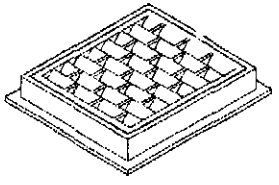
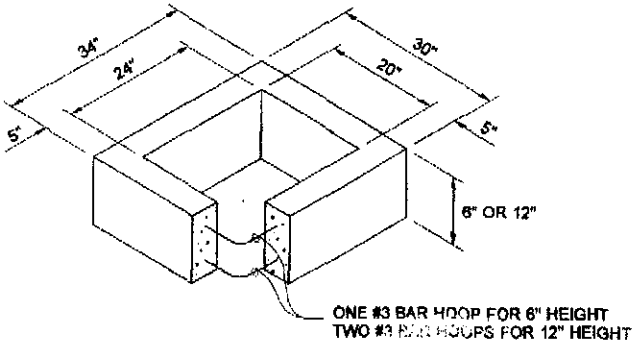
APPENDIX A

Standard Plans

DRAWN BY: MARK SUJKA



FRAME AND VANED GRATE



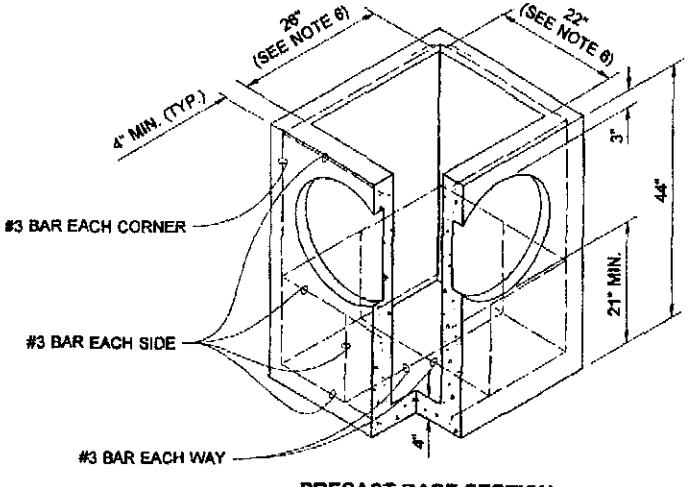
RECTANGULAR ADJUSTMENT SECTION

PIPE ALLOWANCES	
PIPE MATERIAL	**MAXIMUM INSIDE DIAMETER**
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSSP * (STD. SPEC. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. 9-05.12(2))	15"

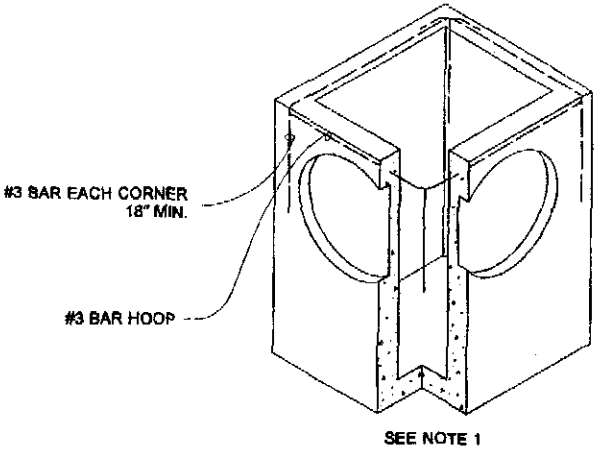
* CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

1. As acceptable alternatives to the rebar shown in the PRECAST BASE SECTION, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot shall be used with the minimum required rebar shown in the ALTERNATIVE PRECAST BASE SECTION. Wire mesh shall not be placed in the knockouts.
2. The knockout diameter shall not be greater than 20". Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum. Provide a 1.5" minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Standard Specification 9-04.3.
3. The maximum depth from the finished grade to the pipe invert shall be 5'.
4. The frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
5. The precast base section may have a rounded floor, and the walls may be sloped at a rate of 1:24 or steeper.
6. The opening shall be measured at the top of the precast base section.
7. All pickup holes shall be grouted full after the basin has been placed.

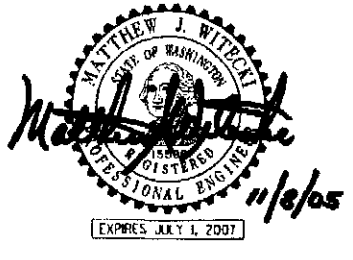


PRECAST BASE SECTION



SEE NOTE 1

ALTERNATIVE PRECAST BASE SECTION



CATCH BASIN TYPE 1

STANDARD PLAN B-1

SHEET 1 OF 1 SHEET

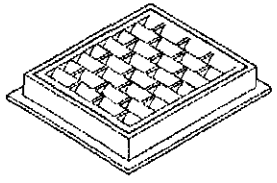
APPROVED FOR PUBLICATION

Harold Bityjan 11-8-05

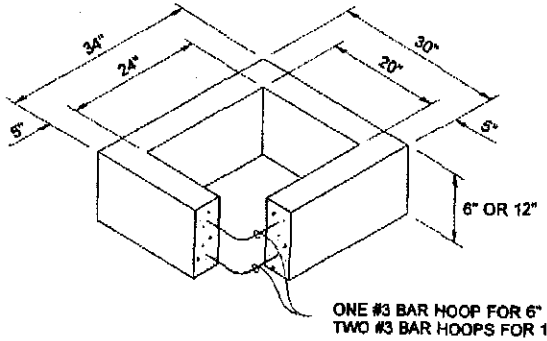
STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

DRAWN BY: MARK SUJKA



FRAME AND VANED GRATE



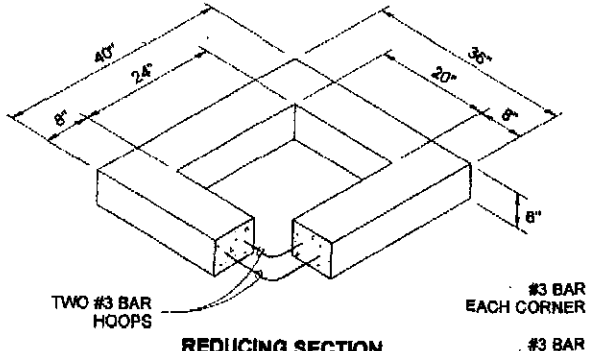
RECTANGULAR ADJUSTMENT SECTION

PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER
REINFORCED OR PLAIN CONCRETE	18"
ALL METAL PIPE	21"
CPSSP * (STD. SPEC. 9-05.20)	18"
SOLID WALL PVC (STD. SPEC. 9-05.12(1))	21"
PROFILE WALL PVC (STD. SPEC. 9-05.12(2))	21"

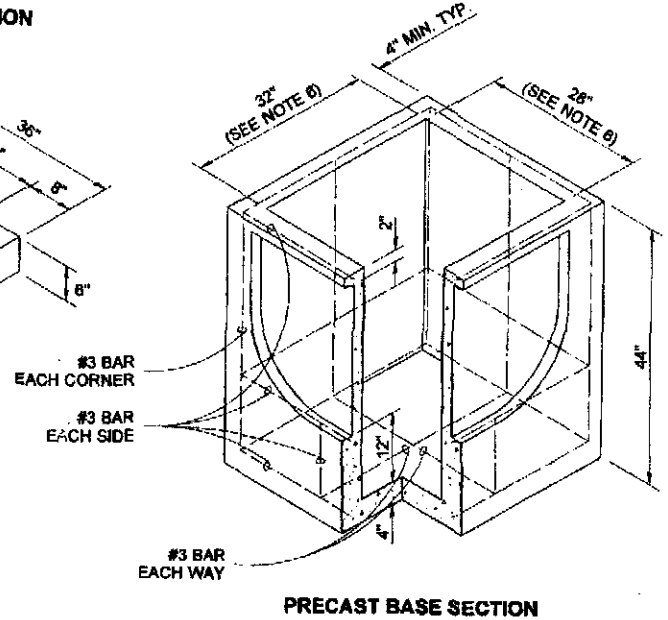
* CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

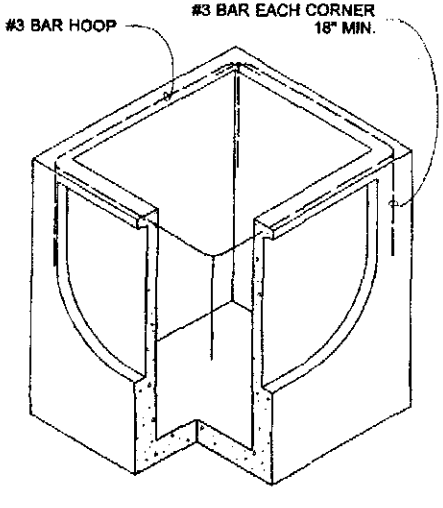
1. As acceptable alternatives to the rebar shown in the PRECAST BASE SECTION, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot shall be used with the minimum required rebar shown in the ALTERNATIVE PRECAST BASE SECTION. Wire mesh shall not be placed in the knockouts.
2. The knockout diameter shall not be greater than 26". Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum. Provide a 1.5" minimum gap between the knockout wall and the outside of the pipe. *After the pipe is installed, fill the gap with joint mortar in accordance* with Standard Specification 9-04.3.
3. The maximum depth from the finished grade to the pipe invert shall be 5'.
4. The frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
5. The precast base section may have a rounded floor, and the walls may be sloped at a rate of 1:24 or steeper.
6. The opening shall be measured at the top of the precast base section.
7. All pickup holes shall be grouted full after the basin has been placed.



REDUCING SECTION



PRECAST BASE SECTION



SEE NOTE 1

ALTERNATIVE PRECAST BASE SECTION

CATCH BASIN TYPE 1L

STANDARD PLAN B-1a

SHEET 1 OF 1 SHEET

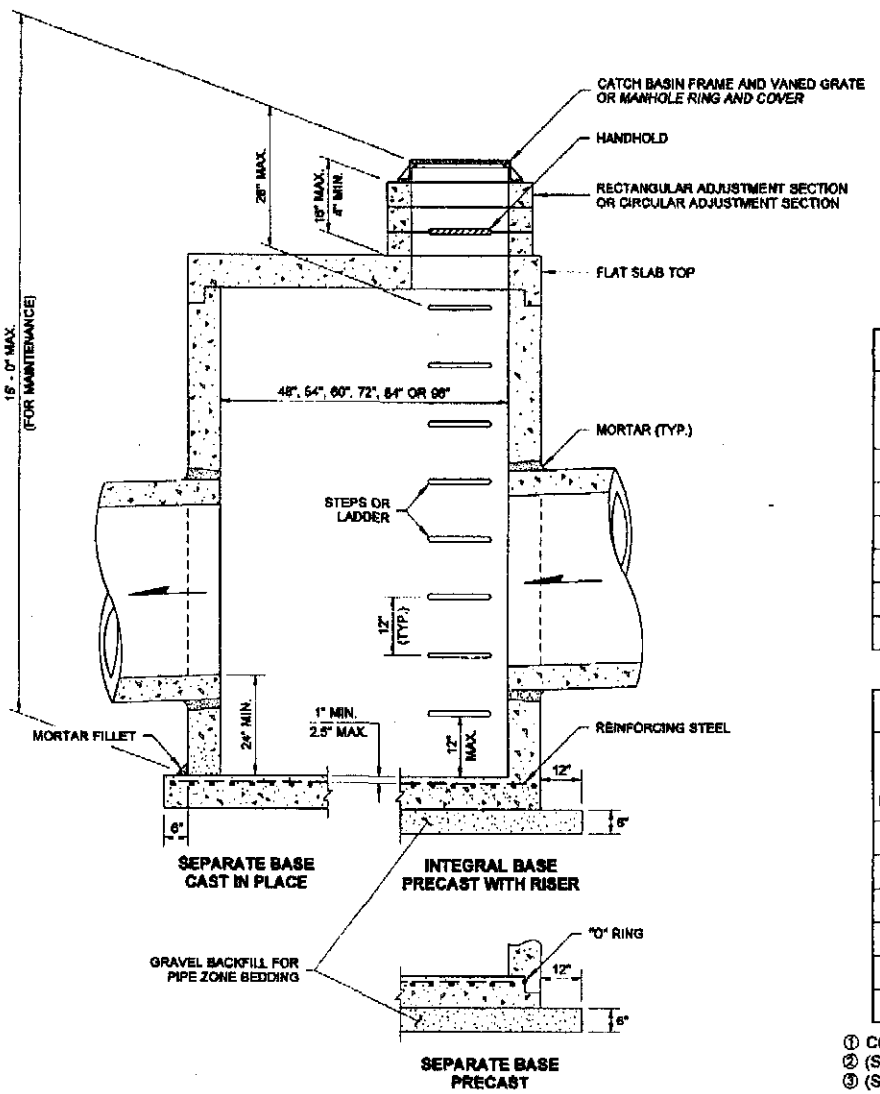
APPROVED FOR PUBLICATION

Harold Pituleso 11-8-05

STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

DRAWN BY: BILL BERENS



NOTES

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. Frame and grate may be installed with flange down or cast into adjustment section.
4. Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum. Provide a 1.5" minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Std. Spec. 9-04.3.

CATCH BASIN DIMENSIONS

CATCH BASIN DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL in^2/ft IN EACH DIRECTION	
					INTEGRAL	SEPARATE
48"	4"	6"	36"	8"	0.15	0.23
54"	4.5"	8"	42"	8"	0.19	0.19
60"	5"	8"	48"	8"	0.25	0.25
72"	6"	8"	60"	12"	0.24	0.35
84"	8"	12"	72"	12"	0.29	0.39
96"	8"	12"	84"	12"	0.29	0.39

PIPE ALLOWANCES

CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP ①	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	27"	30"
54"	30"	36"	30"	27"	36"
60"	36"	42"	36"	36"	42"
72"	42"	54"	42"	36"	48"
84"	54"	60"	54"	36"	48"
96"	60"	72"	60"	36"	48"

① CORRUGATED POLYETHYLENE STORM SEWER PIPE (Std. Spec. 9-05.20)
② (Std. Spec. 9-05.12(1))
③ (Std. Spec. 9-05.12(2))

MATTHEW J. WITECK — STATE OF WASHINGTON — 15756 — REGISTERED PROFESSIONAL ENGINEER
5/13/04
EXPIRES JULY 1, 2005

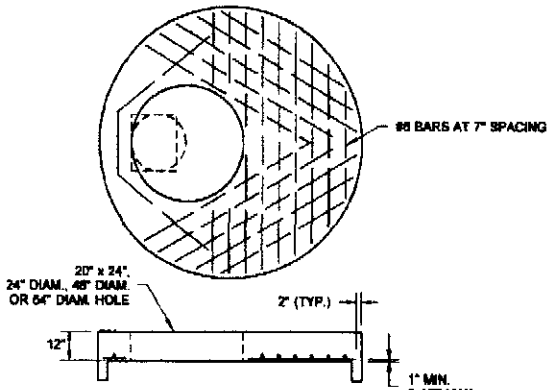
CATCH BASIN TYPE 2

STANDARD PLAN B-1e

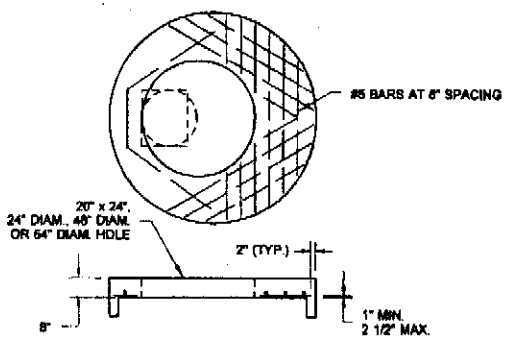
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 5-20-04
Washington State Department of Transportation

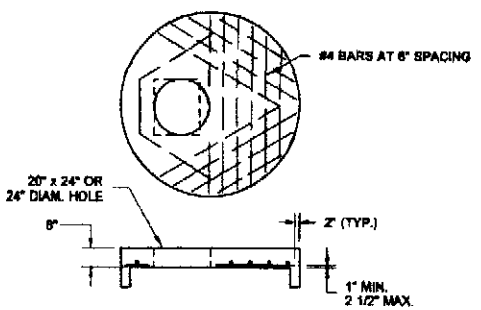
DATE	REVISION	BY
4/1/2004	ADDED 84" DIAMETER & MAX. HEIGHT	BB



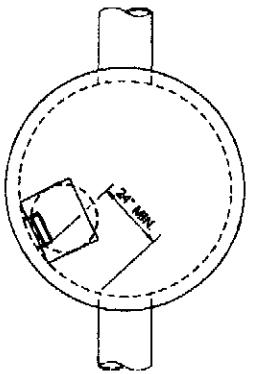
84" OR 96" FLAT SLAB TOP



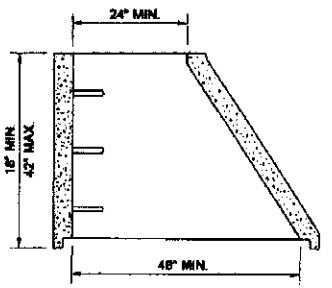
72" FLAT SLAB TOP



**48", 54" or 60"
FLAT SLAB TOP**

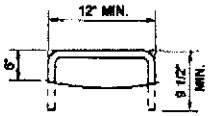


**TYPICAL ORIENTATION
FOR ACCESS AND STEPS**

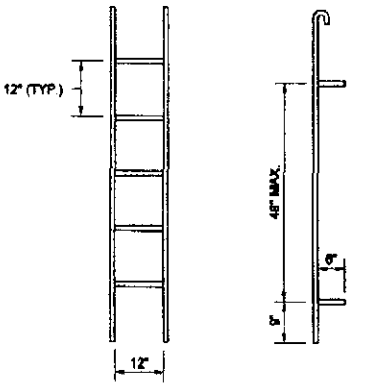


ECCENTRIC CONE SECTION

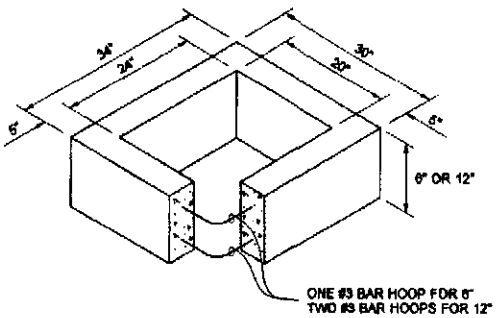
NOTE
As an acceptable alternate to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.



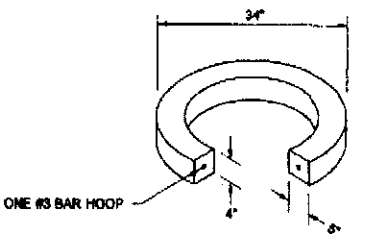
STEP



PREFABRICATED LADDER



RECTANGULAR ADJUSTMENT SECTION



CIRCULAR ADJUSTMENT SECTION

MATTHEW J. WITECK
STATE OF WASHINGTON
15511
REGISTERED
PROFESSIONAL ENGINEER
6/16/04
EXPIRES JULY 4, 2005

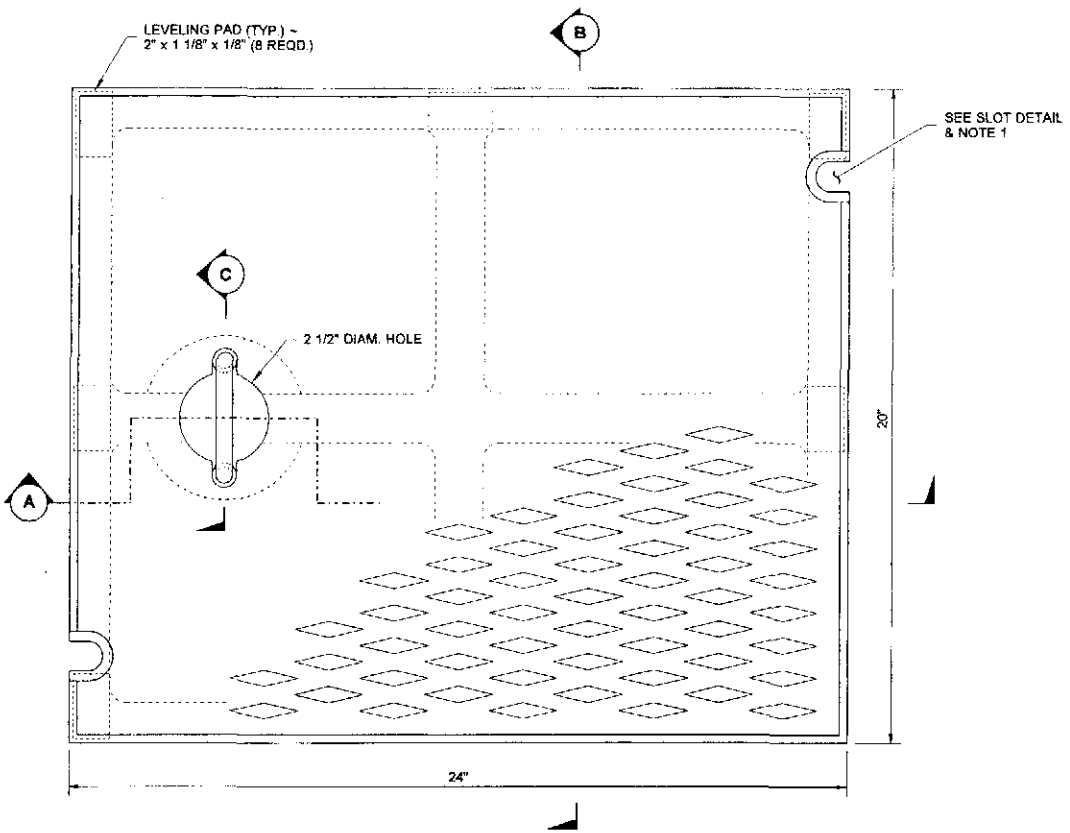
MISCELLANEOUS DETAILS FOR MANHOLES AND CATCH BASINS
STANDARD PLAN B-1z

SHEET 1 OF 1 SHEET

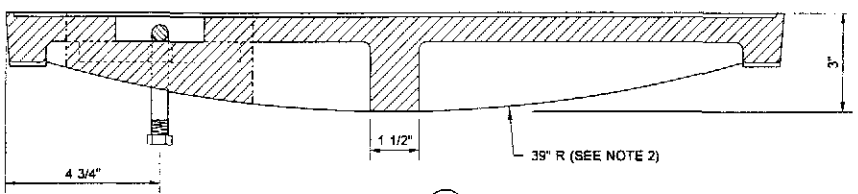
APPROVED FOR PUBLICATION
Harold Peterson 6-25-04
STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

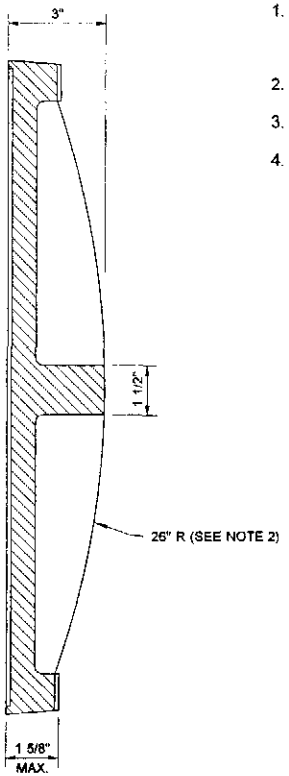
4/04	ADDED 84" FLAT SLAB TOP	AMC
DATE	REVISION	BY



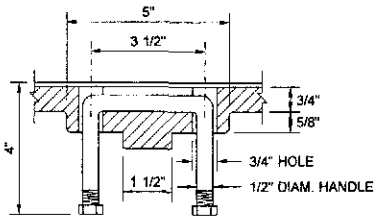
TOP VIEW



SECTION (A)



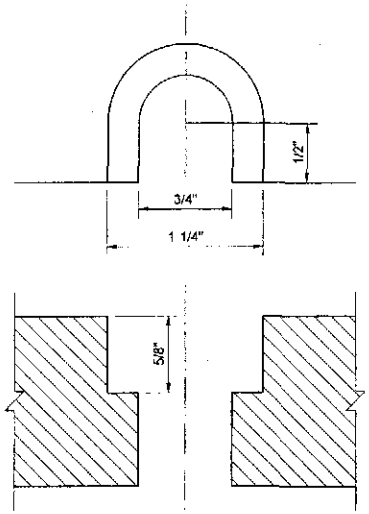
SECTION (B)



SECTION (C)

NOTES

1. When bolt down covers are specified in the Contract, provide two slots in the cover that are vertically aligned with the holes in the frame. Location of bolt down slots varies among different manufacturers.
2. Alternate reinforcing rib designs are acceptable.
3. Refer to Standard Specification 9-05.15(2) for additional requirements.
4. For frame details, see Standard Plan B-2a.



SLOT DETAIL

SOLID METAL COVER FOR CATCH BASIN

STANDARD PLAN B-2

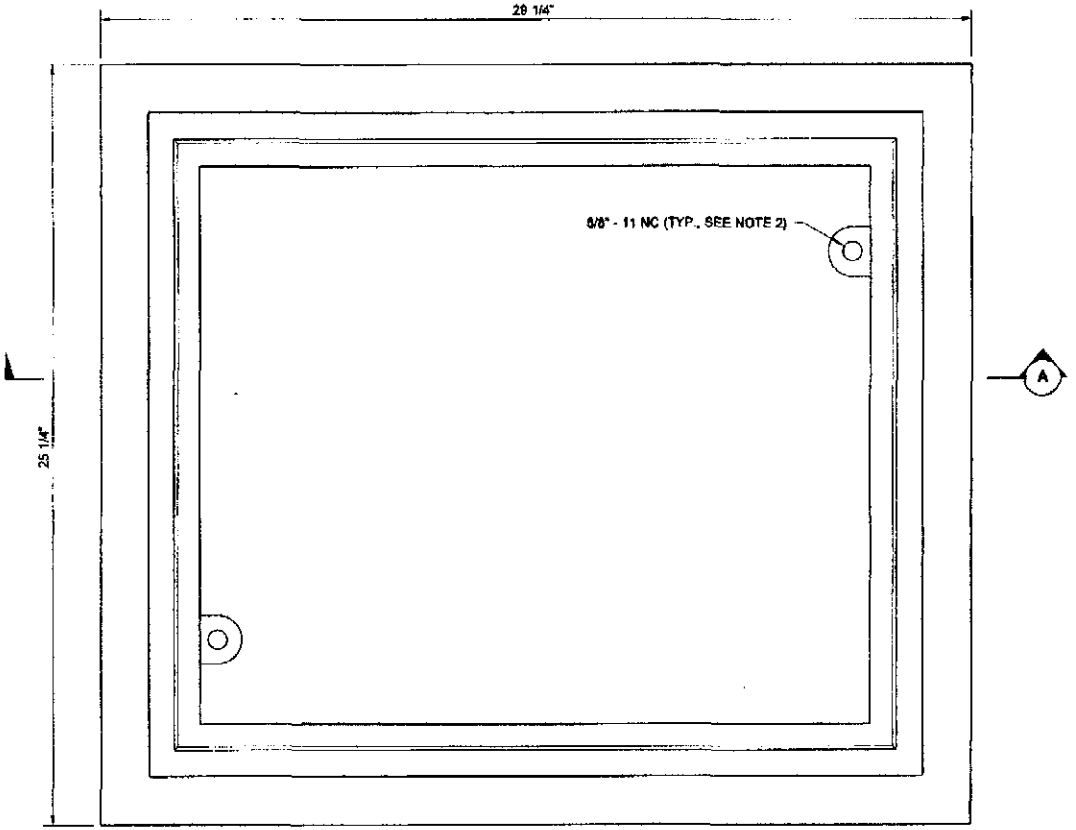
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

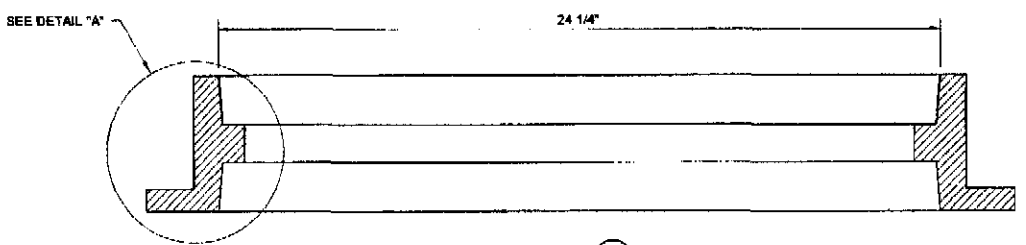
Harold Kirkpatrick 2.25.05

STATE DESIGN ENGINEER DATE

Washington State Department of Transportation



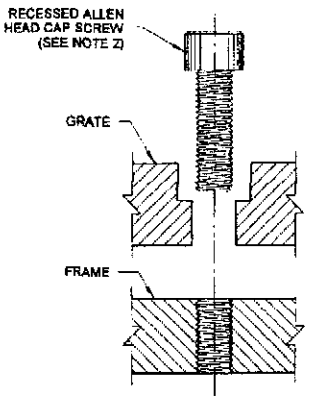
TOP VIEW



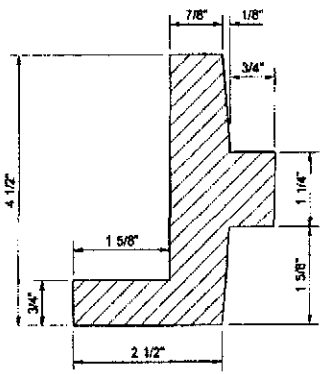
SECTION (A)

NOTES

1. This frame is designed to accommodate 20" × 24" grates or covers as shown on Standard Plans B-2, B-2b, B-2c and B-2d.
2. When bolt down grates or covers are specified in the Contract, provide two holes in the frame that are vertically aligned with the grate or cover slots. Tap each hole to accept a 5/8" - 11 NC × 2" allen head cap screw. Location of bolt down holes varies among different manufacturers
3. Refer to Standard Specification 9-05.15(2) for additional requirements.



BOLT DOWN DETAIL



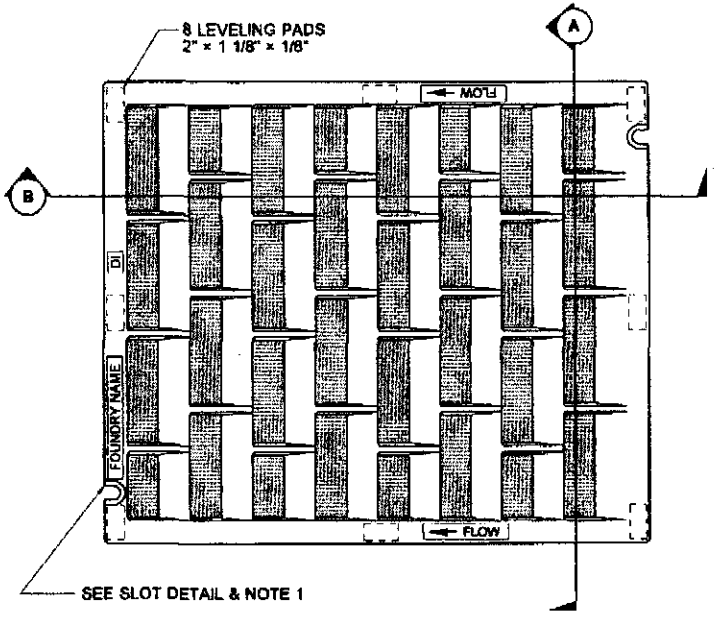
DETAIL "A"

MATTHEW J. WITECKI
STATE OF WASHINGTON
15558
REGISTERED
PROFESSIONAL ENGINEER
2/16/05
EXPIRES JULY 1, 2005

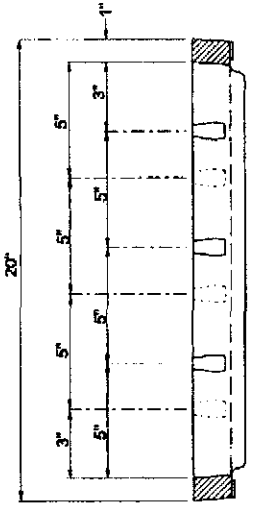
REVERSIBLE FRAME FOR CATCH BASIN OR CONCRETE INLET STANDARD PLAN B-2a

SHEET 1 OF 1 SHEET

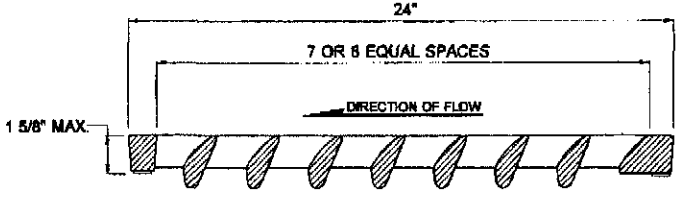
APPROVED FOR PUBLICATION
Harold Peterson 2-25-05
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation



PLAN VIEW



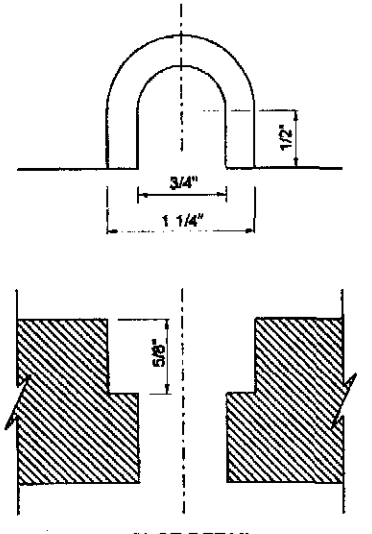
SECTION (A)



SECTION (B)

NOTES

1. When bolt down grates are specified in the Contract, provide two slots in the grate that are vertically aligned with the holes in the frame. Location of bolt down slots varies among different manufacturers.
2. Refer to Standard Specification 9-05.15(2) for additional requirements.
3. For frame details, see Standard Plan B-2a.



SLOT DETAIL

EXPIRES JULY 1, 2003

VANED GRATE FOR CATCH BASIN AND CONCRETE INLET STANDARD PLAN B-2b

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

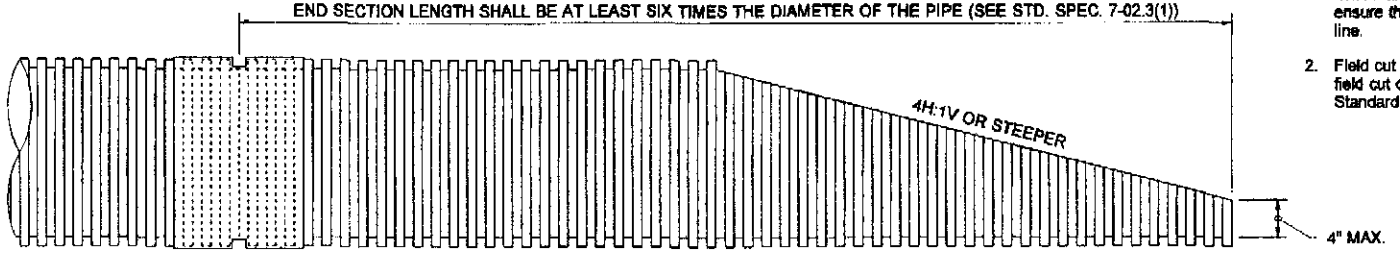
STATE DESIGN ENGINEER — DATE 6/17/02

Washington State Department of Transportation

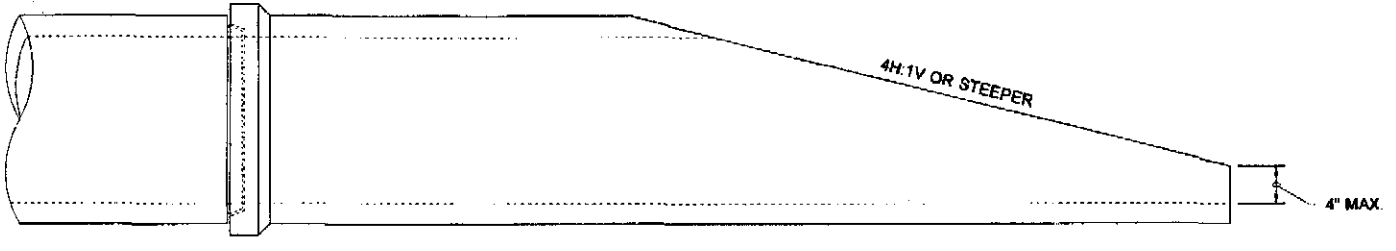
DATE	REVISION	BY
05/2002	DELETED VANE DETAIL; ADDED SLOT DETAIL; REVISED NOTES.	RC

NOTES

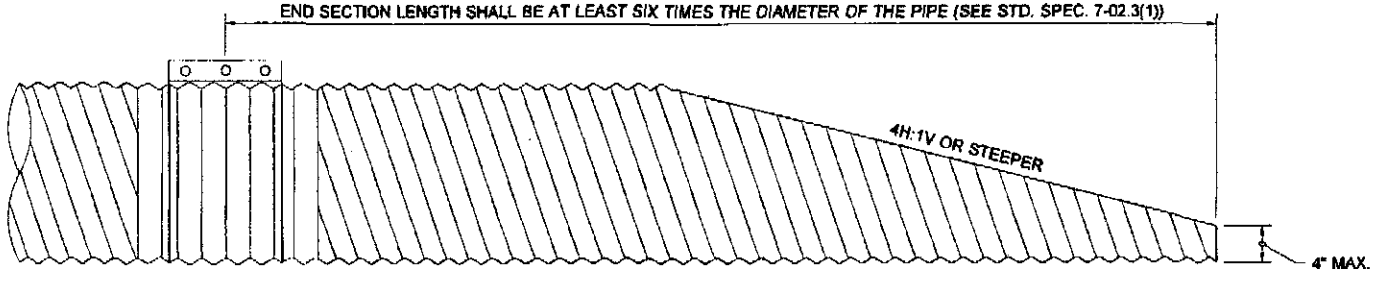
1. The culvert ends shall be beveled to match the embankment or ditch slope and shall not be beveled flatter than 4H:1V. When slopes are between 4H:1V and 6H:1V, shape the slope in the vicinity of the culvert end to ensure that no part of the culvert protrudes more than 4" above the ground line.
2. Field cut of culvert ends is permitted, when approved by the Engineer. All field cut culvert pipe shall be treated with treatment as shown in the Standard Specifications or General Special Provisions.



THERMOPLASTIC PIPE



CONCRETE PIPE



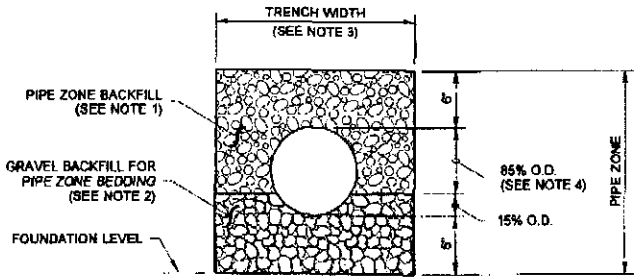
METAL PIPE

MATTHEW J. WITECK
STATE OF WASHINGTON
15588
REGISTERED
PROFESSIONAL ENGINEER
1/28/05
EXPIRES JULY 1, 2005

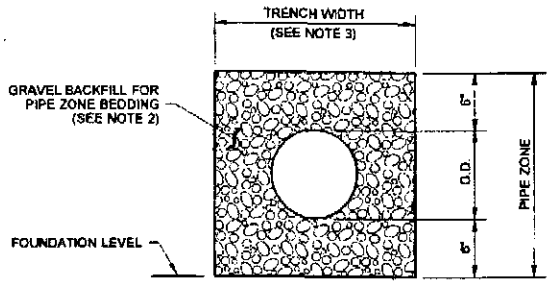
BEVELED END SECTIONS FOR CULVERTS 30" DIAMETER OR LESS
STANDARD PLAN B-7a

SHEET 1 OF 1 SHEET

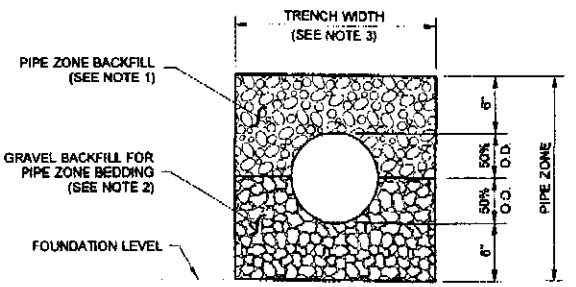
APPROVED FOR PUBLICATION
Harold Peterson 2-9-05
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation



CONCRETE AND DUCTILE IRON PIPE



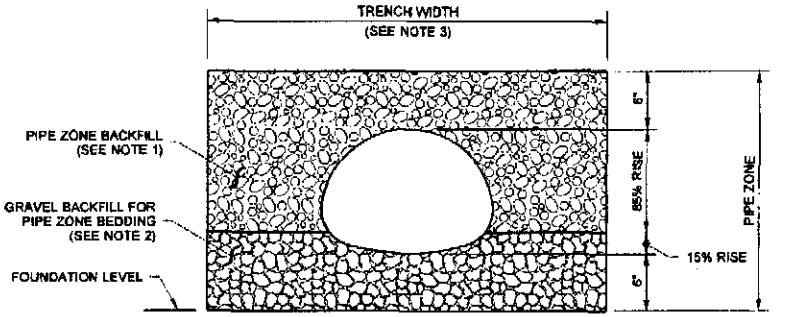
THERMOPLASTIC PIPE



METAL PIPE

NOTES

1. See Standard Specifications Section 7-08.3(3) for Pipe Zone Backfill.
2. See Standard Specifications Section 9-03.12(3) for Gravel Backfill for Pipe Zone Bedding.
3. See Standard Specifications Section 2-09.4 for Measurement of Trench Width.
4. For sanitary sewer installation, concrete pipe shall be bedded to spring line.



PIPE ARCHES

CLEARANCE BETWEEN PIPES FOR MULTIPLE INSTALLATIONS		
PIPE	**SIZE**	**MINIMUM DISTANCE BETWEEN BARRELS**
CIRCULAR PIPE (DIAMETER)	12" to 24"	12"
	30" to 96"	DIAM. /2
	102" to 180"	48"
PIPE ARCH (SPAN) METAL ONLY	18" to 36"	12"
	43" to 142"	SPAN /3
	148" to 200"	48"

MATTHEW J. WITECKI
STATE OF WASHINGTON
15[illegible]
REGISTERED
PROFESSIONAL ENGINEER
2/16/05

EXPIRES JULY 1, 2005

PIPE ZONE BEDDING AND BACKFILL

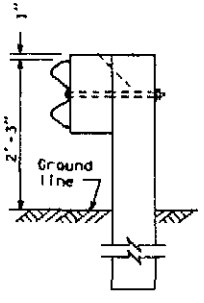
STANDARD PLAN B-11

SHEET 1 OF 1 SHEET

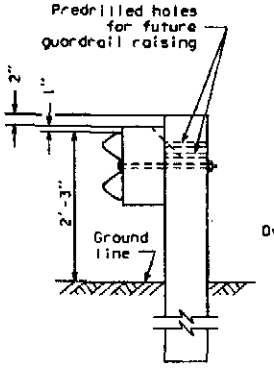
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 2-25-05

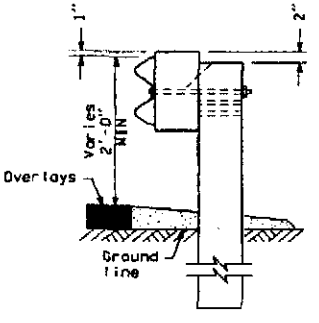
Washington State Department of Transportation



TYPE 1

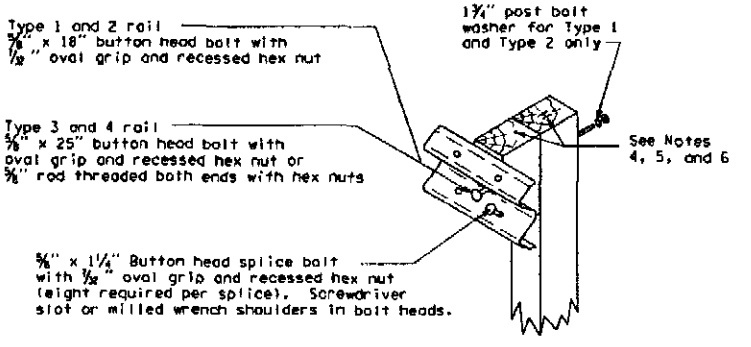


INITIAL INSTALLATION

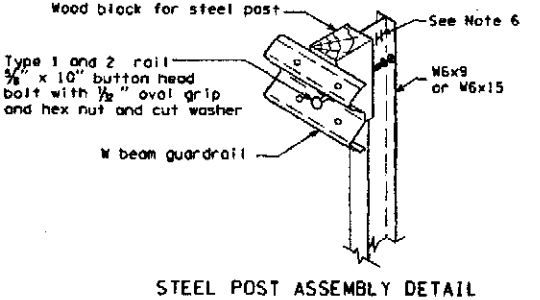


RAIL ELEMENT RAISED

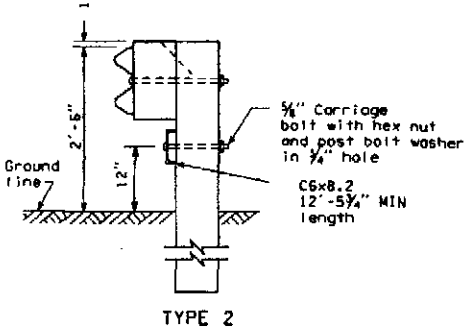
TYPE 1 ALTERNATE



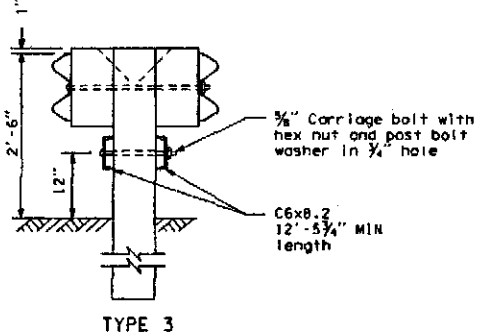
WOOD POST ASSEMBLY DETAIL



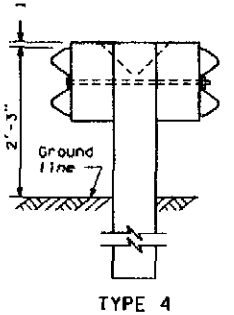
STEEL POST ASSEMBLY DETAIL
(All mounting hardware same as for wood post assembly, except as noted)



TYPE 2



TYPE 3



TYPE 4

BEAM GUARDRAIL (W-BEAM)

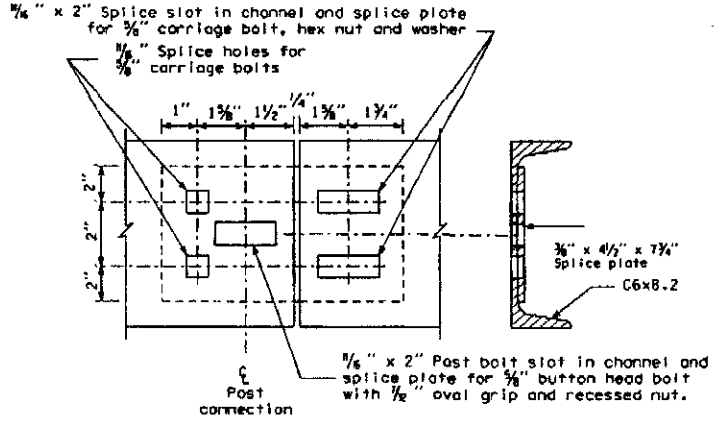
STANDARD PLAN C-1

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION
Harold Peterson 10.31.03
STATE DESIGN ENGINEER DATE

DATE	REVISION	BY
08/2005	REV. STEEL POST ASSEMBLY DETAIL	RC

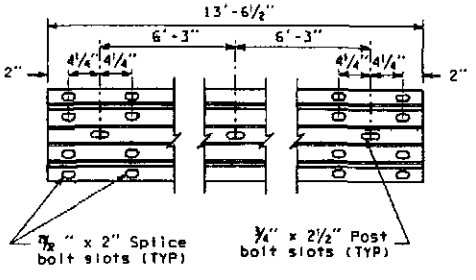
Washington State Department of Transportation



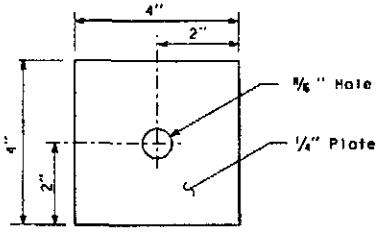
CHANNEL RAIL SPLICE

NOTES

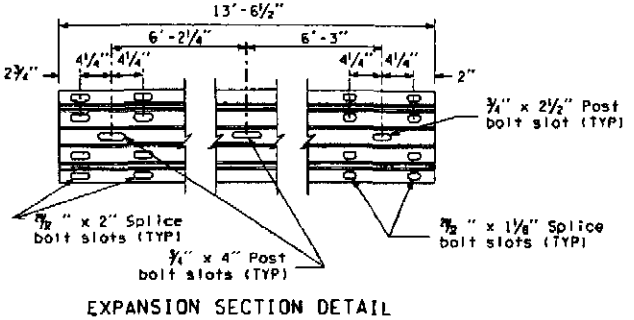
1. When required by the contract, a Snow Load Post Washer shall be used on the backside of the post (in lieu of the 1 3/4 " post bolt washer) and a Snow Load Rail Washer shall be placed on the face side of Type 1 and Type 2 Beam Guardrail. Snow load rail washers are not to be installed on terminals.
2. Rail washers, also called "snow load rail washers" are not required on new installations, except as called for in Note 1. Rail washers need not be removed on existing installations, except posts 2 through 8 of a BCT installation.
3. Guardrail post spacing for Types 1 through 4 shall be 6'-3" on centers.
4. Timber block shall be toe-nailed to post with a 16d galvanized nail to restrict block rotation.
5. For post and block details, see Standard Plan C-1b.
6. When Beam Guardrail Type 1, __ Foot Long Post, is specified in Contract, the post length shall be stamped with numbers 1 1/2 " MIN height and 1/4 " deep at the location where the letter "H" is shown on the detail. After installation of long post, it shall be the Contractor's responsibility to ensure that the stamped numbers are still legible and 1/4 " deep.



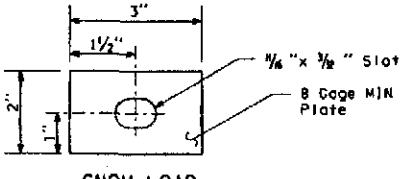
RAIL ELEMENT



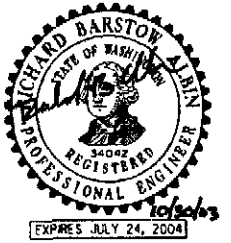
SNOW LOAD POST WASHER (See Note 1)



EXPANSION SECTION DETAIL



SNOW LOAD RAIL WASHER



EXPIRES JULY 24, 2004

BEAM GUARDRAIL (W-BEAM)

STANDARD PLAN C-1

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

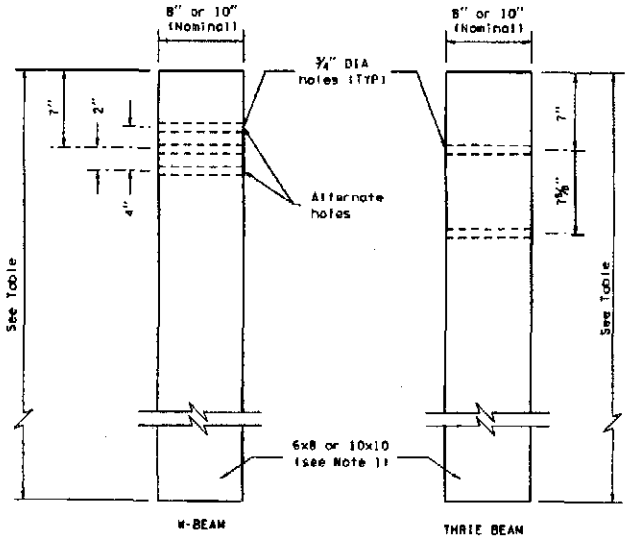
Harold Pituleo 11-31-03

STATE DESIGN ENGINEER DATE

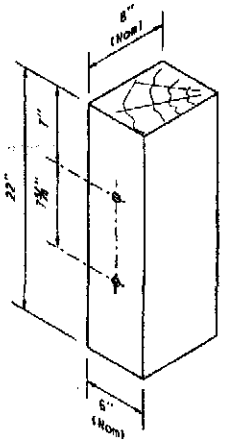
09/2003	REV. NOTES	RG
DATE	REVISION	BY

Washington State Department of Transportation

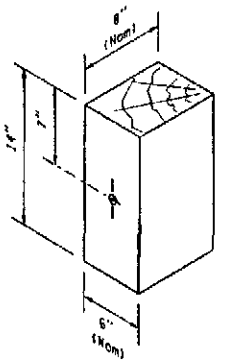
POST LENGTH TABLE	
GUARDRAIL TYPE	LENGTH
1 through 4	6'-0"
10 or 11	6'-6"



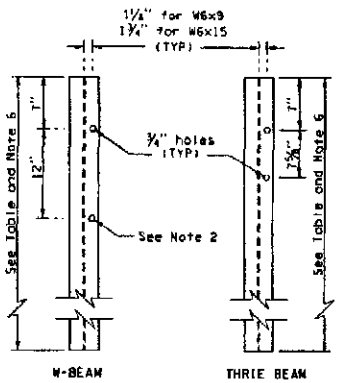
WOOD POST



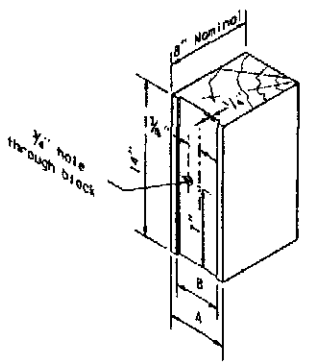
THRIE BEAM WOOD BLOCK FOR WOOD POST



W BEAM WOOD BLOCK FOR WOOD POSTS



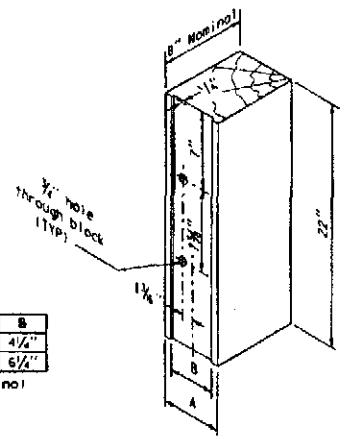
STEEL POST
See Notes 3 and 4



W BEAM WOOD BLOCK FOR STEEL POST

POST	A	B
W6X9	6" *	4¼"
W6X15	8" *	6¼"

*Nominal



THRIE BEAM WOOD BLOCK FOR STEEL POST

RICHARD BARSTOW ALBIN
STATE OF WASHINGTON
13042
REGISTERED
PROFESSIONAL ENGINEER
10/30/03
EXPIRES JULY 24, 2004

BEAM GUARDRAIL POSTS AND BLOCKS

STANDARD PLAN C-1b

SHEET 1 OF 2 SHEETS

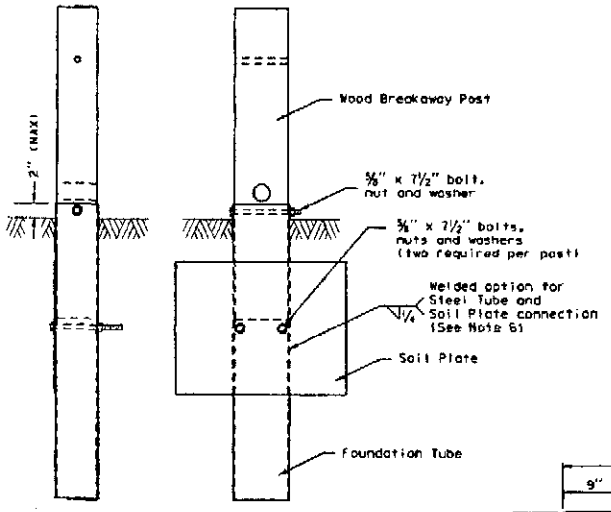
APPROVED FOR PUBLICATION
Harold Pitrafeso 10.31.03
STATE DESIGN ENGINEER DATE

DATE	REVISION	BY
05/2003	REV. POST LENGTH TABLE	RG

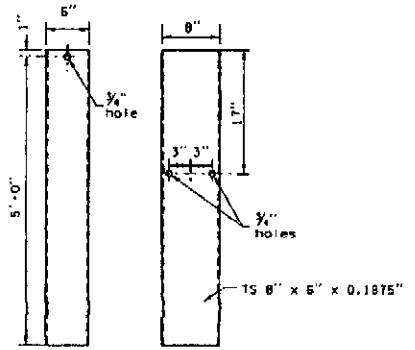
Washington State Department of Transportation

NOTES

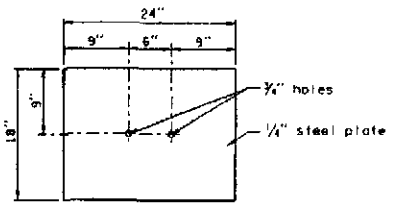
1. Wood posts for all guardrail placement plans shall be 6x8 except where noted otherwise.
2. Lower hole is for rub rail of Type 2 and Type 3 Beam Guardrail.
3. W6x9 steel posts and timber blocks are alternates for 6x8 timber posts and blocks. W6x15 steel posts and timber blocks are alternates for 10x10 timber posts and blocks.
4. Holes shall be located on approaching traffic side of web.
5. When contract requires "Beam Guardrail Type 1, .. Foot Long Post," the steel post length shall be marked with numbers to ensure permanent identification at the location where the letter "H" is shown on the detail. The marking shall be 1½" MIN height.
6. Soil plate may be welded to foundation tube. If so, holes in soil plate and foundation tube may be omitted.



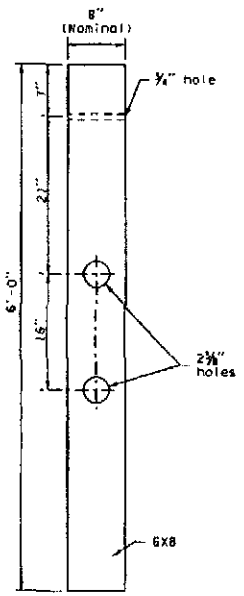
ANCHOR POST ASSEMBLY



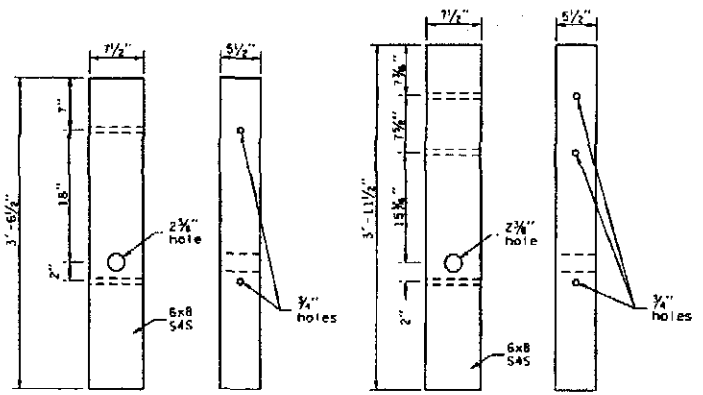
FOUNDATION TUBE



SOIL PLATE

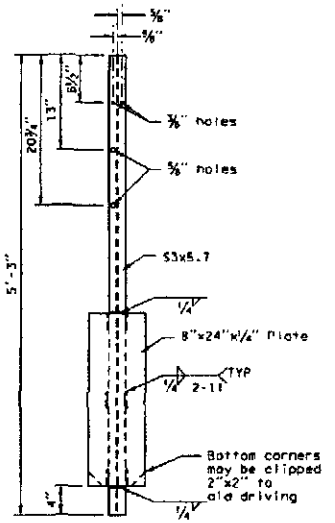


CONTROLLED RELEASING TERMINAL (CRT) POST



W-BEAM THRIE BEAM

WOOD BREAKAWAY POST



G-2 POST

RICHARD BARSTOW ALBIN
STATE OF WASHINGTON
34042
REGISTERED
PROFESSIONAL ENGINEER
10/30/03
EXPIRES JULY 24, 2004

BEAM GUARDRAIL POSTS AND BLOCKS

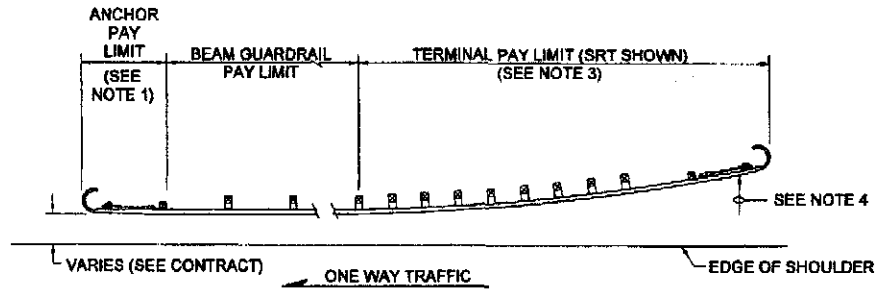
STANDARD PLAN C-1b

SHEET 2 OF 2 SHEETS

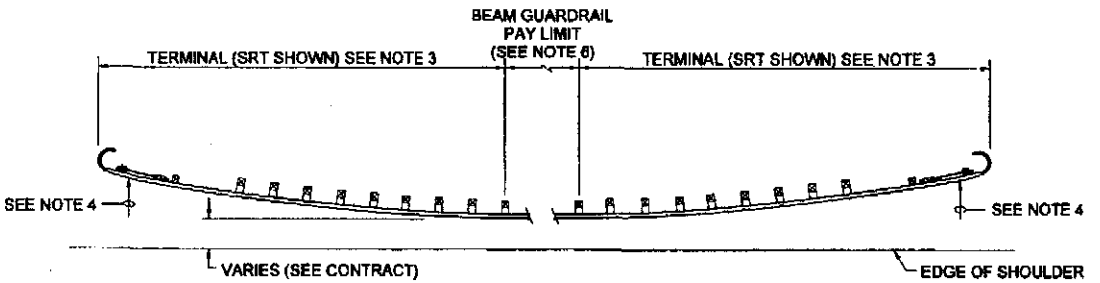
APPROVED FOR PUBLICATION
Harold Peterson 10-31-03
STATE DESIGN ENGINEER DATE

DATE	REVISION	BY
05/2003	REV. NOTES	RG

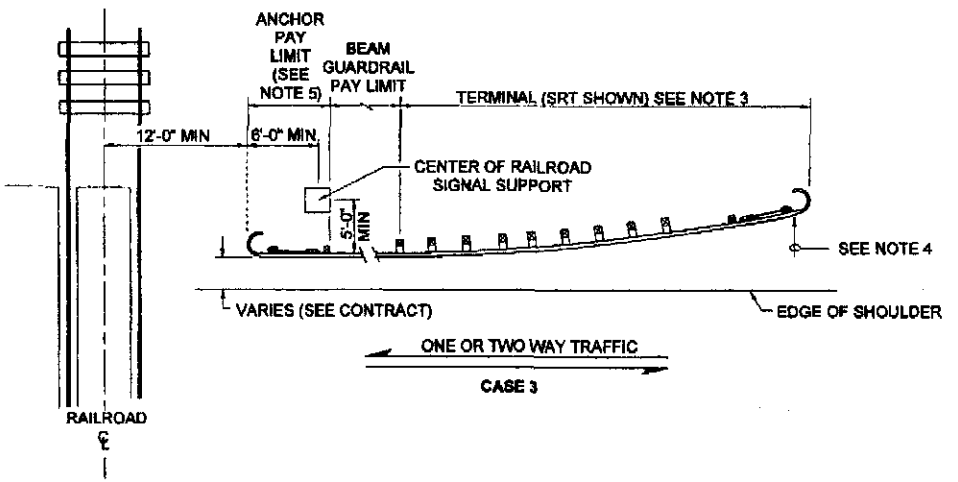
Washington State Department of Transportation



CASE 1



CASE 2



CASE 3

NOTES

1. Type 4 anchor required. For details, see Standard Plan C-6c.
2. Post spacing is 6'-3" unless otherwise shown.
3. For Terminal type and details, see Contract Plans and applicable Standard Plan(s).
4. The slope from the edge of the shoulder into the face of the guardrail should not exceed 10:1 when the face of the guardrail is less than 12'-0" from the edge of the shoulder.
5. For one-way traffic, use Type 4 anchor. For two-way traffic, use Type 1 anchor. See applicable Standard Plan(s) for details.
6. When Beam Guardrail Flared Terminals are used on both ends a minimum of 25'-0" of Beam Guardrail shall be installed.

CLIFFORD E. MANSFIELD STATE OF WASHINGTON 15224 REGISTERED PROFESSIONAL ENGINEER 12/27/99

EXPIRES MAY 3, 2000

GUARDRAIL PLACEMENT

STANDARD PLAN C-2

DATE	REVISION	BY
12/99	ADDED NOTE 6. MODIFIED THE END SECTIONS TO DESIGN "C".	TWS

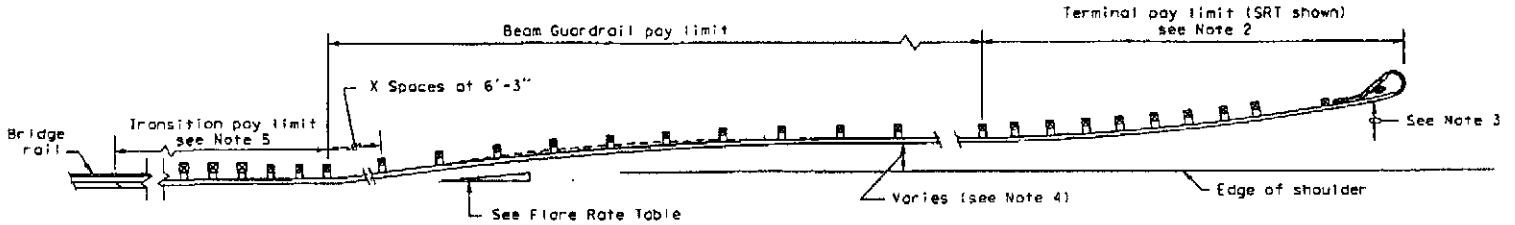
APPROVED FOR PUBLICATION

Clifford E Mansfield 1/6/00

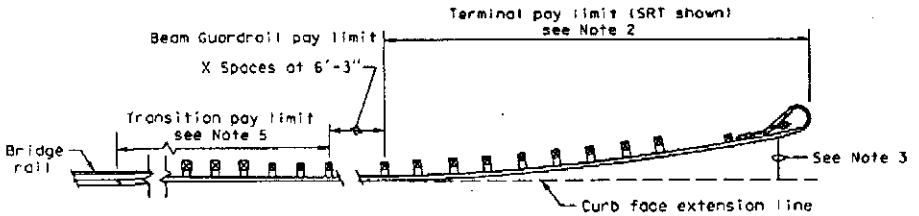
DEPUTY STATE DESIGN ENGINEER DATE

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

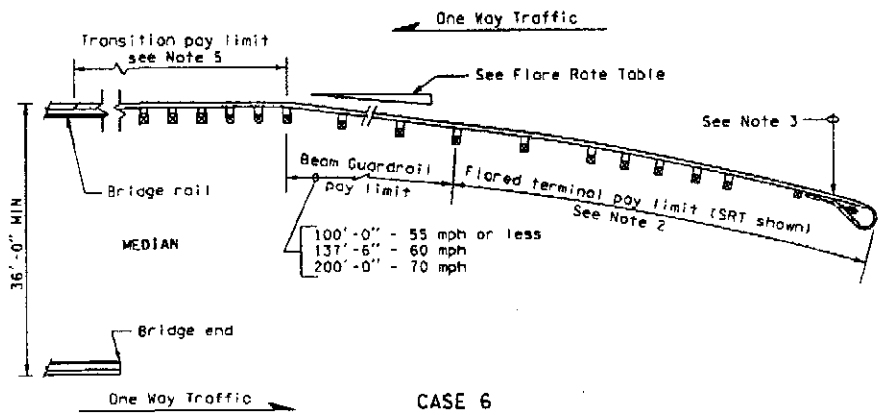
OLYMPIA, WASHINGTON



CASE 4



CASE 5



CASE 6

NOTES

1. Post spacing is 6'-3" except where noted.
2. For terminal type and details, see Contract and applicable Standard Plan(s).
3. The slope from the edge of the shoulder into the face of the guardrail should not be steeper than 10:1 when the guardrail is within 12'-0" from the edge of the shoulder.
4. See Contract for dimensions.
5. See Contract for Guardrail Transition Section and Guardrail Connection to Bridge Rail or Concrete Barrier.

FLARE RATE TABLE	
RATE	POSTED SPEED (MPH)
15:1	70
14:1	60
12:1	55
11:1	50
10:1	45
9:1	40 or less

CLIFFORD E. MANSFIELD — STATE OF WASHINGTON — 15224 — REGISTERED PROFESSIONAL ENGINEER

7/16/98

EXPIRES MAY 3, 2000

GUARDRAIL PLACEMENT
STANDARD PLAN C-2a

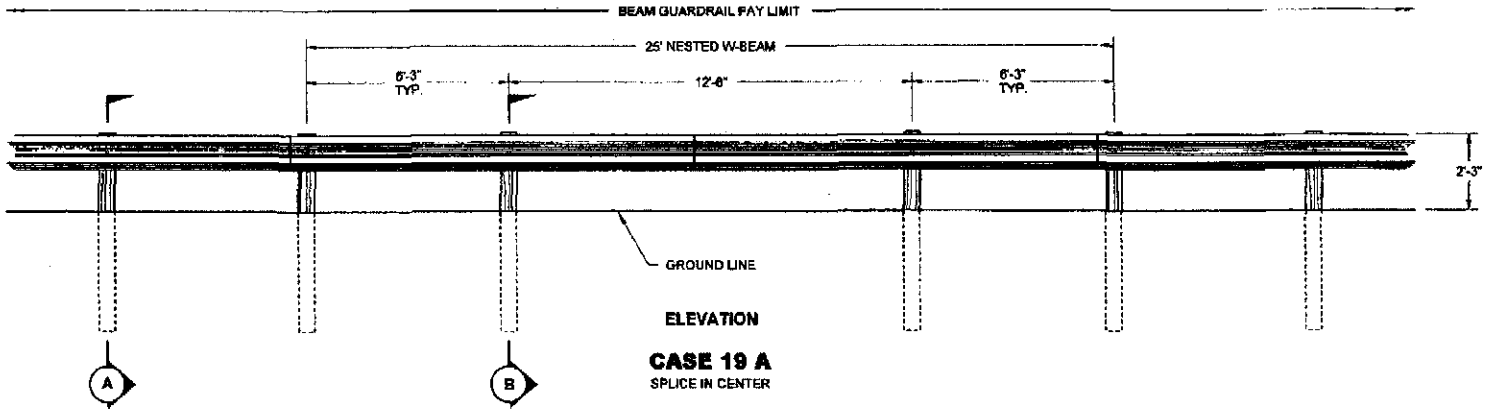
DATE	REVISION	BY
7/98	Revised Flare Rate Table and Case 6 lengths	MLS

APPROVED FOR PUBLICATION

Clifford E. Mansfield 7/16/98

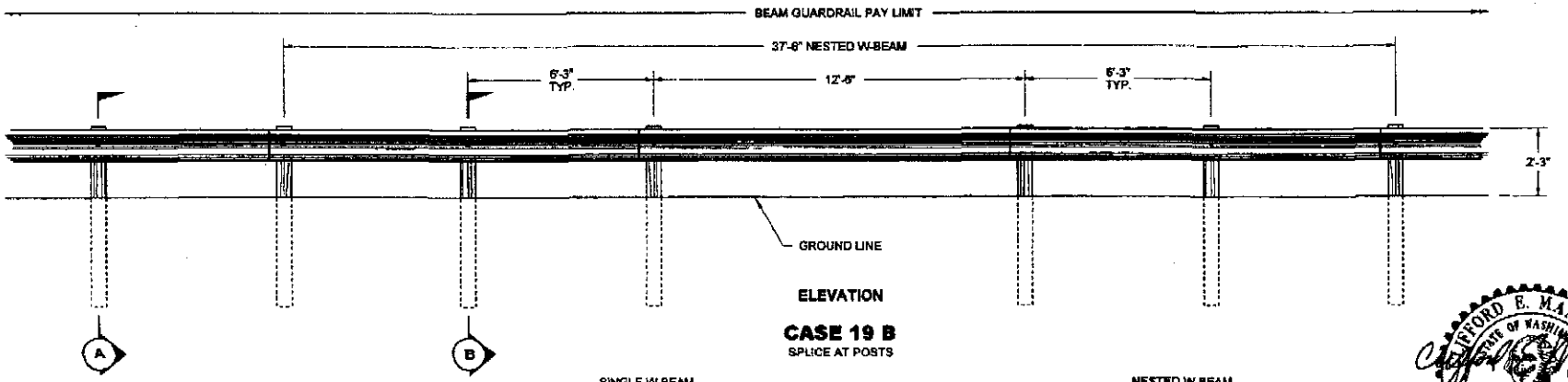
STATE DESIGN ENGINEER — DATE

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON



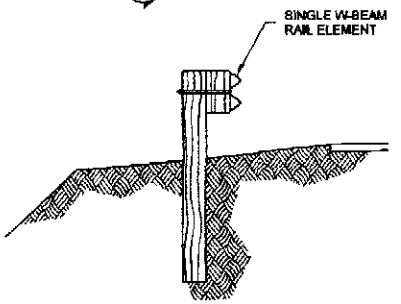
ELEVATION

CASE 19 A
SPLICE IN CENTER

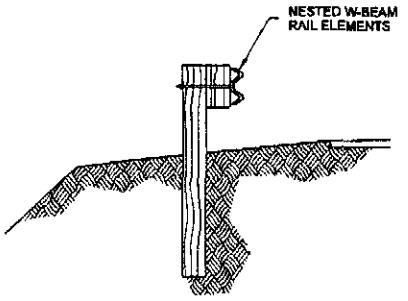


ELEVATION

CASE 19 B
SPLICE AT POSTS



SECTION (A)



SECTION (B)

CLIFFORD E. MANSFIELD
STATE OF WASHINGTON
15224
REGISTERED
PROFESSIONAL ENGINEER

7-26-01

EXPIRES MAY 3, 2002

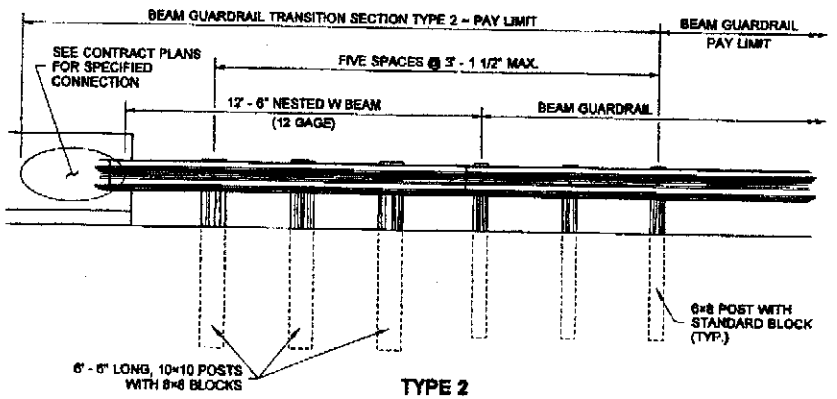
GUARDRAIL PLACEMENT
12'-6" SPAN
STANDARD PLAN C-2k

APPROVED FOR PUBLICATION

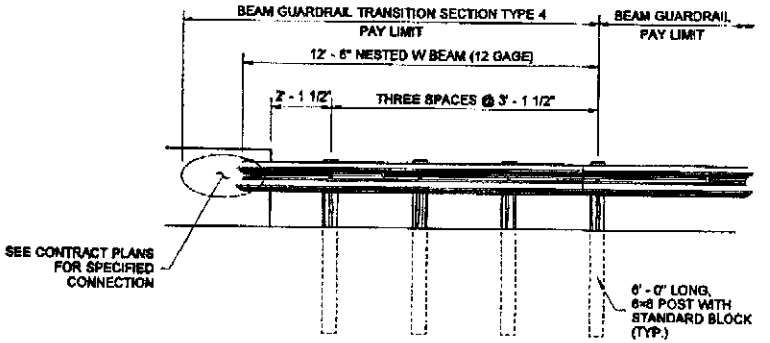
Clifford E. Mansfield 7-22-01
STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

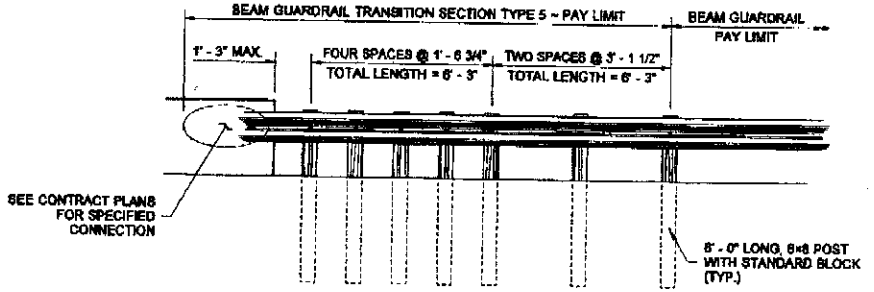
DRAWN BY: MARK SUIKA



TYPE 2



TYPE 4
FOR 45 MPH AND BELOW



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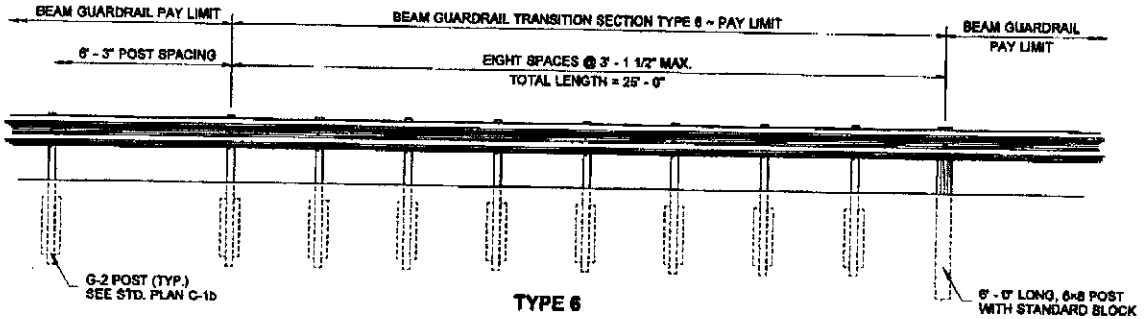


TYPE 6

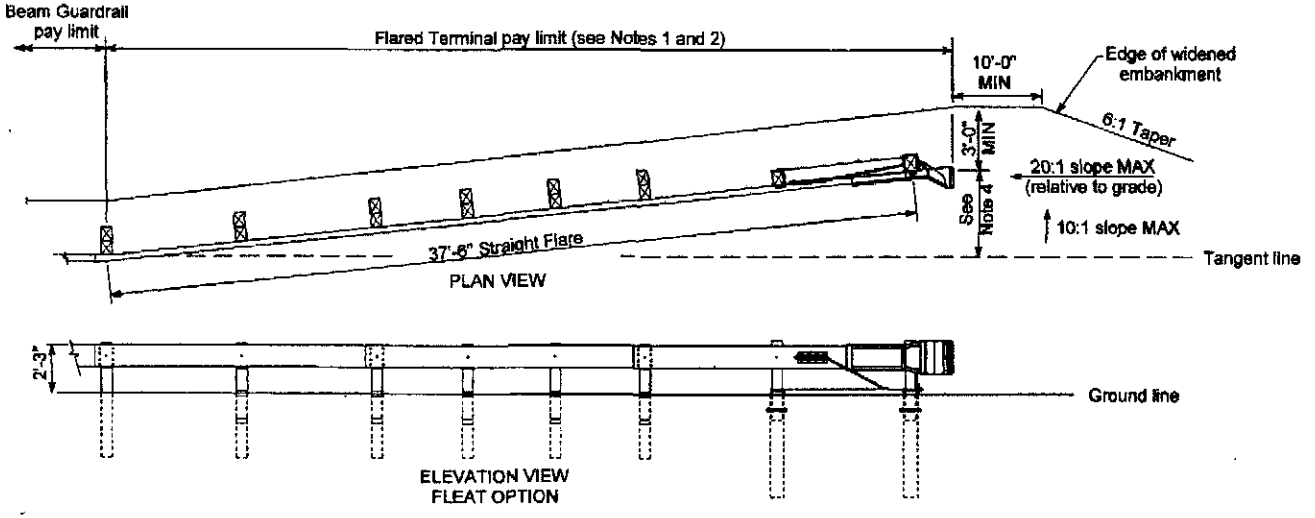
RICHARD BARSTOW BIN
STATE OF WASHINGTON
34042
REGISTERED
PROFESSIONAL ENGINEER
9/16/05
EXPIRES JULY 24, 2006

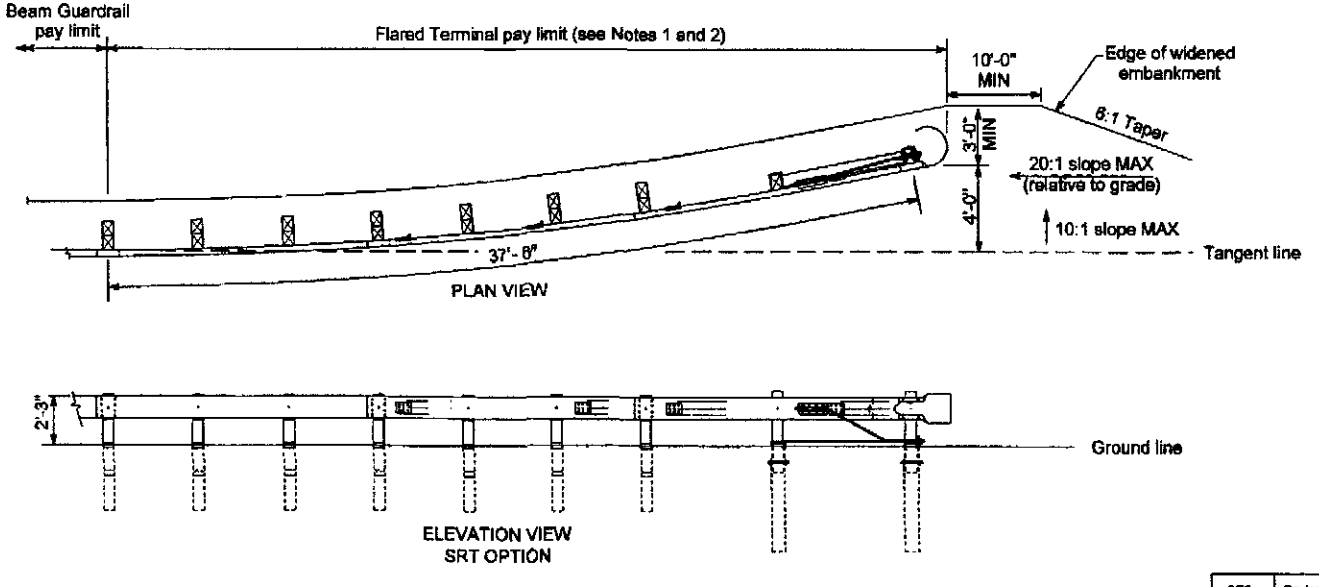
BEAM GUARDRAIL TRANSITION SECTIONS

STANDARD PLAN C-3a

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Harold Peterson 10-4-05
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation





NOTES

1. Unless otherwise indicated in the contract, the SRT - 350 (12.5, 8 Post) as manufactured by Trinity Industries, Inc, or a FLEAT 350 as manufactured by Road Systems Inc, shall be installed per manufacturer's recommendations. If specified in the Contract, the FLEAT TL2 as manufactured by Road Systems, Inc. shall be installed per manufacturers recommendations.

2. Where terminal is placed on a curve, and post offsets would result in the rail encroaching onto the shoulder (e.g., the inside of a curve), the posts shall be installed so that the face of the rail is at the edge of the shoulder.

3. When snow load post washers and snow load rail washers are called for in the contract, the snow load rail washers must be omitted within the terminal limits.

4. Offset distances:
   FLEAT 350 - 4'-0"
   FLEAT TL2 - 1'-8" (MIN)

CLIFFORD E. MANSFIELD
STATE OF WASHINGTON
15224
REGISTERED
PROFESSIONAL ENGINEER
6/23/00

EXPIRES MAY 3, 2002

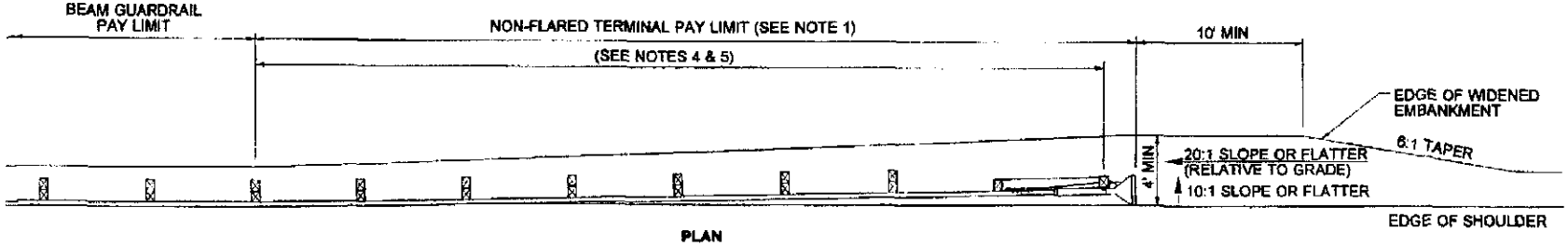
BEAM GUARDRAIL
FLARED TERMINAL
STANDARD PLAN C-4b

APPROVED FOR PUBLICATION
DEPUTY STATE DESIGN ENGINEER — DATE
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON

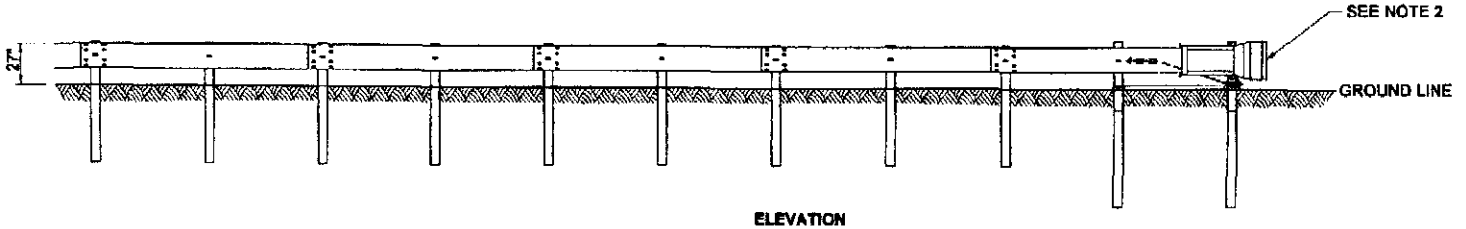
DATE	REVISION	BY
6/00	Revised Note 1 and SRT End Section.	TWS

NOTES

1. An ET-PLUS (TL3) as manufactured by Trinity Industries, Inc. or an SKT-350 as manufactured by Road Systems Inc. shall be installed according to manufacturer's recommendations. When a TL2 terminal is specified in the contract an ET-PLUS (TL2) as manufactured by Trinity Industries, Inc., or an SKT-TL2 as manufactured by Road Systems, Inc. shall be installed according to manufacturer's recommendations.
2. A reflectorized object marker shall be installed according to manufacturer's recommendations.
3. When snow load post washers and snow load rail washers are required by the contract, the snow load rail washers must not be installed within the terminal limits.
4. Terminal shall be installed at a taper, ensuring that end piece is entirely off shoulder.
5. Length for ET-PLUS (TL3) and SKT-350 is 50'. Length for ET-PLUS (TL2) and SKT-TL2 is 25'.



PLAN



ELEVATION

RICHARD BARSTOW
STATE OF WASHINGTON
34042
REGISTERED
PROFESSIONAL ENGINEER
2/20/03
EXPIRES JULY 24, 2004

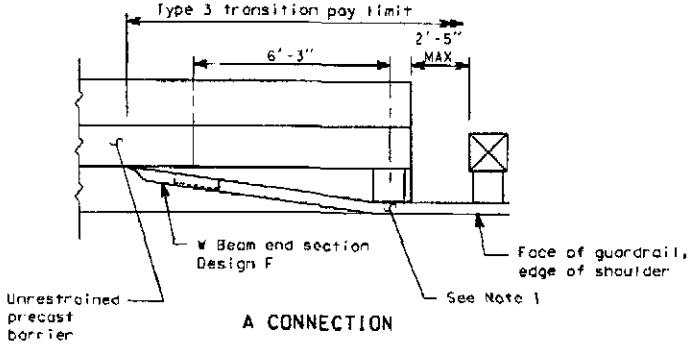
BEAM GUARDRAIL NON-FLARED TERMINAL

STANDARD PLAN C-4e

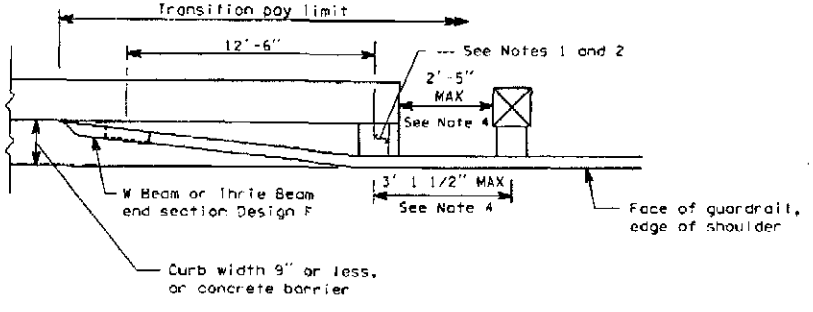
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Harold Kitteleson 2.20.03
STATE DESIGN ENGINEER — DATE
Washington State Department of Transportation

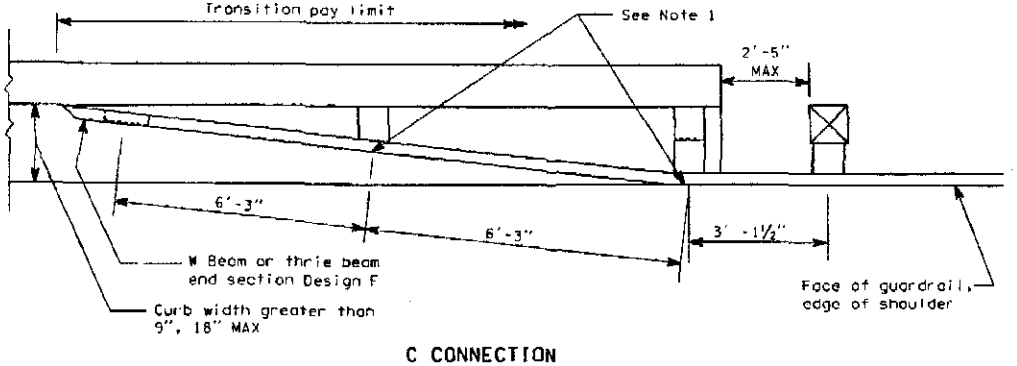
DATE	REVISION	BY
01/2003	REVISED NOTES 1 & 5; ADDED SLOPES.	RG



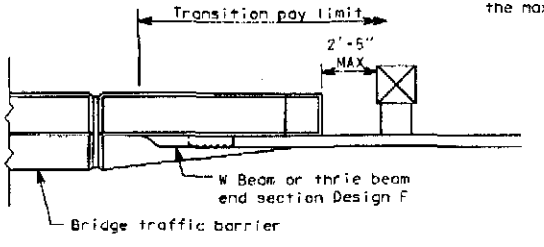
A CONNECTION



B CONNECTION

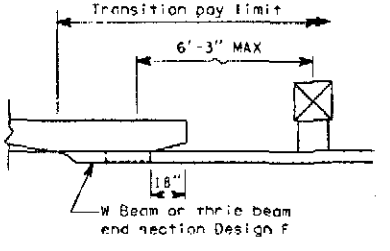


C CONNECTION

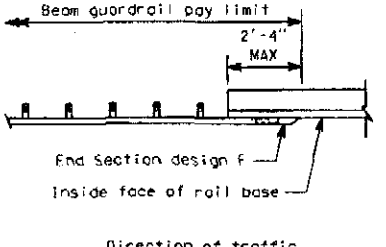


D CONNECTION

See Note 3



E CONNECTION



F CONNECTION

NOTES

1. Attach guardrail to bridge rail or concrete barrier with 7/8" diameter high strength bolts (Standard Specification 9-06.5(4)) with thin slab ferrule inserts or resin bonded anchors. See the Contract Plans.
2. If the last guardrail post is 3" or less from the end of the bridge barrier, this attachment and blockout is not necessary.
3. This case is also applicable for vertical faces with no curbs.
4. When B Connection is used with Type 1A Transition, the maximum spacing between bolts is 6'-3".

RICHARD BARSTOW ALBIN
STATE OF WASHINGTON
34042
REGISTERED
PROFESSIONAL ENGINEER
10/31/03
EXPIRES JULY 24, 2004

GUARDRAIL CONNECTION TO BRIDGE RAIL OR CONCRETE BARRIER

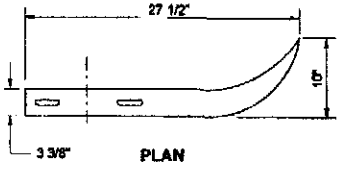
STANDARD PLAN C-5

SHEET 1 OF 1 SHEET

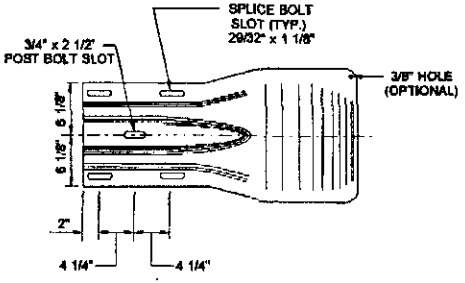
APPROVED FOR PUBLICATION
Harold Peterson 10.31.03
STATE DESIGN ENGINEER DATE

DATE	REVISION	BY
09/2003	REVISED NOTE 1: ADDED NOTE 4	PC

Washington State Department of Transportation

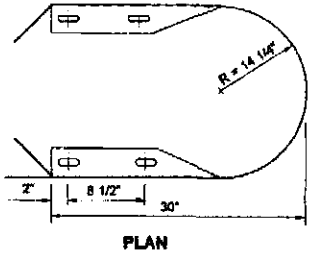


PLAN

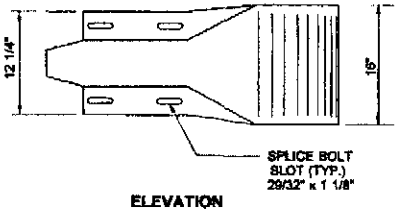


ELEVATION

DESIGN A

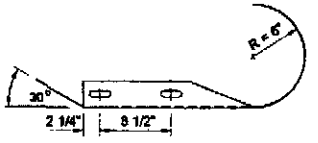


PLAN

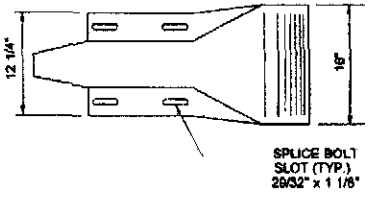


ELEVATION

DESIGN D

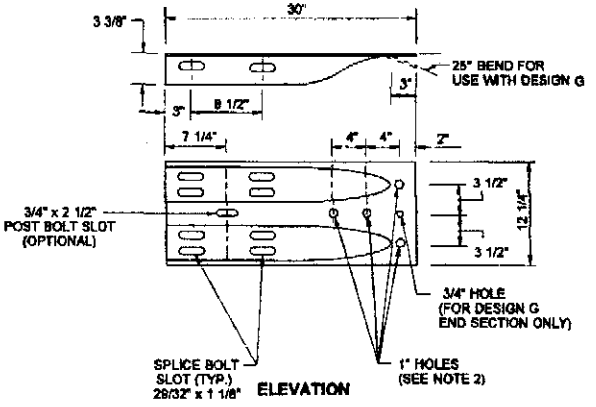


PLAN



ELEVATION

DESIGN C



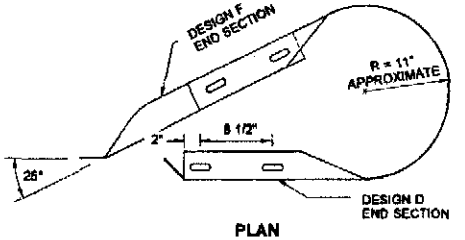
ELEVATION

DESIGN F

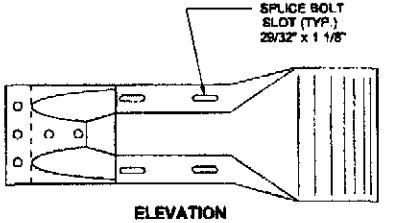
(SEE NOTE 4)

NOTES

1. End Section Design G shall be used except where noted on the plans or contract.
2. Attach guardrail to bridge rail or concrete barrier with 7/8" diameter high strength bolts (Standard Specification 9-06.5(4)) with thin slab ferrule inserts or resin bonded anchors. See the Contract Plans.
3. A single piece having similar dimensional shape to Design G and mating with the W-beam guardrail is an alternate.
4. In cases where Design "F" end section is lapped on the outside of the guardrail, a galvanized 1" ID, 2" OD, 0.134" thick, narrow Type A Plain Washer or a anchor rail washer shall be placed under the splice bolt heads.



PLAN



ELEVATION

DESIGN G

(SEE NOTE 3)

BEAM GUARDRAIL END SECTIONS

STANDARD PLAN C-7

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

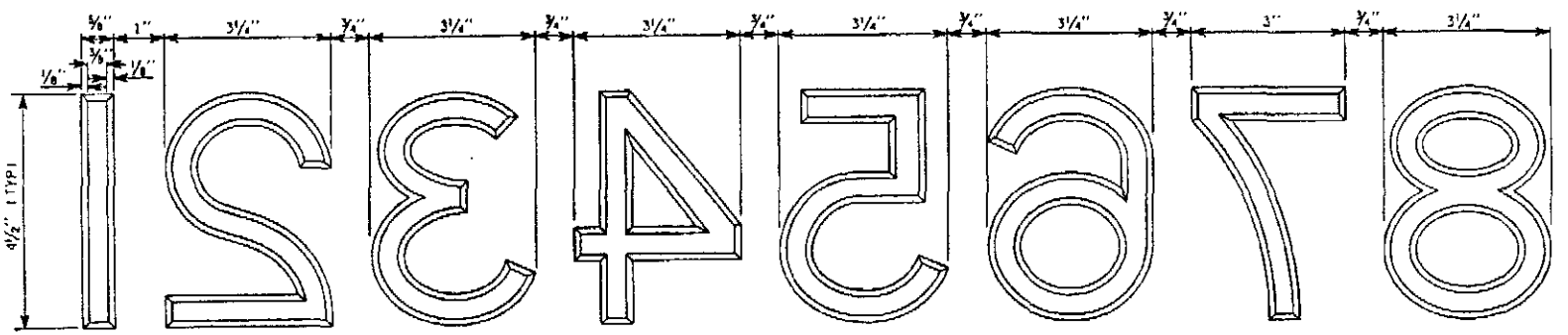
Harold Bitinger 10.31.03

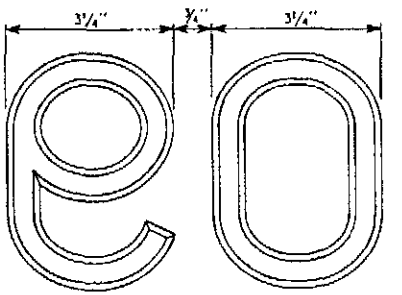
STATE DESIGN ENGINEER — DATE

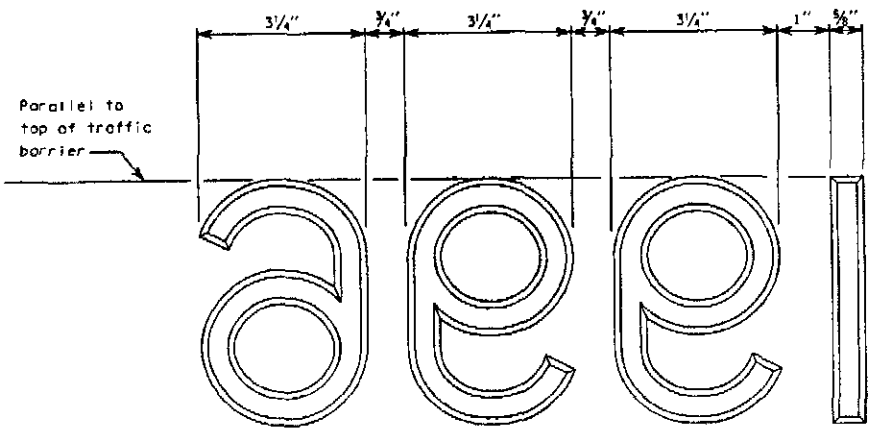
Washington State Department of Transportation

DATE	REVISION	BY
10/2003	REV. NOTE 2.	MHG

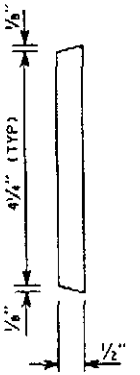
NOTE
Spacing between the numeral "1" and any other numeral is 1". Spacing between all other numerals is ¾".







TYPICAL DATE

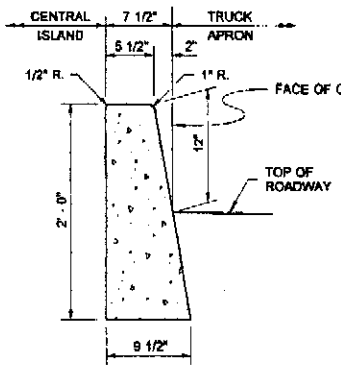


END VIEW

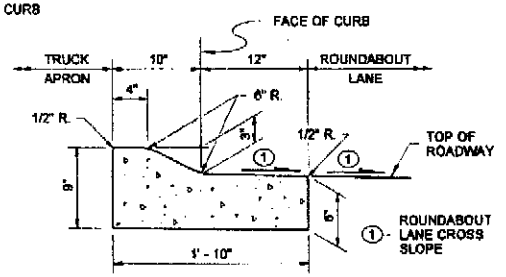
DATE NUMERALS

STANDARD PLAN E-1

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER
DATE
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON



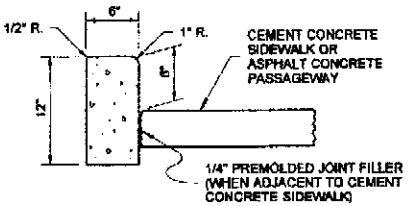
ROUNDABOUT TRUCK APRON INNER CEMENT CONCRETE CURB



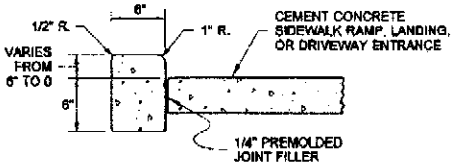
ROUNDABOUT TRUCK APRON OUTER CEMENT CONCRETE CURB AND GUTTER

GENERAL NOTE

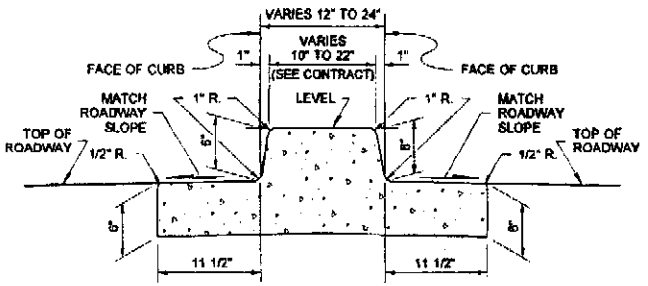
See Standard Plan F-3 for Curb Expansion and Contraction Joint spacing.



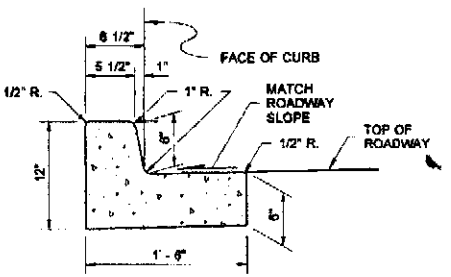
CEMENT CONCRETE PEDESTRIAN CURB



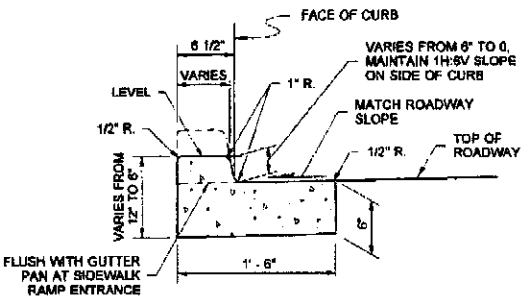
CEMENT CONCRETE PEDESTRIAN CURB
AT SIDEWALK RAMPS & LANDINGS, AND DRIVEWAY ENTRANCES



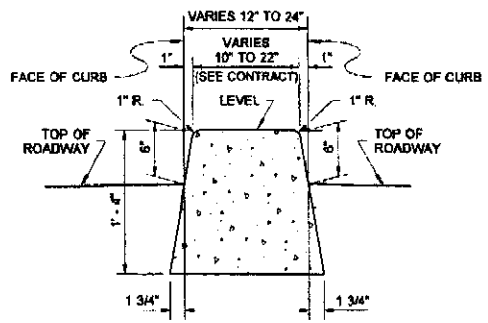
DUAL-FACED CEMENT CONCRETE TRAFFIC CURB AND GUTTER



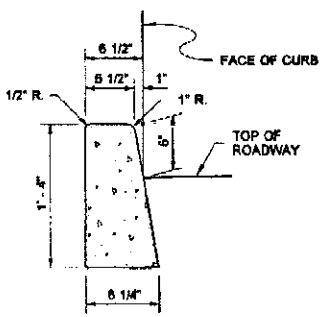
CEMENT CONCRETE TRAFFIC CURB AND GUTTER



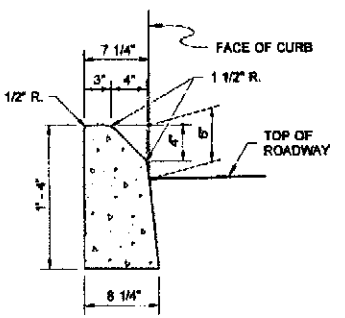
DEPRESSED CURB SECTION
AT SIDEWALK RAMPS AND DRIVEWAY ENTRANCES



DUAL-FACED CEMENT CONCRETE TRAFFIC CURB



CEMENT CONCRETE TRAFFIC CURB



MOUNTABLE CEMENT CONCRETE TRAFFIC CURB

HAROLD T. PETERSEN — STATE OF WASHINGTON — 21688 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES MAY 16, 2003

CEMENT CONCRETE CURBS

STANDARD PLAN F-1

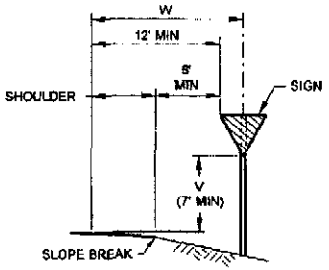
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

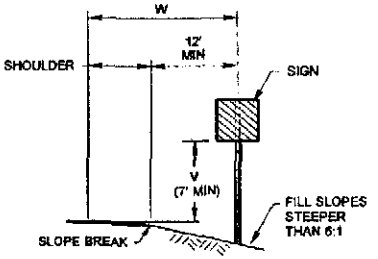
Harold T. Petersen 12-17-02

STATE DESIGN ENGINEER — DATE

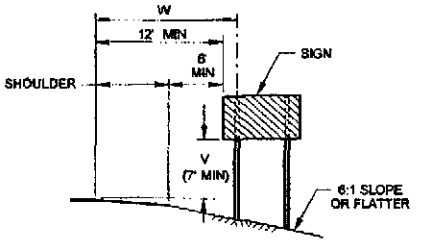
Washington State Department of Transportation



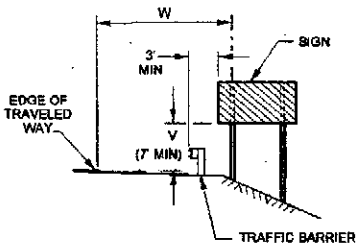
SIGN INSTALLATION IN FILL SECTION



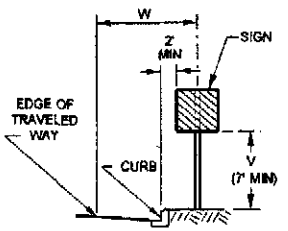
SIGN INSTALLATION ON STEEP FILL SLOPES



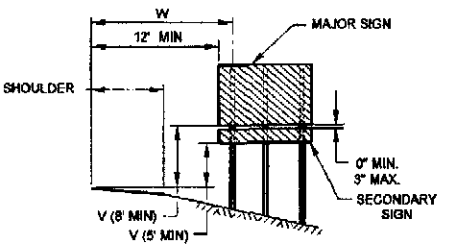
MULTIPLE SIGN POST INSTALLATION IN FILL SECTION



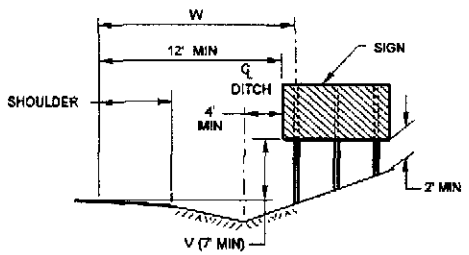
SIGN INSTALLATION BEHIND TRAFFIC BARRIER



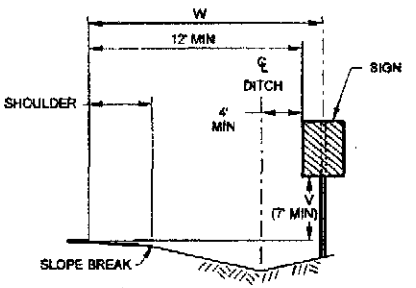
SIGN INSTALLATION IN CURB SECTION



GUIDE OR DIRECTIONAL SIGN WITH SECONDARY SIGN INSTALLATION ON EXPRESSWAYS AND FREEWAYS



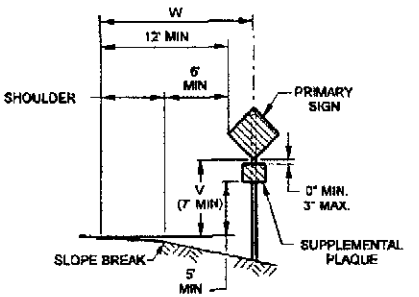
MULTIPLE SIGN POST INSTALLATION IN DITCH SECTION



SIGN INSTALLATION IN DITCH SECTION

NOTES

1. Refer to the Sign Specification Sheet of the contract for the 'V' and 'W' distances



SIGN WITH SUPPLEMENTAL PLAQUE INSTALLATION IN FILL SECTION

9/5/2001

TOBY D. RICKMAN — STATE OF WASHINGTON — 24655 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES OCTOBER 26, 2002

GROUND MOUNTED SIGN PLACEMENT

STANDARD PLAN G-1

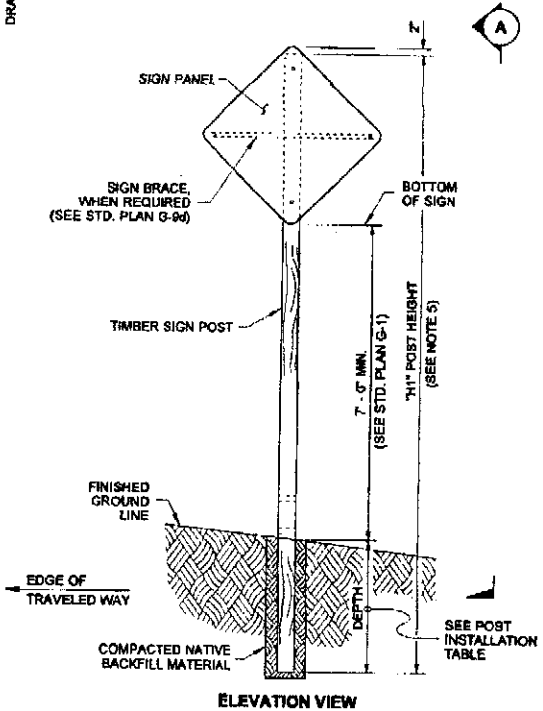
APPROVED FOR PUBLICATION

Harold Kirkpatrick 9-12-01

STATE DESIGN ENGINEER — DATE

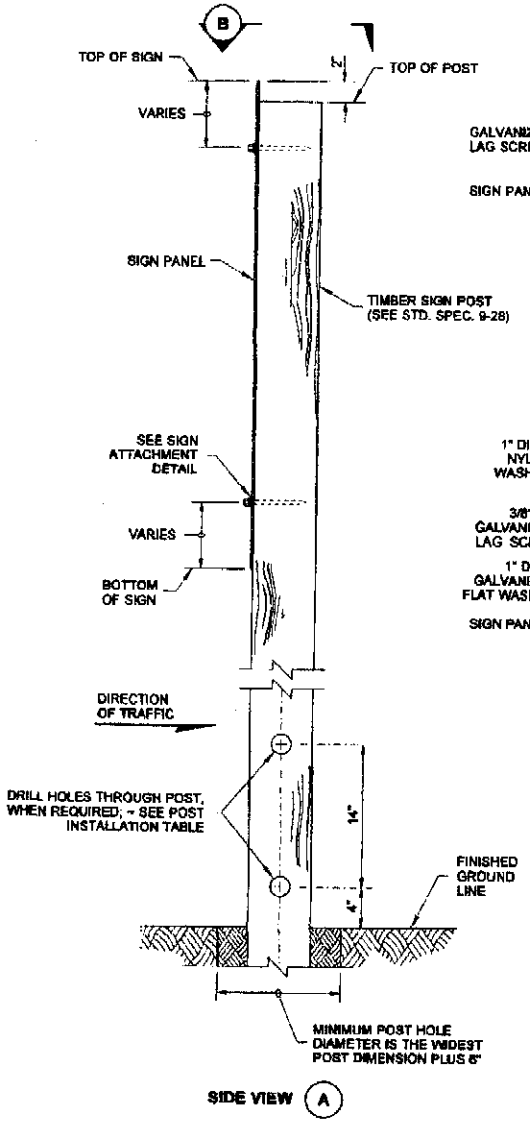
Washington State Department of Transportation

DRAWN BY: MONIQUE GLICK

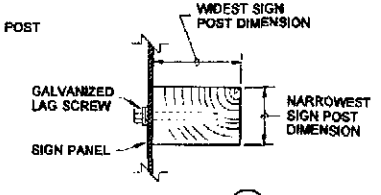


ELEVATION VIEW

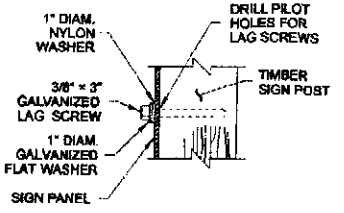
SINGLE POST INSTALLATION



SIDE VIEW (A)



TOP VIEW (B)



SIGN ATTACHMENT DETAIL

NOTES

1. Notch is only required with multiple post installations.
2. 6 x 10, 8 x 10, and 8 x 12 Timber Sign Posts can not be made breakaway and do not have holes or notches. These posts shall not be installed within the Design Clear Zone. They may be installed behind traffic barrier.
3. Signs with a width less than 12 feet and supported on three 6 x 6 or 6 x 8 posts shall not be installed within the Design Clear Zone. They may be installed behind traffic barrier.
4. Signs with a width less than 17 feet and supported on four 6 x 6 or 6 x 8 posts shall not be installed within the Design Clear Zone. They may be installed behind traffic barrier.
5. For "X", "Y", "H1", "H2", "H3", and "H4" refer to the Sign Specification Sheet in the Contract.

POST INSTALLATION TABLE			
POST SIZE	DEPTH	HOLE DIAMETER	NOTCH DEPTH See Note 1
4 x 4	3' - 0"	NOT REQ'D	NOT REQ'D
4 x 6	4' - 0"	1 1/2"	1 1/2"
6 x 6	4' - 0"	2" See Note 3 & 4	2" See Note 3 & 4
6 x 8	4' - 0"	3" See Note 3 & 4	3" See Note 3 & 4
6 x 10	5' - 0"	See Note 2	See Note 2
8 x 10	5' - 0"	See Note 2	See Note 2
8 x 10	5' - 0"	See Note 2	See Note 2

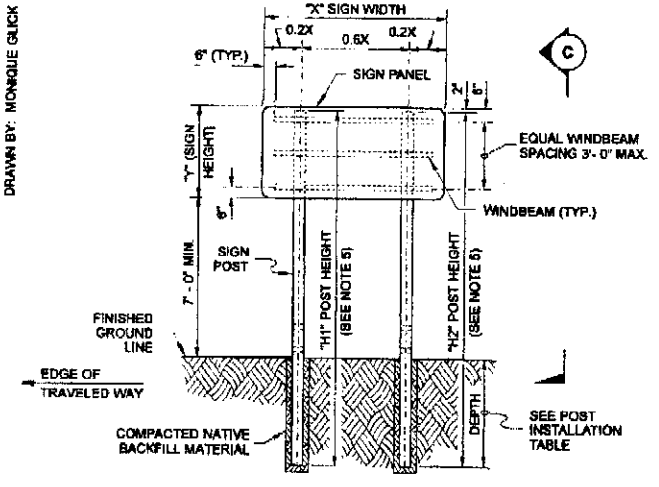
TIMBER SIGN SUPPORTS

STANDARD PLAN G-4a

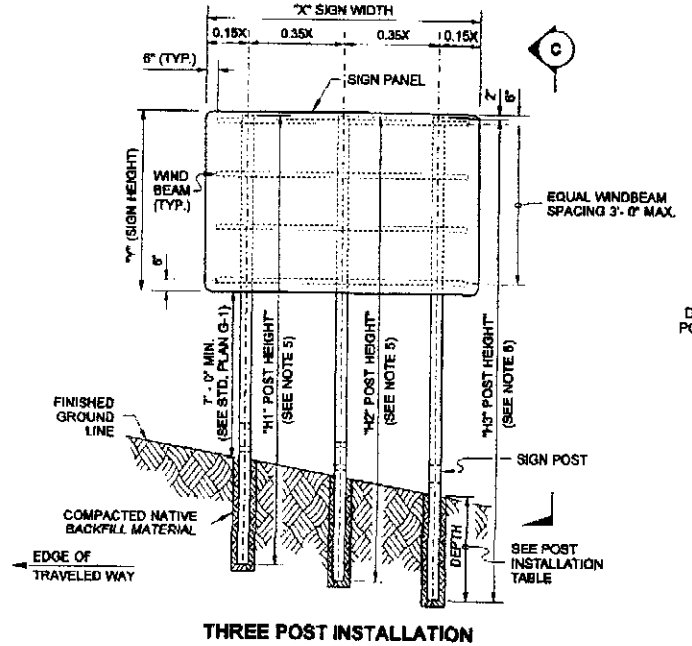
SHEET 1 OF 3 SHEETS

APPROVED FOR PUBLICATION
Harold Peterson 11.9.05
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

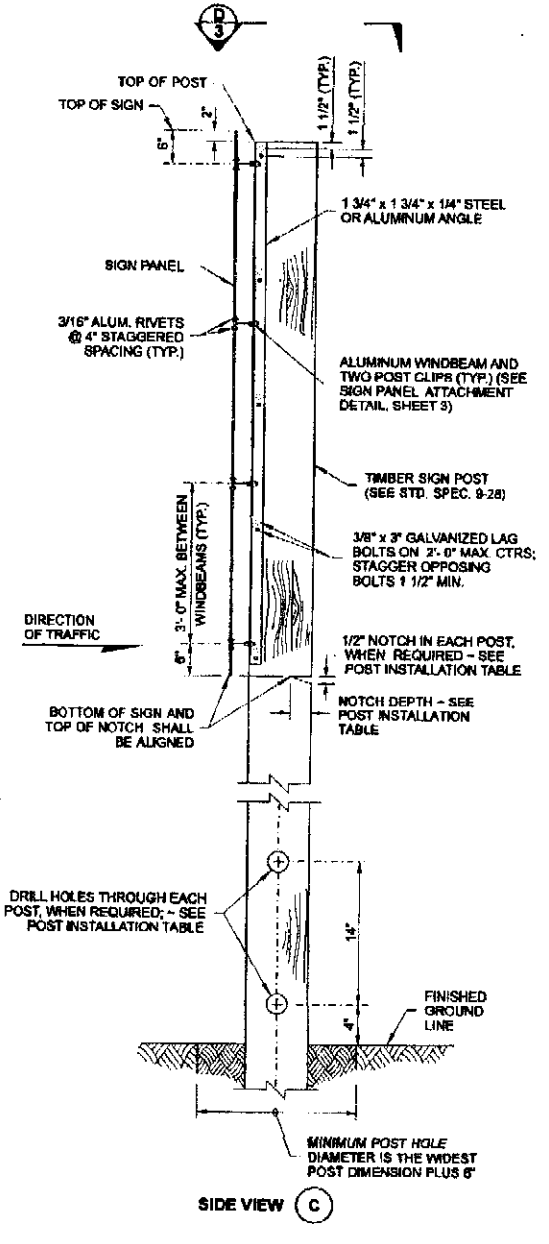
DRAWN BY: MONIQUE GLICK



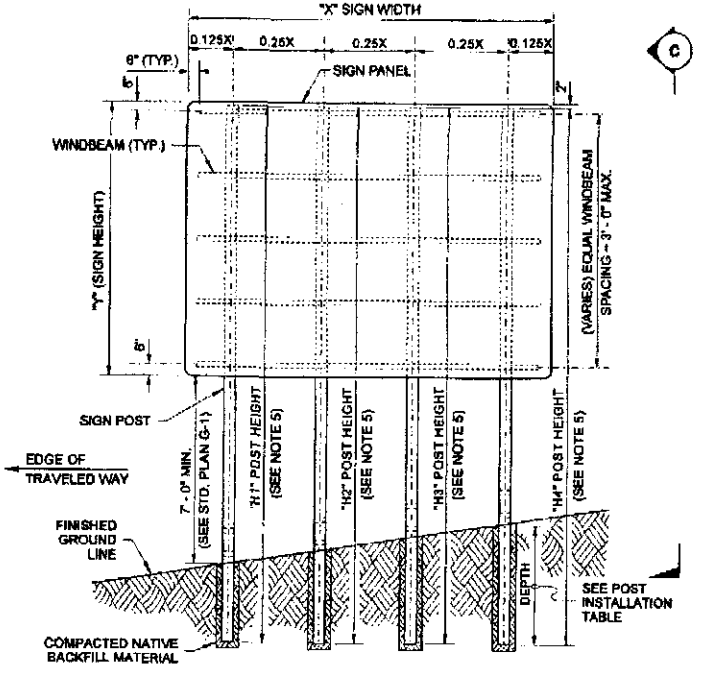
TWO POST INSTALLATION



THREE POST INSTALLATION



SIDE VIEW (C)



FOUR POST INSTALLATION

TIMBER SIGN SUPPORTS

STANDARD PLAN G-4a

SHEET 2 OF 3 SHEETS

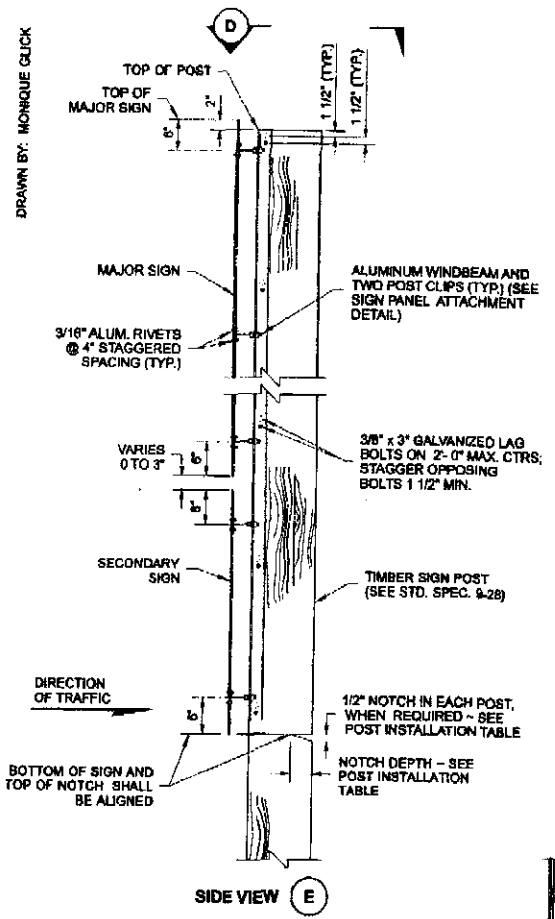
APPROVED FOR PUBLICATION

Harold Peterson 11.9.05

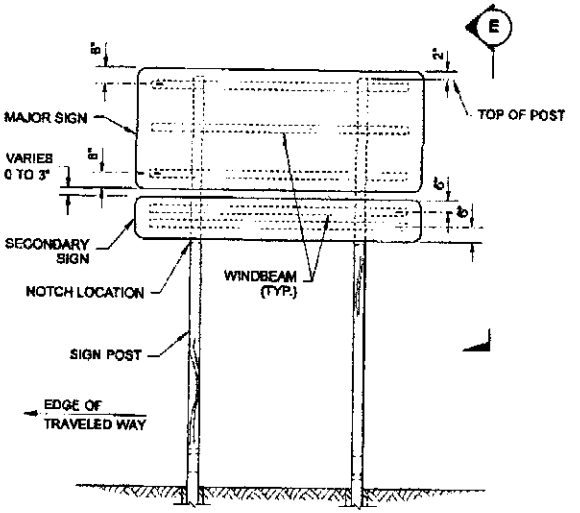
STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

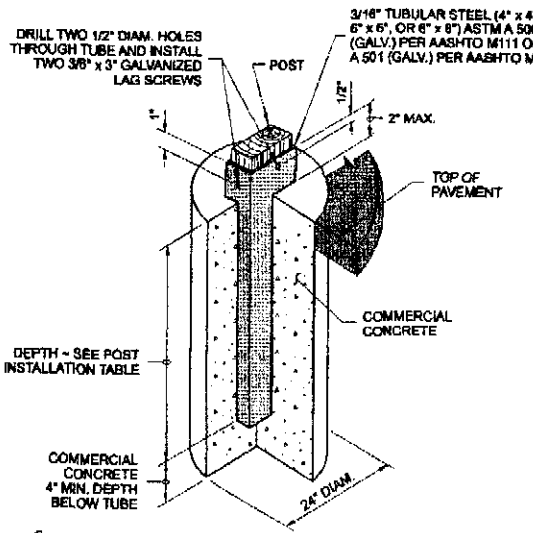
DRAWN BY: MONIQUE GLICK



SIDE VIEW (E)



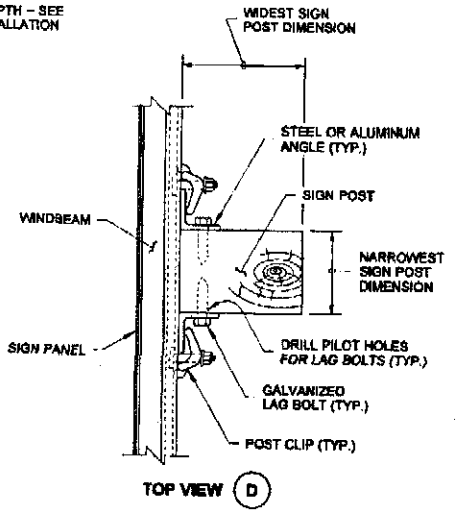
MAJOR AND SECONDARY SIGN INSTALLATION



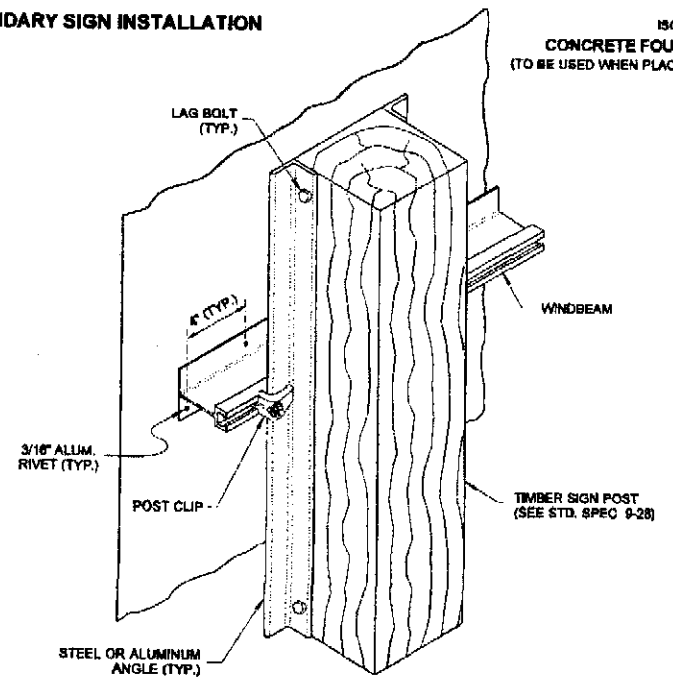
ISOMETRIC VIEW

CONCRETE FOUNDATION SLEEVE DETAIL

(TO BE USED WHEN PLACING TIMBER POST IN A PAVED AREA)



TOP VIEW (D)



ISOMETRIC VIEW

SIGN PANEL ATTACHMENT DETAIL

R. SCOTT ZELLER
STATE OF WASHINGTON
28660
REGISTERED
PROFESSIONAL ENGINEER
11-9-05
EXPIRES MAY 5, 2007

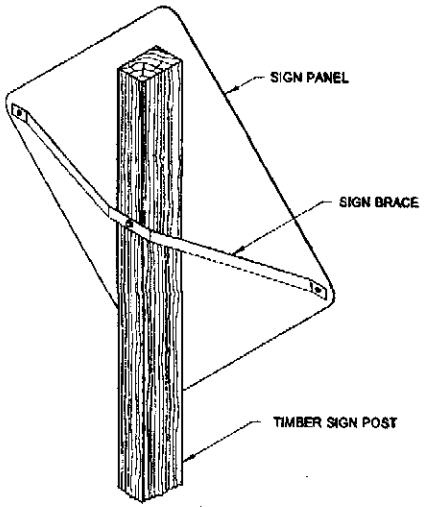
TIMBER SIGN SUPPORTS

STANDARD PLAN G-4a

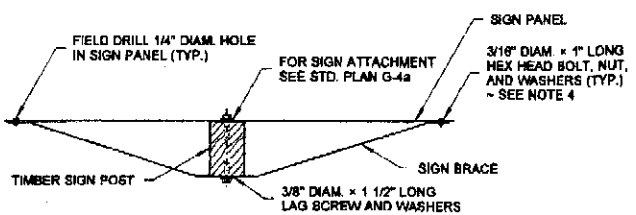
SHEET 3 OF 3 SHEETS

APPROVED FOR PUBLICATION
Harold Petrinpso 11.9.05
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

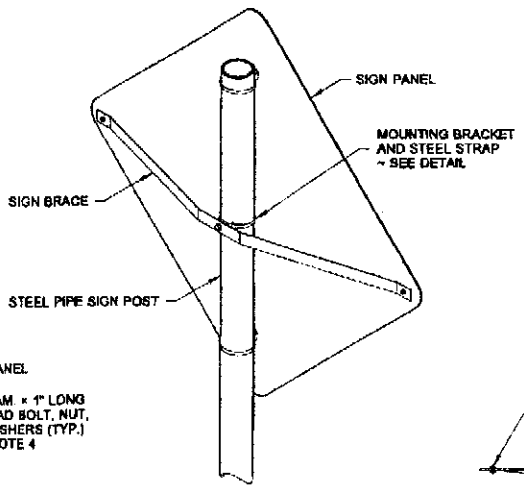
DRAWN BY: ELENA BRUNSTEIN



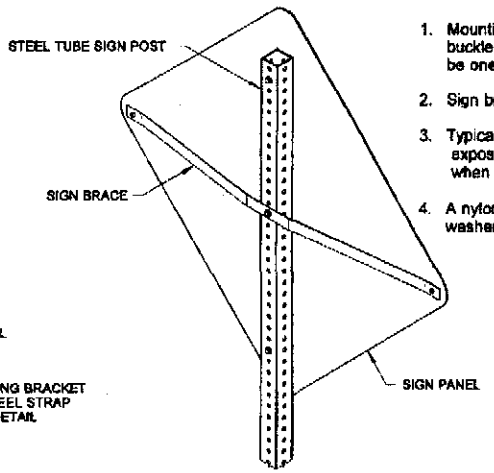
SIGN BRACE ON TIMBER POST



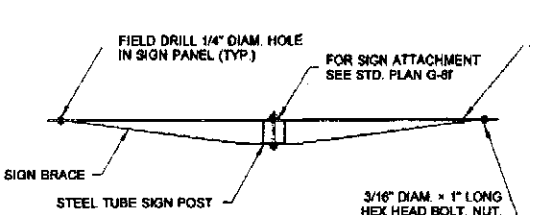
PLAN



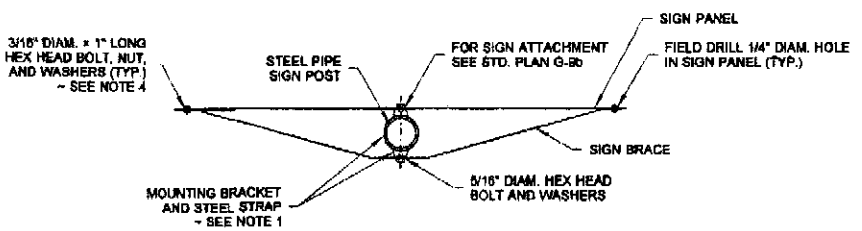
SIGN BRACE ON STEEL PIPE



SIGN BRACE ON STEEL TUBE



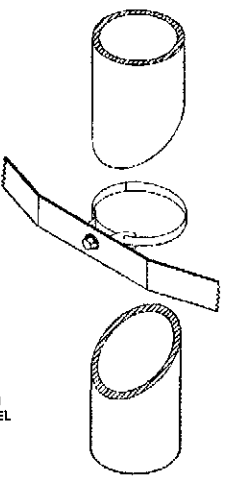
PLAN



PLAN

NOTES

1. Mounting brackets with steel straps shall be a stainless steel band and buckle system product or an approved equal. Mounting brackets shall be one bolt, flared leg; steel straps shall be 3/4" wide and 0.030" thick.
2. Sign braces are only installed when specified in the contract.
3. Typically braces are necessary on large sign panels that are exposed to high winds, traffic generated wind buffeting, or when snow thrown from plows might impact the sign.
4. A nylon washer shall be placed between the sign and the steel washer when the sign face has Type 3 or 4 sheeting.



MOUNTING BRACKET AND STEEL STRAP DETAIL

SIGN BRACING

STANDARD PLAN G-9d

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

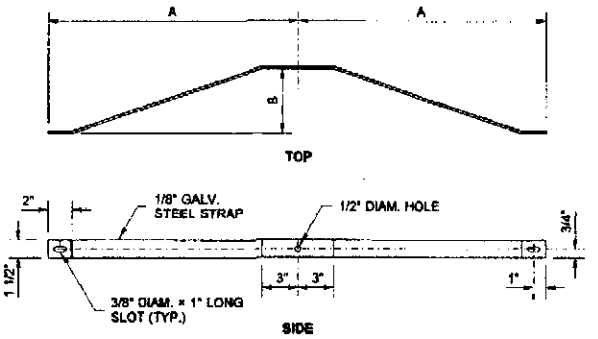
Harold Peterson 2-9-05

STATE DESIGN ENGINEER — DATE

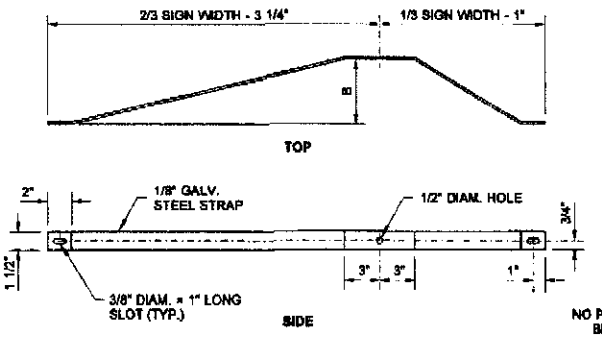
Washington State Department of Transportation

DRAWN BY: ELENA BRUNSTEIN

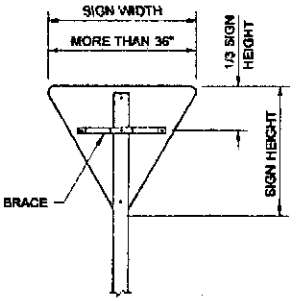
SIGN BRACE DIMENSIONS				
	SIGN TYPE			
	YIELD	DIAMOND-SHAPED	OTHERS	
A	1/3 SIGN WIDTH - 1 3/4"	1/2 SIGN WIDTH - 2 1/4"	1/2 SIGN WIDTH - 1"	
	SIGN POST TYPE			
	4×6 OR 6×6 TIMBER POST	6×8 TIMBER POST	3" DIAM. STEEL PIPE	2 1/2" SQUARE TUBE
B	5 1/2"	7 1/2"	4 3/4"	2 1/2"



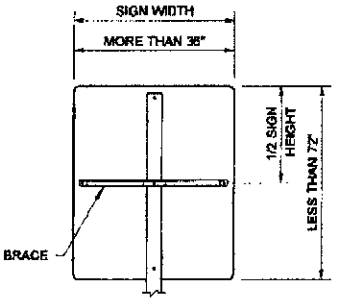
SIGN BRACE DETAIL



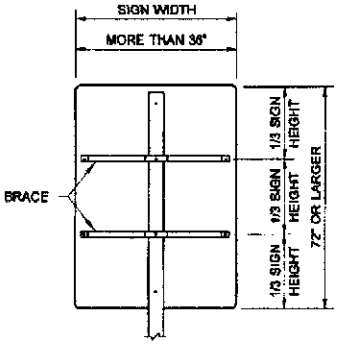
NO PASSING ZONE SIGN BRACE DETAIL



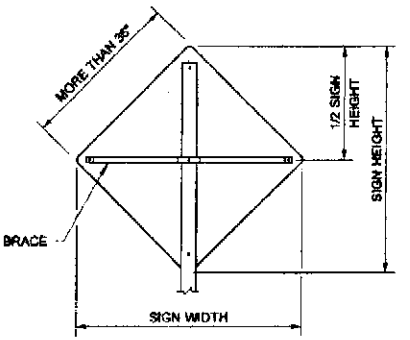
YIELD SIGN



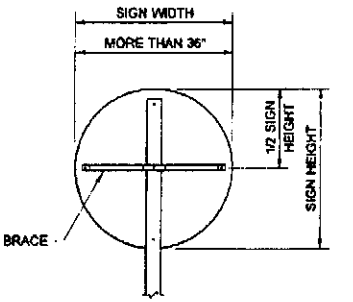
SMALL RECTANGULAR SIGN



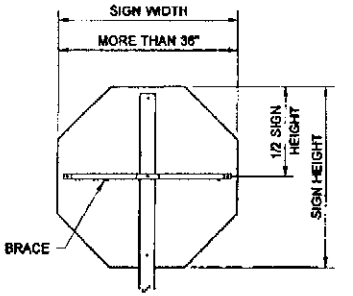
LARGE RECTANGULAR SIGN



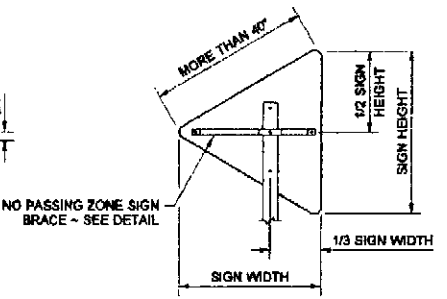
DIAMOND-SHAPED SIGN



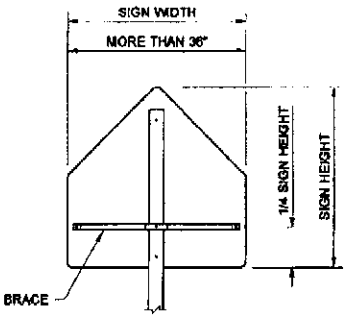
RAILROAD WARNING SIGN



STOP SIGN



NO PASSING ZONE SIGN



SCHOOL ZONE SIGN

SIGN BRACE PLACEMENT

R. SCOTT ZEINER
STATE OF WASHINGTON
13680
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES MAY 5, 2005

SIGN BRACING

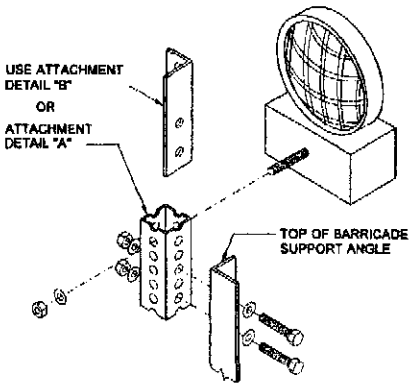
STANDARD PLAN G-9d

SHEET 2 OF 2 SHEETS

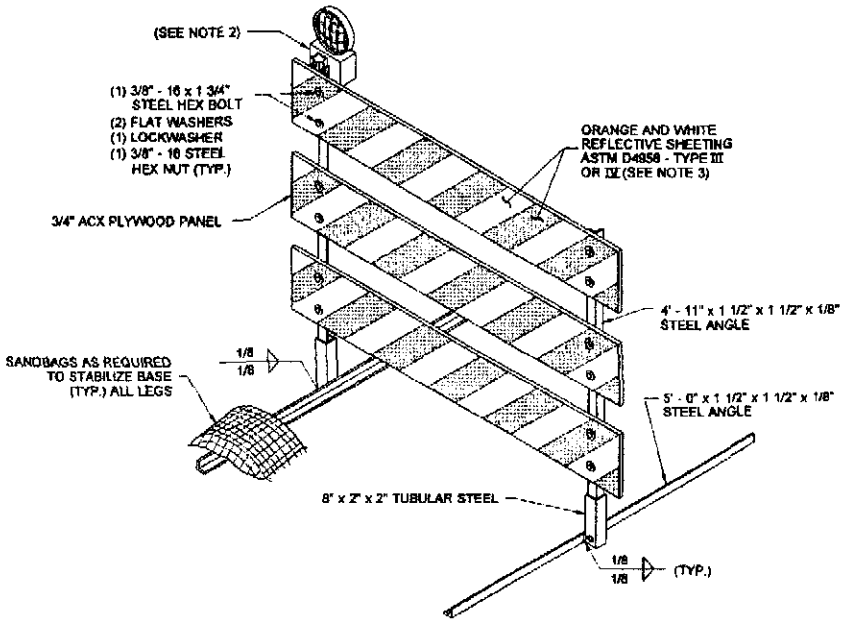
APPROVED FOR PUBLICATION

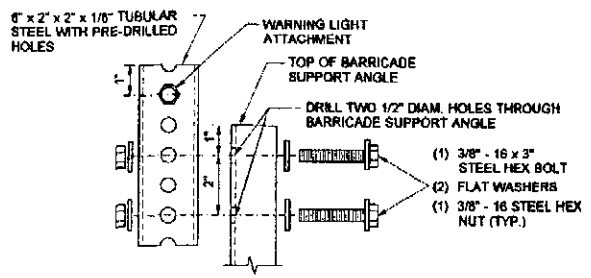
STATE DESIGN ENGINEER — DATE 2-9-05

Washington State Department of Transportation

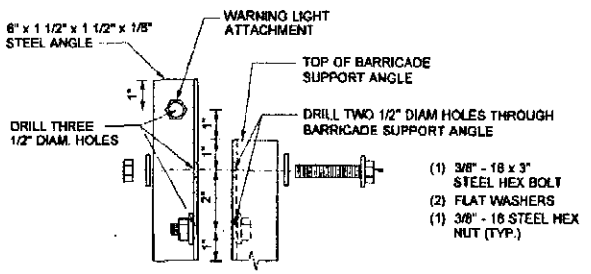


WARNING LIGHT ATTACHMENT DETAIL

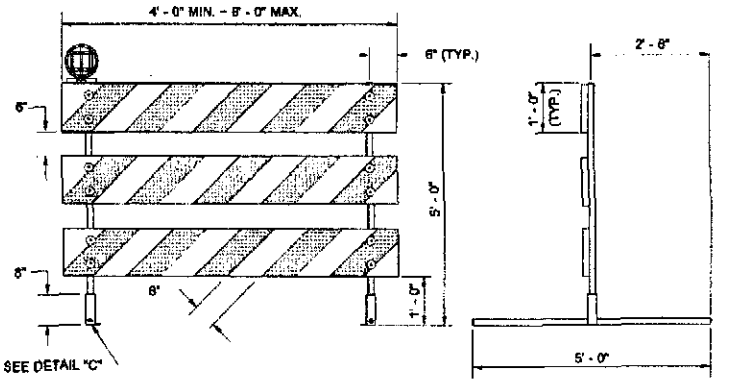




ATTACHMENT DETAIL "A"



ATTACHMENT DETAIL "B"



ELEVATION

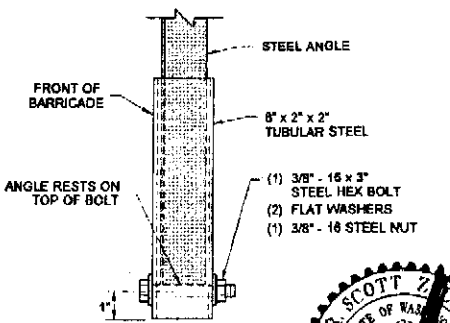
SIDE

TYPE 3 BARRICADE

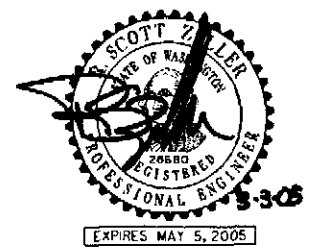
DRAWN BY: MONIQUE GLICK

NOTES

1. All fasteners may be zinc plated, galvanized or stainless steel. All steel angle and tubular steel shall be hot-rolled, high carbon steel, painted or galvanized.
2. Install one lightweight Type A Low-Intensity flashing warning light on the traffic side of the barricade. Install two Type A Low-Intensity flashing warning lights per barricade when the barricades are used to close a roadway. Attach the light to the barricade according to the light manufacturer's recommendations or use the details shown on this plan.
3. Stripes on barricade rails shall be alternating orange and white retroreflective stripes (sloping downward at an angle of 45 degrees in the direction traffic is to pass).
4. The Type 3 barricade design shown on this plan meets the crash test requirements of NCHRP 350. Alternate designs may be approved if they conform to the NCHRP 350 crash test criteria.
5. When a sign is mounted on the barricade, it shall be securely bolted to at least two plywood panels. The top of the sign shall not be higher than the top panel of the barricade.
6. When sandbags are used in freezing weather, urea fertilizer shall be mixed with the sand in a quantity to prevent the sand from freezing.



DETAIL "C"



TYPE 3 BARRICADE

STANDARD PLAN H-2

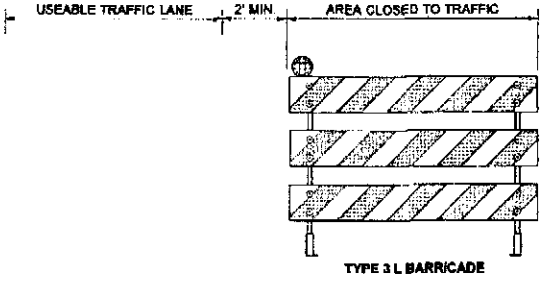
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

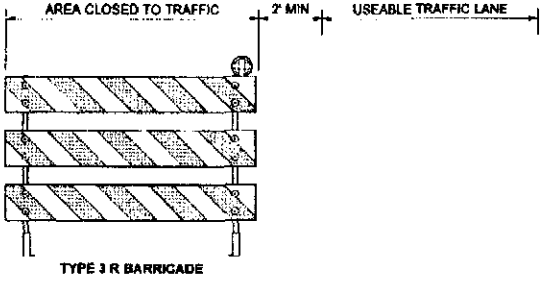
3-4-05

STATE DESIGN ENGINEER — DATE

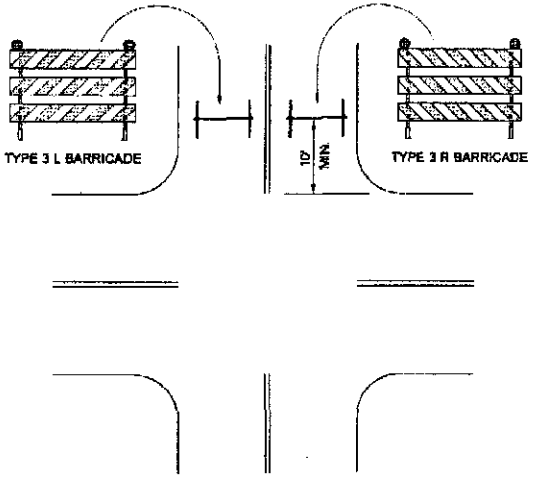
Washington State Department of Transportation



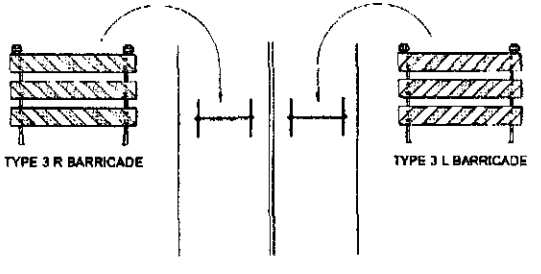
STRIPES ON THE BARRICADES SHALL SLOPE DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS



STRIPES ON THE BARRICADES SHALL SLOPE DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS



ROAD CLOSURE AT INTERSECTION



ROAD CLOSURE AT OTHER LOCATIONS

R. SCOTT ZELLER
STATE OF WASHINGTON
26680
REGISTERED
PROFESSIONAL ENGINEER
3-3-05
EXPIRES MAY 5, 2005

TYPE 3 BARRICADE

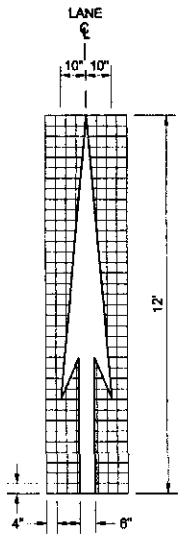
STANDARD PLAN H-2

SHEET 2 OF 2 SHEETS

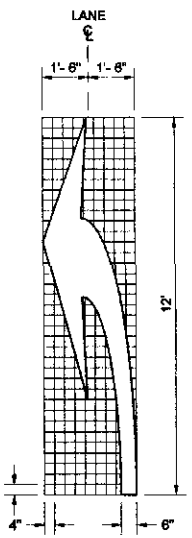
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 3-4-05

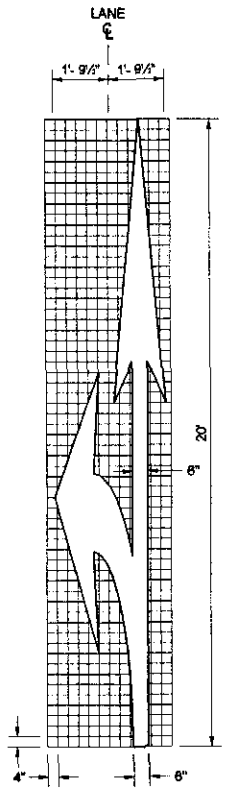
Washington State Department of Transportation



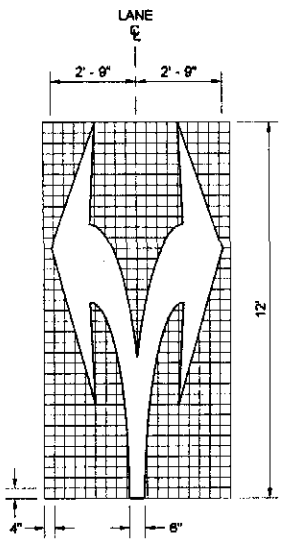
TYPE 1



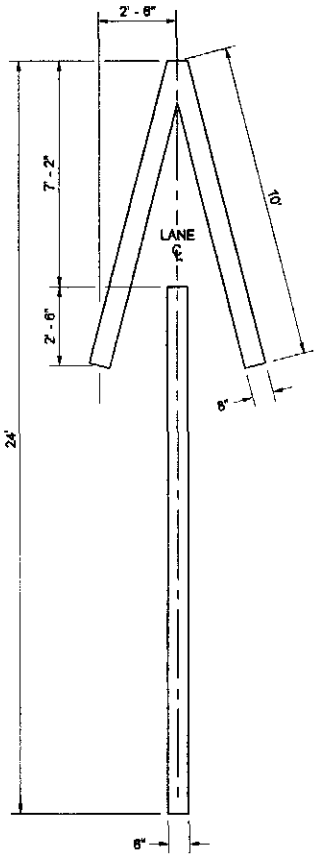
TYPE 2L (LEFT)
SHOWN
TYPE 2R (RIGHT)
MIRROR IMAGE OF ABOVE



TYPE 3L (LEFT)
SHOWN
TYPE 3R (RIGHT)
MIRROR IMAGE OF ABOVE



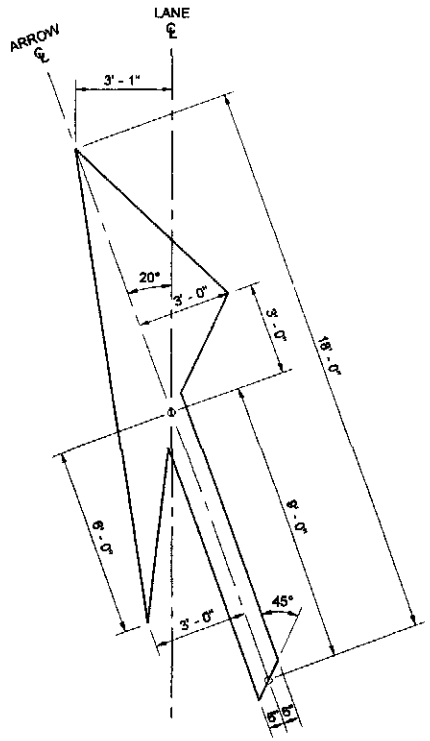
TYPE 4



TYPE 5

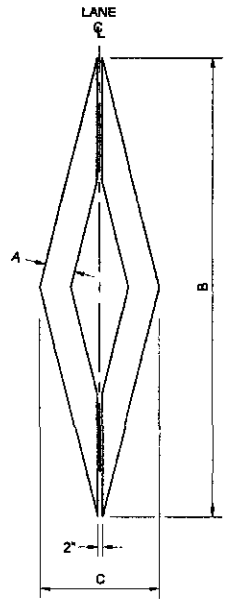
GENERAL NOTE

See contract for location and material requirements.



TYPE 6L (LEFT)
SHOWN
TYPE 6R (RIGHT)
MIRROR IMAGE OF ABOVE

TRAFFIC ARROWS



	A	B	C	USE
TYPE 1	12"	16'	4'	FREEWAYS
TYPE 2	6"	12'	3'	ARTERIALS & RAMPS

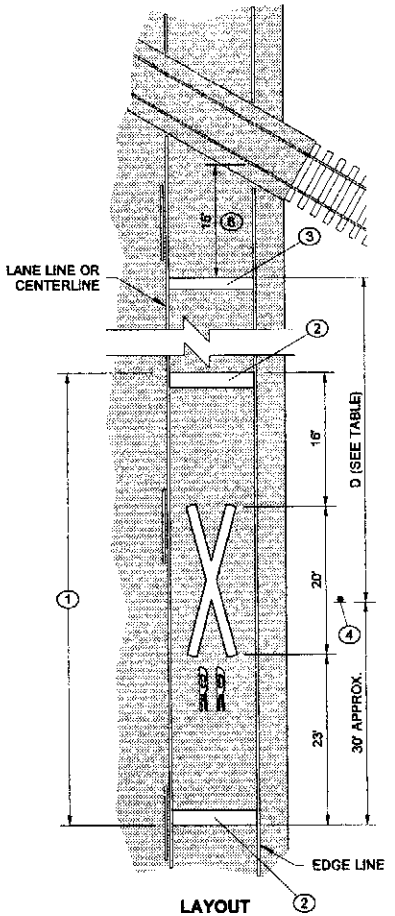
HOV LANE SYMBOL

PAVEMENT MARKINGS

STANDARD PLAN H-5c

SHEET 1 OF 3 SHEETS

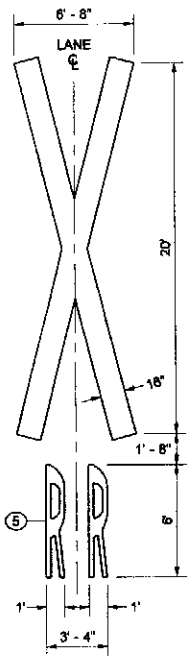
APPROVED FOR PUBLICATION
Harold Nelson 6-24-02
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation



LAYOUT

MPH	D*
25	50 Ft.
30	100 Ft.
35	150 Ft.
40	225 Ft.
45	300 Ft.
50	375 Ft.
55	450 Ft.
60	550 Ft.
65	650 Ft.

* DIMENSIONS SHOWN ARE APPROXIMATE. SEE CONTRACT.

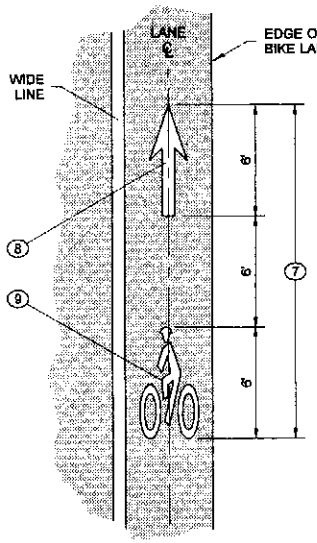


DETAIL

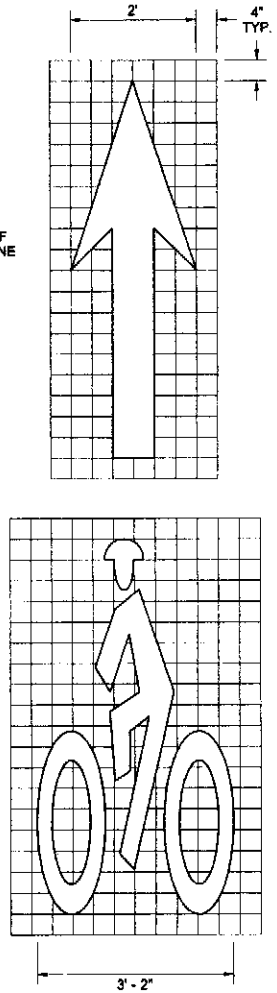
NOTES

1. Bid Item "Railroad Crossing Symbol" includes "X" symbol, letters, and two 24" white transverse lines.
2. 24" white transverse line
3. Stop Line
4. W10-1 Advance Warning Sign (not included in RR Crossing Symbol Bid Item)
5. See "Standard Alphabets for Highway Signs and Pavement Markings," 1977 Edition (FHWA)
6. Place Stop Line 15' from the nearest rail or approximately 8 feet from RR gate, if present.

RAILROAD CROSSING SYMBOL



LAYOUT



DETAILS

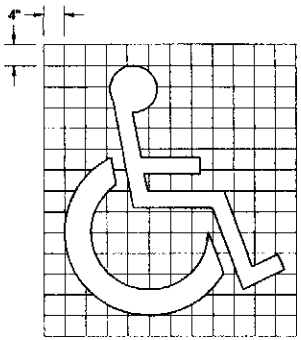
NOTES

7. Bid Item "Bicycle Lane Symbol" includes arrow and bike rider symbol.
8. 2' × 6' White Arrow
9. Bike Rider symbol

BICYCLE LANE SYMBOL

GENERAL NOTE

See contract for location and material requirements.



ACCESS PARKING SPACE SYMBOL

EXPIRES MAY 5, 2003

PAVEMENT MARKINGS

STANDARD PLAN H-5c

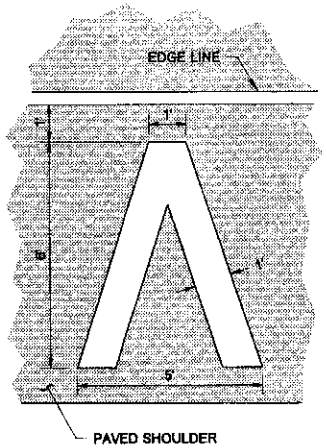
SHEET 3 OF 3 SHEETS

APPROVED FOR PUBLICATION

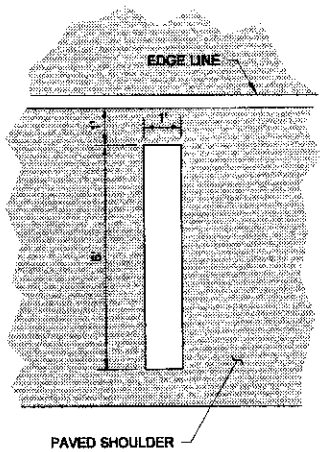
Harold Peterson 6-24-02

STATE DESIGN ENGINEER — DATE

Washington State Department of Transportation

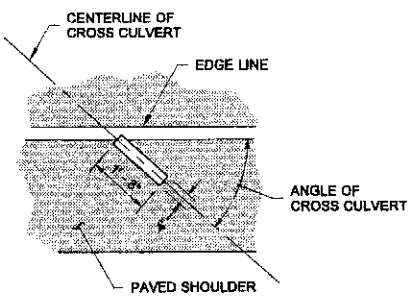


HALF MARKER
(1/2 MILE INTERVAL)

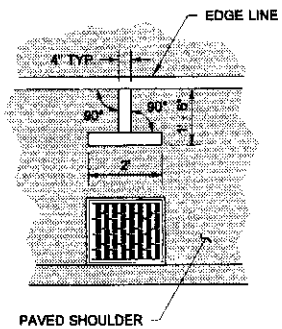


FULL MARKER
(1 MILE INTERVAL)

AERIAL SURVEILLANCE MARKERS



CROSS CULVERT

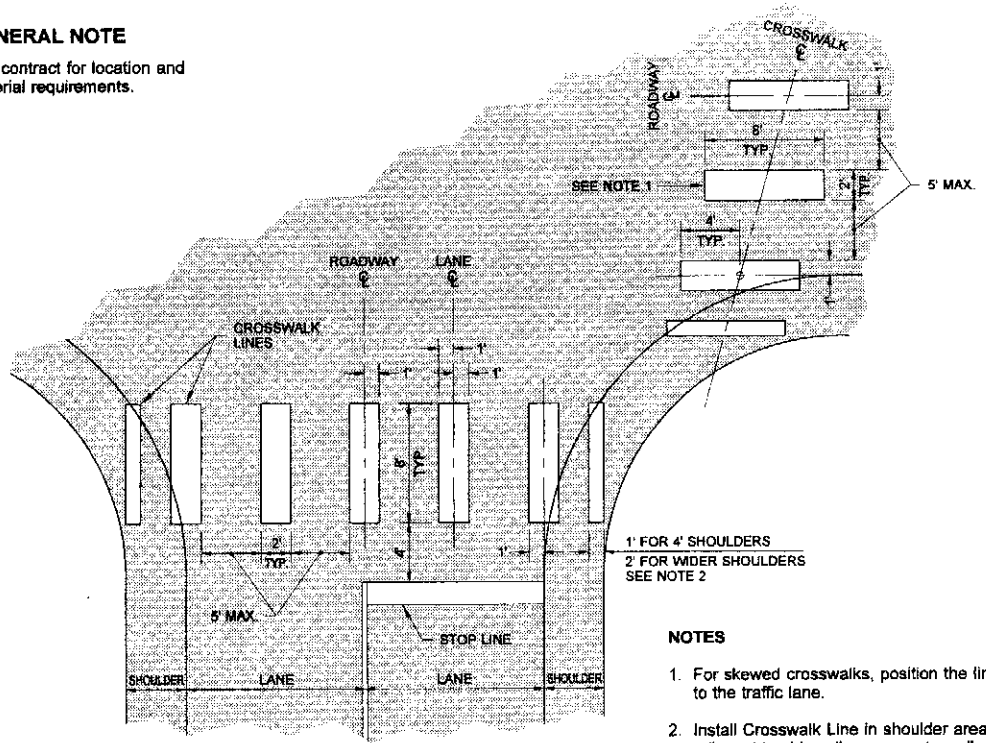


CATCH BASIN OR
GRATE INLET

DRAINAGE MARKING

GENERAL NOTE

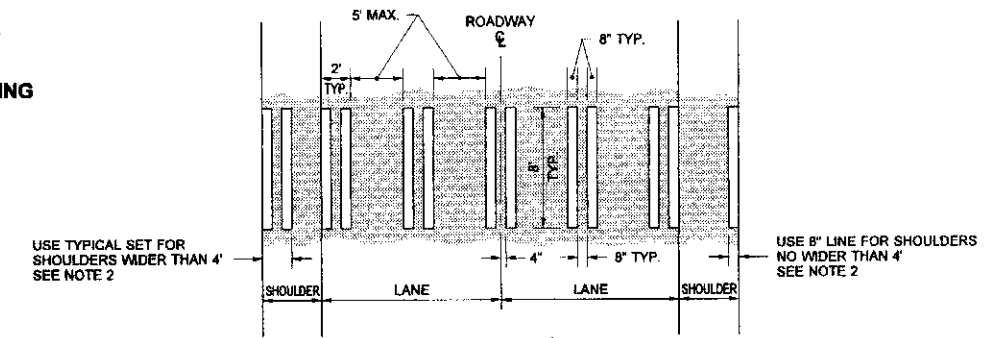
See contract for location and material requirements.



STANDARD PATTERN

NOTES

1. For skewed crosswalks, position the lines parallel to the traffic lane.
2. Install Crosswalk Line in shoulder area only when adjacent to sidewalk or separate walkway.



LOCAL AGENCY
OPTIONAL PATTERN

CROSSWALK LINES

R. SCOTT ZELLER
STATE OF WASHINGTON
28680
REGISTERED
PROFESSIONAL ENGINEER
6/24/02

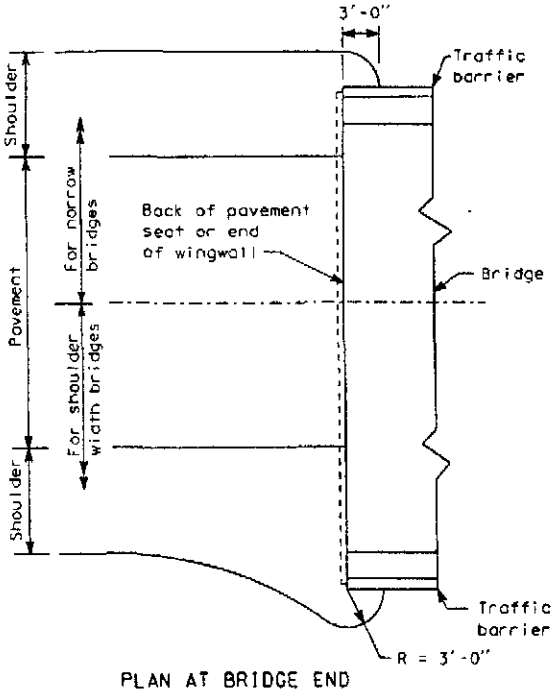
EXPIRES MAY 5, 2003

PAVEMENT MARKINGS

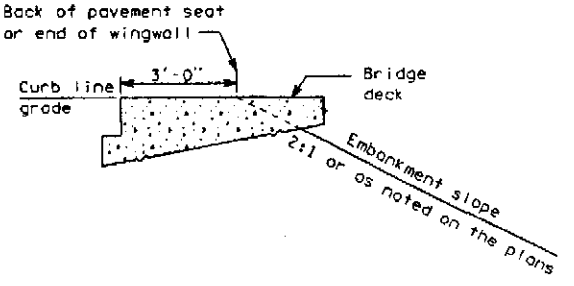
STANDARD PLAN H-5c

SHEET 2 OF 3 SHEETS

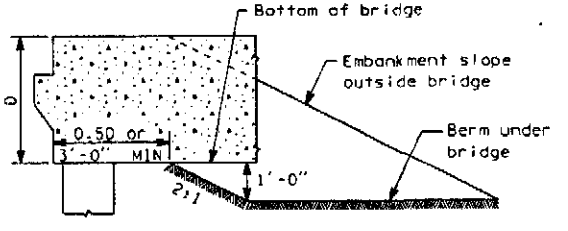
APPROVED FOR PUBLICATION
Harold Peterson 6-24-02
STATE DESIGN ENGINEER — DATE
Washington State Department of Transportation



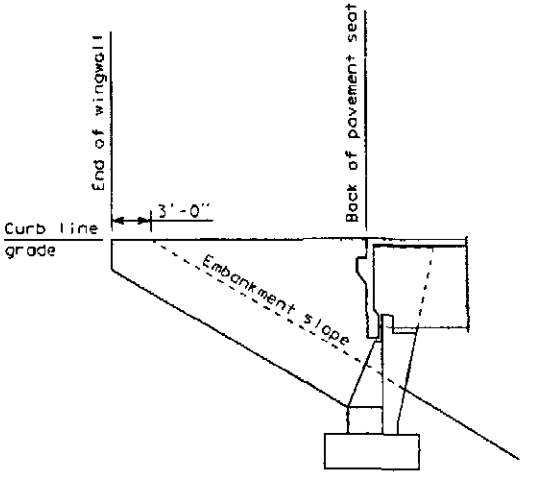
PLAN AT BRIDGE END



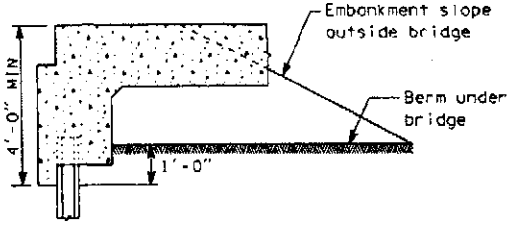
GENERAL SECTION AT BRIDGE END



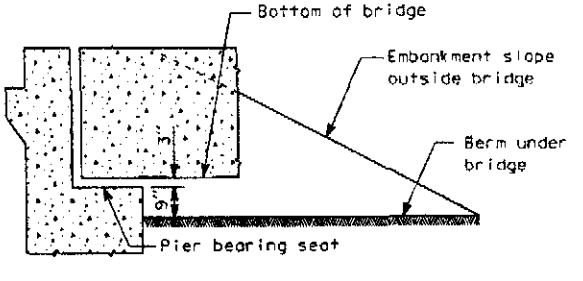
BRIDGE ON COLUMNS OR PILES



BRIDGE WITH WING WALLS



FLAT SLAB BRIDGE



BRIDGE ON BEARINGS

EMBANKMENT AT BRIDGE ENDS

CLIFFORD A. MANSFIELD
STATE OF WASHINGTON
1974
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES MAY 3, 1994

STANDARD PLAN H-9

APPROVED FOR PUBLICATION

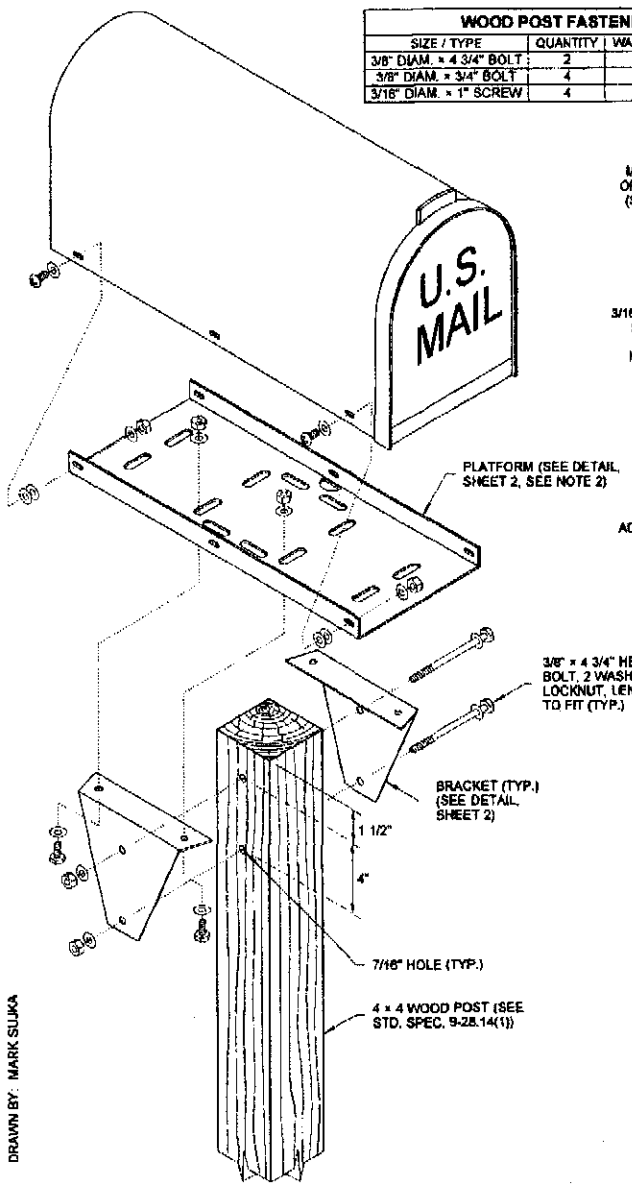
STATE DESIGN ENGINEER

4/18/92
DATE

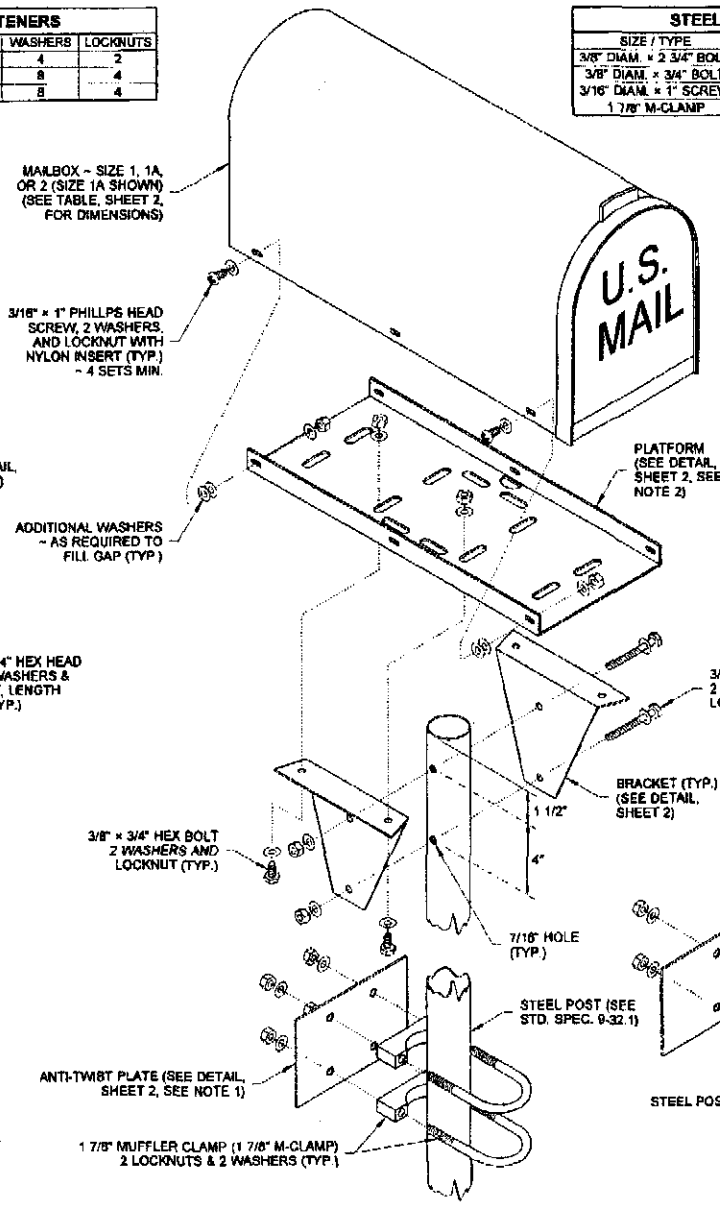
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON

WOOD POST FASTENERS			
SIZE / TYPE	QUANTITY	WASHERS	LOCKNUTS
3/8" DIAM. × 4 3/4" BOLT	2	4	2
3/8" DIAM. × 3/4" BOLT	4	8	4
3/16" DIAM. × 1" SCREW	4	8	4

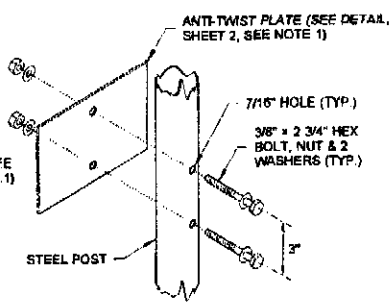
STEEL POST FASTENERS			
SIZE / TYPE	QUANTITY	WASHERS	LOCKNUTS
3/8" DIAM. × 2 3/4" BOLT	2	4	2
3/8" DIAM. × 3/4" BOLT	4	8	4
3/16" DIAM. × 1" SCREW	4	8	4
1 7/8" M-CLAMP	2	4	4



WOOD POST ASSEMBLY DETAIL
(SEE STEEL POST ASSEMBLY DETAIL FOR SPECIFICATIONS NOT SHOWN)



STEEL POST ASSEMBLY DETAIL



ALTERNATE ANTI-TWIST PLATE DESIGN

NOTES

1. A socket and wedge anchoring system that meets the NCHRP 350 crash test criteria may be substituted in lieu of the anti-twist plate designs shown. Anti-twist plates are not required for wood post installations.
2. The platform design shown on this plan features slots that accomodate several types of mailbox supports, only those slots necessary for assembling the type being installed are required. An adjustable platform may be used in lieu of this design, but it must fit the bracket design shown on this plan. Brackets are required for all single-post installations. Field drilling may be necessary.
3. Center the mailbox on the platform to ensure space for the mailbox door to open and to allow space for installing the fasteners (See ALIGNMENT DETAIL, Sheet 2). Spacing of mailbox mounting holes varies among manufacturers. Attachment of the mailbox to the platform may require drilling additional holes through the mailbox to fit the platform.
4. Attach a newspaper box to a steel post with two 1 7/8" Muffler Clamps spaced 4" apart. Field drill 7/16" holes in the newspaper box to fit. Use 2 1/2" × 1/4" lag bolts to attach newspaper boxes to wood posts. Newspaper boxes must not extend beyond the front of the mailbox when the mailbox door is closed.
5. A Type 2 Support (Standard Plan H-12a) is required when 2 or more mailboxes are to be installed on one support.

DRAWN BY: MARK SUJKA

RICHARD BARSTOW ALBIN — STATE OF WASHINGTON — 34042 — REGISTERED PROFESSIONAL ENGINEER
2/18/2005
EXPIRES JULY 24, 2006

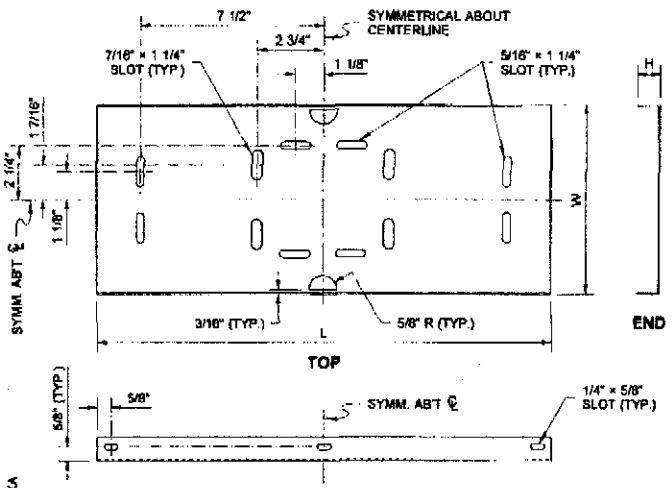
MAILBOX SUPPORT TYPE 1

STANDARD PLAN H-12

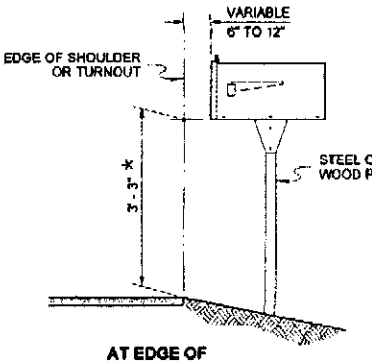
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION
Harold Peterson 2-25-05
STATE DESIGN ENGINEER — DATE
Washington State Department of Transportation

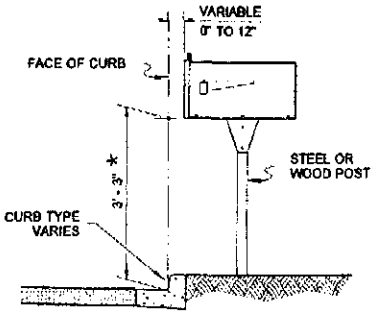
MAILBOX & PLATFORM DIMENSIONS						
SIZE	MAILBOX DIMENSIONS			PLATFORM DIMENSIONS		
	L	W	H	L	W	H
1	19"	6 1/2"	8 1/2"	17"	6"	1"
1A	21"	8"	10 1/2"	19"	7 1/2"	1"
2	24"	11 1/2"	13 1/2"	21"	11"	1"



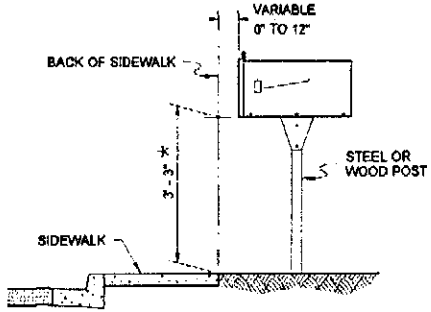
PLATFORM DETAIL



AT EDGE OF SHOULDER



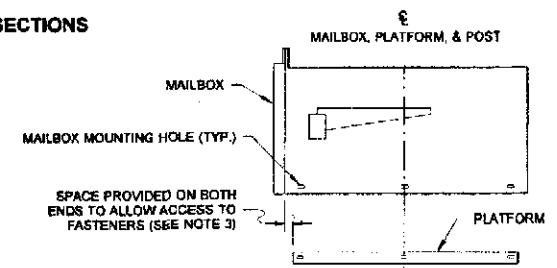
BEHIND CURB



BEHIND SIDEWALK

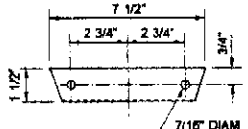
* UNLESS OTHERWISE SHOWN IN THE PLANS

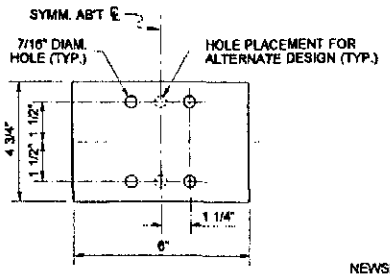
MAILBOX PLACEMENT SECTIONS



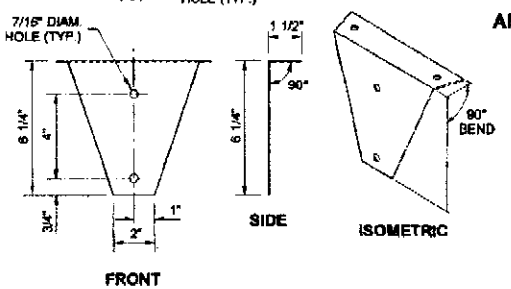
ALIGNMENT DETAIL

DRAWN BY: MARK SUJKA

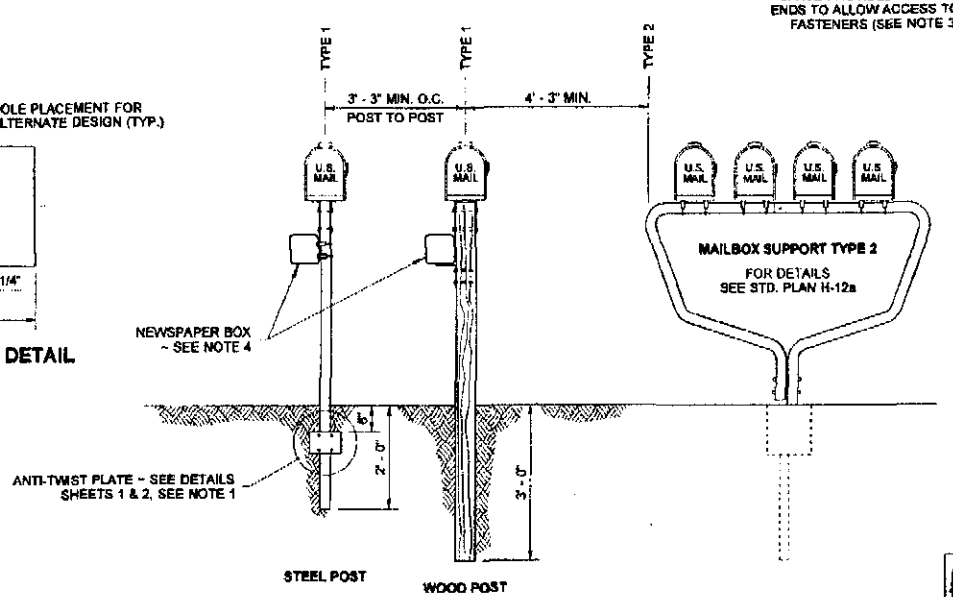




ANTI-TWIST PLATE DETAIL



BRACKET DETAIL



POST PLACEMENT DETAIL

RICHARD BARSTOW
STATE OF WASHINGTON
34042
REGISTERED PROFESSIONAL ENGINEER
2/18/2005
EXPIRES JULY 24, 2006

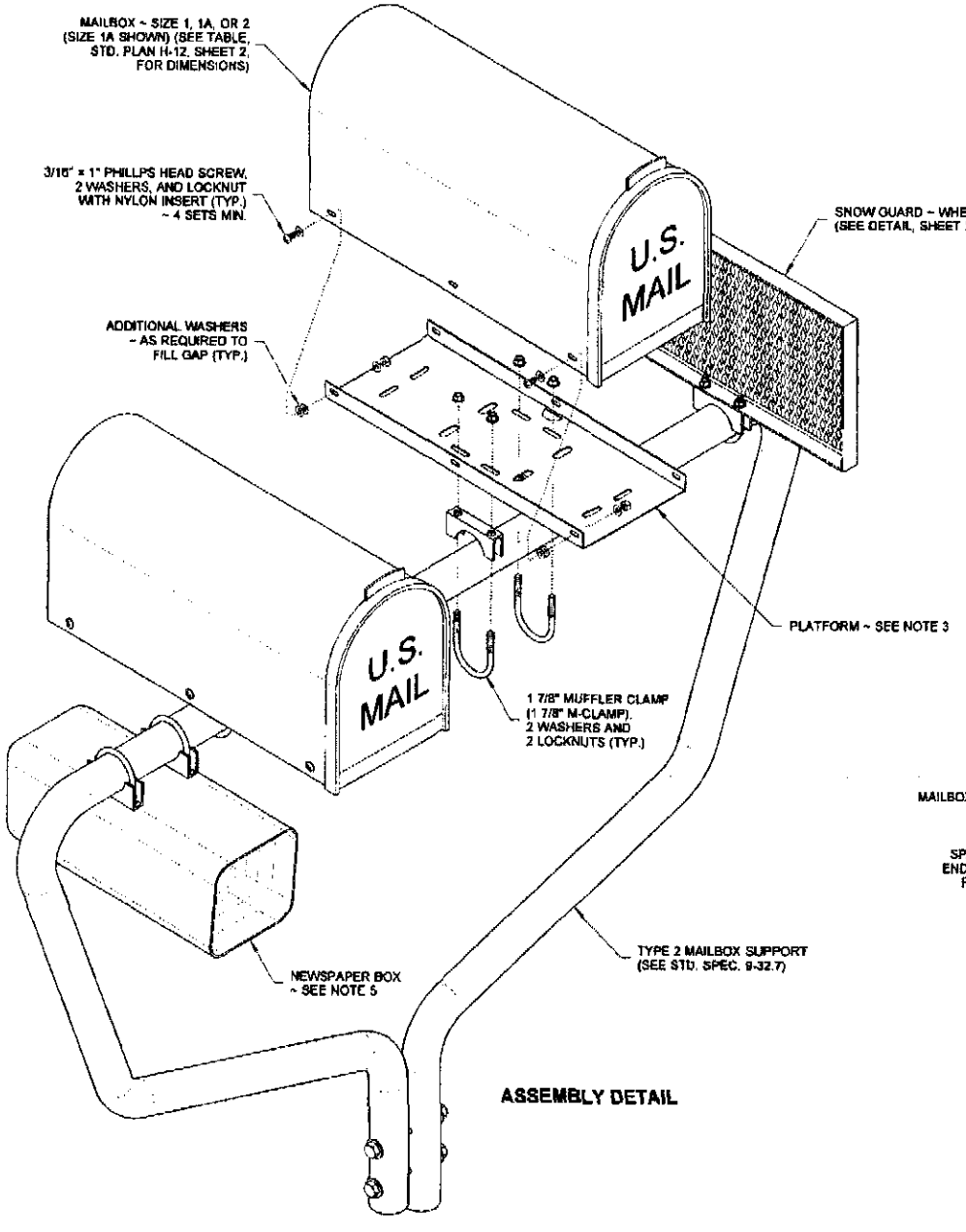
MAILBOX SUPPORT TYPE 1

STANDARD PLAN H-12

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION
Harold Pitkerso 2-25-05
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

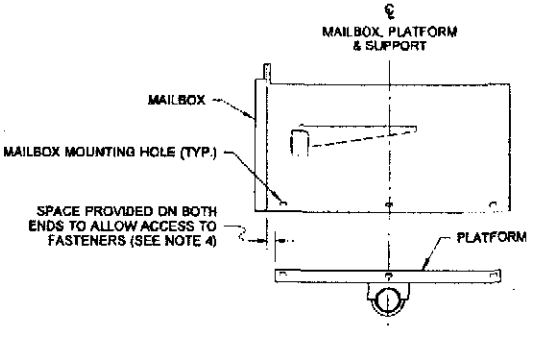
DRAWN BY: MARK SUJKA



ASSEMBLY DETAIL

NOTES

1. The anchoring system shall meet NCHRP 350 crash test criteria. Use a socket and wedge system, or the anchoring system supplied by or recommended by the Type 2 Support manufacturer.
2. A maximum of 5 mailboxes may be installed on a Type 2 Support.
3. The Platform design shown in this plan is detailed in the PLATFORM DETAIL, Standard Plan H-12, Sheet 2. This design features slots that accomodate several types of mailbox supports; only those slots necessary for assembling the type being installed are required. An adjustable platform may be used in lieu of this platform design. Adjustable platforms must fit the 1 7/8" M-Clamp.
4. Center the mailbox on the platform to ensure space for the mailbox door to open and to allow space for installing the fasteners (See ALIGNMENT DETAIL). Spacing of mailbox mounting holes varies among manufacturers. Attachment of the mailbox to the platform may require drilling additional holes through the mailbox to fit the platform.
5. Attach a newspaper box to a Type 2 Support with two 1 7/8" Muffler Clamps spaced 4" apart. Field drill 7/16" holes in the newspaper box to fit. Newspaper boxes must not extend beyond the front of the mailbox when the mailbox door is closed.



ALIGNMENT DETAIL

SEE NOTE 4

RICHARD BARSTOW LIBBIN
STATE OF WASHINGTON
34042
REGISTERED PROFESSIONAL ENGINEER
2/8/2005

EXPIRES JULY 24, 2006

MAILBOX SUPPORT TYPE 2

STANDARD PLAN H-12a

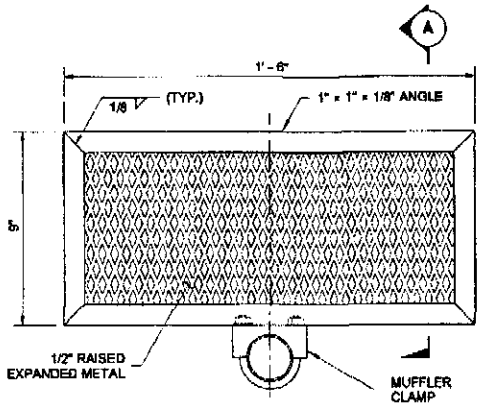
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

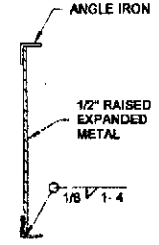
Harold Petrasek 2-25-05

STATE DESIGN ENGINEER — DATE

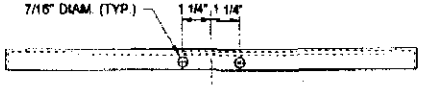
Washington State Department of Transportation



FRONT VIEW

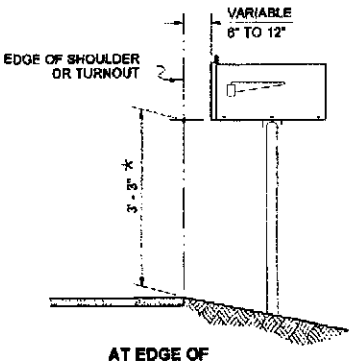


SECTION (A)

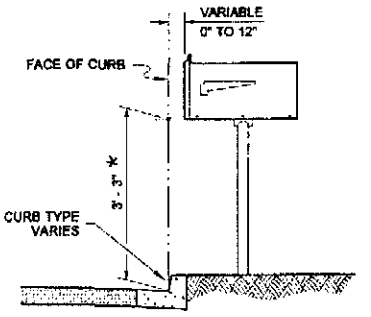


BOTTOM VIEW

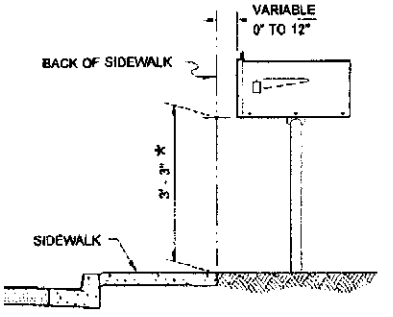
SNOW GUARD DETAIL



AT EDGE OF SHOULDER



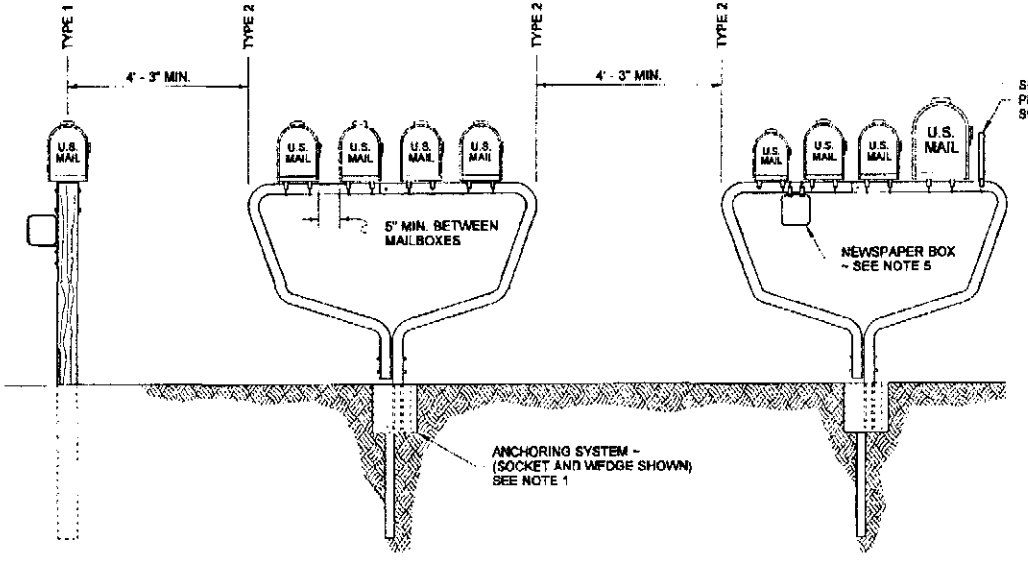
BEHIND CURB



BEHIND SIDEWALK

★ UNLESS OTHERWISE SHOWN IN THE PLANS

MAILBOX PLACEMENT SECTIONS



MAILBOX SUPPORT TYPE 1 (WOOD POST SHOWN)

FOR DETAILS SEE STD. PLAN H-12

MAILBOX SUPPORTS TYPE 2

SPACING DETAIL

DRAWN BY: MARK SUIKA

RICHARD BARSTOW ALBIN
STATE OF WASHINGTON
24062
REGISTERED PROFESSIONAL ENGINEER

EXPIRES JULY 24, 2006

MAILBOX SUPPORT TYPE 2

STANDARD PLAN H-12a

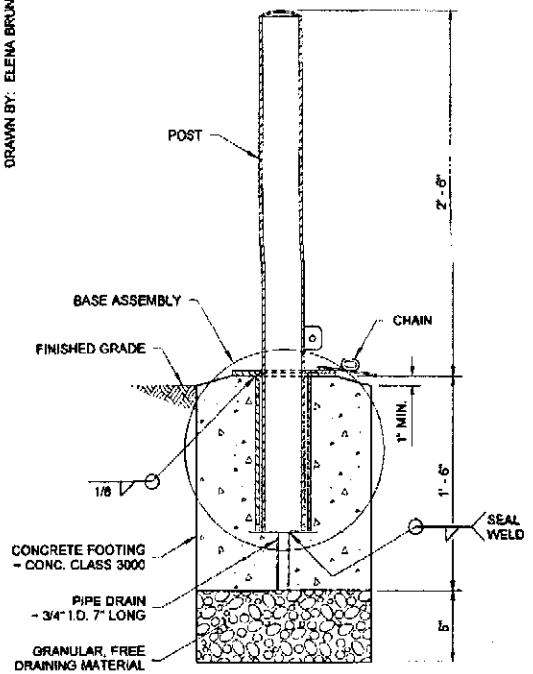
SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

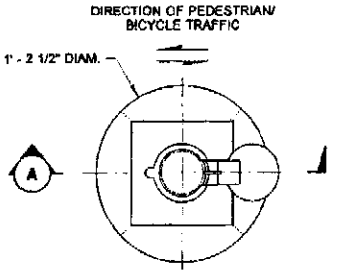
STATE HIGHWAY ENGINEER — DATE 2-25-05

Washington State Department of Transportation

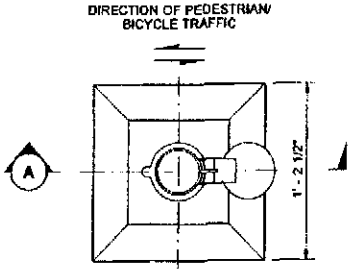
DRAWN BY: ELENA BRUNSTEIN



SECTION (A)

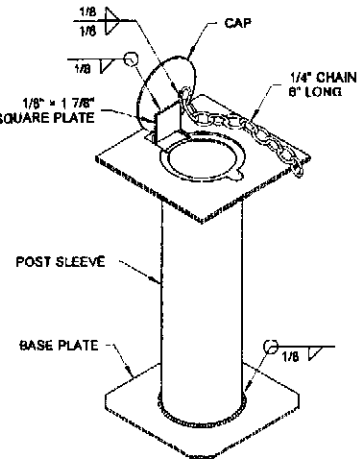


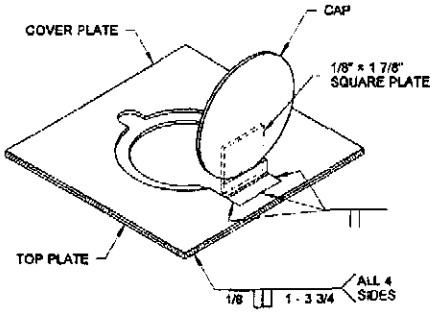
ROUND FOOTING



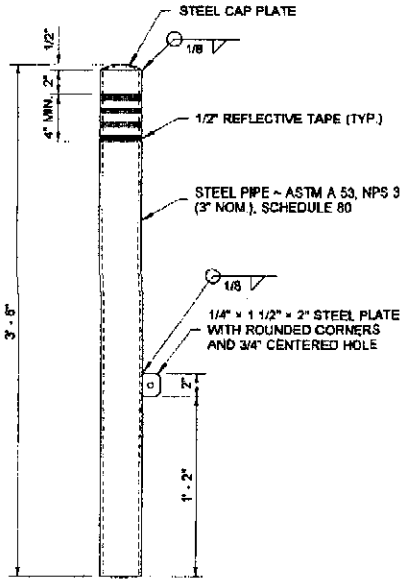
SQUARE FOOTING

PLAN VIEW





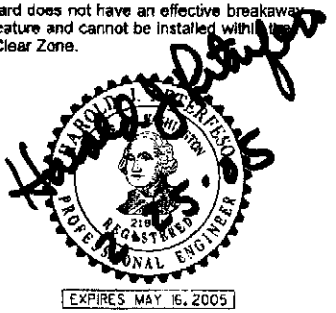
BASE ASSEMBLY

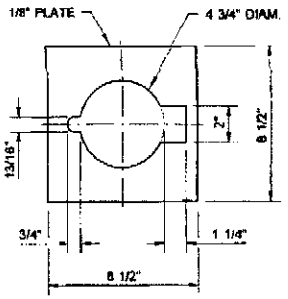


POST

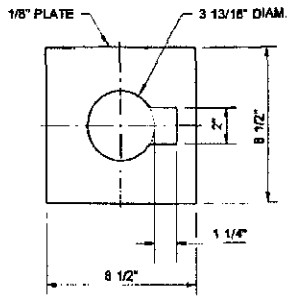
NOTE

This bollard does not have an effective breakaway design feature and cannot be installed within the Design Clear Zone.

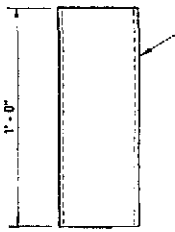




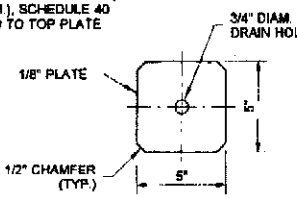
COVER PLATE



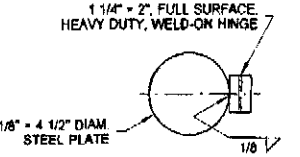
TOP PLATE



POST SLEEVE



BASE PLATE



CAP AND HINGE

BOLLARD TYPE 1

STANDARD PLAN H-13

SHEET 1 OF 1 SHEET

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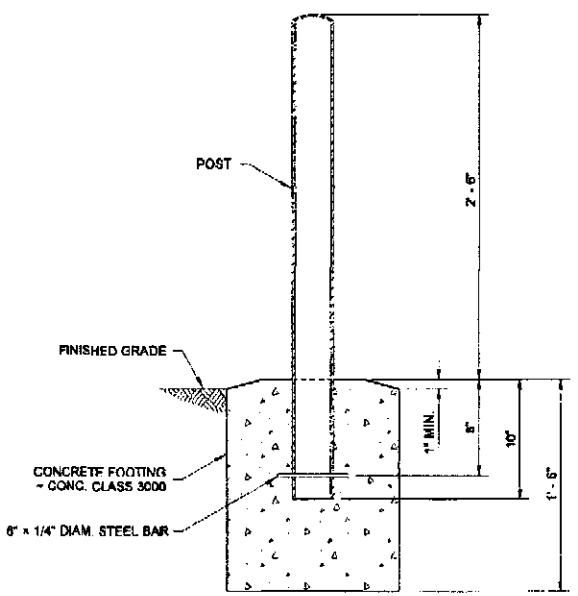
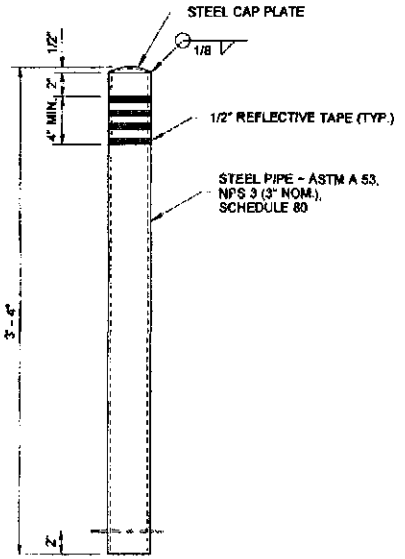
Washington State Department of Transportation

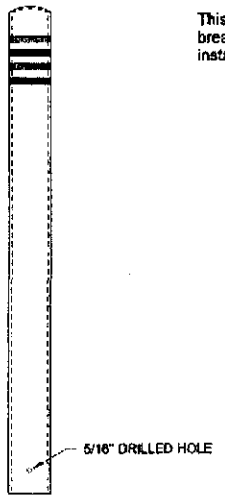
DRAWN BY: ELENA BRUNSTEIN



SECTION (A)



FRONT VIEW

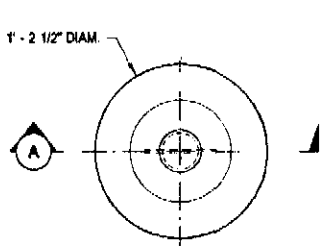


SIDE VIEW

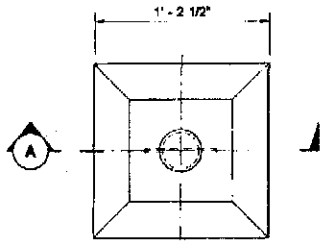
POST

NOTE

This bollard does not have an effective breakaway design feature and cannot be installed within the Design Clear Zone.

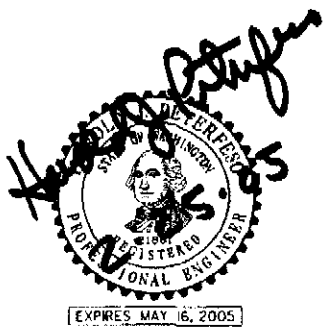


ROUND FOOTING



SQUARE FOOTING

PLAN VIEW



BOLLARD TYPE 2

STANDARD PLAN H-13a

SHEET 1 OF 1 SHEET

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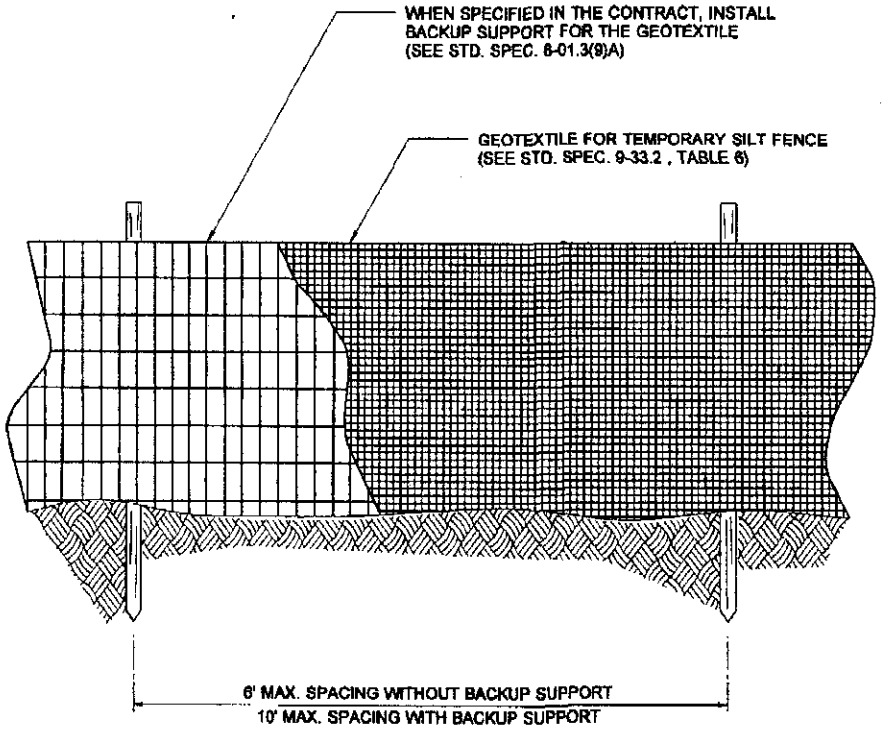
STATE DESIGN ENGINEER — DATE

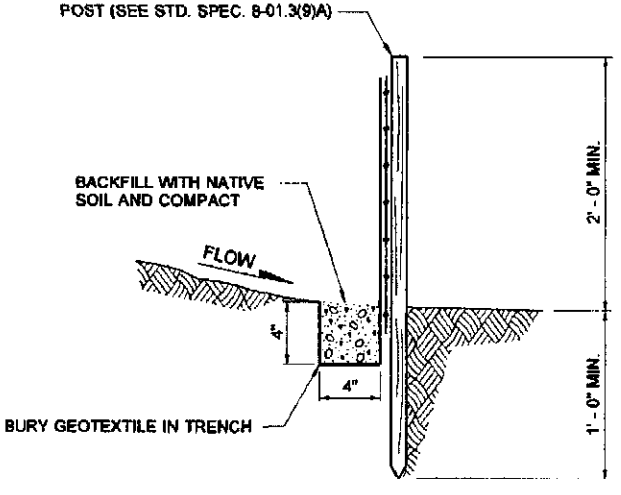
Washington State Department of Transportation

NOTES

1. MAXIMIZE DETENTION OF STORMWATER BY PLACING FENCE AS FAR AWAY FROM THE TOE OF SLOPE AS POSSIBLE WITHOUT ENCROACHING ON SENSITIVE AREAS OR OUTSIDE OF THE CLEARING BOUNDARIES.
2. INSTALL SILT FENCING ALONG CONTOURS WHENEVER POSSIBLE.
3. INSTALL THE ENDS OF THE SILT FENCE TO POINT SLIGHTLY UP-SLOPE TO PREVENT SEDIMENT FROM FLOWING AROUND THE ENDS OF THE FENCE.
4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATIONS 8-01.3(9)A AND 8-01.3(15).



ELEVATION VIEW



SIDE VIEW

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000598
7/17/2003

SILT FENCE

STANDARD PLAN I-4

SHEET 1 OF 1 SHEET

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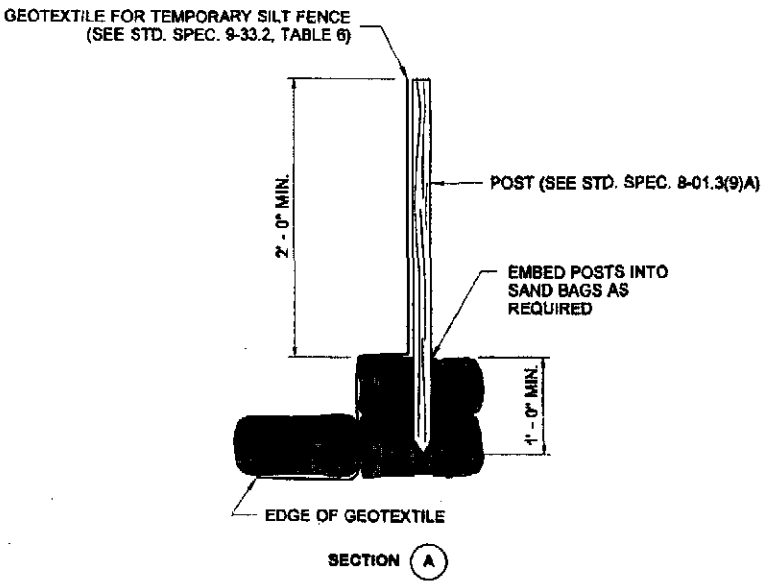
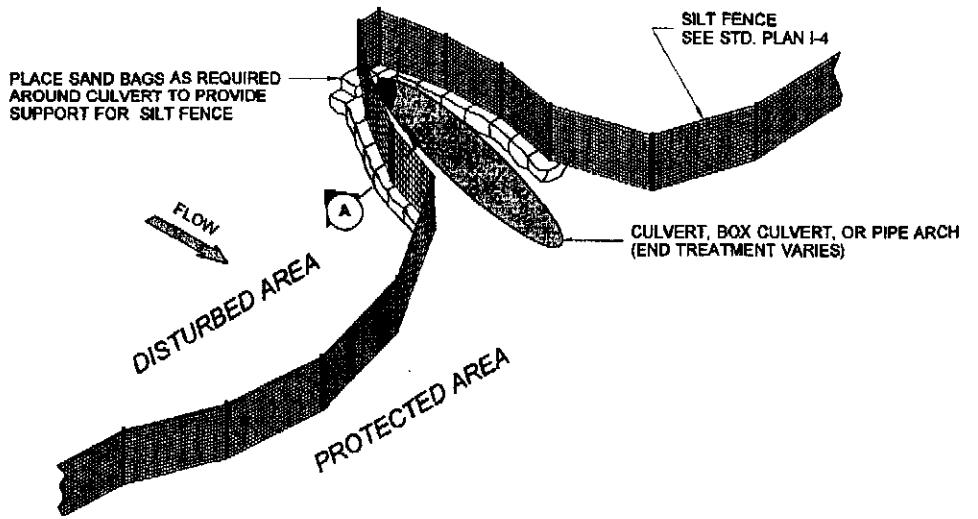
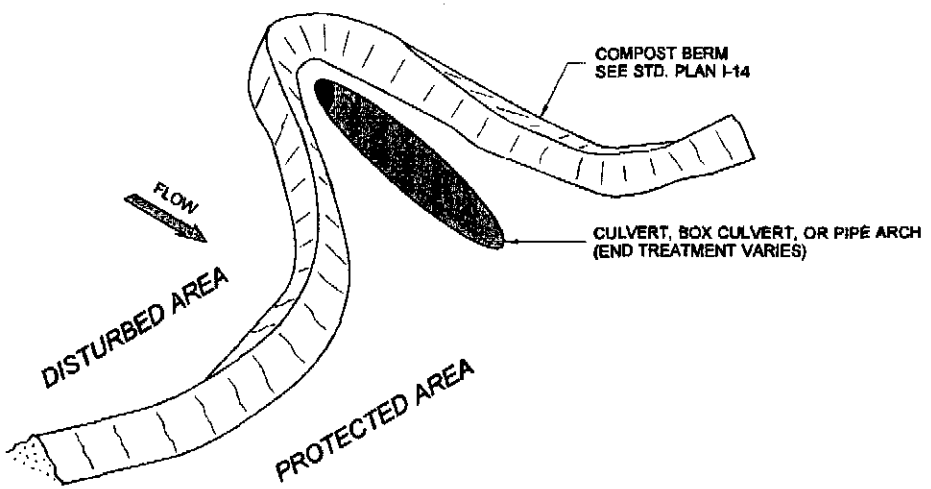




SILT FENCE DESIGN

NOTE

PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATIONS 8-01.3(9)A AND 8-01.3(15).



COMPOST BERM DESIGN

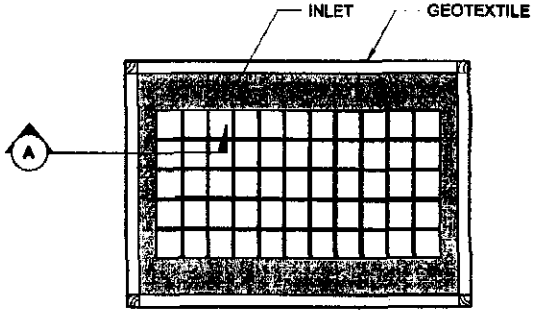
STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000698
7/19/2003

EROSION CONTROL AT CULVERT ENDS

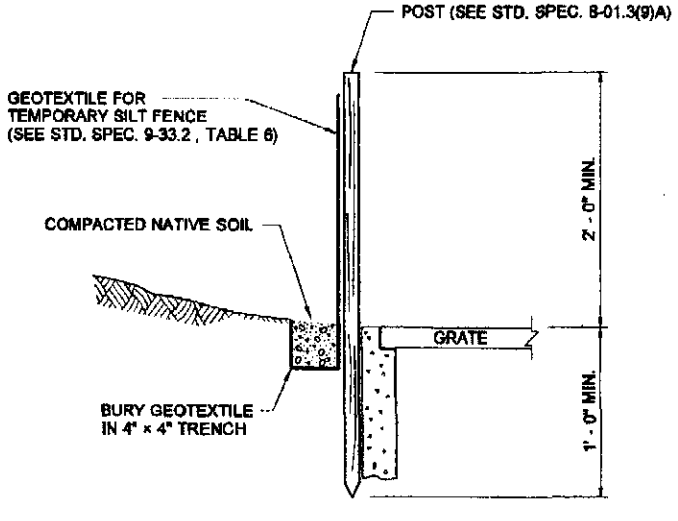
STANDARD PLAN I-5

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER
DATE
7-17-03
Washington State Department of Transportation



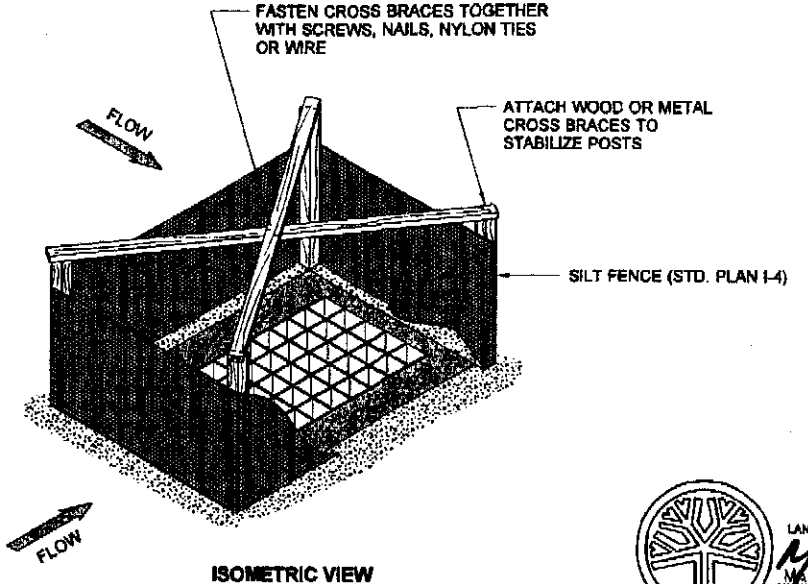
PLAN VIEW
(CROSS BRACES NOT SHOWN)



SECTION (A)

NOTES

1. PREFABRICATED UNITS MAY BE USED IN LIEU OF THE DESIGN SHOWN ON THIS PLAN UPON APPROVAL OF THE ENGINEER.
2. STRUCTURE SHALL BE CONSTRUCTED SUCH THAT GEOTEXTILE MATERIAL SHALL BE FASTENED TO POSTS CREATING A SEAMLESS JOINT.
3. ENSURE THAT PONDING HEIGHT OF WATER DOES NOT CAUSE FLOODING ON ADJACENT ROADWAYS OR PRIVATE PROPERTY.
4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).



ISOMETRIC VIEW
(ENTIRE FENCE NOT SHOWN FOR ILLUSTRATIVE PURPOSES)

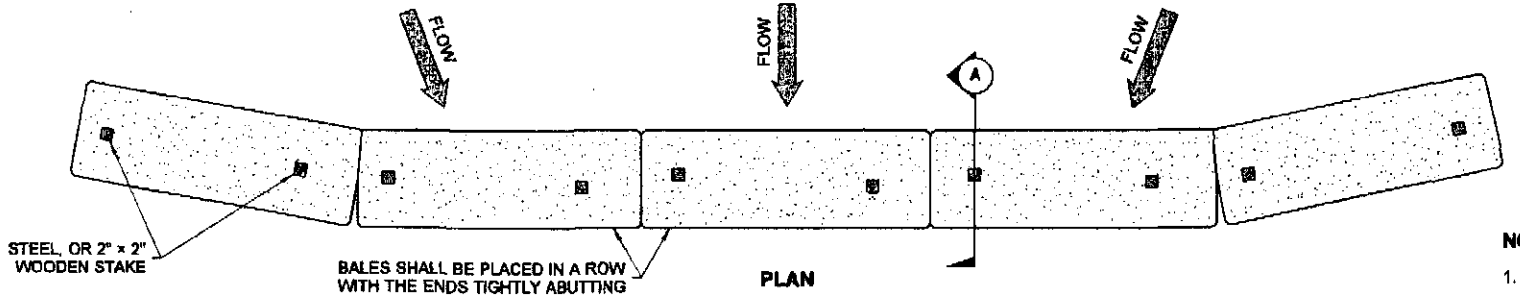
STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000598
7/19/2003

TEMPORARY SILT FENCE FOR INLET PROTECTION IN UNPAVED AREAS

STANDARD PLAN I-6

SHEET 1 OF 1 SHEET

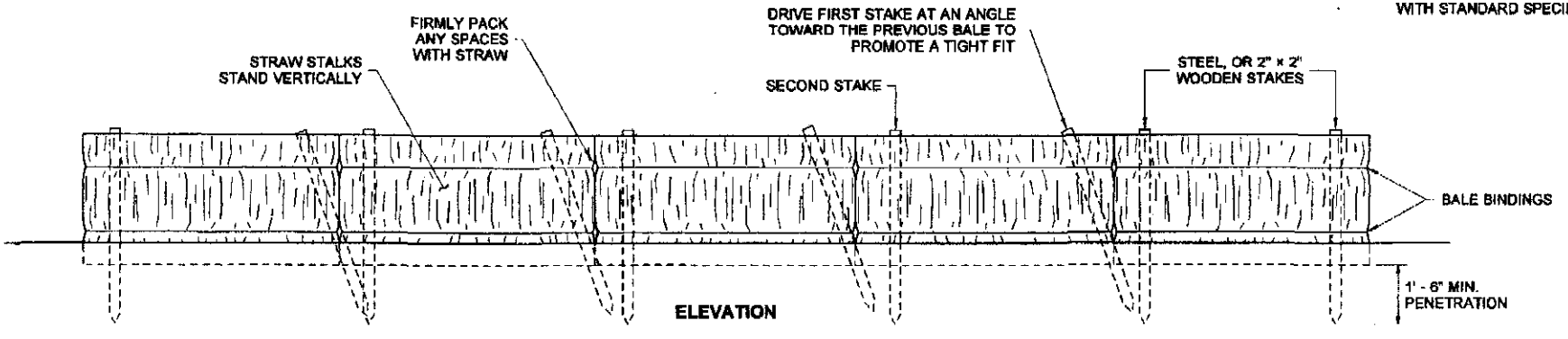
APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER
7-17-03
DATE
Washington State Department of Transportation



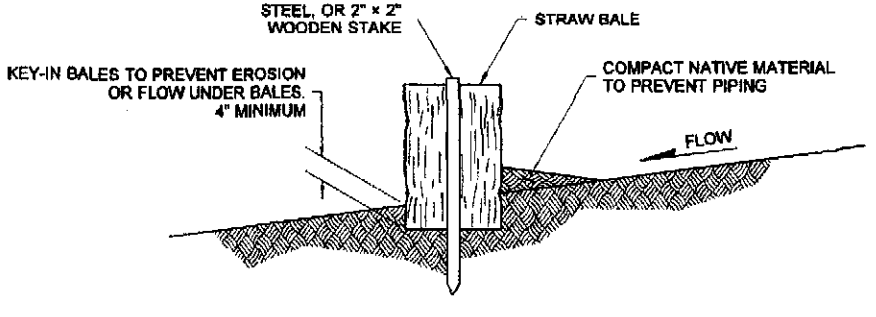
PLAN

NOTES

1. SEE STANDARD SPECIFICATION 8-01.3(9)D. FOR ADDITIONAL INFORMATION.
2. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).



ELEVATION



SECTION (A)

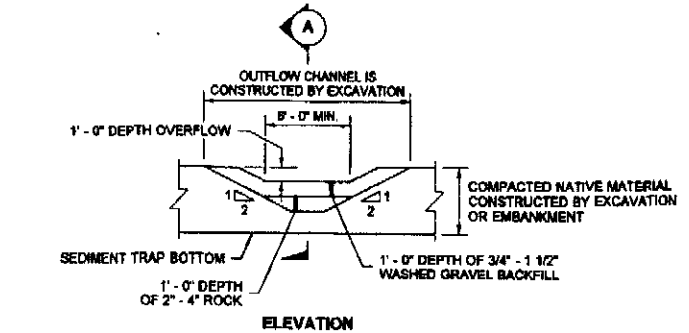
STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000598
7/19/2003

STRAW BALE BARRIER

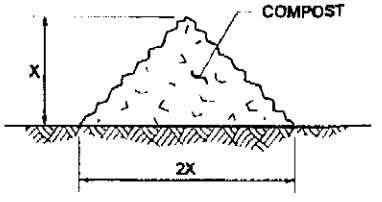
STANDARD PLAN I-9

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Harold Pilloud 7-17-03
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation



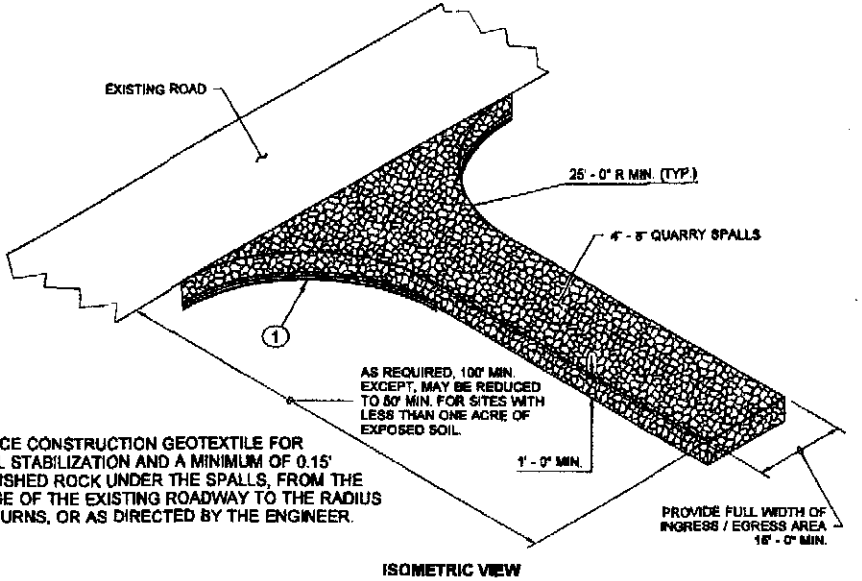
TEMPORARY SEDIMENT TRAP



X = 1' - 0" FOR SLOPES 4H:1V OR FLATTER
X = 1' - 6" FOR SLOPES STEEPER THAN 4H:1V

SECTION VIEW

COMPOST BERM DETAIL



(1) PLACE CONSTRUCTION GEOTEXTILE FOR SOIL STABILIZATION AND A MINIMUM OF 0.15' CRUSHED ROCK UNDER THE SPALLS, FROM THE EDGE OF THE EXISTING ROADWAY TO THE RADIUS RETURNS, OR AS DIRECTED BY THE ENGINEER.

ISOMETRIC VIEW

STABILIZED CONSTRUCTION ENTRANCE

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000598
7/17/2003

MISCELLANEOUS EROSION CONTROL DETAILS

STANDARD PLAN I-14

SHEET 1 OF 1 SHEET

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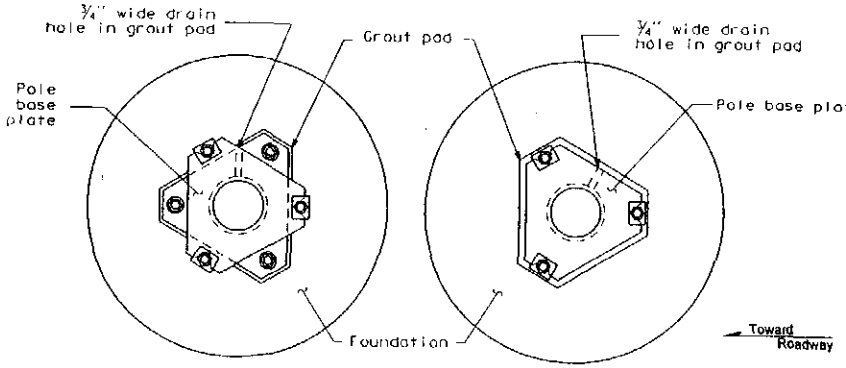
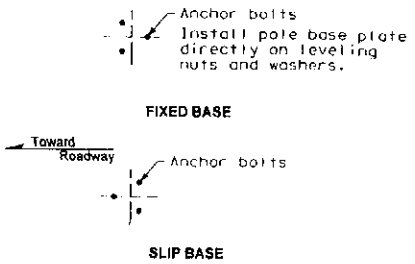
STATE DESIGN ENGINEER — DATE 7-17-03
Washington State Department of Transportation

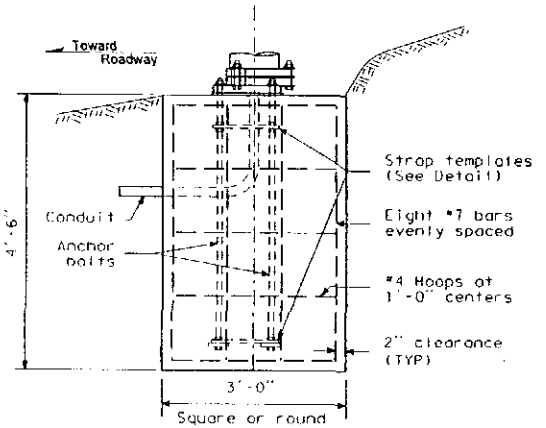


SLIP BASE
PLAN

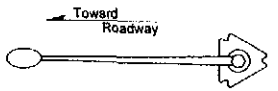
FIXED BASE
PLAN



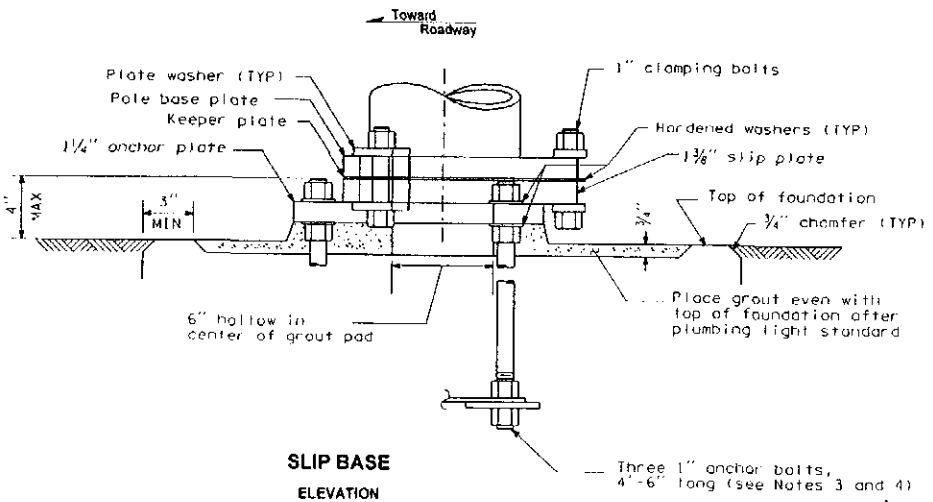
ANCHOR BOLT LAYOUT



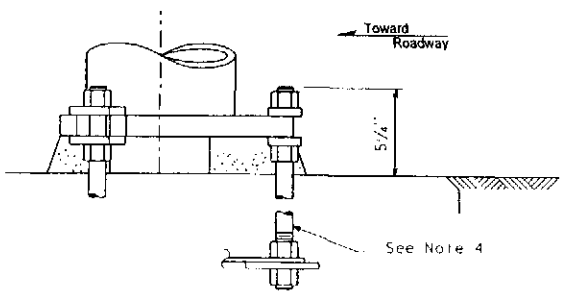
FOUNDATION DETAIL
(See Note 1)



LIGHT STANDARD ORIENTATION



SLIP BASE
ELEVATION



FIXED BASE
ELEVATION

Details similar to slip base except where noted

JEROME A. WEIGEL
STATE OF WASHINGTON
14742
REGISTERED
PROFESSIONAL ENGINEER
10/7/99
EXPIRES JUNE 29, 2000

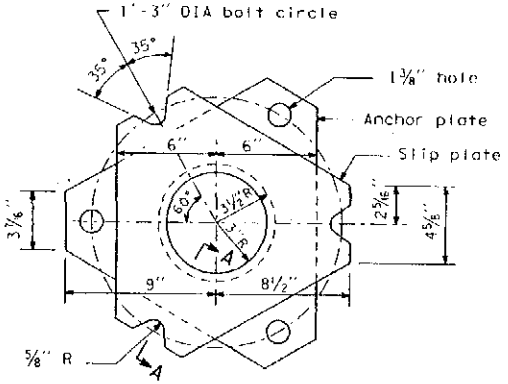
STEEL LIGHT STANDARD BASE DETAILS

STANDARD PLAN J-1b

SHEET 1 OF 3 SHEETS

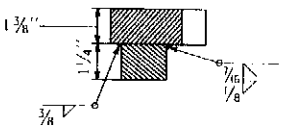
10 99		TWS
DATE	REVISION	BY

APPROVED FOR PUBLICATION
Clifford E. Mansfield 10/8/99
DEPUTY STATE DESIGN ENGINEER — DATE
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON

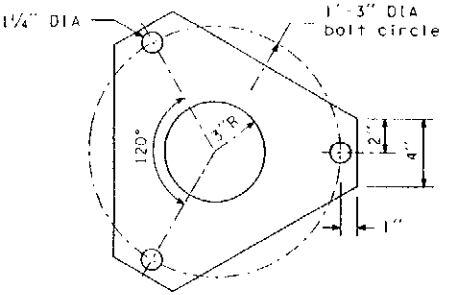


SLIP/ANCHOR PLATES DETAIL

Smooth finish top, bottom, and notched surfaces

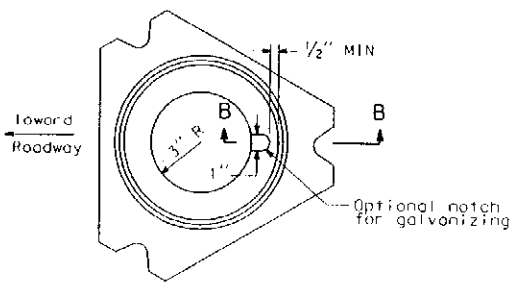


SECTION A-A



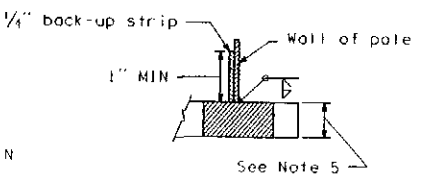
KEEPER PLATE

Place between pole base plate and slip plate on top of middle washers.



POLE BASE PLATE

Smooth finish top, bottom, and notched surfaces



SECTION B-B

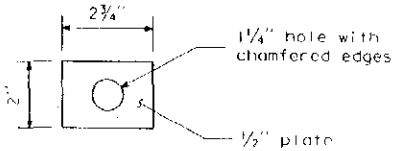
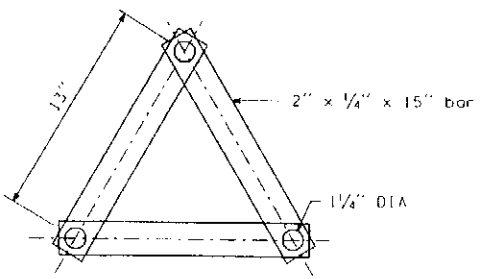


PLATE WASHER



STRAP TEMPLATE ASSEMBLY DETAIL

Place over anchor bolts (See Note 4)

JEROME A. WEIGEL
STATE OF WASHINGTON
14742
REGISTERED
PROFESSIONAL ENGINEER
10/7/99
EXPIRES JUNE 29, 2000

STEEL LIGHT STANDARD BASE DETAILS

STANDARD PLAN J-1b

SHEET 2 OF 3 SHEETS

DATE	REVISION	BY
10 99	REVISED SECTION B-B.	TWS

APPROVED FOR PUBLICATION

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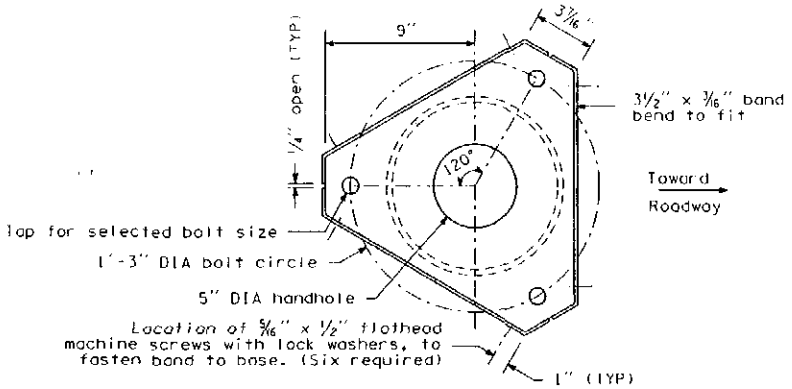
DEPUTY STATE DESIGN ENGINEER — DATE

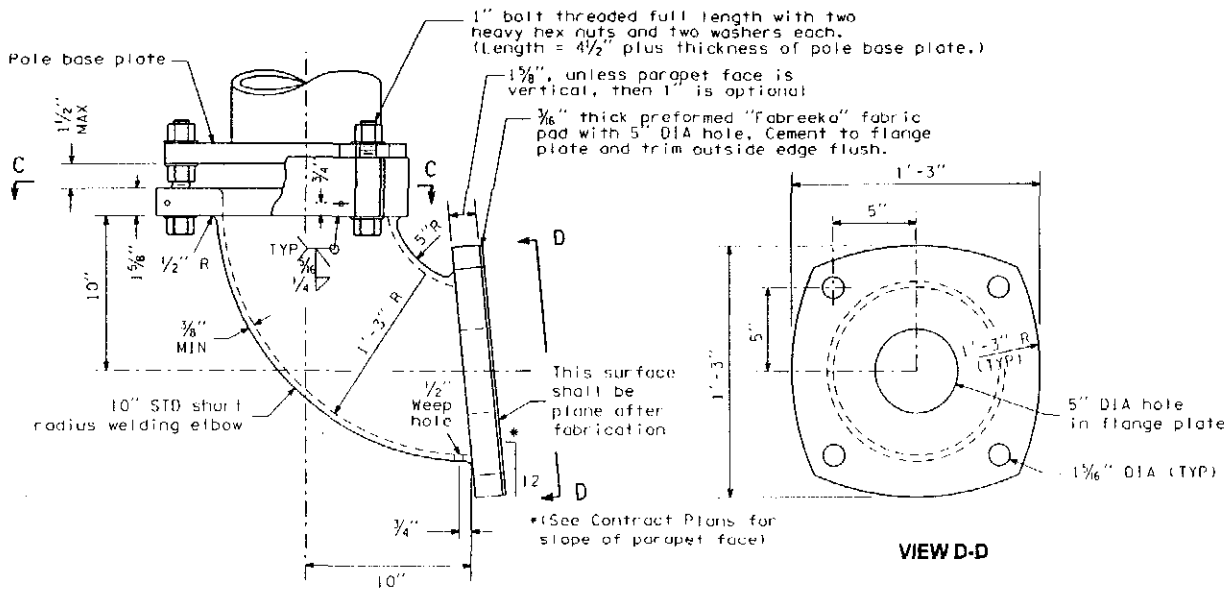
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON



SECTION C-C

NOTES

1. See Standard Plan C-8b for base plate and foundation requirements when light standards are mounted on concrete barrier.
2. Round and smooth all edges along wire-way to protect conductors. See Standard Plan J-1e for wiring details.
3. The top of the anchor rod shall be both threaded and galvanized a minimum of 12". The bottom of the anchor rod shall be threaded a minimum of 3". Galvanizing shall be in accordance with AASHTO M111 after threading. Hooked anchor bolts are not allowed.
4. Strap templates shall be held in place by nuts 6" from the top of the foundation, and at bottom of anchor bolts resting on 4" x 3/16" square washers.
5. Pole base plate for a slip base design shall be 1 1/4" AASHTO M223 Gr. 345. Pole base plate for a fixed base design may be either 1 1/4" AASHTO M223 Gr. 345 or 1 1/2" AASHTO M183.
6. Installation of a 50' pole with double mast arms on a slip base is not allowed.



ELEVATION

VIEW D-D

LIGHTING BRACKET DETAIL

For light standards with single arm 12' or less and double arms 8' or less mounted on bridges or retaining walls.

JEROME A. WEIGEL — STATE OF WASHINGTON — 14742 — REGISTERED PROFESSIONAL ENGINEER

10/7/99

EXPIRES JUNE 29, 2000

STEEL LIGHT STANDARD BASE DETAILS

STANDARD PLAN J-1b

SHEET 3 OF 3 SHEETS

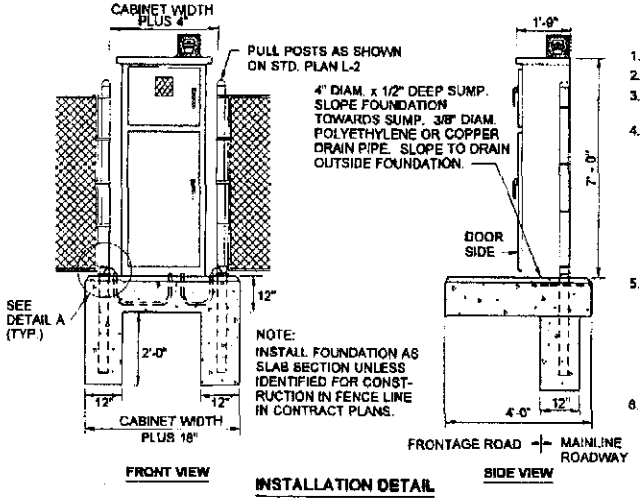
DATE	REVISION	BY
10-99	REVISED NOTES 1, 2 & 5; ADDED NOTE 6.	TWS

APPROVED FOR PUBLICATION

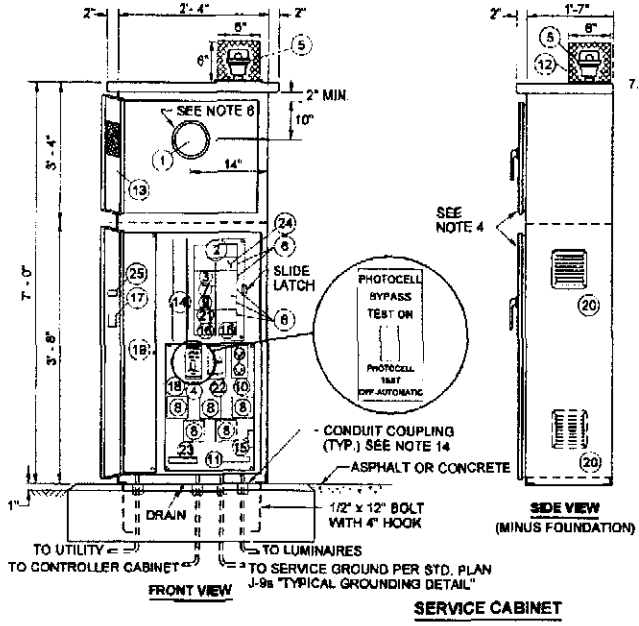
Clifford E. Mansfield 10/8/99

DESIGN STATE DESIGN ENGINEER — DATE

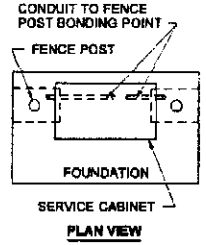
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON



INSTALLATION DETAIL



SERVICE CABINET

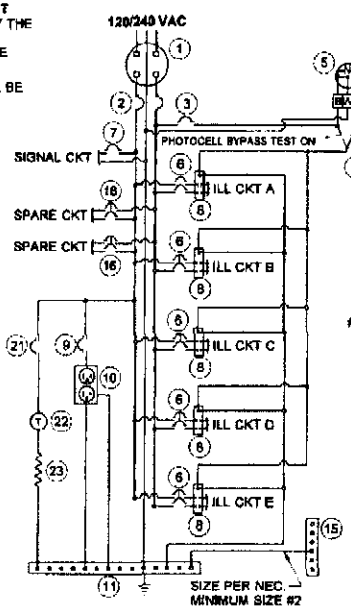


PLAN VIEW

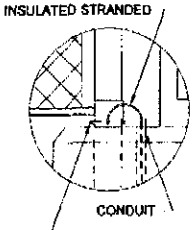
GENERAL NOTES

200 AMP TYPE 120/240 1ø SERVICE CABINET

1. SEE STD. SPECIFICATION 9-29.24, SERVICE CABINETS.
2. HINGES SHALL HAVE STAINLESS STEEL OR BRASS PINS.
3. CABINETS SHALL BE RATED NEMA 3R AND SHALL INCLUDE TWO RAIN TIGHT VENTS.
4. METERING EQUIPMENT DOOR SHALL BE PAD LOCKABLE. EACH DOOR SHALL BE GASKETED. INSTALL BEST CX CONSTRUCTION CORE ON BOTTOM DOOR. SEE DOOR HINGE DETAIL, STANDARD PLAN J-3b. CONCEALED HEAVY DUTY STAINLESS STEEL LIFT OFF HINGES ARE ALLOWED AS AN ALTERNATIVE TO DOOR HINGE DETAIL SHOWN ON STANDARD PLAN J-3b. UPPER DOOR SHALL HAVE 2 HINGES AND LOWER DOOR SHALL HAVE 3 HINGES. THE LOWER DOOR SHALL HAVE A TWO POSITION DOOR STOP ASSEMBLY.
5. THE FOLLOWING EQUIPMENT WITHIN THE SERVICE ENCLOSURE SHALL HAVE AN APPROPRIATELY ENGRAVED PHENOLIC NAME PLATE ATTACHED WITH SCREWS OR RIVETS:
   KEY NUMBERS 2, 3, 4, 6, 7, 8, 9, 16 AND 21.
   KEY NUMBER 4 NAME PLATE SHALL READ: "PHOTOCELL BYPASS TEST ON" AND "PHOTOCELL TEST OFF- AUTOMATIC". SEE SERVICE CABINET DETAIL.
6. METERING ARRANGEMENTS VARY WITH DIFFERENT SERVING UTILITIES. THE UTILITY MAY REQUIRE METER BASE MOUNTING IN THE ENCLOSURE, ON THE SIDE OR ON THE BACK OF THE ENCLOSURE. THE UTILITY MAY REQUIRE THE DIMENSION BETWEEN THE DOOR AND THE FRONT OF THE SAFETY SOCKET BOX TO BE LESS THAN THE 11 INCHES SHOWN IN THE LEFT SIDE- SAFETY SOCKET BOX MOUNTING DETAIL. SEE STANDARD PLAN J-3b FOR SAFETY SOCKET BOX DETAIL. THE CONTRACTOR SHALL VERIFY THE SERVING UTILITY'S REQUIREMENTS PRIOR TO FABRICATION OF AND INSTALLING THE SERVICE EQUIPMENT.
7. DIMENSIONS SHOWN ARE MINIMUM AND SHALL BE ADJUSTED TO ACCOMMODATE THE VARIOUS SIZES OF EQUIPMENT INSTALLED.
8. ALL BUSSWORK SHALL BE HIGH GRADE COPPER AND SHALL EQUAL OR EXCEED THE MAIN BREAKER RATING. ALL BREAKERS SHALL BOLT ONTO THE BUSSWORK. JUMPERING OF BREAKERS SHALL NOT BE ALLOWED. BUSSWORK SHALL ACCOMMODATE ALL FUTURE EQUIPMENT AS SHOWN IN THE BREAKER SCHEDULE.
9. THE PHOTOCELL UNIT SHALL BE CENTERED IN THE PHOTOCELL ENCLOSURE TO PERMIT 360 DEGREE ROTATION OF THE PHOTOCELL WITHOUT REMOVAL OF THE PHOTOCELL UNIT OR PHOTOCELL ENCLOSURE.
10. ALL INTERNAL WIRE RUNS SHALL BE IDENTIFIED WITH "TO - FROM" CODED TAGS LABELED WITH THE CODE LETTERS AND/OR NUMBERS SHOWN ON THE SCHEDULES. APPROVED PVC OR POLYOLEFIN WIRE MARKING SLEEVES SHALL BE USED.
11. ALL NUTS, BOLTS AND WASHERS USED FOR MOUNTING THE PHOTOCELL ENCLOSURE SHALL BE STAINLESS STEEL.
12. A 1% TOLERANCE IS ALLOWED FOR ALL DIMENSIONS.
13. THE PHOTOCELL CIRCUIT SHALL BE INSTALLED IN FLEX CONDUIT WITHIN THE METER COMPARTMENT.
14. INSTALL CONDUIT COUPLINGS ON ALL CONDUITS. PLACE COUPLINGS FLUSH WITH TOP OF CONCRETE FOUNDATION.
15. SEE PLANS FOR BREAKER SCHEDULE.
16. SEAL CABINET TO FOUNDATION WITH A 1/2" BEAD OF SILICONE. APPLY SILICONE TO DRY SURFACE ONLY.
17. THE METER BASE PORTION OF THIS SERVICE WAS DESIGNED TO MEET METERING PORTION OF EUSERC DRAWING 309 REQUIREMENTS.



WIRING SCHEMATIC



DETAIL A

KEY

1. METER BASE PER SERVING UTILITY REQUIREMENTS. AS A MINIMUM, THE METER BASE SHALL BE SAFETY SOCKET BOX WITH FACTORY INSTALLED TEST BYPASS FACILITY THAT MEETS THE REQUIREMENTS OF EUSERC DRAWING 305.
2. MAIN BREAKER (SEE BREAKER SCHEDULE)
3. PHOTOCELL BREAKER (SPST 15 AMP - 120/240 VOLT)
4. TEST SWITCH (SPDT, SNAP ACTION, POSITIVE CLOSE, 15 AMP - 120/277 VOLT "T" RATED)
5. PHOTOELECTRIC CONTROL, STD. SPEC. 9 - 29.11(2)
6. BRANCH BREAKER (SEE BREAKER SCHEDULE)
7. SIGNAL BREAKER (SEE BREAKER SCHEDULE)
8. CONTACTOR (SEE BREAKER SCHEDULE)
9. RECEPTACLE BREAKER (SPST 20 AMP - 120/240 VOLT)
10. RECEPTACLE, GROUNDED (GFCI 20 AMP - 125 VOLT)
11. NEUTRAL BUSS, 14 LUG COPPER
12. PHOTOCELL ENCLOSURE - ENCLOSURE TO BE FABRICATED FROM 5/8" EXPANDED STEEL MESH WITH WELDED SEAMS AND MOUNTING FLANGES. HOT DIP GALVANIZED AFTER FABRICATION. TYPE 5052 - H32 ALUMINUM WITH 3/8" x 5/8" OPENINGS EQUIVALENT TO 5/8" EXPANDED STEEL MESH MAY BE USED AS ALTERNATIVE MATERIAL. SEE PHOTOCELL ENCLOSURE MOUNTING DETAILS, STANDARD PLAN J-3b.
13. HINGED FRONT FACING DOOR WITH 4" x 4" MIN. POLISHED WIRE GLASS WINDOW.
14. HINGED DEAD FRONT WITH 1/4 TURN FASTENERS OR SLIDE LATCH.
15. CABINET MAIN BONDING JUMPER. BUSS SHALL BE 4 LUG TINNED COPPER. SEE CABINET MAIN BONDING JUMPER DETAIL, STANDARD PLAN J-3b.
16. SPARE BRANCH BREAKER (DPST 20AMP- 120/240 VOLT)
17. METAL WIRING DIAGRAM HOLDER
18. REMOVABLE EQUIPMENT MOUNTING PAN
19. 6" x 6" MIN. UNDERGROUND FEED - SERVICE WIREWAY (LEFT REAR CORNER)
20. SCREENED VENTS, 2 REQUIRED, 1 EACH SIDE. LOUVERED PLATES.
21. HEATER BREAKER (SPST 15 AMP - 120/240 VOLT)
22. THERMOSTAT, 40°F CLOSURE - 3 DIFFERENTIAL
23. STRIP HEATER (100 WATT NOMINAL), WITH TERMINAL STRIP COVER.
24. 24 CIRCUIT PANEL BOARD - MINIMUM SIZE WITH SEPARATE MAIN BREAKER.
25. LABEL CABINET WITH BUSSWORK RATING.

SERVICE CABINET TYPE D (0 - 200 AMP TYPE 120/240 SINGLE PHASE) STANDARD PLAN J-3c

SHEET 1 OF 1 SHEET

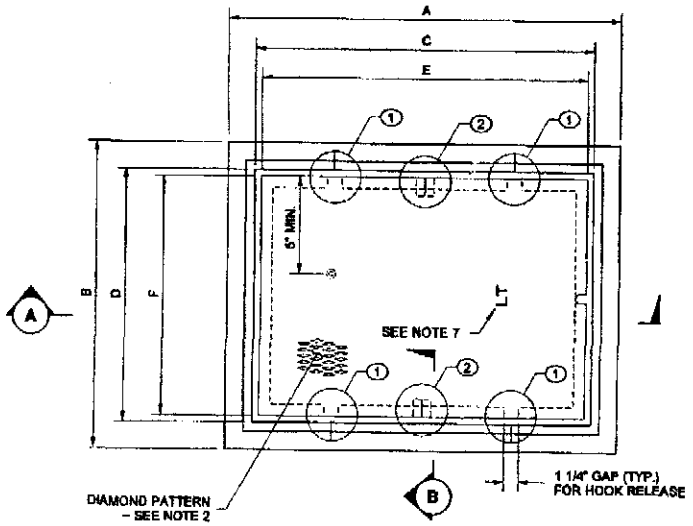
APPROVED FOR PUBLICATION

Harold Peterson 6-24-02

STATE DESIGN ENGINEER — DATE

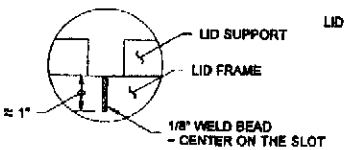
Washington State Department of Transportation

DRAWN BY: ELENA BRUNSTEIN

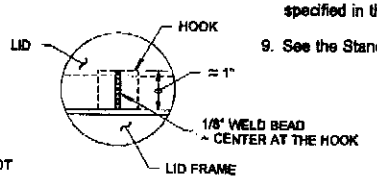


TOP VIEW

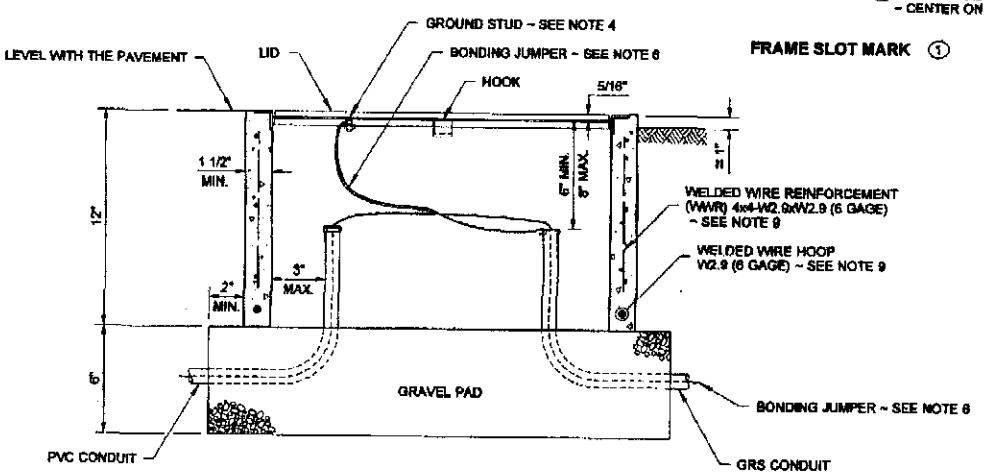
JUNCTION BOX DIMENSION TABLE			
MARK	ITEM	BOX TYPE	
		TYPE 1	TYPE 2
A	OUTSIDE LENGTH OF JUNCTION BOX	22"	33"
B	OUTSIDE WIDTH OF JUNCTION BOX	17"	22 1/2"
C	INSIDE LENGTH OF JUNCTION BOX	18" ~ 19"	29" ~ 30"
D	INSIDE WIDTH OF JUNCTION BOX	13" ~ 14"	18 1/2" ~ 19 1/2"
E	LID LENGTH	17 5/8"	28 5/8"
F	LID WIDTH	12 5/8"	18 1/8"
CAPACITY ~ CONDUIT DIAMETER		6"	12"



FRAME SLOT MARK (1)



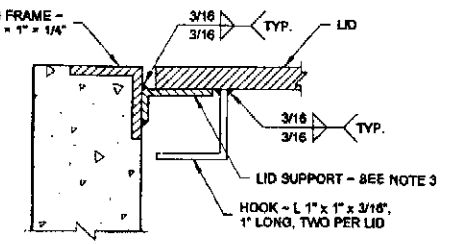
LID HOOK MARK (2)



SECTION (A)

NOTES

1. All box dimensions are approximate. Exact configurations vary among manufacturers.
2. The lid thicknesses are minimum. The diamond pattern shall be 28% minimum of overall thickness.
3. Lid support members shall be 3/16" minimum thick steel C, L, or T shape, welded to the frame.
4. A 1/4-20NC × 3/4" S.S. ground stud shall be welded to the bottom of the lid; include S.S. nut and flat washer.
5. Bolts and nuts shall be liberally coated with anti-seize compound.
6. Connect a bonding jumper to steel conduit bushing for GRS conduit; connect to equipment grounding conductor for PVC conduit. Bonding Jumper shall be #8 min. × 4' of tinned braided copper.
7. The System Identification letters shall be 1/8" line thickness formed by engraving, stamping, or with a S.S. weld bead. Grind off diamond pattern before forming letters. See System Identification Detail.
8. The Junction Box Type 2 shall be provided with a 12" deep extension when specified in the Contract.
9. See the Standard Specifications for alternative reinforcement and class of concrete.



SECTION (B)

SYSTEM IDENTIFICATION DETAIL
≈ 1" (TYP.) ITS ≈ 1" (TYP.)
INTELLIGENT TRANSPORTATION SYSTEM
COMM
COMMUNICATION SYSTEM
LT
LIGHTING SYSTEM
TS
TRAFFIC SIGNAL SYSTEM
TEL
TELEPHONE SYSTEM

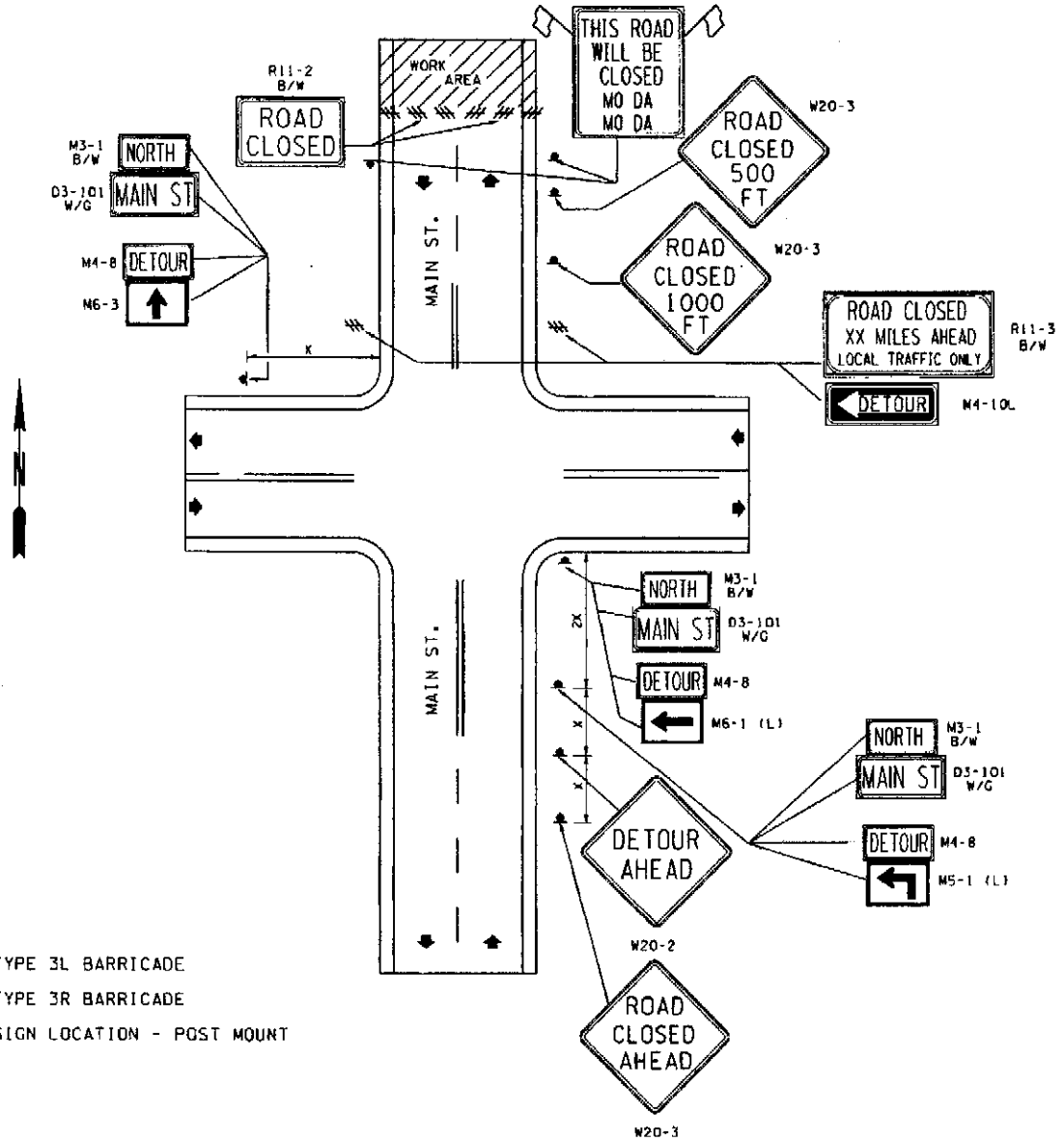
R. SCOTT MILLER — STATE OF WASHINGTON — 28880 — REGISTERED PROFESSIONAL ENGINEER
8-31-05
EXPIRES MAY 5, 2007

STANDARD JUNCTION BOX TYPES 1 & 2

STANDARD PLAN J-11a

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 9-2-05
Washington State Department of Transportation



LEGEND

- TYPE 3L BARRICADE
- TYPE 3R BARRICADE
- SIGN LOCATION - POST MOUNT

NOTES

1. MODIFY REGULATORY TRAFFIC CONTROL DEVICES FOR THE DURATION OF THE DETOUR.
2. TWO FLASHING WARNING LIGHTS (TYPE A, MUTCD) SHALL BE USED TO MARK EACH BARRICADE AT NIGHT.
3. DETOUR TRAILBLAZERS SHALL BE INSTALLED THROUGHOUT THE DETOUR.
4. SIGNING SHOWN FOR ONE DIRECTION ONLY.
5. COORDINATE WITH EMERGENCY SERVICES.

SIGN SPACING = X (FEET)		
Rural Roads	45/55 MPH	500'+-
Urban Arterials & Rural Roads	35/40 MPH	350'+-
Rural Roads Urban Streets Residential Areas & Business Districts	25/30 MPH	200'+-
All signs are black on orange unless otherwise designated.		

ALAN O. KING
STATE OF WASHINGTON
15213
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES NOVEMBER 23, 2003

ROAD CLOSURE WITH OFF-SITE DETOUR

STANDARD PLAN K-2

SHEET 1 OF 1 SHEET

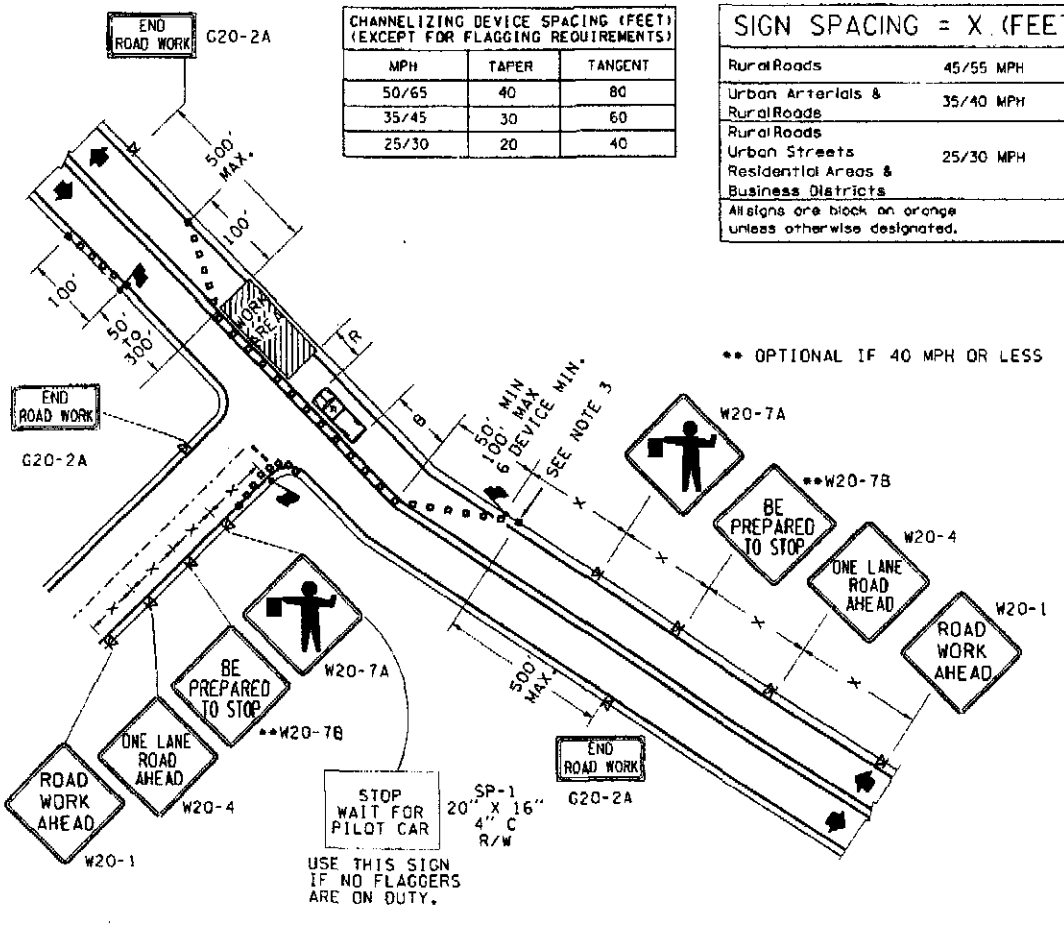
APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 12-20-02
Washington State Department of Transportation

CHANNELIZING DEVICE SPACING (FEET) (EXCEPT FOR FLAGGING REQUIREMENTS)		
MPH	TAPER	TANGENT
50/65	40	80
35/45	30	60
25/30	20	40

SIGN SPACING = X (FEET)		
Rural Roads	45/55 MPH	500'+-
Urban Arterials & Rural Roads	35/40 MPH	350'+-
Rural Roads Urban Streets Residential Areas & Business Districts	25/30 MPH	200'+-
All signs are black on orange unless otherwise designated.		

NOTES

1. FLAGGER STATIONS SHALL BE ILLUMINATED DURING HOURS OF DARKNESS.
2. EXTEND DEVICES TAPER ACROSS SHOULDER.
3. SIGN SEQUENCE IS THE SAME FOR BOTH DIRECTIONS OF TRAVEL ON THE HIGHWAY.
4. RADIO COMMUNICATION RECOMMENDED BETWEEN FLAGGERS. REQUIRED IF FLAGGERS DO NOT HAVE CLEAR VISION OF EACH OTHER.



BUFFER DATA									
BUFFER SPACE = B									
SPEED (MPH)	25	30	35	40	45	50	55		
LENGTH (Feet)	55	85	120	170	220	280	335		
PROTECTIVE VEHICLE ROLL AHEAD DISTANCE = R									
VEHICLE TYPE	TYPICAL VEHICLE LOADED WEIGHT (LBS)	POSTED SPEED (mph)	STATIONARY OPERATION (feet)						
4 YARD DUMP TRUCK	24,000	50-55	75						
		45	50						
2 TON CARGO TRUCK	15,000	50-55	100						
		45	75						
1 TON CARGO TRUCK	10,000	50-55	150						
		45	100						
ROLL AHEAD STOPPING DISTANCE ASSUMES DRY PAVEMENT.									

LEGEND

- SIGN LOCATION - TRIPOD MOUNT
- TEMPORARY TRAFFIC CONTROL DEVICES
- FLAGGING STATION
- PROTECTIVE VEHICLE (WHEN SPECIFIED IN CONTRACT)
- EXISTING STOP BAR

FOR PILOT CAR OPERATIONS THE FOLLOWING SIGNS SHALL BE REQUIRED TO SUPPLEMENT THE SIGNS SHOWN ON THIS PLAN.

G20-4 36" X 18"

PILOT CAR FOLLOW ME

(ON PILOT CAR)

SP-1 20" X 16" 4" C R/W

STOP WAIT FOR PILOT CAR

(FOR ROAD APPROACHES AS NEEDED)

ALAN O. KING STATE OF WASHINGTON 15213 REGISTERED PROFESSIONAL ENGINEER

EXPIRES NOVEMBER 23, 2003

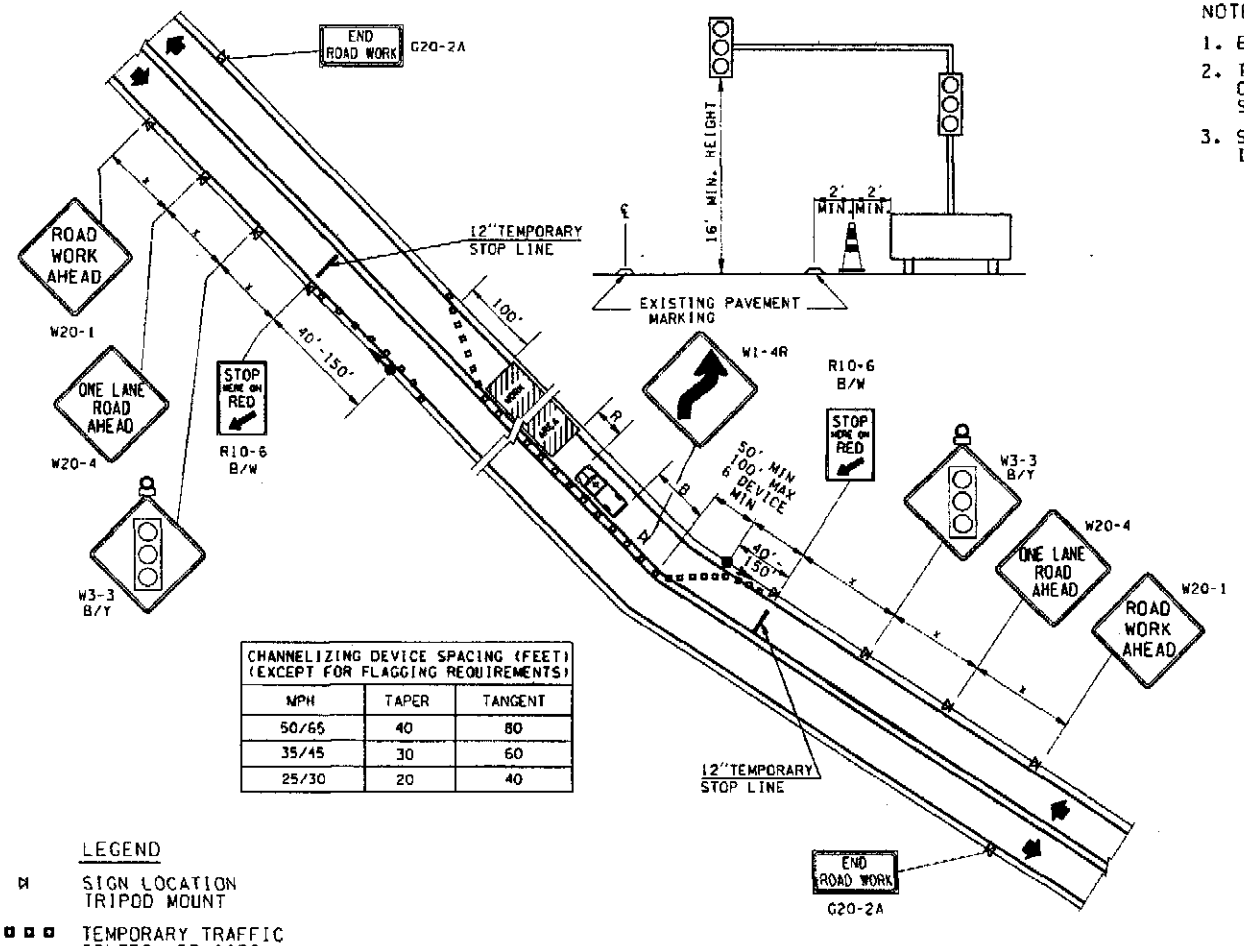
ALTERNATING ONE-WAY TRAFFIC FLAGGER CONTROLLED OR PILOT CAR CONTROLLED STANDARD PLAN K-3

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 12-20-02

Washington State Department of Transportation



NOTES

1. EXTEND TAPER ACROSS SHOULDER.
2. THE MAXIMUM LENGTH OF WORK AREA CONTROLLED BY ONE-WAY TRAFFIC SIGNAL IS 400 FT. SIGNAL TIMING SHALL BE ESTABLISHED BY QUALIFIED PERSONNEL.
3. SIGNS SHALL BE POST MOUNTED IF SIGNAL REMAINS IN PLACE MORE THAN 3 DAYS.

BUFFER DATA									
BUFFER SPACE = B									
SPEED (MPH)	25	30	35	40	45	50	55		
LENGTH (feet)	55	85	120	170	220	280	335		
PROTECTIVE VEHICLE ROLL AHEAD DISTANCE = R									

VEHICLE TYPE	TYPICAL VEHICLE LOADED WEIGHT (LBS)	POSTED SPEED (mph)	STATIONARY OPERATION (feet)
4 YARD DUMP TRUCK	24,000	50-55	75
		45	50
2 TON CARGO TRUCK	15,000	50-55	100
		45	75
1 TON CARGO TRUCK	10,000	50-55	150
		45	100

ROLL AHEAD STOPPING DISTANCE ASSUMES DRY PAVEMENT.

CHANNELIZING DEVICE SPACING (FEET) (EXCEPT FOR FLAGGING REQUIREMENTS)		
MPH	TAPER	TANGENT
50/65	40	80
35/45	30	60
25/30	20	40

LEGEND

- SIGN LOCATION TRIPOD MOUNT
- TEMPORARY TRAFFIC CONTROL DEVICES
- FLAGGING STATION
- PROTECTIVE VEHICLE (WHEN SPECIFIED IN CONTRACT)
- PORTABLE SIGNAL
- FLASHING BEACON

SIGN SPACING = X (feet)		
Rural Roads	45/55 MPH	500'+-
Urban Arterials	35/40 MPH	350'+-
Urban Streets Residential Areas & Business Districts	25/30 MPH	200'+-
All signs are black on orange unless otherwise designated.		

ALAN O. KING
STATE OF WASHINGTON
15213
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES NOVEMBER 23, 2003

ALTERNATING ONE-WAY TRAFFIC TEMPORARY SIGNAL CONTROLLED

STANDARD PLAN K-4

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Harold Kitzman 12-20-02

STATE DESIGN ENGINEER — DATE

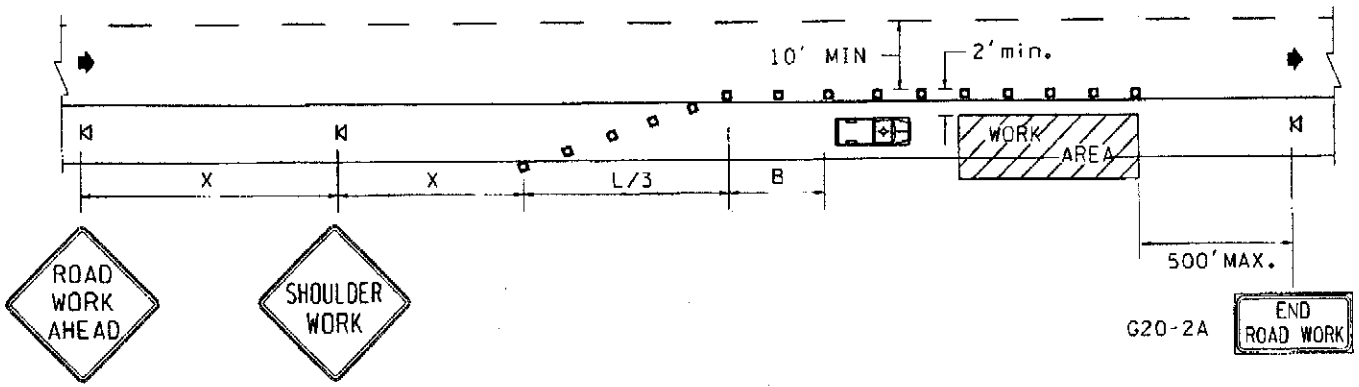
Washington State Department of Transportation

BUFFER DATA								
BUFFER SPACE = B								
SPEED (MPH)	25	30	35	40	45			
LENGTH (feet)	55	85	120	—	—			

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
35	30	60
25/30	20	40

SIGN SPACING = X (FEET)		
Urban Arterials	35 MPH	350'+-
Urban Streets Residential Areas & Business Districts	25/30 MPH	200'+-
All signs are black on orange unless otherwise designated.		

MINIMUM TAPER LENGTH (L) IN FEET					
Lane Width (feet)	Posted Speed (mph) 25	30	35	40	
10	105	150	205	-	
11	115	165	225	-	
12	125	180	245	-	



LEGEND

- SIGN LOCATION-TRIPOD MOUNTED
- TEMPORARY TRAFFIC CONTROL DEVICES
- PROTECTIVE VEHICLE (WHEN SPECIFIED IN CONTRACT)

(35 MPH OR LESS)

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STATE OF WASHINGTON
15213
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES NOVEMBER 23, 2003

SHOULDER CLOSURE LOW SPEED

STANDARD PLAN K-10

SHEET 1 OF 1 SHEET

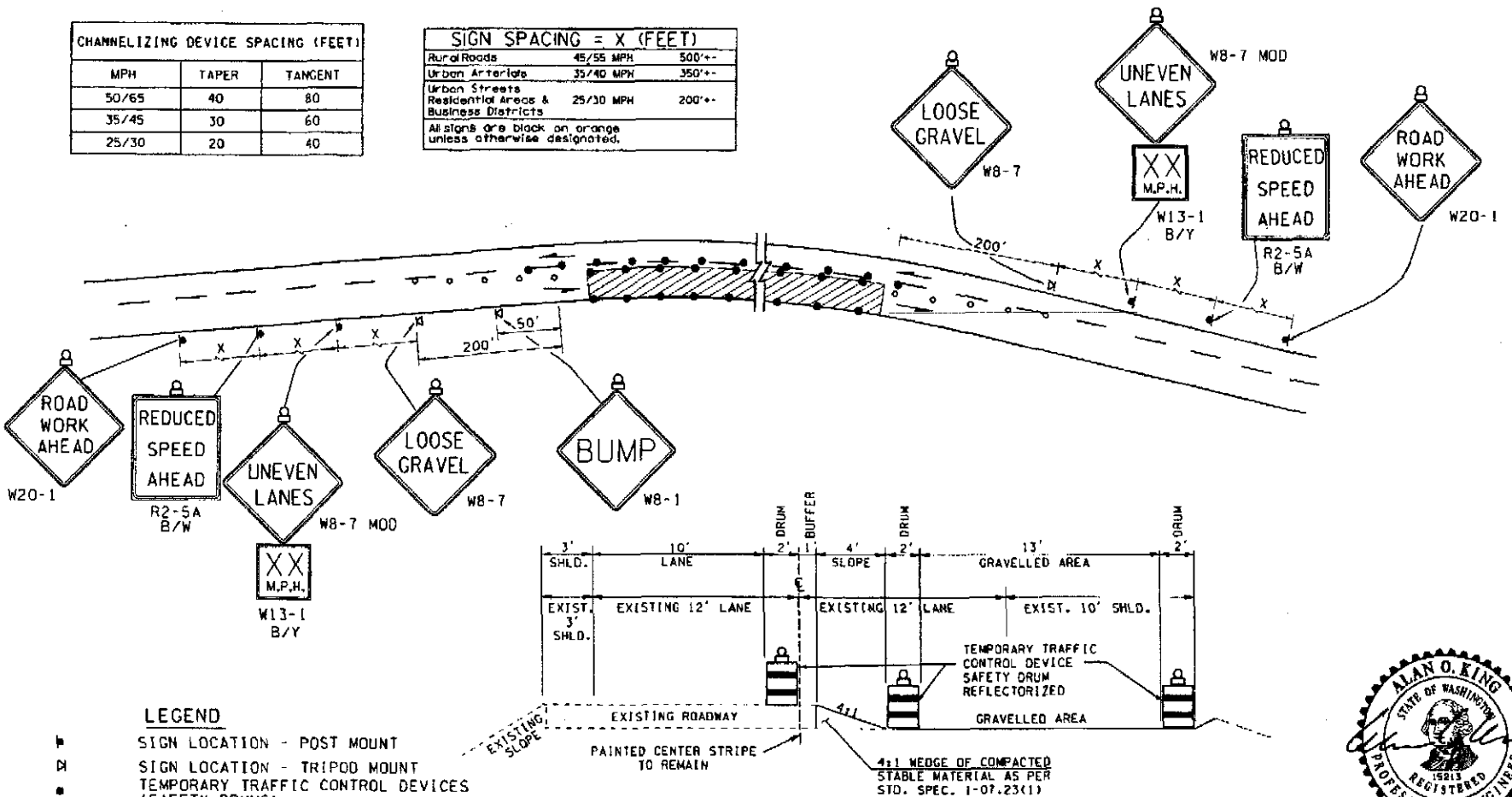
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 12-20-02

Washington State Department of Transportation

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50/65	40	80
35/45	30	60
25/30	20	40

SIGN SPACING = X (FEET)		
Rural Roads	45/55 MPH	500'+-
Urban Arterials	35/40 MPH	350'+-
Urban Streets Residential Areas & Business Districts	25/30 MPH	200'+-
All signs are black on orange unless otherwise designated.		



LEGEND

- SIGN LOCATION - POST MOUNT
- SIGN LOCATION - TRIPOD MOUNT
- TEMPORARY TRAFFIC CONTROL DEVICES (SAFETY DRUMS)
- TYPE "A" FLASHING WARNING LIGHT
- TUBULAR MARKERS
- GRAVELLED AREA

ALAN O. KING
STATE OF WASHINGTON
15213
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES NOVEMBER 23, 2003

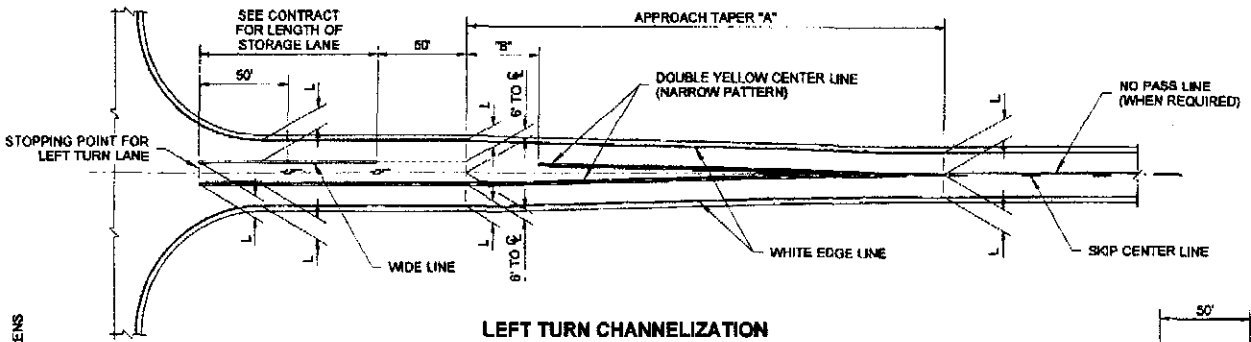
ONE LANE REPAIR DURING NON-WORKING HOURS STANDARD PLAN K-27

SHEET 1 OF 1 SHEET

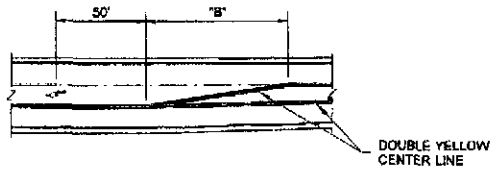
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 12-20-02

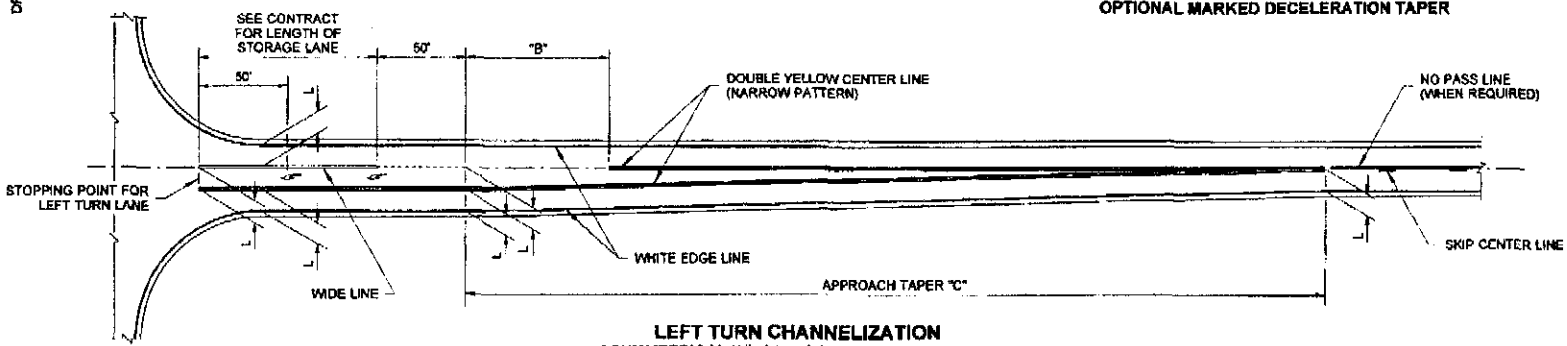
Washington State Department of Transportation



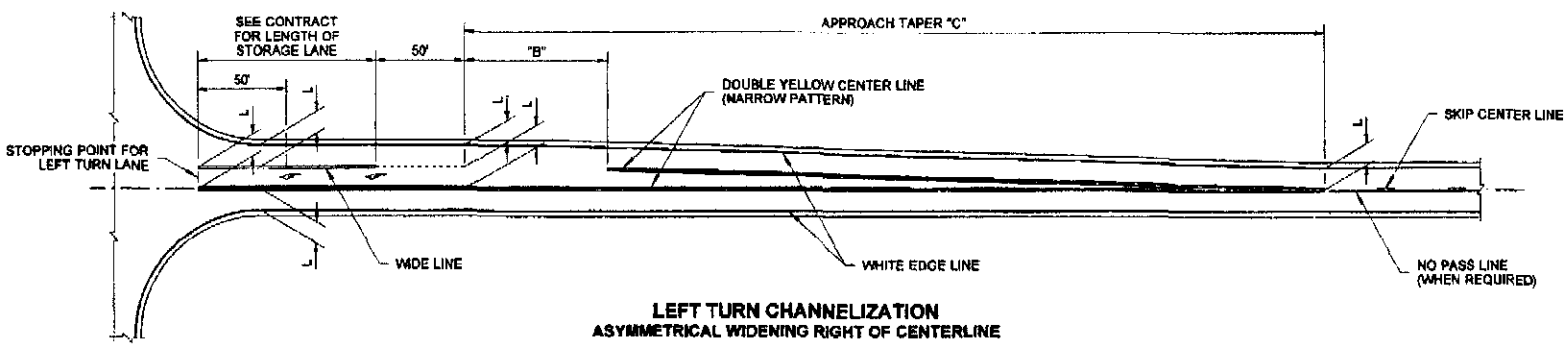
LEFT TURN CHANNELIZATION
SYMMETRICAL WIDENING ABOUT CENTERLINE



OPTIONAL MARKED DECELERATION TAPER



LEFT TURN CHANNELIZATION
ASYMMETRICAL WIDENING LEFT OF CENTERLINE



LEFT TURN CHANNELIZATION
ASYMMETRICAL WIDENING RIGHT OF CENTERLINE

DRAWN BY: BILL BERENS

GENERAL NOTES

1. The channelization shown on this plan assumes optimal roadway geometric design. The dimensions may vary to fit existing conditions. See Contract.

L = 12' Typical Lane Width. See Contract for specified lane widths.

LEGEND

Type 2L Traffic Arrow

POSTED SPEED	APPROACH TAPER "A"	DIMENSION "B"	APPROACH TAPER "C"
60 MPH	360'	120'	720'
55 MPH	330'	110'	660'
50 MPH	300'	100'	600'
45 MPH	270'	90'	540'
40 MPH	240'	80'	480'
35 MPH	210'	70'	420'
30 MPH	180'	60'	360'
25 MPH	150'	50'	300'
20 MPH	120'	40'	240'

R. SCOTT ZELLER — STATE OF WASHINGTON — 28660 — REGISTERED PROFESSIONAL ENGINEER

12-15-04

EXPIRES MAY 5, 2005

LEFT TURN CHANNELIZATION

STANDARD PLAN M-3.10-00

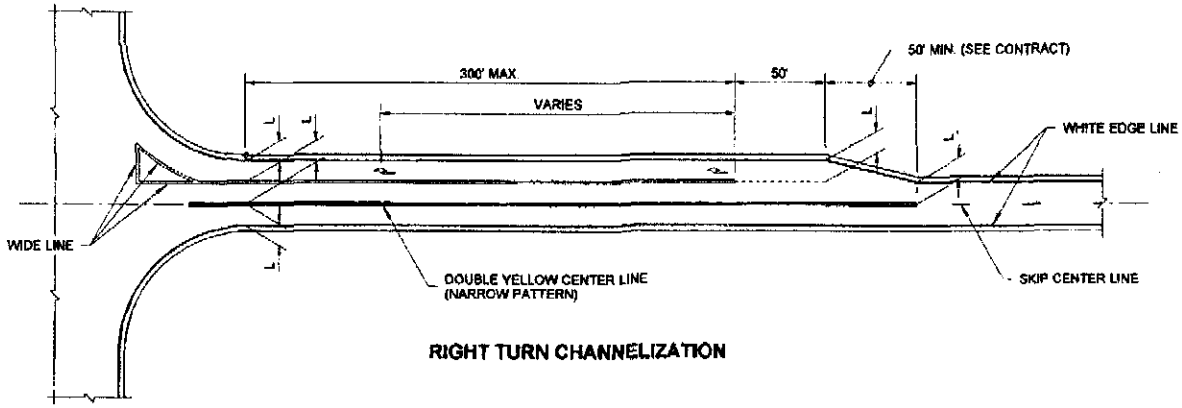
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

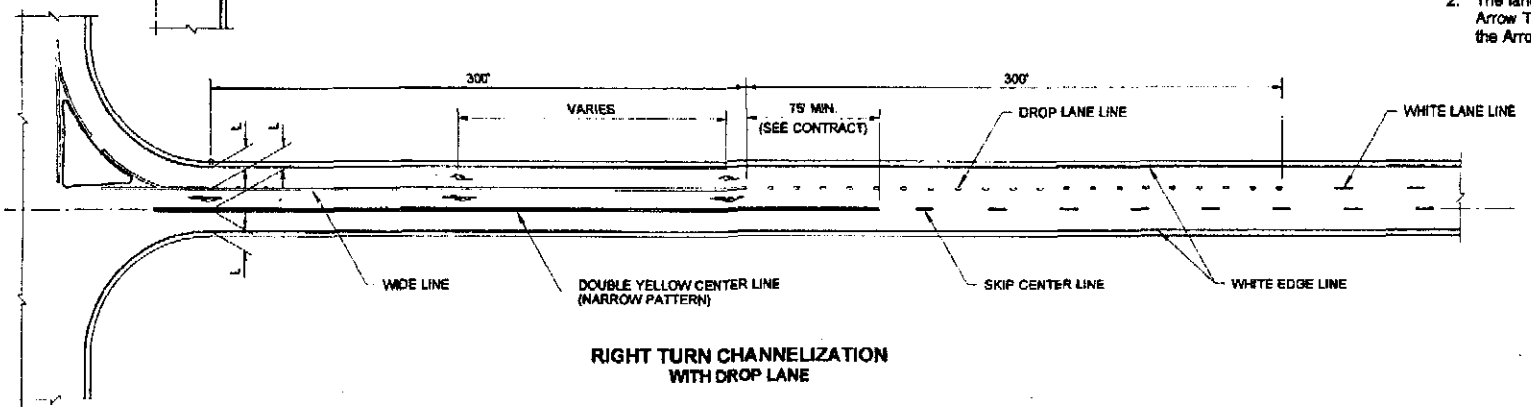
STATE DESIGN ENGINEER — DATE 12-15-04

Washington State Department of Transportation

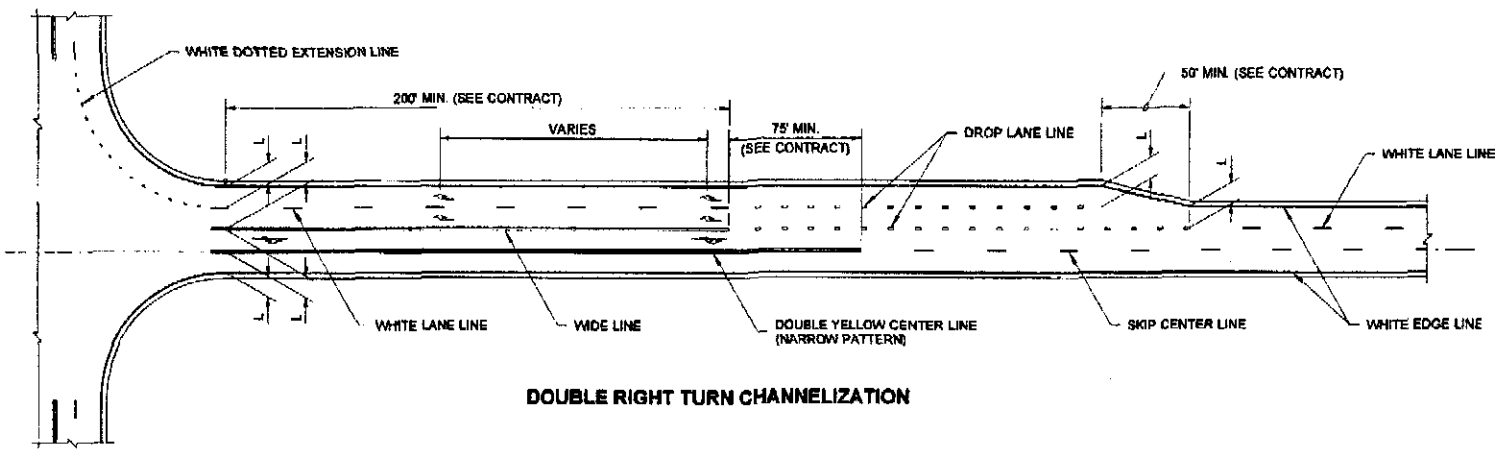
DRAWN BY: BILL BERENS



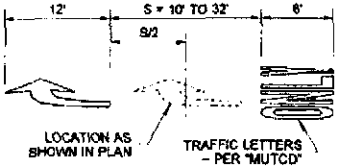
RIGHT TURN CHANNELIZATION



RIGHT TURN CHANNELIZATION WITH DROP LANE



DOUBLE RIGHT TURN CHANNELIZATION



LANE MESSAGE DETAIL
OPTIONAL ~ SEE GENERAL NOTE 2

GENERAL NOTES

1. The channelization shown on this plan assumes optimal roadway geometric design. The dimensions may vary to fit existing conditions. See Contract.
2. The lane message "ONLY" may be added to the Traffic Arrow Type 2R locations shown, in which case, substitute the Arrow as per the LANE MESSAGE DETAIL.

L = 12' Typical Lane Width. See Contract for specified lane widths.

LEGEND

Type 2R Traffic Arrow

Type 3L Traffic Arrow

R. SCOTT ZELLER
STATE OF WASHINGTON
28580
REGISTERED
PROFESSIONAL ENGINEER
12-15-04
EXPIRES MAY 5, 2005

RIGHT TURN CHANNELIZATION

STANDARD PLAN M-8.10-00

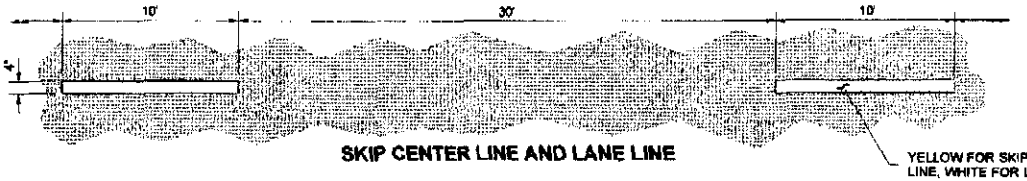
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

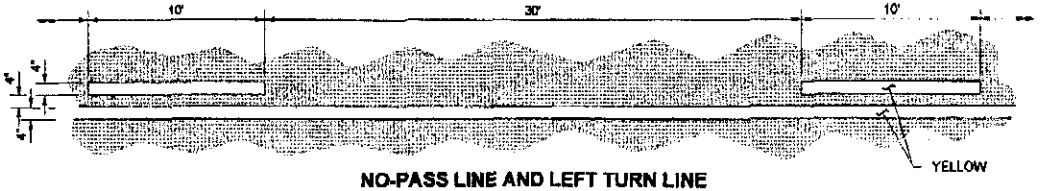
Harold Taniguchi 12-15-04
STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

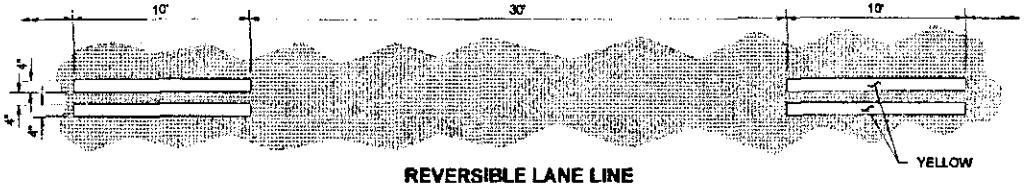
DRAWN BY: MONIQUE GLICK



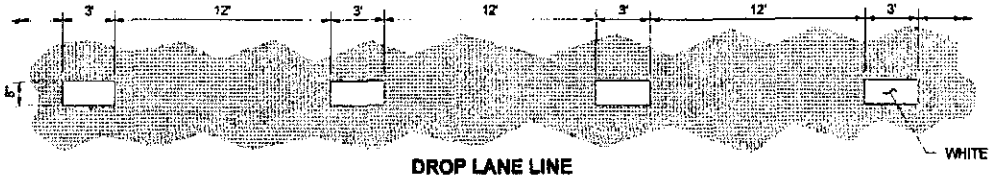
SKIP CENTER LINE AND LANE LINE



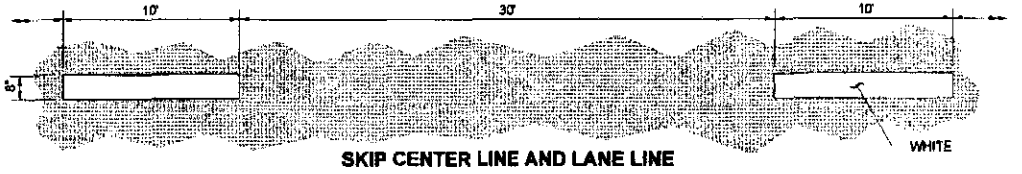
NO-PASS LINE AND LEFT TURN LINE



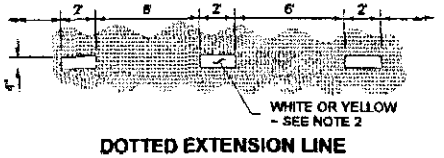
REVERSIBLE LANE LINE



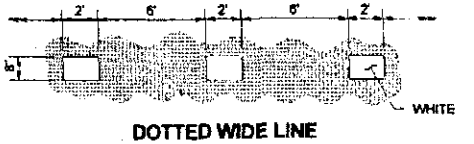
DROP LANE LINE



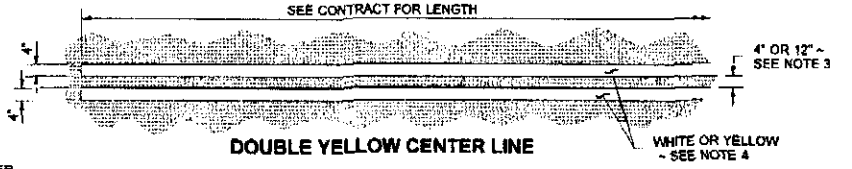
SKIP CENTER LINE AND LANE LINE



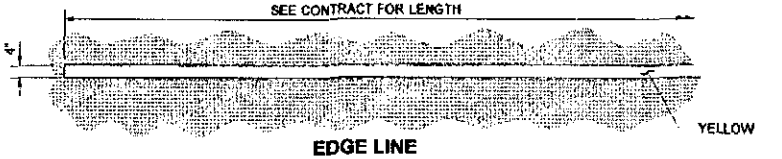
DOTTED EXTENSION LINE



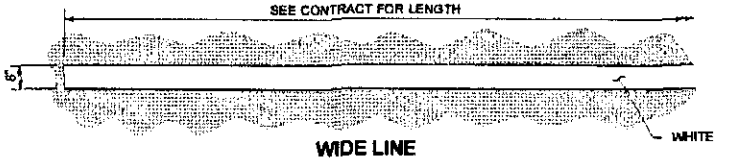
DOTTED WIDE LINE



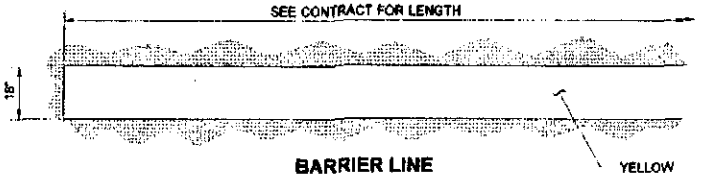
DOUBLE YELLOW CENTER LINE



EDGE LINE



WIDE LINE



BARRIER LINE

NOTES

1. See the Standard Plans for Pavement Marking Details.
2. Dotted Extension Line shall be the same color as the line it is extending.
3. Double Yellow Center Line shall be 12" between lines for everything, except 4" for left turn channelization and narrow roadways with 10' lane widths or less.
4. Edge Line shall be white on right edge of traveled way, and yellow on left edge of traveled way on one way roadways.

3-3-05

EXPIRES MAY 5, 2005

LONG LINE MARKING PATTERNS

STANDARD PLAN M-20.10-00

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

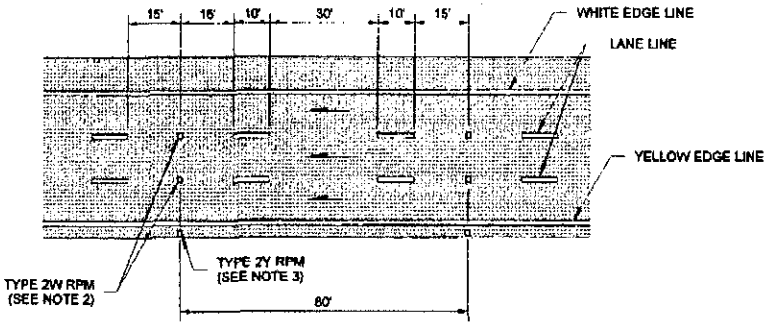
Harold Peterson 3.4.05

STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

DRAWN BY: ADAM COCHRAN

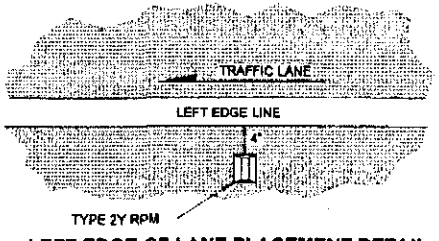
TYPE 2 RPM RAISED FACE COLORS	
TYPE 2YY	YELLOW AND YELLOW
TYPE 2W	WHITE – ONE SIDE ONLY
TYPE 2Y	YELLOW – ONE SIDE ONLY



MULTILANE ONE-WAY TRAFFIC

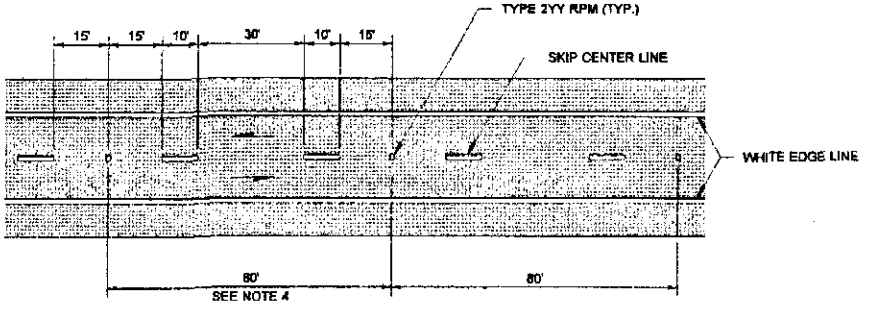
NOTES

1. Recessed pavement markers, when specified, shall be installed at the locations shown for Type 2W RPM's on multilane one-way roadways, and type 2YY RPM's on two lane two-way roadways.
2. For lane lines, Type 2W RPM's shall be spaced at 80' intervals on tangents and horizontal curves with a radius of 5000' or more, and 40' intervals on horizontal curves having radii of less than 5000'.
3. Type 2Y RPM's, when specified, shall be placed outside the Left Edge Line. See "LEFT EDGE OF LANE PLACEMENT DETAIL".
4. For center lines, Type 2YY RPM's shall be spaced at 80' intervals on tangents and horizontal curves with a radius of 5000' or more, and 40' intervals on horizontal curves having radii less than 5000' Type 2YY RPM's are to be centered between skip lines.

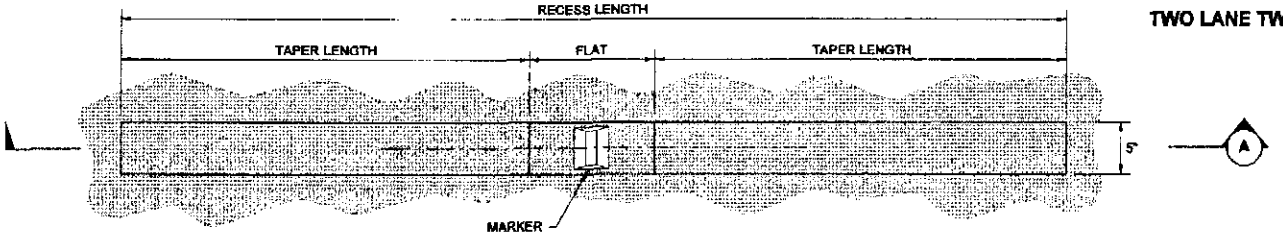


LEFT EDGE OF LANE PLACEMENT DETAIL

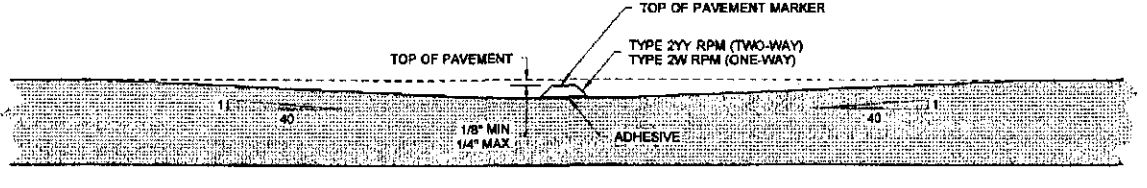
SEE NOTE 3



TWO LANE TWO-WAY TRAFFIC



PLAN VIEW



SECTION (A)

RECESSED PAVEMENT MARKER DETAILS

FOR USE WHERE SPECIFIED IN CONTRACT

R. SCOTT ZELLER
STATE OF WASHINGTON
26680
REGISTERED
PROFESSIONAL ENGINEER

3.3.05

EXPIRES MAY 5, 2005

LONG LINE SUPPLEMENT WITH RAISED PAVEMENT MARKERS ~ GENERAL

STANDARD PLAN M-20.30-00

SHEET 1 OF 1 SHEET

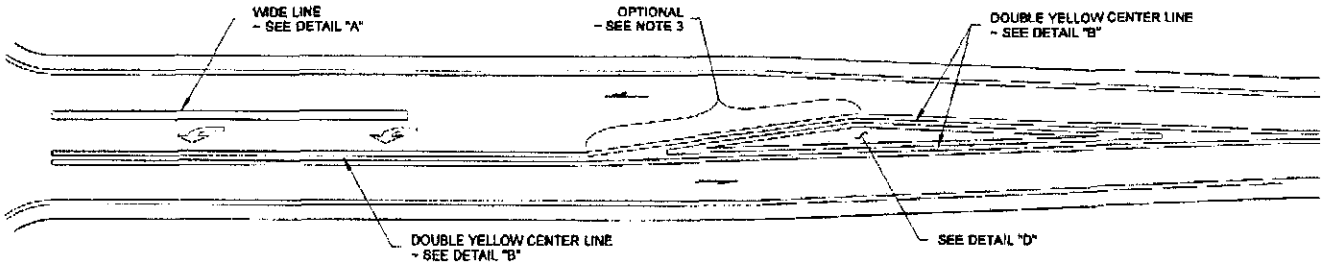
APPROVED FOR PUBLICATION

Harold Peterson 3.4.05

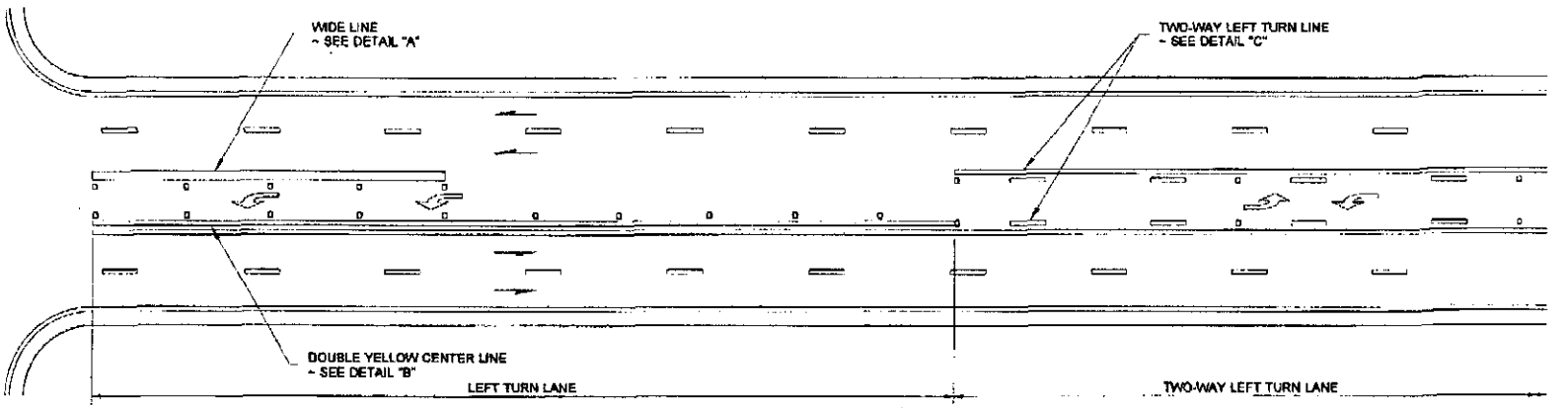
STATE DESIGN ENGINEER — DATE

Washington State Department of Transportation

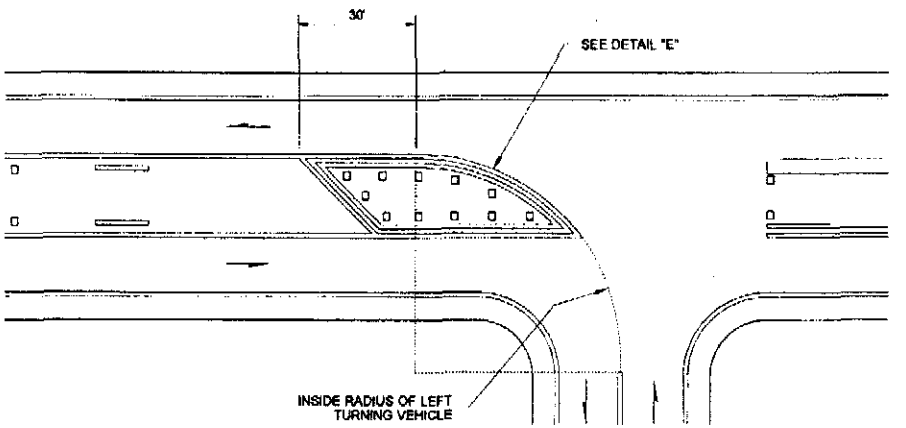
DRAWN BY: ADAM COCHRAN



LEFT TURN LANE
(SEE NOTE 3)



TWO-WAY LEFT TURN LANE



END TWO-WAY LEFT TURN LANE

NOTES

1. Raised pavement markers shall be installed only when specified in the Contract Plans.
2. See the Standard Plans for marker designation.
3. The portion labeled "OPTIONAL" is only used when the Optional Marked Deceleration Taper (see Standard Plans M-3.10 and M-3.20) is specified in the contract plans.

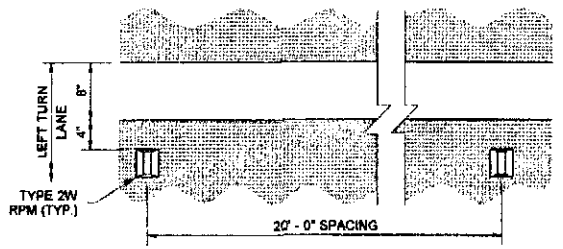
R. SCOTT ZELLER
STATE OF WASHINGTON
28883
REGISTERED
PROFESSIONAL ENGINEER
3-3-05
EXPIRES MAY 5, 2005

LONG LINE SUPPLEMENT WITH RAISED PAVEMENT MARKERS ~ TURN LANES
STANDARD PLAN M-20.40-00

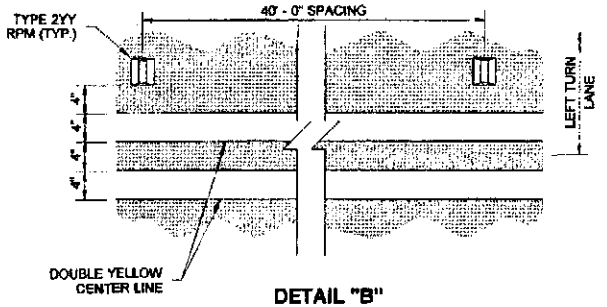
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION
Harold Peterson 3-4-05
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

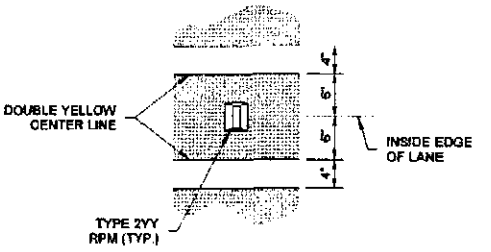
DRAWN BY: ADAM COCHRAN



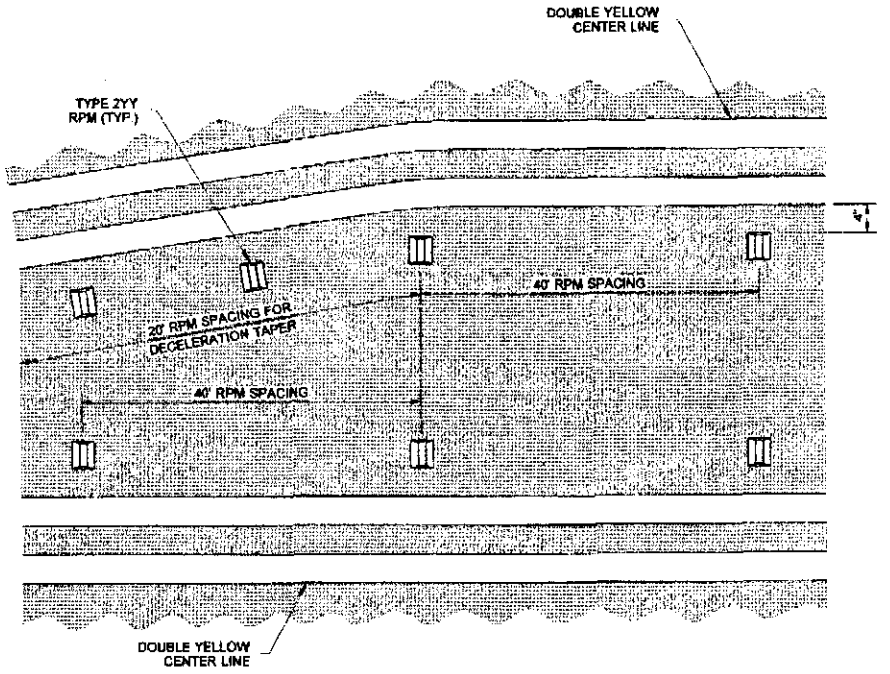
DETAIL "A"



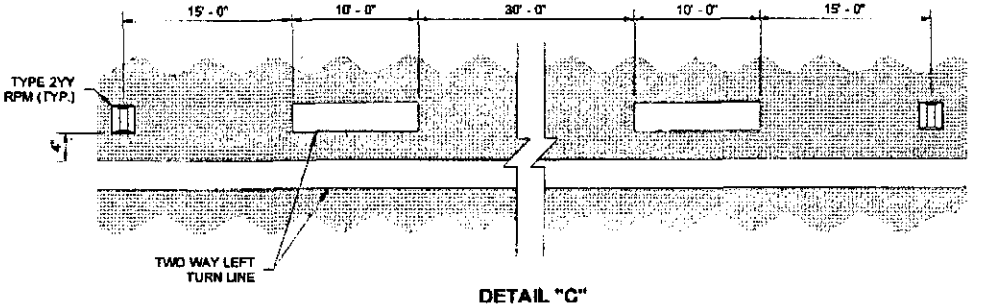
DETAIL "B"



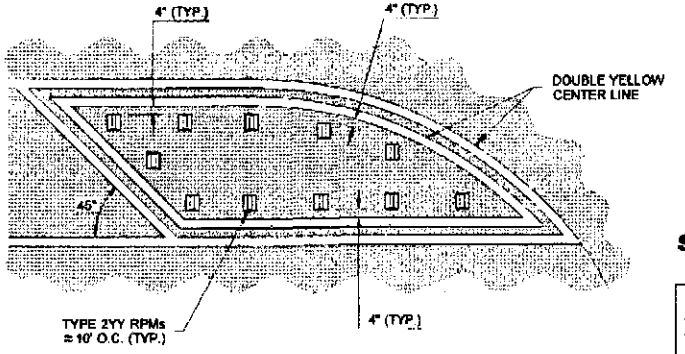
ALTERNATE LINE DETAIL



DETAIL "D"



DETAIL "C"



DETAIL "E"

3-3-05

EXPIRES MAY 5, 2005

LONG LINE SUPPLEMENT WITH RAISED PAVEMENT MARKERS ~ TURN LANES

STANDARD PLAN M-20.40-00

SHEET 2 OF 2 SHEETS

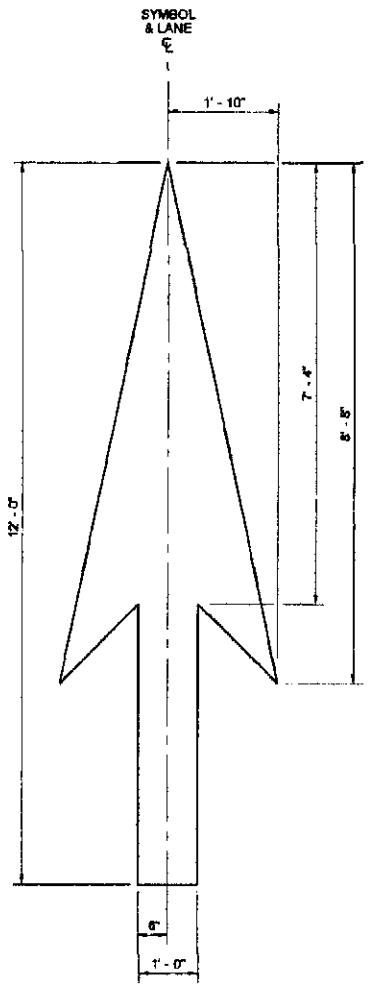
APPROVED FOR PUBLICATION

Harold Pitfasso 3-4-05

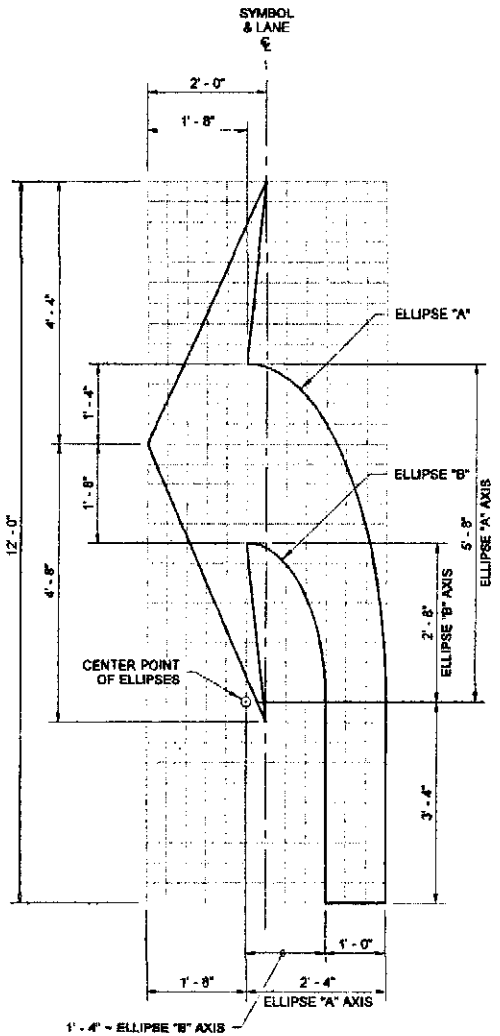
STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

DRAWN BY: MARK SUIKA

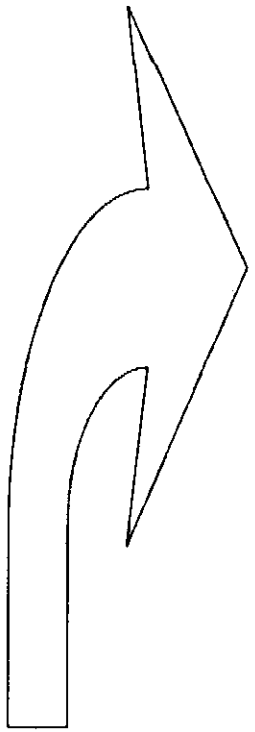


TYPE 1 TRAFFIC ARROW



GRID IS 4" SQUARE

TYPE 2L (LEFT)
TRAFFIC ARROW



TYPE 2R (RIGHT)
TRAFFIC ARROW

MIRROR IMAGE OF
TYPE 2L (LEFT)
TRAFFIC ARROW

NOTE

Use the dimensions shown on this plan for each type Traffic Arrow being placed on roadways with a posted speed limit of 45 mph or higher.

3-3-05

EXPIRES MAY 5, 2005

SYMBOL MARKINGS
TRAFFIC ARROWS FOR HIGH SPEED ROADWAYS
STANDARD PLAN M-24.20-00

SHEET 1 OF 3 SHEETS

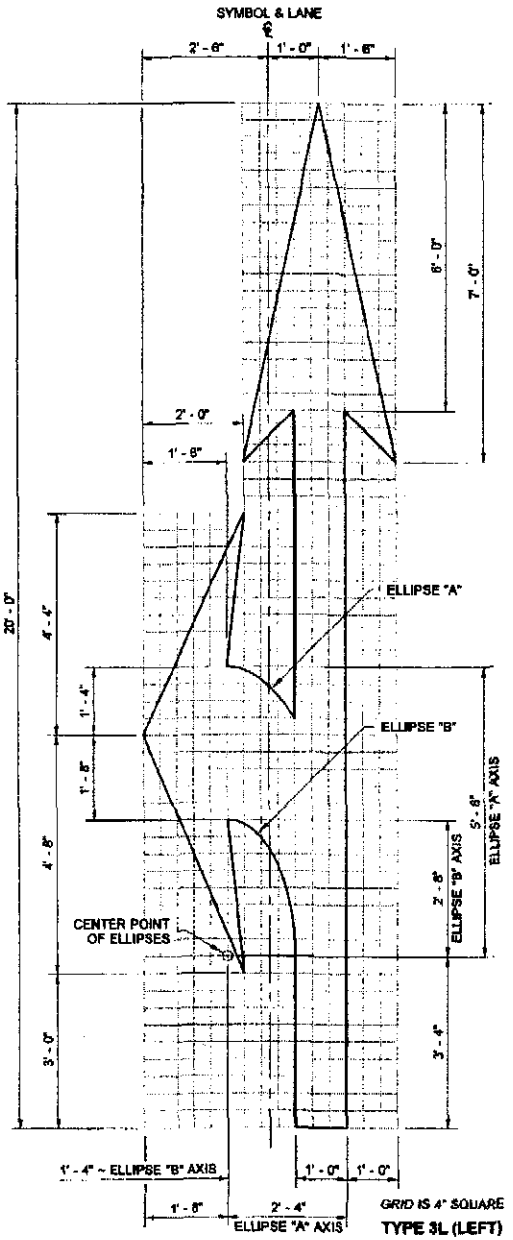
APPROVED FOR PUBLICATION

Harold Peterson 3-4-05

STATE DESIGN ENGINEER — DATE

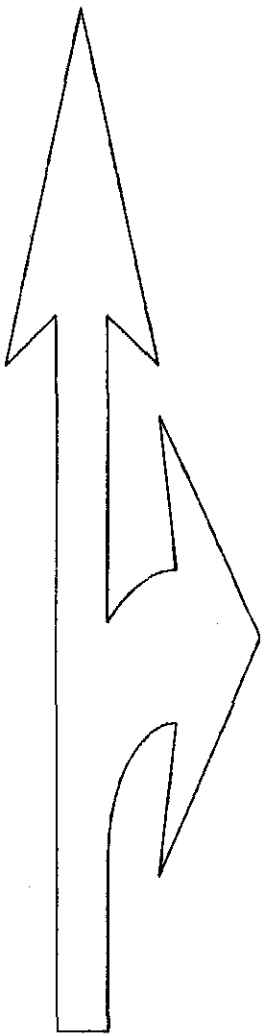
Washington State Department of Transportation

DRAWN BY: MARK SUJKA



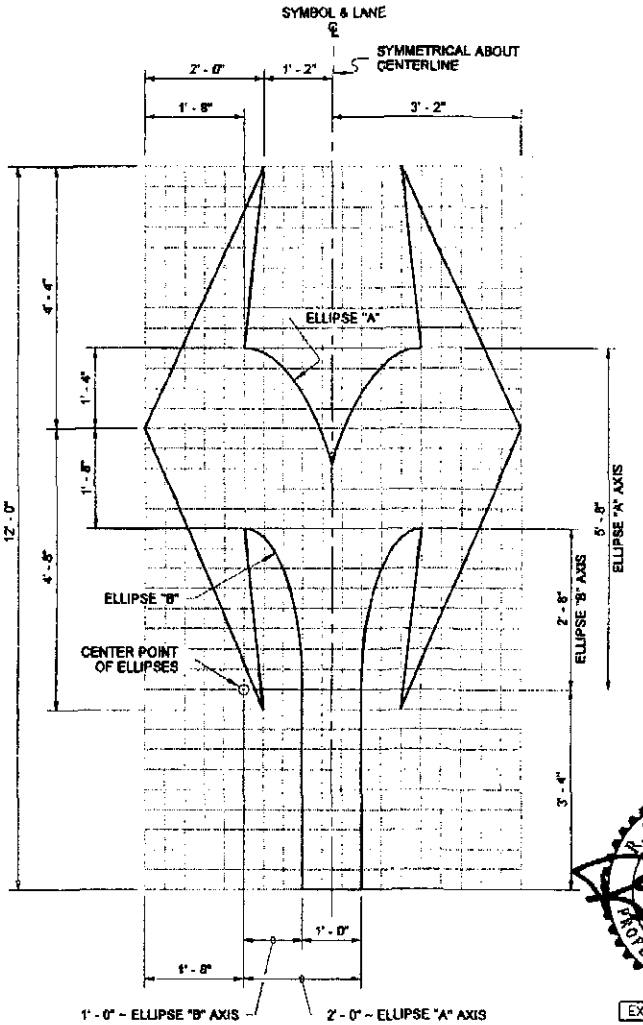
GRID IS 4" SQUARE

TYPE 3L (LEFT) TRAFFIC ARROW



TYPE 3R (RIGHT) TRAFFIC ARROW

MIRROR IMAGE OF TYPE 3L (LEFT) TRAFFIC ARROW



GRID IS 4" SQUARE

TYPE 4 TRAFFIC ARROW

R. SCOTT ZELINSKY
STATE OF WASHINGTON
25660
REGISTERED
PROFESSIONAL ENGINEER

3-3-05

EXPIRES MAY 5, 2005

SYMBOL MARKINGS TRAFFIC ARROWS FOR HIGH SPEED ROADWAYS STANDARD PLAN M-24.20-00

SHEET 2 OF 3 SHEETS

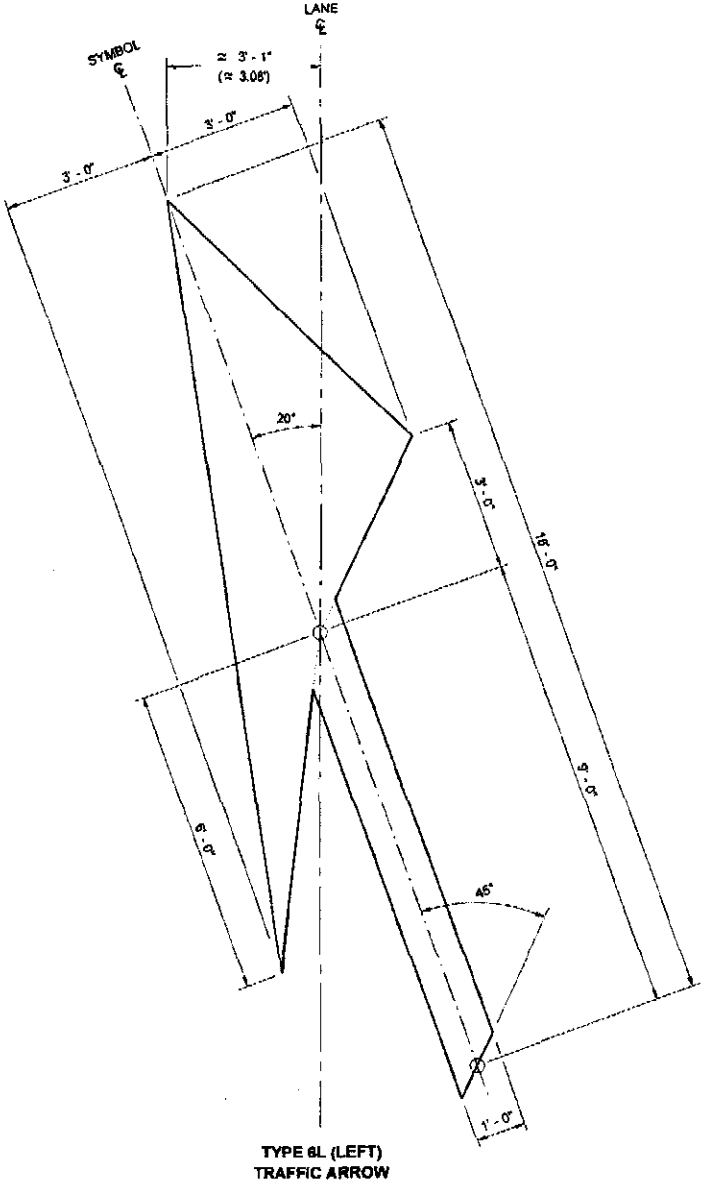
APPROVED FOR PUBLICATION

Harold Peterson 3.4.05

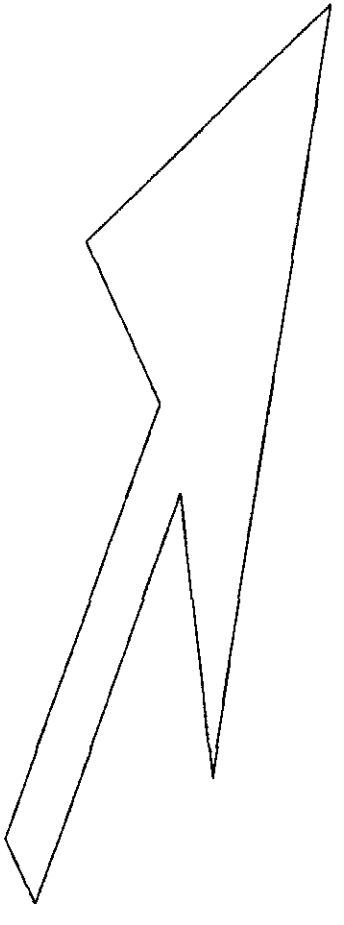
STATE DESIGN ENGINEER — DATE

Washington State Department of Transportation

DRAWN BY: MARK SUJKA



TYPE 6L (LEFT)
TRAFFIC ARROW



TYPE 6R (RIGHT)
TRAFFIC ARROW
MIRROR IMAGE OF TYPE 6L
(MIRRORED ABOUT LANE CENTERLINE)

R. SCOTT ZELLER
STATE OF WASHINGTON
28680
REGISTERED
PROFESSIONAL ENGINEER

3-3-05

EXPIRES MAY 5, 2005

SYMBOL MARKINGS TRAFFIC ARROWS FOR HIGH SPEED ROADWAYS STANDARD PLAN M-24.20-00

SHEET 3 OF 3 SHEETS

APPROVED FOR PUBLICATION

Harold Peterson 3-1-05

STATE DESIGN ENGINEER DATE

Washington State Department of Transportation