUPERSTRUCTURE, RAILING, STEEL BEARINGS AND ABUTMENT BEAM SEATS TO APPROX. 1'-1" BELOW THE EXISTING SEAT ELEVATION.
- THE MINIMUM CONCRETE HAUNCH SHALL BE 1/4" AND THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE HAUNCH DEPTH OF 2 1/2" WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.
- INFORMATION ON THESE DRAWINGS RELATED TO THE EXISTING BRIDGE IS BASED UPON AVAILABLE DRAWINGS FROM THE WISCONSIN DEPARTMENT OF TRANSPORTATION. NO GUARANTY OR WARRANTY IS MADE THAT THE INFORMATION IS ALL INCLUSIVE OR TOTALLY ACCURATE. THEREFORE, THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF THE ACTUAL CONDITIONS TO BE ENCOUNTERED. THE CONTRACTOR SHALL VERIFY SPAN LENGTHS PRIOR TO FABRICATING GIRDERS.

CONSULTANT CONTACT

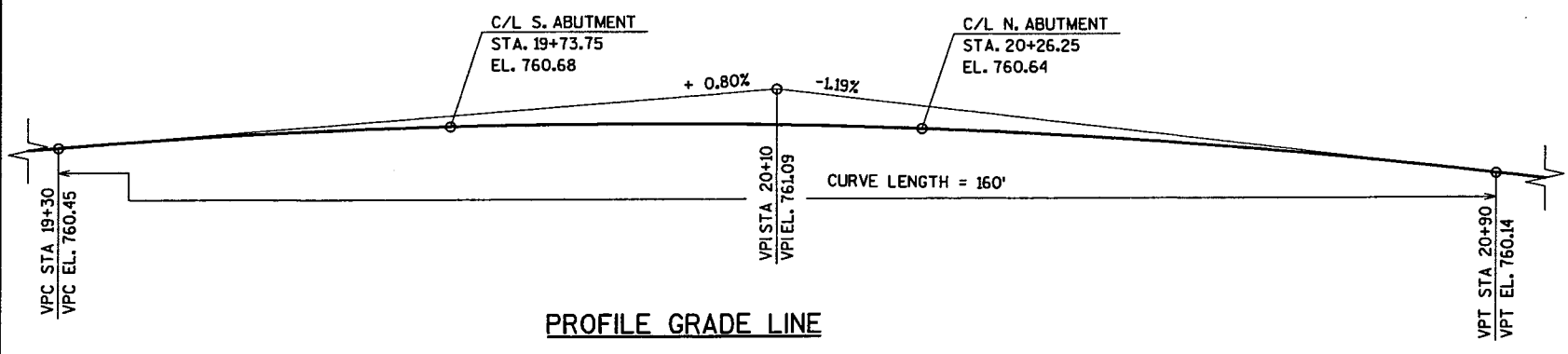
KRISTOFER OLSON
OMNI ASSOCIATES
(920) 735-6900

BRIDGE OFFICE CONTACT

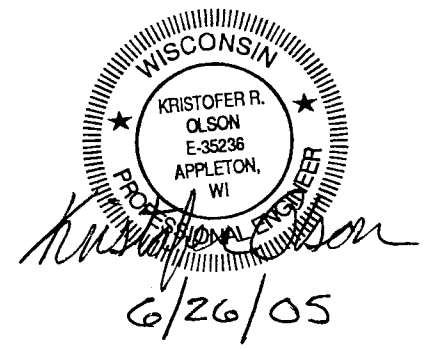
FINN HUBBARD
(608) 266-8489



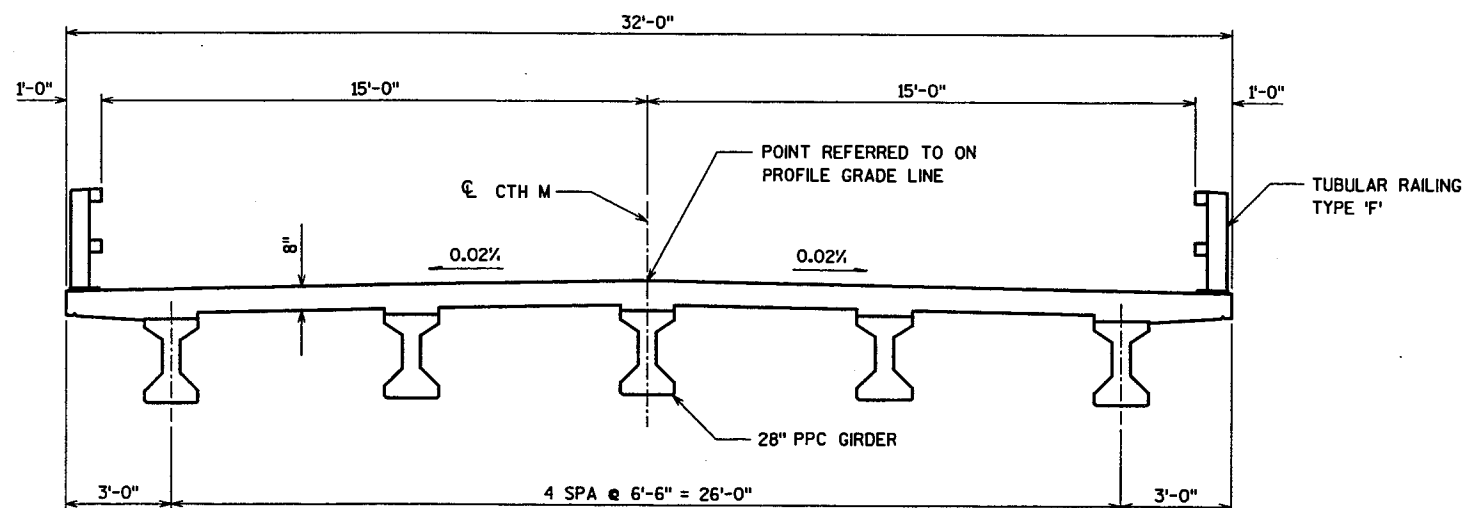
ELEVATION



PROFILE GRADE LINE



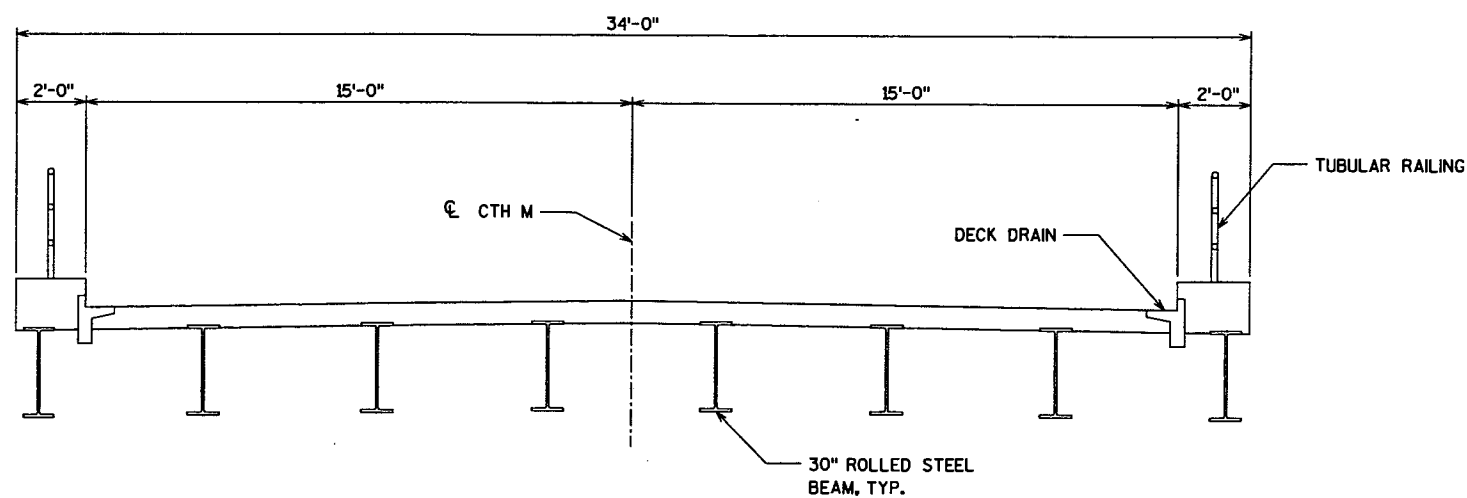
NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-922			
CTH M OVER RAT RIVER			
COUNTY	WINNEBAGO	TOWN	WINNECONNE
DESIGN SPEC.	AASHTO 2002	LOAD	HS-20
DESIGNED BY	KRO	CONST. SPEC.	2003
DESIGN CKD.	SSQ	DRAWN BY	SSQ
PLANS CKD.	KRO	APPROVED	10-13-05
CHIEF STRUCTURAL DESIGN ENGINEER			DATE
GENERAL PLAN		SHEET 1 OF 8	



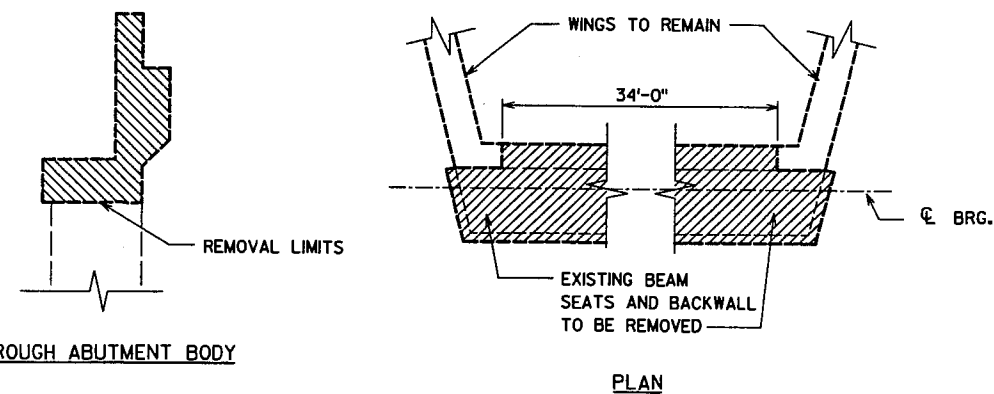
CROSS SECTION THRU PROPOSED ROADWAY

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	SUPER	SOUTH ABUT	NORTH ABUT	TOTALS
REMOVING OLD STRUCTURE (STA 20+00)	LS	---	---	---	1
EXCAVATION FOR STRUCTURES BRIDGES (B-70-922)	LS	---	---	---	1
BACKFILL STRUCTURE	CY	---	40	40	80
CONCRETE MASONRY BRIDGES	CY	61.4	5.0	5.6	72
PROTECTIVE SURFACE TREATMENT	SY	196	---	---	196
PRESTRESSED GIRDER TYPE I 28-INCH	LF	268	---	---	268
BAR STEEL REINFORCEMENT HS BRIDGES	LB	---	560	570	1130
BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	11,060	---	---	11,060
BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	---	5	5	10
STEEL DIAPHRAGMS (B-70-922)	EACH	4	---	---	4
RAILING TUBULAR TYPE "F" (B-70-922)	LS	---	---	---	1
RUBBERIZED MEMBRANE WATERPROOFING	SY	---	12	12	24
MASONRY ANCHORS TYPE S 5/8-INCH	EACH	---	36	36	72
OMP CONCRETE STRUCTURES	CY	61.4	5.0	5.6	72
INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	61.4	50	56	720
NON-BID ITEMS					
FILLER	SIZE				1/2" & 3/4"



CROSS SECTION THRU EXISTING ROADWAY



ABUTMENT REMOVE DETAILS

8

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CROSS SECTION & QUANTITIES			SHEET 2 OF 8 26

LEGEND

① SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

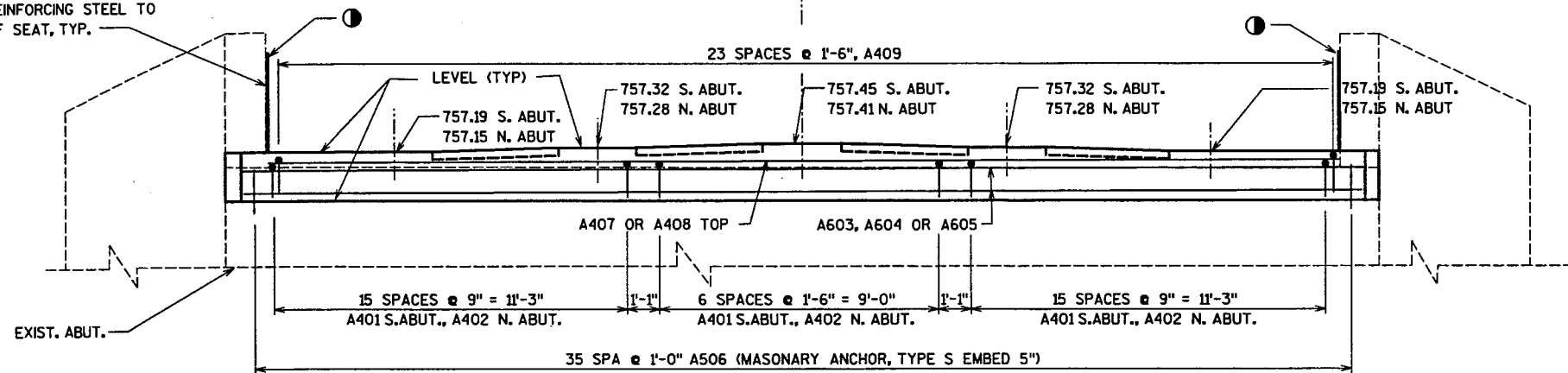
■ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

▣ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"

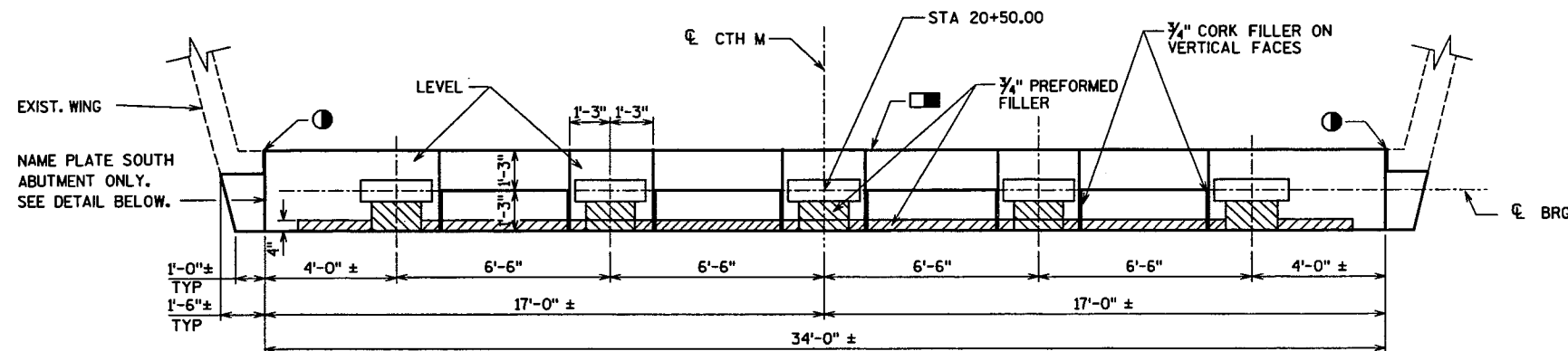
*NOTE: CONCRETE MASONRY ANCHORS, TYPE S, ANCHORED REINFORCING STEEL SHALL BE PAID FOR SEPARATELY AS PROVIDED IN SECTION 505 OF THE STANDARD SPECIFICATIONS FOR BAR STEEL REINFORCEMENT.

PRESERVE & UTILIZE EXISTING REINFORCING STEEL IN NEW WORK.

SAW CUT EXIST. BACKWALL AND REINFORCING STEEL TO TOP OF SEAT, TYP.



ELEVATION



PLAN

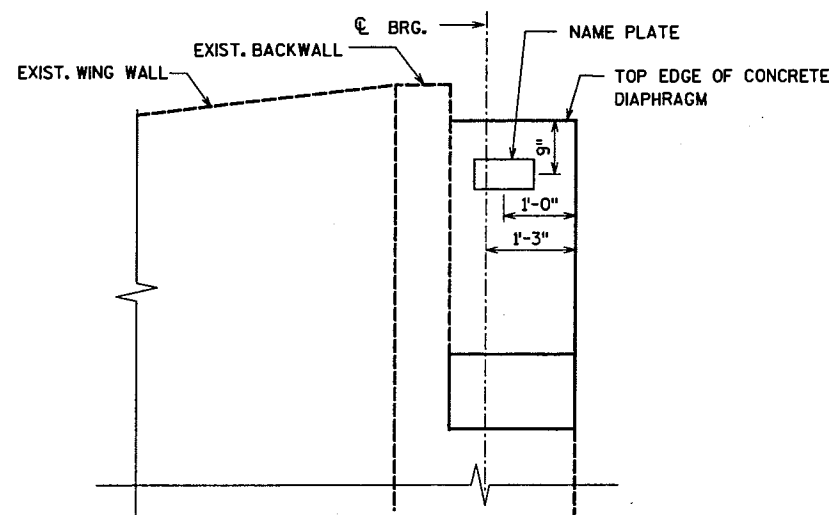
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.

BAR MARK	COAT	NO. REQ'D		LENGTH	BENT	LOCATION
		S. ABUT.	N. ABUT.			
A401		38	---	4'-0"	X	S. ABUT. BODY - VERTICAL
A402		---	38	4'-4"	X	N. ABUT. BODY - VERTICAL
A603		2	2	35'-5"		ABUT. BODY - HORIZONTAL F.F.
A604		2	2	36'-0"		ABUT. BODY - HORIZONTAL
A605		2	2	33'-8"		ABUT. BODY - HORIZONTAL B.F.
* A506		36	36	1'-5"		ABUT. CONCRETE MASONRY ANCHORS TYPE "S"
A407		1	1	36'-0"		ABUT. BODY - HORIZONTAL TOP, BEAM SEAT
A408		1	1	33'-8"		ABUT. BODY - HORIZONTAL TOP, BEAM SEAT
A409		24	24	2'-11"	X	ABUT. BODY - VERTICAL TOP, BEAM SEAT



SECTION THRU BODY

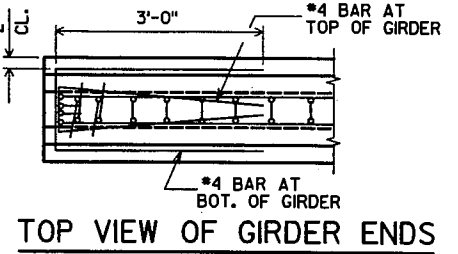
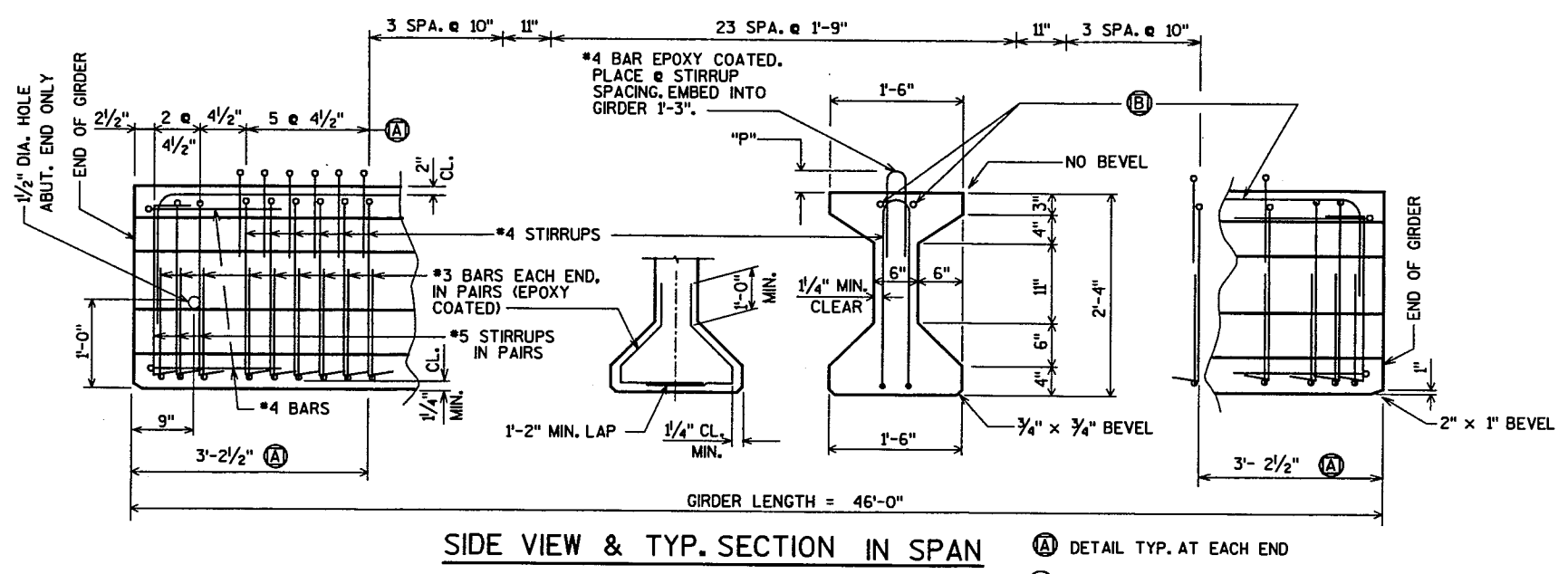


NAME PLATE LOCATION DETAIL
SOUTHEAST CONCRETE DIAPHRAGM FACE ONLY

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CONST. SPEC.	2003	DRAWN BY SSO	PLANS CKD. KRO
ABUTMENTS & BAR DETAILS			SHEET 3 OF 8

8

8



GIRDER NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL BE TROWEL FINISHED.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

PRESTRESSING STRANDS SHALL BE 0.6"φ - 7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI AND SHALL BE FLUSH WITH THE ENDS OF THE GIRDER.

BEND EACH END OF #4 STIRRUPS 4 1/2" AND #5 STIRRUPS 6".

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, 2 OPTIONS ARE AVAILABLE:

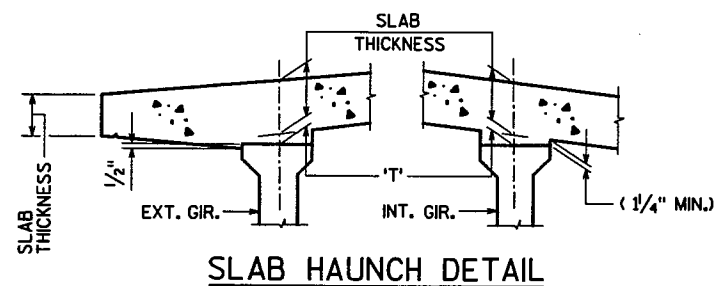
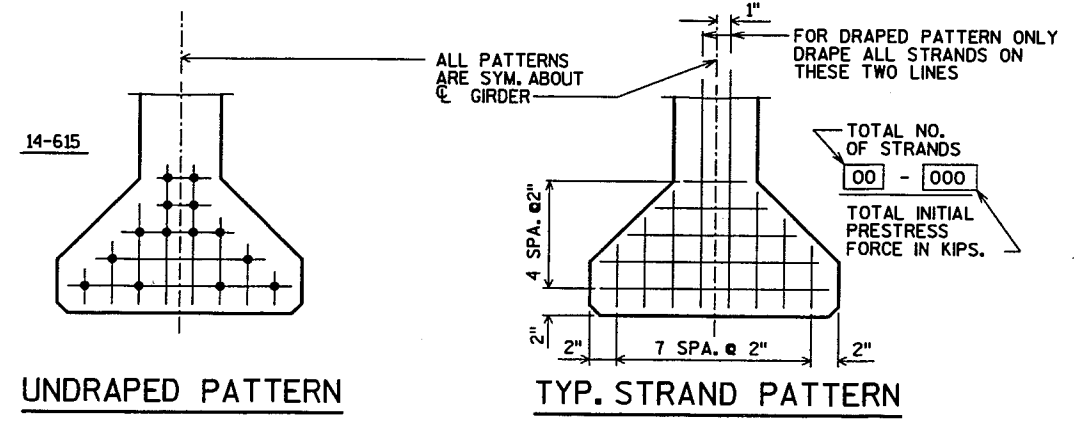
1. USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.
2. USE ASTM A615, GRADE 40 REINFORCEMENT AND A MODIFIED STIRRUP SPACING SUBMITTED TO AND APPROVED BY THE STRUCTURES DEVELOPMENT SECTION.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

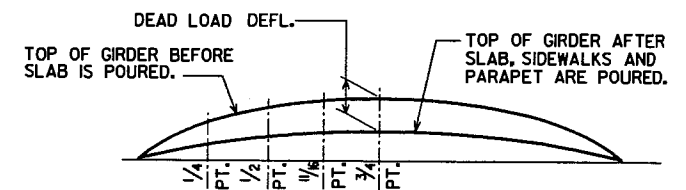
WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A497.

ENDS OF STRANDS SHALL BE PAINTED WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (THIS APPLIES ONLY TO THOSE ENDS OF GIRDERS THAT ARE FINALLY EXPOSED.)

SIDE VIEW & TYP. SECTION IN SPAN (A) DETAIL TYP. AT EACH END (B) 2-#4 BARS BEND DOWN 16 BAR DIA. AT ENDS (LAP 1'-11")



SLAB HAUNCH DETAIL



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEAD LOAD DEFLECTIONS ARE THEORETICAL AND MAY VARY FROM ACTUAL FIELD CONDITIONS

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT C OF SUBSTRUCTURE UNITS & AT 1/8 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- SLAB THICKNESS
- = HAUNCH HEIGHT 'T'

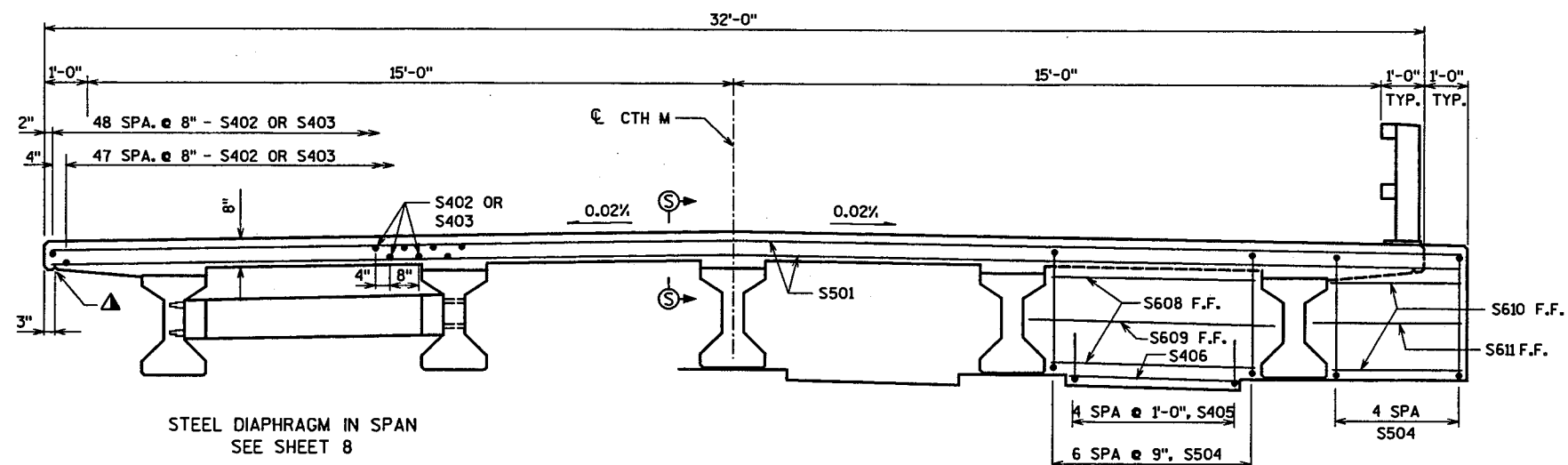
* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

SPAN	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)				CONC. STRGTH. f'c (p.s.i.)	DIA. OF STRAND "p"	DIA. OF STRAND	DRAPED PATTERN (IN.)				UNDRAINED PATTERN		
		1/8	1/4	3/8	1/2				TOTAL NO. OF STRANDS	f'ci (p.s.i.) *				TOTAL NO. OF STRANDS	f'ci (p.s.i.) *
									"A"	"B" MIN.	"B" MAX.	"C"			
1	53'-6"	1/4"	1/2"	5/8"	3/4"	8000	7"	0.6"					14	6400	

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		PLANS CRD.	KRO
28" PRESTRESSED GIRDER DETAILS			SHEET 4 OF 8

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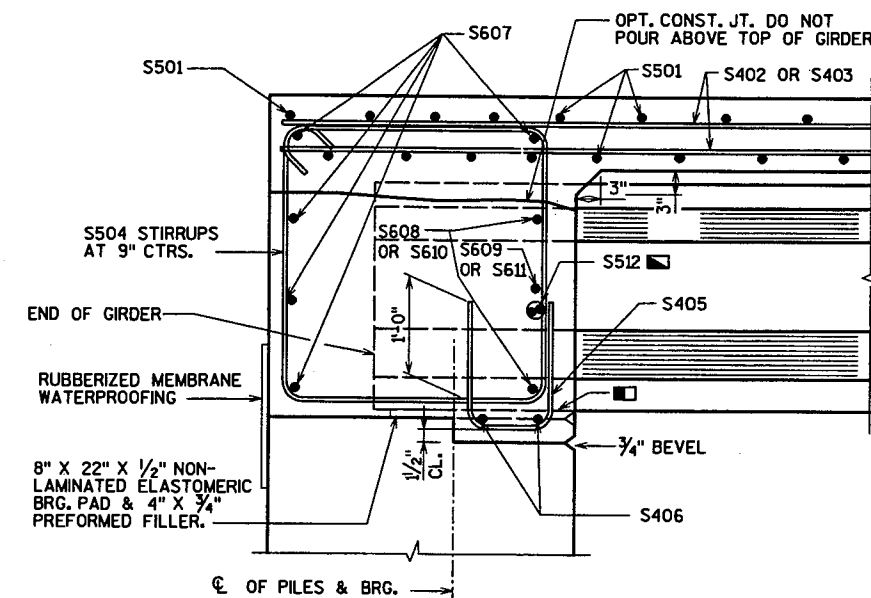
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CROSS SECTION THRU RDWY. LOOKING NORTH

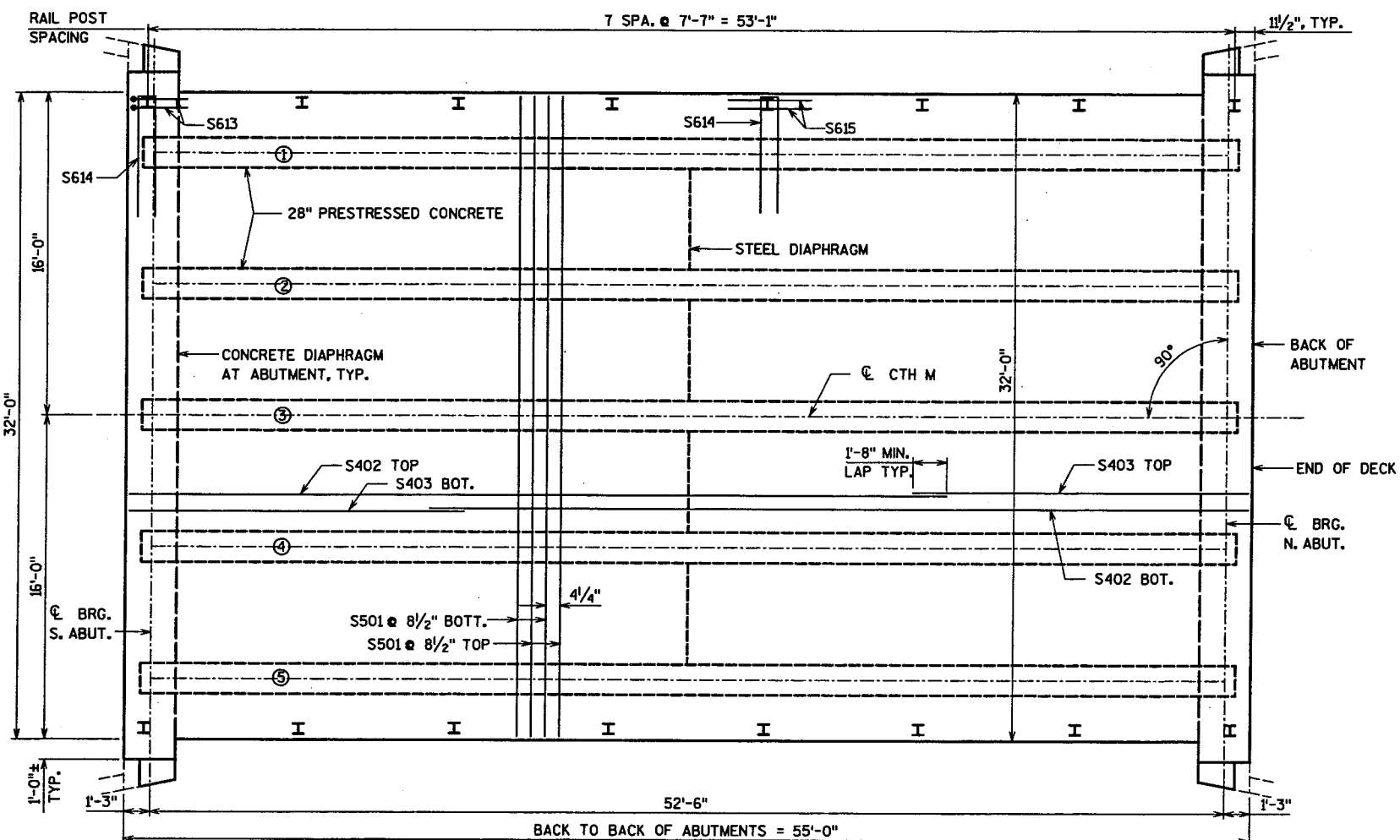
▲ 3/4" CONTINUOUS DRIP GROOVE (TYP.) TO END 2'-0" FROM ABUTMENT

DIAPHRAGM DETAILS AT ABUTMENT

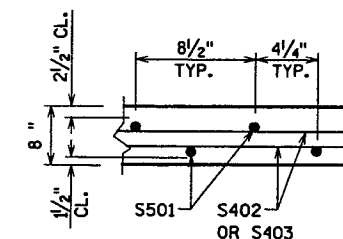


DIAPHRAGM AT ABUTMENTS WITH SEMI-EXPANSION SEAT

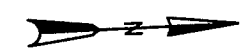
- 3/4" FILLER UNDER GIRDER FLANGE IN FRONT OF BRG. PAD
- (1) - 1/2" DIA. HOLE IN WEB FOR (2) S512 HORIZ. BARS. S512 BARS TO BE PLACED SYM. ABOUT C_L OF GIRDERS.



PLAN



SECTION S-S



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STRUCTURE B-70-922			
CONST. SPEC.	2003	DRAWN BY SSQ	PLANS CKD. KRO
SLAB PLAN			SHEET 6 OF 8

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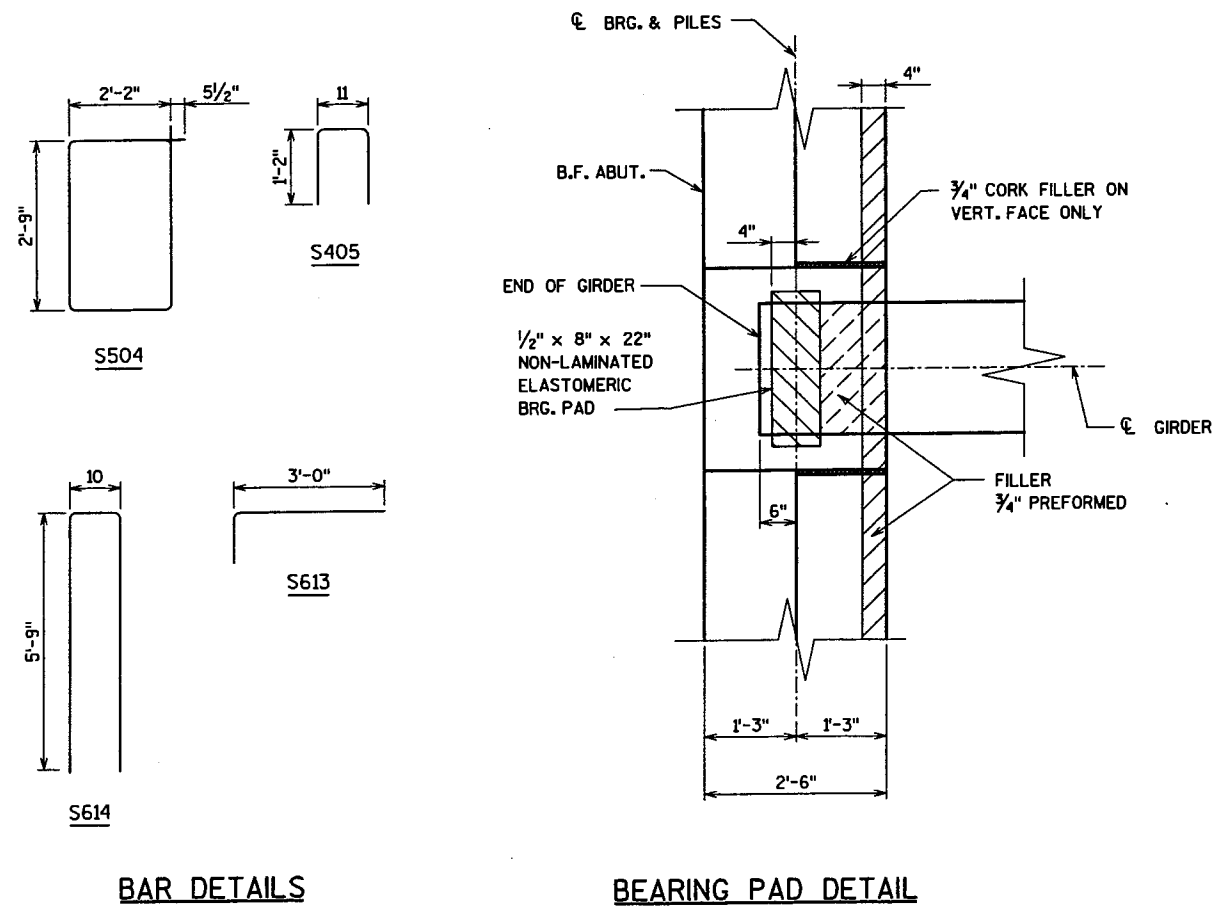
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.

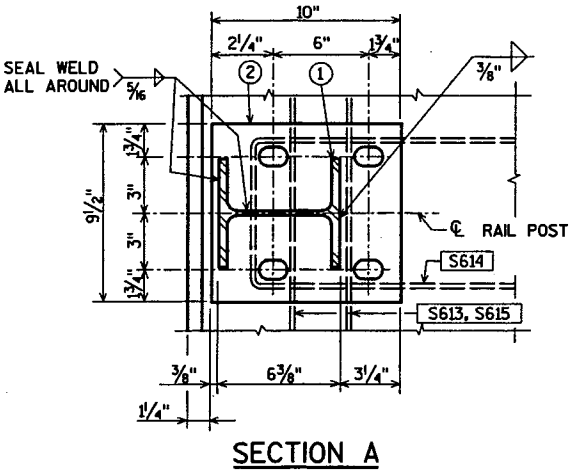
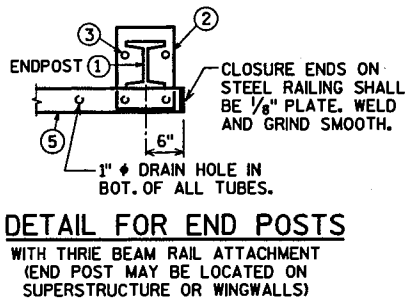
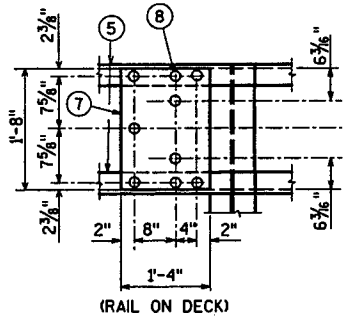
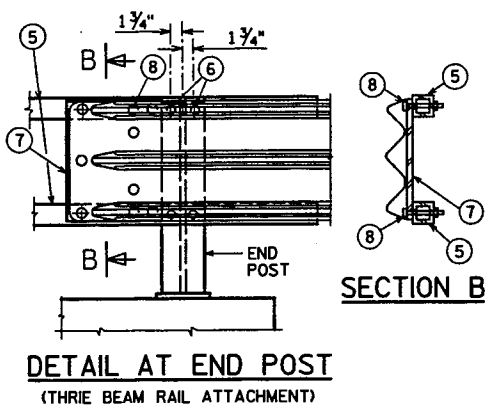
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	155	31'-8"			SLAB TOP & BOTT. TRANSVERSE
S402	X	97	40'-0"			SLAB TOP & BOTT. LONGITUDINAL
S403	X	97	16'-4"			SLAB TOP & BOTT. LONGITUDINAL
S504	X	76	10'-4"	X		ABUTMENT DIAPHRAGM STIRRUPS
S405	X	40	3'-1"	X		ABUTMENT DIAPHRAGM VERT. BETWEEN SEATS
S406	X	16	3'-8"			ABUTMENT DIAPHRAGM HORIZ. BETWEEN SEATS
S607	X	10	33'-8"			ABUTMENT DIAPHRAGM HORIZ. B.F. & TOP
S608	X	16	4'-8"			ABUTMENT DIAPHRAGM HORIZ. F.F.
S609	X	8	5'-8"			ABUTMENT DIAPHRAGM HORIZONTAL F.F.
S610	X	8	2'-11"			ABUTMENT DIAPHRAGM HORIZONTAL F.F.
S611	X	4	3'-5"			ABUTMENT DIAPHRAGM HORIZONTAL F.F.
S512	X	20	6'-0"			HORIZONTAL IN WEB OF GIRDERS
S613	X	8	4'-0"	X		AT END RAIL POSTS
S614	X	16	12'-0"	X		AT RAIL POSTS
S615	X	24	4'-0"			AT RAIL POSTS

FINISHED TOP OF DECK ELEVATIONS

GIRDER	S. ABUT.	1/8	2/8	3/8	4/8	5/8	6/8	7/8	N. ABUT.
W. EDGE	760.36	760.38	760.38	760.39	760.39	760.38	760.37	760.35	760.32
BEAM 1	760.42	760.44	760.44	760.45	760.45	760.44	760.43	760.41	760.38
BEAM 2	760.55	760.57	760.57	760.58	760.58	760.57	760.56	760.54	760.51
BEAM 3/ C/L	760.68	760.70	760.70	760.71	760.71	760.70	760.69	760.67	760.64
BEAM 4	760.55	760.57	760.57	760.58	760.58	760.57	760.56	760.54	760.51
BEAM 5	760.42	760.44	760.44	760.45	760.45	760.44	760.43	760.41	760.38
E. EDGE	760.36	760.38	760.38	760.39	760.39	760.38	760.37	760.35	760.32



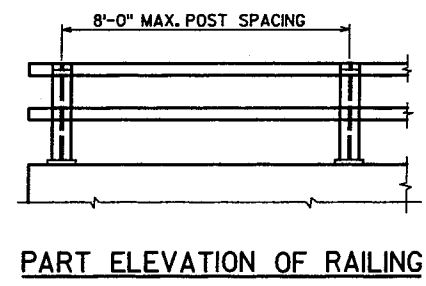
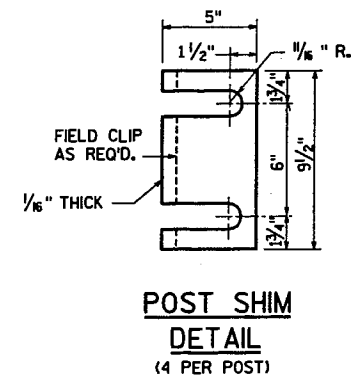
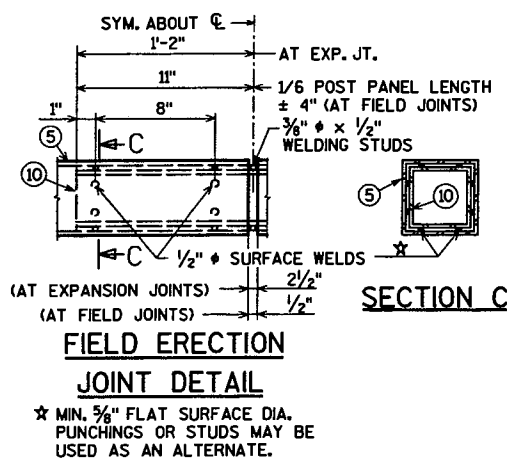
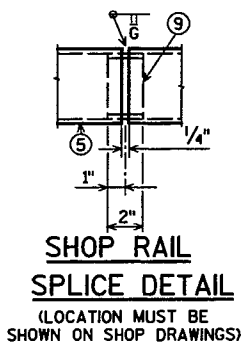
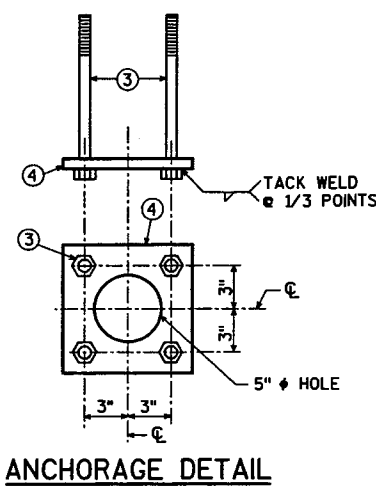
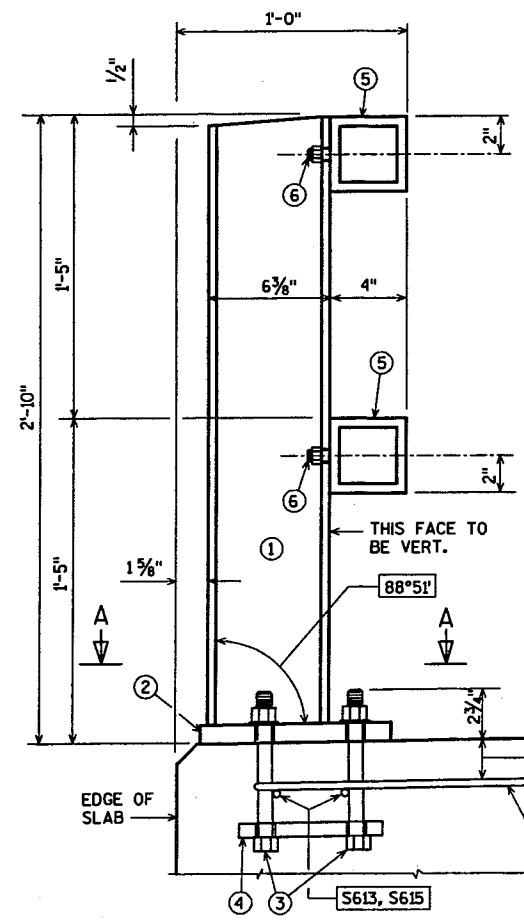
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STRUCTURE B-70-922			
CONST. SPEC.	2003	DRAWN BY SSO	PLANS CK'D. KRO
SUPERSTRUCTURE DETAILS			SHEET 7 OF 8 31



- LEGEND**
- W6 x 25 WITH 1/4" DIA. HOLES ON EACH SIDE OF POST FOR STUD NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY (OR SIDEWALK, AS APPLICABLE). PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
 - PLATE 1" x 9 1/2" x 10" WITH 1/16" x 1/2" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
 - A325 - 3/8" DIA. HEX BOLTS (GALVANIZED) WITH A325 NUT & WASHER. 14" LONG AT END POSTS AND AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 15". USE 8" LONG AT ALL OTHER LOCATIONS. 4 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
 - 1/4" x 8" x 8" FLAT BAR WITH 3/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
 - TS 4 x 4 x 0.25 STRUCTURAL TUBING, CONFORMING TO A.S.T.M. DESIGNATION A501 OR A500 GRADE B. ATTACH TO NO. 1 WITH STUDS NO. 6.
 - 3/8" DIA. x 1 1/2" LONG SHOP WELDED STUDS WITH HEX NUT AND 2" WASHERS (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
 - PLATE 3/8" x 1-4" (1-7" ON SDWK.) x 1-8". BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5.
 - 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5 FOR 3/8" DIA. A325 BOLTS W/HEX NUTS AND WASHERS.
 - SQUARE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 3 1/2".
 - TS 3 x 3 x 0.25 x (2'-4" AT EXPANSION JOINTS) & (1'-10" AT FIELD JOINTS) LONG. PROVIDE 1/2" DIA. SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 5. PROVIDE 3/8" DIA. x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
 - 3/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS. (REQ'D. FOR SDWK. RAIL ONLY.)

- GENERAL NOTES**
- BID ITEM SHALL BE "TUBULAR RAILING TYPE 'F'", WHICH INCLUDES ALL ITEMS SHOWN.
- RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- FOR RAILING NOT TO BE PAINTED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 4) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
- FOR RAILING TO BE PAINTED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED WITH A THREE-COAT ZINC RICH EPOXY SYSTEM. PRIOR TO PAINTING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 11 NEAR WHITE BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
- ALL MATERIALS USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM A709 GRADE 36 UNLESS NOTED OTHERWISE.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

▲ TIE TO TOP MAT OF STEEL.

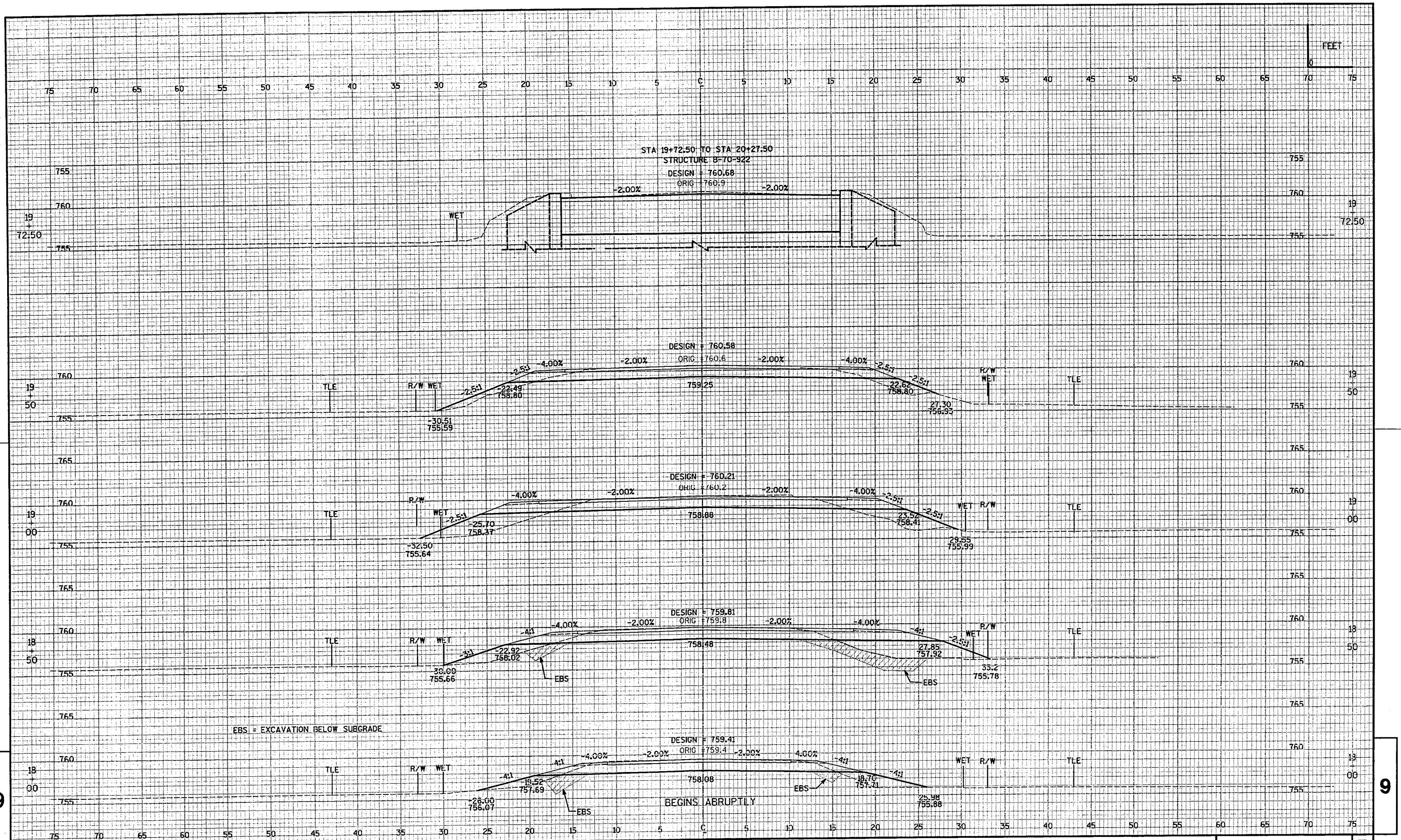


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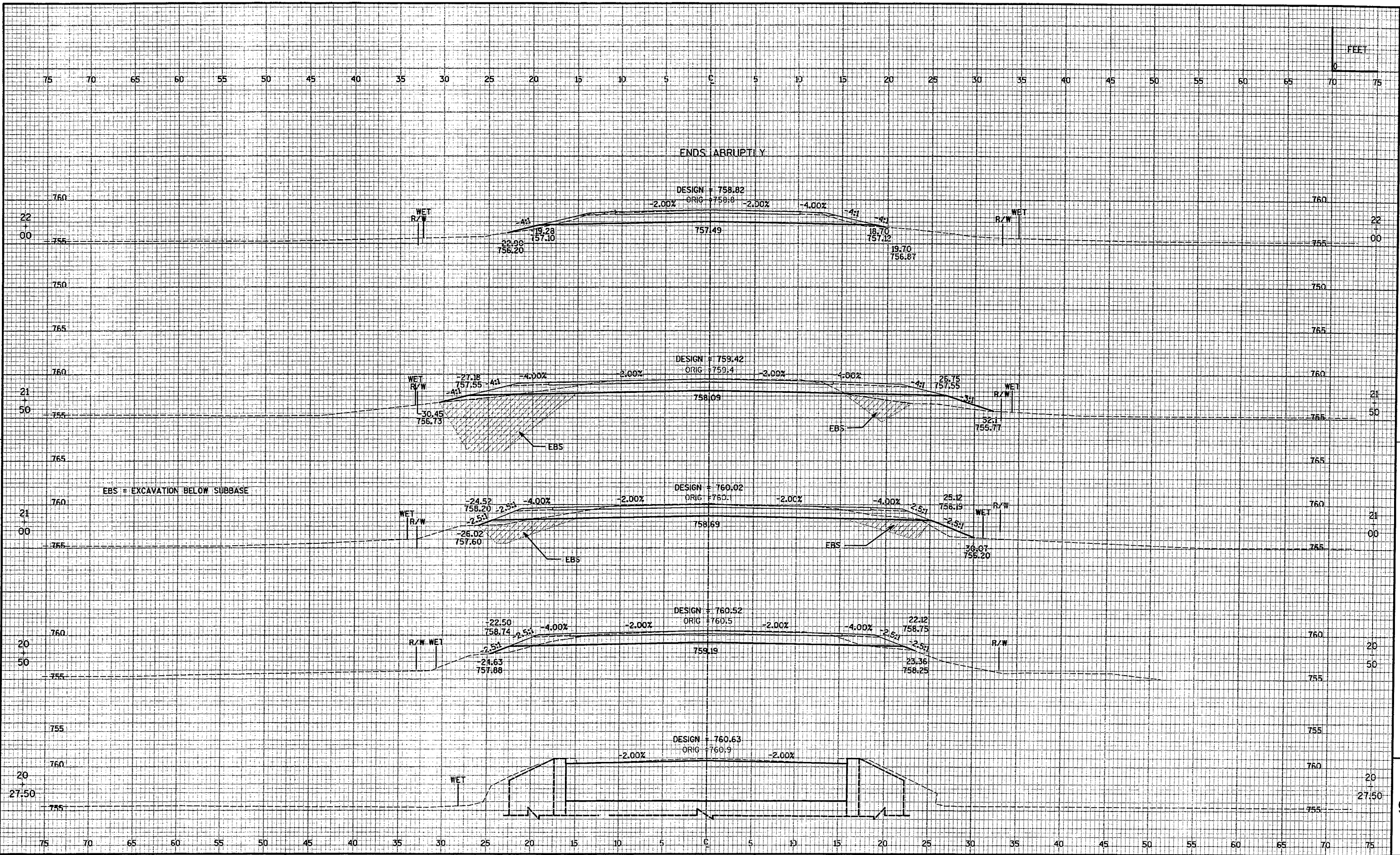
NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
Omni ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-922			
CONST. SPEC.	2003	DRAWN BY SSO	PLANS CKD. KRO
TUBULAR RAILING TYPE "F"			SHEET 8 OF 8

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EBS = EXCAVATION BELOW SURGRADE

BEGINS ABRUPTLY



PROJECT NUMBER: 6480-00-71 HWY: CTH M COUNTY: WINNEBAGO CROSS SECTIONS: CTH M SHEET NO: 34 E

FILE NAME : F:\Transportation\E1651A04\Sheets\XSECT\X502.dgn PLOT DATE : 06/21/2005 02:42:48 PM PLOT BY : qaders PLOT NAME : ORG DATE : Originator : OMNI ASSOCIATES, INC. PLOT SCALE : \$\$.....plotscale.....\$\$ WISDOT/CADD SHEET 21