

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
DRUMMOND - GRAND VIEW
USH 63
BAYFIELD COUNTY

STATE PROJECT		FEDERAL PROJECT	
1560-18-71	USH 63	Bayfield County	CONTRACT
		Drummond - Grand View	
		Northwoods Paving, Div of Mathy	
		Bill Dandeneau	

SUBCONTRACTORS

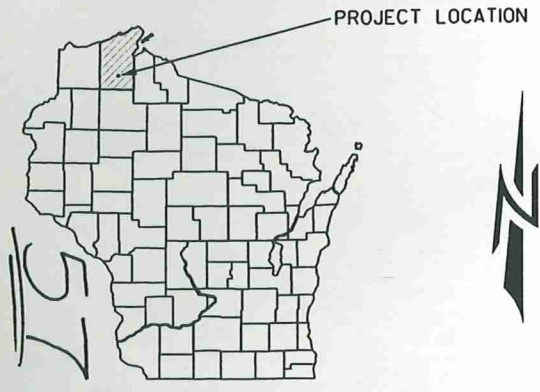
CENTURY FENCE
CHIPPEWA CONCRETE
HI-BOOM ERECTING
NORTHWOODS PAVING
TIMME CONSTRUCTION
TRAFFIC SIGNING AND MARKING

STARTED 8/21/2003
COMPLETED 10/21/2003
FINAL CONTRACT AMOUNT \$1,484,714.18

INDEX OF SHEETS

Sheet No. 1	Title
Sheet No.	Typical Sections and Details
Sheet No.	Estimate of Quantities
Sheet No.	Miscellaneous Quantities
Sheet No.	Right of Way Plat
Sheet No.	Plan and Profile
Sheet No.	Standard Detail Drawings
Sheet No.	Sign Plates
Sheet No.	Structure Plans
Sheet No.	Computer Earthwork Data
Sheet No.	Cross Sections

TOTAL SHEETS = 40



DESIGN DESIGNATION

A.D.T. (2002)	=	1900
A.D.T. (2022)	=	2450
D.H.V. (2022)	=	9.3%
D.	=	60-40
T. % ADT	=	13.9%
DESIGN SPEED	=	55 MPH
ESALS	=	766,500

CONVENTIONAL SYMBOLS

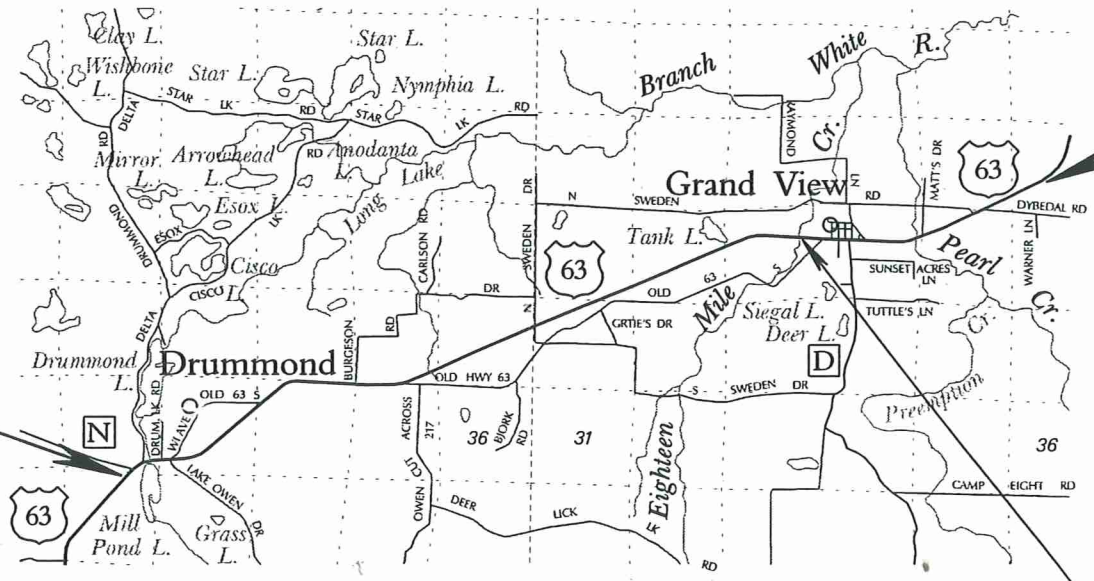
COUNTY LINE	-----
CORPORATE LIMITS	-----
PROPERTY LINE	-----
LOT LINE	-----
LIMITED EASEMENT	-----
EXISTING RIGHT OF WAY	-----
PROPOSED OR NEW R/W LINE	-----
SURVEY LINE	-----
SLOPE INTERCEPT	-----
ORIGINAL GROUND	-----
MARSH OR ROCK PROFILE (To be noted as such)	-----
MARSH AREA	-----
WOODED OR SHRUB AREA	-----

COMBUSTIBLE FLUIDS	-----
UNDERGROUND UTILITIES	-----
GAS	-----
ELECTRIC	-----
TELEPHONE OR TELEGRAPH	-----
COMMUNICATIONS LINE	-----
SERVICE PEDESTAL	-----
POWER POLE	-----
TELEPHONE POLE	-----
RAILROAD	-----
SANITARY SEWER	-----
STORM SEWER	-----
WATER	-----
EXISTING CULVERT	-----
PROPOSED CULVERT (Box or Pipe)	-----
CULVERT (Profile View)	-----

BEGIN PROJECT
STA. 476+10
Y = 426800 (±200')
X = 1680400 (±200')

END PROJECT
STA. 1030+10

EXCEPTION TO NET C
STA 884+76.66 TO
STA 892+64.06



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 10.343 MI.

ORIGINAL PLANS PREPARED BY
NORTHERN WISCONSIN-
BASED ENGINEERS, INC.



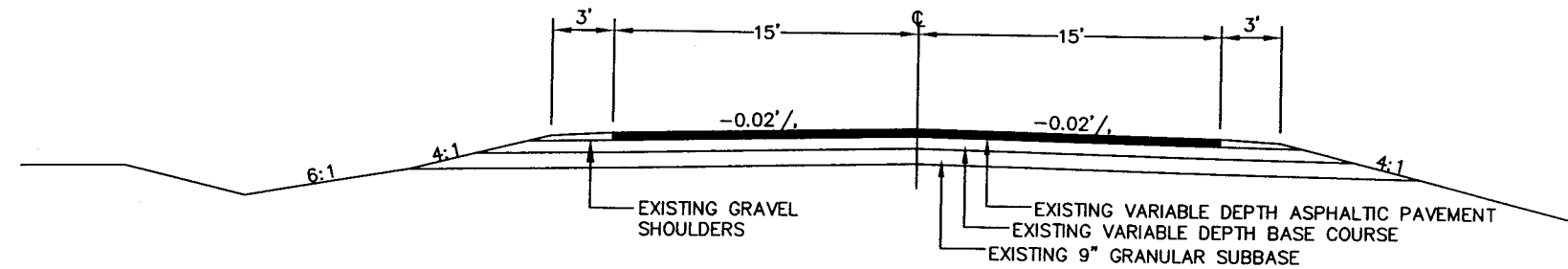
12/3/02 Heather Harrington
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	NWBE
Surveyor	NWBE
Designer	HEATHER HARRINGTON
Project Manager	CHRISTINE KOSKI
District Examiner	RICK WASHKUN
District Supervisor	C. BUSANOWSKI
C.O. Examiner	

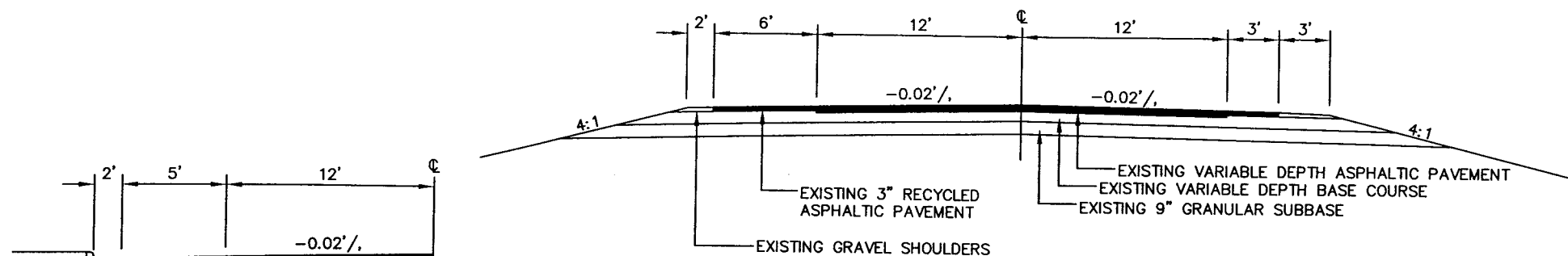
APPROVED FOR DISTRICT OFFICE
DATE: 12/14/02 R. Washkun
(Signature)

E



TYPICAL EXISTING SECTION

STA 476+10 - STA 486+85
STA 501+41 - STA 884+76.66
STA 892+64.06 - STA 906+75
STA 921+75 - STA 1030+10

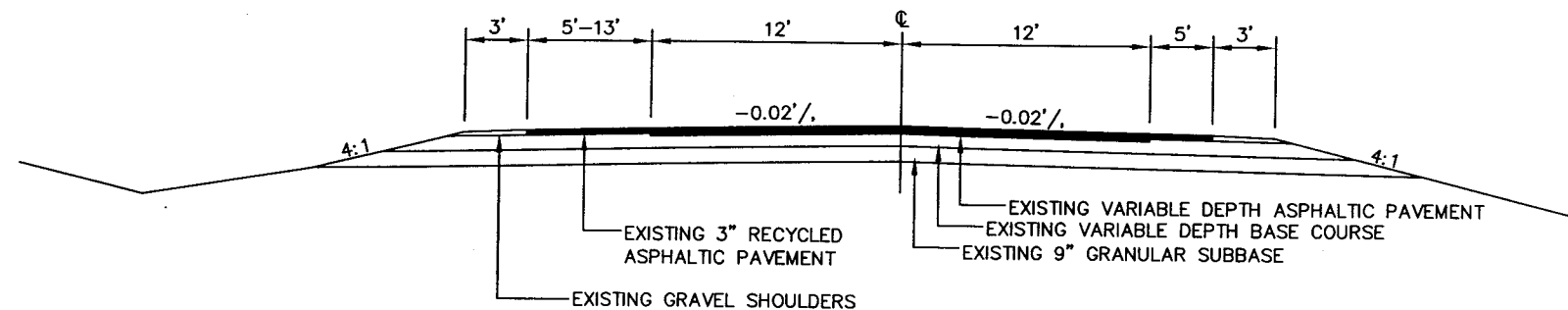


TYPICAL EXISTING SECTION

STA 486+85 - STA 498+51 LT (VILLAGE OF DRUMMOND)
STA 490+50 - STA 501+41 RT (VILLAGE OF DRUMMOND)

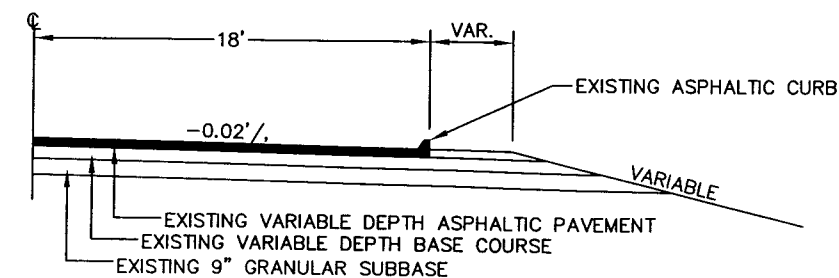
TYPICAL EXISTING HALF SECTION

STA 498+51 - STA 501+41 LT (VILLAGE OF DRUMMOND)



TYPICAL EXISTING SECTION

STA 906+75 - STA 921+75 (VILLAGE OF GRAND VIEW)



TYPICAL EXISTING HALF SECTION

STA 486+85 - STA 490+50 RT (VILLAGE OF DRUMMOND)

GENERAL NOTES

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO AN ASSUMED VERTICAL DATUM.
RESTORE SIDEROAD INTERSECTIONS AND PRIVATE ENTRANCES TO EXISTING SURFACE CONDITIONS UNLESS SHOWN OTHERWISE.

WHEN THE QUANTITY OF CRUSHED AGGREGATE BASE COURSE OR ASPHALTIC CONCRETE PAVEMENT, TYPE E-1 IS MEASURED BY THE TON, THE THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED, AND MULCHED.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGER'S HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES WHICH HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGER'S HOTLINE.

3-1/2" ASPHALTIC CONCRETE PAVEMENT, TYPE E-1, SHALL BE PLACED IN 2 LAYERS OF SURFACE MATERIAL (12.5mm NOMINAL) AT 1-3/4" EACH. THE LOWER LAYER OF 1-3/4" ASPHALTIC CONCRETE PAVEMENT IS FOR CROWN CORRECTION AND RUTFILL.

IN BEAM GUARD AREAS, EXTEND PAVED SHOULDER OUT TO BEAM GUARD FACE.

DEPARTMENT OF NATURAL RESOURCES

NORTHERN REGION HEADQUARTERS
810 WEST MAPLE STREET
SPOONER, WI 54801
ATTN: BILL CLARK
(715) 635-4226

COUNTY SURVEYOR

BOB MICK
78215 STATE HWY 13
WASHBURN, WI 54891
(715) 373-5022

DESIGN CONTACT

NWBE, INC.
10597N KANSAS AVENUE
HAYWARD, WI 54843
ATTN: HEATHER HARRINGTON
(715) 634-4334

UTILITIES



DIGGER'S HOTLINE
1-800-242-8511
TDD 1-800-542-2289
CALL 3 WORK DAYS
BEFORE YOU DIG

BAYFIELD ELECTRIC COOPERATIVE
P.O. BOX 68
IRON RIVER, WI 54847
ATTN: PHILIP BEEKSMA
(715) 372-4287

XCEL ENERGY - DISTRIBUTION
100 BARSTOW STREET
P.O. BOX 8
EAU CLAIRE, WI 54702-0008
ATTN: BILL TEETERS
(715) 836-1195

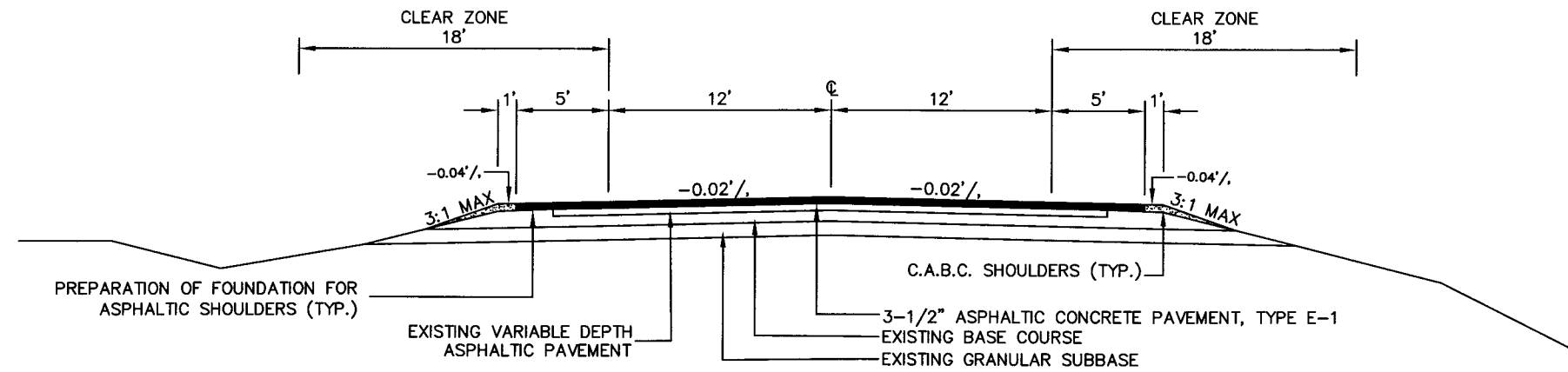
XCEL ENERGY - TRANSMISSION
100 BARSTOW STREET
P.O. BOX 8
EAU CLAIRE, WI 54702-0008
ATTN: PAM TAYLOR
(715) 839-1306

CHEQUAMEGON TELEPHONE CO-OP, INC.
BOX 67
CABLE, WI 54821
ATTN: JOE LABEREE
(715) 798-3303

CENTURYTEL OF NORTHWEST WISCONSIN
P.O. BOX 78
425 ELLINGSON AVENUE
HAWKINS, WI 54530
ATTN: PETE FILIPIAC
(715) 585-6388

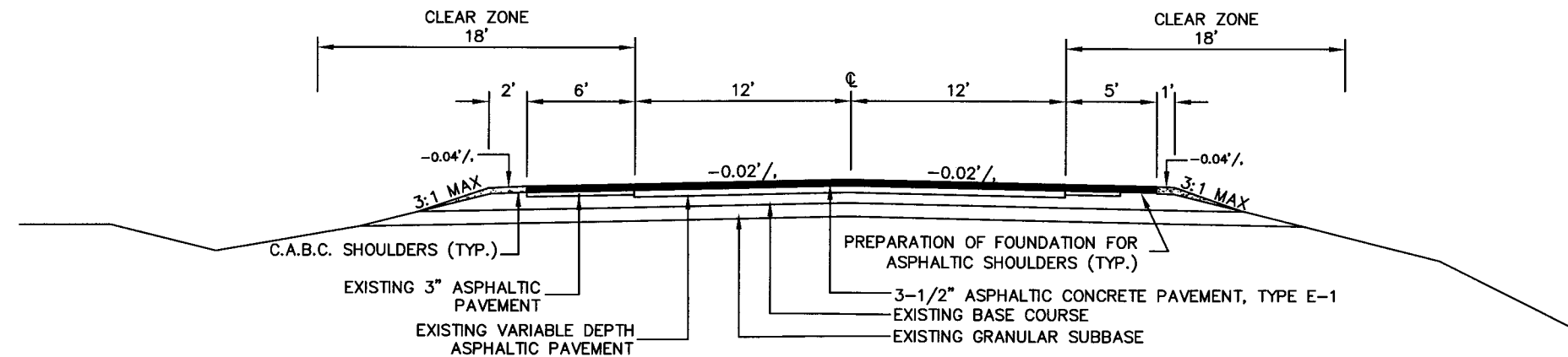
STANDARD DETAIL DRAWINGS

8D1-13	CONCRETE CURB, CONCRETE CURB AND GUTTER AND PAVEMENT TIES
8E8-3	TYPICAL INSTALLATIONS OF EROSION BALES/TEMPORARY DITCH CHECKS
8E9-5	SILT FENCE
8F1-11	APRON ENDWALLS FOR CULVERT PIPE
8F4-5	JOINT TIES FOR CONCRETE PIPE
14B15-4a&b	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-4a	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B24-3a,b&c	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15A3-1	MARKER POST, FLEXIBLE, FOR CULVERT END
15C4-1	TRAFFIC CONTROL, ADVANCE WARNING SIGNS, 45 MPH OR GREATER
15C8-9a	TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C8-9b	PAVEMENT MARKING (MAINLINE)
15C12-2	PAVEMENT MARKING (INTERSECTIONS)
16A1-6	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
	LANDMARK REFERENCE MONUMENTS AND COVERS



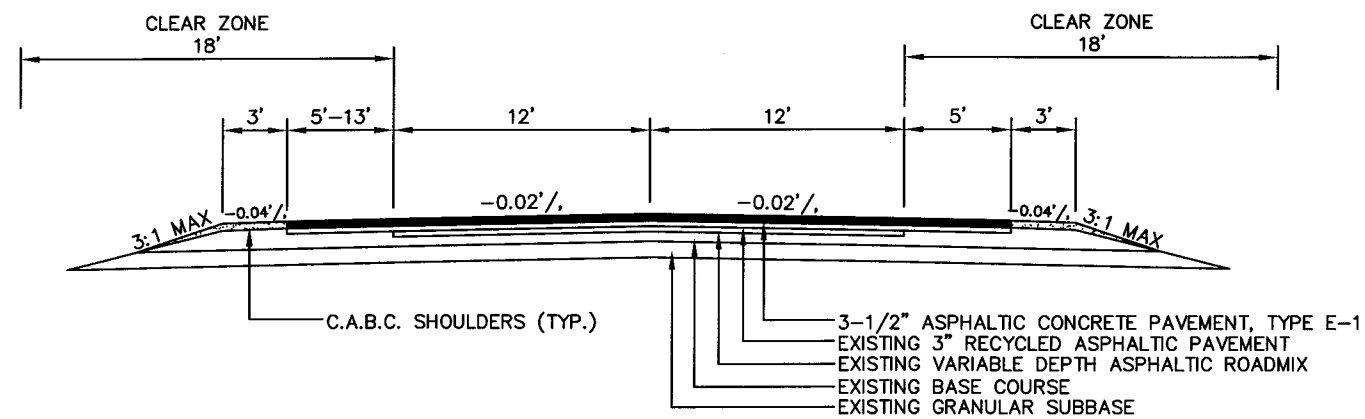
TYPICAL FINISHED SECTION

STA 476+10 - STA 486+85
 STA 501+41 - STA 884+76.66
 STA 892+64.06 - STA 906+75
 STA 921+75 - STA 1030+10



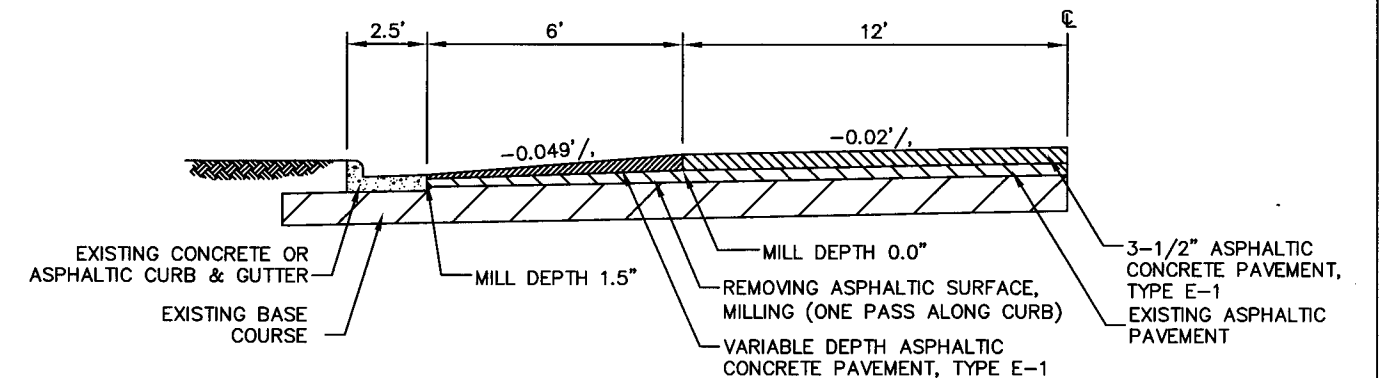
TYPICAL FINISHED SECTION

STA 486+85 - STA 498+51 LT (VILLAGE OF DRUMMOND)
 STA 490+50 - STA 501+41 RT (VILLAGE OF DRUMMOND)



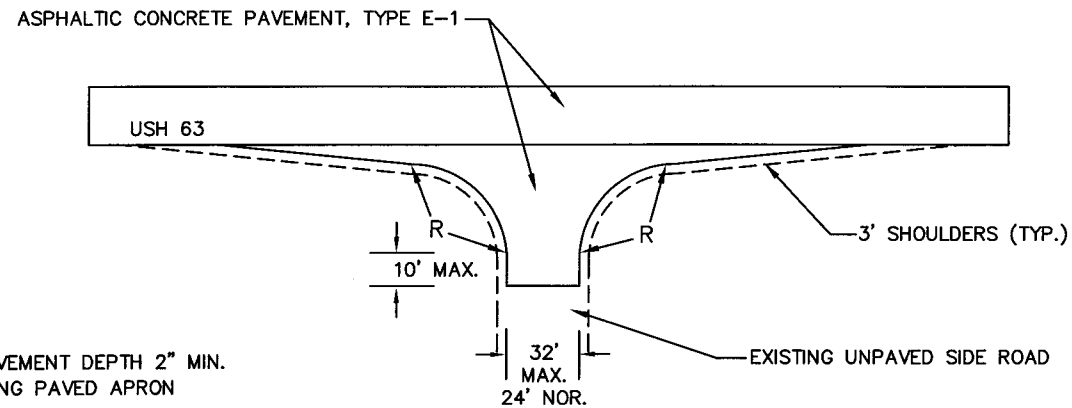
TYPICAL FINISHED SECTION

STA 906+75 - STA 921+75 (VILLAGE OF GRAND VIEW)



TYPICAL HALF SECTION FOR RESURFACE AT CURB & GUTTER

STA 486+85 - STA 490+50 RT (VILLAGE OF DRUMMOND)
 STA 498+51 - STA 501+41 LT (VILLAGE OF DRUMMOND)



NOTE

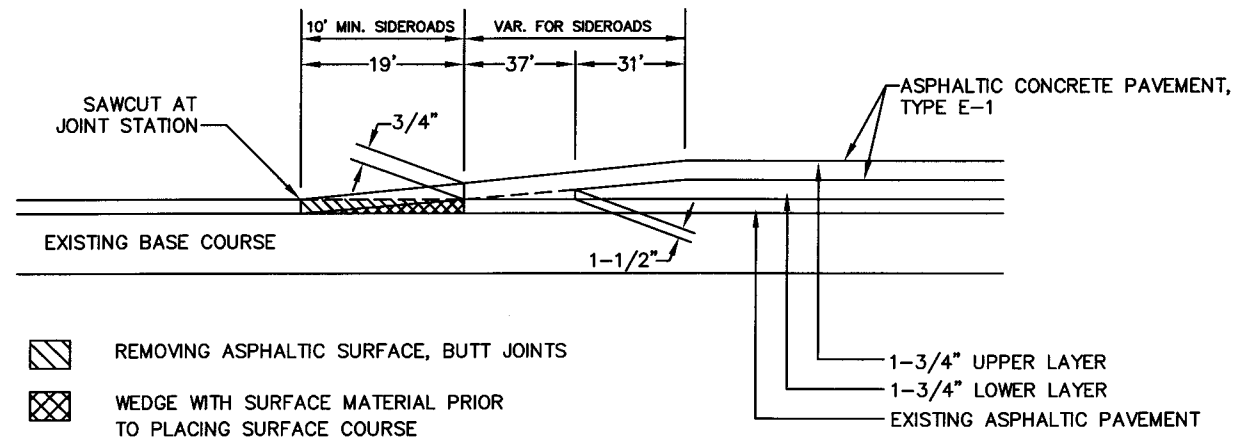
SIDEROAD PAVEMENT DEPTH 2" MIN.
MATCH EXISTING PAVED APRON

PAVING DETAIL

SIDEROADS WITH EXISTING UNPAVED SURFACE

BURGESON RD (LT)
OLD HWY 63 (RT)
N. SWEDEN DR (LT)
S. SWEDEN DR (RT)

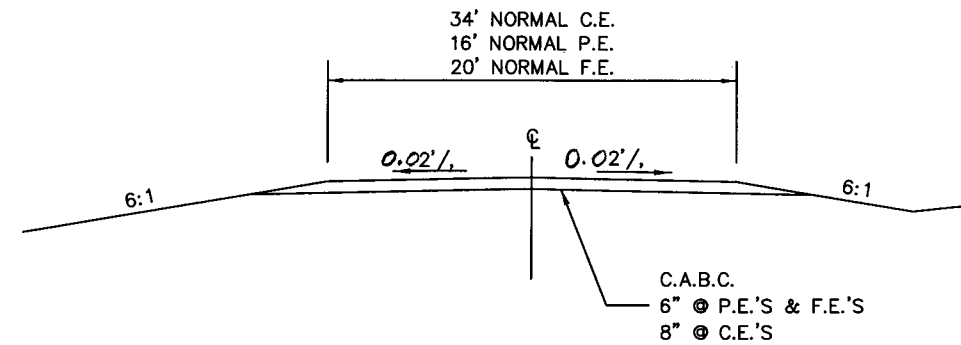
TOWN RD (STA 910+27, RT)
MAGNOLIA DR (LT)
MATTS DR (LT)
N. SWEDEN DR (LT)
DYBEDAL RD (RT)



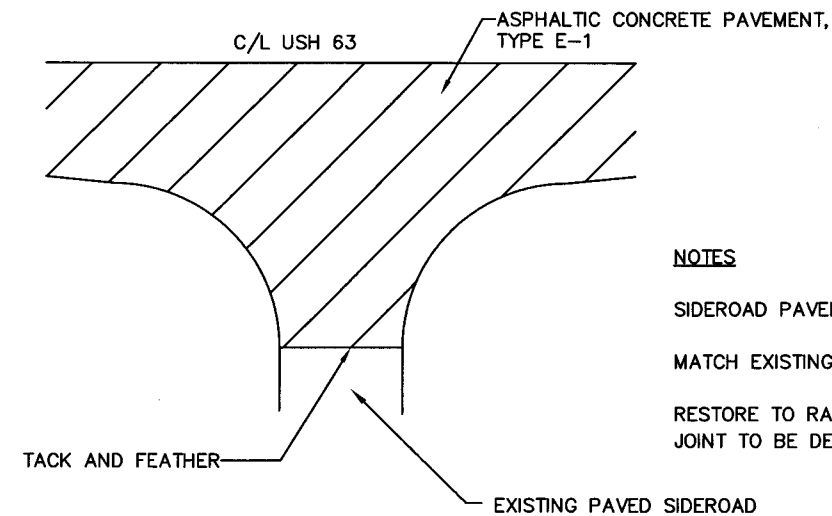
DETAIL OF BUTT JOINT

STA 476+10
STA 884+76.66
STA 892+64.06

STA 1030+10
CTH N
CTH D



TYPICAL SECTION FOR CRUSHED AGGREGATE ENTRANCES



NOTES

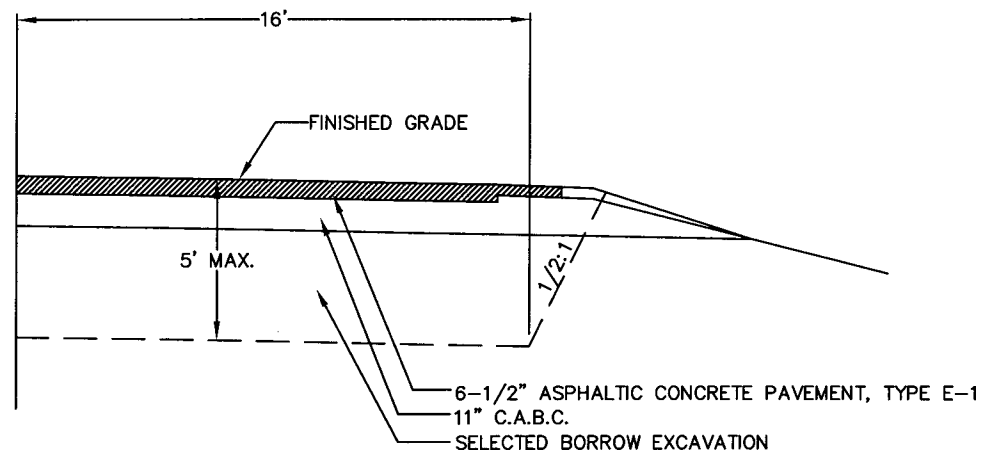
SIDEROAD PAVEMENT DEPTH 2" MIN.
MATCH EXISTING PAVED SURFACE RADII AND TAPERS
RESTORE TO RADIUS POINT (EXACT LOCATION OF FEATHER JOINT TO BE DETERMINED BY THE ENGINEER IN THE FIELD)

PAVING DETAIL

SIDEROADS WITH EXISTING PAVED SURFACE

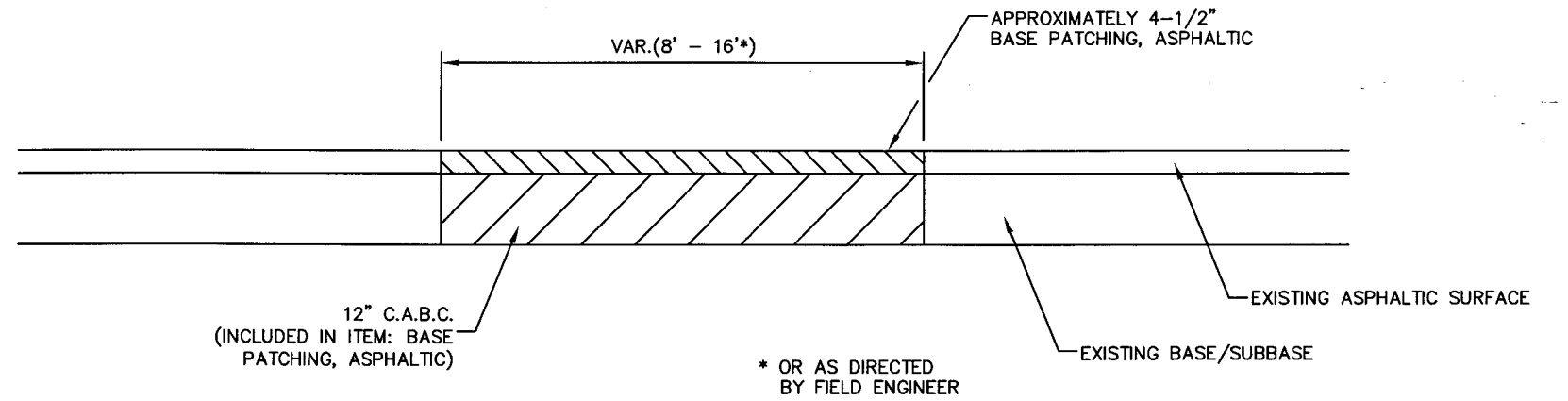
DELTA DRUMMOND RD (LT)
DRUMMOND LAKE RD (LT)
WISCONSIN AVE (LT)
N. LAKE OWEN DR (RT)
OLD 63 S. (LT)

OLD 63 S. (RT)
BLAKE AVE (LT)
CLARK AVE (LT)
CUDWORTH AVE (LT)
RAYMOND AVE (LT)



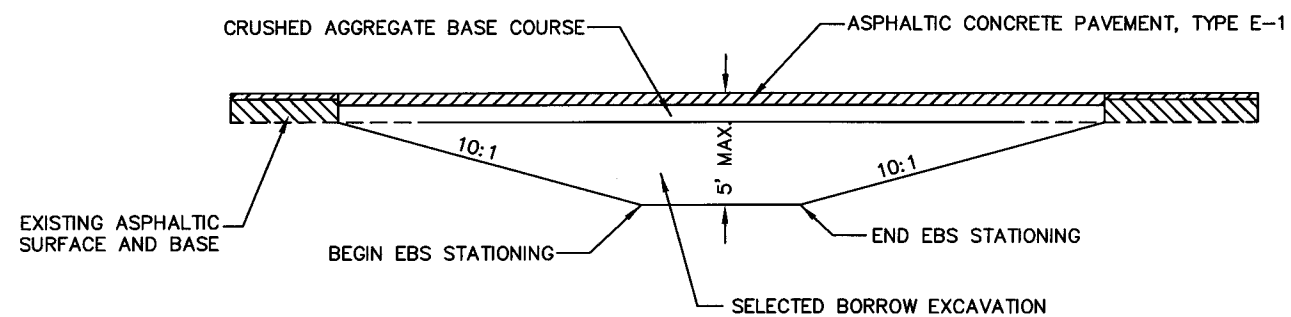
TYPICAL EBS HALF SECTION

STA 513+75 - 516+50
STA 865+50 - 866+50

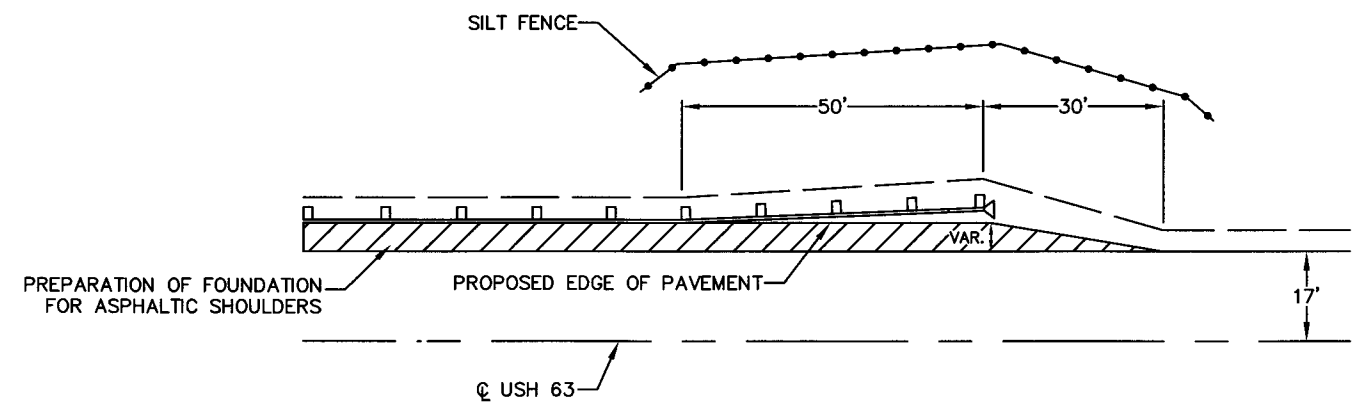


TYPICAL FOR BASE PATCHING

STA 518+67	STA 567+72
STA 536+80	STA 661+29
STA 540+02	STA 722+18
STA 550+20	STA 746+16
	STA 1015+35



TRANSITIONS AT EBS LIMITS



BEAM GUARD TERMINAL DETAIL

SYMBOLS

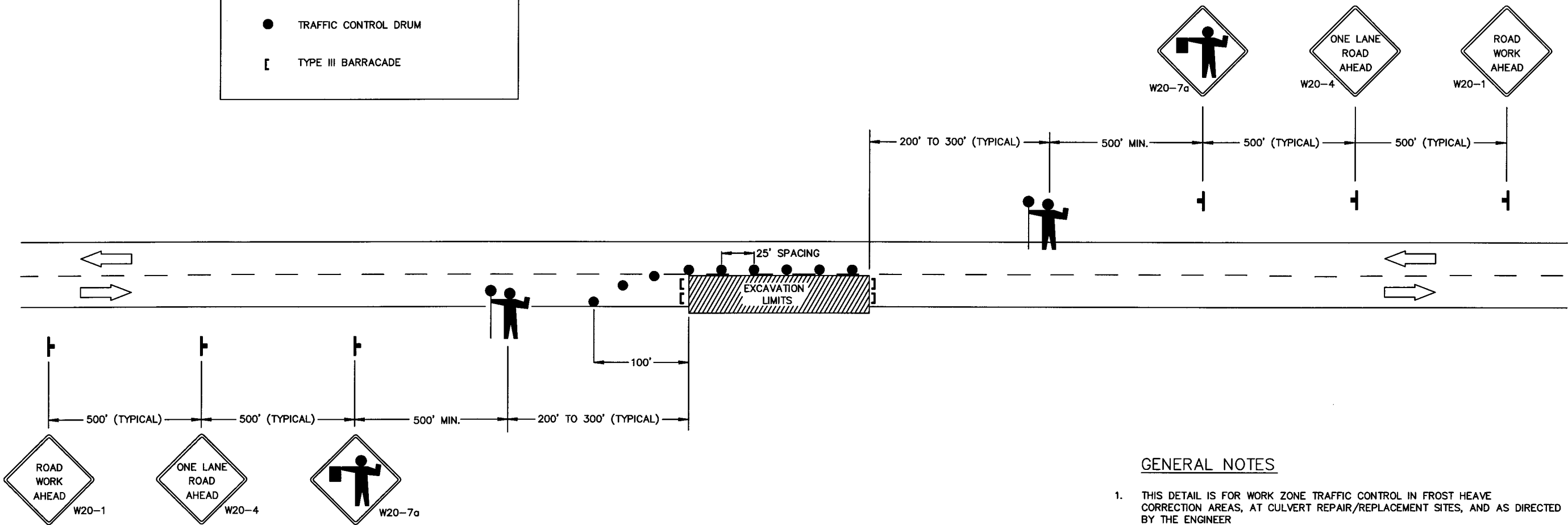
WORK AREA

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

SIGN ON PORTABLE OR PERMANENT SUPPORT

TRAFFIC CONTROL DRUM

TYPE III BARRICADE



GENERAL NOTES

- THIS DETAIL IS FOR WORK ZONE TRAFFIC CONTROL IN FROST HEAVE CORRECTION AREAS, AT CULVERT REPAIR/REPLACEMENT SITES, AND AS DIRECTED BY THE ENGINEER
- DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATIONS 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.
- 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 48" X 48" UNLESS OTHERWISE NOTED.
- SEE S.D.D. FOR MOVING OPERATION WORK ZONE TRAFFIC CONTROL

DATE 12MAR03		ESTIMATE OF QUANTITIES			1560-18-71
LINE					
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	20335	REMOVING SMALL PIPE CULVERTS	EACH	2.000	2.000
0020	20405	REMOVING CURB AND GUTTER	L.F.	270.000	270.000
0030	20411	REMOVING GUARDRAIL	L.F.	1,678.000	1,678.000
0040	20419	REMOVING ASPHALTIC SURFACE, BUTT JOINTS	S.Y.	318.000	318.000
0050	20420	REMOVING ASPHALTIC SURFACE, MILLING	S.Y.	436.000	436.000
0060	20501	COMMON EXCAVATION	C.Y.	2,730.000	2,730.000
0070	20811	SELECTED BORROW EXCAVATION	C.Y.	2,198.000	2,198.000
0080	21101	PREPARATION OF FOUNDATION FOR ASPHALTIC PAVING	LS	1.000	1.000
0090	21131	PREPARATION OF FOUNDATION FOR ASPHALTIC SHOULDERS	STA.	1,094.000	1,094.000
0100	21301	FINISHING ROADWAY	LS	1.000	1.000
0110	30404	CRUSHED AGGREGATE BASE COURSE	TON	11,190.000	11,190.000
0120	30810	BASE PATCHING, ASPHALTIC	S.Y.	400.000	400.000
0130	40204	ASPHALTIC MATERIAL FOR TACK COAT	GAL.	9,854.000	9,854.000
0140	40301	QMP, ASPHALTIC MIXTURE	TON	41,067.000	41,067.000
0150	40501	ASPHALTIC MATERIAL FOR PLANT MIXES	TON	2,465.000	2,465.000
0160	40722	ASPHALTIC CONCRETE PAVEMENT, TYPE E-1	TON	41,067.000	41,067.000
0170	40728	DENSITY INCENTIVE, ASPHALTIC CONCRETE PAVEMENT	DOL	26,280.000	26,280.000
0180	40729	PROFILE INDEX INCENTIVE, ASPHALTIC CONCRETE PAVEMENT	DOL	34,250.000	34,250.000
0190	41105	ASPHALTIC SURFACE, DRIVEWAYS AND FIELD ENTRANCES	TON	31.000	31.000
0200	52098	CLEANING CULVERT PIPES	EACH	16.000	16.000
0210	52205	REINFORCED CONCRETE CULVERT PIPE, CLASS III, 24-INCH	L.F.	4.000	4.000
0220	52209	REINFORCED CONCRETE CULVERT PIPE, CLASS III, 36-INCH	L.F.	4.000	4.000
0230	52264	REINFORCED CONCRETE APRON ENDWALLS FOR CULVERT PIPE, 24-INCH	EACH	1.000	1.000
0240	52267	REINFORCED CONCRETE APRON ENDWALLS FOR CULVERT PIPE, 36-INCH	EACH	1.000	1.000
0250	52554	METAL APRON ENDWALLS FOR ALUMINUM CULVERT PIPE, 24-INCH	EACH	4.000	4.000
0260	52555	METAL APRON ENDWALLS FOR ALUMINUM CULVERT PIPE, 30-INCH	EACH	3.000	3.000
0270	60133	CONCRETE CURB AND GUTTER, 30-INCH, TYPE D	L.F.	35.000	35.000
0280	60170	CONCRETE CURB AND GUTTER, 36-INCH, TYPE D	L.F.	235.000	235.000
0290	61408	STEEL PLATE BEAM GUARD, CLASS A	L.F.	1,353.000	1,353.000
0300	61435	STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL	EACH	8.000	8.000
0310	61801	MAINTENANCE AND REPAIR OF HAUL ROADS	LS	1.000	1.000
0320	61910	MOBILIZATION	LS	1.000	1.000
0330	62101	LANDMARK REFERENCE MONUMENTS	EACH	4.000	4.000
0340	62811	EROSION BALES, DELIVERED	EACH	20.000	20.000
0350	62812	EROSION BALES, INSTALLED	EACH	20.000	20.000
0360	62815	SILT FENCE, DELIVERED	L.F.	800.000	800.000
0370	62816	SILT FENCE, INSTALLED	L.F.	800.000	800.000
0380	62817	SILT FENCE MAINTENANCE	L.F.	800.000	800.000
0390	62819	MOBILIZATIONS, EROSION CONTROL	EACH	1.000	1.000
0400	62821	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1.000	1.000
0410	62824	EROSION MAT, DELIVERED, CLASS I, TYPE B	S.Y.	328.000	328.000
0420	62825	EROSION MAT, INSTALLED, CLASS I, TYPE B	S.Y.	328.000	328.000
0430	64202	FIELD OFFICE, TYPE B	LS	1.000	1.000
0440	64301	TRAFFIC CONTROL	LS	1.000	1.000
0450	64602	PAVEMENT MARKING, 4-INCH, EPOXY	L.F.	110,800.000	110,800.000

DATE 12MAR03
LINE

ESTIMATE OF QUANTITIES
1560-18-71
QUANTITY

NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0460	64626	PAVEMENT MARKING, SAME DAY, 4-INCH, EPOXY	L.F.	77,817.000	77,817.000
0470	64636	LOCATING NO-PASSING ZONES	MI.	10.300	10.300
0480	64901	TEMPORARY PAVEMENT MARKING, 4-INCH	L.F.	73,257.000	73,257.000
0490	66501	SAWING EXISTING PAVEMENT	L.F.	180.000	180.000
0500	90005	MISC 90005A, RESETTING CULVERT ENDS	EACH	1.000	1.000
0510	90030	MISC 90030A, CULVERT PIPE LINER, 18-INCH	L.F.	116.000	116.000
0520	90329	GRADING, SHAPING AND FINISHING FOR BEAM GUARD TERMINALS AND ANCHORAGES	EACH	8.000	8.000
0530	90365	QMP, BASE COURSES	TON	11,190.000	11,190.000
0540	90375	QMP, NUCLEAR DENSITY FOR ASPHALTIC PAVEMENT	TON	41,067.000	41,067.000
0550	90616	MARKER POSTS, FLEXIBLE, FOR CULVERT END	EACH	88.000	88.000

ASPHALT ITEMS										20419 REMOVING ASPHALTIC SURFACE, BUTT JOINTS										20405 REMOVING CURB AND GUTTER									

CULVERT PIPES												90616 MARKER POSTS, FLEXIBLE, FOR CULVERT END			
		20335 REMOVING SMALL PIPE CULVERTS	52098 CLEANING CULVERT PIPES	52554 METAL AEWS FOR ALUM. CP, 24-INCH	52555 METAL AEWS FOR ALUM. CP, 30-INCH	52205 RCCP, CLASS III, 24-INCH	52264 RC AEWS FOR CP, 24-INCH	52209 RCCP, CLASS III, 36-INCH	52267 RC AEWS FOR CP, 36-INCH	90005A RESETTING CULVERT ENDS	90030A CULVERT PIPE LINER, 18-INCH	REMARKS			
STATION	LOCATION	EACH	EACH	EACH	EACH	L.F.	EACH	L.F.	EACH	EACH	L.F.		STATION	LOCATION	EACH
479+24	MAINLINE	---	1	---	---	---	---	---	---	---	---	24" CACP	479+24	LT & RT	2
497+27	MAINLINE	---	1	---	---	---	---	---	---	---	---		490+98	LT & RT	2
514+76	MAINLINE	---	1	---	---	---	---	---	---	---	---		495+26	LT & RT	2
518+67	MAINLINE	---	1	---	---	---	---	---	---	---	---		497+27	LT & RT	2
536+80	LT	---	---	1	---	---	---	---	---	---	---		502+83	LT & RT	2
540+02	MAINLINE	---	1	---	---	---	---	---	---	---	---		514+76	LT & RT	2
550+20	MAINLINE	---	1	---	---	---	---	---	---	---	---		518+67	LT & RT	2
567+72	MAINLINE	---	1	---	---	---	---	---	---	---	---		536+80	LT & RT	2
582+01	LT & RT	---	---	2	---	---	---	---	---	---	---		540+02	LT & RT	2
599+50	MAINLINE	---	1	---	---	---	---	---	---	---	---		550+20	LT & RT	2
621+82	LT	---	---	1	---	---	---	---	---	---	---		567+72	LT & RT	2
632+86	LT & RT	---	---	---	2	---	---	---	---	---	---		582+01	LT & RT	2
647+92	MAINLINE	---	1	---	---	---	---	---	---	---	---		599+50	LT & RT	2
722+18	RT	---	---	---	1	---	---	---	---	---	---		621+82	LT & RT	2
727+18	MAINLINE	---	1	---	---	---	---	---	---	---	---		632+86	LT & RT	2
756+23	MAINLINE	---	1	---	---	---	---	---	---	---	---		647+92	LT & RT	2
787+42	MAINLINE	---	1	---	---	---	---	---	---	---	---		661+29	LT & RT	2
794+15	MAINLINE	---	1	---	---	---	---	---	---	---	---		678+28	LT & RT	2
810+15	MAINLINE & LT	---	1	---	---	---	---	---	---	1	---		694+23	LT & RT	2
821+09	MAINLINE	---	1	---	---	---	---	---	---	---	---		711+15	LT & RT	2
854+93	MAINLINE	---	1	---	---	---	---	---	---	---	---		722+18	LT & RT	2
871+79	MAINLINE	---	---	---	---	---	---	---	---	---	116		727+18	LT & RT	2
985+10	RT	1	---	---	---	---	---	4 *	1 *	---	---	746+16	LT & RT	2	
994+10	RT	1	---	---	---	4 *	1 *	---	---	---	---	756+23	LT & RT	2	
TOTAL:		2	16	4	3	4	1	4	1	1	116				
*JOINT TIES ARE REQUIRED; 2 AT EACH SECTION JOINT. JOINT TIES ARE CONSIDERED INCIDENTAL TO THE PAY ITEM.															
60133 CONCRETE CURB AND GUTTER, 30-INCH, TYPE D			61408 STEEL PLATE BEAM GUARD, CLASS A			64602 PAVEMENT MARKING, 4-INCH, EPOXY									
STATION - STATION	LOCATION	L.F.	STATION - STATION	LOCATION	L.F.	STATION - STATION	TYPE	L.F.							
499+30 - 499+65	LT	35	487+50 - 491+25	LT	375	476+10 - 1030+10	WHITE EDGELINE	110800							
			486+85 - 490+50	RT	365										
			952+65 - 955+53	LT	288										
			953+05 - 956+30	RT	325										
TOTAL:			TOTAL:			1353									
60170 CONCRETE CURB AND GUTTER, 36-INCH, TYPE D			61435 STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL			64626 PAVEMENT MARKING, SAME DAY, 4-INCH, EPOXY									
STATION - STATION	LOCATION	L.F.				STATION - STATION	TYPE	L.F.							
479+22 - 479+59	CTH N, LT	75				476+10 - 1030+10	YELLOW CL	77817							
916+22 - 916+77	CTH D, RT	88													
917+09 - 917+59	CTH D, RT	72													
TOTAL:						235									
20411 REMOVING GUARDRAIL						64901 TEMPORARY PAVEMENT MARKING, 4-INCH									
STATION - STATION	LOCATION	L.F.				STATION - STATION	TYPE	L.F.							
487+00 - 491+00	LT	400				476+10 - 1030+10	YELLOW CL	73257							
486+35 - 491+00	RT	465													
952+15 - 956+03	LT	388													
952+55 - 956+80	RT	425													
TOTAL:						1678									
62101 LANDMARK REFERENCE MONUMENTS			64636 LOCATING NO-PASSING ZONES			66501 SAWING EXISTING PAVEMENT									
STATION	LOCATION	EACH	STATION - STATION	LOCATION	MILES	STATION	LOCATION	L.F.							
619+92	MAINLINE	4	476+10 - 1030+10	MAINLINE	10.3	476+10	MAINLINE	30							
						CTH N	LT	30							
						884+77	MAINLINE	30							
						892+64	MAINLINE	30							
						CTH D	RT	30							
						1030+10	MAINLINE	30							
						TOTAL:		180							
STATE PROJECT NUMBER: 1560-18-71															
HWY: USH 63			COUNTY: BAYFIELD			MISCELLANEOUS QUANTITIES			SHEET NO: 10			E			

STA 479+22 - STA 479+59 LT
REMOVE & REPLACE
CONCRETE C & G, TYPE D, 36-INCH

STA 479+24
CLEAN CULVERT PIPE

STATION 487+00 - 491+00 LT
REMOVE EXISTING GUARDRAIL

STATION 487+50 - 491+25 LT
INSTALL STEEL PLATE BEAM GUARD, CLASS A

STA 497+27
CLEAN CULVERT PIPE

BEGIN PROJECT 1560-18-71
STATION 476+10

USH 63

CH N
480+00

PC Sta = 478+74.74

INSTALL STEEL PLATE BEAM GUARD,
ENERGY ABSORBING TERMINAL (TYP.)

STATION 486+35 - 491+00 RT
REMOVE EXISTING GUARDRAIL

STATION 486+85 - 490+50 RT
INSTALL STEEL PLATE BEAM GUARD, CLASS A

P.I. = 485+23.89
Ic = 43'15"39"
Da = 3'30"00"
T = 649.15
L = 1236.02
R = 1637.02
S.E. = 0.057' /,
R.O. = 175

DELTA DRUMMOND RD

490+00

PT Sta = 491+10.76

495+00

DRUMMOND LAKE ROAD

STA 499+30 - STA 499+65 LT
REMOVE & REPLACE
CONCRETE C & G, TYPE D, 30-INCH

STA 518+67
ASPHALTIC BASE PATCH REQ'D

STA 514+76
CLEAN CULVERT PIPE

STA 518+67
CLEAN CULVERT PIPE

WISCONSIN AVE
LAKE OWEN DR

500+00

505+00

USH 63

510+00

PC Sta = 509+41.68

STA 513+75
BEGIN EBS

P.I. = 516+96.98
Ic = 36'28"49"
Da = 2'30"00"
T = 755.30
L = 1459.21
R = 2291.83
S.E. = 0.055' /,
R.O. = 175

STA 516+50
END EBS

515+00

520+00

525+00

PT Sta = 524+00.89

6" PIPE UNDERDRAIN & 6" CONC. NEW



STA 536+80
ASPHALTIC BASE PATCH REQ'D

STA 536+80 LT
1 - 24" ALUMINUM AEW REQ'D

STA 540+02
ASPHALTIC BASE PATCH REQ'D

STA 540+02
CLEAN CULVERT PIPE

STA 550+20
ASPHALTIC BASE PATCH REQ'D

STA 550+20
CLEAN CULVERT PIPE

530+00

USH 63

535+00

540+00

545+00

550+00

555+00



STA 567+72
ASPHALTIC BASE PATCH REQ'D

STA 567+72
CLEAN CULVERT PIPE

STA 582+01 LT & RT
2 - 24" ALUMINUM AEW REQ'D

560+00

OLD 63 S

USH 63

565+00

570+00

575+00

PC Sta = 576+84.52

580+00

585+00

P.I. = 583+58.02
Ic = 44°43'33"
Da = 3°30'00"
T = 673.49
L = 1277.88
R = 1637.02
S.E. = 0.057%
R.O. = 175

590+00

PT Sta = 589+62.41



STA 599+50
CLEAN CULVERT PIPE

P.I. = 619+91.91
Ic = 3'12'08"
Da = 2'00'00"
T = 80.08
L = 160.11
R = 2864.79
S.E. = 0.044'/%
R.O. = 175

00 595+00 600+00 605+00 610+00 615+00 620+00

USH 63

BURGESS RD

PC Sta = 619+11.84

PT Sta = 620+71.95

STA 619+92
INSTALL 4 LANDMARK
REFERENCE MONUMENTS



STA 621+82 LT
1 - 24" ALUMINUM AEW REQ'D

STA 632+86 LT & RT *TO REMAIN*
2 - 30" ALUMINUM AEW REQ'D

STA 647+92
CLEAN CULVERT PIPE

*ADDED 1- 30" X 48' POLYETHYLENE CULVERT PIPE
STA 632+79*

P.I. = 645+09.63
Ic = 23'37'04"
Da = 2'00'00"
T = 598.95
L = 1180.89
R = 2864.79
S.E. = 0.044'/%
R.O. = 175

BURGESS RD

PT Sta = 620+71.95

625+00

USH 63

630+00

635+00

640+00

645+00

650+00

PT Sta = 650+91.57

OLD HWY 63

PC Sta = 639+10.68

STATE PROJECT NUMBER: 1560-18-71

HWY: USH 63

COUNTY: BAYFIELD

PLAN SHEET 591+00 - 651+00

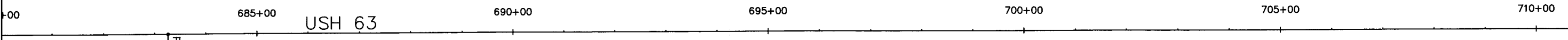
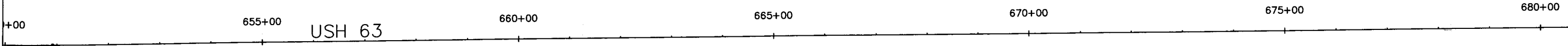
SCALE, FEET 0 100 200

SHEET NO: 13

E



STA 661+29
ASPHALTIC BASE PATCH REQ'D





STA 722+18
ASPHALTIC BASE PATCH REQ'D
STA 722+18 RT
1 - 30" ALUMINUM AEW REQ'D

STA 727+18
CLEAN CULVERT PIPE

+00 715+00 USH 63 720+00 725+00 730+00 735+00 740+00

N SWEDEN DR
S SWEDEN DR



STA 746+16
ASPHALTIC BASE PATCH REQ'D

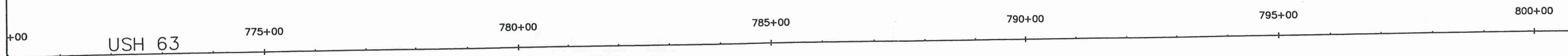
STA 756+23
CLEAN CULVERT PIPE

+00 745+00 USH 63 750+00 755+00 760+00 765+00 770+00



STA 787+42
CLEAN CULVERT PIPE

STA 794+15
CLEAN CULVERT PIPE



USH 63

775+00

780+00

785+00

790+00

795+00

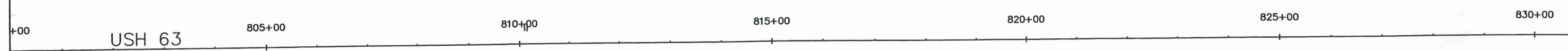
800+00



STA 810+15 LT
CLEAN CULVERT PIPE
RESET CULVERT END

STA 821+09
CLEAN CULVERT PIPE

STA 825+0
INSTALL 18" CULVERT PIPE LINER
INSIDE 24" EXISTING CSCP



USH 63

805+00

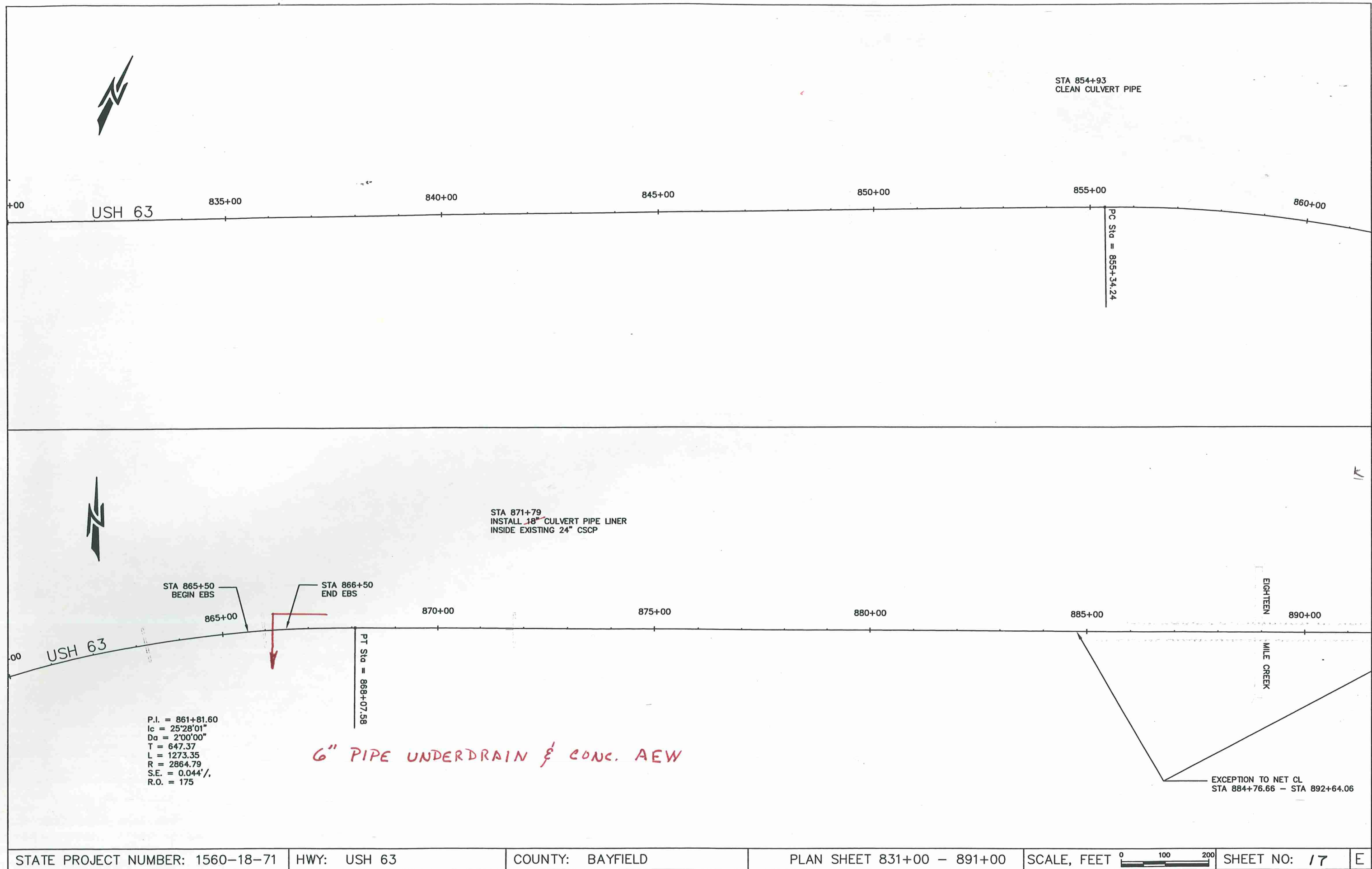
810+00

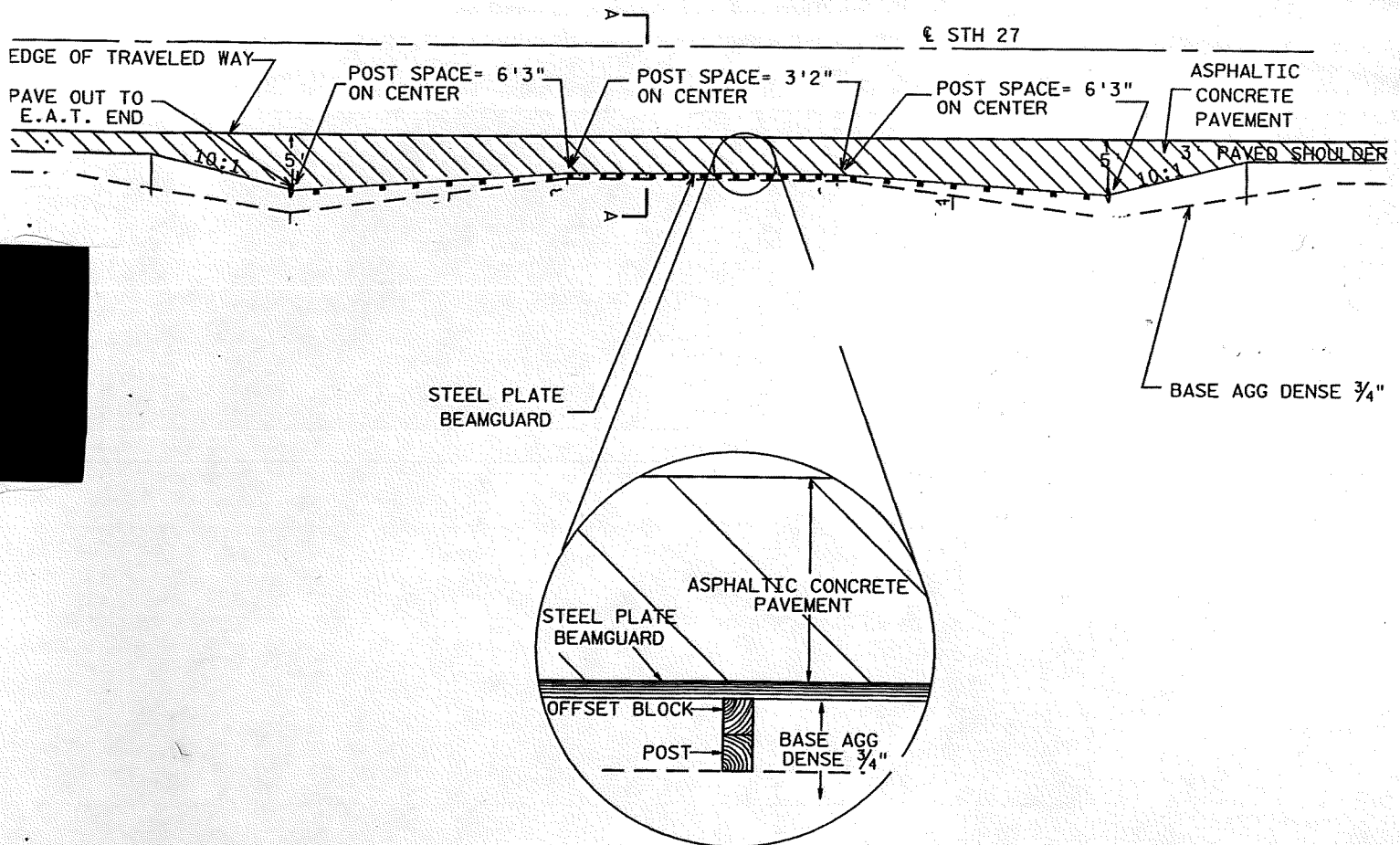
815+00

820+00

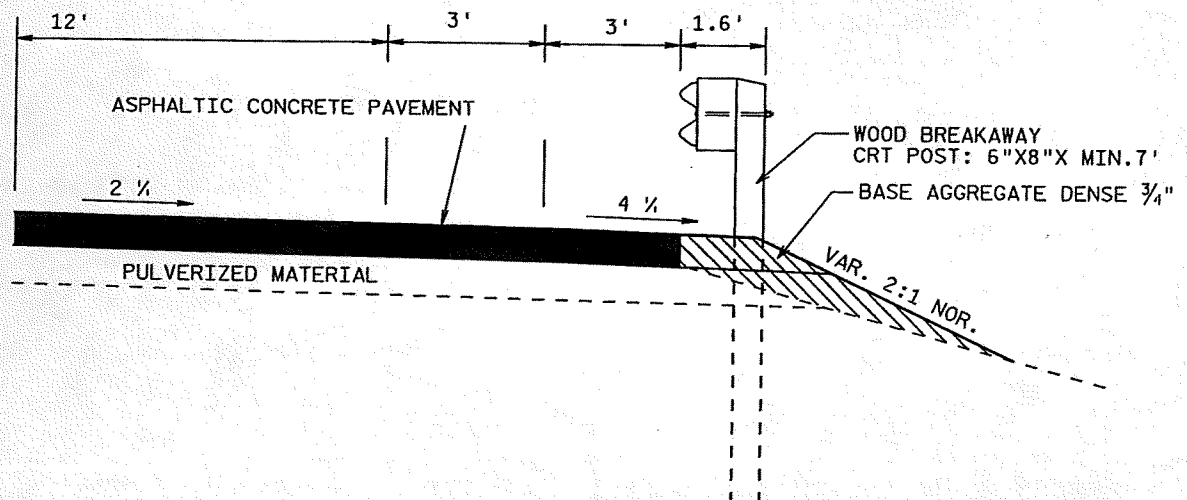
825+00

830+00



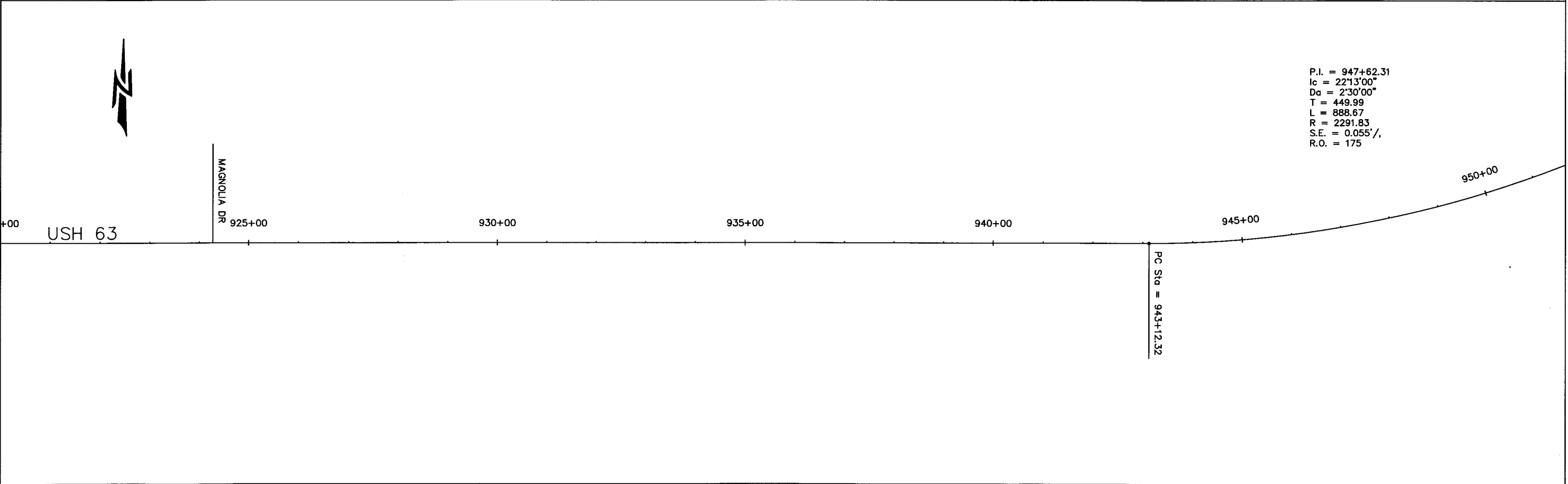
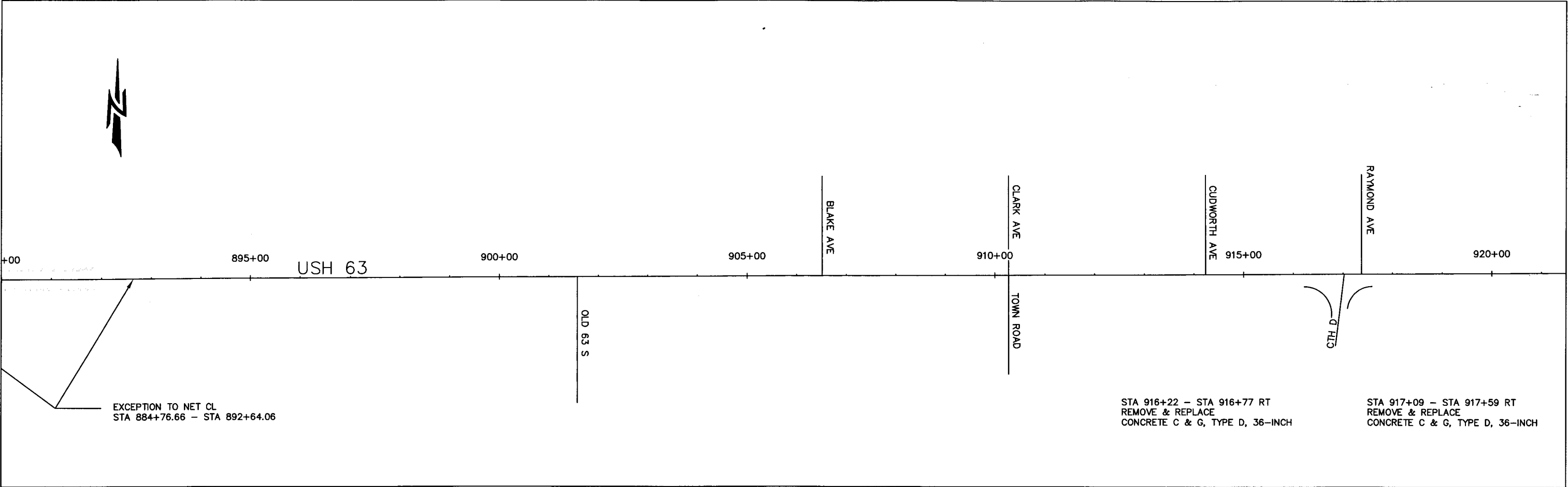


ASPHALTIC PAVING DETAIL ALONG BEAMGUARD



SHOULDER DETAIL AT BEAMGUARD

SECTION A-A

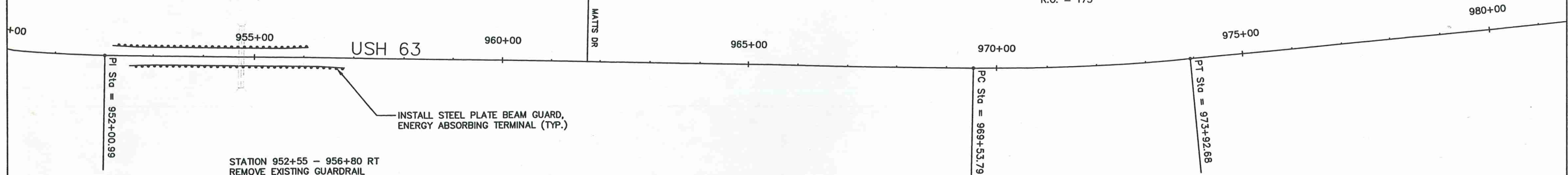




STATION 952+15 - 956+03 LT
REMOVE EXISTING GUARDRAIL

STATION 952+65 - 955+53 LT
INSTALL STEEL PLATE BEAM GUARD, CLASS A

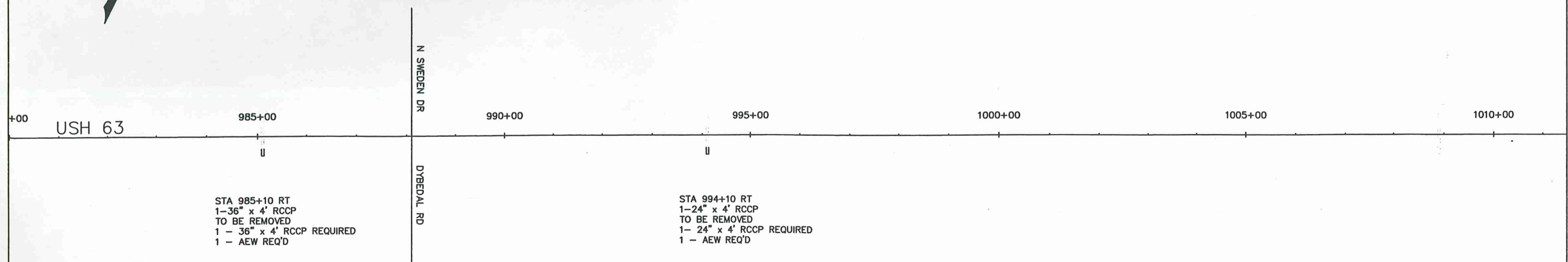
P.I. = 971+73.48
Ic = 6'35"00"
Da = 1'30"00"
T = 219.69
L = 438.89
R = 3819.72
S.E. = 0.037' /,
R.O. = 175



NOTE: REINFORCED BEAM GUARD - SEE DETAIL

STATION 952+55 - 956+80 RT
REMOVE EXISTING GUARDRAIL

STATION 953+05 - 956+30 RT
INSTALL STEEL PLATE BEAM GUARD, CLASS A





STA 1015+35
ASPHALTIC BASE PATCH REQ'D

+00

USH 63

1015+00

1020+00

1025+00

1030+00

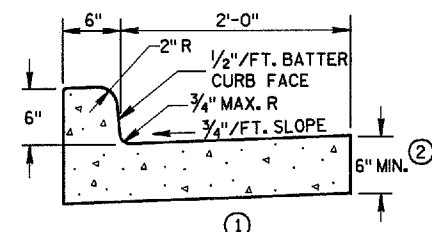
PC Sta = 1030+43.98

END PROJECT 1560-18-71
STATION 1030+10

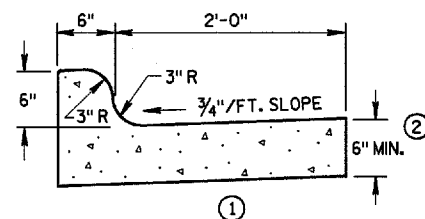
1035+00

1040+00

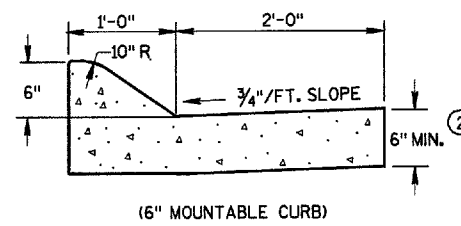
P.I. = 1043+53.18
Ic = 49°39'39"
Da = 2°01'30"
T = 1309.20
L = 2452.39
R = 2829.42
S.E. = 0.044'/%
R.O. = 175



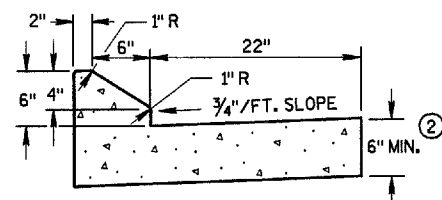
TYPES A & D



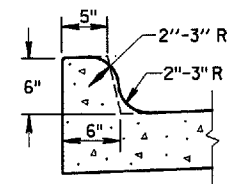
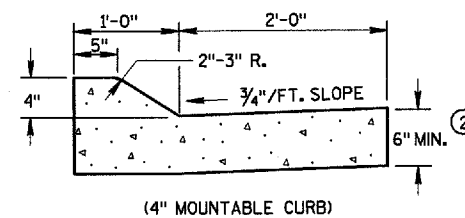
TYPES K & L



(6" MOUNTABLE CURB)



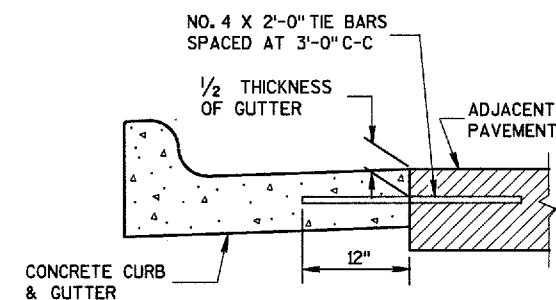
TYPES G & J

OPTIONAL CURB SHAPE
FOR TYPES K & L

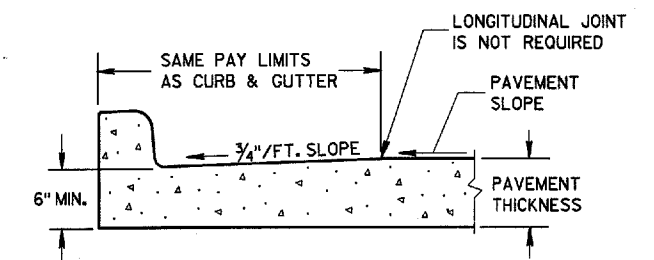
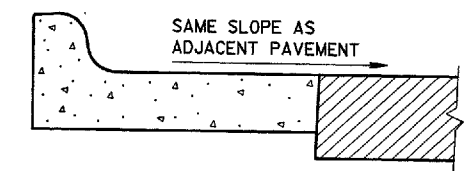
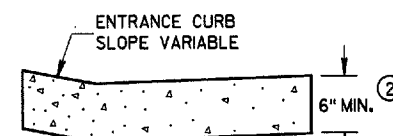
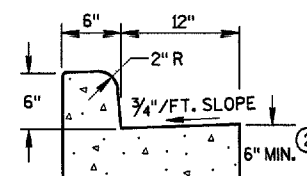
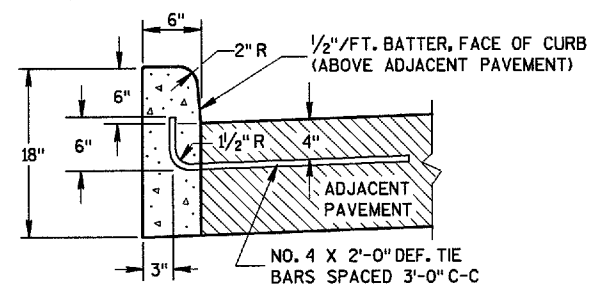
(4" MOUNTABLE CURB)

TYPES A & D
CONCRETE CURB & GUTTER 36"

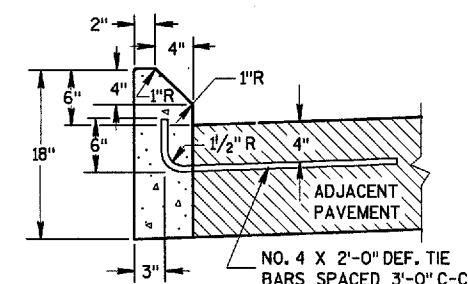
CONCRETE CURB & GUTTER 30"



TYPICAL TIE BAR LOCATION

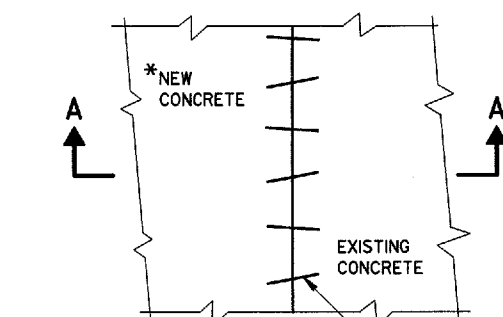
PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTERREVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)TYPES A & D
CONCRETE CURB & GUTTER 18"

TYPES A & D

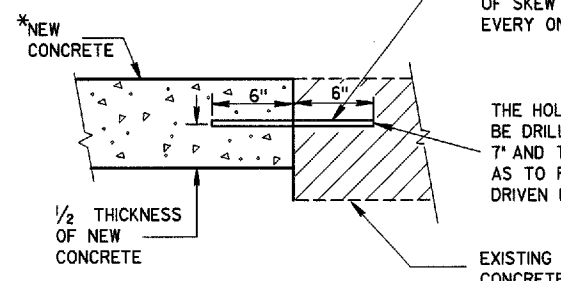


TYPES G & J

CONCRETE CURB



PLAN VIEW

SECTION A-A
PAVEMENT TIES

NO. 6 X 12" DEF. BARS
SPACED 3'-0" C-C,
INSTALLED ON 6:1 SKEW
HORIZONTALLY. DIRECTION
OF SKEW ALTERNATING AFTER
EVERY ONE OR TWO BARS.

THE HOLE FOR THE BAR SHALL
BE DRILLED TO A DEPTH OF
7" AND TO SUCH A DIAMETER
AS TO PROVIDE A TIGHT
DRIVEN FIT

EXISTING
CONCRETE

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

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 2'-0" BEHIND THE BACK OF CURBS.

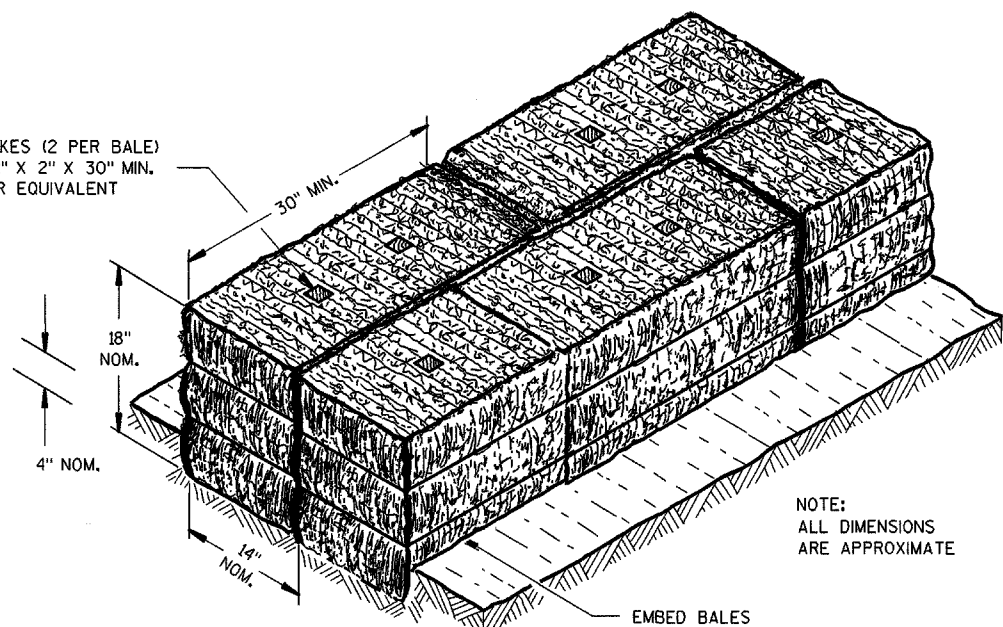
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G AND K.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

CONCRETE CURB, CONCRETE
CURB & GUTTER AND
PAVEMENT TIES

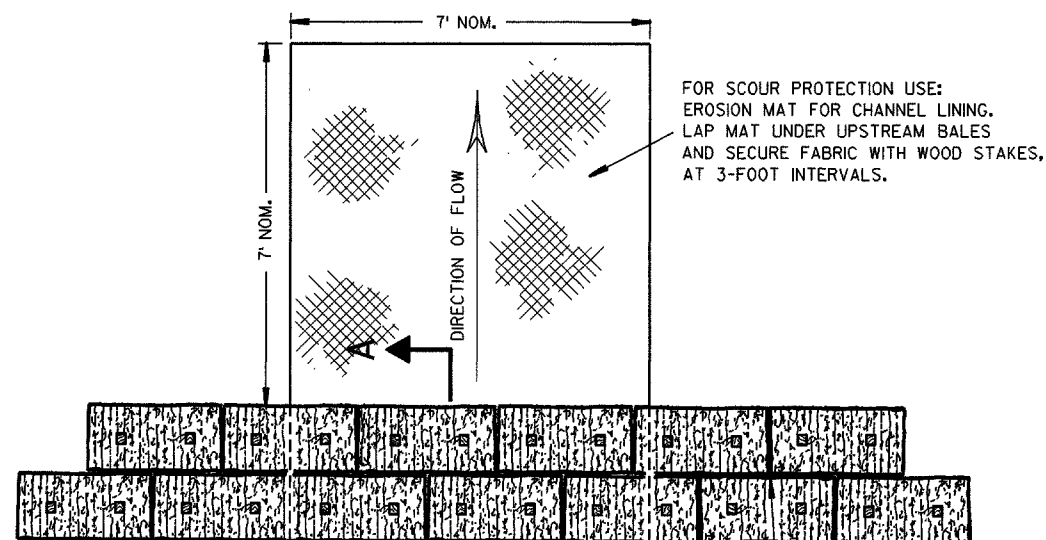
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
04/16/99
DATE
FHW
CHIEF ROADWAY DEVELOPMENT ENGINEER

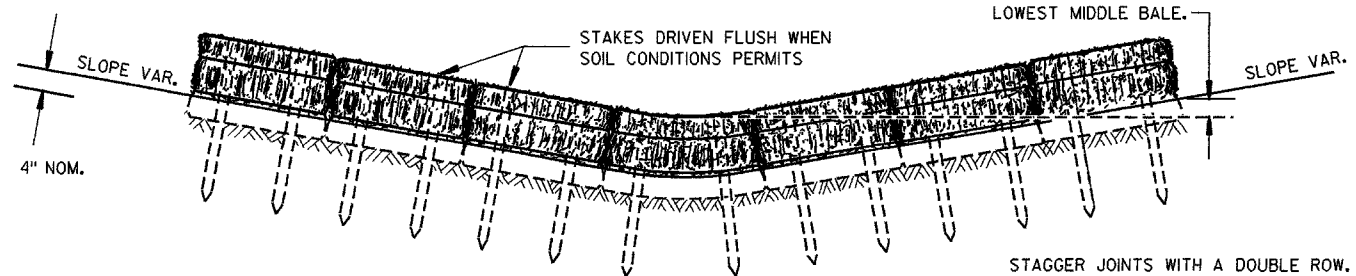
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



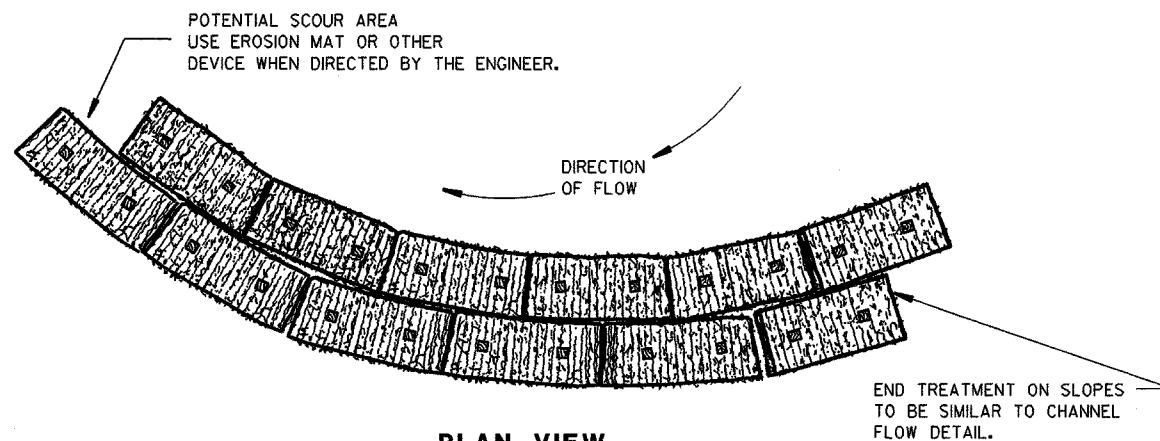
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

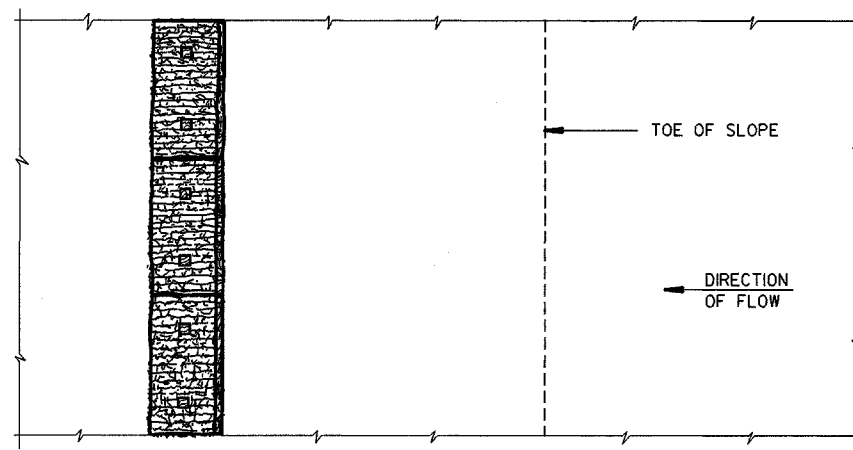
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

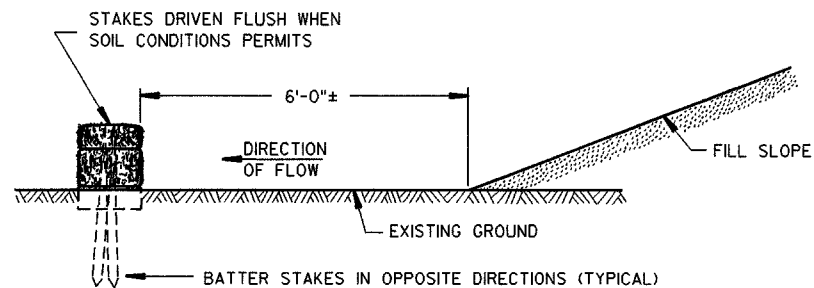


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

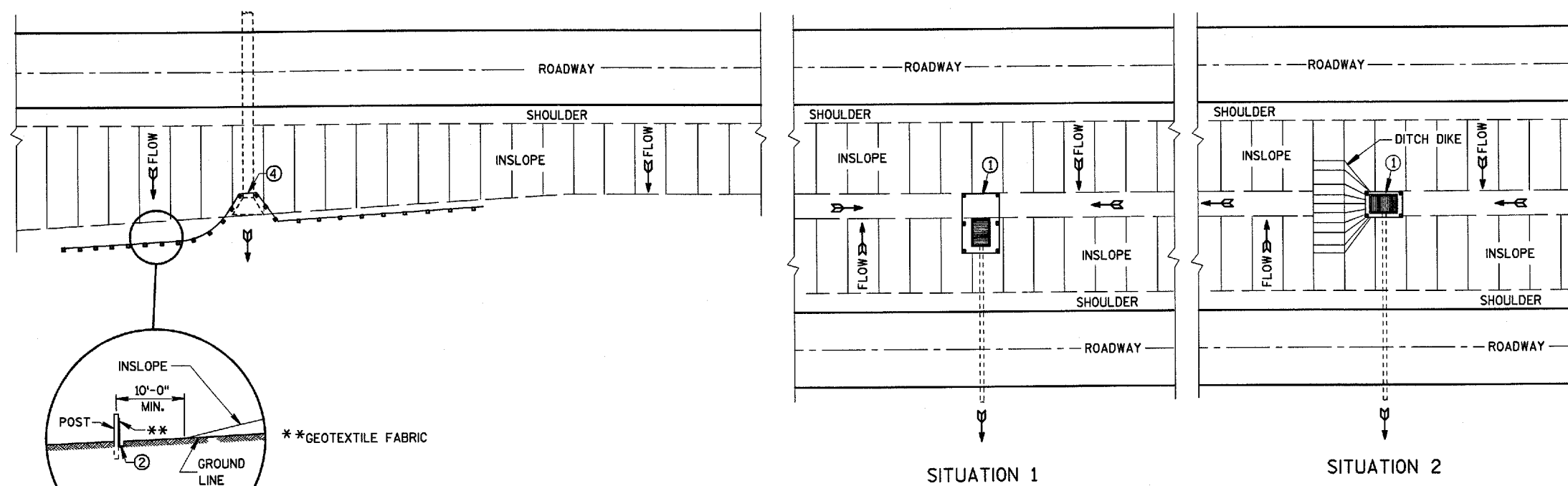
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02
DATE

CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



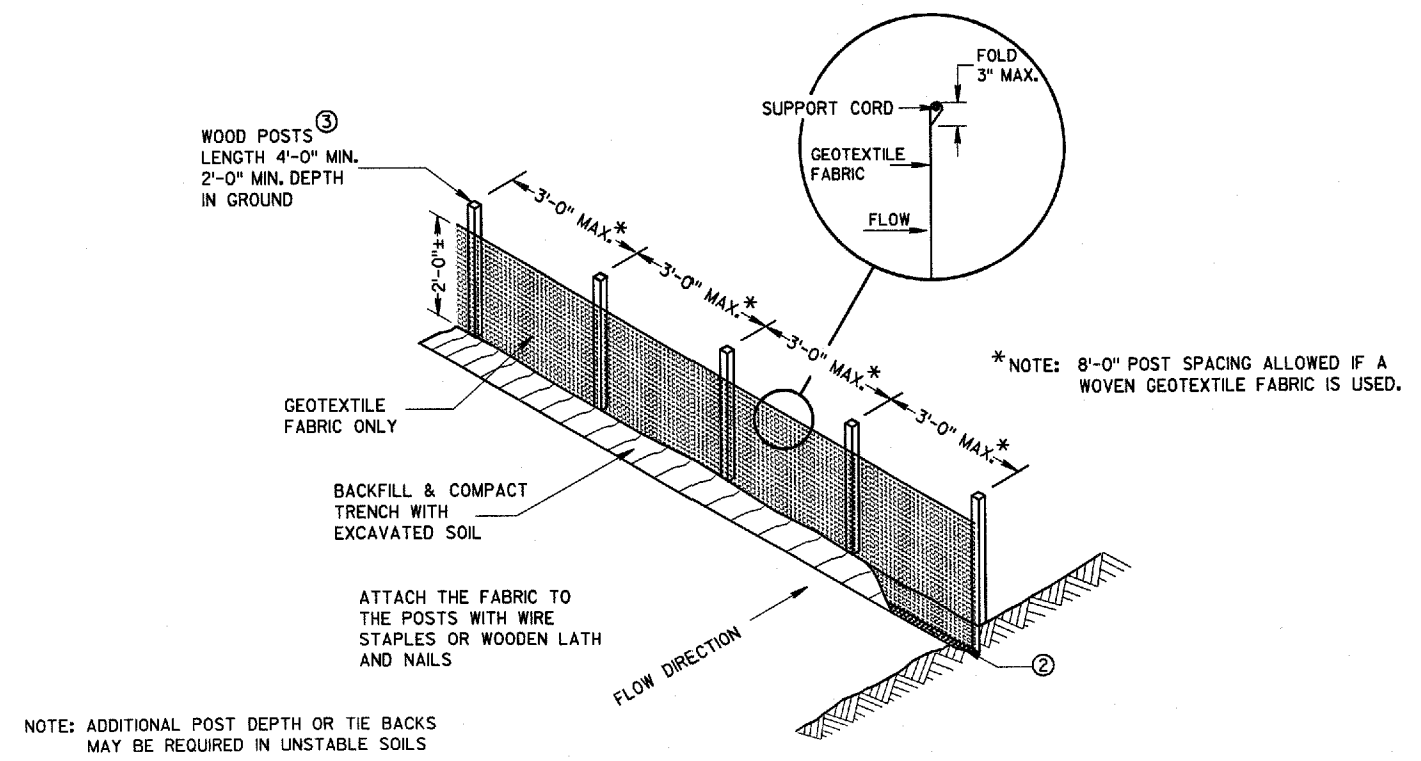
GENERAL NOTES

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

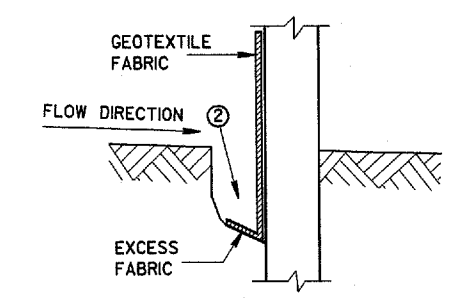
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

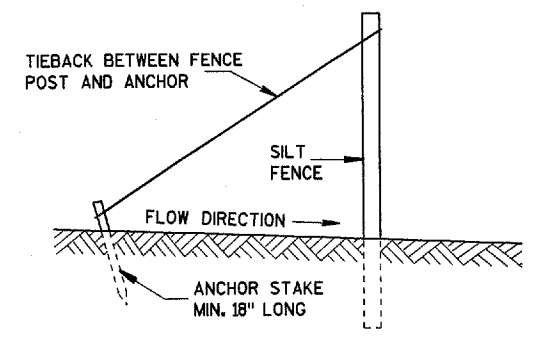
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS



SILT FENCE



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

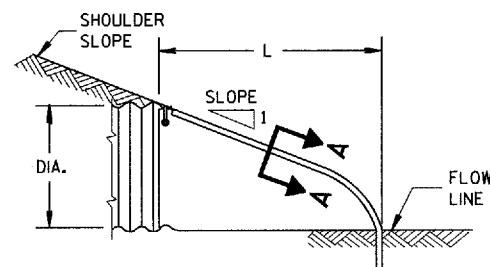
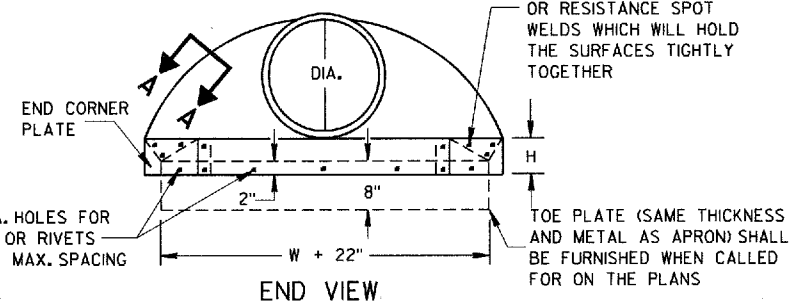
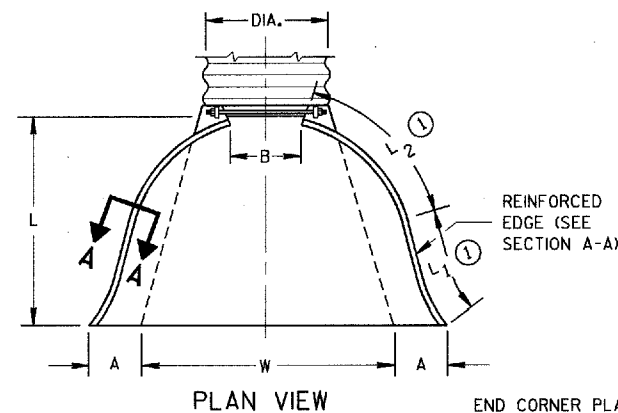
SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED *[Signature]*
DATE 03/06/00
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1½")	L1 ①	L2 ①	W (±2")			
12	.064	.060	6	6	6	21	12	17½	24	2½ to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21¾	30	2½ to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28¼	36	2½ to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29⅝	42	2½ to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37¼	48	2½ to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52¼	60	2½ to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59¾	72	2½ to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75⅝	84	2½ to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2½ to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85½	102	2½ to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1½ to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1½ to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1½ to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1½ to 1	3 Pc.	

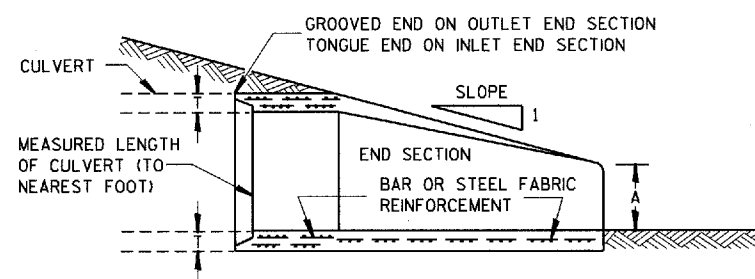
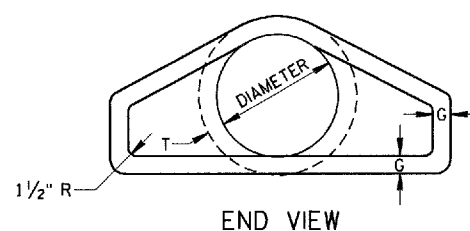
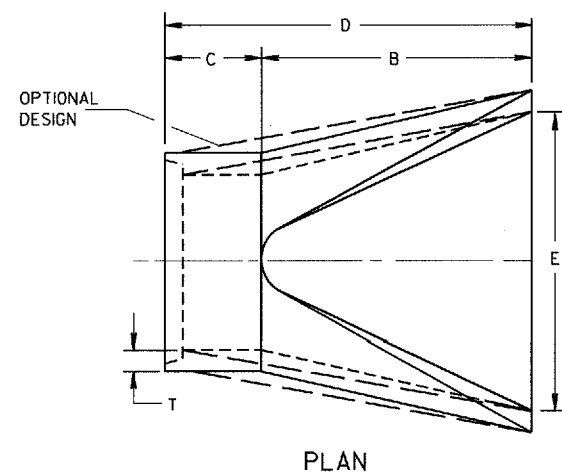
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)						APPROX SLOPE	
	T	A	B	C	D	E		G
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	3 to 1
27	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	3 to 1
30	3 ¹ / ₂	12	54	19 ³ / ₄	73 ¹ / ₂	60	3 ¹ / ₂	3 to 1
36	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	3 to 1
42	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 ¹ / ₂	27	65	* 33 ¹ / ₄ -35	* 98 ¹ / ₄ -100	90	5 ¹ / ₂	2 ¹ / ₂ to 1
60	6	* 30-35	60	39	99	96	5	2 to 1
66	6 ¹ / ₂	* 24-30	* 72-78	* 21-27	99	102	5 ¹ / ₂	2 to 1
72	7	* 24-36	78	21	99	108	6	2 to 1
78	7 ¹ / ₂	* 24-36	78	21	99	114	6 ¹ / ₂	2 to 1
84	8	36	90 ¹ / ₂	21	111 ¹ / ₂	120	6 ¹ / ₂	1 ¹ / ₂ to 1
90	8 ¹ / ₂	41	87 ¹ / ₂	24	111 ¹ / ₂	132	6 ¹ / ₂	1 ¹ / ₂ to 1

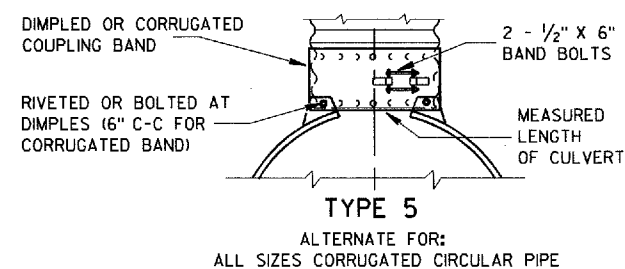
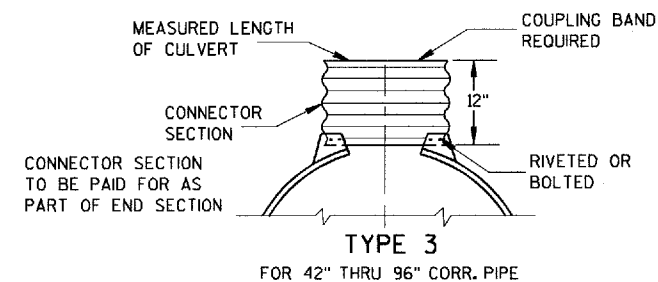
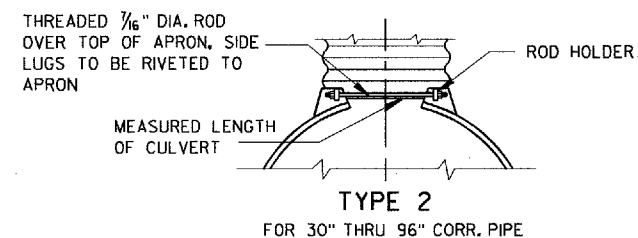
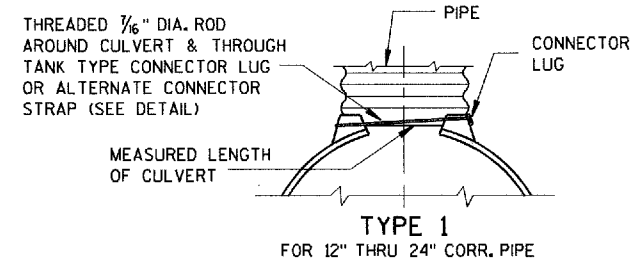
* MINIMUM
** MAXIMUM



LONGITUDINAL SECTION
CONCRETE ENDWALLS

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

ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



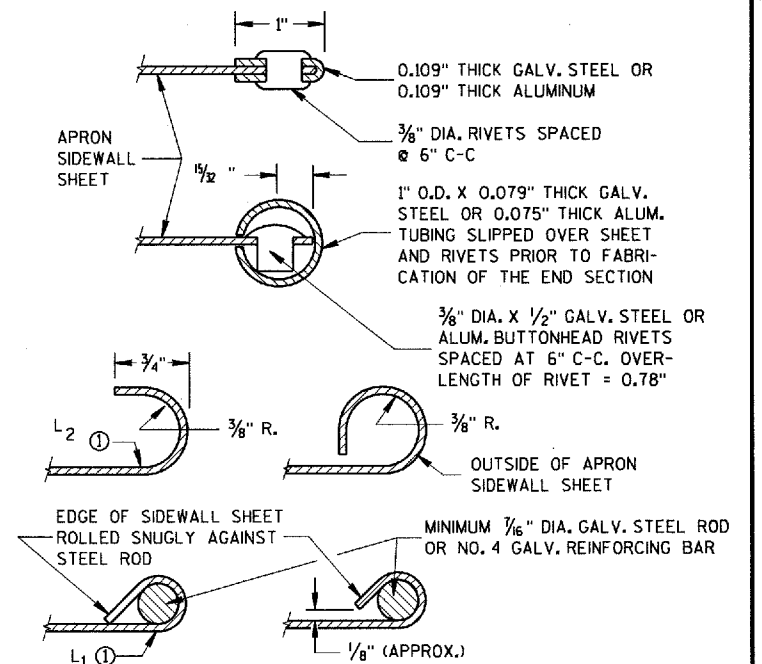
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

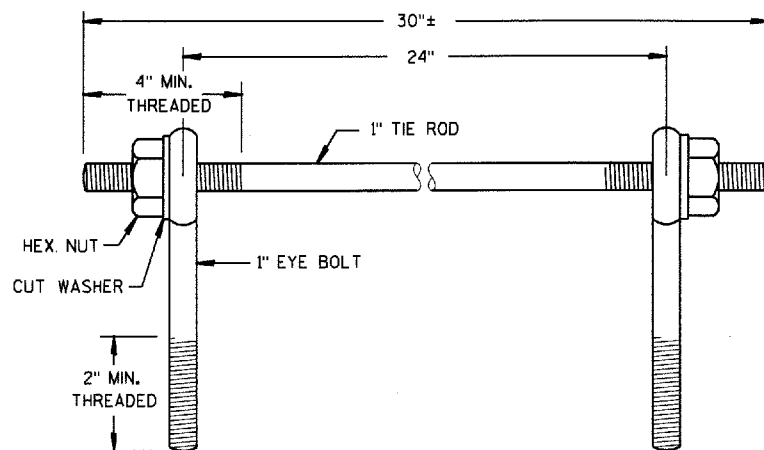
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

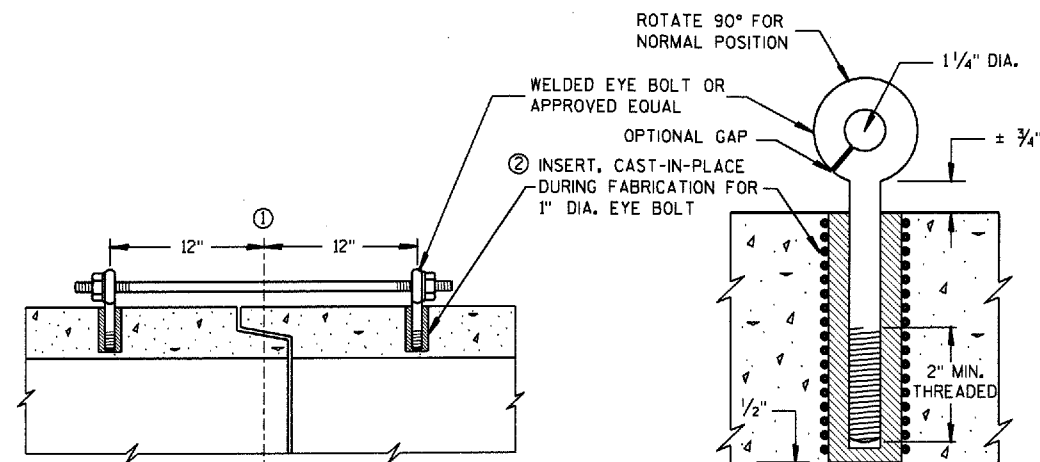
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

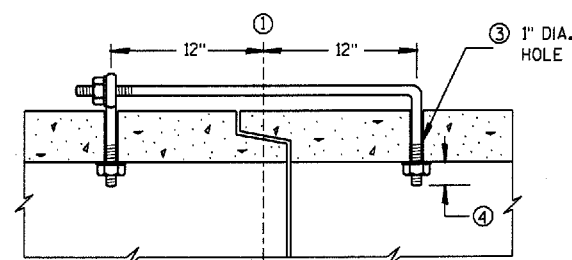
GENERAL NOTES

CONCRETE CULVERT PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED ON THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES. UNLESS OTHERWISE STATED IN THE CONTRACT THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE CULVERT PIPE AS INDICATED ON THE PLANS AND BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO CULVERT PIPE, REINFORCED CONCRETE CULVERT PIPE, OR REINFORCED CONCRETE PIPE CATTLE PASS.

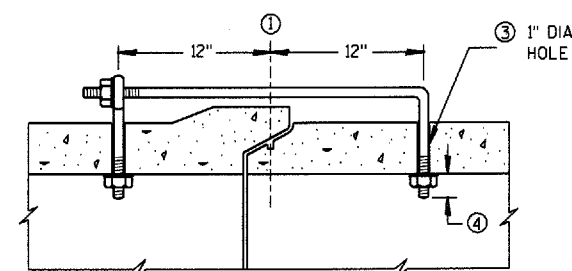
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- ① ϕ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12" FROM ϕ OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2".
- ⑤ ROD DIAMETER + 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN $\frac{1}{2}$ INCH OF THE INNER SURFACE OF THE PIPE.

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

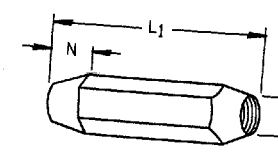
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 $\frac{1}{2}$ "	6 $\frac{1}{4}$ "
30"	5"	7"
36"	5 $\frac{1}{2}$ "	7"
42"	6"	
48"	6 $\frac{1}{2}$ "	
60"	7 $\frac{1}{2}$ "	
66"	8"	

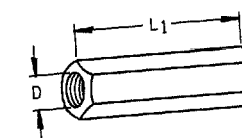
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12-60	$\frac{5}{8}$	$\frac{5}{8}$	5	$\frac{1}{2}$
66-84	$\frac{3}{4}$	$\frac{3}{4}$	5	$\frac{1}{2}$
90-108	1	1	7	$1\frac{1}{8}$

DIMENSIONS SHOWN ARE IN INCHES



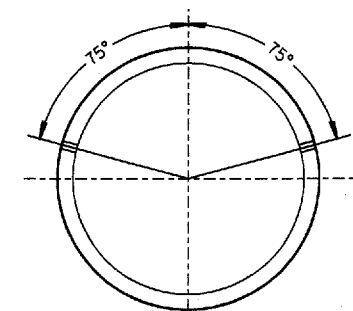
TAPERED



PLAIN

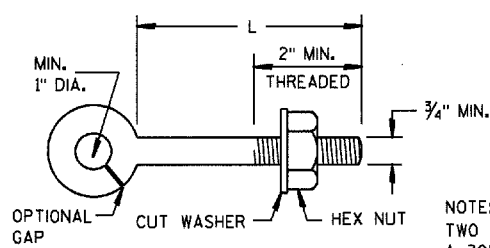
RIGHT AND LEFT THREADS

SLEEVE NUTS



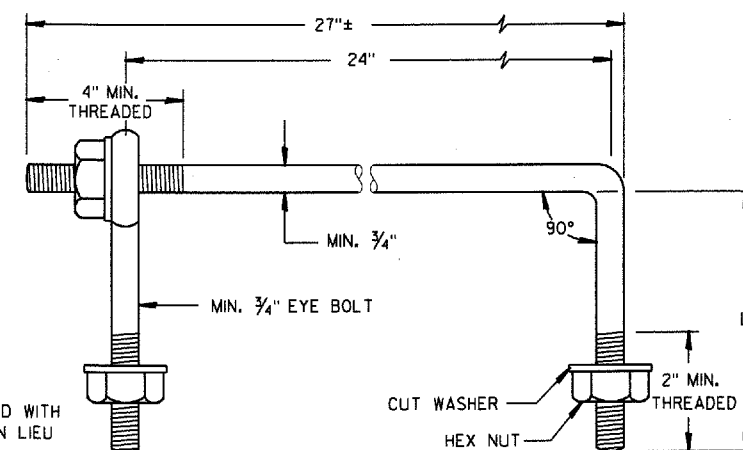
PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



EYE BOLT

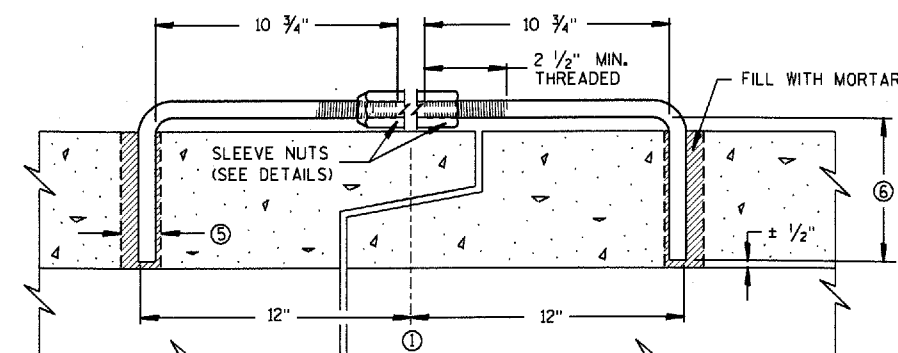
NOTE:
TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)

JOINT TIES FOR CONCRETE PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/18/92
DATE

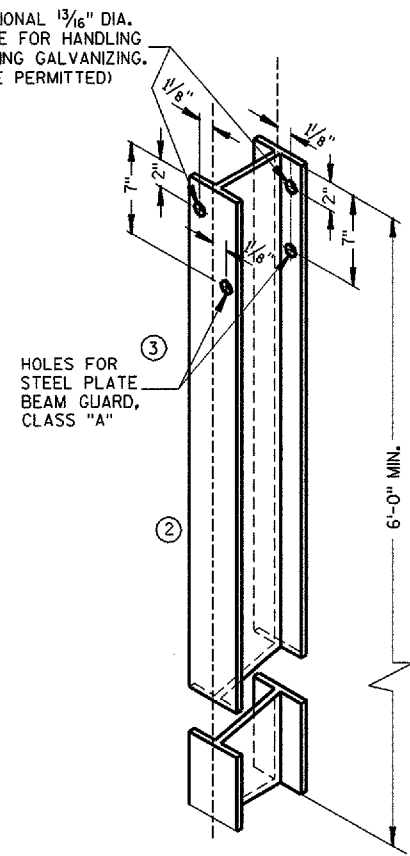
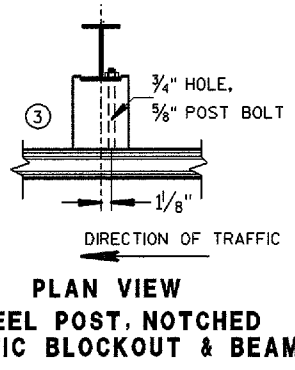
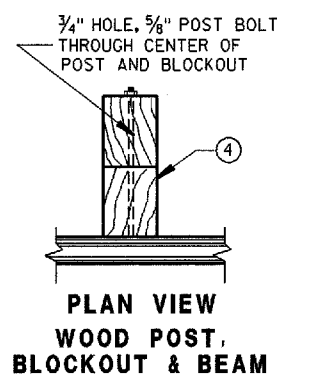
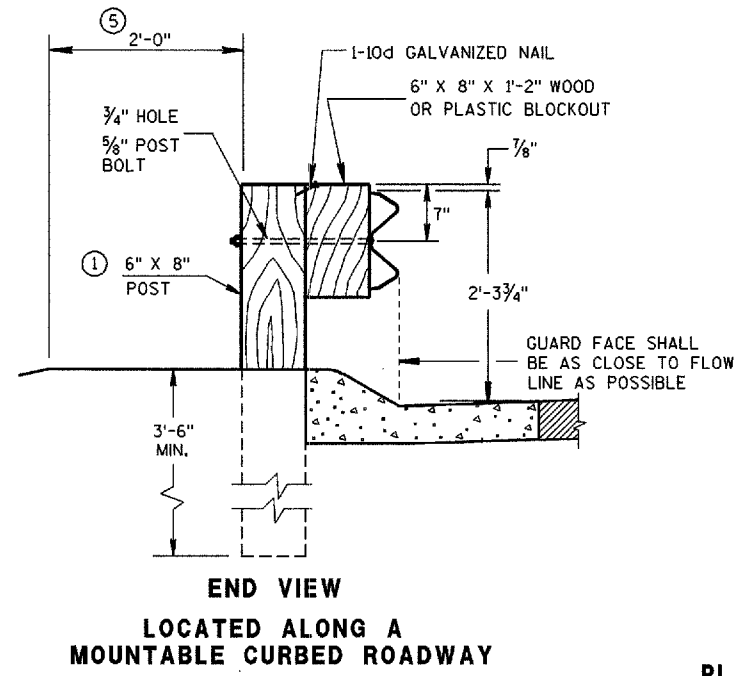
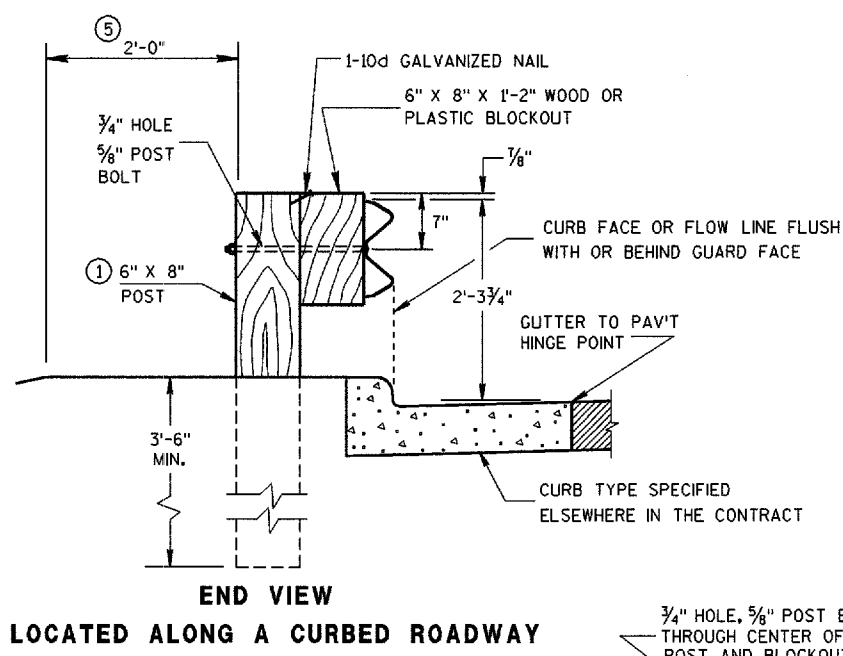
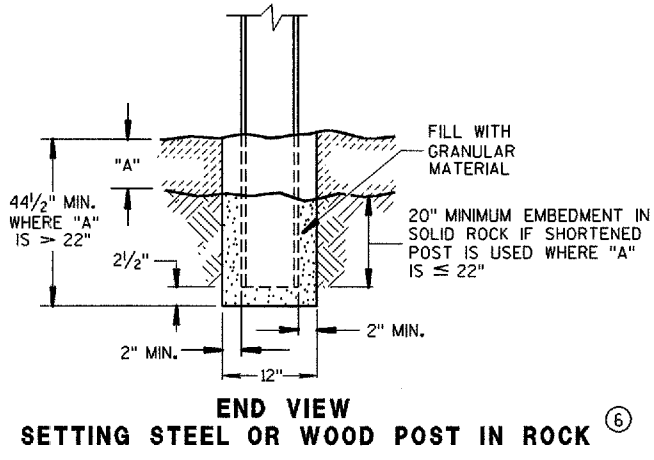
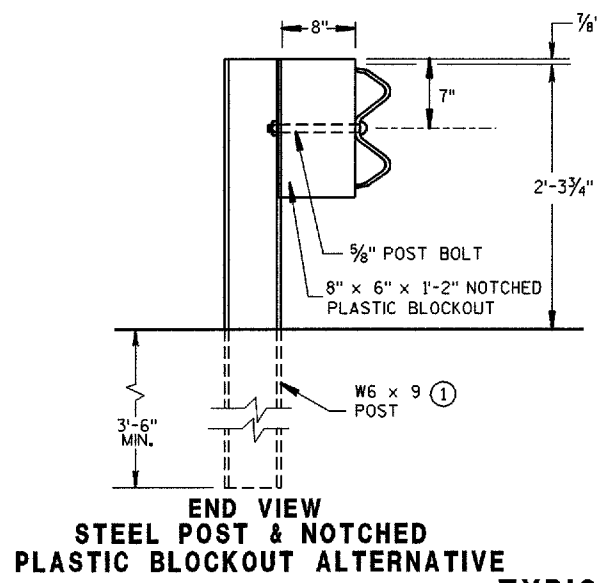
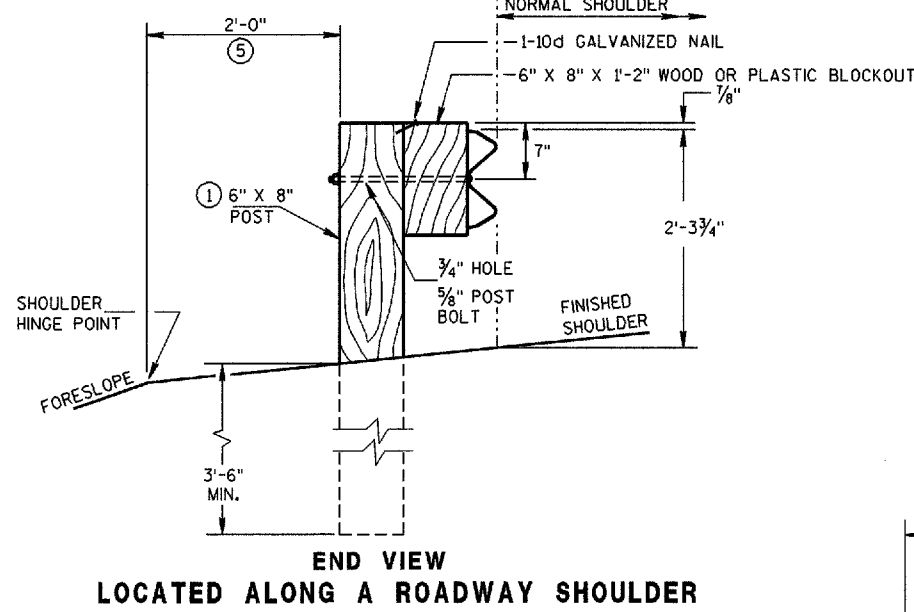
FHWA

STATE DESIGN ENGINEER FOR HWYS

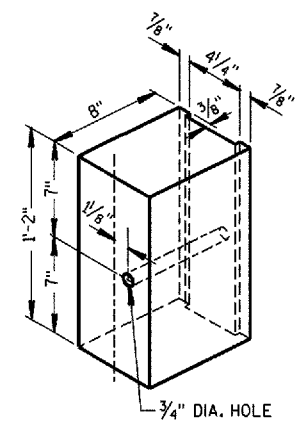
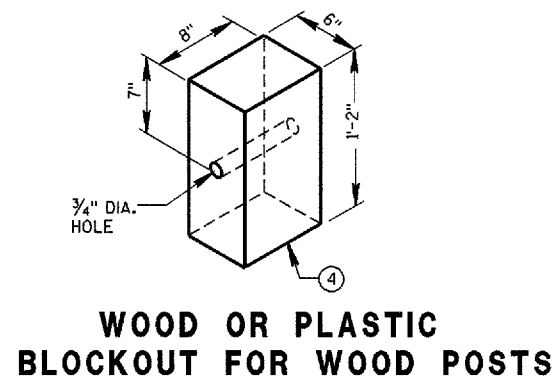
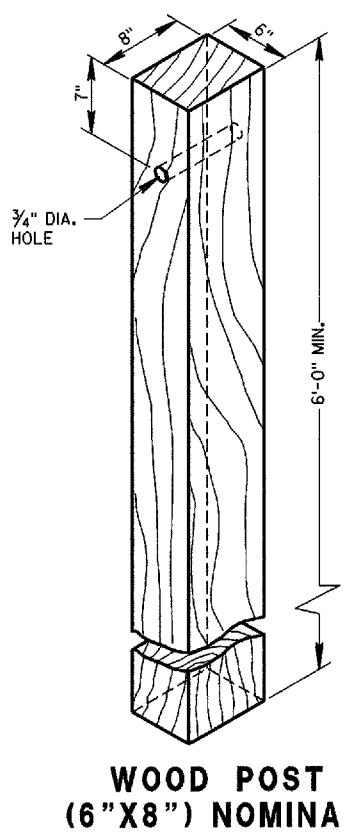
GENERAL NOTES

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

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
 - ② USE STRUCTURAL STEEL POSTS CONFORMING TO AASHTO M183. GALVANIZE ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPALTER COATING ON GALVANIZED POSTS.
 - ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
 - ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
 - ⑤ WHEN SPECIFIED IN THE PLANS, THE 2-FOOT MINIMUM TO HINGE POINT MAY BE REDUCED OR ELIMINATED IF EXISTING CONDITIONS DO NOT PERMIT THE DESIRABLE EARTHWORK.
INCREASE POST LENGTH TO PROVIDE A MINIMUM EMBEDMENT OF 3'-6" IF THE SHOULDER HINGE POINT IS LOCATED IN FRONT OF THE POST.
 - ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP, CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
- INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.
- ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.

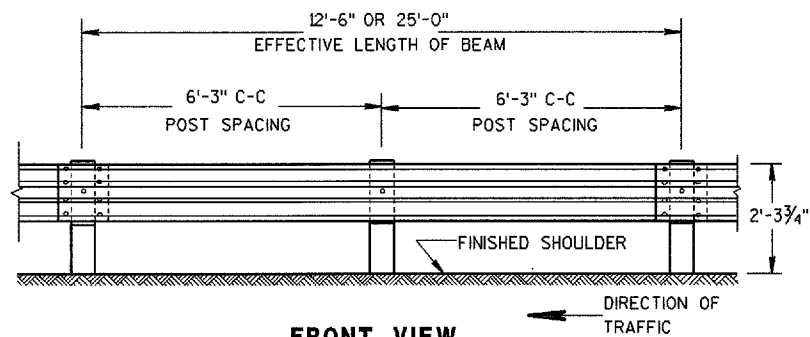


ALL HOLES 1 3/16" DIAMETER EXCEPT AS NOTED

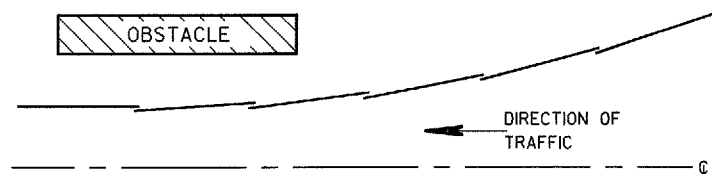


STEEL PLATE BEAM GUARD,
CLASS 'A'
INSTALLATION & ELEMENTS

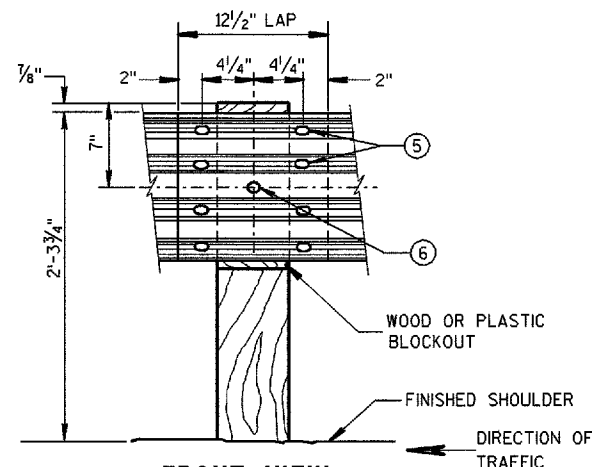
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



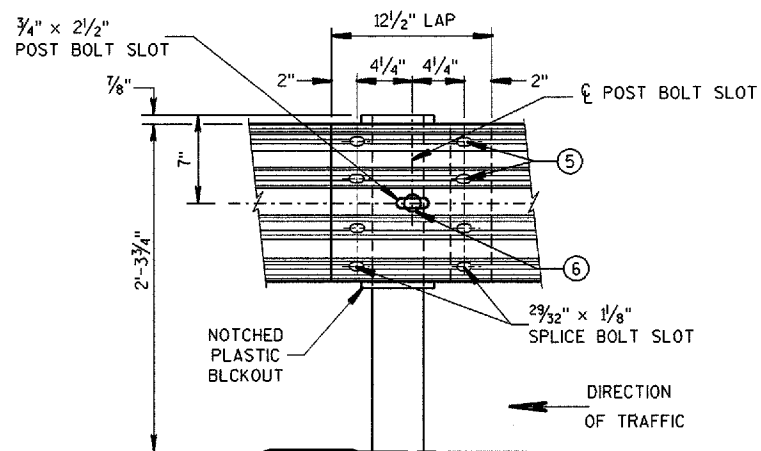
FRONT VIEW



PLAN VIEW
BEAM LAPPING DETAIL



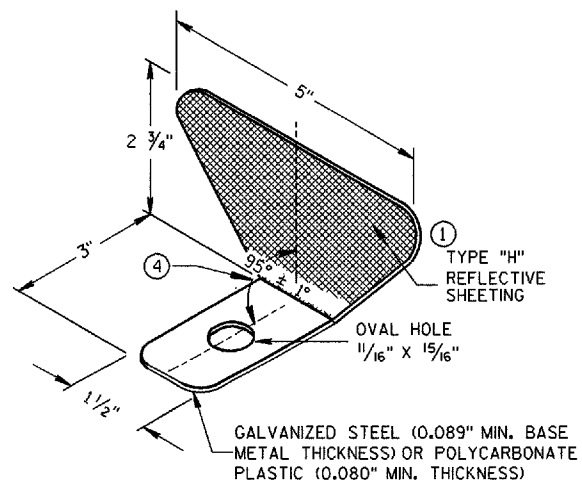
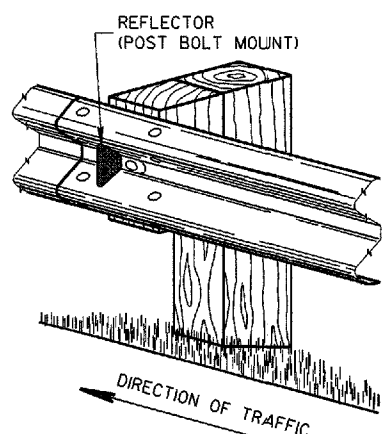
FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



FRONT VIEW
BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

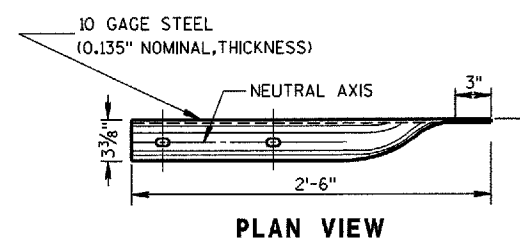
REFLECTOR SPACING ^②				
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	3
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	6
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	3



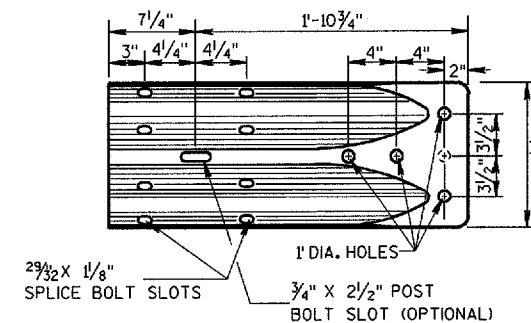
ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION^①

GENERAL NOTES

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



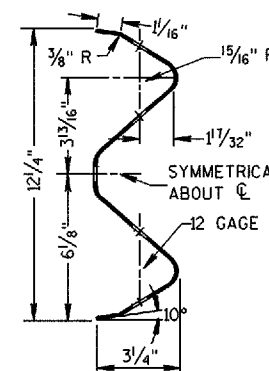
PLAN VIEW



FRONT VIEW

W BEAM TERMINAL CONNECTOR

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

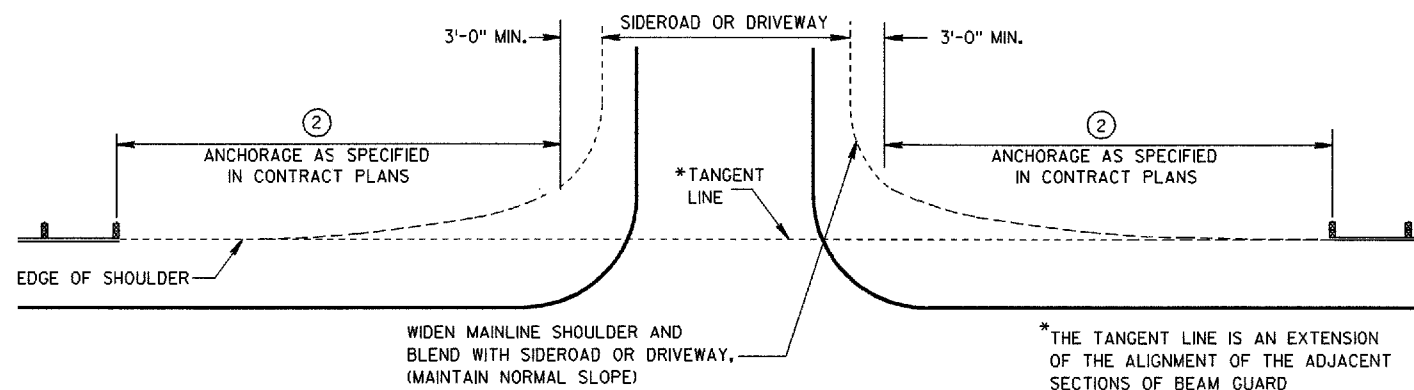


SECTION THRU W BEAM

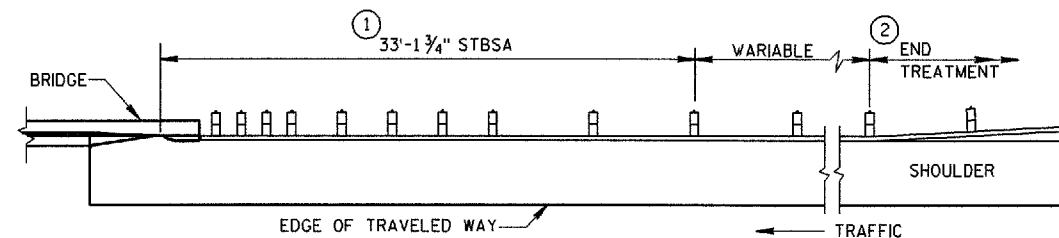
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

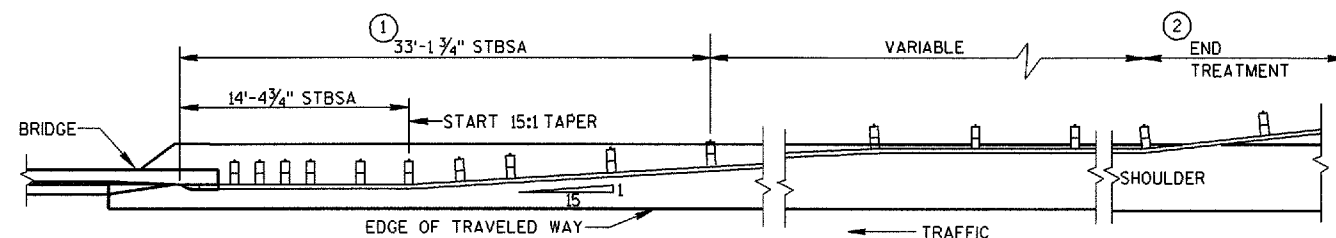
APPROVED
12/08/00
DATE
John Haverburg
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



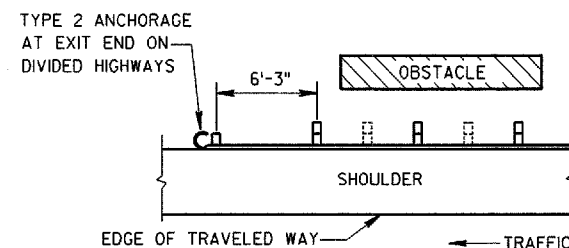
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT FULL WIDTH BRIDGES



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



BEAM GUARD AT OBSTACLES
EXIT END - ONE WAY TRAFFIC

GENERAL NOTES

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

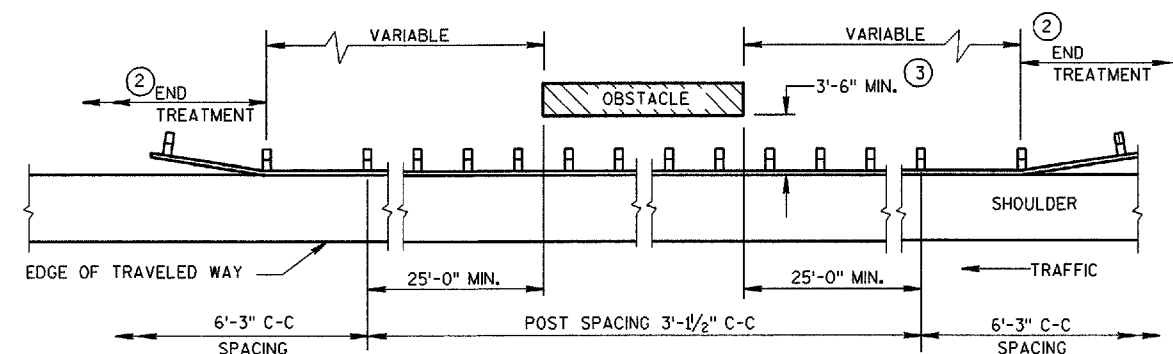
W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

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

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

③ DESIGN DEFLECTION OF W-BEAM BARRIER SYSTEM

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



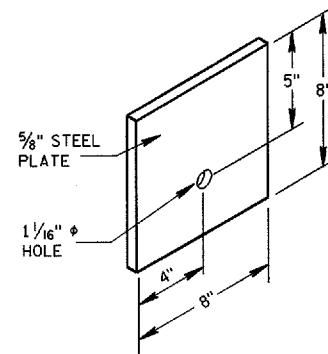
BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

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

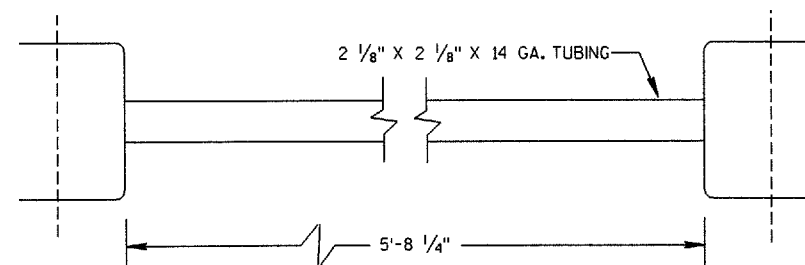
STEEL PLATE BEAM GUARD,
CLASS 'A'
(AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

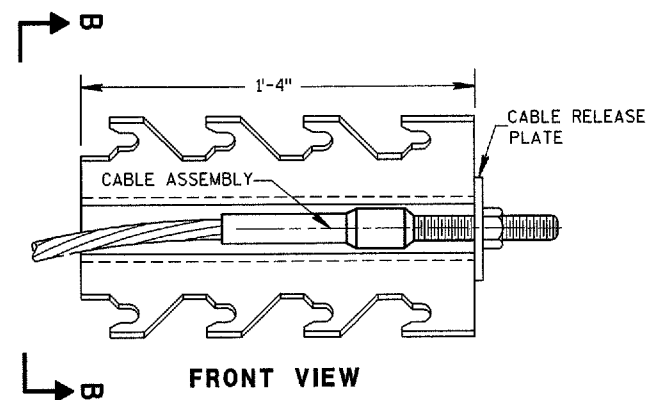
APPROVED
12/08/00
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



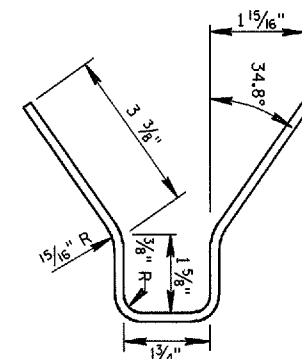
STEEL BEARING PLATE (SKT-350)



STRUT DETAIL (SKT-350)



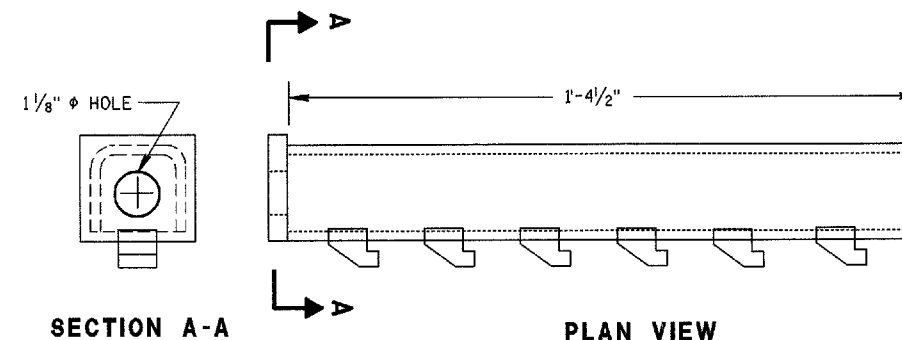
FRONT VIEW



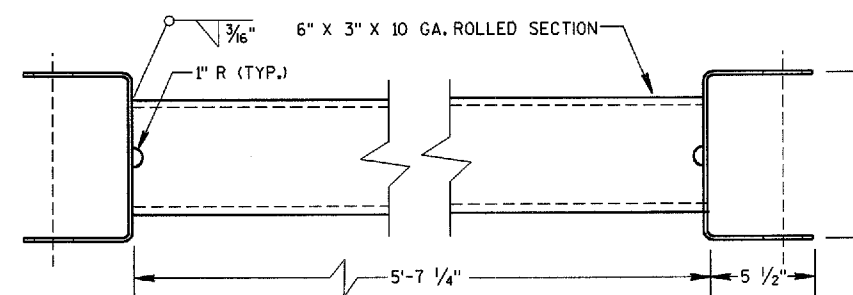
SECTION B-B

CABLE ANCHOR BOX (SKT-350)

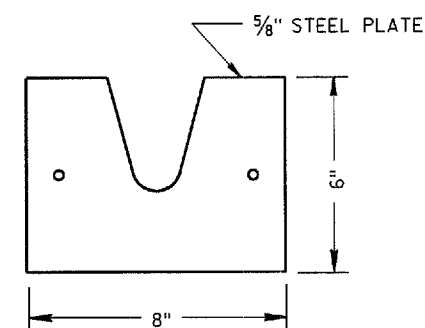
(SKT-350)



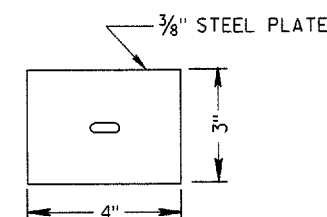
CABLE ANCHOR BOX (ET-2000)



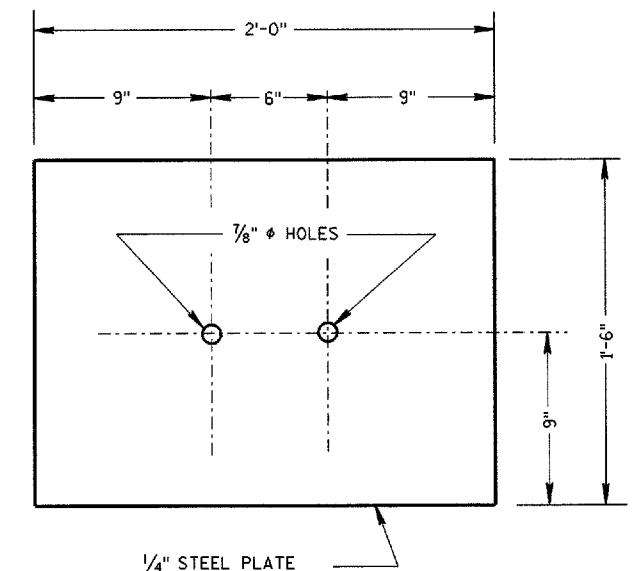
STRUT DETAIL (ET-2000)



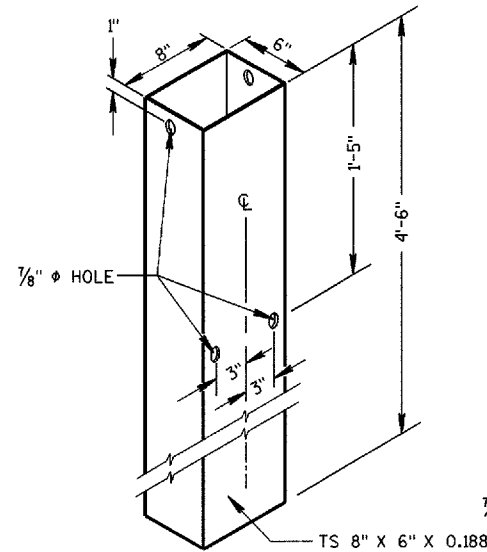
STEEL BEARING PLATE (ET-2000)



BEARING PLATE WASHER (ET-2000)



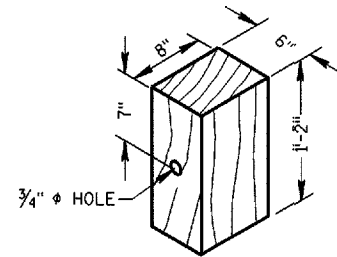
SOIL PLATE (SKT-350 & ET-2000)



STEEL TUBE

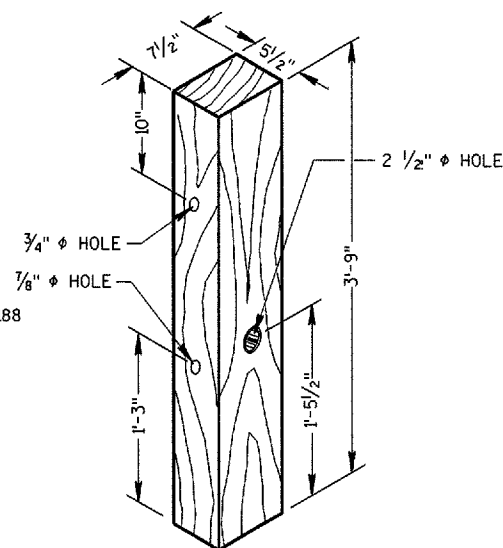
(POSTS NO. 1-4)

THE STEEL TUBE SHALL CONFORM TO REQUIREMENTS OF ASTM A500



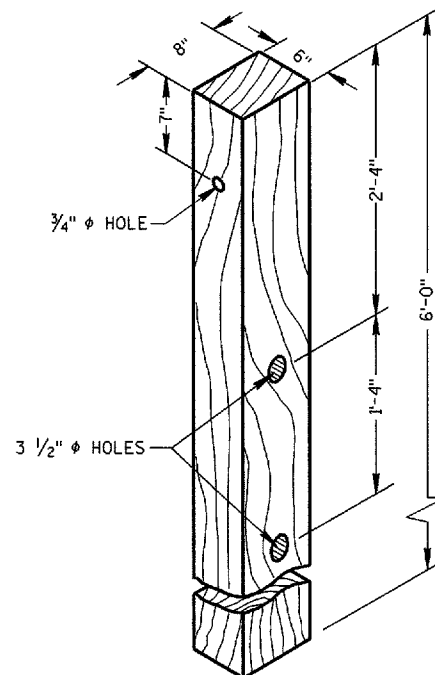
WOOD OFFSET BLOCK

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



TERMINAL POST

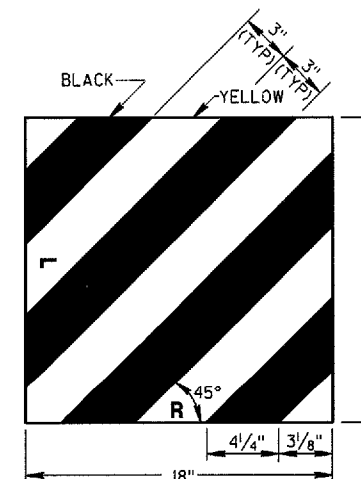
(POSTS NO. 1-4)



CRT POST

(POSTS NO'S 5-8)

WOOD BREAKAWAY POSTS



REFLECTIVE SHEETING DETAIL

GENERAL NOTES

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

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

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

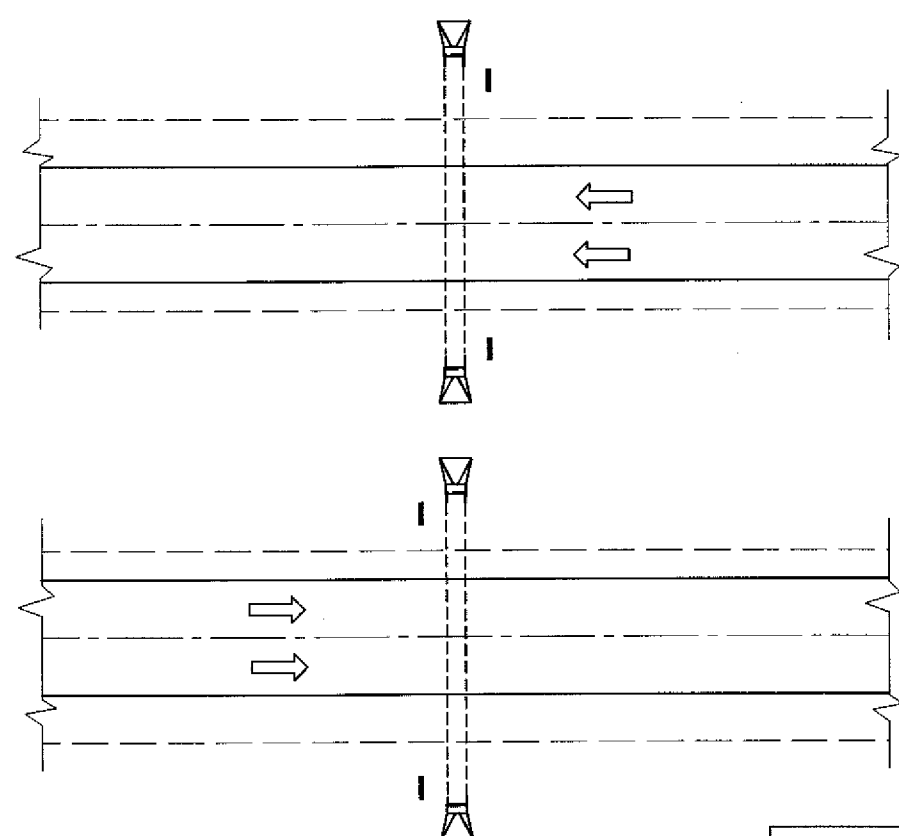
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

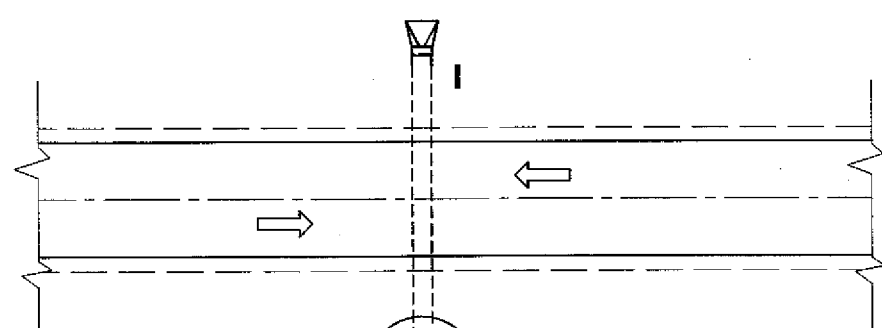
APPROVED
12/08/00
DATE

John Haverberg
CHIEF ROADWAY DEVELOPMENT ENGINEER

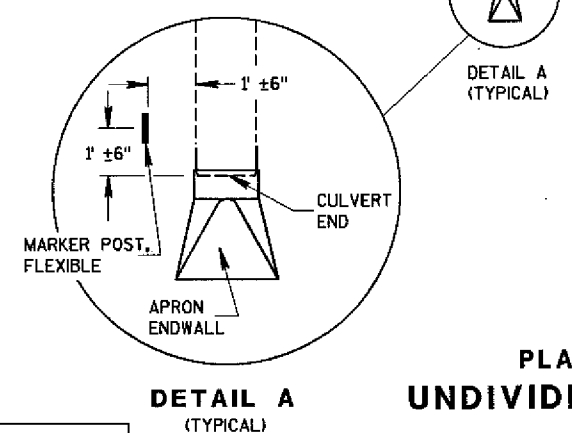
FHWA



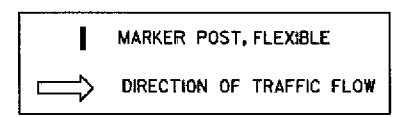
PLAN VIEW
DIVIDED HIGHWAY



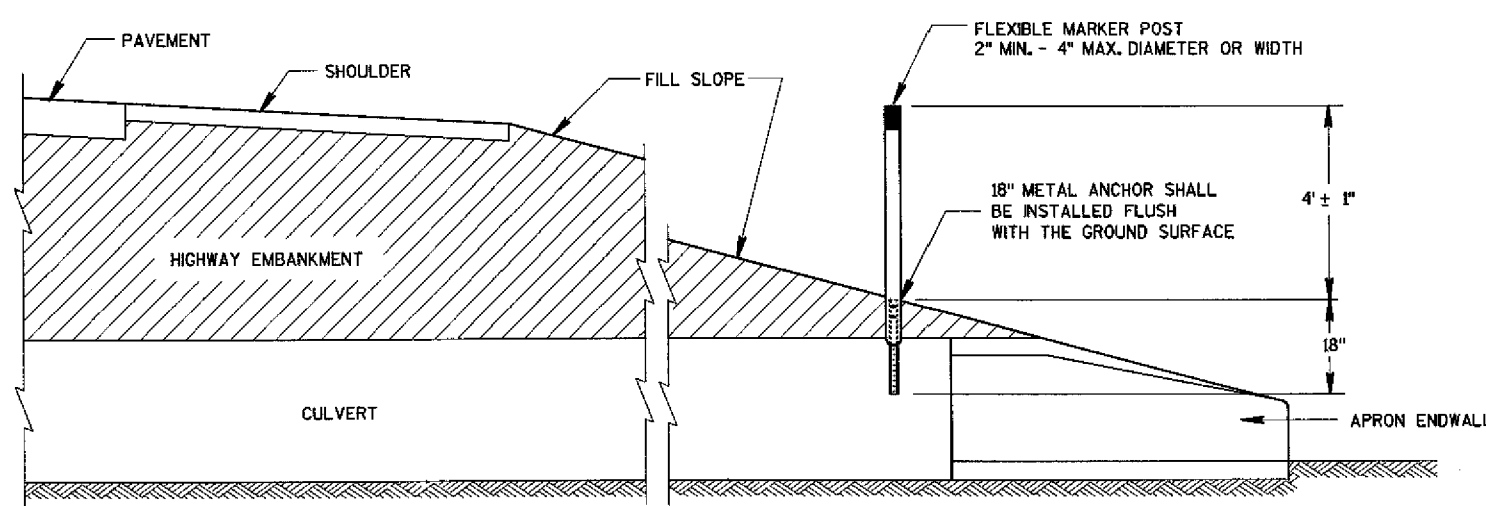
PLAN VIEW
UNDIVIDED HIGHWAY



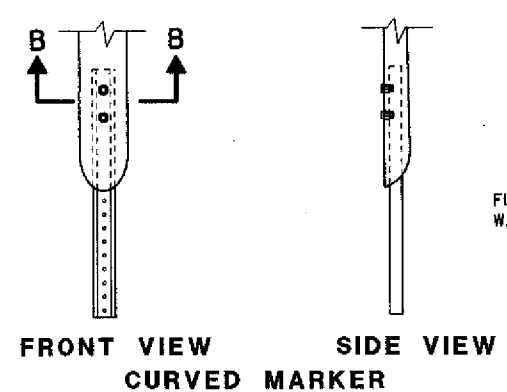
DETAIL A
(TYPICAL)



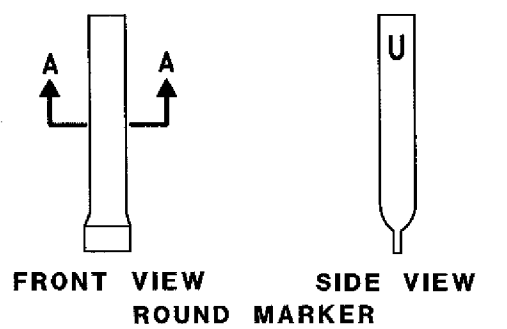
FLEXIBLE MARKER POST LOCATION



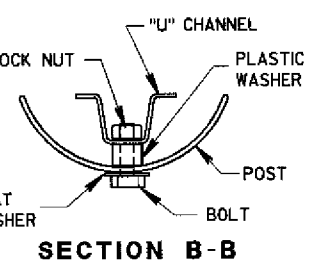
CROSS SECTION
FLEXIBLE MARKER POST



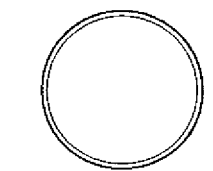
FRONT VIEW
CURVED MARKER



FRONT VIEW
ROUND MARKER



SECTION B-B

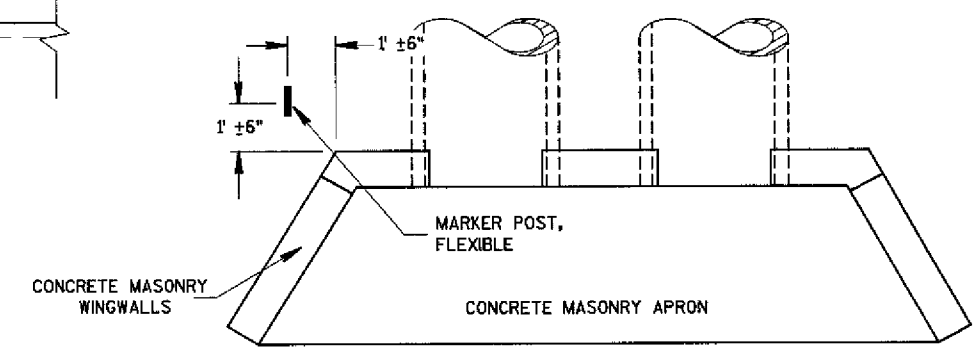


SECTION A-A

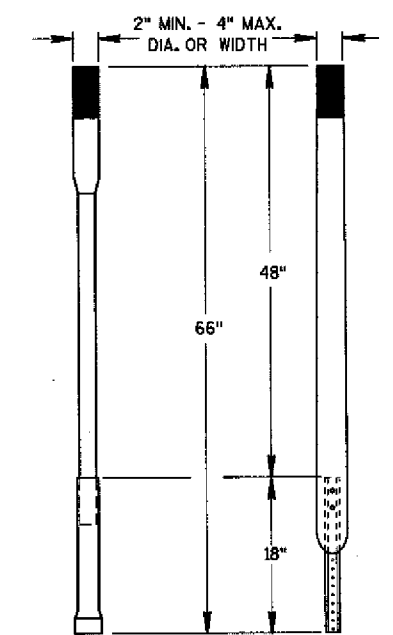
FLEXIBLE MARKER POST ANCHORS

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
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH




ALTERNATE 1 ALTERNATE 2
FLEXIBLE MARKER POST

MARKER POST, FLEXIBLE, FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/01/98 DATE	<i>[Signature]</i> CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	


S.D.D. 15 A 3-1

TWO-LANE ROADWAY


SYMBOLS



WORK AREA



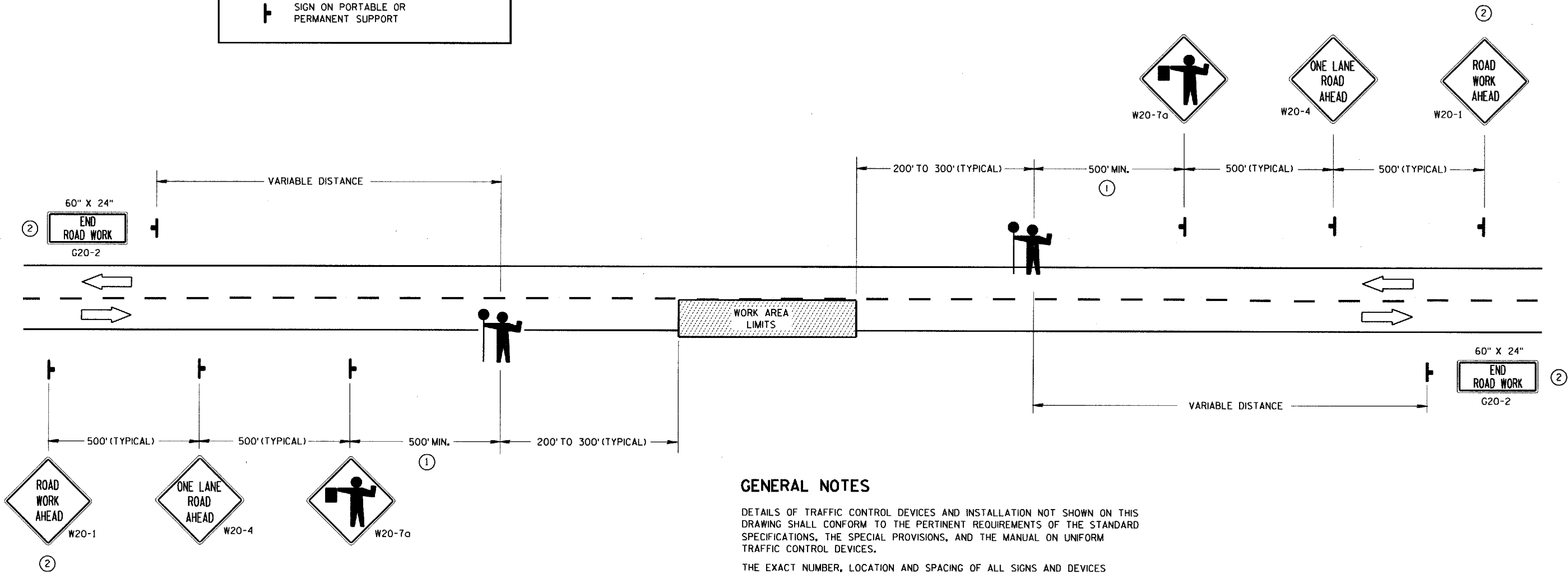
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF



SIGN ON PORTABLE OR PERMANENT SUPPORT



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 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



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.

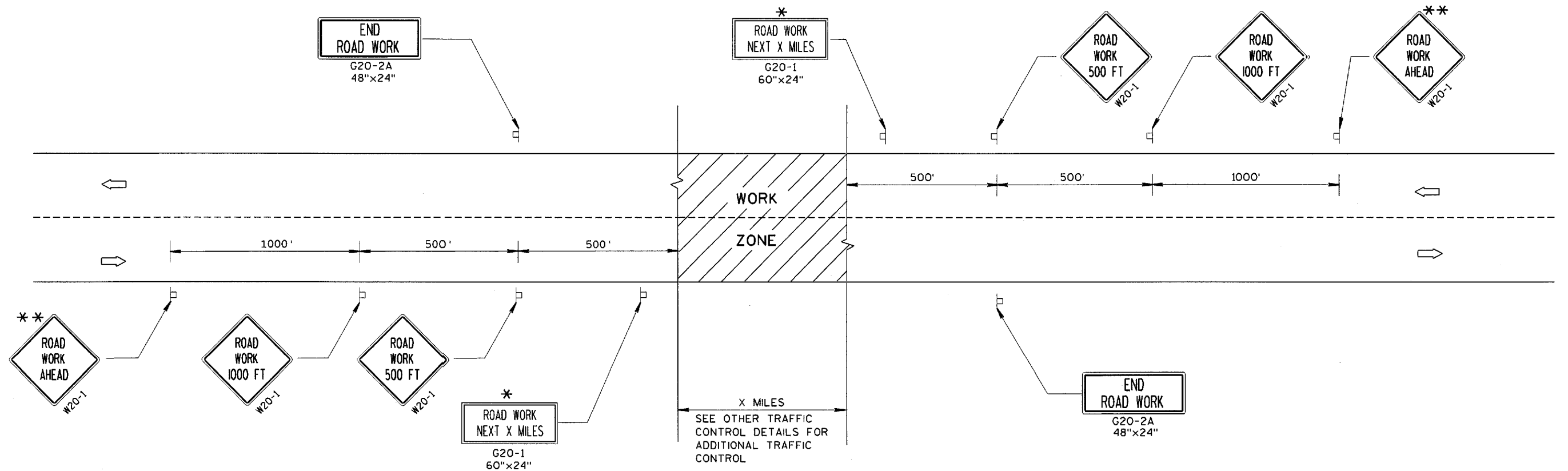
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT 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.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 2/17/94
STATE TRAFFIC ENGINEER FOR HWYS
FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

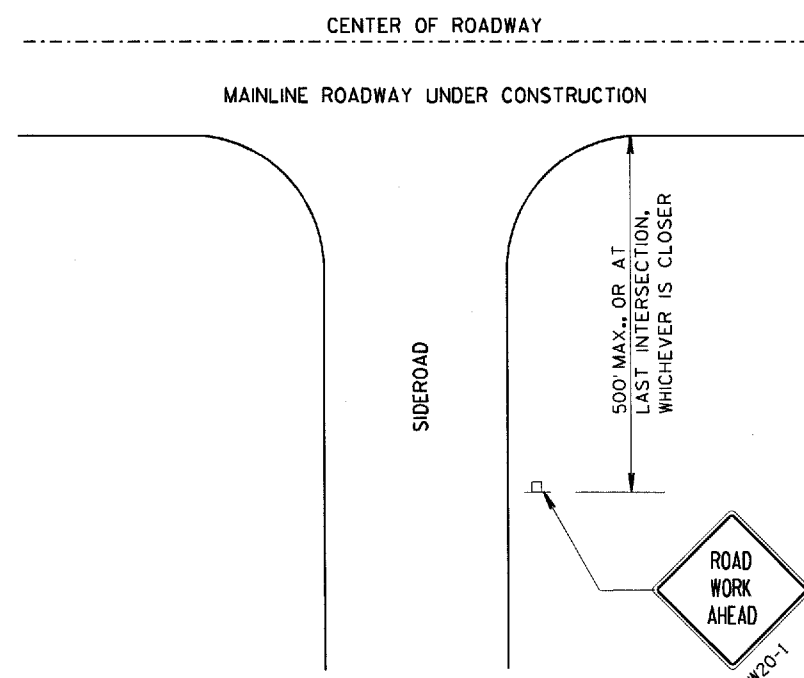
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

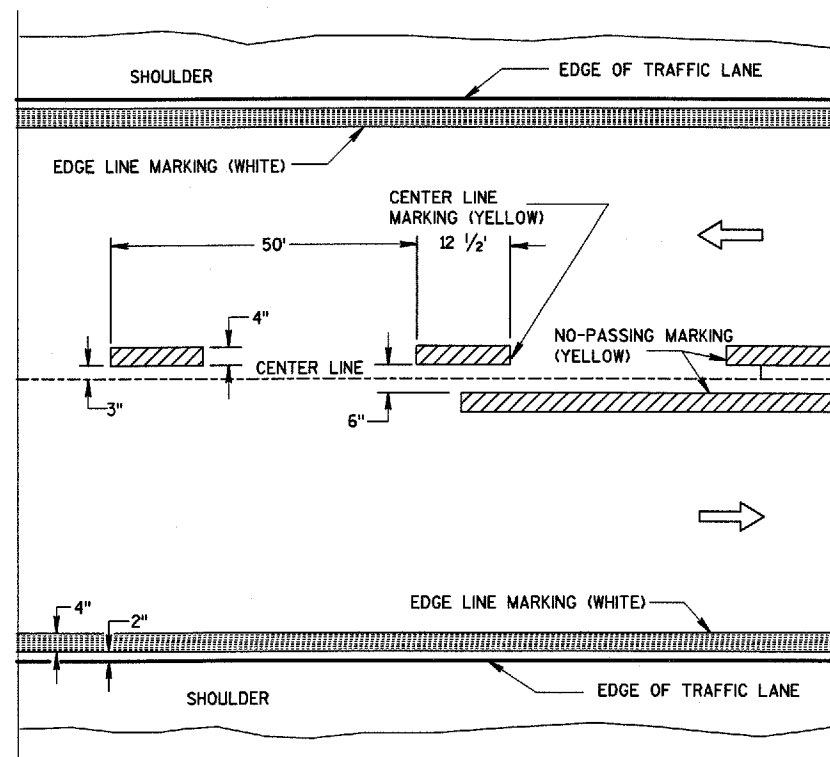
* * PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA OR SIGNING.



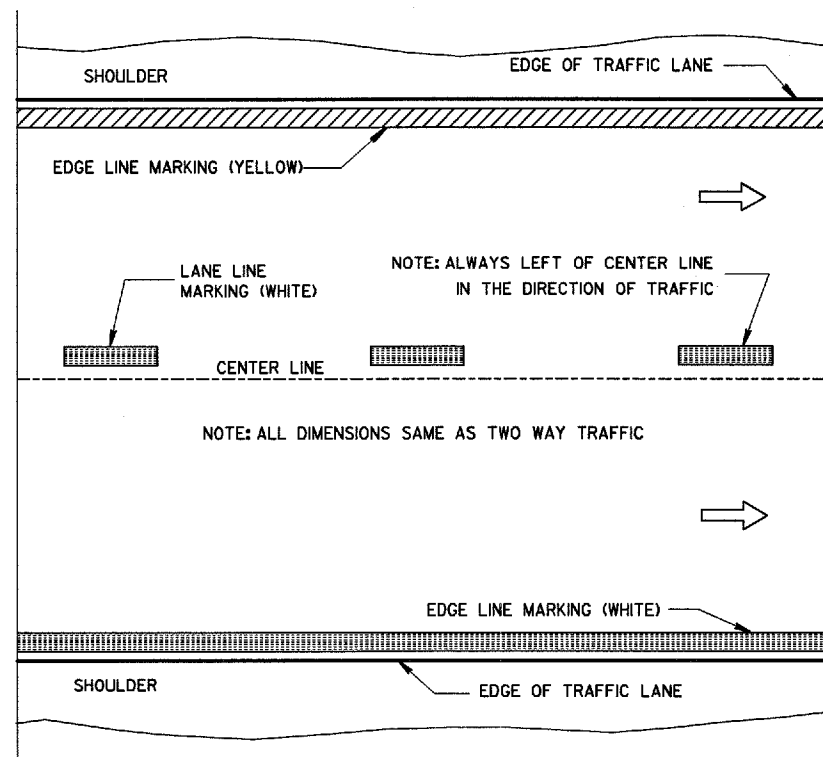
LEGEND

- POST MOUNTED SIGN
- ➡ DIRECTION OF TRAFFIC FLOW

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/23/00 DATE	Christa J. Spang CHIEF SIGNS AND MARKING ENGINEER
FHWA	

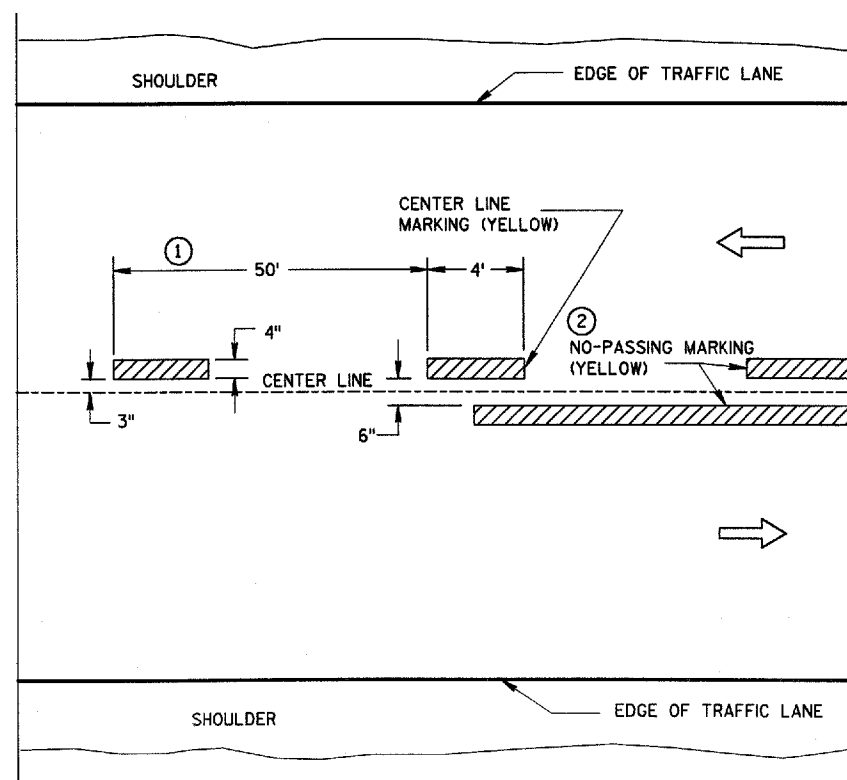


TWO WAY TRAFFIC

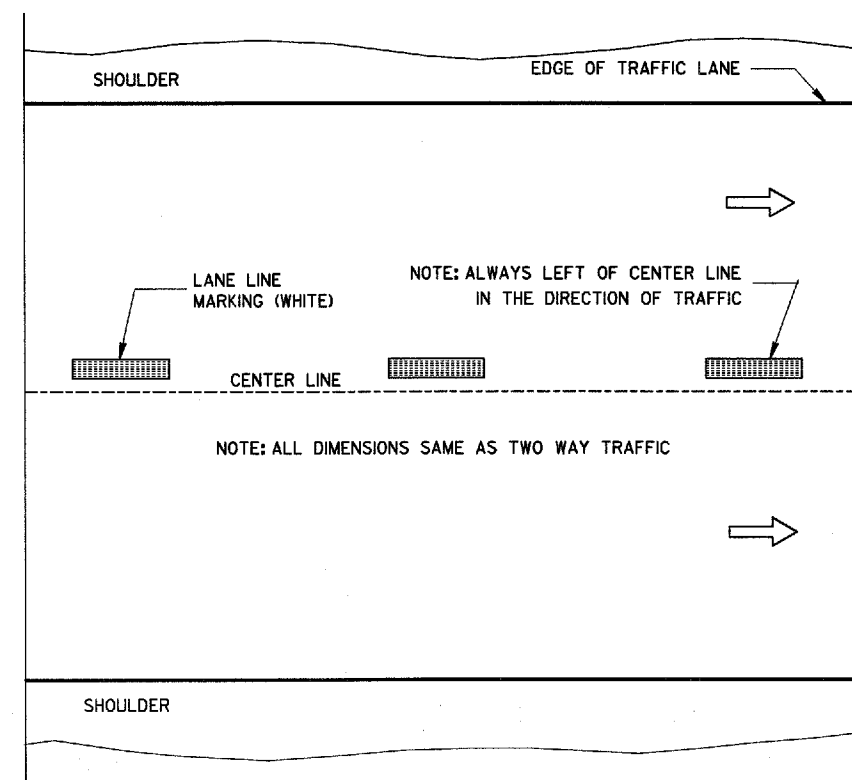


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

2-17-00
DATE

FHWA

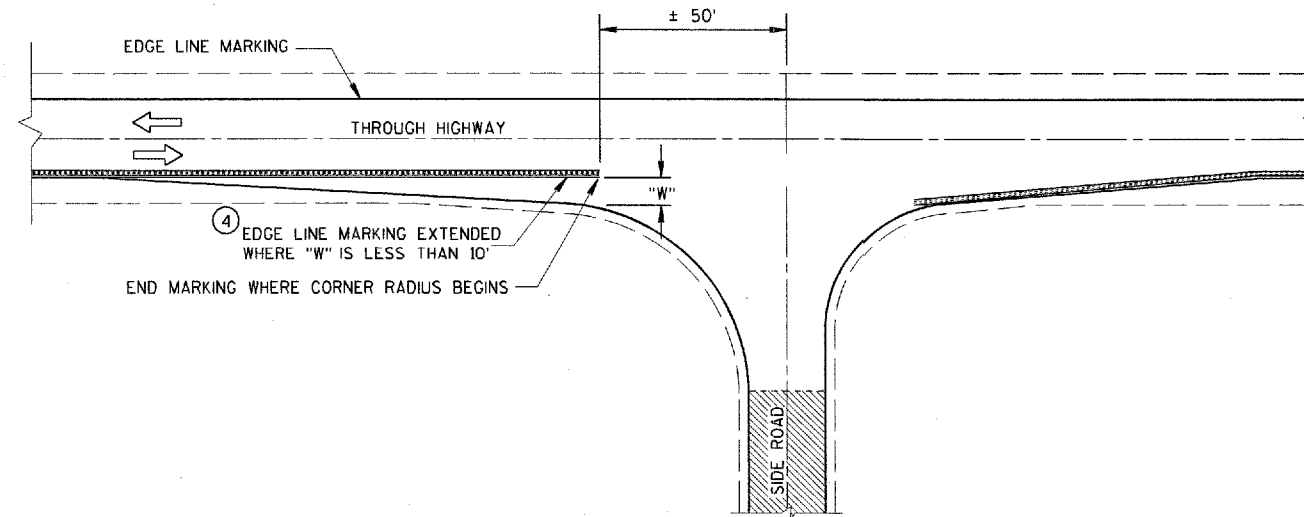
CHIEF SIGNS AND MARKING ENGINEER

NOTES

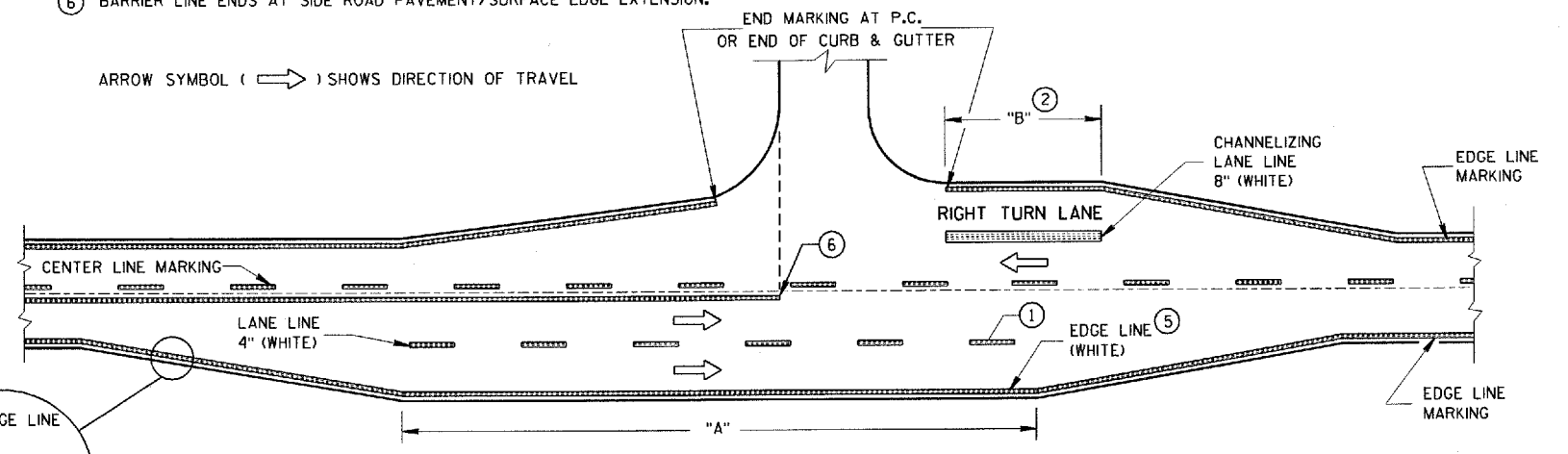
EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, 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 10' OR MORE.
- ⑤ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.
- ⑥ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

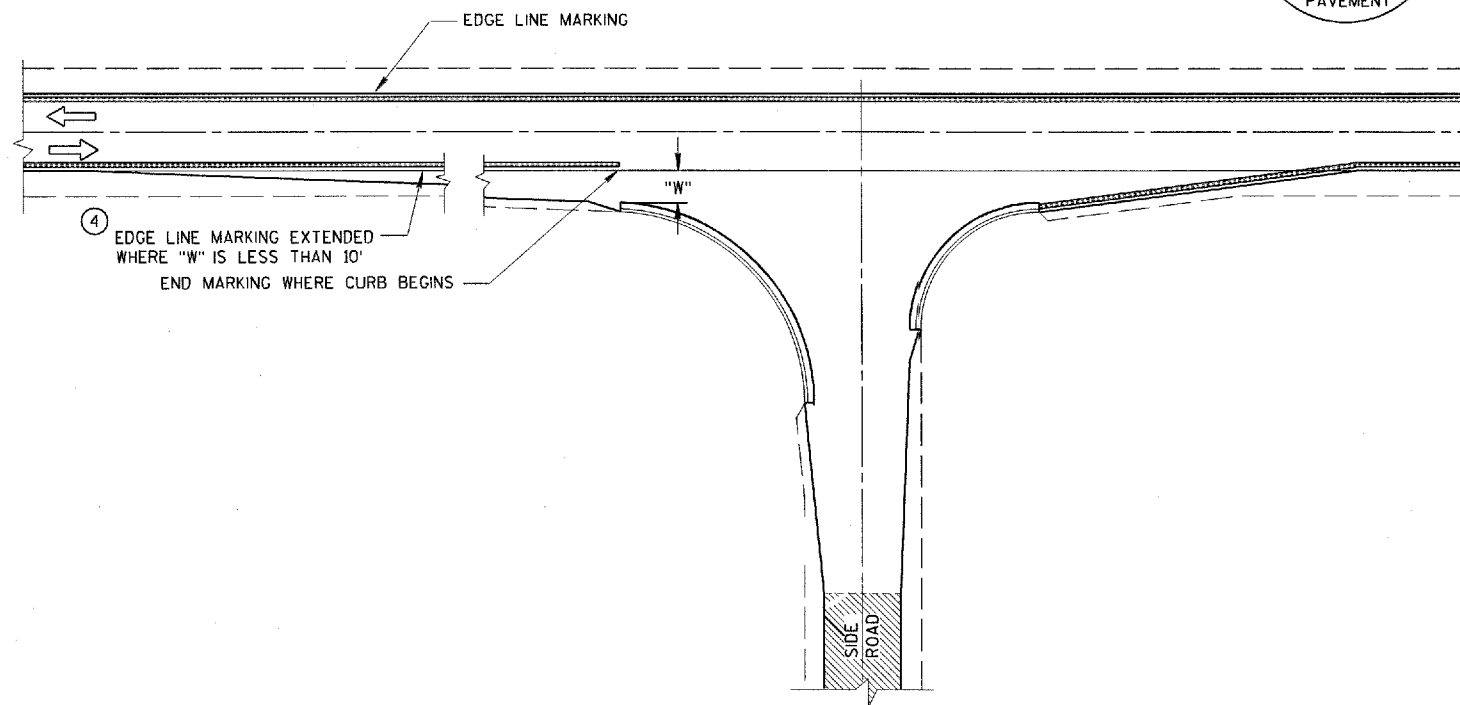
ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



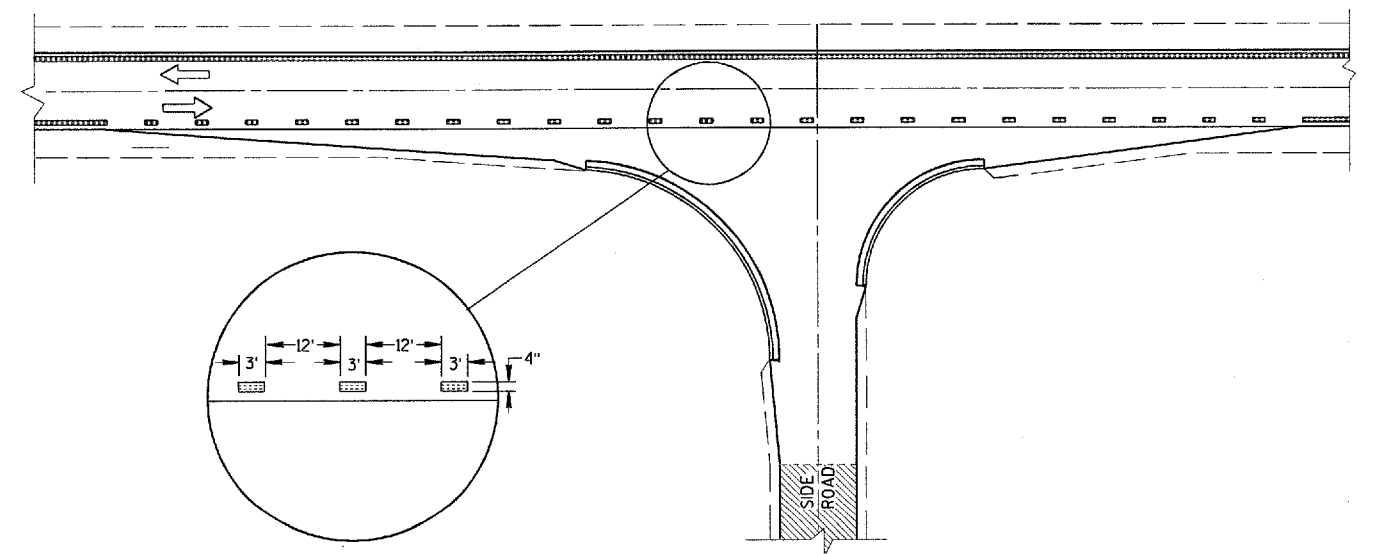
MINOR INTERSECTION WITHOUT CURBS



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



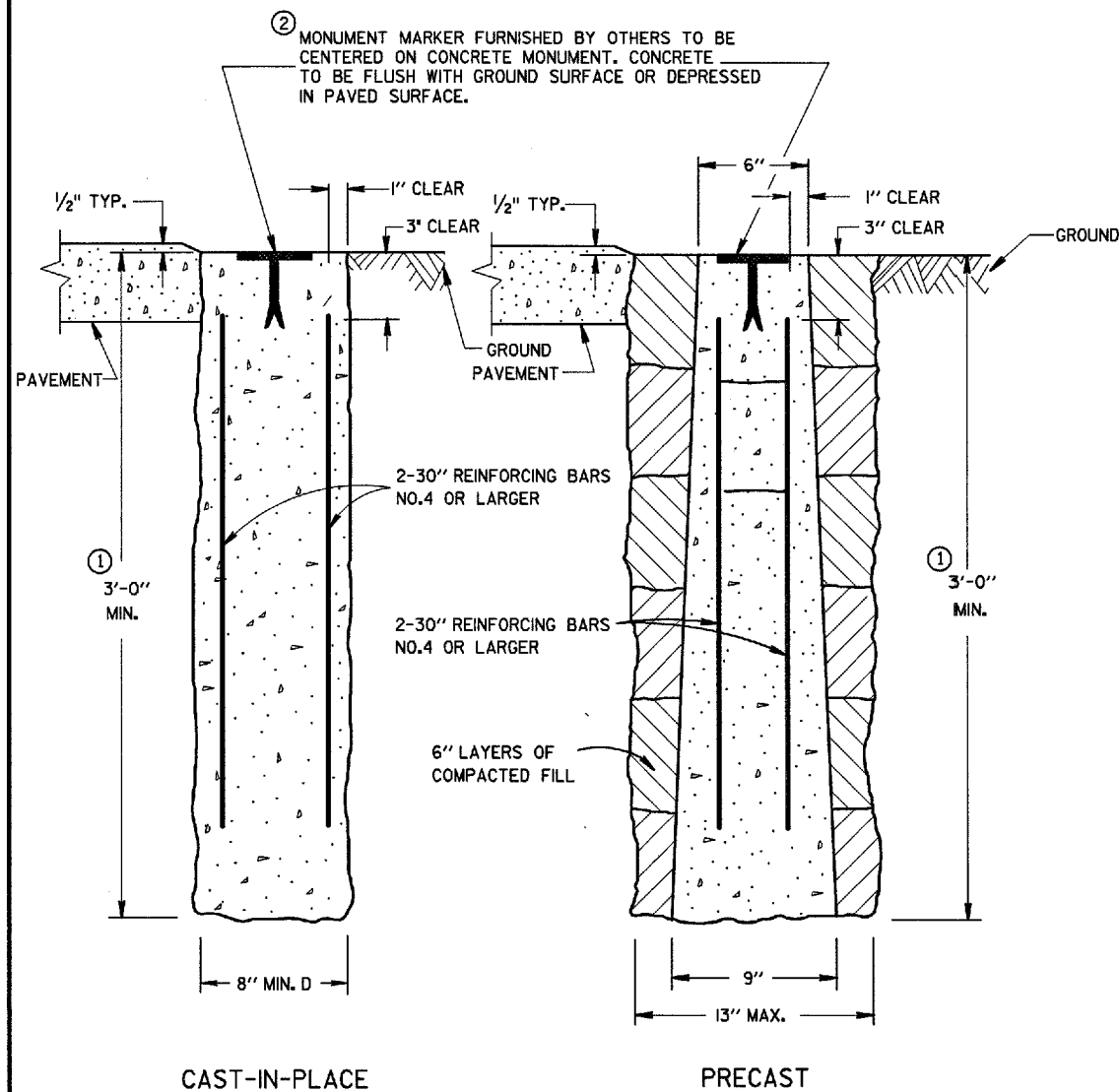
MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



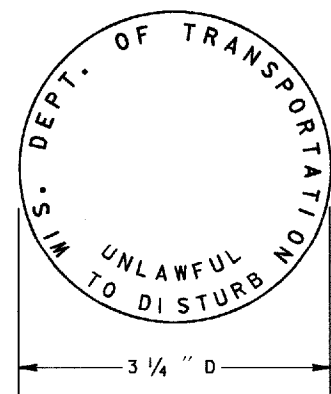
MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING
(INTERSECTIONS)

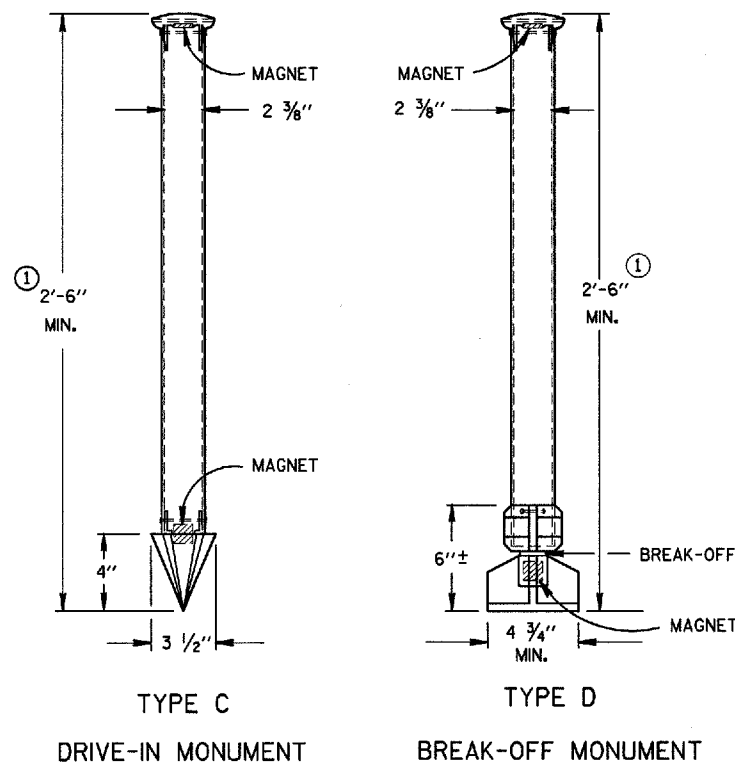
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CONCRETE MONUMENTS
TYPE A



② WIS DOT MONUMENT MARKER LOGO
FOR TYPES "A", "C" & "D"



ALUMINUM MONUMENTS
(INCLUDES MARKER)

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 OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

INSTALLED METAL MONUMENTS MUST BE EASILY DETECTED WITH A DIP NEEDLE. INSERT PERMANENT MAGNETS SHALL BE ATTACHED NEAR THE TOP AND BOTTOM OF THOSE MONUMENTS CONSTRUCTED OF A METAL ALLOY WHICH IS NOT ATTRACTIVE TO A DIP NEEDLE.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

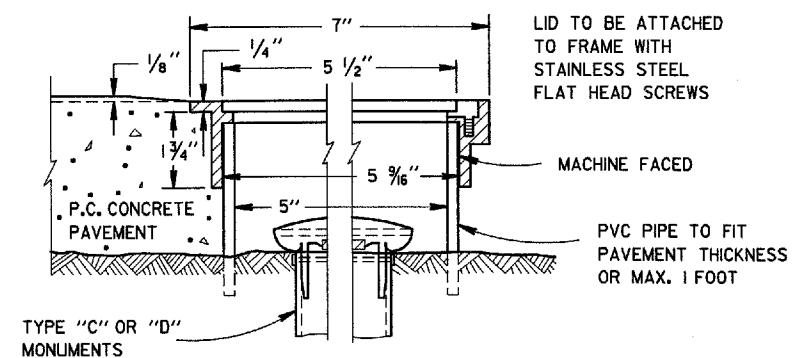
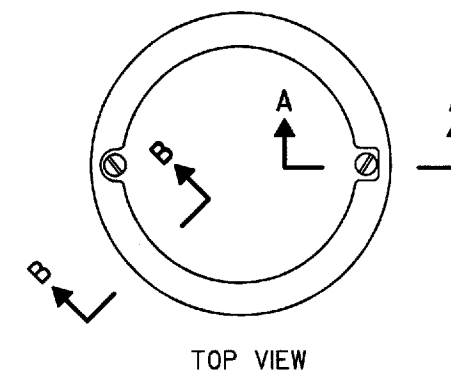
MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

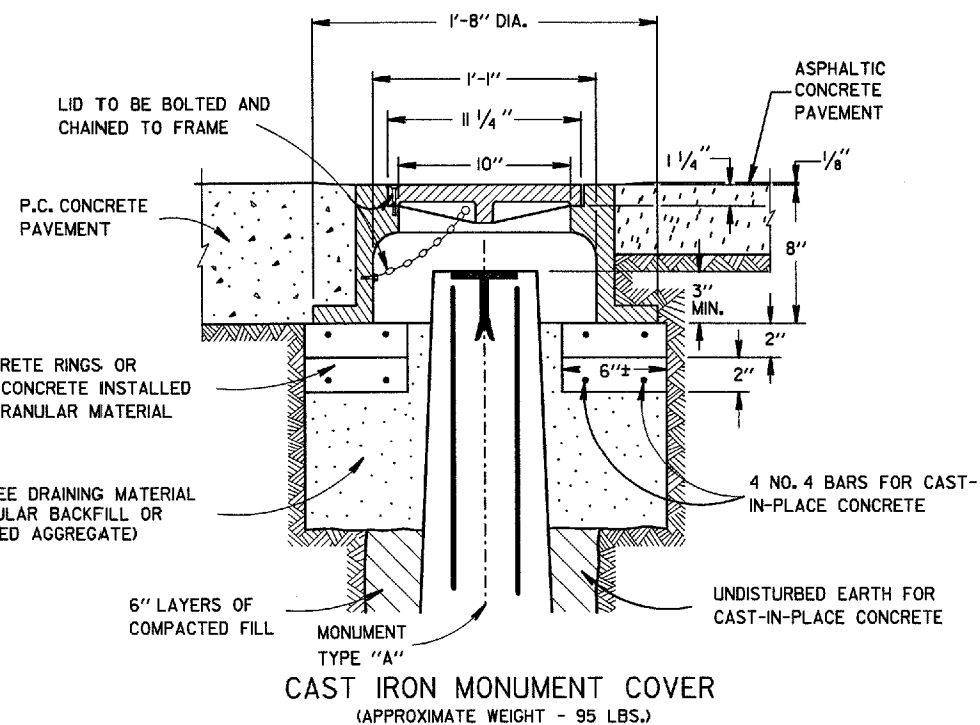
MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

- ① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.
- ② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WIS DOT MARKER.



SECTION B-B SECTION A-A
ALUMINUM MONUMENT COVER

(APPROXIMATE WEIGHT 2 LBS)
(FOR CONCRETE PAVEMENT ONLY)



LANDMARK REFERENCE MONUMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/22/99
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER

USH 63 EARTHWORK VOLUMES AT BEAMGUARD TERMINALS

STATION	END AREA CUT (S.F.)	END AREA FILL (S.F.)	COMMON C.Y.	FILL C.Y.	FILL (EXP 30%) C.Y.
Rust Flowage					
486+05, RT	0	0	0	0	---
486+35, RT	3.6	19.8	2.0	11.0	14.3
486+85, RT	0	0	3.3	18.3	23.8
486+85, LT	0	0	0	0	---
487+00, LT	5.8	30.4	1.6	8.4	10.9
487+50, LT	0	0	5.4	28.1	36.5
490+60, RT	0	0	0	0	---
491+00, RT	0.9	49.4	0.7	36.6	47.6
491+15, RT	0	0	0.3	13.7	17.8
491+25, LT	0	0	0	0	---
491+75, LT	5.6	47.7	4.1	35.3	45.9
492+05, LT	0	0	3.1	26.5	34.5
20-Mile Creek					
951+85, LT	0	0	0	0	---
952+15, LT	6.0	6.5	3.3	3.6	4.7
952+65, LT	0	0	5.6	6.0	7.8
952+25, RT	0	0	0	0	---
952+55, RT	7.4	4.9	4.1	2.7	3.5
953+05, RT	0	0	6.9	4.5	5.9
955+53, LT	0	0	0	0	---
956+03, LT	5.6	41.4	5.2	38.3	49.8
956+33, LT	0	0	3.1	23.0	29.9
956+30, RT	0	0	0	0	---
956+80, RT	7.5	2.3	6.9	2.2	2.9
957+10, RT	0	0	4.2	1.5	2.0
TOTALS:			60	260	338

