AS BUILT

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8520-06-71	———	—

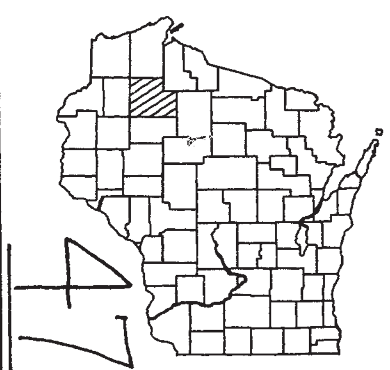
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

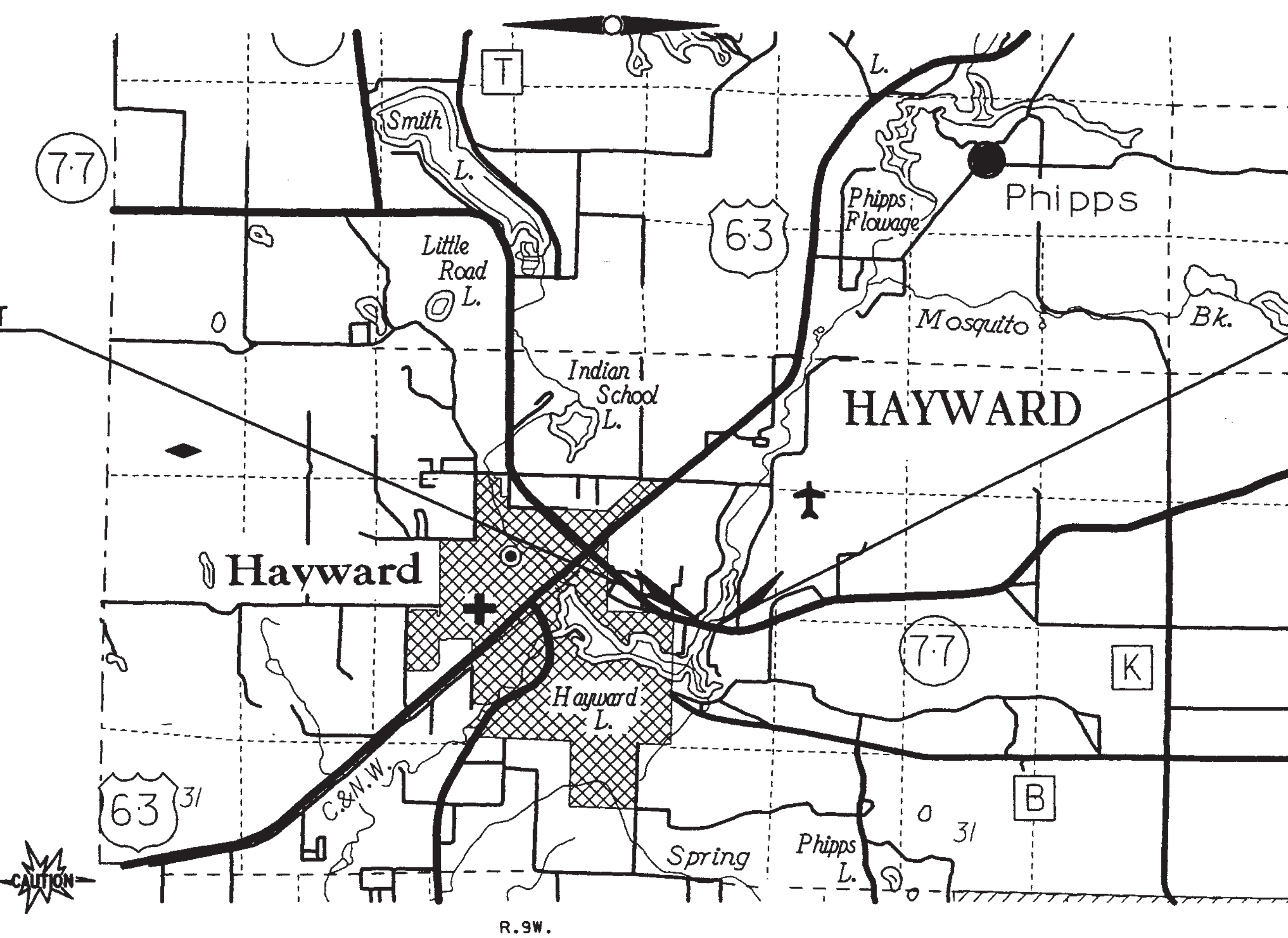
INDEX OF SHEETS

TOTAL SHEETS = 72

NAMEKAGON RIVER BRIDGE AND APPROACHES
S.T.H. 77
SAWYER COUNTY

STATE PROJECT NUMBER
8520-06-71





BEGIN PROJECT
STA. 18+725

END PROJECT
18+954
94,855 ±60 m
490,790 ±60 m

Project Engineer: Lynda Salisbury
Prime Contractor: Larson Construction
Foreman: Jim Fisher
Project Started: March 27, 2000
Project Completed: July 11, 2000

DESIGN DESIGNATION

A.D.T.	2000	=	5200
A.D.T.	2020	=	7800
D.H.V.		=	1092
D.		=	60/40
T.		=	6.7%
DESIGN SPEED		=	80 km/h
ESALS		=	1,211,800

CONVENTIONAL SYMBOLS

COUNTY LINE
CORPORATE LIMITS
PROPERTY LINE (P.L. + 58.1)
LOT LINE
LIMITED EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE
SURVEY LINE
SLOPE INTERCEPT
ORIGINAL GROUND
MARSH OR ROCK PROFILE
EXISTING CULVERT
PROPOSED CULVERT (Box or Pipe)
CULVERT (Profile View)

COMBUSTIBLE FLUIDS (CAUTION)
UNDERGROUND UTILITIES
GAS — G —
ELECTRIC — E —
TELEPHONE OR TELEGRAPH — T —
SERVICE PEDESTAL
CABLE MARKER
POWER POLE
TELEPHONE POLE
RAILROAD
MARSH AREA
WOODED OR SHRUB AREA

LAYOUT
SCALE 0 km

TOTAL NET LENGTH OF CENTERLINE = 0.229 km

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	HAROLD MARX
Designer	GREGORY B. PESOLA, P.E.
District Examiner	SANDRA PEASE
District Supervisor	LANCE BURGER, P.E.
Proj. Dev. Engineer	
C.O. Examiner	JANE E. GOODMAN

APPROVED FOR DISTRICT OFFICE
DATE: 10-7-99 [signature] (Signature)

AUTHORIZED FOR CENTRAL OFFICE DESIGN
DATE: 11/12/99 John H. Bradtell (Signature)

M

Jan. 2000
PLOT SCALE:
PLOT NAME: 8520-06-71
REV. DATE:
ORIGINATOR:
FILE NAME: d8 85200671 titlem.dgn
8520-06-00

WisDOT: MSHT10

GENERAL NOTES

WHEN THE QUANTITY OF THE ITEMS OF BASE OR SURFACE COURSE IS MEASURED FOR PAYMENT BY THE MEGAGRAM THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL DEPTH OR THICKNESS WILL DEPEND UPON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

EROSION CONTROL ITEMS AND REQUIRED LOCATIONS SHALL BE AS NOTED ON THE MISCELLANEOUS QUANTITIES SHEETS AND ON THE EROSION CONTROL PLAN.

ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY EXCEPT THE AREAS BETWEEN THE SUBGRADE SHOULDER POINTS SHALL BE SODDED.

DOWEL BARS AT THE EXPANSION JOINT AS SHOWN ON THE SDD FOR CONCRETE PAVEMENT APPROACH SLABS ARE NOT REQUIRED.

THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.

LAKE HAYWARD (HAYWARD LAKE) IS CONSIDERED TO BE PART OF THE NAMEKAGON RIVER.

THE MARSH AREAS ADJACENT TO THE EXISTING EMBANKMENTS THAT ARE OVERLAID BY THE NEW EMBANKMENTS AND BY THE NEW HEAVY RIPRAP SLOPES SHALL BE TOTALLY EXCAVATED. ALL TOPSOIL AND RIPRAP ON EXISTING EMBANKMENTS THAT WILL BE OVERLAID BY THE NEW EMBANKMENT SLOPES SHALL BE REMOVED. EXISTING HEAVY RIPRAP THAT IS REMOVED FROM ITS ORIGINAL POSITION SHALL BE PLACED AT THE TOE OF THE NEW HEAVY RIPRAP SLOPES OR ADJACENT TO THE NEW BRIDGE ABUTMENTS AND WINGS.

ENVIRONMENTAL

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
ST.CROIX NATIONAL SCENIC RIVERWAY
401 HAMILTON STREET
P.O. BOX 708
ST. CROIX FALLS, WI 54024
ATTN: RANDY FERRIN
PHONE: 715-483-3284, EXT. 636

DEPARTMENT OF NATURAL RESOURCES
810 WEST MAPLE STREET
SPOONER, WI. 54801
ATTN: DAN MICHELS
PHONE: 715-635-4228

METRIC STANDARD DETAIL DRAWINGS

8A 5-15 a	INLET COVERS TYPE A,H,A-S & H-S
8A 6-4	CATCH BASINS TYPES 1 AND 2
8D 1-13	CONCRETE CURB, CONCRETE CURB AND GUTTER AND PAVEMENT TIES
8E 8-2	TYPICAL INSTALLATION OF EROSION BALES
8E 9-5	SILT FENCE
8F 1-11	APRON ENDWALLS FOR CULVERT PIPE
8F 2-1	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
12A 3-5	NAME PLATE (STRUCTURES)
13B 2-3	CONCRETE PAVEMENT APPROACH SLAB
14B 7-9a	TEMPORARY PRECAST CONCRETE BARRIER
14B 7-9b	PRECAST CONCRETE BARRIER END SECTON AND PORTABLE CRASH CUSHION
14B 15-3a	CLASS "A" STEEL PLATE BEAM GUARD INSTALLATION & ELEMENTS.
14B 16-3a & b	CLASS "A" STEEL PLATE BEAM GUARD END TREATMENT WITH ANCHORAGE TYPE 2
14B 18-4a	CLASS "A" STEEL PLATE BEAM GUARD (AT BRIDGES OBSTACLES AND SIDEROADS / DRIVEWAYS)
14B 20-6a	STEEL THRIE BEAM STRUCTURE APPROACH
14B 20-6b	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END AND VERTICAL FACED PARAPETS
14B 24-3a, b, & c	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15C 8-8a	PAVEMENT MARKING (MAINLINE)
15C 8-8b	PAVEMENT MARKING (INTERSECTIONS)
15C 12-2	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

UTILITY COMPANIES WITH FACILITIES IN THE GENERAL AREA ARE AS FOLLOWS:

UTILITIES

NORTHERN STATES POWER CO.
301 EAST LAKE SHORE DRIVE
ASHLAND, WI. 54806
ATTN: ROBERT WARREN
PHONE : 715-682-6969

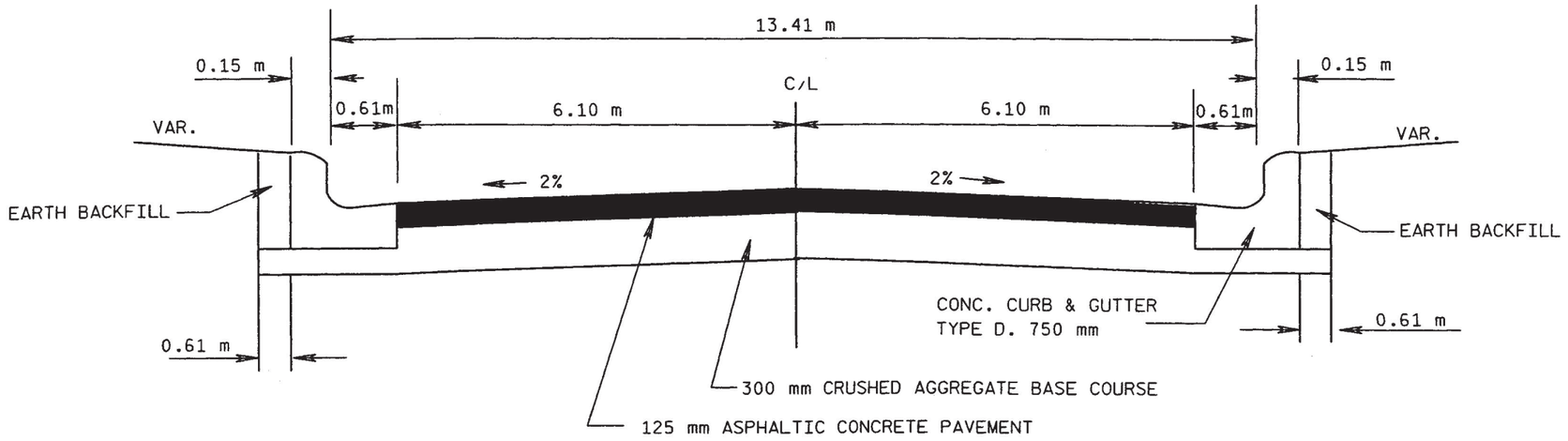
GTE NORTH
20 SOUTH WILSON STREET
RICE LAKE, WI. 54868
ATTN: GARY SCHIEFFER
PHONE: 715-234-5524

WISCONSIN GAS CO.
1921 8th. STREET SOUTH
WISCONSIN RAPIDS, WI. 54494
ATTN: BILL GARSKI
PHONE: 715-423-2800

MARCUS CABLE
1725 S. MAIN STREET
RICE LAKE, WI. 54868
ATTN: PAT ANDERSON
PHONE: 715-234-3821

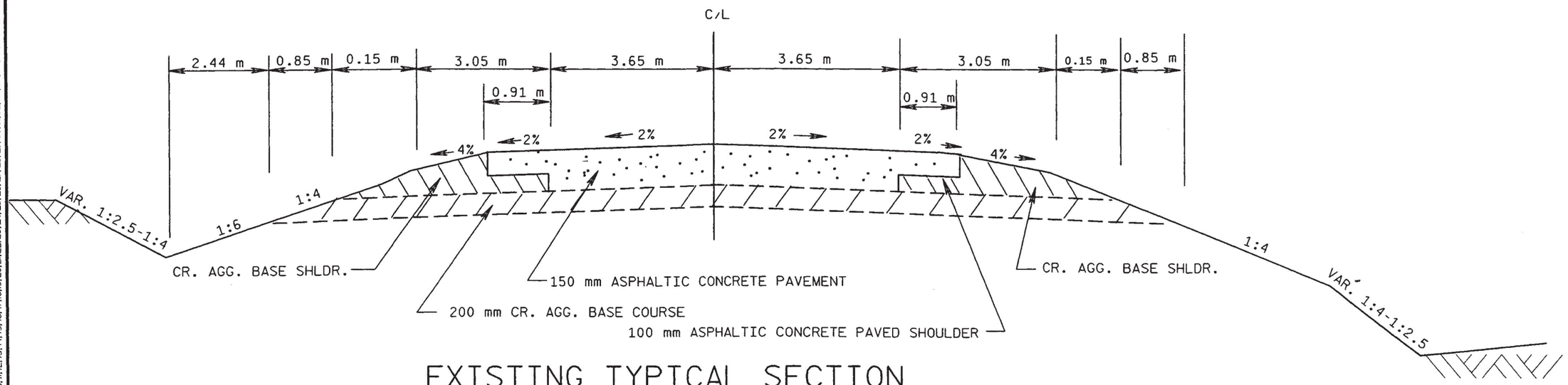
DIGGERS HOTLINE
1-800-242-8511
TOLL FREE

CHEQUAMEGON TELEPHONE COOPERATIVE
PO BOX 67
CABLE, WI 54821
ATTN: JOE LABEREE
PHONE: (715) 798-3303



EXISTING TYPICAL SECTION

STA. 18+870.2 - STA. 19+005



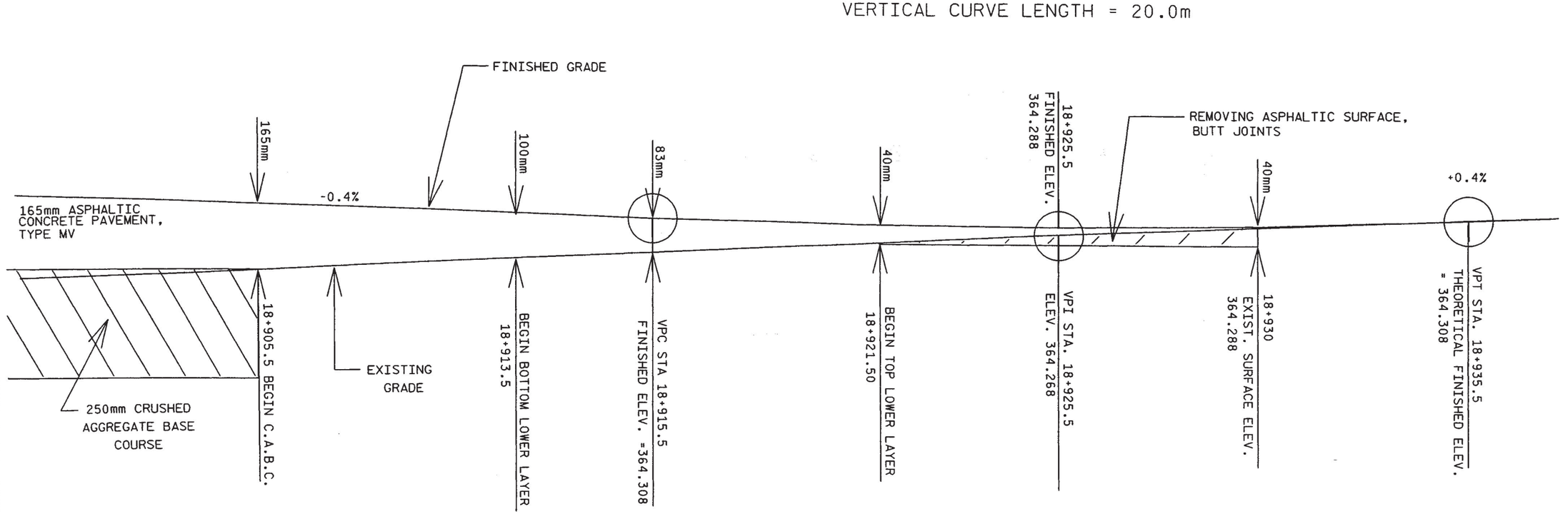
EXISTING TYPICAL SECTION

STA. 18+720 - STA. 18+837.5

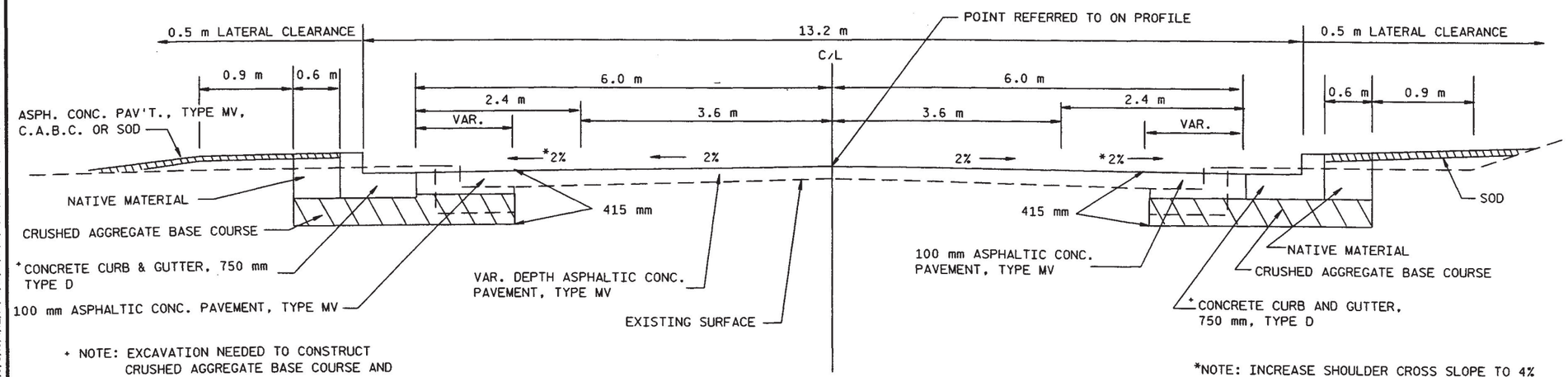
STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	EXISTING TYPICAL SECTIONS	SHEET NO: 2.2	M

FILE NAME: x:\projects\d8\8520600\existtyp.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 53.083110:1.000000 PLOT DATE: 23-SEP-1999 07:26 WisDOT: MSHT20

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



TRANSITION DETAIL FOR ASPHALTIC CONCRETE PAVEMENT, TYPE MV FROM BUTT JOINT TO 250mm CRUSHED AGGREGATE BASE COURSE STA. 18+905.5 TO STA. 18+930



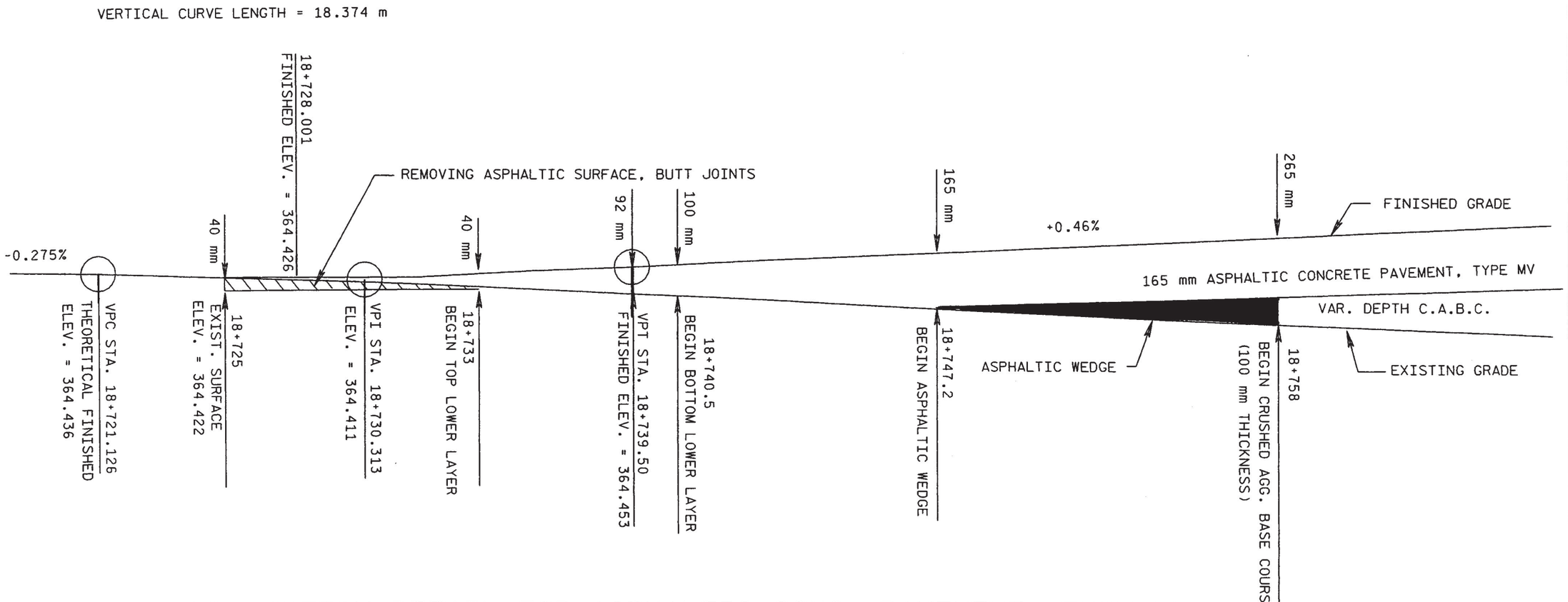
* NOTE: EXCAVATION NEEDED TO CONSTRUCT CRUSHED AGGREGATE BASE COURSE AND CONCRETE CURB & GUTTER SHALL BE INCIDENTAL TO THE CONCRETE CURB & GUTTER , 750 mm, TYPE D BID ITEM.

*NOTE: INCREASE SHOULDER CROSS SLOPE TO 4% AT 18+925.5 LT. AND 18+924.9 RT. (AT TYPE 1H CATCH BASIN)

TYPICAL FINISHED SECTION STA. 18+905.5 TO STA. 18+930

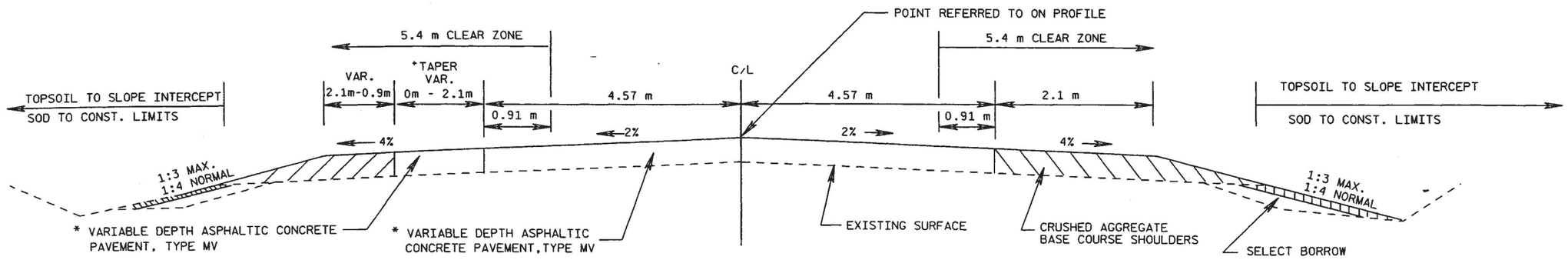
STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	TRANSITION DETAIL AND RESURFACING TYPICAL SECTION	SHEET NO: 2.3	M

FILE NAME: x:\projects\d8\85200600\eastresurface.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 2089.886217:1.000000 PLOT DATE: 07-OCT-1999 07:00 WisDOT: MSHT20



TRANSITION DETAIL FOR ASPHALTIC CONC. PAVEMENT, TYPE MV

FROM BUTT JOINT TO VAR. DEPTH CRUSHED AGG. BASE COURSE LIFT STA. 18+725 - STA. 18+758



TYPICAL FINISHED SECTION FOR RESURFACING

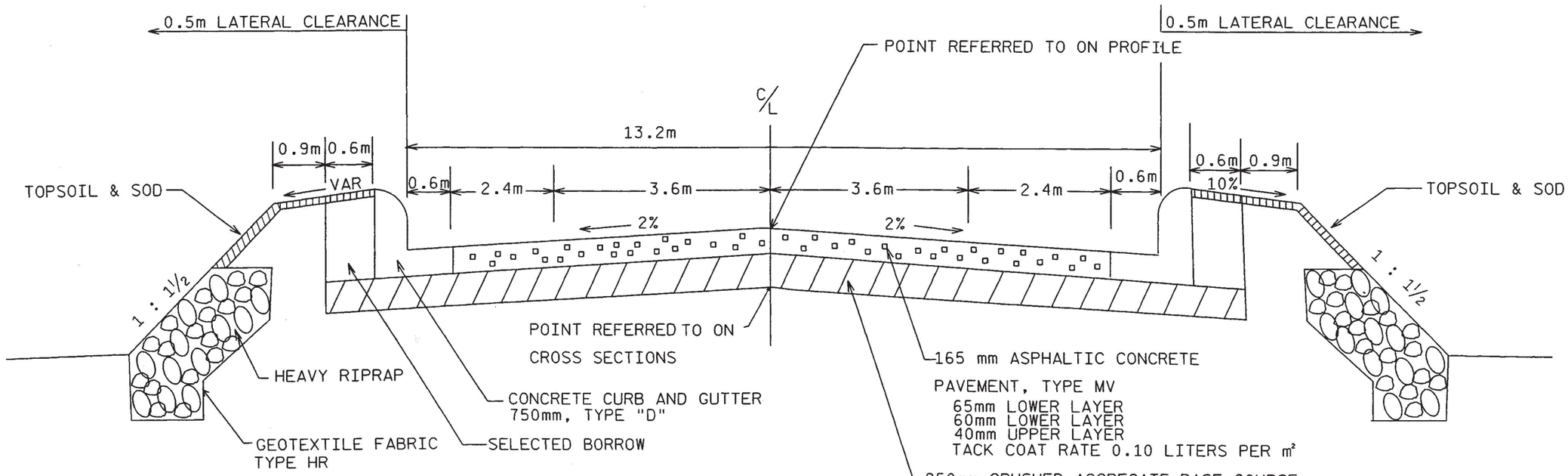
STA. 18+725 - STA. 18+758

*LAYER THICKNESSES ARE AS SHOWN ON TYPICAL FINISHED SECTIONS FOR 18+758 - 18+830.3 AND 18+877.7 - 18+905.5

+ RESURFACE EXISTING ASPHALTIC TAPER STA. 18+737.6 LT. - STA. 18+748.0 LT.

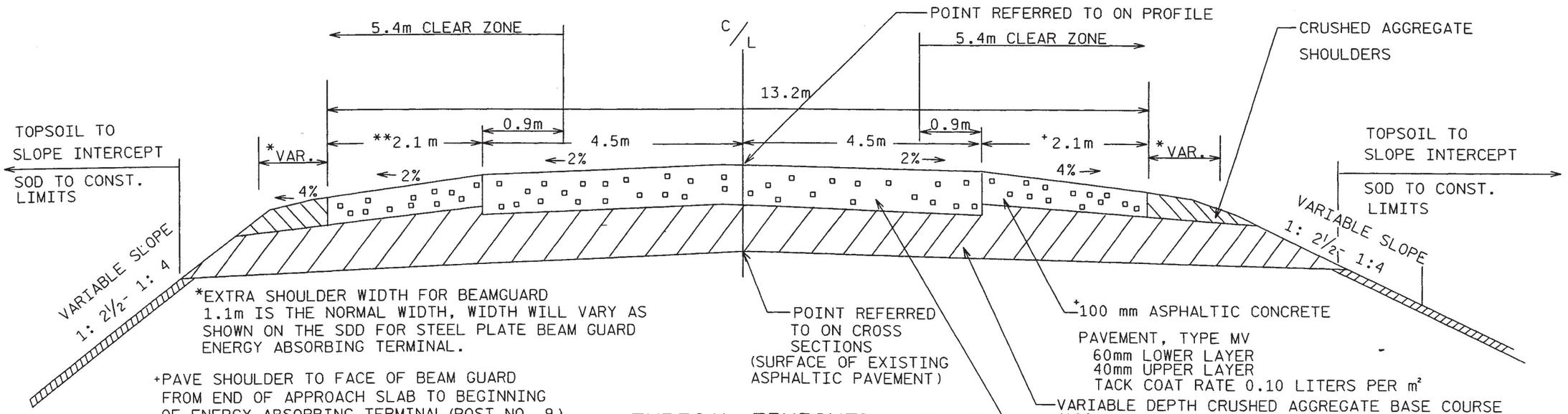
STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	TRANSITION DETAIL AND TYPICAL SECTION (RESURFACING)	SHEET NO: 2.4	M

FILE NAME: x:\projects\d8\85200600\westresurface.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 2089.886217:1.000000 PLOT DATE: 05-OCT-1999 07:16 WisDOT: MSHT20



TYPICAL FINISHED SECTION

STA. 18+877.7 - 18+905.5



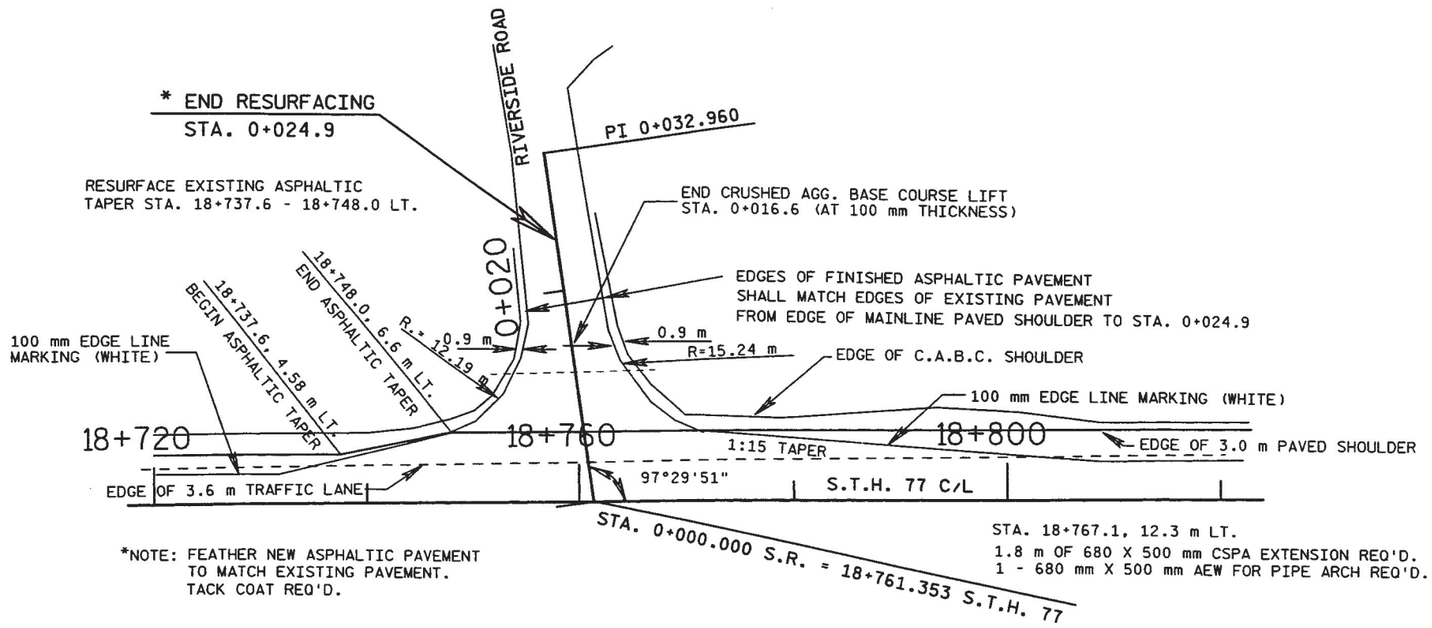
TYPICAL FINISHED SECTION

STA. 18+758 - 18+830.3

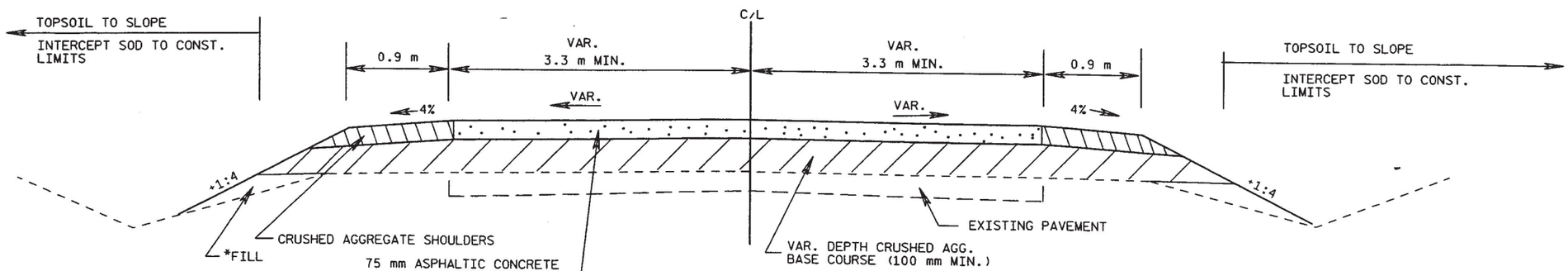
STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	TYPICAL FINISHED SECTIONS	SHEET NO: 2.5	M

FILE NAME: x:\projects\d8\85200600\greqtyp.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 2089.886217:1.000000 PLOT DATE: 07-OCT-1999 07:20 WisDOT: MSHT20

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



RIVERSIDE ROAD LAYOUT DETAIL



*FILL SHALL BE SELECTED BORROW
STA. 0+006.7 - 0+015 AND
SHALL BE C.A.B.C. STA. 0+015
- 0+024.9.

+FILL SLOPES SHALL BE
1:6 FROM 0+006.7 TO 0+012.7

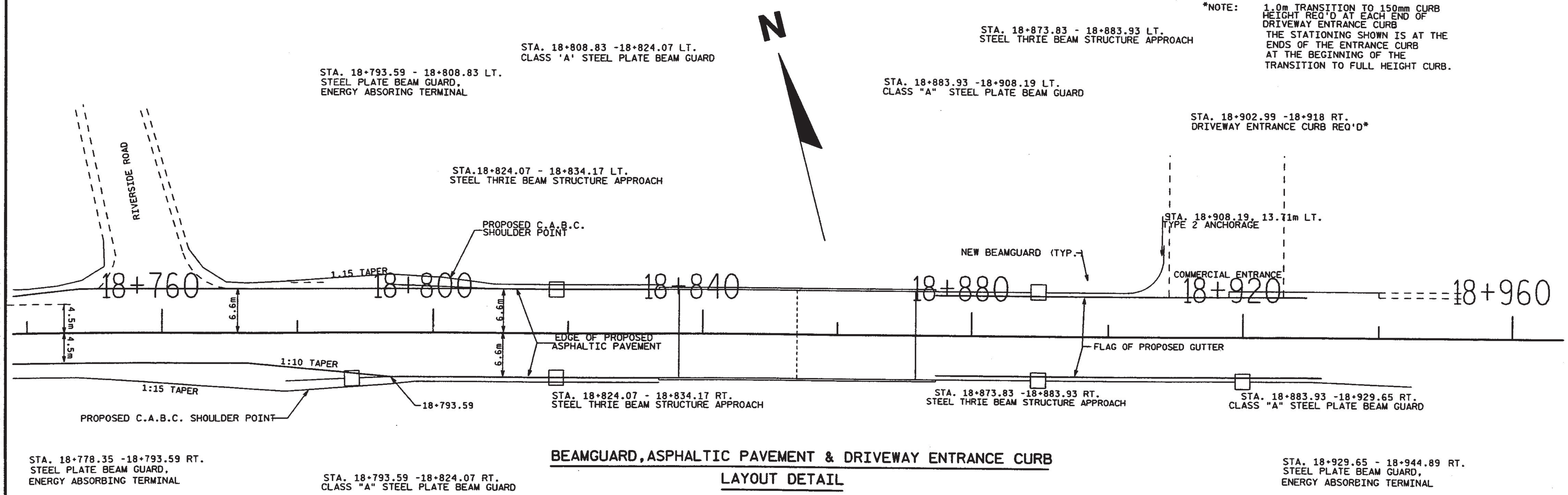
TYPICAL FINISHED SECTION FOR RIVERSIDE ROAD

STA. 0+006.7 - STA. 0+024.9

STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	LAYOUT DETAIL & TYPICAL SECTION RIVERSIDE RD	SHEET NO: 2.6	M

FILE NAME: x:\projects\d8\85200600\intersection.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 2089.886217:1.000000 PLOT DATE: 06-OCT-1999 12:42 WisDOT: MSHT20

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

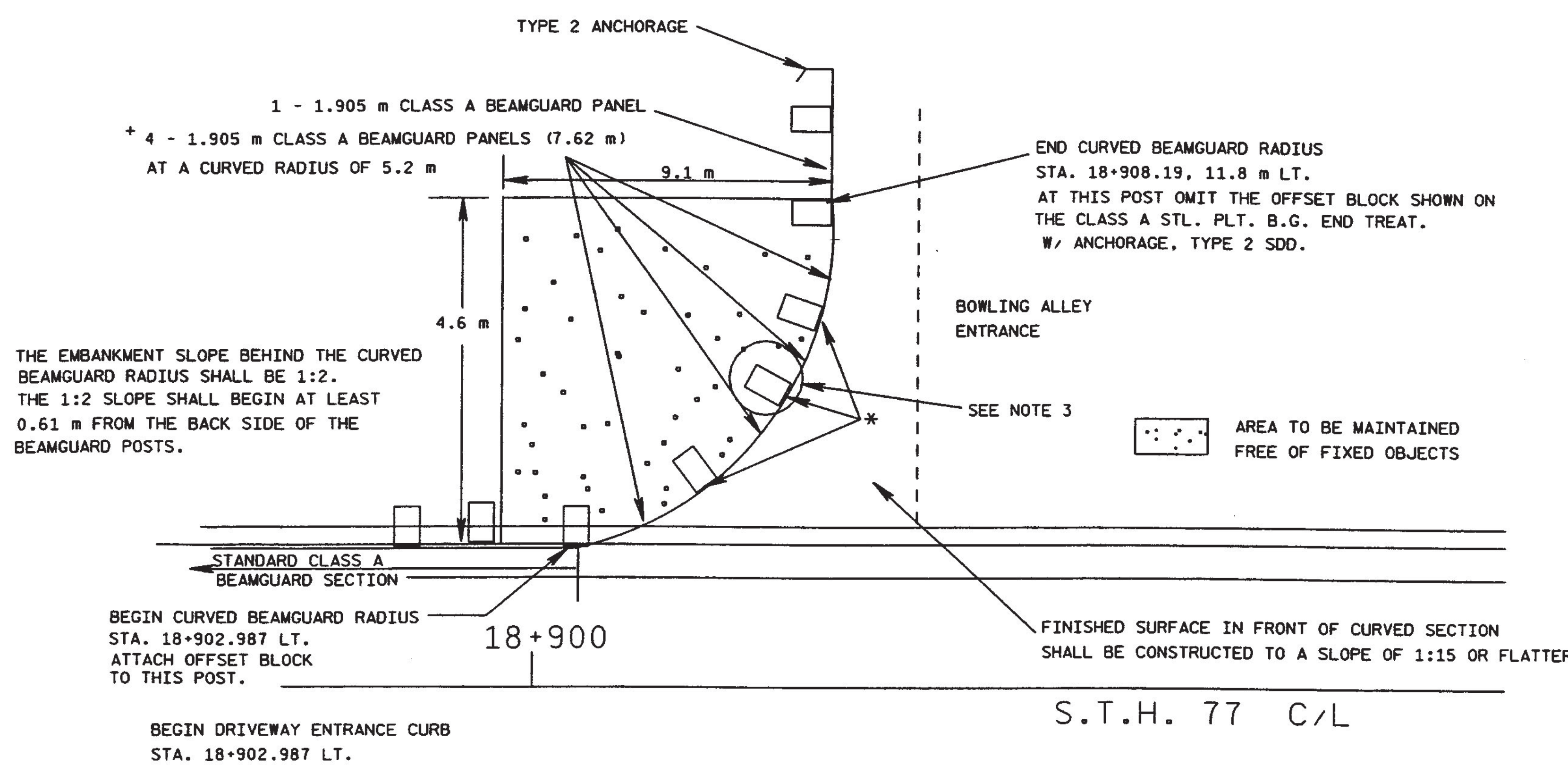


BEAMGUARD, ASPHALTIC PAVEMENT & DRIVEWAY ENTRANCE CURB LAYOUT DETAIL

STA. 18+929.65 - 18+944.89 RT.
STEEL PLATE BEAM GUARD,
ENERGY ABSORBING TERMINAL

STA. 18+941 - 18+954 RT.
DRIVEWAY ENTRANCE CURB REQ'D *

STA. 18+940 -18+954.4 RT.
REMOVE EXISTING CURB & GUTTER
INSTALL DRIVEWAY ENTRANCE CURB. SHAPE AREA BEHIND CURB TO MATCH NEW ENTRANCE CURB (1.8m FROM BACK OF CURB TYPICAL) SOD DISTURBED AREA.



CURVED BEAMGUARD RADIUS LAYOUT DETAIL

* NOTES:

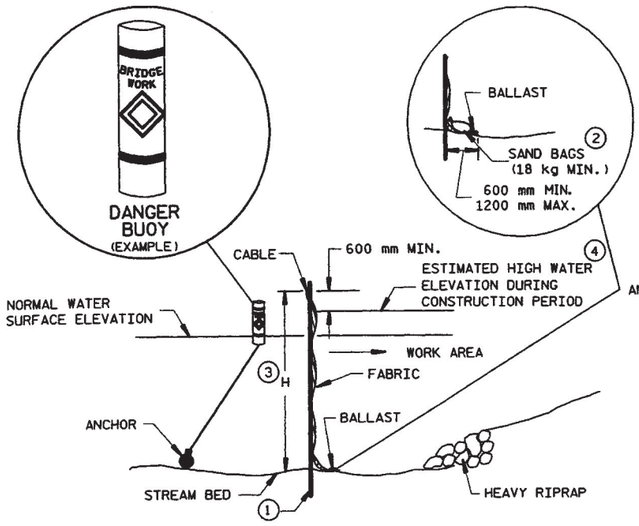
1. OFFSET BLOCKS SHALL NOT BE ATTACHED TO THE 3 150 mm X 200 mm POSTS IN THE MIDDLE OF THE CURVED BEAMGUARD RADIUS.
2. NO WASHERS SHALL BE PLACED ON THE M16 BUTTON HEAD BOLTS CONNECTING THE RAIL TO THE POSTS ADJACENT TO THE CENTER POST IN THE RADIUS.
3. DO NOT BOLT RAIL TO CENTER POST IN RADIUS.
4. TWO 89 mm DIA. HOLES SHALL BE DRILLED THROUGH EACH OF THESE 3 POSTS. THE HOLES SHALL BE CENTERED IN THE 200 mm SIDE OF THE POSTS. IN EACH POST THE LOWER HOLE SHALL BE 711 mm ABOVE THE BOTTOM (EMBEDDED) END OF THE POST. THE UPPER HOLE SHALL BE 711 mm BELOW THE TOP END OF THE POST.

\+ NOTE: ONE 7.62 m CLASS A BEAMGUARD PANEL SHALL BE SHOP BENT TO PROVIDE THE CURVED BEAMGUARD RADIUS.

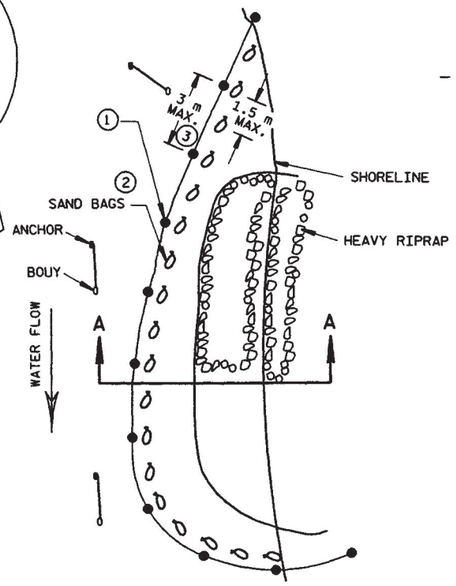
PLOT SCALE:
PLOT NAME:
REV. DATE:
ORIGINATOR:
FILE NAME: x:\projects\d8\85200600\misc\detail2.dgn
LEVELS ON - 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63

LAYOUT DETAILS	SCALE: 1:	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 27	M

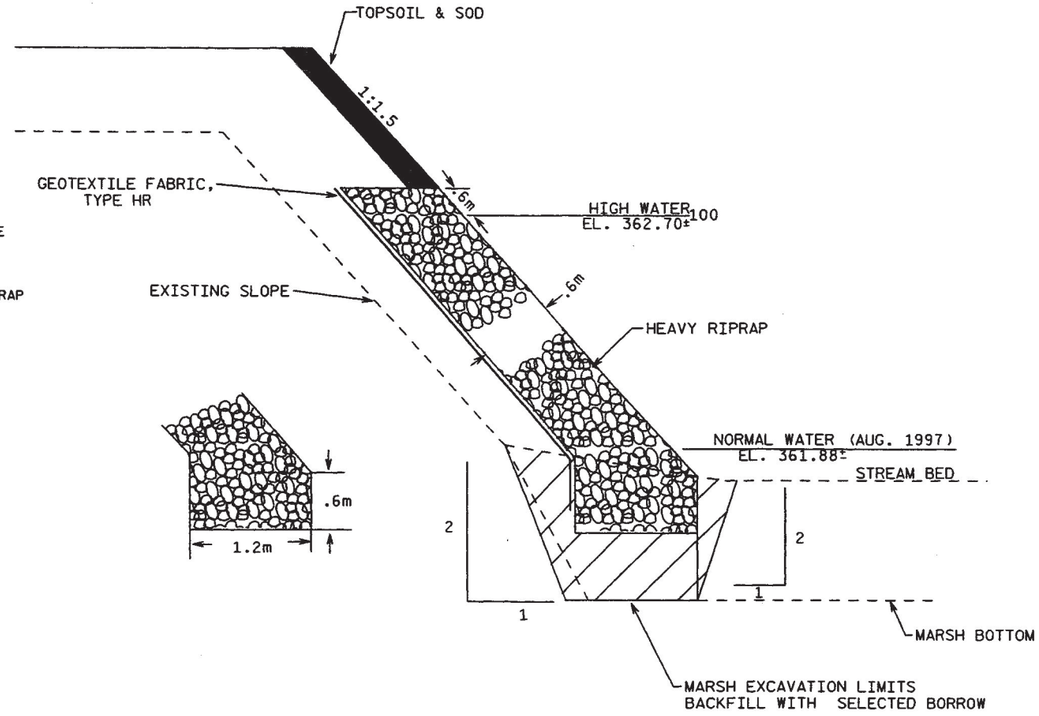
WisDOT: MSHT20



SECTION A-A



PLAN VIEW

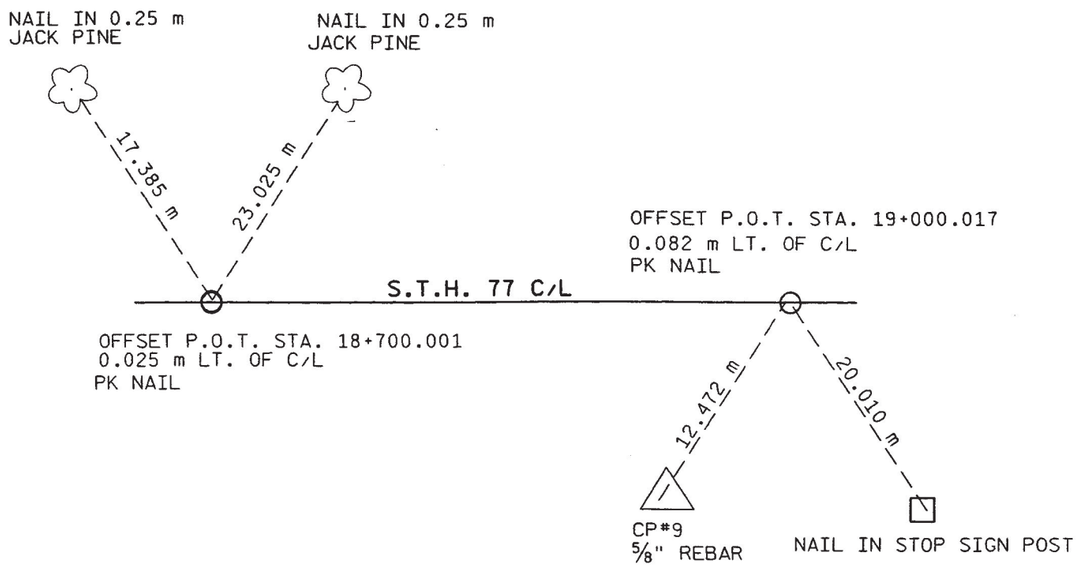


NOTES:

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.
3. WHEN BARRIER HEIGHT, H, EXCEEDS 2.4 m, POST SPACING MAY NEED TO BE DECREASED.
4. ELEVATION VALUE TO BE ESTABLISHED BY THE CONTRACTOR BASED ON THE TIME OF YEAR AND DURATION OF THE ACTIVITY.

TURBIDITY BARRIER DETAIL

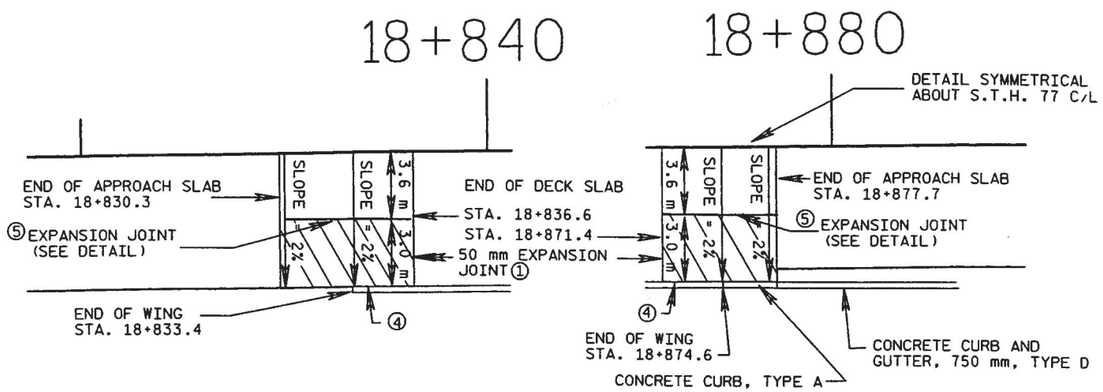
HEAVY RIPRAP DETAIL



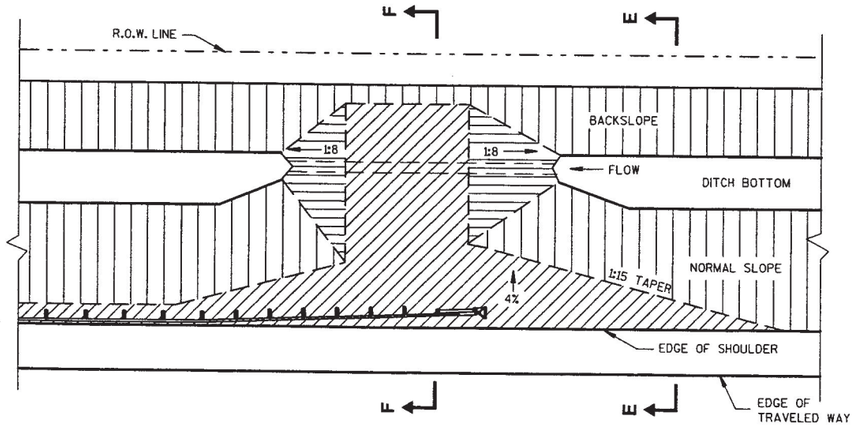
LEVELS ON • 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63

STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	DETAILS AND C/L TIES	SHEET NO: 2.8	M

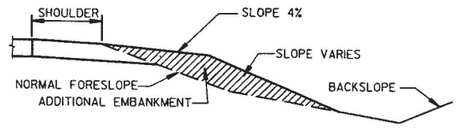
FILE NAME: x:\projects\d8\85200600\miscdetail.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 2089.886217:1.000000 PLOT DATE: 29-SEP-1999 07:11 WisDOT: MSHT20



CONCRETE PAVEMENT APPROACH SLAB AND CONCRETE PAVEMENT, 300 mm LAYOUT DETAIL



PLAN VIEW



SECTION E-E

NOTES

① SAME AS SHOWN ON SDD FOR CONCRETE PAVEMENT APPROACH SLAB. LOCATED FROM EDGE OF APPROACH SLAB TO FACE OF PARAPET.

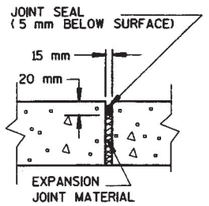
② 10M X 600 mm TIE BARS SPACED AT 300 mm CENTERS TO BE PLACED BY BRIDGE CONTRACTOR. OR PAVEMENT TIES PLACED AS DIRECTED BY THE ENGINEER. TIE BARS OR PAVEMENT TIES SHALL BE INCIDENTAL TO THE CONCRETE PAVEMENT, 300 mm BID ITEM.

③ 200 mm MIN. CRUSHED AGGREGATE BASE COURSE REQ'D UNDER CONCRETE PAVEMENT APPROACH SLAB AND CONCRETE PAVEMENT, 300 mm.

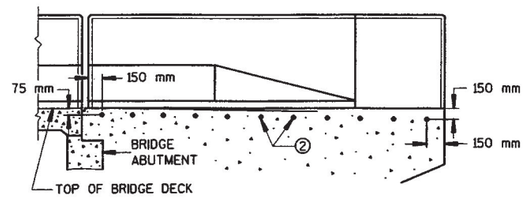
④ TIE CONCRETE PAVEMENT, 300 mm TO WINGWALLS AS SHOWN IN DETAIL AND AS DESCRIBED IN NOTE ② ABOVE.

⑤ REQUIRED BETWEEN CONCRETE PAVEMENT APPROACH SLAB AND CONCRETE PAVEMENT, 300 mm.

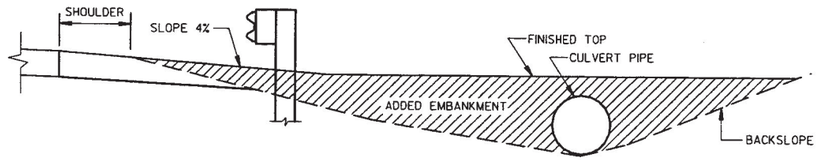
CONCRETE PAVEMENT, 300 mm



EXPANSION JOINT DETAIL



LOCATION OF TIE BARS IN WINGWALL



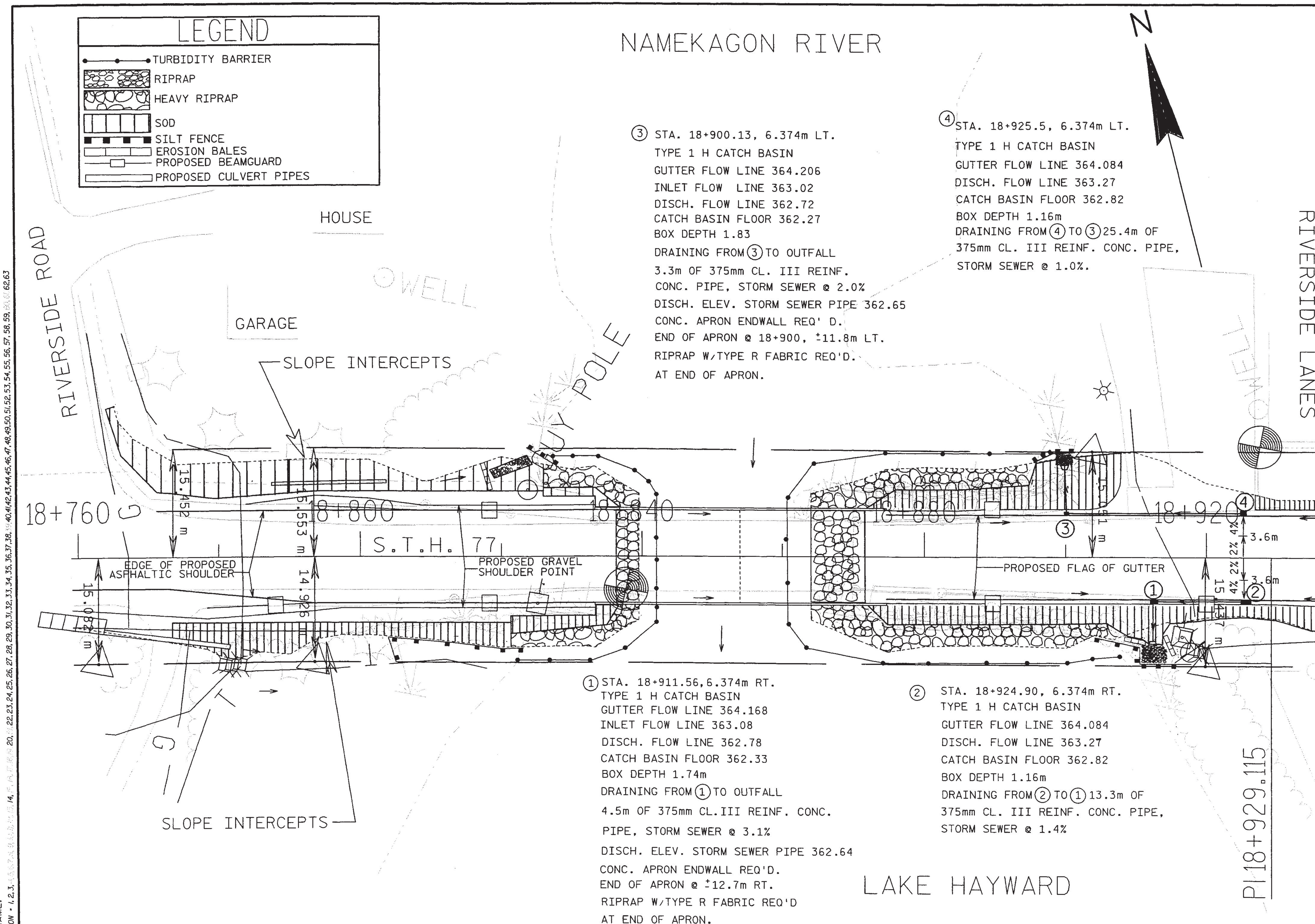
SECTION F-F

CULVERT PIPE IN DITCH BEHIND ENERGY ABSORBING TERMINAL DETAIL

STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	LAYOUT DETAILS	SHEET NO: 29	M

FILE NAME: x:\projects\d8\85200600\slablayout.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 2089.886217:1.000000 PLOT DATE: 07-OCT-1999 06:52 WisDOT: MSHT20

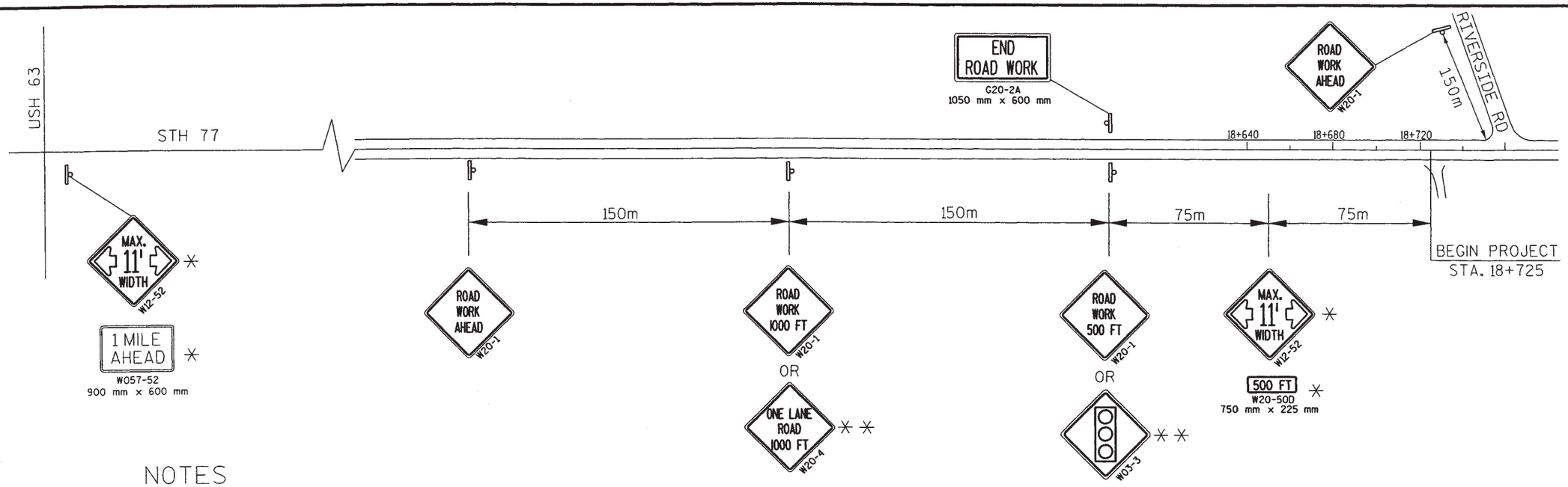
LEVELS ON - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63


LEGEND
TURBIDITY BARRIER
RIPRAP
HEAVY RIPRAP
SOD
SILT FENCE
EROSION BALES
PROPOSED BEAMGUARD
PROPOSED CULVERT PIPES
NAMEKAGON RIVER
HOUSE
GARAGE
WELL
GUY POLE
RIVERSIDE ROAD
RIVERSIDE LANES
SLOPE INTERCEPTS
18+760
18+800
18+840
18+880
18+920
S.T.H. 77
EDGE OF PROPOSED ASPHALTIC SHOULDER
PROPOSED GRAVEL SHOULDER POINT
PROPOSED FLAG OF GUTTER
15.452 m
15.553 m
14.926
15.082 m
3.6m
3.6m
4% 2% 2% 4%
③ STA. 18+900.13, 6.374m LT.
TYPE 1 H CATCH BASIN
GUTTER FLOW LINE 364.206
INLET FLOW LINE 363.02
DISCH. FLOW LINE 362.72
CATCH BASIN FLOOR 362.27
BOX DEPTH 1.83
DRAINING FROM ③ TO OUTFALL
3.3m OF 375mm CL. III REINF.
CONC. PIPE, STORM SEWER @ 2.0%
DISCH. ELEV. STORM SEWER PIPE 362.65
CONC. APRON ENDWALL REQ'D.
END OF APRON @ 18+900, ±11.8m LT.
RIPRAP W/TYPE R FABRIC REQ'D.
AT END OF APRON.
④ STA. 18+925.5, 6.374m LT.
TYPE 1 H CATCH BASIN
GUTTER FLOW LINE 364.084
DISCH. FLOW LINE 363.27
CATCH BASIN FLOOR 362.82
BOX DEPTH 1.16m
DRAINING FROM ④ TO ③ 25.4m OF
375mm CL. III REINF. CONC. PIPE,
STORM SEWER @ 1.0%.
① STA. 18+911.56, 6.374m RT.
TYPE 1 H CATCH BASIN
GUTTER FLOW LINE 364.168
INLET FLOW LINE 363.08
DISCH. FLOW LINE 362.78
CATCH BASIN FLOOR 362.33
BOX DEPTH 1.74m
DRAINING FROM ① TO OUTFALL
4.5m OF 375mm CL. III REINF. CONC.
PIPE, STORM SEWER @ 3.1%
DISCH. ELEV. STORM SEWER PIPE 362.64
CONC. APRON ENDWALL REQ'D.
END OF APRON @ ±12.7m RT.
RIPRAP W/TYPE R FABRIC REQ'D
AT END OF APRON.
② STA. 18+924.90, 6.374m RT.
TYPE 1 H CATCH BASIN
GUTTER FLOW LINE 364.084
DISCH. FLOW LINE 363.27
CATCH BASIN FLOOR 362.82
BOX DEPTH 1.16m
DRAINING FROM ② TO ① 13.3m OF
375mm CL. III REINF. CONC. PIPE,
STORM SEWER @ 1.4%
LAKE HAYWARD
PI 18+929.115
N

EROSION CONTROL & STORM SEWER DETAIL	SCALE: 1:	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 2.10	M

WISDOT: MSHT20

PLOT SCALE: PLOT NAME: REV. DATE: ORIGINATOR: FILE NAME: LEVELS ON - 1,2,3, ... 20, 22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38, ... 40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59, ... 62,63



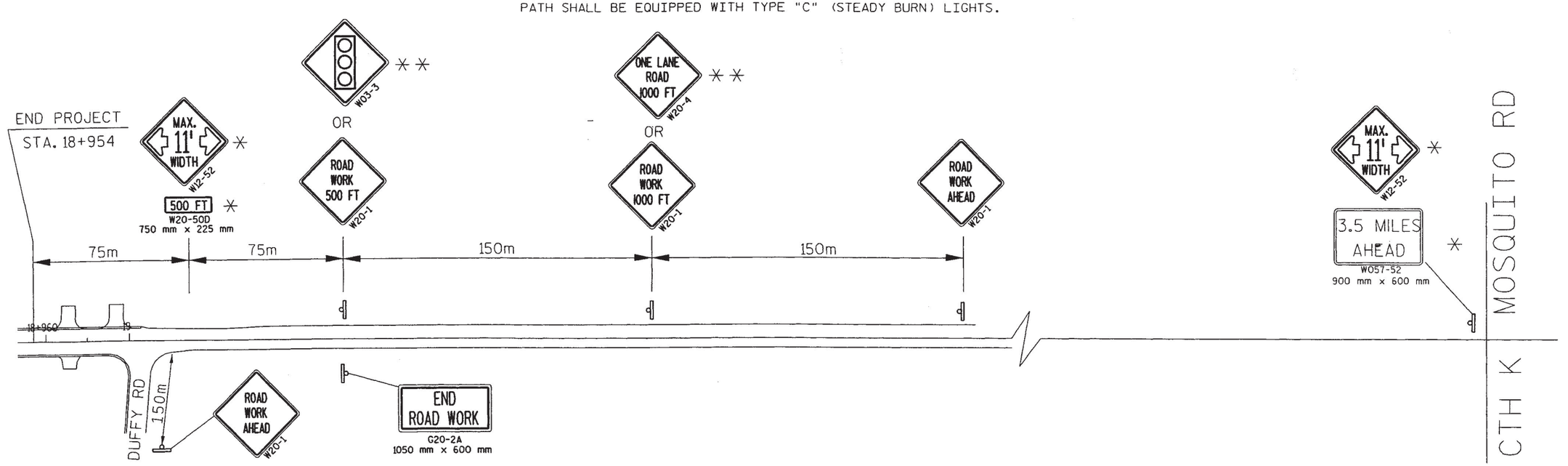
NOTES

✳✳ SIGNS TO BE IN PLACE WHEN SIGNALS ARE IN OPERATION.

✳ SIGNS TO BE IN PLACE DURING STAGE ONE OF CONSTRUCTION ONLY.

TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF TRAFFIC CONTROL DEVICES (WMUTCD).
2. THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER
3. DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW-INTENSITY FLASHING) LIGHTS AND DEVICES USED TO DELINEATE A TRAVEL PATH SHALL BE EQUIPPED WITH TYPE "C" (STEADY BURN) LIGHTS.
4. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKROUND SHALL BE ORANGE.
5. ALL SIGNS ARE 1200mm X 1200mm , UNLESS OTHERWISE NOTED.
6. ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS, OR AS DIRECTED BY THE ENGINEER IN THE FIELD.



STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	NAMEKAGON RIVER BRIDGE TRAFFIC CONTROL	SHEET NO: 2.11	M

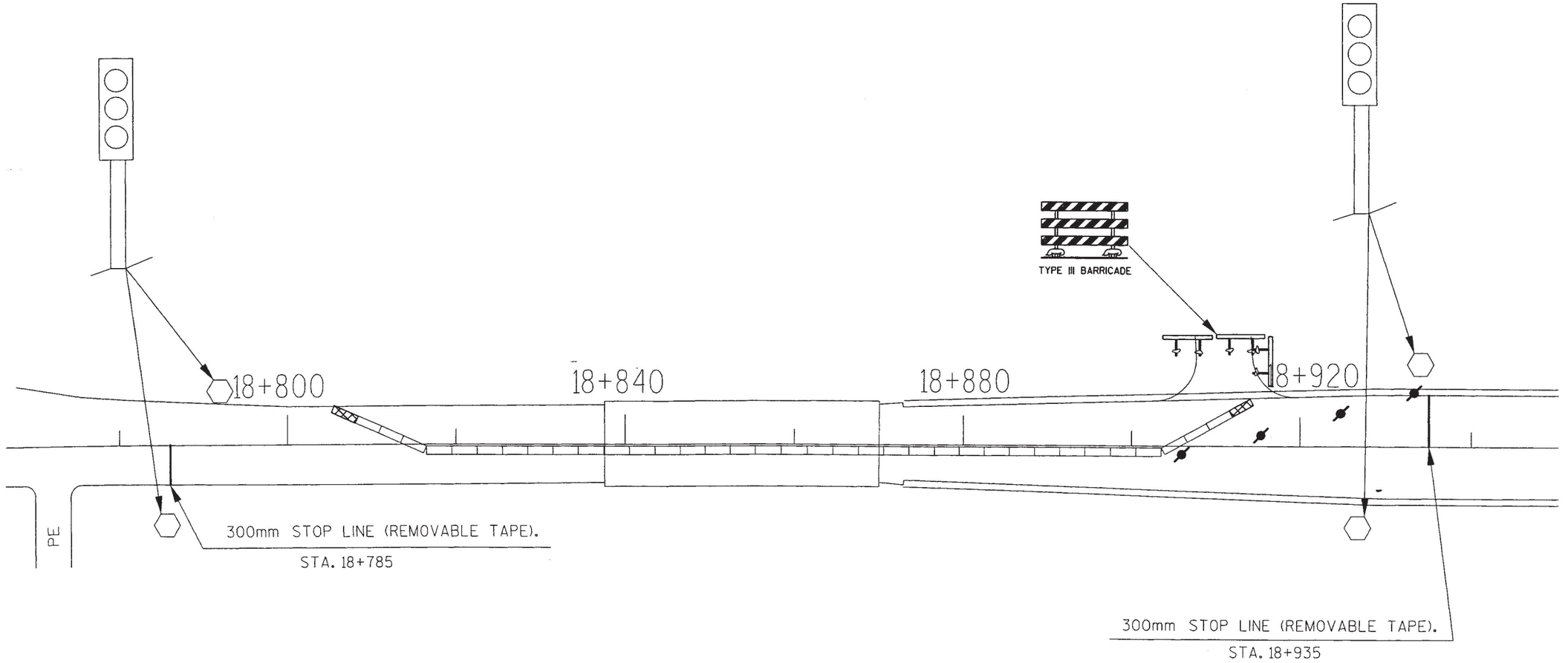
FILE NAME: x:\projects\d8\85200600\trfcntl.dgn ORIGINATOR: REV. DATE: PLOT SCALE : 2089.886217:1.000000 PLOT DATE: 07-OCT-1999 07:42 WisDOT: MSHT20

LEGEND

- DRUMS WITH TYPE "C" STEADY BURN LIGHT
- PRECAST CONCRETE BARRIER
- PRECAST BARRIER SLOPED END SECTION
- SIGN MOUNTED ON PERMANENT POST
- TEMPORY TRAFFIC SIGNALS TO BE INSTALLED BY STATE FORCES

NOTES

1. STAGE I TRAFFIC CONTROL SHOWN. LOCATION OF CONCRETE BARRIER AND DRUMS AS SHOWN BELOW SHALL BE REVERSED FOR STAGE II.
2. CONTRACTOR SHALL COORDINATE WITH STATE FORCES FOR THE INSTALLATION OF TRAFFIC SIGNALS.
3. DRUMS IN LANE CLOSURE SHALL BE PLACE AT 9m INTERVALS.
4. TAPERS FOR THE PRECAST CONCRETE BARRIER SHALL BE 12m IN LENGTH AND SHALL EXTEND TO THE EDGE OF THE TRAVELED WAY (TO THE EDGE LINE).



STATE PROJECT NO: 8520-06-71	HWY: S.T.H. 77	COUNTY: SAWYER	NAMEKAGON RIVER BRIDGE TRAFFIC CONTROL	SHEET NO: 2.12	M

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8520-06-71 QUANTITY
0010	20351	REMOVING OLD BRIDGE, STATION 18+854.00	LS	1.00	1.00
0020	20402	REMOVING ASPHALTIC SURFACE	M2	188.00	188.00
0030	20405	REMOVING CURB AND GUTTER	M	151.00	151.00
0040	20411	REMOVING GUARDRAIL	M	133.00	133.00
0050	20416	REMOVING INLETS	EACH	2.00	2.00
0060	20419	REMOVING ASPHALTIC SURFACE, BUTT JOINTS	M2	175.00	175.00
0070	20503	UNCLASSIFIED EXCAVATION	M3	75.00	75.00
0080	20505	MARSH EXCAVATION	M3	237.00	237.00
0090	20610	EXCAVATION FOR STRUCTURES, BRIDGES B-57-61	LS	1.00	1.00
0100	20811	SELECTED BORROW EXCAVATION	M3	1,088.00	1,088.00
0110	21301	FINISHING ROADWAY	LS	1.00	1.00
0120	30404	CRUSHED AGGREGATE BASE COURSE	MG	1,352.00	1,352.00
0130	40204	ASPHALTIC MATERIAL FOR TACK COAT	L	415.00	415.00
0140	40301	QMP, ASPHALTIC MIXTURE	MG	718.00	718.00
0150	40501	ASPHALTIC MATERIAL FOR PLANT MIXES	MG	42.00	42.00
0160	40713	ASPHALTIC CONCRETE PAVEMENT, TYPE MV	MG	718.00	718.00
0170	41106	ASPHALTIC SURFACE, TEMPORARY	MG	35.00	35.00
0180	41512	CONCRETE PAVEMENT, 300 MM	M2	75.00	75.00
0190	41621	CONCRETE PAVEMENT APPROACH SLAB	M2	90.00	90.00
0200	50201	CONCRETE MASONRY, BRIDGES	M3	232.00	232.00
0210	50265	PROTECTIVE SURFACE TREATMENT	M2	535.00	535.00
0220	50301	PRESTRESSED GIRDER, I TYPE, 710 MM	M	274.00	274.00
0230	50504	HIGH STRENGTH BAR STEEL REINFORCEMENT, BRIDGES	KG	5,990.00	5,990.00
0240	50511	COATED HIGH STRENGTH BAR STEEL REINFORCEMENT, BRIDGES	KG	15,960.00	15,960.00
0250	50626	NON-LAMINATED ELASTOMERIC BEARING PADS	EACH	24.00	24.00
0260	50640	STEEL DIAPHRAGMS, STRUCTURE B-57-61	EACH	14.00	14.00
0270	51030	CAST IN PLACE CONCRETE PILING, DELIVERED AND DRIVEN, 273 MM	M	759.00	759.00
0280	51350	TUBULAR RAILING, TYPE H, STRUCTURE B-57-61	LS	1.00	1.00
0290	51605	RUBBERIZED MEMBRANE WATERPROOFING	M2	14.00	14.00
0300	52003	CULVERT PIPE, CLASS III, 450 MM	M	37.80	37.80
0310	52061	APRON ENDWALLS FOR CULVERT PIPE, 450 MM	EACH	4.00	4.00
0320	52138	CORRUGATED STEEL PIPE ARCH, 680 X 500 MM	M	3.00	3.00

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8520-06-71 QUANTITY
0330	52164	STEEL APRON ENDWALLS FOR PIPE ARCH, 680 X 500 MM	EACH	2.00	2.00
0340	52261	REINFORCED CONCRETE APRON ENDWALLS FOR CULVERT PIPE, 375 MM	EACH	2.00	2.00
0350	60101	CONCRETE CURB, TYPE A	M	6.20	6.20
0360	60133	CONCRETE CURB AND GUTTER, 750 MM, TYPE D	M	120.00	120.00
0370	60305	TEMPORARY PRECAST CONCRETE BARRIER, CONTRACTOR FURNISHED AND DELIVERED	M	168.00	168.00
0380	60308	TEMPORARY PRECAST CONCRETE BARRIER, CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	M	258.00	258.00
0390	60601	RIPRAP	M3	18.90	18.90
0400	60602	HEAVY RIPRAP	M3	606.60	606.60
0410	60826	REINFORCED CONCRETE PIPE, CLASS III, STORM SEWER, 375 MM	M	46.50	46.50
0420	61101	CATCH BASINS, TYPE 1	EACH	4.00	4.00
0430	61167	INLET COVERS, TYPE H	EACH	4.00	4.00
0440	61407	STEEL THRIE BEAM STRUCTURE APPROACH	M	40.40	40.40
0450	61408	STEEL PLATE BEAM GUARD, CLASS A	M	120.02	120.02
0460	61413	ANCHORAGES FOR STEEL PLATE BEAM GUARD, TYPE 2	EACH	1.00	1.00
0470	61433	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4.00	4.00
0480	61435	STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL	EACH	3.00	3.00
0490	61910	MOBILIZATION	LS	1.00	1.00
0500	62501	TOPSOIL	M2	1,151.00	1,151.00
0510	62811	EROSION BALES, DELIVERED	EACH	18.00	18.00
0520	62812	EROSION BALES, INSTALLED	EACH	18.00	18.00
0530	62815	SILT FENCE, DELIVERED	M	42.00	42.00
0540	62816	SILT FENCE, INSTALLED	M	42.00	42.00
0550	62817	SILT FENCE MAINTENANCE	M	42.00	42.00
0560	62832	EROSION MAT, DELIVERED, CLASS II, TYPE B	M2	300.00	300.00
0570	62833	EROSION MAT, INSTALLED, CLASS II, TYPE B	M2	300.00	300.00
0580	63101	SODDING	M2	1,618.00	1,618.00
0590	64202	FIELD OFFICE, TYPE B	LS	1.00	1.00
0600	64301	TRAFFIC CONTROL	LS	1.00	1.00
0610	64505	GEOTEXTILE FABRIC, TYPE R	M2	31.00	31.00

ESTIMATE OF QUANTITIES

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8520-06-71 QUANTITY
0620	64506	GEOTEXTILE FABRIC, TYPE HR	M2	1,033.10	1,033.10
0630	64602	PAVEMENT MARKING, 100 MM, EPOXY	M	670.00	670.00
0640	64901	TEMPORARY PAVEMENT MARKING, 100 MM	M	60.00	60.00
0650	64910	TEMPORARY PAVEMENT MARKING, STOP LINE, 300 MM, REMOVABLE TAPE	M	7.30	7.30
0660	90002	MISC 90002A TEMPORARY SHORING	M2	32.00	32.00
0670	90005	MISC 90005A BAR COUPLERS, 16MM	EACH	8.00	8.00
0680	90005	MISC 90005B BAR COUPLERS, 25MM	EACH	16.00	16.00
0690	90656	TURBIDITY BARRIERS	M2	416.30	416.30

REMOVING ASPHALTIC SURFACE

STATION TO STATION	LOCATION	20402 m2	REMARKS
18+810 - 18+830.3	LT.	108.0	TEMP. ASPH. SURFACE
18+877.7 - 18+892.7	LT.	80.0	TEMP. ASPH. SURFACE
	TOTAL	188	

CRUSHED AGGREGATE BASE COURSE

STATION TO STATION	LOCATION	30404 Mg	REMARKS
18+758 - 18+830.35	MAINLINE	997	INCL. RIVERSIDE RD.
18+725 - 18+830.35	SHOULDER	115	
18.877.65 - 18+905.5	MAINLINE	240	
	TOTAL	1,352	

ASPHALTIC SURFACE TEMPORARY

STATION TO STATION	LOCATION	41106 Mg	REMARKS
18+810 - 18+830.3	LT.	20.0	75mm x 5.3m STAGE 2 TRAFFIC
18+877.7 - 18+892.7	LT.	15.0	75mm x 5.3m STAGE 2 TRAFFIC
	TOTAL	35	

REMOVING CURB & GUTTER

STATION TO STATION	LOCATION	20405 m
18+872 - 18+930	LT. RT.	136
18+940 - 18+955	RT.	15
	TOTAL	151

REMOVING GUARDRAIL

STATION TO STATION	LOCATION	20411 m
18+809 - 18+837	LT.	28
18+802 - 18+837	RT.	35
18+869 - 18+900	LT.	31
18+869 - 18+908	RT.	39
	TOTAL	133

ASPHALTIC CONCRETE PAVEMENT SUMMARY

STATION TO STATION	LOCATION	40501 ASPH. CONC. PAV., TYPE MV Mg	40301 ASPH. MAT'L FOR PLANT MIX Mg	40204 ASPH. MAT'L FOR TACK COAT L	40301 QMP ASPHALTIC MIX. Mg
18+725 - 18+830.35	MAINLINE & SHOULDERS	507	30	268	507
18+877.65 - 18+930	MAINLINE & SHOULDERS	189	11	120	189
RIVERSIDE ROAD		22	1	27	22
	TOTALS	718	42	415	718

CONCRETE PAVEMENT, 300mm

STATION TO STATION	LOCATION	41512 m2
18+830.35 - 18+836.60	LT. RT.	37.50
18+871.40 - 18+877.65	LT. RT.	37.50
	TOTAL	75.0

CONCRETE PAVEMENT APPROACH SLAB

STATION TO STATION	LOCATION	41621 m2
18+830.35 - 18+836.60	MAINLINE	45
18+871.40 - 18+877.65	MAINLINE	45
	TOTAL	90

CULVERT PIPE CLASS III, 450mm

STATION TO STATION	LOCATION	52003 m	THICKNESS STEEL mm	52061 AEW
18+767.5 - 18+787.7	RT	20.73	1.63	2
18+787.5 - 18+803.8	LT	17.07	1.63	2
	TOTAL	37.80		4

REMOVING INLETS

STATION	LOCATION	20416 EACH
18+903	5m LT.	1
18+907	7m RT	1
	TOTAL	2

CORRUGATED STEEL PIPE ARCH 680x500mm

STATION	LOCATION	52138 m	THICKNESS mm	52164 AEW	REMARKS
18+752	12.1 LT.	1.2	1.63	1	EXTENSION
18+767.1	12.3 LT.	1.8	1.63	1	EXTENSION
	TOTAL	3		2	

REMOVING ASPHALTIC SURFACE BUTT JOINTS

STATION TO STATION	LOCATION	20419 m2
18+725 - 18+733	MAINLINE	73
18+921.5 - 18+930	MAINLINE	102
	TOTAL	175

CONCRETE CURB TYPE "A"

STATION TO STATION	LOCATION	60101 m
18+874.6 - 18+877.7	LT. RT.	6.2
	TOTAL	6.2

CONC. CURB & GUTTER, 750mm, TYPE D

STATION TO STATION	LOCATION	60133 m	REMARKS
18+877.65 - 18+930	LT. RT.	105	
18+940 - 18+955	RT.	15	DRIVE ENT. CURB
	TOTAL	120	

ORIGINATOR: FRANCIS M. SCHLEICHER ORIG. DATE: 7-1-97 REV. DATE: 7-1-97

TEMP. PRECAST CONC. BARRIER, CONTRACTOR FURNISHED & DELIVERED

STATION TO STATION	LOCATION	60305 m	REMARKS
18+804 - 18+915	CL	111	STAGE 1, INC. 2 SLOPED END SECT.
18+824.4 - 18+883.6	WINGS 2 & 3	18	STAGE 2, INC. 2 SLOPED END SECT.
18+811 - 18+832	CL	21	STAGE 2
18+876 - 18+894	CL	18	STAGE 2
	TOTAL	168	

STEEL THRIE BEAM STRUCT. APPR.

STATION TO STATION	LOCATION	61407 m
18+824.07 - 18+834.17	LT. RT.	20.2
18+873.83 - 18+883.93	LT. RT.	20.2
	TOTAL	40.4

STEEL PLATE B.G., CLASS A

STATION TO STATION	LOCATION	61408 m	REMARKS
18+793.59 - 18+824.07	RT.	30.48	
18+808.83 - 18+824.07	LT.	15.24	
18+883.93 - 18+908.19	LT.	28.58	INCLUDES C.E. RADIUS
18+883.93 - 18+929.65	RT.	45.72	
	TOTAL	120.02	

TEMP. PRECAST CONC. BARRIER,CONTRACTOR FURNISHED, CONTRACTOR INSTALLED

STATION TO STATION	LOCATION	60308 m	REMARKS
18+804 - 18+915	CL.	111	STAGE 1, INC. 2 SLOPED END SECT.
18+804 - 18+915	CL.	111	STAGE 2, INC. 2 SLOPED END SECT.
18+824.4 - 18+883.6	WINGS 2 & 3	18	STAGE 2, INC. 2 SLOPED END SECT.
18+824.4 - 18+883.6	WINGS 1 & 4	18	AFTER STAGE 2, INC. 2 SLOPED END SECT.
	TOTAL	258	

ANCHORAGES BEAM GUARD, TYPE 2

STATION	LOCATION	61413 EACH
18+908.19	LT.	1
	TOTAL	1

STEEL PLATE B.G. ENERGY ABSORBING TERMINAL

STATION TO STATION	LOCATION	61435 EACH
18+778.35 - 18+793.59	RT.	1
18+929.65 - 18+944.89	RT.	1
18+793.59 - 18+808.83	LT.	1
	TOTAL	3

RIPRAP

STATION TO STATION	LOCATION	60601 m3
18+820 - 18+826	LT.	7.3
18+899 - 18+901	LT.	2.4
18+908 - 18+913	RT.	9.2
	TOTAL	18.9

HEAVY RIPRAP

STATION TO STATION	LOCATION	60602 m3
18+870.2 - 18+877.65	RT.	31
18+822 - 18+837.5	RT.	54.2
18+826 - 18+837.5	LT.	38.2
18+836 - 18+840	MAINLINE	34.2
18+864 - 18+871	MAINLINE	87.5
18+870.2 - 18+877.65	LT.	22.6
18+877.65 - 18+900	LT.	78.0
18+877.65 - 18+910	RT.	125.9
	TOTAL	471.6

TOPSOIL

STATION TO STATION	LOCATION	62501 m2
18+740 - 18+837.5	LT.	445
18+740 - 18+837.5	RT.	466
18+870 - 18+930	LT.	167
18+870 - 18+930	RT.	73
	TOTAL	1,151

EROSION BALES DELIVERED &INSTALLED

STATION TO STATION	LOCATION	62811 EACH	62812 EACH
18+818	11m LT.	6	6
18+908 - 18+912	12m RT.	6	6
18+915	12m RT.	6	6
	TOTAL	18	18

RCP, CL III STORM SEWER, 375mm

STATION TO STATION	LOCATION	60826 m	52261 AEWS
18+900.13 - 18+925.5	LT.	28.7	1
18+911.56 - 18+924.9	RT.	17.8	1
	TOTAL	46.5	2

SILT FENCE DELIVERED, INSTALLED, & MAINTAINED

STATION TO STATION	LOCATION	62815 m	62816 m	62817 m
18+823 - 18+828	15m LT.	5	5	5
18+804 - 18+823	12m RT.	19	19	19
18+895 - 18+900	15m LT.	5	5	5
18+905 - 18+918	15m RT.	13	13	13
	TOTAL	42	42	42

CATCH BASINS TYPE I

STATION	LOCATION	61101 EACH
18+911.56	6.37m RT.	1
18+924.90	6.37m RT.	1
18+900.13	6.37m LT.	1
18+925.5	6.37m LT.	1
	TOTAL	4

INLET COVERS, TYPE H

STATION	LOCATION	61167 EACH
18+911.56	6.37m RT.	1
18+924.90	6.37m RT.	1
18+900.13	6.37m LT.	1
18+925.5	6.37m LT.	1
	TOTAL	4

SODDING

STATION TO STATION	LOCATION	63101 m2
18+740 - 18+837.5	LT.	565
18+740 - 18+837.5	RT.	602
18+870 - 18+930	LT.	250
18+870 - 18+930	RT.	174
18+940 - 18+955	RT.	27
	TOTAL	1618.0

EROSION MAT CLASS II TYPE B DELIVERED & INSTALLED

STATION TO STATION	LOCATION	62832 m2	62833 m2
18+741 - 18+930	UNDISTRIBUTED	300	300
	TOTAL	300	300

GEOTEXTILE FABRIC TYPE R

STATION TO STATION	LOCATION	64505 m2
18+820 - 18+926	LT.	12
18+899 - 18+901	LT.	4
18+908 - 18+913	RT.	15
	TOTAL	31

PAVEMENT MARKING, 100mm EPOXY

STATION TO STATION	LOCATION	64602 m	REMARKS
18+720 - 18+960	MAINLINE	60	CL DASH
18+830 - 18+960	MAINLINE	130	SOLID YELLOW
18+720 - 18+960	MAINLINE	480	WHITE EDGELINE
	TOTAL	670	

TEMP. PAVEMENT MARK ,STOP LINE, 300mm, REMOVE. TAPE

STATION	LOCATION	64910 m	REMARKS
18+785	RT.	3.65	STAGE 1 & 2
18+935	LT.	3.65	STAGE 1 & 2
	TOTAL	7.3	

GEOTEXTILE FABRIC , TYPE HR

STATION TO STATION	LOCATION	64506 m2
18+822 - 18+837.5	RT.	88.9
18+826 - 18+837.5	LT.	62.6
18+836 - 18+840	MAINLINE	56
18+864 - 18+871	MAINLINE	143.5
18+870.2 - 18+877.65	LT.	37
18+870.2 - 18+877.65	RT.	50.9
18+877.65 - 18+900	LT.	127.8
18+877.65 - 18+910	RT.	206.4
	TOTAL	773.1

TEMP PAVEMENT MARKING, 100mm

STATION TO STATION	LOCATION	64901 m	REMARKS
18+720 - 18+960	MAINLINE	60	CL DASH
	TOTAL	60	

TURBIDITY BARRIER

STATION TO STATION	LOCATION	90656 m2	EST. HEIGHT
18+822 - 18+842	MAINLINE	146.5	2.6m
18+861 - 18+908	MAINLINE	269.8	2.6m
	TOTAL	416.3	

DETAIL SUMMARY OF EARTHWORK QUANTITIES

LOCATION			LEFT SIDE					RIGHT SIDE				
			CUT		FILL (SELECTED BORROW)			CUT		FILL (SELECTED BORROW)		
STATION TO STATION		LENGTH (m)	UNCLASS EXCAV. (m^3)	MARSH EXCAV. (m^3)	MAINLINE FILL (m^3)	S.R. FILL (m^3)	MARSH FILL(50%) (m^3)	UNCLASS EXCAV. (m^3)	MARSH EXCAV. (m^3)	MAINLINE FILL (m^3)	S.R. FILL (m^3)	MARSH FILL(50%) (m^3)
18+745.0	- 18+749.0	4.0			1					1		
18+749.0	- 18+760.0	11.0			5	2				5		
18+760.0	- 18+765.0	5.0			0	1				6		
18+765.0	- 18+770.0	5.0			2					3		
18+770.0	- 18+778.4	8.4			12					6		
18+778.4	- 18+780.0	1.6			3					4		
18+780.0	- 18+786.0	6.0			12					18		
18+786.0	- 18+790.0	4.0			11					10		
18+790.0	- 18+793.6	3.6			14					8		
18+793.6	- 18+800.0	6.4			25					10		
18+800.0	- 18+804.0	4.0			6					6		
18+804.0	- 18+808.8	4.8			2					3		
18+808.8	- 18+810.0	1.2			1					2		
18+810.0	- 18+820.0	10.0	2		18					35		
18+820.0	- 18+830.0	10.0	3	7	30		6		27	50		36
18+830.0	- 18+833.4	3.4		8	16		6		16	19		21
18+833.4	- 18+837.5	4.1		2	11		1		7	13		9
STRUCTURE B-57-61												
18+870.2	- 18+874.6	4.4		16	17		18		10	- 17		6
18+874.6	- 18+880.2	5.6	5	18	41		20	5	15	40		12
18+880.2	- 18+890.0	9.8	10	32	138		27	10	22	127		15
18+890.0	- 18+900.0	10.0	12	28	55		8	11	18	47		8
18+900.0	- 18+904.0	4.0	6		11			6	7	10		3
18+904.0	- 18+910.0	6.0	3		4			2	4	8		
18+910.0	- 18+915.0	5.0			1					2		
18+915.0	- 18+920.0	5.0			1					1		
18+920.0	- 18+925.0	5.0			0					1		
	TOTALS		41 (WASTE)	111 (WASTE)	437	3	86	34 (WASTE)	126 (WASTE)	452	0	110

ORIGINATOR: FRANCIS M. SCHLEHOUT ORIG. DATE: 7-1-97 REV. DATE: 7-1-97

STA. 18+760 SR. LT.
(SEE DETAIL)
EXISTING 680 mm X 500 mm CSPA
EXTEND 1.2 m LT., 1.8 m RT.
2 - AEW'S REQ'D.

STA. 18+787.5 - STA. 18+803.8 LT.
1- 450 mm X 17.07 m C.P., CL. III REQ'D.

STA. 18+767.5 - STA. 18+787.7 RT.
450mm x20.73m C.P., CL. III REQ'D.

BEGIN PROJECT 8520-06-71
STA. 18+725.0

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	18+837.74	BM9RSP1970 4.412m RT	364.287
10	18+927.57	SW CORNER -TOP CONC. STEP 16.084m LT.	364.782

ORIGIN OF LEVELS

BM 9 RSP 1970 1195.165
BM, HAYWARD, ABOUT 1.25 MI. E. OF NW SEC. 26; T. 41 N., R. 9W., AT STATE HWY. 77 BRIDGE OVER THE NAMEKAGON RIVER; 16FT S., 56FT W., AND 0.6 FT HIGHER THAN CENTER OF BRIDGE ON TOP OF W. END OF CONCRETE CURB; STANDARD TABLET STAMPED "9 RSP 1970"

N

RIVERSIDE ROAD
HOUSE
NAMEKAGON RIVER
OWELL
GARAGE
NEW BEAMGUARD (TYP.)
SLOPE INTERCEPTS
GUY POLE
RIVERSIDE LANES
BOWLING ALLEY
S.T.H. 77
EXISTING STRUCTURE B - 57 - 0409
NEW STRUCTURE B - 57 - 61
SLOPE INTERCEPTS
EDGE OF FINISHED ASPHALTIC PAVEMENT (TYP.)
650 mm RED PINE*
500 mm WHITE PINE*
LAKE HAYWARD
EDGE OF FINISHED C.A.B.C. SHOULDER (TYP.)
*NOTE: STEEPEN PROPOSED SIDESLOPE IF NECESSARY TO SAVE THESE TREES
HAYWARD MARINE
DUFFY ROAD

18+680 18+720 18+760 18+800 18+840 18+880 18+920 18+960 19

15.299 m 15.082 m 15.492 m 15.553 m 14.926 m 15.041 m 15.487 m 15.077 m 15.321 m

POT 18+738.691
POT 18+929.115
PI 19+040.000

END PROJECT 8520-06-71
STA. 18+954.0

STA. 18+853.8
REMOVE EXISTING 3-SPAN STEEL DECK GIRDER BRIDGE (B-57-409) 32.38m LONG AND 9.144m CLEAR ROADWAY WIDTH

STA. 18+854.0
STRUCTURE B-57-61 REQ'D. TWO SPAN 710mm PRESTRESSED GIRDER 35.2m OVERALL LENGTH AND 13.2m CLEAR ROADWAY WIDTH

368.0
366.0
364.0
362.0
360.0

VCL 18.37
K = 25.00
18+728.001
364.426
-0.2750 %
+0.4600 %
+0.1250 %
-0.4000 %
+0.4600 %
VCL 20.00
K = 25.00
18+925.500
364.288
K = 44.00
VCL 14.74
K = 44.00
VCL 23.10
18+812.188
364.989

VPC STA 18+775.630 VPC EL364.619
VPI STA 18+783.000 VPI EL364.653
VPT STA 18+790.370 VPT EL364.662
VPC STA 18+806.688 VPC EL364.683
VPI STA 18+818.238 VPI EL364.697
VPT STA 18+829.788 VPT EL364.651

VPOT STA 18+720.000 VPOT EL364.439
VPC STA 18+721.126 VPC EL364.436
VPI STA 18+730.313 VPI EL364.411
VPT STA 18+739.500 VPT EL364.453
VPC STA 18+915.500 VPC EL364.308
VPI STA 18+925.500 VPI EL364.268
VPT STA 18+935.500 VPT EL364.308
VPOT STA 18+940.000 VPOT EL364.326

PROPOSED C/L PROFILE
BEGIN RESURFACING
STA. 18+725
END RESURFACING
STA. 18+930.0

HIGH WATER EL. 362.70 100
WATER EL. 361.88 (AUG.,1997)
STREAM BED EL. 359.38

18+660	18+680	18+700	18+720	18+740	18+760
364.684	364.574	364.494	364.439	364.359	364.455
				364.264	364.547

18+780	18+800	18+820	18+840	18+860	18+880	18+900	18+920	18+940	18+960	18+980	19+000	19+020
364.184	364.114	364.074	364.134	364.169	364.128	364.168	364.243	364.326	364.406	364.496	364.586	364.686
364.637	364.674	364.679	364.610	364.530	364.450	364.370	364.294	364.326				

NAMEKAGON RIVER BRIDGE	SCALE: 1:	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 5.1 M

PLOT SCALE:
PLOT NAME:
REV. DATE:
ORIGINATOR:
FILE NAME: LEVELS ON 1,2,3.

WisDOT: MSHT40

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	18+837.74	BW9RSP1970 4.412m RT	364.287
10	18+927.57	SW CORNER -TOP CONC. STEP 16.084m LT.	364.782

ORIGIN OF LEVELS

BW 9 RSP 1970 1195.165

BM, HAYWARD, ABOUT 1.25 MI. E. OF NW SEC. 26; T. 41 N., R. 9W., AT STATE HWY. 77 BRIDGE OVER THE NAMEKAGON RIVER; 16FT S., 56FT W., AND 0.6 FT HIGHER THAN CENTER OF BRIDGE ON TOP OF W. END OF CONCRETE CURB; STANDARD TABLET STAMPED "9 RSP 1970"

STA. 18+787.5 - STA. 18+803.8 LT.
1 - 450 mm x 17.07 m C.P., CL. III REQ'D.

RIVERSIDE ROAD
HOUSE
NAMEKAGON RIVER
GARAGE
NEW BEAMGUARD (TYP.)
SLOPE INTERCEPTS
RIVERSIDE LANES
BOWLING ALLEY
POLE
18+680
18+720
18+760
18+800
18+840
18+880
18+920
18+960
19
16.432 m
15.563 m
15.321 m
S.T.H. 77
15.629 m
15.082 m
14.896 m
15.091 m
15.434 m
15.077 m
EXISTING STRUCTURE B - 57 - 0409
NEW STRUCTURE B - 57 - 61
SLOPE INTERCEPTS
EDGE OF FINISHED ASPHALTIC PAVEMENT (TYP.)
650 mm RED PINE*
500 mm WHITE PINE*
LAKE HAYWARD
EDGE OF FINISHED C.A.B.C. SHOULDER (TYP.)
HAYWARD MARINE
DUFFY ROAD
PI 19+040.000

STA. 18+767.5 - STA. 18+787.7 RT.
450mm x20.73m C.P., CL. III REQ'D.
REMOVAL OF THE EXISTING DRIVEWAY CMCP SHALL BE INCIDENTAL TO INSTALLING THE NEW CULVERT PIPE.

POT 18+738.691
POT 18+929.115

*NOTE: STEEPEN PROPOSED SIDESLOPE IF NECESSARY TO SAVE THESE TREES

BEGIN PROJECT 8520-06-71
STA. 18+725.0

END PROJECT 8520-06-71
STA. 18+954.0

STA. 18+853.8
REMOVE EXISTING 3-SPAN STEEL DECK GIRDER BRIDGE (B-57-409) 32.38m LONG AND 9.144m CLEAR ROADWAY WIDTH

STA. 18+854.0
STRUCTURE B-57-61 REQ'D. TWO SPAN 710mm PRESTRESSED GIRDER 35.2m OVERALL LENGTH AND 13.2m CLEAR ROADWAY WIDTH

368.0
366.0
364.0
362.0
360.0

VCL 18.37
K = 25.00
18+728.001
364.426
-0.2750 %
+0.4600 %
VPC STA 18+775.630
VPC EL364.619
VPI STA 18+783.000
VPI EL364.653
VPT STA 18+790.370
VPT EL364.662
±0.1250 %
VPC STA 18+806.688
VPC EL364.683
VPI STA 18+818.238
VPI EL364.697
VPT STA 18+829.788
VPT EL364.651
PROPOSED C/L PROFILE
VCL 20.00
K = 25.00
18+925.500
364.288
-0.4000 %
+0.4600 %
END RESURFACING
STA. 18+930.0
K = 44.00
VCL 14.74
18+812.188
364.686
K = 44.00
VCL 23.10
HIGH WATER EL. 362.70
WATER EL. 361.88 (AUG., 1997)
STREAM BED EL. 359.38
VPOT STA 18+720.000
VPOT EL364.439
VPC STA 18+721.126
VPC EL364.436
VPI STA 18+730.313
VPI EL364.411
VPT STA 18+739.500
VPT EL364.453
VPC STA 18+915.500
VPC EL364.308
VPI STA 18+925.500
VPI EL364.268
VPT STA 18+935.500
VPT EL364.308
VPOT STA 18+940.000
VPOT EL364.326

364.684 364.574 364.494 364.439 364.359 364.455 364.264 364.547 364.184 364.637 364.114 364.674 364.074 364.679 364.134 364.610 364.169 364.530 364.128 364.450 364.168 364.370 364.243 364.294 364.326 364.326 364.406 364.496 364.586 364.686

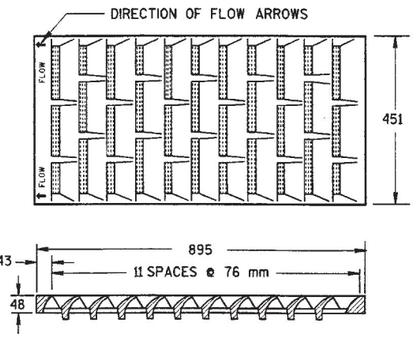
18+660 18+680 18+700 18+720 18+740 18+760 18+780 18+800 18+820 18+840 18+860 18+880 18+900 18+920 18+940 18+960 18+980 19+000 19+020

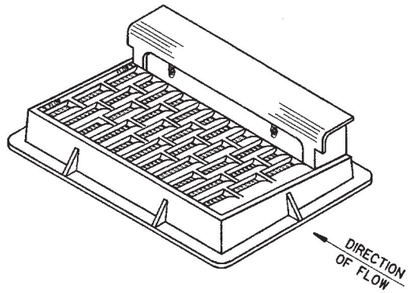
NAMEKAGON RIVER BRIDGE	SCALE: 1:	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 5.2 M

PLOT SCALE:
PLOT NAME:
REV. DATE:
ORIGINATOR:
FILE NAME: LEVELS ON -1,2,3,-

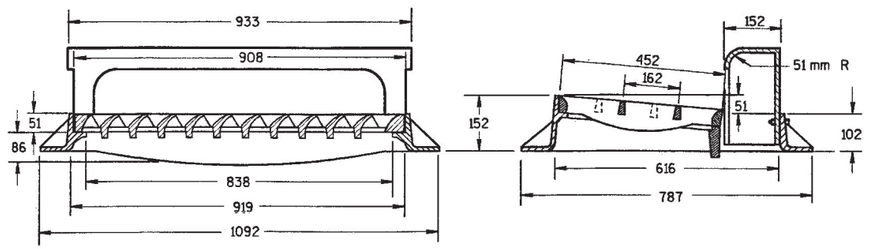
WISDOT: MSHT40

NOTE:
GRATE IS REVERSIBLE.





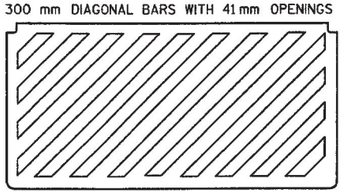
NOTE: CURB BOX HEIGHT ADJUSTABLE 150 mm TO 230 mm



TYPE "H"

(APPROXIMATE WEIGHT 191 kg)
FRAME..... 79 kg
GRATE..... 63 kg
CURB BOX..... 49 kg

300 mm DIAGONAL BARS WITH 41 mm OPENINGS



SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 895 mm X 451 mm X 51 mm)
(APPROXIMATE WEIGHT 78 kg)

(NOTED AS TYPE H-S ON DRAINAGE TABLE)

NOTE:
GRATE IS REVERSIBLE.

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.

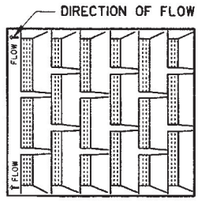
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

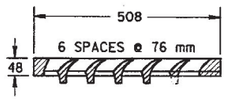
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

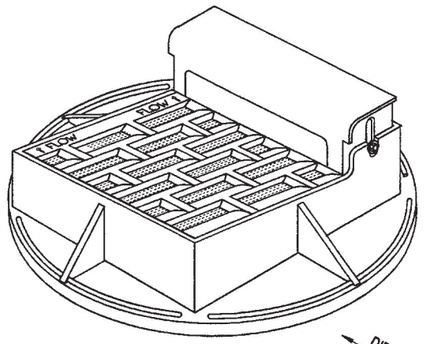
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.

NOTE

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE SHOWN.

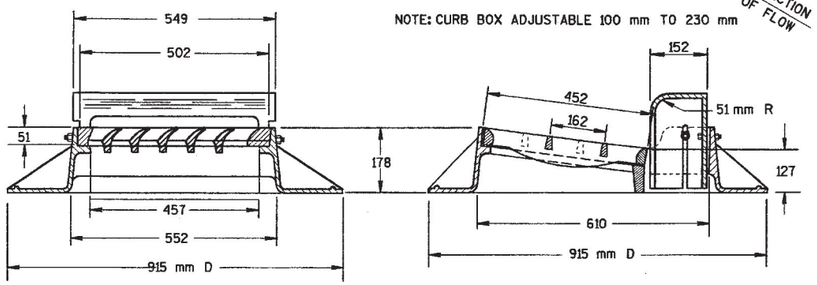






NOTE: CURB BOX ADJUSTABLE 100 mm TO 230 mm

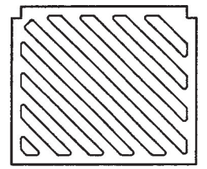
NOTE:
GRATE IS REVERSIBLE.



TYPE "A"

(APPROXIMATE WEIGHT 325 LBS.)
FRAME..... 157 LBS.
GRATE..... 84 LBS.
CURB BOX..... 84 LBS.

30 mm DIAGONAL BARS WITH 30 mm OPENINGS



SPECIAL GRATE FOR TYPE "A" COVER

(MEASURES 502 mm X 432 mm X 51 mm
GRATE..... 38 kg

(NOTED AS TYPE A-S ON DRAINAGE TABLE)

NOTE:
GRATE IS REVERSIBLE.

INLET COVERS
TYPE A, H, A-S, & H-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

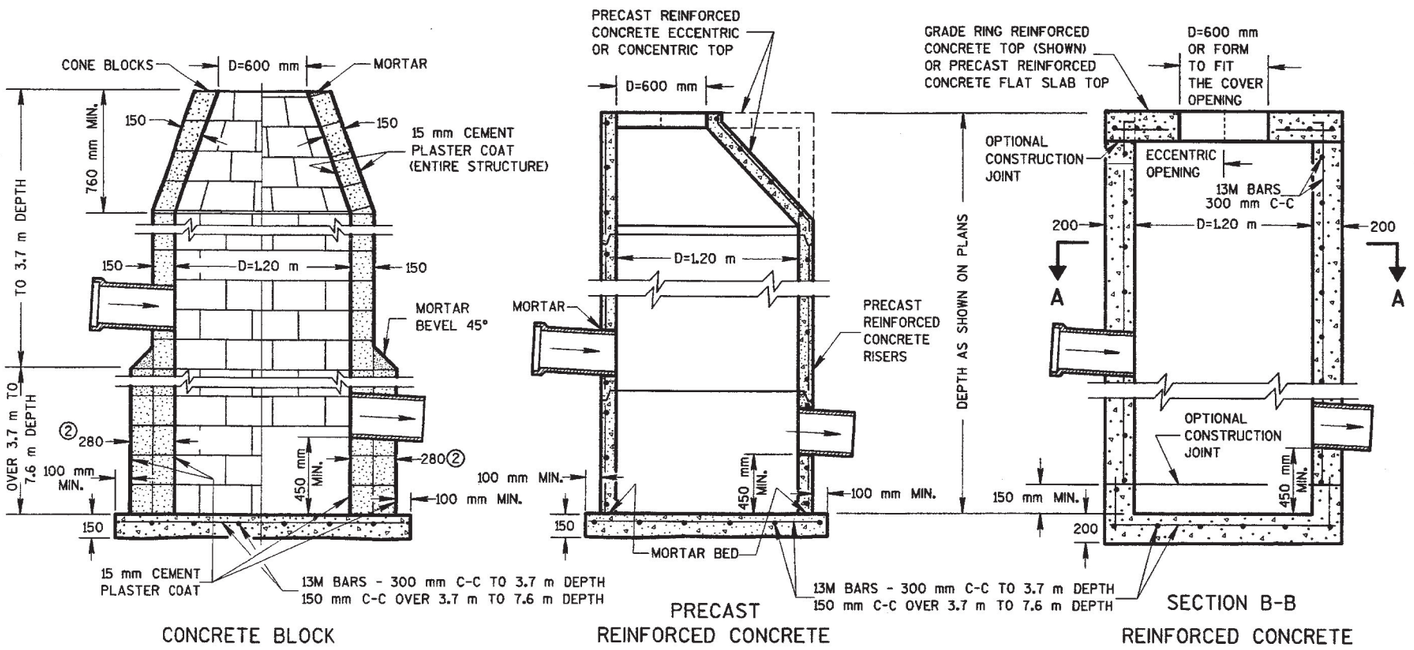
APPROVED 8/27/98 DATE
Ray L. Thuesen
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

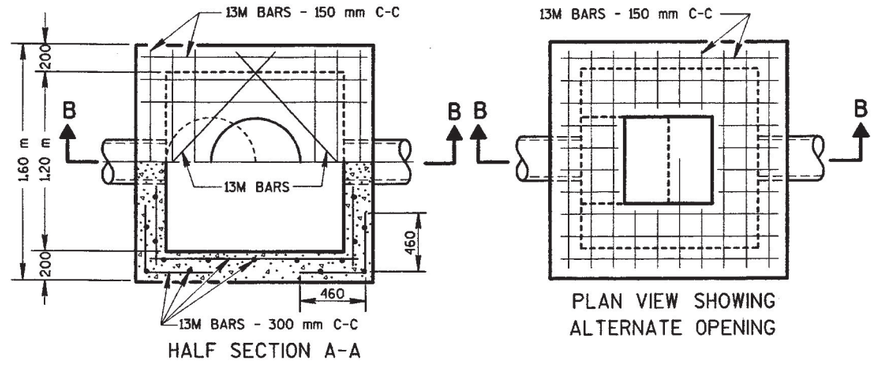
M

S.D.D. 8 A 5-15a

LEVELS ON - 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



CATCH BASINS, TYPE 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.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 1-C", "CATCH BASINS 1-B", "INLETS 3-H", ETC. THE FIRST DIGIT DESIGNATES THE MASONRY PORTION OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 150 mm IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 1.5 m OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 1.5 m IN DEPTH: 405 mm C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 100 mm FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 250 mm AND A MINIMUM WALL EMBEDMENT OF 75 mm. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 25 mm.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 3600 N AND A HORIZONTAL LOAD OF 1800 N.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 50 mm CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199M.

THE "PRECAST REINFORCED CONCRETE FLAT SLAB TOP" OPTION IS REQUIRED ON CATCH BASINS, TYPE 1 WHEN 600 mm X 900 mm OPENING INLET COVERS ARE REQUIRED.

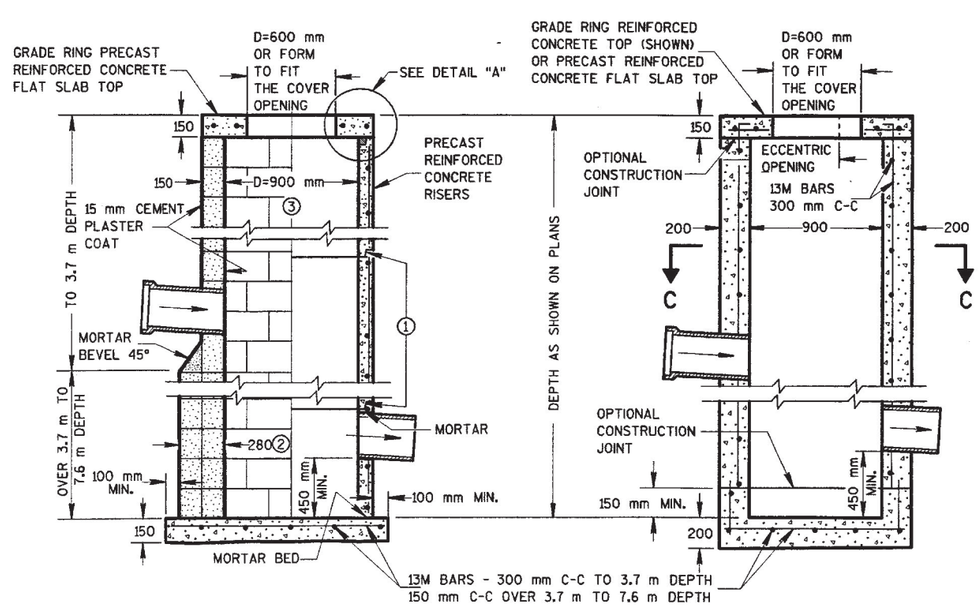
① PRECAST REINFORCED CONCRETE RISERS SHALL BE PLACED WITH THE TONGUE DOWN WHEN GRADE RINGS ARE USED FOR THE SLAB TOP.

② 2 COURSES 140 mm BLOCK.

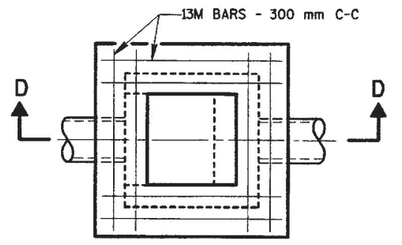
③ WHEN THE CONNECTING PIPES ARE 600 mm OR LARGER THE PRECAST CATCH BASIN MAY BE INCREASED TO 1.05 m.

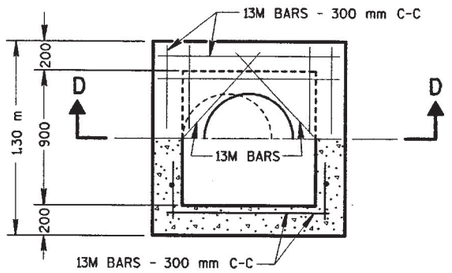
NOTE

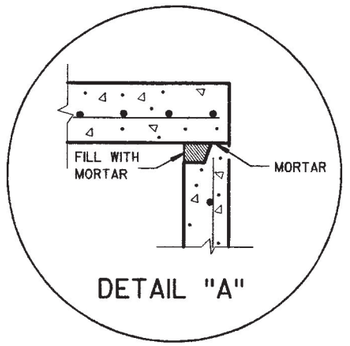
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.



CATCH BASINS, TYPE 2







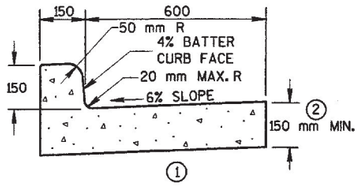
CATCH BASINS TYPE 1 & 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

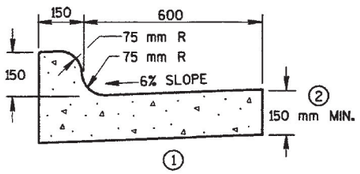
APPROVED 06/09/99 DATE
Tony L. Kinnaman
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

M

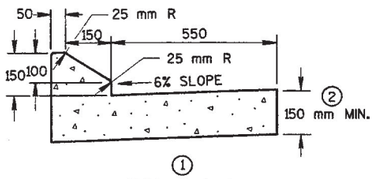
S.D.D. 8 A 6-4



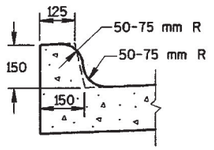
TYPES A & D



TYPES K & L

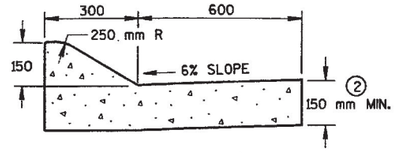


TYPES G & J

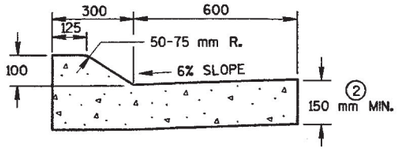


OPTIONAL CURB SHAPE
1
FOR TYPES K & L

CONCRETE CURB & GUTTER 750 mm



(150 mm MOUNTABLE CURB)



(100 mm MOUNTABLE CURB)

1
TYPES A & D

CONCRETE CURB & GUTTER 900 mm

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE 600 mm BEHIND THE BACK OF CURBS.

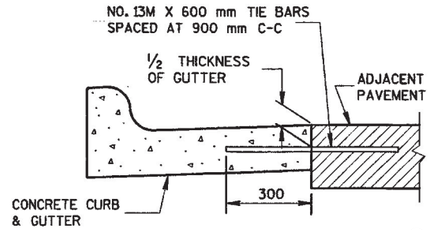
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G AND K.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 150 mm MINIMUM GUTTER THICKNESS IS MAINTAINED.

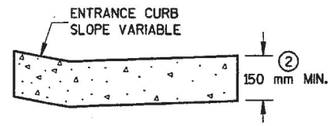
(3) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

NOTE

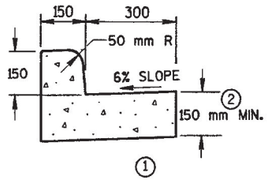
DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.



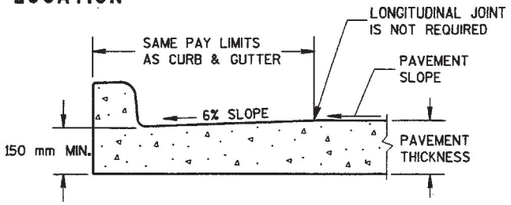
1
TYPICAL TIE BAR LOCATION



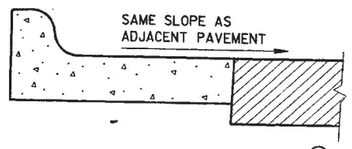
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



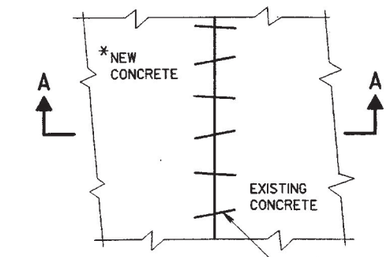
TYPES A & D
CONCRETE CURB & GUTTER 450 mm



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER

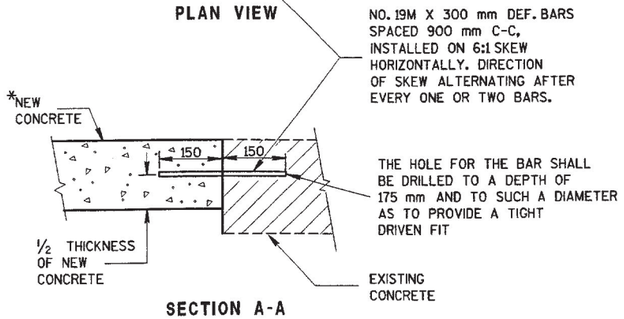


3
REVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)

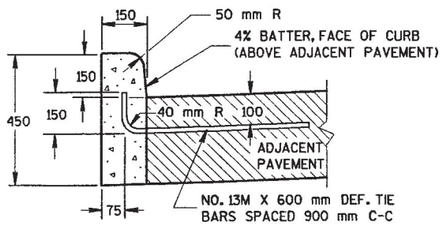


PLAN VIEW

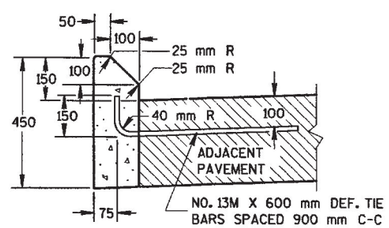
*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.



SECTION A-A
PAVEMENT TIES



TYPES A & D



TYPES G & J

CONCRETE CURB

CONCRETE CURB, CONCRETE CURB & GUTTER AND PAVEMENT TIES
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 04/16/99 (DATE) Tony L. Thimmesch, CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA M

S.D.D. 8 D 1-13

LEVELS ON - 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

PLOT NAME:

PLOT SCALE:

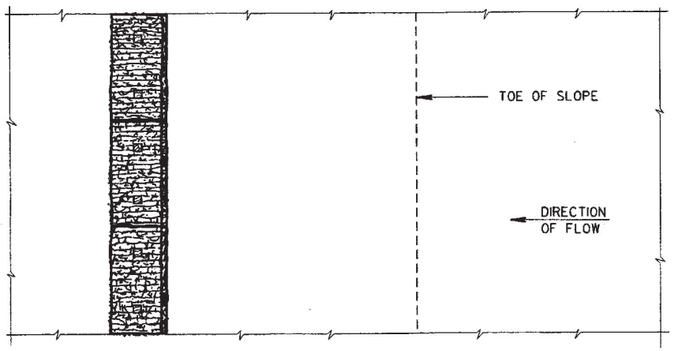
REV. DATE:

ORIGINATOR:

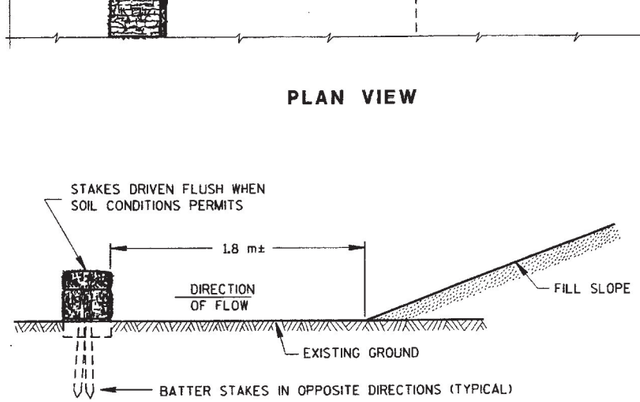
LEVELS ON • 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,5051,52,53,54,55,56,57,58,59,60,61,62,63

S.D.D. 8 E 8-2

FILE NAME:



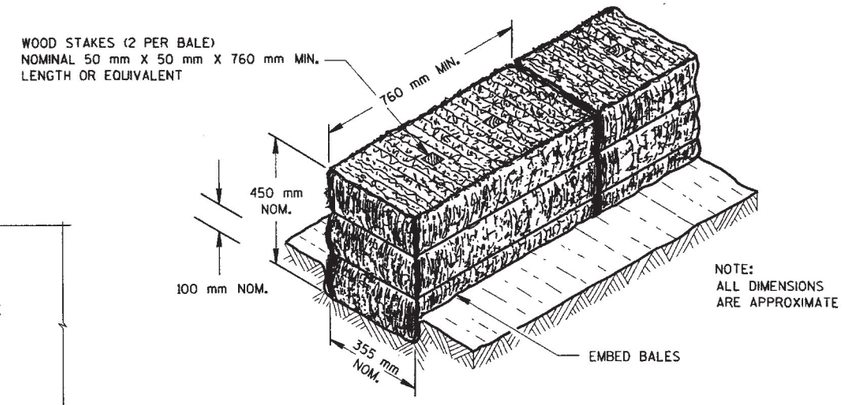
PLAN VIEW

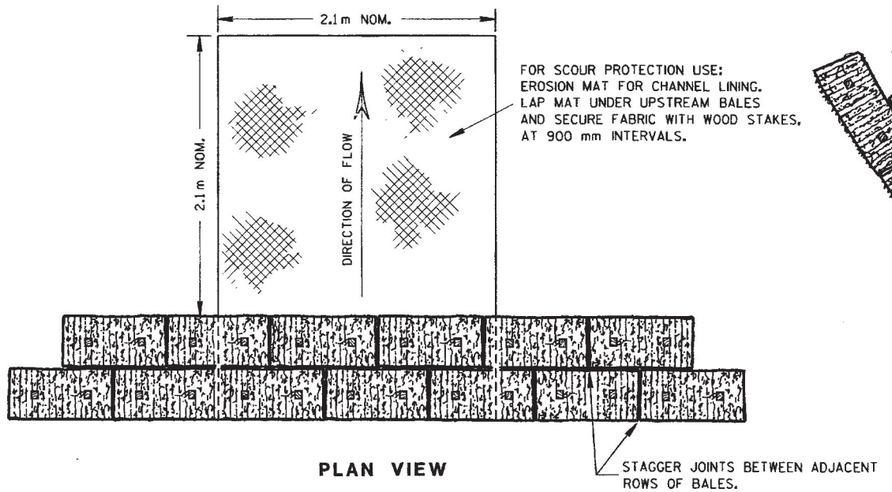


FRONT ELEVATION

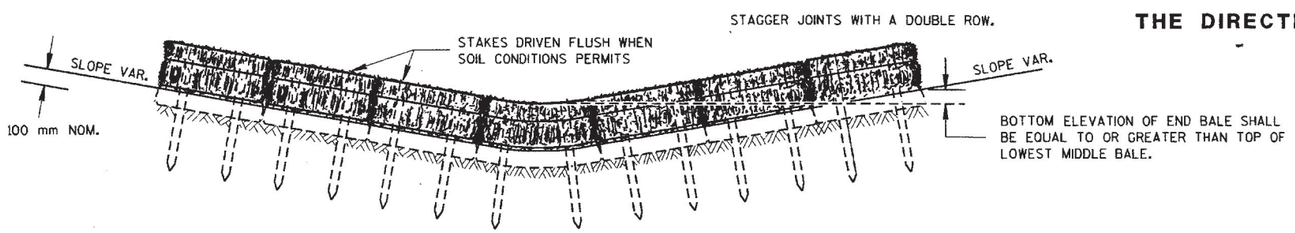
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW





PLAN VIEW

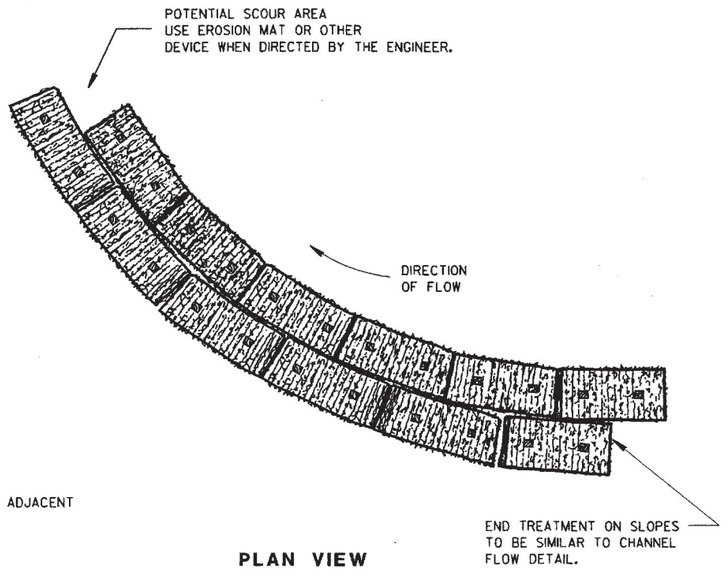


FRONT ELEVATION

EROSION BALES FOR CHANNEL FLOW

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.



PLAN VIEW

EROSION BALES WHEN ALTERING THE DIRECTION OF FLOW

TYPICAL INSTALLATIONS OF EROSION BALES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

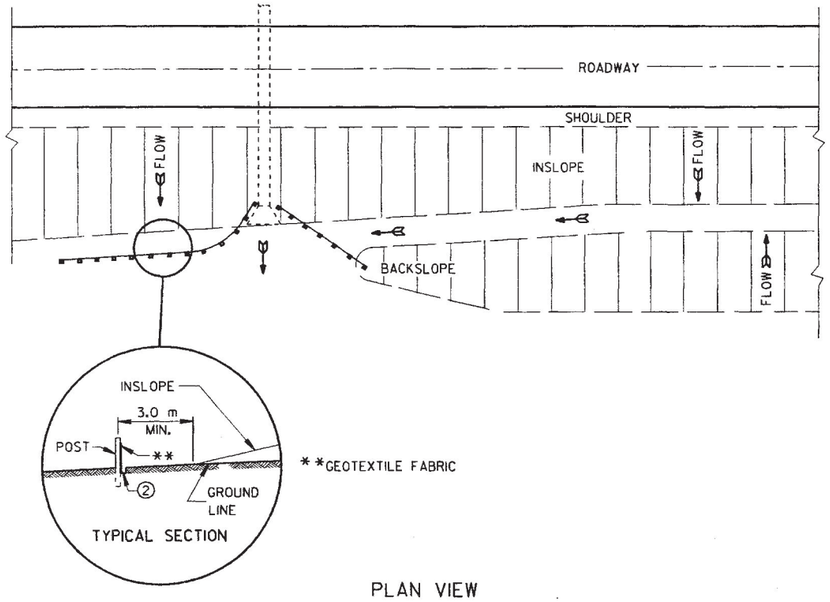
APPROVED
01/29/98
DATE

Roy L. Thimsen
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

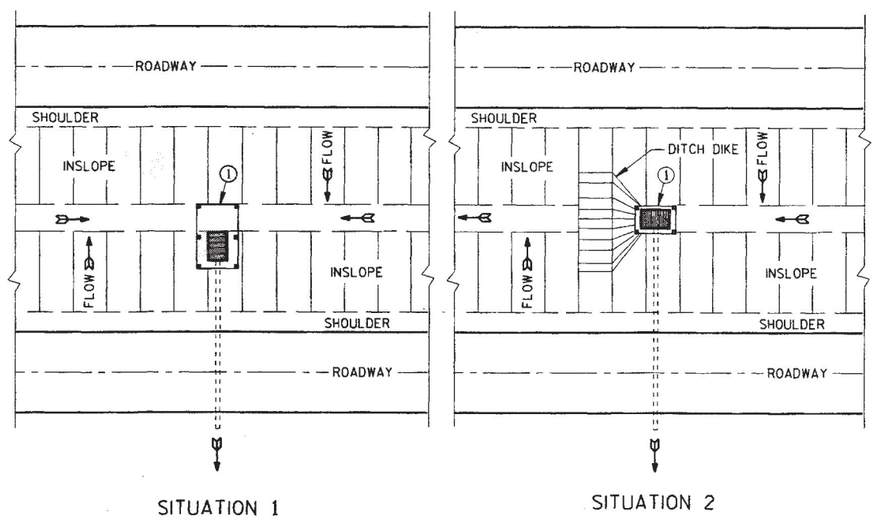
M

S.D.D. 8 E 8-2



PLAN VIEW

TYPICAL APPLICATIONS OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

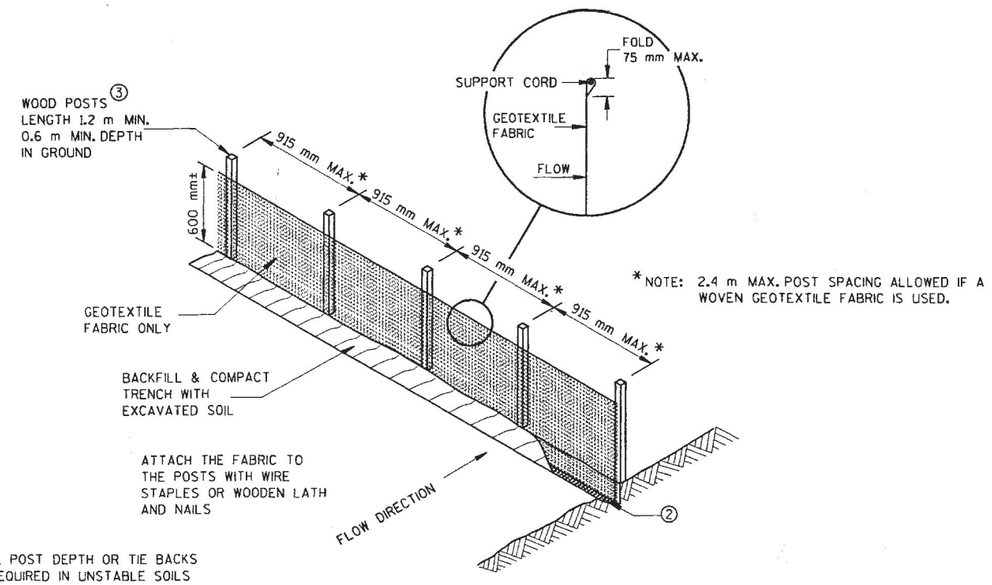
GENERAL NOTES

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

① HORIZONTAL BRACE WITH 50 mm X 100 mm WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS AS DIRECTED BY THE ENGINEER.

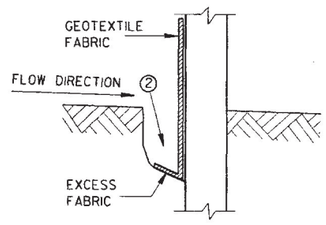
② TRENCH SHALL BE A MINIMUM OF 100 mm WIDE & 150 mm DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 30 mm X 30 mm OF OAK OR HICKORY.

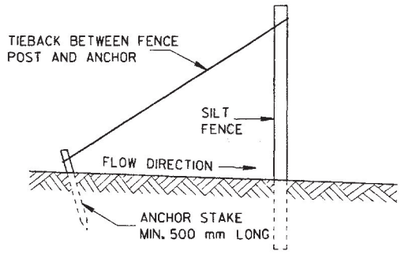


NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

SILT FENCE
(NON-REINFORCED)



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
03/11/96
DATE
Roy L. Thimsen
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA
M

S.D.D. 8 E 9-5

PLOT NAME:
PLOT SCALE:
REV. DATE:
ORIGINATOR:
FILE NAME:

LEVELS ON • 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

SDD 8E95

METAL APRON ENDWALLS

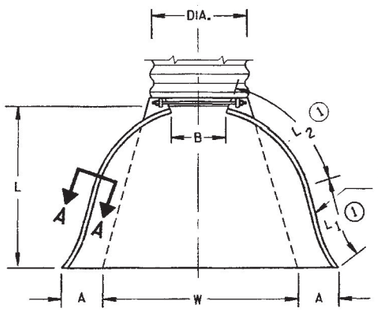
PIPE DIA. (mm)	MIN. THICK. (mm) STEEL	MIN. THICK. (mm) ALUM.	DIMENSIONS (MILLIMETERS) A (±1")	B (MAX.)	H (±1")	L (±1½")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
300	1.6	1.5	150	150	150	535	305	445	610	1:2.5	1 Pc.
375	1.6	1.5	180	205	150	660	355	552	760	1:2.5	1 Pc.
450	1.6	1.5	205	255	150	790	380	718	915	1:2.5	1 Pc.
525	1.6	1.5	230	305	150	915	455	752	1065	1:2.5	1 Pc.
600	1.6	1.5	255	330	150	1040	455	949	1220	1:2.5	1 Pc.
750	2.0	1.9	305	405	205	1300	455	1327	1525	1:2.5	1 Pc.
900	2.0	1.9	355	480	230	1525	610	1905	1830	1:2.5	2 Pc.
1050	2.8	2.7	405	560	280	1755	610	1921	2135	1:2.5	2 Pc.
1200	2.8	2.7	455	685	305	1980	610	2057	2285	1:2.5	3 Pc.
1350	2.8	2.7	455	760	305	2140	760	2172	2590	1:2.25	3 Pc.
1500	2.8×	2.7×	455	840	305	2210	—	—	2895	1:2	3 Pc.
1650	2.8×	2.7×	455	915	305	2210	—	—	3050	1:2	3 Pc.
1800	2.8×	2.7×	455	990	305	2210	—	—	3200	1:2	3 Pc.
1950	2.8×	2.7×	455	1070	305	2210	—	—	3355	1:1.5	3 Pc.
2100	2.8×	2.7×	455	1145	305	2210	—	—	3505	1:1.5	3 Pc.
2250	2.8×	2.7×	455	940	305	2210	—	—	3660	1:1.5	3 Pc.
2400	2.8×	2.7×	455	890	305	2210	—	—	3960	1:1.5	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

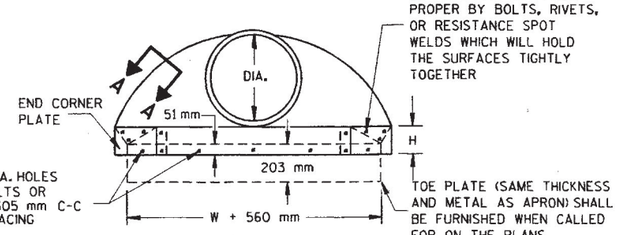
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (mm)	DIMENSIONS (MILLIMETERS) T	A	B	C	D	E	G	APPROX. SLOPE
305	51	102	610	1241	1851	610	51	1:3
380	57	152	686	1168	1854	762	57	1:3
450	64	229	686	1168	1854	914	64	1:3
525	70	229	915	953	1867	1067	70	1:3
600	76	241	1105	762	1867	1219	76	1:3
675	83	267	1257	610	1867	1372	83	1:3
750	89	305	1372	502	1867	1524	89	1:3
900	102	381	1600	883	2483	1829	102	1:3
1050	114	533	1600	889	2489	1981	114	1:3
1200	127	610	1829	660	2489	2134	127	1:3
1350	140	686	1651	* 635 ** 889	* 2496 ** 2540	2286	140	1:2.4
1500	152	* 762 ** 924	1524	991	2515	2448	127	1:2
1650	165	* 610 ** 762	* 1829 ** 1981	* 533 ** 686	2515	2591	140	1:2
1800	178	* 610 ** 915	1981	533	2515	2743	152	1:2
1950	190	* 610 ** 915	1981	533	2515	2896	165	1:2
2100	203	915	2299	533	2832	3048	165	1:1.5
2250	216	1041	2222	610	2832	3353	165	1:1.5

* MINIMUM
** MAXIMUM



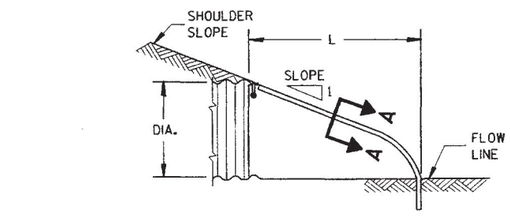
PLAN VIEW



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

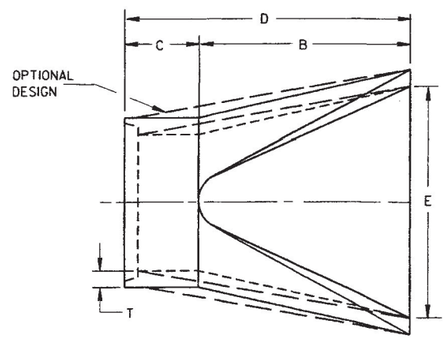
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS

END VIEW

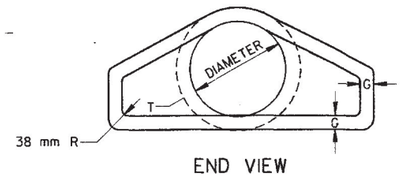


SIDE ELEVATION

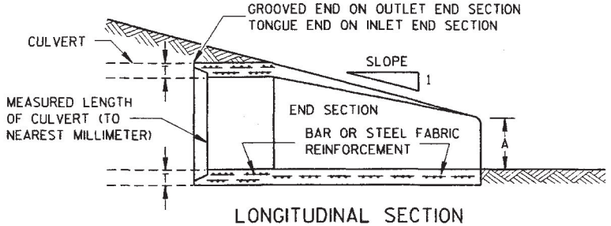
METAL ENDWALLS



PLAN

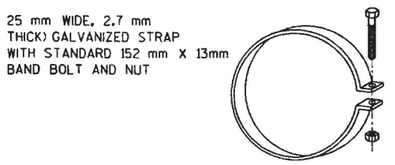


END VIEW



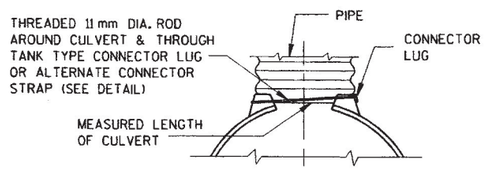
LONGITUDINAL SECTION

CONCRETE ENDWALLS

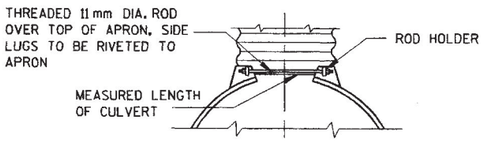


ALTERNATE FOR TYPE 1 CONNECTION

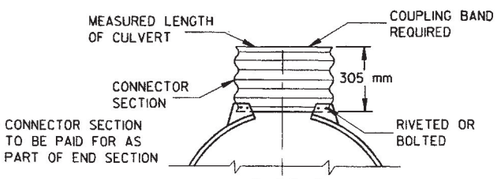
END SECTION CONNECTOR STRAP



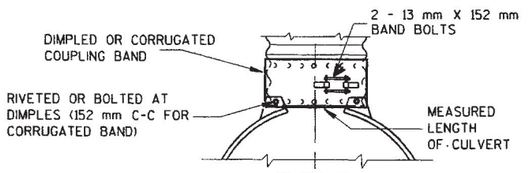
TYPE 1
FOR 300 mm THRU 600 mm CORR. PIPE



TYPE 2
FOR 750 mm THRU 2400 mm CORR. PIPE



TYPE 3
FOR 1050 mm THRU 2400 mm CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

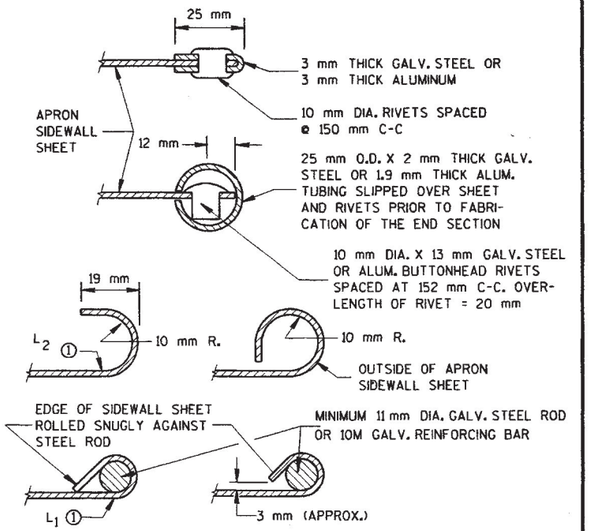
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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 VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 1500 mm DIAMETER PIPE AND LARGER SHALL HAVE 2.8 mm SIDES AND 3.5 mm CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 1500 mm DIAMETER PIPE AND LARGER SHALL HAVE 3.4 mm SIDES AND 3.4 mm 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 1500 mm THROUGH 2400 mm 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 152 mm BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 1500 mm 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 01/27/95 DATE
Roy L. Thimsen
CHIEF ROADWAY DEVELOPMENT ENGINEER

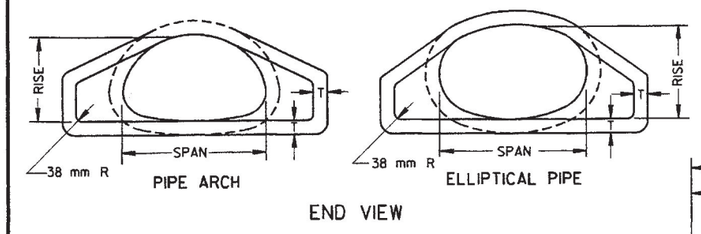
FHWA

M

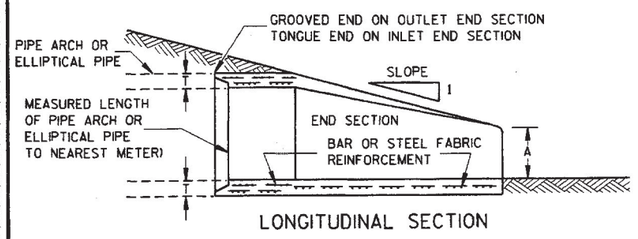
S.D.D. 8 F 1-11

PLOT NAME: PLOT SCALE: REV. DATE: ORIGINATOR:

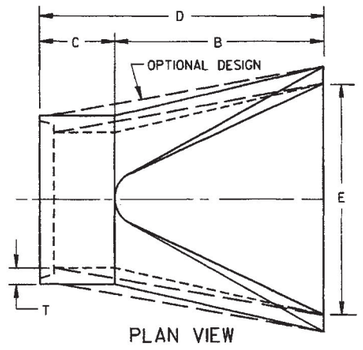
LEVELS ON - 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63



END VIEW

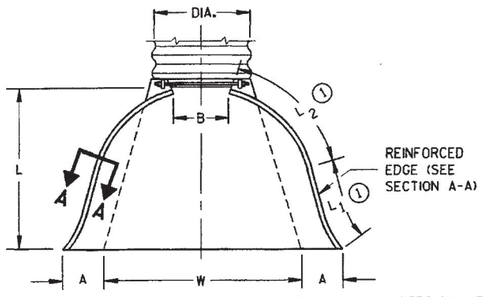


LONGITUDINAL SECTION

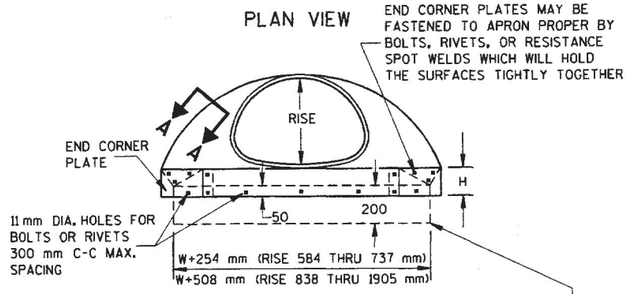


PLAN VIEW

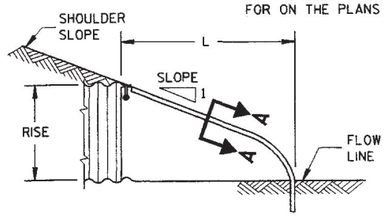
CONCRETE ENDWALLS



PLAN VIEW

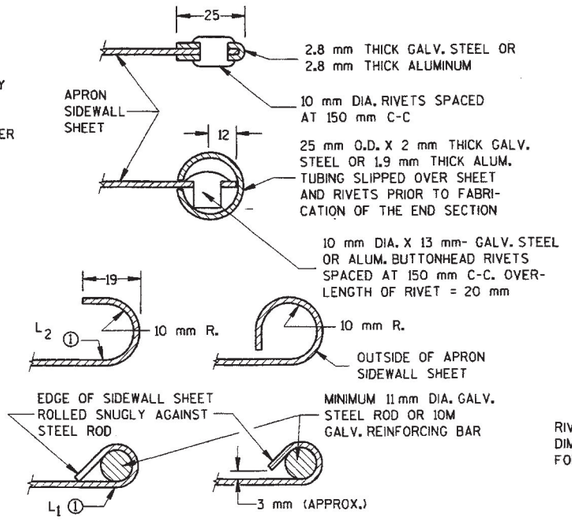


END VIEW



SIDE ELEVATION

METAL ENDWALLS



SECTION A-A

68 X 13 CORRUGATIONS (mm)

EQUIV. DIA. (mm)	(mm) SPAN	(mm) RISE	MIN. THICK. (mm) STEEL	MIN. THICK. (mm) ALUM.	DIMENSIONS (mm) A (±25)	B (MAX.)	H (±25)	L (±37)	L1 ①	L2 ①	W (±50)	APPROX. SLOPE	BODY
400	450	340	1.63	1.52	175	225	150	475	350	406	750	1:2.5	1 Pc.
450	510	380	1.63	1.52	175	250	150	575	350	492	900	1:2.5	1 Pc.
500	560	420	1.63	1.52	200	300	150	700	450	552	1050	1:2.5	1 Pc.
600	680	500	1.63	1.52	225	350	150	800	450	701	1200	1:2.5	1 Pc.
800	910	660	2.27	1.91	250	400	150	975	450	956	1500	1:2.5	1 Pc.
900	1030	740	2.27	1.91	300	450	200	1150	600	1153	1875	1:2.5	1 Pc.
1000	1150	820	2.77	2.67	325	525	225	1325	600	1391	2125	1:2.5	2 Pc.
1200	1390	970	2.77	2.67	450	650	300	1575	600	1727	2250	1:2.5	3 Pc.
1400	1630	1120	2.77	2.67	450	750	300	1750	600	1848	2550	1:2.25	3 Pc.
1600	1880	1260	2.77*	2.67*	450	825	300	1925	780	2089	2850	1:2.25	3 Pc.
1650	1925	1300	2.77*	2.67*	450	900	300	1925	—	—	3150	1:2	3 Pc.
1800	2130	1400	2.77*	2.67*	450	975	300	1925	—	—	3450	1:2	3 Pc.

75 X 25 CORRUGATIONS (mm)

EQUIV. DIA. (mm)	(mm) SPAN	(mm) RISE	MIN. THICK. (mm) STEEL	MIN. THICK. (mm) ALUM.	DIMENSIONS (mm) A (±25)	B (MAX.)	H (±25)	L (±37)	L1 ①	L2 ①	W (±50)	APPROX. SLOPE	BODY
1200	1325	1025	2.7	2.6	450	26	300	1575	600	1848	2250	1:2.5	2 Pc.
1350	1500	1150	2.7	2.6	450	30	300	1750	750	2096	2550	1:2	2 Pc.
1500	1650	1275	2.7*	2.6*	450	33	300	1925	—	—	2850	1:1.5	3 Pc.
1650	1825	1375	2.7*	2.6*	450	36	300	1925	—	—	3150	1:1.5	3 Pc.
1800	2025	1475	2.7*	2.6*	450	39	300	1925	—	—	3450	1:2	3 Pc.
1950	2175	1575	2.7*	2.6*	550	38	300	1925	—	—	3700	1:1.5	3 Pc.
2100	2375	1675	2.7*	2.6*	550	34	300	1925	—	—	4050	1:1.5	3 Pc.
2250	2575	1775	2.7*	2.6*	550	38	300	1925	—	—	4350	1:1.5	3 Pc.
2400	2800	1875	2.7*	2.6*	600	40	300	1925	—	—	4350	1:1.5	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

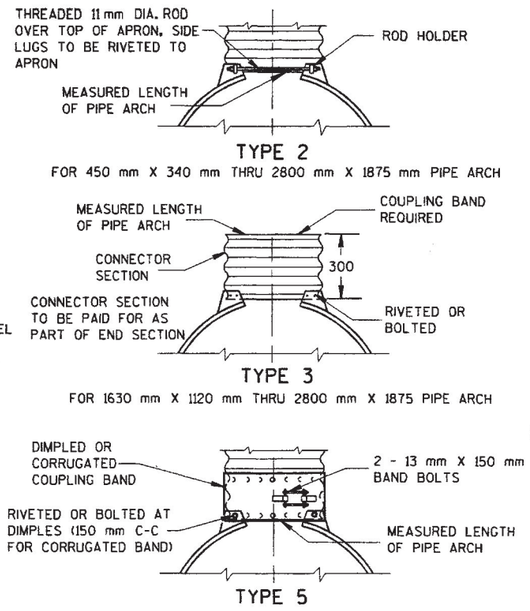
REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (mm)	DIMENSIONS (mm) ** RISE	** SPAN	T	A	B	C	D	E	APPROX. SLOPE
600	460	725	76	216	975	825	1800	1200	1:3
750	570	920	89	242	1250	1150	2400	1500	1:3
900	675	1100	102	283	1500	900	2400	1800	1:3
1050	795	1300	114	402	1500	900	2400	1950	1:3
1200	915	1485	127	533	1500	900	2400	2100	1:3
1350	1015	1650	138	648	1500	900	2400	2250	1:3
1500	1145	1855	152	787	1500	900	2400	2400	1:3
1800	1370	2235	178	787	1500	975	2475	3000	1:2
2100	1575	2590	203	724	2075	475	2550	3600	1:2

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (mm)	DIMENSIONS (mm) ** RISE	** SPAN	T	A	B	C	D	E	APPROX. SLOPE
600	490	770	81	216	975	825	1800	1200	1:3
750	610	960	94	241	1350	450	1800	1500	1:3
900	730	1150	106	286	1500	600	2100	1800	1:2.5
1050	855	1345	125	400	1500	900	2400	1950	1:2.5
1200	975	1535	137	533	1500	900	2400	2100	1:2.5
1350	1095	1730	150	648	1500	900	2400	2250	1:2.5
1550	1220	1920	163	762	1500	900	2400	2400	1:2.5

**NOMINAL SIZE



TYPE 2

FOR 450 mm X 340 mm THRU 2800 mm X 1875 mm PIPE ARCH

TYPE 3

FOR 1630 mm X 1120 mm THRU 2800 mm X 1875 mm PIPE ARCH

TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION 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.

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 1650 X 1275 mm PIPE ARCH AND LARGER SHALL HAVE 2.8 mm SIDES AND 3.4 mm CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 1650 X 1275 mm PIPE ARCH AND LARGER SHALL HAVE 2.7 mm SIDES AND 3.4 mm CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH 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 1925 mm X 1300 mm THROUGH 2800 mm X 1875 mm 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 150 mm BETWEEN APRON ENDWALLS.

① FOR PIPE ARCH SIZES UP TO 1825 mm X 1375 mm A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

NOTE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

SLOPE RATIOS ARE SHOWN WITH THE VERTICAL COMPONENT FIRST AND THEN THE HORIZONTAL (RISE:RUN).

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

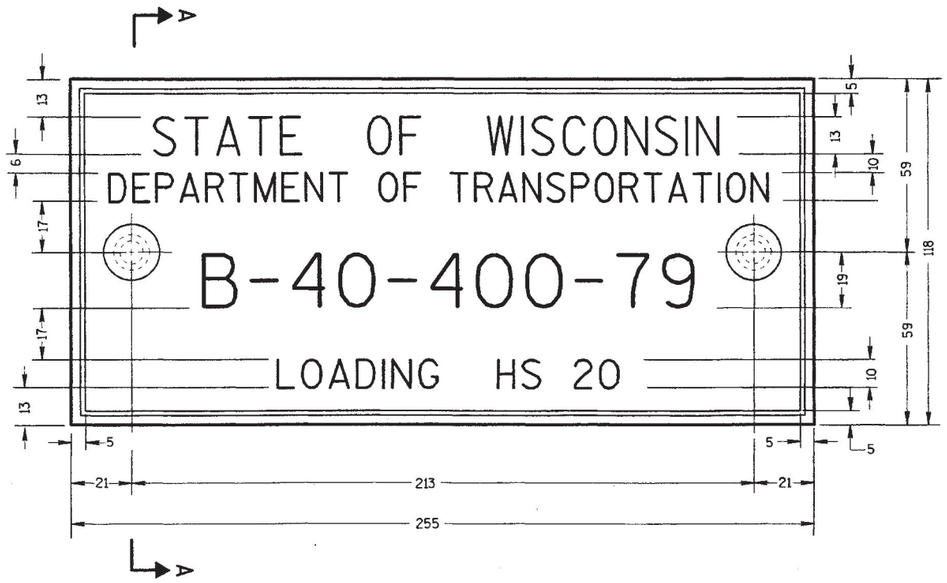
APPROVED 01/27/95
DATE

Roger L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

S.D.D. 8 F 2-1

LEVELS ON - 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



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

FOR MULTI-UNIT STRUCTURES
LINES 4 AND 5 ABOVE SHALL
READ:

B = BRIDGE
C = CULVERT
RW = RETAINING WALL

COUNTY NO.

BRIDGE NO.

YEAR OF SUBSTANTIAL COMPLETION

B-40-400-79

UNIT 1A HS 20M

UNIT NO. FOR MULTIPLE UNIT

DESIGN LOADING OF STRUCTURE INDICATED ON THE PLAN

NUMBERING AND LOADING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

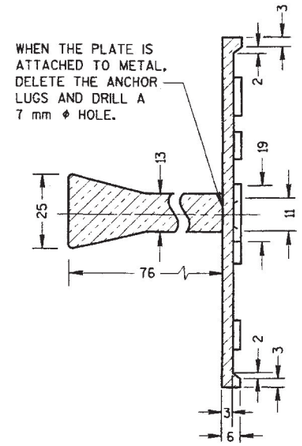
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 506.2.4 OF THE STANDARD SPECIFICATIONS.

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

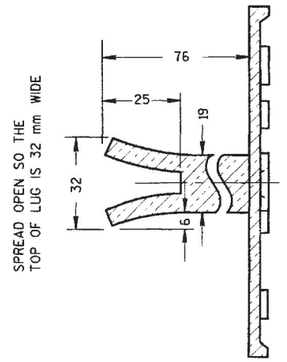
(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

NOTE

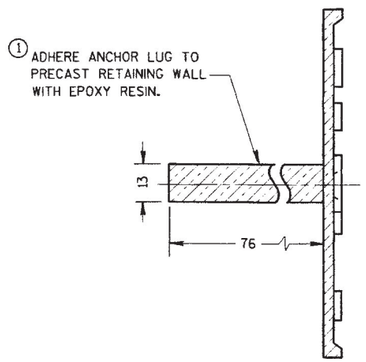
ALL DIMENSIONS SHOWN ARE IN MILLIMETERS



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE
(STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 01/21/98
DATE

Doug L. Timmerman
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

M

S.D.D. 12 A 3-5

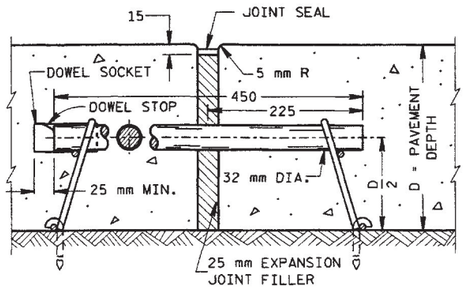
LEVELS ON - 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63

ORIGINATOR:

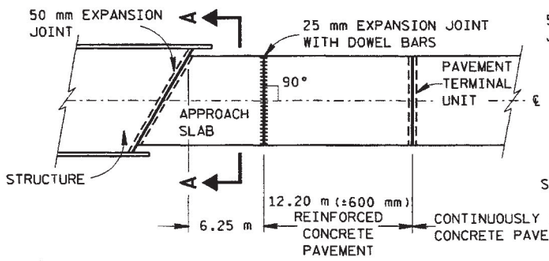
REV. DATE:

PLOT NAME:

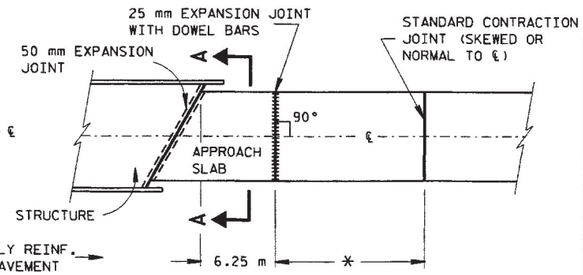
PLOT SCALE:



EXPANSION JOINT



APPROACH SLAB AND ADJACENT PAVEMENT

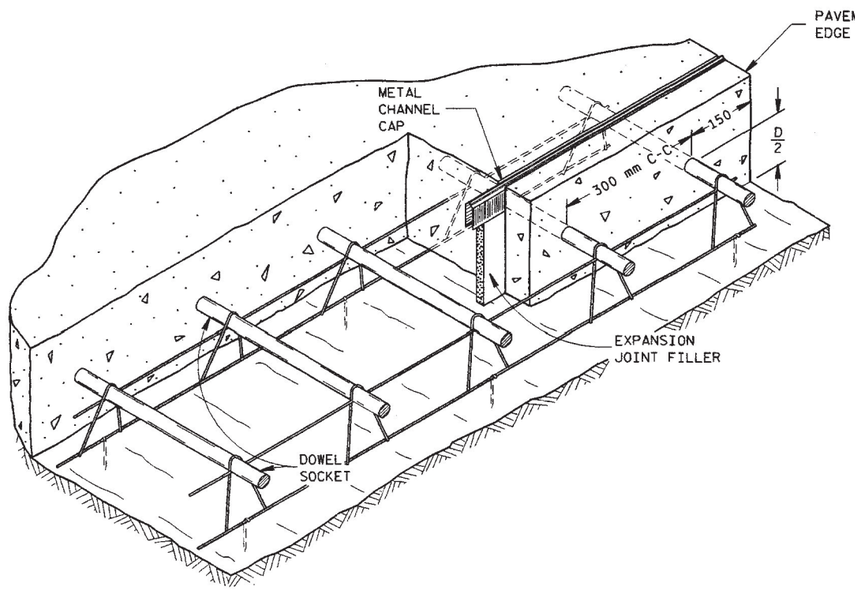


APPROACH SLAB AND ADJACENT PAVEMENT

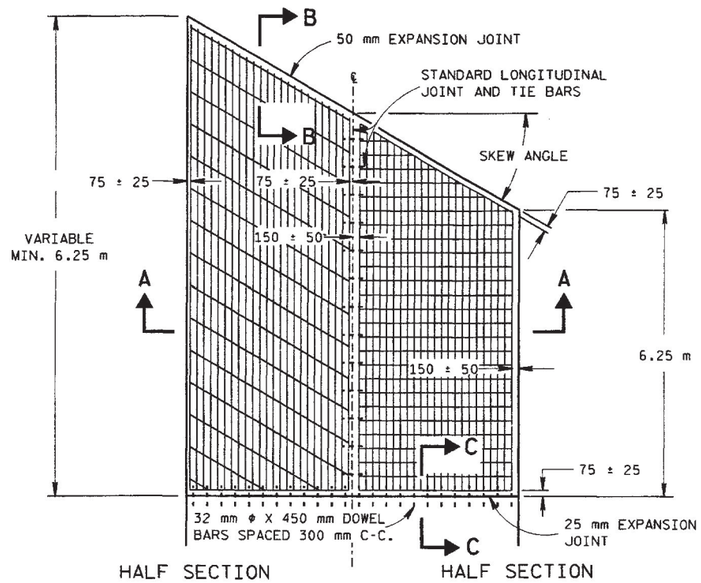
* 3.70 m MIN., 6.1 m MAX. FOR NON-REINFORCED CONCRETE PAVEMENT. 12.2 m ±0.6 m FOR REINFORCED CONCRETE PAVEMENT.

BIDDING INFORMATION

SKEW ANGLE	APPROACH SLAB QUANTITIES (ONE SLAB, 7.2 m WIDE)					
	CONCRETE PAVEMENT		WELDED WIRE FABRIC (1) 2.68 kg/m²		STEEL REINFORCEMENT (GRADE 60)	
					25M BARS	15M BARS
	m²	m³	m²	kg	kg	kg
0°	45.7	15.2	45.7	123	1201	67
15°	52.8	17.6	52.8	142	1385	76
30°	66.9	22.3	66.9	164	1600	88
45°	72.5	24.2	72.5	195	1840	103
60°	92.1	30.7	92.1	247	2395	130



INSTALLING DEVICE FOR DOWEL BARS AND EXPANSION JOINT ASSEMBLY



HALF SECTION BOTTOM REINFORCEMENT

HALF SECTION TOP REINFORCEMENT

APPROACH SLAB

GENERAL NOTES

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

DOWEL BARS

DOWEL BARS ACROSS EXPANSION JOINTS SHALL BE CORROSION RESISTANT COATED CONFORMING TO THE REQUIREMENTS OF AASHTO DESIGNATION M 254.

THE COATING TYPE SHALL BE, TYPE B - THERMOSETTING EPOXY.

JOINT SEALING

EXPANSION JOINTS SHALL BE SEALED AS FOLLOWS:

1. ON PAVEMENTS HAVING TRANSVERSE CONTRACTION JOINTS SEALED WITH A POURED TYPE SEALER, EXPANSION JOINTS SHALL BE SEALED WITH THE SAME TYPE SEALANT, 5 mm BELOW PAVEMENT SURFACE.

2. ON PAVEMENTS WITH NO CONTRACTION JOINTS, UNSEALED CONTRACTION OR CONTRACTION JOINTS SEALED WITH COMPRESSION TYPE SEALS, EXPANSION JOINTS SHALL BE SEALED WITH A POURED TYPE SEALER AS SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS.

JOINT FILLER

EXPANSION JOINT FILLER BETWEEN STRUCTURE AND APPROACH SLAB MAY CONSIST OF TWO, 25 mm THICKNESSES OF MATERIAL.

(1) WELDED WIRE FABRIC

6 X 12 - W5.5 X W4.0 OR METRIC EQUIVALENT

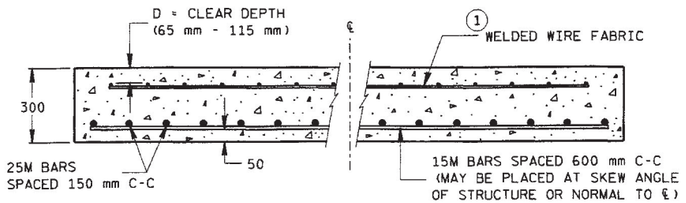
SHEET WIDTHS OF 2.5 m ARE PERMITTED.

STEEL REINFORCEMENT

SPLICING OF 25M BARS IN THE APPROACH SLAB IS PERMITTED FOR SKEWED STRUCTURES ONLY. SPLICES SHALL BE STAGGERED, WITH A MAXIMUM OF ONE SPLICE PER BAR. LAPS SHALL CONFORM TO THE STANDARD SPECIFICATIONS.

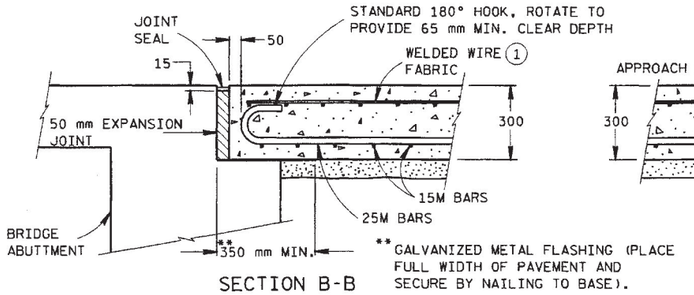
NOTE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.



SECTION A-A

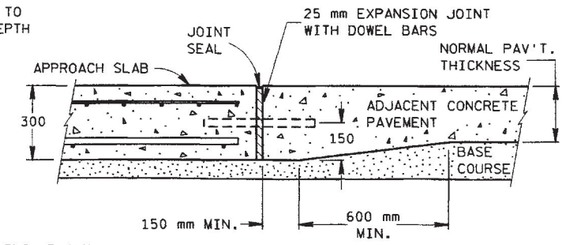
REINFORCEMENT POSITIONING DETAIL



SECTION B-B

BEND DETAIL

BOTTOM REINFORCEMENT



SECTION C-C

TRANSITION DETAIL

APPROACH SLAB TO ADJACENT PAVEMENT

CONCRETE PAVEMENT
APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 02/10/95 DATE

CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

M

S.D.D. 13 B 2-3

PLOT SCALE:

PLOT NAME:

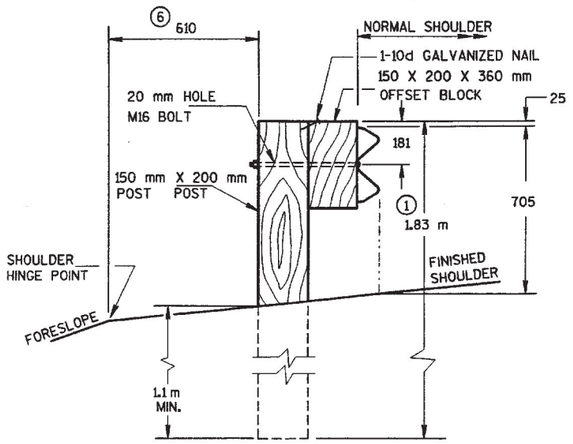
REV. DATE:

ORIGINATOR:

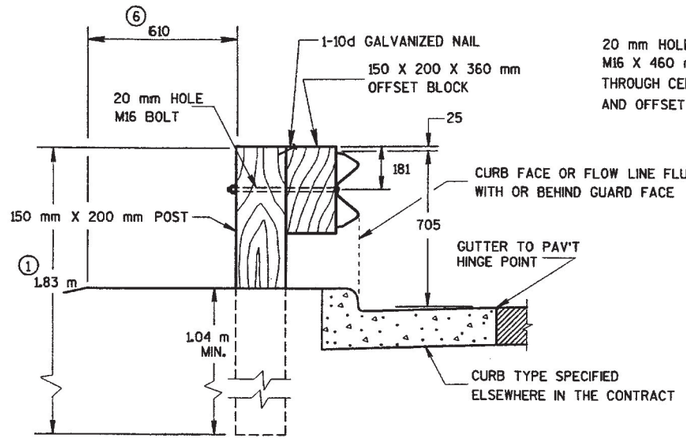
LEVELS ON = 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63

FILE NAME:

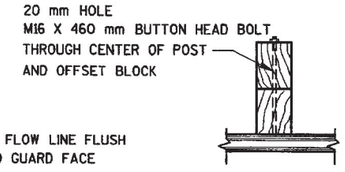
S.D.D. 13 B 2-3



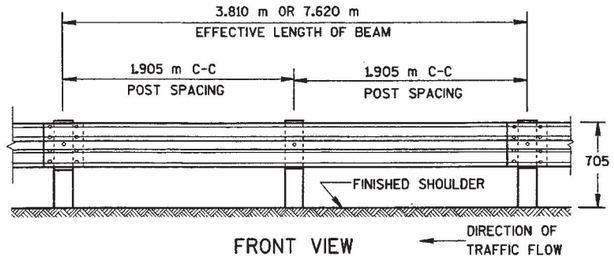
END VIEW
LOCATED ALONG A ROADWAY SHOULDER



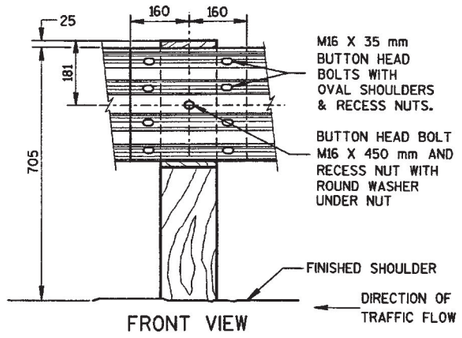
END VIEW
LOCATED ALONG A CURBED ROADWAY



PLAN VIEW
POST, OFFSET BLOCK AND BEAM

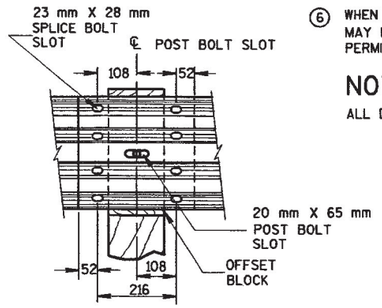


FRONT VIEW

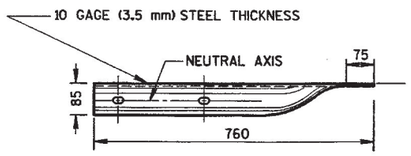


FRONT VIEW
BEAM SPLICING AND POST MOUNTING DETAIL

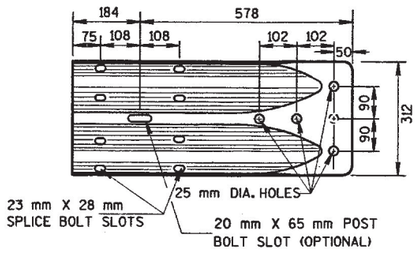
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD



W BEAM SPLICE



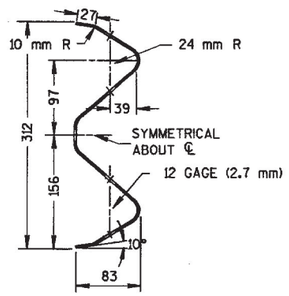
PLAN VIEW



FRONT VIEW

W BEAM TERMINAL CONNECTOR

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



SECTION THRU W BEAM

GENERAL NOTES

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) POST LENGTH SHALL BE INCREASED TO PROVIDE A MINIMUM EMBEDMENT OF 1.07 m WHERE THE SHOULDER HINGE POINT IS LOCATED IN FRONT OF THE POST. WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 305 mm DIA. POST HOLE EXTENDING 510 mm DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 65 mm DEEP TO PROVIDE DRAINAGE. THE POSTS SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

(2) 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.

(3) REFLECTORS SHALL NOT BE INSTALLED ON THE FIRST 15.24 m OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

(4) EVERY OTHER REFLECTOR REVERSED FOR 2-WAY VISIBILITY. CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

(5) ANGLE OF BEND TO BE 90° ± 1° FOR TWO-SIDED REFLECTORS.

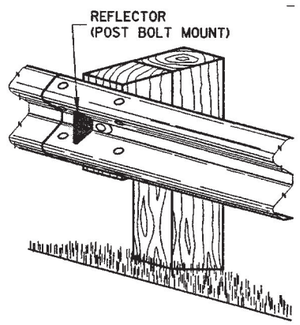
(6) WHEN SPECIFIED ELSEWHERE IN THE CONTRACT THE 610 mm MINIMUM TO HINGE POINT, MAY BE REDUCED OR ELIMINATED WHERE EXISTING CONDITIONS WILL NOT PERMIT THE DESIRABLE EARTHWORK.

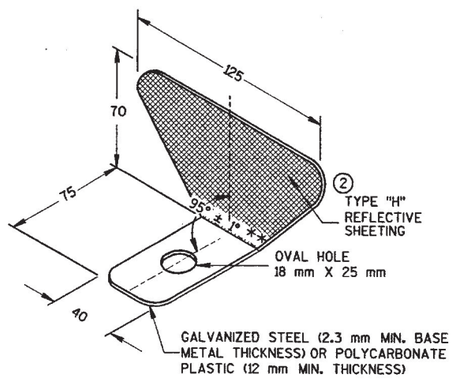
NOTE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

REFLECTOR SPACING (3)

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 60 m > 60 m	15 m C-C 30 m C-C	1 1	3
TWO WAY TRAFFIC	< 60 m > 60 m	8 m C-C 15 m C-C	1 1 (4)	6
TWO WAY TRAFFIC	< 60 m > 60 m	15 m C-C 30 m C-C	2 2 (5)	3





(2) REFLECTOR DETAIL AND TYPICAL INSTALLATION

CLASS "A"
STEEL PLATE BEAM GUARD
INSTALLATION & ELEMENTS

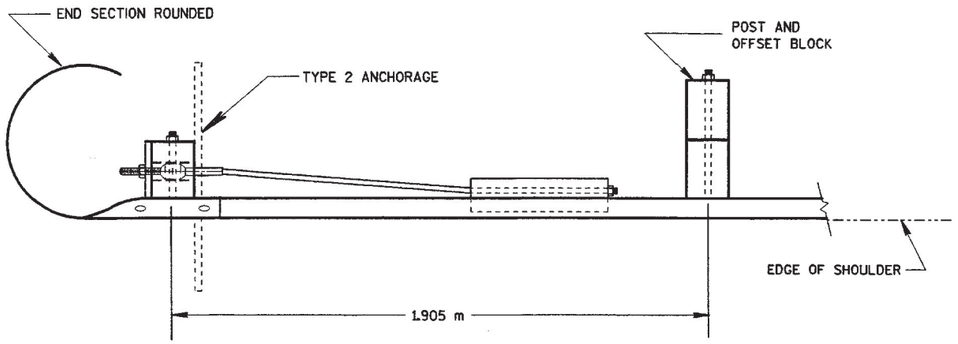
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 2/19/99 DATE
Roy L. Amundson
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

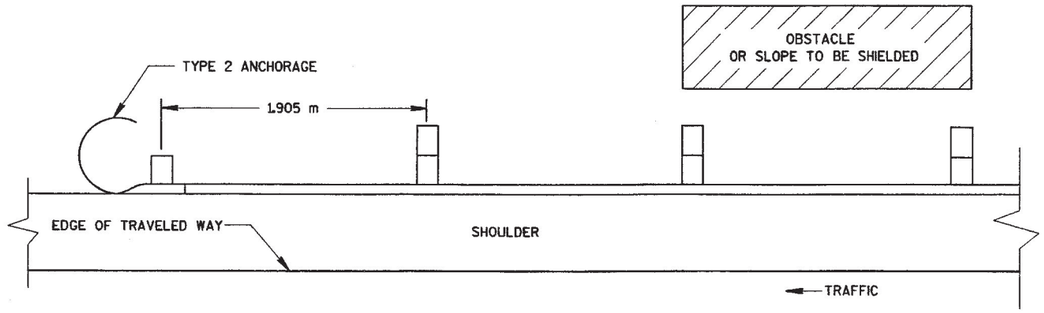
M

S.D.D. 14 B 15-3a

ORIGINATOR:
PLOT NAME:
PLOT SCALE:
REV. DATE: 5-27-98
LEVELS ON - 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

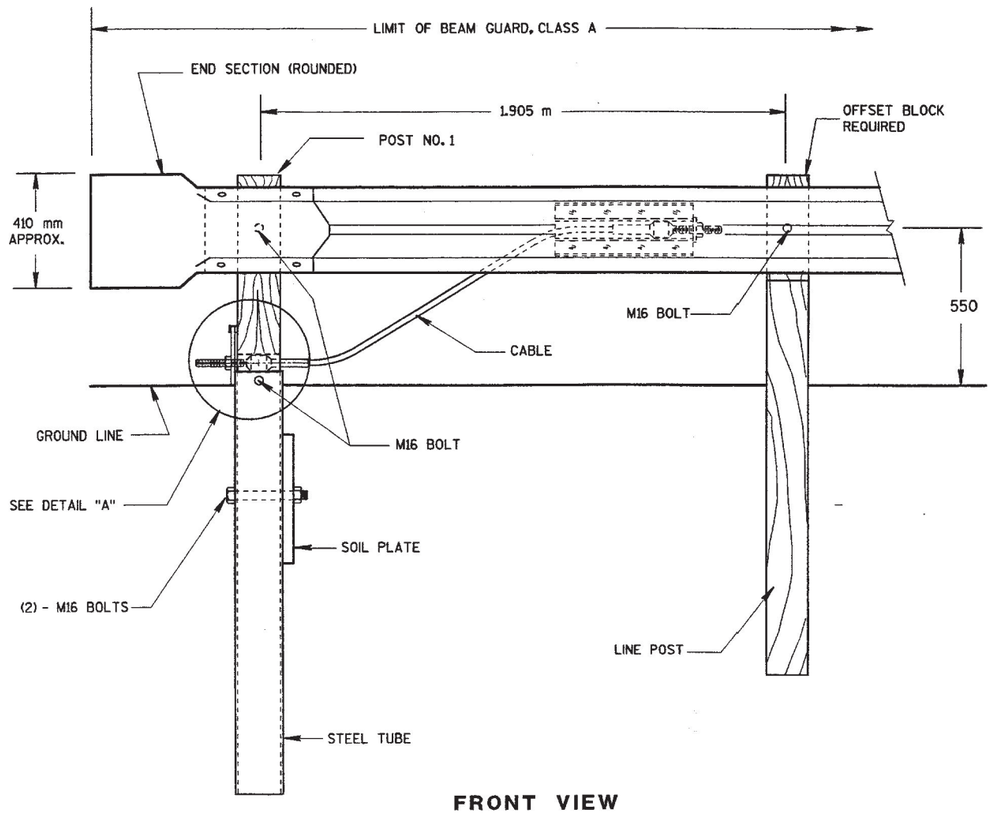


PLAN VIEW



PLAN VIEW

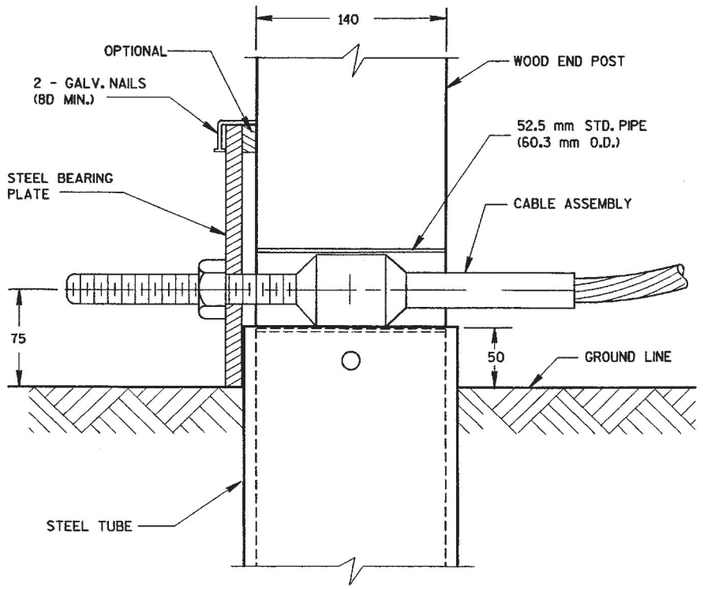
BEAM GUARD WITH TYPE 2 ANCHORAGE EXIT END - ONE WAY TRAFFIC



FRONT VIEW

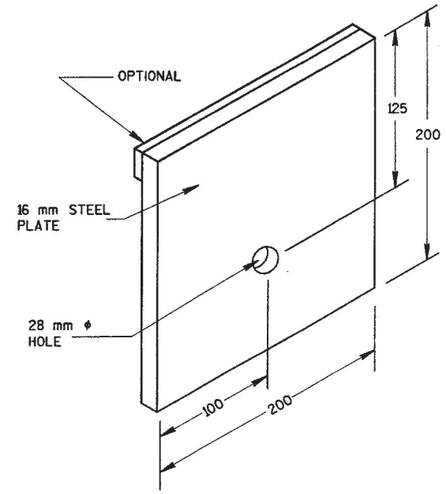
END TREATMENT WITH TYPE 2 ANCHORAGE

(USE ON ONE-WAY ROADWAYS ONLY - DEPARTING END)



DETAIL "A"

POST NO. 1



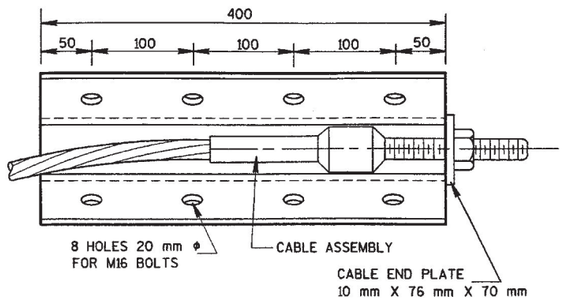
STEEL BEARING PLATE

CLASS "A" STEEL PLATE BEAM GUARD END TREATMENT WITH ANCHORAGE, TYPE 2

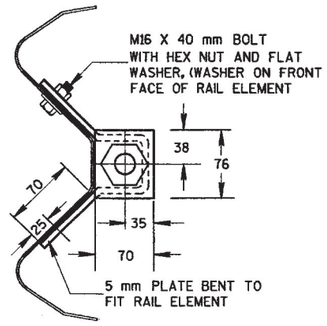
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION M

S.D.D. 14 B 16-3a

LEVELS ON • 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

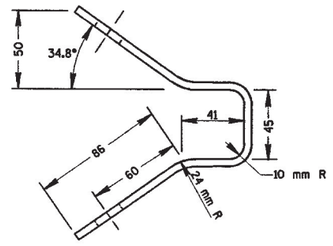


FRONT VIEW

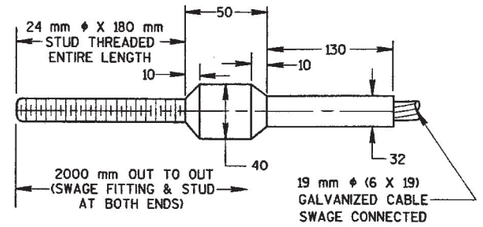


END VIEW

ANCHOR PLATE DETAIL



END VIEW OF BRACKET



CABLE ASSEMBLY

CABLE, SWAGE FITTING, STUD AND NUT SHALL DEVELOP
A MINIMUM BREAKING STRENGTH OF 190 kN
(TIGHTEN UNTIL TAUT)

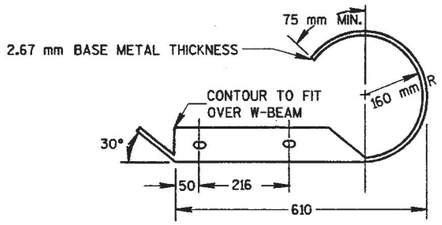
GENERAL NOTES

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

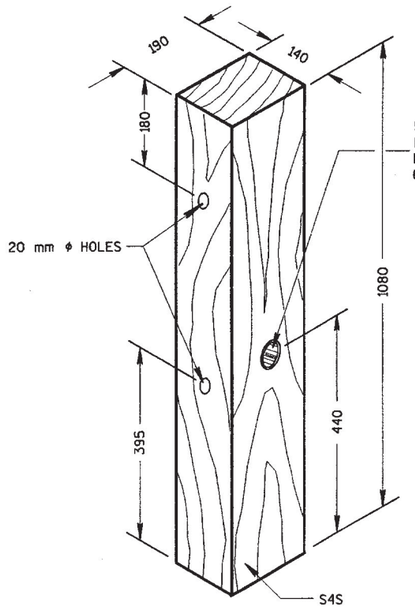
STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-500 GRADE B OR ASTM A-501.

POST NO. 1 SHALL BE WOOD BREAKAWAY POST INSERTED AND BOLTED INTO STEEL TUBE.

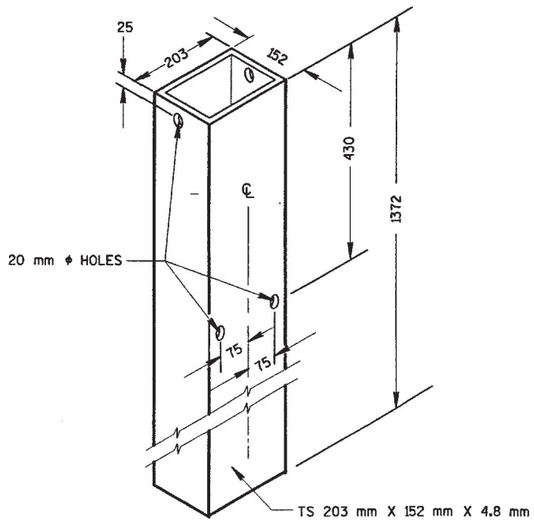
TYPE 2 ANCHORAGE SHALL CONSIST OF A STEEL TUBE, SOIL PLATE WOOD BREAKAWAY POST, BEARING PLATE, ANCHOR PLATE, CABLE ASSEMBLY AND ALL ASSOCIATED HARDWARE, ALL STEEL PARTS SHALL BE GALVANIZED.



PLAN VIEW

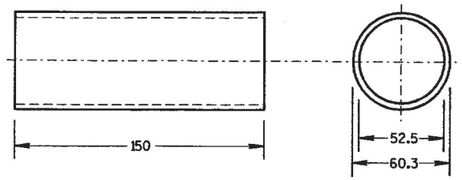


WOOD BREAKAWAY POST



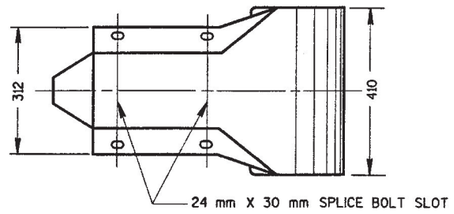
STEEL TUBE

STEEL TUBE SHALL CONFORM TO
REQUIREMENTS OF ASTM A500

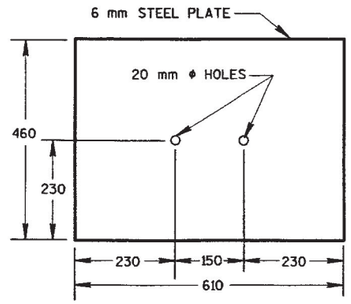


BREAKAWAY TERMINAL POST SLEEVE

STANDARD STRENGTH STEEL PIPE, ASTM 53 GRADE "B"



FRONT VIEW
W BEAM END SECTION ROUNDED



SOIL PLATE

CLASS "A" STEEL PLATE BEAM GUARD END TREATMENT WITH ANCHORAGE, TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

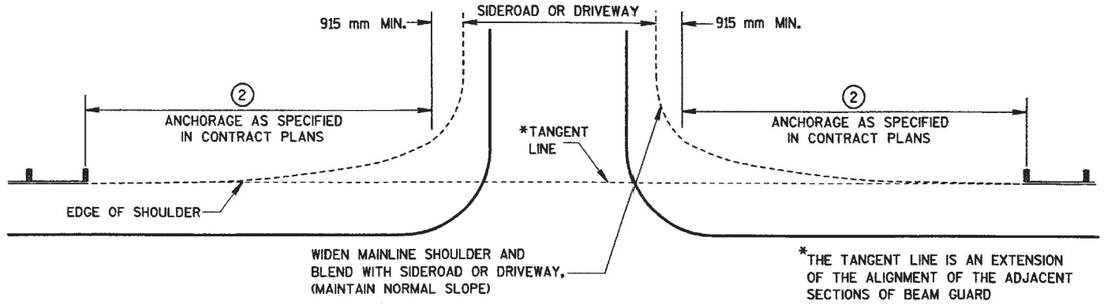
APPROVED 2/19/99 DATE
Roy L. Thomsen
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

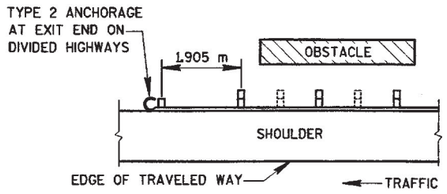
M

S.D.D. 14 B 16-3b

PLOT SCALE:
PLOT NAME:
REV. DATE:
ORIGINATOR:
LEVELS ON • 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

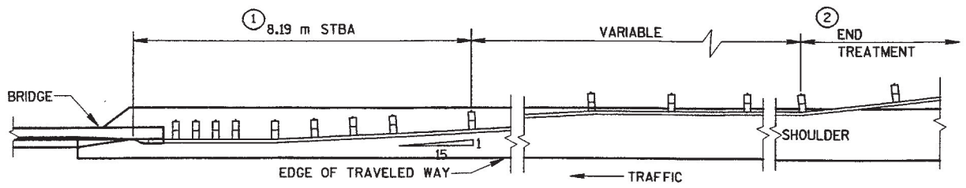


BEAM GUARD AT MINOR SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES
EXIT END - ONE WAY TRAFFIC

BEAM GUARD AT FULL WIDTH BRIDGES



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

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.

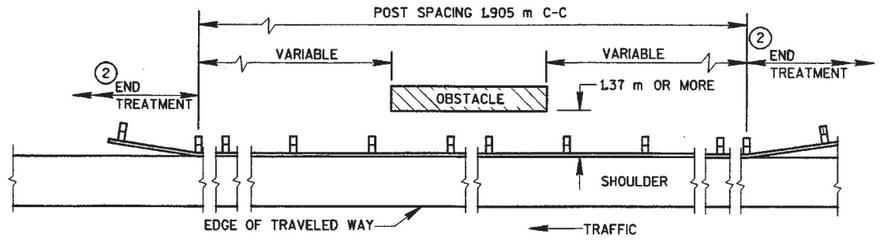
BEAM GUARD LOCATIONS AND LENGTHS ARE SHOWN ELSEWHERE IN THE PLAN.

(1) STEEL THRIE BEAM STRUCTURE APPROACH.

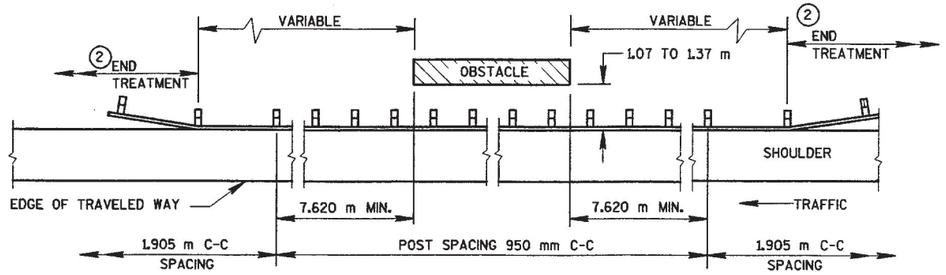
(2) FOR TRAFFIC APPROACH SIDE OF BRIDGES/OBSTACLES, TYPE 2 ANCHORAGE SHALL BE USED ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

NOTE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC
(RAIL TO OBSTACLE CLEARANCE 1.37 m OR MORE)



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC
(RAIL TO OBSTACLE CLEARANCE 1.07 TO 1.37 m)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

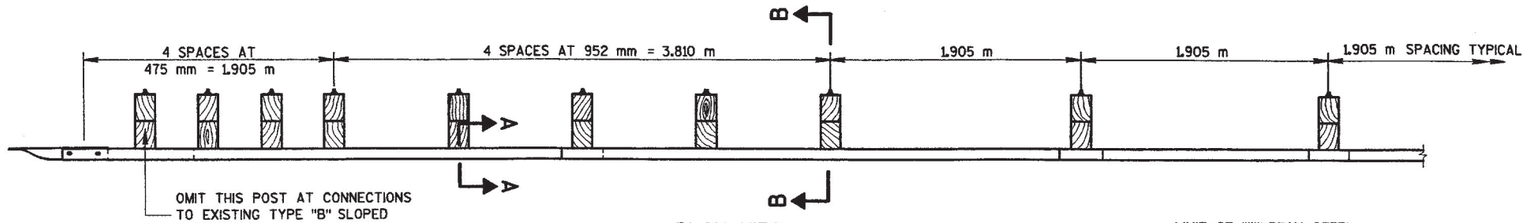
APPROVED
2/19/99
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

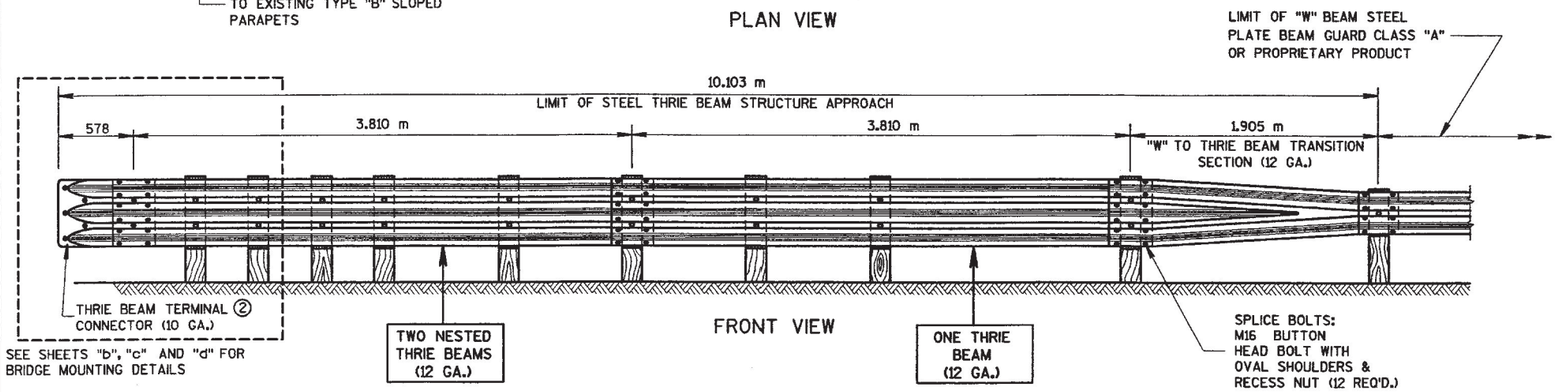
M

S.D.D. 14 B 18-4

LEVELS ON - 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



PLAN VIEW



FRONT 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.

THRIE BEAM STRUCTURE APPROACH SHALL BE FURNISHED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 614 OF THE STANDARD SPECIFICATIONS. THRIE BEAM SECTIONS SHALL CONFORM TO THE REQUIREMENTS FOR CLASS "A", TYPE 2, BEAM AS SPECIFIED IN AASHTO DESIGNATION M180.

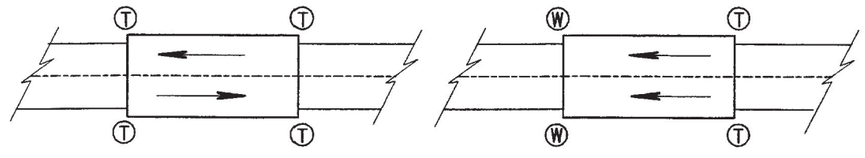
THRIE BEAM SHALL BE BOLTED TO ALL POSTS AND OFFSET BLOCKS. FIELD DRILLING/PUNCHING OF BOLT HOLES IN THE BEAM IS PERMITTED WHERE POST SPACING IS LESS THAN 1.905 m.

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 305 mm 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 65 mm 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.

① POST LENGTH SHALL BE INCREASED TO PROVIDE A MINIMUM EMBEDMENT OF 1.2 m WHERE THE SHOULDER HINGE POINT IS LOCATED IN FRONT OF THE POST.

② A TERMINAL CONNECTOR IS NOT REQUIRED AT CONNECTIONS TO BRIDGE RAILING TYPE "W".

③ WHEN SPECIFIED ELSEWHERE IN THE CONTRACT THE 610 mm MINIMUM TO HINGE POINT, MAY BE REDUCED OR ELIMINATED WHERE EXISTING CONDITIONS WILL NOT PERMIT THE DESIRABLE EARTHWORK.



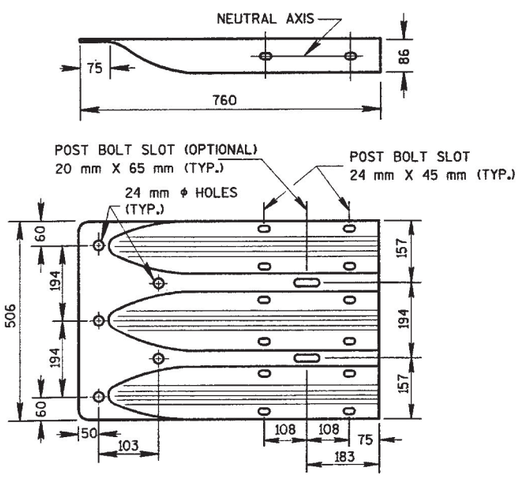
TWO WAY TRAFFIC

ONE WAY TRAFFIC

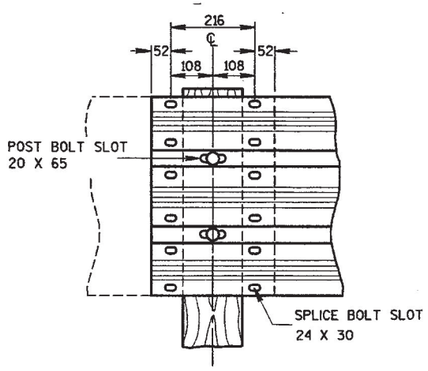
Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

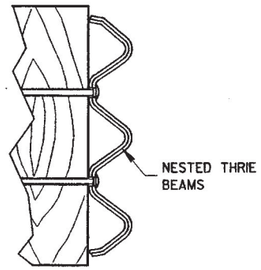
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



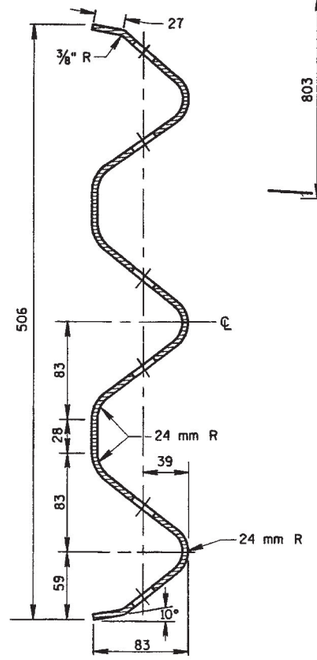
THRIE BEAM TERMINAL CONNECTOR



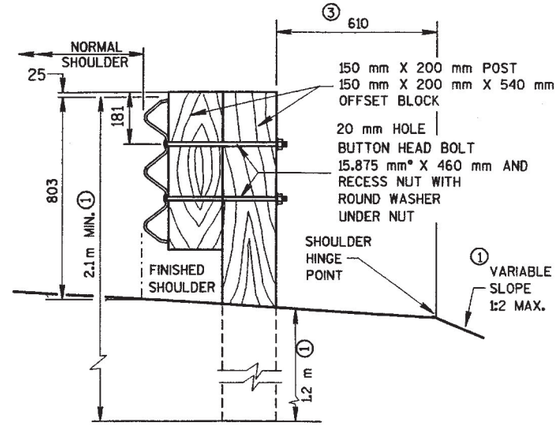
THRIE BEAM SPLICE



PARTIAL SECTION A-A



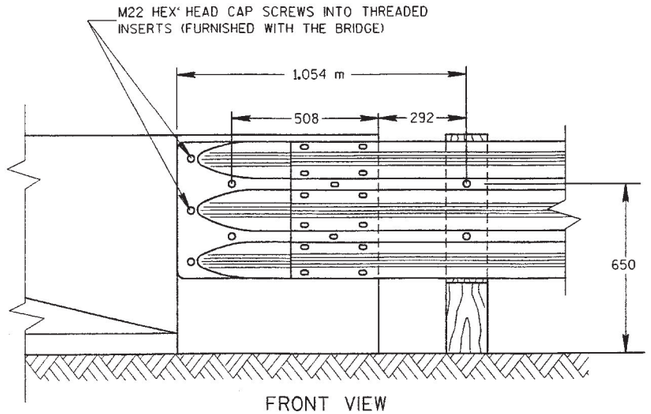
SECTION THRU THRIE BEAM RAIL ELEMENT

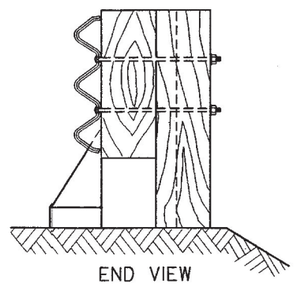


SECTION B-B

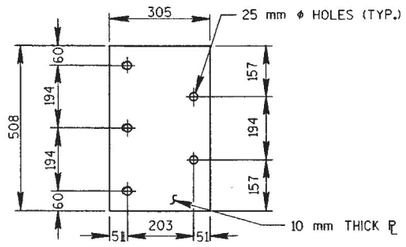
STEEL THRIE BEAM
STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION M

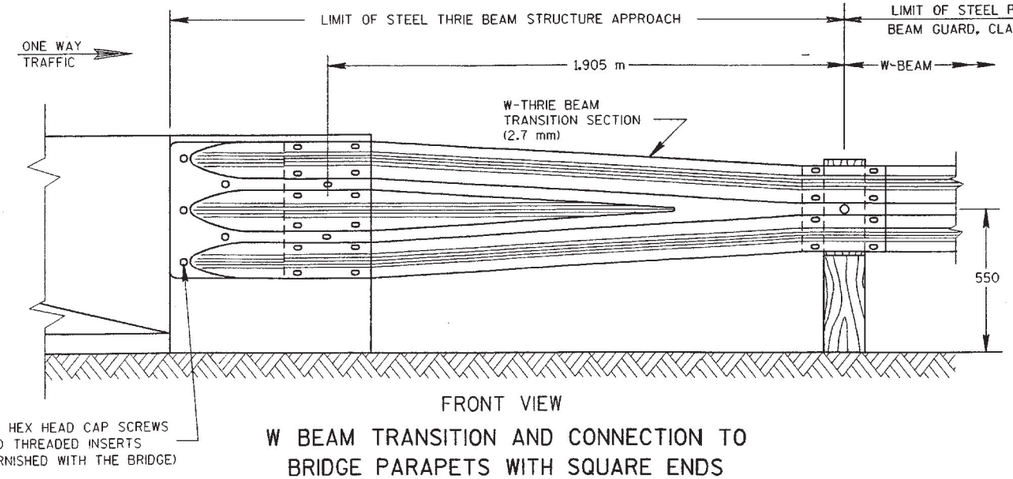




THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



② BACKUP PLATE DETAIL



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

THE CONNECTION DETAILS SHOWN ARE TYPICAL. THE POSITION OF CONNECTIONS TO EXISTING BRIDGES SHALL BE ADJUSTED WHERE NECESSARY TO FIT ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A325M, AND BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

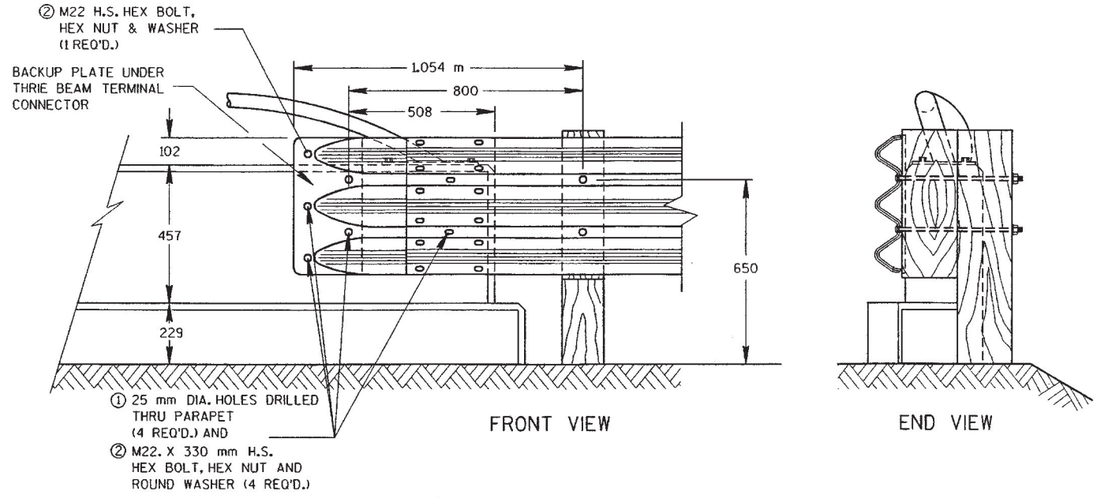
① PAYMENT FOR DRILLING BOLT HOLES THRU THE PARAPET, BACKUP PLATE AND ALL BOLTS, NUTS AND WASHERS REQUIRED SHALL BE INCLUDED IN ITEM STEEL THRIE BEAM STRUCTURE APPROACH.

② HARDENED WASHER REQUIRED WITH EACH BOLT AT THE BACKFACE OF PARAPET.

③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 455 mm X 610 mm X 90 mm.

NOTE

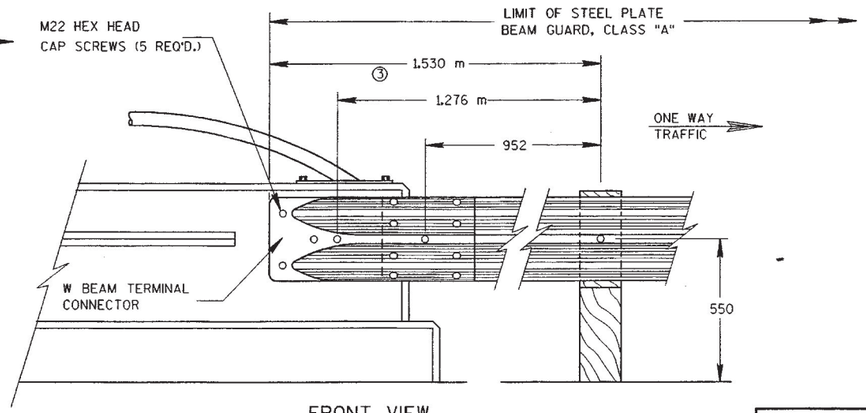
ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE SPECIFIED



FRONT VIEW

END VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END AND VERTICAL FACED PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3-23-99
DATE

Roy L. Zimmerman
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

M

S.D.D. 14 B 20-6b

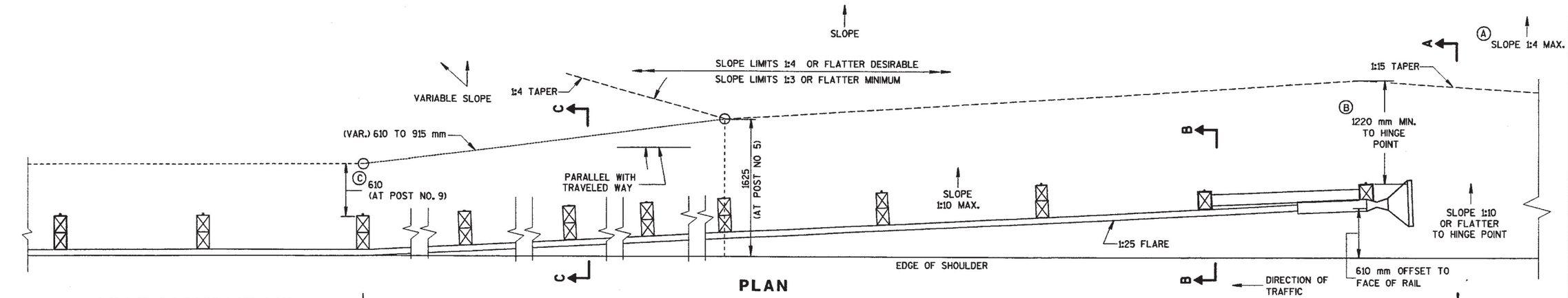
PLOT SCALE:

PLOT NAME:

REV. DATE: 5-27-98

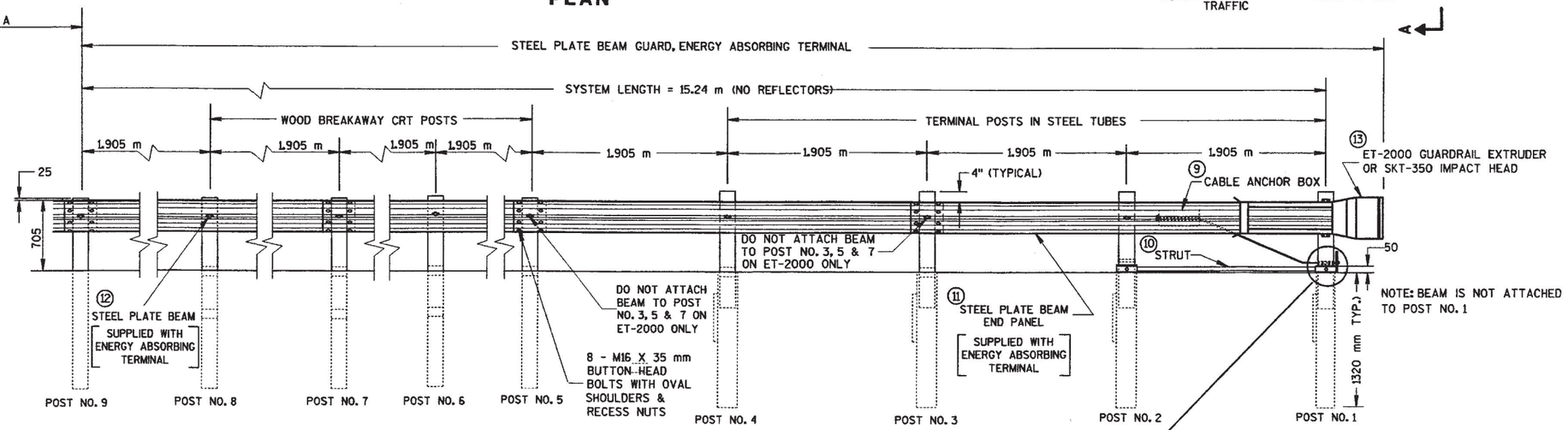
ORIGINATOR:

S.D.D. 14 B 24-3a

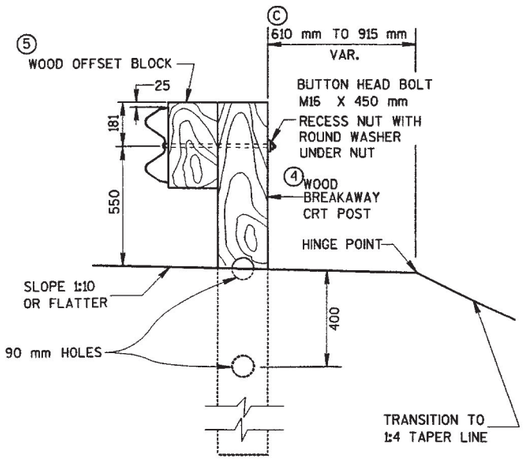


BILL OF MATERIALS

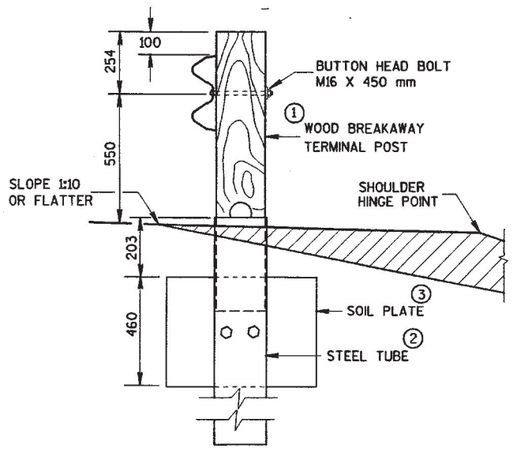
NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	4	STEEL TUBE: TS 8" X 6" X 0.188", 4'-6" LONG
③	4	SOIL PLATE: 2'-0" X 1'-6" X ¼"
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6½" LONG FOR SKT-350 & ET-2000
⑫	3	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	1	ET-2000 GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING: 18" X 18"



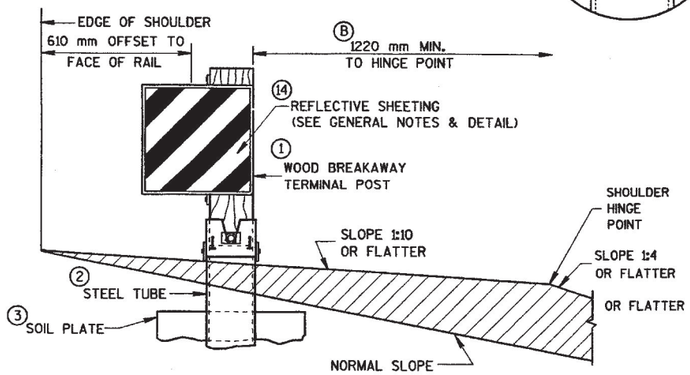
ELEVATION



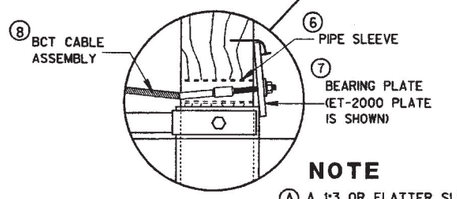
SECTION C-C
TYPICAL AT POST NOS. 5-8 INC.



SECTION B-B
TYPICAL AT POST NO. 2
(ADD WOOD OFFSET BLOCK AT POST 3 & 4)



SECTION A-A
TYPICAL AT POST NO. 1



NOTE

Ⓐ A 1:3 OR FLATTER SLOPE MAY BE USED FOR INSTALLATION ON EXISTING HIGHWAYS.

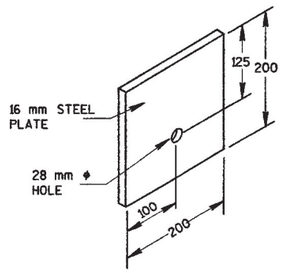
Ⓑ WHEN SPECIFIED ELSEWHERE IN THE CONTRACT THE 1220 mm MINIMUM TO HINGE POINT, MAY BE REDUCED OR ELIMINATED WHERE EXISTING CONDITIONS WILL NOT PERMIT THE DESIRABLE EARTHWORK. SIMILIARLY THE 1:15 TAPER MAY BE REDUCED TO 1:4.

Ⓒ WHEN SPECIFIED ELSEWHERE IN THE CONTRACT THE 610 mm MINIMUM TO HINGE POINT, MAY BE REDUCED OR ELIMINATED WHERE EXISTING CONDITIONS WILL NOT PERMIT THE DESIRABLE EARTHWORK.

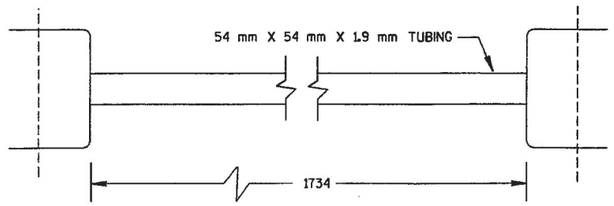
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

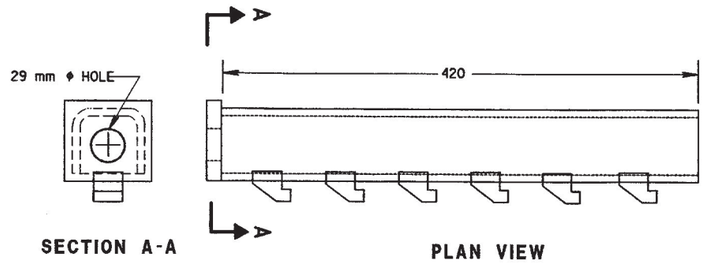
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
M



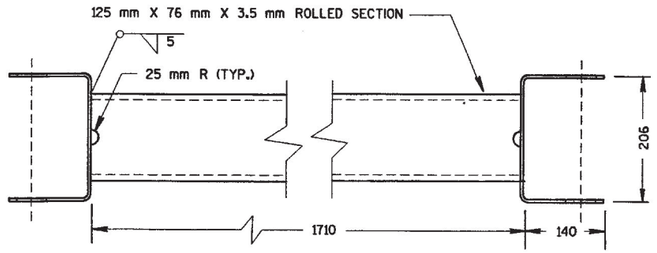
STEEL BEARING PLATE (SKT-350)



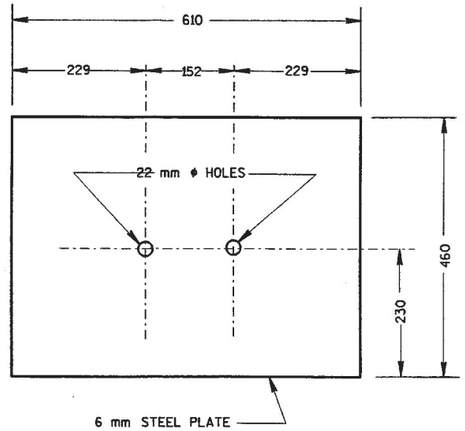
STRUT DETAIL (SKT-350)



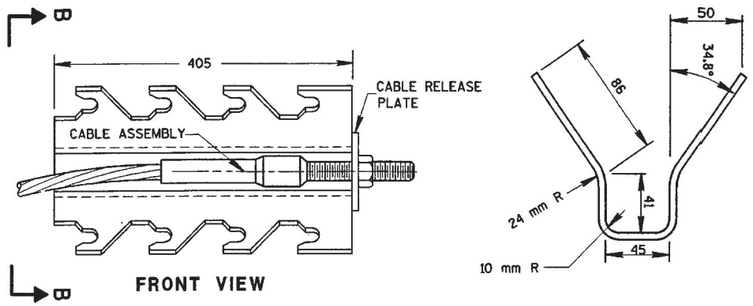
CABLE ANCHOR BOX (ET-2000)



STRUT DETAIL (ET-2000)

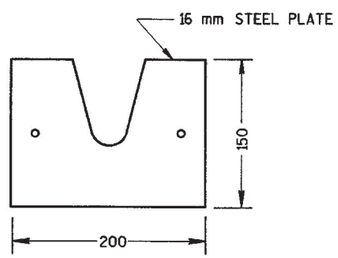


SOIL PLATE (SKT-350 & ET-2000)

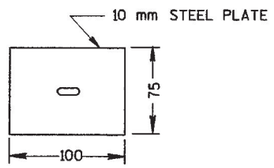


CABLE ANCHOR BOX (SKT-350)

(SKT-350)



STEEL BEARING PLATE (ET-2000)



BEARING PLATE WASHER ET-2000)

(ET-2000)

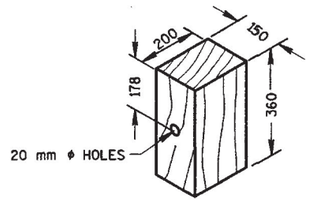
NOTE

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE SHOWN.

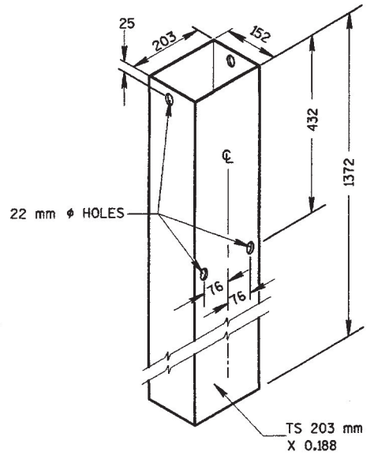
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

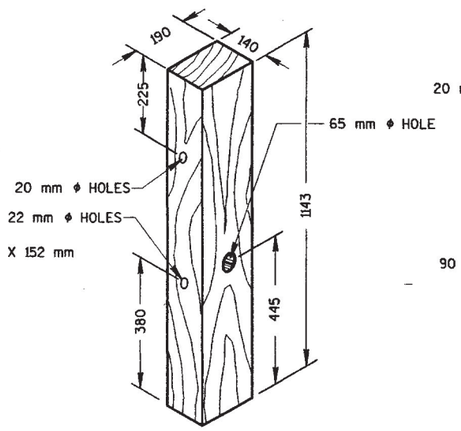
S.D.D. 14 B 24-3b



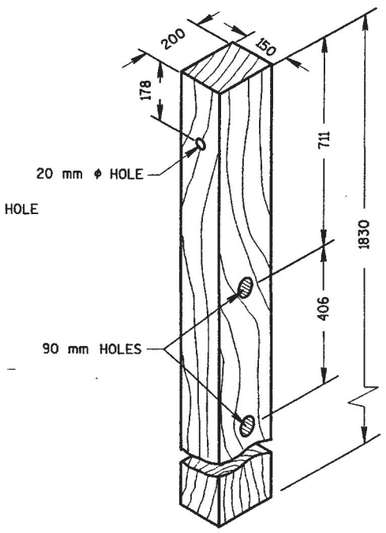
WOOD OFFSET BLOCK
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



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



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 PROPRIATERY PRODUCT MATERIALS.

THE "ET-2000" IS AVAILABLE FROM SYRO, INC., 2524 N. STEMMONS FREEWAY, DALLAS TEXAS 75207. TELEPHONE 1-800-835-6086 OR 1-800-644-7976

THE "SKT-350" IS AVAILABLE FROM ROAD SYSTEMS, INC., 7631 NEW CASTLE DRIVE, FRANKFORT, ILLINOIS 60423. TELEPHONE (815) 464-5917

THE ET-2000, AND SKT-350 END TERMINALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

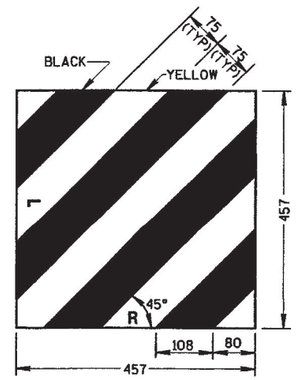
STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

REFLECTIVE SHEETING - SHALL CONFORM TO ASTM SPECIFICATION D4956-93b, 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 305 mm DIA. POST HOLE EXTENDING 510 mm DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 65 mm 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.

NOTE

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE SHOWN.



REFLECTIVE SHEETING DETAIL

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 3-23-99 DATE
Tony L. Thompson
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

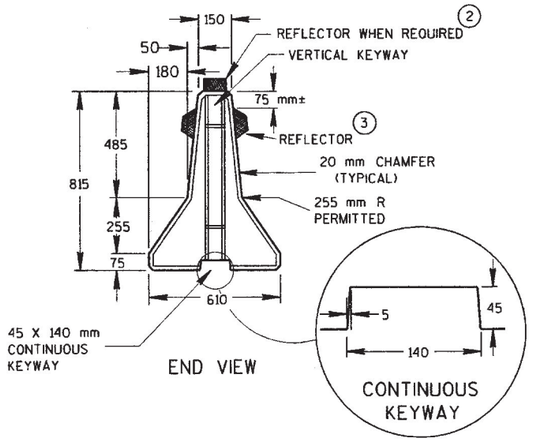
M

S.D.D. 14 B 24-3c

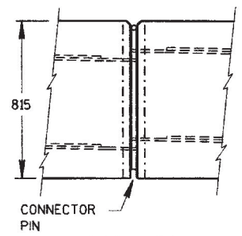
PLOT SCALE:
PLOT NAME:
REV. DATE:
ORIGINATOR:

DESCRIPTION	SIZE	NO. REQ'D	LENGTH (mm)
TOP CONNECTOR WIRE ROPE (1)	12.7 mm	2	1800
BOTTOM CONN. WIRE ROPE (1)	12.7 mm	2	1800
TOP CONNECTOR STEEL BAR	15M	1	2740
BOTTOM CONN. STEEL BAR	15M	1	2740
STEEL CONNECTING PIN	31.75 mm DIA.	1	760
BOTTOM TIE BARS	15M	5	560
VERTICAL STEEL BAR	15M	10	635
HORIZONTAL STEEL BAR	15M	4	2845

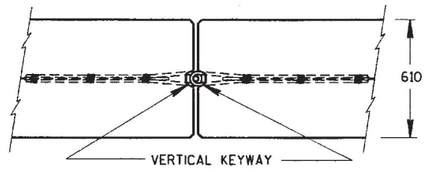
BILL OF MATERIALS



END VIEW

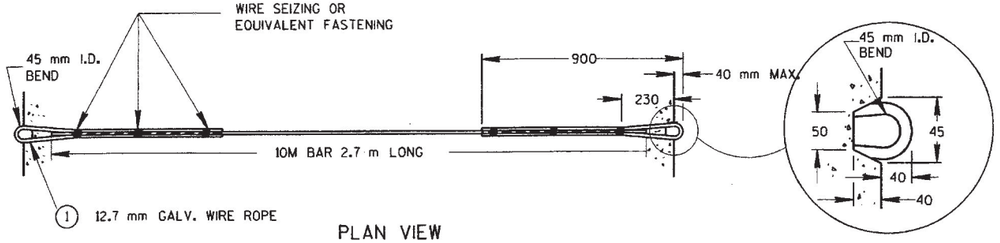


SIDE VIEW



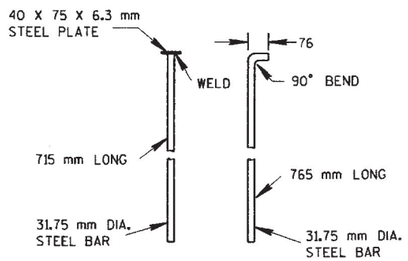
PLAN VIEW

CONNECTION DETAILS

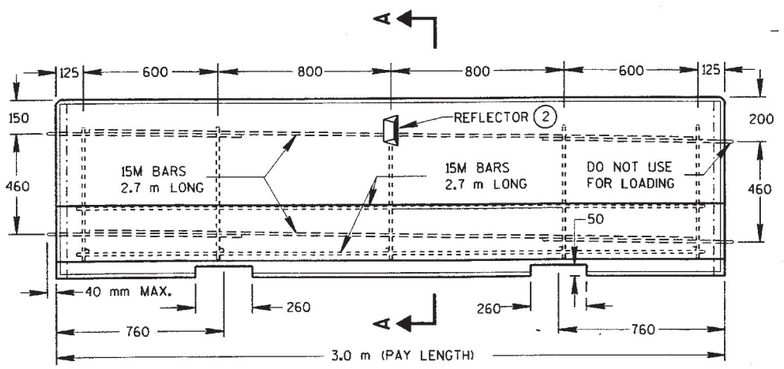


PLAN VIEW

TOP & BOTTOM CONNECTOR ASSEMBLY (1)

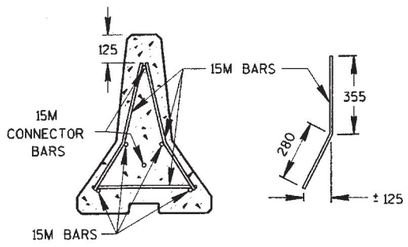


ALTERNATE CONNECTING PINS



SIDE VIEW

LOCATION OF REINFORCEMENT STEEL



SECTION A-A

BAR STEEL REINFORCEMENT

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.

BARRIERS SHALL BE REINFORCED WITH EITHER BAR STEEL REINFORCEMENT AS DETAILED ON THIS DRAWING OR WELDED STEEL WIRE FABRIC ADEQUATE TO ASSURE SAFE HANDLING STRENGTH.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 50 mm CLEAR UNLESS OTHERWISE SHOWN.

GALVANIZED WIRE ROPE SHALL BE 6 X 19 CLASS 2 IWRC WITH A MINIMUM BREAKING STRENGTH OF 8900 N AND SHALL CONFORM TO FEDERAL SPECIFICATION RR-W-410. THE ZINC COATING SHALL CONFORM TO TABLE II OF THE FEDERAL SPECIFICATIONS.

REFLECTORS SHALL CONFORM TO SECTION 633 OF THE STANDARD SPECIFICATIONS EXCEPT THE SHAPE SHALL BE AS SHOWN ON THIS DRAWING. ALTERNATIVE SHAPES MAY BE USED WHEN APPROVED BY THE ENGINEER. CONCRETE SURFACE PREPARATION, ADHESIVE AND METHOD OF APPLICATION SHALL BE AS RECOMMENDED BY THE REFLECTOR MANUFACTURER. THE COLOR OF REFLECTORS SHALL BE YELLOW. MAXIMUM SPACING SHALL BE 6.0 m.

(1) CONNECTOR ASSEMBLIES MAY, AT THE CONTRACTORS OPTION, BE FORMED FROM A CONTINUOUS SECTION OF 12.7 mm GALV. WIRE ROPE (5 m MIN. LENGTH). THE 15M CONNECTOR STEEL BARS MAY THEN BE OMITTED.

(2) TOP MOUNTED REFLECTORS SHALL BE PROVIDED IN ADDITION TO THE SIDE MOUNTED REFLECTORS ON ALL BARRIER INSTALLATIONS LOCATED ON CURVED ALIGNMENT LONGER THAN 60 m.

(3) BARRIERS USED TO SEPARATE OPPOSING TRAFFIC SHALL HAVE REFLECTORS ON BOTH SIDES. TOP MOUNTED REFLECTORS SHALL BE DOUBLE FACED FOR THIS CONDITION.

ALTERNATE DESIGN

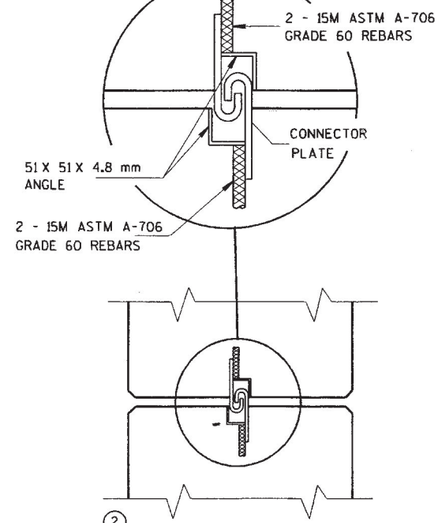
J-J HOOKS PORTABLE CONCRET4E BARRIER BY EASI-SET INDUSTRIES MAY BE FURNISHED INSTEAD OF THE BARRIER DETAILED ON THIS DRAWING. CONTACT INFORMATION: EASI-SET INDUSTRIES, P.O. BOX 300, MIDLAND, VIRGINIA 22728, TELEPHONE (703) 439-8911.

NOTE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

ALTERNATE DESIGN

J-J HOOKS PORTABLE CONCRETE BARRIER BY EASI-SET INDUSTRIES MAY BE FURNISHED INSTEAD OF THE BARRIER DETAILED ON THIS DRAWING. CONTACT INFORMATION : EASISET INDUSTRIES, P.O. BOX 300, MIDLAND, VIRGINIA 22728, TELEPHONE (703) 439-8911.



(2) J-J HOOK CONNECTOR

(ALTERNATIVE TO PIN & LOOP CONNECTOR)

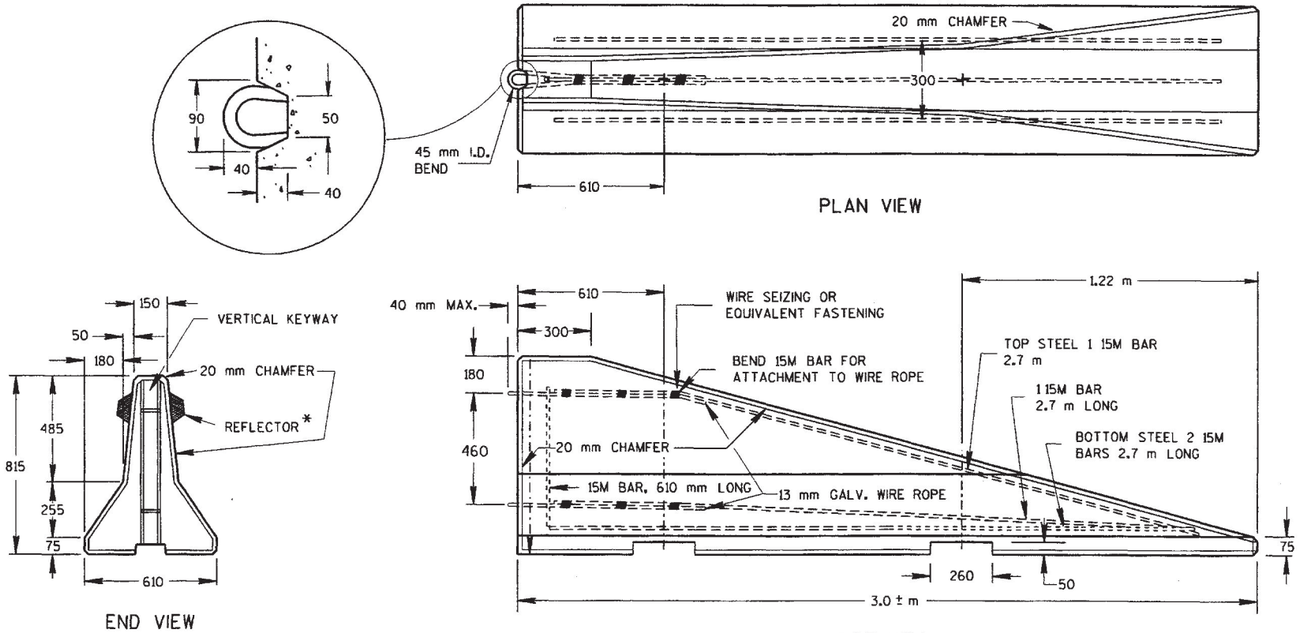
TEMPORARY PRECAST CONCRETE BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

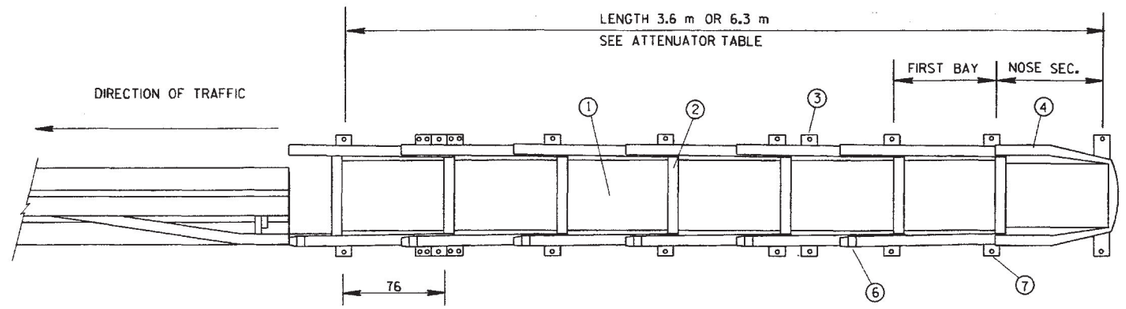
M

S.D.D. 14 B 7-9a

PLOT SCALE:
PLOT NAME:
REV. DATE:
ORIGINATOR:
LEVELS ON • 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



END SECTION FOR TEMPORARY PRECAST CONCRETE BARRIER



CONSTRUCTION ZONE PORTABLE CRASH CUSHION

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.

THE PORTABLE CRASH CUSHION SHALL BE THE G-R-E-A-T CZ IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC: ONE EAST WACKER DRIVE, CHICAGO, IL., 60601.

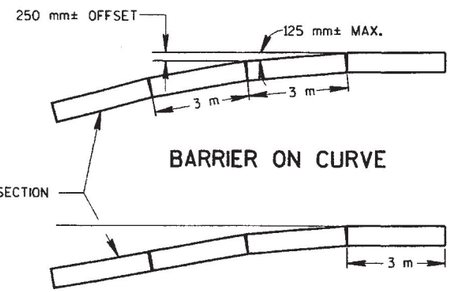
THE CRASH CUSHION SHALL BE MANUFACTURED, ASSEMBLED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS DETAILED ELSEWHERE IN THE PLANS OR AS SHOWN ON THE APPROVED SHOP DRAWINGS. THE CRASH CUSHION PLATFORM SHALL BE ANCHORED TO EITHER 150 mm MINIMUM CONCRETE PAVEMENT OR 75 mm MINIMUM ASPHALTIC SURFACES THAT HAVE A PREPARED COMPACTED SUBBASE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

GALVANIZED WIRE ROPE SHALL BE 6 X 19 CLASS 2 IWRC WITH A MINIMUM BREAKING STRENGTH OF 9050 kg, AND SHALL CONFORM TO FEDERAL SPECIFICATION RR-W-410. THE ZINC COATING SHALL CONFORM TO TABLE II OF THE FEDERAL SPECIFICATIONS.

*WHEN BARRIERS ARE USED TO SEPARATE OPPOSING TRAFFIC, REFLECTORS ARE REQUIRED ON BOTH SIDES.

NOTE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.



ATTENUATOR TABLE

ATTENUATOR LENGTH (m)	NO. OF BAYS	DESIGN SPEED km/h
3.6	3	60 OR LESS
6.3	6	60 TO 90

OPERATING SPEED, km/h	FLARE RATE
60 OR LESS	1:10
80 OR MORE	1:15

① HEX-FOAM CARTRIDGE
② DIAPHRAGM
③ THRIE BEAM FENDER PANEL
④ NOSE COVER
⑤ STABILIZING CHAIN
⑥ DEFLECTOR PANEL
⑦ ANCHORAGE DEVICE (WHERE ONE-WAY TRAFFIC EXISTS)

PRECAST CONCRETE BARRIER
END SECTION AND
PORTABLE CRASH CUSHION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 10/24/95 DATE
Roy L. Thompson
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

M

S.D.D. 14 B 7-9b

PLOT NAME: PLOT SCALE: REV. DATE: ORIGINATOR:

LEVELS ON - 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

FILE NAME:

TWO-LANE ROADWAY

SYMBOLS

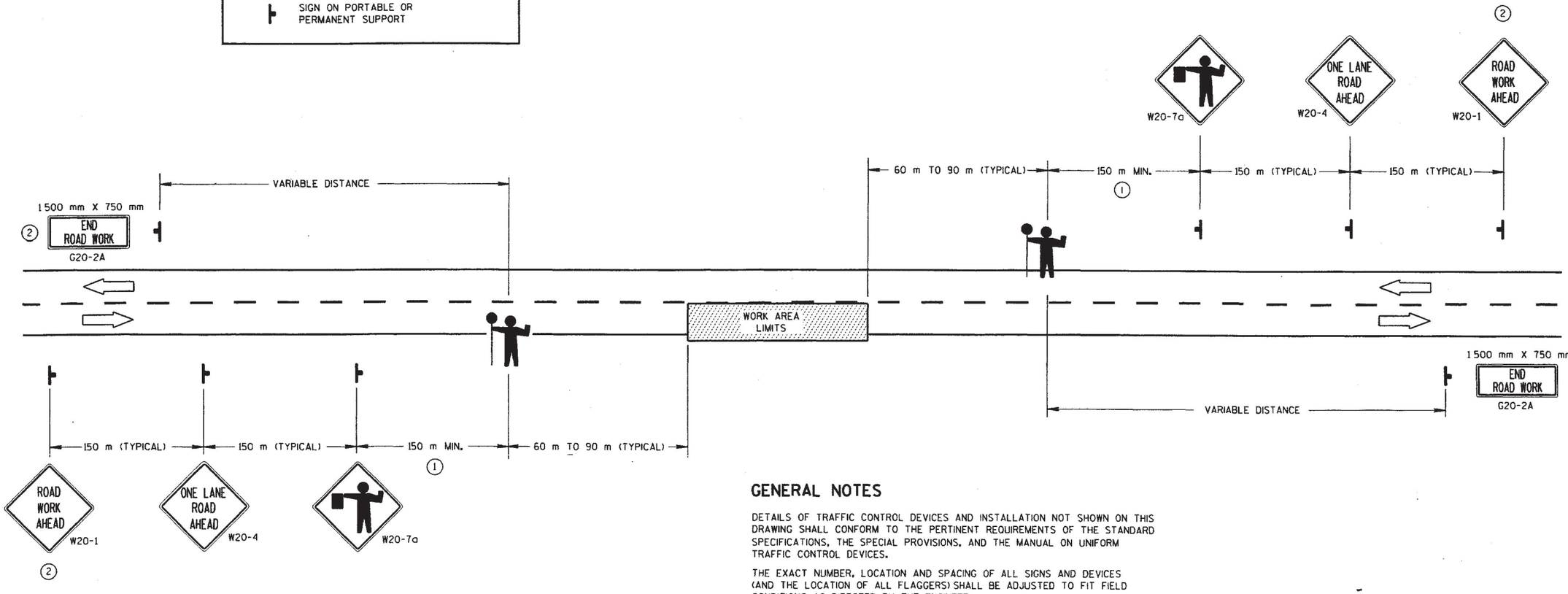
WORK AREA

FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN ON PORTABLE OR PERMANENT SUPPORT

W20-7b

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 150 m TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



① FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 1.0 km INTERVALS IN THE MOVING WORK OPERATION OR AS DIRECTED BY THE ENGINEER.

② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

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.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE LOCATION OF ALL FLAGGERS) SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, THE "FLAGGER AHEAD", THE "ROAD WORK AHEAD" AND THE ONE LANE ROAD AHEAD" SIGNS SHALL BE COVERED OR REMOVED AND THE HIGHWAY RESTORED TO NORMAL OPERATION.

ALL SIGNS ARE 1200 mm X 1200 mm UNLESS OTHERWISE NOTED.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-7-95
DATE

Charles J. Senty
for DIRECTOR, OFFICE OF TRAFFIC

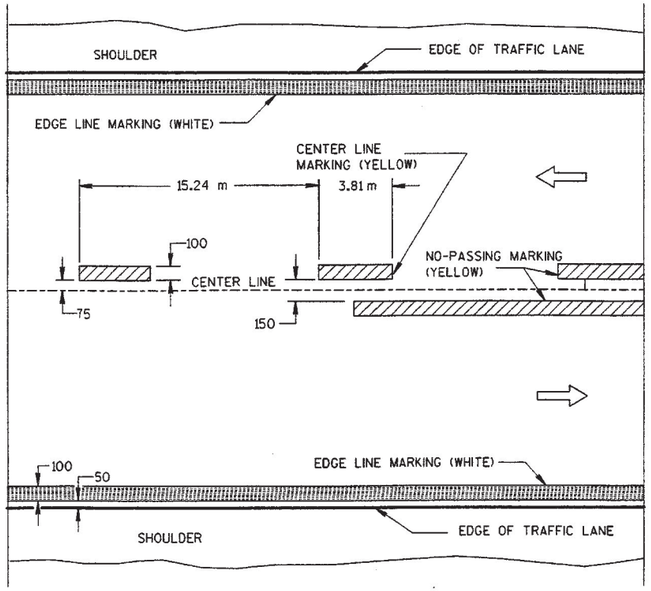
FHWA

M

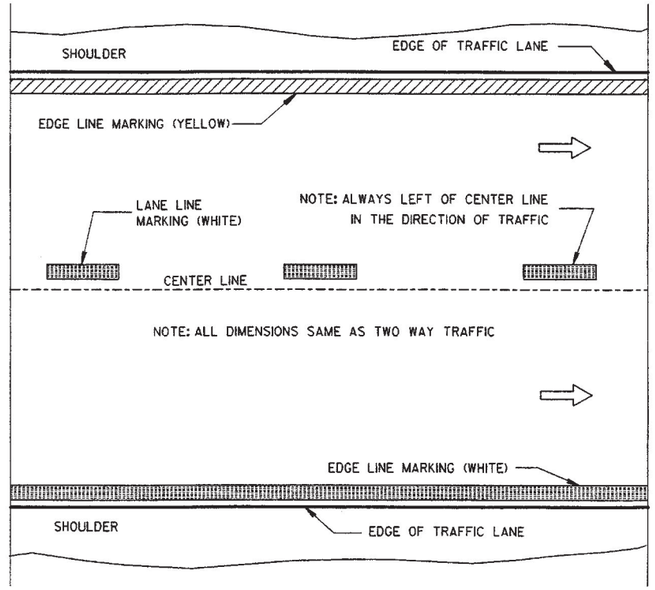
S.D.D. 15 C 12-2

S.D.D. 15 C 12-2

PLOT SCALE:
PLOT NAME:
REV. DATE:
ORIGINATOR:
LEVELS ON = 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
FILE NAME:

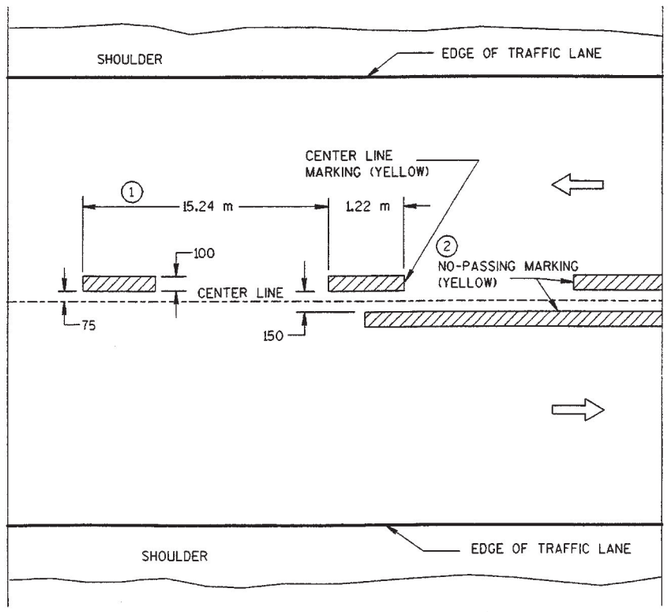


TWO WAY TRAFFIC

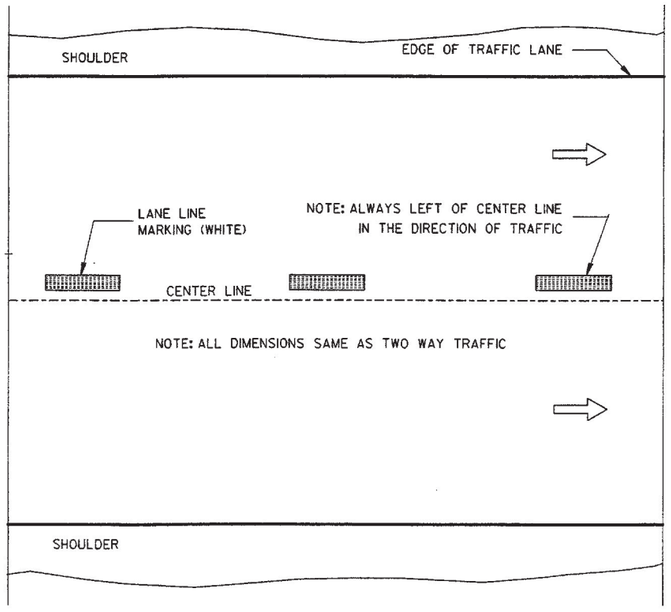


ONE WAY TRAFFIC

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 (7.62 m±) WITH 600 mm 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

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-10-98
DATE

Chester J. Spray
CHIEF SIGNS AND MARKING ENGINEER

FHWA

M

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

PLOT NAME:
PLOT SCALE: 6-28-95
REV. DATE:
ORIGINATOR:
LEVELS ON = 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

NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

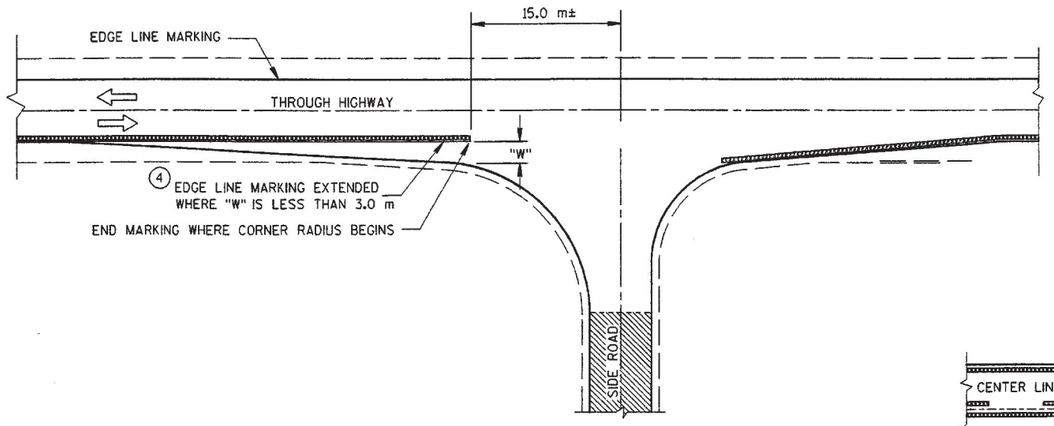
(1) WHEN DISTANCE "A" IS LESS THAN 76 m, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 30 m, OMIT CHANNELIZING LANE LINE.

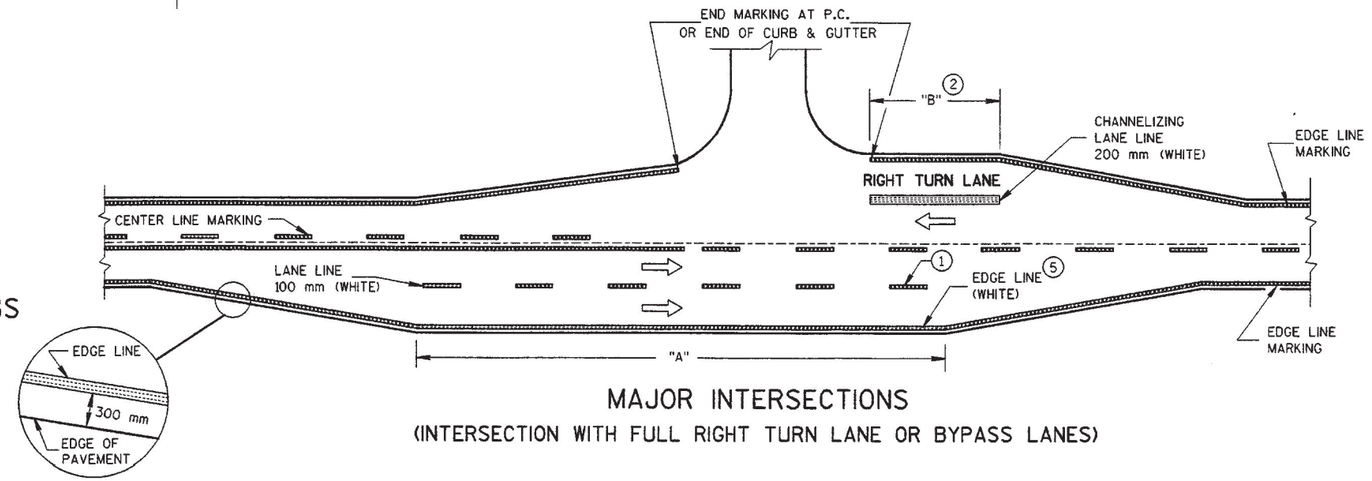
(3) ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.

(4) LOCATE THE EDGE LINE ALONG THE TAPER WHERE "W" IS 3.0 m OR MORE.

(5) THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 300 mm FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

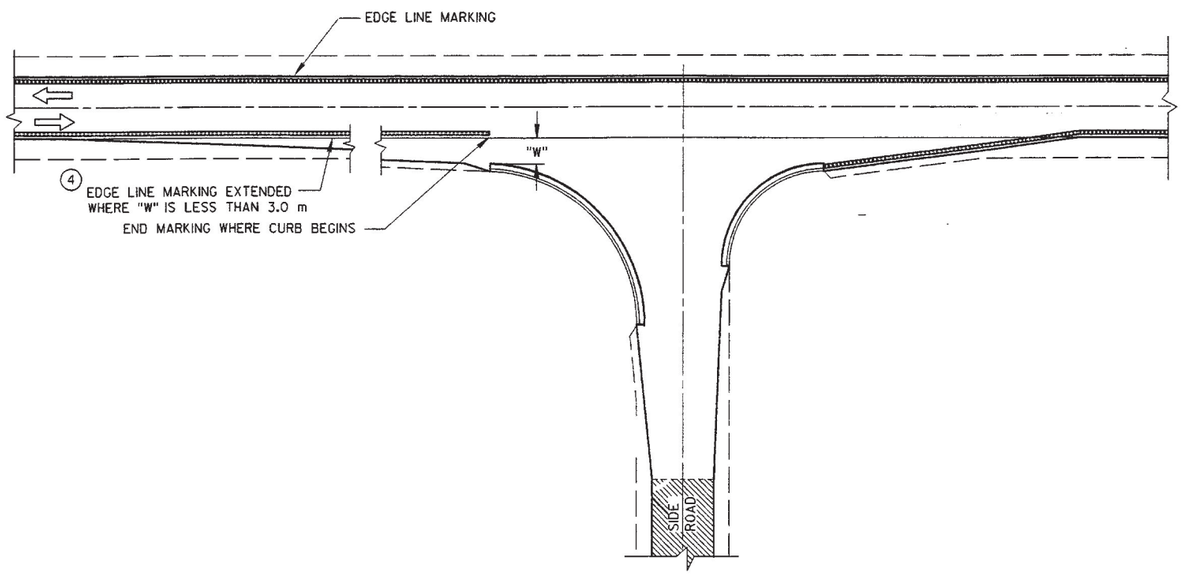


MINOR INTERSECTION WITHOUT CURBS



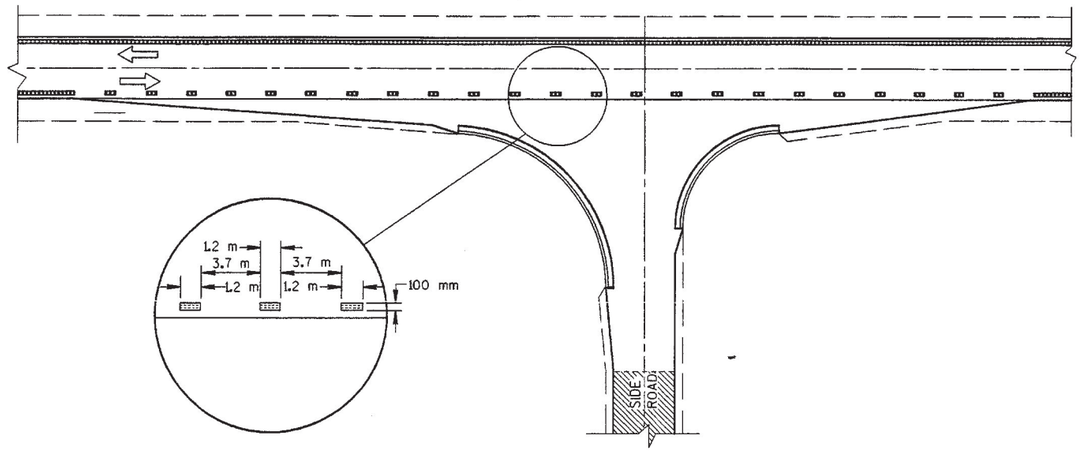
MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS

(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

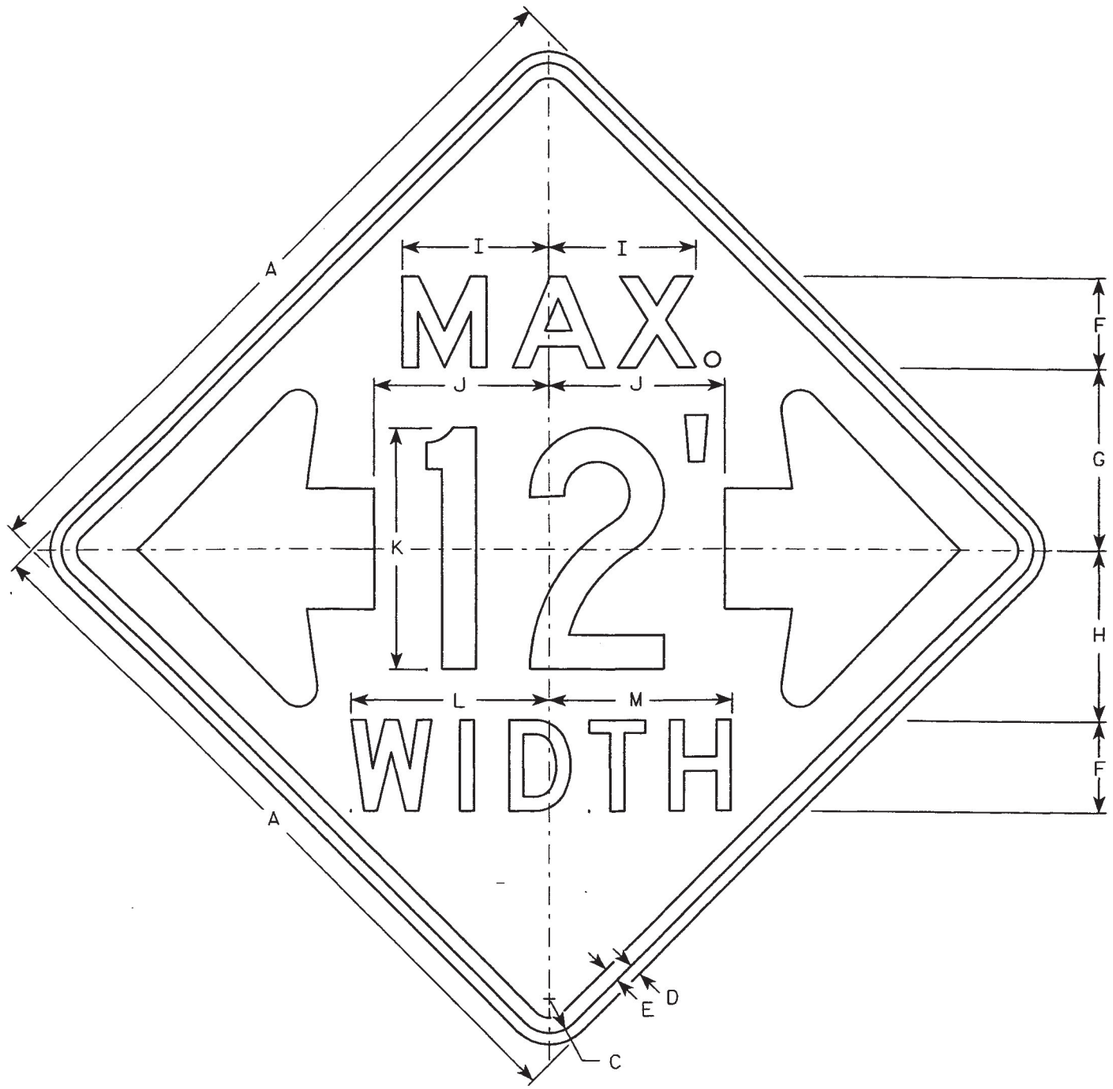
PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION M

S.D.D. 15 C 8-8b

LEVELS ON - 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

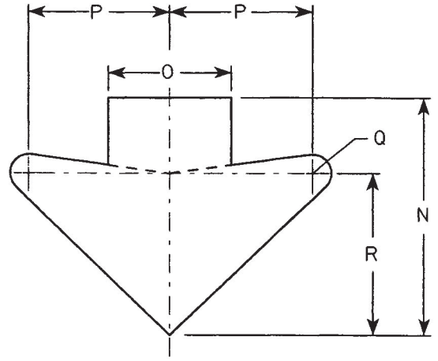
STATE PROJECT NUMBER	SHEET NO.
8520-06-71	7.1



W12-52

NOTES

1. Sign is Type II - Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



ARROW DETAIL

Metric equivalent for this sign is:

SIZE	
1	
2	1200 mm X 1200 mm
3	
4	
5	

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0	1.44
3																												
4																												
5																												

STANDARD SIGN
W12-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

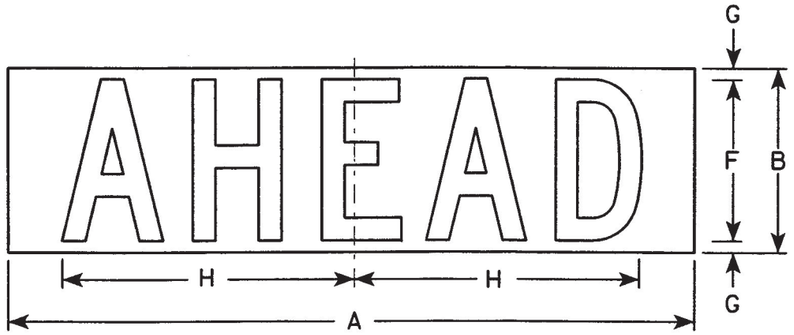
DATE 10/30/97 PLATE NO. W12-52.5

WISDOT/CADDS METRIC SHEET M

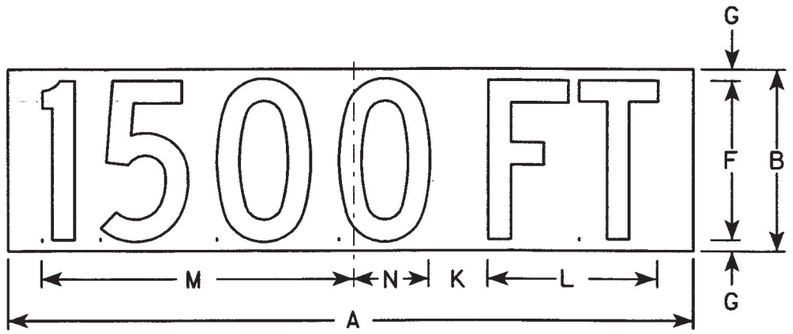
PLOT SCALE:
PLOT NAME: 58,59,60, 63
REV. DATE: 10/27/97
ORIGINATOR: Sandy Anderson
FILE NAME: tr_stdplate w1252.dgn
LEVELS ON • 2,3, 5,6, 10,

NOTES

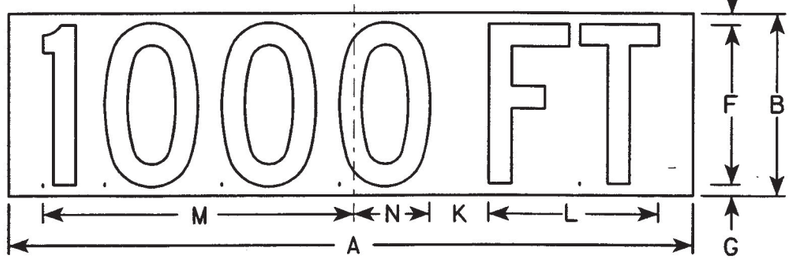
1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. These plaques are for changing the distance shown on signs W20 series of signs.



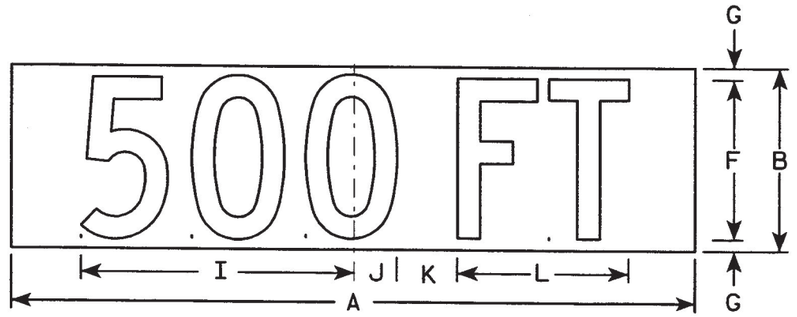
W20-50A



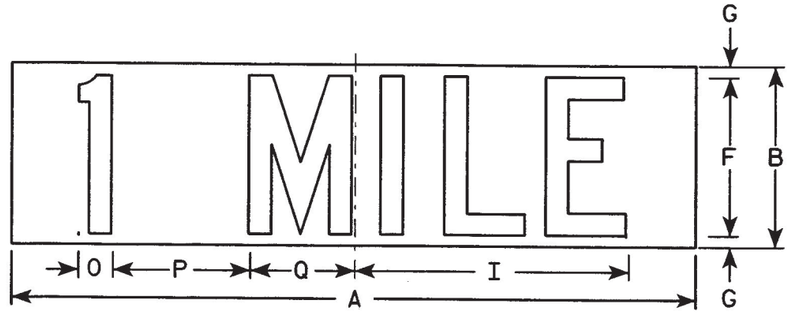
W20-50B



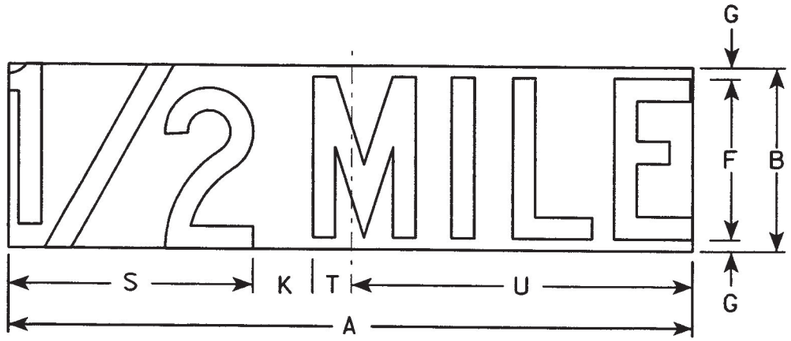
W20-50C



W20-50D



W20-50F



W20-50G

Metric equivalent for this sign is:

SIZE	
1	550 mm X 150 mm
2	750 mm X 225 mm
3	750 mm X 225 mm
4	750 mm X 225 mm
5	750 mm X 225 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m
1	22	6				5	1/2	9 1/2	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2		8	1 3/4	10 3/4						0.92	0.08
2	30	8				7	1/2	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8		10 5/8	2 3/8	14 3/8						1.67	0.17
3	30	8				7	1/2	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8		10 5/8	2 3/8	14 3/8						1.67	0.17
4	30	8				7	1/2	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8		10 5/8	2 3/8	14 3/8						1.67	0.17
5	30	8				7	1/2	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8		10 5/8	2 3/8	14 3/8						1.67	0.17

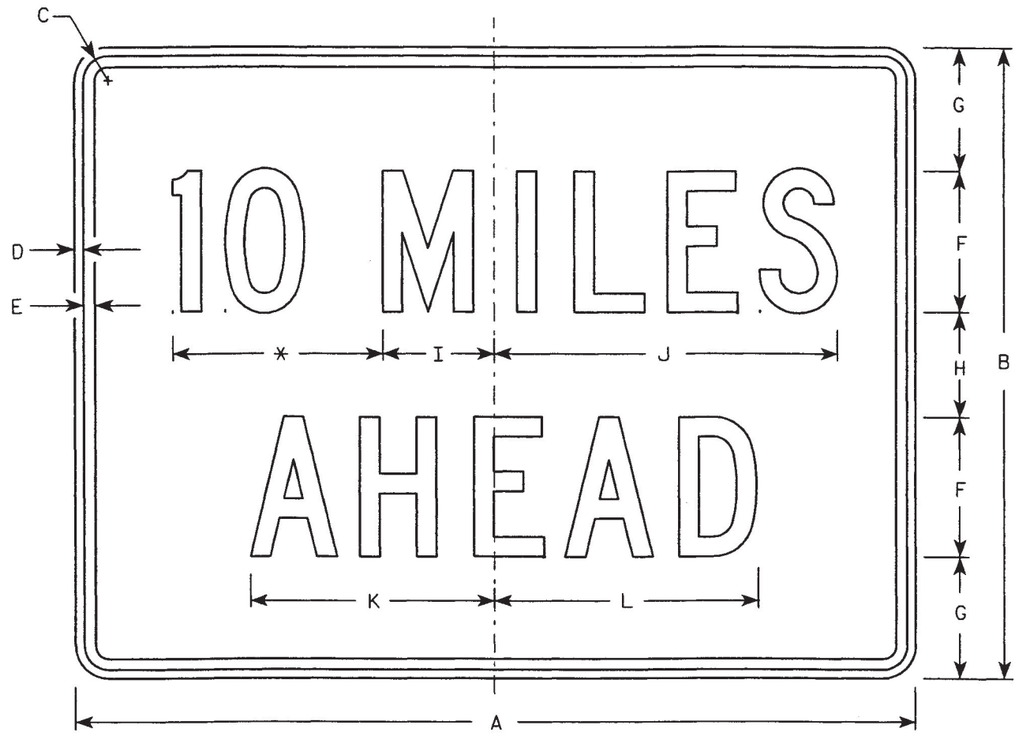
SUPPLEMENTARY MESSAGES
W20-50A, B, C, D, F, & G

WISCONSIN DEPT OF TRANSPORTATION

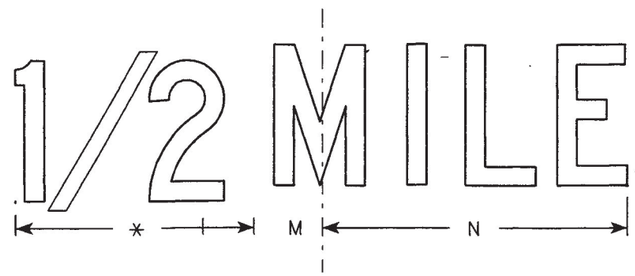
APPROVED Chester J Spang for State Traffic Engineer

DATE 7/28/97 PLATE NO. W20-50.5

WISDOT/CADDS METRIC SHEET | M



W57-52



* See note 5

NOTES

1. Sign is Type II - Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

Metric equivalent for this sign is:

SIZE	
1	600 mm X 450 mm
2	900 mm X 600 mm
3	900 mm X 600 mm
4	1200 mm X 900 mm
5	1200 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1	24	18	1 1/8	3/8	1/2	4	3 1/2	3	3 1/8	9 3/4	7	7 1/2	1 3/8	8 3/4													3.0	0.27
2	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	13													6.0	0.54
3	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	13													6.0	0.54
4	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	17 3/8													12.0	1.08
5	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	17 3/8													12.0	1.08

STANDARD SIGN
W57-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Sprague for State Traffic Engineer

DATE 4/16/97 PLATE NO. W57-52.4

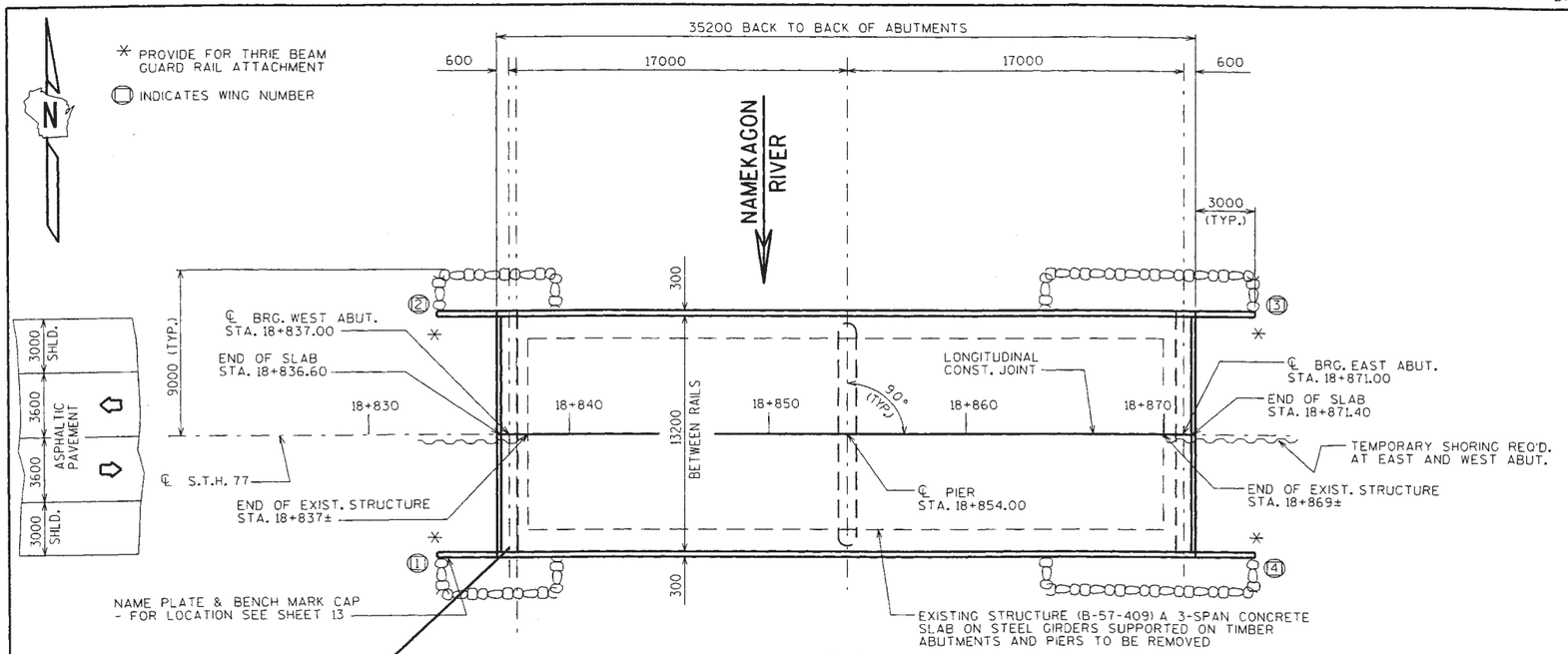
WISDOT/CADDS METRIC SHEET | M

PLOT SCALE: 2.6 :1
PLOT NAME: 58, 59, 60, 63
REV. DATE: 4/16/97
ORIGINATOR: Sandy Anderson
FILE NAME: tr_stdplate w5752.dgn
LEVELS ON - 2, 3, 5, 6, 10,

DISTRICT CONTACT: GREG PESOLA

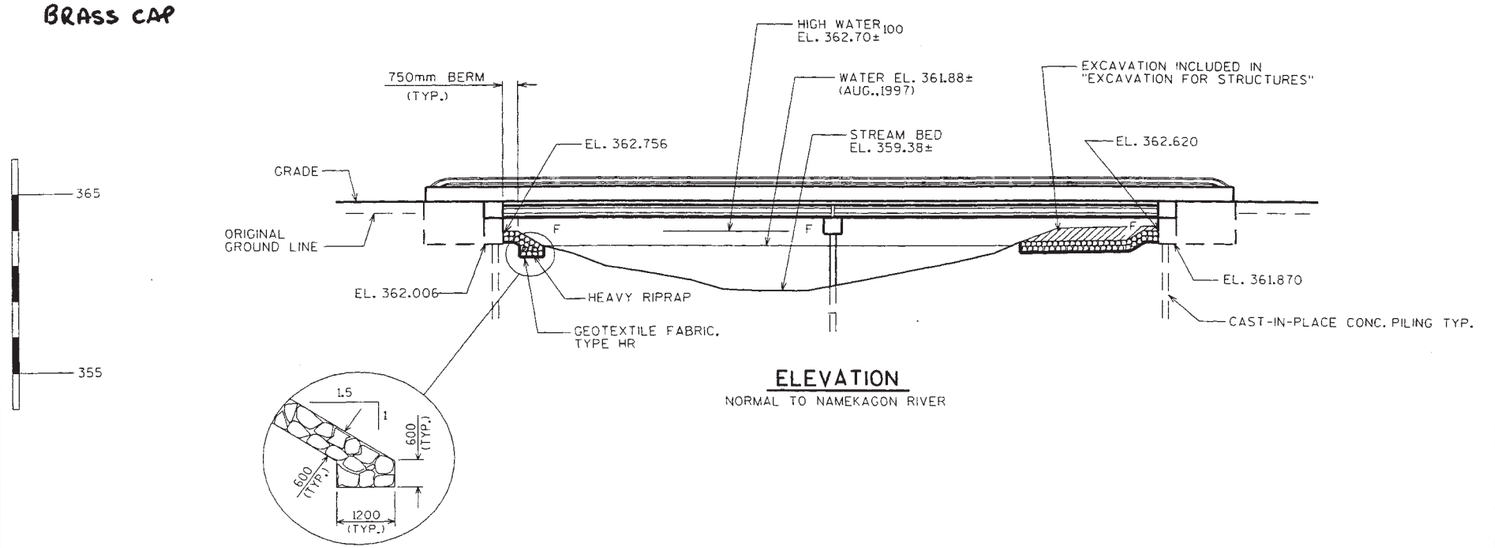
TYPE CODE = X021

STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8./



PLAN

2 SPAN -710mm PRESTRESSED GIRDERS



ELEVATION

NORMAL TO NAMEKAGON RIVER

DESIGN DATA

LIVE LOAD:

DESIGN RATING: MS-18
INVENTORY RATING: MS-18
OPERATIONAL RATING: MS-32
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 1110 kN.
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 1.0 kN/m².

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SLAB — f'c = 28 MPa ALL OTHER — f'c = 24 MPa
BAR STEEL REINFORCEMENT, AASHTO M-31, GRADE 420 — fy = 420 MPa
710mm PRESTRESSED GIRDERS, CONCRETE MASONRY — f'c = 42 MPa
STRANDS - 13mm DIA. WITH ULTIMATE TENSILE STRENGTH OF 1860 MPa

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON 273 CAST-IN-PLACE PILING DRIVEN TO A MINIMUM BEARING VALUE OF 490 kN PER PILE. ESTIMATED 33m LONG.

PIER TO BE SUPPORTED ON 273 CAST-IN-PLACE PILING DRIVEN TO A MINIMUM BEARING VALUE OF 490 kN PER PILE. ESTIMATED 33m LONG.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q_{100} = 95.10 m³/s
VEL. = 2.37 m/s
HW. = EL. 362.70
WATERWAY AREA = 40.10 m²
DRAINAGE AREA = 483.8 km²
ROAD OVERTOPPING = NA
SCOUR CRITICAL CODE = 5

TRAFFIC VOLUME

S.T.H. 77

A.D.T. = 7,800 (2020)
R.D.S. = 80 km/h

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
1	18+837.74	BM9RSP1970 4.412m RT.	364.287

BRIDGE OFFICE CONTACT :
PHIL CIHA (608) 266-0214
BOB GOSS (608) 266-5160

LIST OF DRAWINGS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

S.T.H. 77 OVER NAMEKAGON RIVER

COUNTY: SAWYER		TOWN/~~CITY/VILLAGE~~: HAYWARD	
DESIGN SPEC.: AASHTO 1998		LOAD: MS-18	CONST. SPEC.: 1996
DESIGNED BY: P.G.C.	DESIGN CK'D.: D.J.K.	DRAWN BY: ZIRK	PLANS CK'D.: RJH

APPROVED: [signature] 11-10-99
CHIEF STRUCTURAL DESIGN ENGINEER — DATE

GENERAL PLAN

SHEET 1 OF 14

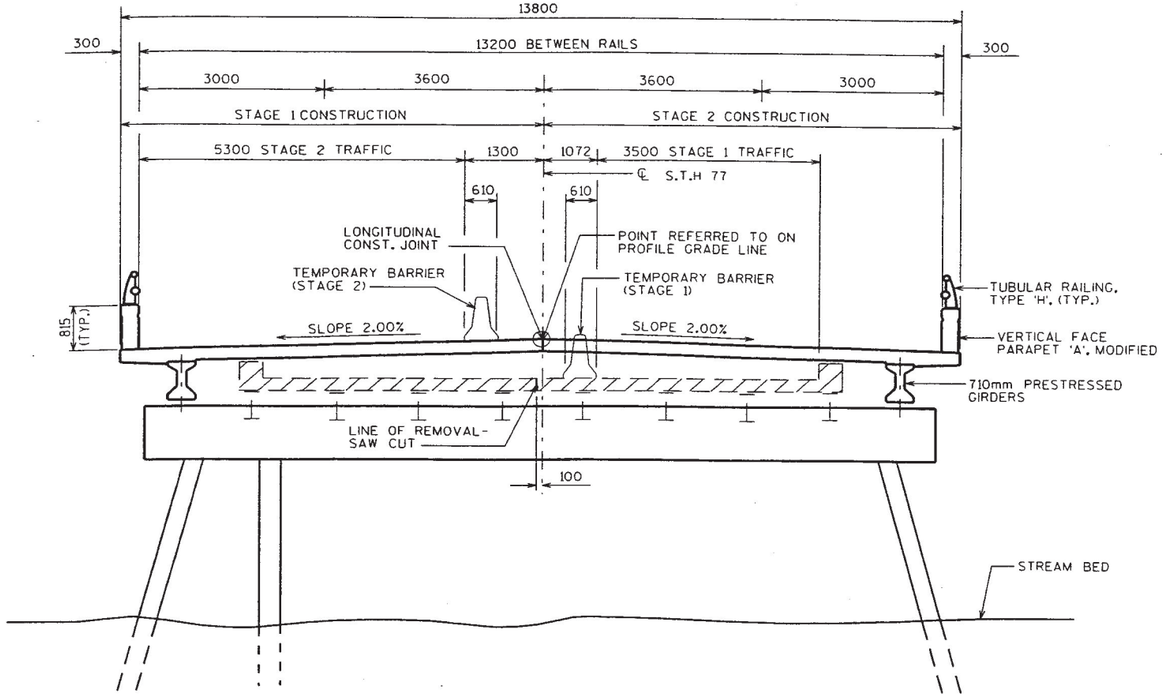
DATE: AUG. 99

I.D. 8520-06-00

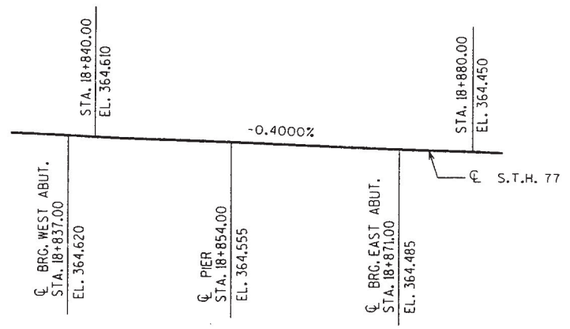
DISTRICT CONTACT

FILE= 67GP.DGN
SCALE= 150

STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.2



CROSS SECTION THRU ROADWAY LOOKING EAST



PROFILE GRADE LINE S.T.H. 77

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	PIER 1	TOTALS
REMOVING OLD BRIDGE, STA. 18+854.00	L.S.	——	——	——	——	1
EXCAVATION FOR STRUCTURES, BRIDGES, B-57-61	L.S.	——	——	——	——	1
CONCRETE MASONRY, BRIDGES	m^3	150	34	34	14	232
PROTECTIVE SURFACE TREATMENT	m^2	535	——	——	——	535
PRESTRESSED GIRDER, I TYPE, 710 mm	m	274	——	——	——	274
HIGH-STRENGTH BAR STEEL REINFORCEMENT, BRIDGES	kg	——	1475	1475	3040	5990
COATED HIGH-STRENGTH BAR STEEL REINFORCEMENT, BRIDGES	kg	15730	115	115	——	15960
NON-LAMINATED ELASTOMERIC BEARING PADS	EACH	24	——	——	——	24
CAST-IN-PLACE CONCRETE PILING, DELIVERED AND DRIVEN, 273 mm	m	——	231	231	297	759
TUBULAR RAILING, TYPE H, STRUCTURE B-57-61	L.S.	——	——	——	——	1
RUBBERIZED MEMBRANE WATERPROOFING	m^2	——	7	7	——	14
HEAVY RIPRAP	m^3	——	50	85	——	135
GEOTEXTILE FABRIC, TYPE HR	m^2	——	100	160	——	260
ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	——	——	——	4
STEEL DIAPHRAGMS, STRUCTURE B-57-61	EACH	14	——	——	——	14
BAR COUPLERS 16mm	EACH	——	——	——	8	8
BAR COUPLERS 25 mm	EACH	——	——	——	16	16
TEMPORARY SHORING	m^2	——	16	16	——	32
NON-BID ITEMS						
FILLER	SIZE	——	——	——	——	13 & 19

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 50 mm CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL REINFORCING BARS ARE METRIC AND THE FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

ALL DIMENSIONS MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

ALL STATIONS AND ALL ELEVATIONS ARE METERS (m).

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE IN PLACE BEFORE ABUTMENT CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE MADE UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES"

AT ABUTMENTS AND PIER(S), CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.6.3 OF THE STANDARD SPECIFICATIONS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

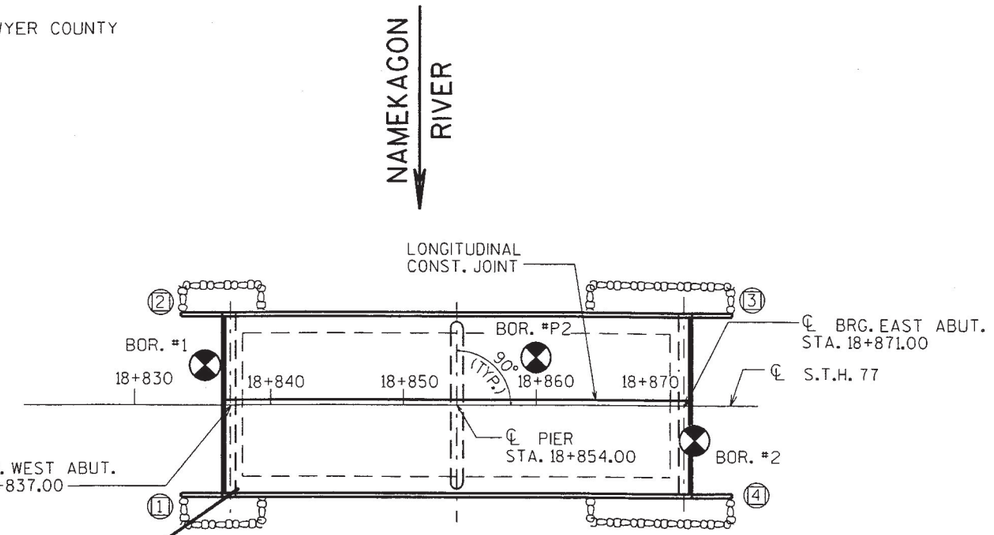
CONST. SPEC. 1996	DRAWN BY ZIRK	PLANS CK'D.

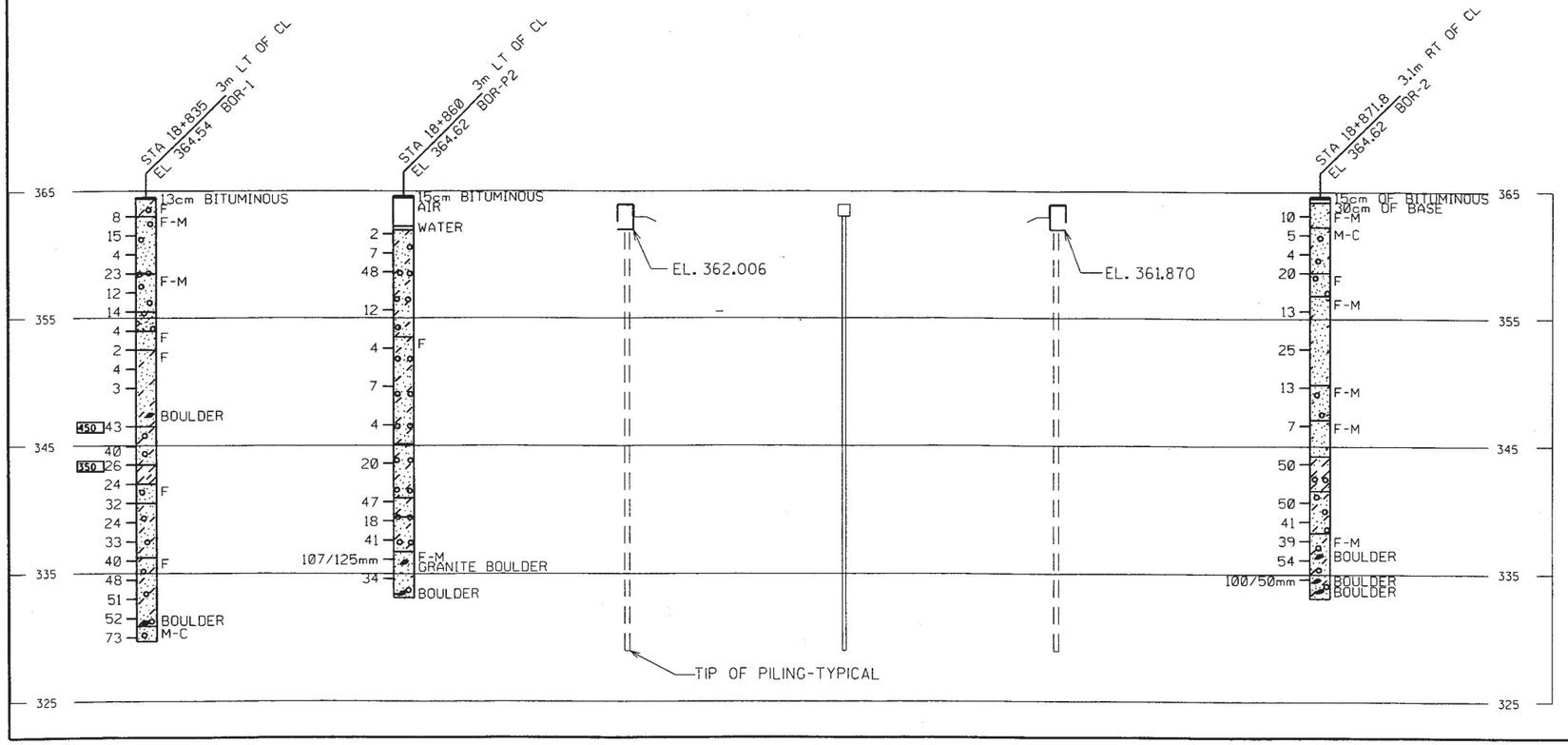
CROSS SECTION & QUANTITIES

SHEET 2

FILE= PREPLAN.DGN
SCALE = 50

STH 77 OVER NAMEKAGON RIVER
1.2 MILES EAST OF STH 63 HAYWARD, SAWYER COUNTY



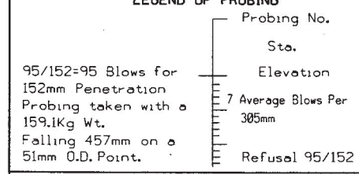


STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.3

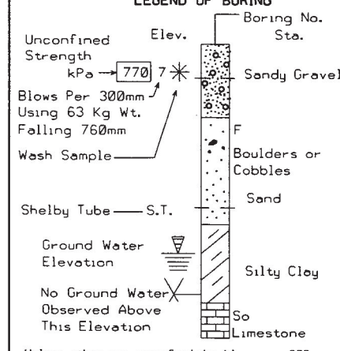
ABBREVIATIONS
F—Fine M—Medium C—Coarse
Ws—Weathered So—Sound

MATERIAL SYMBOLS
Topsoil, Silt, Sandstone, Sand, Peat, Limestone, Gravel, Clay, Igneous Rock

LEGEND OF PROBING



LEGEND OF BORING



Unless otherwise specified, the blows per 300mm at the locations indicated are based on driving a 51mm O.D. x 35mm I.D. split spoon sampler with a 63Kg hammer having a free fall of 760mm. The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pipe.

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-57-61

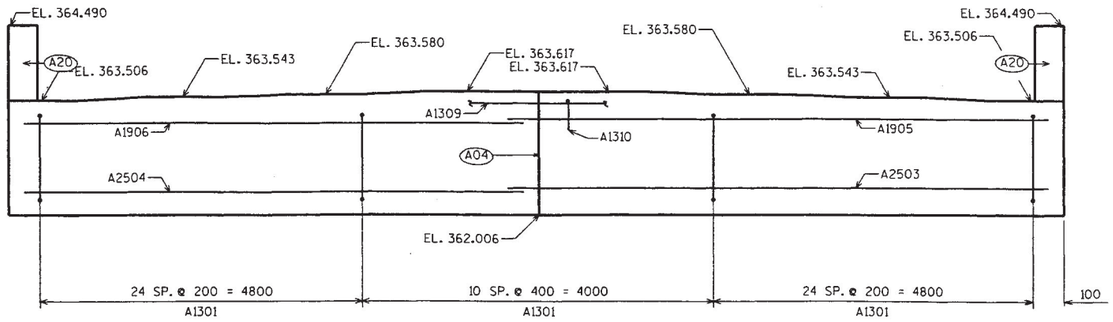
CONST. SPEC. 1996	DRAWN BY ZIRK	PLANS CK'D. elk

SUBSURFACE EXPLORATION

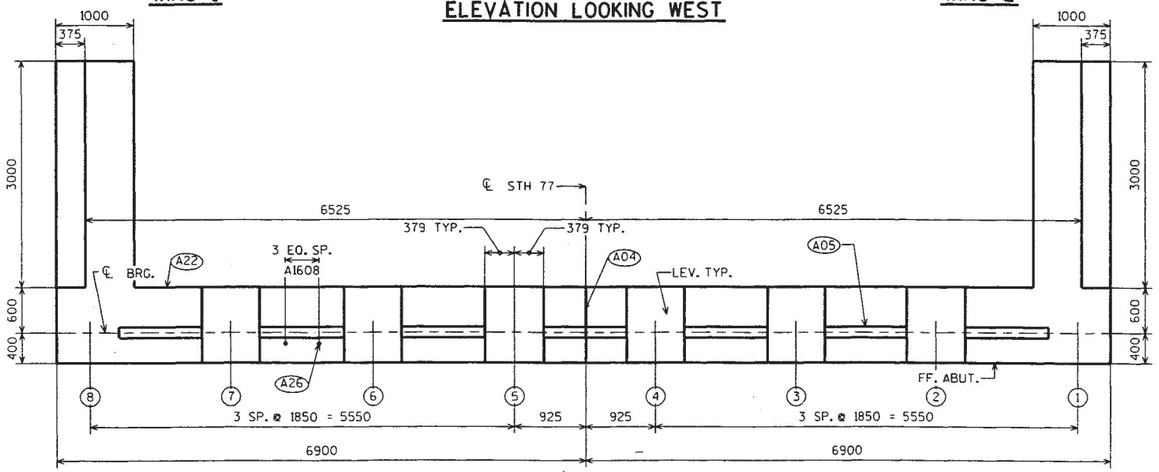
SHEET 3

FILE = 61SOIL.DGN
SCALE = 61SOI

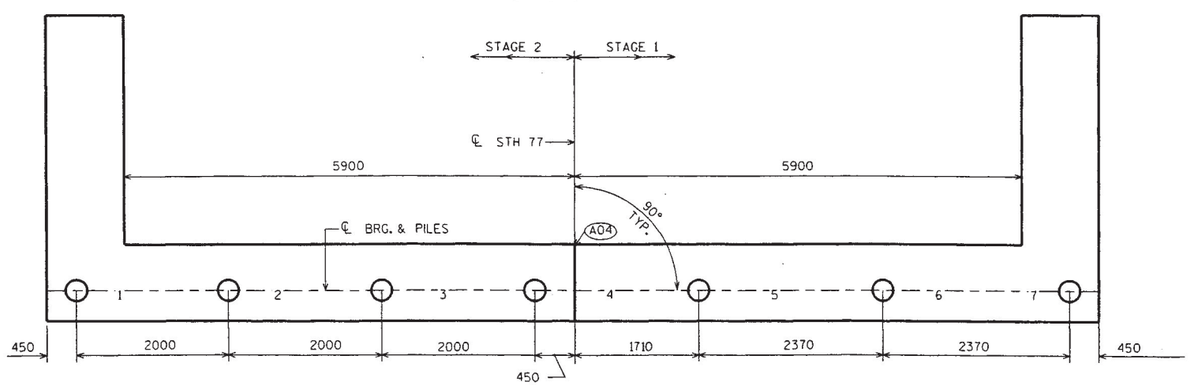
STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.4



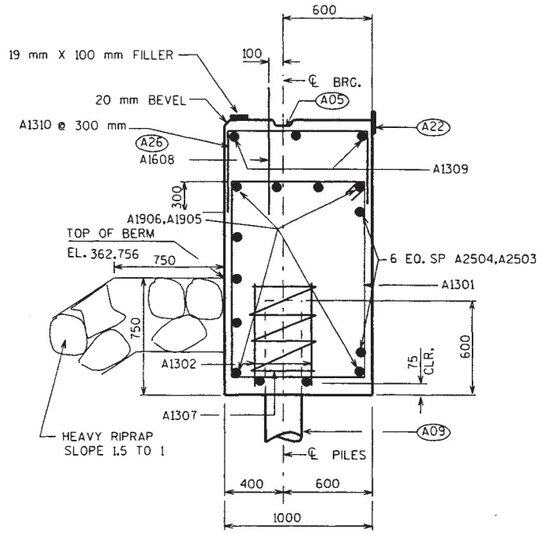
ELEVATION LOOKING WEST



PLAN



PILE PLAN



SECTION THRU BODY

(A04) VERT. CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 38 mm x 184 mm. (20 mm "V" GROOVE @ THE FRONT FACE) (R.M.W. @ BACKFACE)

(A05) CONSTRUCTION JOINT-FORMED BY BEVELED 38 mm x 140 mm BETWEEN BEAM SEATS.

(A09) SUPPORT ABUTMENT ON 273 mm DIA. CAST-IN-PLACE CONCRETE PILING. ESTIMATED 33 m LONG, AND DRIVEN TO A MIN. BRG. VALUE OF 490 kN PER PILE.

(A20) 13 mm FILLER (INCLUDED IN WING LENGTH): SEAL EXPOSED HORIZ. & VERT. SURFACES OF 13 mm FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (25 mm DEEP AND HOLD 3 mm BELOW SURFACE OF CONCRETE). EXTEND SEALER 75 mm BELOW GUTTER LINE AT INSIDE FACE.

(A22) 457 mm (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A26) #13 BARS @ 300 mm CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 300 mm INTO CONC.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

CONST. SPEC. 1996	DRAWN BY ZIRK	PLANS CK'D. RH

WEST ABUTMENT | SHEET 4

THU JUL 15 11:14:39 1999*
B-57-61

STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.5

(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 38 mm x 140 mm. (457 mm R.M.W. @ B.F. & 19 mm "V" GROOVE @ F.F. IF JOINT IS USED).

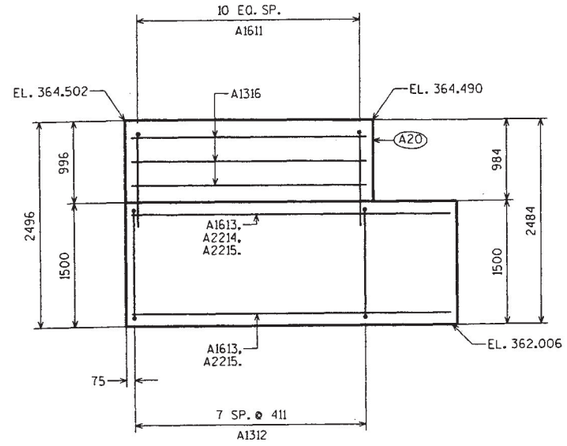
(A20) 13 mm FILLER (INCLUDED IN WING LENGTH): SEAL EXPOSED HORIZ. & VERT. SURFACES OF 13 mm FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (25 mm DEEP AND HOLD 3 mm BELOW SURFACE OF CONCRETE). EXTEND SEALER 75 mm BELOW GUTTER LINE AT INSIDE FACE.

(A25) FOR PPT. BARS & DIMENSIONS SEE PARAPET SHT. 13

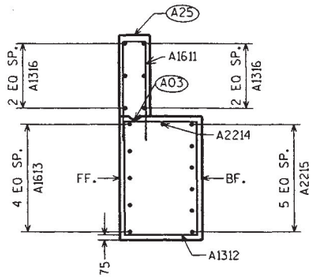
BILL OF BARS

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A1301		59	4525	X		BODY-STIRRUPS
A1302		14	700			PILES- 2 PER PILE
A2503		7	8150			BODY-HORIZONTAL
A2504		7	6800			BODY-HORIZONTAL
A1905		11	7650			BODY-HORIZONTAL
A1906		11	6800			BODY-HORIZONTAL
A1307		7	8600	X		PILES-1 PER PILE
A1608		28	600			BODY-VERT DOWEL
A1309		3	5550			BODY-HORZIONTAL OVER GIRS. 4-5
A1310		14	1725	X		BODY-TOP OVER GIRS. 4-5
A1611	X	11	2375	X		WING 1-VERTICAL
A1312		8	4725	X		WING 1-STIRRUP
A1613		5	3900			WING 1-HORIZONTAL
A2214		1	3900			WING 1-HORIZONTAL
A2215		6	3900			WING 1-HORIZONTAL
A1316	X	6	2900			WING 1-HORIZONTAL
A1617	X	11	2375	X		WING 2-VERTICAL
A1318		8	4725	X		WING 2-STIRRUP
A1619		5	3900			WING 2-HORIZONTAL
A2220		1	3900			WING 2-HORIZONTAL
A2221		6	3900			WING 2-HORIZONTAL
A1322	X	6	2900			WING 2-HORIZONTAL

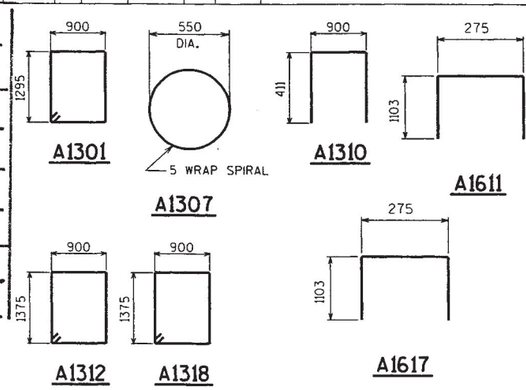


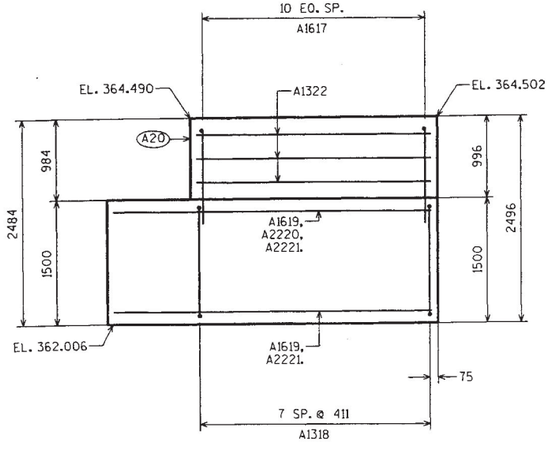
WING 1 ELEVATION



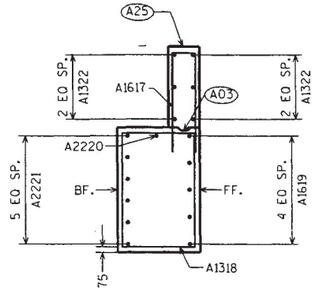
WING 1 SECTION

	PLAN LENGTH AND TONS	LENGTH BELOW FOOTING	BEARING
1	33m - 55T	18.9m = 62.1′	61 TONS
2	33m - 55T	20.8m = 68.4′	61 TONS
3	33m - 55T	19.6m = 64.3′	61 TONS
4	33m - 55T	19.7m = 64.7′	61 TONS
5	33m - 55T	20.9m = 68.5′	61 TONS
6	33m - 55T	24.3m = 79.8′	56 TONS
7	33m - 55T	20.7m = 68.0′	56 TONS

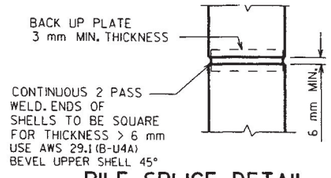




WING 2 ELEVATION



WING 2 SECTION



PILE SPLICE DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

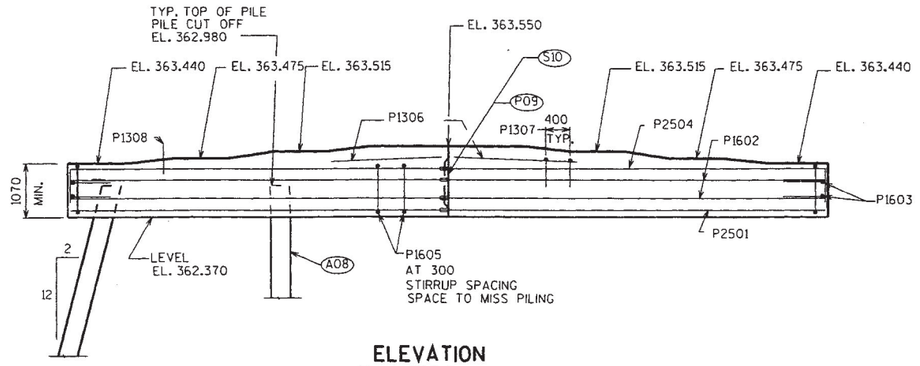
CONST. SPEC. 1996	DRAWN BY ZIRK	PLANS CK'D.

WEST ABUTMENT DETAILS

SHEET 5

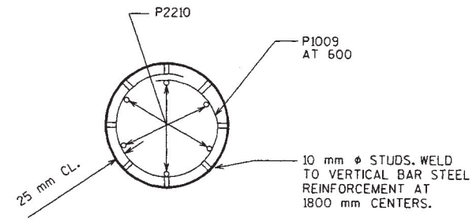
THU JUL 15 11:14:54 1999*
B-57-61

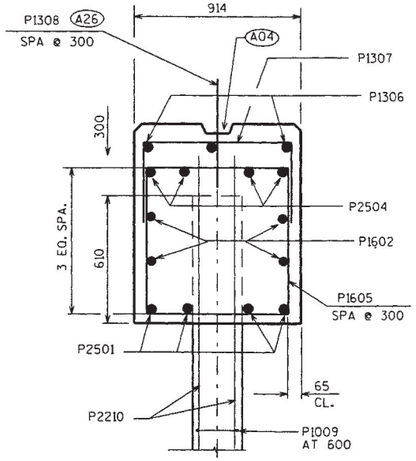
STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.6



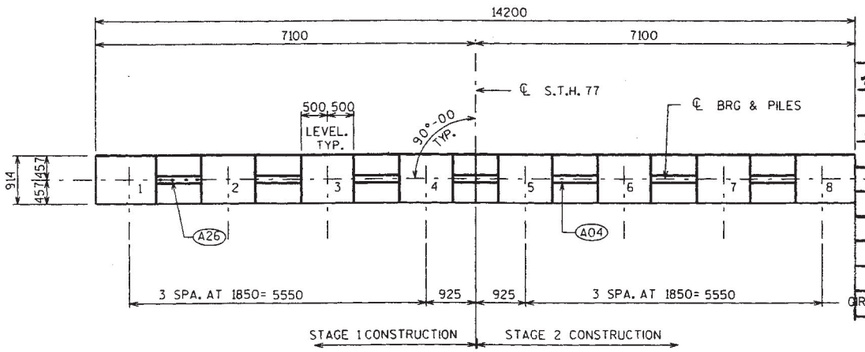
ELEVATION

LOOKING EAST





SECTION THRU CAP



PILE PLAN

SECTION THRU CONCRETE CAST-IN-PLACE PILING

#	Plan	Length Below Footing	BEARING	
1	33m = 55T	18.1m = 59.3'	70 TONS	
2	33m = 55T	20.5m = 67.3'	70 TONS	
3	33m = 55T	23.1m = 75.9'	60 TONS	
4	33m = 55T	24.2m = 79.4'	59 TONS	
5	33m = 55T	22.2m = 72.8'	53 TONS	
6	33m = 55T	21.6m = 70.8'	56 TONS	
7	33m = 55T	21.2m = 69.6'	58 TONS	S10
8	33m = 55T	20.7m = 67.8'	61 TONS	S10
9	33m = 55T	21.8m = 71.6'	61 TONS	S10

ORDER BY

(S10) BAR COUPLERS USED. BAR LENGTH COMPUTED TO CL LONGIT. JOINT & SHALL BE MODIFIED TO THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS.

(P09) VERT. CONST. JOINT FORMED BY BEVELED 38 mm X 140 mm X 600 mm KEYWAY.

(A04) CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 38 mm x 140mm BETWEEN GIRDER SEATS.

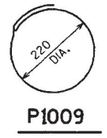
(A08) SUPPORT PIER ON 273 mm CIP PILING. ESTIMATED 33m LONG. & DRIVEN TO A MIN. BRG. VALUE OF 490 kN PER PILE. MIN. PILE WALL THICKNESS EQUALS 12.73 mm TYP.

(A26) #13 BARS @ 300 mm CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 300 mm INTO CONC.)

BILL OF BARS

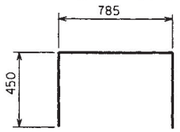
NOTE: THE FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	BUNDLE	LOCATION
P2501		8	7050				CAP - HORIZ - BOT
P1602		8	7050				CAP - HORIZ
P1603		4	1605	X			CAP - HORIZ - ENDS
P2504		8	7940	X			CAP - HORIZ - TOP
P1605		48	3640	X			CAP - STIRRUPS
P1306		6	2225				CAP - HORIZ - TOP
P1307		12	1545	X			CAP - TOP
P1308		28	600				CAP - VERT - DOWEL
P1009		198	990	X			PILING HOOPS
P2210		54	12500				PILING VERT.

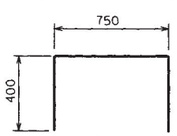


P1009

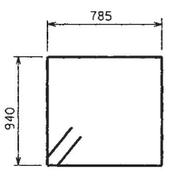
P2504



P1603

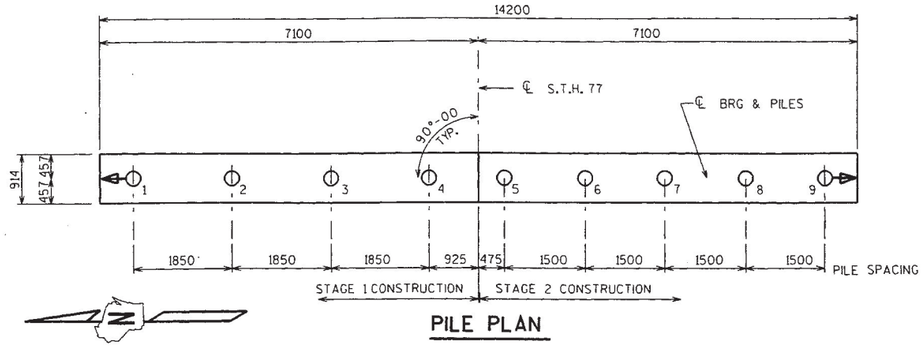


P1307

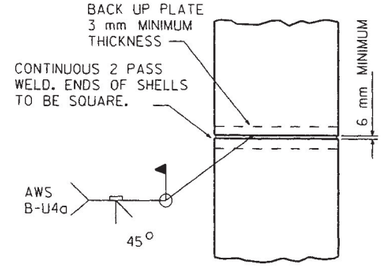


P1605

(1) DENOTES BATTERED PILING. BATTER 2:12 IN DIRECTION SHOWN.



PILE PLAN



PILE SPLICE DETAIL

PILE SPLICES TO BE MADE BY A CERTIFIED WELDER WITH LOW HYDROGEN ELECTRODES

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

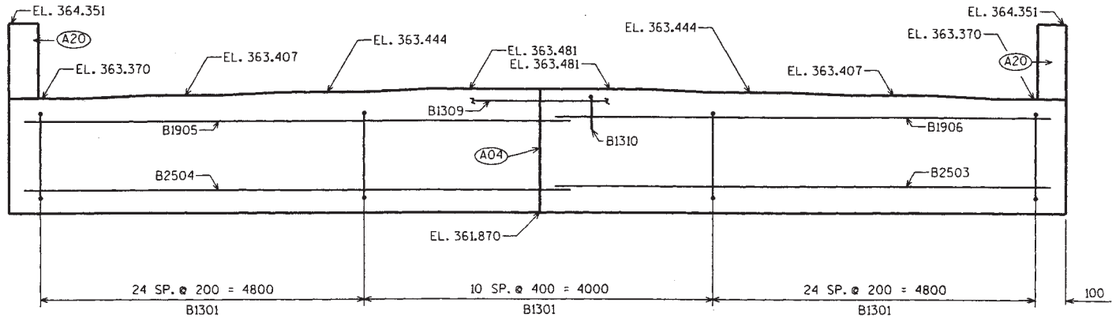
STRUCTURE B-57-61

CONST. SPEC.	DRAWN BY	PLANS CK'D.
1996	ZIRK	RJG

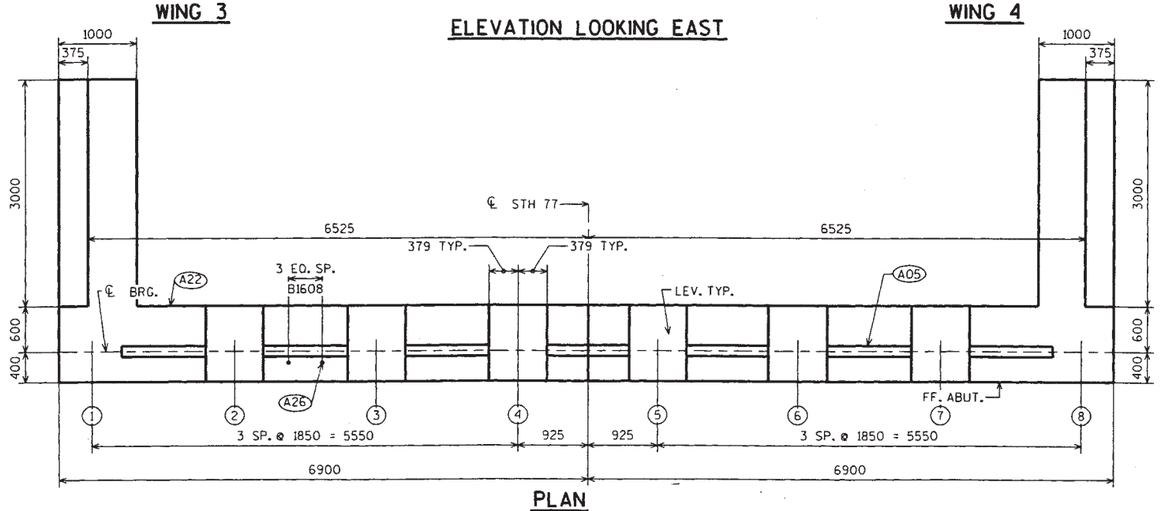
PIER — SHEET 6

FILE= SCALE =

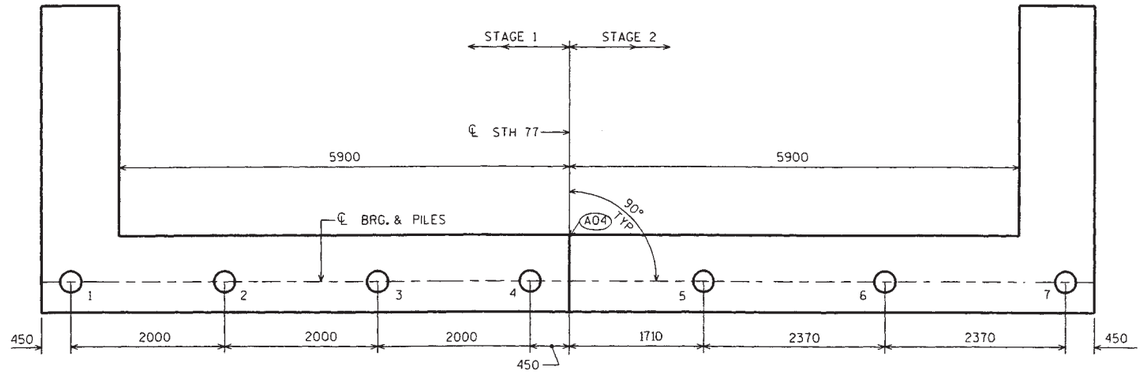
STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.7



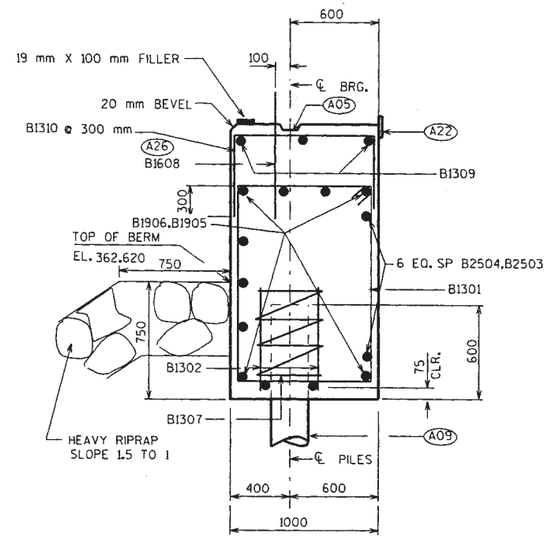
ELEVATION LOOKING EAST



PLAN



PILE PLAN



SECTION THRU BODY

(A04) VERT. CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 38 mm x 184 mm. (20mm "V" GROOVE @ THE FRONT FACE) (R.M.W. @ BACKFACE)

(A05) CONSTRUCTION JOINT-FORMED BY BEVELED 38 mm x 140 mm BETWEEN BEAM SEATS.

(A09) SUPPORT ABUTMENT ON 273 mm DIA. CAST-IN-PLACE CONCRETE PILING, ESTIMATED 33 m LONG, AND DRIVEN TO A MIN. BRG. VALUE OF 490 kN PER PILE.

(A20) 13 mm FILLER (INCLUDED IN WING LENGTH): SEAL EXPOSED HORIZ. & VERT. SURFACES OF 13 mm FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (25 mm DEEP AND HOLD 3 mm BELOW SURFACE OF CONCRETE). EXTEND SEALER 75 mm BELOW GUTTER LINE AT INSIDE FACE.

(A22) 457 mm (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A26) #13 BARS @ 300 mm CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 300 mm INTO CONC.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

CONST. SPEC. 1996	DRAWN BY CMPT	PLANS CK'D. RJG

EAST ABUTMENT

SHEET 7

THU JUL 15 11:15:10 1999*
B-57-61

STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.B

(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 38 mm x 140 mm. (457 mm R.M.W. @ B.F. & 19 mm "V" GROOVE @ F.F. IF JOINT IS USED).

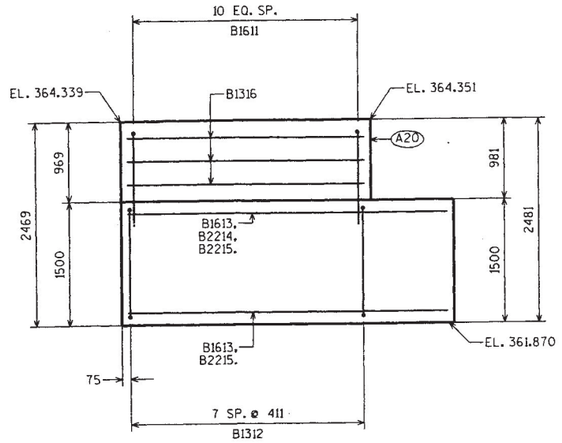
(A20) 13 mm FILLER (INCLUDED IN WING LENGTH): SEAL EXPOSED HORIZ. & VERT. SURFACES OF 13 mm FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (25 mm DEEP AND HOLD 3 mm BELOW SURFACE OF CONCRETE). EXTEND SEALER 75 mm BELOW GUTTER LINE AT INSIDE FACE.

(A25) FOR PPT. BARS & DIMENSIONS SEE PARAPET SHT. 13.

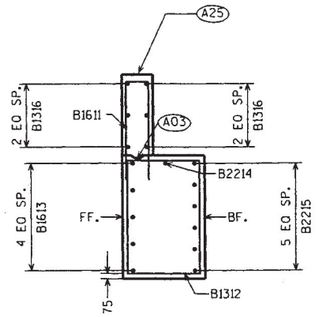
BILL OF BARS

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B1301		59	4525	X		BODY-STIRRUPS
B1302		14	700			PILES- 2 PER PILE
B2503		7	8150			BODY-HORIZONTAL
B2504		7	6800			BODY-HORIZONTAL
B1905		11	7650			BODY-HORIZONTAL
B1906		11	6800			BODY-HORIZONTAL
B1307		7	8600	X		PILES-1 PER PILE
B1608		28	600			BODY-VERT DOWEL
B1309		3	5550			BODY-HORZIONTAL OVER GIRS. 4-5
B1310		14	1725	X		BODY-TOP OVER GIRS. 4-5
B1611	X	11	2350	X		WING 3-VERTICAL
B1312		8	4725	X		WING 3-STIRRUP
B1613		5	3900			WING 3-HORIZONTAL
B2214		1	3900			WING 3-HORIZONTAL
B2215		6	3900			WING 3-HORIZONTAL
B1316	X	6	2900			WING 3-HORIZONTAL
B1617	X	11	2350	X		WING 4-VERTICAL
B1318		8	4725	X		WING 4-STIRRUP
B1619		5	3900			WING 4-HORIZONTAL
B2220		1	3900			WING 4-HORIZONTAL
B2221		6	3900			WING 4-HORIZONTAL
B1322	X	6	2900			WING 4-HORIZONTAL

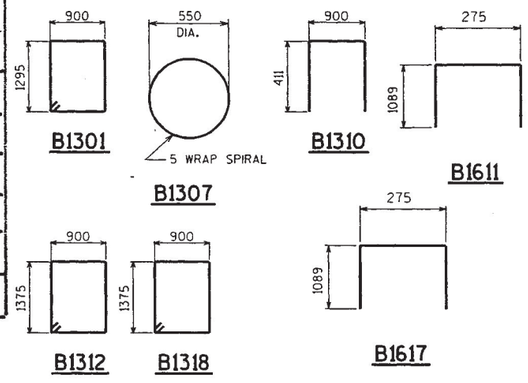


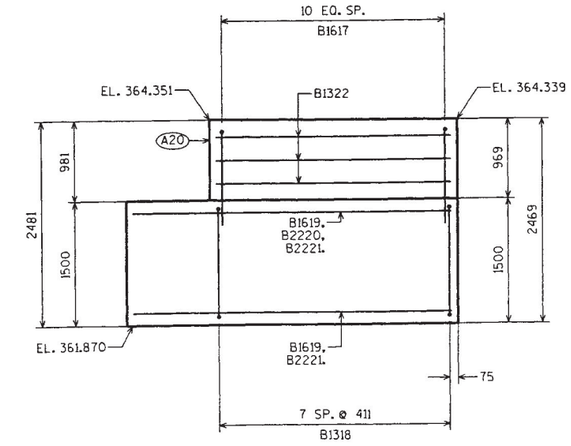
WING 3 ELEVATION



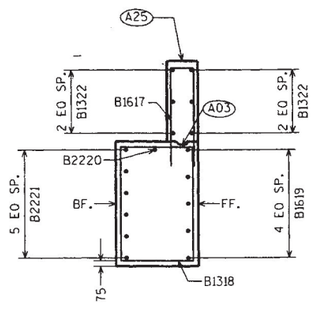
WING 3 SECTION

#	PLAN LENGTH AND TONS	LENGTH BELOW FOOTING	BEARING
1	33 m = 55T	25.5 M = 83.5 FT	59 TONS
2	33m - 55T	25.4 = 83.3 FT	59 TONS
3	88 m - 55T	21.2 = 69.7 FT	61 TONS
4	33 m - 55T	23.3 = 76.5 FT	59 TONS
5	33m - 55T	22.1 = 72.6 FT	59 TONS
6	33m - 55T	22.5 = 73.7 FT	61 TONS
7	33m - 55T	22.2 = 72.9 FT	61 TONS

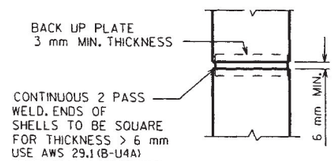




WING 4 ELEVATION



WING 4 SECTION



PILE SPLICE DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

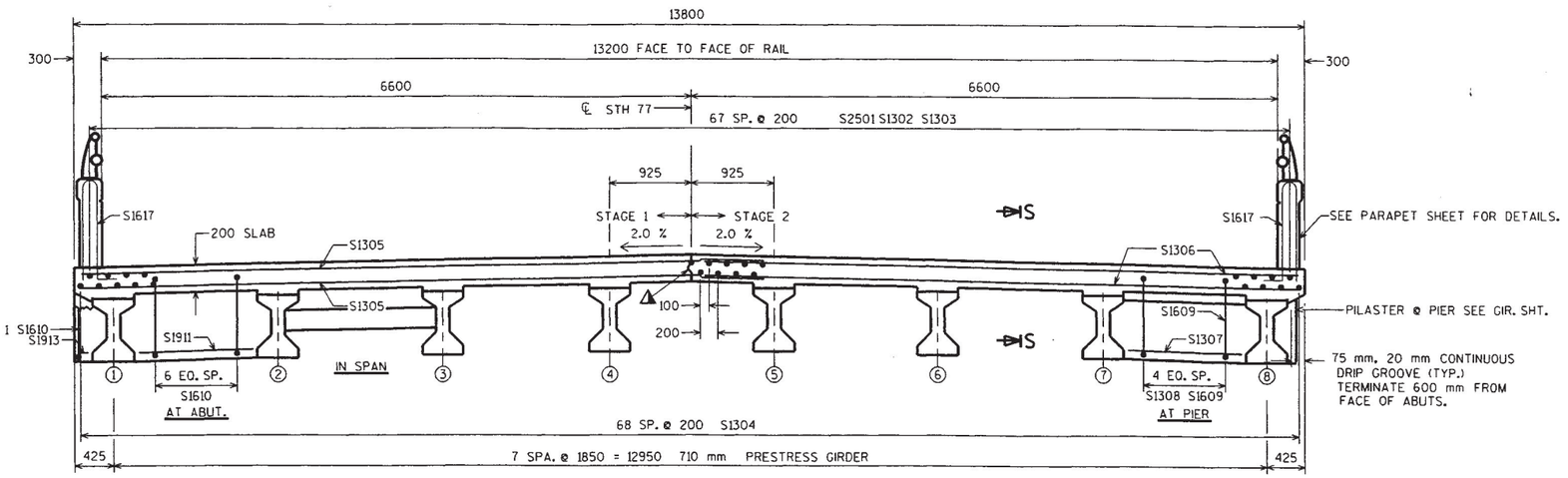
CONST. SPEC. 1996 | DRAWN BY CMPT | PLANS CK'D. B/G

EAST ABUTMENT DETAILS | SHEET 8

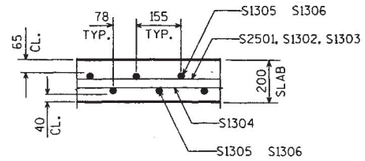
THU JUL 15 11:15:25 1999*
B-57-61

SCALE = 2.540000 M /IN AND 0.100000 M /MM

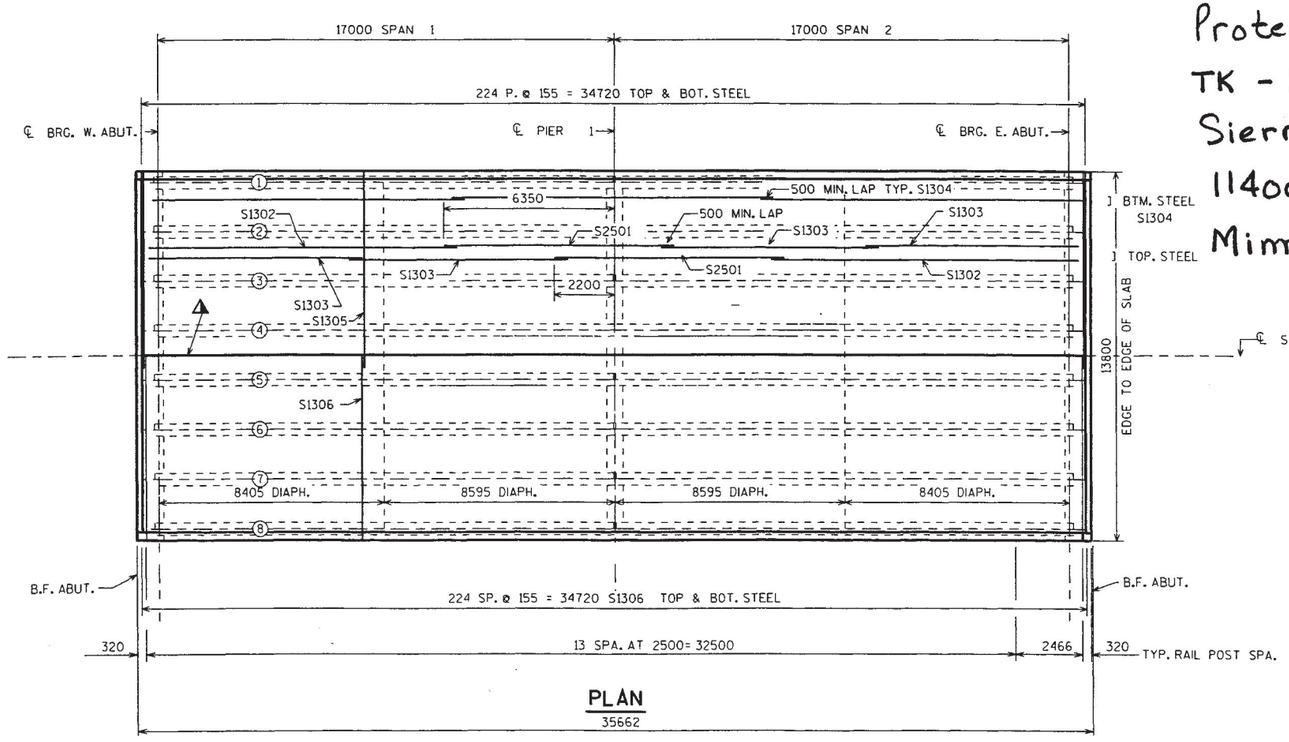
STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.9



CROSS SECTION THRU ROADWAY
(LOOKING EAST)



SECTION S-S



PLAN

△ LONGIT. CONTRUCTION JOINT

Protective Surface Treatment
TK - 290 - TK Products
Sierra Corp.
11400 West 47th Street
Minnetonka, MN. 55343

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

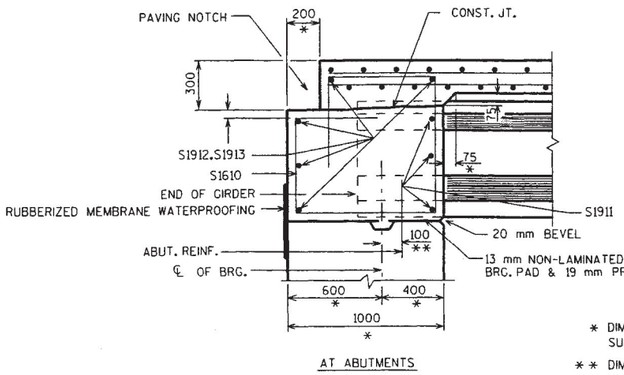
STRUCTURE B-57-61

CONST. SPEC.	DRAWN BY	CMPT	PLANS CK'D.
1996		ZIRK	RJG

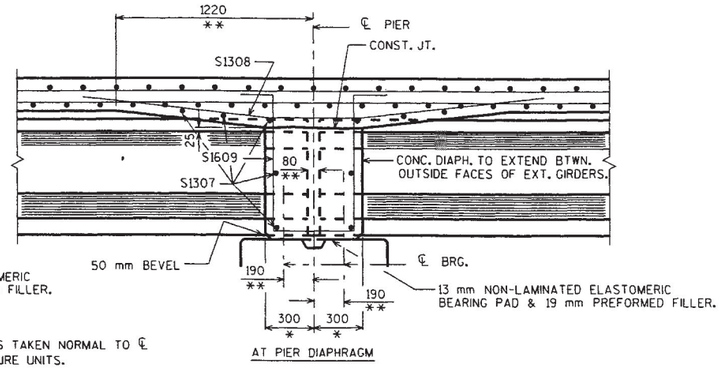
SUPERSTRUCTURE — SHEET 9

THU JUL 15 11:13:16 1999*
B-57-61

STATE PROJECT NUMBER	SHEET NO.
- -	8.10



AT ABUTMENTS

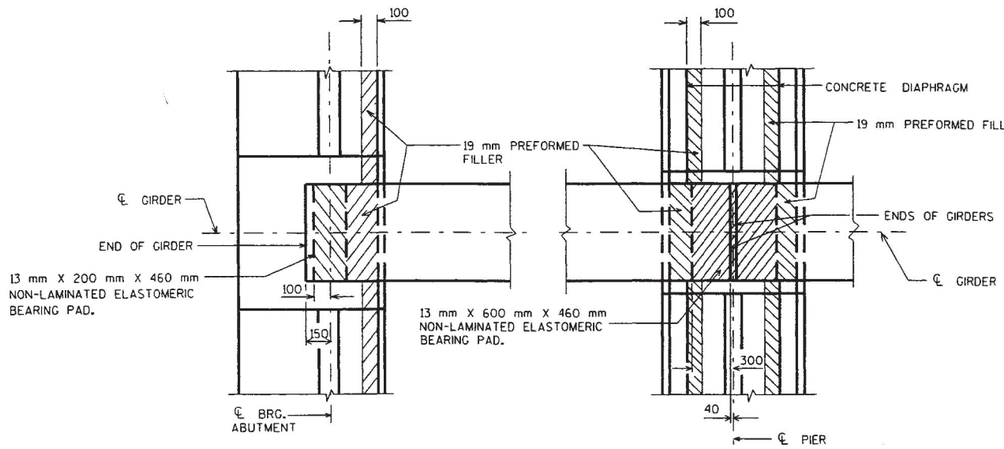


AT PIER DIAPHRAGM

* DIMENSION IS TAKEN NORMAL TO ℄ SUBSTRUCTURE UNITS.

** DIMENSION IS TAKEN PARALLEL TO ℄ GIRDER.

PART LONGIT. SECTION



BEARING PAD DETAIL

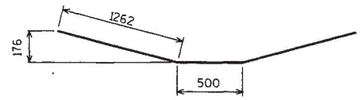
TOP OF DECK ELEVATIONS

	W. ABUT.	1/4	2/4	3/4	PIER 1	1/4	2/4	3/4	E. ABUT.
GIR. 1	364.490	364.475	364.455	364.440	364.420	364.405	364.390	364.370	364.355
GIR. 2	364.525	364.510	364.495	364.475	364.460	364.440	364.425	364.410	364.390
GIR. 3	364.565	364.545	364.530	364.515	364.495	364.480	364.460	364.445	364.430
GIR. 4	364.600	364.585	364.565	364.550	364.535	364.515	364.500	364.480	364.465
GIR. 5	364.600	364.585	364.565	364.550	364.535	364.515	364.500	364.480	364.465
GIR. 6	364.565	364.545	364.530	364.515	364.495	364.480	364.460	364.445	364.430
GIR. 7	364.525	364.510	364.495	364.475	364.460	364.440	364.425	364.410	364.390
GIR. 8	364.490	364.475	364.455	364.440	364.420	364.405	364.390	364.370	364.355

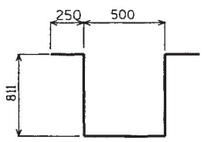
BILL OF BARS

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

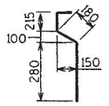
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S2501	X	69	8550			LONGITUDINAL CONTINUITY
S1302	X	69	11550			LONGITUDINAL TOP
S1303	X	138	8175			LONGITUDINAL TOP
S1304	X	207	12025			LONGITUDINAL BOTTOM
S1305	X	450	7350			TRANSVERSE
S1306	X	450	6800			TRANSVERSE
S1307	X	70	1300			PIER DIAPHRAGM
S1308	X	35	3025	X		PIER DIAPHRAGM
S1609	X	35	2540	X		PIER DIAPHRAGM
S1610	X	102	3900	X		ABUT. DIAPHRAGM
S1911	X	42	1300			ABUT. DIAPHRAGM
S1912	X	20	7250			ABUT. DIAPHRAGM
S1913	X	12	100			ABUT. DIAPHRAGM
S1314	X	4	850	X		PIER PILASTER
S1315	X	4	1025	X		PIER PILASTER
S1016	X	4	1025	X		PIER PILASTER
S1617	X	236	2255	X		PARAPET VERT
S1318	X	36	12025			PARAPET HORIZ.



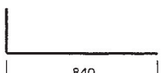
S1308



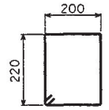
S1609



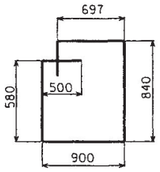
S1314



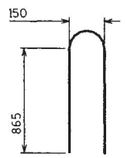
S1315



S1016



S1610



S1617

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

CONST. SPEC. 1996	DRAWN BY ZIRK	PLANS CK'D. RK

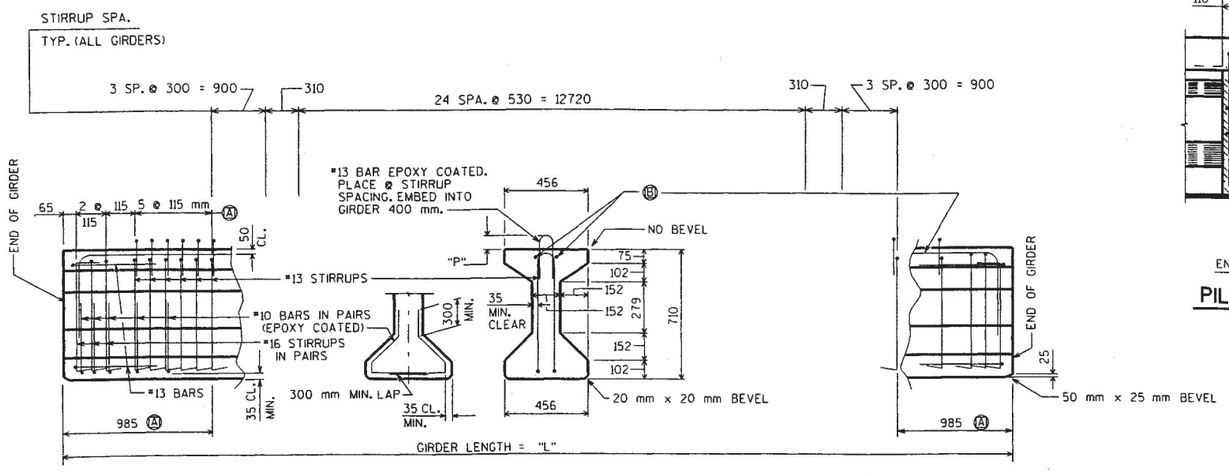
SUPERSTRUCTURE DETAILS | SHEET 10

THU JUL 15 11:12:59 1999*
C:±USERS±PROJECTS±B-57-61±61SUP2.DGN

FILE=
SCALE =

1 2 3 6 7 9 16 19 20

STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.11

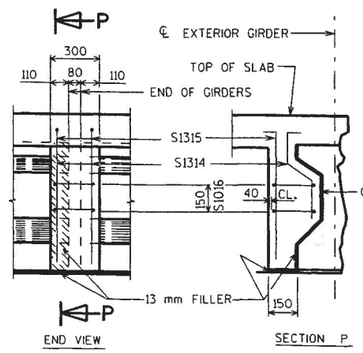


SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 2-BARS BEND DOWN 16 BAR DIA. AT ENDS

(SPAN 1) 2 #13, 600 MIN. LAP
(SPAN 2) 2 #13, 600 MIN. LAP



PILASTER DETAILS AT PIERS

GIRDER NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 50 mm 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 13 mm ϕ - 7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 1860 MPa AND SHALL BE FLUSH WITH THE ENDS OF THE GIRDER.

BEND EACH END OF #13 STIRRUPS 120 mm AND #16 STIRRUPS 150 mm.

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

ALL DIMENSIONS ARE IN MILLIMETERS.

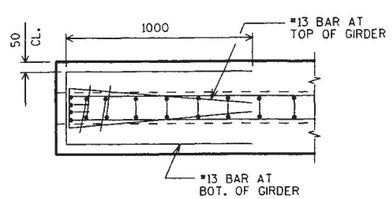
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #13 STIRRUPS IS FOR GRADE 420 REINFORCEMENT. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #13 STIRRUPS, 2 OPTIONS ARE AVAILABLE:

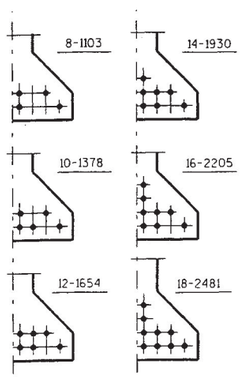
1. USE ASTM A706M, GRADE 420 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.
2. USE ASTM A615M, GRADE 300 REINFORCEMENT AND A MODIFIED STIRRUP SPACING SUBMITTED TO AND APPROVED BY THE STRUCTURES DEVELOPMENT SECTION.

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

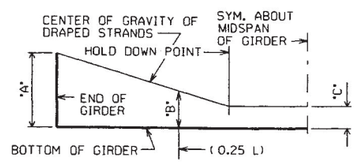
WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A497.



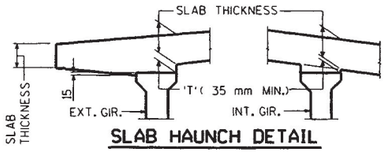
TOP VIEW OF GIRDER ENDS



DRAPED PATTERN



DRAPED STRAND PROFILE

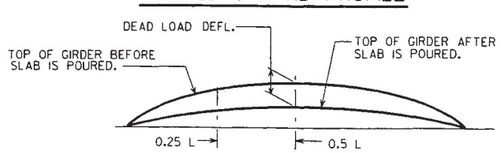


SLAB HAUNCH DETAIL

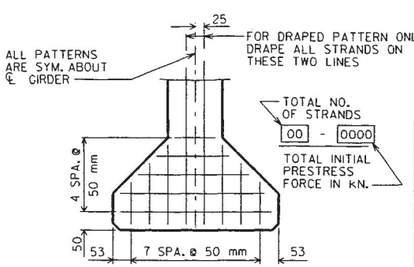
IF 35 mm MINIMUM HAUNCH HEIGHT 'T' CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY BRIDGE OFFICE FOR HAUNCH HEIGHTS OVER 100 mm.

TO DETERMINE 'T', ELEV'S. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 0.25 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'



DEAD LOAD DEFLECTION DIAGRAM



TYP. STRAND PATTERN

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

GIRDER DATA

SPANS	GIRDER LENGTH "L" (mm)	DEAD LOAD DEFL. (mm) .125	.25	.375	.5	CONC. STRGTH. f'c (MPa)	"P"	DRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (MPa) *	(mm) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (MPa) *
1 & 2	17110	10	17	21	23	42	150	16	34	584	241	298	127		

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

CONST. SPEC. 1996 | DRAWN BY ZIRK | PLANS CK'D. RJH

710 mm PRESTRESSED GIRDER DETAILS | SHEET 11

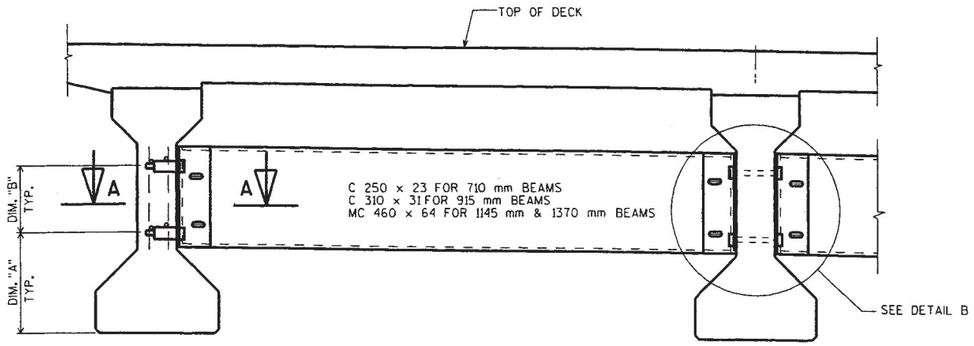
FILE= MG28.DGN
SCALE =
4-98

C:±USERS±PROJECTS±B-57-61± 61GIR.DGN

STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.12

TABLE

GIRDER HEIGHT mm	DIM. "A" mm	DIM. "B" mm	DIM. "L" mm	DIM. "X" mm
710	320	165	260	68
915	370	264	359	92
1145	435	366	461	67
1370	500	470	565	119



PART TRANSVERSE SECTION AT DIAPHRAGM

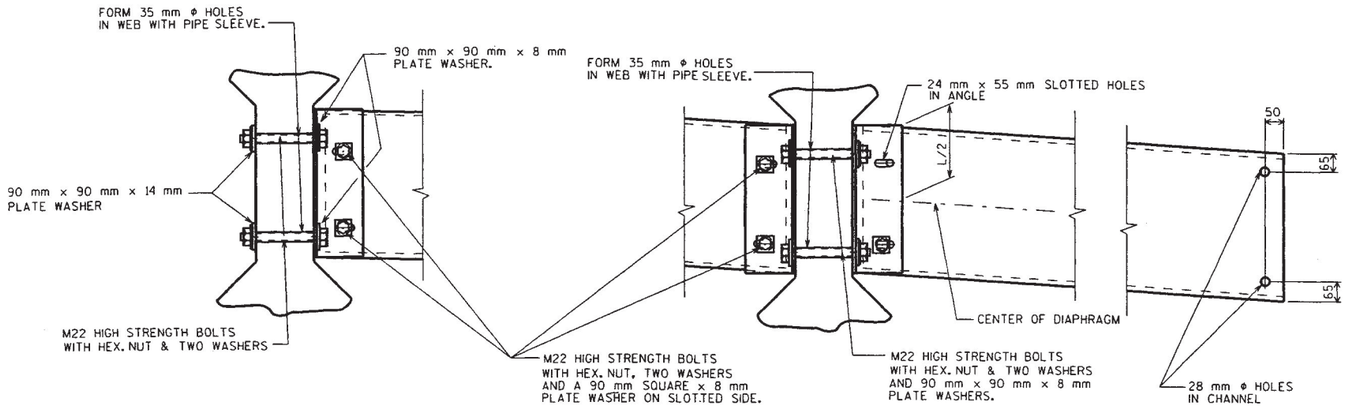
NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGM".

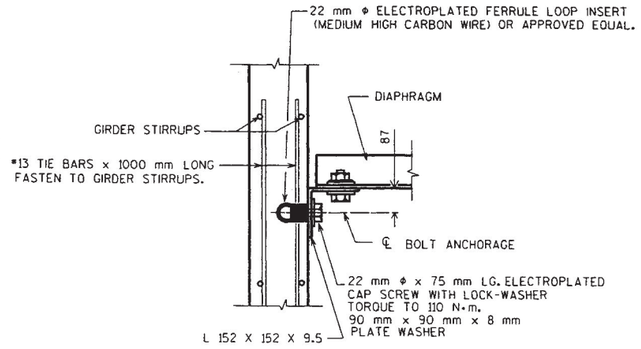
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709M GRADE 250. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325M TYPE 1.

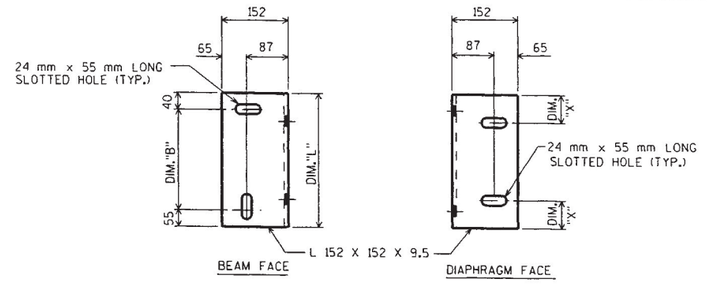
ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563M AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563. LUBRICANT AND TEST FOR COATED NUTS.



DETAIL B



SECT. A-A
(FOR EXTERIOR ATTACHMENT)



DIAPHRAGM SUPPORT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

CONST. SPEC. 1996	DRAWN BY ZIRK	PLANS CK'D. R/K

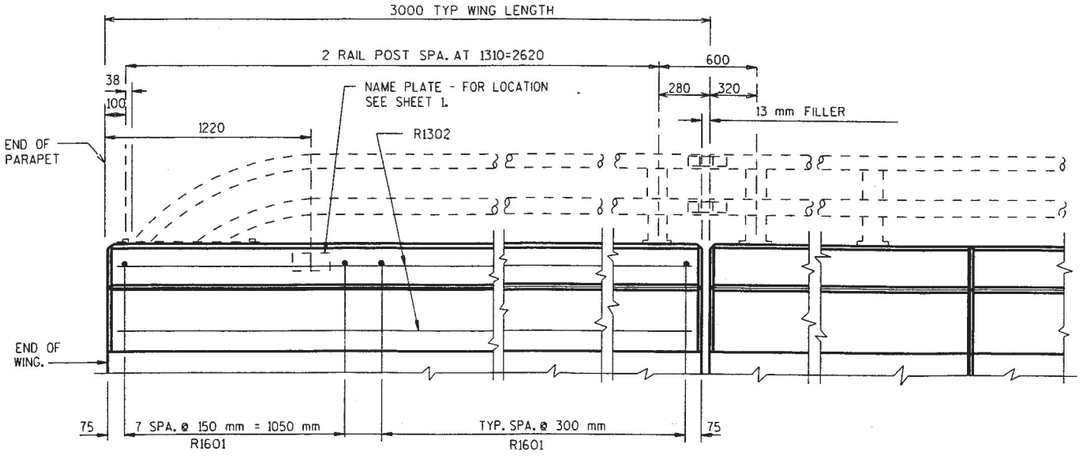
STEEL DIAPHRAGM

SHEET 12

THU JUL 15 11:13:10 1999*
C:\USERS\PROJECTS\B-57-6146\DIA.DGN

FILE = MGSTDIA.DGN
SCALE = 4-98

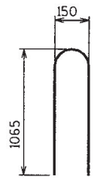
STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.13



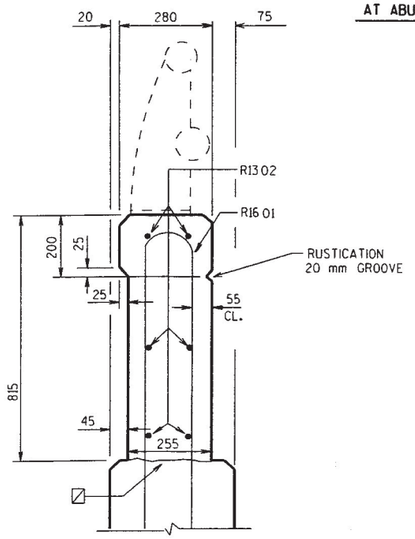
BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	BUNDLE	LOCATION
R1601	X	60	2365	X			PARAPET VERT.
R1302	X	24	2900				PARAPET HORIZ.

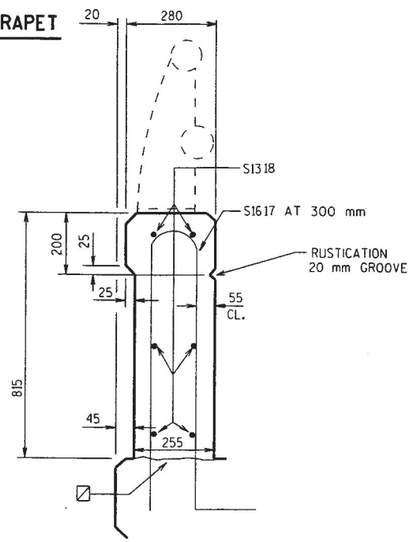


AT ABUTMENTS



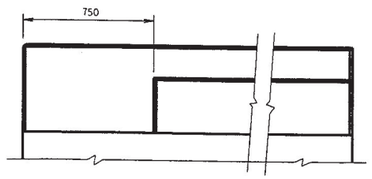
SECTION THRU PARAPET
ON ABUTMENT WING

ELEVATION OF PARAPET



SECTION THRU PARAPET
ON SUPERSTRUCTURE

☑ HORIZ. CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH.



OUTSIDE FACE OF PARAPET

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

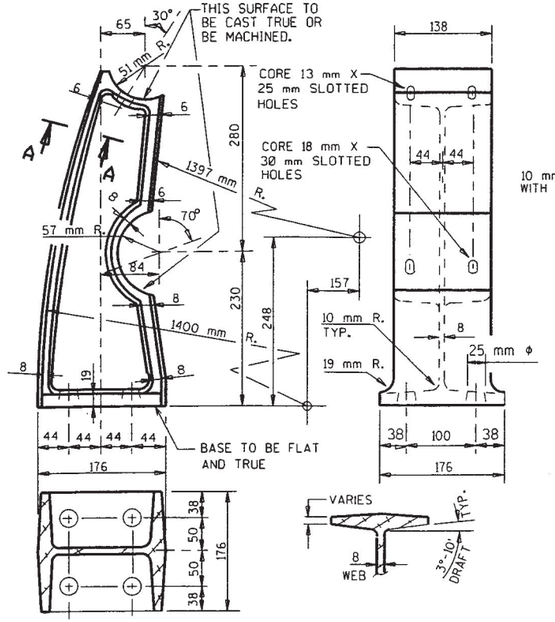
CONST. SPEC. 1996	DRAWN BY ZIRK	PLANS CK'D. RJH

VERTICAL FACE PARAPET "A" MODIFIED

SHEET 13

FILE= PPTA.DGN
SCALE = 1-98

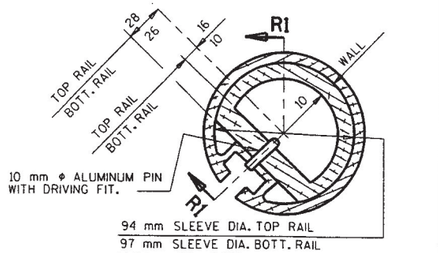
STATE PROJECT NUMBER	SHEET NO.
8520-06-71	8.14



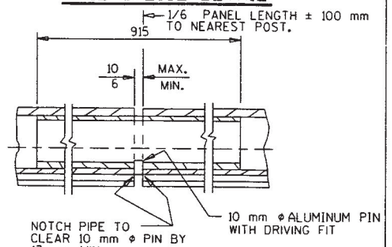
ALUMINUM POST CASTING

DETAIL OF RAIL ATTACHMENT TO POST

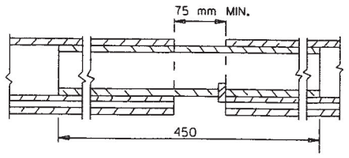
NOTES: MAX. REDUCTION IN DIAMETER OF BENT SECTION SHALL BE 3% WALL THICKNESS OF TUBING SHOWN ABOVE SHALL BE MIN. NOMINAL AVERAGE WALL THICKNESS.
MAX. REDUCTION IN SLOT WIDTH IN BENT TUBING SHALL BE 5 mm .



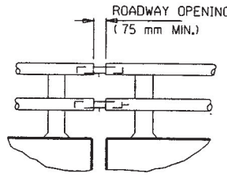
RAIL SPLICE DETAIL



SECTION R1

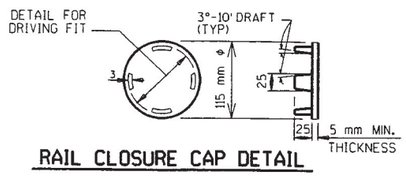


SLEEVE DETAIL AT ABUTMENT

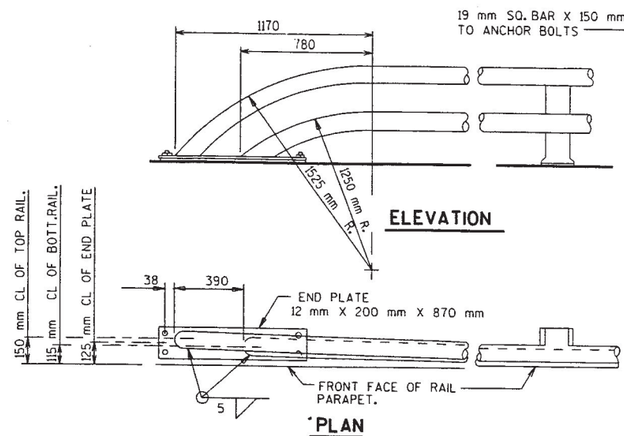


DETAIL AT RAIL OPENINGS

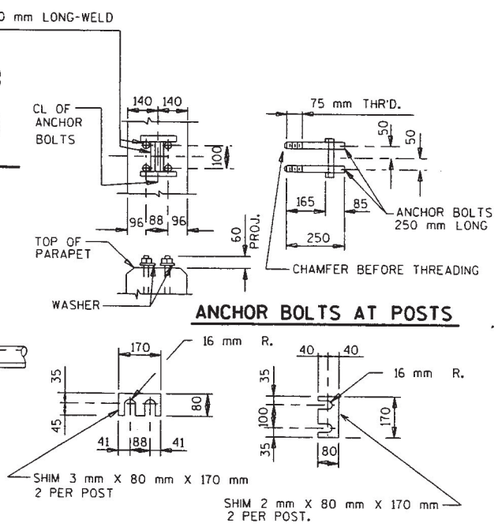
ALL SLEEVE DETAILS SAME AS "RAIL SPLICE DETAIL" UNLESS SHOWN OTHERWISE



RAIL CLOSURE CAP DETAIL

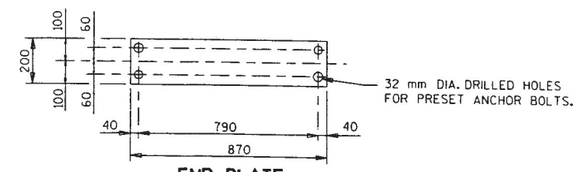


DETAIL OF RAIL BEND AT ABUTMENTS

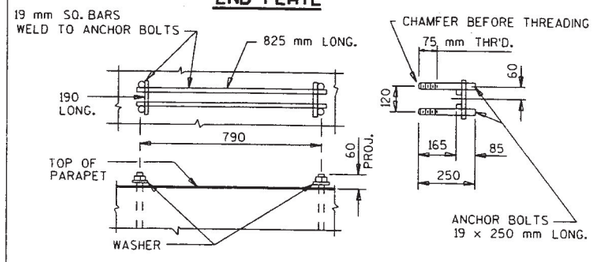


ANCHOR BOLTS AT POSTS

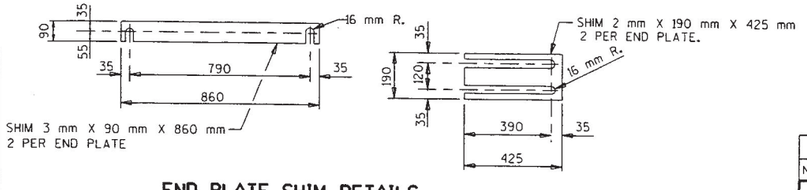
POST SHIM DETAILS



END PLATE



ANCHOR BOLTS AT END PLATE



END PLATE SHIM DETAILS

GENERAL NOTES

BID ITEM SHALL BE TUBULAR RAILING, TYPE 'H'.

RAILINGS SHALL BE FABRICATED IN 2 AND 3 PANEL LENGTHS

RAILING POSTS SHALL BE SET NORMAL TO GRADE LINE.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG CENTERLINE OF THE POST BASE.

SHIMS SHALL CONFORM TO SAME MATERIAL AS POSTS

SHIMS SHALL BE USED UNDER POSTS AND END PLATES WHERE REQ'D FOR ALIGNMENT.

FILL ALL EXPOSED OPENINGS BETWEEN SHIMS AND POST ANCHOR BOLTS HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.

THE SHANK & ROOT DIA. OF THREAD FOR ANCHOR BOLTS SHALL BE A MIN. OF 16 mm.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-57-61

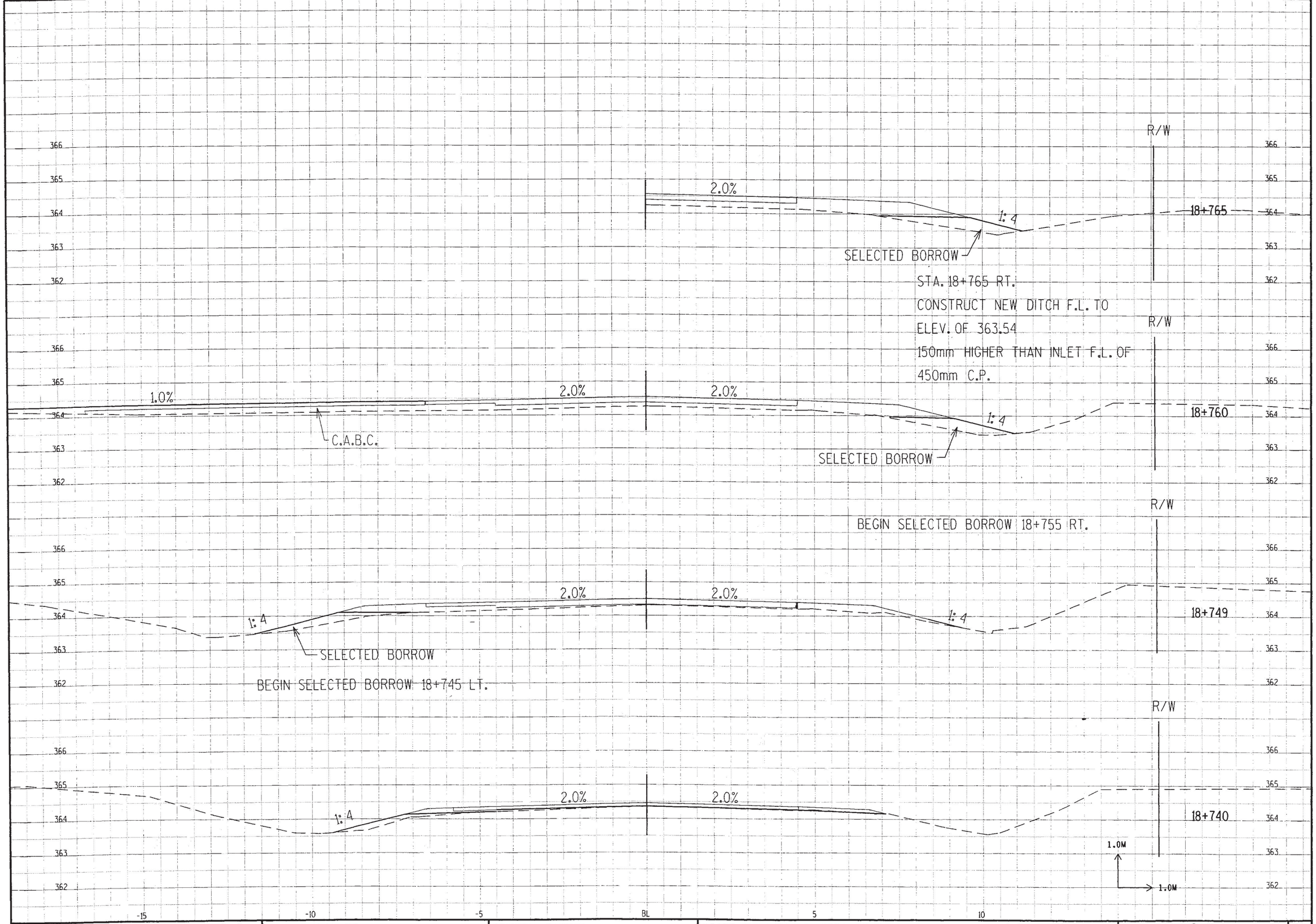
CONST. SPEC.	DRAWN BY	PLANS CK'D.
1996	ZIRK	RJH

TUBULAR RAILING
TYPE 'H' (ALUM.)

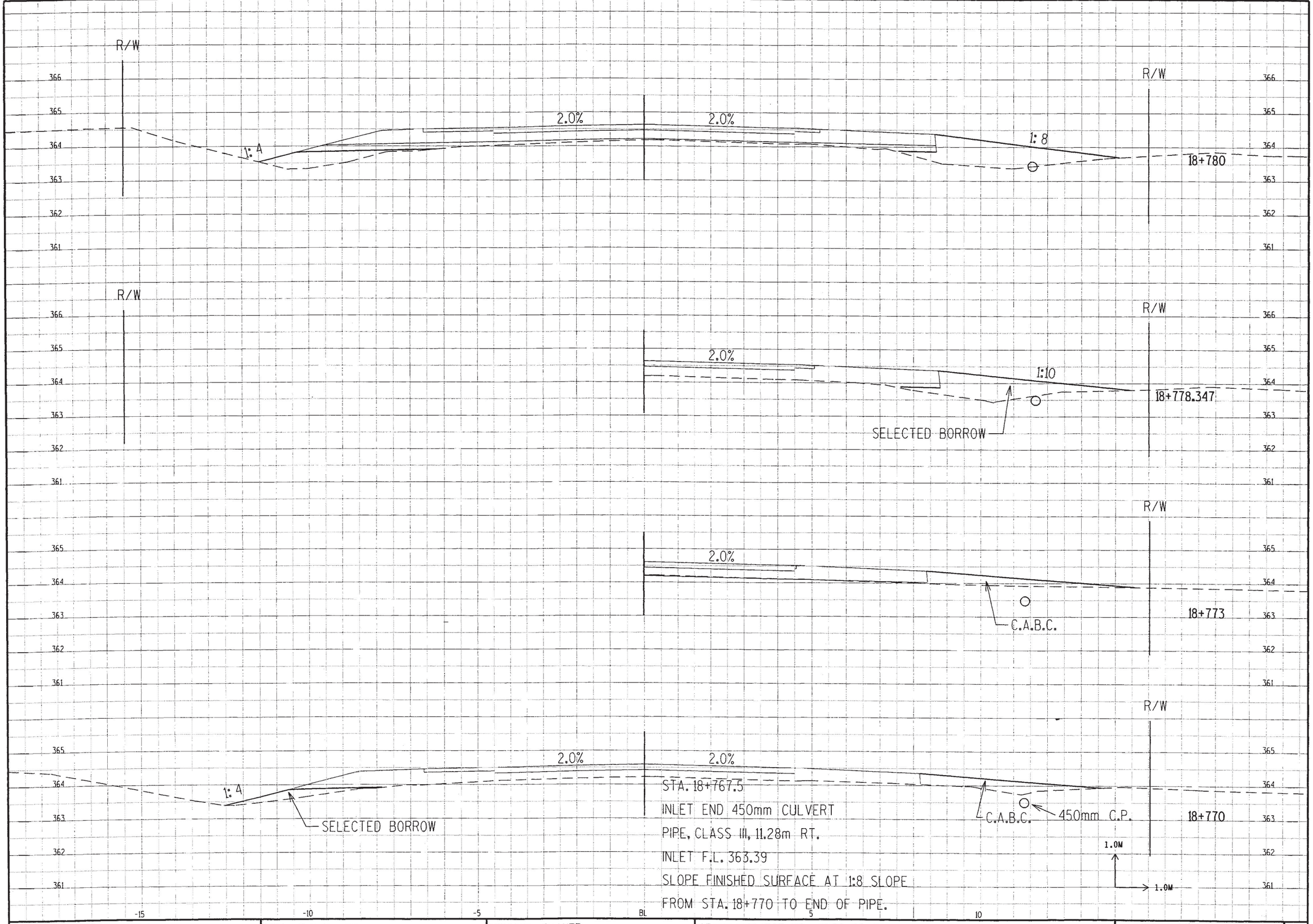
SHEET 14

FILE= RAILH.DGN
SCALE =

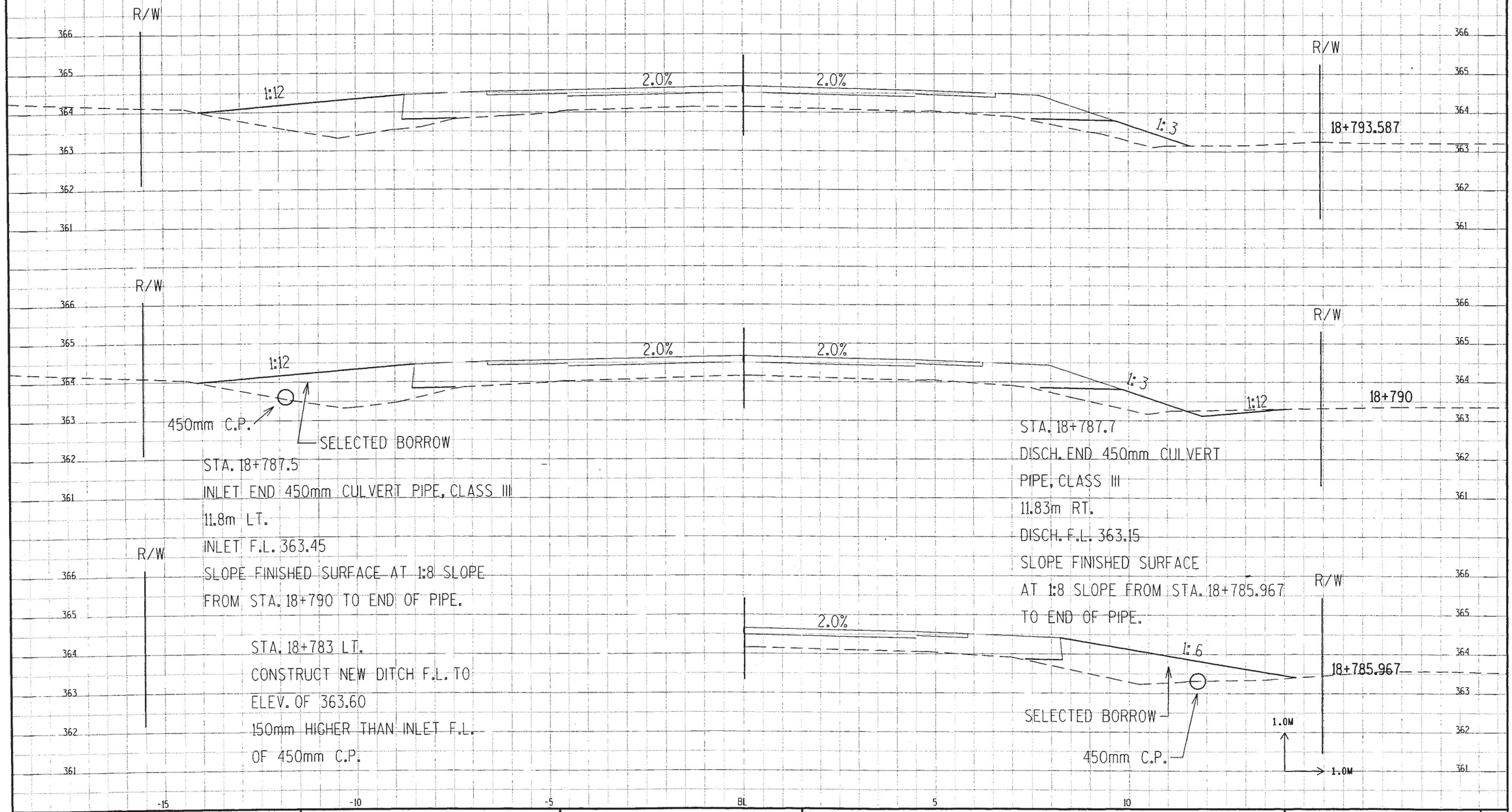
9-1-94



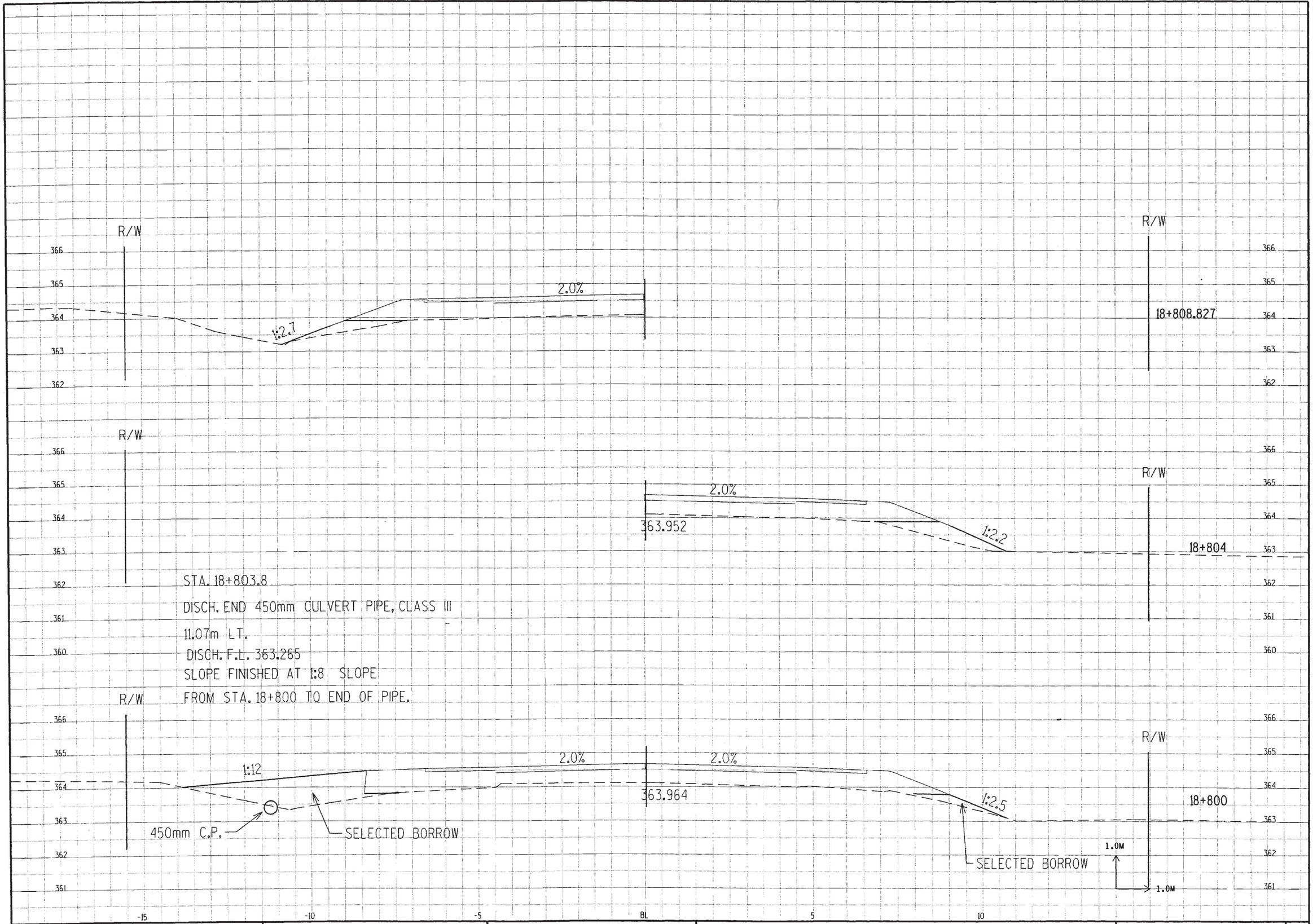
CROSS SECTIONS	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.1	M



CROSS SECTIONS	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.2	M

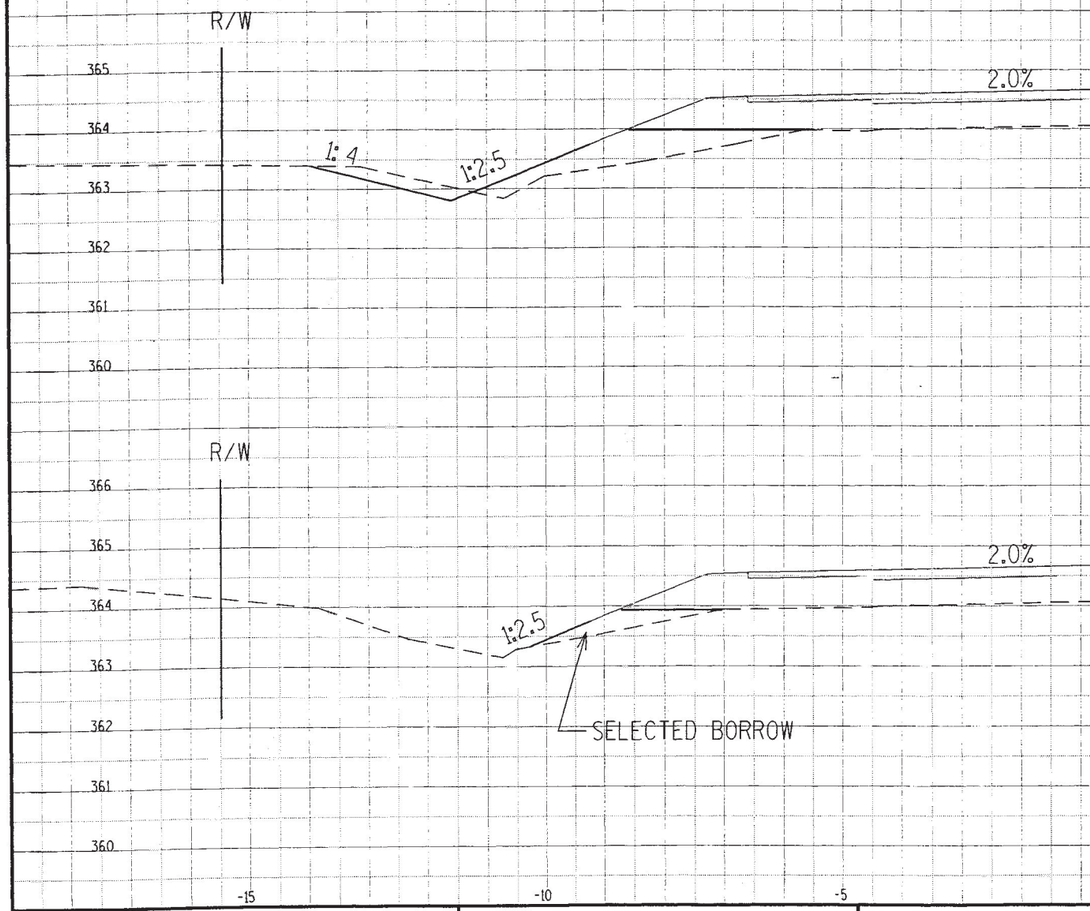


CROSS SECTIONS	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.3 M

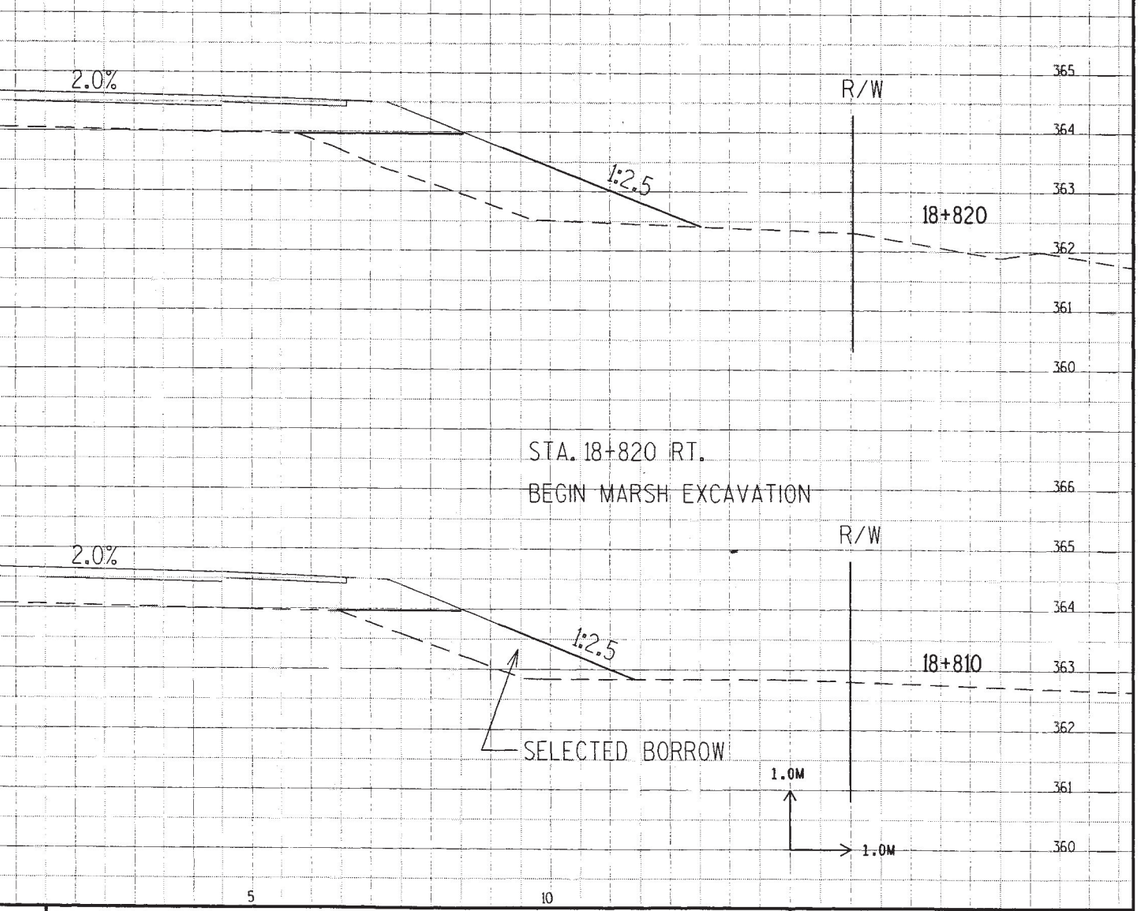


CROSS SECTIONS	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.4	M

STA. 18+826 LT.
BEGIN HEAVY RIPRAP SLOPE

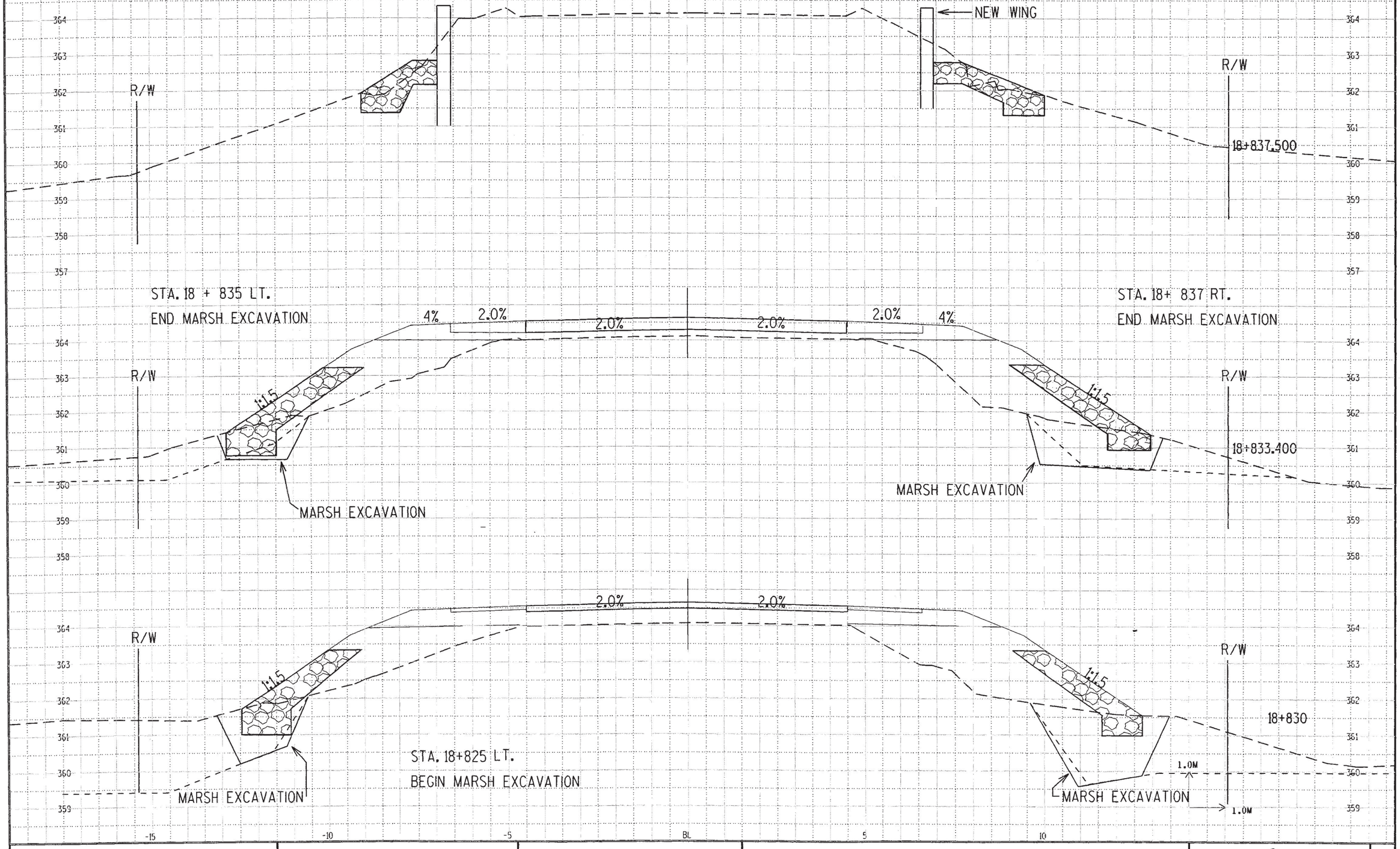


STA. 18+822 RT.
BEGIN HEAVY RIPRAP SLOPE

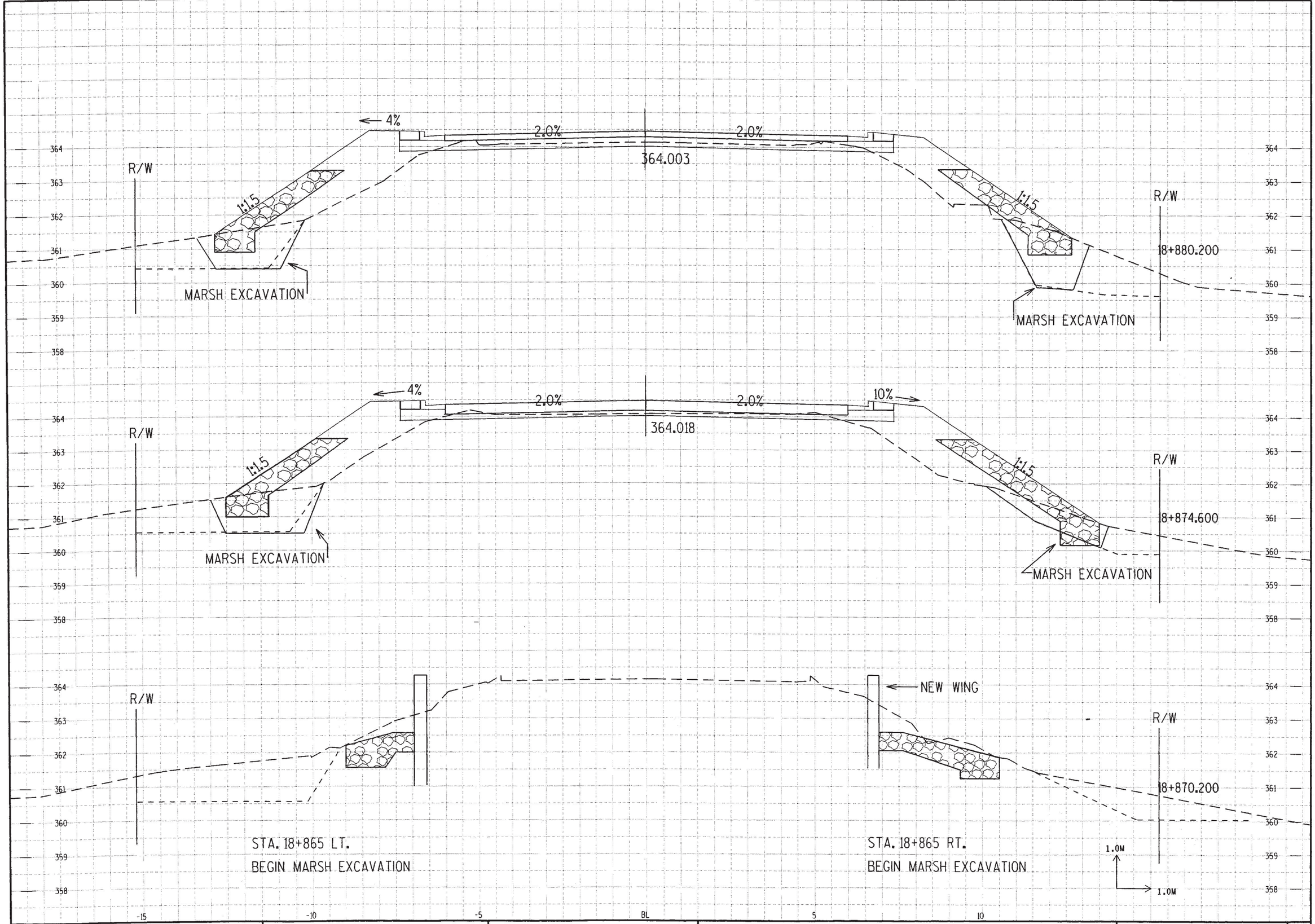


STA. 18+820 RT.
BEGIN MARSH EXCAVATION

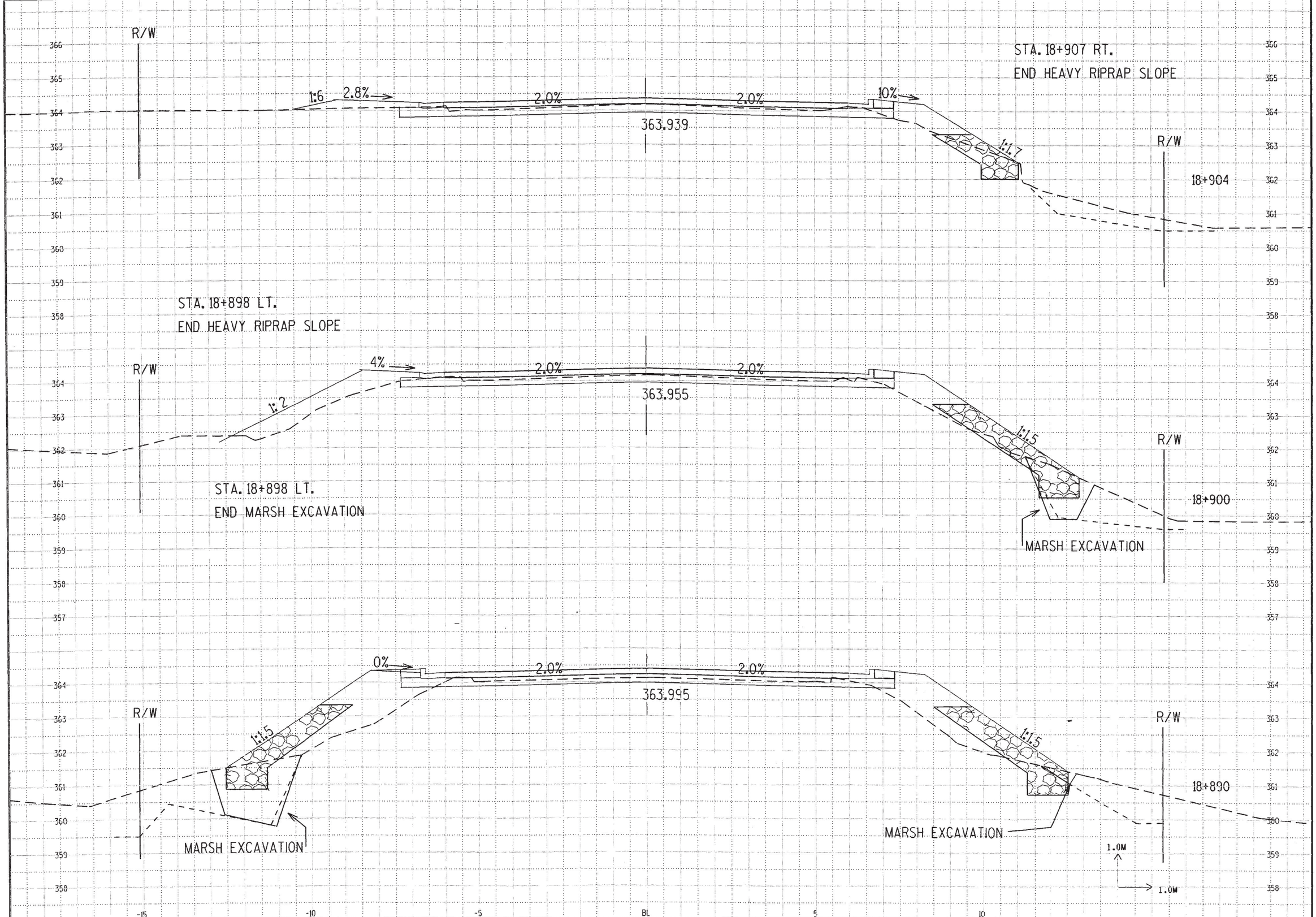
CROSS SECTIONS	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.5	M



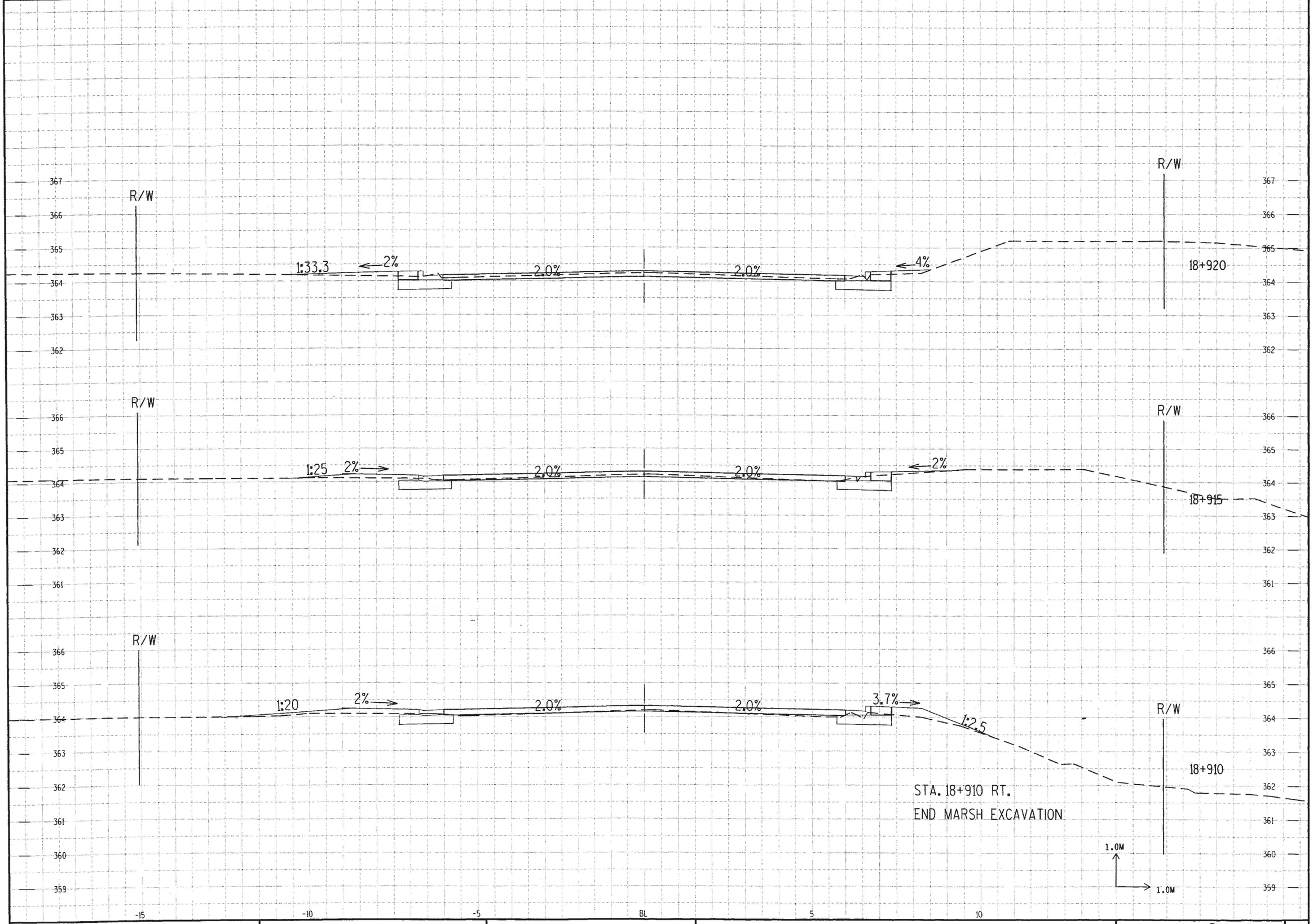
CROSS SECTIONS	HWY: STH 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.6	M



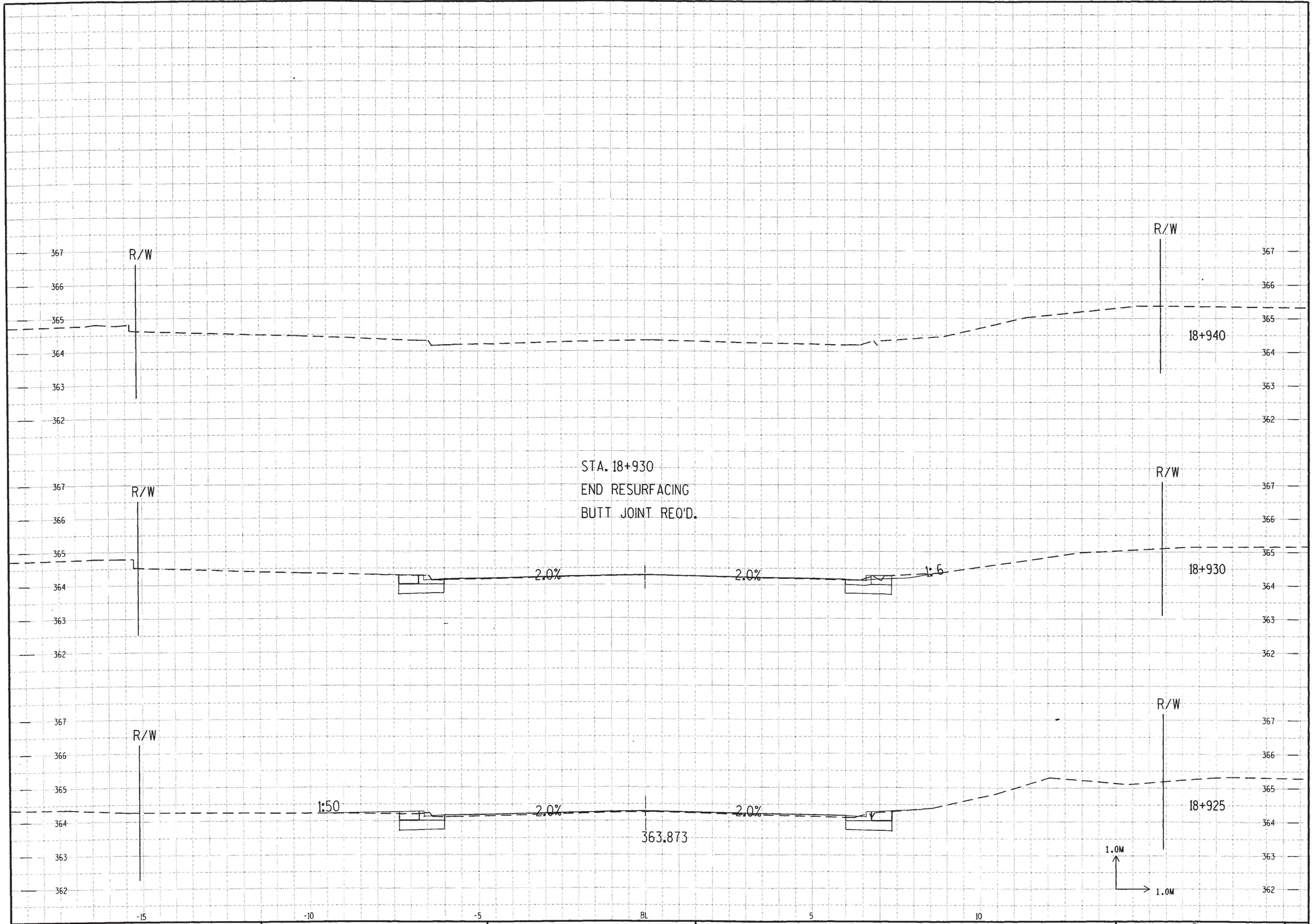
CROSS SECTIONS	HWY: STH 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.7	M



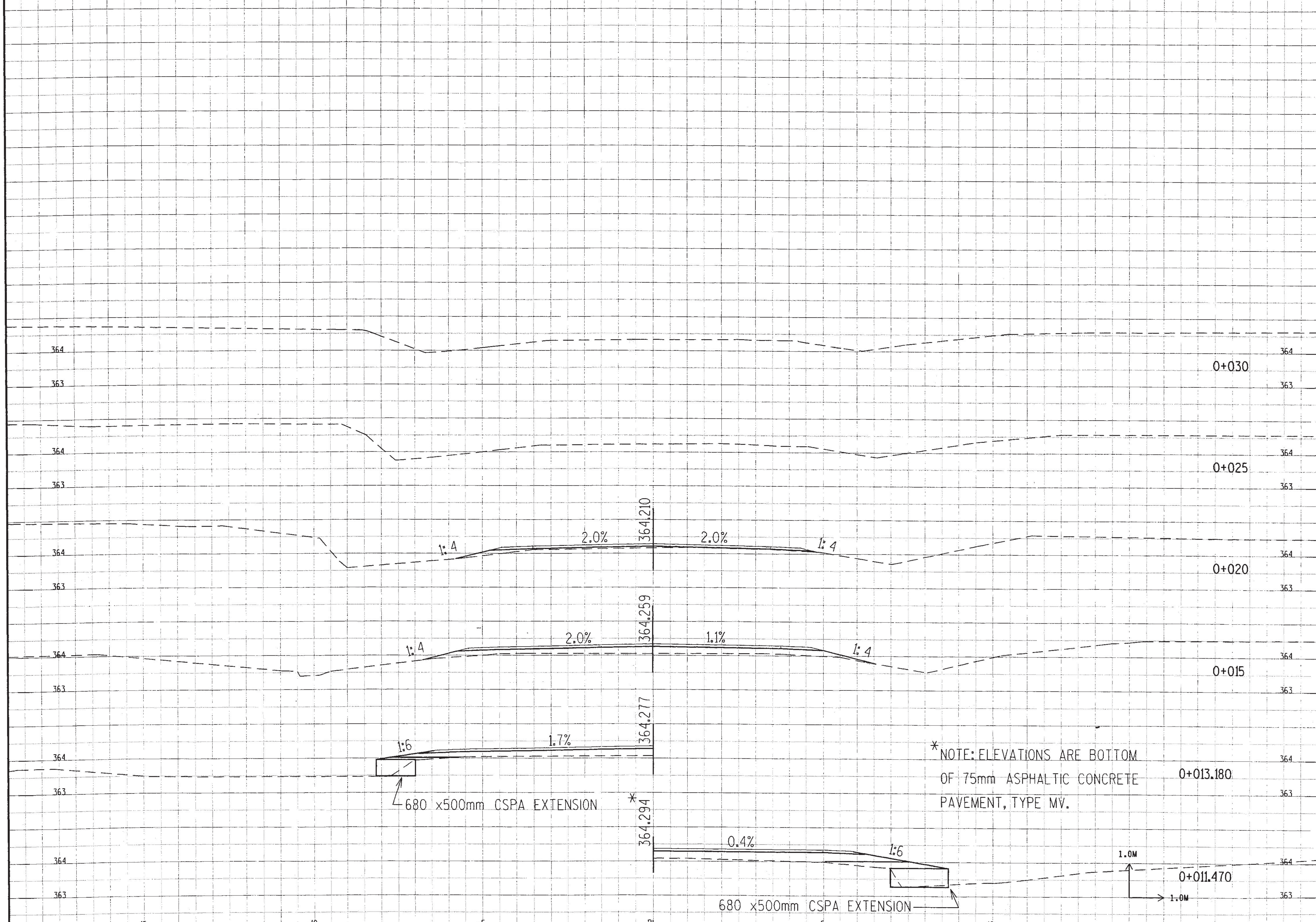
CROSS SECTIONS	HWY: STH 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.8	M



CROSS SECTIONS	HWY: STH 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.9	M



CROSS SECTIONS	HWY: STH 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.10	M



CROSS SECTIONS RIVERSIDE ROAD	HWY: S.T.H. 77	COUNTY: SAWYER	STATE PROJECT NO: 8520-06-71	SHEET NO: 9.11	M