MAD

JUNE 2014

PROJECT ID: 1001-06-73

COUNTY: DANE

ORDER OF SHEETS

TOTAL SHEETS = 62

01

N

DESIGN DESIGNATION

A.A.D.T.	2014	= N/A
A.A.D.T.	2034	= N/A
D.H.V.	2034	= N/A
D.D.		=
T.		=
DESIGN SPEED		= 70 MPH
ESALS		= N/A

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

JANESVILLE - MADISON

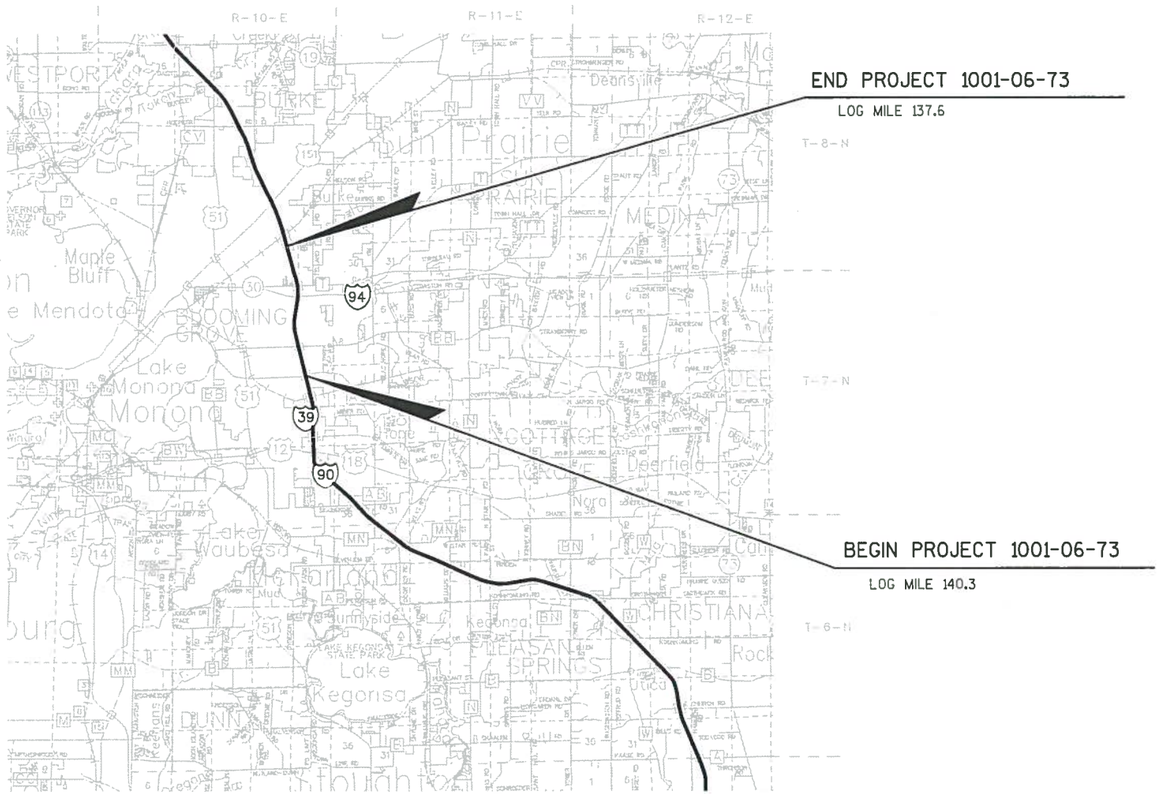
(BUCKEYE ROAD TO LIEN ROAD)

IH 39/90

DANE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1001-06-73	WISC 2013328	1

STATE PROJECT NUMBER
1001-06-73



LAYOUT
SCALE 0 2.0 MI.

TOTAL NET LENGTH OF CENTERLINE = 00 MI.

"COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), 'DANE' COUNTY."

ORIGINAL PLANS PREPARED BY

Mead & Hunt

Mead & Hunt, Inc.
6501 Watts Road
Madison, WI 53719
608.273.6380
fax: 608.273.6391
www.meadhunt.com

WISCONSIN
KEITH E. KOSBAU
E-28476
MILWAUKEE, WI
PROFESSIONAL ENGINEER

Keith Kosbau 2-17-2014

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	MEAD & HUNT, INC.
Designer	MEAD & HUNT, INC.
Project Manager	MAHESH SHRESTHA
Regional Examiner	
Regional Supervisor	WILLIAM STROBEL
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 2/20/14 William Strobel (Signature)

E

STANDARD ABBREVIATIONS

AGG	AGGREGATE
ASPH	ASPHALTIC
AVG	AVERAGE
AADT	ANNUAL AVERAGE DAILY TRAFFIC
BR	BRIDGE
CTH	COUNTY TRUNK HIGHWAY
CY	CUBIC YARD
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
DIA	DIAMETER
EAT	ENERGY ABSORBING TERMINAL
E	EAST
X	EAST GRID COORDINATE
EB	EASTBOUND
ELEC	ELECTRIC (AL)
EL	ELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
G	GAS
LS	LUMP SUM
MGS	MIDWEST GUARD RAIL SYSTEM
N	N
Y	NORTH GRID COORDINATE
NB	NORTHBOUND
OH	OVERHEAD
PIPL	PIPELINE
REINF	REINFORCING OR REINFORCEMENT
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
RD	ROAD
RDWY	ROADWAY
SALV	SALVAGED
SSS	SANITARY AND STORM SEWER
SAN S	SANITARY SEWER
SEC	SECTION
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWINGS
STA	STATION
TEL	TELEPHONE
TEMP	TEMPORARY
T or TN	TOWN
T	TRUCKS (PERCENT OF)
TYP	TYPICAL
UG	UNDERGROUND
VOL	VOLUME
WB	WESTBOUND

UTILITY CONTACTS

* ALLIANT ENERGY
GAS, ELECTRIC
ATTN: MARK SCHOEN
4902 N. BITTMORE LANE, SUITE 1000
MADISON, WI 53718
TELEPHONE: 608-877-1648
E-MAIL: MARKSCHOEN@ALLIANTENERGY.COM

ATC MANAGEMENT INC.
ELECTRIC
ATTN: MIKE OLSEN
801 O'KEEFE ROAD
DEPERE, WI 54115
TELEPHONE: 920-660-2390 / 920-660-2390 MOBILE
E-MAIL: MOLSEN@ATCLC.COM

* AT&T LEGACY
COMMUNICATION
ATTN: CARL DONAHUE
866 ROCK CREEK ROAD
PLANO, IL 60545
TELEPHONE: 847-420-9115
E-MAIL: CD8729@ATT.COM

* AT&T WISCONSIN
COMMUNICATION
ATTN: CAROL ANDERSON
316 WEST WASHINGTON AVENUE
MADISON, WI 53703
TELEPHONE: 608-252-2385
E-MAIL: CA24@ATT.COM

CITY OF MADISON WATER UTILITY
WATER & SEWER
ATTN: DENNIS CRAWLEY
119 EAST OLIN AVENUE
MADISON, WI 53713
TELEPHONE: 608-266-4651
E-MAIL: D.CRAWLEY@CITYOFMADISON.COM

* FRONTIER COMMUNICATIONS OF WI, LLC
COMMUNICATION
ATTN: DANA GILLETT
100 COMMUNICATIONS DRIVE
SUN PRAIRIE, WI 53590
TELEPHONE: 608-837-1605 / 608-512-2389 MOBILE
E-MAIL: DANA.GILLETTE@FTR.COM

* KOCHS PIPELINE LP
GAS
ATTN: DREW SUYDAM
N4240 HWY 26
WAUPUN, WI 53963
TELEPHONE: 920-948-4665
E-MAIL: DREW.SUYDAM@KOCHPIPELINE.COM

* MADISON GAS & ELECTRIC
GAS AND ELECTRIC
ATTN: TIM STATZ
PO BOX 1231
MADISON, WI 53701-1231
TELEPHONE: 608-252-4727
E-MAIL: TSTATZ@MGE.COM

MADISON METROPOLITAN SEWERAGE DISTRICT
SEWER
ATTN: ROB PHILLIPS
210 MARTIN LUTHER KING JR. BLVD.
MADISON, WI 53703
TELEPHONE: 608-266-4751
E-MAIL: RPHILLIPS@CITY OF MADISON.COM

McLEOD USA TELECOMMUNICATIONS SERVICES, INC.
COMMUNICATION
ATTN: JOHN LOUIS
1858 WRIGHT STREET
MADISON, WI 53704
TELEPHONE: 262-792-7218
E-MAIL: JOHN.LOUIS@WINDSTREAM.COM

WISCONSIN DEPT. OF TRANSPORTATION
COMMUNICATIONS
ATTN: JEFFERY MADSON
433 WEST ST. PAUL AVENUE, SUITE 300
MILWAUKEE, WI 53203
TELEPHONE: 414-225-3723
E-MAIL: JEFFREY.MADSON@DOT.WI.GOV

GENERAL NOTES:

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, ARE TO BE SEEDED AND FERTILIZED AS DIRECTED BY THE ENGINEER.

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.

EROSION CONTROL IS SHOWN ON THE CONSTRUCTION DETAIL AND IN THE SUMMARY OF MISCELLANEOUS QUANTITIES.

BACKFILL ALL HOLES REMAINING DUE TO GUARDRAIL POST REMOVAL WITH BASE AGGREGATE DENSE 3/4-INCH.

GRADING IS INCLUDED IN THE BID ITEM "BARRIER SYSTEM GRADING SHAPING FINISHING". PERFORM GRADING AS NECESSARY TO MAINTAIN THE EXISTING DRAINAGE.

GUARDRAIL POST LOCATIONS SHOWN IN THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. FOR ACTUAL INSTALLATION LOCATIONS AND CONSTRUCTION DETAILS SEE THE STANDARD DETAIL DRAWINGS.

THE LOCATION OF THE EXISTING ASPHALTIC CURB ARE APPROXIMATE. FIELD VERIFY THE LOCATIONS OF ASPHALTIC CURB AND REPLACE AREAS OF DAMAGED CURB THE THE LIMITS DIRECTED BY THE ENGINEER.

THE LOCATIONS OF THE EXISTING ASPHALTIC FLUMES ARE APPROXIMATE, FIELD VERIFY THE LOCATIONS OF THE EXISTING FLUMES. THE LOCATIONS OF THE EXISTING FLUMES MAY REQUIRE ADJUSTMENT TO AVOID THE NEW BEAMGUARD POST SPACING. ALTERNATE POST SPACING MAY ALSO BE USED AS APPROVED BY THE ENGINEER.

* DENOTES DIGGERS HOTLINE MEMBER

DIGGERS HOTLINE

Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

CONSULTANT CONTACT
MEAD & HUNT, INC.
6501 WATTS ROAD
MADISON, WI 53719-2700

ATTN: MR. KEITH KOSBAU, P.E.
TELEPHONE: 608-273-6380
E-MAIL: KEITH.KOSBAU@MEADHUNT.COM

DNR LIAISON
DEPARTMENT OF NATURAL RESOURCES
SOUTH CENTRAL DISTRICT
3911 SOUTH FISH HATCHERY ROAD
FITCHBURG, WI 53711

ATTN: MR. ERIC HEGGELUND
TELEPHONE: 608-275-3301
E-MAIL: ERIC.HEGGELUND@WISCONSIN.GOV

2

N

SHEET 6
S-13-0026
SITE 6

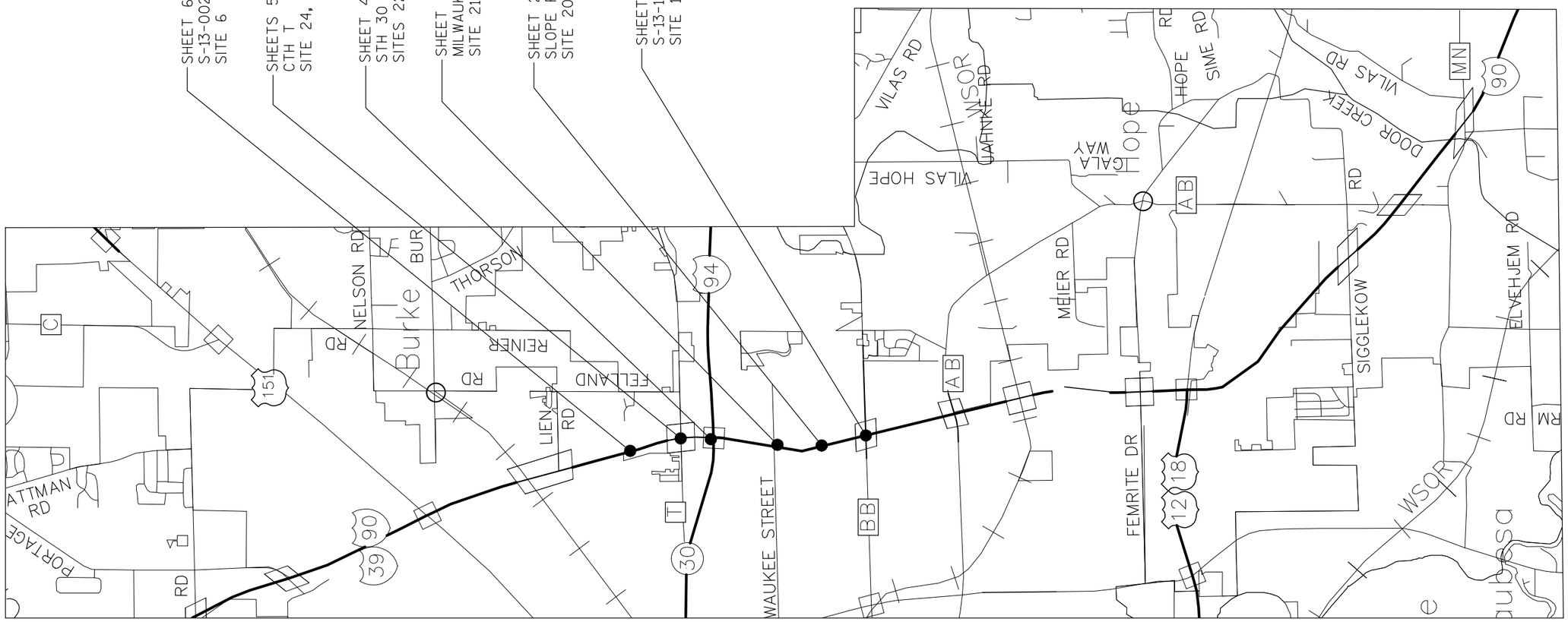
SHEETS 5, 7
CTH T
SITE 24, 27

SHEET 4, 8
STH 30
SITES 22, 23, 28, 29

SHEET 3, 9
MILWAUKEE STREET
SITE 21, 30

SHEET 2
SLOPE PROTECTION
SITE 20

SHEET 1
S-13-140 & CTH BB
SITE 19

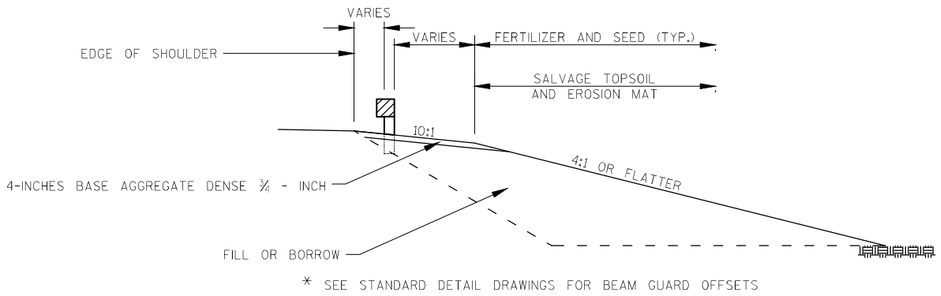


PROJECT NO:1001-06-73	HWY: IH 39/90	COUNTY: DANE	PROJECT OVERVIEW	SHEET 3	E

SITE NO.	SHEET	LOG MILE	LOCATION DESCRIPTION	STRUCTURE	COUNTER MEASURE
19	1	139.8	NB RT, UNDER CTH BB-APPROACH	B-13-0112	INTEGRAL WALL, MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
20	2	139.5	NB RT, SLOPE PROTECTION-APPROACH	N/A	MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
21	3	138.8	NB LT, UNDER MILWUAKEE STREET-APPROACH	B-13-0131	MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
			NB RT, UNDER MILWUAKEE STREET-APPROACH		MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
22	4	138.5	NB LT, OVER STH 30 EB-APPROACH	B-13-0309	MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
			NB RT, OVER STH 30 EB-APPROACH		MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
23	4	140	NB LT, OVER STH 30 WB-APPROACH	B-13-0308	MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT & PERMANENT CRASH CUSHION
			NB RT, OVER STH 30 WB-APPROACH		MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
24	5	138.1	NB RT, ENTRANCE RAMP FROM IH 94 OVER CTH T-APPROACH	B-39-0289	MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
26	6	137.9	SB RT, SIGN BRIDGE-APPROACH EXIT 138A	S-13-0026	MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
			SB LT, SIGN BRIDGE-APPROACH EXIT 138A		MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
27	7	138.1	SB RT, IH 39 OVER CTH T	B-13-0448	MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
			SB LT, IH 39 OVER CTH T		MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
28	8	140	SB RT, IH-39 OVER STH 30 WB	B-13-0307	MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
			SB LT, IH-39 OVER STH 30 WB		MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
29	8	138.5	SB RT, IH-39 OVER STH 30 EB	B-13-0334	MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
			SB LT, IH-39 OVER STH 30 EB		MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
30	9	138.7	SB RT, MILWAUKEE ST OVER IH-39	B-13-0477	INTEGRAL WALL, MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT
			SB LT, MILWAUKEE ST OVER IH-39		INTEGRAL WALL, MGS THRIE BEAM TRANSITION, MGS BEAMGUARD 3, MGS GUARDRAIL TERMINAL EAT

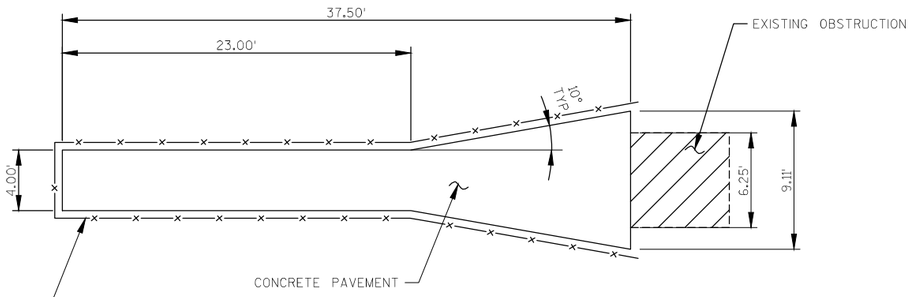
NOTE: THE SITE NUMBERS ARE NOT NUMBERED CONSECUTIVELY. SITE NUMBERS 1- 18 AND 25 ARE NOT USED ON THE PROJECT.

2



* SEE STANDARD DETAIL DRAWINGS FOR BEAM GUARD OFFSETS

TYPICAL WIDENING AT END TREATMENTS

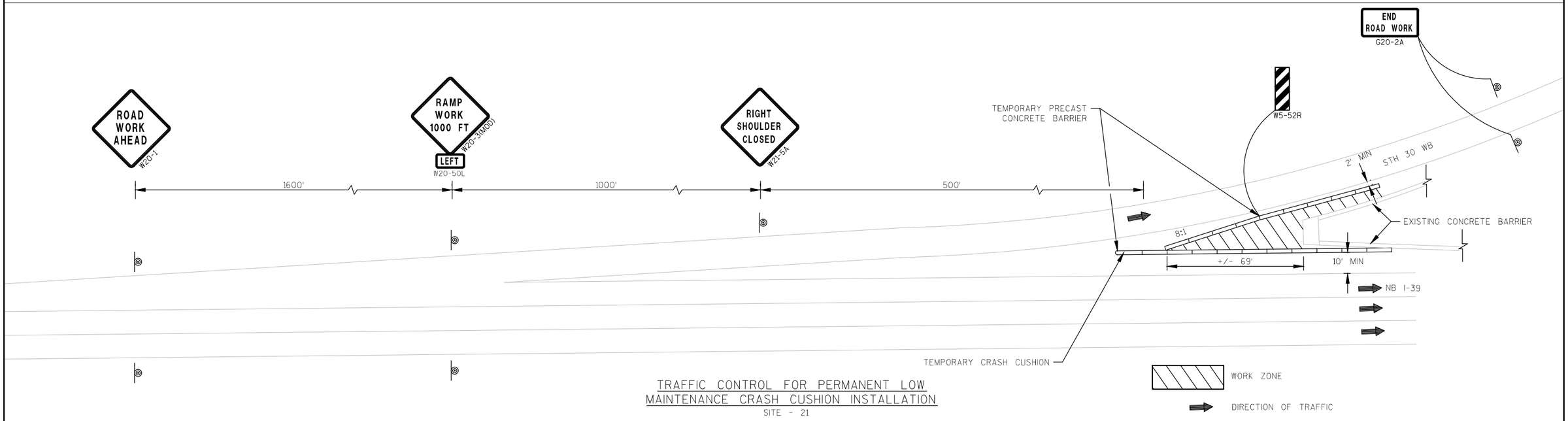


NOTE: PAVEMENT PAD SHALL CONFORM TO MANUFACTURERS REQUIREMENTS. CONCRETE PAVEMENT ILLUSTRATED IN THIS DETAIL IS FOR SCI 100 GM SMART CUSHION IMPACT ATTENUATOR AND IS FOR QUNTITY ESTIMATING PURPOSES ONLY.

(PLAN VIEW)

CONCRETE PAVEMENT FOR PERMANENT LOW MAINTENANCE CRASH CUSHION INSTALLATION

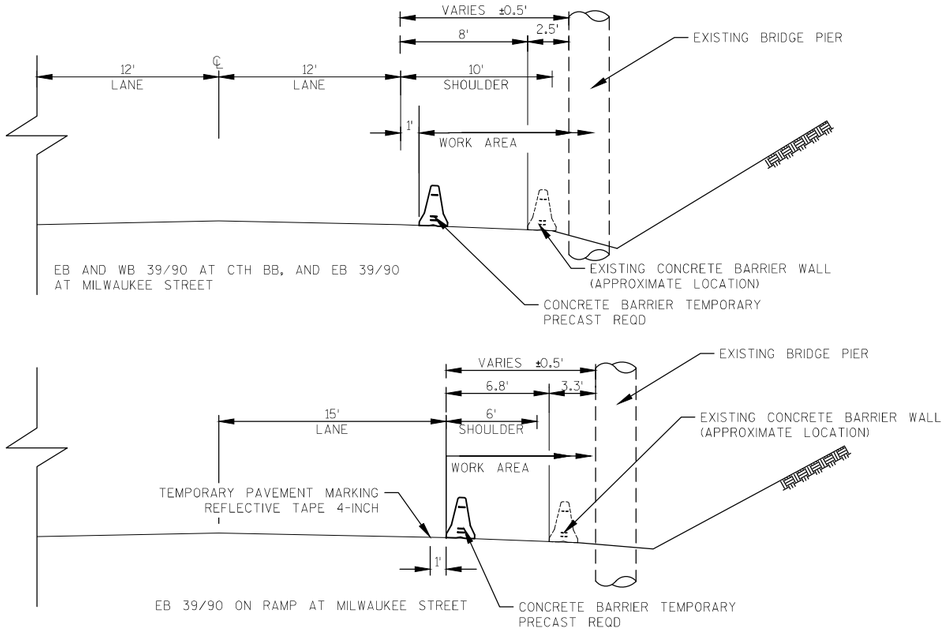
SITE - 21



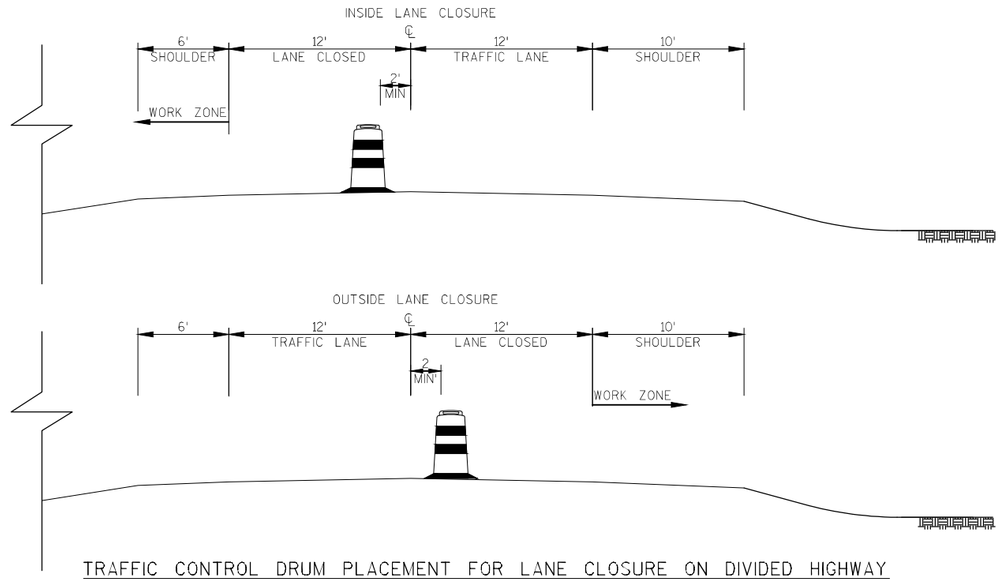
TRAFFIC CONTROL FOR PERMANENT LOW MAINTENANCE CRASH CUSHION INSTALLATION

SITE - 21

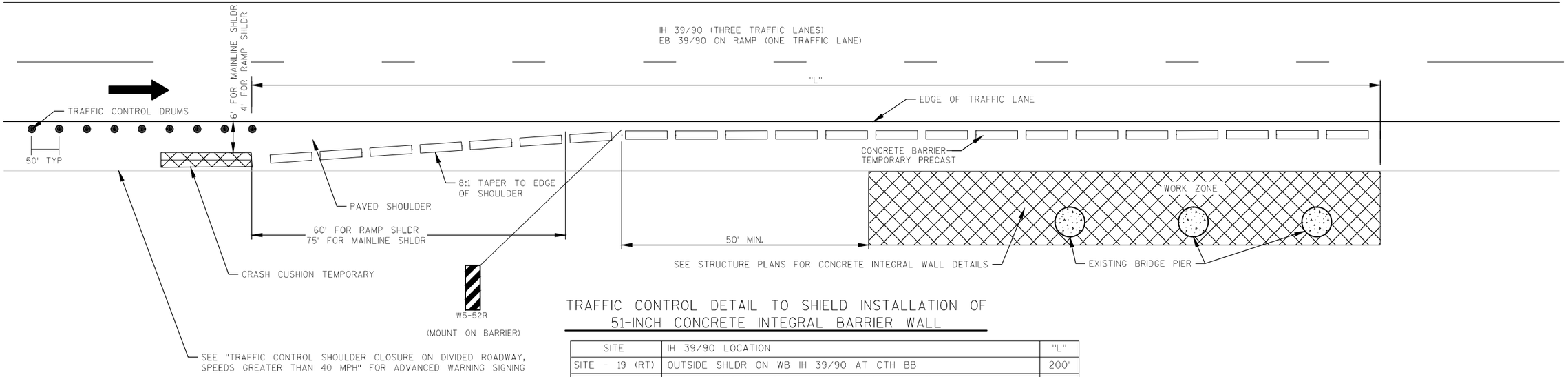
PROJECT NO: 1001-06-73	HWY: IH 39/90	COUNTY: DANE	PLAN: TRAFFIC CONTROL DETAILS	SHEET 5	E



CONCRETE BARRIER TEMPORARY PRECAST PLACEMENT

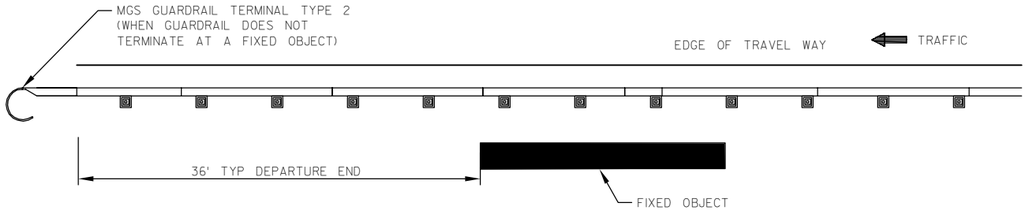


TRAFFIC CONTROL DRUM PLACEMENT FOR LANE CLOSURE ON DIVIDED HIGHWAY



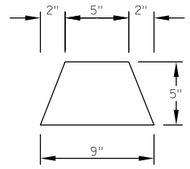
TRAFFIC CONTROL DETAIL TO SHIELD INSTALLATION OF 51-INCH CONCRETE INTEGRAL BARRIER WALL

SITE	IH 39/90 LOCATION	"L"
SITE - 19 (RT)	OUTSIDE SHLDR ON WB IH 39/90 AT CTH BB	200'
SITE - 30 (LT)	MEDIAN SHLR ON EB IH 39/90 AT MILWAUKEE STREET	200'
SITE - 30 (RT)	OUTSIDE SHLDR ON RAMP TO EB IH 39/90 AT MILWAUKEE STREET	175'



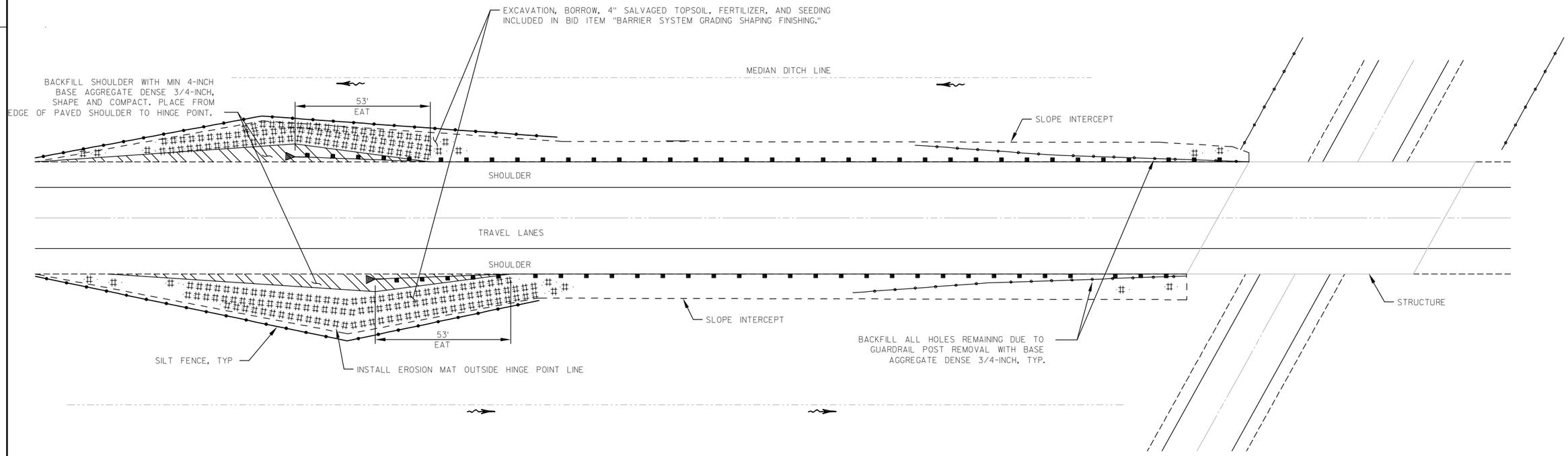
BEAM GUARD AT EXIT END

SITE - 20
SITE - 21
SITE - 26



ASPHALTIC CURB

USE AT UNDISTURBED LOCATIONS AS DIRECTED BY THE ENGINEER, WHERE THE EXISTING ASPHALTIC CURB IS MISSING OR UNABLE TO BE SALVAGED



EROSION CONTROL AND RESTORATION AT MGS GUARDRAIL TERMINAL EAT INSTALLATION

PROJECT NO: 1001-06-73	HWY: IH 39/90	COUNTY: DANE	PLAN: CONSTRUCTION DETAILS	SHEET 7	E

DATE 01APR14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1001-06-73 QUANTITY
0010	204.0110	REMOVING ASPHALTIC SURFACE	SY	20.000	20.000
0020	204.0157	REMOVING CONCRETE BARRIER	LF	225.000	225.000
0030	213.0100	FINISHING ROADWAY (PROJECT) 01. 1101-06-73	EACH	1.000	1.000
0040	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	360.000	360.000
0050	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	115.000	115.000
0060	312.0110	SELECT CRUSHED MATERIAL	TON	80.000	80.000
0070	465.0105	ASPHALTIC SURFACE	TON	70.000	70.000
0080	465.0310	ASPHALTIC CURB	LF	210.000	210.000
0090	465.0315	ASPHALTIC FLUMES	SY	30.000	30.000
0100	603.8000	CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	LF	825.000	825.000
0110	603.8125	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	LF	825.000	825.000
0120	614.0010	BARRIER SYSTEM GRADING SHAPING FINISHING	EACH	19.000	19.000
0130	614.0805	CRASH CUSHIONS PERMANENT LOW MAINTENANCE	EACH	1.000	1.000
0140	614.0905	CRASH CUSHIONS TEMPORARY	EACH	4.000	4.000
0150	614.0920	SALVAGED RAIL	LF	7,650.000	7,650.000
0160	614.0925	SALVAGED GUARDRAIL END TREATMENTS	EACH	22.000	22.000
0170	614.0935	SALVAGED SAND BARRELS	EACH	39.000	39.000
0180	614.2300	MGS GUARDRAIL 3	LF	6,200.000	6,200.000
0190	614.2310	MGS GUARDRAIL 3 HS	LF	150.000	150.000
0200	614.2320	MGS GUARDRAIL 3 QS	LF	37.500	37.500
0210	614.2500	MGS THRIE BEAM TRANSITION	LF	591.000	591.000
0220	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	19.000	19.000
0230	614.2620	MGS GUARDRAIL TERMINAL TYPE 2	EACH	4.000	4.000
0240	619.1000	MOBILIZATION	EACH	1.000	1.000
0250	628.1504	SILT FENCE	LF	3,800.000	3,800.000
0260	628.1520	SILT FENCE MAINTENANCE	LF	3,800.000	3,800.000
0270	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	3.000	3.000
0280	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	3.000	3.000
0290	628.2004	EROSION MAT CLASS I TYPE B	SY	4,600.000	4,600.000
0300	633.0500	DELINEATOR REFLECTORS	EACH	9.000	9.000
0310	633.1000	DELINEATOR BRACKETS	EACH	9.000	9.000
0320	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0330	643.0200	TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (PROJECT) 01. 1001-06-73	DAY	42.000	42.000
0340	643.0300	TRAFFIC CONTROL DRUMS	DAY	4,148.000	4,148.000
0350	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	915.000	915.000
0360	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	117.000	117.000
0370	643.0900	TRAFFIC CONTROL SIGNS	DAY	724.000	724.000
0380	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	252.000	252.000
0390	649.0300	TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE 4-INCH	LF	200.000	200.000
0400	690.0150	SAWING ASPHALT	LF	320.000	320.000
0410	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	200.000	200.000
0420	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	300.000	300.000
0430	SPV.0090	SPECIAL 01. 51-INCH CONCRETE INTEGRAL BARRIER	LF	178.000	178.000

3

REMOVALS

LOCATION		204.0110 REMOVING ASPHALTIC SURFACE (SY)	204.0157 REMOVING CONCRETE BARRIER (LF)
SITE 19 (RT)	OUTSIDE APPROACH		119
SITE 21	GORE	20	
SITE 30 (RT)	OUTSIDE APPROACH		53
SITE 30 (LT)	MEDIAN APPROACH		53
TOTAL		20	225

ASPHALTIC ITEMS

LOCATION		465.0105 ASPHALTIC SURFACE (TON)	465.0310 ASPHALTIC CURB (LF)
SITE 19 (RT)	OUTSIDE APPROACH	26	
SITE 30 (LT)	MEDIAN APPROACH	22	
SITE 30 (RT)	OUTSIDE APPROACH	22	
	UNDISTRIBUTED		210
TOTAL		70	210

ASPHALTIC FLUMES

LOCATION	465.0315 ASPHALTIC FLUMES (SY)
UNDISTRIBUTED	30
TOTAL	30

FINISHING ROADWAY

LOCATION	213.0100 FINISHING ROADWAY (EACH)
PROJECT 1001-06-73	1
TOTAL	1

BASE AGGREGATE

LOCATION		305.0110 BASE AGGREGATE DENSE 3/4-INCH (TON)	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)	312.0110 SELECT CRUSHED MATERIAL (TON)
SITE 19 (RT)	OUTSIDE APPROACH	21	73	30
SITE 20 (RT)	OUTSIDE APPROACH	28		
SITE 21 (LT)	MEDIAN APPROACH	23		
SITE 21 (RT)	OUTSIDE APPROACH	21		
SITE 22 (LT)	MEDIAN APPROACH	18		
SITE 22 (RT)	OUTSIDE APPROACH	18		
SITE 23 (LT)	MEDIAN APPROACH	18		
SITE 23 (RT)	OUTSIDE APPROACH	18		
SITE 24 (RT)	OUTSIDE APPROACH	26		
SITE 26 (LT)	MEDIAN APPROACH	14		
SITE 26 (RT)	OUTSIDE APPROACH	14		
SITE 27 (LT)	MEDIAN APPROACH	18		
SITE 27 (RT)	OUTSIDE APPROACH	18		
SITE 28 (LT)	MEDIAN APPROACH	18		
SITE 28 (RT)	OUTSIDE APPROACH	18		
SITE 29 (LT)	MEDIAN APPROACH	18		
SITE 29 (RT)	OUTSIDE APPROACH	18		
SITE 30 (LT)	MEDIAN APPROACH	15	21	25
SITE 30 (RT)	OUTSIDE APPROACH	18	21	25
TOTAL		360	115	80

NOTE: BASE AGGREGATE DENSE 1 1/4-INCH INCLUDES MATERIAL TO RESTORE THE GRADE IN THE AREAS OF REMOVED CONCRETE BARRIER. BASE AGGREGATE DENSE 3/4-INCH INCLUDES MATERIAL TO BACK FILL THE REMOVED POST HOLES.

BARRIER SYSTEM GRADING SHAPING FINISHING

LOCATION		SITE CAT.	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING (EACH)	FOR INFORMATIONAL PURPOSES ONLY: BORROW (CY)	SALVAGED TOPSOIL (SY)	FERTILIZER TYPE B (CWT)	SEEDING MIXTURE NO. 70 (LB)	SEEDING TEMPORARY (LB)
SITE 19 (RT)	OUTSIDE APPROACH	MF	1	200	500	0.3	2	14
SITE 20 (RT)	OUTSIDE APPROACH	SF	1	100	175	0.1	1	5
SITE 21 (LT)	MEDIAN APPROACH	SF	1	100	175	0.1	1	5
SITE 21 (RT)	OUTSIDE APPROACH	SF	1	100	175	0.1	1	5
SITE 22 (LT)	MEDIAN APPROACH	SF	1	100	175	0.1	1	5
SITE 22 (RT)	OUTSIDE APPROACH	MF	1	200	500	0.3	2	14
SITE 23 (LT)	MEDIAN APPROACH	SF	1	100	175	0.1	1.5	5
SITE 23 (RT)	OUTSIDE APPROACH	SF	1	100	175	0.1	1.5	5
SITE 24 (RT)	OUTSIDE APPROACH	MF	1	200	500	0.3	2	14
SITE 26 (LT)	MEDIAN APPROACH	SF	1	100	175	0.1	1	5
SITE 26 (RT)	OUTSIDE APPROACH	SF	1	100	175	0.1	1	5
SITE 27 (LT)	MEDIAN APPROACH	SF	1	100	175	0.1	1	5
SITE 27 (RT)	OUTSIDE APPROACH	MF	1	200	500	0.3	2	14
SITE 28 (LT)	MEDIAN APPROACH	SF	1	100	175	0.1	1	5
SITE 28 (RT)	OUTSIDE APPROACH	SF	1	100	175	0.1	1	5
SITE 29 (LT)	MEDIAN APPROACH	SF	1	100	175	0.1	1.5	5
SITE 29 (RT)	OUTSIDE APPROACH	SF	1	100	175	0.1	1.5	5
SITE 30 (LT)	MEDIAN APPROACH	SF	1	50	150	0.1	1	4
SITE 30 (RT)	OUTSIDE APPROACH	SF	1	100	175	0.1	1	5
TOTAL			19	2250	4600	2.7	25	130

NOTE: DETAILED SURFACE ELEVATION INFORMATION WAS UNAVAILABLE FOR THESE SITE LOCATIONS. THE QUANTITIES FOR GRADING, SHAPING AND FINISHING ITEMS WERE ESTIMATED BY COMPARING THESE SITES TO SIMILAR LOCATIONS WHERE SURFACE INFORMATION WAS AVAILABLE. THE SITES WERE CATEGORIZED FOR ESTIMATING PURPOSES AS FOLLOWS:

SF: SMALL FILL (<150 CY)
MF: MEDIUM FILL (<300 CY)

3

BEAM GUARD SUMMARY

LOCATION	614.0920 SALVAGED RAIL (LF)	614.0925 SALVAGED GUARDRAIL END TREATMENTS (EACH)	614.0935 SALVAGED SAND BARRELS (EACH)	614.2300 MGS GUARDRAIL 3 (LF)	614.2310 MGS GUARDRAIL 3 HS (LF)	614.2320 MGS GUARDRAIL 3 QS (LF)	614.2500 MGS THRIE BEAM TRANSITION (LF)	614.2610 MGS GUARDRAIL TERMINAL EAT (EACH)	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 (EACH)
SITE 19 (RT) OUTSIDE APPROACH	550			550			39.4	1	
SITE 20 (RT) OUTSIDE APPROACH	950	2		887.5				1	1
SITE 21 (LT) MEDIAN APPROACH	650	2	39	462.5	50	12.5		1	1
SITE 21 (RT) OUTSIDE APPROACH	500	1		350			39.4	1	
SITE 22 (LT) MEDIAN APPROACH	375	1		287.5			39.4	1	
SITE 22 (RT) OUTSIDE APPROACH	325	1		237.5			39.4	1	
SITE 23 (LT) MEDIAN APPROACH	375	1		287.5			39.4	1	
SITE 23 (RT) OUTSIDE APPROACH	325	1		237.5			39.4	1	
SITE 24 (RT) OUTSIDE APPROACH	825	1		725			39.4	1	
SITE 26 (LT) MEDIAN APPROACH	125	2		225				1	1
SITE 26 (RT) OUTSIDE APPROACH	125	2		225				1	1
SITE 27 (LT) MEDIAN APPROACH	375	1		225	50	12.5	39.4	1	
SITE 27 (RT) OUTSIDE APPROACH	375	1		225	50	12.5	39.4	1	
SITE 28 (LT) MEDIAN APPROACH	375	1		287.5			39.4	1	
SITE 28 (RT) OUTSIDE APPROACH	325	1		237.5			39.4	1	
SITE 29 (LT) MEDIAN APPROACH	325	1		237.5			39.4	1	
SITE 29 (RT) OUTSIDE APPROACH	325	1		237.5			39.4	1	
SITE 30 (LT) MEDIAN APPROACH	150	1		175			39.4	1	
SITE 30 (RT) OUTSIDE APPROACH	275	1		100			39.4	1	
TOTAL	7650	22	39	6200	150	37.5	591	19	4

EROSION CONTROL ITEMS

LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)	628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)	628.2004 EROSION MAT CLASS I TYPE B (SY)
SITE 19 (RT) OUTSIDE APPROACH	200	200			500
SITE 20 (RT) OUTSIDE APPROACH	200	200			175
SITE 21 (LT) MEDIAN APPROACH	200	200			175
SITE 21 (RT) OUTSIDE APPROACH	200	200			175
SITE 22 (LT) MEDIAN APPROACH	200	200			175
SITE 22 (RT) OUTSIDE APPROACH	200	200			500
SITE 23 (LT) MEDIAN APPROACH	200	200			175
SITE 23 (RT) OUTSIDE APPROACH	200	200			175
SITE 24 (RT) OUTSIDE APPROACH	200	200			500
SITE 26 (LT) MEDIAN APPROACH	200	200			175
SITE 26 (RT) OUTSIDE APPROACH	200	200			175
SITE 27 (LT) MEDIAN APPROACH	200	200			175
SITE 27 (RT) OUTSIDE APPROACH	200	200			500
SITE 28 (LT) MEDIAN APPROACH	200	200			175
SITE 28 (RT) OUTSIDE APPROACH	200	200			175
SITE 29 (LT) MEDIAN APPROACH	200	200			175
SITE 29 (RT) OUTSIDE APPROACH	200	200			175
SITE 30 (LT) MEDIAN APPROACH	200	200			150
SITE 30 (RT) OUTSIDE APPROACH	200	200			175
UNDISTRIBUTED			3	3	
TOTAL	3800	3800	3	3	4600

CRASH CUSHIONS

LOCATION	614.0805 CRASH CUSHIONS PERMANENT LOW MAINTENANCE (EA)	614.0905 CRASH CUSHIONS TEMPORARY (EA)
SITE 19 (RT) OUTSIDE APPROACH		1
*SITE 21 (LT) GORE	1	1
SITE 30 (RT) OUTSIDE APPROACH		1
SITE 30 (LT) MEDIAN APPROACH		1
TOTAL	1	4

*NOTE: FOR GORE INSTALLATION USE OBJECT MARKING PATTERN OM-3C.
CRASH TEST CONDITION TL-3.
WIDTH REQUIREMENTS, DESIRABLE AND (MINIMUM) SHOWN IN PARENTHSIS;
N = 12' (6'), L = 55' (28'), F = 4' (2')

CONCRETE BARRIER TEMPORARY PRECAST

LOCATION	603.8000 DELIVERED (LF)	603.8125 INSTALLED (LF)
SITE 19 (RT) OUTSIDE APPROACH	200	200
SITE 21 (LT) GORE	250	250
SITE 30 (LT) MEDIAN APPROACH	200	200
SITE 30 (RT) OUTSIDE APPROACH	175	175
TOTAL	825	825

PAVEMENT MARKING

LOCATION	649.0300 TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE 4-INCH WHITE (LF)
SITE 30 (RT) OUTSIDE APPROACH	200
TOTAL	200

TRAFFIC CONTROL

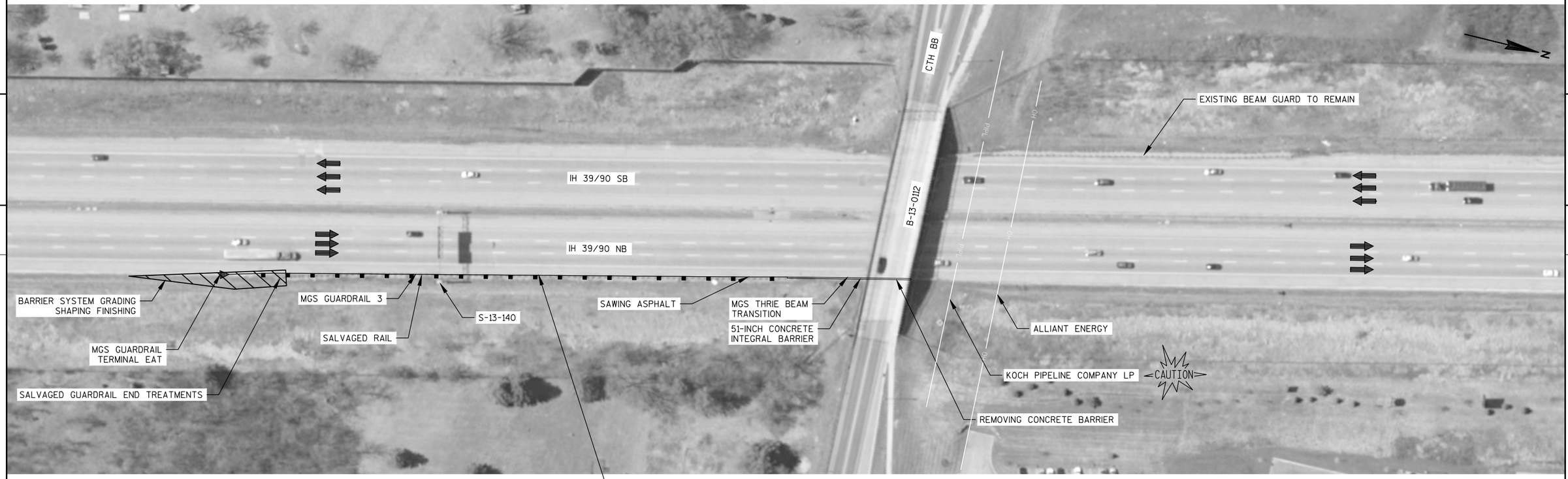
LOCATION	SITE DURATION CALENDAR DAYS	643.0200 SURVEILLANCE AND MAINTENANCE (PROJECT) (EACH)	643.0300 DRUMS NO. OF DEVICES IN SERVICE	643.0300 DRUMS PAY QUANTITY (DAYS)	643.0715 WARNING LIGHTS TYPE C NO. OF DEVICES IN SERVICE	643.0715 WARNING LIGHTS TYPE C PAY QUANTITY (DAYS)	643.0800 ARROW BOARDS NO. OF DEVICES IN SERVICE	643.0800 ARROW BOARDS PAY QUANTITY (DAYS)	643.0900 SIGNS NO. OF DEVICES IN SERVICE	643.0900 SIGNS PAY QUANTITY (DAYS)	643.1050 SIGNS PCMS NO. OF DEVICES IN SERVICE	643.1050 SIGNS PCMS PAY QUANTITY (DAYS)
SITE 19 (RT) OUTSIDE APPROACH	15		82	1230	16	240	2	30	9	135		
SITE 20 (RT) OUTSIDE APPROACH	3		94	282	16	48	2	6	8	24		
SITE 21 (LT) MEDIAN APPROACH	3		86	258	21	63	2	6	8	24		
SITE 21 (RT) OUTSIDE APPROACH	1		74	74	21	21	2	2	8	8		
SITE 21 GORE	10		20		20				9	90		
SITE 22 (LT) MEDIAN APPROACH	1		70	70	16	16	2	2	8	8		
SITE 22 (RT) OUTSIDE APPROACH	1		86	86	21	21	2	2	9	9		
SITE 23 (LT) MEDIAN APPROACH	1		40	40	5	5	1	1	6	6		
SITE 23 (RT) OUTSIDE APPROACH	1		66	66	16	16	2	2	8	8		
SITE 24 (RT) OUTSIDE APPROACH	3		86	258	16	48	2	6	8	24		
SITE 26 (LT) MEDIAN APPROACH	1		66	66	16	16	2	2	8	8		
SITE 26 (RT) OUTSIDE APPROACH	1		66	66	16	16	2	2	8	8		
SITE 27 (LT) MEDIAN APPROACH	1		70	70	16	16	2	2	9	9		
SITE 27 (RT) OUTSIDE APPROACH	1		122	122	21	21	2	2	9	9		
SITE 28 (LT) MEDIAN APPROACH	1		70	70	16	16	2	2	8	8		
SITE 28 (RT) OUTSIDE APPROACH	1		70	70	16	16	2	2	8	8		
SITE 29 (LT) MEDIAN APPROACH	1		35	35	5	5	1	1	6	6		
SITE 29 (RT) OUTSIDE APPROACH	1		70	70	16	16	2	2	8	8		
SITE 30 (LT) MEDIAN APPROACH	15		46	690	16	240	2	30	9	135		
SITE 30 (RT) OUTSIDE APPROACH	15		35	525	5	75	1	15	7	105		
PROJECT	42	42							2	84	6	252
TOTAL		42		4148		915		117		724		252

SAWING ASPHALT

LOCATION		690.0150 SAWING ASPHALT (LF)
SITE 19 (RT)	OUTSIDE APPROACH	120
SITE 21	GORE	90
SITE 30 (RT)	OUTSIDE APPROACH	55
SITE 30 (LT)	MEDIAN APPROACH	55
TOTAL		320

DELINEATOR REFLECTORS AND BRACKETS

LOCATION		633.0500 DELINEATOR REFLECTORS YELLOW (EACH)	633.0500 DELINEATOR REFLECTORS WHITE (EACH)	633.1000 DELINEATOR BRACKETS (EACH)
SITE 19 (RT)	OUTSIDE APPROACH		3	3
SITE 30 (LT)	MEDIAN APPROACH	3		3
SITE 30 (RT)	OUTSIDE APPROACH		3	3
SUBTOTAL		3	6	9
TOTAL		9		9

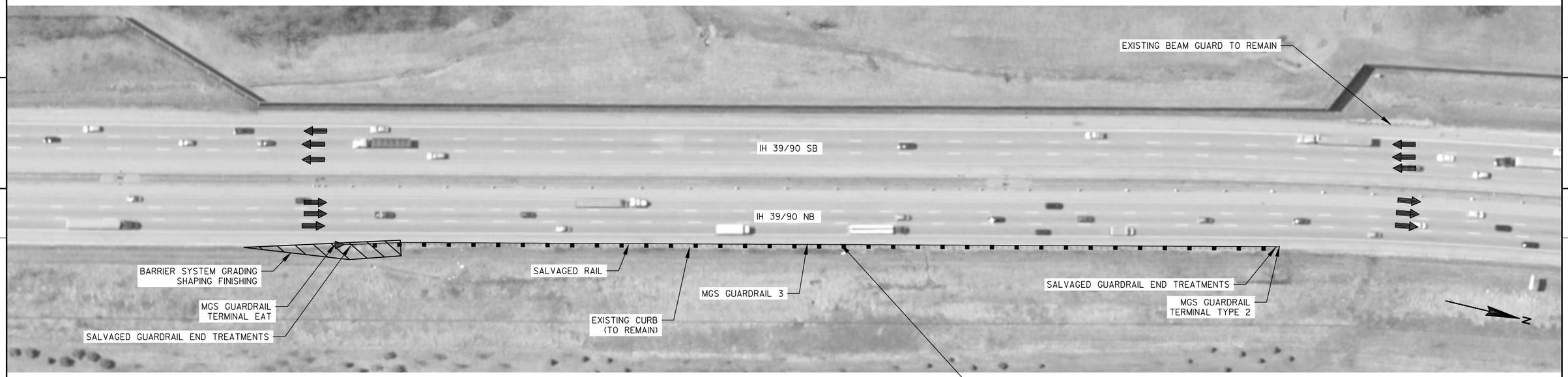


SITE 19 NB LOG MILE 139.8

BID ITEM	SITE 19 APPROACH OUTSIDE, RT	
	(LF)	(EACH)
MGS THRIE BEAM TRANSITION	39.4	---
MGS GUARDRAIL 3	550	---
MGS GUARDRAIL TERMINAL EAT	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1
51-INCH CONCRETE INTEGRAL BARRIER	66	---
SAWING ASPHALT	120	---
SALVAGED RAIL	550	---
SALVAGED GUARDRAIL END TREATMENTS	---	1
REMOVING CONCRETE BARRIER	119	---

SCALE, FEET 0 50 100

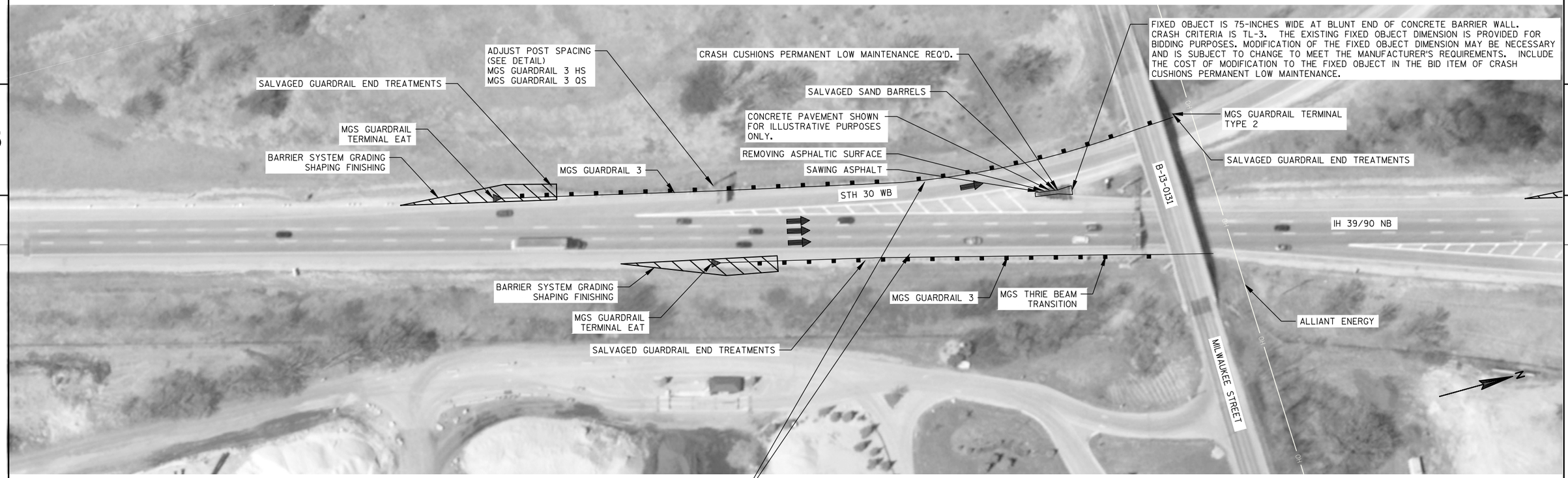
PROJECT NO: 1001-06-73	HWY: IH 39/90	COUNTY: DANE	PLAN : BEAM GUARD LOCATIONS	SHEET 1 OF 9	SHEET 12	E



BID ITEM	SITE 20 APPROACH OUTSIDE, RT	
	(LF)	(EACH)
MGS GUARDRAIL 3	887.5	---
MGS GUARDRAIL TERMINAL EAT	---	1
MGS GUARDRAIL TERMINAL TYPE 2	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1
SALVAGED RAIL	950	---
SALVAGED GUARDRAIL END TREATMENTS	---	2

SCALE, FEET 0 50 100

PROJECT NO: 1001-06-73	HWY: IH 39/90	COUNTY: DANE	PLAN : BEAM GUARD LOCATIONS	SHEET 2 OF 9	SHEET 13	E

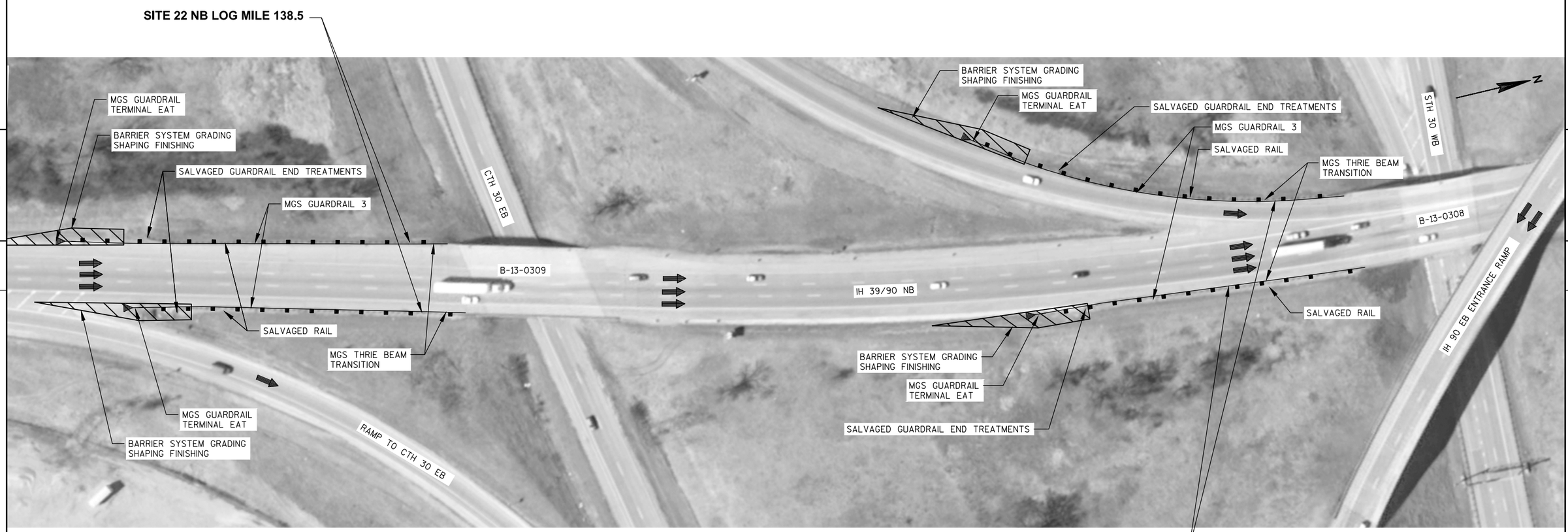


SITE 21 NB MILE LOG 138.8

BID ITEM	SITE 21				
	APPROACH MEDIAN, LT			APPROACH OUTSIDE, RT	
	(LF)	(EACH)	(SY)	(LF)	(EACH)
MGS THRIE BEAM TRANSITION	---	---	---	39.4	---
MGS GUARDRAIL 3	462.5	---	---	350	---
MGS GUARDRAIL 3 HS	50	---	---	---	---
MGS GUARDRAIL 3 QS	12.5	---	---	---	---
MGS GUARDRAIL TERMINAL EAT	---	1	---	---	1
MGS GUARDRAIL TERMINAL TYPE 2	---	1	---	---	---
REMOVING ASPHALTIC SURFACE	---	---	20	---	---
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1	---	---	1
SALVAGED RAIL	650	---	---	500	---
SALVAGED GUARDRAIL END TREATMENTS	---	2	---	---	1
SALVAGED SAND BARRELS	---	39	---	---	---

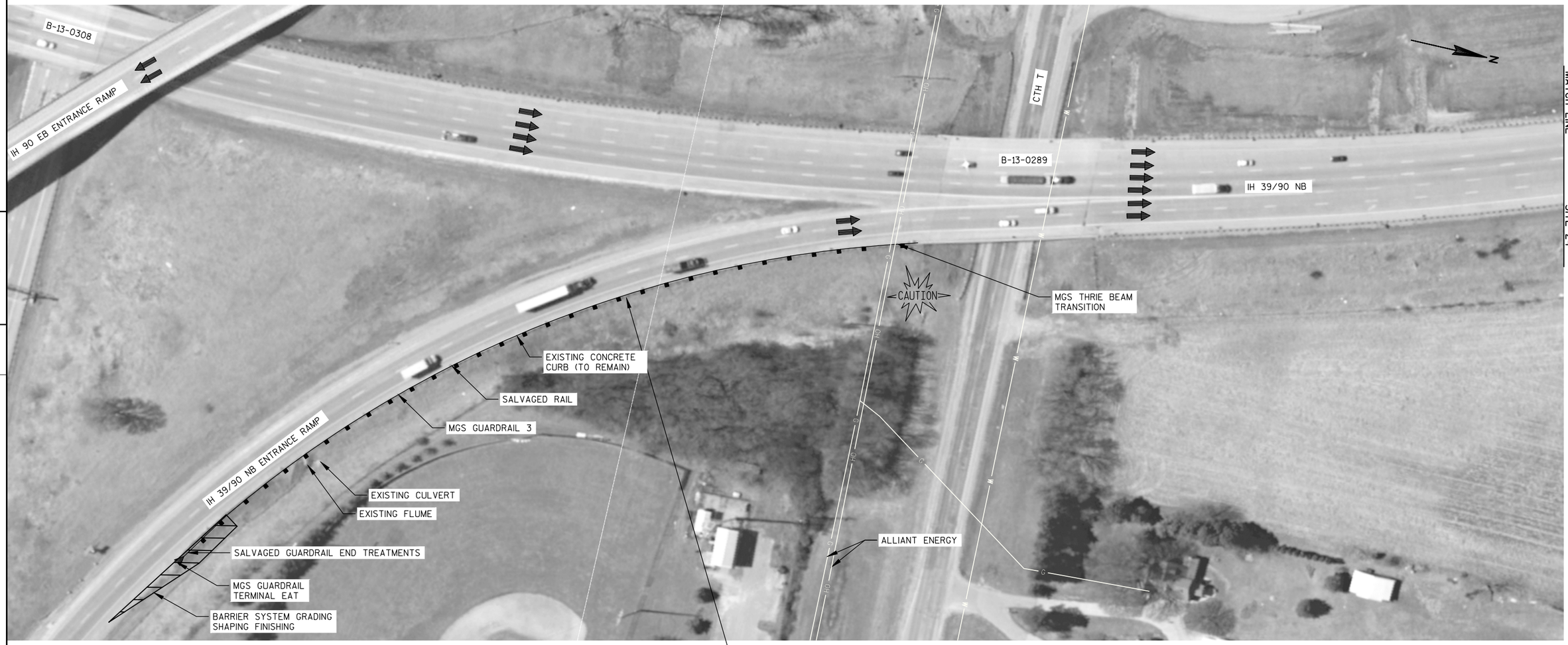
SCALE, FEET 0 50 100

5



BID ITEM	SITE 22				SITE 23			
	APPROACH MEDIAN, LT		APPROACH OUTSIDE, RT		APPROACH MEDIAN, LT		APPROACH OUTSIDE, RT	
	(LF)	(EACH)	(LF)	(EACH)	(LF)	(EACH)	(LF)	(EACH)
MGS THRIE BEAM TRANSITION	39.4	---	39.4	---	39.4	---	39.4	---
MGS GUARDRAIL 3	287.5	---	237.5	---	287.5	---	237.5	---
MGS GUARDRAIL TERMINAL EAT	---	1	---	1	---	1	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1	---	1	---	1	---	1
SALVAGED RAIL	375	---	325	---	375	---	325	---
SALVAGED GUARDRAIL END TREATMENTS	---	1	---	1	---	1	---	1

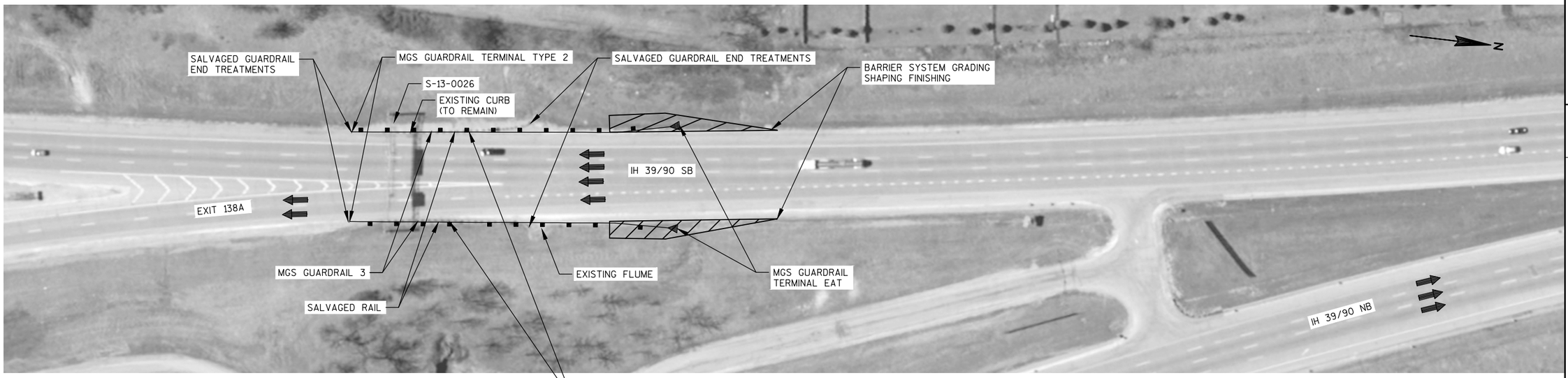
SCALE, FEET 0 50 100



BID ITEM	SITE 24 APPROACH OUTSIDE, RT	
	(LF)	(EACH)
MGS THRIE BEAM TRANSITION	39.4	---
MGS GUARDRAIL 3	725	---
MGS GUARDRAIL TERMINAL EAT	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1
SALVAGED RAIL	825	---
SALVAGED GUARDRAIL END TREATMENTS	---	1

SCALE, FEET 0 50 100

PROJECT NO: 1001-06-73	HWY: IH 39/90	COUNTY: DANE	PLAN : BEAM GUARD LOCATIONS	SHEET 5 OF 9	SHEET 16	E

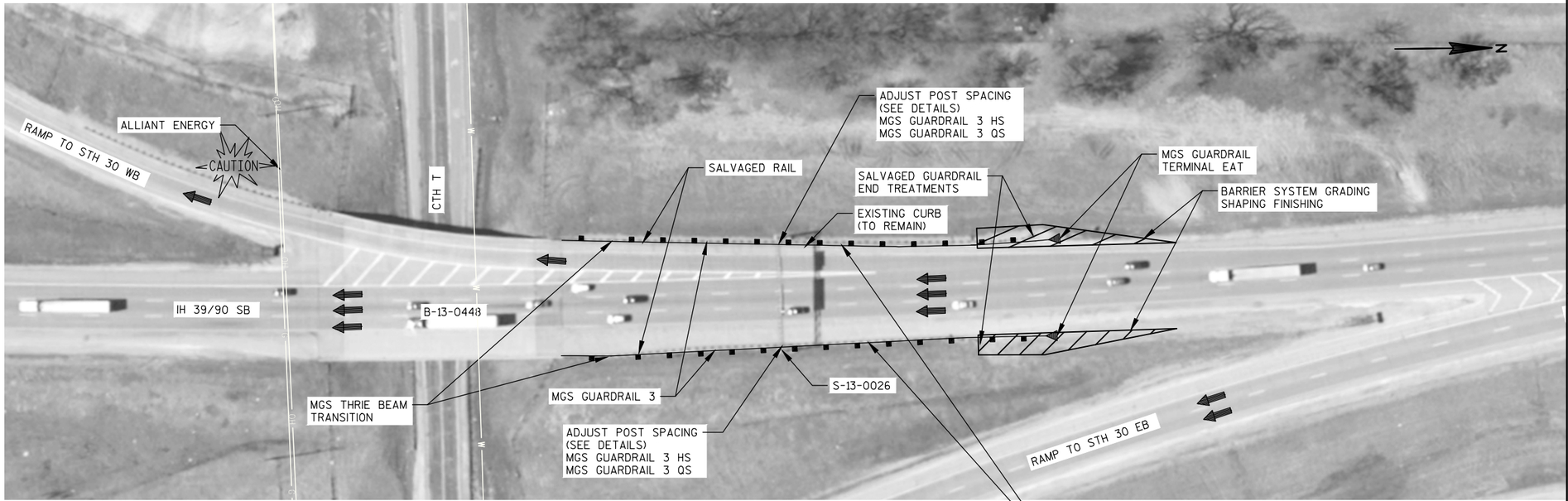


SITE 26 SB LOG MILE 137.9

BID ITEM	SITE 26			
	APPROACH MEDIAN, LT		APPROACH OUTSIDE, RT	
	(LF)	(EACH)	(LF)	(EACH)
MGS GUARDRAIL 3	225	---	225	---
MGS GUARDRAIL TERMINAL EAT	---	1	---	1
MGS GUARDRAIL TERMINAL TYPE 2	---	1	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1	---	1
MGS THRIE BEAM BULLNOSE TERMINAL	---	---	---	---
SALVAGED RAIL	125	---	125	---
SALVAGED GUARDRAIL END TREATMENTS	---	2	---	2

SCALE, FEET 0 50 100

PROJECT NO:1001-06-73	HWY:IH 39/90	COUNTY:DANE	PLAN : BEAM GUARD LOCATIONS SHEET 6 OF 9	SHEET 17 E



BID ITEM	SITE 27			
	APPROACH MEDIAN, LT		APPROACH OUTSIDE, RT	
	(LF)	(EACH)	(LF)	(EACH)
MGS THRIE BEAM TRANSITION	39.4	---	39.4	---
MGS GUARDRAIL 3	225	---	225	---
MGS GUARDRAIL 3 HS	50	---	50	---
MGS GUARDRAIL 3 QS	12.5	---	12.5	---
MGS GUARDRAIL TERMINAL EAT	---	1	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1	---	1
SALVAGED RAIL	375	---	375	---
SALVAGED GUARDRAIL END TREATMENTS	---	1	---	1

SCALE, FEET 0 50 100

PROJECT NO:1001-06-73	HWY:IH 39/90	COUNTY:DANE	PLAN : BEAM GUARD LOCATIONS	SHEET 7 OF 9	SHEET 18	E

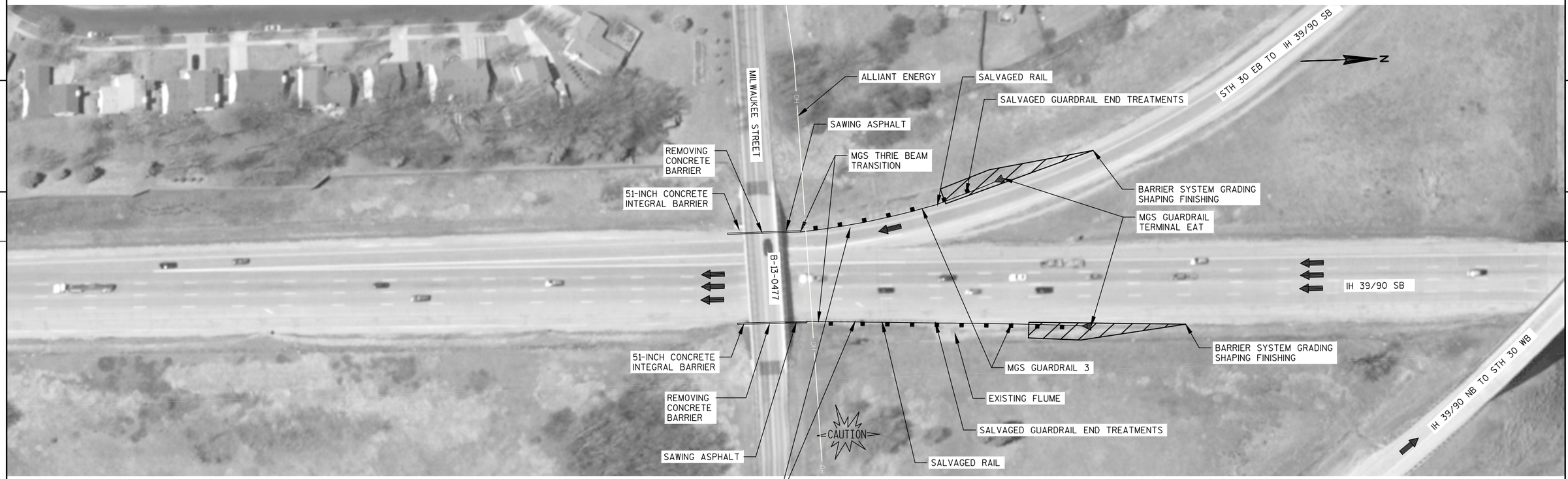
FILE NAME : X:\3230900\120136.01\TECH\CAD\10010603\SHEETSPLAN\050101_PD.DWG PLOT DATE : 3/25/2014 8:05 AM PLOT BY : DAVID YAHNKE PLOT NAME : **** PLOT SCALE : 1": 100'

WISDOT/CADDS SHEET 45

BID ITEM	SITE 28				SITE 29			
	APPROACH MEDIAN, LT		APPROACH OUTSIDE, RT		APPROACH MEDIAN, LT		APPROACH OUTSIDE, RT	
	(LF)	(EACH)	(LF)	(EACH)	(LF)	(EACH)	(LF)	(EACH)
MGS THRIE BEAM TRANSITION	39.4	---	39.4	---	39.4	---	39.4	---
MGS GUARDRAIL 3	287.5	---	237.5	---	237.5	---	237.5	---
MGS GUARDRAIL TERMINAL EAT	---	1	---	1	---	1	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1	---	1	---	1	---	1
SALVAGED RAIL	375	---	325	---	325	---	325	---
SALVAGED GUARDRAIL END TREATMENTS	---	1	---	1	---	1	---	1

SCALE, FEET 0 50 100

PROJECT NO: 1001-06-73	HWY: IH 39/90	COUNTY: DANE	PLAN : BEAM GUARD LOCATIONS	SHEET 8 OF 9	SHEET 19	E



BID ITEM	SITE 30			
	APPROACH MEDIAN, LT		APPROACH OUTSIDE, RT	
	(LF)	(EACH)	(LF)	(EACH)
MGS THRIE BEAM TRANSITION	39.4	---	39.4	---
MGS GUARDRAIL 3	175	---	100	---
MGS GUARDRAIL TERMINAL EAT	---	1	---	1
BARRIER SYSTEM GRADING SHAPING FINISHING	---	1	---	1
51-INCH CONCRETE INTEGRAL BARRIER	56	---	56	---
SAWING ASPHALT	55	---	55	---
SALVAGED RAIL	150	---	275	---
SALVAGED GUARDRAIL END TREATMENTS	---	1	---	1
REMOVING CONCRETE BARRIER	53	---	53	---

SCALE, FEET 0 50 100

PROJECT NO:1001-06-73	HWY: IH 39/90	COUNTY: DANE	PLAN : BEAM GUARD LOCATIONS SHEET 9 OF 9	SHEET 20	E

FILE NAME : X:\3230900\120136.01\TECH\CAD\10010603\SHEETSPLAN\050101_PD.DWG PLOT DATE : 3/25/2014 8:05 AM PLOT BY : DAVID YAHNKE PLOT NAME : **** PLOT SCALE : 1": 100'

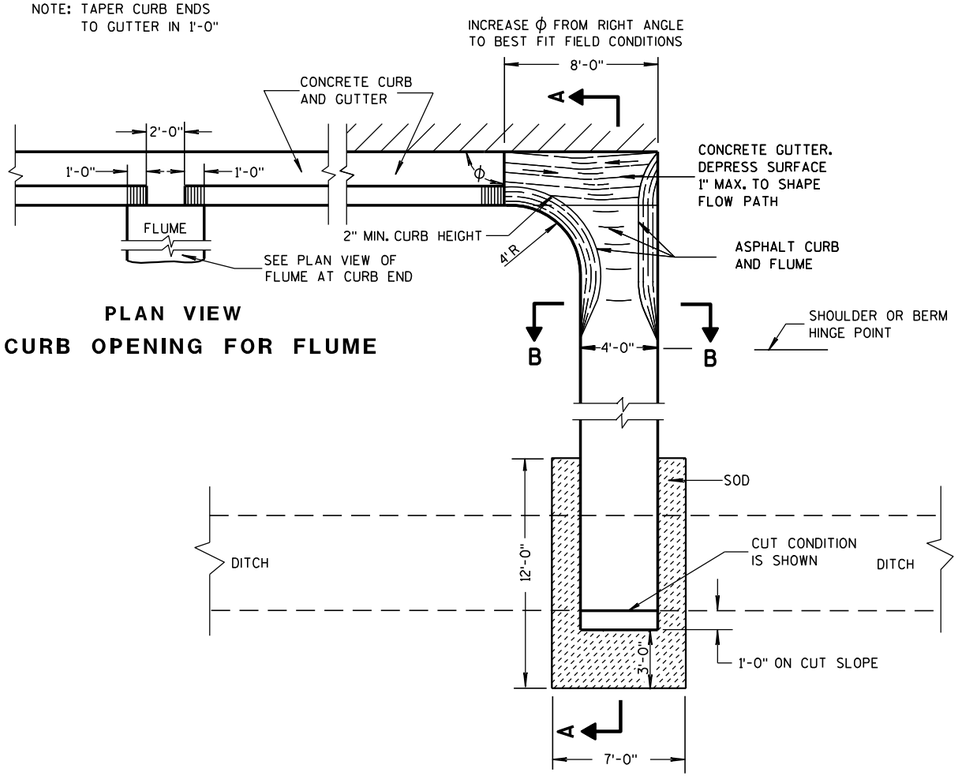
WISDOT/CADDS SHEET 45

Standard Detail Drawing List

08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
14B07-13A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-01A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-01A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15A02-08	DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15D12-03	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

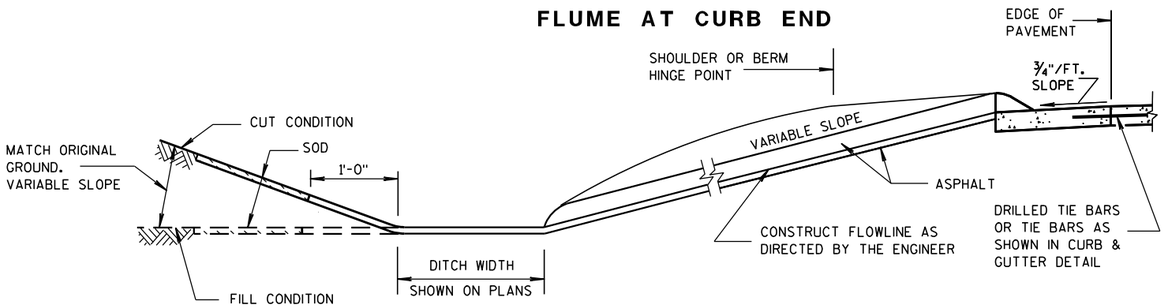
6

ASPHALTIC FLUME

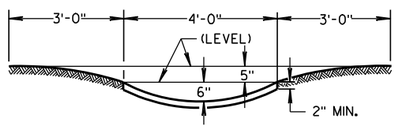


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

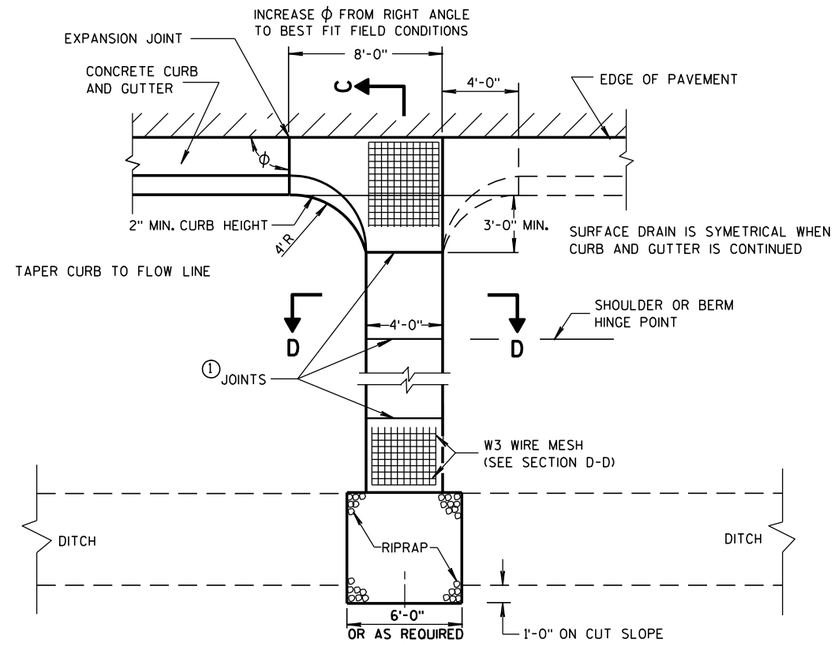
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

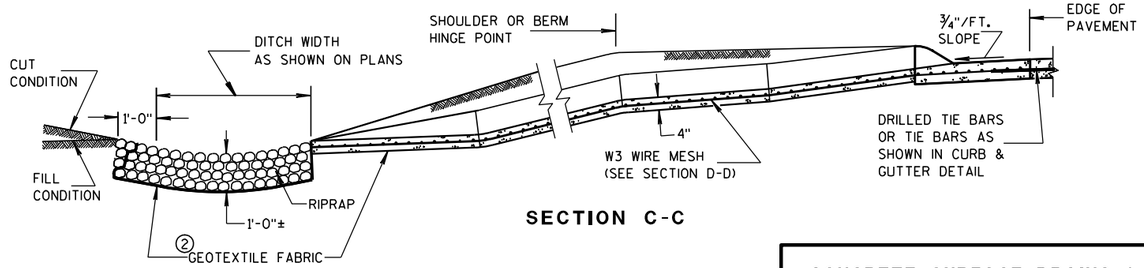
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

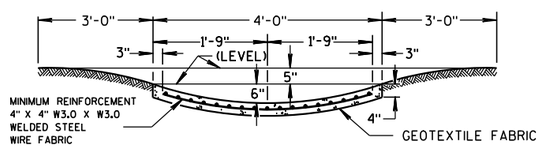
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



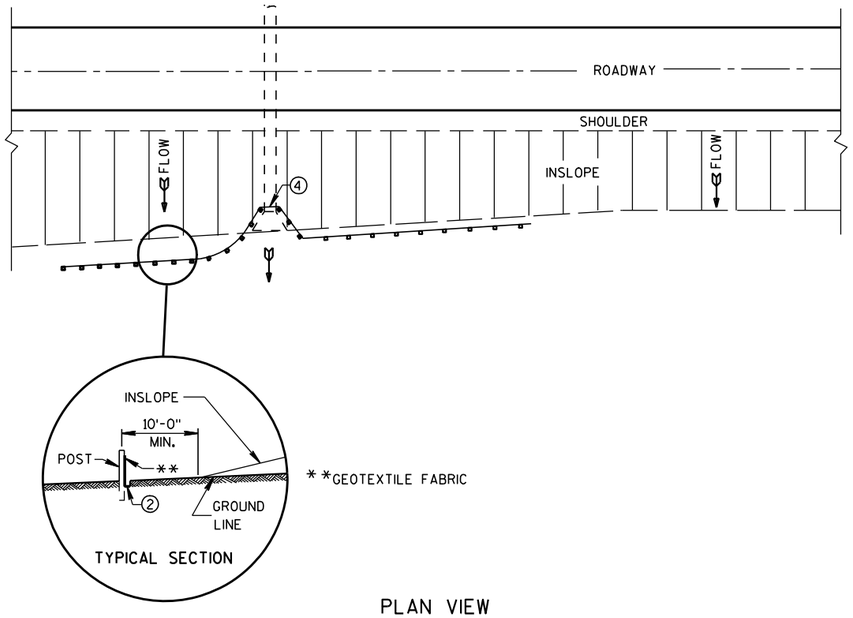
SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

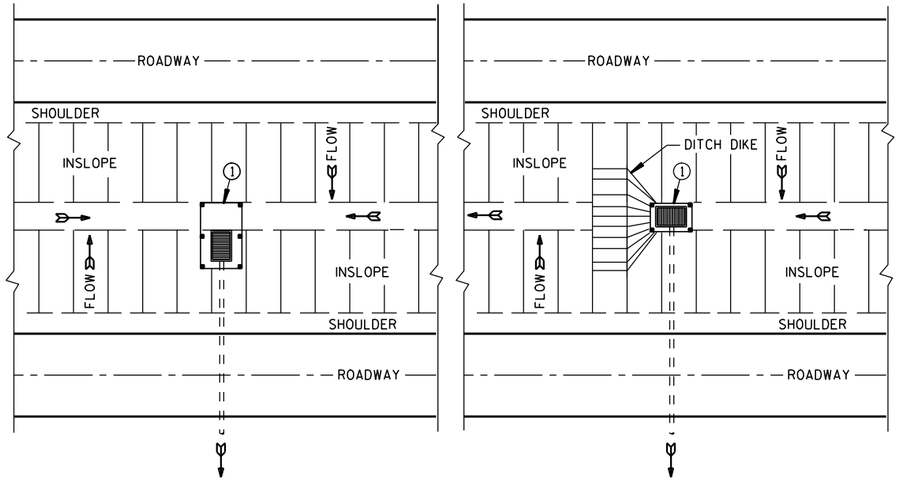
APPROVED
9-4-08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
MENT
FHWA

6
S.D.D. 8 D 4-5



PLAN VIEW

TYPICAL APPLICATION 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.

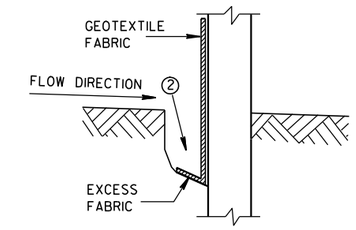
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

② FOR MANUAL INSTALLATIONS THE 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.

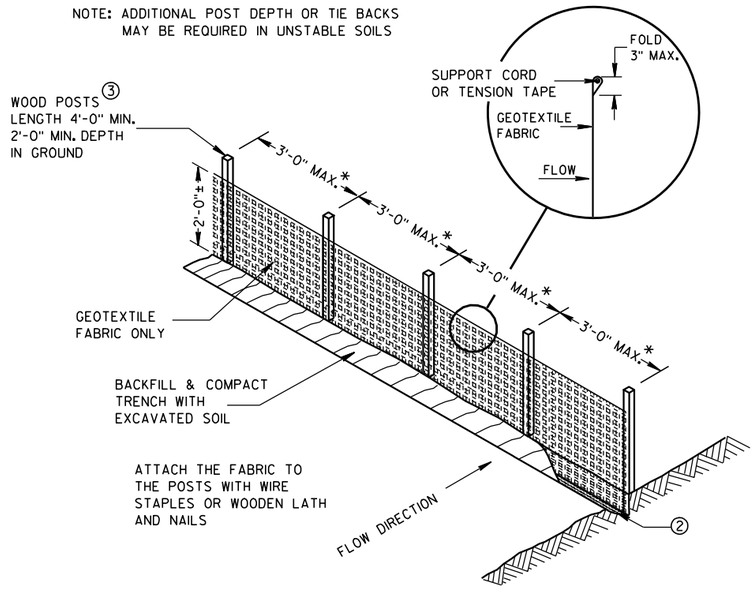
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

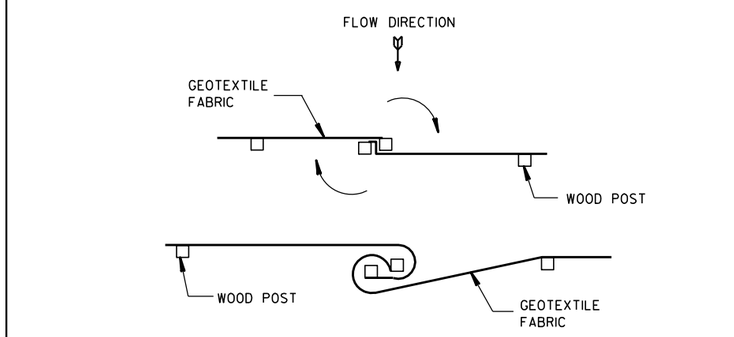
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



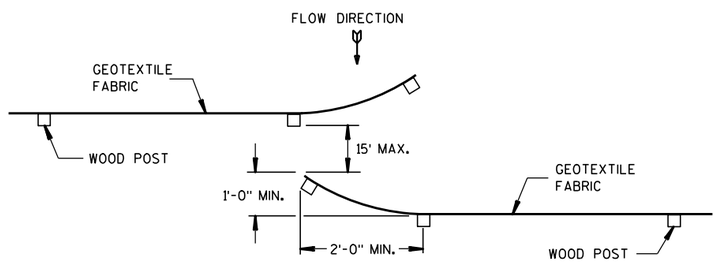
TRENCH DETAIL



SILT FENCE

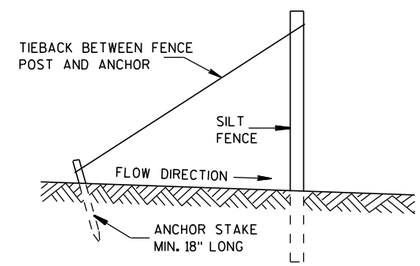


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

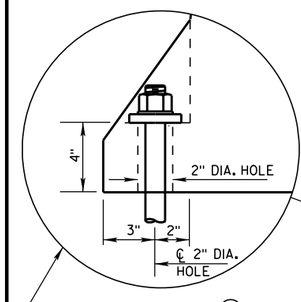
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

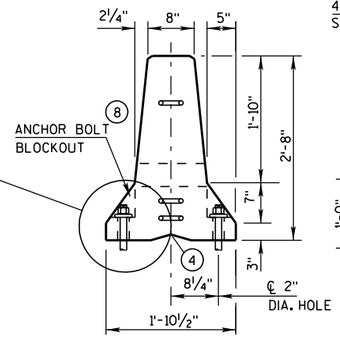
S.D.D. 8 E 9-6

6

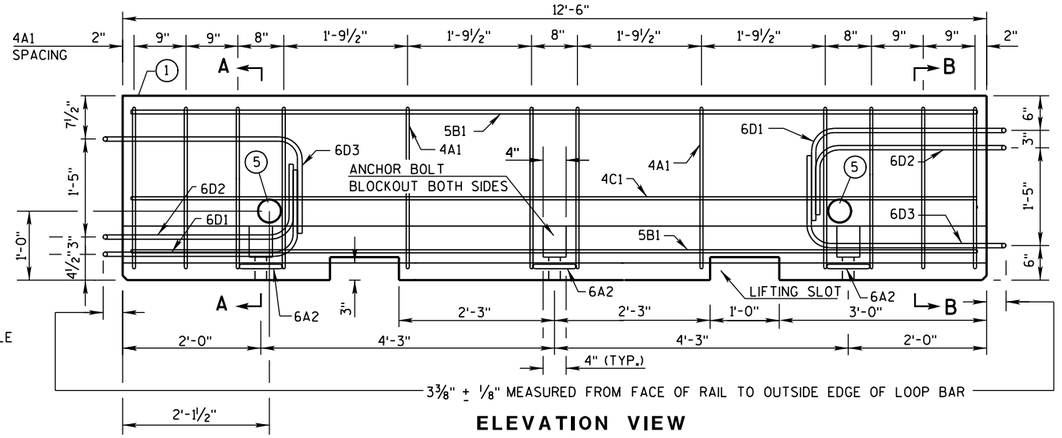
S.D.D. 8 E 9-6



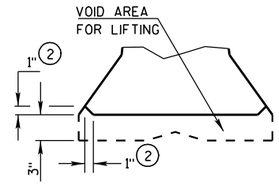
ANCHOR ON TRAFFIC SIDE (8) ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



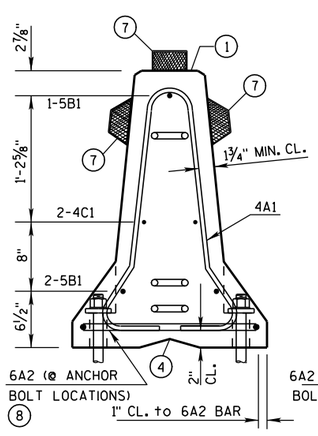
END VIEW



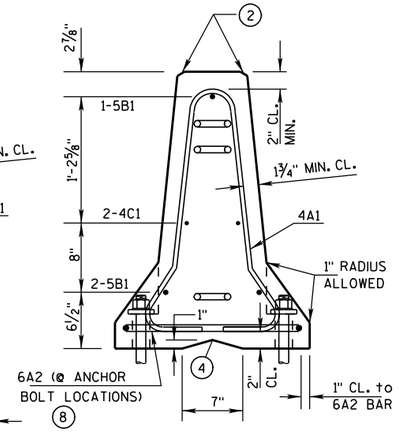
ELEVATION VIEW



DETAIL "B"
LIFTING SLOT DETAIL



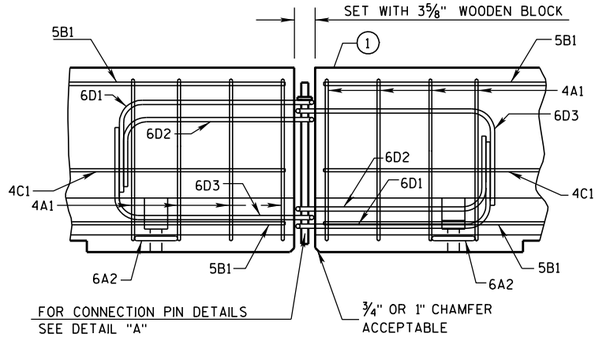
SECTION A-A
(STIRRUP PLACEMENT)



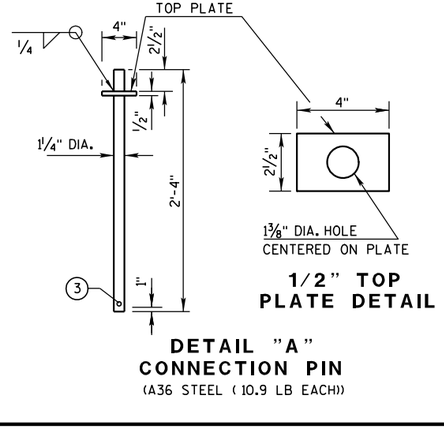
SECTION B-B
(STIRRUP PLACEMENT)

PLAN VIEW

DETAILS OF BARRIER SECTION

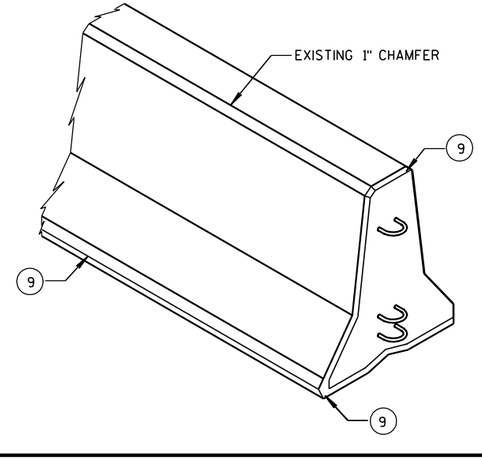


DETAILS OF BARRIER CONNECTION



1/2" TOP PLATE DETAIL

DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-13(a) THRU 14B7-13(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR EPOXY ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WICBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

(6) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

(8) SEE SHEET D FOR ANCHORING CRITERIA.

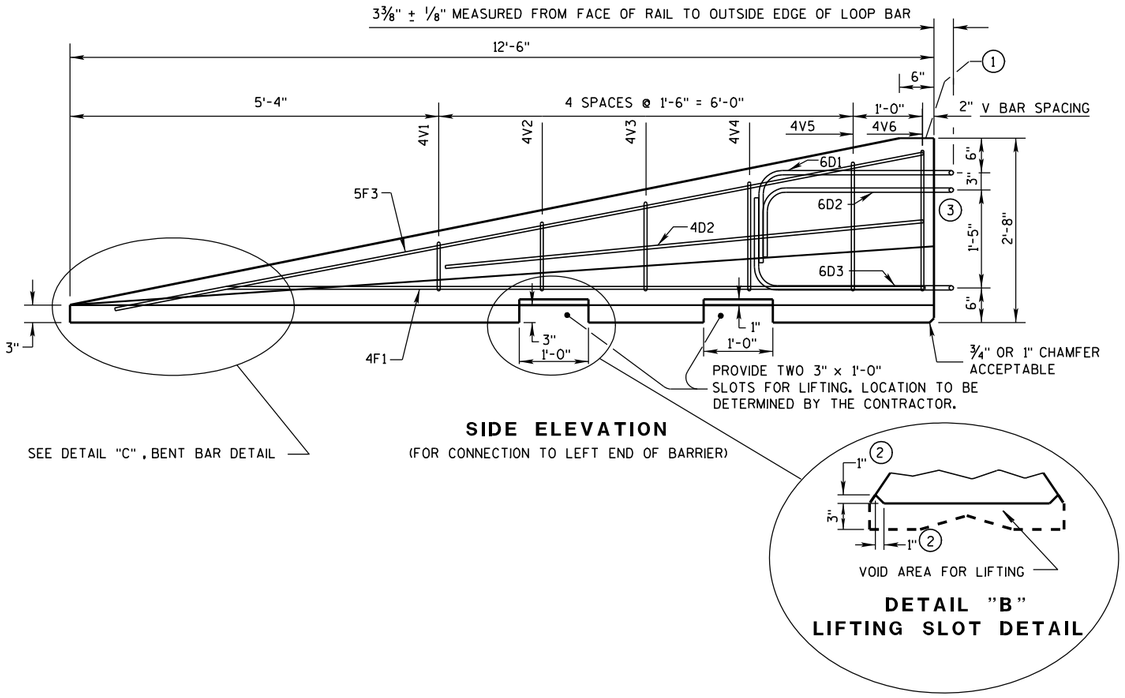
(9) 1" CHAMFER OPTIONAL.

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO.....

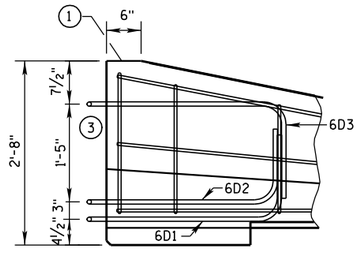
6

S.D.D. 14 B 7-13a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)

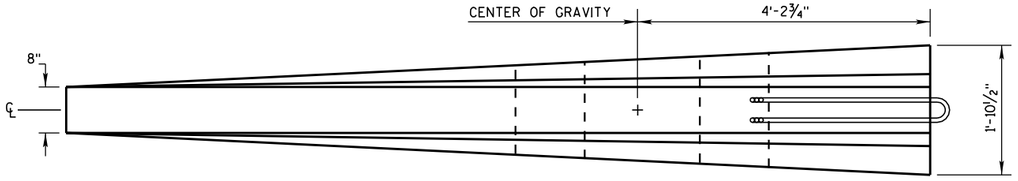
DETAIL "B"
LIFTING SLOT DETAIL



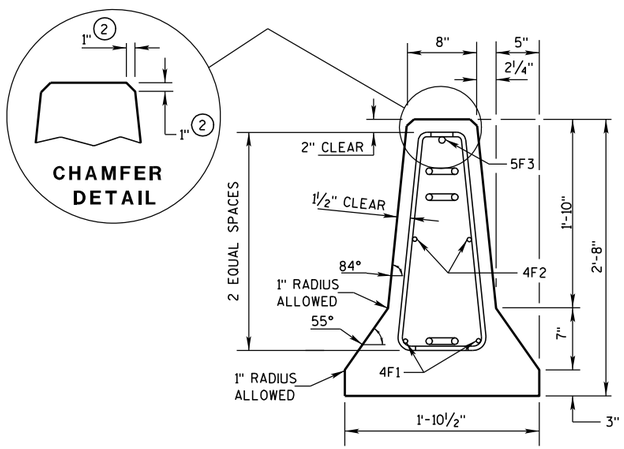
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

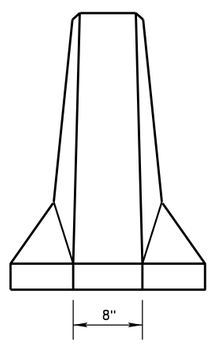
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



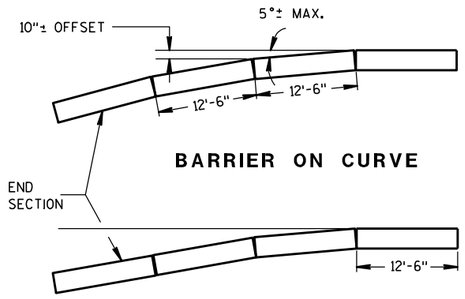
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 7-13b

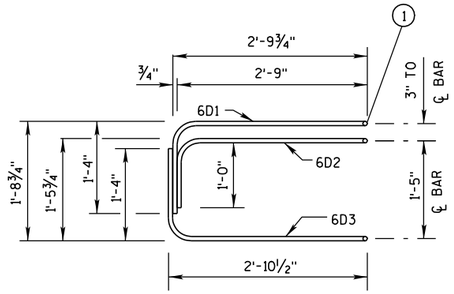
6

S.D.D. 14 B 7-13b

BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY

DETAIL "C"
BENT BAR DETAIL

BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

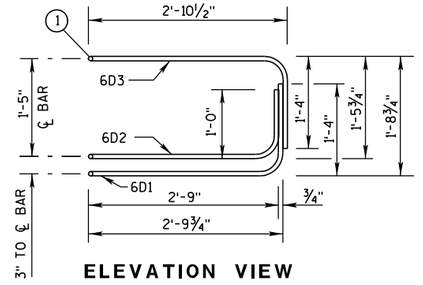
GENERAL NOTES

(1) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

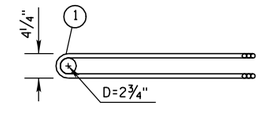
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

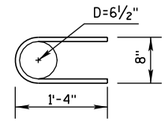
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



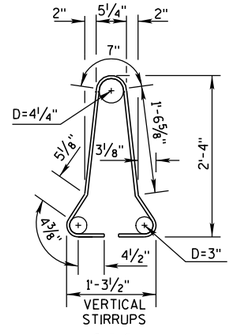
ELEVATION VIEW



PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2



4A1

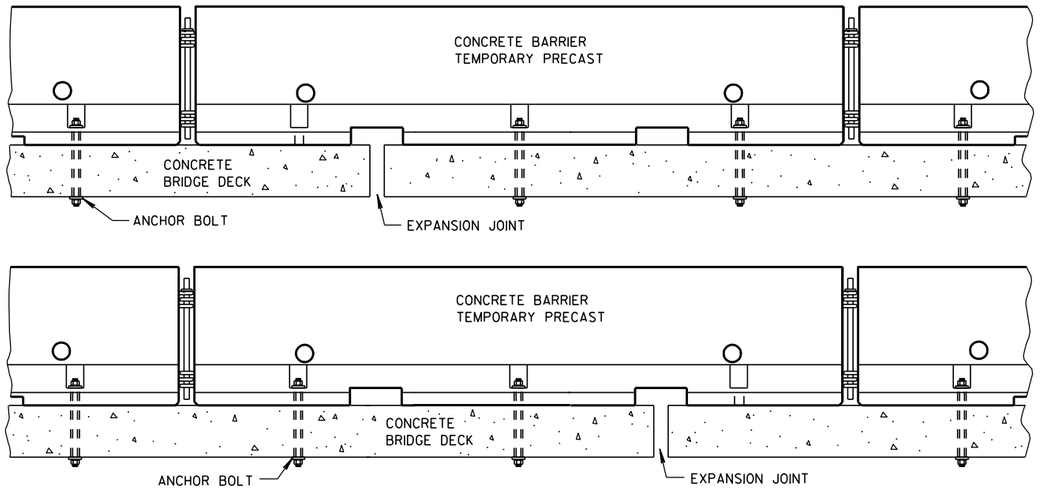
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

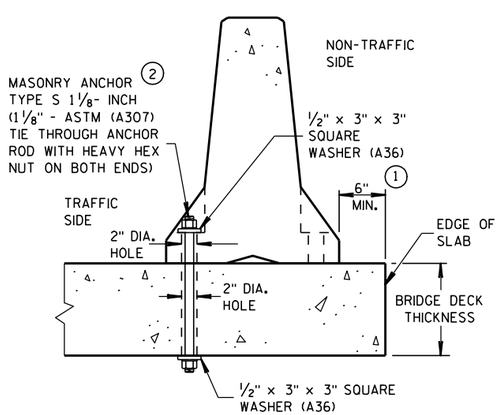
6

S.D.D. 14 B 7-13c



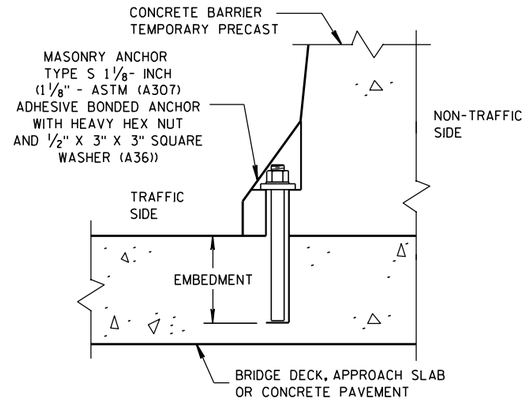
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT ②

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

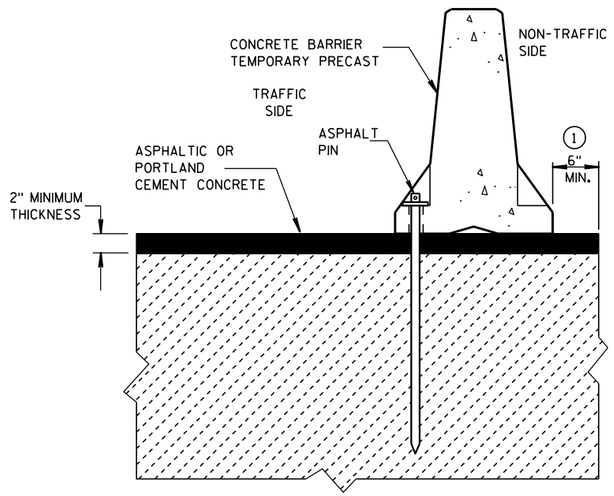
① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT. IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

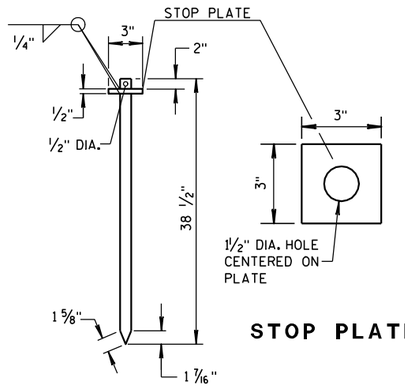
WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED (EPOXY) ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1⅛-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALLANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERICAL GROUT OR EPOXY MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

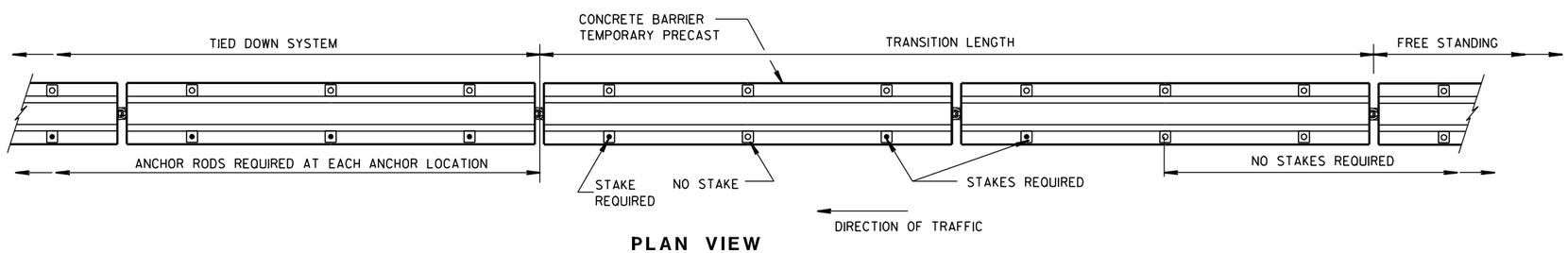
(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN

(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

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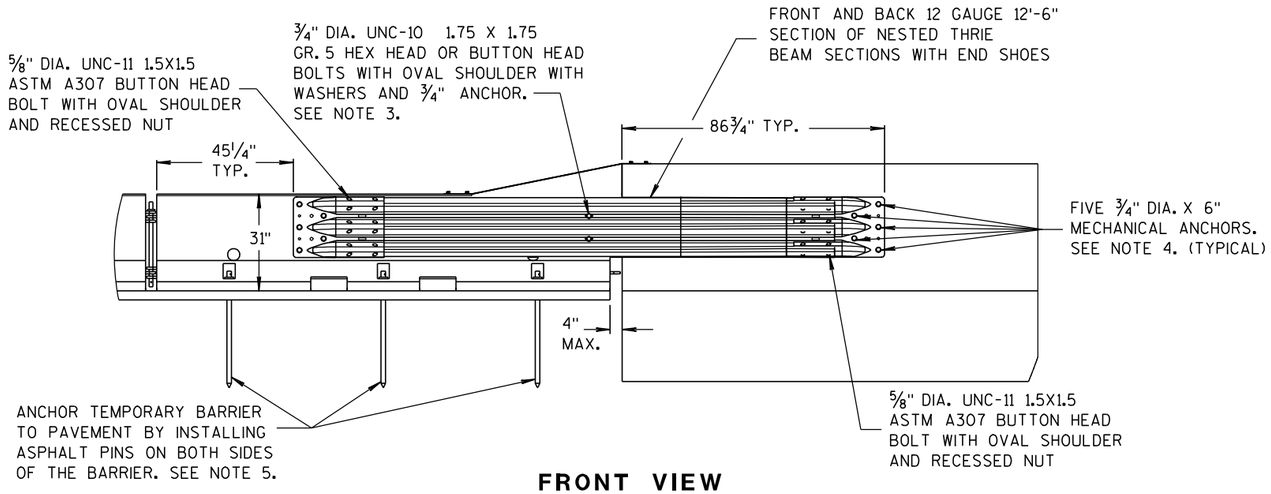
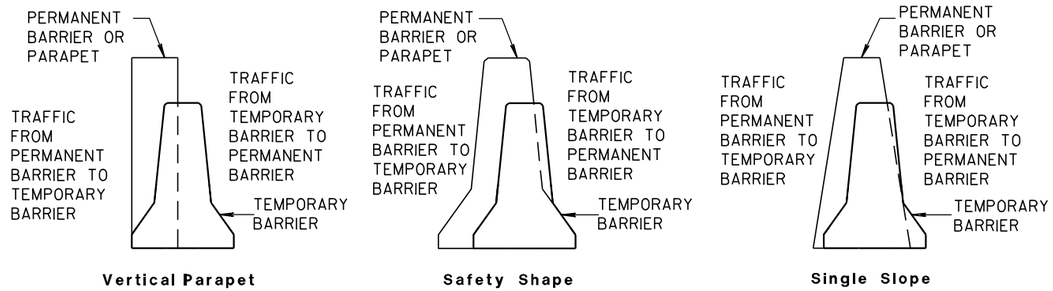
S.D.D. 14 B 7-13d



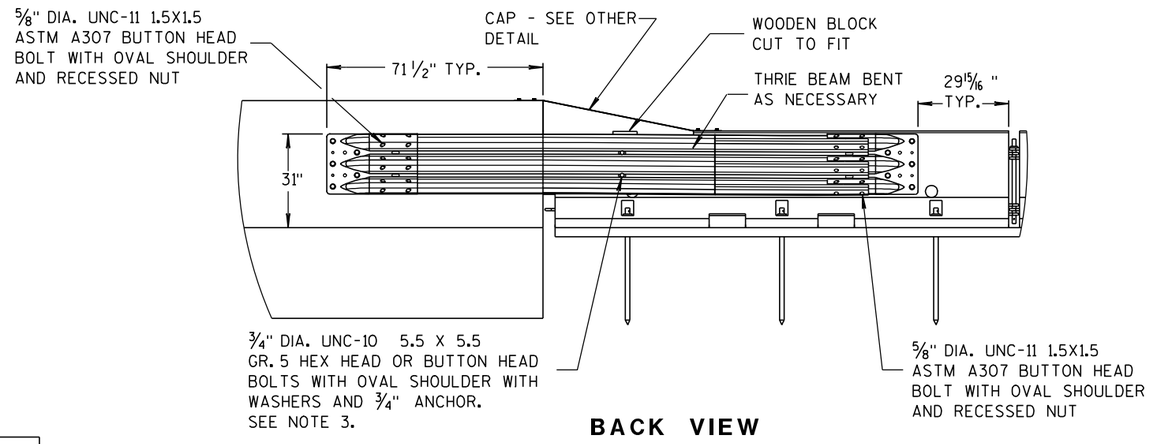
FRONT VIEW

NOTES

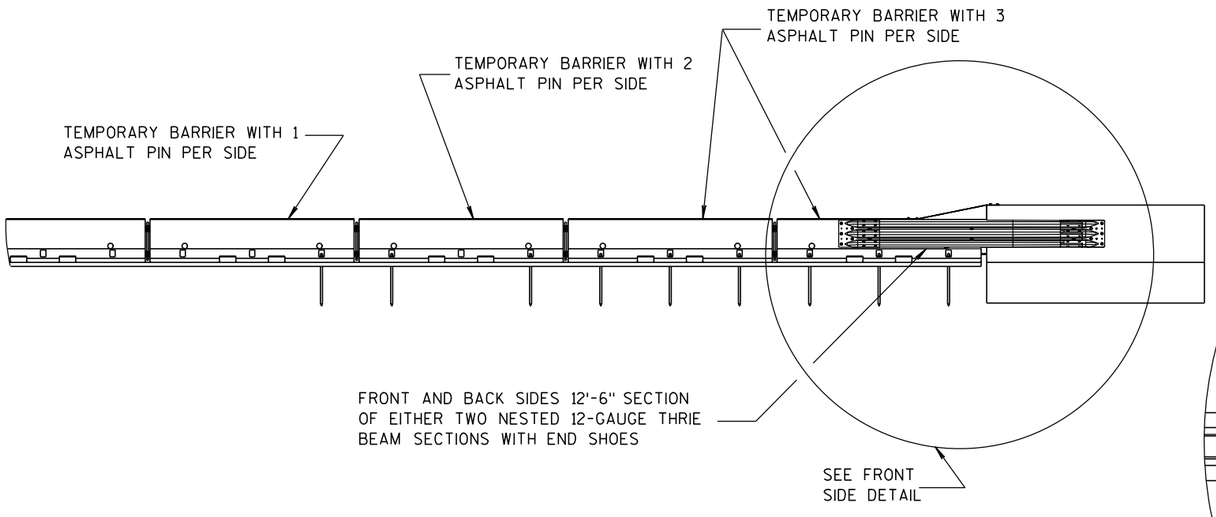
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



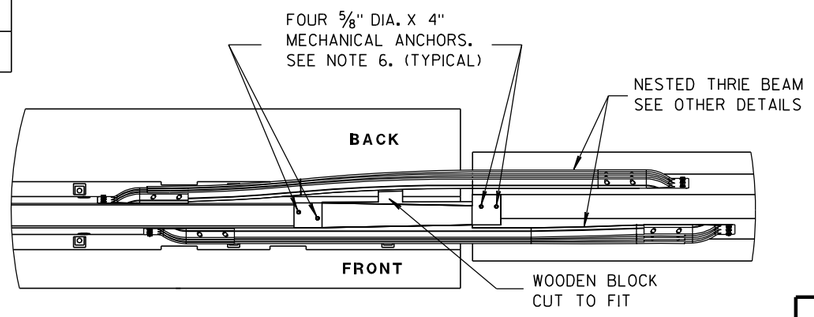
TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



BACK VIEW



FRONT VIEW



PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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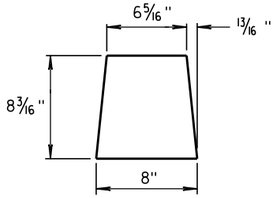
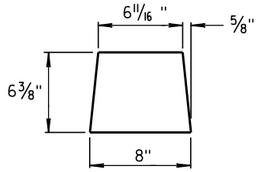
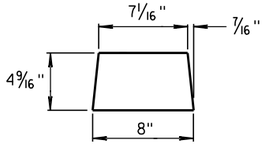
S.D.D. 14 B 7-13e



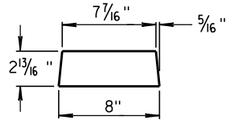
GUSSET 1



GUSSET 2

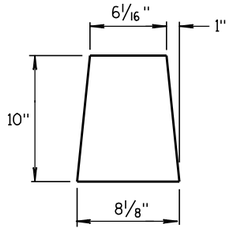


GUSSET 3

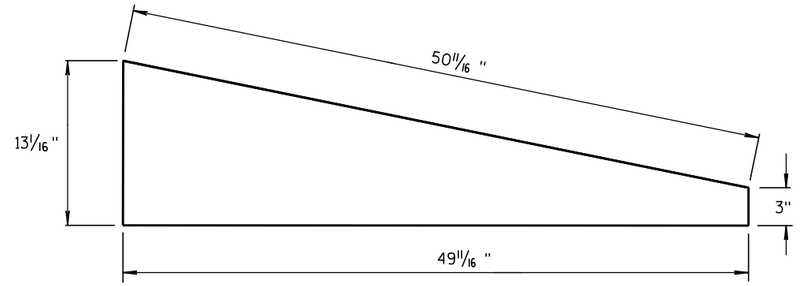


GUSSET 4

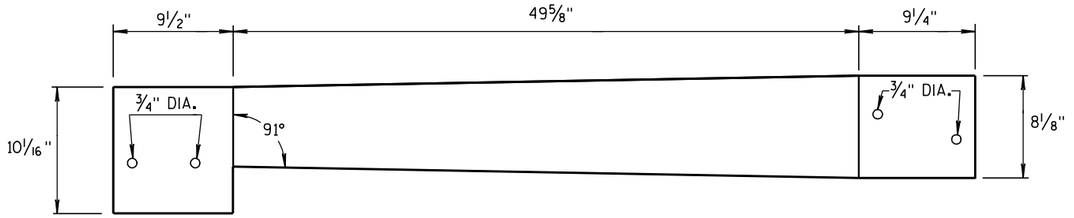
GUSSETS

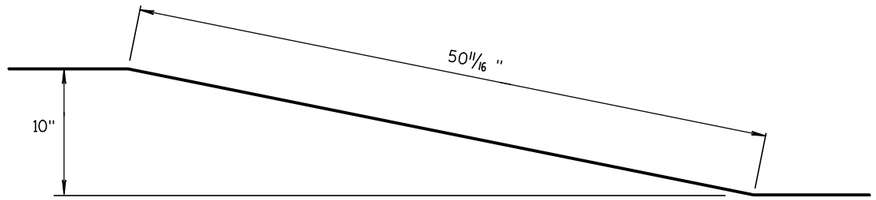


END PLATE

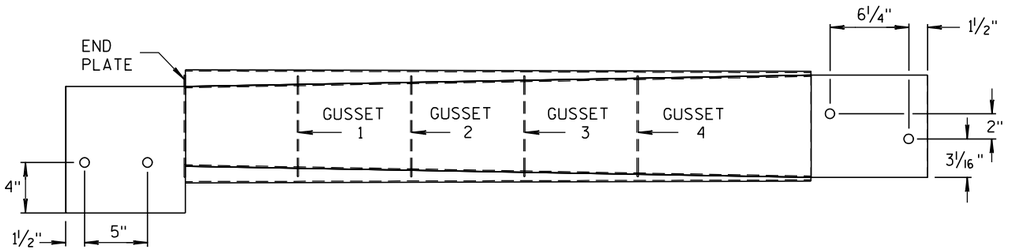


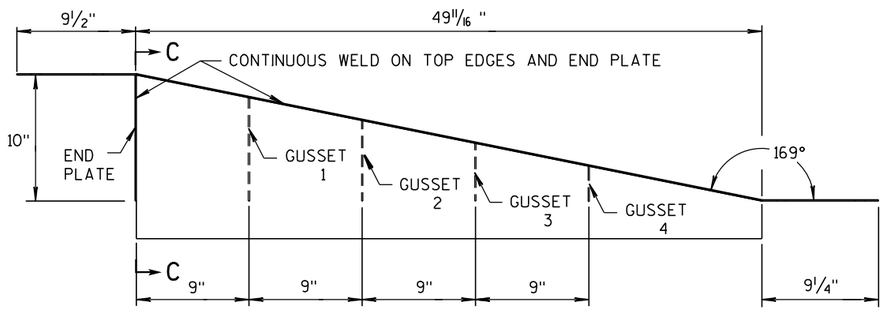
SIDE PLATE

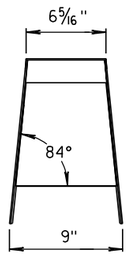




TOP PLATE







SECTION C-C

NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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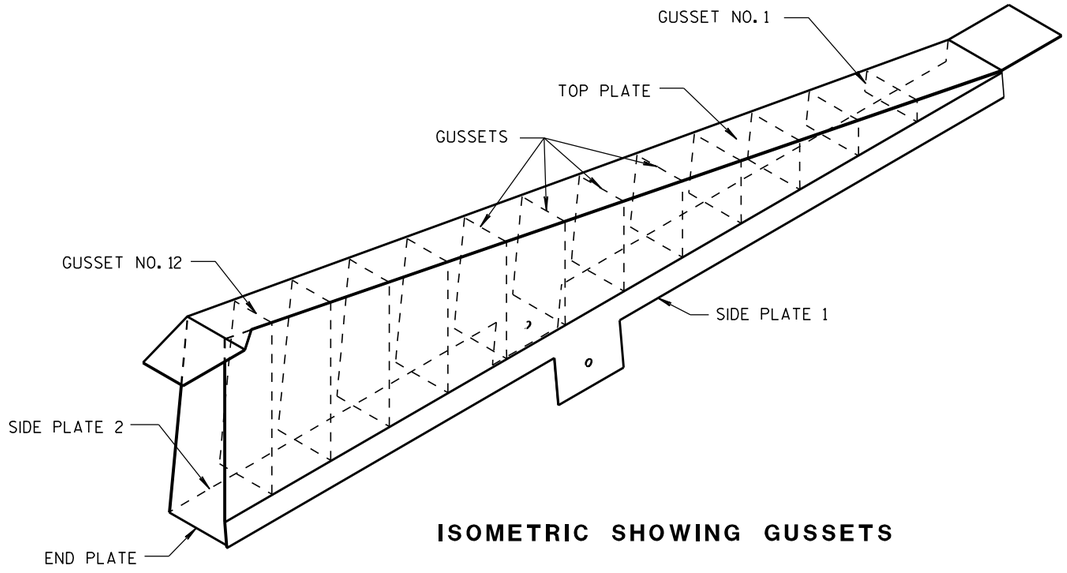
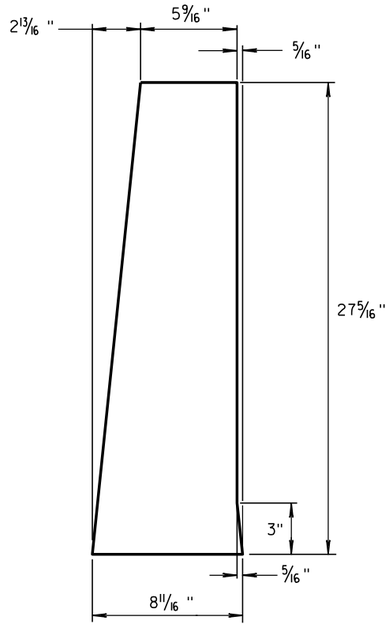
S.D.D. 14 B 7-13f

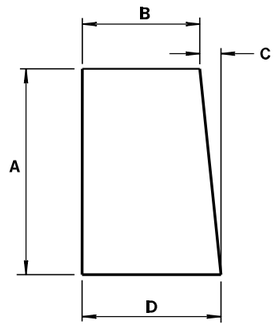


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



GUSSETS 1 - 12

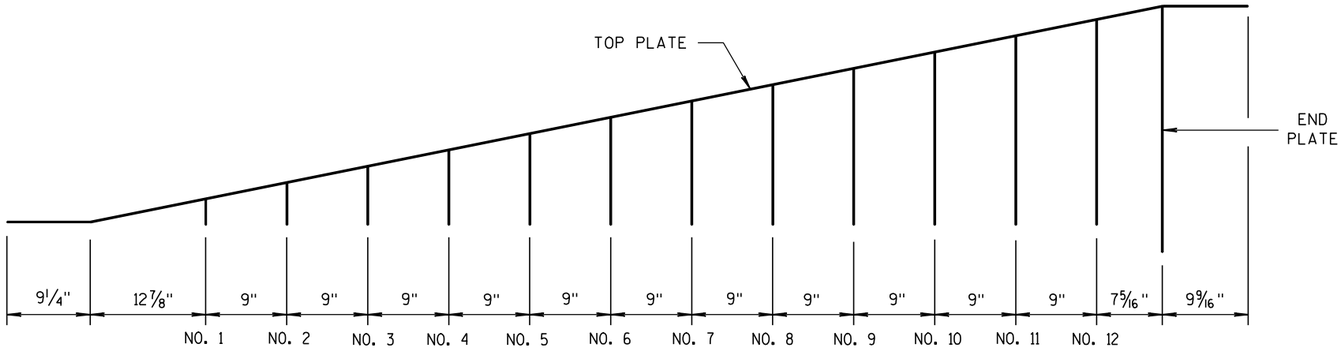
ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS

GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 11/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	11/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8"	7"	1 1/16 "	8 1/16 "
6	11 15/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8"	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



GUSSET LOCATION

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 7-13g

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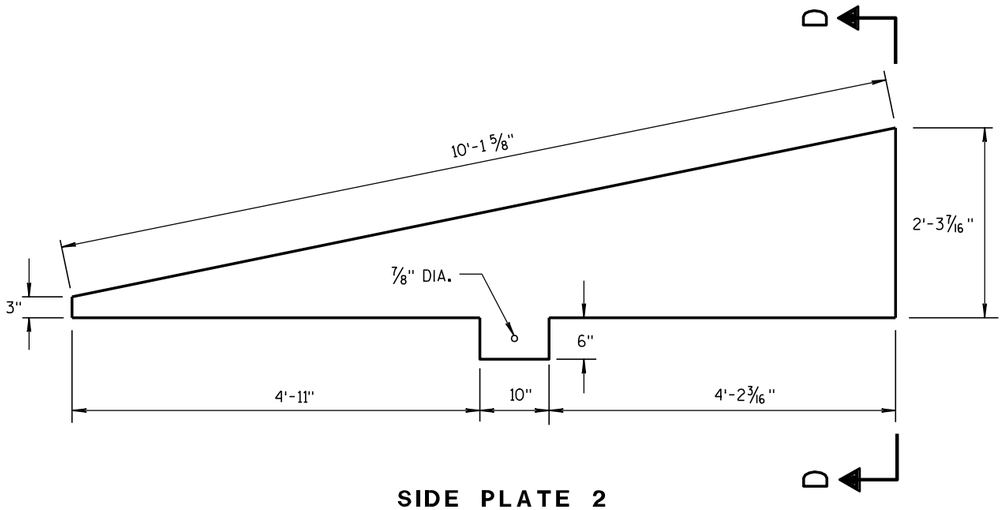
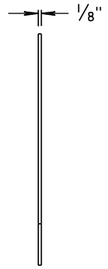
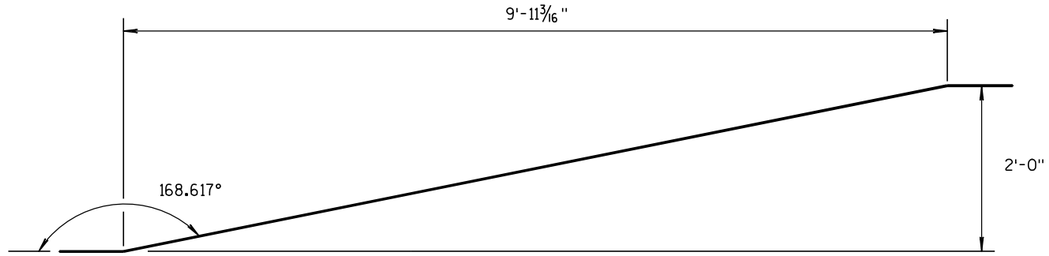
S.D.D. 14 B 7-13g



SIDE PLATE 2

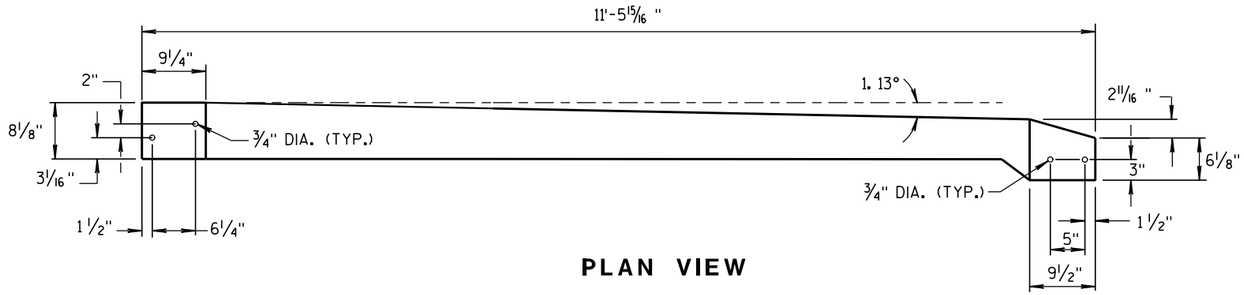


END VIEW



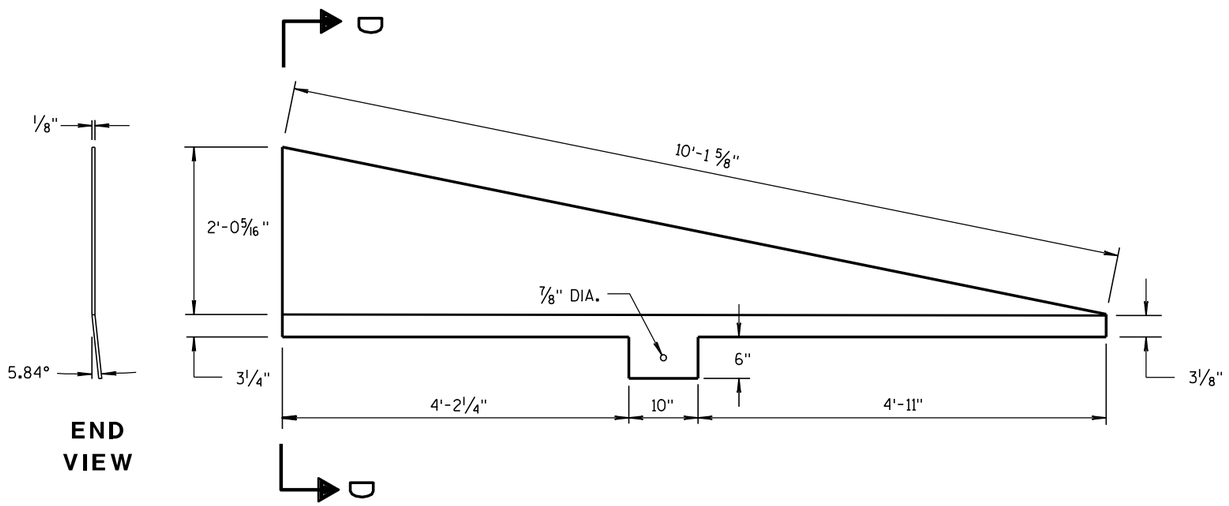
SIDE VIEW

TOP PLATE



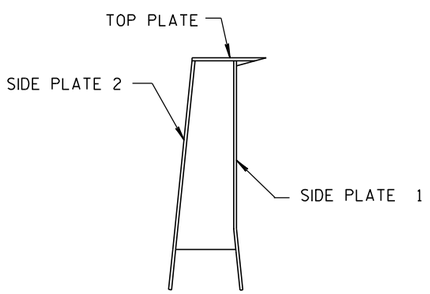
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER
31
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FHWA

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S.D.D. 14 B 7-13h

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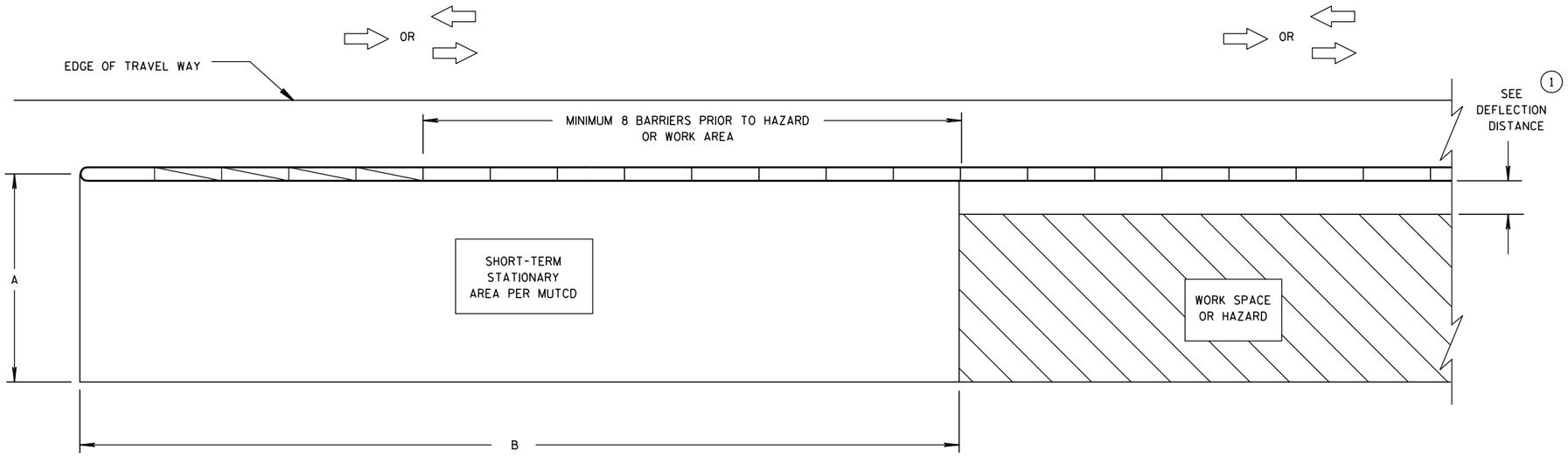
S.D.D. 14 B 7-13h



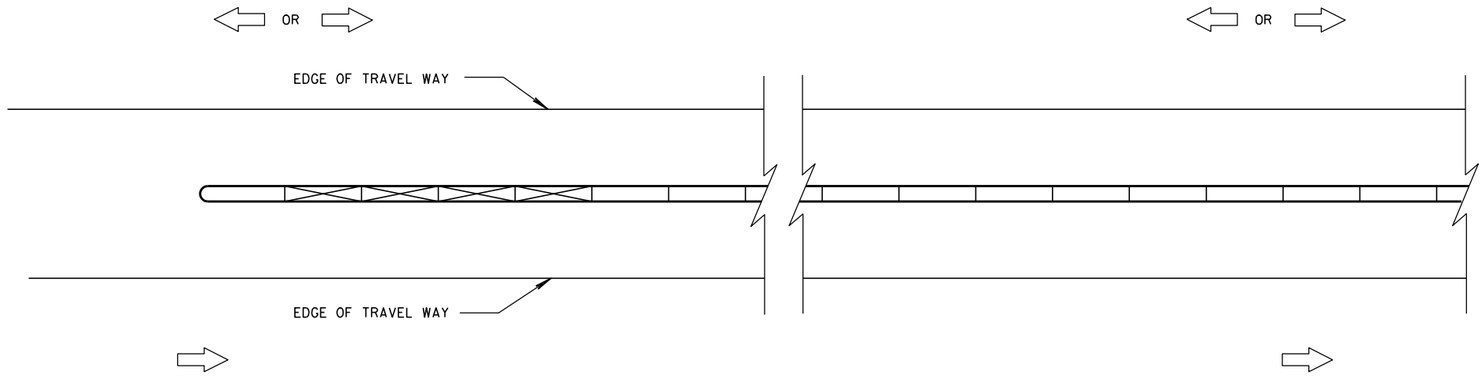
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE (2)

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

(1) FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

(2) VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

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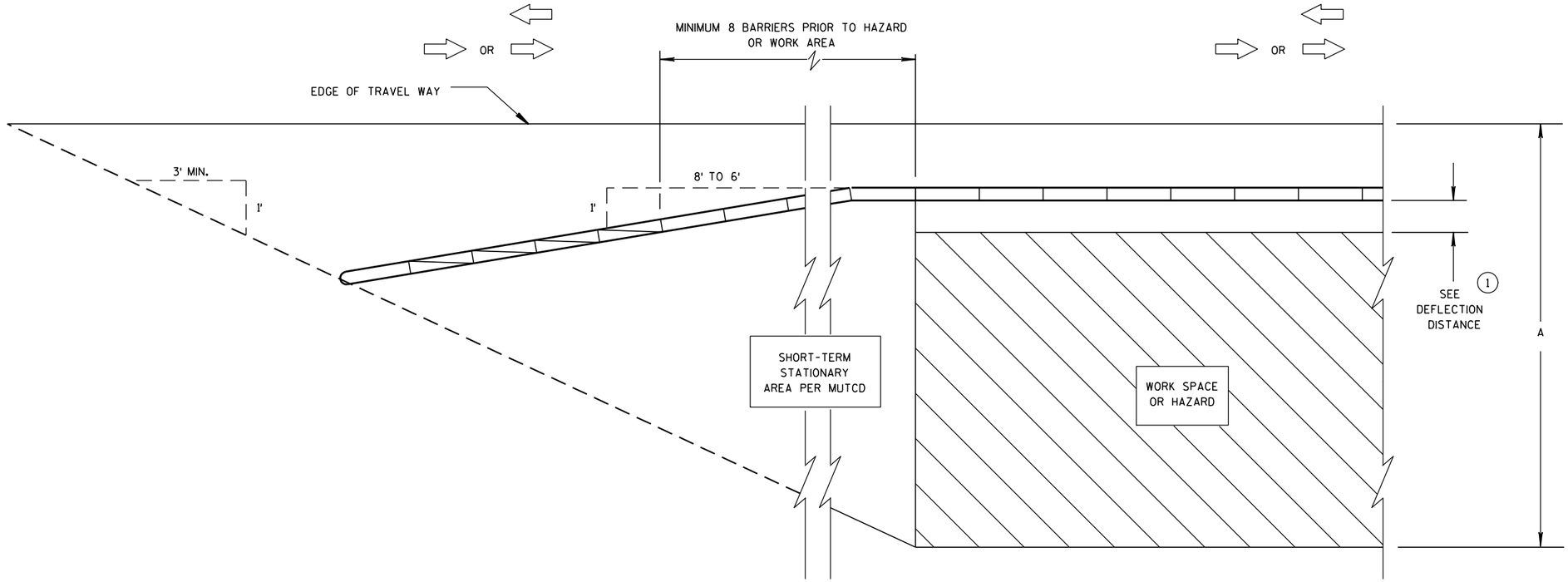
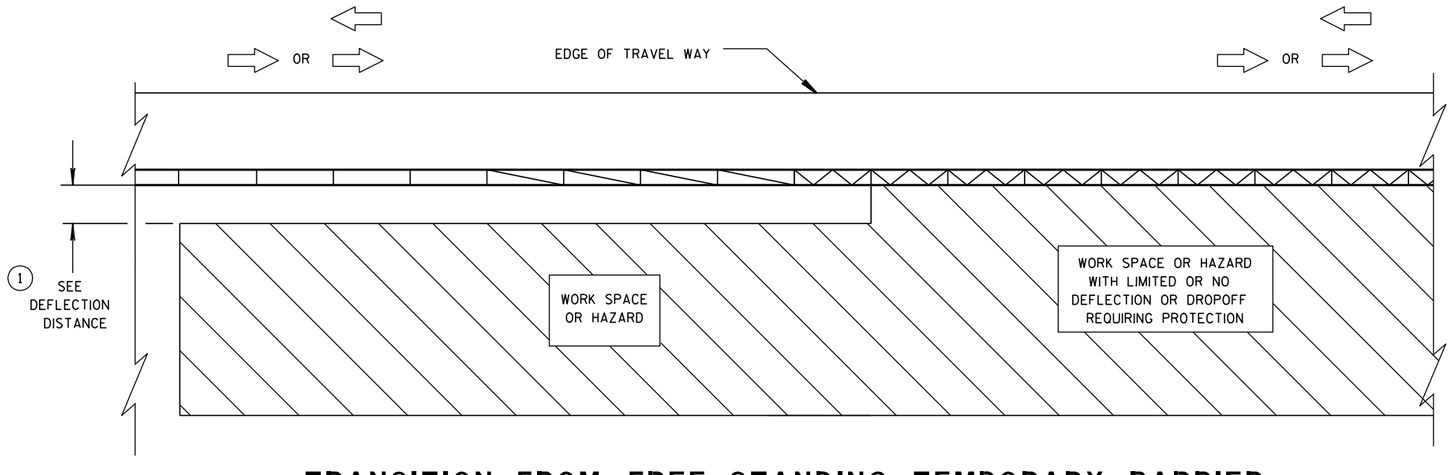
S.D.D. 14 B 8-1a



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION



TRANSITION FROM FREE STANDING TEMPORARY BARRIER TO ANCHORED BARRIER

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

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S.D.D. 14 B 8-1b

GENERAL NOTES

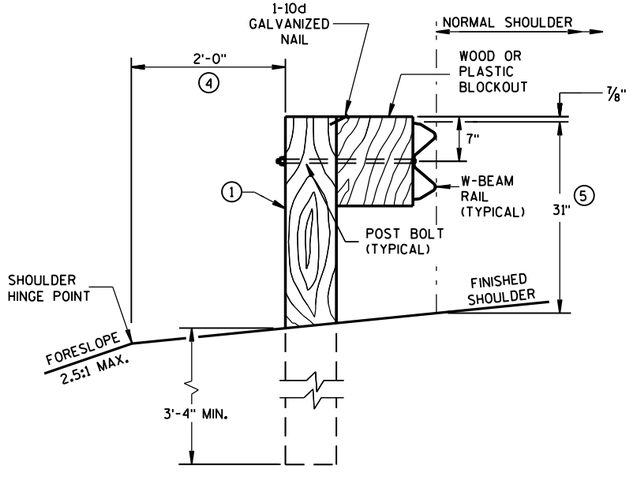
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

2. USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

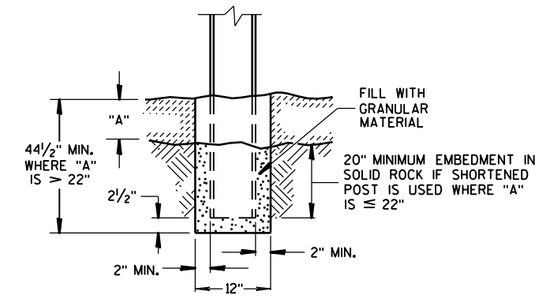
4. WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".



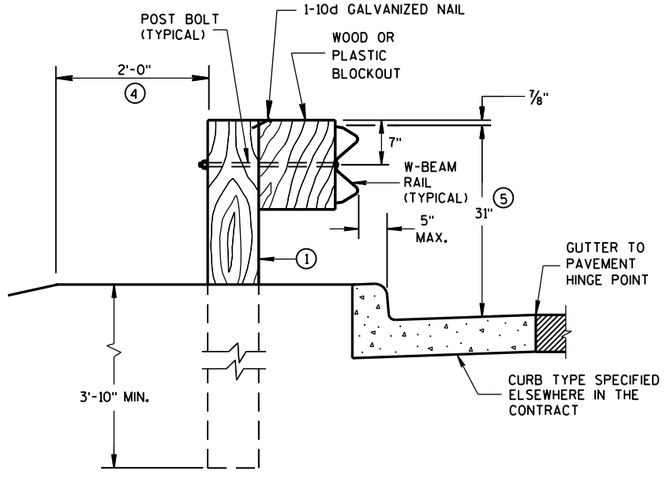
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



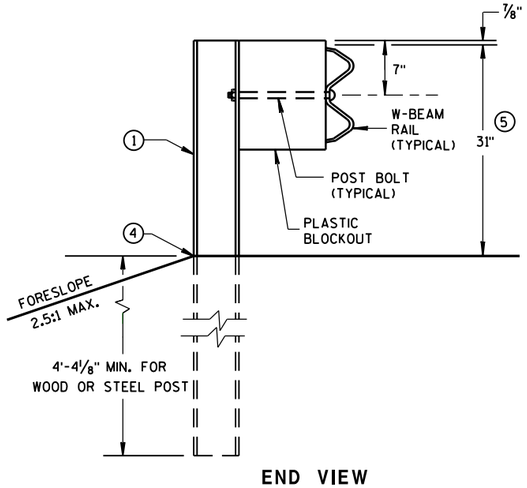
END VIEW

SETTING STEEL OR WOOD POST IN ROCK ③



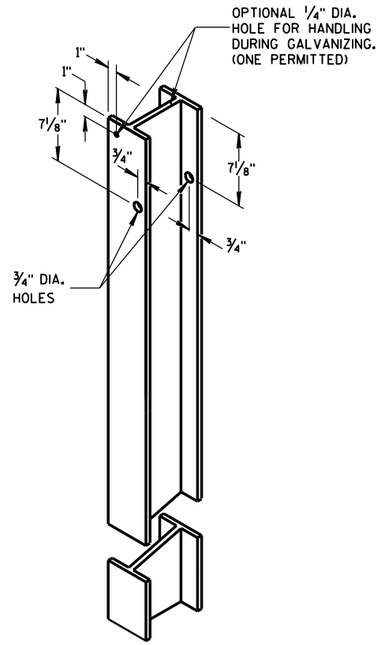
END VIEW

LOCATED ALONG A CURBED ROADWAY

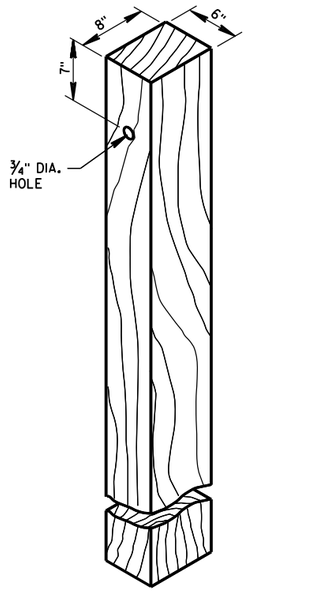


END VIEW

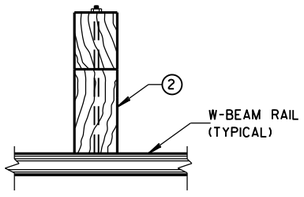
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



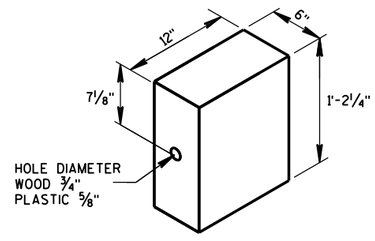
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



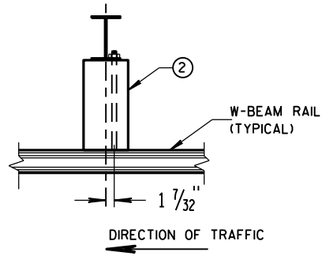
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②

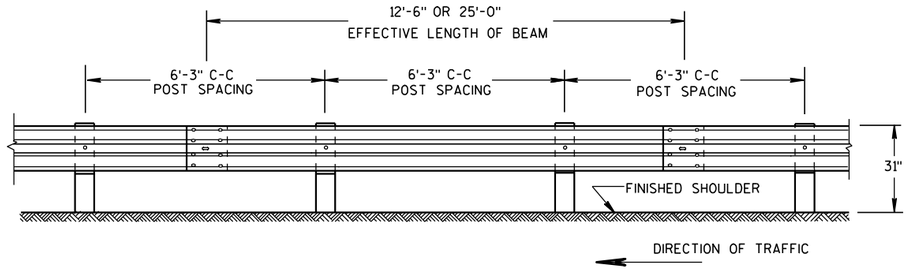


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

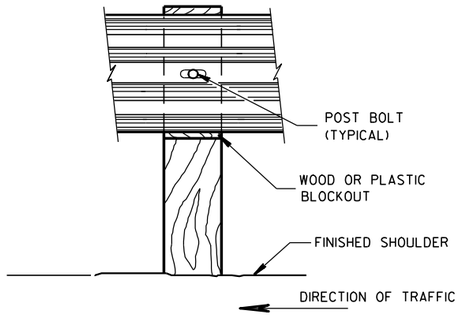
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6
S.D.D. 14 B 42-2a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



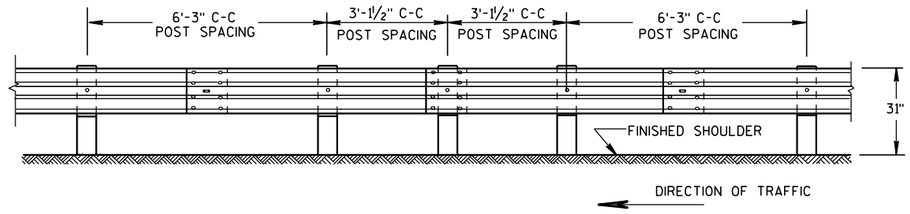
FRONT VIEW AT WOOD POST

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. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

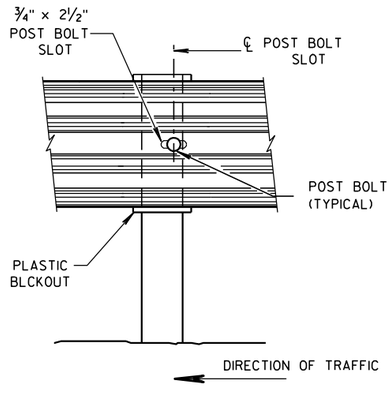
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

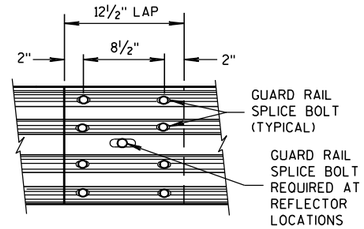


FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

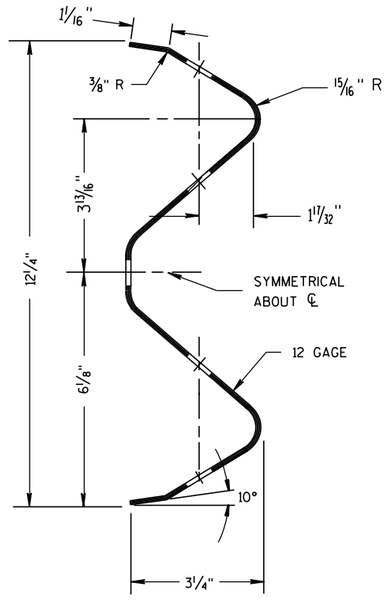


FRONT VIEW AT STEEL POST

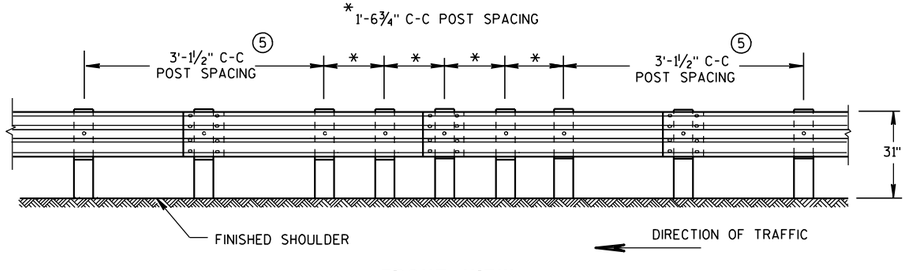


FRONT VIEW

MID-SPAN BEAM SPLICE

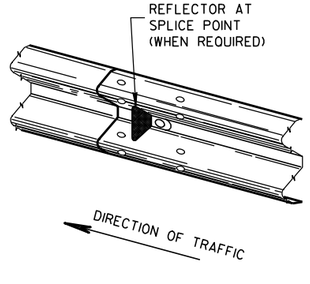


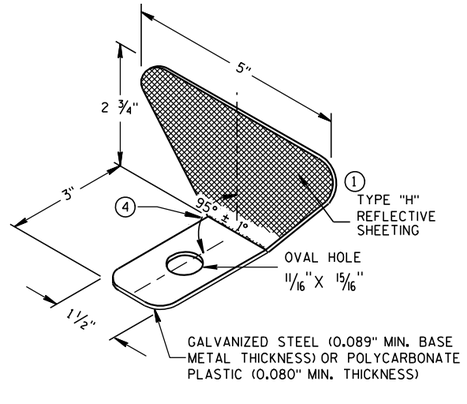
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①

REFLECTOR SPACING ②

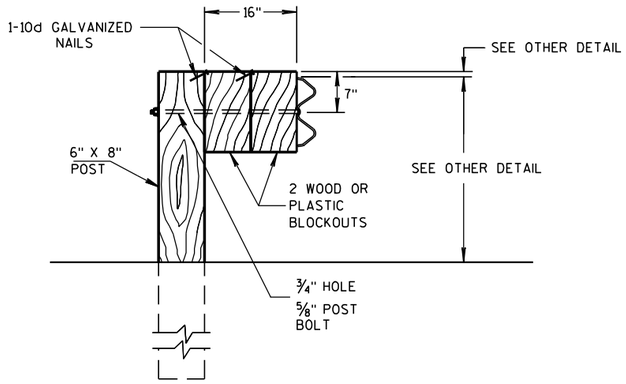
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

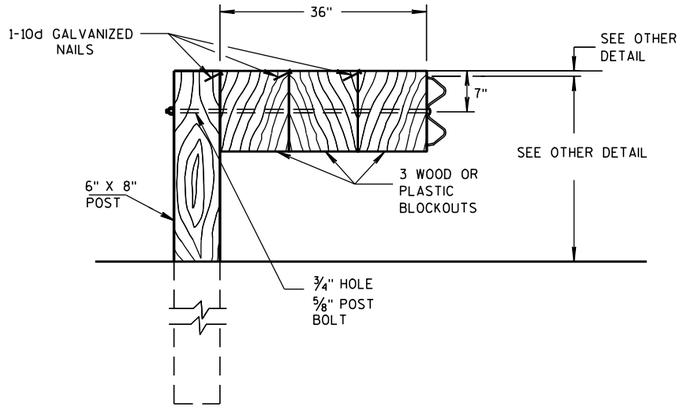
S.D.D. 14 B 42-2b

S.D.D. 14 B 42-2b



DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

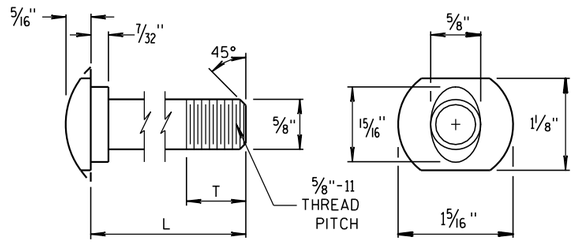


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

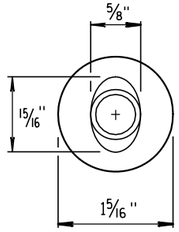
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

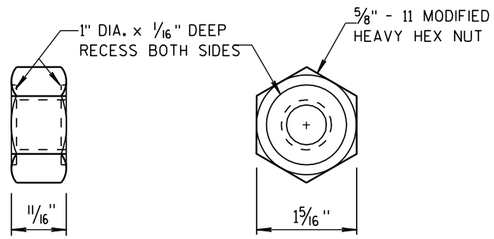


POST BOLT TABLE

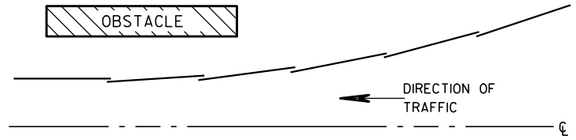
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

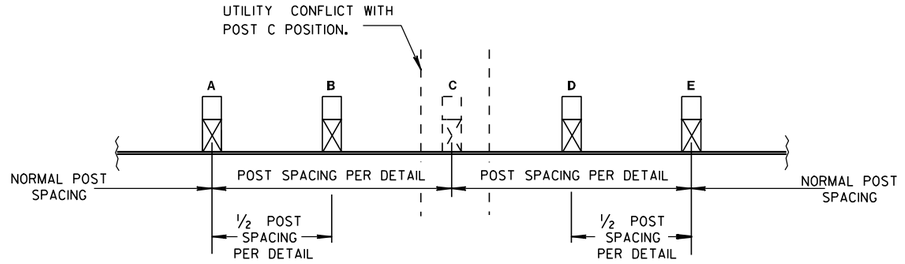


POST BOLT AND RECESS NUT

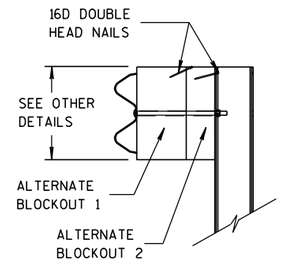


PLAN VIEW

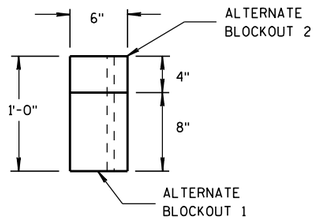
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

FHWA

6
S.D.D. 14 B 42-2c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL),AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

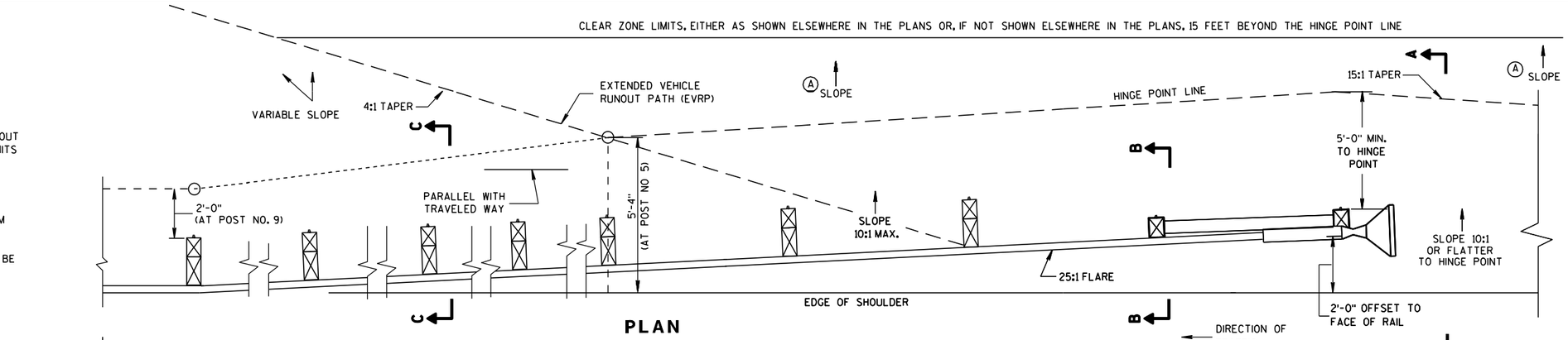
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

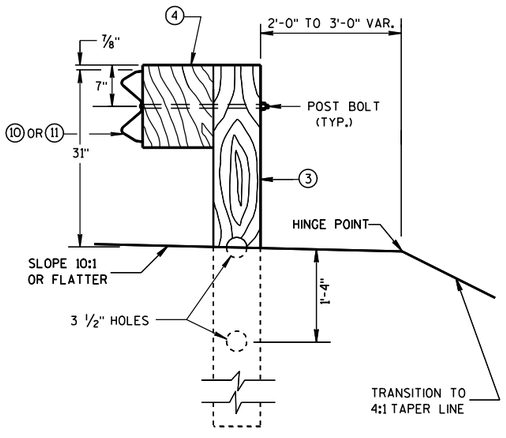
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

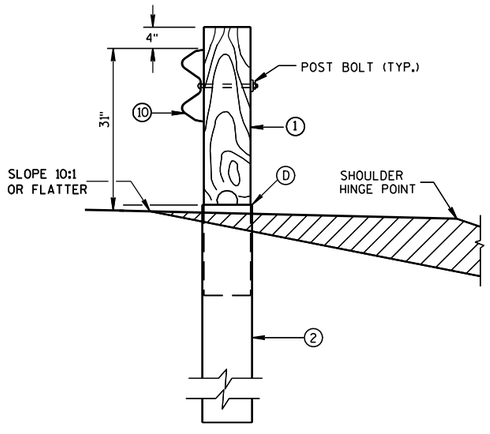
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE (± ¾")

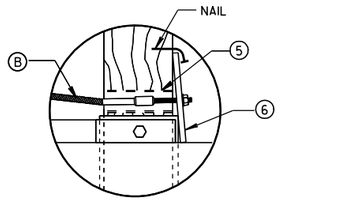


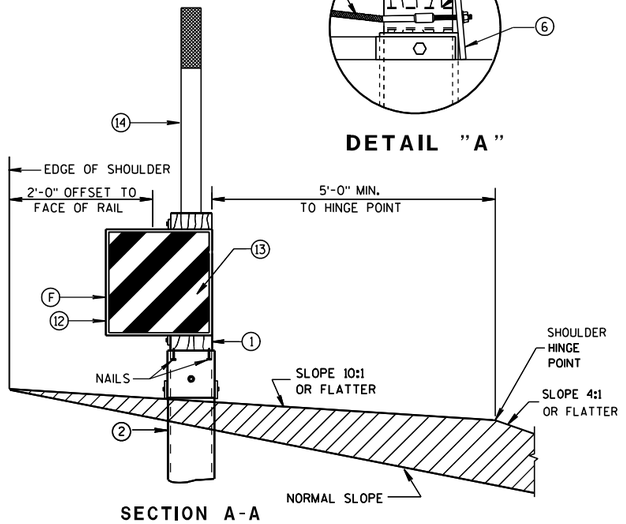


SECTION C-C
TYPICAL AT POST NOS. 3-9

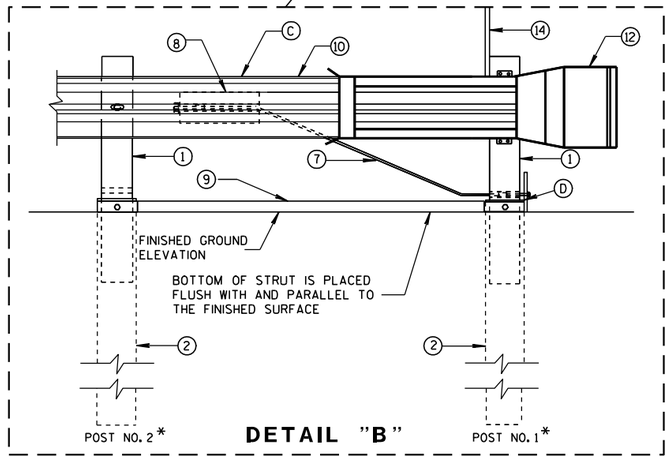


SECTION B-B
TYPICAL AT POST NO. 2*





SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

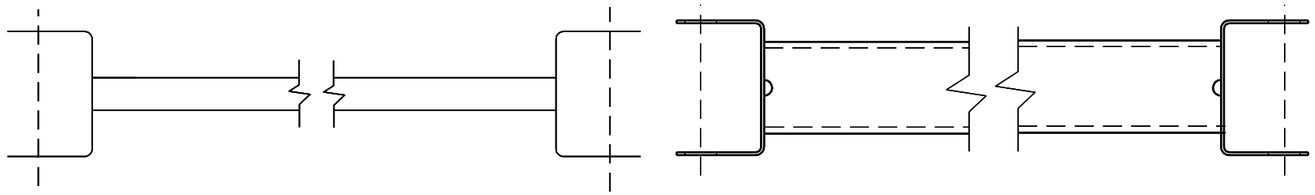
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 44-1a

6

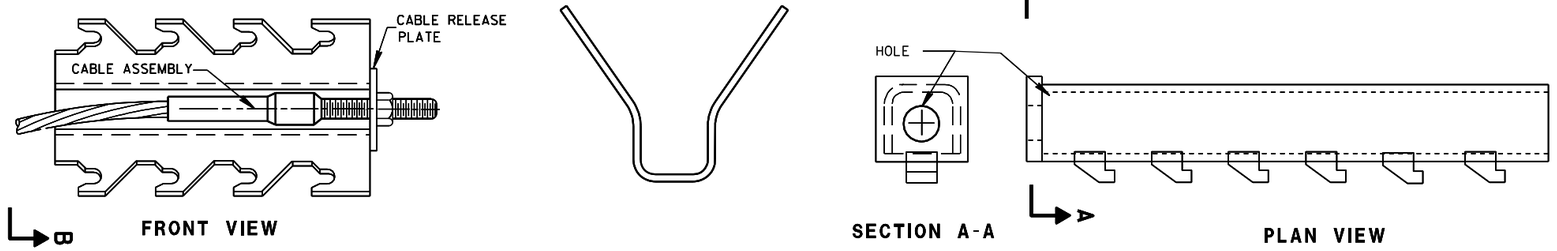
S.D.D. 14 B 44-1a



GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



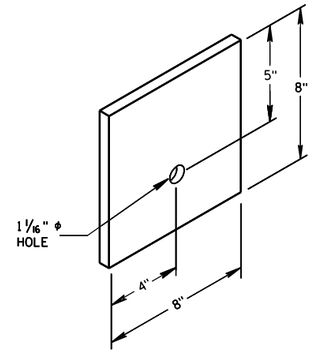
FRONT VIEW

SECTION B-B

SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



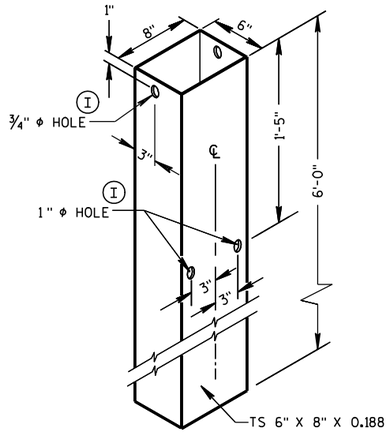
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

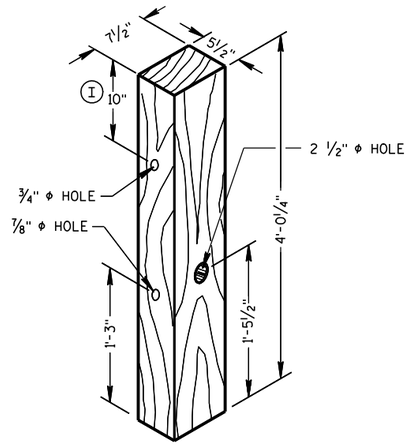
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 44-1b

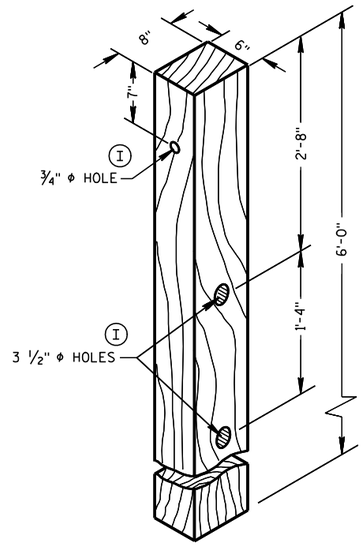


FOUNDATION TUBE (2)



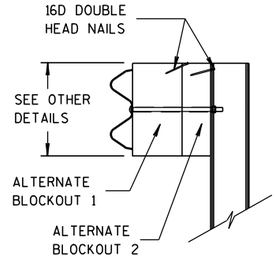
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

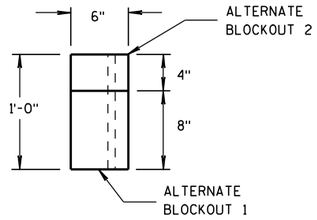


POSTS NUMBER 3-9

WOOD CRT POST (3)

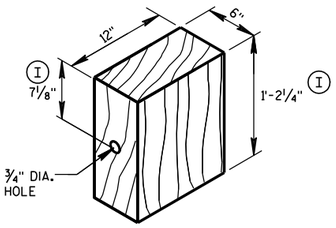


SIDE VIEW



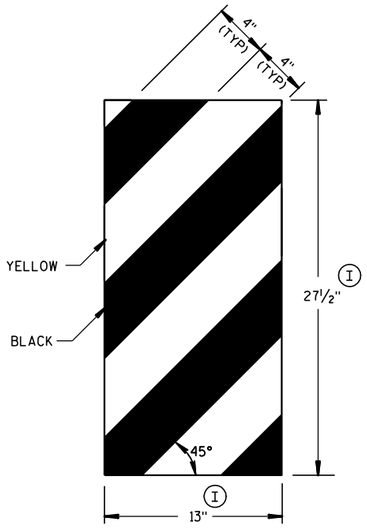
TOP VIEW

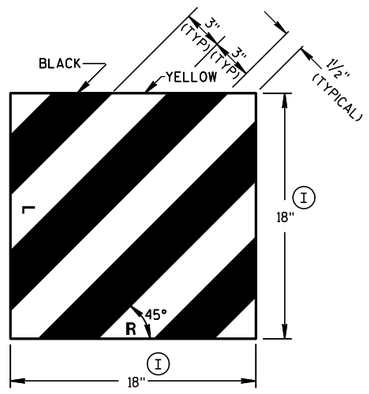
ALTERNATE WOOD BLOCKOUT DETAIL



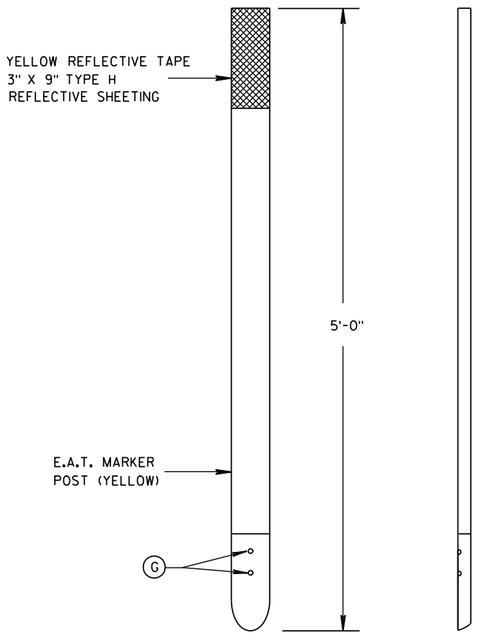
WOOD BLOCKOUT (4)

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





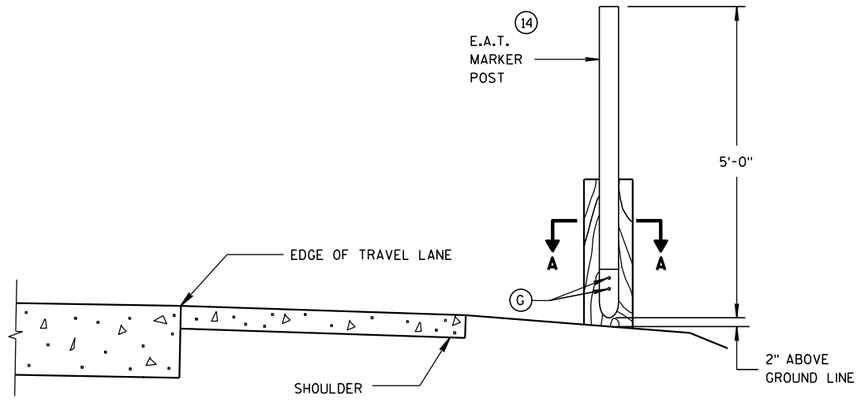
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

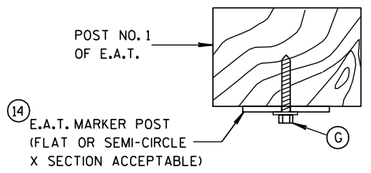
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/2011
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

39

FHWA

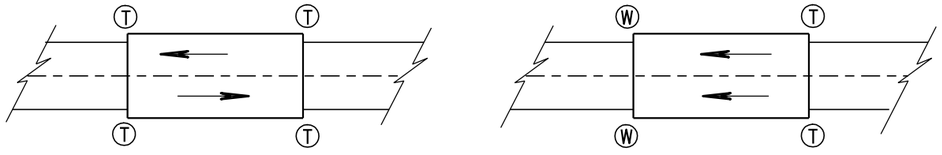
[illegible]ENT

6

S.D.D. 14 B 44-1c

6

S.D.D. 14 B 44-1c



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

GENERAL NOTES

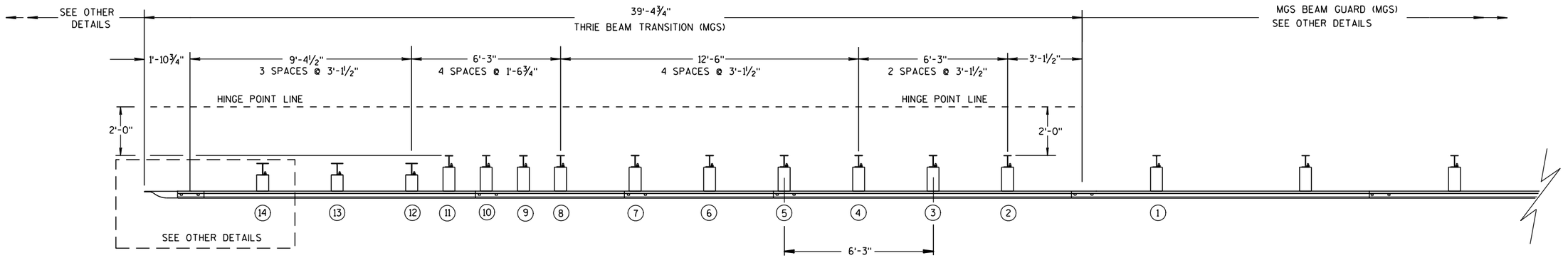
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

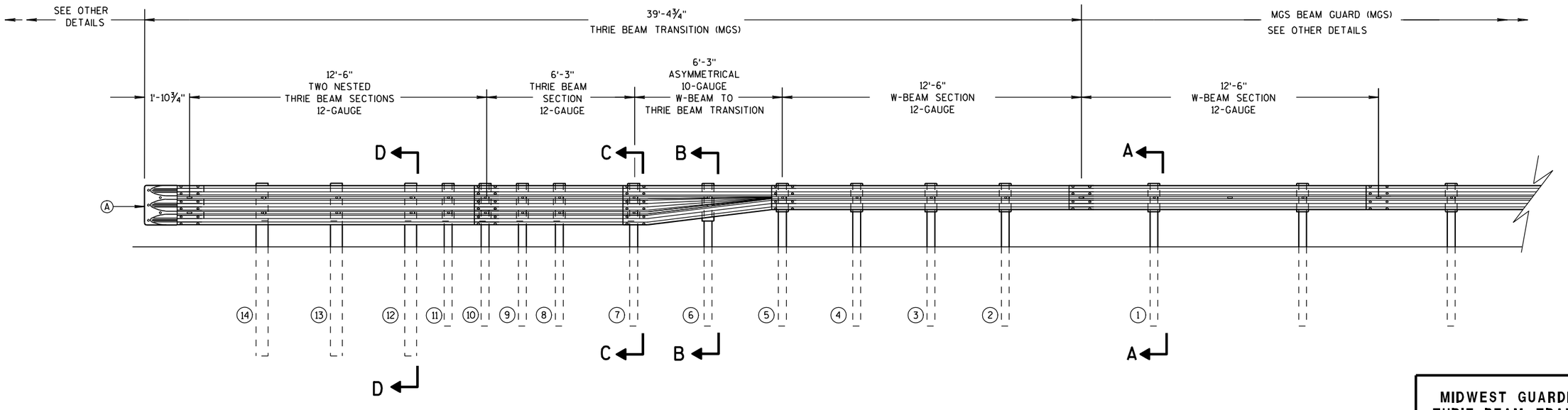
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

Ⓐ BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

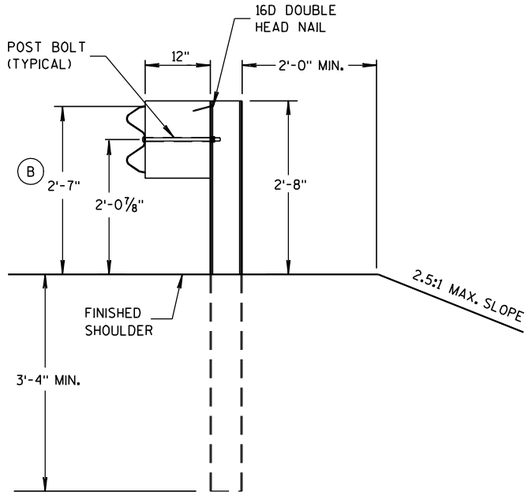
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 45-3a

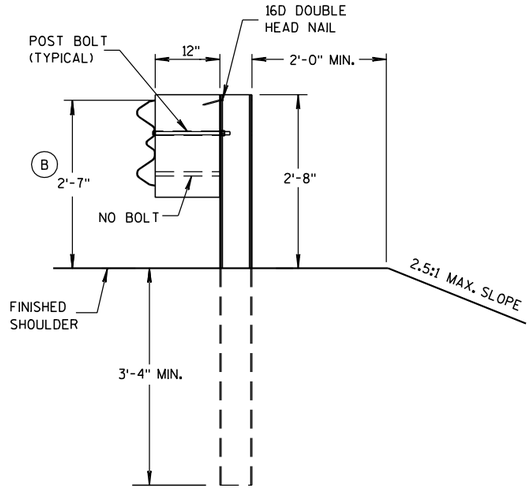
GENERAL NOTES

(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



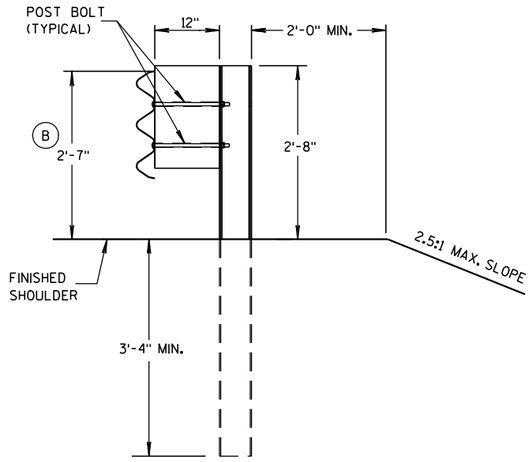
SECTION A-A

POSTS 1-5



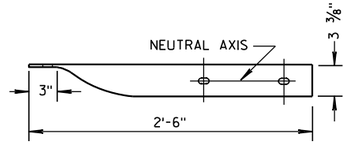
SECTION B-B

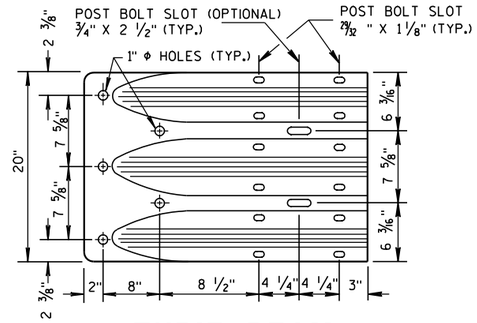
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

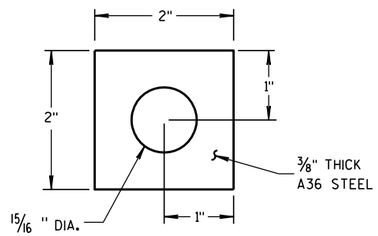
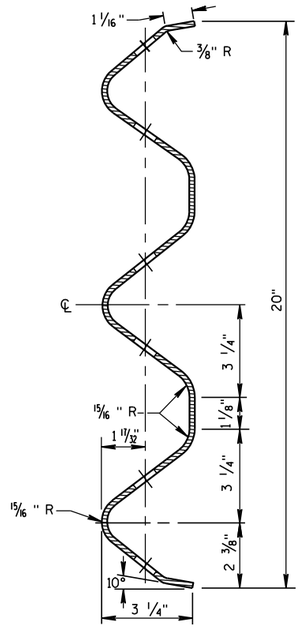
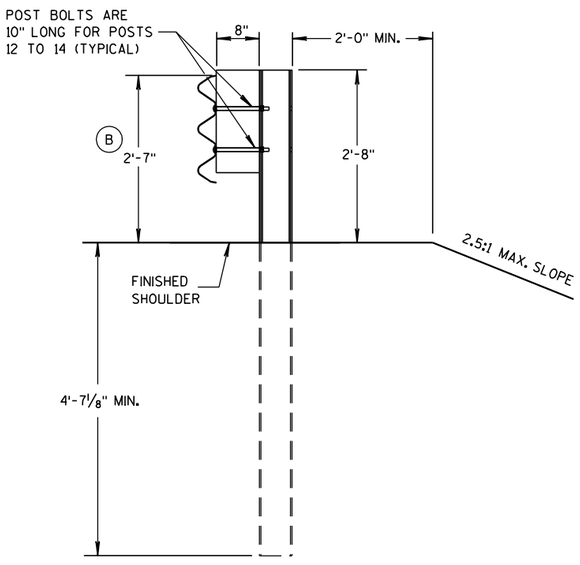


PLATE WASHER DETAIL

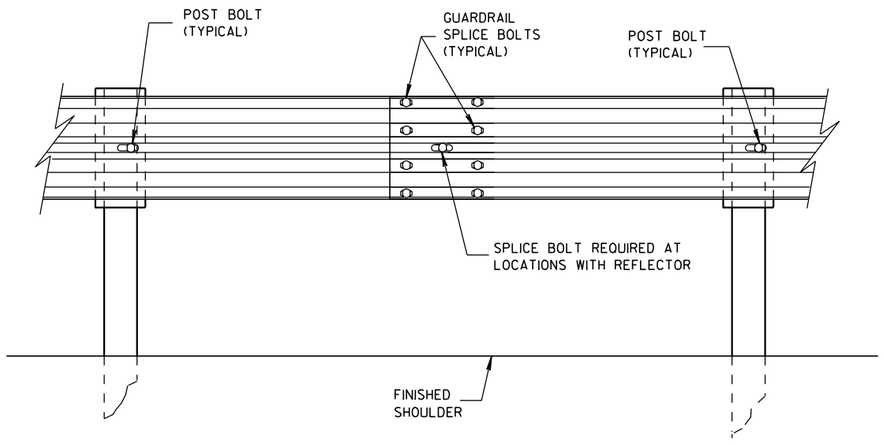


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-14



SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

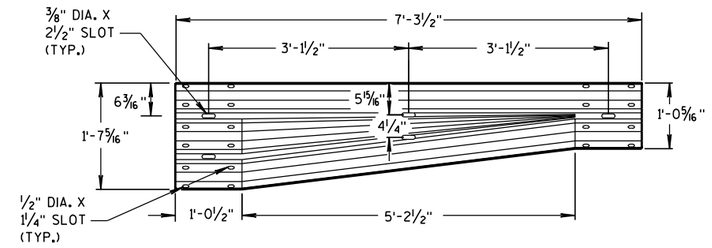
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

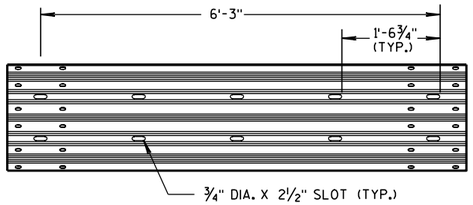
S.D.D. 14 B 45-3b

6

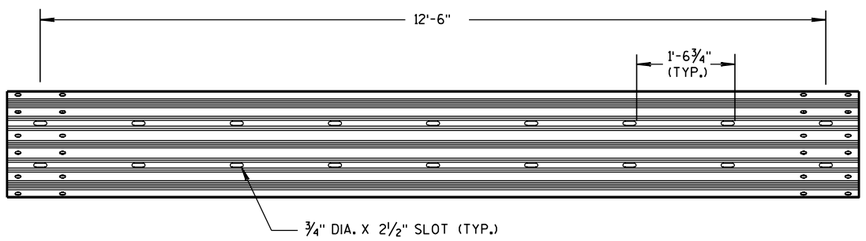
S.D.D. 14 B 45-3b



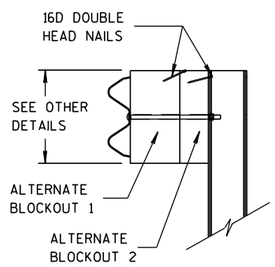
W-BEAM TO THRIE BEAM TRANSITION SECTION



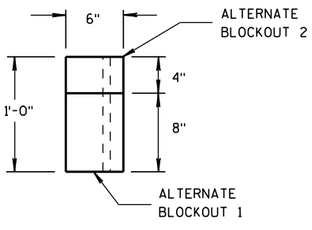
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

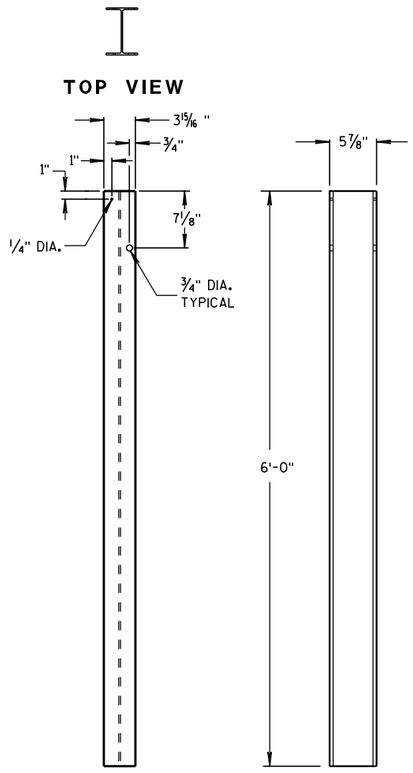


SIDE VIEW



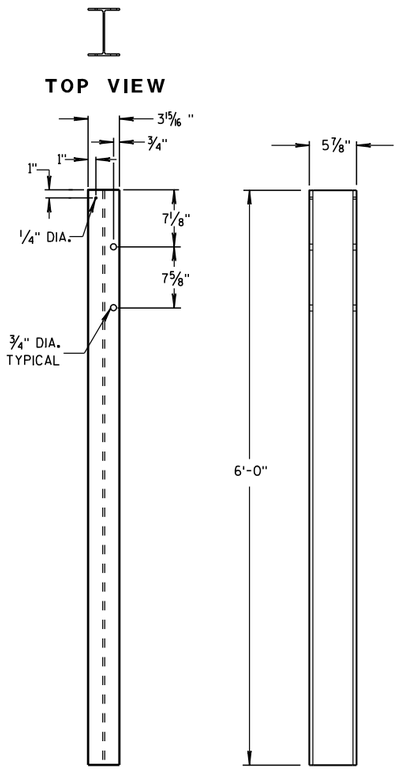
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



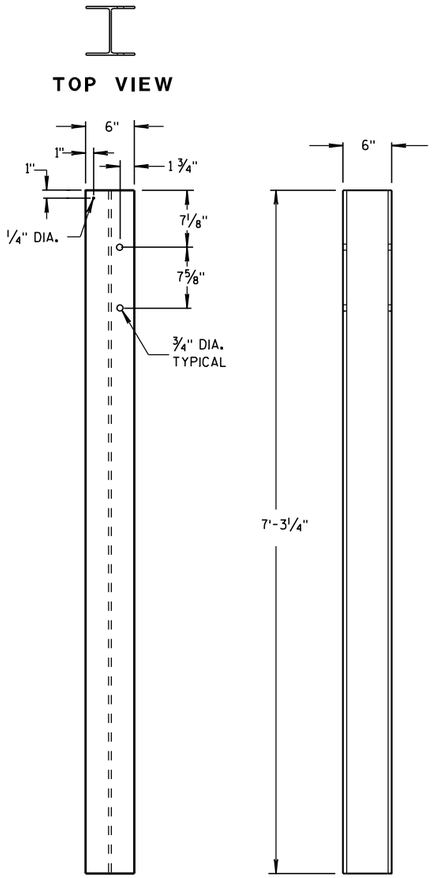
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5



FRONT VIEW SIDE VIEW

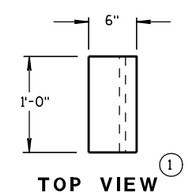
STEEL POSTS 6-11



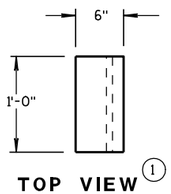
FRONT VIEW SIDE VIEW

STEEL POSTS 12-14

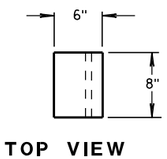
(1) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



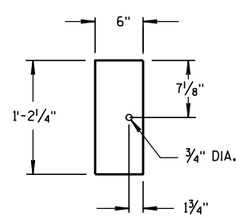
TOP VIEW (1)



TOP VIEW (1)

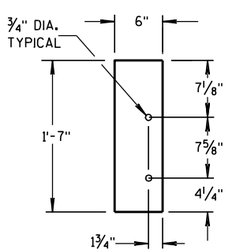


TOP VIEW



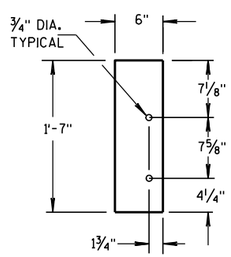
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

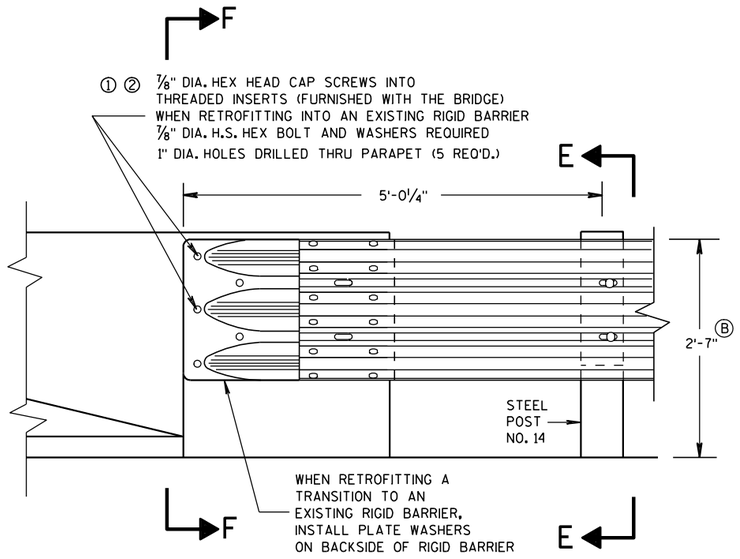
BLOCKOUT POSTS 12-14

STEEL POST SIZES

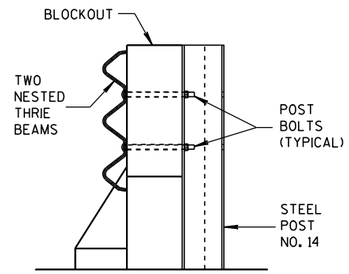
POST NUMBER	SECTION TYPE	LENGTH
1	W6x9	72"
2	W6x9	72"
3	W6x9	72"
4	W6x9	72"
5	W6x9	72"
6	W6x9	72"
7	W6x9	72"
8	W6x9	72"
9	W6x9	72"
10	W6x9	72"
11	W6x9	72"
12	W6x15	87 1/8"
13	W6x15	87 1/8"
14	W6x15	87 1/8"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW



SECTION E-E

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

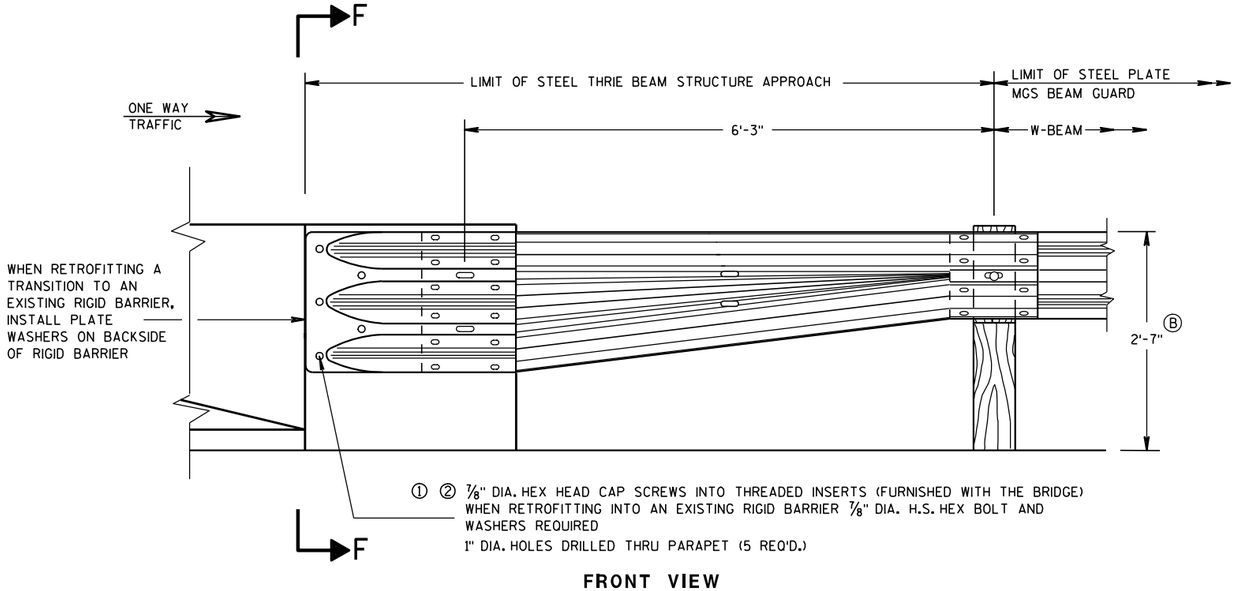
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

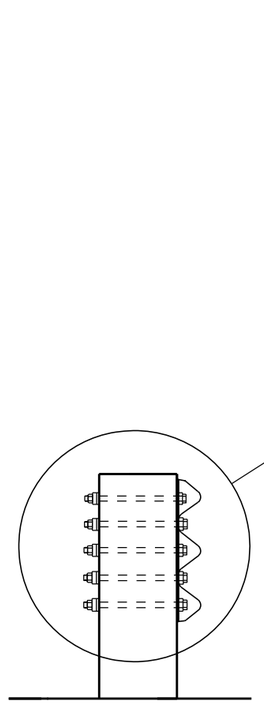
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

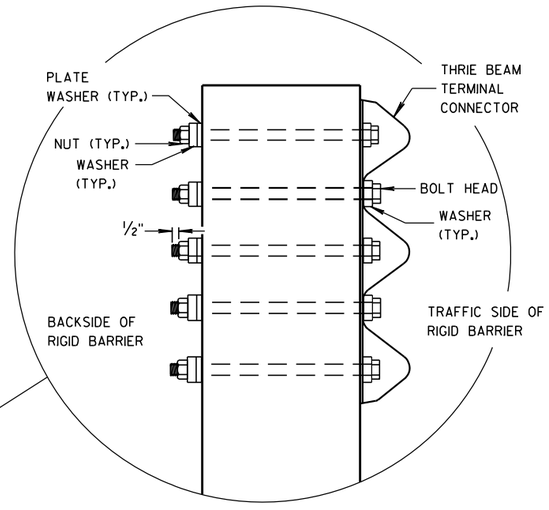
THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



FRONT VIEW



SECTION F-F



W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS [illegible]
ENGINEER

FHWA

6

S.D.D. 14 B 45-3d

6

S.D.D. 14 B 45-3d

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

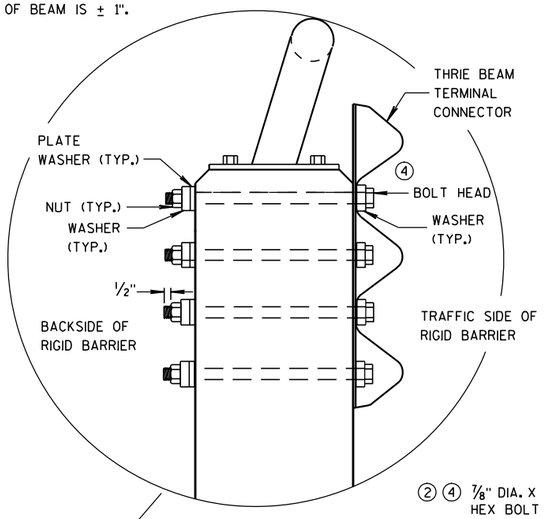
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

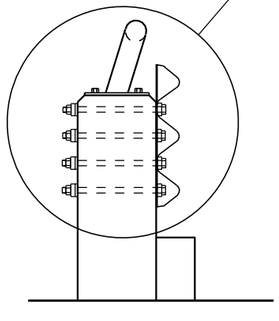
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

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 1'-6" X 2'-0" X 3 1/2". BLOCK IS INCIDENTAL TO THE CONTRACT.

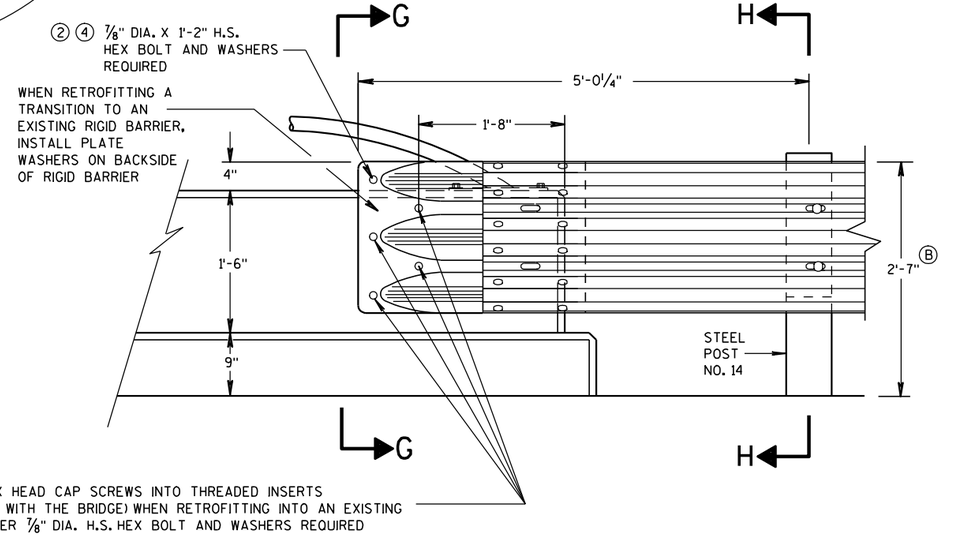
④ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

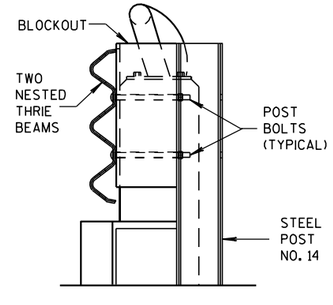




SECTION G-G

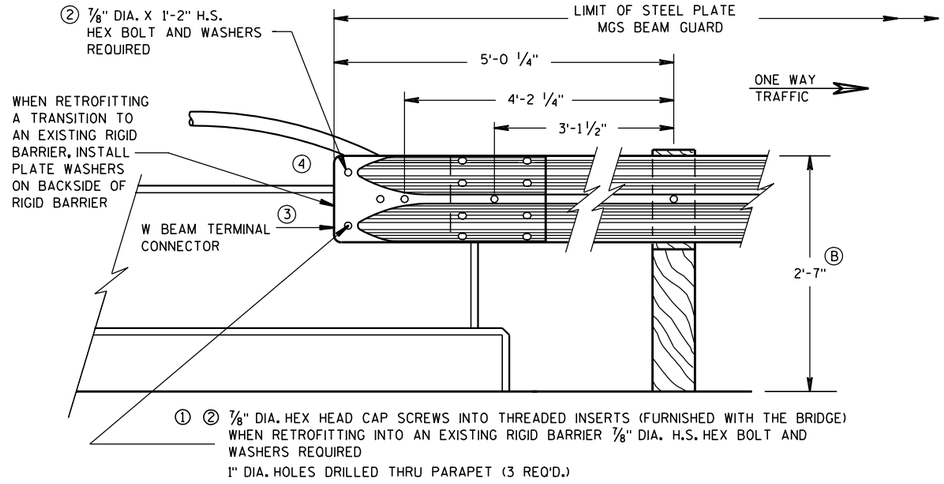


FRONT VIEW



SECTION H-H

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)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

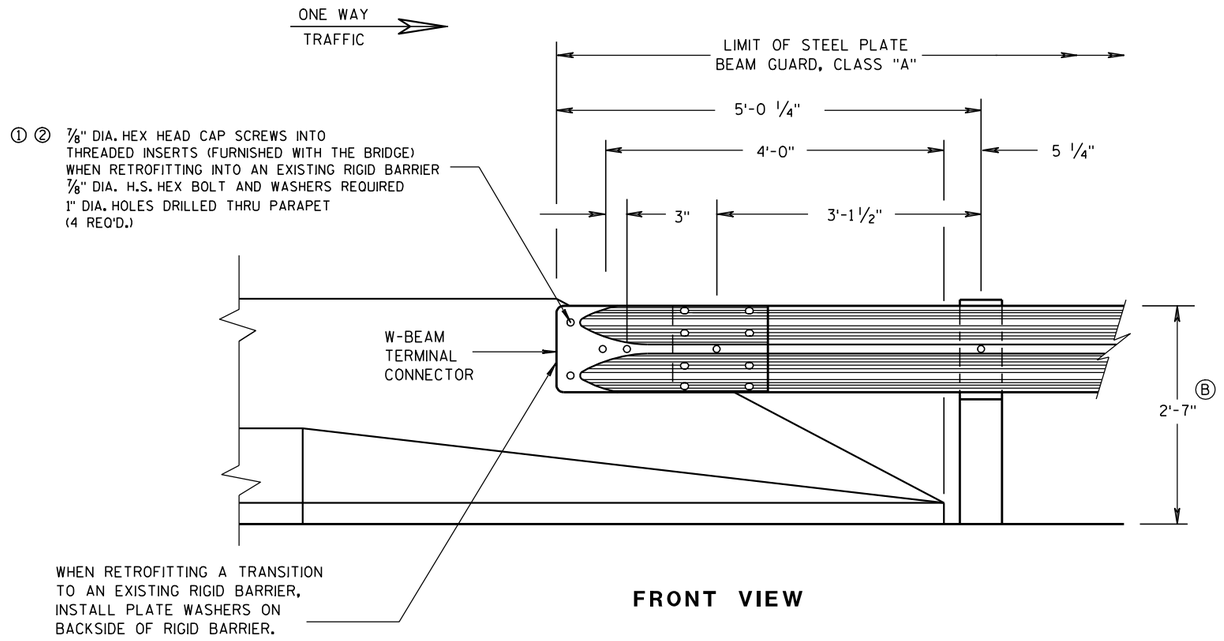
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-31-2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

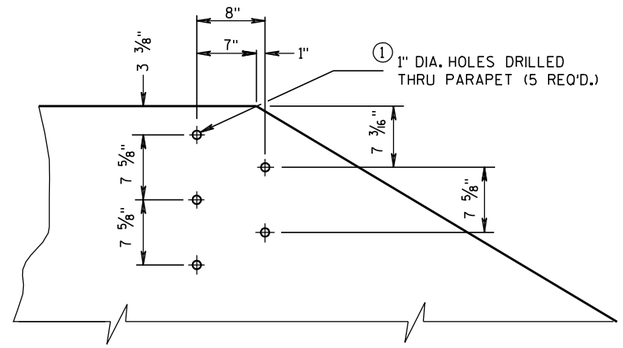
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

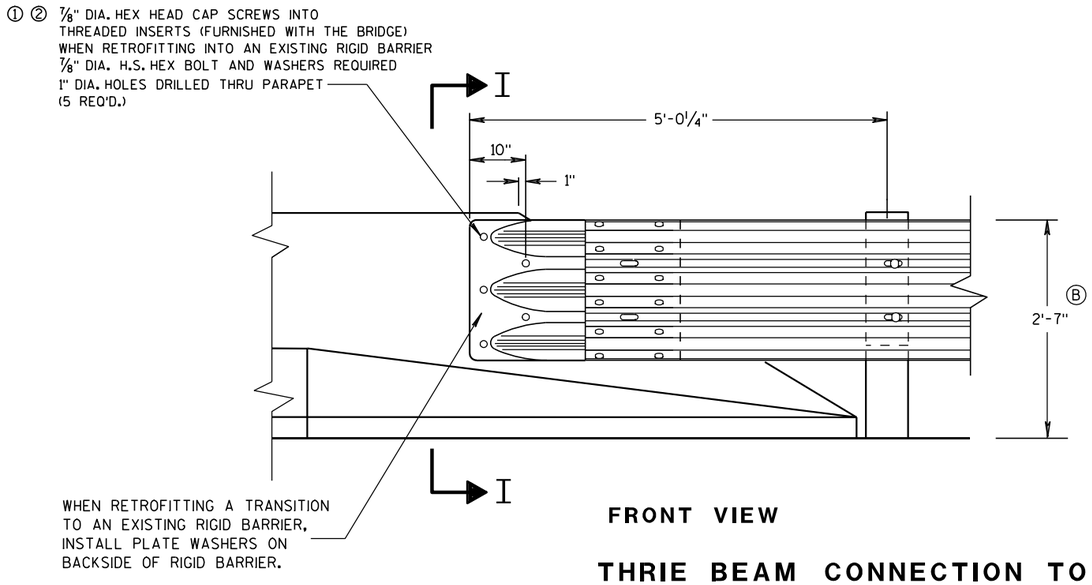
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

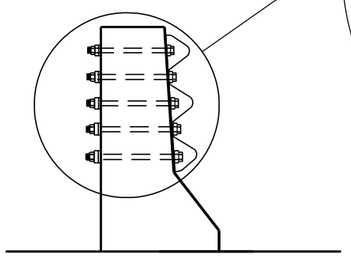
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



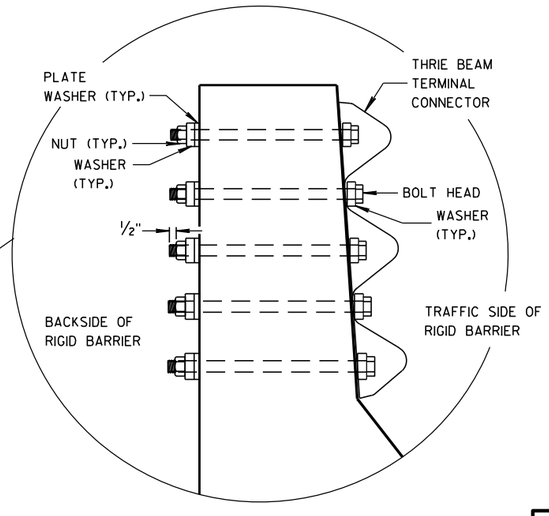
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

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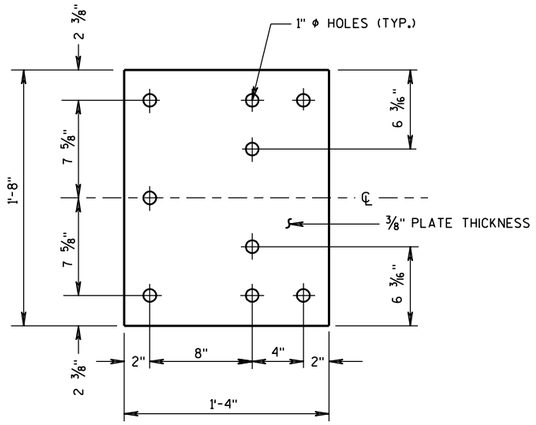
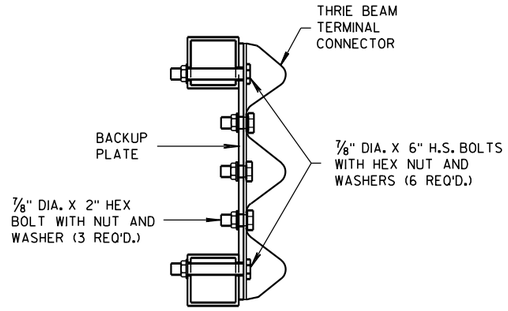


BACK-UP PLATE DETAIL

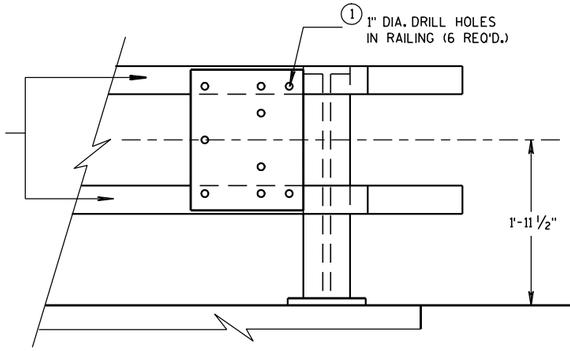


SECTION J-J

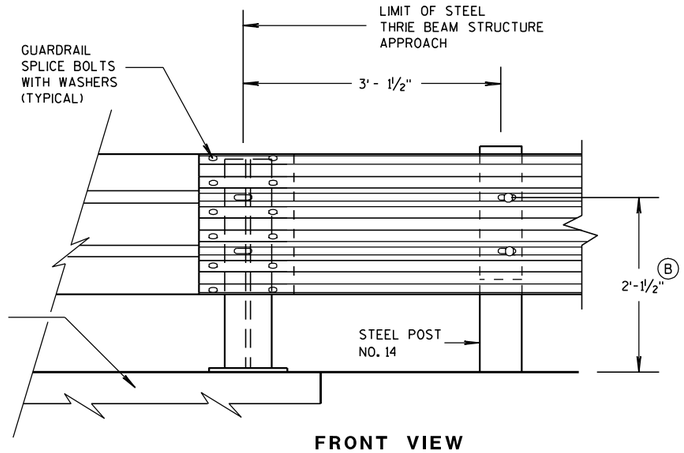
GENERAL NOTES

(1) DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(B) TOLERANCE FOR TOP OF BEAM IS ± 1".

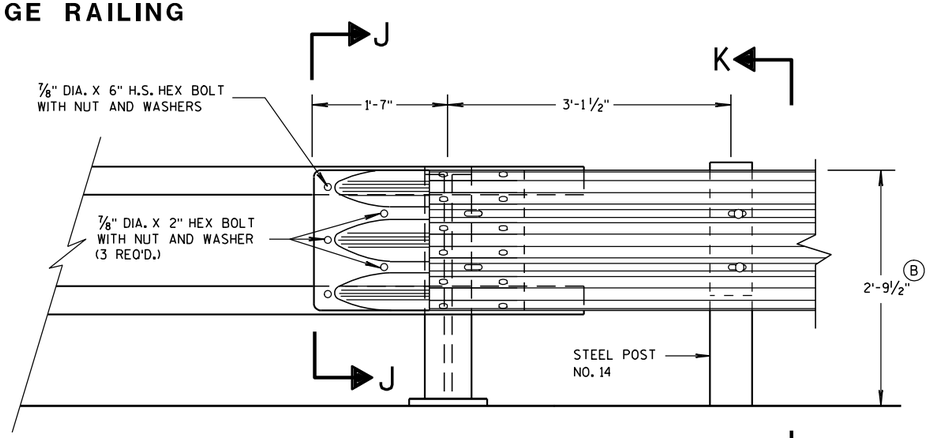


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

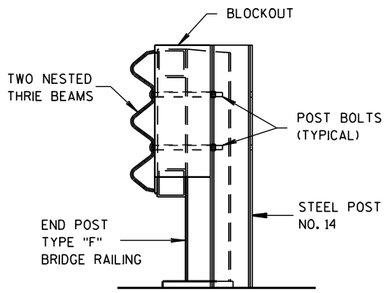


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE FHWA	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER

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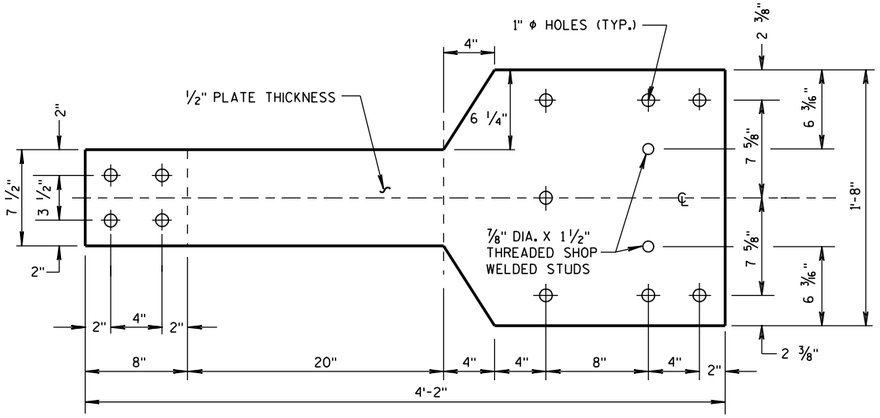
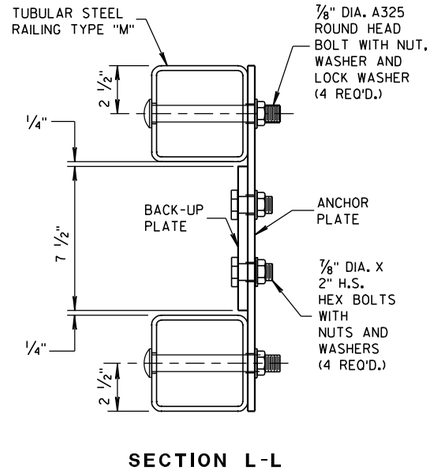
GENERAL NOTES

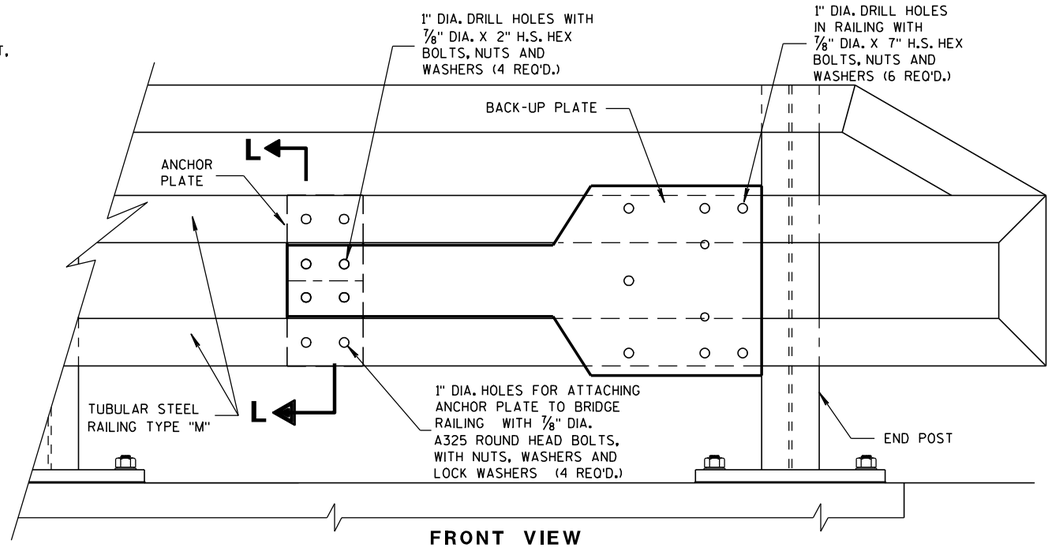
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

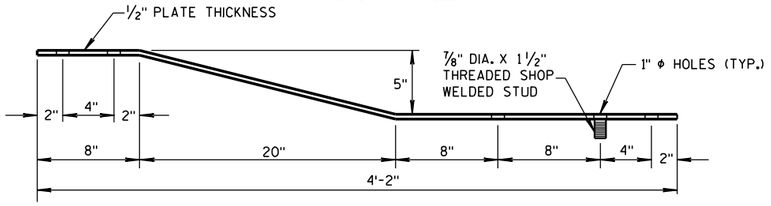


SECTION L-L



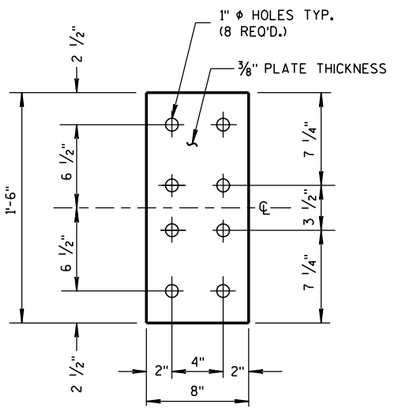
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



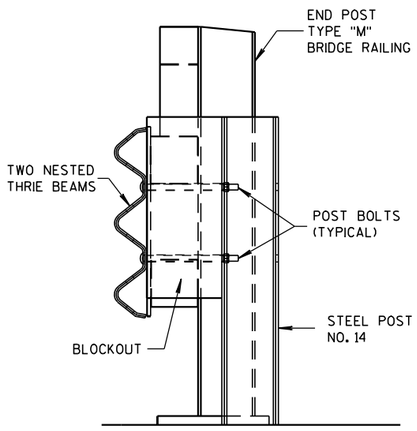
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

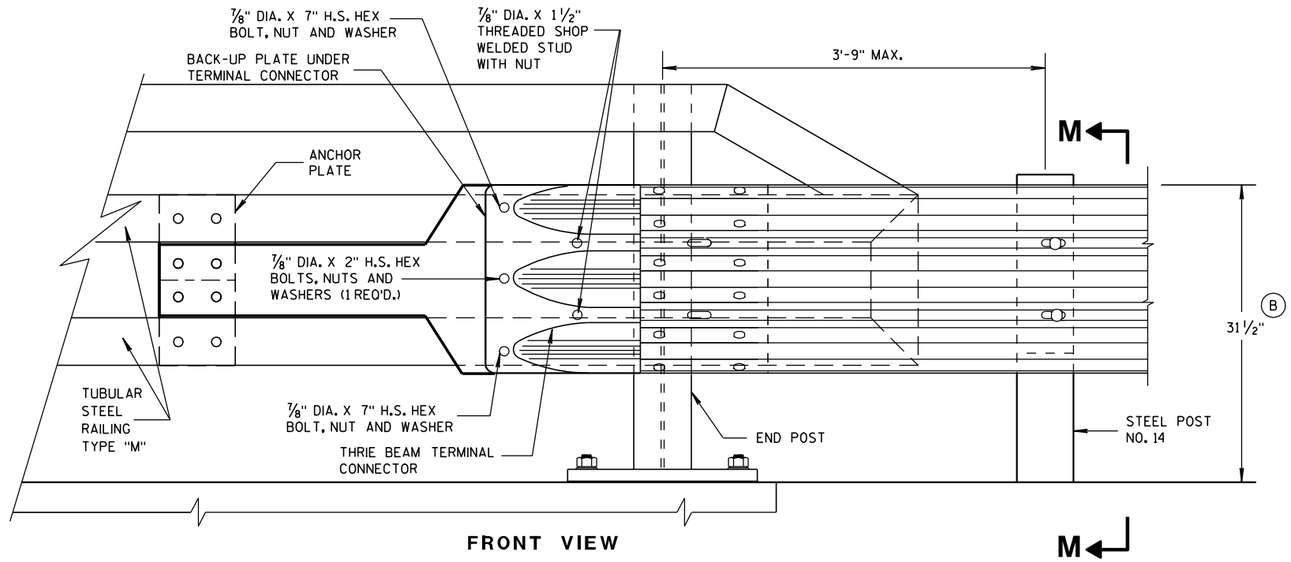


FRONT VIEW

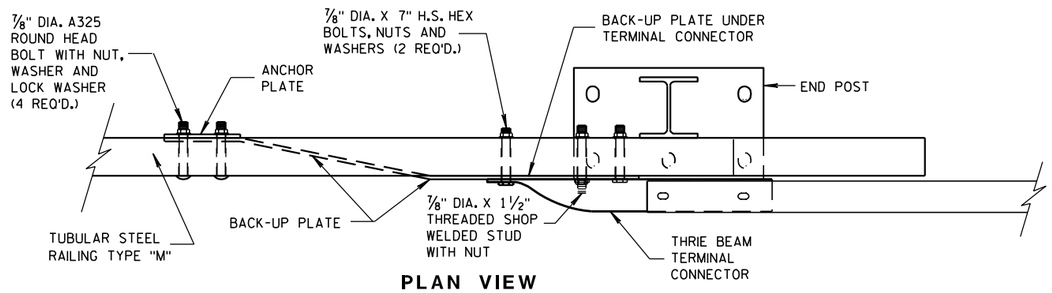
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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DATE

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GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

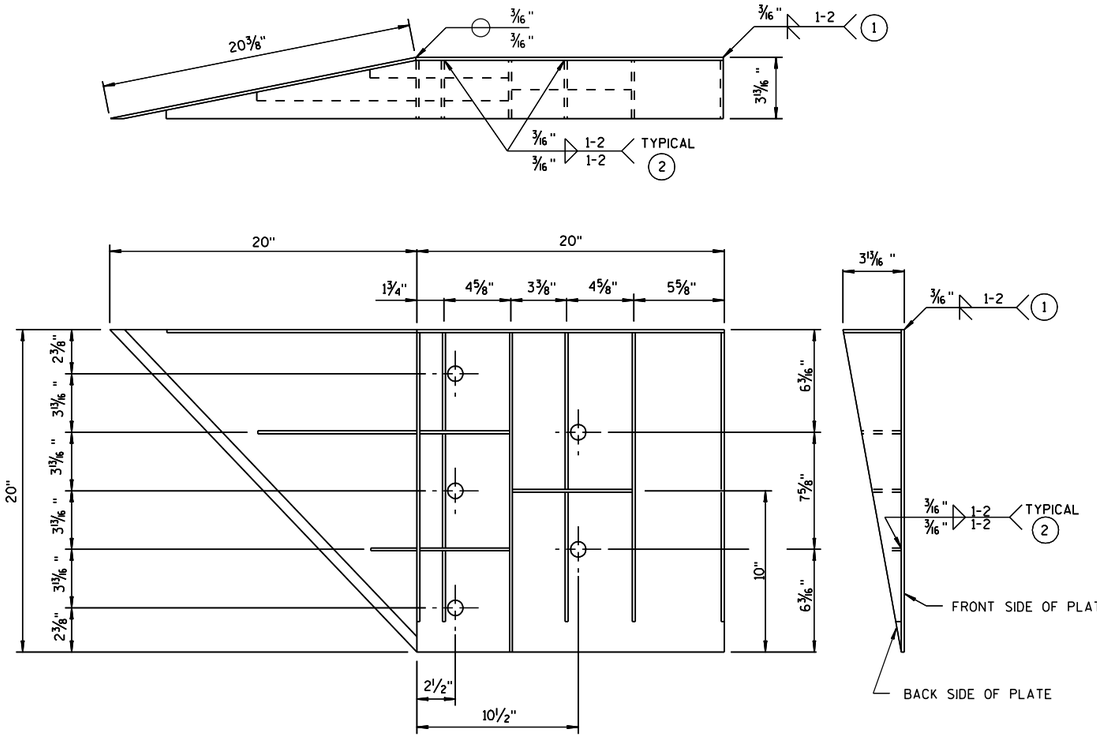
FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(1) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(2) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

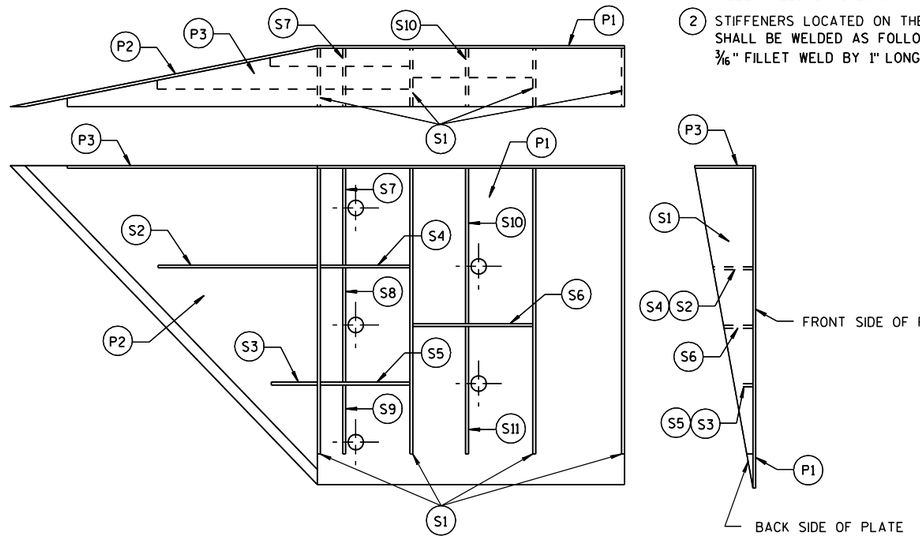


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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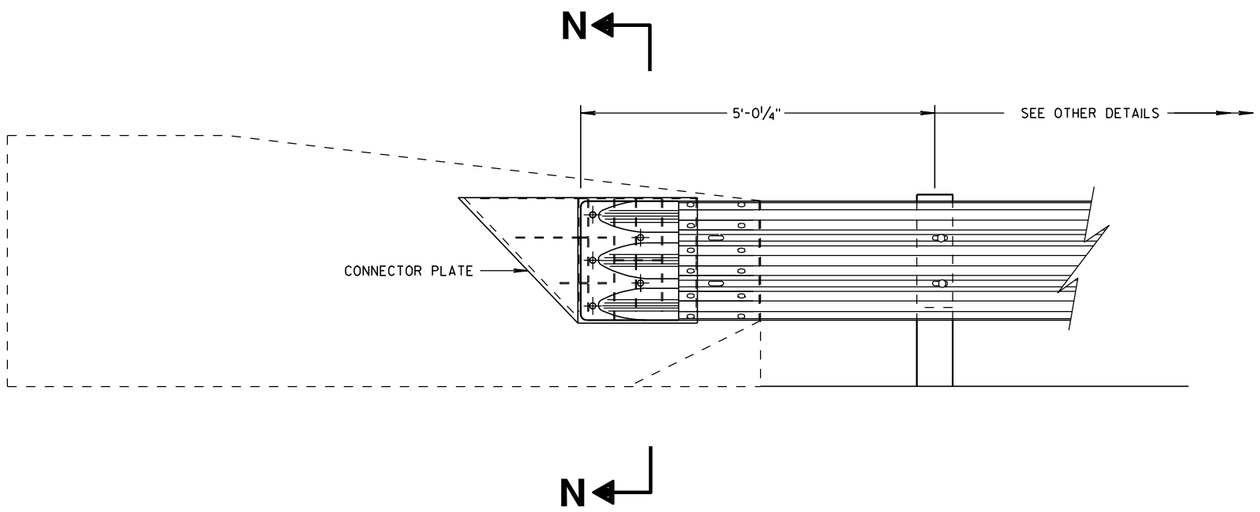
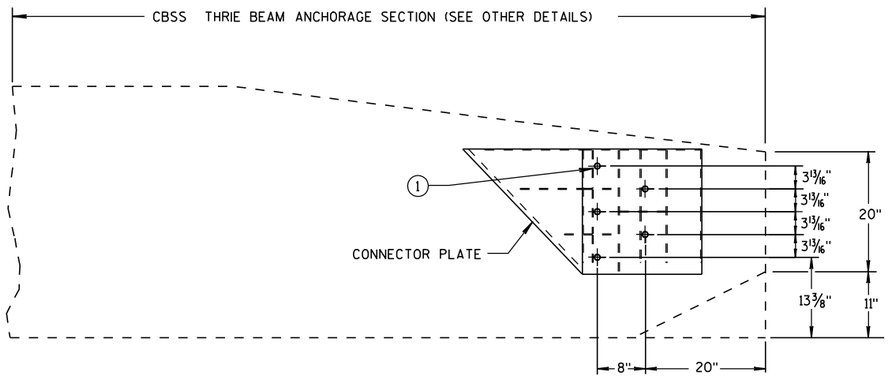


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER

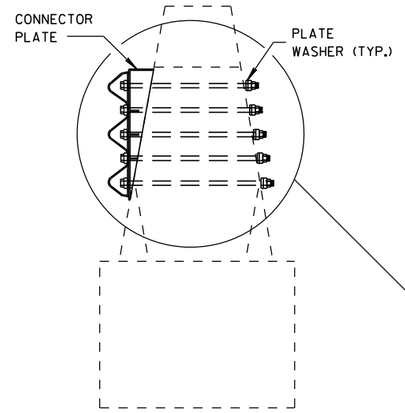


SINGLE SLOPE CONNECTION PLATE PLACEMENT

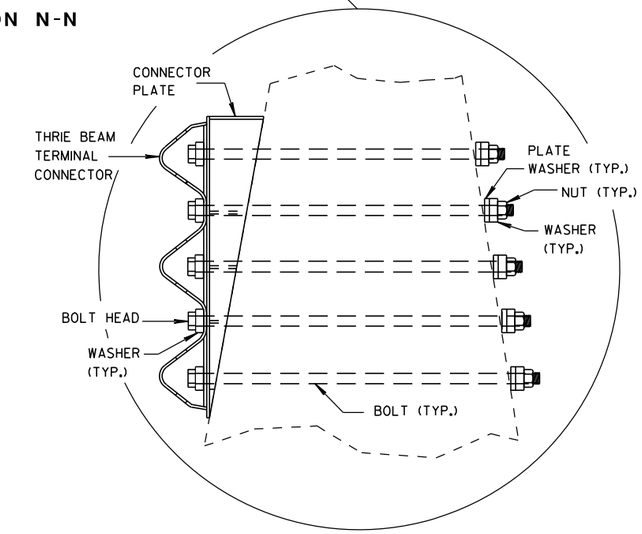
GENERAL NOTES

CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(1) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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8/31/2012 DATE
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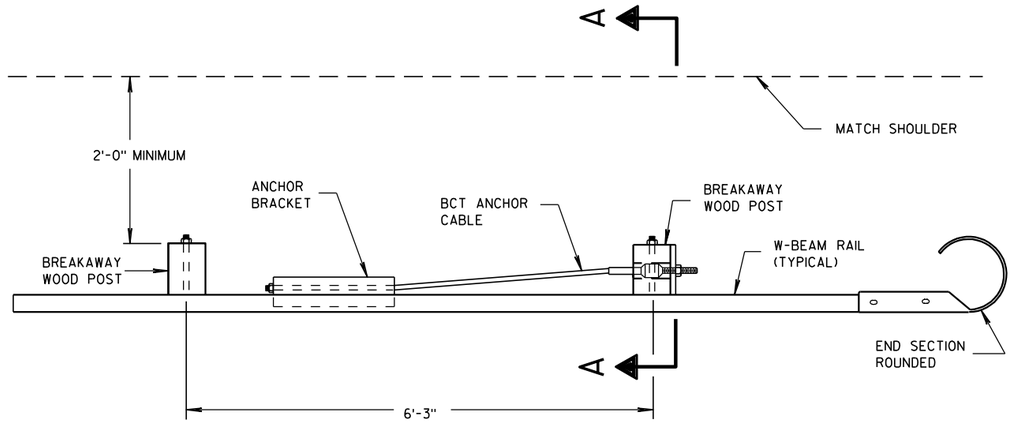
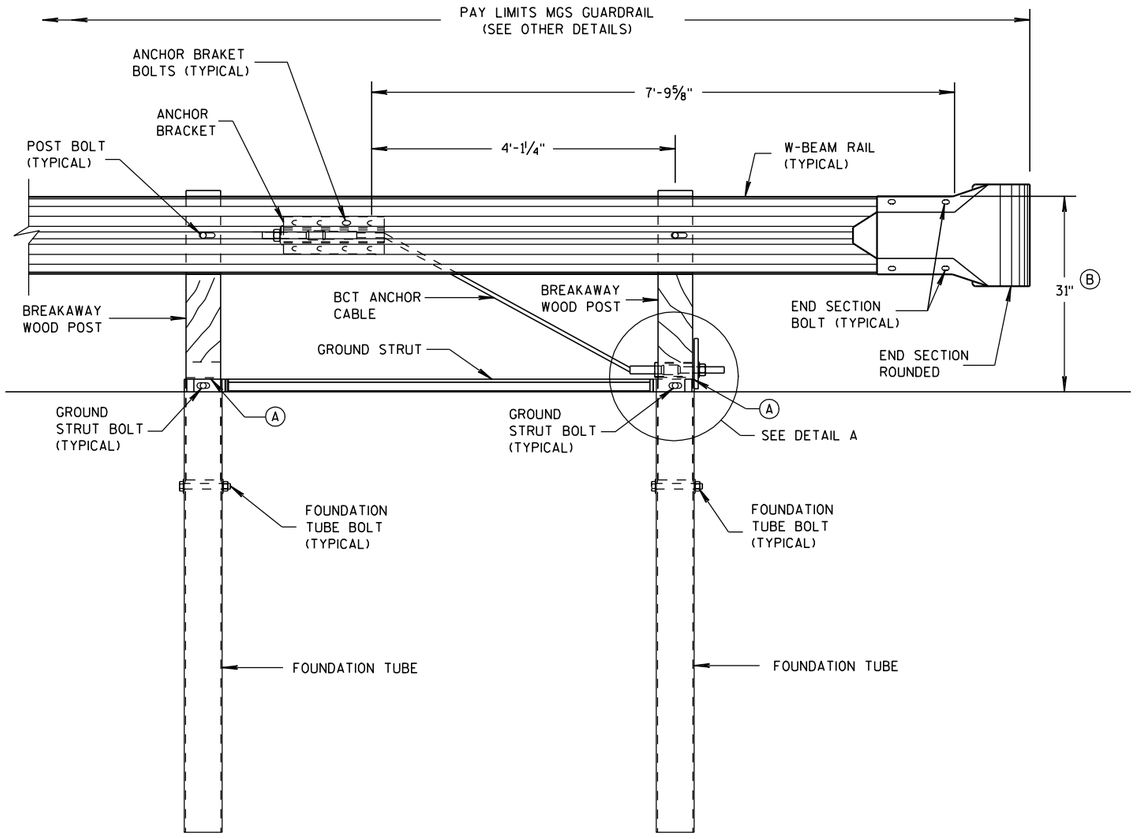
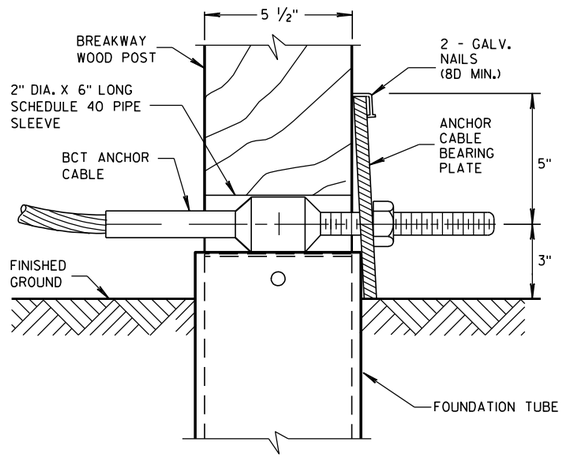


PLAN VIEW



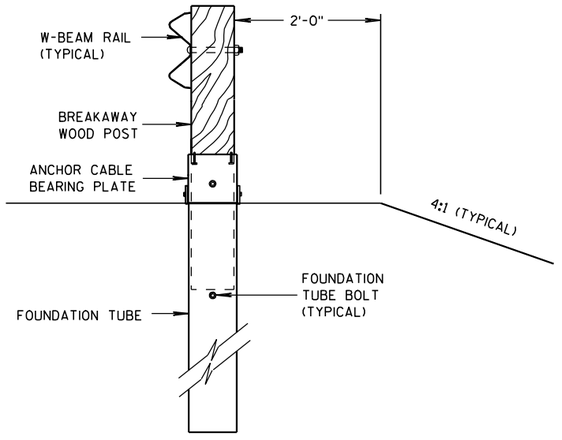
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

POST BOLTS ARE A ⅝" DIAMETER X 10" LONG GUARDRAIL BOLT. A POST BOLT REQUIRES A ⅝" DIAMETER DH MODIFIED (RECESSED) HEAVY HEX NUT AND ⅝" DIAMETER FLAT WASHER.

FOUNDATION TUBE BOLTS ARE A ⅞" DIAMETER X 7½" LONG HEAVY HEX HEAD BOLT. A FOUNDATION TUBE BOLT REQUIRES A ⅞" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

GROUND STRUT BOLTS ARE A ⅝" DIAMETER X 10" LONG HEAVY HEX HEAD BOLT. A GROUND STRUT BOLT REQUIRES A ⅝" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

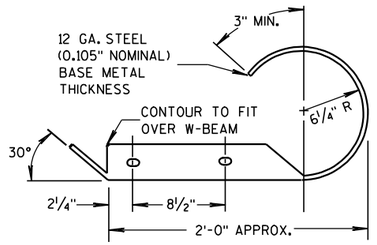
ANCHOR BRAKET BOLTS ARE A ⅝" DIAMETER X 1½" LONG HEAVY HEX HEAD BOLT. AN ANCHOR BRAKET BOLT REQUIRES A ⅝" DIAMETER DH HEAVY HEX NUT AND A FLAT WASHER.

END SECTION BOLTS ARE A ⅝" DIAMETER X 1½" HEAVY HEX HEAD BOLT. AN END SECTION BOLT REQUIRES ⅝" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

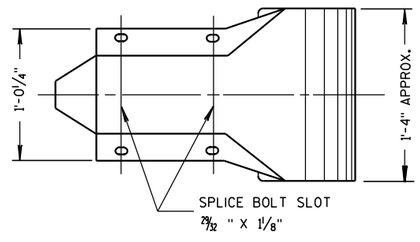
W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

(B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27¾" TO 32" ± 1".



PLAN VIEW



FRONT VIEW

W BEAM END SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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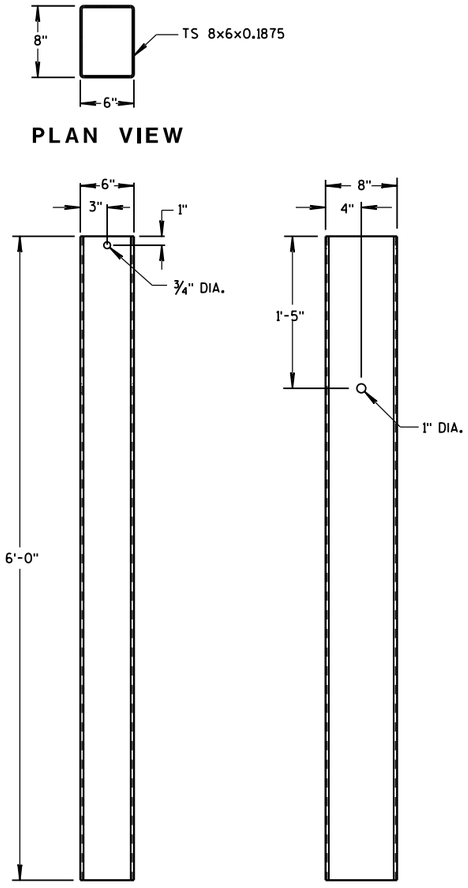
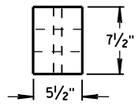


PLAN VIEW

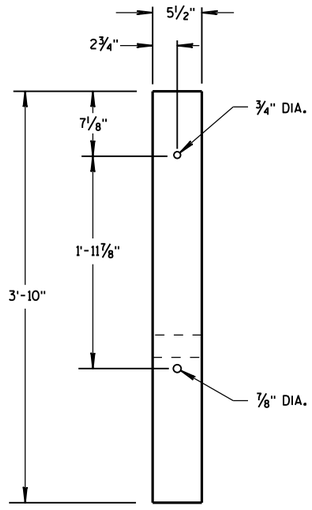
FRONT VIEW

SIDE VIEW

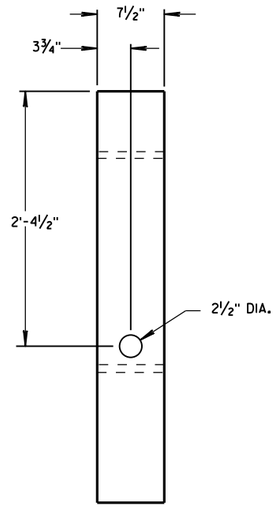
FOUNDATION TUBE



PLAN VIEW



FRONT VIEW



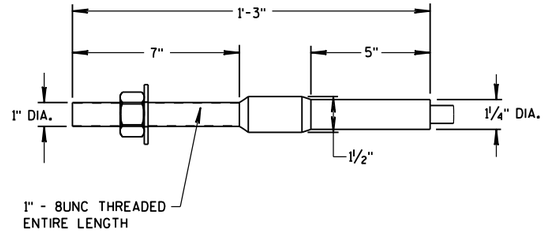
SIDE VIEW

BREAKAWAY WOOD POST

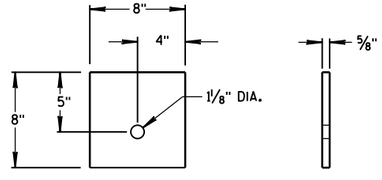
GENERAL NOTES

BCT ANCHOR CABLE IS A ⅜" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. THE END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. THE TREADED STUD SHOULD CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW

ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
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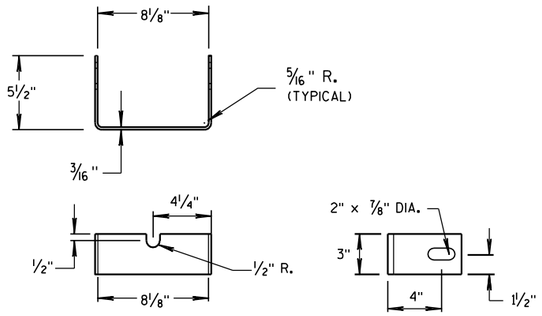

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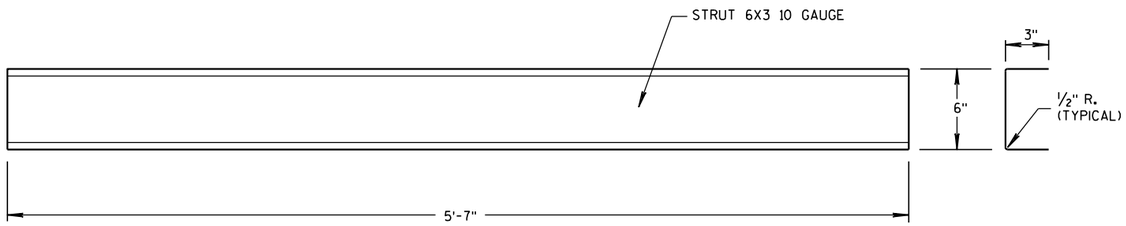
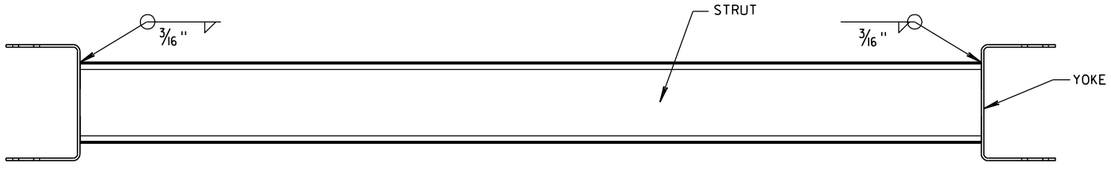
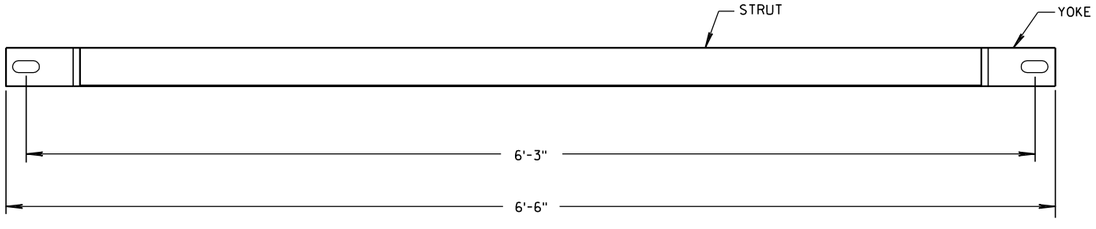


STRUT DETAIL

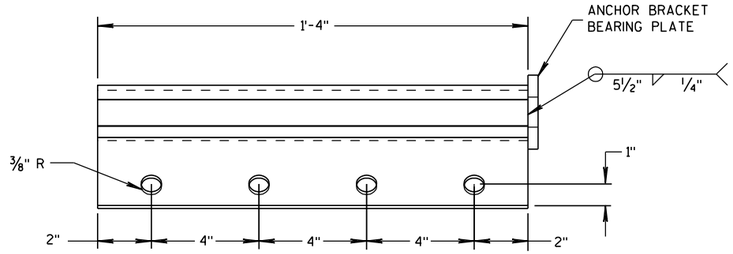


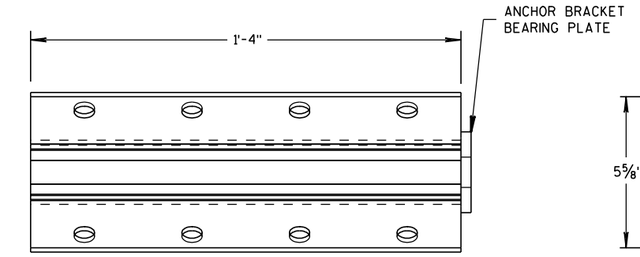
PLAN VIEW

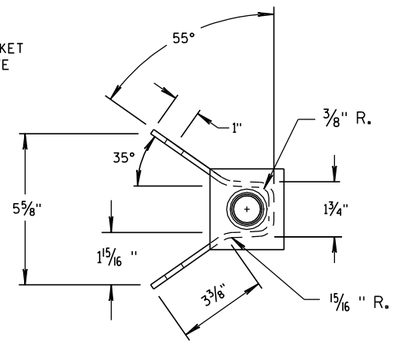


FRONT VIEW

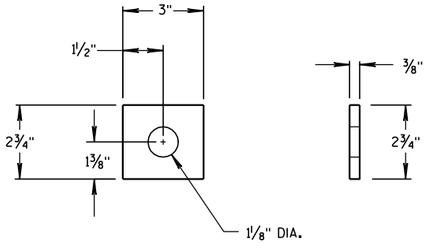
GROUND STRUT DETAIL







ANCHOR BRACKET



ANCHOR BRACKET BEARING PLATE

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/2011
DATE

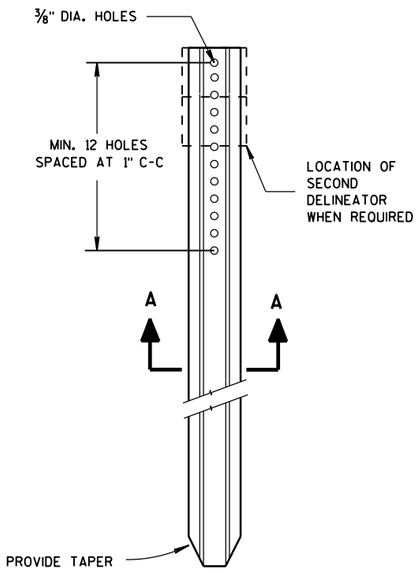
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

[illegible]

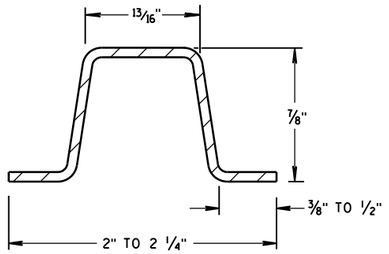
FHWA

6

S.D.D. 14 B 47-1c

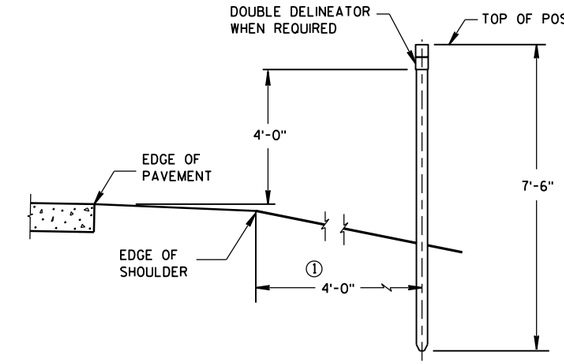


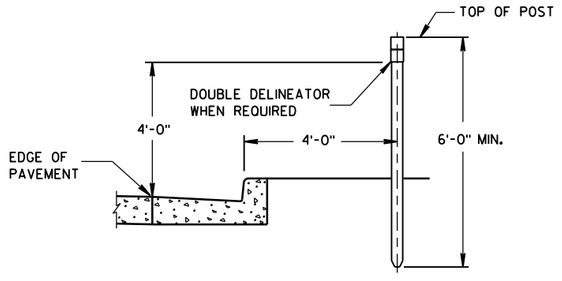
DELINEATOR POST



SECTION A-A

WEIGHT 1.12 LBS PER FT. ± 0.1 LB.



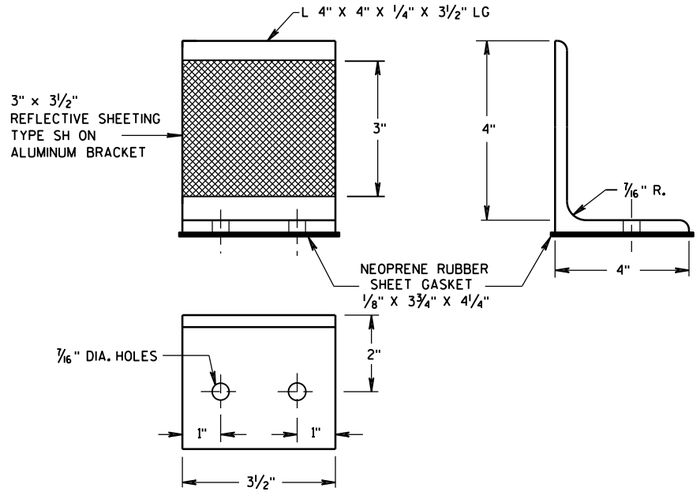


TYPICAL INSTALLATIONS OF DELINEATOR POSTS

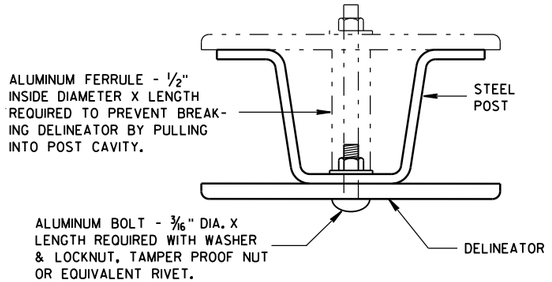
GENERAL NOTES

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

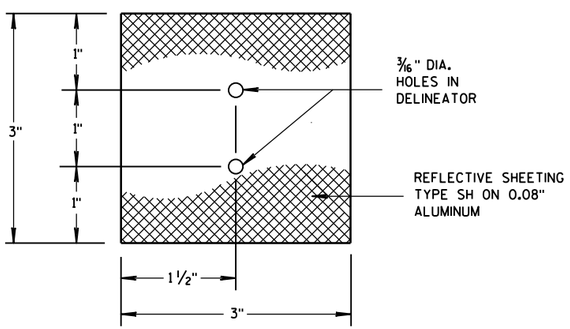
① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



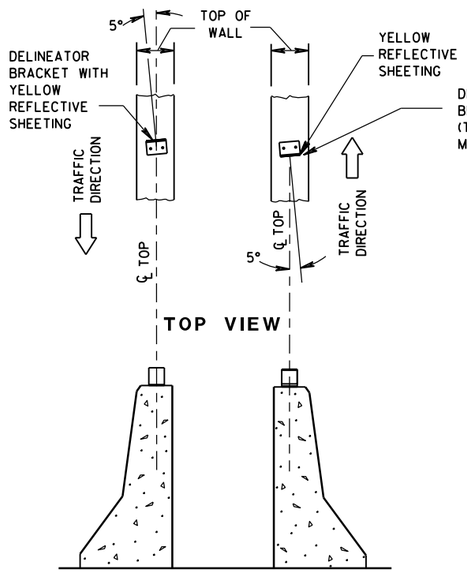
DELINEATOR BRACKET



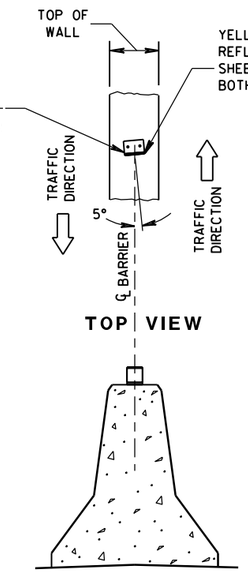
MOUNTING DETAIL FOR DELINEATOR



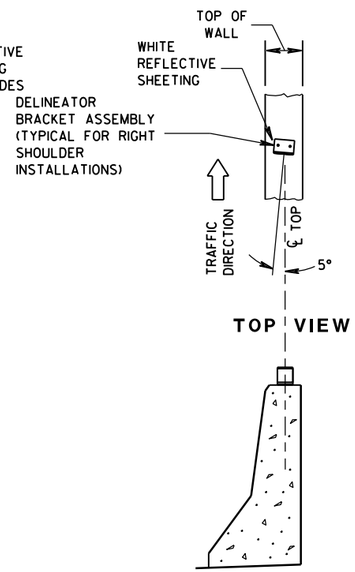
3"x 3" DELINEATOR



DOUBLE BARRIERS IN MEDIAN

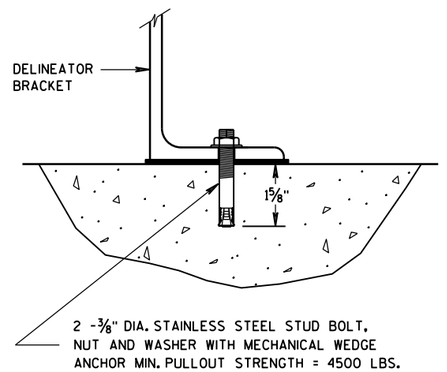


MEDIAN BARRIER



BARRIER LOCATED TO RT. OF TRAFFIC FLOW

LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS



DELINEATOR BRACKET MOUNTING DETAIL

DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC E
FHWA

6

S.D.D. 15 A 2-8

6

S.D.D. 15 A 2-8

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- POST WITH ATTACHED SIGN IN DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

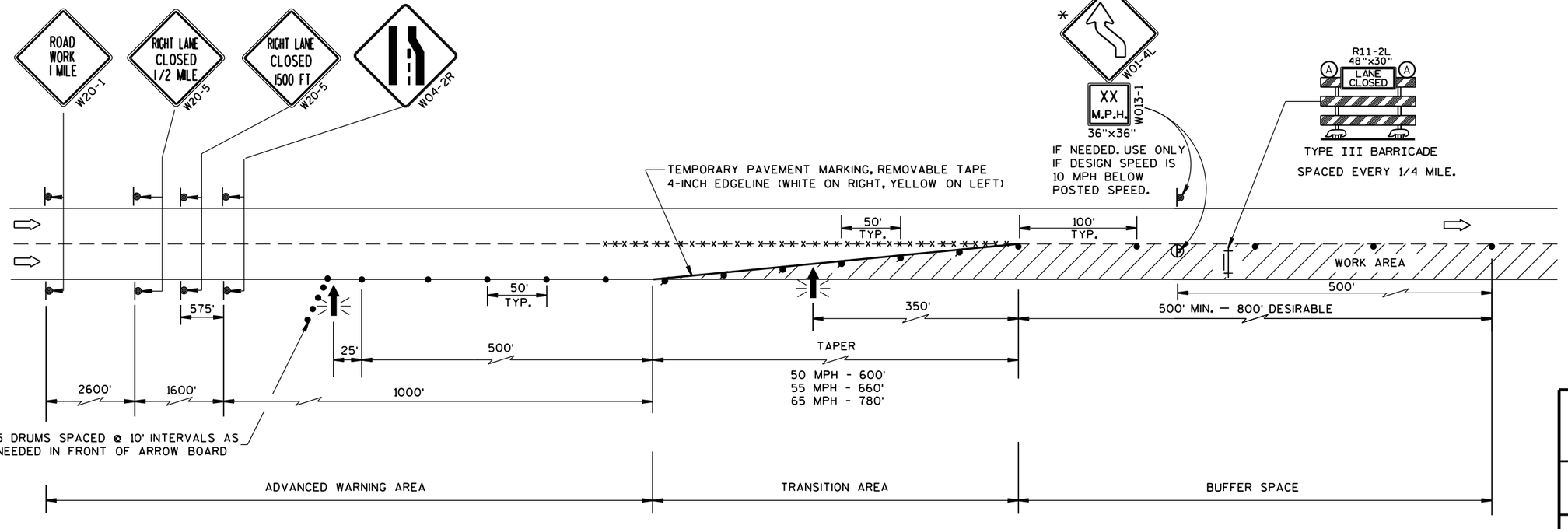
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

LOCATED 500 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.

R2-1
48"×60"
(BLACK AND WHITE)

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.



TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6
S.D.D. 15 D 12-3

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

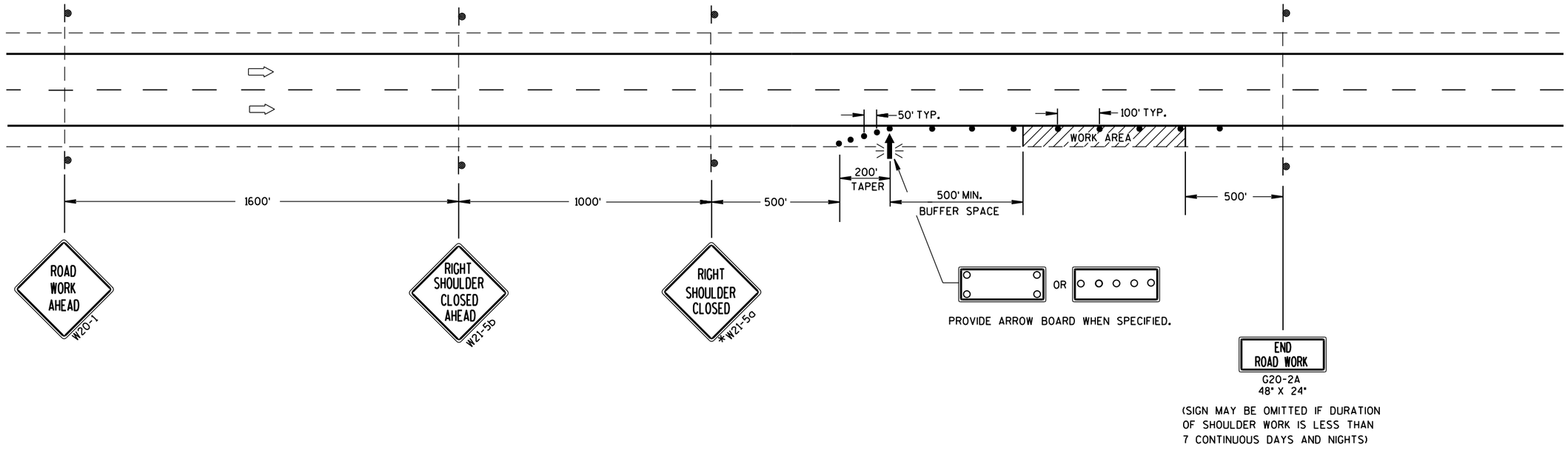
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A 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 APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

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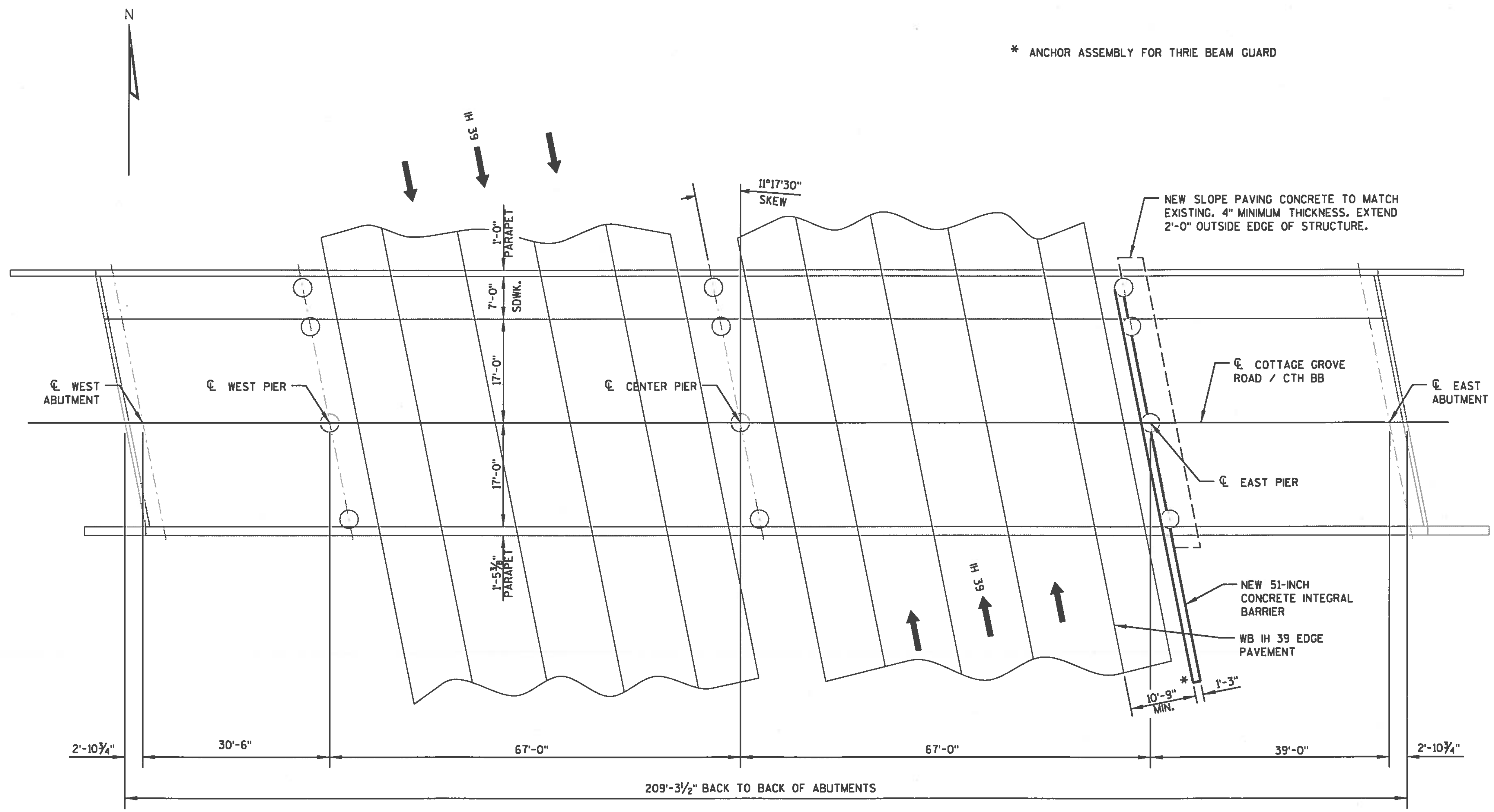
S.D.D. 15 D 27-2

STATE PROJECT NUMBER

1001-06-73



PLAN

FOUR-SPAN 36" PRESTRESSED GIRDER BRIDGE

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY —— f'c = 4,000 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 —— fy = 60,000 P.S.I.

GENERAL NOTES

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DRAWINGS SHALL NOT BE SCALED.

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

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

BARRIER AND FOOTING SHALL CONSIST OF CAST IN PLACE CONSTRUCTION. NO JOINTS SHALL BE ALLOWED IN THE BARRIER. CONSTRUCTION JOINTS WILL ONLY BE ALLOWED IN THE FOOTING AT LOCATIONS SHOWN IN THE "PLAN VIEW".

DO NOT CUT OR DRILL INTO EXISTING COLUMN BAR STEEL.

ALL REINFORCEMENT SHALL BE EPOXY COATED.

USE 2-INCH MINIMUM BAR CLEARANCE, EXCEPT AT FOOTINGS PROVIDE 3-INCH BAR CLEARANCE FROM BOTTOM OF FOOTING TO BOTTOM TRANSVERSE REINFORCEMENT.

PLACE REINFORCEMENT SUCH THAT IT WILL NOT CONFLICT WITH THE BOLT HOLES IN THE THRIE BEAM TERMINAL CONNECTOR.

PROVIDE 3/4-INCH BEVEL OR 1-INCH RADIUS ON WALL EDGES, TOP AND ENDS.

PAYMENT FOR SLOPE PAVING CONCRETE INCLUDED IN THE BID ITEM "51-INCH CONCRETE INTEGRAL BARRIER".
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

LIST OF DRAWINGS

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	E PIER	TOTALS
SPV.0090.01	51-INCH CONCRETE INTEGRAL BARRIER	LF	66	66
	NON BID ITEMS *			
	FILLER	SIZE		1/2"
	CONCRETE MASONRY BRIDGES	CY	27	27
	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	4010	4010
	SLOPE PAVING CONCRETE	SY	20	20
	MASONRY ANCHORS, TYPE S 3/4-INCH	EA	42	42

* QUANTITIES FOR NON BID ITEMS PROVIDED FOR INFORMATION ONLY.

WISCONSIN PROFESSIONAL ENGINEER
GARY A. RUCHTI
E-30936
MADISON
WI

3-2-14

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489

CONSULTANT CONTACT
GARY RUCHTI, P.E.
TELEPHONE: (608) 273-6380

NO.	DATE	REVISION	BY

Mead & Hunt
Mead & Hunt, Inc.
6501 Watts Road
Madison, WI 53719
608.273.6380
fax: 608.273.6391
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 03/26/14
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-13-112

COTTAGE GROVE ROAD / CTH BB OVER IH-39

COUNTY DANE ~~TOWN~~/CITY/~~VILLAGE~~ MADISON

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY MJB | DESIGN CK'D. GAR | DRAWN BY MJB | PLANS CK'D. GAR

GENERAL PLAN

SHEET 1 OF 3

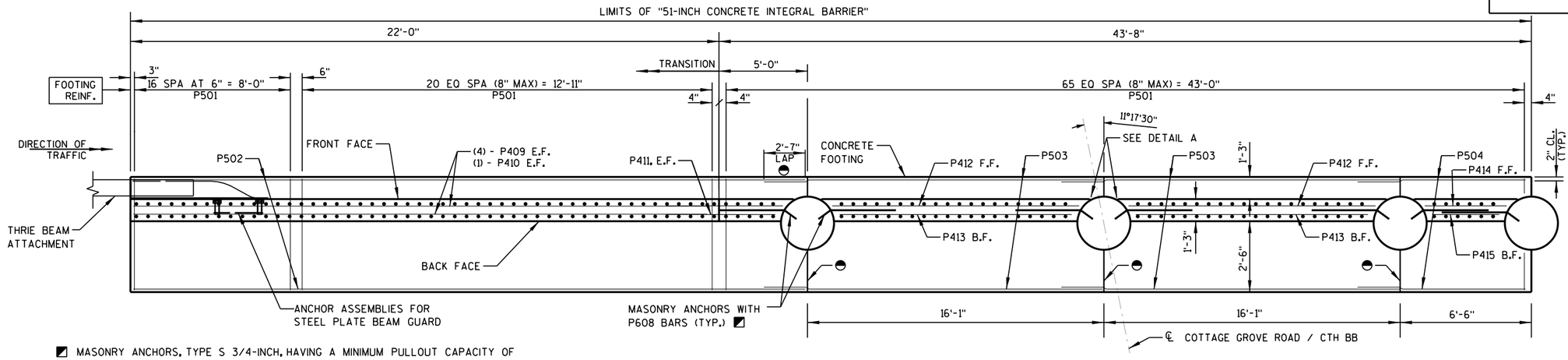
8

8

FILE NAME : X:±3230900±120136.01±TECH±CAD±10010603±SheetsPlan±080101_B-13-112 Integral Barrier.DGN 3/3/2014

PLOT SCALE : 20.00 FT / in.

STATE PROJECT NUMBER
1001-06-73

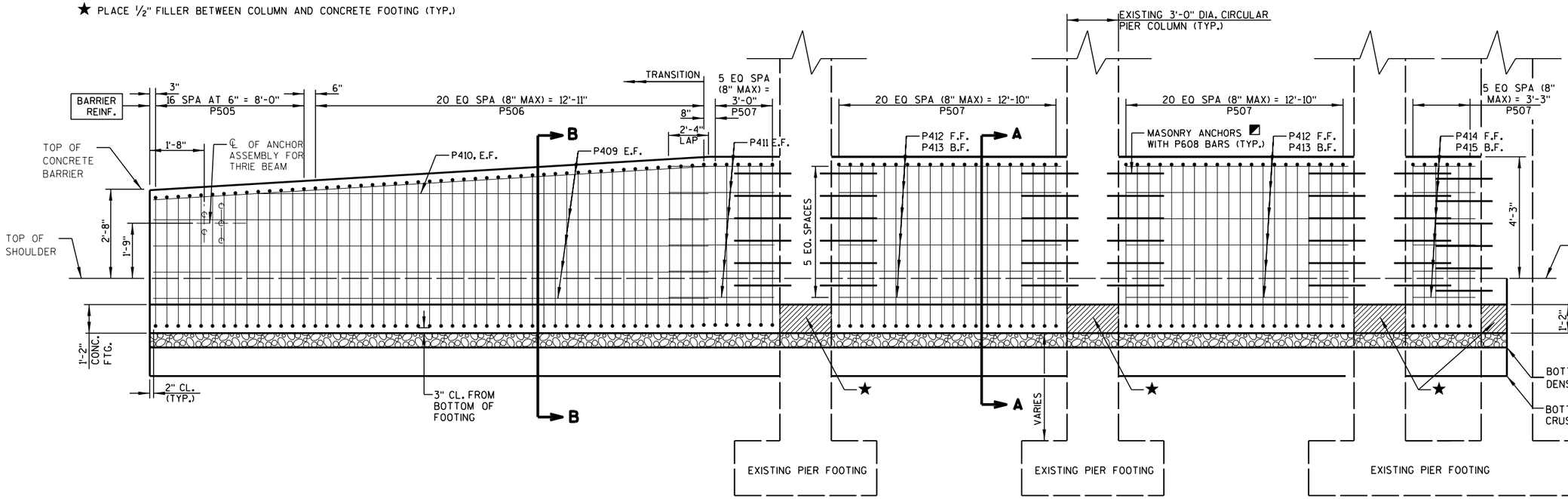


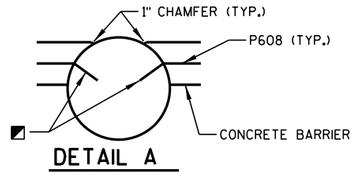
■ MASONRY ANCHORS, TYPE S 3/4-INCH, HAVING A MINIMUM PULLOUT CAPACITY OF 26 KIPS, EMBED A MINIMUM OF 8" INTO CONCRETE COLUMN

◓ OPTIONAL CONSTRUCTION JOINTS IN FOOTINGS PLACED ALONG ℄ OF COLUMN. IF USED, LAP LONGITUDINAL P502 REINFORCEMENT 2'-7" IN ADJACENT POUR.

★ PLACE ½" FILLER BETWEEN COLUMN AND CONCRETE FOOTING (TYP.)

PLAN VIEW





DETAIL A

F.F. OF BARRIER IS FLUSH WITH FACE OF COLUMN

ELEVATION VIEW

LOOKING AT B.F. OF BARRIER

NOTES

TRIM THE FOOTING REINFORCEMENT BARS P501, P502, P503 AND P504 AT COLUMNS TO MAINTAIN 2" MINIMUM CLEAR TO BARS.

F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-13-112

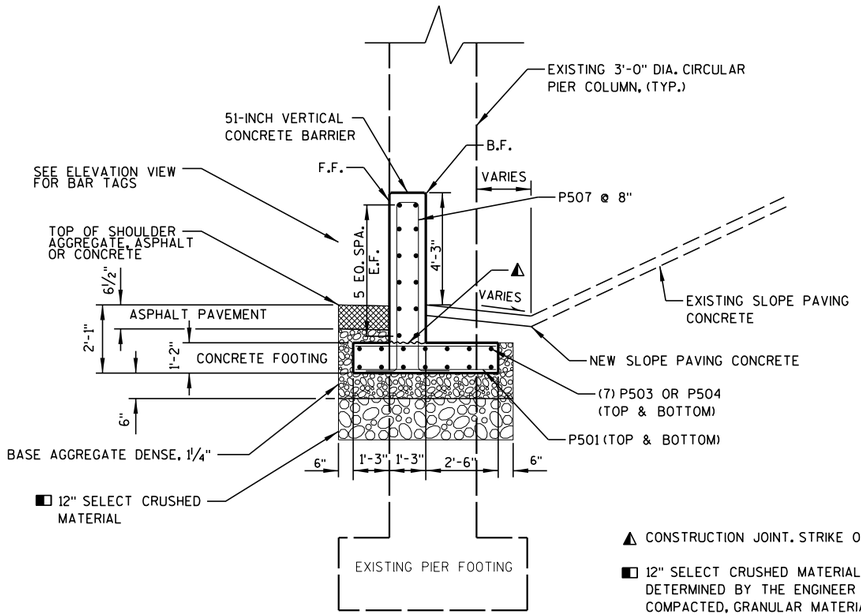
DRAWN BY MJB | PLANS CK'D. GAR

PLAN & ELEVATION VIEWS

SHEET 2 OF 3
57

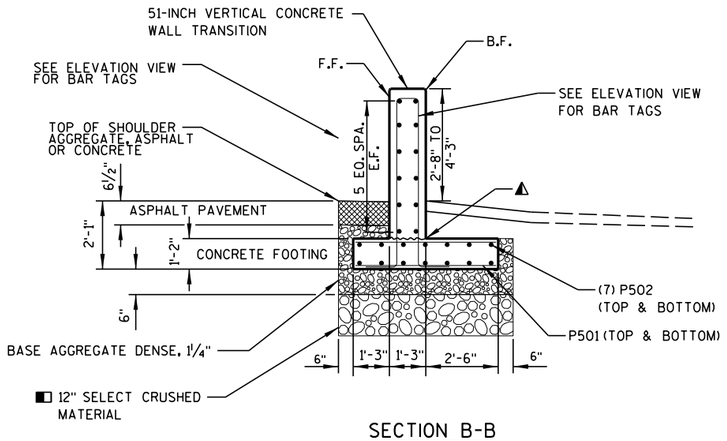
STATE PROJECT NUMBER

1001-06-73



SECTION A-A

BETWEEN COLUMNS

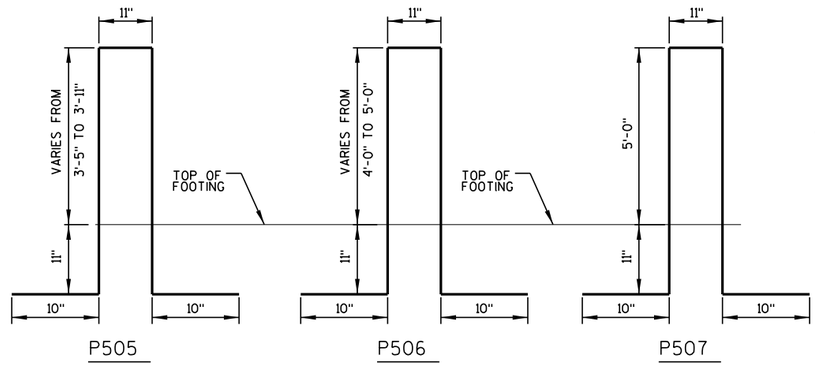


SECTION B-B

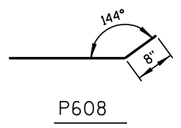
TRANSITION REGION

▲ CONSTRUCTION JOINT. STRIKE OFF AS SHOWN AND LEAVE ROUGH.

■ 12" SELECT CRUSHED MATERIAL MAY BE ELIMINATED IF IT IS DETERMINED BY THE ENGINEER THAT THE EXISTING MATERIAL IS COMPACTED, GRANULAR MATERIAL.



BAR BENDING DIAGRAMS



P608

BAR SERIES TABLE

MARK	NO. REQ'D	LENGTHS FOR EACH SERIES
P505	1 SERIES OF 17	10'-9" TO 11'-9"
P506	1 SERIES OF 21	11'-11" TO 13'-11"

★ **BILL OF BARS**
B-13-112 EAST PIER

COATED= 4010 LBS.
UNCOATED= 0 LBS.

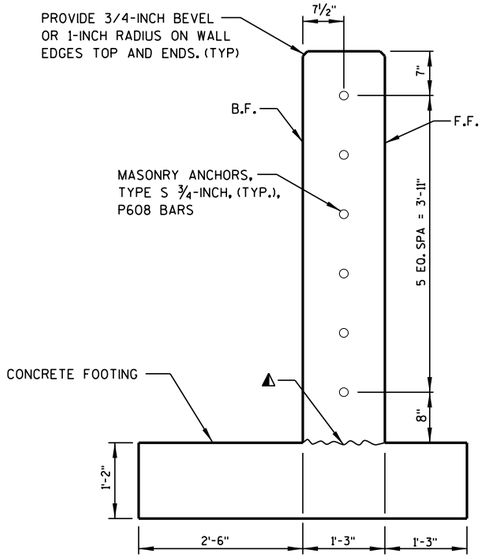
MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
P 5 01	208		4 - 8			FOOTING - TRANSVERSE	HORIZ
P 5 02	14		26 - 8			FOOTING - LONGITUDINAL IN TRANSITION	HORIZ
P 5 03	28		18 - 8			FOOTING - LONGITUDINAL AT PIER	HORIZ
P 5 04	14		9 - 1			FOOTING - LONGITUDINAL AT PIER	HORIZ
P 5 05	17		11 - 3	X	X	BARRIER - STIRRUP AT END OF TRANSITION	VERT
P 5 06	21		12 - 11	X	X	BARRIER - STIRRUP IN TRANSITION	VERT
P 5 07	54		13 - 11	X		BARRIER - STIRRUP BETWEEN COLUMNS	VERT
P 6 08	42		3 - 2	X		BARRIER - COLUMN TIE BAR	HORIZ
P 4 09	10		21 - 10			BARRIER - LONGITUDINAL IN TRANSITION, EACH FACE	HORIZ
P 4 10	2		14 - 3			BARRIER - LONGITUDINAL IN TRANSITION, EACH FACE	HORIZ
P 4 11	12		6 - 3			BARRIER - LONGITUDINAL IN TRANSITION, EACH FACE	HORIZ
P 4 12	12		13 - 10			BARRIER - LONGITUDINAL BETWEEN COLUMNS, FRONT FACE	HORIZ
P 4 13	12		12 - 10			BARRIER - LONGITUDINAL BETWEEN COLUMNS, BACK FACE	HORIZ
P 4 14	6		4 - 3			BARRIER - LONGITUDINAL BETWEEN COLUMNS, FRONT FACE	HORIZ
P 4 15	6		3 - 3			BARRIER - LONGITUDINAL BETWEEN COLUMNS, BACK FACE	HORIZ

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

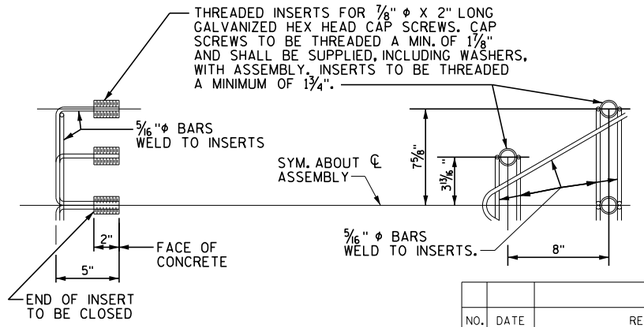
ALL REINFORCING BARS ARE ENGLISH.

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

★ BILL OF BARS TABLE PROVIDED FOR INFORMATION ONLY. PAYMENT IS INCLUDED IN BID ITEM "51-INCH CONCRETE INTEGRAL BARRIER".



MASONRY ANCHOR, TYPE S LAYOUT



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE INCLUDED IN BID ITEM "51-INCH CONCRETE INTEGRAL BARRIER".

51-INCH CONCRETE INTEGRAL BARRIER

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-13-112

DRAWN BY MJB | PLANS CK'D. GAR

CONSTRUCTION DETAILS

SHEET 3 OF 3
58

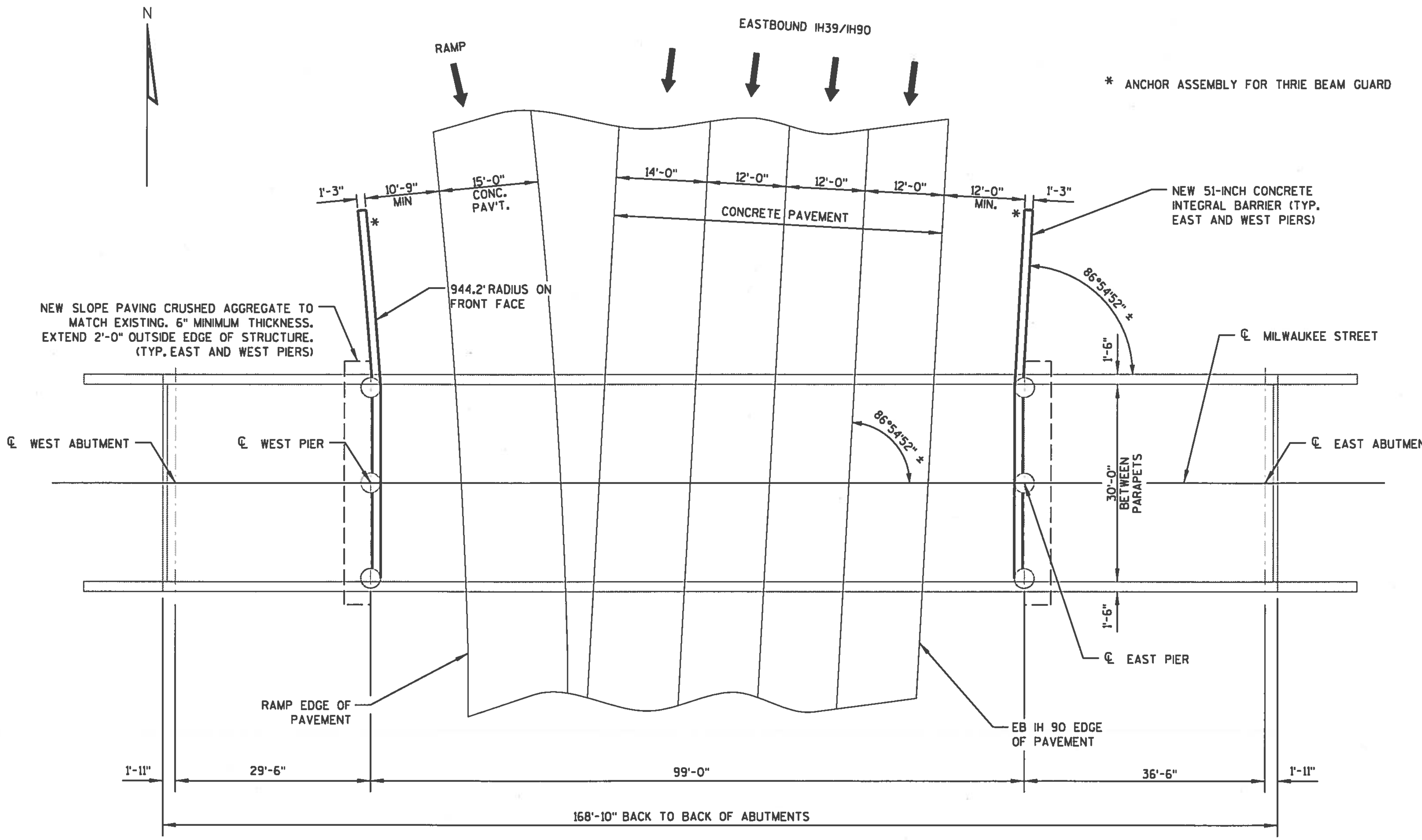
8

8

FILE NAME : X:±3230900±120136.01±TECH±CAD±10010603±SheetsPlan±080101_B-13-112 integral barrier.DGN 3/3/2014 PLOT BY : 1253tav PLOT SCALE : 6.67 FT / in.

STATE PROJECT NUMBER

1001-06-73



PLAN

3 SPAN - 45" PRESTRESSED GIRDER BRIDGE

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY — f'c = 4,000 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 P.S.I.

GENERAL NOTES

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DRAWINGS SHALL NOT BE SCALED.

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

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

BARRIER AND FOOTING SHALL CONSIST OF CAST IN PLACE CONSTRUCTION. NO JOINTS SHALL BE ALLOWED IN THE BARRIER. CONSTRUCTION JOINTS WILL ONLY BE ALLOWED IN THE FOOTING AT LOCATIONS SHOWN IN THE "PLAN VIEW".

DO NOT CUT OR DRILL INTO EXISTING COLUMN BAR STEEL.

ALL REINFORCEMENT SHALL BE EPOXY COATED.

USE 2-INCH MINIMUM BAR CLEARANCE, EXCEPT AT FOOTINGS PROVIDE 3-INCH BAR CLEARANCE FROM BOTTOM OF FOOTING TO BOTTOM TRANSVERSE REINFORCEMENT.

PLACE REINFORCEMENT SUCH THAT IT WILL NOT CONFLICT WITH THE BOLT HOLES IN THE THRIE BEAM TERMINAL CONNECTOR.

PROVIDE 3/4-INCH BEVEL OR 1-INCH RADIUS ON WALL EDGES, TOP AND ENDS.

PAYMENT FOR SLOPE PAVING CRUSHED AGGREGATE INCLUDED IN THE BID ITEM "51-INCH CONCRETE INTEGRAL BARRIER".

F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

LIST OF DRAWINGS

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	W PIER	E PIER	TOTALS
SPV.0090.01	51-INCH CONCRETE INTEGRAL BARRIER	LF	56	56	112
	NON BID ITEMS *				
	FILLER	SIZE			1/2"
	CONCRETE MASONRY BRIDGES	CY	23	23	46
	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	3395	3395	6790
	SLOPE PAVING CRUSHED AGGREGATE	SY	16	16	32
	MASONRY ANCHORS, TYPE S 3/4-INCH	EA	30	30	60

* QUANTITIES FOR NON BID ITEMS PROVIDED FOR INFORMATION ONLY.

WISCONSIN
GARY A. RUCHTI
E-30936
MADISON
WI
PROFESSIONAL ENGINEER
3-2-14

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489

CONSULTANT CONTACT
GARY RUCHTI, P.E.
TELEPHONE: (608) 273-6380

NO.	DATE	REVISION	BY

Mead & Hunt
Mead & Hunt, Inc.
6501 Watts Road
Madison, WI 53719
608.273.6380
fax: 608.273.6391
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 03/26/14
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-13-477

MILWAUKEE STREET OVER EB. IH-39 AND RAMP

COUNTY: DANE — ~~TOWN~~/CITY/~~VILLAGE~~: MADISON

DESIGN SPEC.: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY: MJB — DESIGN CK'D.: GAR — DRAWN BY: MJB — PLANS CK'D.: GAR

GENERAL PLAN — SHEET 1 OF 3

8

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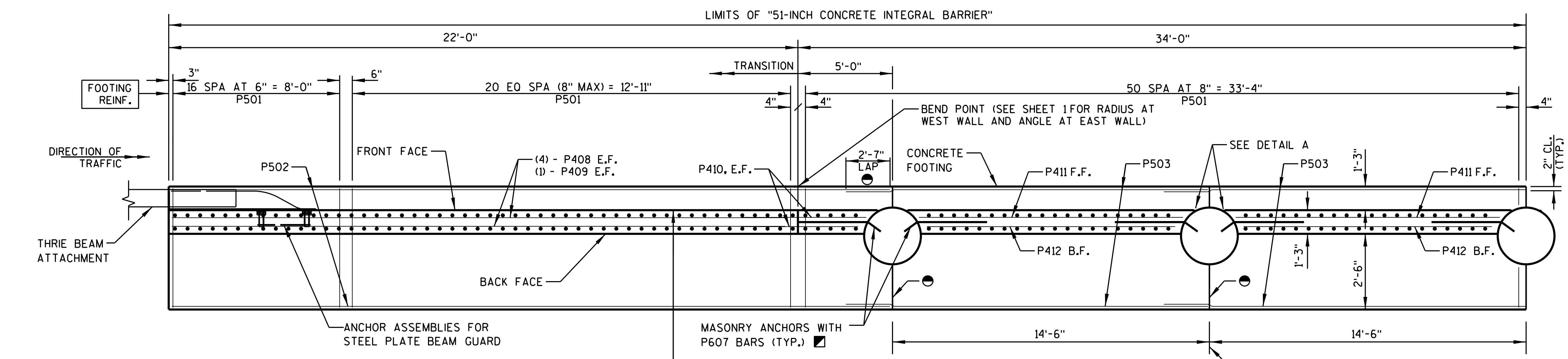
FILE NAME : X:±3230900±120136.01±TECH±CAD±10010603±SheetsPlan±080101_B-13-477 Info 03/13/2014

PLOT SCALE : 20.00 FT / in.

STATE PROJECT NUMBER
1001-06-73

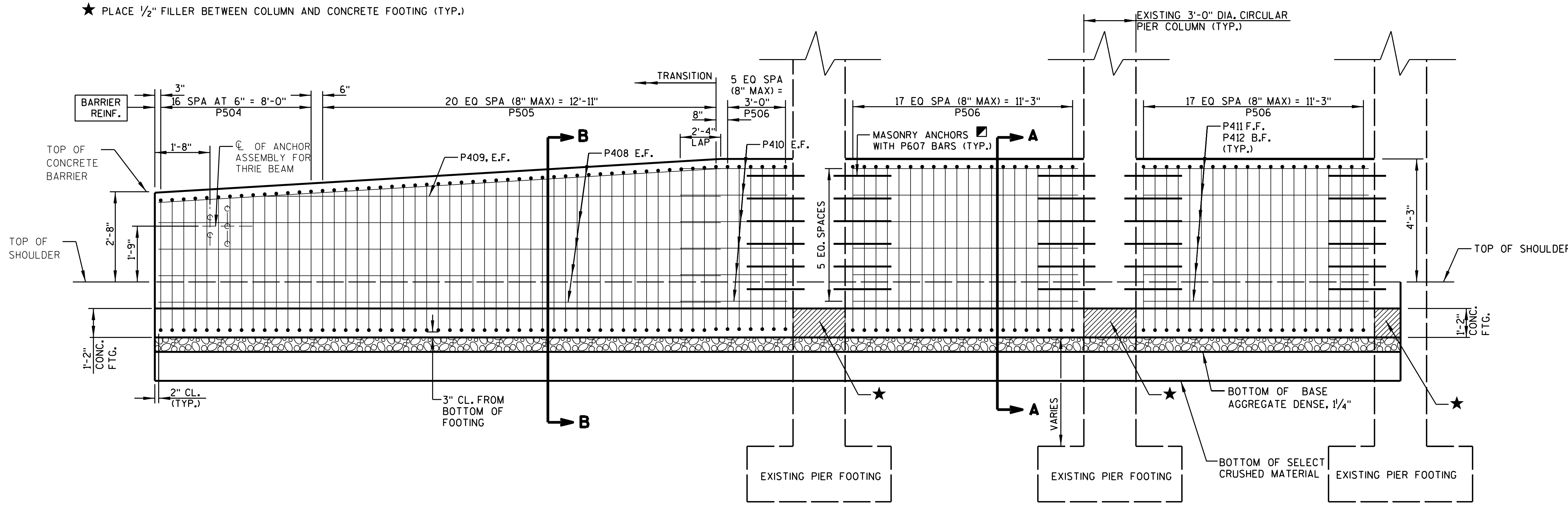


MASONRY ANCHORS, TYPE S 3/4-INCH, HAVING A MINIMUM PULLOUT CAPACITY OF 26 KIPS, EMBED A MINIMUM OF 8" INTO CONCRETE COLUMN

OPTIONAL CONSTRUCTION JOINTS IN FOOTINGS PLACED ALONG ℄ OF COLUMN. IF USED, LAP LONGITUDINAL P502 REINFORCEMENT 2'-7" IN ADJACENT POUR.

★ PLACE 1/2" FILLER BETWEEN COLUMN AND CONCRETE FOOTING (TYP.)

PLAN VIEW



ELEVATION VIEW

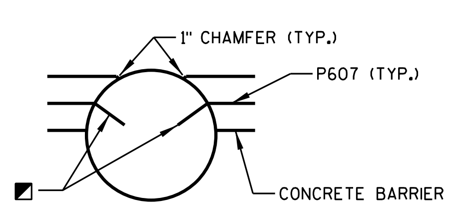
LOOKING AT B.F. OF BARRIER

NOTES

EAST WALL AND WEST WALL SIMILAR EXCEPT AS SHOWN OR NOTED.

TRIM THE FOOTING REINFORCEMENT BARS P501, P502 AND P503 AT COLUMNS TO MAINTAIN 2" MINIMUM CLEAR TO BARS.

F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE



DETAIL A

F.F. OF BARRIER IS FLUSH WITH FACE OF COLUMN

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NO.	DATE	REVISION	BY

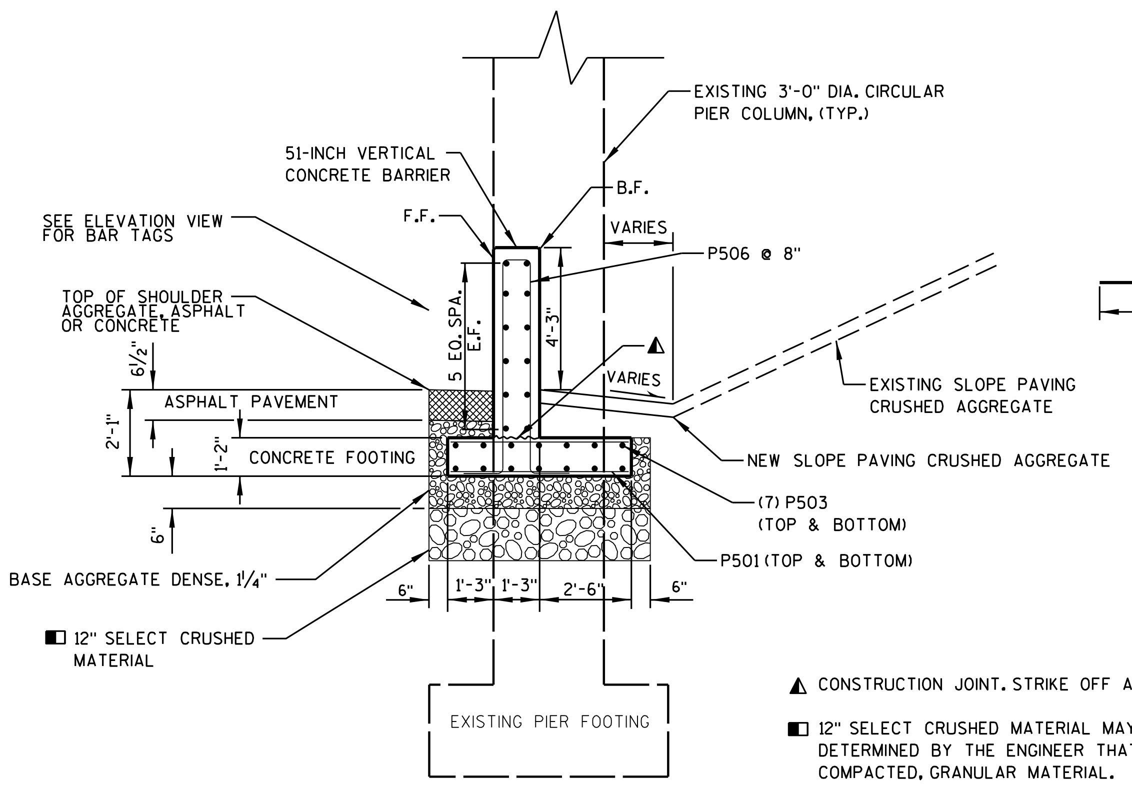
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-13-477

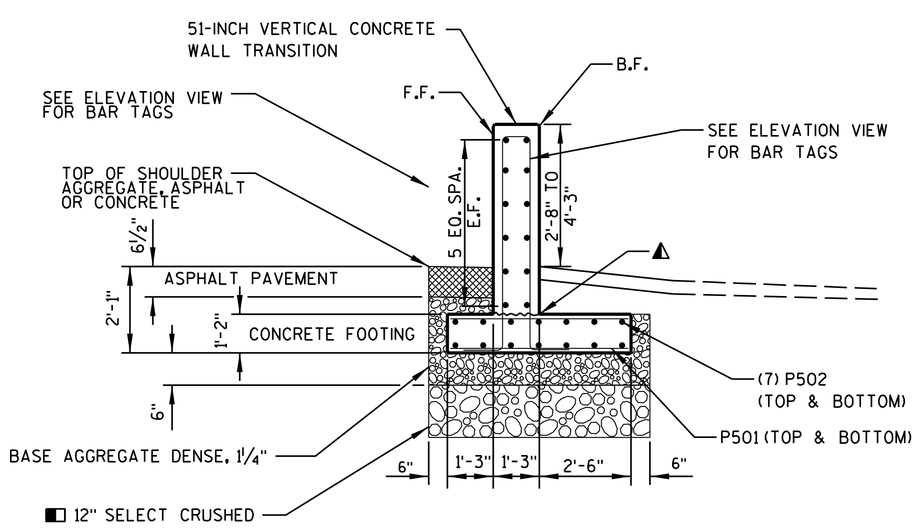
DRAWN BY MJB | PLANS CK'D. GAR

PLAN & ELEVATION VIEWS

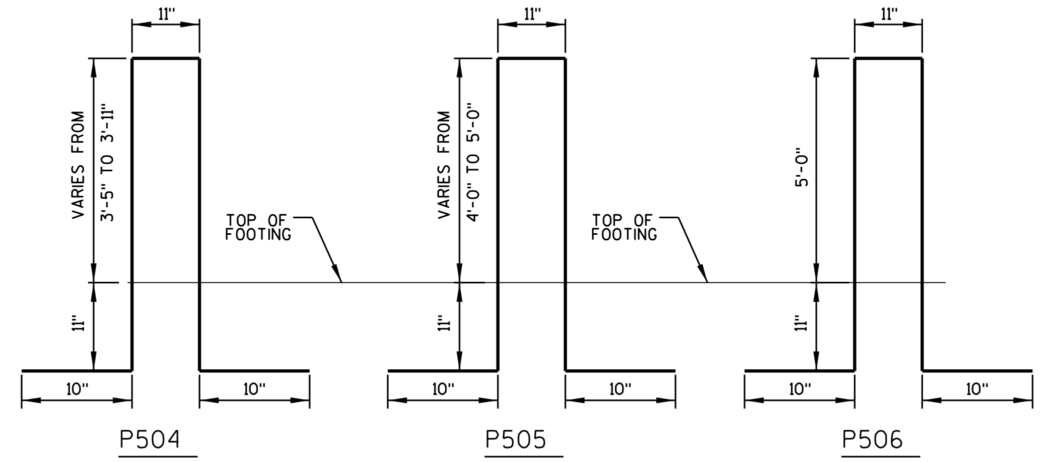
SHEET 2 OF 3



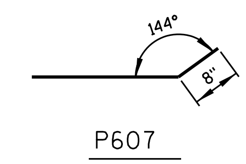
SECTION A-A
BETWEEN COLUMNS



SECTION B-B
TRANSITION REGION



BAR BENDING DIAGRAMS



CONSTRUCTION JOINT. STRIKE OFF AS SHOWN AND LEAVE ROUGH.

12" SELECT CRUSHED MATERIAL MAY BE ELIMINATED IF IT IS DETERMINED BY THE ENGINEER THAT THE EXISTING MATERIAL IS COMPACTED, GRANULAR MATERIAL.

BAR SERIES TABLE

MARK	NO. REQ'D	LENGTHS FOR EACH SERIES
P504	2 SERIES OF 17	10'-9" TO 11'-9"
P505	2 SERIES OF 21	11'-11" TO 13'-11"

★ BILL OF BARS
B-13-447 EAST & WEST PIERS

COATED= 6790 LBS.
UNCOATED= 0 LBS.

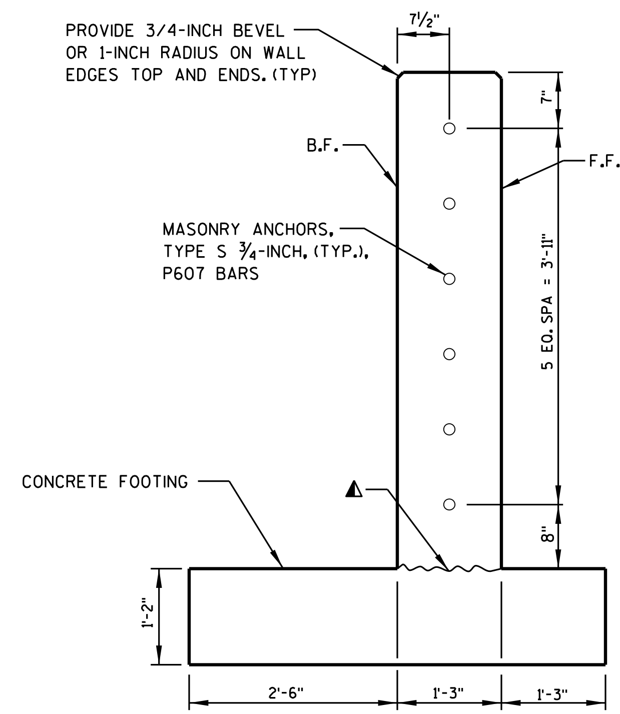
MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
P 5 01	356		4 - 8			FOOTING - TRANSVERSE	HORIZ
P 5 02	28		26 - 8			FOOTING - LONGITUDINAL IN TRANSITION	HORIZ
P 5 03	56		17 - 1			FOOTING - LONGITUDINAL AT PIER	HORIZ
P 5 04	34		11 - 3	X	X	BARRIER - STIRRUP AT END OF TRANSITION	VERT
P 5 05	42		12 - 11	X	X	BARRIER - STIRRUP IN TRANSITION	VERT
P 5 06	84		13 - 11	X		BARRIER - STIRRUP BETWEEN COLUMNS	VERT
P 6 07	60		3 - 2	X		BARRIER - COLUMN TIE BAR	HORIZ
P 4 08	20		21 - 10			BARRIER - LONGITUDINAL IN TRANSITION, EACH FACE	HORIZ
P 4 09	4		14 - 3			BARRIER - LONGITUDINAL IN TRANSITION, EACH FACE	HORIZ
P 4 10	24		6 - 3			BARRIER - LONGITUDINAL IN TRANSITION, EACH FACE	HORIZ
P 4 11	24		12 - 3			BARRIER - LONGITUDINAL BETWEEN COLUMNS, FRONT FACE	HORIZ
P 4 12	24		11 - 3			BARRIER - LONGITUDINAL BETWEEN COLUMNS, BACK FACE	HORIZ

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

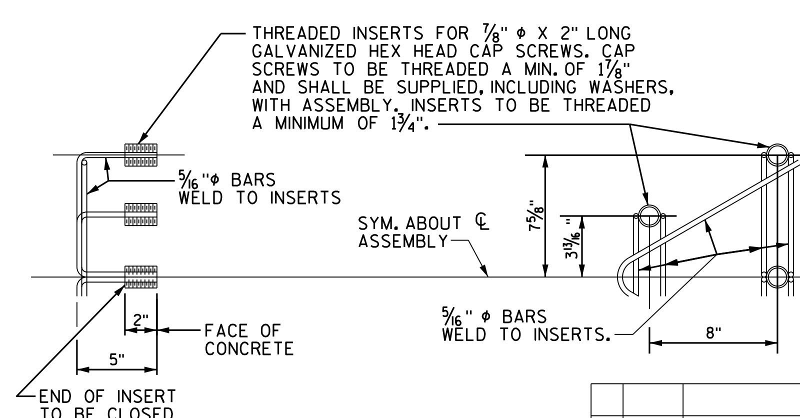
ALL REINFORCING BARS ARE ENGLISH.

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

★ BILL OF BARS TABLE PROVIDED FOR INFORMATION ONLY. PAYMENT IS INCLUDED IN BID ITEM "51-INCH CONCRETE INTEGRAL BARRIER".



MASONRY ANCHOR, TYPE S LAYOUT



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE INCLUDED IN BID ITEM "51-INCH CONCRETE INTEGRAL BARRIER".

51-INCH CONCRETE INTEGRAL BARRIER

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-13-477

DRAWN BY MJB | PLANS CK'D. GAR

CONSTRUCTION DETAILS

SHEET 3 OF 3

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Wisconsin Department of Transportation

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