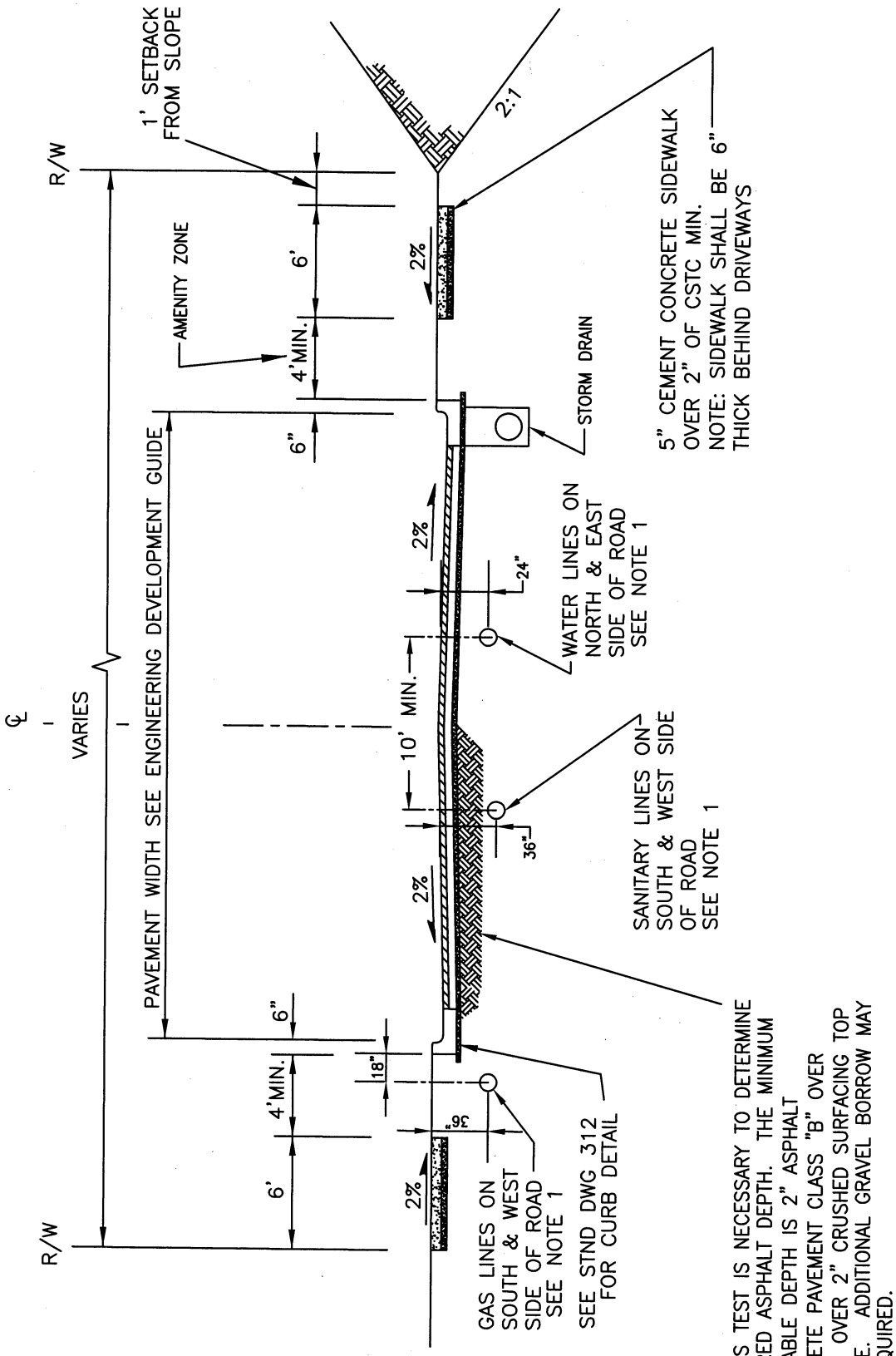

NOTES:

1. LOCATION OF UTILITY WHEN FEASIBLE
2. SUBGRADE SHALL BE COMPACTED TO 95% UNDER CURB, GUTTER, AND SIDEWALK

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Typical Local Street

201

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NOTES:

1. LOCATION OF UTILITY WHEN FEASIBLE
2. SUBGRADE SHALL BE COMPACTED TO 95% UNDER CURB, GUTTER, AND SIDEWALK

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Typical Arterial Street

202

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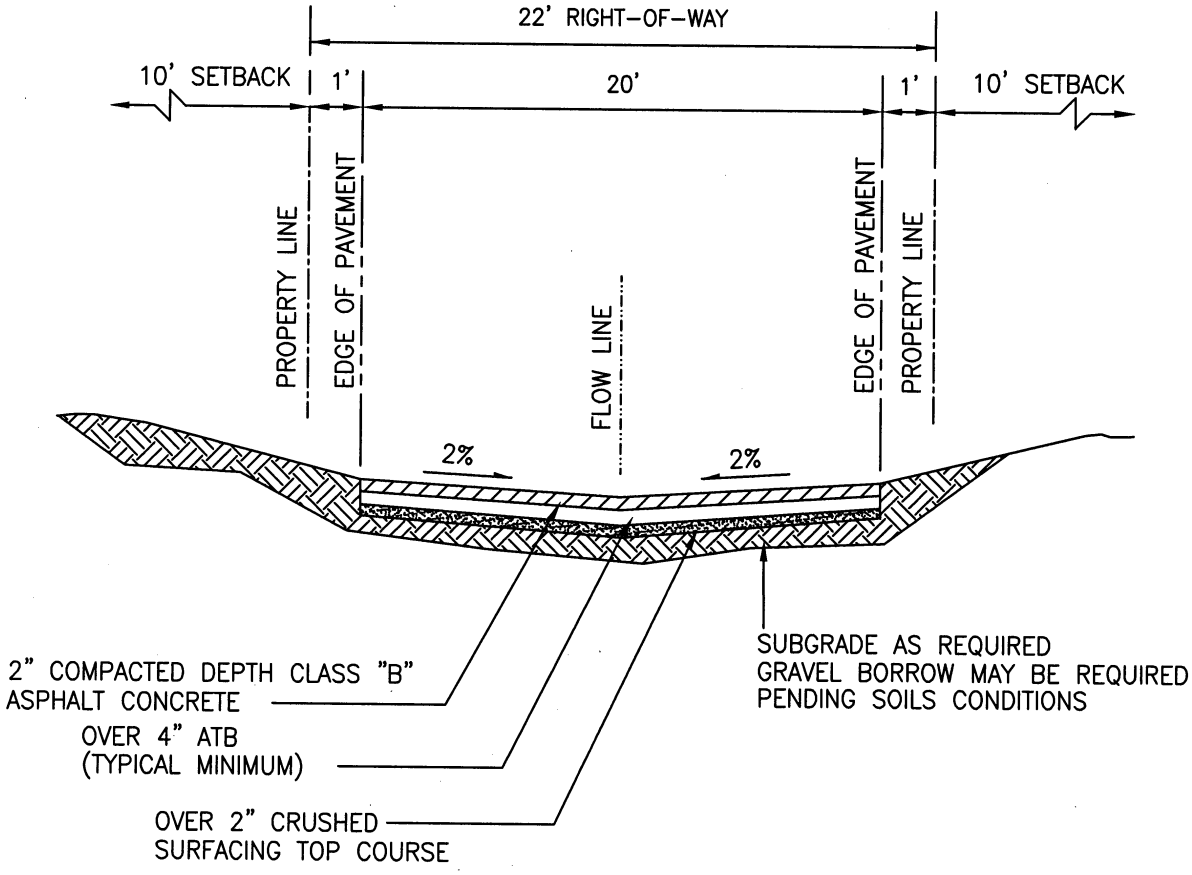

NOTE:

1. BUILDING SETBACK FROM ALLEYS IS 10' FROM PROPERTY LINE FOR SINGLE FAMILY.
2. REFER TO PROVISIONS FOR REAR AND SIDE YARD SETBACKS IN DEVELOPMENT CODE.
3. DRAINAGE TO BE COLLECTED AT LOWER END OF ALLEY.
4. COMPACTION TEST REQUIRED.
5. ALL LIDS TO BE ADJUSTED TO GRADE.

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Typical Alley

203

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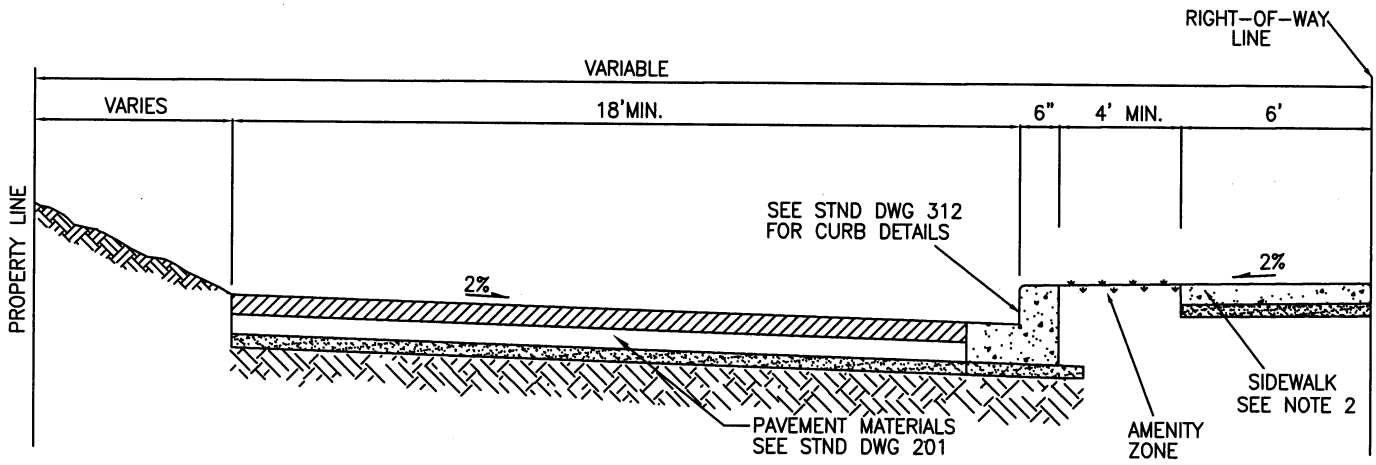

NOTE:

1. EDGE OF PAVEMENT TO BE CONSTRUCTED AS SHOWN FOR CUT OR FILL SECTION AS APPROPRIATE.

2. SEE STND DWGS 201 & 202 FOR SIDEWALK DETAILS.

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Half Street

204

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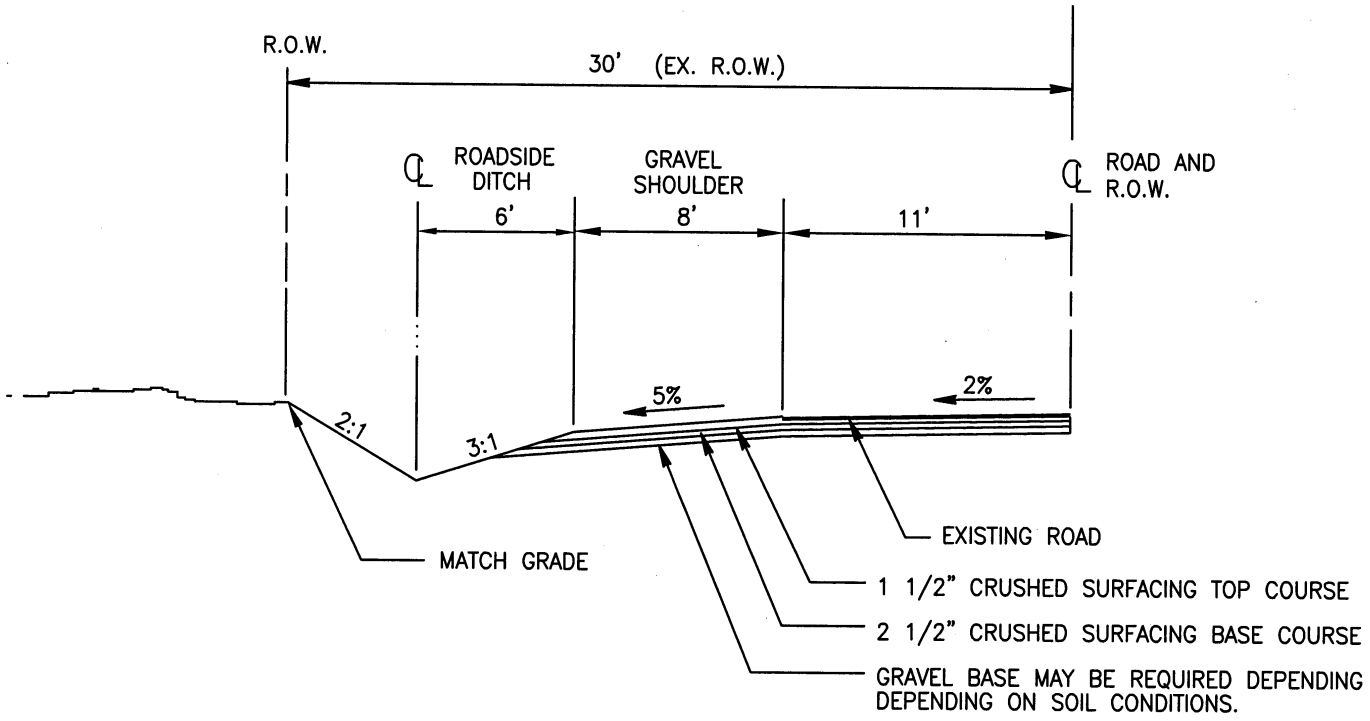

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Shoulder Treatment

205

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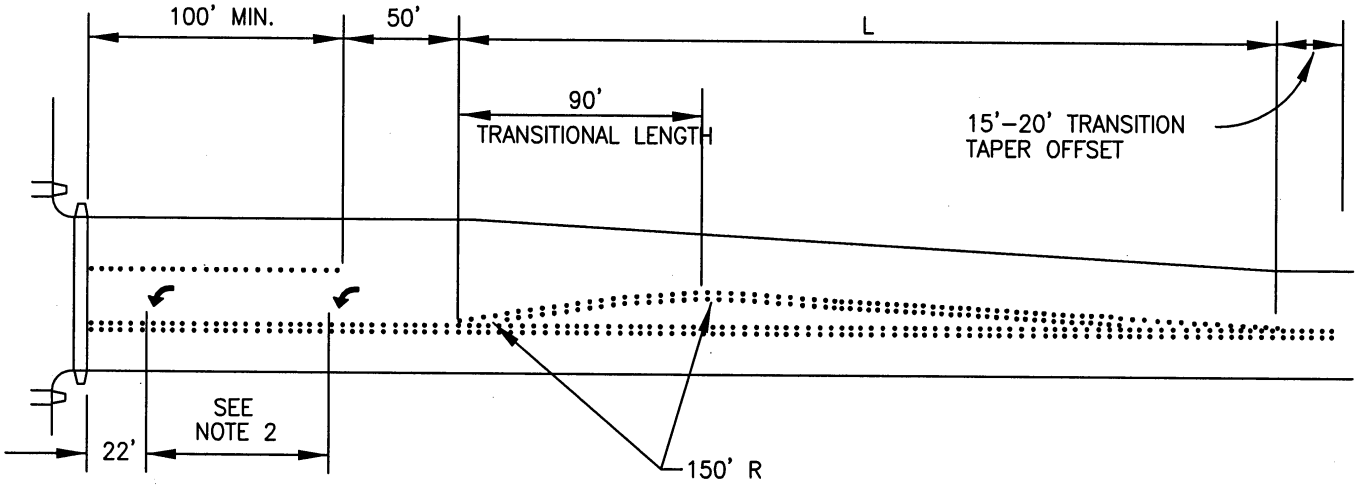

UNDER 40 MPH

L	$\frac{WT}{120} \times S_{SL}^2$ (SYMETRICAL ABOUT CENTERLINE)
	$\frac{WT}{60} \times S_{SL}^2$ (OFFSET)

OVER 40 MPH

L	$\frac{WT}{2} \times S_{SL}$ (SYMETRICAL ABOUT CENTERLINE)
	$WT \times S_{SL}$ (OFFSET)

WT = WIDTH OF TURN LANE

S_{SL} = POSTED SPEED LIMIT

L = LENGTH OF CHANNELIZATION

NOTES:

1. FOR CROSSWALK DETAIL, SEE STND DWGS 315 & 316.
2. SECOND ARROW SHALL BE LOCATED 75' TO 100' BACK OF FIRST ARROW OR AT BEGINNING OF POCKET.

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Island Strips

206

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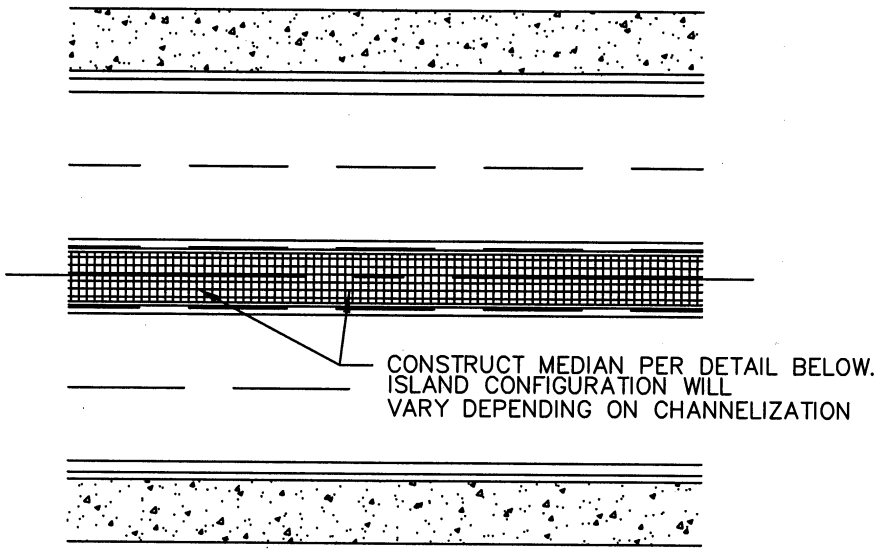
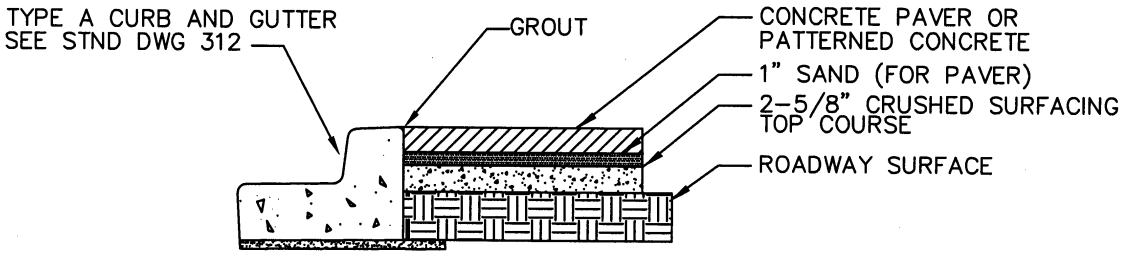
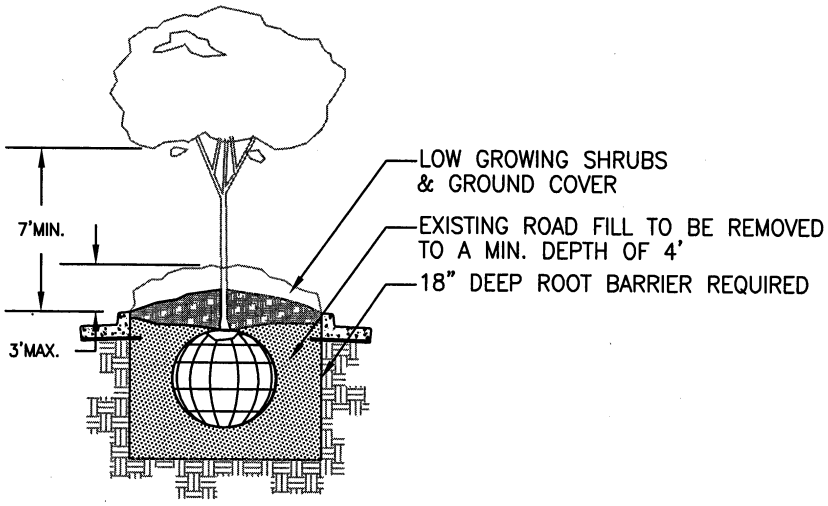




TYPICAL SECTION



ALTERNATIVE SECTION
FOR LANDSCAPE MEDIAN

NOTE:

1. LANDSCAPING PLAN TO BE APPROVED BY THE REVIEW ENGINEER

2. MEDIAN WIDTH SHALL BE A MINIMUM OF 4' FOR SHRUBS & A MINIMUM OF 8' FOR TREES TO ENSURE HEALTHY LANDSCAPING

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Median

207

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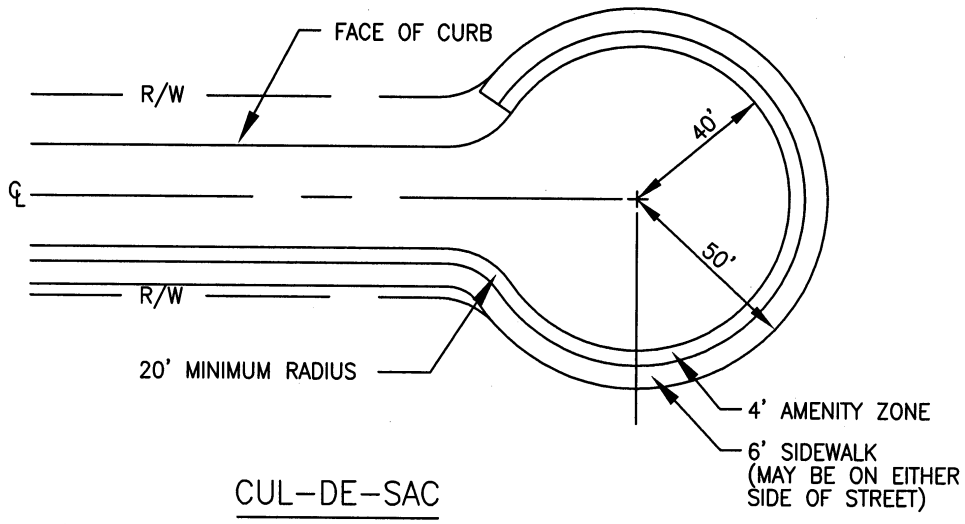
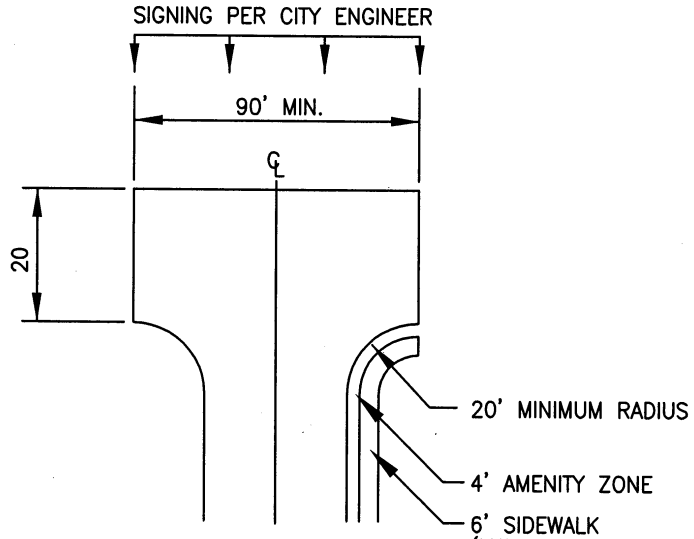


CUL–DE–SAC



HAMMERHEAD

NOTE:

1. 50 FOOT MINIMUM RIGHT–OF–WAY RADIUS, SIDEWALKS AND UTILITIES MAY BE ON EASEMENT.
2. ALTERNATIVE DESIGNS BY APPROVAL OF THE DIRECTOR OR DESIGNEE.

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Street Ends

209

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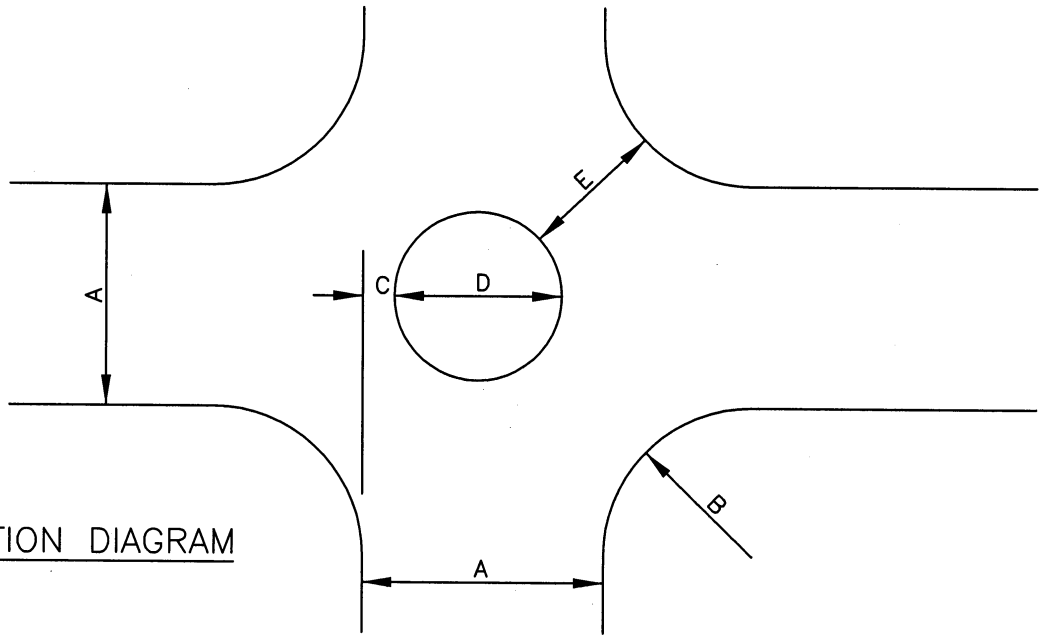

INTERSECTION DIAGRAM

A STREET WIDTH	B CURB RETURN RADIUS	C OFF–SET DISTANCE	D CIRCLE DIAMETER	E OPENING WIDTH
20'	<15'	RECONSTRUCT CURBS		
	15'	5.5'	9'	16'+
	18'	5.0'	10'	17'+
	20'	4.5'	11'	18'–
	25'	4.0'	12'	19'+
24'	<12'	RECONSTRUCT CURBS		
	12'	5.5'	13'	16'
	15'	5.0'	14'	17'–
	20'	4.5'	15'	18'+
	25'	3.5'	17'	20'–
25'	<12'	RECONSTRUCT CURBS		
	12'	5.5'	14'	16'+
	15'	5.0'	15'	17'–
	18'	4.5'	16'	18'–
	20'	4.5'	16'	18'+
	25'	3.5'	18'	20'–
30'	10'	5.5'	19'	16'+
	12'	5.0'	20'	17'–
	15'	5.0'	20'	17'+
	18'	4.5'	21'	18'+
	20'	4.0'	22'	19'+
	25'	3.0'	24'	20'
32'	10'	5.5'	21'	16'+
	12'	5.0'	22'	17'–
	15'	4.5'	23'	18'–
	18'	4.0'	24'	19'–
	20'	4.0'	24'	19'+
	25'	2.5'	27'	20'
36'	10'	5.0'	26'	17'–
	12'	5.0'	26'	17'+
	15'	4.5'	27'	18'+
	18'	4.0'	28'	19'+
	20'	3.5'	29'	20'–
	25'	1.5'	33'	20'
40'	10'	5.0'	30'	17'+
	12'	4.5'	31'	18'+
	15'	4.0'	32'	19'–
	18'	3.5'	33'	20'–
	20'	3.0'	34'	20'
	25'	1.0'	38'	20'

OPTIMUM CRITERIA

OFF–SET DISTANCE	OPENING WIDTH
5.5' MAX.	16' MIN.
5.0'	17' ±
4.5'	18' ±
4.0'	19' ±
3.5' OR LESS	20'

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Traffic Circle

210

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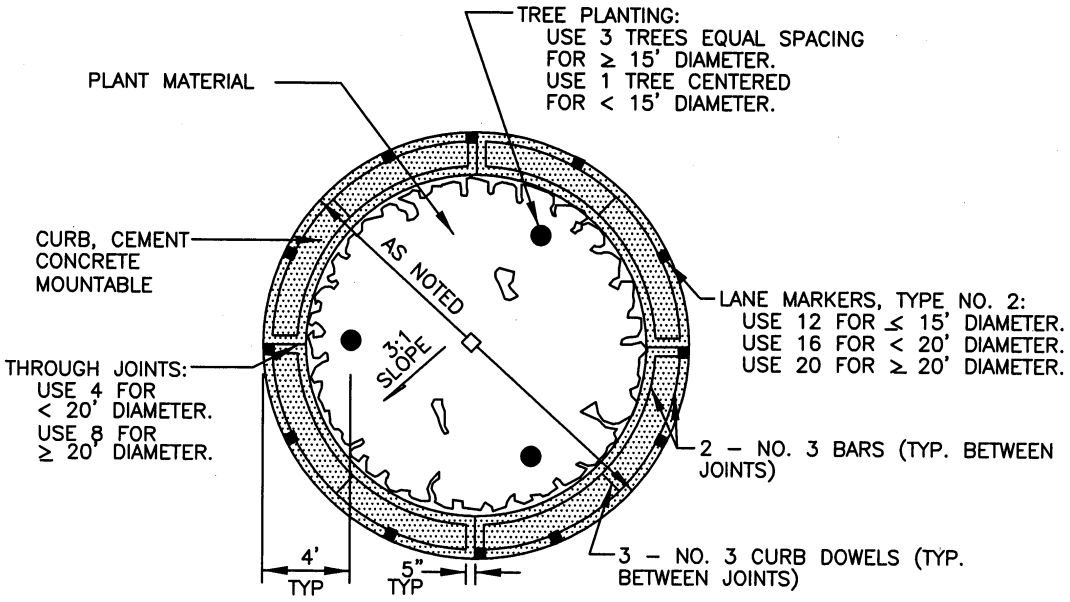
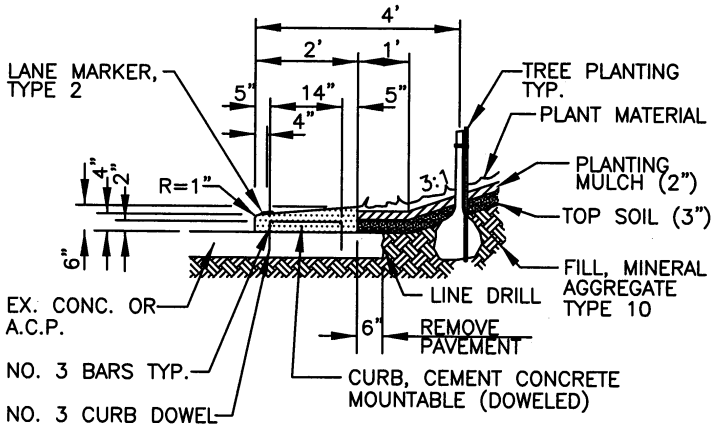
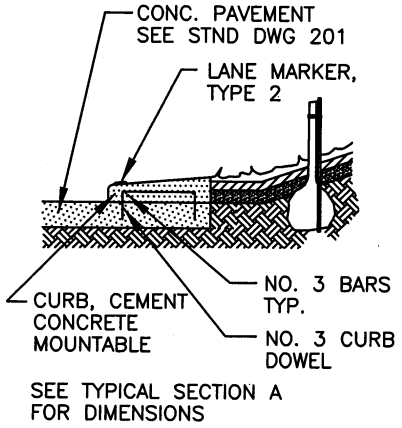


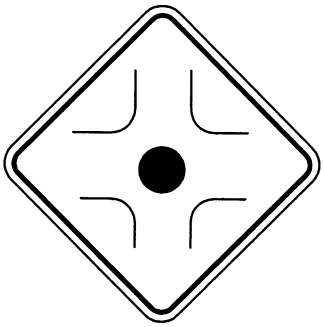
TYPICAL TRAFFIC CIRCLE



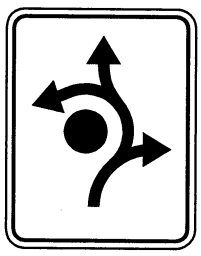
TYPICAL SECTION A



TYPICAL SECTION B



30" x 30" BLACK ON YELLOW
PLACED 75' TO 100' BACK
FROM TRAFFIC CIRCLE ON EACH
APPROACH.



24" x 30" BLACK ON WHITE
PLACED IN CENTER OF TRAFFIC
CIRCLE FOR EACH APPROACH.

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Traffic Circle Details

211

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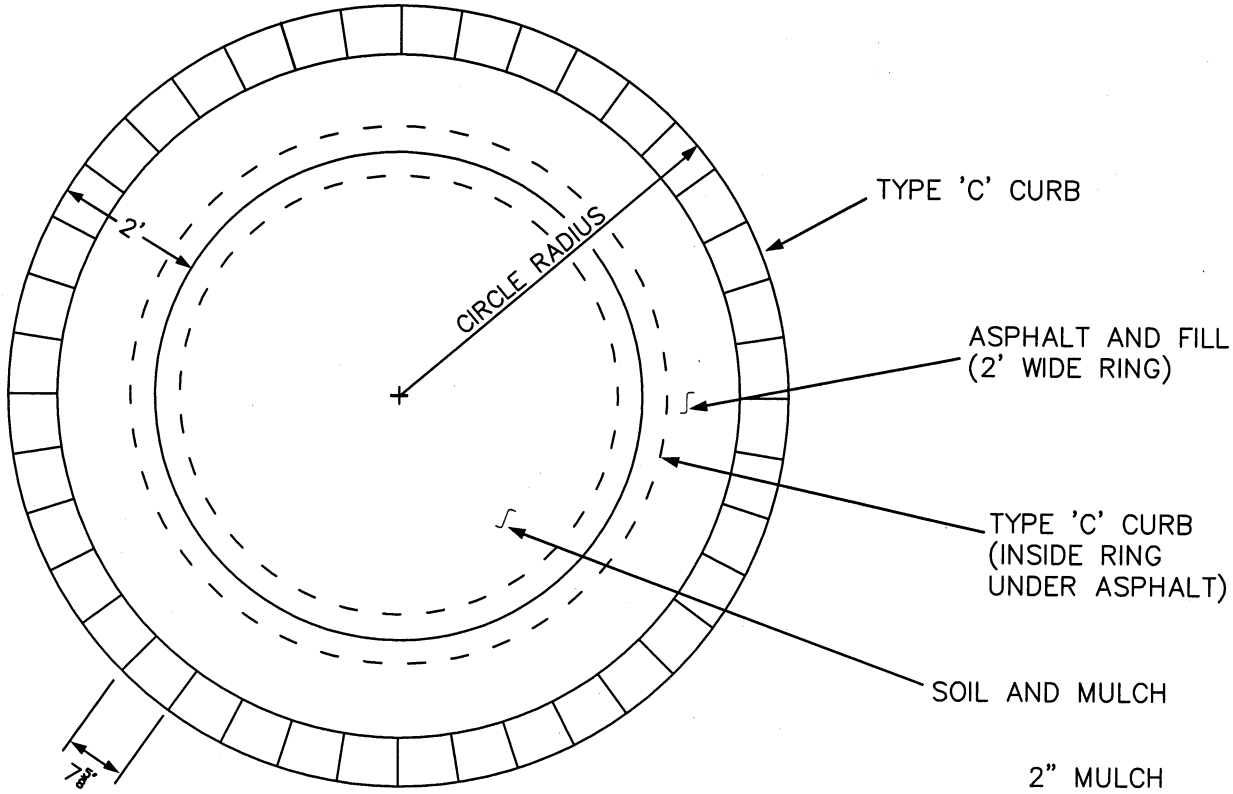

NOTE:

1. SHAPE TOPSOIL IN CENTER OF CIRCLE TO 3:1 SLOPE
2. PAINT OUTSIDE CURB YELLOW
3. MINIMUM 3" ASPHALT DEPTH IN RING

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Asphalt Traffic Circle Details

212

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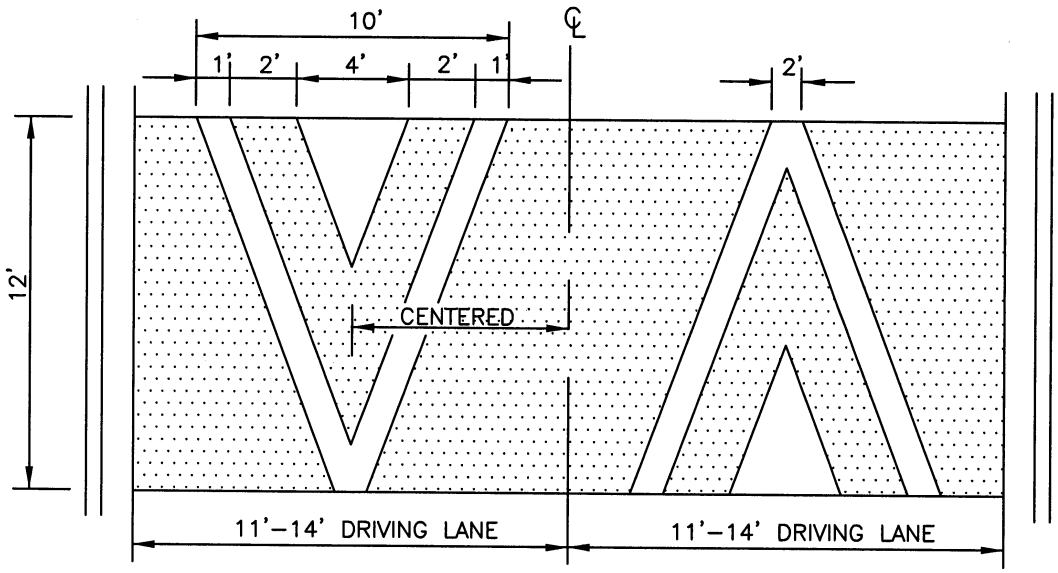
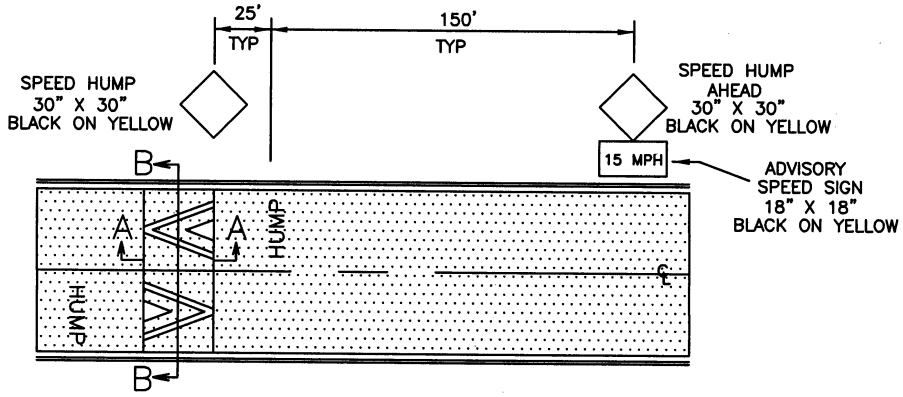
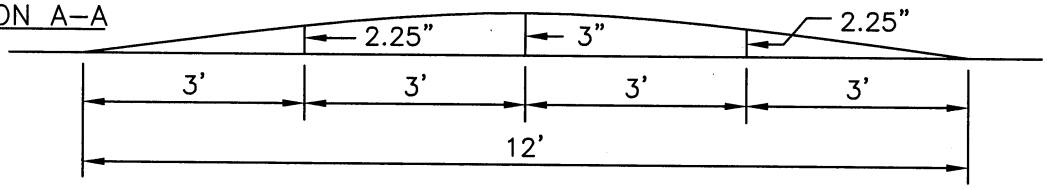
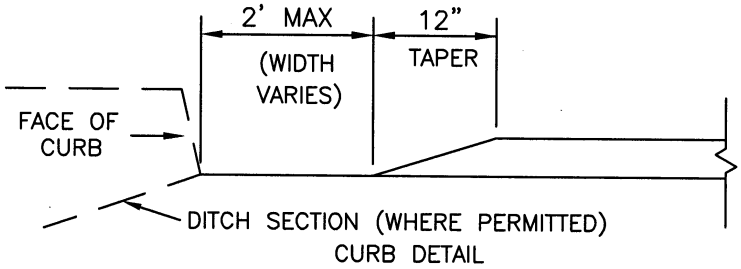




SECTION A–A



SECTION B–B



CURB DETAIL

NOTES:

1. SIGN & LEGEND LOCATION SHALL BE VERIFIED BY THE DIRECTOR OR DESIGNEE PRIOR TO INSTALLATION.

2. LEGEND & 'V' MARKINGS TO BE THERMOPLASTIC.

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Speed Hump: Design Pavement Marking, & Signing

213

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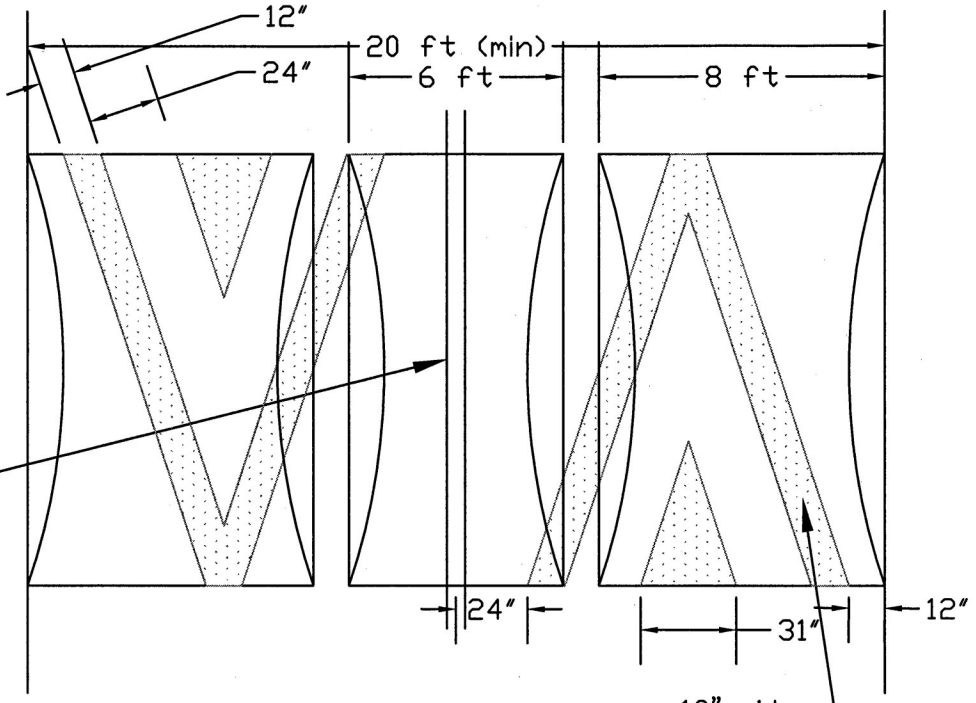
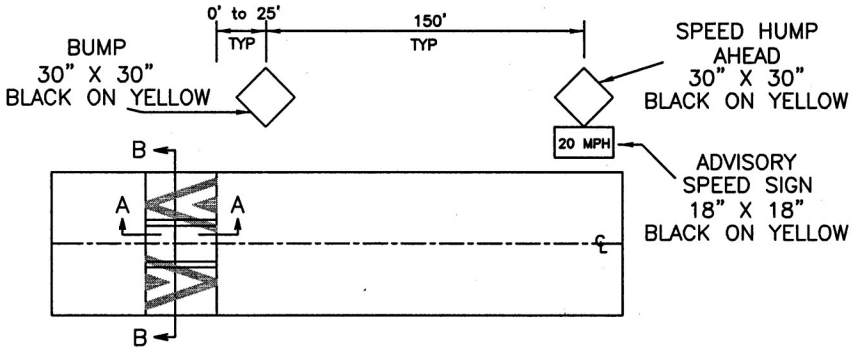
NOTES:

1. Sign & legend location shall be verified by the traffic engineer prior to installation.

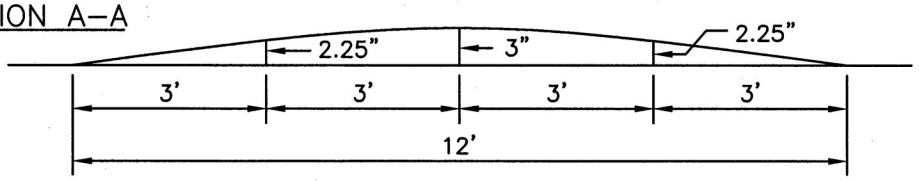
2. Legend and "V" markings to be thermoplastic.

Double Yellow CL with type 1 Lane Marker's on 5 ft centers.
NOTE: extend double yellow centerline for 100 ft (min) each direction.

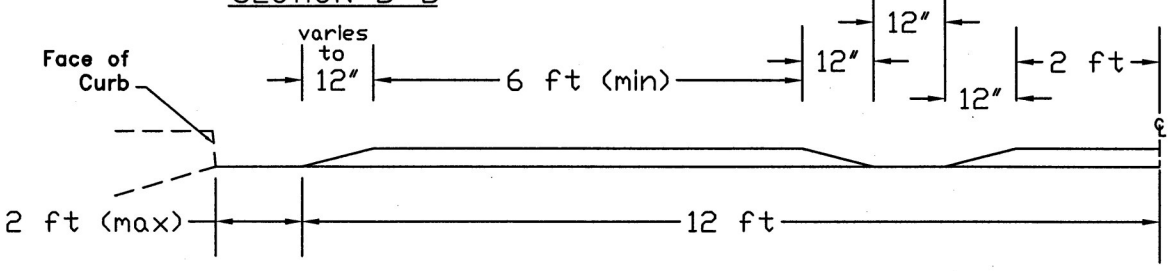




SECTION A–A



SECTION B–B



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Split Speed Hump

214

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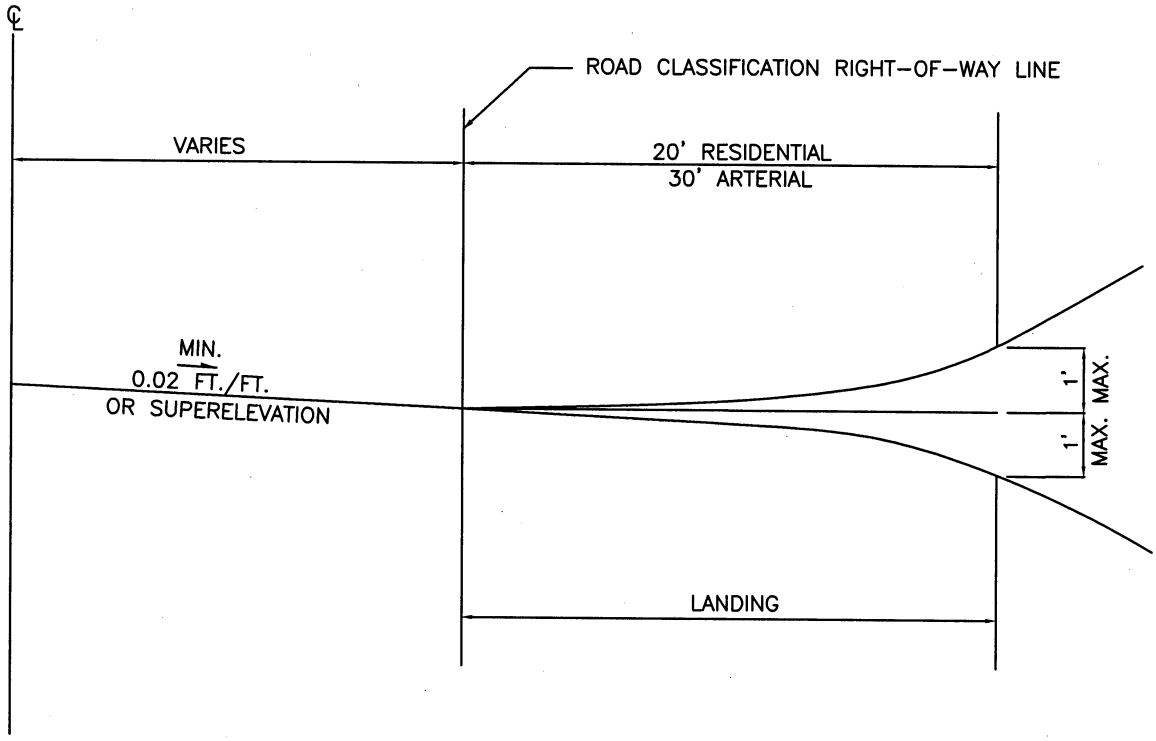

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Intersection Landing

215

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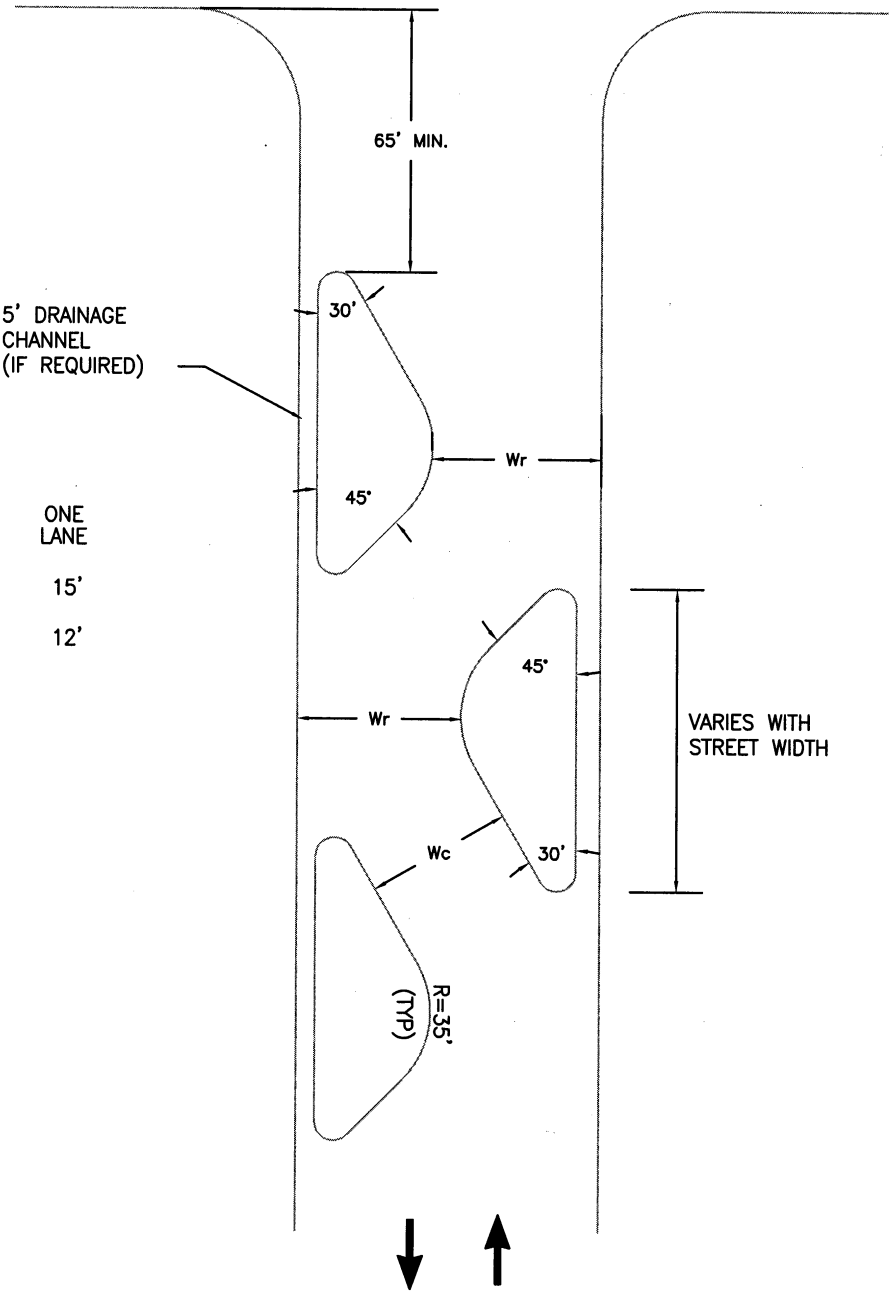

	TWO LANES	ONE LANE
Wr	25'	15'
Wc	20'	12'

NOTES:

1. SPACING OF CHICANE SEGMENTS DEPENDANT ON SITE CONSIDERATIONS, e.g. DRIVEWAY LOCATIONS.
2. ISLAND PLANTINGS SHOULD NOT OBSCURE DRIVER'S VIEW OF CHICANE TRAFFIC.
3. DESIGN MUST ACCOMODATE A MINIMUM OF SU30 DESIGN VEHICLE.

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Chicane

217

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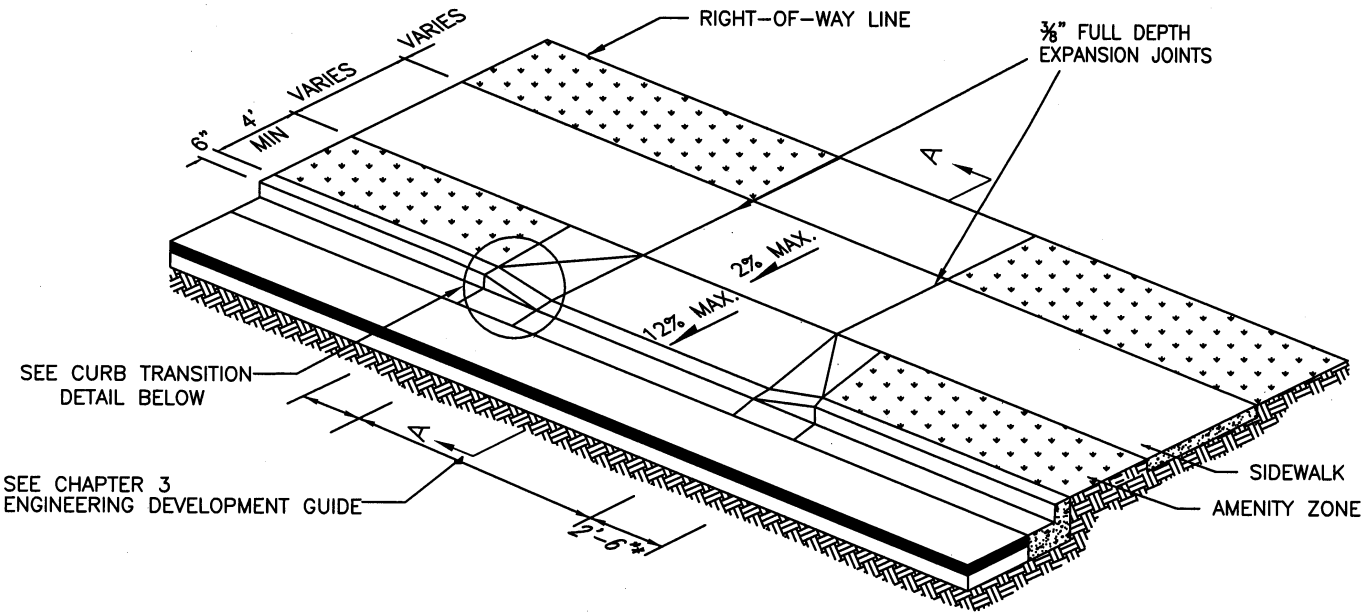
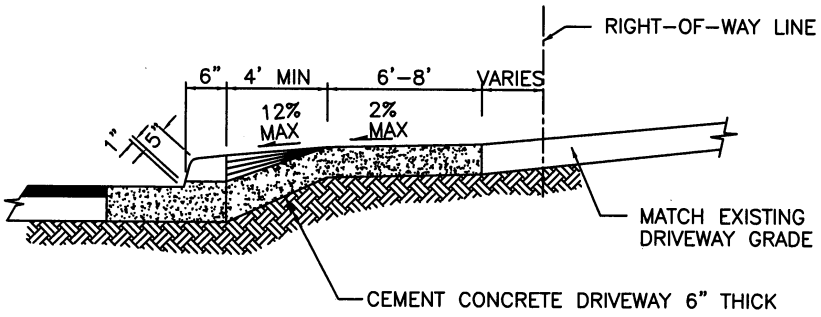


ISOMETRIC VIEW

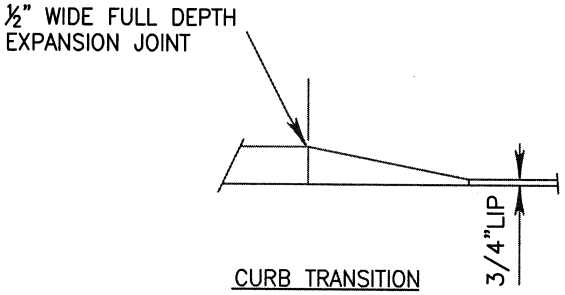


SECTION A-A

*WING DIMENSIONS MAY REQUIRE MODIFICATION TO MEET ADA STANDARDS

NOTE:

1. ALL COMMERCIAL/INDUSTRIAL DRIVEWAYS SHALL HAVE AN EXPANSION JOINT LOCATED MID-WIDTH.
2. SEE CHAPTER 3, ENGINEERING DEVELOPMENT GUIDE.
3. MATERIAL – WSDOT CONCRETE CLASS 4000psi.
4. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED IF DRIVEWAY WIDTH IS 10' OR GREATER.
5. CURB SHALL BE IN COMPLIANCE WITH STND DWG 312.
6. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.



CURB TRANSITION DETAIL

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Curb & Gutter Section Driveway

301

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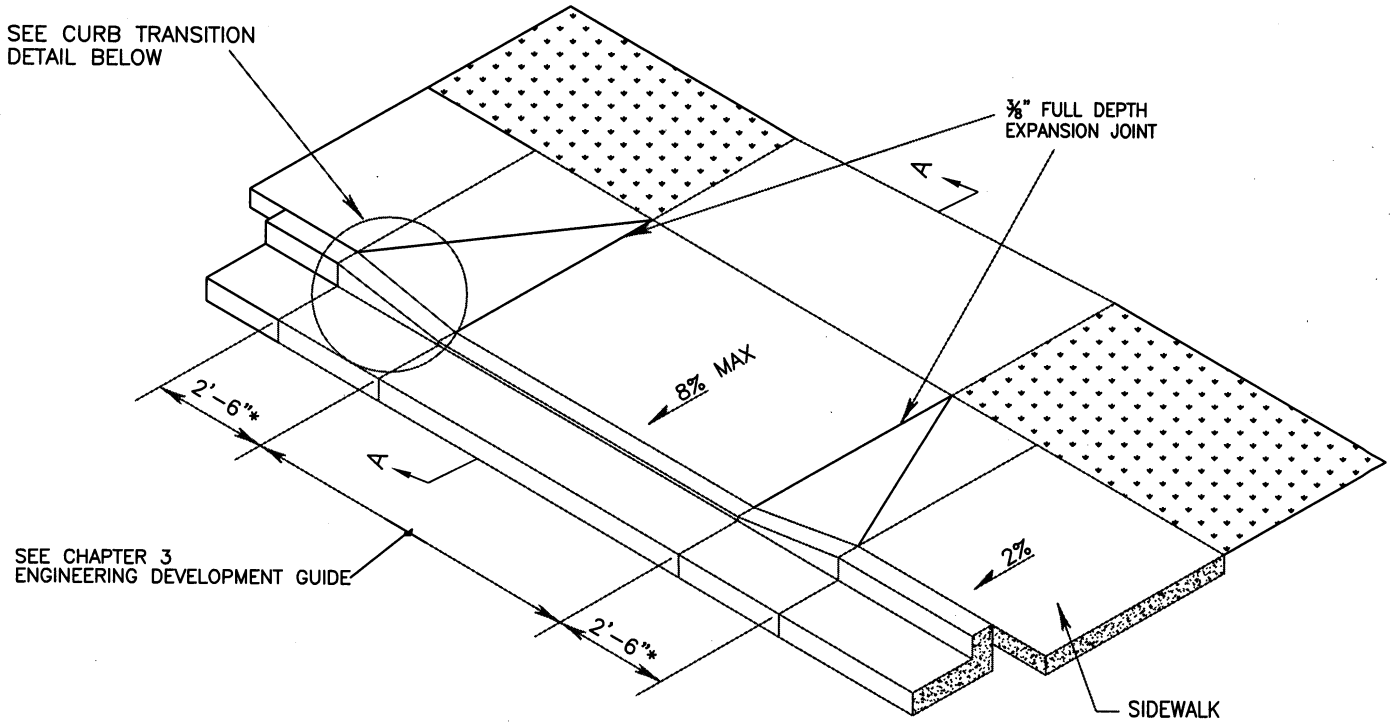
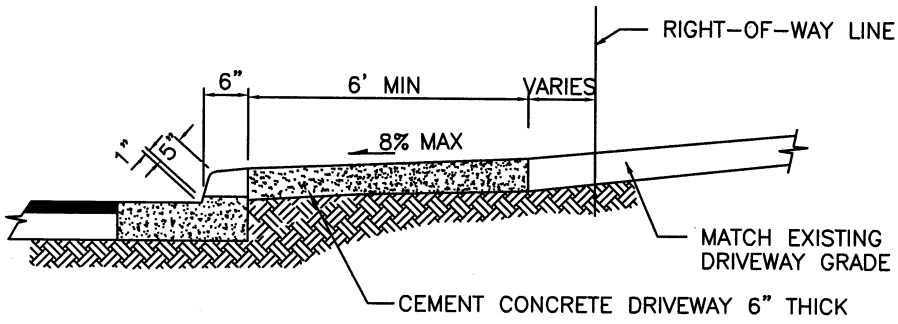
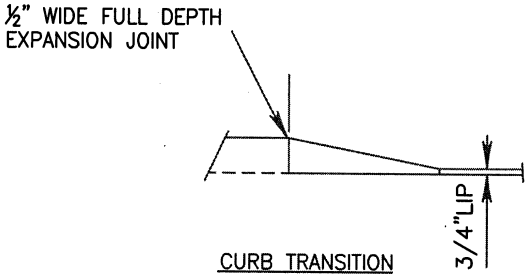


ISOMETRIC VIEW



SECTION A-A



CURB TRANSITION DETAIL

*WING DIMENSIONS MAY REQUIRE MODIFICATION TO MEET ADA REQUIREMENTS.

NOTE:

1. SHALL ONLY BE USED TO MATCH EXISTING CONDITIONS OR WITH UPON APPROVAL OF THE DIRECTOR OR DESIGNEE.
2. MATERIAL – WSDOT CONCRETE CLASS 4000psi.
3. SEE CHAPTER 3, ENGINEERING DEVELOPMENT GUIDE.
4. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED IF DRIVEWAY WIDTH IS 10' OR GREATER.
5. CURB SHALL BE IN COMPLIANCE WITH STND DWG 312.
6. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.

CITY OF SHORELINE

Public Works
Planning and Development Services

JILL M. MARKLEY
STATE OF WASHINGTON
34818
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 4/27/07

Driveway without Amenity Zone

302

NOT TO SCALE

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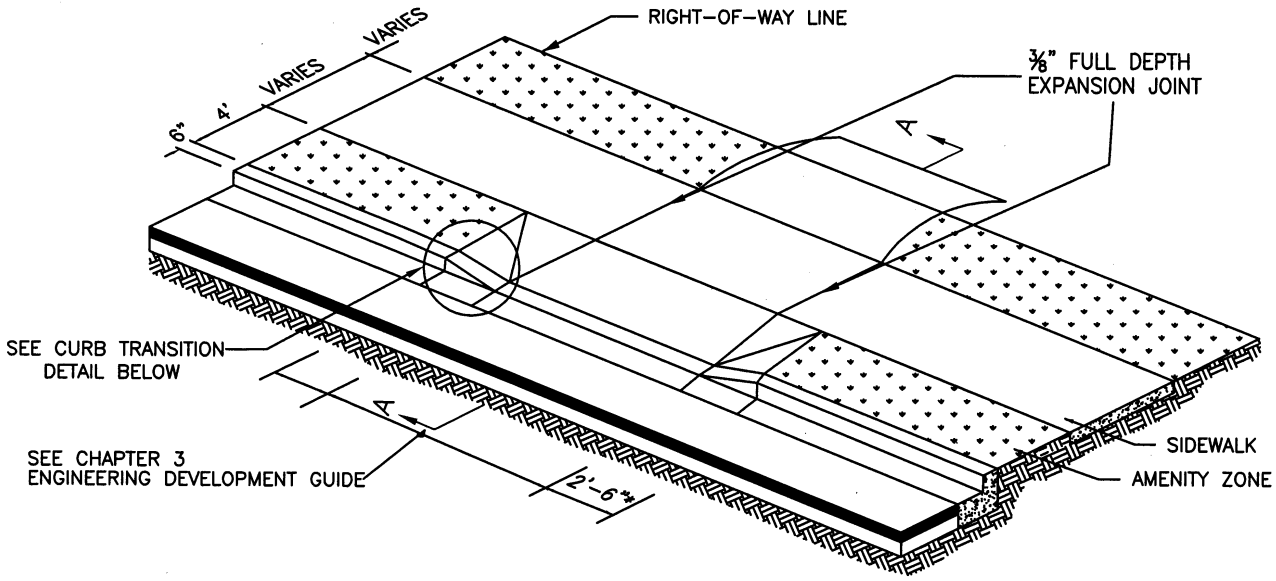
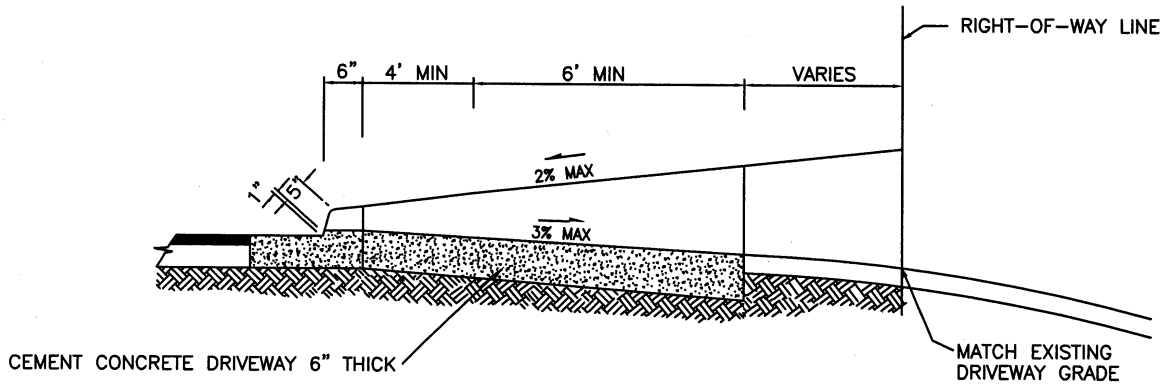
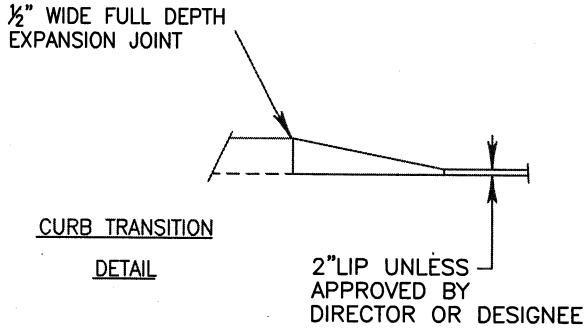


ISOMETRIC VIEW



SECTION A-A



CURB TRANSITION

DETAIL

*WING DIMENSIONS MAY REQUIRE MODIFICATION TO MEET ADA STANDARDS.

NOTE:

1. MATERIAL – WSDOT CONCRETE CLASS 4000psi.
2. SEE CHAPTER 3, ENGINEERING DEVELOPMENT GUIDE.
3. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED IF DRIVEWAY WIDTH IS 10' OR GREATER.
4. CURB SHALL BE IN COMPLIANCE WITH STND DWG 312.
5. MODIFICATION TO THIS DESIGN SHALL BE APPROVED BY THE DIRECTOR OR DESIGNEE THROUGH A VARIANCE REQUEST.
6. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.

CITY OF SHORELINE

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Driveway: Reverse Slope

303

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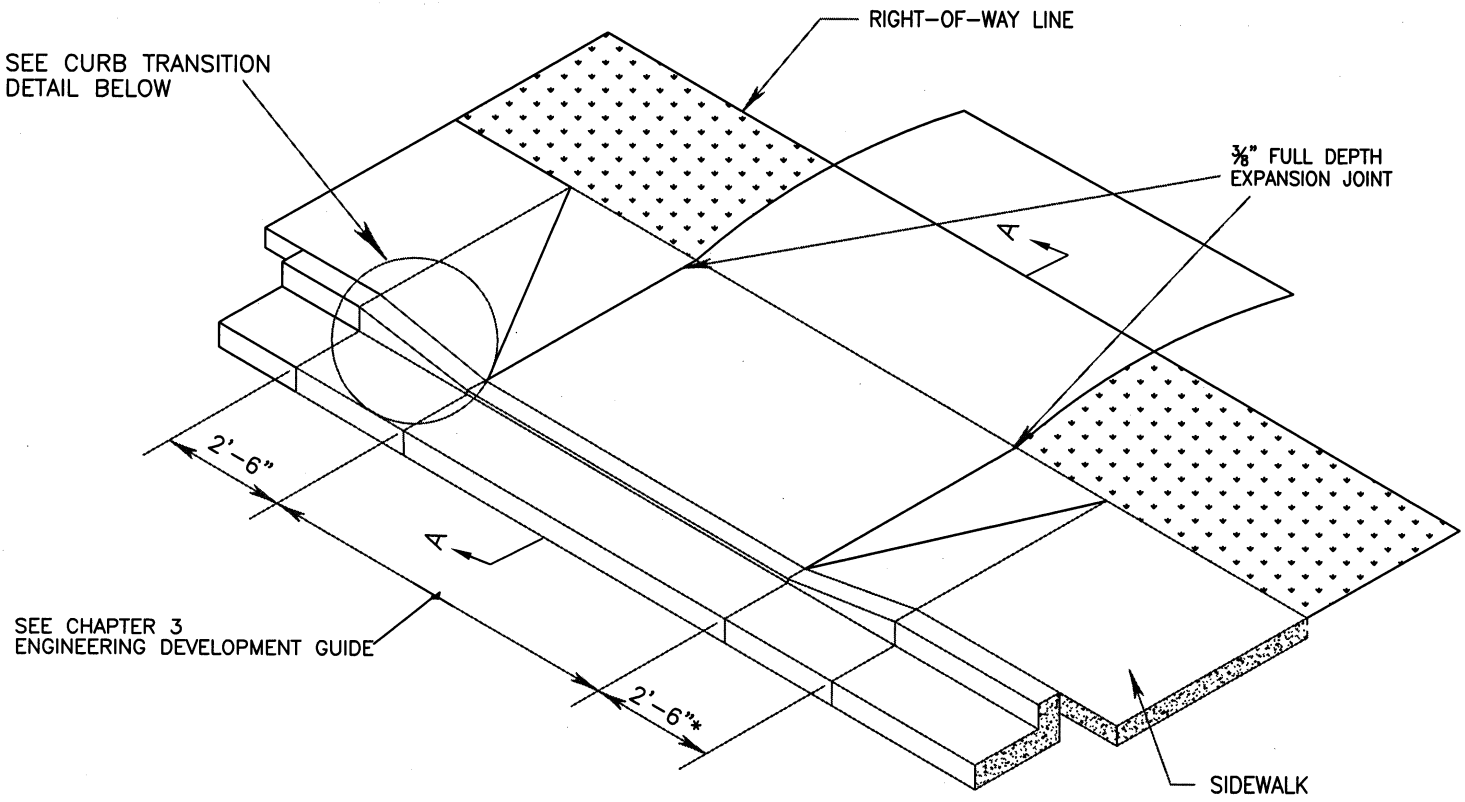
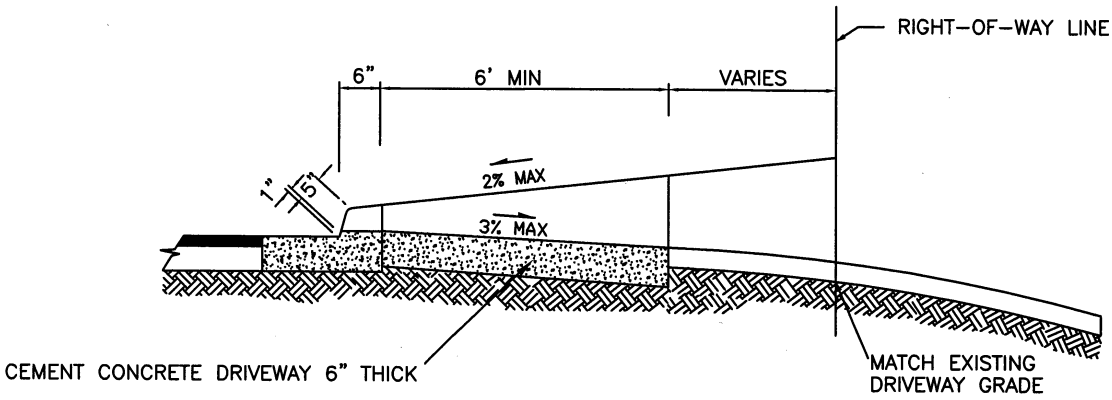
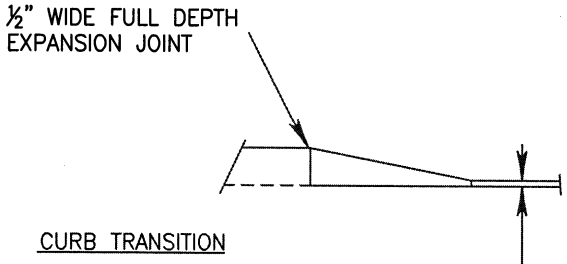


ISOMETRIC VIEW



SECTION A-A



CURB TRANSITION DETAIL

*WING DIMENSIONS MAY REQUIRE MODIFICATION TO MEET ADA STANDARDS.

NOTE:

1. MATERIAL – WSDOT CONCRETE CLASS 4000psi.
2. SEE CHAPTER 3, ENGINEERING DEVELOPMENT GUIDE.
3. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED IF DRIVEWAY WIDTH IS 10' OR GREATER.
4. CURB SHALL BE IN COMPLIANCE WITH STND DWG 312.
5. MODIFICATION TO THIS DESIGN SHALL BE APPROVED BY THE DIRECTOR OR DESIGNEE THROUGH A VARIANCE REQUEST.
6. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.

CITY OF SHORELINE

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EXPIRES: 4/27/07

Driveway: Reverse Slope without Amenity Zone

304

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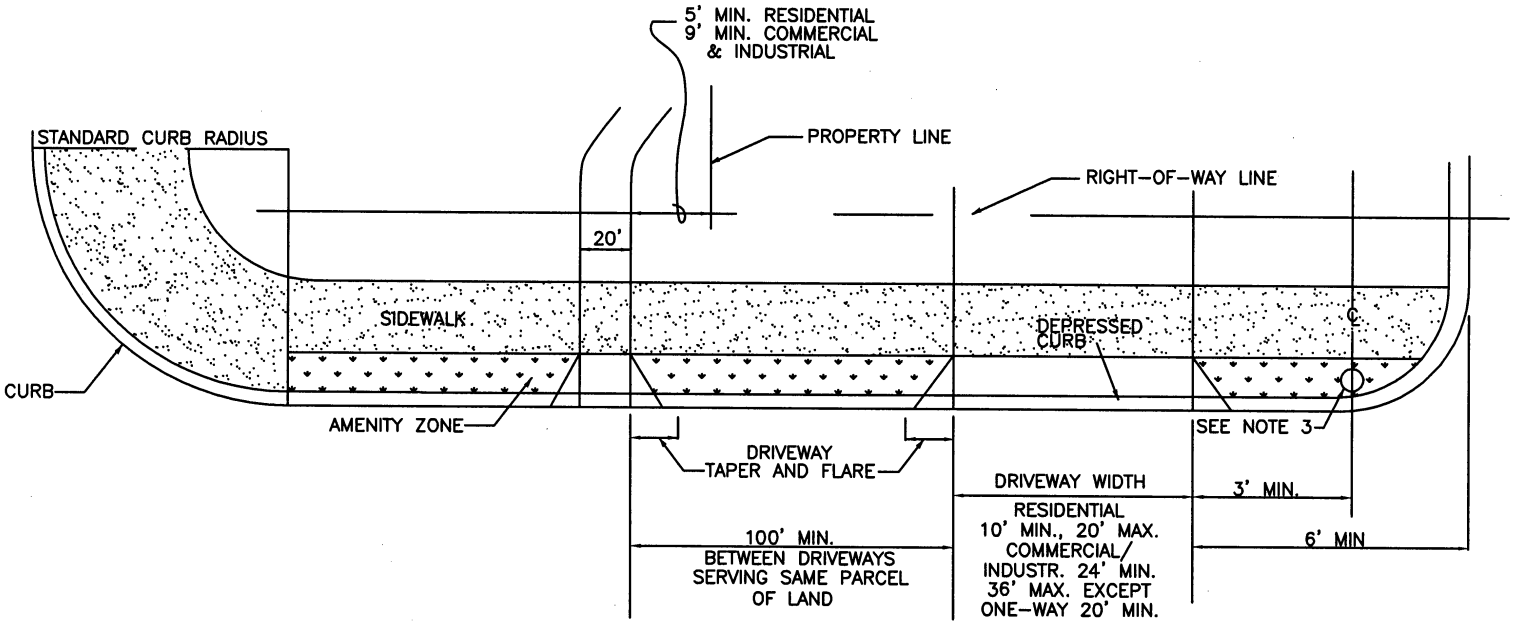
Revision Date April 2005



NOTES:

1. NO PORTION OF ANY DRIVEWAY SHALL ENCROACH IN CURB RETURN FOR INTERSECTION.
2. COMMERCIAL/INDUSTRIAL DRIVEWAYS MUST BE APPROVED BY THE ENGINEER, CONSIDERING BOTH TRAFFIC SAFETY AND THE ACTIVITY BEING SERVED. ALL COMMERCIAL/INDUSTRIAL DRIVEWAYS SHALL HAVE AN EXPANSION JOINT LOCATED MID-WIDTH.
3. FOR ROADWAY CLEARANCE OF UTILITY POLES, FIRE HYDRANTS, AND OTHER STRUCTURES SEE CHAPTER 2, ENGINEERING DEVELOPMENT GUIDE.
4. DRIVEWAYS SHALL BE LOCATED AS FAR FROM THE INTERSECTION AS POSSIBLE.
5. NO CATCH BASINS, METER BOXES, SEWER MANHOLES, STORM DRAIN MANHOLES OR CLEANOUTS IN DRIVEWAY AREA.

CITY OF SHORELINE

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Location & Width of New Driveways

305

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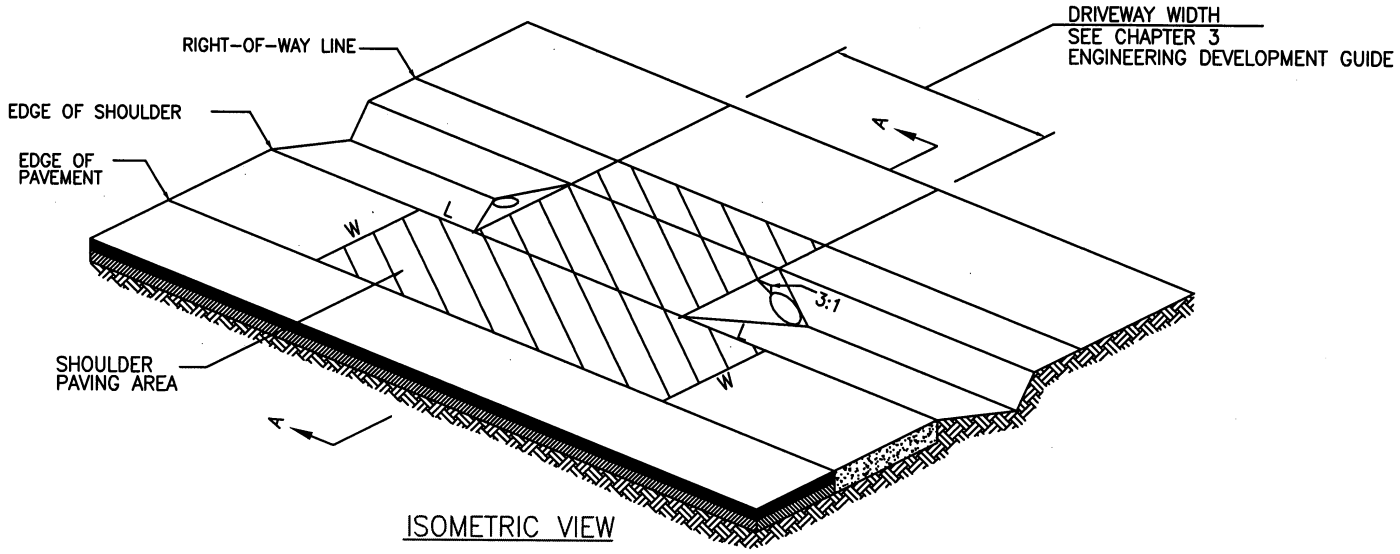
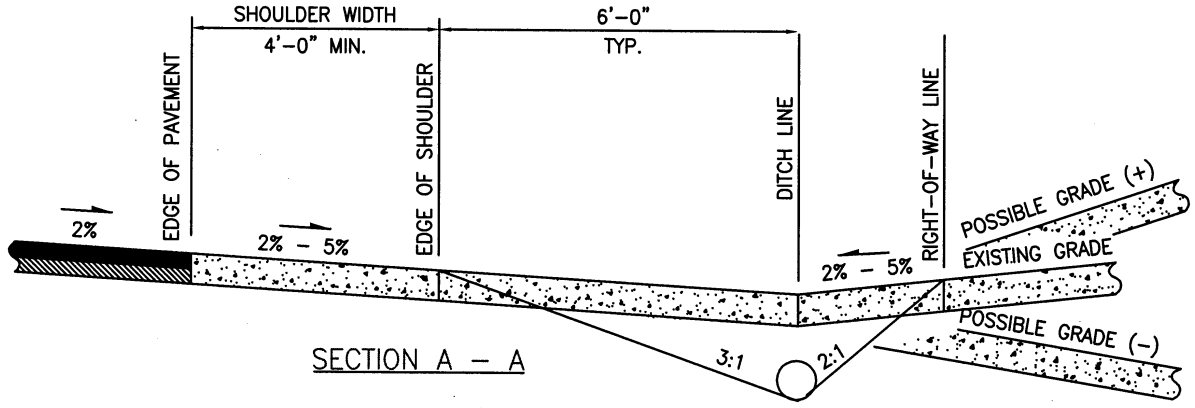


ISOMETRIC VIEW



SECTION A – A

NOTES:

1. ALL COMMERCIAL/INDUSTRIAL DRIVEWAYS SHALL HAVE AN EXPANSION JOINT LOCATED MID-WIDTH.
2. PIPE SHALL BE:
   A. SIZED TO CONVEY COMPUTED STORM WATER RUNOFF, AND
   B. MIN. 12" DIAM., AND
   C. EQUAL TO OR LARGER THAN EXISTING PIPES WITHIN 500' UPSTREAM.
3. EXPOSED PIPE ENDS SHALL BE BEVELED TO MATCH THE SLOPE FACE AND PROJECT NO MORE THAN 2" BEYOND SLOPE SURFACE. PROJECTING HEADWALLS ARE NOT ACCEPTABLE.
4. PIPE SHALL HAVE MIN. COVER OF 24" TO FINISH GRADE UNLESS APPROVED BY DIRECTOR OR DESIGNEE & MANUFACTURER RECOMENDATIONS.
5. PIPE SHALL BE INSTALLED IN A STRAIGHT UNIFORM ALIGNMENT AT A MIN. 0.5% SLOPE (0.5 FT. PER 100 FT.) WITH THE DOWNSTREAM END LOWER THAN THE UPSTREAM END.
6. PIPE MAY BE OMITTED IF ROADSIDE DITCH DOES NOT EXIST AND DRIVEWAY DOES NOT BLOCK NATURAL FLOW.
7. DRIVEWAY SLOPE SHALL MATCH TO BACK EDGE OF SHOULDER, BUT SHOULDER SLOPE AND EDGE OF SHOULDER SHALL NOT BE ALTERED AS A RESULT OF DRIVEWAY CONSTRUCTION.
8. PAVED DRIVEWAYS SHALL BE PAVED THROUGH RIGHT-OF-WAY WITH A.C. OR B.S.T. (4" MIN), BUT NOT P.C.C.
9. GRAVEL DRIVEWAYS SHALL BE PAVED BETWEEN THE EDGE OF PAVEMENT AND R/W WITH A.C. OR B.S.T. ONLY WITH DIMENSIONS L=W.
10. SEE CHAPTER 3, ENGINEERING DEVELOPMENT GUIDE.
11. SHOULDER SHALL BE IN COMPLIANCE WITH STND DWG 205.

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Shoulder & Ditch Section Driveway

306

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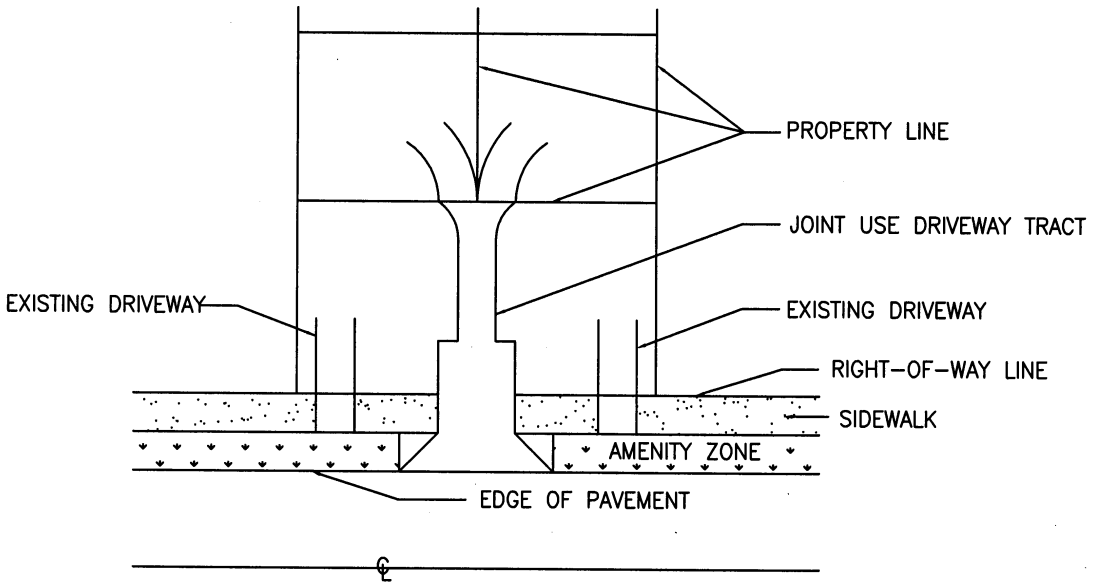
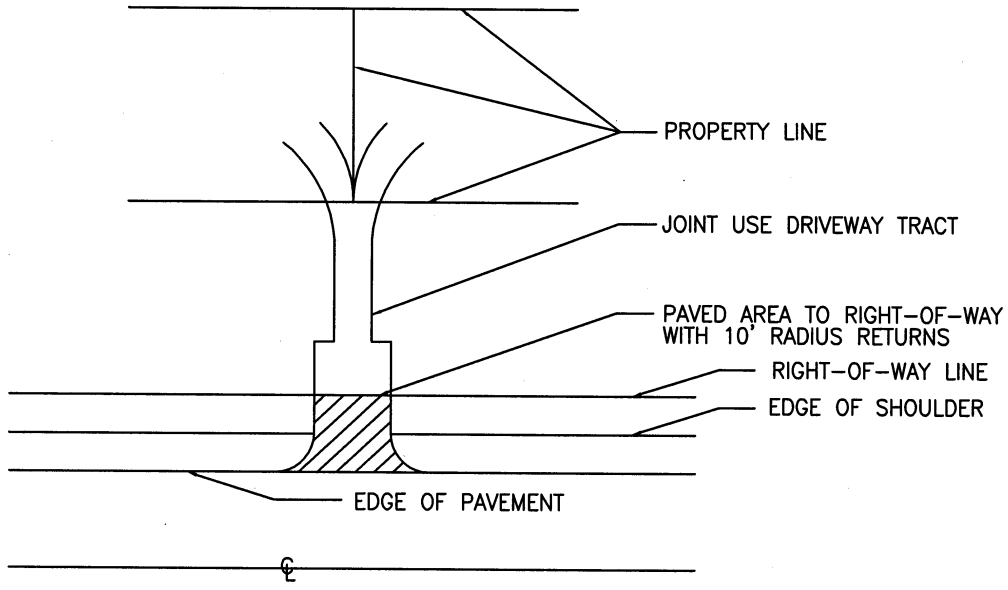


URBAN



RURAL

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Joint Use Driveway Tract

307

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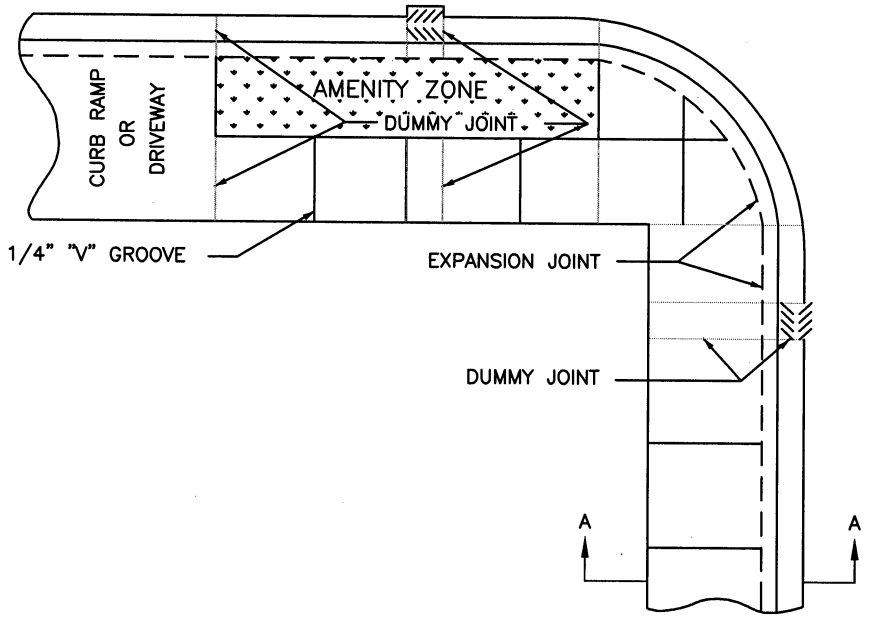
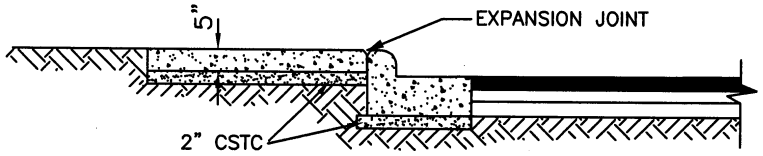


VERTICAL CURB & SIDEWALK



SECTION A–A

DUMMY JOINT @ MAX. 15' C–C

EXPANSION JOINT ALONG CURB

1/4" "V" GROOVE @ MAX. 5' C–C

NOTES:

1. FOR INTEGRAL POUR CONSTRUCTION, ¼" EDGED GROOVE MAY REPLACE EXPANSION JOINT AT INTERFACE BETWEEN CURB AND ADJACENT SIDEWALK.

2. ROLLED CURB SHALL BE USED ONLY TO MATCH EXISTING CONDITIONS OR WITH DIRECTOR OR DESIGNEE'S APPROVAL.

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Curb & Sidewalk Joints

309

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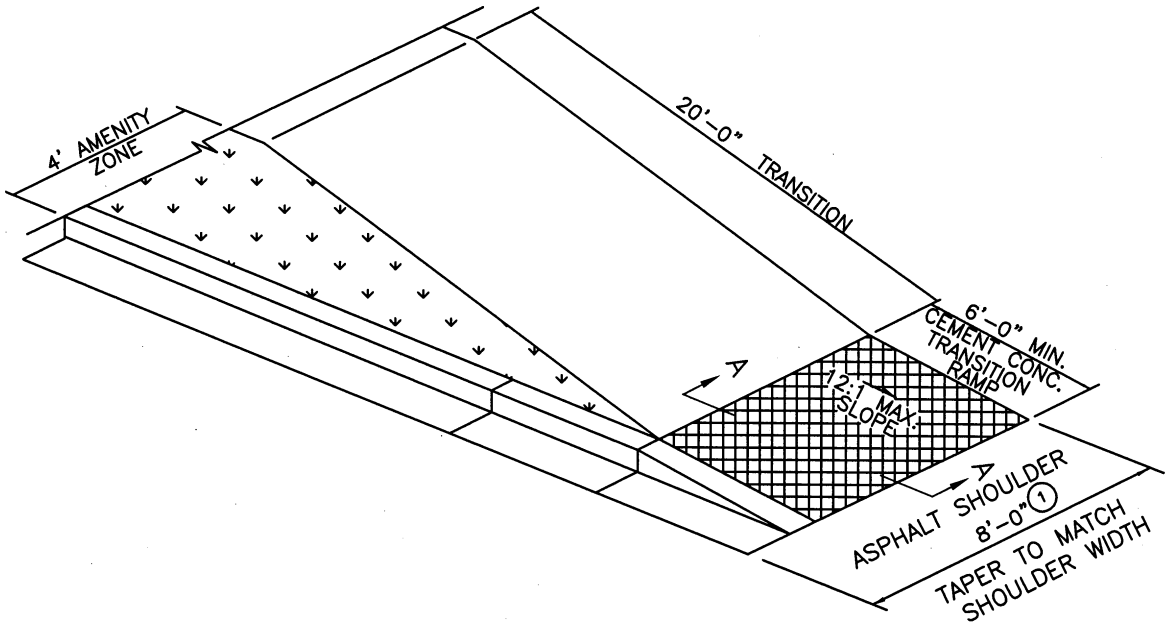

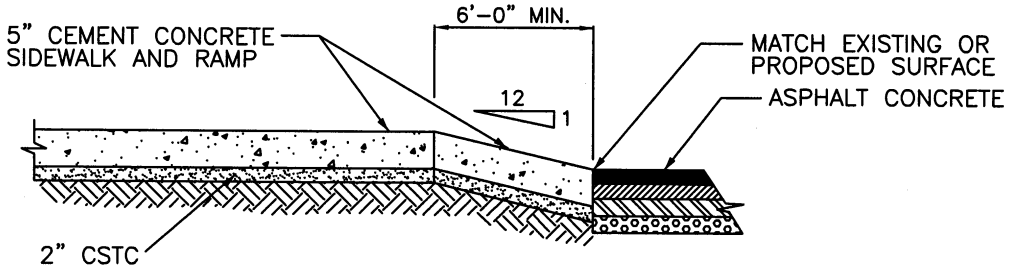

SECTION A–A

NOTES:

(1) FOR WIDTHS OF PAVEMENT AND SHOULDER SEE ENGINEERING DEVELOPMENT GUIDE AND STND DWG 205.

2. FOR WIDTHS OF SIDEWALK CHAPTER 3, ENGINEERING DEVELOPMENT CODE.

3. FOR CURB AND SIDEWALK JOINTS SEE STND DWG 309.

4. TRANSITION RAMP SHALL BE TEXTURED BY IMPRINT OF METAL GRID WITH 1/2" SPACING.

CITY OF SHORELINE

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Cement Concrete Sidewalk Transition to Asphalt

310

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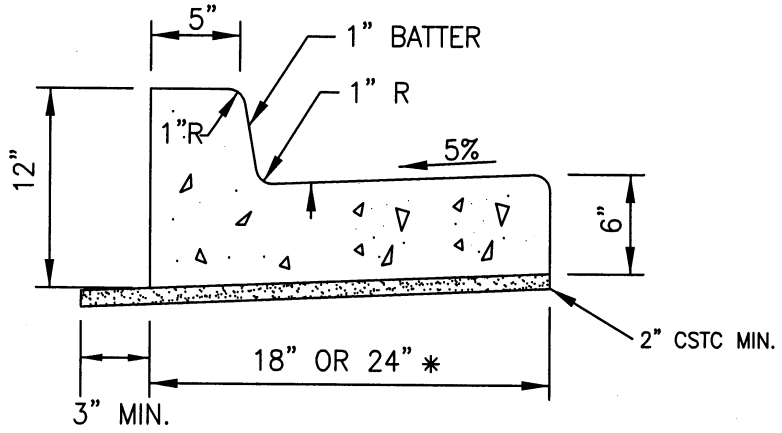
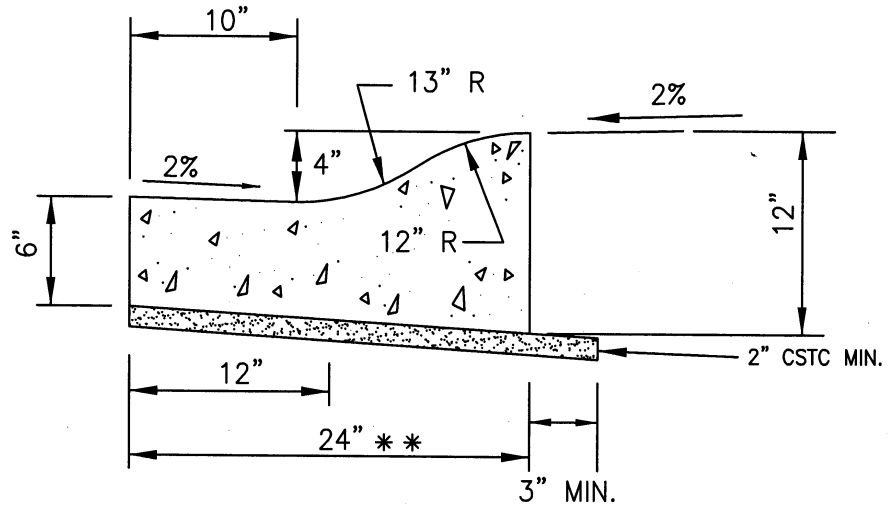


TYPE A CURB AND GUTTER

* SEE CHAPTER 3 , ENGINEERING DEVELOPMENT GUIDE FOR USE RESTRICTIONS.

NOTE:
MEDIAN CURBS SHALL MATCH ROADWAY CROSS SLOPES



ROLLED CURB AND GUTTER

** SEE CHAPTER 3 , ENGINEERING DEVELOPMENT GUIDE FOR USE RESTRICTIONS.

NOTE:

1. MATERIAL – WSDOT CONCRETE CLASS 4000psi.

CITY OF SHORELINE

Public Works
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Curbs

312

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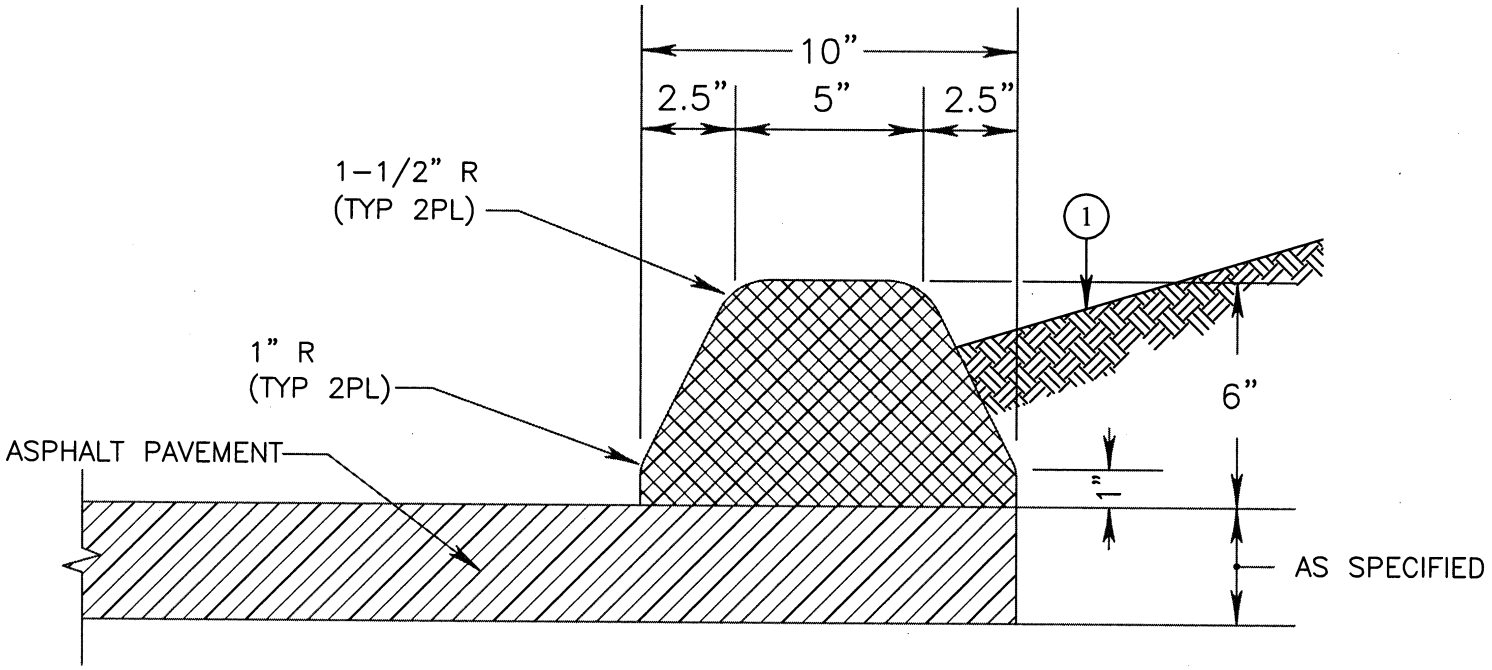

NOTE:

(1) EXTRUDED CURB SHALL BE SUPPORTED ON ONE SIDE WITH SOIL, CONCRETE, OR ASPHALT FOR STABILITY

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Extruded Curbs

313

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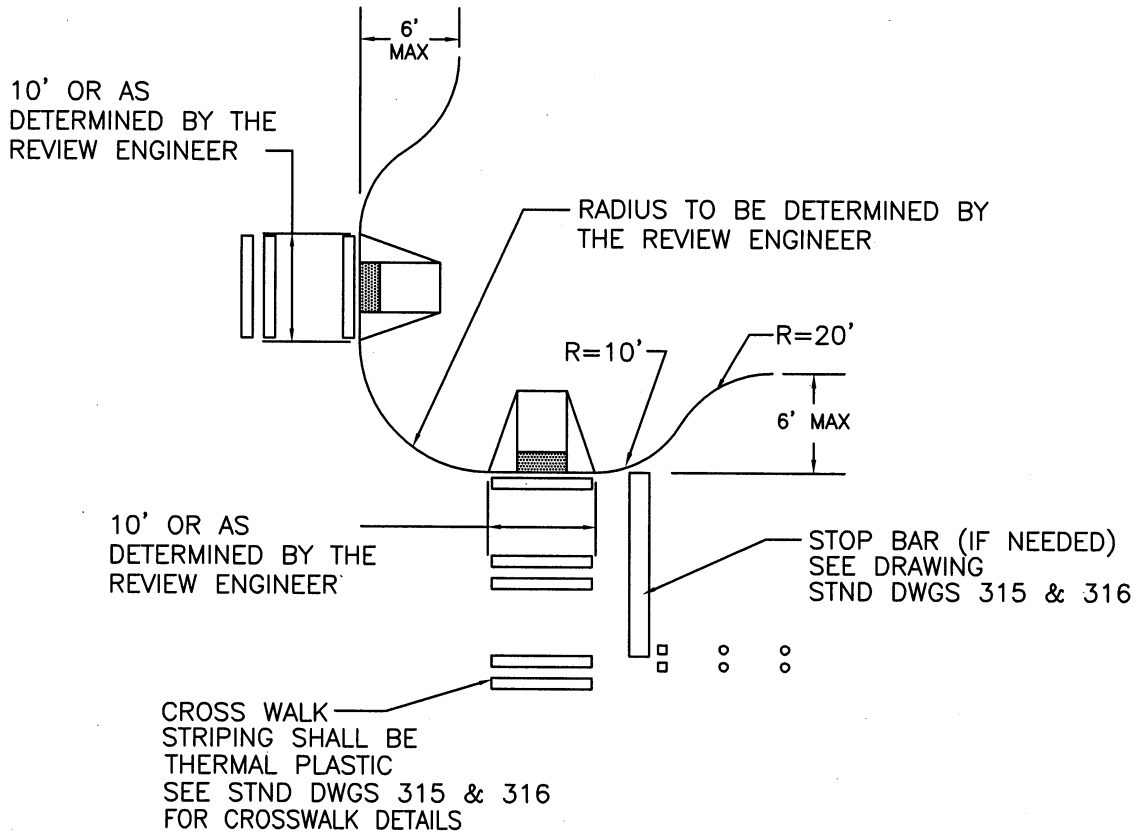

NOTES:

1. INTERSECTION RADII SHALL ACCOMMODATE DESIGN VEHICLES APPLICABLE TO STREET.
2. LENGTH OF CURB EXTENSIONS MUST RECOGNIZE SITE CONDITIONS, E.G. DRIVEWAY LOCATIONS.
3. IF CURB EXTENSIONS ARE PLACED ON DIAGONALLY OPPOSITE CORNERS OF AN INTERSECTION, A MINIMUM CLEAR OFFSET BETWEEN EXTENSIONS OF 15' SHOULD BE PROVIDED TO MINIMIZE VEHICULAR CONFLICTS WITHIN THE INTERSECTION.
4. ALL CURB EXTENSIONS SHALL BE APPROVED BY THE DIRECTOR OR DESIGNEE.

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Curb Extension

314

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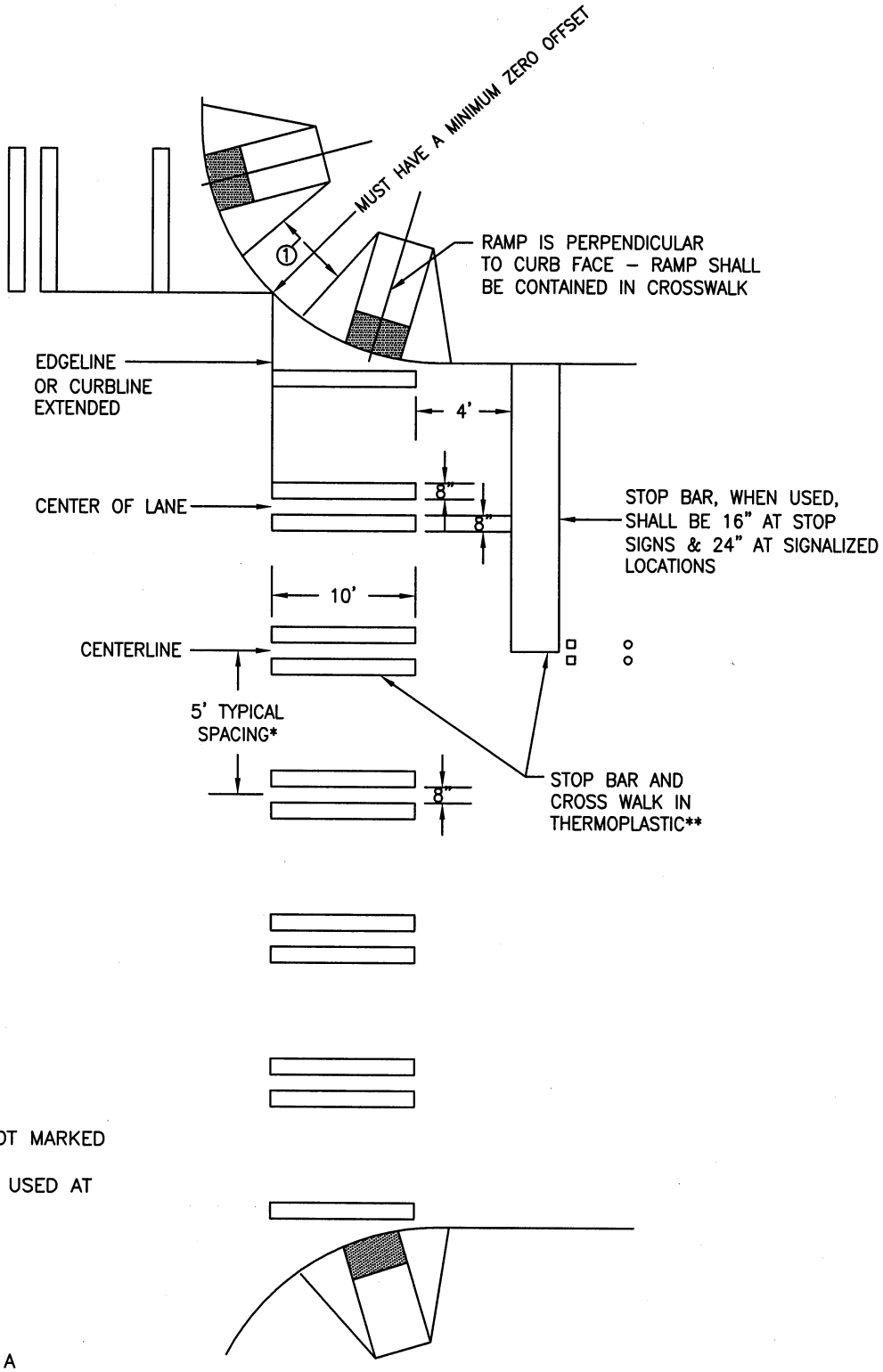

* IF LANES LINES ARE NOT MARKED

** STOPBAR ONLY TO BE USED AT STOPSIGNS & SIGNALS

NOTE:

① CURB RAMPS SHALL BE A MINIMUM OF 2' APART

CITY OF SHORELINE

Public Works
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Crosswalk with Single Approach Lane

315

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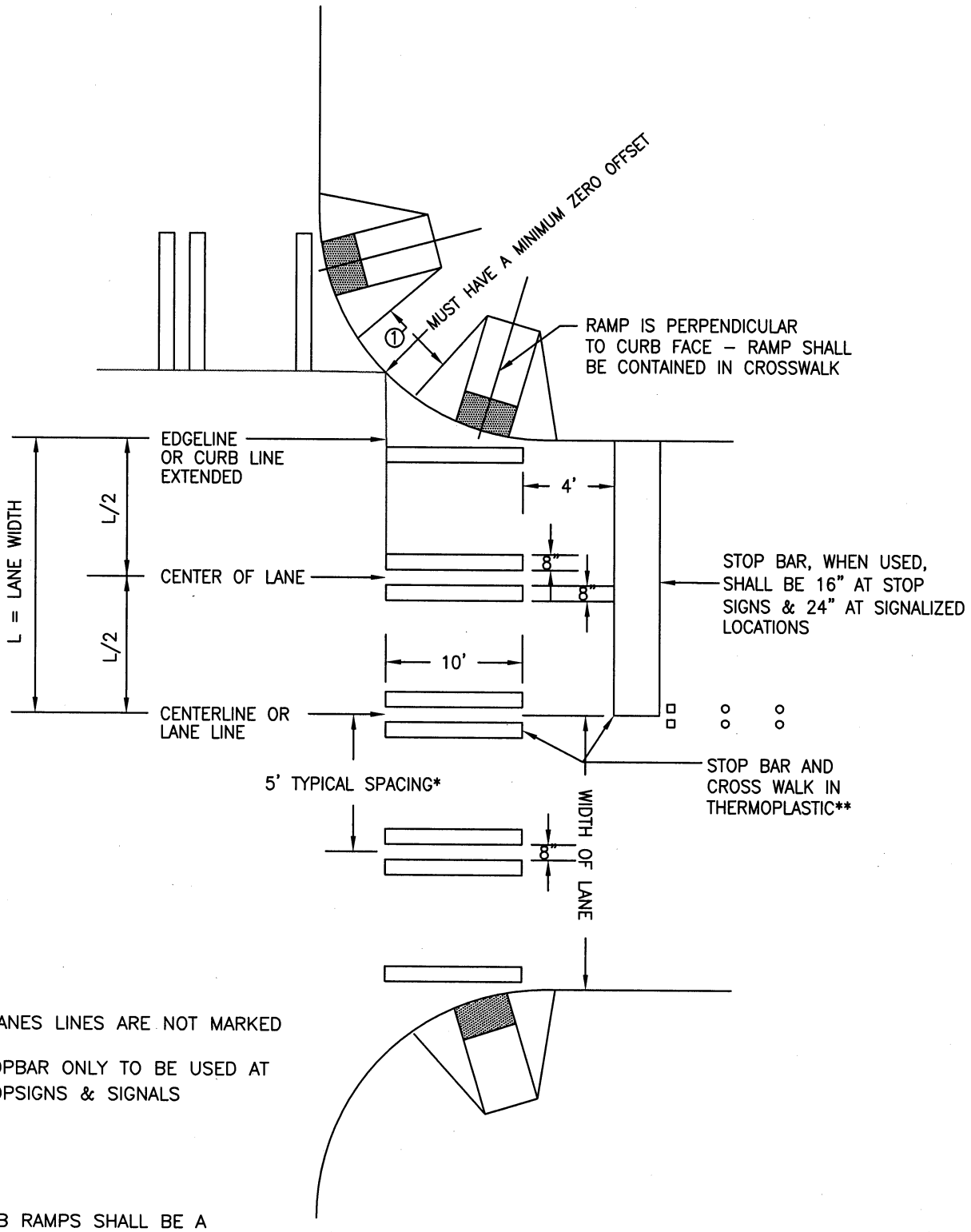

* IF LANES LINES ARE NOT MARKED

** STOPBAR ONLY TO BE USED AT STOPSIGNS & SIGNALS

NOTE:

(1) CURB RAMPS SHALL BE A MINIMUM OF 2' APART

CITY OF SHORELINE

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Crosswalk with Multiple Approach Lanes

316

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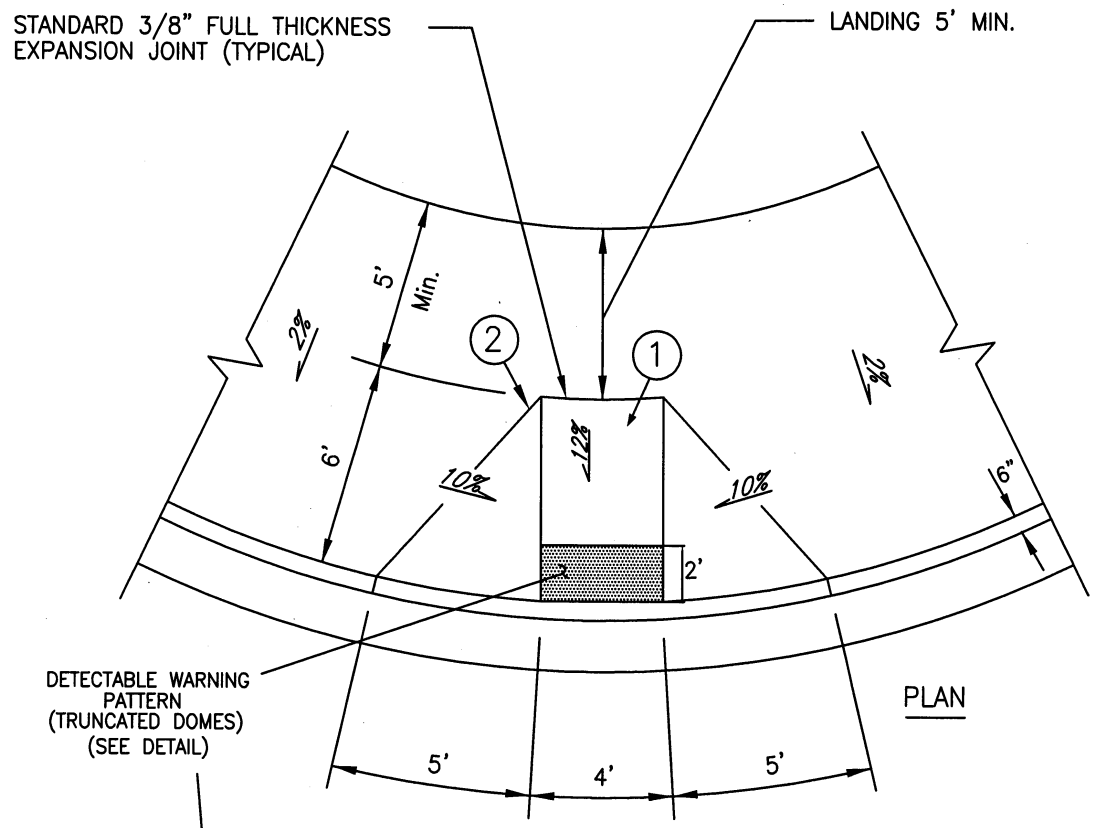
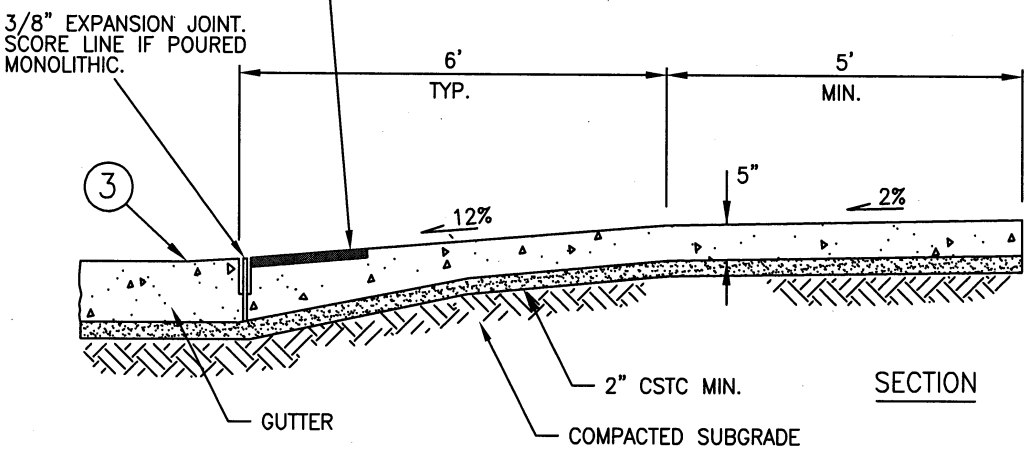
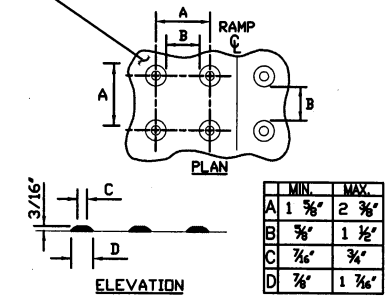




DETECTABLE WARNING PATTERN (TRUNCATED DOMES) SHALL BE BLACK UNLESS APPROVED BY THE DIRECTOR OR DESIGNEE



	MIN.	MAX.
A	1 5/8"	2 3/8"
B	3/8"	1 1/2"
C	7/16"	3/4"
D	7/8"	1 7/16"

DETECTABLE WARNING PATTERN DETAIL
TRUNCATED DOMES
(SEE NOTE 6)

NOTES

1. BROOM FINISH PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL
2. FULL DEPTH EXPANSION JOINT
3. NO LIP AT GUTTER LINE
4. CURB RAMPS WILL BE POURED INTEGRAL WITH SIDEWALK AND SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES, BUT NOT AT END OF RAMP ADJACENT TO THE ROADWAY.
5. CATCH BASINS & INLETS SHALL BE INSTALLED A MINIMUM OF 12" FROM THE BASE OF CURB RAMP LANDING.
6. DETECTABLE WARNING PATTERN (TRUNCATED DOMES) SHALL BE FLUSH WITH RAMP TEXTURE +/- NO GREATER THAN 1/4"
7. CONCRETE SHALL BE A MINIMUM OF 5" NOT INCLUDING DETECTABLE WARNING PATTERN (TRUNCATED DOMES).

CITY OF SHORELINE

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Curb Ramp: Type A

318

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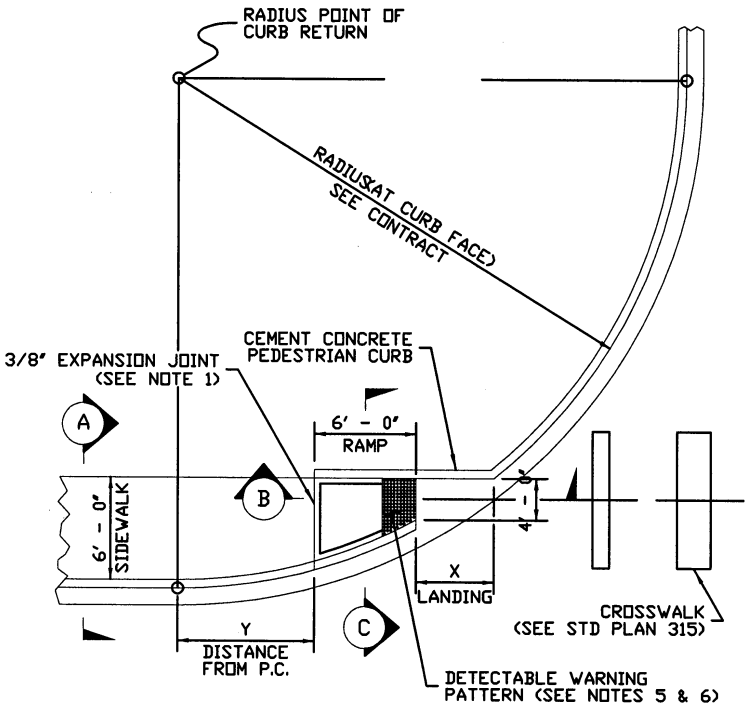
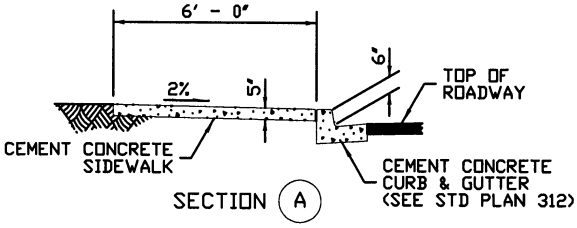
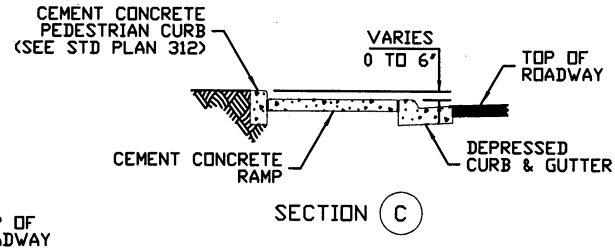


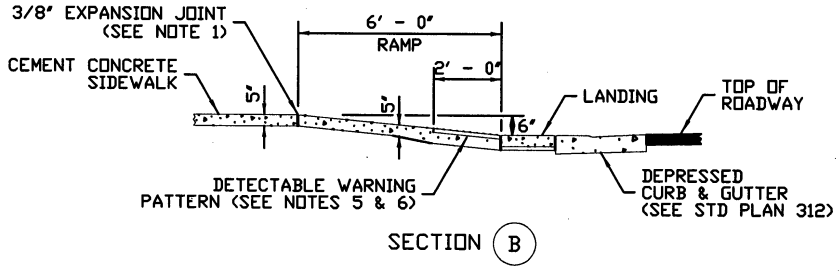
RADIUS (AT CURB FACE)	X	Y
20 FEET		2'-7 1/4"
30 FEET	7'-11 3/4"	4'-8 1/4"
40 FEET	9'-5 1/4"	6'-5"
50 FEET	10'-8 3/4"	7'-11 1/4"

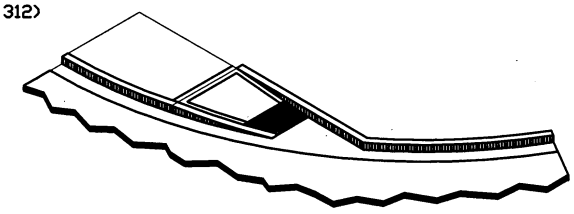
INTERMEDIATE RADII CAN BE INTERPOLATED

SIDEWALK RAMP TYPE A-3
PLAN









ISOMETRIC VIEW

NOTES

1. FULL DEPTH EXPANSION JOINT PER STD PLAN 309
2. CURB RAMPS SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES
3. 3/4" RADIUS DUMMY JOINT
4. CATCH BASINS & INLETS SHALL BE INSTALLED A MINIMUM OF 12" FROM THE BASE OF CURB RAMP LANDING.
5. DETECTABLE WARNING PATTERN (TRUNCATED DOMES) SHALL BE FLUSH WITH RAMP SURFACE +/- NO GREATER THAN 1/4".
6. SEE STD PLAN 318 FOR DETECTABLE WARNING PATTERN (TRUNCATED DOMES)

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Curb Ramp: Type A-3

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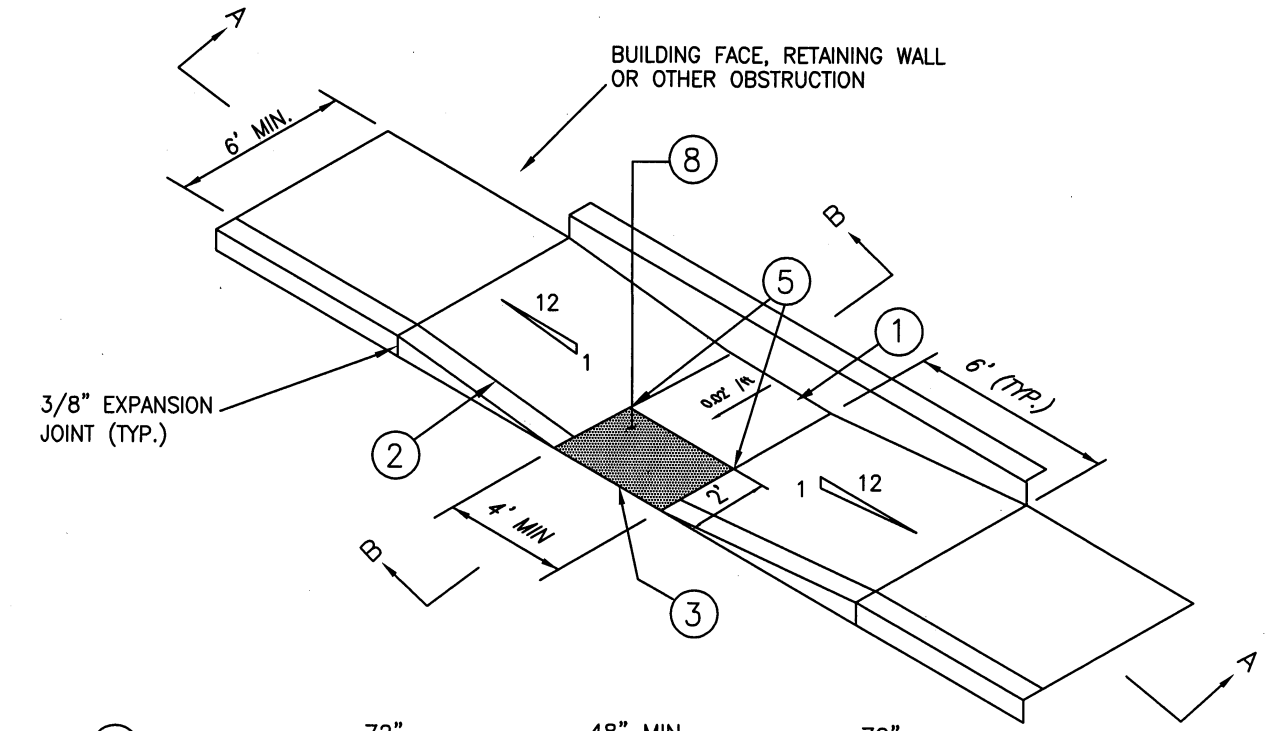
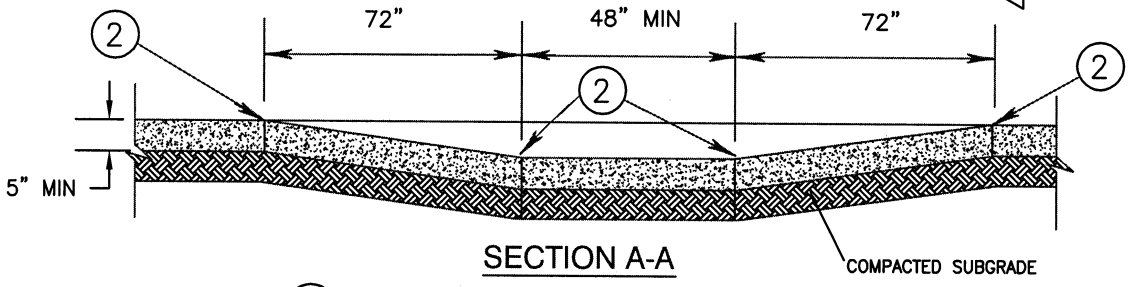
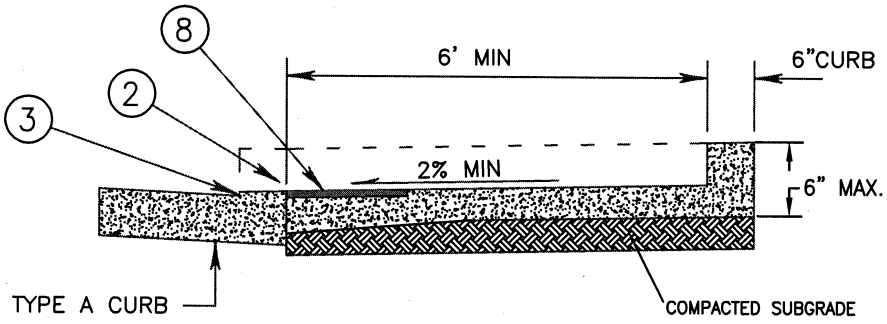




SECTION A-A



SECTION B-B

NOTES:

(1) BROOM FINISH PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL

(2) FULL DEPTH EXPANSION JOINT

(3) NO LIP AT GUTTER LINE (NOT TO EXCEED ½").

4. CURB RAMPS SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES

(5) 3/4" RADIUS DUMMY JOINT

6. CATCH BASINS & INLETS SHALL BE INSTALLED A MINIMUM OF 12" FROM THE BASE OF CURB RAMP LANDING.

7. DETECTABLE WARNING PATTERN (TRUNCATED DOMES) SHALL BE FLUSH WITH RAMP TEXTURE +/- NO GREATER THAN 1/4".

(8) SEE STND DWG 318 FOR DETECTABLE WARNING PATTERN (TRUNCATED DOMES)

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Curb Ramp: Type C

320

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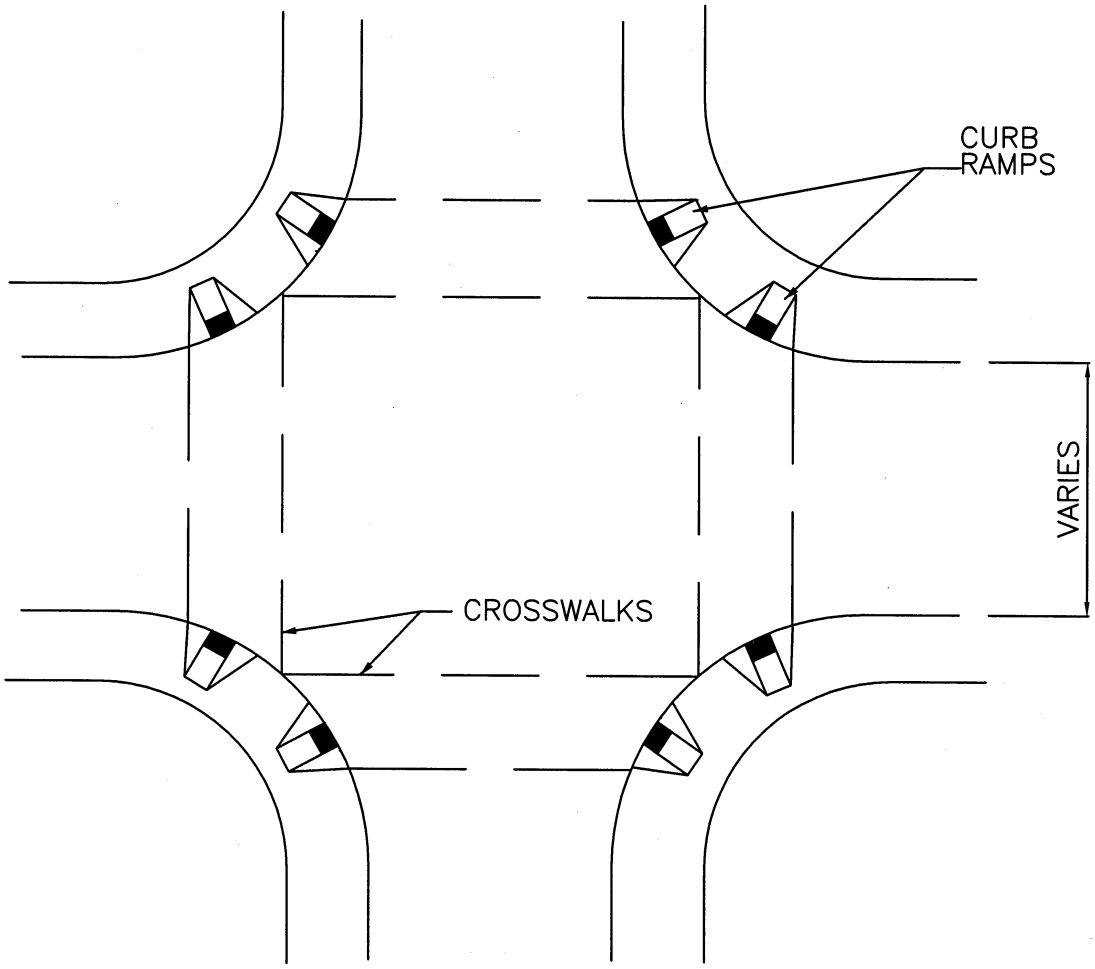

RAMP LOCATIONS

FOR NEW CONSTRUCTION
OR STANDARD RECONSTRUCTION

NOTES:

1. CURB RAMP CONSTRUCTION MUST COMPLY WITH CURRENT ADA STANDARDS.
2. CONSTRUCT RAMP WITH A MINIMUM 1' CLEARANCE FROM FIXED OBJECTS SUCH AS HYDRANTS, POLES, INLETS, AND OTHER UTILITIES.
3. CONSTRUCT RAMP IN ACCORDANCE WITH STND DWGS 318, 319 & 320..
4. CROSSWALKS ARE NOT ALWAYS MARKED.
5. WHEN RAMPS ARE CONSTRUCTED ON ONE SIDE OF STREET, RAMPS SHALL BE CONSTRUCTED AT CORRESPONDING LOCATIONS ON OPPOSITE SIDE OF STREET.
6. CROSSWALK SHALL INTERSECT AT THE CURB OR BEYOND – NOT IN THE STREET AREA.

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Curb Ramp Locations

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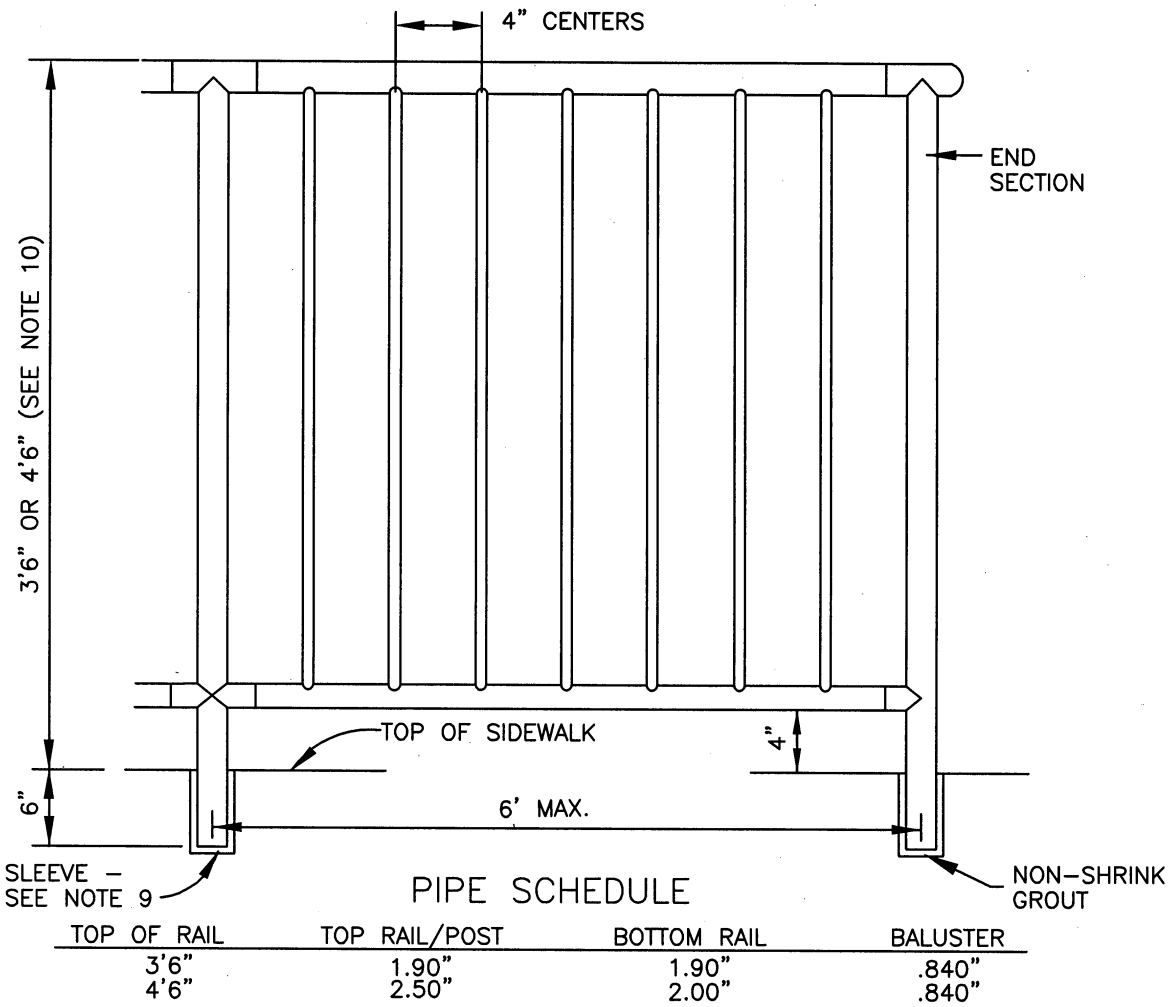

PIPE SCHEDULE

TOP OF RAIL	TOP RAIL/POST	BOTTOM RAIL	BALUSTER
3'6"	1.90"	1.90"	.840"
4'6"	2.50"	2.00"	.840"

NOTES:

1. RAILING SHALL BE CV PIPE RAIL, GALVANIZED STEEL OR APPROVED EQUIVALENT. INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.
2. SHOP DRAWINGS OF RAILING SHALL BE SUBMITTED FOR APPROVAL SHOWING COMPLETE DIMENSIONS AND DETAILS OF FABRICATION AND INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE SPECIFIED IN THE SHOP DRAWINGS.
3. ALL ALUMINUM PARTS SHALL BE GIVEN A CLEAR ANODIC COATING AT LEAST 0.0006 INCH THICK AND BE HOT WATER SEALED AND SHALL HAVE A UNIFORM FINISH.
4. PIPE RAILING AND PIPE RAILING SPLICES MAY BE HEATED TO NOT MORE THAN 400°F FOR A PERIOD NOT TO EXCEED 30 MINUTES TO FACILITATE FORMING OR BENDING.
5. CUTTING SHALL BE DONE BY SAWING OR MILLING AND ALL CUTS SHALL BE TRUE AND SMOOTH. FLAME CUTTING WILL NOT BE PERMITTED.
6. PIPE RAILING, PIPE BALUSTERS AND PIPE RAILING SPLICES SHALL BE ADEQUATELY WRAPPED TO ENSURE SURFACE PROTECTION DURING HANDLING AND TRANSPORTATION TO THE JOB SITE.
7. WELDING OF ALUMINUM SHALL BE IN ACCORDANCE WITH THE LATEST AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
8. ALLOW FOR EXPANSION AT APPROXIMATELY EVERY FOURTH POST.
9. RAILS, POSTS AND FORMED ELBOWS SHALL BE A.S.T.M. B-241 OR B-429 ALLOW 6063-T6 SCHEDULE 40 (STD. PIPE). BRACKETS, END CAPS AND OTHER FITTINGS SHALL BE A.S.T.M. 6063-T5. SPLICES AND REINFORCING SLEEVES SHALL BE DRAWN ALUMINUM TUBING 6063-T832. SLEEVE I.D. SHALL BE 1" GREATER THAN POST O.D.
10. TOP OF RAIL: 3 FEET 6 INCHES FOR PEDESTRIAN USES
    4 FEET 6 INCHES FOR COMBINED BICYCLE AND PEDESTRIAN USES

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Handrails

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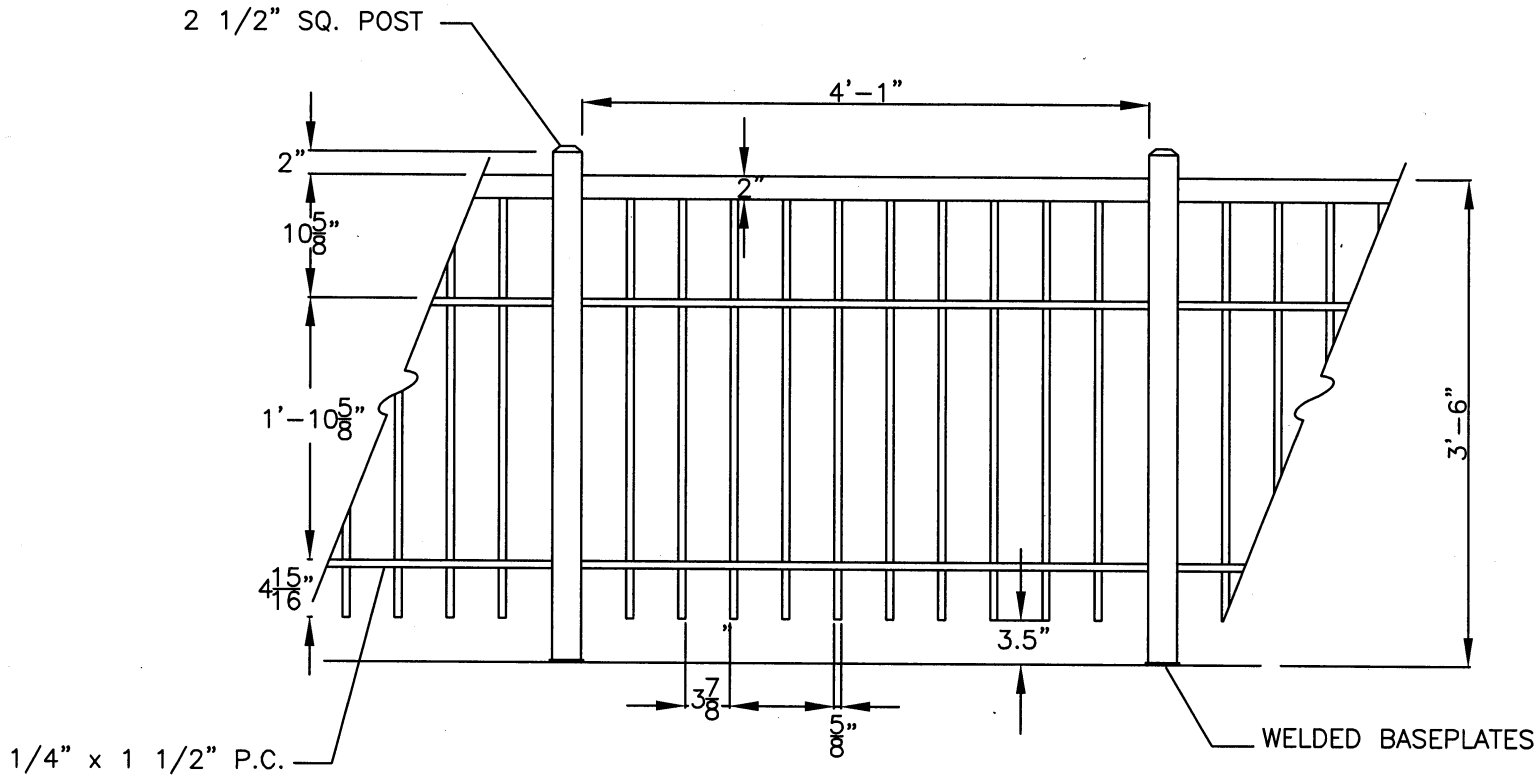

NOTES:

1. 50# RAIL LOADING PER 1997 UBC
2. ALL CONCEALED FASTENERS THROUGHOUT
3. MILD STEEL

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Public Right-of-Way Hand/Guardrails

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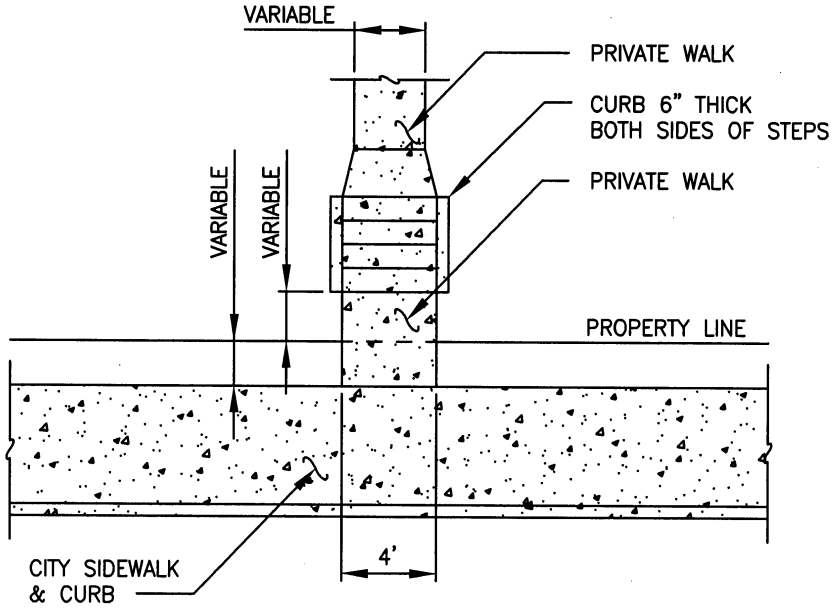
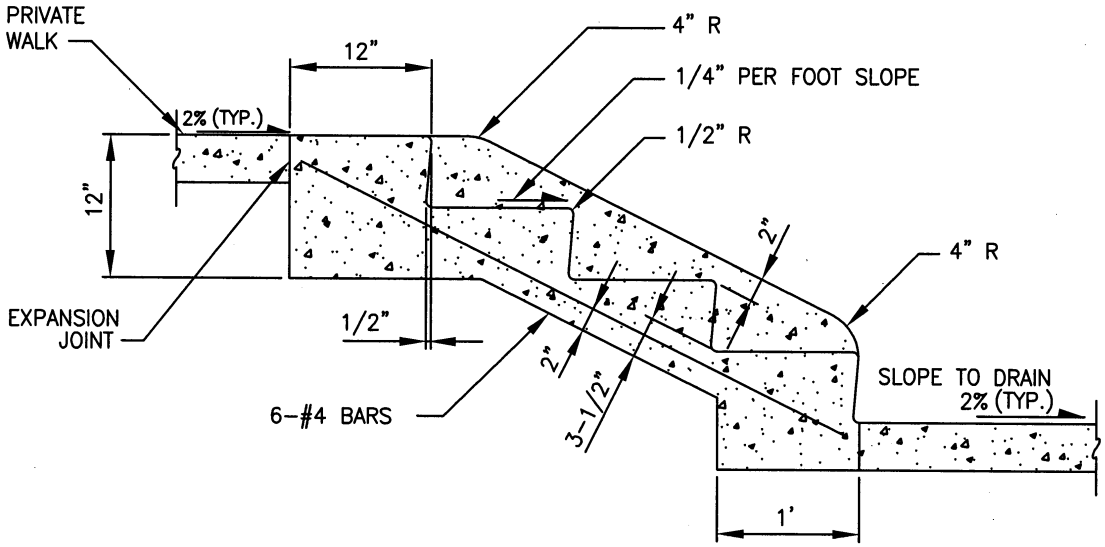


PLAN



SECTION

NOTES:

1. STEPS SHALL BE A MINIMUM OF 4'-0" WIDE, CURB TO CURB, PLUS 6" CURBS ON EACH SIDE.
2. CEMENT CONCRETE SHALL BE CLASS 4000psi TROWEL FINISH.
3. NUMBER OF STEPS SHALL SUIT INDIVIDUAL CONDITIONS, WITH TREAD AND RISER DIMENSIONS TO SUIT THE GRADE.
4. RISERS SHALL BE 5" MINIMUM, 7" MAXIMUM: TREAD SHALL BE 11" MINIMUM, 12" MAXIMUM.
5. HANDRAIL REQUIRED ON BOTH SIDES PER UBC.
6. ALL STEPS SHALL BE UNIFORM HEIGHT & DEPTH.

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Stairs

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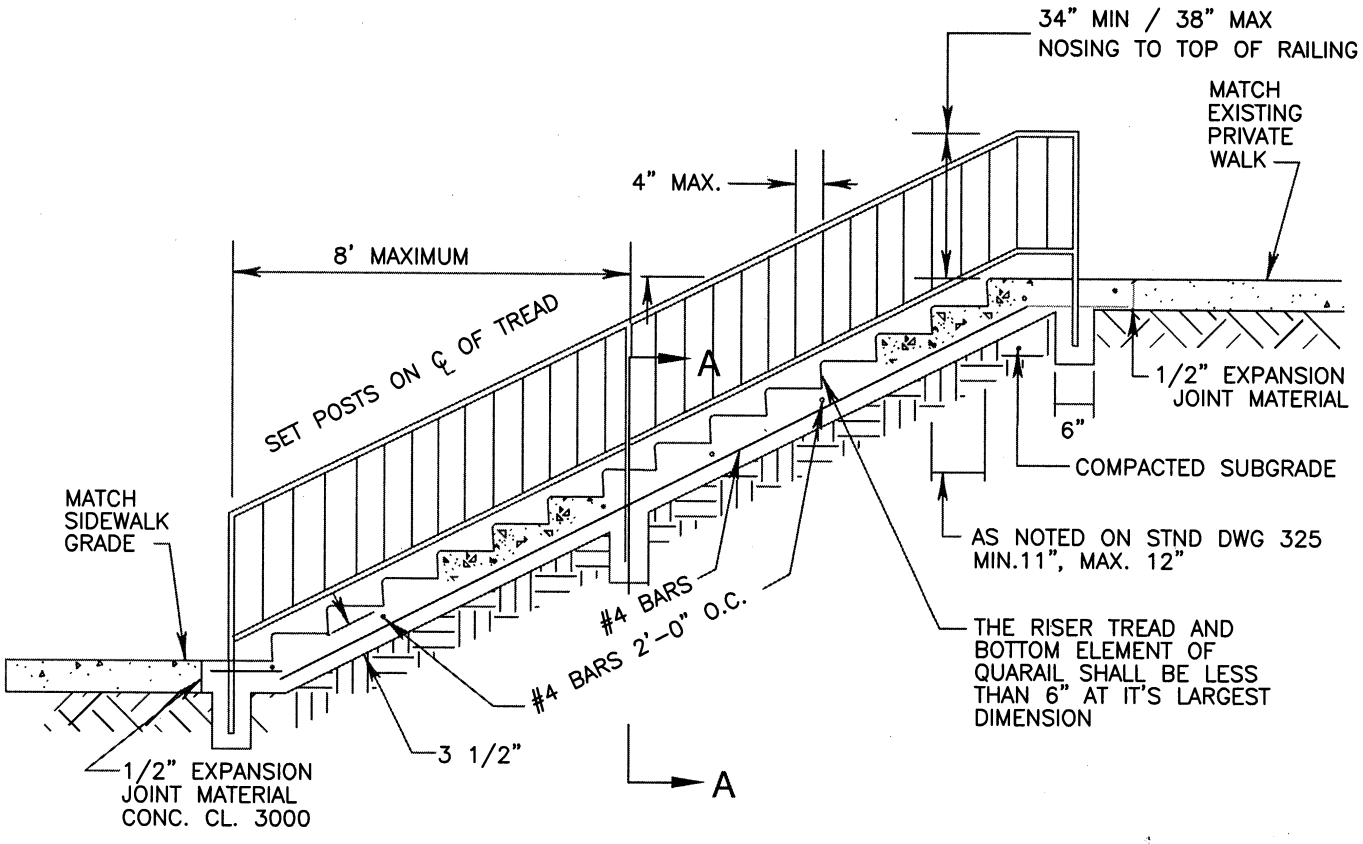
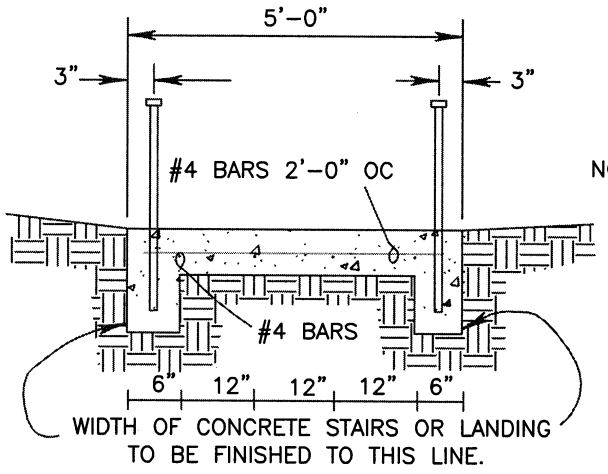
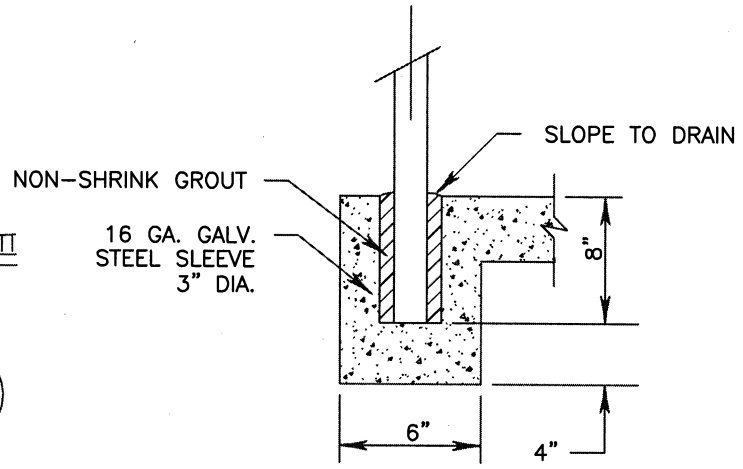




SECTION A-A



POST DETAIL

NOTES:

1. CEMENT CONCRETE STEPS AND CURBS SHALL BE CONSTRUCTED AS SHOWN ON STND DWG 325.
2. HEIGHT OF RAILING SHALL BE 36" MINIMUM, 38" MAXIMUM TOP OF NOSING TO TOP OF RAILING.
3. PEDESTRIAN RAILING SHALL BE CONSTRUCTED AS SHOWN ON STND DWG 323 & 324.
4. CLEAR SPACE BETWEEN BALUSTERS SHALL BE A MAXIMUM OF 4".
5. ALL STEPS SHALL HAVE HANDRAIL ON BOTH SIDES.

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Cement Concrete Stairway

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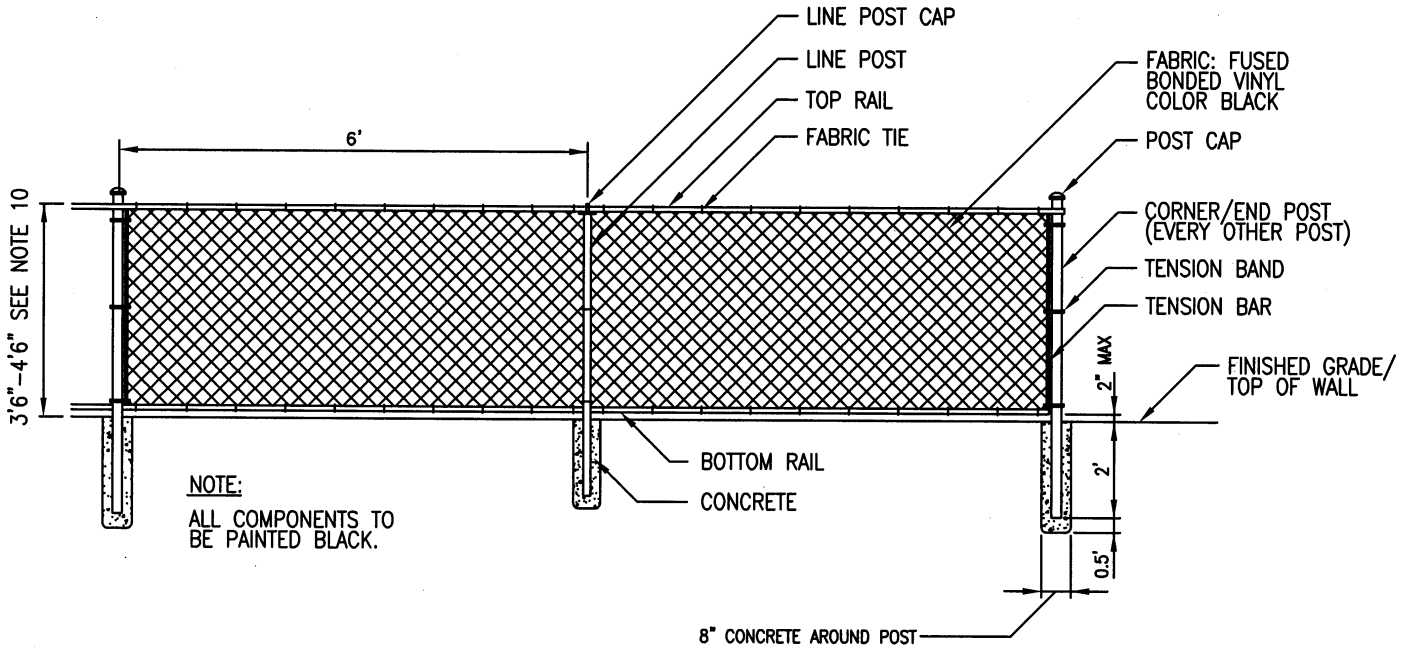

PIPE SCHEDULE

(ALL DIMENSIONS I.D.)

TOP/BOTTOM RAIL	CORNER/END POST	LINE POST
1.25"	2.5"	2"

NOTES:

1. RAILING SHALL BE ALUMINUM PIPE RAIL OR APPROVED EQUIVALENT. INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.
2. SHOP DRAWINGS OF RAILING SHALL BE SUBMITTED FOR APPROVAL SHOWING COMPLETE DIMENSIONS AND DETAILS OF FABRICATION AND INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE SPECIFIED IN THE SHOP DRAWINGS.
3. ALL ALUMINUM PARTS SHALL BE GIVEN A BLACK ANODIC COATING AT LEAST 0.0006 INCH THICK AND BE HOT WATER SEALED AND SHALL HAVE A UNIFORM FINISH.
4. WIRE FABRIC SHALL BE GIVEN A BLACK FUSED BONDED VINYL COATING TO MATCH FINISHED POSTS.
5. CUTTING SHALL BE DONE BY SAWING OR MILLING AND ALL CUTS SHALL BE TRUE AND SMOOTH. FLAME CUTTING WILL NOT BE PERMITTED.
6. ALL MATERIALS SHALL BE ADEQUATELY WRAPPED TO ENSURE SURFACE PROTECTION DURING HANDLING AND TRANSPORTATION TO THE JOB SITE.
7. ANY WELDING OF ALUMINUM SHALL BE IN ACCORDANCE WITH THE LATEST AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
9. RAILS, POSTS AND FORMED ELBOWS SHALL BE A.S.T.M B-241 OR B-429 ALLOY, 6063-T6 SCHEDULE 40 (STD. PIPE). BRACKETS, ENDCAPS AND OTHER FITTINGS SHALL BE A.S.T.M. 6063-T5. SPLICES AND REINFORCING SLEEVES SHALL BE DRAWN ALUMINUM TUBING 6063-T832.
10. TOP OF RAIL: 3 FEET 6 INCHES FOR PEDESTRIAN USES
    4 FEET 6 INCHES FOR COMBINED BICYCLE AND PEDESTRIAN USES
11. PUBLIC WORKS DIRECTOR OR DESIGNEE APPROVAL IS REQUIRED FOR THE USAGE OF CHAIN LINK FENCE

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Fencing

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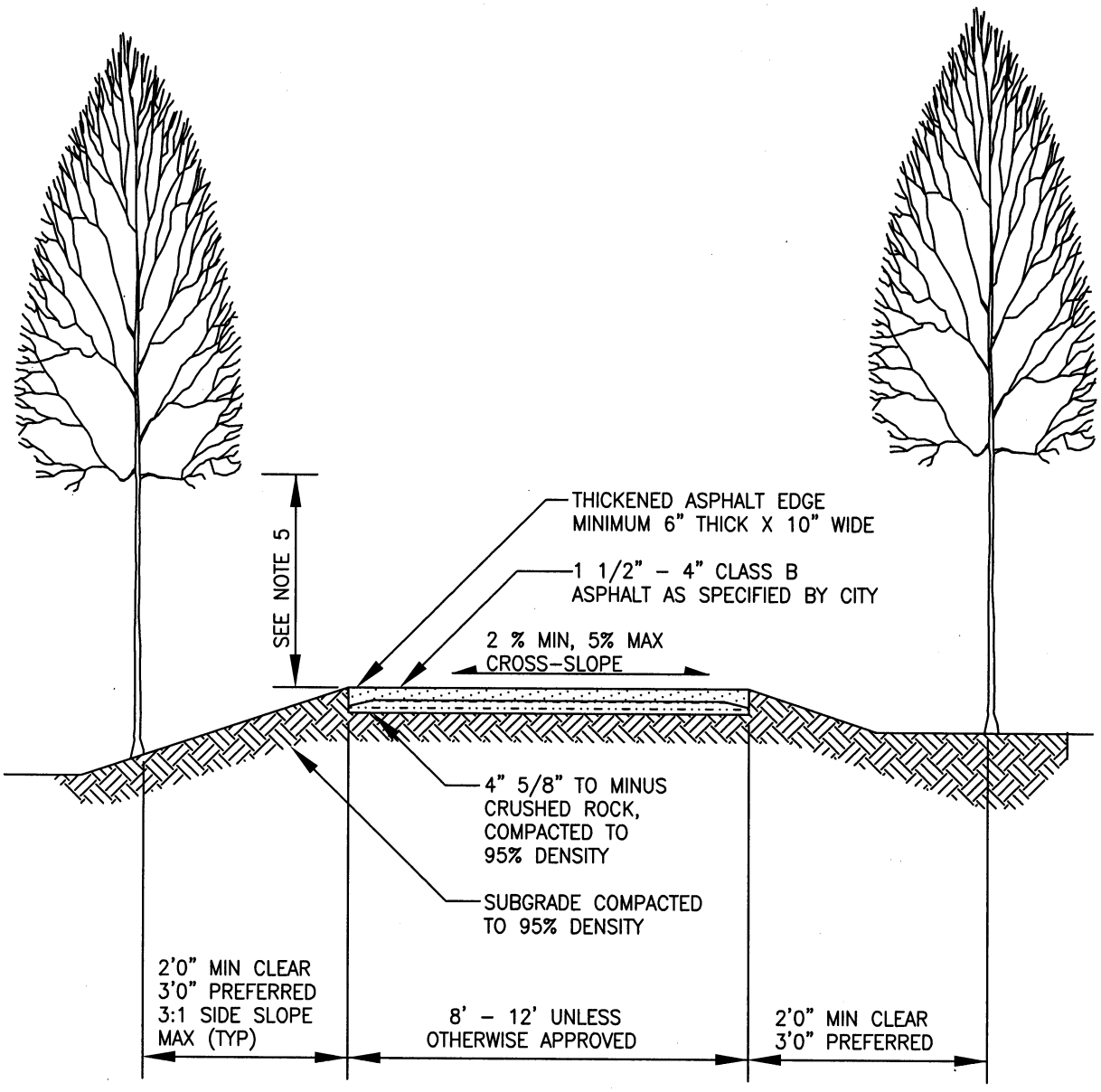

NOTES:

1. ALL PLANS MUST BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION OF THE TRAIL. TRAIL CENTERLINE TO BE STAKED IN FIELD BY CONTRACTOR AND APPROVED BY THE APPROPRIATE CITY INSPECTOR.
2. ALL HAZARD TREES AND TREE LIMBS, AS DEFINED BY THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES HAZARD TREE BULLETIN, SHALL BE FELLED AND REMOVED FROM THE SITE.
3. SUBGRADE TO BE TREATED WITH AN APPROVED HERBICIDE PRIOR TO PLACING ASPHALT.
4. ONE–WAY BIKE PATH TO BE A MINIMUM OF 8' WIDE.
5. MINIMUM BRANCH CLEARANCE ABOVE TRAIL SURFACE = 7'–0" (TYPICAL), 10'–0" IF EQUESTRIAN USE IS ANTICIPATED.

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Typical Section for Trails

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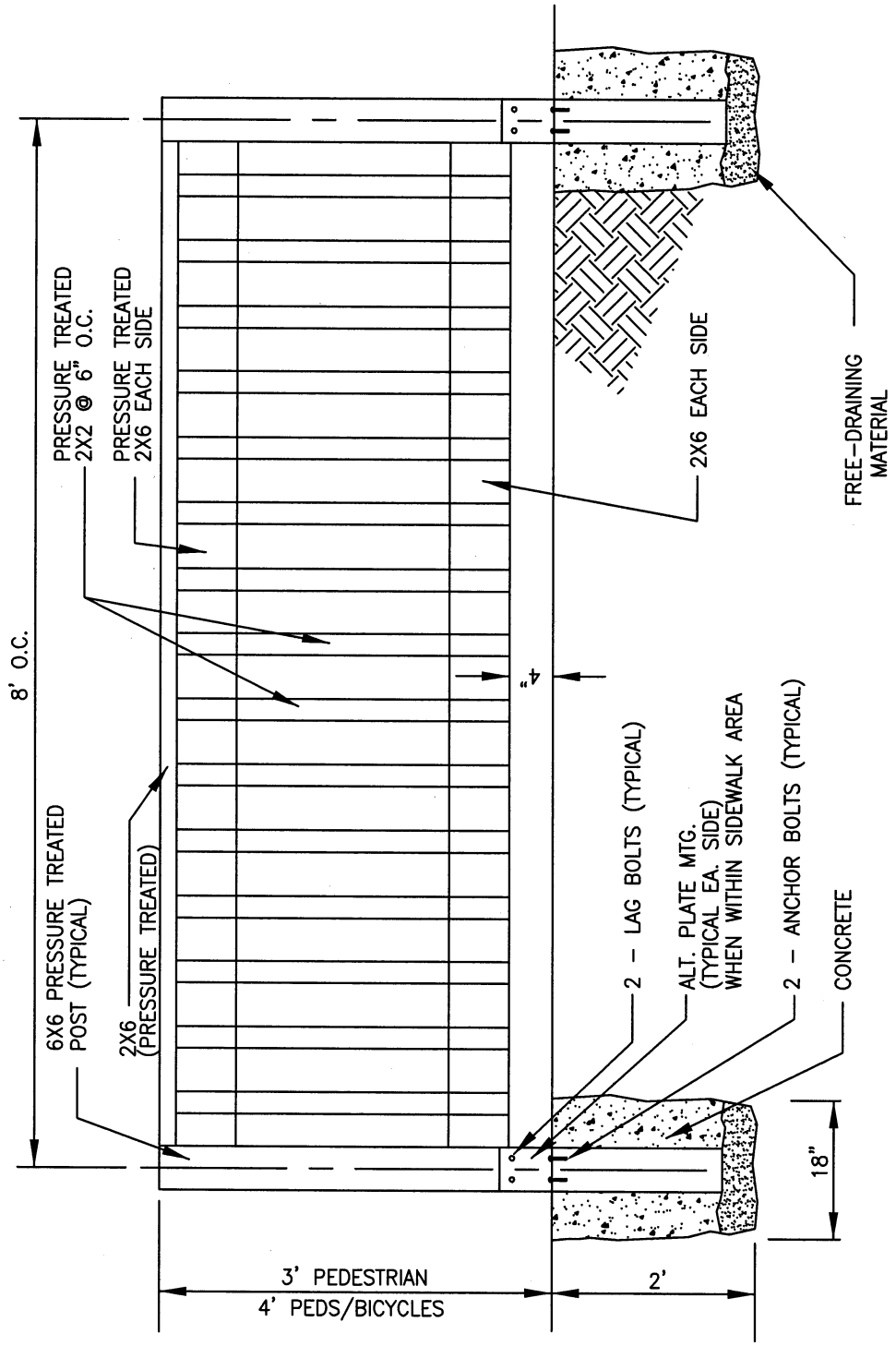

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Trail Fencing/ Screening

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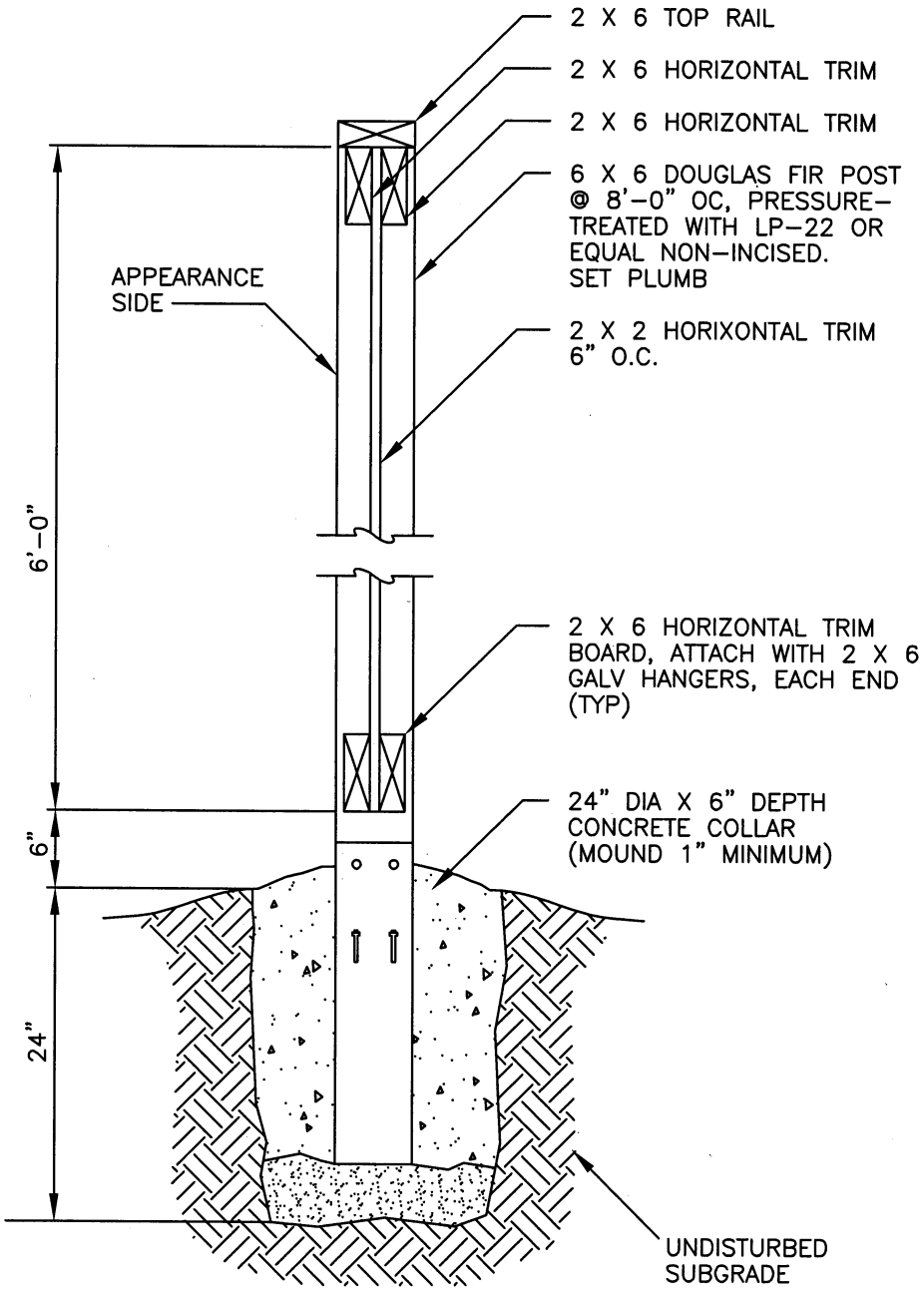

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Trail Fencing/ Screening Cross Section View

333

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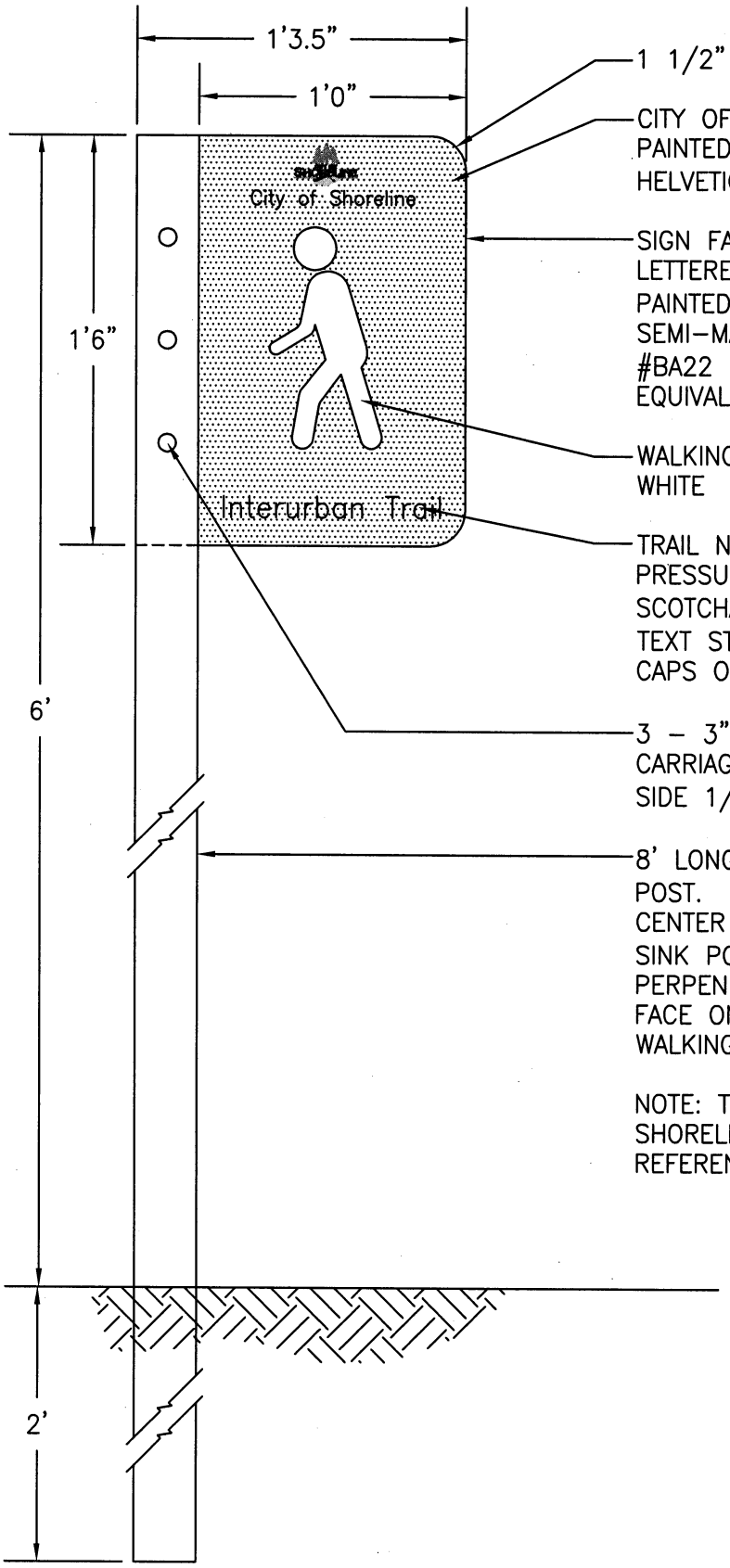

1 1/2" RADIUS OUTSIDE EDGES

CITY OF SHORELINE LOGO AND TEXT PAINTED OPAQUE WHITE. TEXT STYLE HELVETICA CONDENSED W/ 3/4" CAPS.

SIGN FACE .125 FLAT SHEET ALUMINUM LETTERED AND PAINTED BOTH SIDES. PAINTED W/ EPOXY ENAMEL SEMI-MATTE BLUE TNEMEC FJORD #BA22 OR PERFORMANCE AND COLOR EQUIVALENT.

WALKING SYMBOL PAINTED OPAQUE WHITE

TRAIL NAME WHITE OUTDOOR GRADE PRESSURE SENSITIVE VINYL, 3M SCOTCHAL #3470 OR EQUIVALENT. TEXT STYLE HELVETICA W 11/2" HIGH CAPS ON ANY SUPERSCRIPT.

3 – 3" X 1/2" DIA. GALV. STEEL CARRIAGE BOLTS. COUNTER-SINK NUT SIDE 1/2".

8' LONG PRESSURE TREATED D.F. 4X4 POST. 2'0" LONG GROOVE CUT DOWN CENTER OF POST TO SECURE SIGN. SINK POST 2' INTO GROUND. POSITION PERPENDICULAR TO ROAD WITH SIGN FACE ON THE ROAD SIDE AND FIGURE WALKING TOWARDS TRAIL.

NOTE: TEXT AS APPROVED BY CITY OF SHORELINE – TEXT SHOWN IS FOR REFERENCE ONLY.

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Trail Signs

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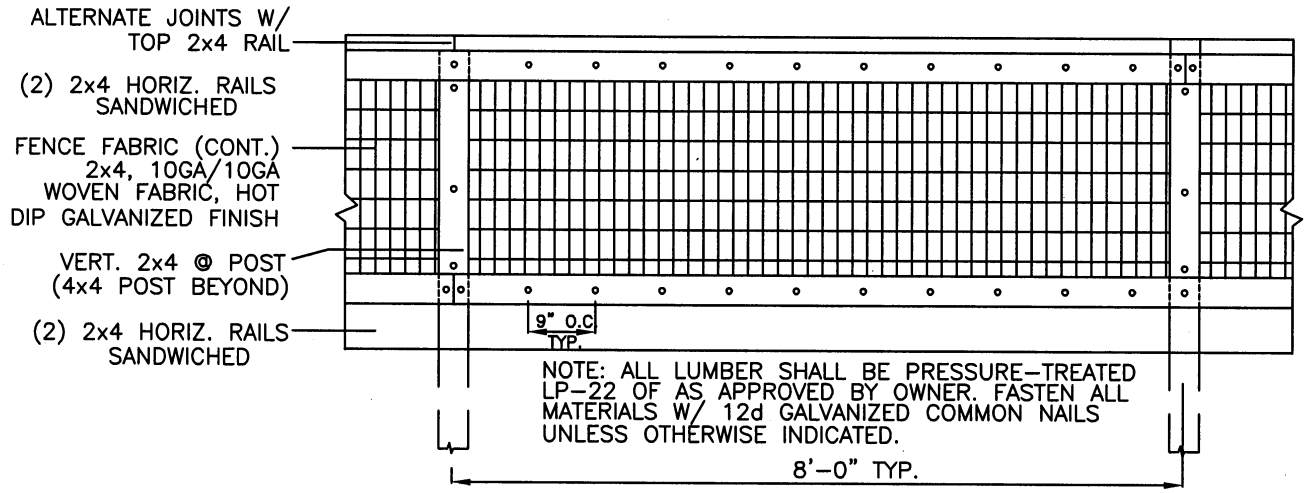
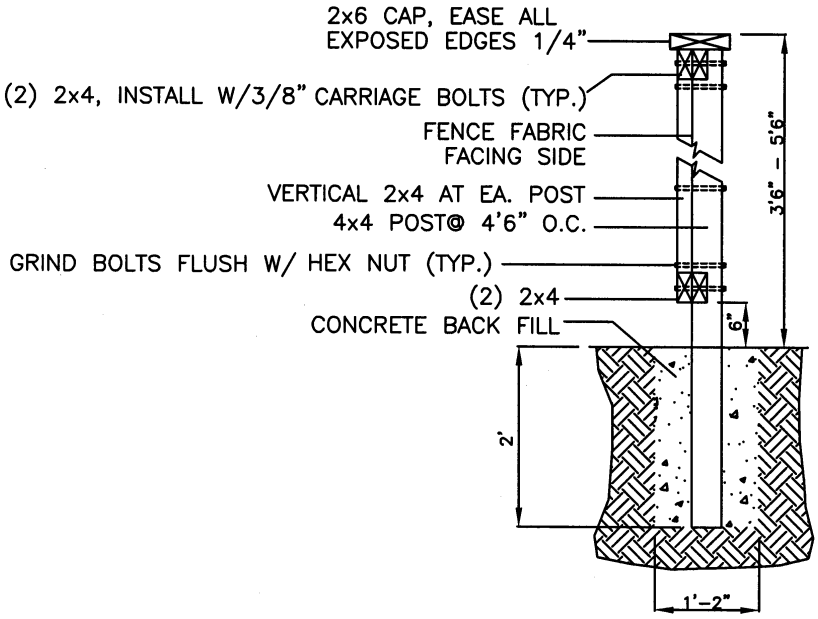


ELEVATION

NOTE: HEIGHT VARIES,
SEE CHAPTER 3, ENGINEERING DEVELOPMENT GUIDE



SECTION

NOTE: DIAGONAL BRACE RAILS (4x4) TO BE INSTALLED AT ALL END SECTIONS, TOP OF BRACE AT TOP OF END SECTION/CORNER.

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Greenbelt Fence

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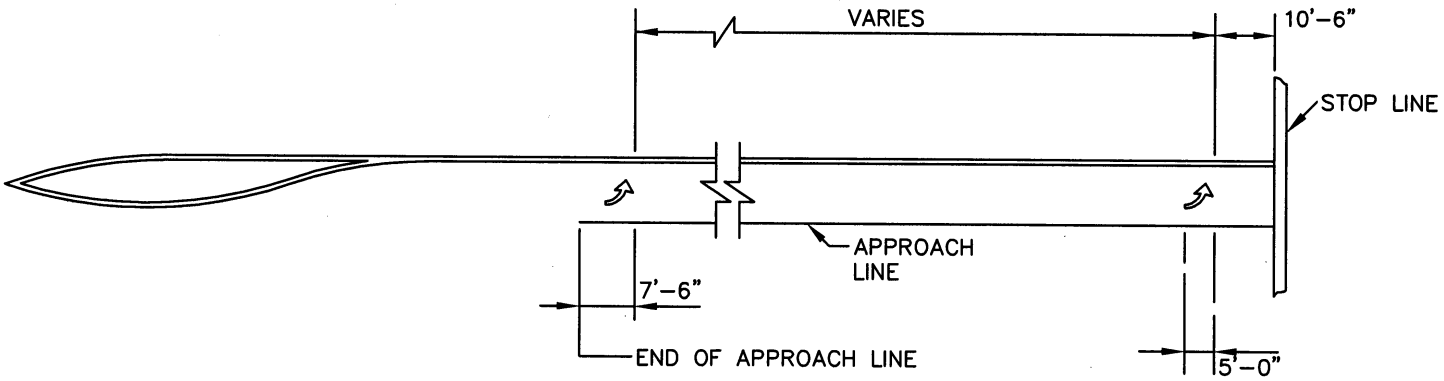
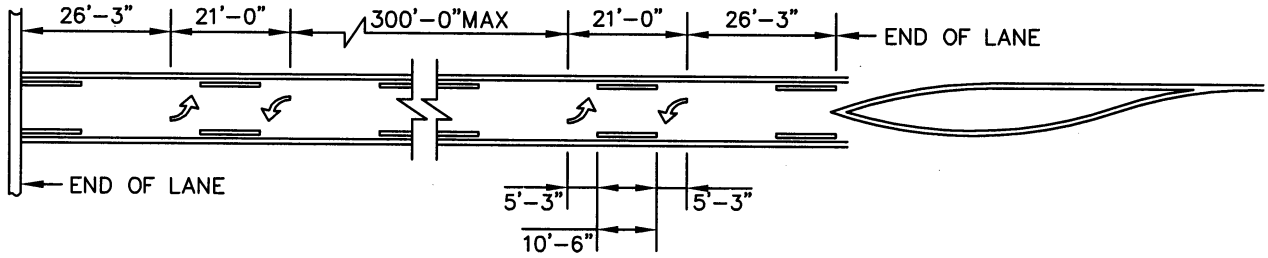


TYPICAL LEFT TURN CHANNELIZATION

NUMBER OF LEGENDS REQUIRED BASED ON THE LENGTH OF APPROACH LINES

APPROACH LINE LENGTH	LEGEND(S)
LESS THAN 50 FEET	1 ARROW AT X–WALK END OF POCKET
50 FEET–120 FEET	2 ARROWS
125 FEET–300 FEET	3 ARROWS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)
OVER 300 FEET	ADDITIONAL ARROWS SPACED AT APPROX 100 FT INTERVALS BETWEEN FIRST AND LAST LEGENDS



TYPICAL TWO WAY LEFT TURN LANE LEGENDS

NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF TYPICAL TWO WAY LEFT TURN LANES

LANE LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET (CENTERED BETWEEEN BOTH ENDS OF LANE)
0 FEET–300 FEET	2 SETS
OVER 300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS) ADDITIONAL SETS SPACED AT APPROX 300 FT INTERVALS

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Channelization - Left Turn Lanes

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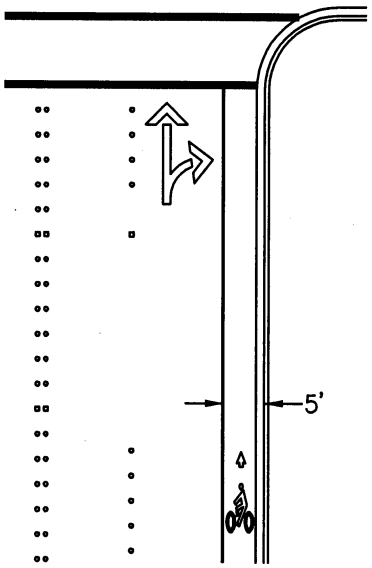
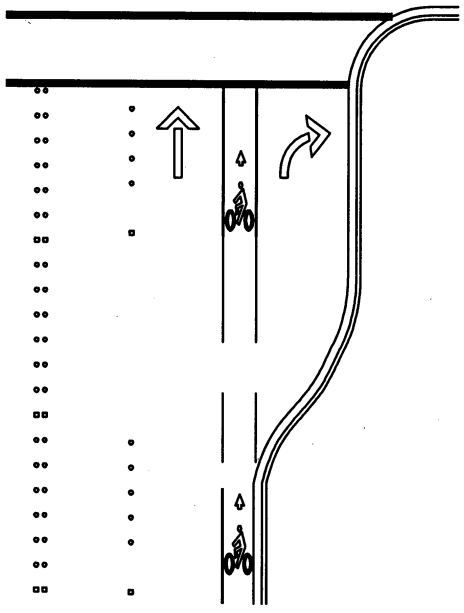


TYPICAL RIGHT–THROUGH LANE

(BICYCLE LANE CONTINUES THROUGH INTERSECTION)



TYPICAL RIGHT TURN POCKET

(BICYCLE LANE CONTINUES THROUGH INTERSECTION)

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Channelization - Vehicle & Bicycles

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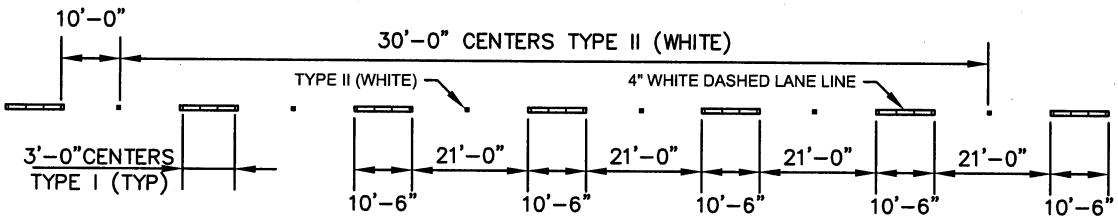

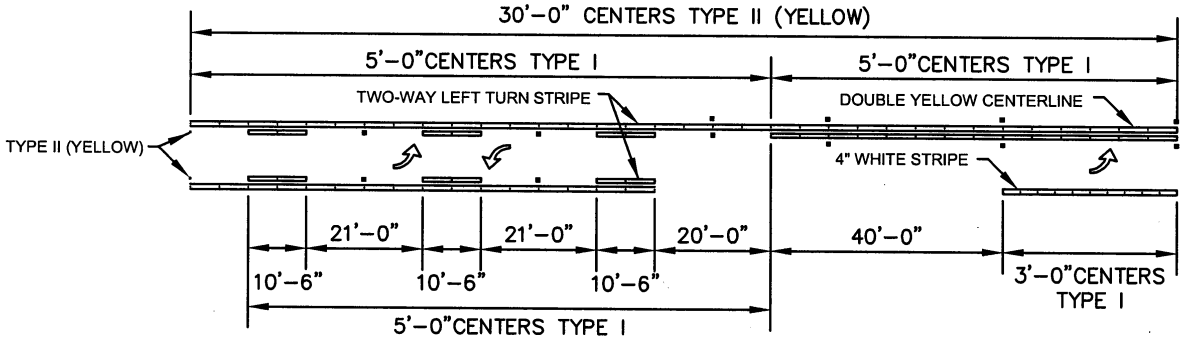

TYPICAL TYPE I AND TYPE II TRAFFIC BUTTON (4") INSTALLATION DETAILS

TRAFFIC BUTTONS SHALL BE INSTALLED TO CONFORM WITH TYPE OF PAVEMENT MARKING AND ARE TO BE ARRANGED AND SPACED AS SHOWN ON THIS DRAWING. COLOR OF TRAFFIC BUTTONS IS TO MATCH COLOR OR PAVEMENT MARKINGS. TRAFFIC BUTTONS SHALL BE INSTALLED PRIOR TO ANY PAINT LINE INSTALLATION, EXISTING CHANNELIZATION IN CONFLICT WITH NEW OR REVISED CHANNELIZATION SHALL BE REMOVED BY METHOD APPROVED BY THE DIRECTOR OR DESIGNEE

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Pavement Marking Detail

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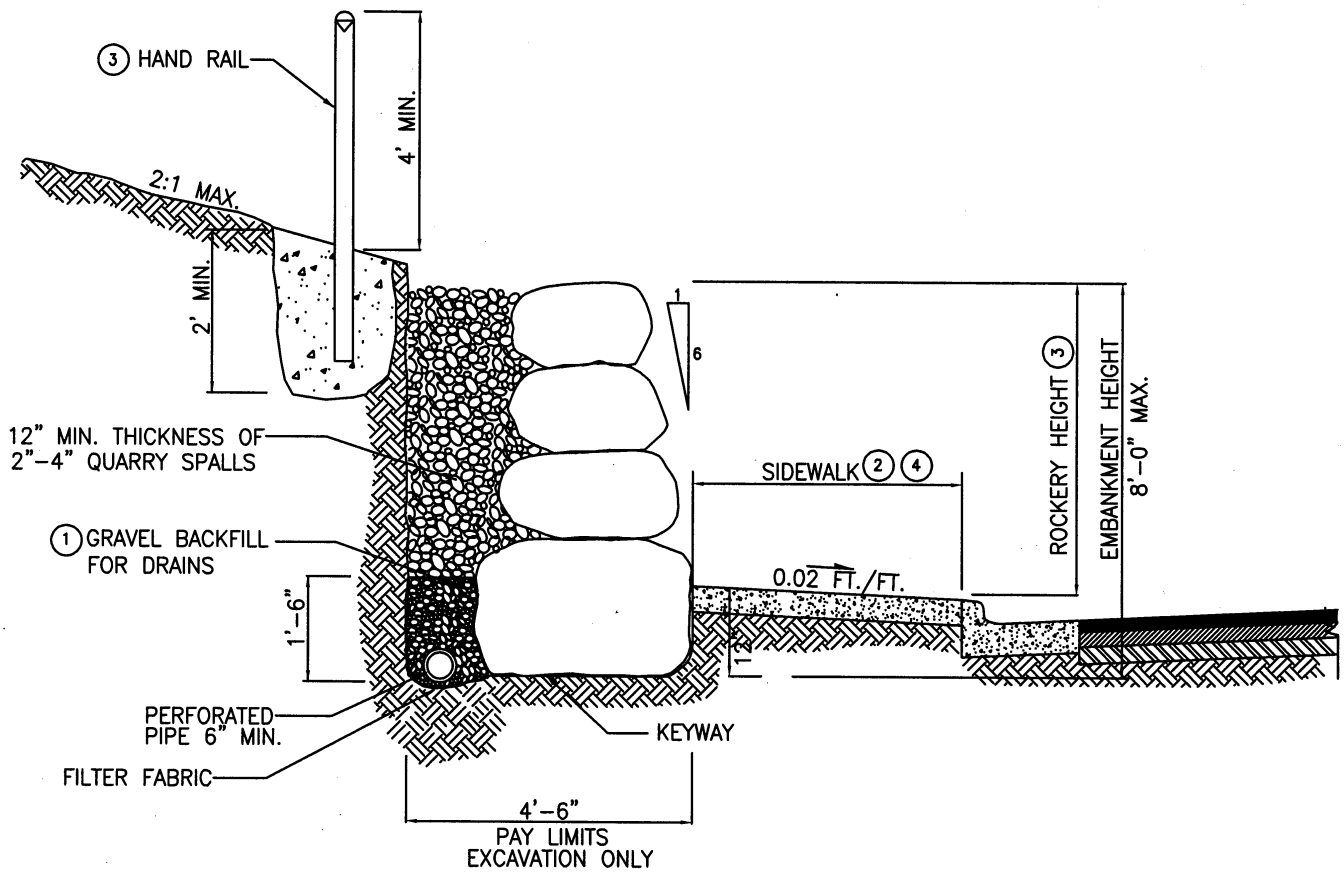

NOTES:

(1) SEE WSDOT/APWA 9-03.12[4]

(2) IF ROCKERY OR RETAINING WALL IS BEHIND ROLLED CURB, FACE OF ROCKERY OR RETAINING WALL MUST BE A MIN. OF 10' FROM TRAVELED WAY.

(3) A HANDRAIL, PER STND DWG 324, IS REQUIRED WHEN ROCKERY HEIGHT IS 3' OR GREATER. THE USAGE OF A CHAIN LINK FENCE, PER STND DWG 327, MAY BE APPROVED BY PUBLIC WORKS DIRECTOR OR DESIGNEE.

(4) BACK OF SIDEWALK SHALL BE A MINIMUM OF 8' FROM FACE OF CURB

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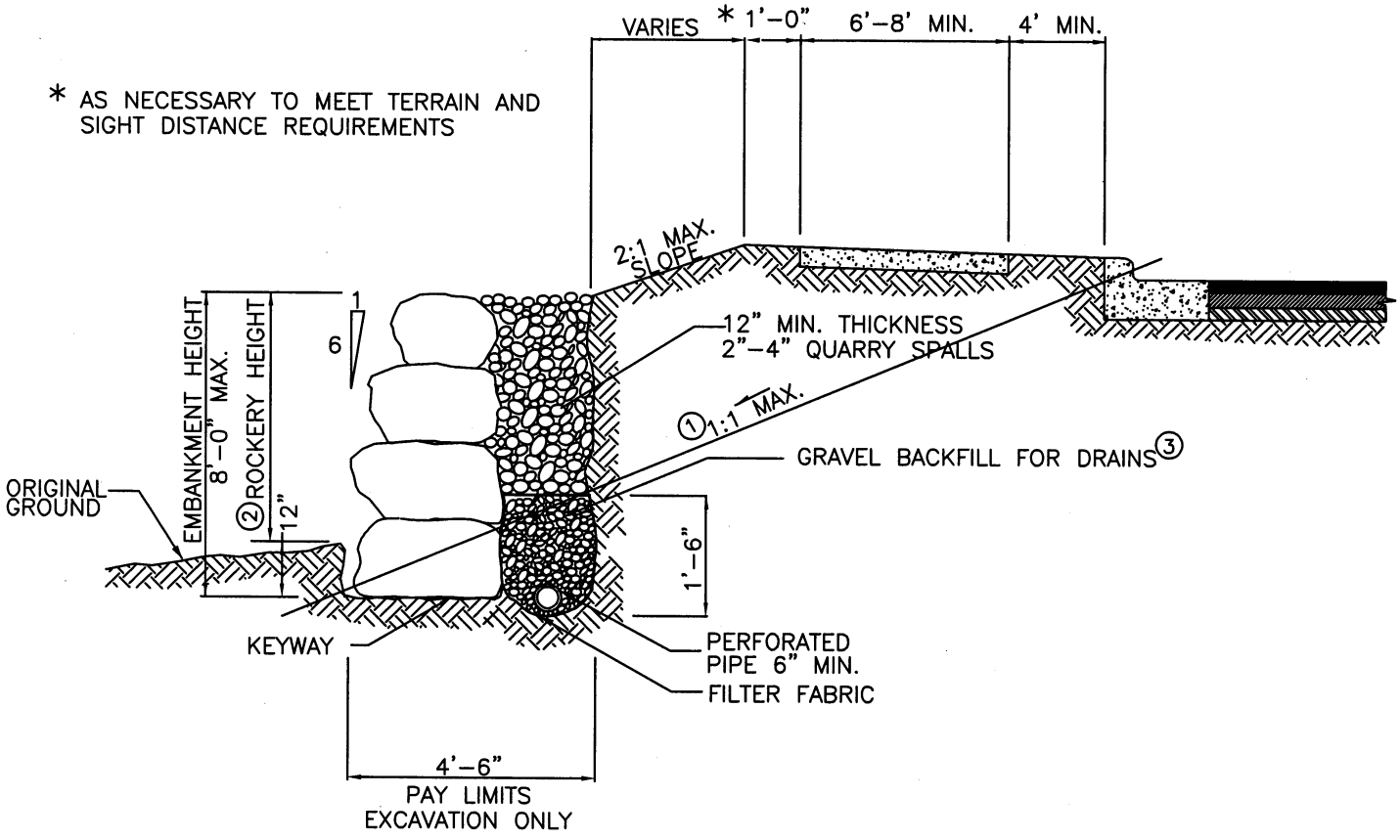
Rock Facing - Cut Section

501

NOT TO SCALE

Revision Date
April 2005



NOTES:

1. FLATTER SLOPE MAY BE REQUIRED IN LESS STABLE SOIL.
2. FOR ROCKERY HEIGHTS EXCEEDING 4', SEE STND DWG 504.
3. SEE WSDOT/APWA 9-03.12[4].
4. A HANDRAIL OR GUARDRAIL, PER STND DWG 324, IS REQUIRED WHEN ROCKERY HEIGHT IS 3' OR GREATER. THE USAGE OF A CHAIN LINK FENCE, PER STND DWG 327, MAY BE APPROVED BY THE PUBLIC WORKS DIRECTOR OR DESIGNEE.
5. TRAFFIC BARRIERS MAY BE REQUIRED ON ROADS WITH SPEED LIMITS OF 30 MPH OR GREATER, WHERE ROCKERY HEIGHTS EXCEED 6'. SEE CHAPTER 7 OF THE WSDOT DESIGN MANUAL.

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Rock Facing - Fill Section

502

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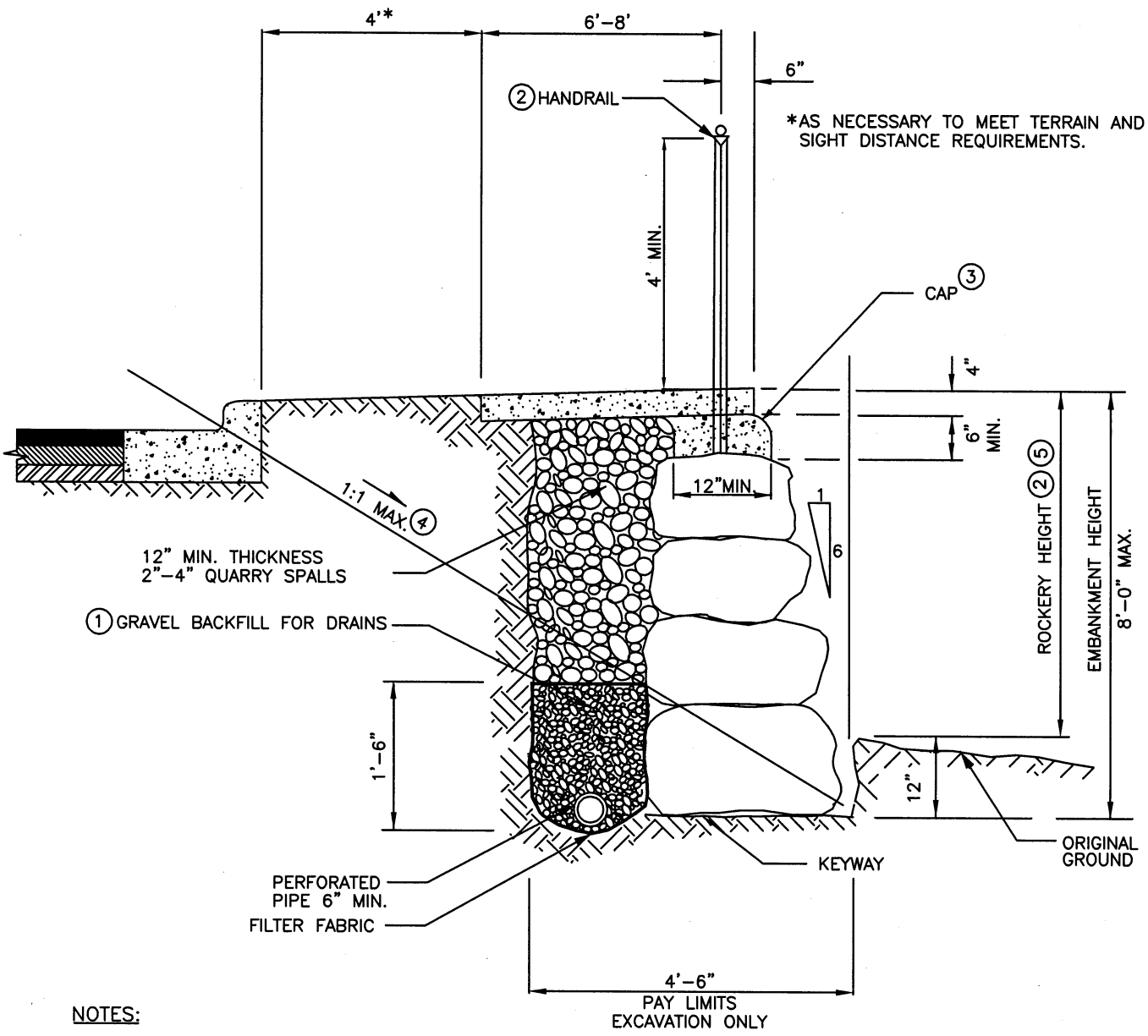
Revision Date April 2005



NOTES:

① WSDOT/APWA 9–03.12[4].

② A HANDRAIL OR GUARDRAIL, PER STND DWG 324, IS REQUIRED WHEN ROCKERY HEIGHT IS 3' OR GREATER. THE USAGE OF A CHAIN LINK FENCE, PER STND DWG 327, MAY BE APPROVED BY THE PUBLIC WORKS DIRECTOR OR DESIGNEE.

③ CAP SHALL BE CONCRETE CLASS 3000.

④ FLATTER SLOPE MAY BE REQUIRED IN LESS STABLE SOILS.

⑤ FOR ROCKERY HEIGHTS EXCEEDING 4', SEE STND DWG 504.

6. TRAFFIC BARRIERS MAY BE REQUIRED ON ROADS WITH SPEED LIMITS OF 30 MPH OR GREATER, WHERE HEIGHTS EXCEED 6'. SEE CHAPTER 7 OF THE WSDOT DESIGN MANUAL.

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Rock Facing Under Sidewalk

503

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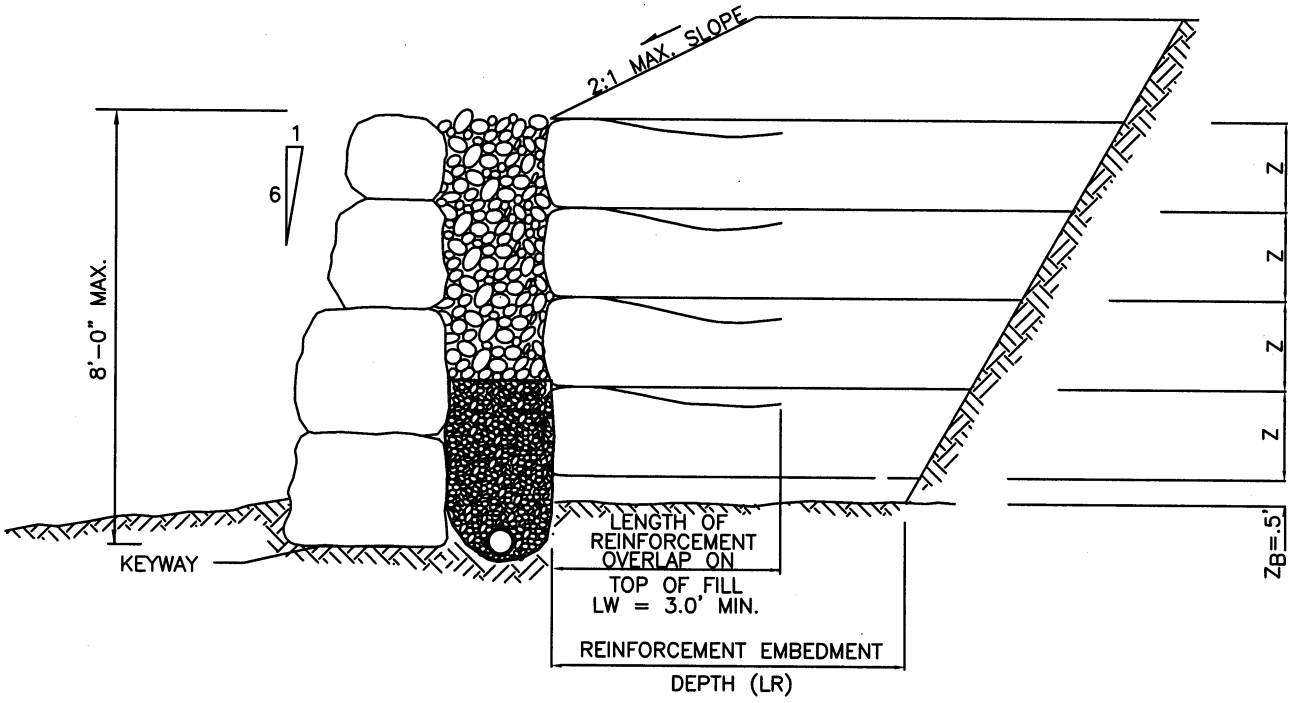
Revision Date December 2004



NOTES:

1. ROCKERY FACINGS ARE TO BE CONSTRUCTED PER DRAWINGS STND DWGS 501, 502, & 503.

2. THE WALL FOUNDATION IS TO BE CLEARED OF ORGANIC MATTER AND DEBRIS AND THE UNDERLYING MINERAL SOIL COMPACTED TO 95 PERCENT OF THE MAX. DRY DENSITY. THE EMBANKMENT MATERIAL IS TO BE GRAVEL BORROW MEETING THE REQUIREMENTS OF 9-03.14 OF THE WSDOT STANDARDS. THE BACKFILL IS TO BE PLACED IN THIN LIFTS, NOT EXCEEDING SIX INCHES IN THICKNESS AND COMPACTED TO 95 PERCENT OF THE MAX. DRY DENSITY.

3. GEOSYNTHETIC FABRIC OR GEOGRID REQUIREMENTS INCLUDING TYPE, VERTICAL SPACING (Z), AND EMBEDMENT (LR), WILL BE DETERMINED ON A ROCKERY BY ROCKERY BASIS BY A PROFESSIONAL ENGINEER.

4. Z_B IS HEIGHT OF FIRST LAYER OF REINFORCEMENT ABOVE COMPACTED SUBGRADE ELEVATION.

5. EMBANKMENTS BEHIND ROCKERIES EXCEEDING 4' IN HEIGHT SHALL BE REINFORCED WITH GEOSYNTHETIC FABRIC OR GEOGRID.

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Rock Facing - Fill Section Reinforcement

504

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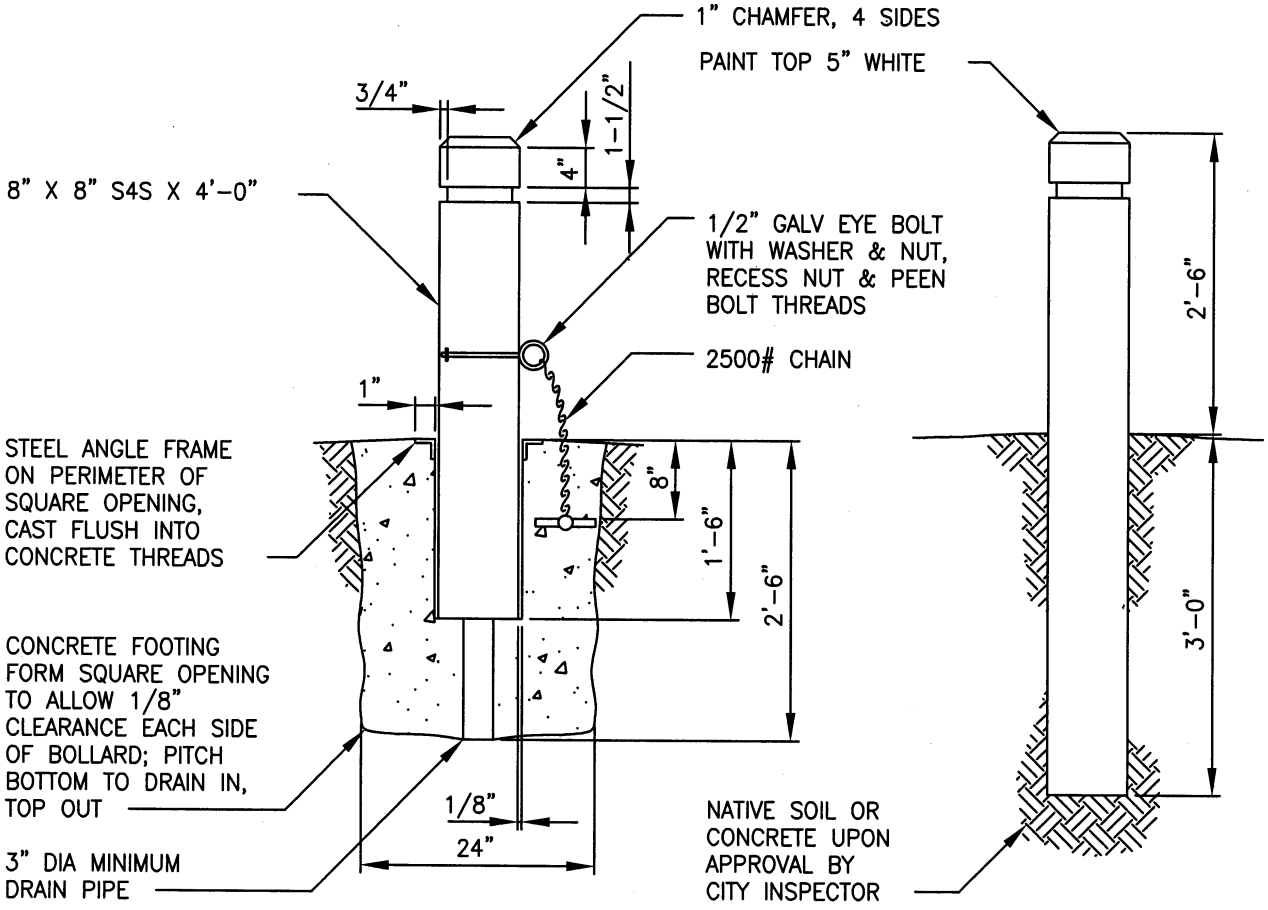
Revision Date April 2005



REMOVABLE BOLLARD

FIXED BOLLARD

NOTE:

1. TIMBER SHALL BE DOUGLAS FIR, DENSE CONSTRUCTION GRADE, AND SHALL BE PRESSURE TREATED.
2. NUTS, BOLTS, AND WASHERS CONFORM TO ASTM A307.
3. ALL STEEL PIPES SHALL BE GALVANIZED.
4. CONCRETE SHALL BE CLASS C.
5. A HASP MAY BE SUBSTITUTED FOR THE CHAIN UPON APPROVAL BY THE CITY INSPECTOR.
6. PITCH GRADE ON FIXED BOLLARD TO DRAIN AWAY FROM POST.
7. BOLLARD PLACEMENT SHALL BE APPROVED BY THE DIRECTOR OR DESIGNEE.

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Bollards

505

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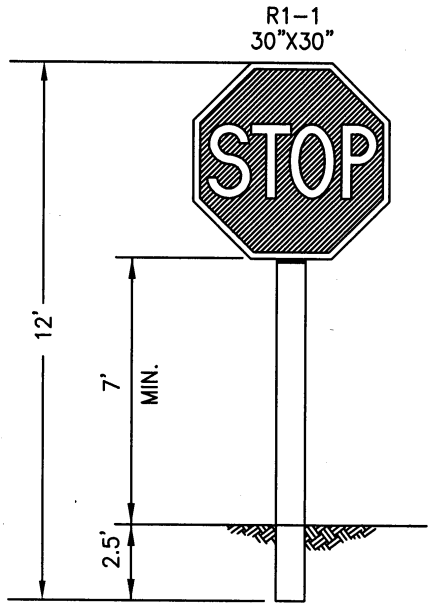
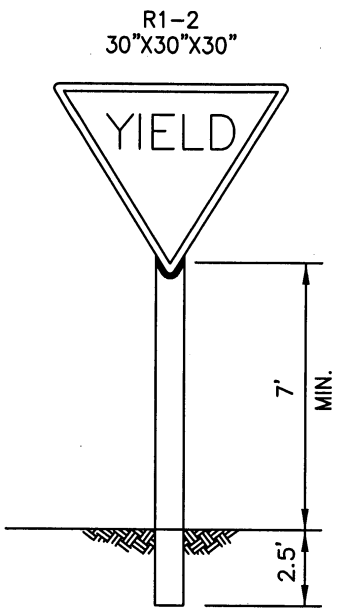
Revision Date April 2005



STOP SIGN



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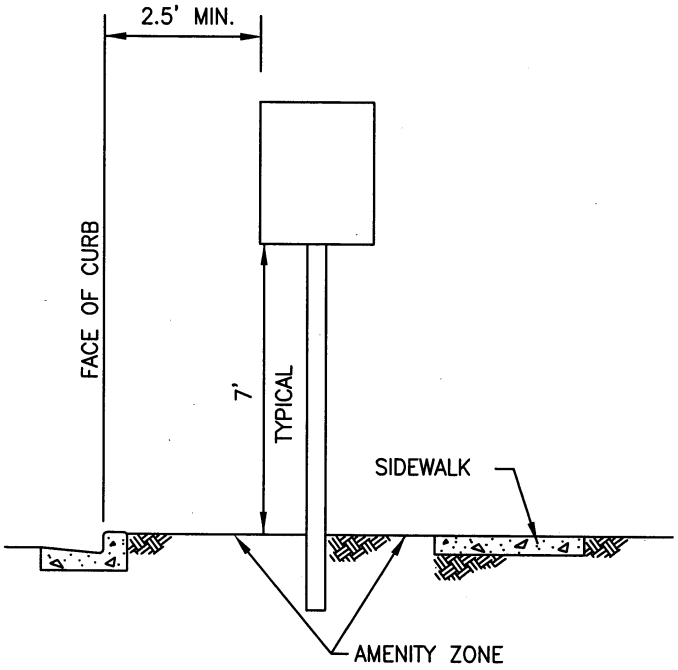
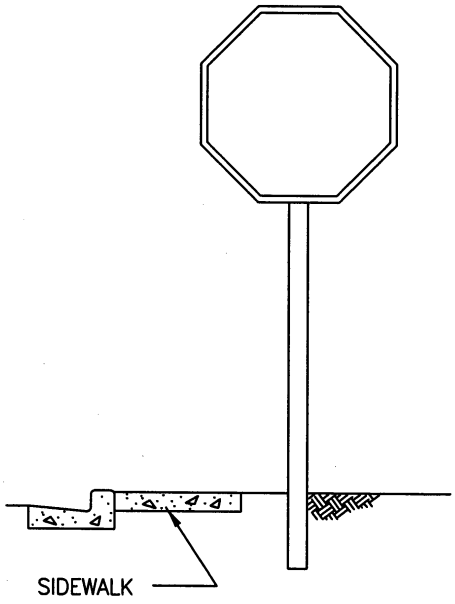


CURB AND SIDEWALK
WITH AMENITY ZONE



CURB AND SIDEWALK
WITHOUT AMENITY ZONE
(SHALL BE USED ONLY TO MATCH EXISTING CONDITIONS OR WITH THE DIRECTOR OR DESIGNEE'S APPROVAL)

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Street Signs - Standards & Locations

(FOR USE ON NON-PUBLIC R-O-W ONLY)

506

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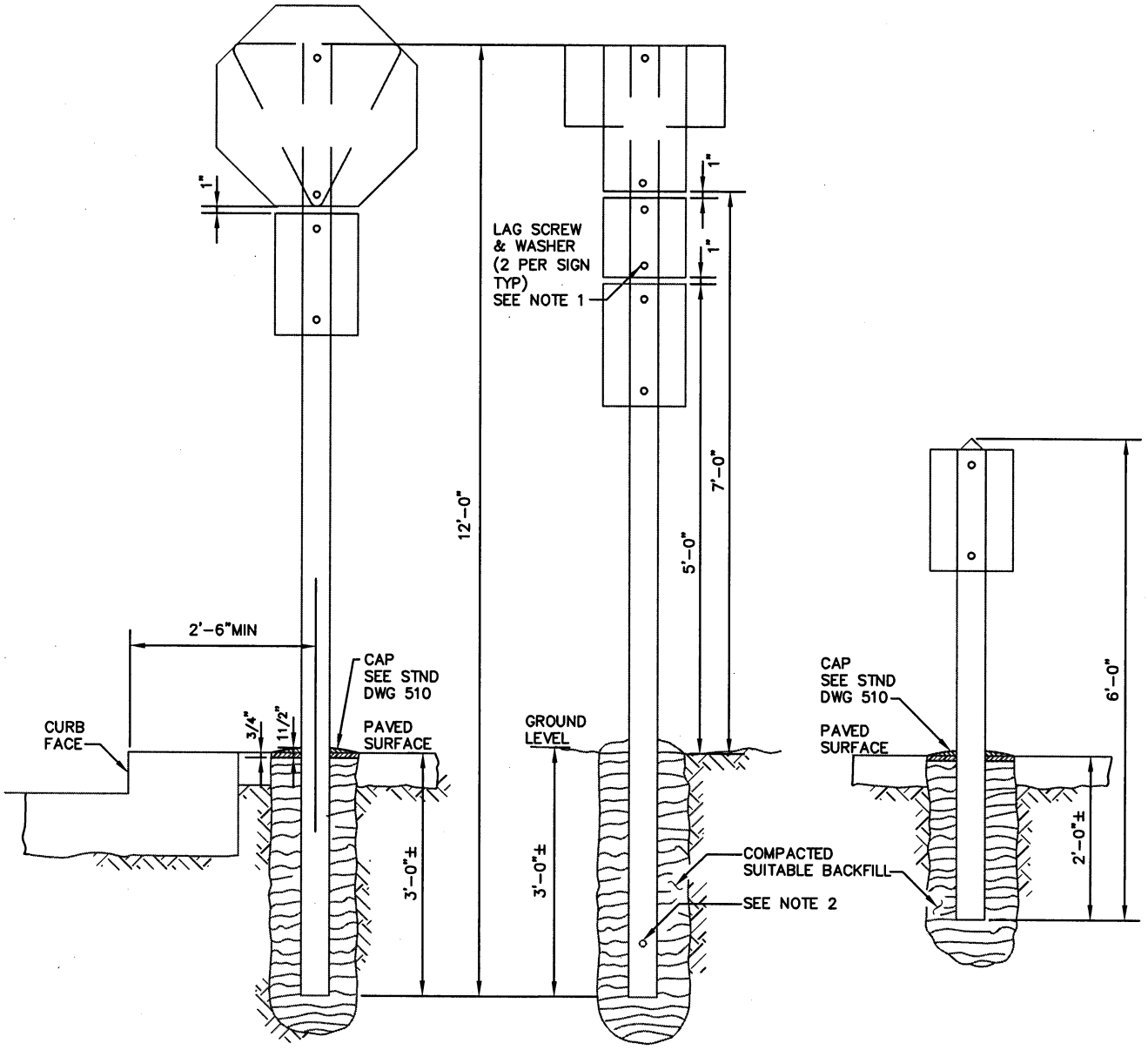
April 2005



NOTES:

1. 5/16" X 3 1/4" GALVANIZED OR PLATED LAG SCREW & 3/8" ID X 1" OD NYLON WASHER.

2. INSTALL 30D GALV COMMON SPIKE ON THE FACE SIDE OF POST EXCEPT WHEN CONCRETE PAVING EXISTS. SPIKE SHALL BE 8"ABOVE BOTTOM OF POST AND SHALL PROTRUDE 2" FROM POST.

3. CONTACT SHORELINE PUBLIC WORKS (546-1700) FOR DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.

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Traffic Sign & Wood Post Installation

508

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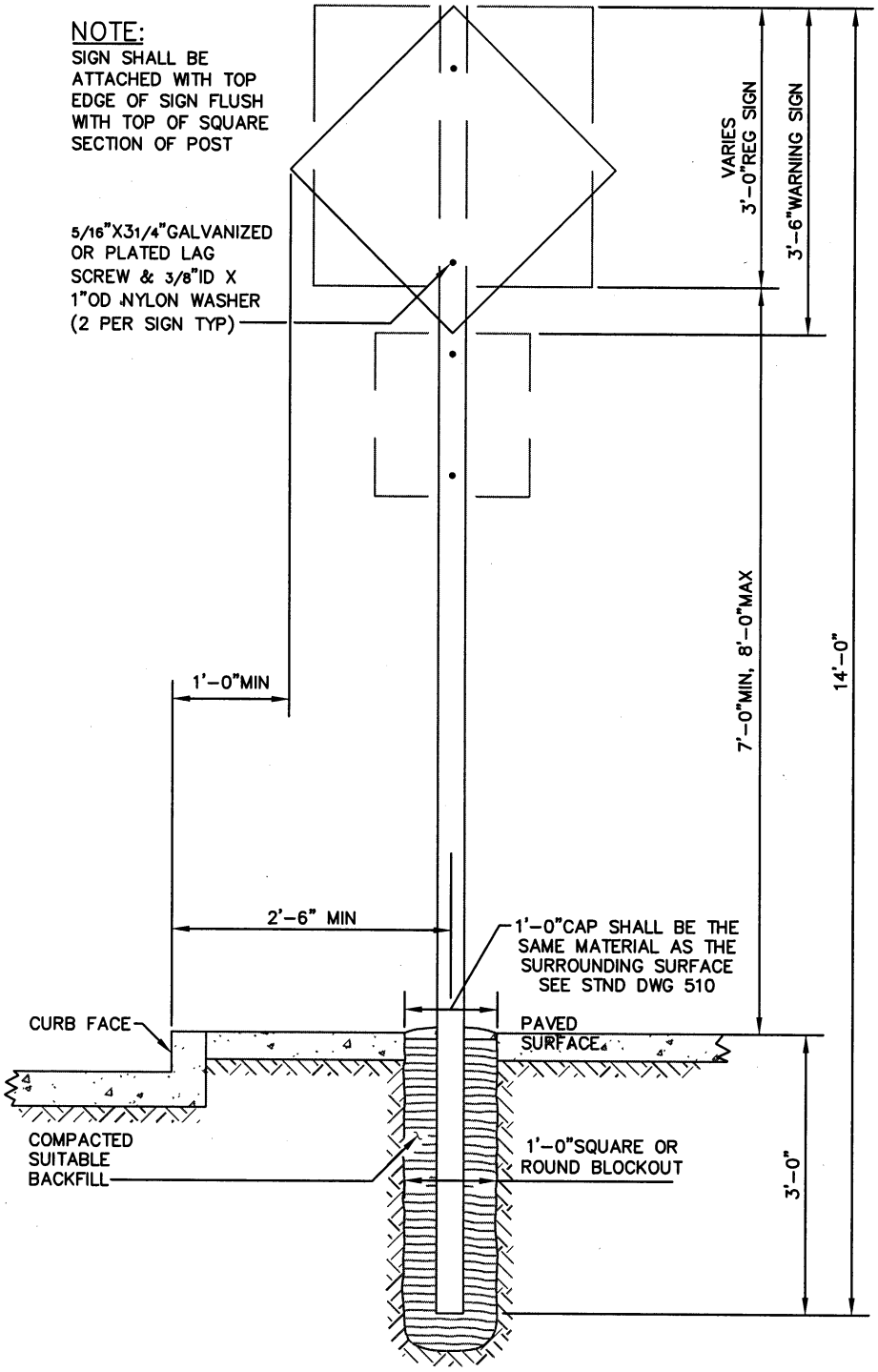

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Traffic Sign & Wood Post Installation

509

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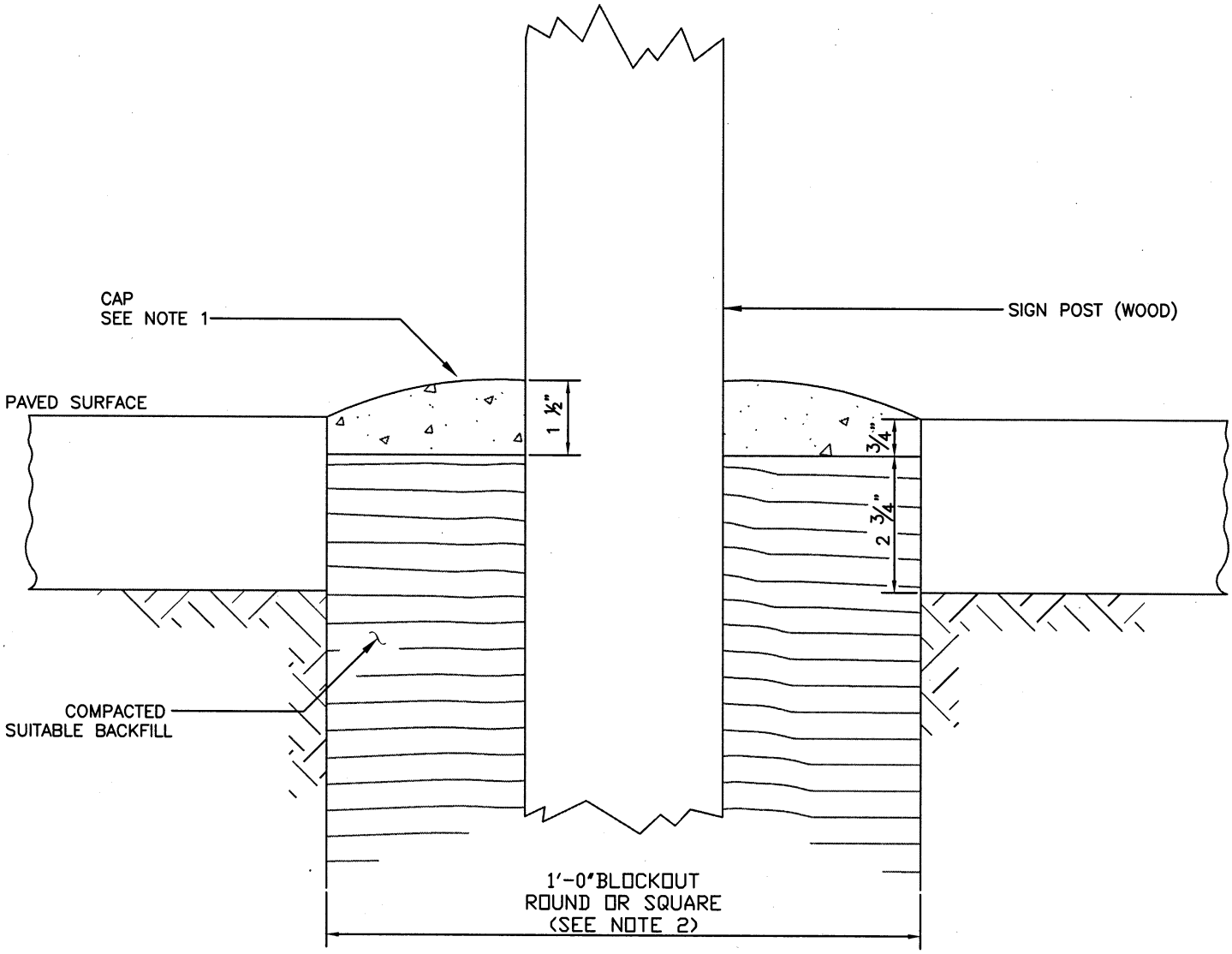

NOTES:

1. CAP SHALL BE MADE OF THE SAME MATERIAL AS THE SURROUNDING PAVED SURFACE AND SHALL BE MOUNDED FOR DRAINAGE AWAY FROM POST.
2. BLOCKOUTS SHALL BE PROVIDED FOR POST LOCATIONS WHERE NEW CONCRETE PAVEMENT (SIDEWALK, ROADWAY, ETC) IS BEING INSTALLED.
3. WHERE POST IS BEING INSTALLED IN EXISTING PAVED AREAS, HOLE IN PAVED SURFACE SHALL NOT EXCEED 1'-0"NOMINAL DIAMETER.

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Post Cap

510

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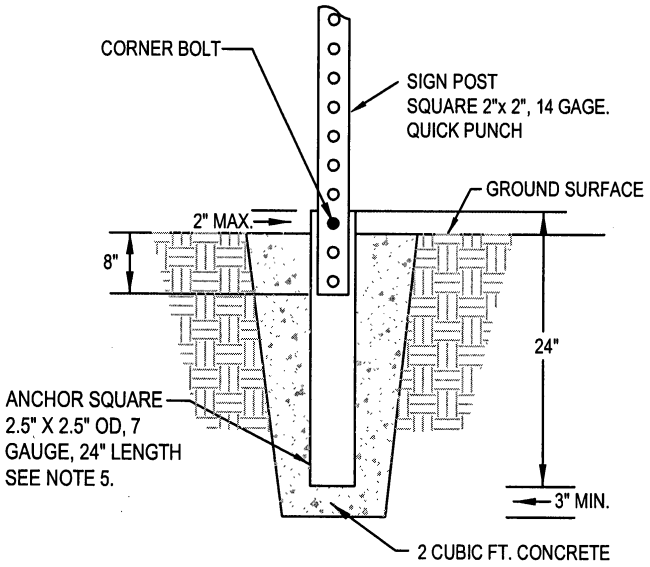
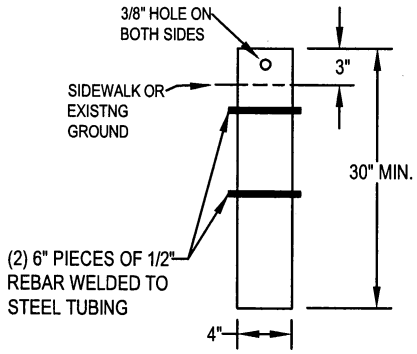
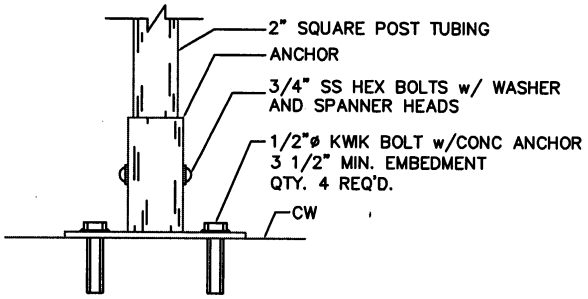


SQUARE METAL POST



ANCHOR DETAIL



SURFACE MOUNT INSTALLATION

NOTES:

1. POST ANCHOR RIVETS SHALL BE 1 1/2"ABOVE GROUND LEVEL.
2. FOR POST RELOCATIONS, OLD CONCRETE SHALL BE REMOVED FROM POST.
3. WHERE SURFACE MOUNTED 2" SQUARE METAL POSTS ARE REQUIRED ON SLOPED SIDEWALK, THE CONTRACTOR SHALL PLUMB THE POST BY BUILDING A NON-SHRINK GROUT PAD UNDER PEDESTAL ASSEMBLY WITH SMOOTH 1H TO 1V TAPER ON THE GROUT EDGE. THE BOLT ANCHOR LENGTH SHALL BE ADJUSTED TO PROVIDE A MIN 3 1/2 INCH EMBEDMENT THROUGH THE GROUT INTO THE EXISTING CONCRETE.
4. POST SHALL BE ROLLED CARBON SHEET STEEL, ASTM A570 GRADE 50 AND BE HOT DIPPED GALVANIZED AASHTO M-120 YIELD STRENGH 60,000 PSI MIN. POST SHALL HAVE 7/16" DIE-PUNCHED KNOCKOUTS ON 1" CENTERS FULL LENGTH ON ALL FOUR SIDES.
5. ANCHOR SHALL HAVE 4 7/16" HOLES ONE EACH SIDE 2" FROM TOP END. FINISH SHALL BE ZINC HOT DIPPED GALVANIZED MATERIAL TO MEET ASTM A500 GRADE B.

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Traffic Sign & 2" Square Metal Post Installation

511

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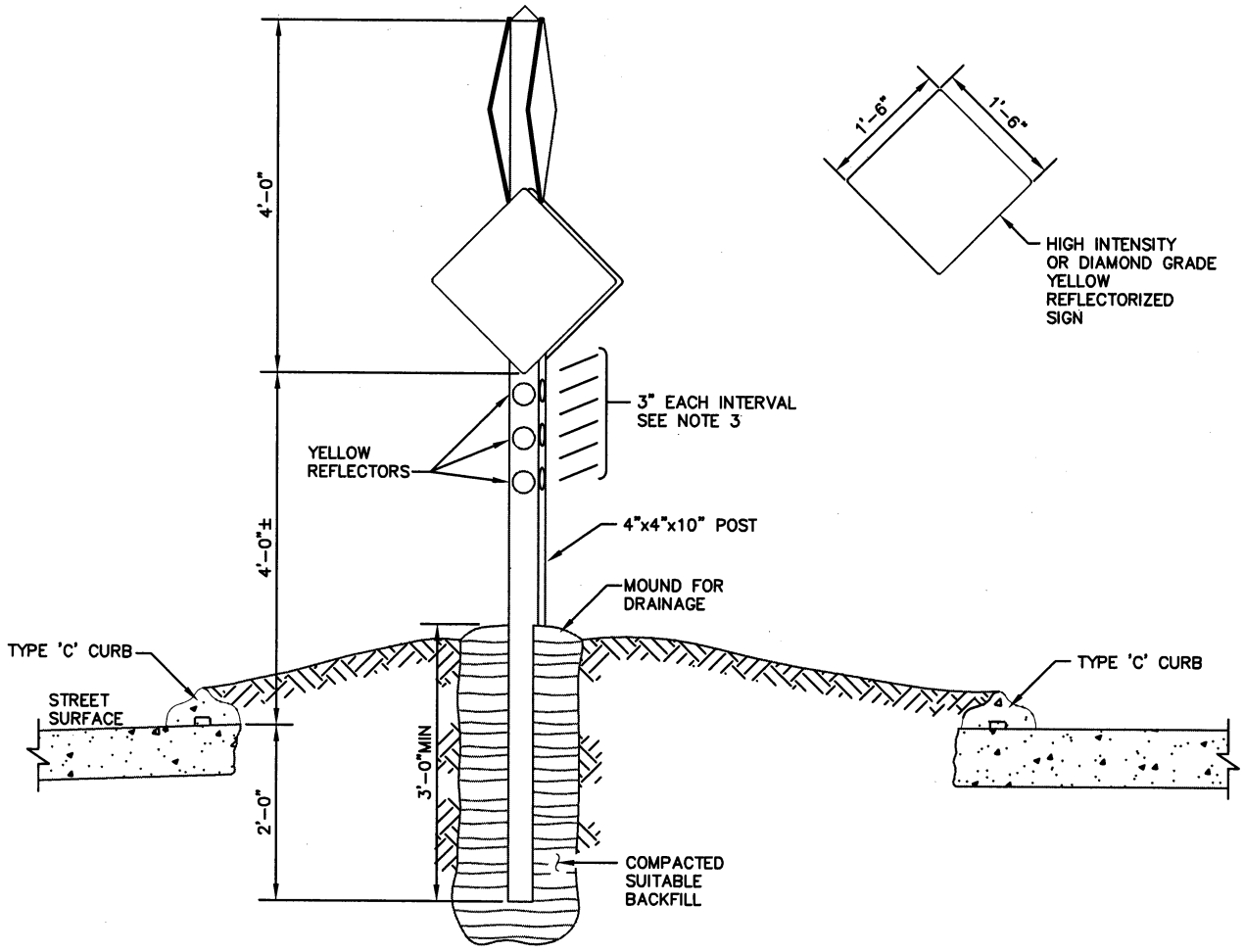

NOTES:

1. IN THE CASE WHERE ALL APPROACHES OF THE INTERSECTION ARE PRIMARILY AT THE SAME LEVEL WITH RESPECT TO GRADES (LESS THAN 3%) THE LOWER SET OF SIGNS WILL FACE THE HIGHER VOLUME STREET.

2. IN THE CASE WHERE AN APPROACH HAS A GRADE LARGER THAN 3% THE HIGHER SIGNS WILL FACE THE APPROACH WITH THE HIGHEST GRADE TO ALLOW BETTER SIGHT DISTANCE.

3. PLACE A MINIMUM OF THREE (3) REFLECTORS ON EACH AND EVERY SIDE OF POST OR PLACE THREE (3) HIGH INTENSITY REFLECTORIZED STRIPS COMPLETELY AROUND POST.

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Object Marker Installation

512

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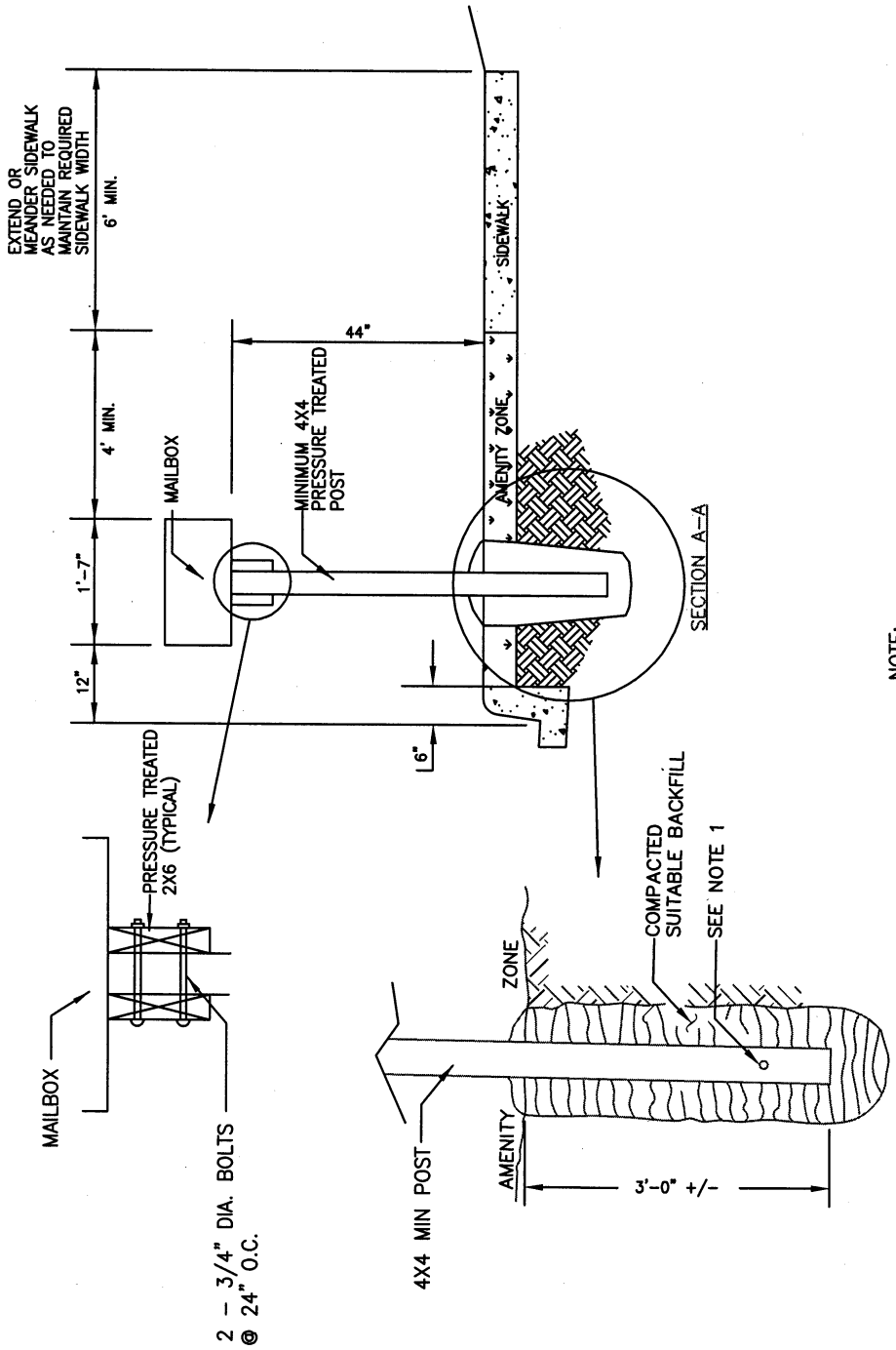
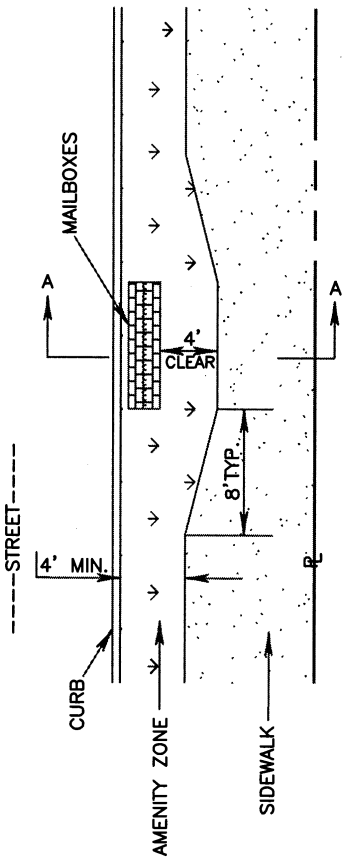


NOTE:
OBTAIN LOCATION APPROVAL FROM LOCAL POSTMASTER.



NOTE:

1. INSTALL 30D GALV COMMON SPIKE ON THE FACE SIDE OF POST EXCEPT WHEN CONCRETE PAVING EXISTS. SPIKE SHALL BE 8"ABOVE BOTTOM OF POST AND SHALL PROTRUDE 2" FROM POST

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Mailbox Stand

514

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NOTE:
OBTAIN LOCATION APPROVAL FROM LOCAL POSTMASTER.

NOTE:
SHALL BE USED ONLY TO MATCH EXISTING CONDITIONS OR WITH THE DIRECTOR OR DESIGNEE'S APPROVAL

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Mailbox Stand without Amenity Zone

515

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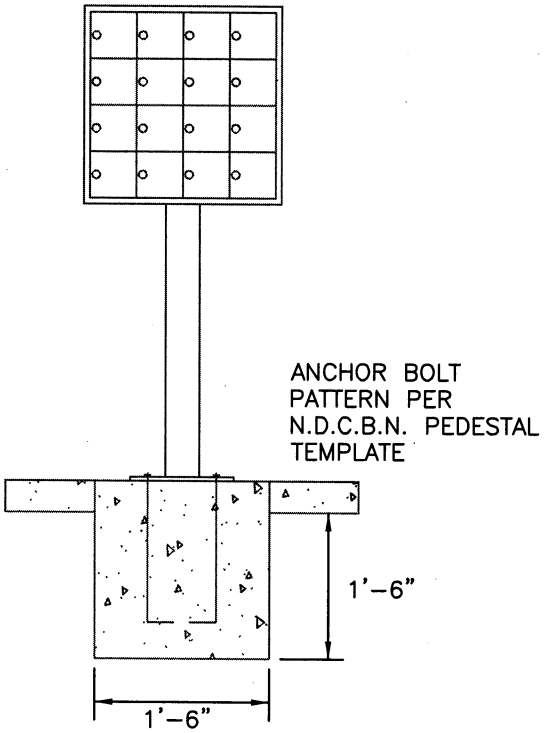
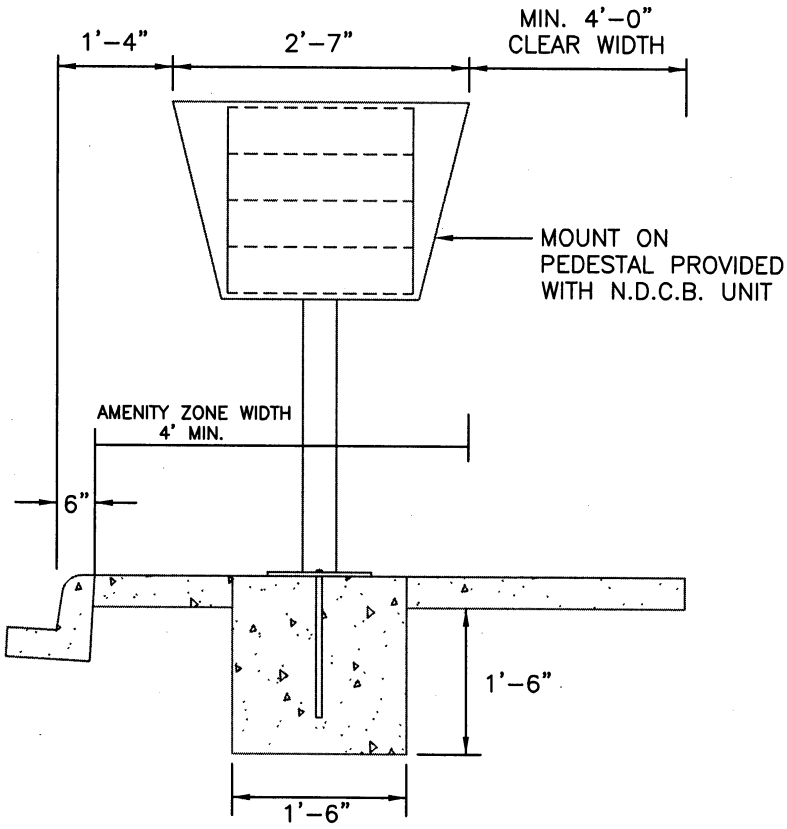


FRONT VIEW



SIDE VIEW

NOTES:

INSTALLATION OF N.D.C.B.U. (INCLUDING COSTRUCTION OF BASE) WILL BE DONE BY U.S. POSTAL SERVICE

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Neighborhood Delivery & Collection Box Unit Installation

516

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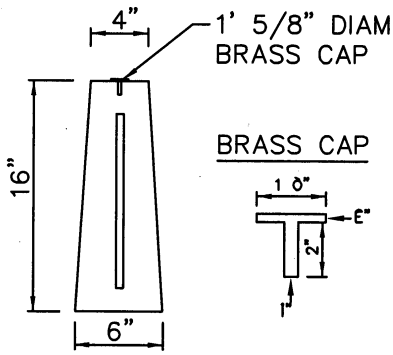
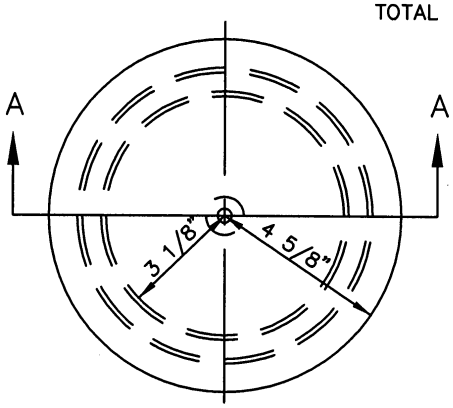


PORTLAND CEMENT CONCRETE
WITH 12"LONG #8 REBAR INSIDE

MONUMENT DETAIL

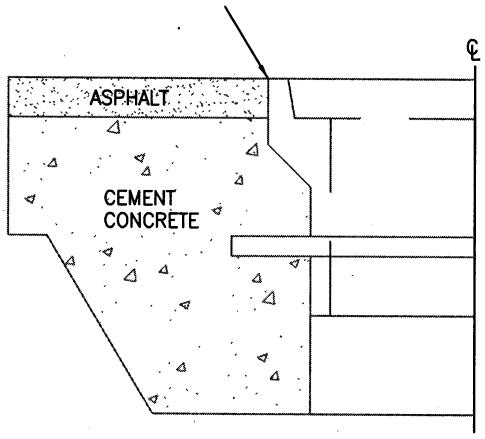
APPROXIMATE WEIGHTS STANDARD

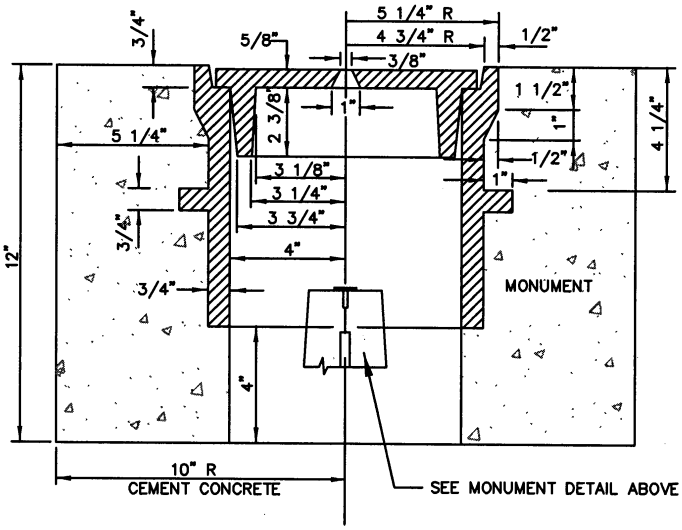
CASE	60 LBS
COVER	19 LBS
TOTAL	79 LBS



PLAN

MONUMENT SHALL BE FLUSH
WITH ASPHALT AFTER OVERLAY





SECTION A–A

NOTE:

THE CASTINGS SHALL BE GRAY IRON CASTING, ASTM DESIGNATION A–48, CLASS 40. THE COVER AND SEAT SHALL BE MACHINED SO AS TO HAVE PERFECT CONTACT AROUND THE ENTIRE CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE. WHEN THE MONUMENT CASE AND COVER ARE PLACED IN CEMENT CONCRETE PAVEMENT, THE CONCRETE CASE WILL NOT BE NECESSARY.

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Monuments

519

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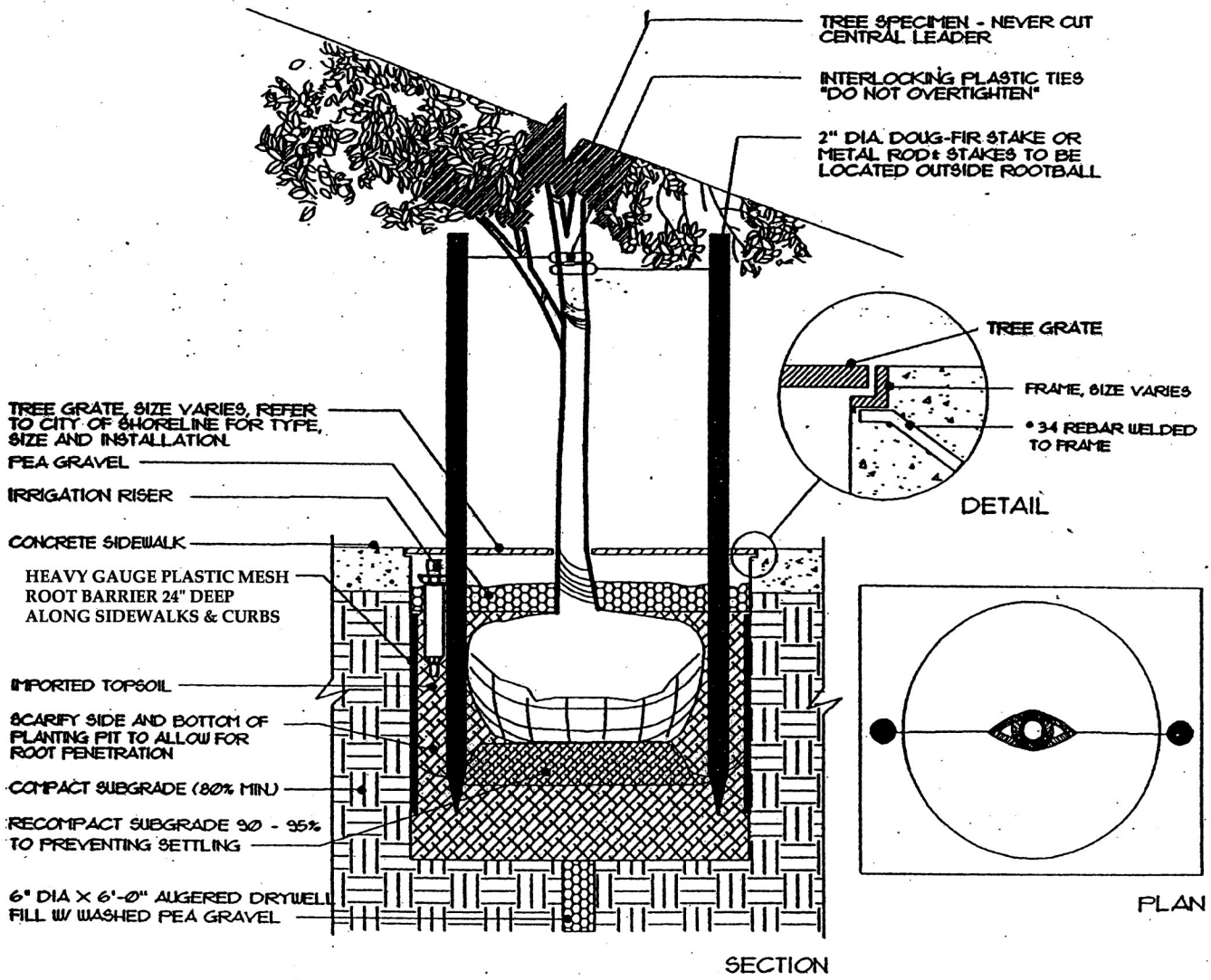

NOTES:

1. TREE PIT SHALL NOT BE LESS THAT (2) TIMES ROOT BALL DIA.
2. CUT ALL TIES & FOLD BACK BURLAP FROM UPPER 1/3 OF ROOT BALL.
3. WATER DAILY UNTIL ESTABLISHED, FERTILIZE & USE GROWTH HORMONE.
4. WHERE A CONTINUOUS PLANTING STRIP IS ALLOWED, WIDEN TREE PIT TO SIDEWALK.

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Tree Staking in Sidewalk with Grate

521

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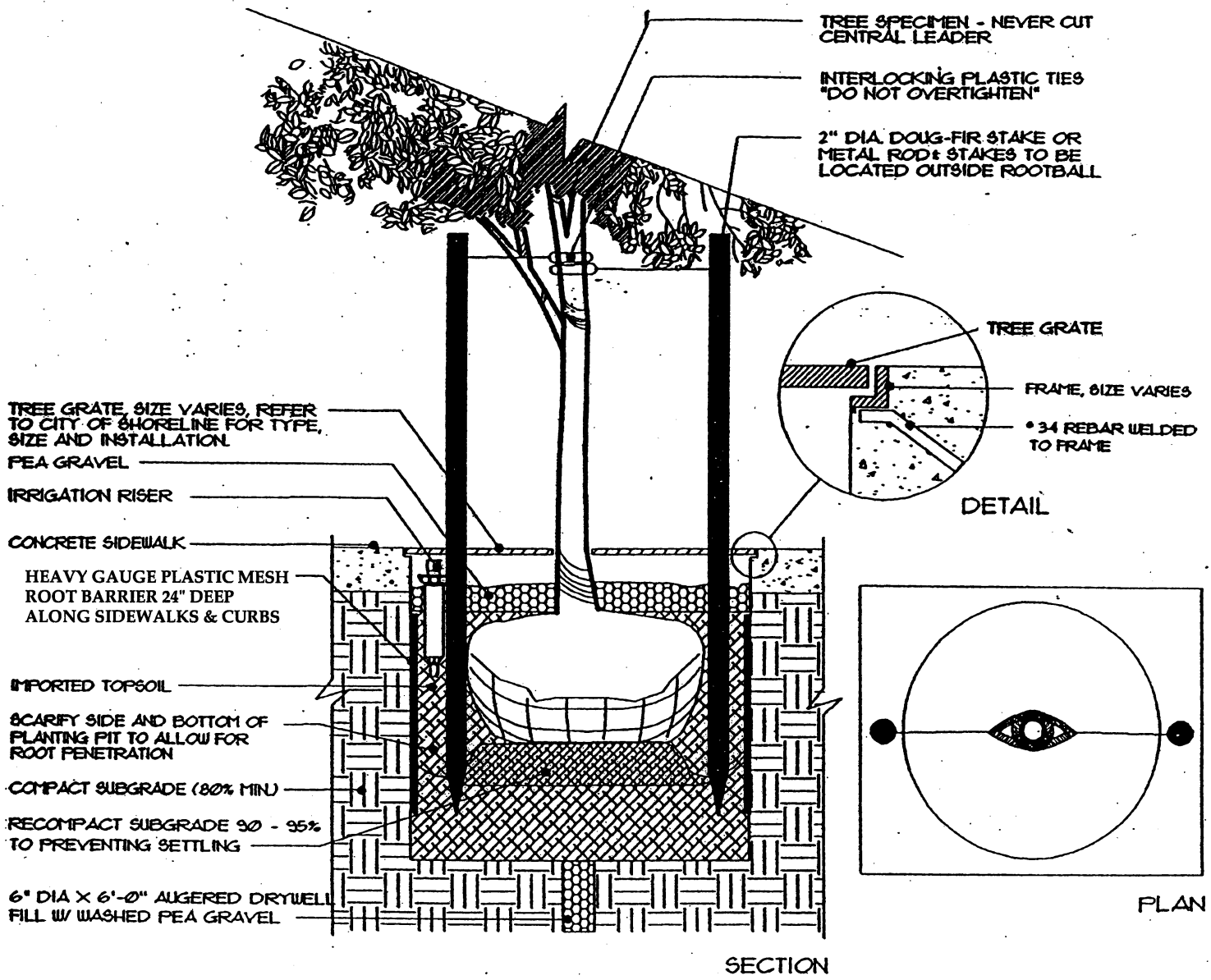

NOTES:

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2. CUT ALL TIES & FOLD BACK BURLAP FROM UPPER 1/3 OF ROOT BALL.
3. WATER DAILY UNTIL ESTABLISHED, FERTILIZE & USE GROWTH HORMONE.
4. WHERE A CONTINUOUS PLANTING STRIP IS ALLOWED, WIDEN TREE PIT TO SIDEWALK.

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Tree Staking in Sidewalk with Grate

521

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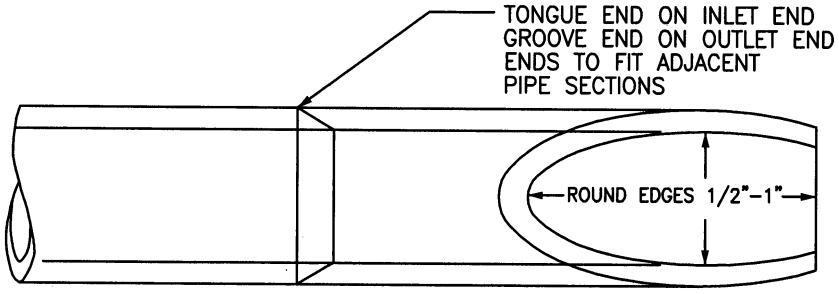
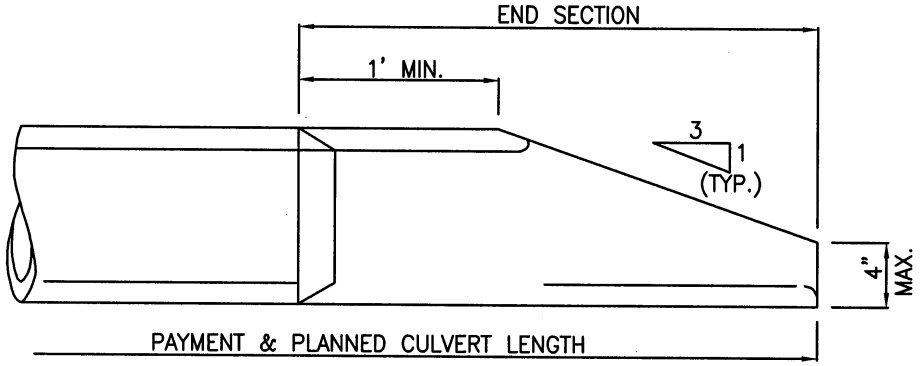
Revision Date
April 2005

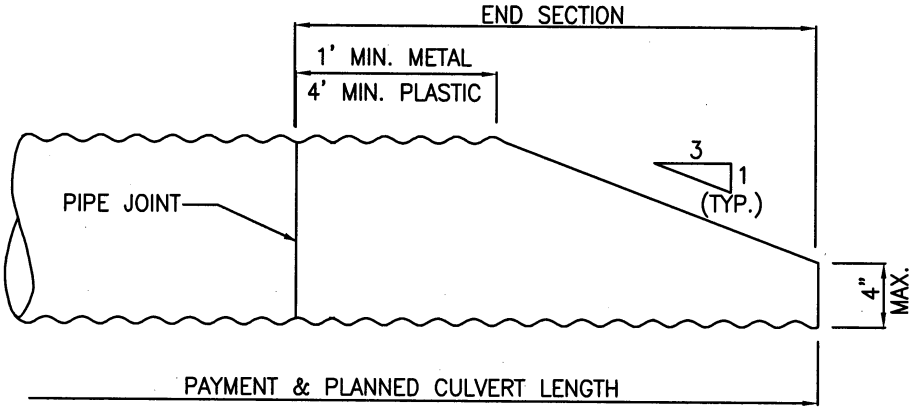


PLAN



ELEVATION

CONCRETE PIPE



METAL & PLASTIC PIPE

NOTE:

1. SIDE SLOPE SHALL BE WARPED TO MATCH THE BEVELED PIPE END. WHEN CULVERT IS ON SKEW, BEVELED END SHALL BE ROTATED TO CONFORM TO SLOPE. IF SLOPE DIFFERS FROM 3:1, PIPE SHALL BE BEVELED TO MATCH SLOPE.

2. TRASH RACK MAY BE REQUIRED BY DIRECTOR OR DESIGNEE.
(SEE STND DWG 702 FOR DETAILS)

CITY OF SHORELINE

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REGISTERED
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EXPIRES: 4/27/07

Beveled End Pipe Section

701

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Revision Date
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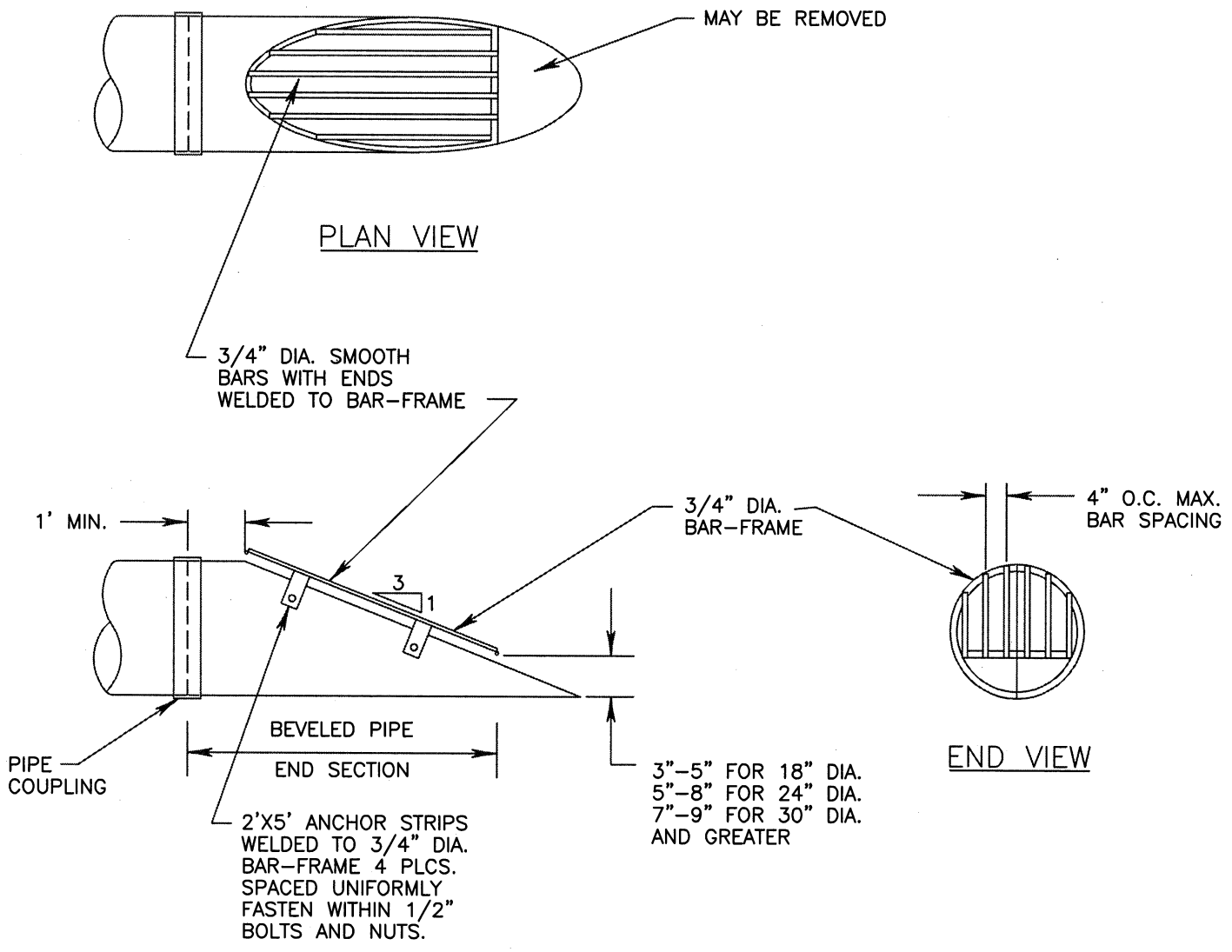

NOTES:

1. CMP END-SECTION SHOWN. FOR CONCRETE PIPE BEVELED END-SECTION, SEE STND DWG 701.

2. ALL PARTS MUST BE ALUMINUM OR STAINLESS STEEL.

CITY OF SHORELINE

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Trash Rack (Debris Cage) - Pipe End

702

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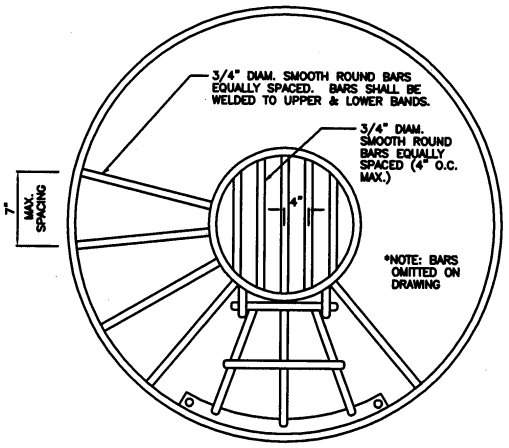
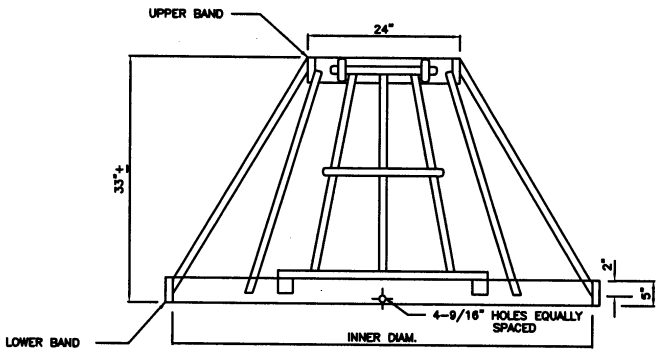
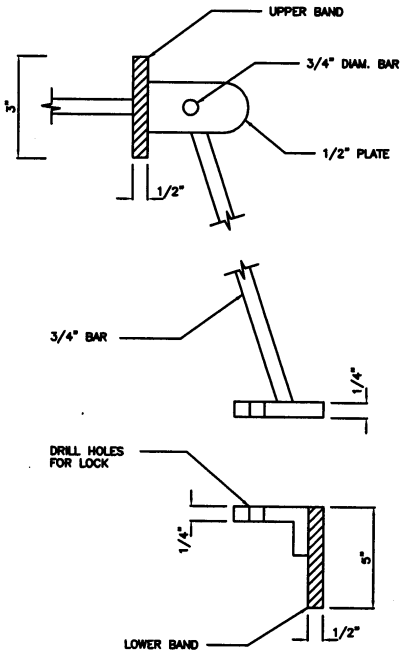


PLAN



ELEVATION

CB	INNER DIAM.
48"	58"
54"	65"
60"	72"
72"	86"
96"	114"



ENTRY GATE DETAIL

NOTES:

1. ALL STEEL IN PLATES, BARS AND BANDS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A38.
2. DEBRIS CAGE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 (AASHTO M111).

CITY OF SHORELINE

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Trash Rack (Debris Cage) - Conical

703

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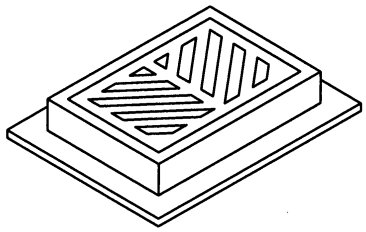

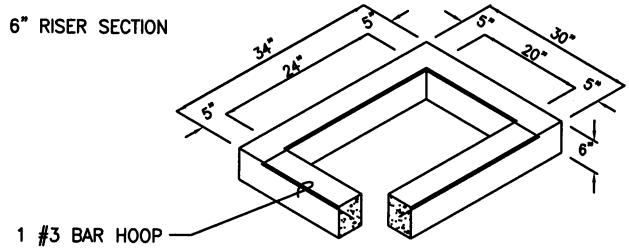

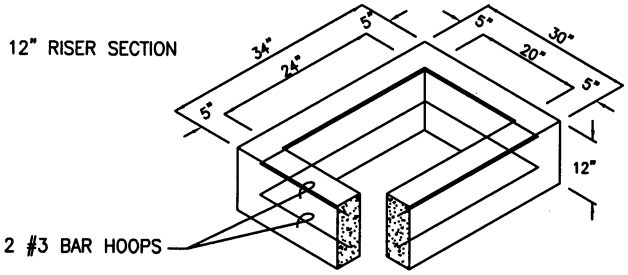

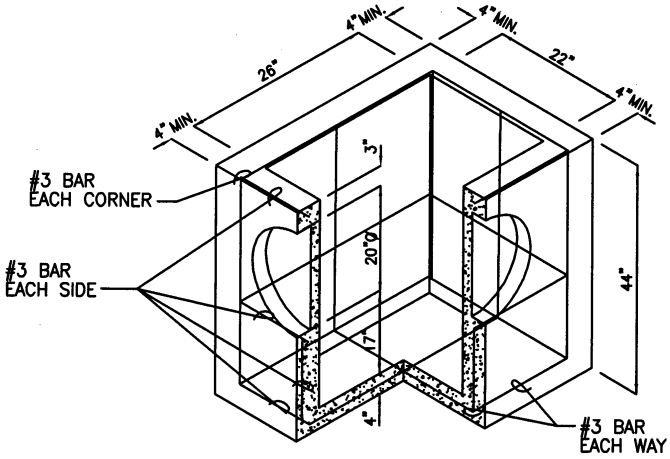

PRECAST BASE SECTION
(MEASUREMENT AT THE TOP
OF THE BASE)

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.

2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.

3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.

6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.

7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".

8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.

9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. B1-b.

12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

CITY OF SHORELINE

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Catch Basin Type 1

705

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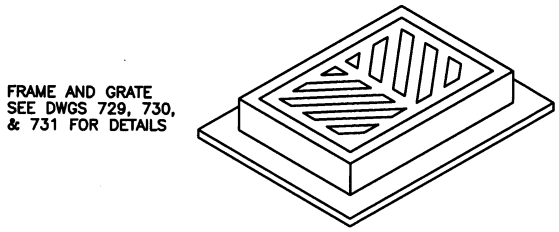

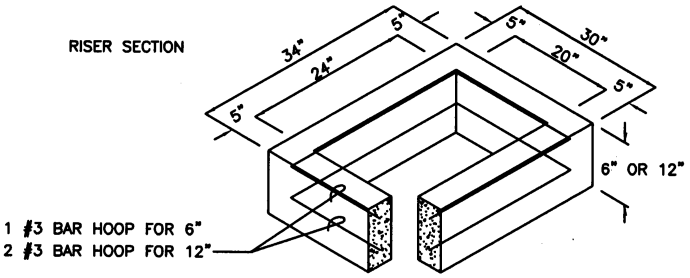

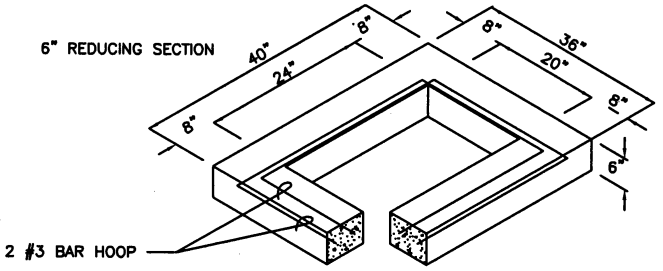

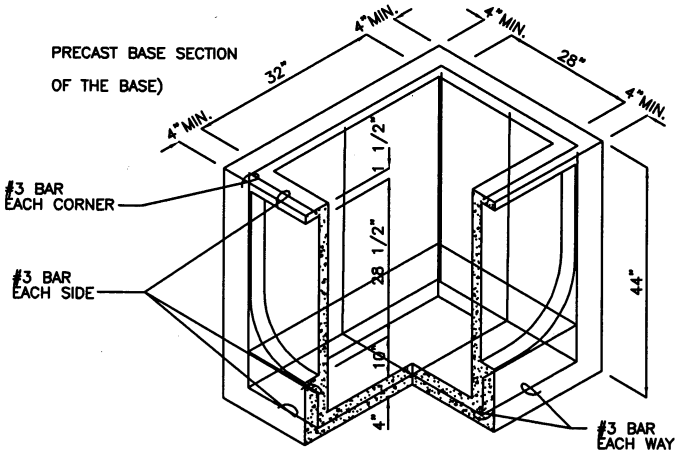

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.

2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.

3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.

6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.

7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".

8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.

9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. B1-b.

12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

CITY OF SHORELINE

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Catch Basin Type 1-L

706

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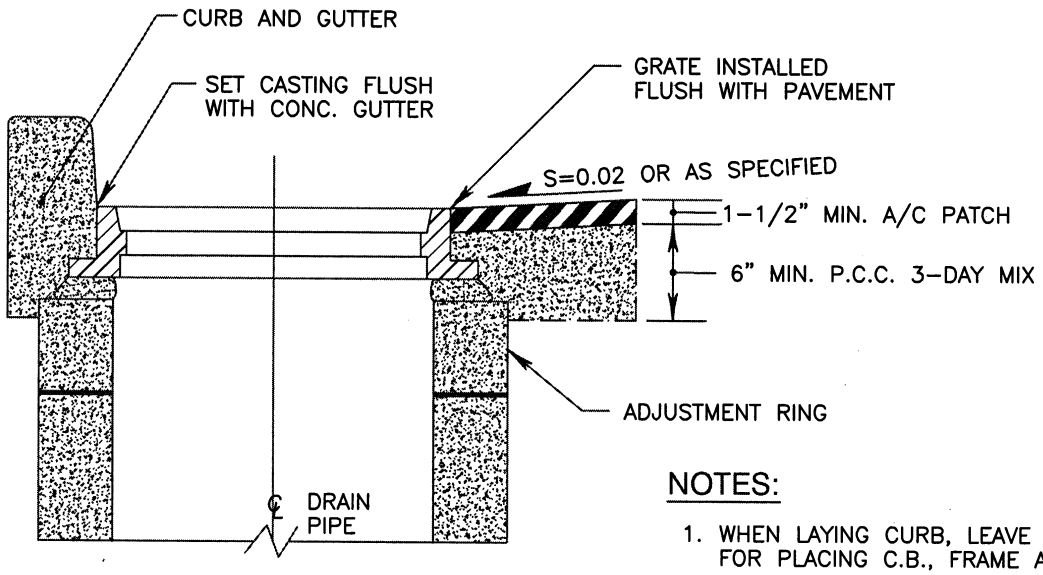
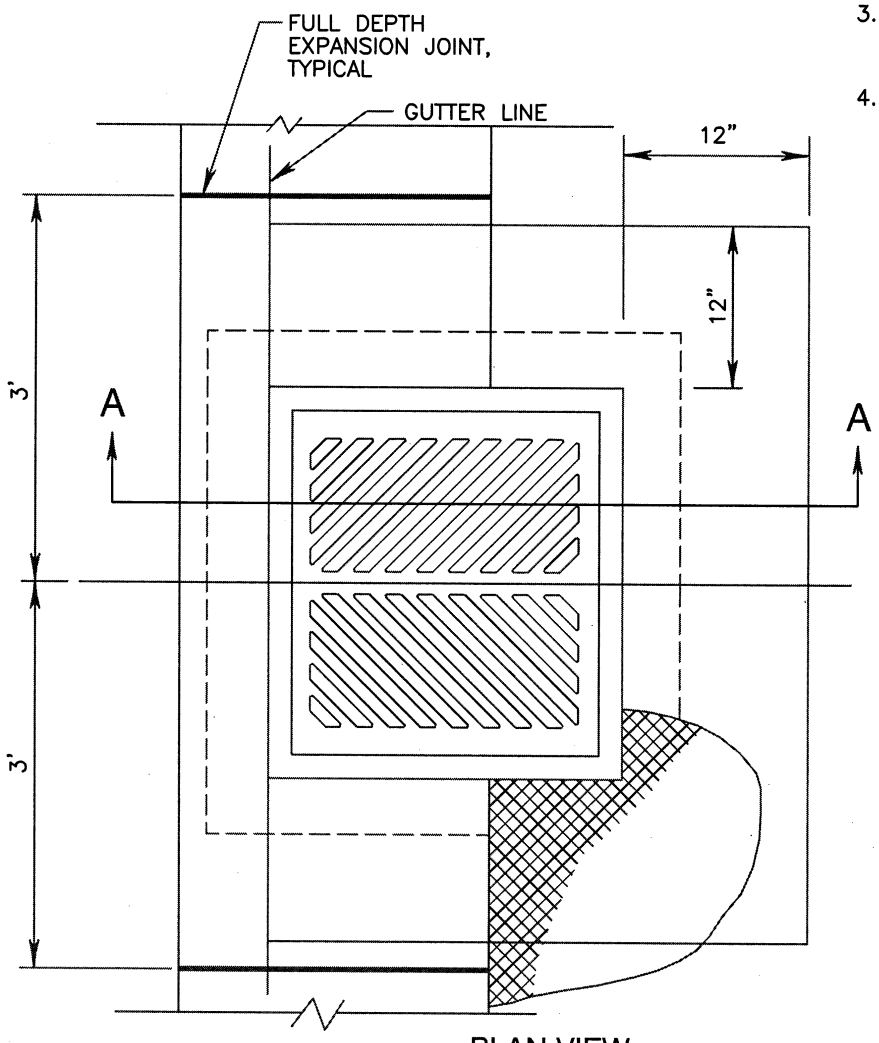


SECTION A-A

NOTES:

1. WHEN LAYING CURB, LEAVE 6' OUT FOR PLACING C.B., FRAME AND GRATE.
2. PLACE CURB AROUND C.B. USING CEMENT CONCRETE 3-DAY MIX.
3. AN APPROVED MATERIAL WHICH WILL PREVENT BONDING OF THE CURB TO FRAME, GRATE OR C.B. SHALL BE USED.
4. GROUT ALL JOINTS INSIDE AND OUTSIDE.



PLAN VIEW

CITY OF SHORELINE

Public Works
Planning and Development Services

JILL M. MARILLEY
STATE OF WASHINGTON
34618
REGISTERED PROFESSIONAL ENGINEER
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Catch Basin Installation

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CITY OF SHORELINE

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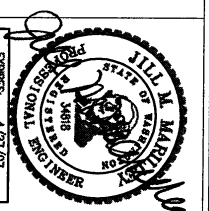
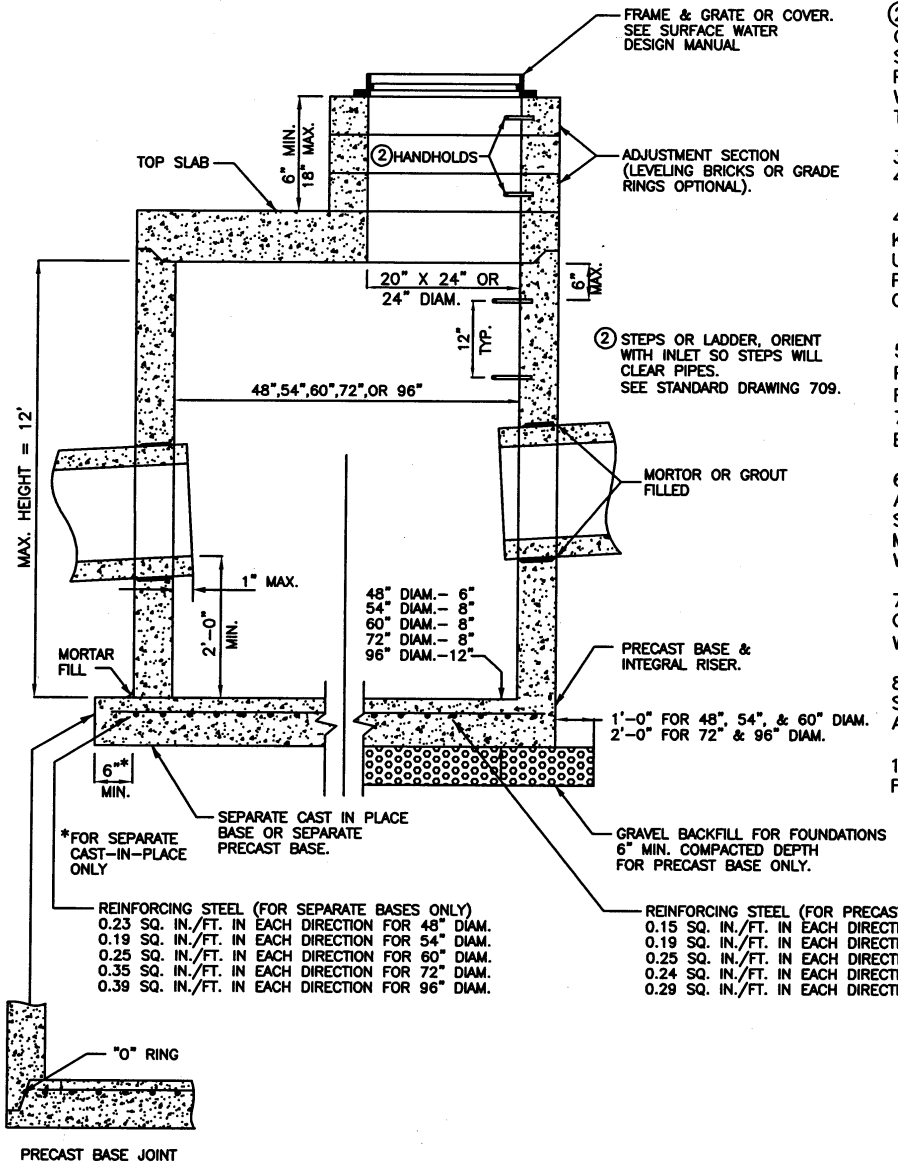
Planning and Development Services



Catch Basin Type 2 - 48", 54", 60", 72" & 96"

708	NOT TO SCALE	Revision Date April 2005



1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTMC478 (AASHTO M199) AND ASTM C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.

(2.) HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 6" MIN. CLEARANCE. SEE STND DWG 709, CATCH BASIN DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP OF THE MANHOLE.

3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" CATCH BASIN, 42" FOR 54" C.B., 48" FOR 60" C.B., 60" FOR 72" C.B., 84" FOR 96" C.B. MIN. DISTANCE BETWEEN HOLES SHALL BE 8" FOR 48", 54", AND 60" C.B.; 12" FOR 72" AND 96" C.B.

6. CATCH BASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH SURFACE WATER DESIGN MANUAL AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.

8. MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. 9. FOR DETAILS SHOWING LADDER, STEPS, HANDRAILS AND TOP SLABS, SEE STND DWG 709.

10. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.

CITY OF SHORELINE

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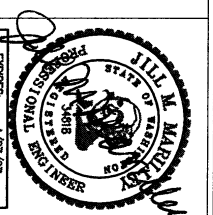

Catch Basin Details

709

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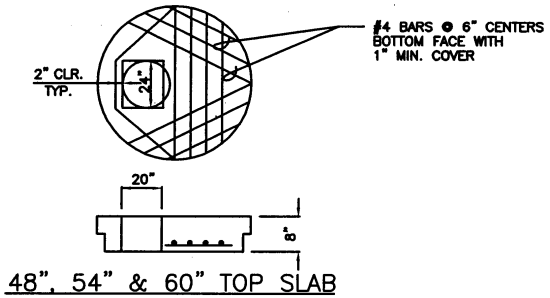
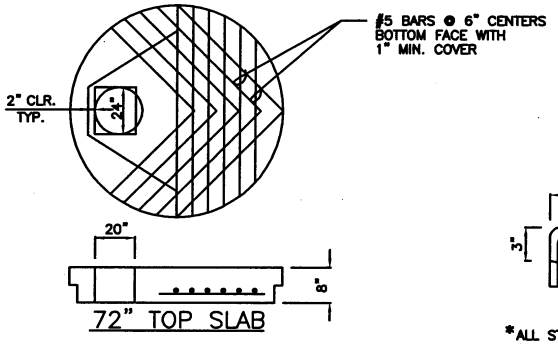
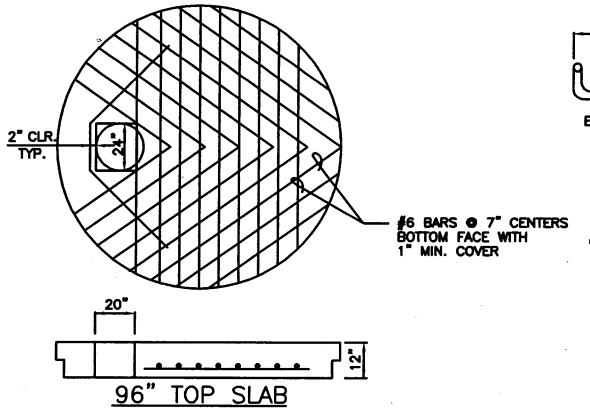


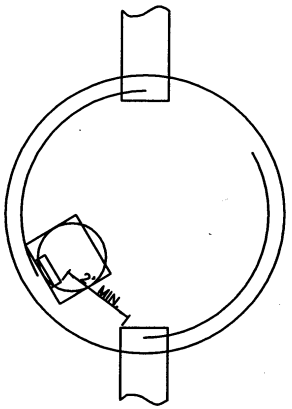
48", 54" & 60" TOP SLAB



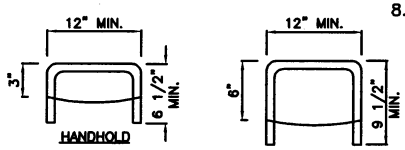
72" TOP SLAB



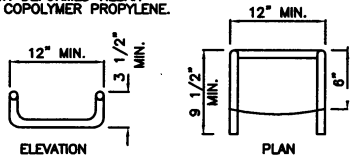
96" TOP SLAB



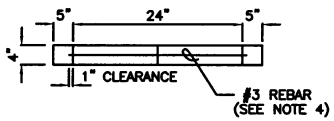
TYPICAL ORIENTATION
FOR ACCESS AND STEPS



*ALL STEPS & RUNGS #8 GALV. DEFORMED REBAR OR COPOLYMER PROPYLENE.



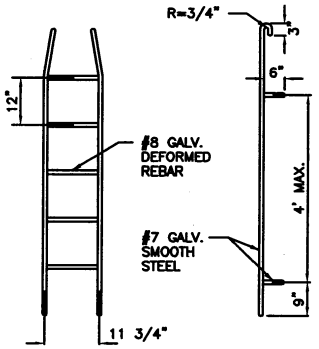
DROP RUNG
CATCH BASIN STEP



GRADE RING

NOTES:

1. PROPRIETARY CATCH BASIN HANDHOLDS AND STEPS ARE ACCEPTABLE, PROVIDED THAT THEY CONFORM TO SEC. R, ASTM C478, AASHTO M-199 AND MEET ALL WISHA REQUIREMENTS.
2. CATCH BASIN STEP/HANDHOLD LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY CATCH BASIN SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY A LEG IS PROHIBITED.
3. HANDHOLDS AND STEPS SHALL HAVE "DROP" RUNGS AS SHOWN ON DETAIL OR PROTUBERANCES TO PREVENT SIDEWAYS SLIP.
4. SLAB OPENING MAY BE 24" X 20" OR 24" DIAM.
5. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497.
6. LADDERS OR STEPS SHALL EXTEND TO WITHIN 16" OF BOTTOM OF CATCH BASIN.
7. HANGING LADDERS SHALL BE PERMANENTLY FASTENED AT TOP BY HANGING ON STEP OR BY BOLTING OR EMBEDDING IN CONCRETE. EACH SHALL BE EMBEDDED AT BOTTOM IN BASE.
8. ADDITIONAL SAFETY FEATURES MAY BE REQUIRED IN VERY DEEP OR UNUSUAL STRUCTURES.



PREFABRICATED LADDER

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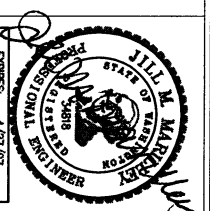
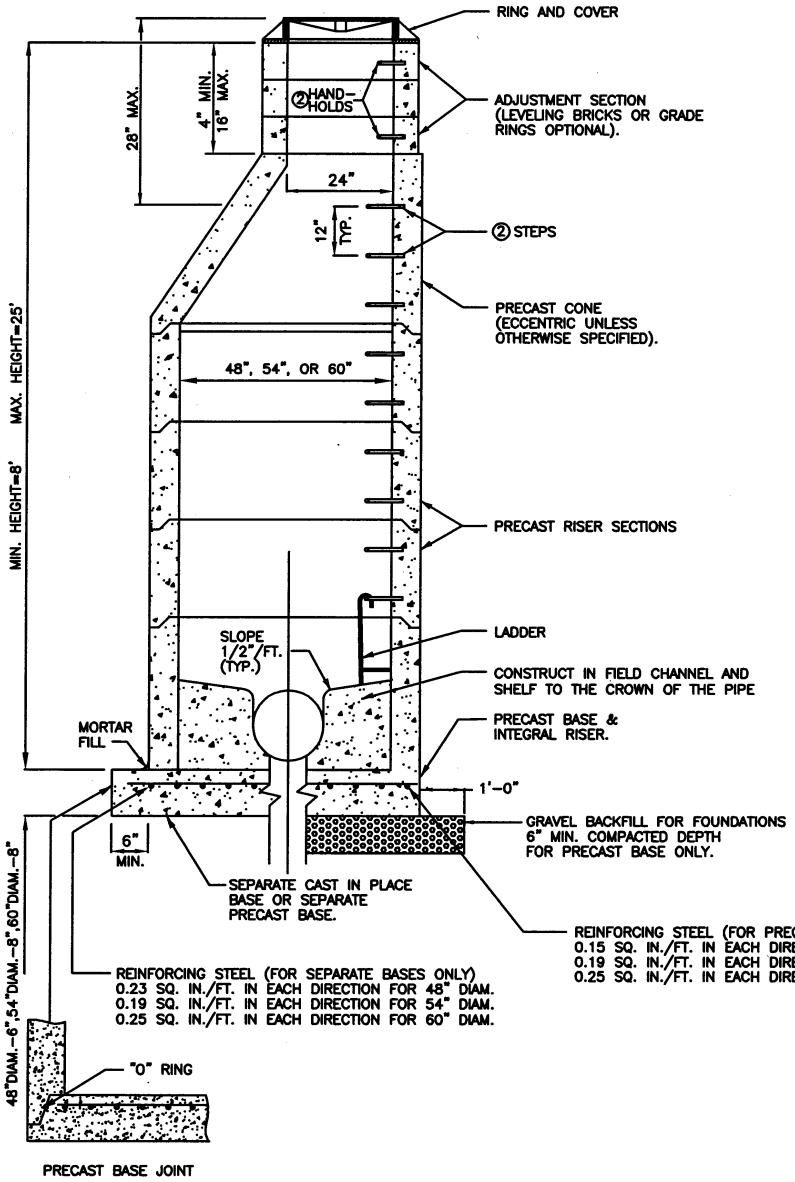
Planning and Development Services



Manhole Type 1 48", 54", & 60"

712



NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.

② HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE STND DWG 716, "MANHOLE DETAILS." HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HAND HOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.

3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" MANHOLE, 42" FOR 54" MANHOLE, 48" FOR 60" M.H. MIN. DISTANCE BETWEEN HOLES SHALL BE 8".

6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH SURFACE WATER DESIGN MANUAL AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.

8. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12', MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.

9. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, AND TOP SLABS, SEE STND DWG 716, "MANHOLE DETAILS."

10. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.

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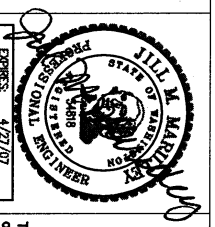

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Manhole Type 2
72" & 96"

713

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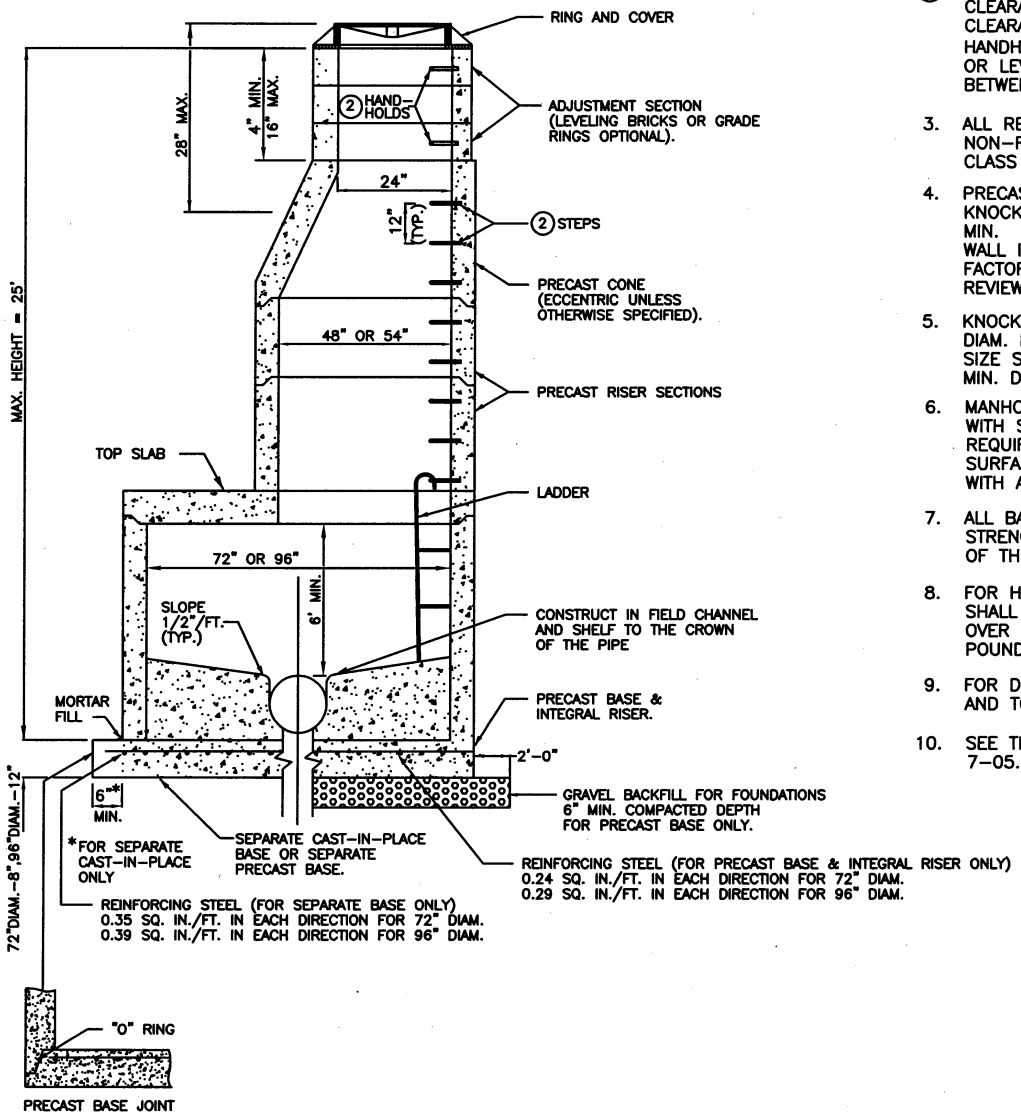
Revision Date
April 2005



NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.

(2). HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE STND DWG 716, "MANHOLE DETAILS." HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.

3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE REVIEW ENGINEER.

5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. MAX. HOLE SIZE SHALL BE 60" FOR 72" MANHOLE, 84" FOR 96" MANHOLE. MIN. DISTANCE BETWEEN HOLES SHALL BE 12".

6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH STORM WATER DESIGN MANUAL AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.

8. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12', MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.

9. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, AND TOP SLABS, SEE STND DWG 716, "MANHOLE DETAILS."

10. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.

CITY OF SHORELINE

Public Works
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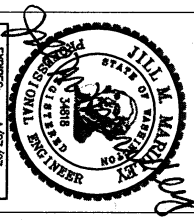
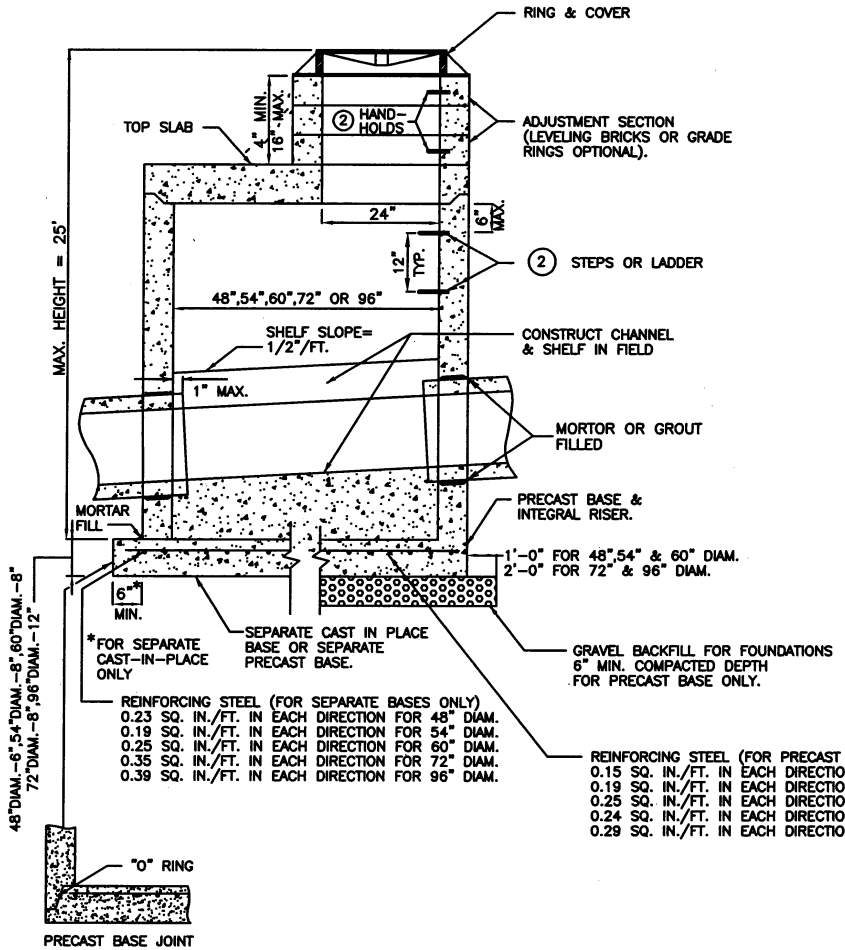


Manhole Type 3
48", 52", 60", 72" & 96"

714

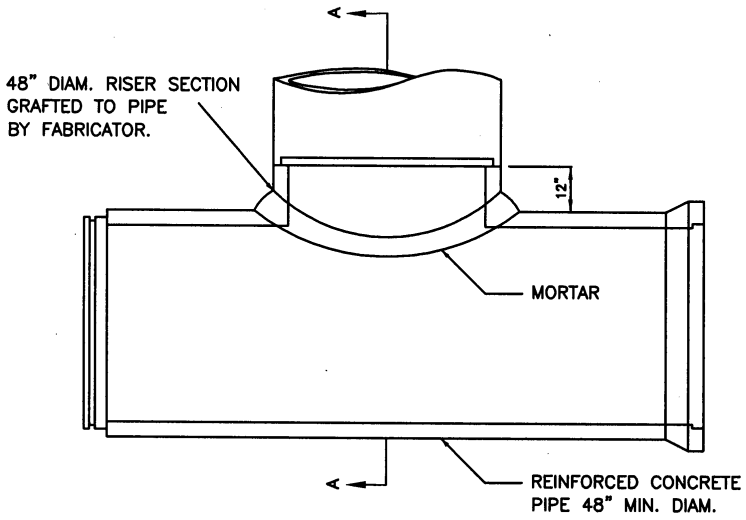
NOT TO SCALE

Revision Date
April 2005

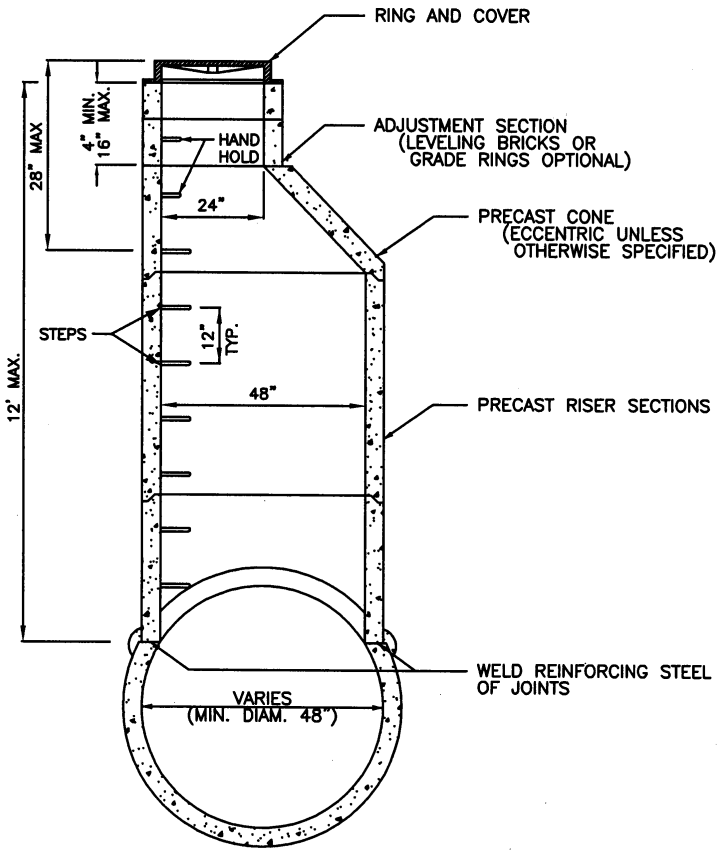


NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE STND DWG 716, "MANHOLE DETAILS." HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE REVIEW ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" M.H., 42" FOR 54" M.H., 48" FOR 60" M.H., 60" FOR 72" M.H., 84" FOR 96" M.H. MIN. DISTANCE BETWEEN HOLES SHALL BE 8" FOR 48", 54", AND 60" M.H., 12" FOR 72" AND 96" M.H.
6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH SURFACE WATER DESIGN MANUAL AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
8. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12', MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.
9. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, AND TOP SLABS, SEE STND DWG 716, "MANHOLE DETAILS."
10. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.



ELEVATION



SECTION A–A

NOTE:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.

2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN CLEARANCE. SEE STND DWG 716, "MANHOLE DETAILS."

3. MANHOLE RINGS & COVERS SHALL BE IN ACCORDANCE WITH THE SURFACE WATER DESIGN MANUAL & MEET THE STRENGTH OF FEDERAL SPECIFICATION RR–F–621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON–ROCKING FIT WITH ANY COVER POSITION.

4. ALL PRECAST CONCRETE SHALL BE WSDOT CLASS 4000psi.

5. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, & TOP SLABS, SEE STND DWG 716, "MANHOLE DETAILS."

6. NOT FOR USE IN TRAFFIC BEARING AREAS.

CITY OF SHORELINE

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Planning and Development Services

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STATE OF WASHINGTON
34818
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 4/27/07

Manhole Type 4

715

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Revision Date April 2005

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CITY OF SHORELINE

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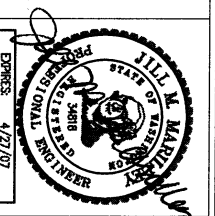
Planning and Development Services



Manhole Details

716

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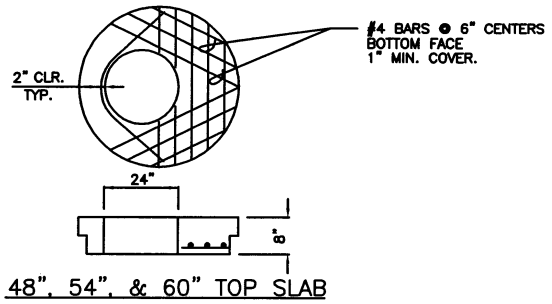
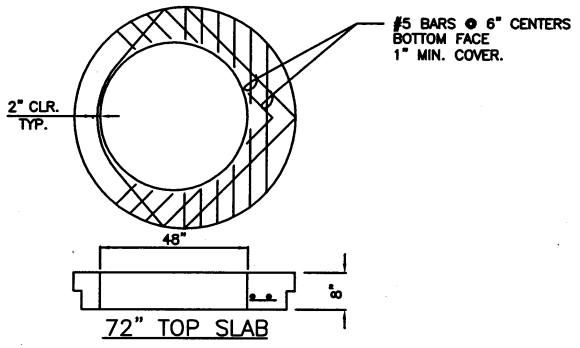
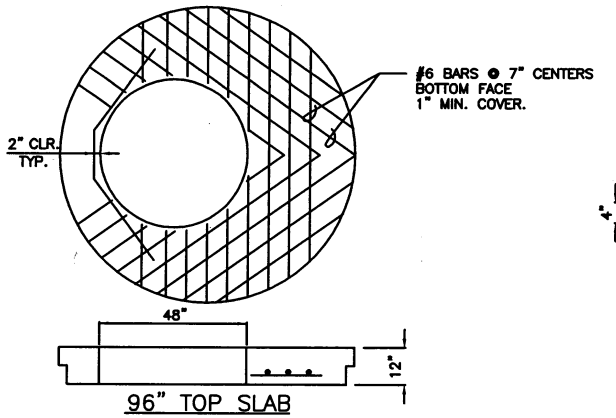


48", 54", & 60" TOP SLAB

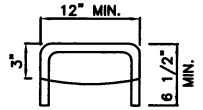


72" TOP SLAB

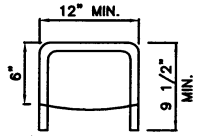


96" TOP SLAB

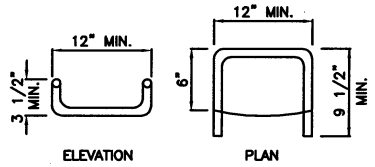
*ALL STEPS & RUNGS
1" DIAM. GALV. REBAR OR
COPOLYMER PROPYLENE.



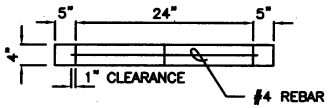
HANDHOLD



MANHOLE STEP



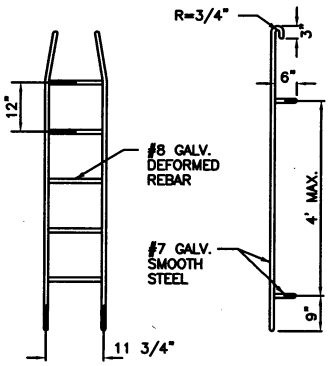
MANHOLE DROP RUNG STEP



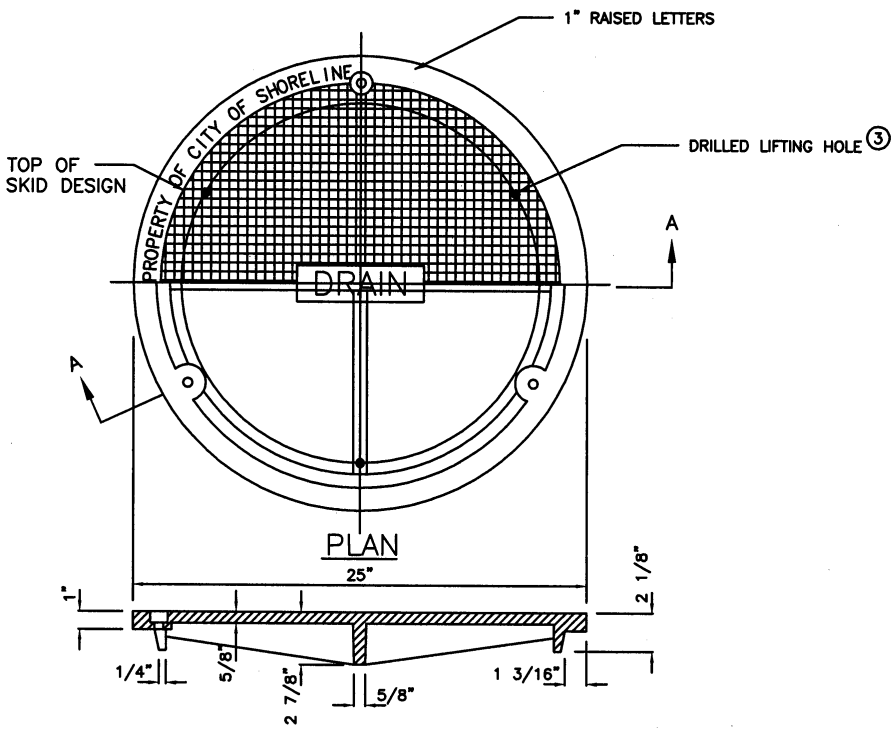
GRADE RING

NOTES:

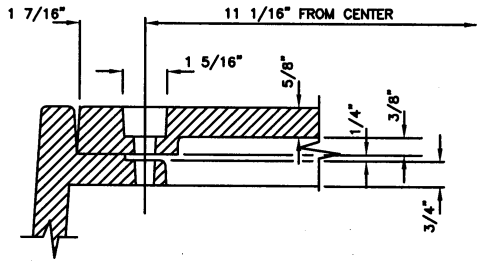
1. PROPRIETARY MANHOLE HANDHOLDS AND STEPS ARE ACCEPTABLE, PROVIDED THAT THEY CONFORM TO SEC. R, ASTM C478, AASHTO M199 AND MEET ALL WISHA REQUIREMENTS.
2. MANHOLE STEP/HANDHOLD LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY MANHOLE SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY A LEG IS PROHIBITED.
3. HANDHOLDS AND STOPS SHALL HAVE "DROP" RUNGS OR PROTUBERANCES TO PREVENT SIDEWAYS SLIP.
4. LADDERS OR STEPS SHALL EXTEND TO WITHIN 16" OF BOTTOM OF MANHOLE.
5. HANGING LADDERS SHALL BE PERMANENTLY FASTENED AT TOP BY HANGING ON STEP OR BY BOLTING OR EMBEDDING IN CONCRETE. EACH SHALL BE EMBEDDED AT BOTTOM IN BASE.
6. ADDITIONAL SAFETY FEATURES MAY BE REQUIRED IN VERY DEEP OR UNUSUAL STRUCTURES.



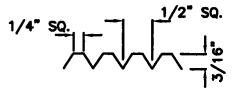
PREFABRICATED LADDER



SECTION A–A



BOLT–DOWN DETAIL



COVER SKID DESIGN DETAIL

NOTES:

1. USE WITH THREE LOCKING BOLTS 5/8"–11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG. DRILL HOLES SPACED 120° AT 11 1/16" RADIUS.
2. MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80–55–06

③ DRILL THREE 1 INCH HOLES SPACED AT 120 AND 9 1/2" RADIUS.

CITY OF SHORELINE

Public Works
Planning and Development Services

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EXPIRES: 4/27/07

Locking Manhole Cover

720

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Revision Date April 2005

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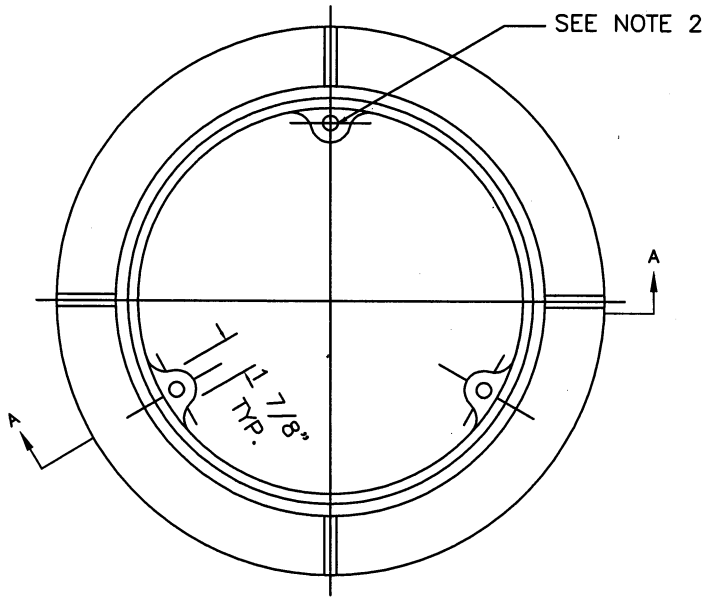
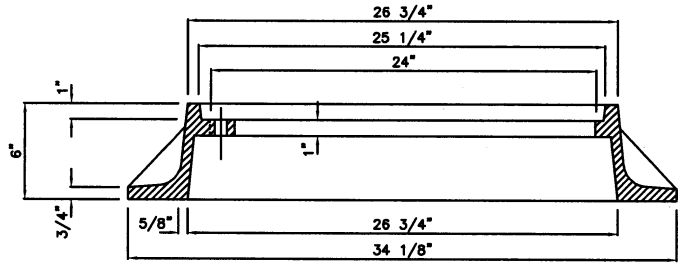
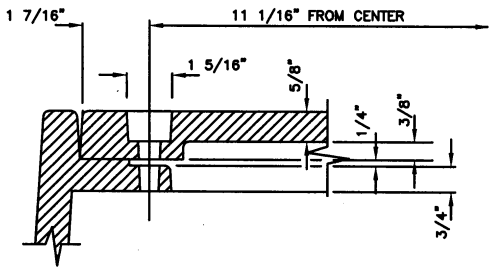


PLAN



SECTION A–A



BOLT–DOWN DETAIL

NOTE:

1. MATERIAL IS CAST IRON ASTM A4B CLASS 30.

2. DRILL AND TAP THREE 5/8"–11 NC HOLES THROUGH FRAME AT 120° AND 11 1/16" RADIUS.

CITY OF SHORELINE

Public Works
Planning and Development Services

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STATE OF WASHINGTON
34818
REGISTERED PROFESSIONAL ENGINEER
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Locking Manhole Cover Installation

721

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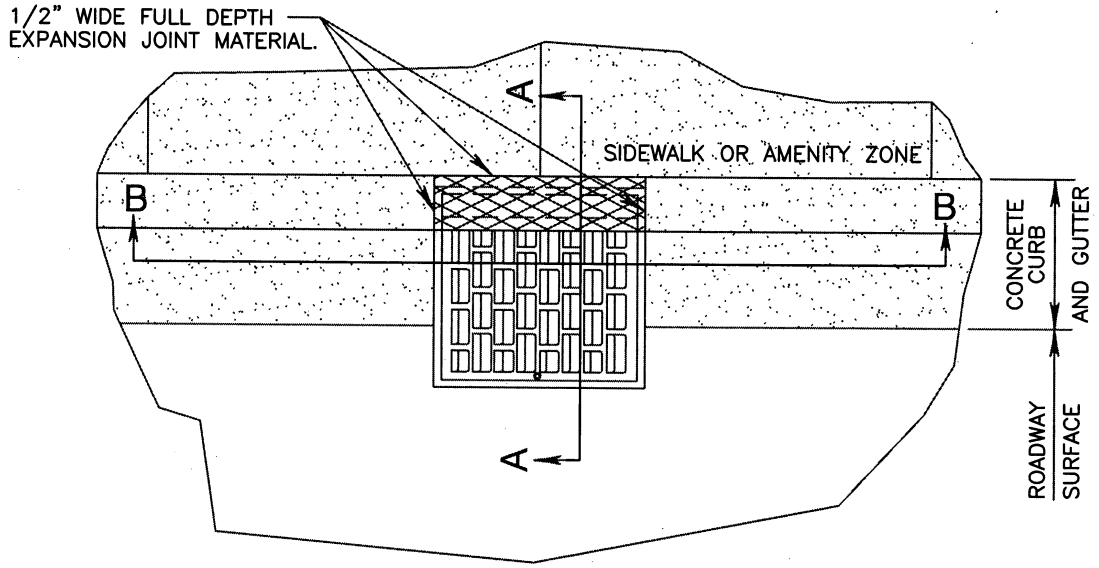
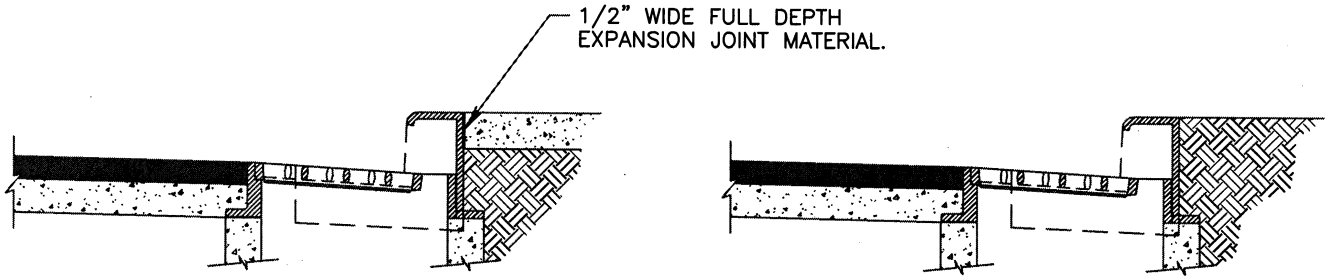


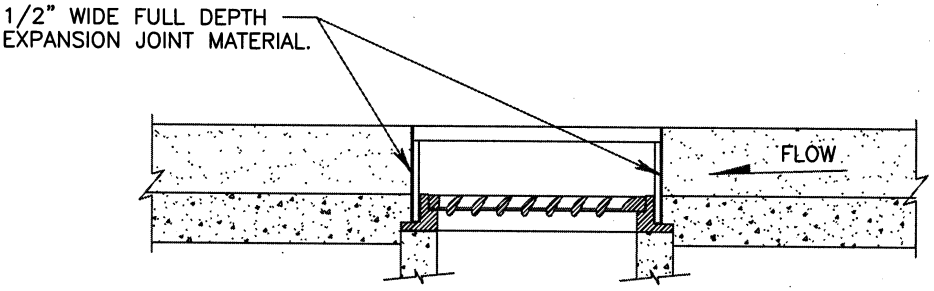
PARTIAL PLAN VIEW



INLET WITH SIDEWALK

INLET WITH AMENITY ZONE

SECTION A-A



SECTION B-B

NOTE:

1. SET TO GRADE AND CONSTRUCT ROAD AND GUTTER TO BE FLUSH WITH FRAME.
2. SEE STND DWGS 726 & 729 FOR TYPES OF GRATE USE.
3. SEE STND DWG 724 FOR FRAME DETAIL.

CITY OF SHORELINE

Public Works
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Through-Curb Inlet

723

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CITY OF SHORELINE

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REGISTERED PROFESSIONAL ENGINEER
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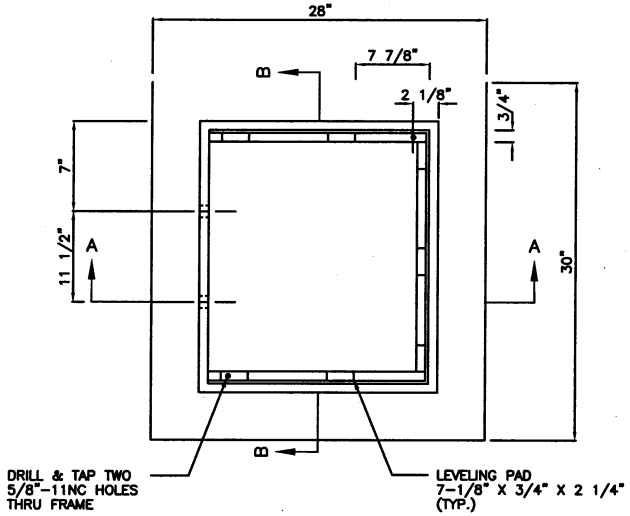
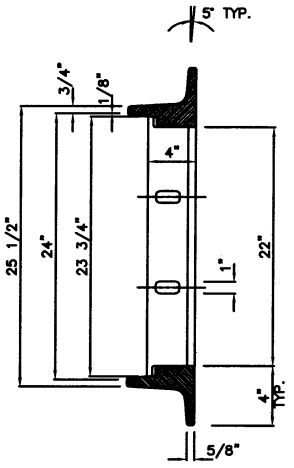
Through-Curb Inlet Frame

724



PLAN



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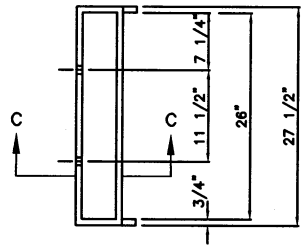
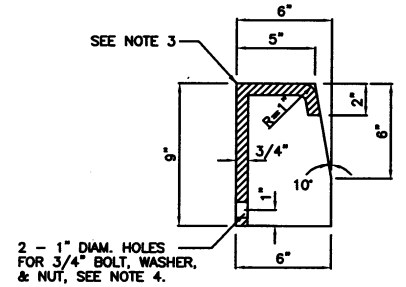
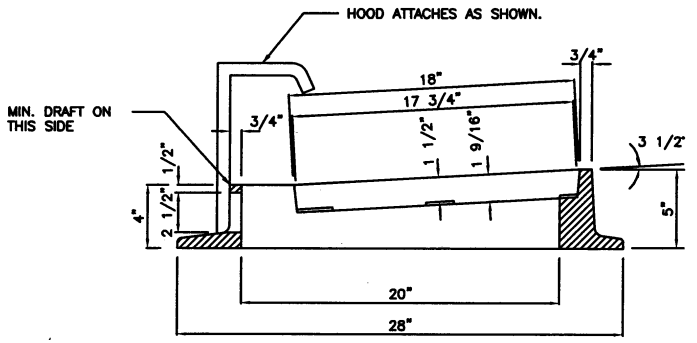


HOOD DETAIL



SECTION C–C



SECTION A–A

NOTES:

1. MATERIAL IS CAST IRON ASTM A48 CLASS 30.
2. SEE STND DWG 726 FOR VANED GRATE.
3. PATTERN ON TOP SURFACE OF HOOD SHALL BE 3/16" NON-SKID DIAMOND.
4. BOLT, WASHER, & NUT SHALL BE GALVANIZED OR EROSION RESISTANT.

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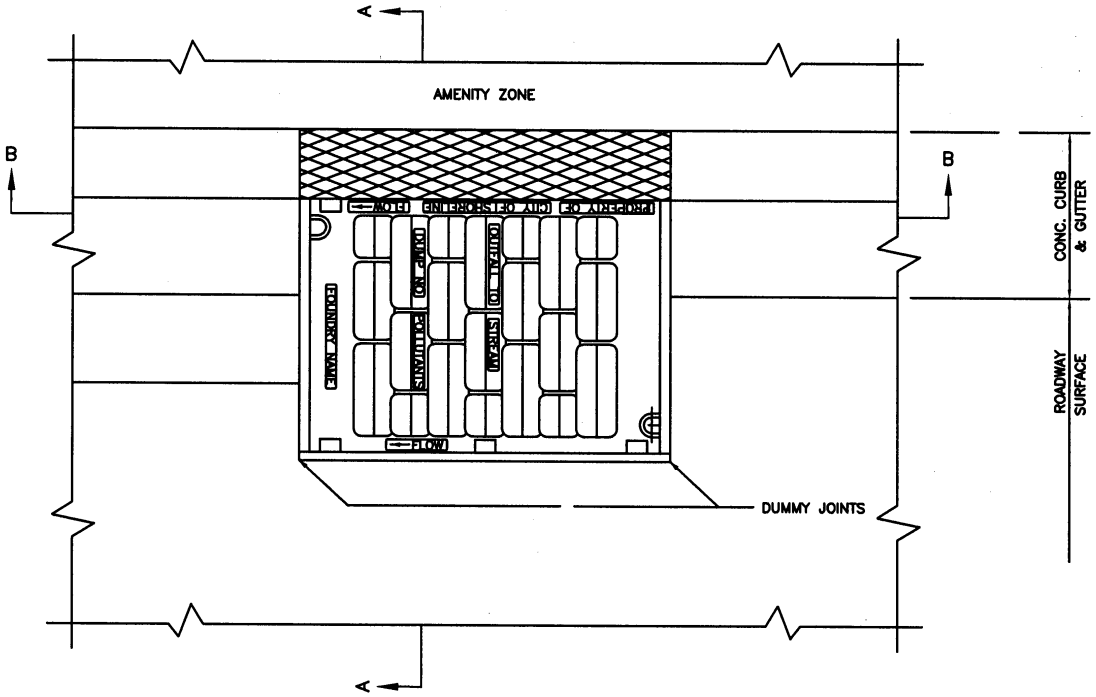

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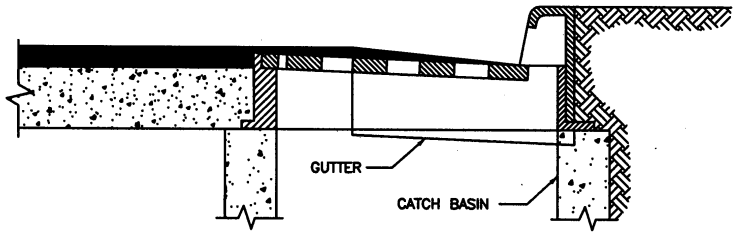
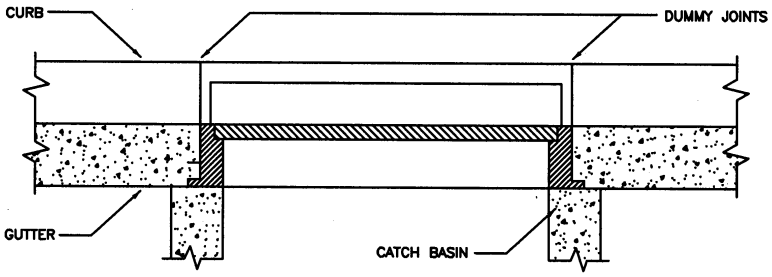


SECTION A–A



SECTION B–B

NOTE:

1. SET TO GRADE AND CONSTRUCT ROAD AND GUTTER TO BE FLUSH WITH FRAME.

CITY OF SHORELINE

Public Works
Planning and Development Services

JILL M. MARILLEY — STATE OF WASHINGTON — 24818 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 4/27/07

Through-Curb Inlet & Vertical Curb Installation

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725

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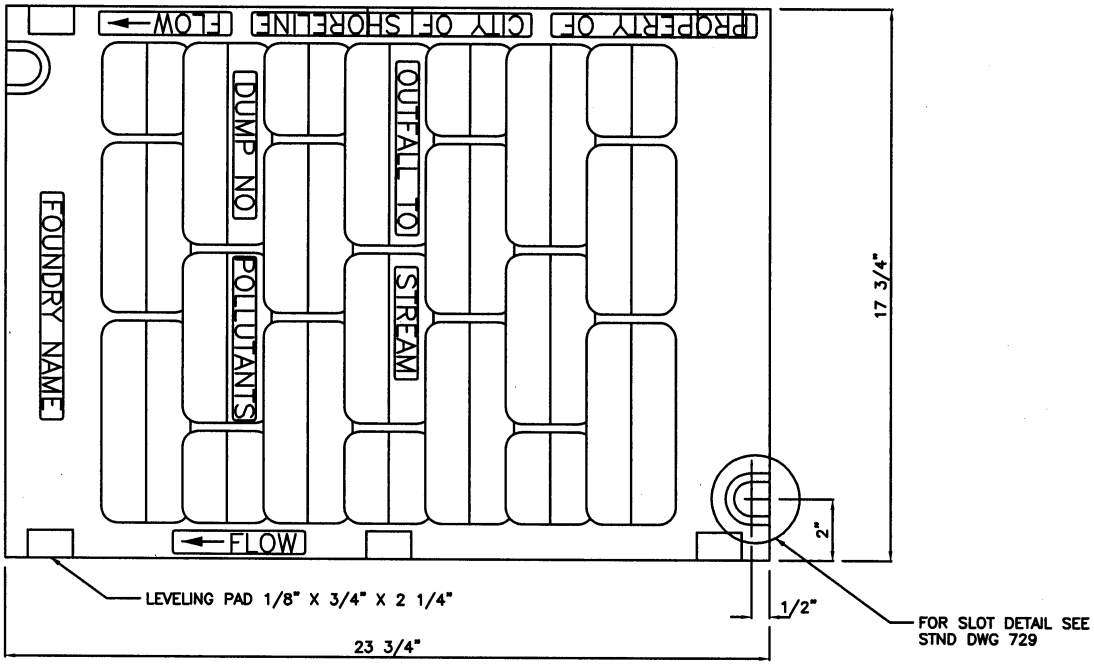

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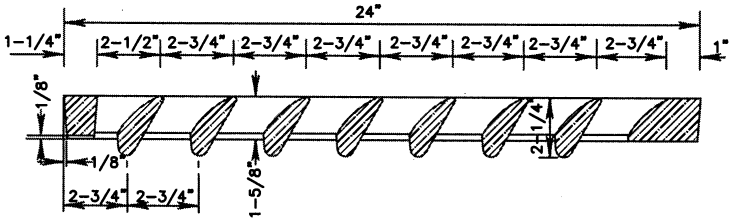

ELEVATION

NOTES:

1. SELF-LOCK VANED GRATE MANUFACTURER SUBJECT TO APPROVAL BY THE DIRECTOR OR DESIGNEE.
2. USE WITH TWO LOCKING BOLTS $\frac{5}{8}$"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG. NOTE SLOT DETAIL.
3. MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
4. "OUTFALL TO STREAM DUMP NO POLLUTANTS" MAY BE LOCATED ON THE BORDER AREA.
5. THE WORDS "PROPERTY OF CITY OF SHORELINE" SHALL BE OMITTED IF GRATE IS ON PRIVATE SYSTEM.
6. USE ON SLOPES GREATER THAN 6%.

CITY OF SHORELINE

Public Works
Planning and Development Services

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Vaned Grate

726

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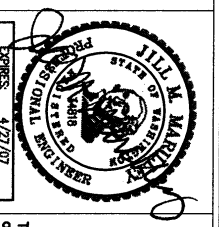
Revision Date April 2005

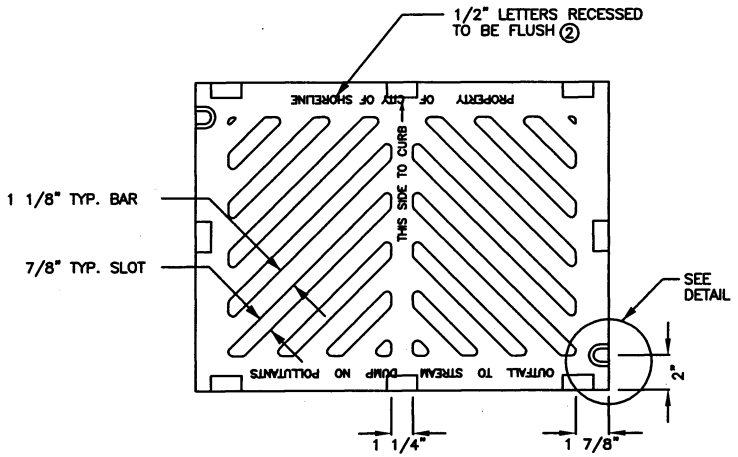
CITY OF SHORELINE

Public Works
Planning and Development Services

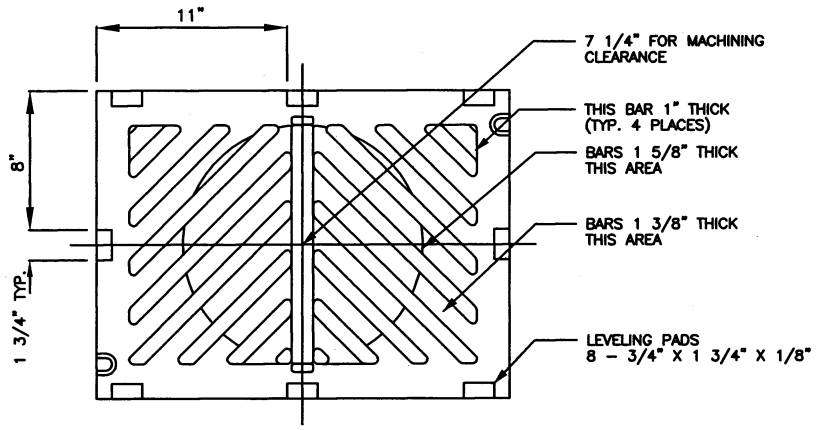


Standard Grate

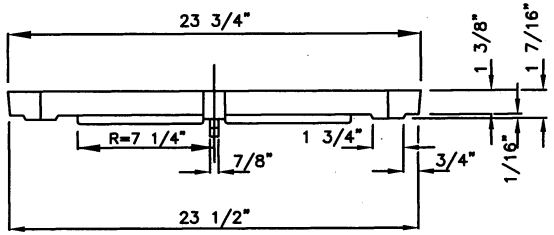
729	NOT TO SCALE	Revision Date April 2005



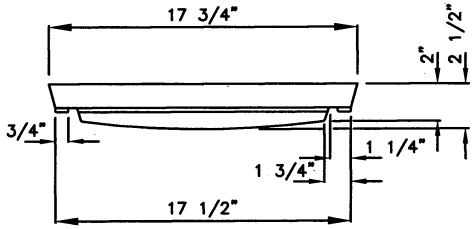
TOP VIEW



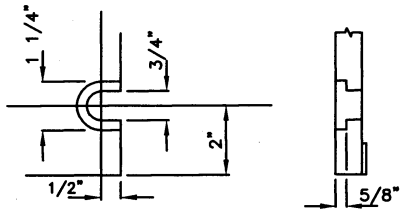
BOTTOM VIEW



SIDE VIEW



END VIEW



SLOT DETAIL
SEE NOTE ①

NOTES:

① SLOT FORMED AND RECESSED FOR 5/8"–11 NC X 2" SOCKET HEAD (ALLEN HEAD) CAP SCREW.

② THE WORDS "PROPERTY OF CITY OF SHORELINE" SHALL BE OMITTED IF GRATE IS ON PRIVATE SYSTEM.

3. ALL CASTINGS SHALL HAVE A BITUMINOUS COATING.

4. GRATE SHALL BE CAST IRON PER ASTM A48 CLASS 30 UNLESS OTHERWISE SPECIFIED.

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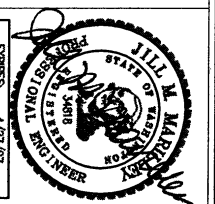

Standard Frame with Vertical Curb Installation

730

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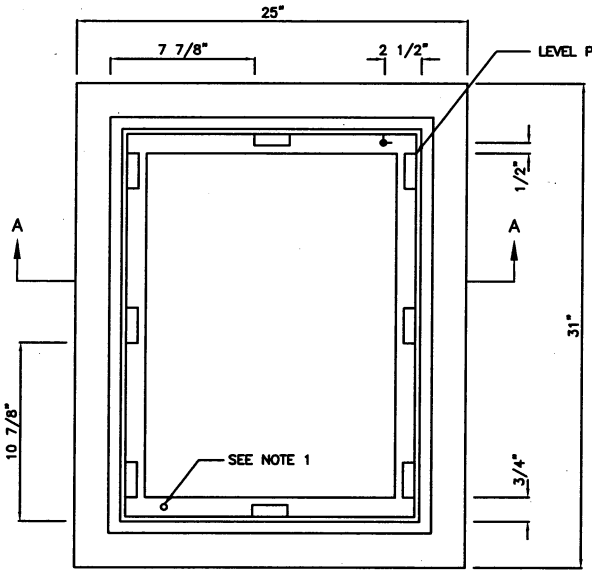
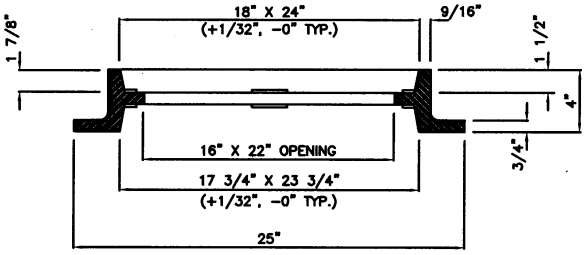
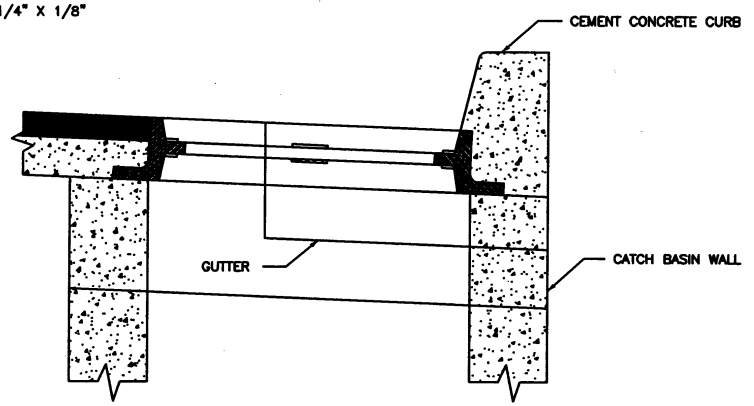


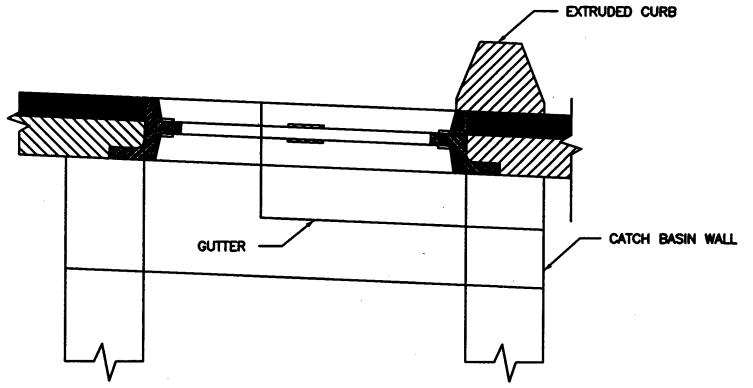
PLAN



SECTION A–A



VERTICAL CURB



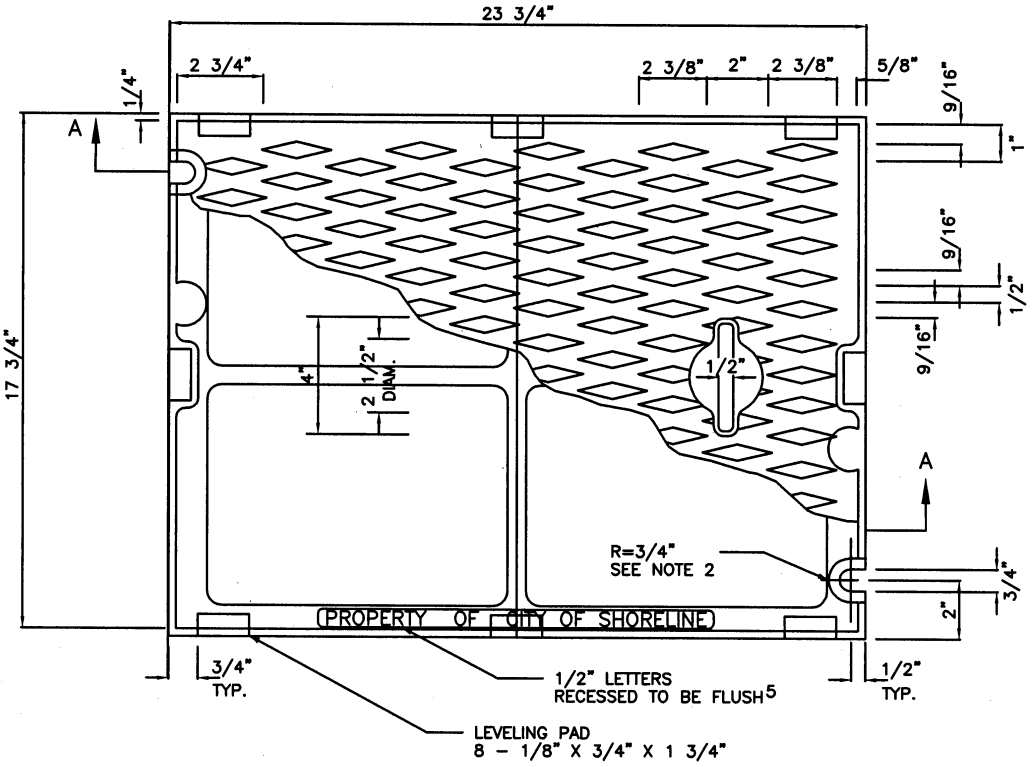
EXTRUDED CURB

NOTES:

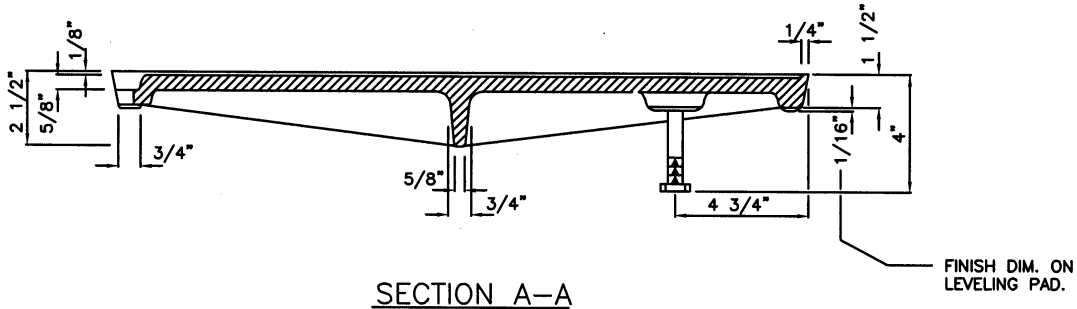
1. DRILL & TAP FOR, AND PROVIDE, TWO LOCKING BOLTS 5/8"–11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG WHEN USED WITH SOLID COVER (STND DWG 731) OR WHEN SPECIFIED BY ENGINEER.

2. FRAME MATERIAL IS CAST IRON PER ASTM A48 CLASS 30.

3. SET FRAME TO GRADE & CONSTRUCT ROAD & GUTTER TO BE FLUSH WITH FRAME.



PLAN COVER



SECTION A–A

NOTES:

1. USE WITH FRAME (SEE STND DWG 730) DRILLED & TAPPED FOR LOCKING BOLTS.

2. USE WITH TWO LOCKING 5/8"–11 NC STAINLESS STEEL TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG.

3. MATERIAL IS CAST IRON PER ASTM A48 CLASS 30.

4. THE WORDS "PROPERTY OF CITY OF SHORELINE" SHALL BE OMITTED IF COVER IS ON A PRIVATE SYSTEM.

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Solid Cover

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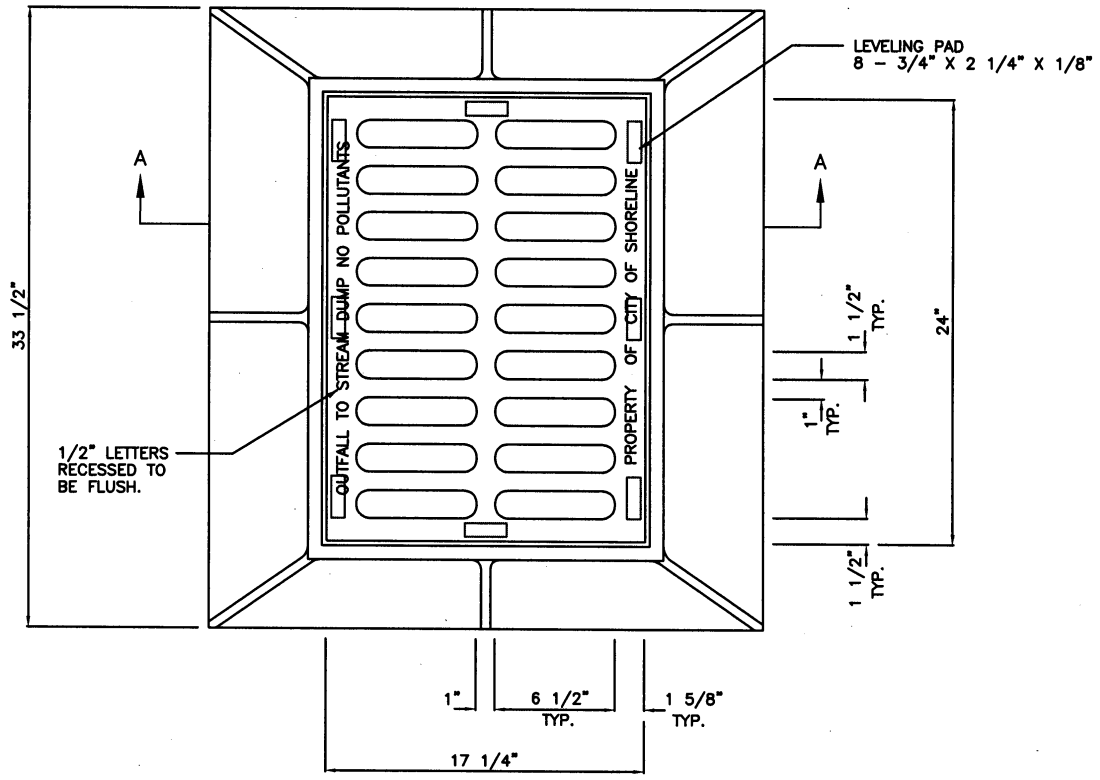
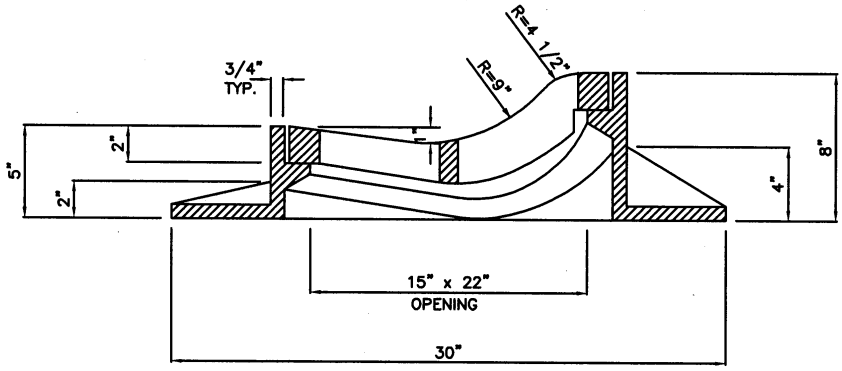


PLAN



SECTION A–A

NOTES:

1. MATERIAL IS CAST IRON PER ASTM A48 CLASS 30.

2. THE WORDS "PROPERTY OF CITY OF SHORELINE" SHALL BE OMITTED IF ON A PRIVATE SYSTEM.

3. NOT TO BE USED ON THICKENED EDGE ROADWAYS.

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Rolled Curb Frame and Grate

734

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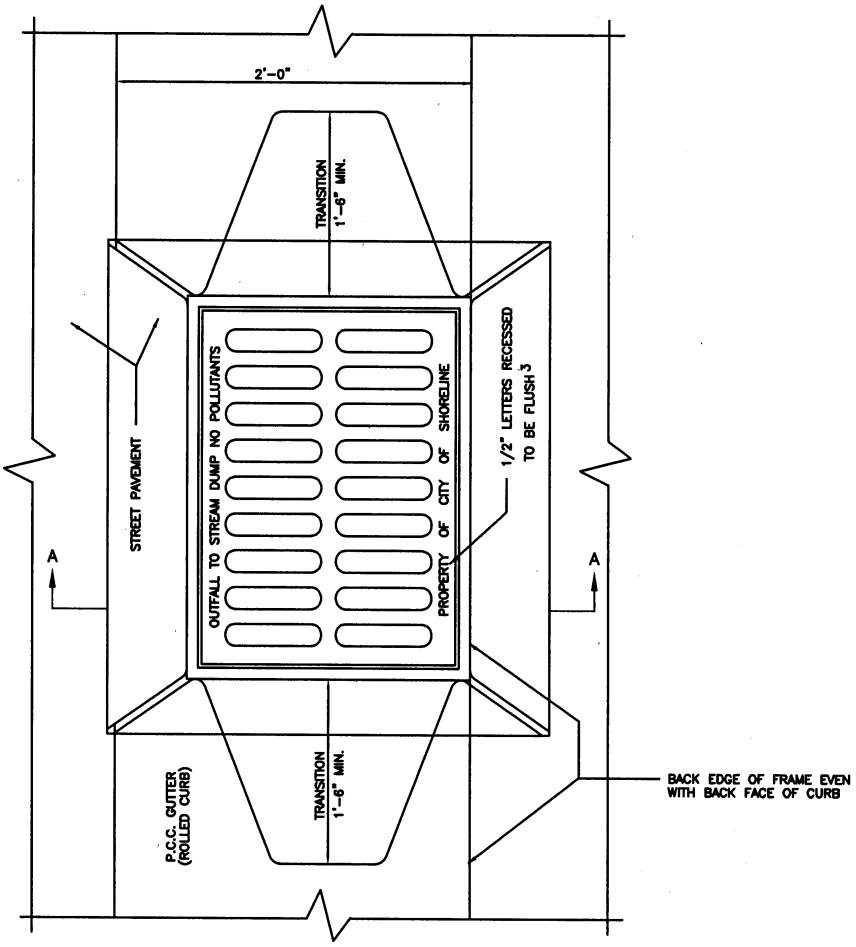
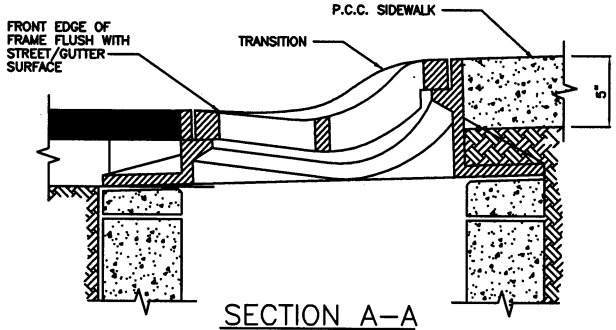


PLAN



SECTION A–A

NOTES:

1. SET FRAME TO GRADE & CONSTRUCT ROAD & CURB TO BE FLUSH AT FRONT & BACK OF FRAME.
2. THE WORDS "PROPERTY OF CITY OF SHORELINE" SHALL BE OMITTED IF GRATE IS ON A PRIVATE SYSTEM.
3. NOT TO BE USED ON THICKENED EDGE ROADWAYS.

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Rolled Curb Frame & Grate Installation

735

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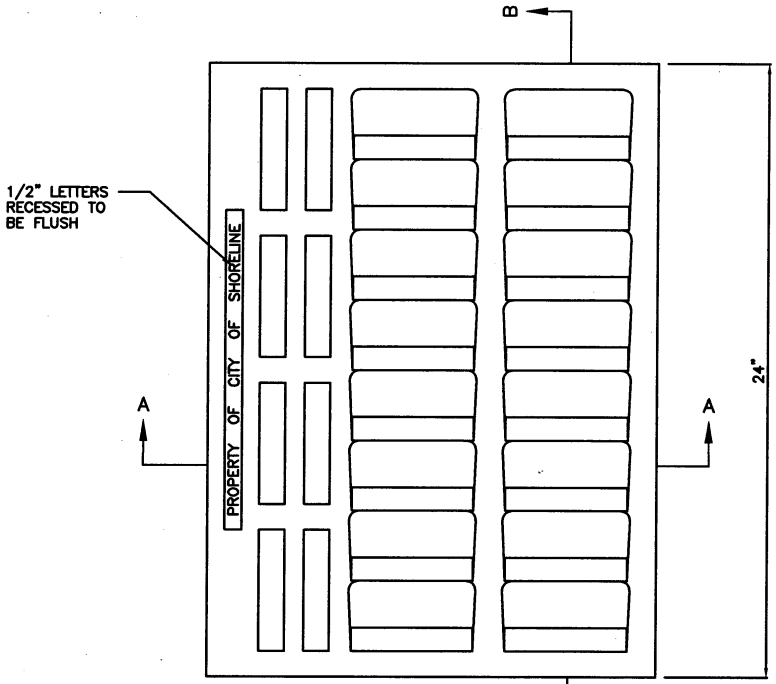
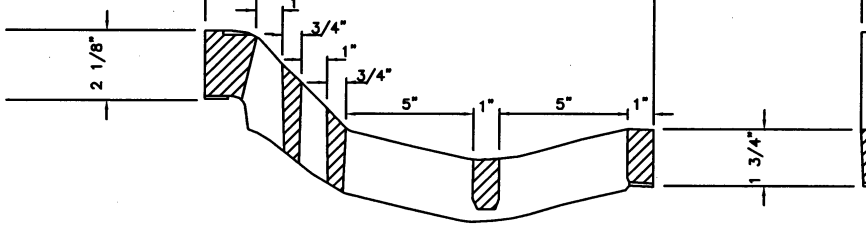
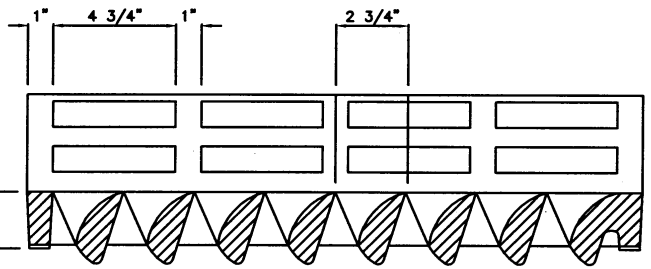


PLAN



SECTION A–A

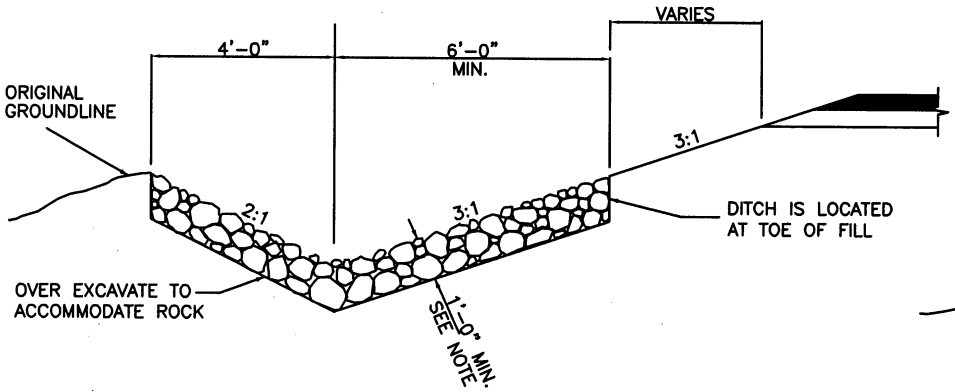


SECTION B–B

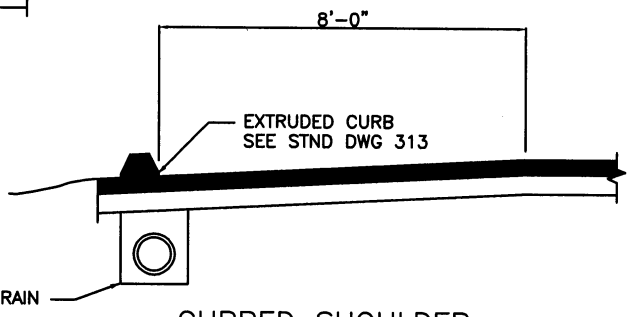
NOTES:

1. MATERIAL IS CAST IRON ASTM A48 CLASS 30.

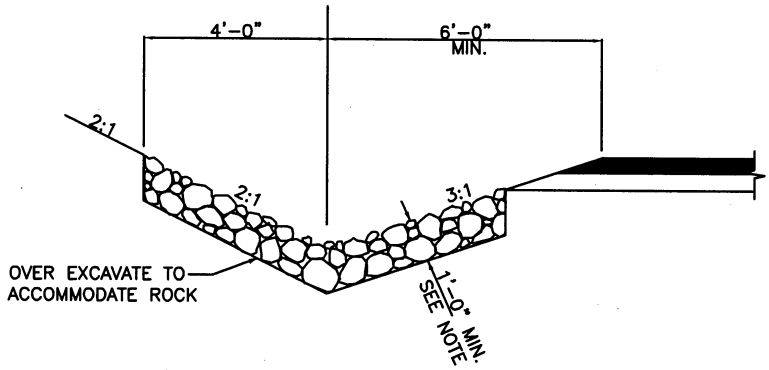
2. THE WORDS "PROPERTY OF CITY OF SHORELINE" SHALL BE OMITTED IF ON A PRIVATE SYSTEM.



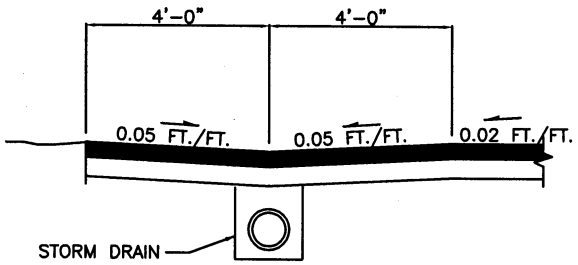
ROCK–LINED SHOULDER DITCH
IN FILL SECTION



CURBED SHOULDER



ROCK–LINED SHOULDER DITCH
IN CUT SECTION



TURNPIKE SHOULDER

NOTE:

1. DEEPER ROCK FILL MAY BE REQUIRED.

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Rock Lined Shoulder Ditches & Curbed or Turnpike Shoulders

739

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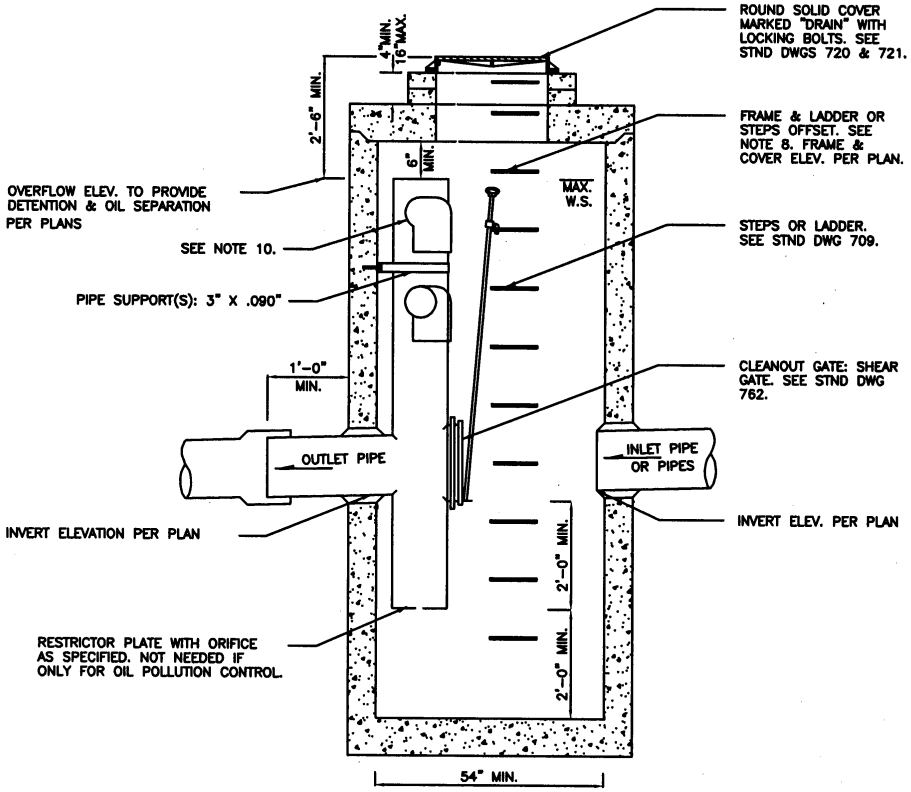


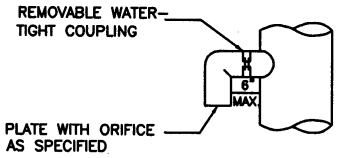
CATCH BASIN TYPE 2

DIAM. AS REQUIRED

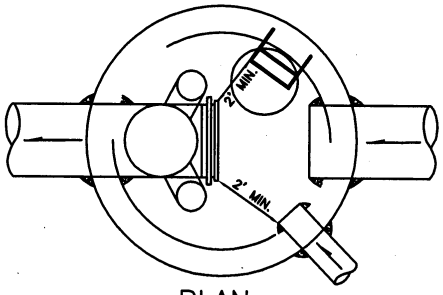
SEE STND DWG 708.

NOTES:

1. PIPE SIZES AND SLOPES: PER PLANS.
2. OUTLET CAPACITY: NOT LESS THAN COMBINED INLETS.
3. EXCEPT AS SHOWN OR NOTED, UNITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS FOR CATCH BASIN TYPE 2, 54" MIN. DIAM.
4. PIPE SUPPORTS AND RESTRICTOR/SEPARATOR SHALL BE OF SAME MATERIAL, AND BE ANCHORED AT 3' MAX. SPACING BY 5/8" DIAM. STAINLESS STEEL EXPANSION BOLTS OR EMBEDDED 2" IN WALL.
5. THE RESTRICTOR/SEPARATOR SHALL BE FABRICTED FROM .060" ALUMINUM, OR .064" ALUMINIZED STEEL, OR .064" GALVANIZED STEEL PIPE; IN ACCORDANCE WITH AASHTO M 36, M 196, M 197 AND M 274. GALVANIZED STEEL SHALL HAVE TREATMENT 1.
6. OUTLET SHALL BE CONNECTED TO CULVERT OR SEWER PIPE WITH A STANDARD COUPLING BAND FOR CORRUGATED METAL PIPE, OR GROUTED INTO THE BELL OF CONCRETE PIPE.
7. THE VERTICAL RISER STEM OF THE RESTICTOR/SEPARATOR SHALL BE THE SAME DIAM. AS THE HORIZONTAL OUTLET PIPE, WITH AN 8" MIN. DIAM.
8. FRAME AND LADDER OR STEPS OFFSET SO THAT:
   A. CLEANOUT GATE IS VISIBLE FROM TOP.
   B. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.
   C. FRAME IS CLEAR OF CURB.
9. IF METAL OUTLET PIPE CONNECTS TO CEMENT CONCRETE PIPE: OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4".
10. MULTI-ORIFICE ELBOWS MAY BE LOCATED AS SHOWN OR ALL ON ONE SIDE OF RISER TO ASSURE LADDER CLEARANCE.



ELBOW DETAIL



PLAN

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Flow Restrictor (Tee)

761

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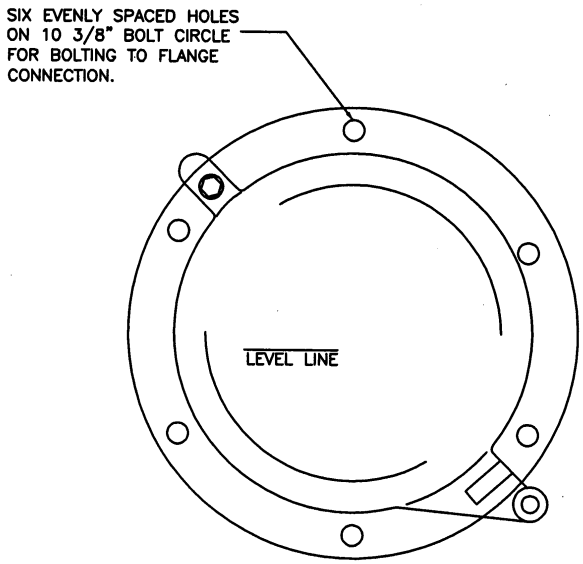
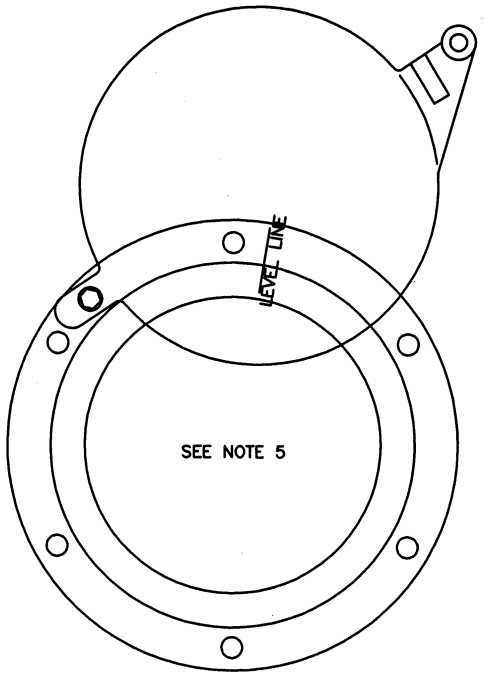
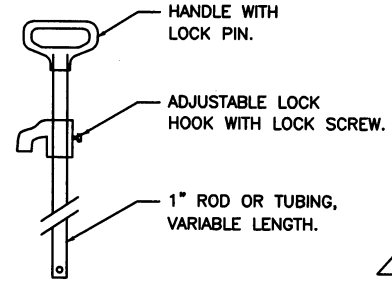


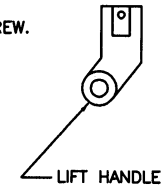
FRONT

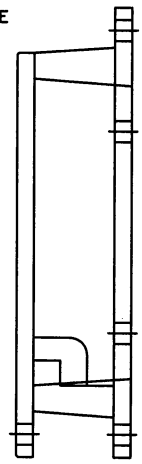


MAXIMUM OPENING OF GATE



LIFT HANDLE





SIDE

NOTES:

1. SHEAR GATE SHALL BE ALUMINUM ALLOY PER ASTM B-26-ZG-32a OR CAST IRON ASTM A48 CLASS 308 AS REQUIRED.

2. GATE SHALL BE 8" DIAMETER UNLESS OTHERWISE SPECIFIED.

3. GATE SHALL BE JOINED TO TEE SECTION BY BOLTING (THROUGH FLANGE), WELDING, OR OTHER SECURE MEANS.

4. LIFT ROD: AS SPECIFIED BY MANUFACTURER WITH HANDLE EXTENDING TO WITHIN 1 FOOT OF COVER & ADJUSTABLE HOOK LOCK FASTENED TO FRAME OR UPPER HANDHOLD.

5. GATE SHALL NOT OPEN BEYOND THE CLEAR OPENING BY LIMITED HINGE MOVEMENT, STOP TAB, OR SOME OTHER DEVICE.

6. NEOPRENE RUBBER GASKET REQUIRED BETWEEN RISER MOUNTING FLANGE AND GATE FLANGE.

7. MATING SURFACES OF LID AND BODY TO BE MACHINED FOR PROPER FIT.

8. FLANGE MOUNTING BOLTS SHALL BE ⅜" DIAMETER STAINLESS STEEL.

9. ALTERNATIVE CLEANOUT/SHEAR GATES TO THE DESIGN SHOWN ARE ACCEPTABLE, PROVIDED THEY MEET THE MATERIAL SOECIFICATIONS ABOVE AND HAVE A SIX BOLT, 10 ⅜" BOLT CIRCLE FOR BOLTING TO THE FLANGE CONNECTION.

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FROP-T Shear Gate Detail

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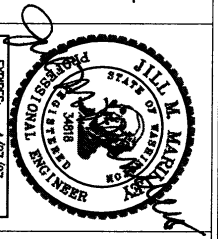

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Flow Restrictor (Baffle)

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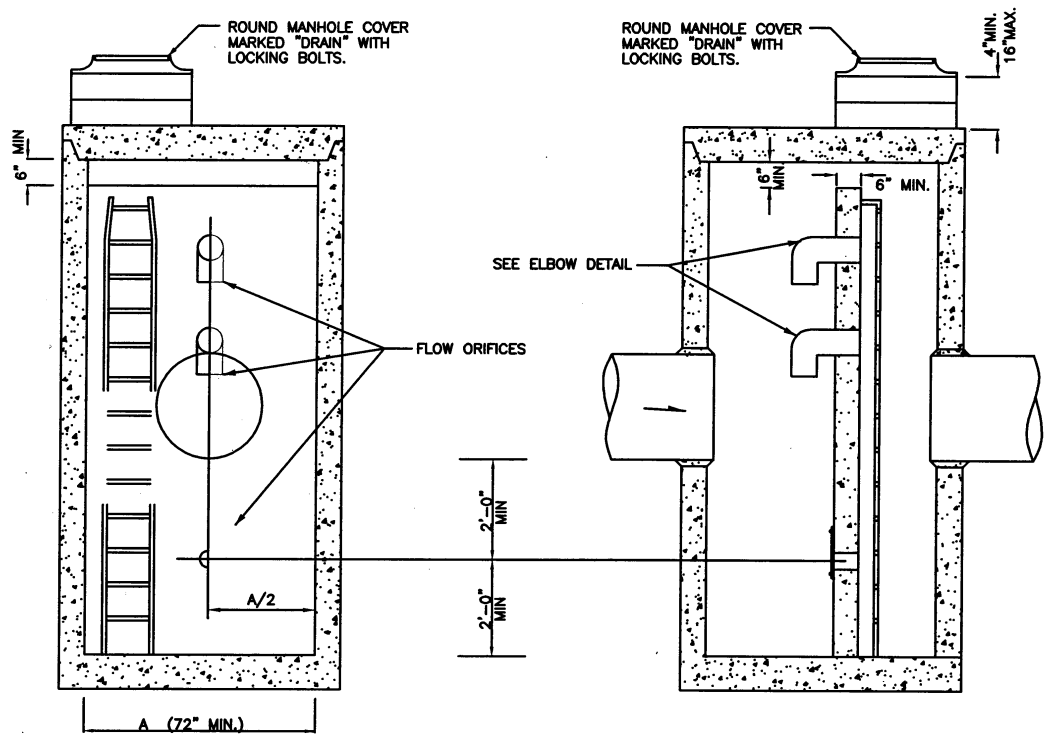
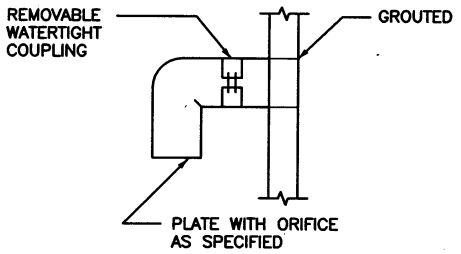


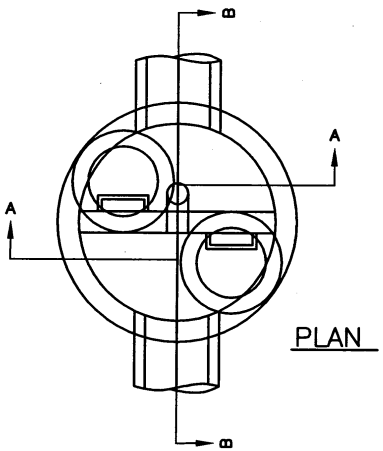
SECTION A–A ELEVATION SECTION B–B



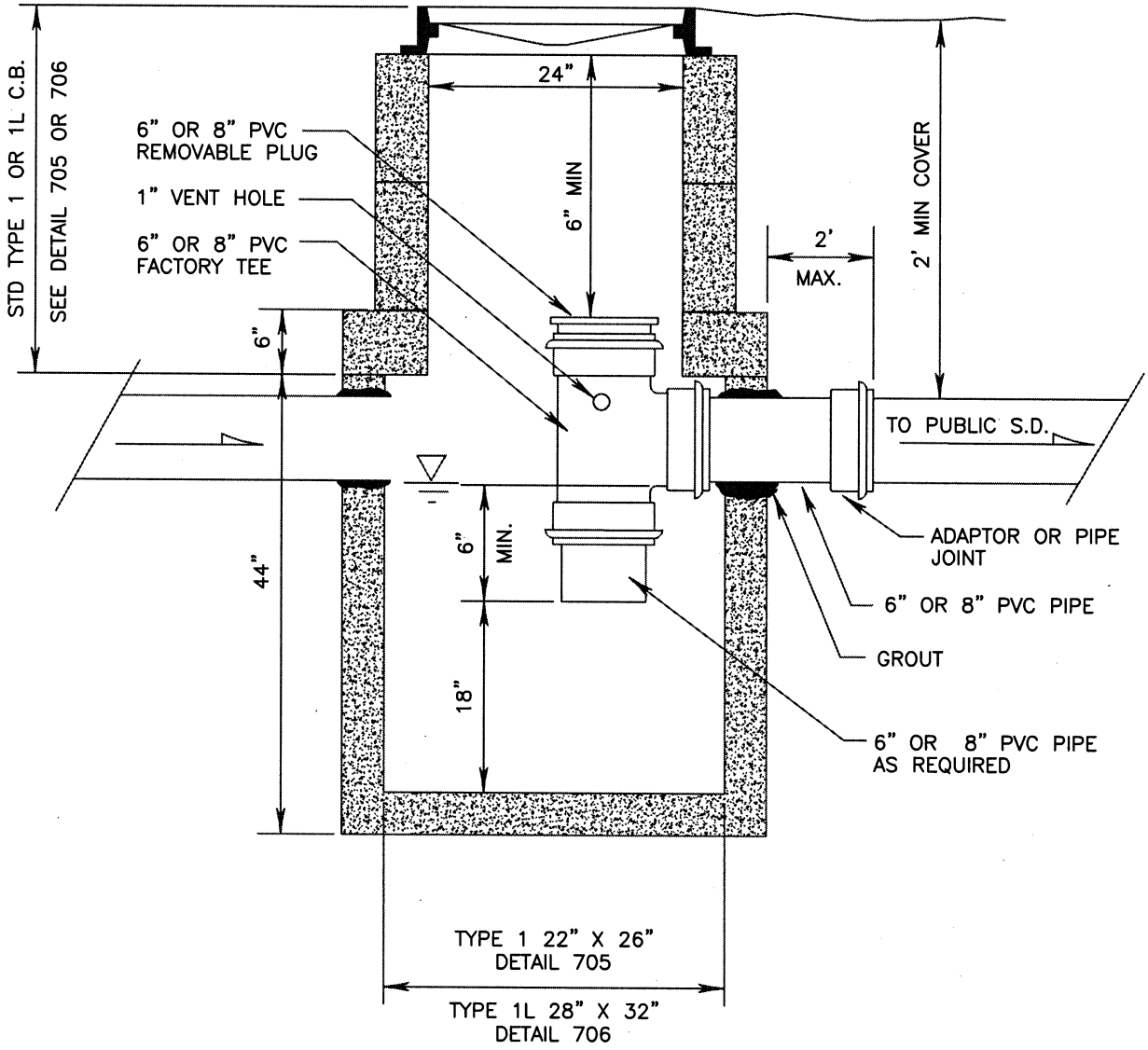
ELBOW DETAIL

NOTES:

1. PIPE SIZE, SLOPES, AND ALL ELEVATIONS: PER PLANS.
2. OUTLET CAPACITY: NOT LESS THAN COMBINED INLETS.
3. CATCH BASIN: TYPE 2 TO BE CONSTRUCTED IN ACCORDANCE WITH STND DWG 708 & AASHTO M199 UNLESS OTHERWISE SPECIFIED.
4. COVERS: ROUND, SOLID MARKED "DRAIN" WITH LOCKING BOLTS. SEE STND DWGS 720 & 721.
5. ORIFICES: SIZED & LOCATED AS REQUIRED, WITH LOWEST ORIFICE MIN 2" FROM BASE.
6. BAFFLE WALL SHALL HAVE #4 BAR AT 12" SPACING EACH WAY.
7. PRECAST BAFFLE WALL SHALL BE KEYED & GROUTED IN PLACE.
8. BOTTOM ORIFICE PLATE TO BE ¼" MIN GALVANIZED STEEL & ATTACHED WITH ½" STAINLESS STEEL BOLTS. OMIT ORIFICE PLATE ID ONLY FOR OIL SEPARATION.
9. UPPER FLOW ORIFICE SHALL BE ALUMINIZED STEEL OR GALVANIZED STEEL. SEE STND DWG 761, GALVANIZED STEEL SHALL HAVE TREATMENT 1.



PLAN



NOTE:

1. MAX. RIM EL. INV. EL. DIFFERANCE GREATER THAN 5' SEE STND DWG 766.
2. GROUT ALL JOINTS INSIDE AND OUTSIDE.

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Floatable Material Separator - 6" or 8" Pipe

765

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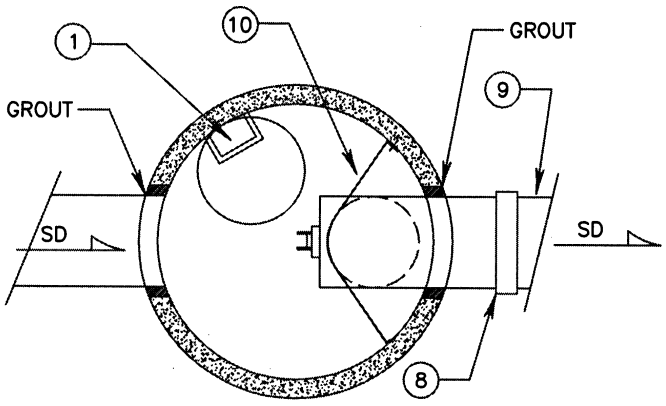

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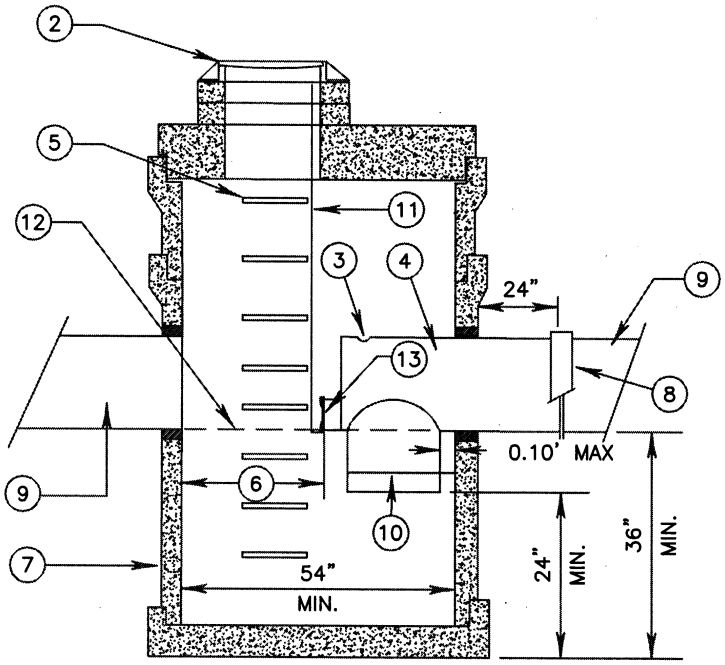

ELEVATION

NOTES:

1. INSTALL MANHOLE ACCESS SO THAT LIFT GATE IS VISIBLE THROUGH OPENING AND STEPS CLEAR INLET AND RESTRICTOR UNIT.
2. INSTALL STND DWG 721 WITH LOCKING COVER OR WHEN IT IS TO BE A CB THEN USE STND DWG 707.
3. 1" VENT HOLE.
4. SEPARATOR ASSEMBLY.
5. HANDHOLDS: SEE STND DWG 709.
6. MIN CLEARANCE:
   36"FOR OUTLETS OF 24" AND LARGER
   18" FOR OUTLETS OF 18" AND SMALLER
7. 54" TYPE 2 CB OR LARGER.
8. BAND STRAP WITH GASKET.
9. SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPE ENTERING AND EXITING CB.
10. SECURE SEPARATOR TO CB WITH 8 GA ALUMINUM STRAP. BOLT TO CB WALL WITH STAINLESS STEEL ANCHOR BOLTS AND TACK WELD TO SEPARATOR UNIT.
11. LIFT HANDLE SEE STND DWG 762.
12. INV. EL. : SEE PLANS AND SPECIFICATIONS.
13. CLEAN OUT AT 8" DIA. MIN.
    12" FOR 24" DIA. AND LARGER OUTLET PIPE.

14 GROUT ALL JOINTS INSIDE AND OUTSIDE.

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Floatable Material Separator - 12" & Larger

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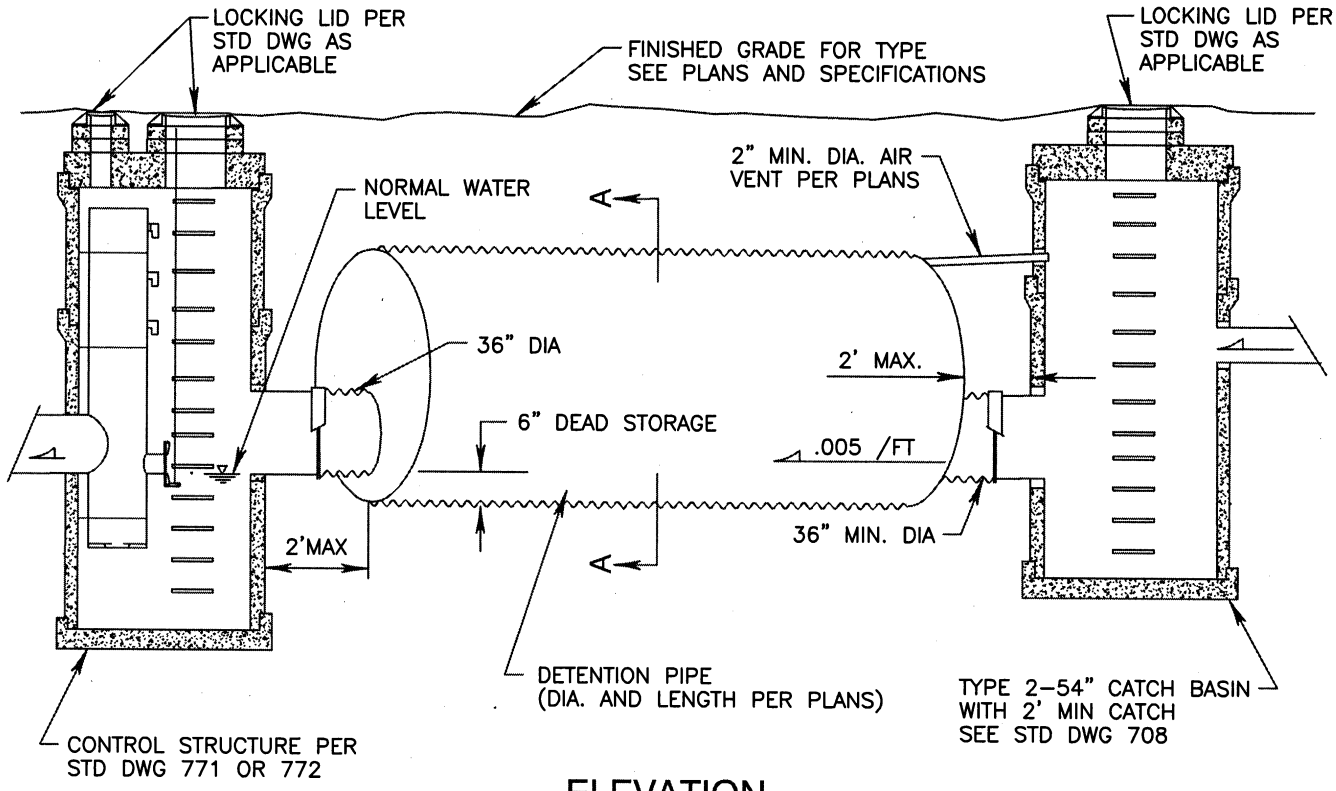
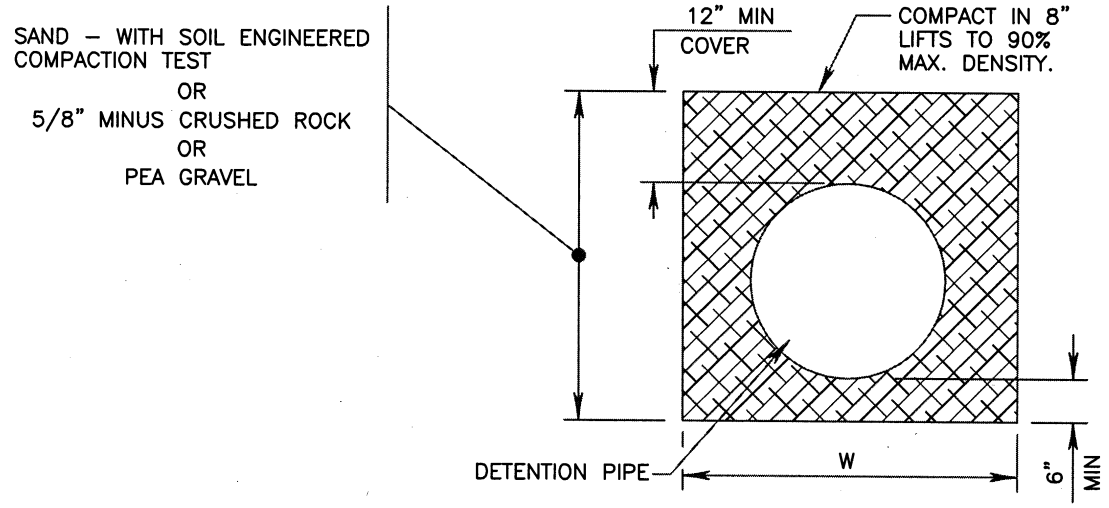


ELEVATION



SECTION A-A

NOTES:

1. ANNUAL INSPECTIONS AND CLEANING REQUIRED BY OWNER TO INSURE PROPER OPERATION OF DETENTION SYSTEM.
2. W = MAX.IMUM WIDTH OF TRENCH FOR PIPES 15" OR LESS IN DIA. W = 40". FOR PIPES 18" OR GREATER W = 1 1/2" x I.D. + 18".
3. COMPACT IN 8" LIFTS TO 90% MAX. DENSITY.

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Detention Pipe

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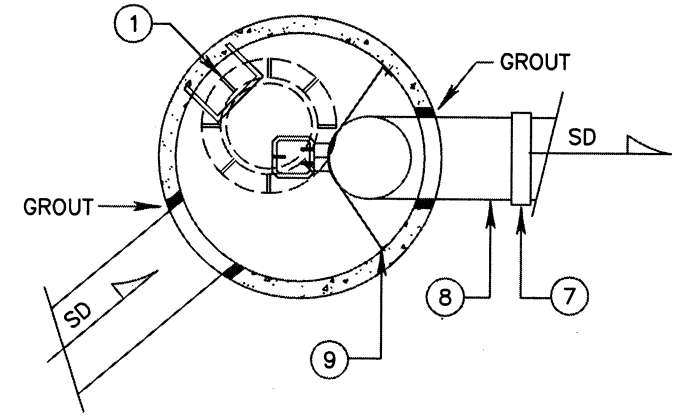

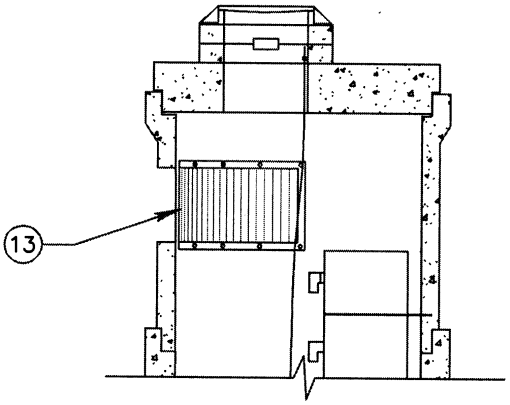

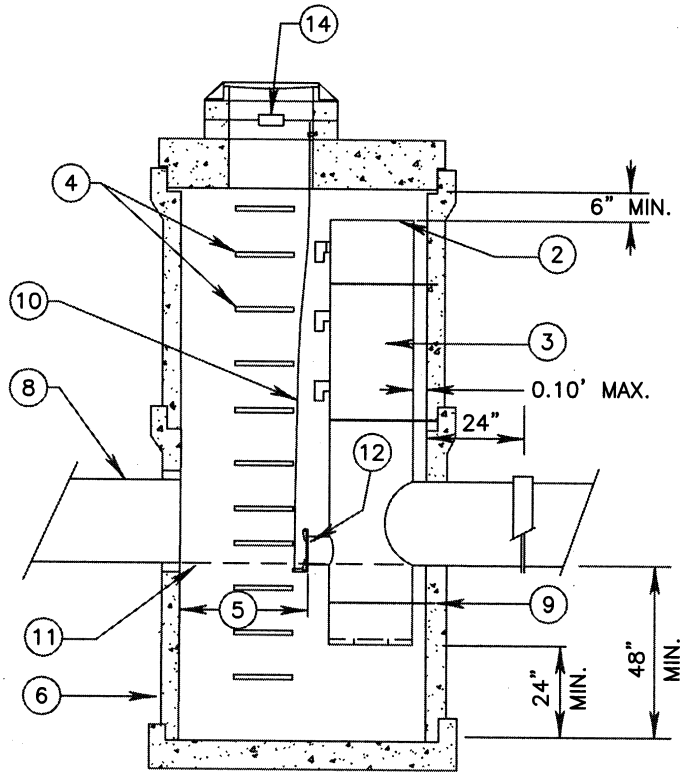

ELEVATION

DETAIL NOTES:

1. INSTALL 1–24" DIA. MH. ACCESS PER SNTD DWG 716, SO THAT THE LIFT GATE IS VISIBLE AND THE STEPS ARE CLEAR AND DIRECTLY ACCESSABLE.
2. OVERFLOW ELEVATION – SEE PLANS.
3. RESTRICTOR UNIT – SEE STND DWG 762.
4. POLYPROPLENE PLASTIC STEP
5. MIN CLEARANCE:
   36"FOR OUTLETS OF 24" AND LARGER
   18" FOR OUTLETS OF 18" AND SMALLER
6. 54" TYPE 2 CB OR LARGER.
7. BAND STRAP WITH GASKET
8. SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPE ENTERING AND EXITING CB.
9. SECURE RESTRICTOR TO CB WITH 8 GA ALUMINUM STRAPS BOLT TO CB WALL WITH STAINLESS STEEL ANCHOR BOLTS. ONE STRAP ABOVE AND BELOW OUTLET REQUIRED, INTERMEDIATE STRAPS REQUIRED FOR RESTRICTOR RISERS GREATER THAN 12' ABOVE OUTLET.
10. LIFT HANDLE CONNECTOR–SEE STD DWG 762.
11. INVERT ELEVATION: SEE PLANS AND SPECIFICATIONS.
12. SHEAR GATE – SEE STD DWG 762.
13. FOR POND APPLICATIONS EXPAND THE STRUCTURE HIGHER AND PROVIDE A FRAMED OVERFLOW DEBRIS GRATED OPENING ABOVE THE RESTRICTOR UNIT
14. I.D. PLATE PER K.C.S.W.D.M. CORE REQ. #1.2.6

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Control Structure - 54" Diameter

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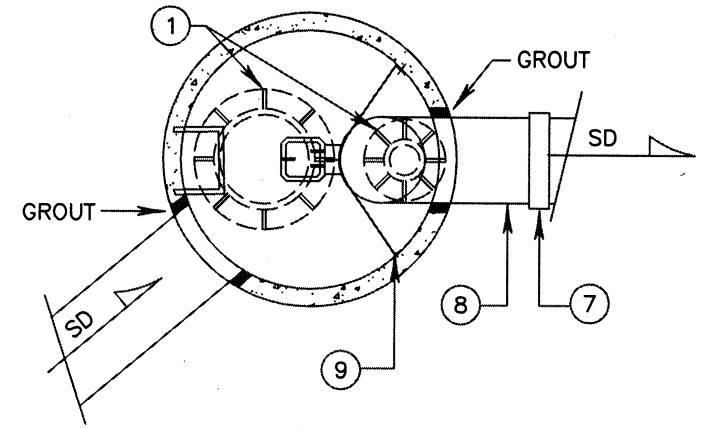

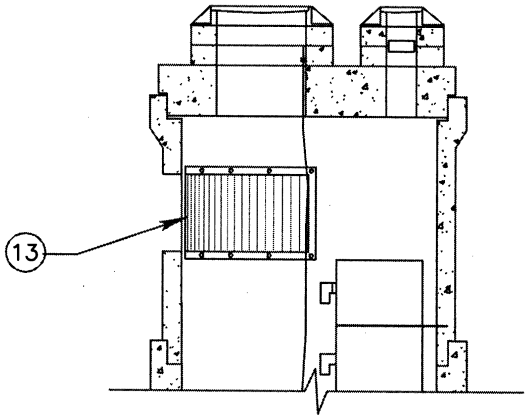

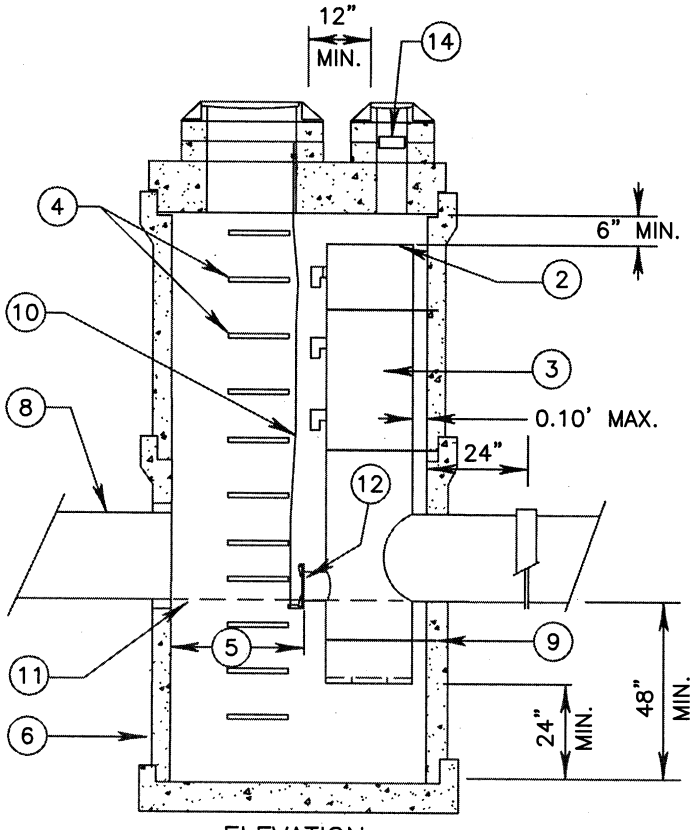

ELEVATION

NOTES:

1. INSTALL 1–18" AND 1–24" DIA. MH. ACCESS PER STND DWG 716, ONE SO THAT THE LIFT GATE IS VISIBLE AND THE STEPS ARE CLEAR AND DIRECTLY ACCESSABLE. THE OTHER IS OVER THE RESTRICTOR UNIT.
2. OVERFLOW ELEVATION – SEE PLANS.
3. RESTRICTOR UNIT – SEE STND DWG 761.
4. POLYPROPLENE PLASTIC STEP
5. MIN CLEARANCE:
   36"FOR OUTLETS OF 24" AND LARGER
   18" FOR OUTLETS OF 18" AND SMALLER
6. 72" TYPE 2 CB OR LARGER.
7. BAND STRAP WITH GASKET
8. SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPE ENTERING AND EXITING CB.
9. SECURE RESTRICTOR TO CB WITH 8 GA ALUMINUM STRAPS BOLT TO CB WALL WITH STAINLESS STEEL ANCHOR BOLTS. ONE STRAP ABOVE AND BELOW OUTLET REQUIRED, INTERMEDIATE STRAPS REQUIRED FOR RESTRICTOR RISERS GREATER THAN 12' ABOVE OUTLET.
10. LIFT HANDLE CONNECTOR–SEE STD DWG 762.
11. INVERT ELEVATION: SEE PLANS AND SPECIFICATIONS.
12. SHEAR GATE – SEE STND DWG 762.
13. FOR POND APPLICATIONS EXPAND THE STRUCTURE HIGHER AND PROVIDE A FRAMED OVERFLOW DEBRIS GRATED OPENING ABOVE THE RESTRICTOR UNIT
14. I.D. PLATE PER K.C.S.W.D.M. CORE REQ. #1.2.6

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Control Structure - 72" Diameter or Larger

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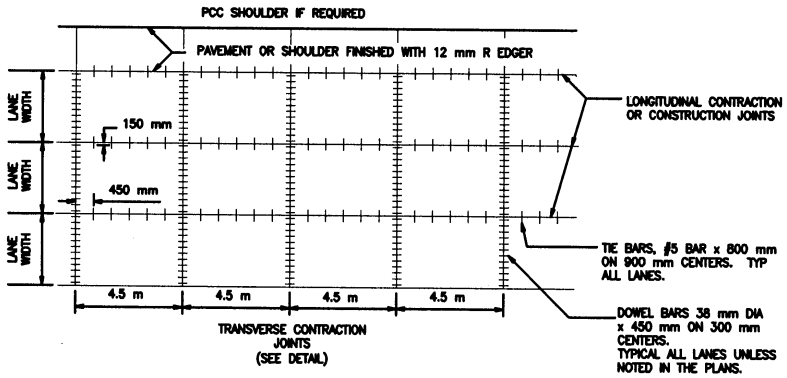
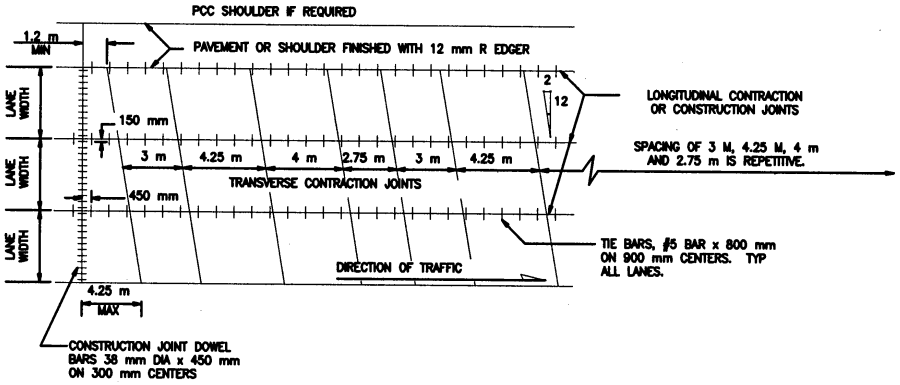


CEMENT CONCRETE PAVEMENT – DOWEL BAR JOINTS



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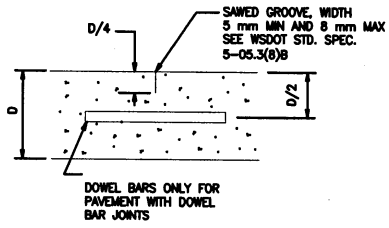
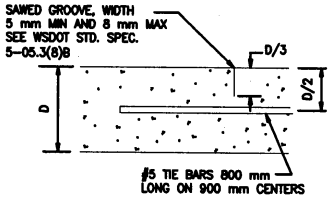
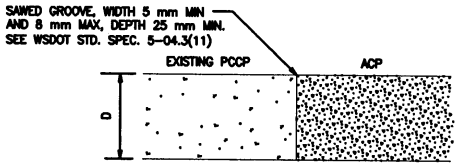


TRANSVERSE CONTRACTION JOINT



LONGITUDINAL CONTRACTION JOINT



PCCP TO ACP
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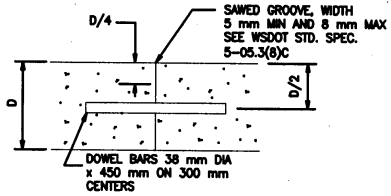

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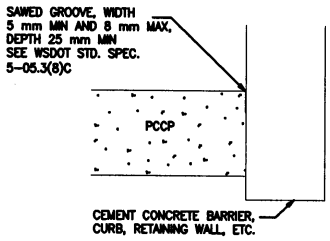

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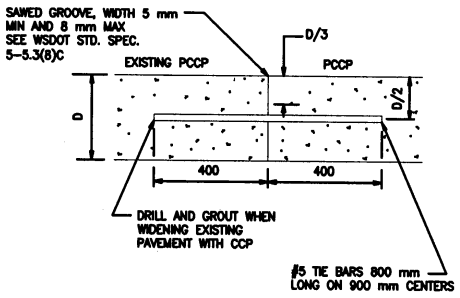

PCCP TO PCCP
LONGITUDINAL
CONSTRUCTION JOINT

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Rigid Pavement Restoration Details

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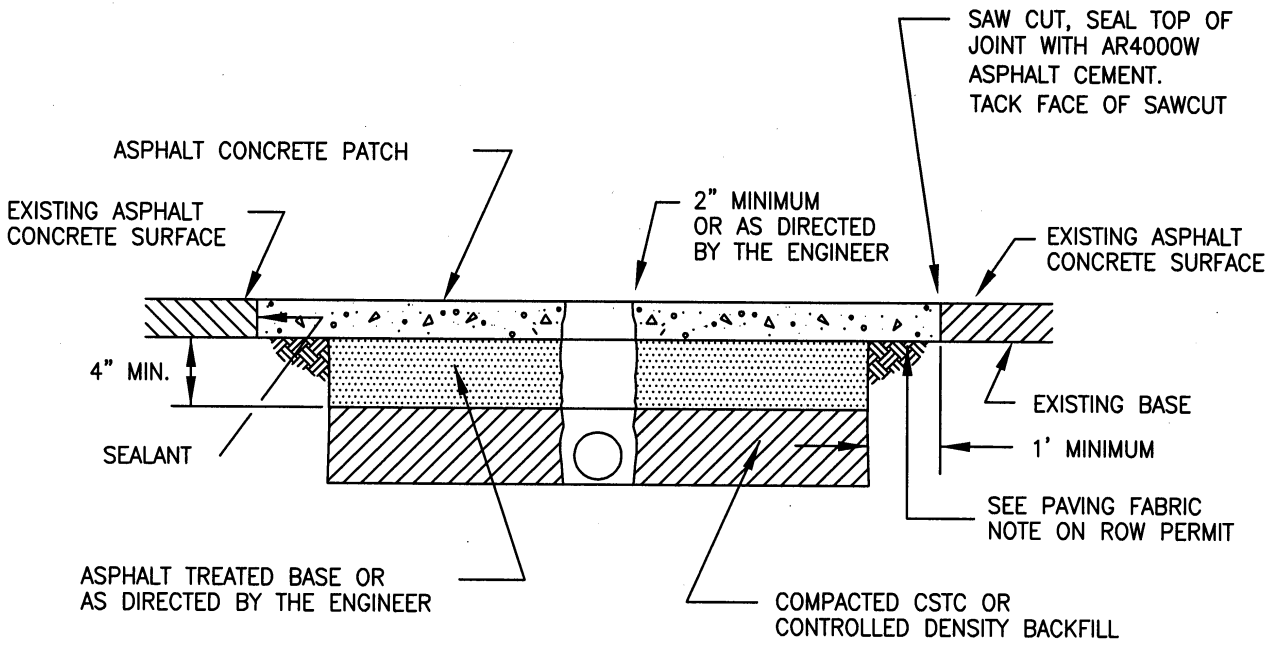
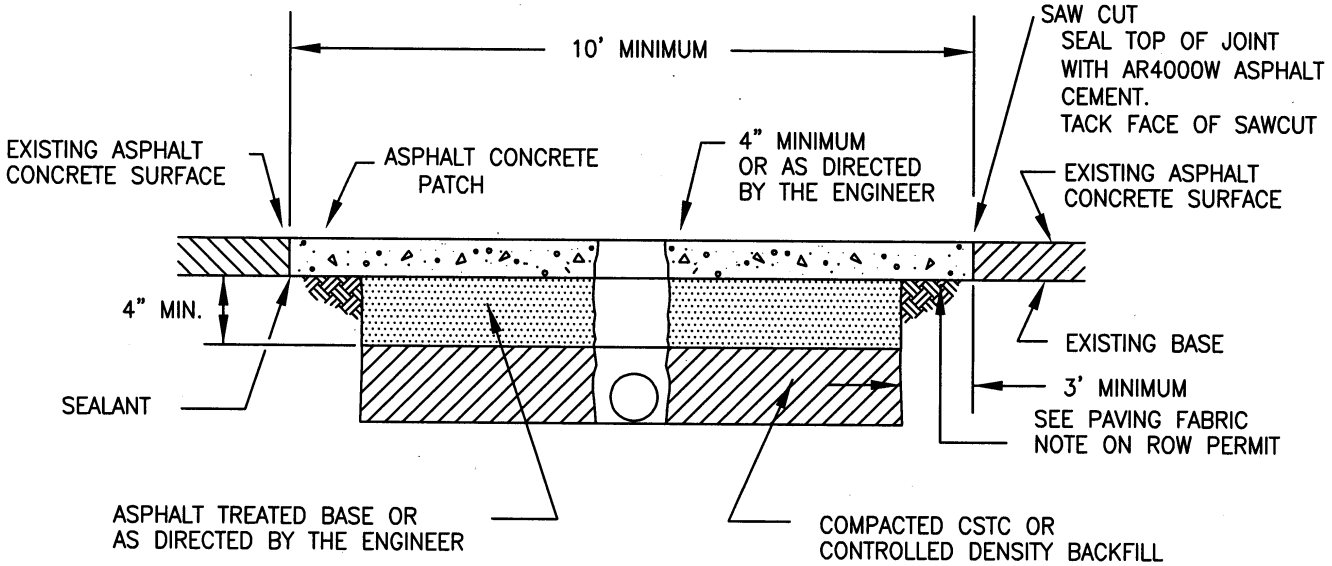


TYPICAL PATCH FOR FLEXIBLE PAVEMENT

WHEN PARALLEL TO ROADWAY CENTERLINE



TYPICAL PATCH FOR FLEXIBLE PAVEMENT

WHEN PERPENDICULAR TO ROADWAY CENTERLINE

NOTES:

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 4000.
2. ASPHALT CONCRETE MIX SHALL BE CLASS "B."
3. ALL TRENCH BACKFILL SHALL BE CRUSHED SURFACING COURSE MATERIAL.

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Flexible Pavement Patching

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