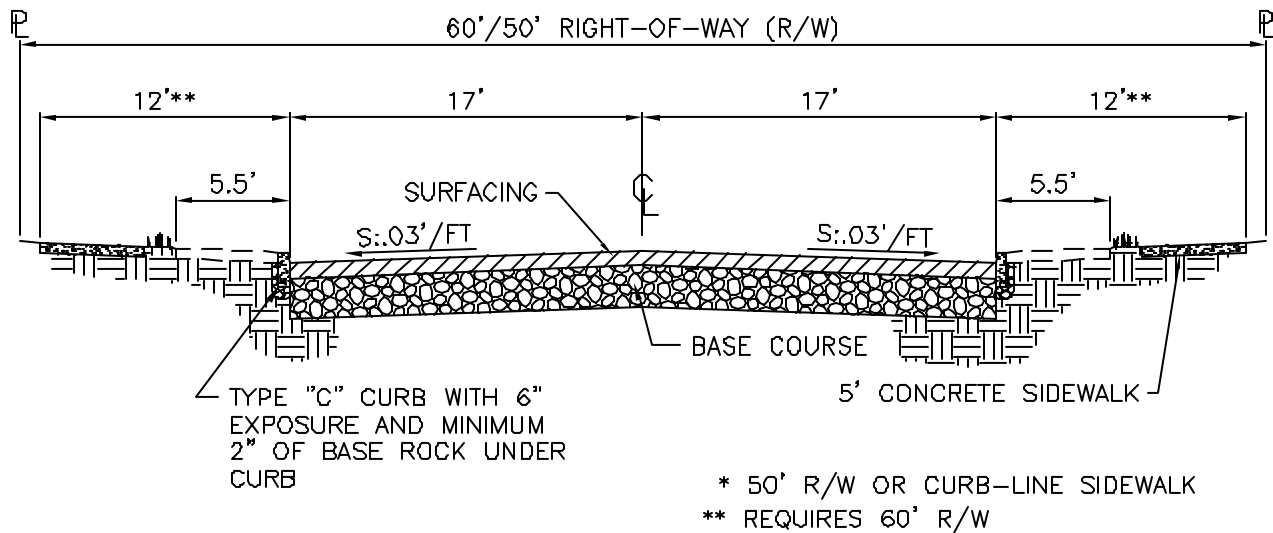
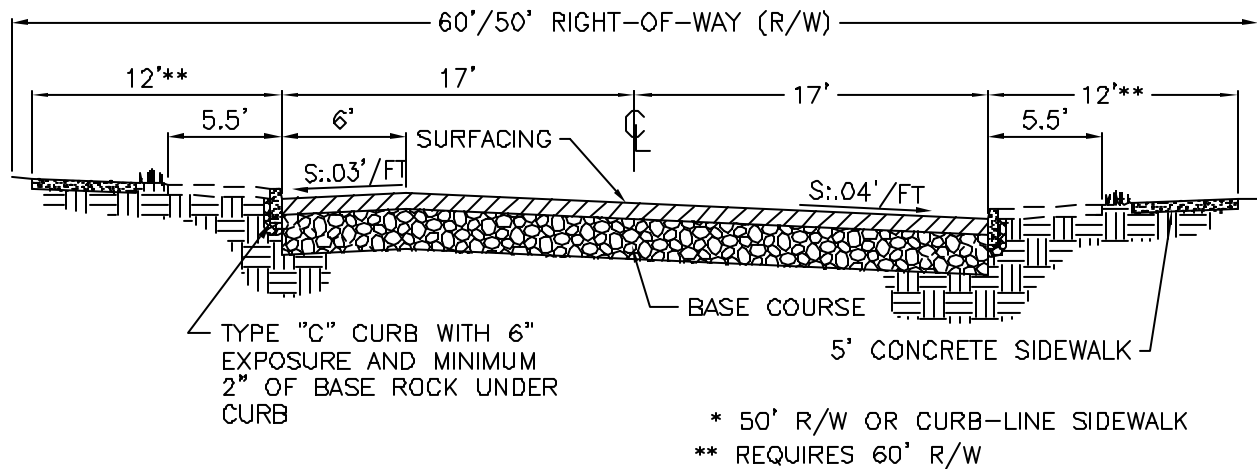


STANDARD CROSS SECTION



TILTED CROSS SECTION



NOTE:

SURFACING AND BASE COURSE SHALL CONFORM TO MARION COUNTY D.P.W. ENGINEERING STANDARDS.

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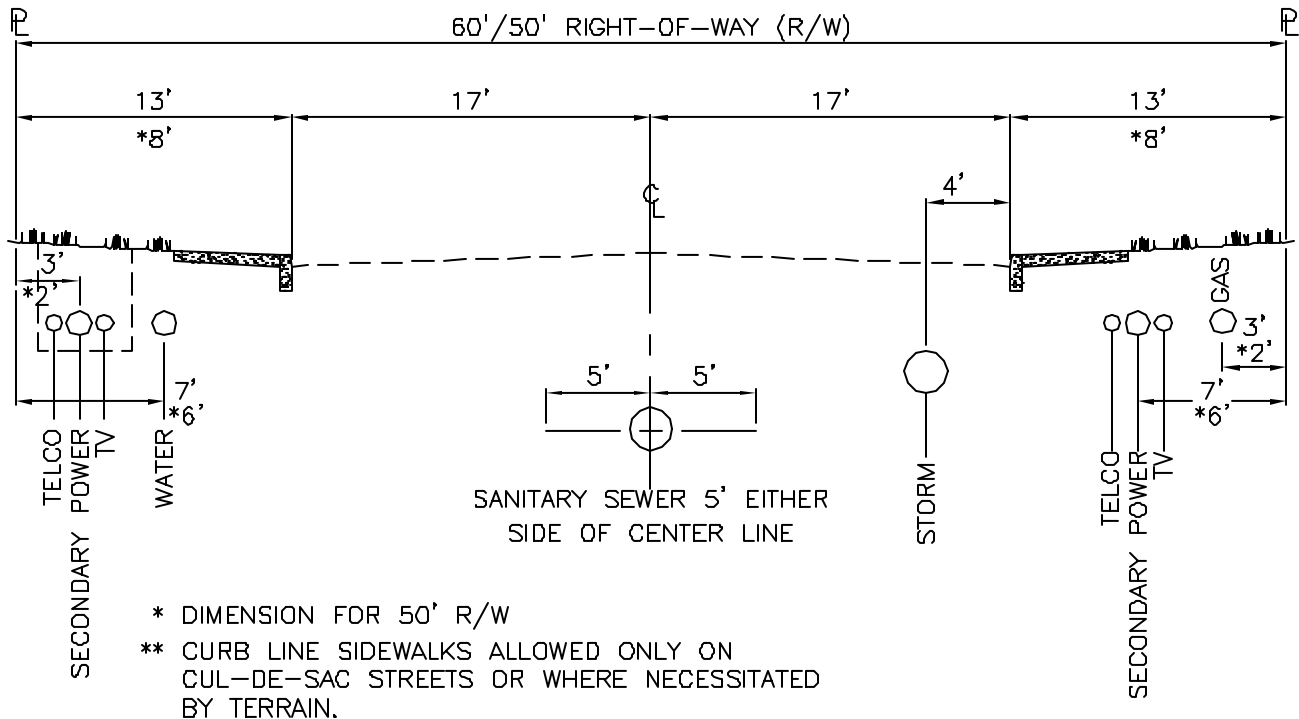
1
of
1



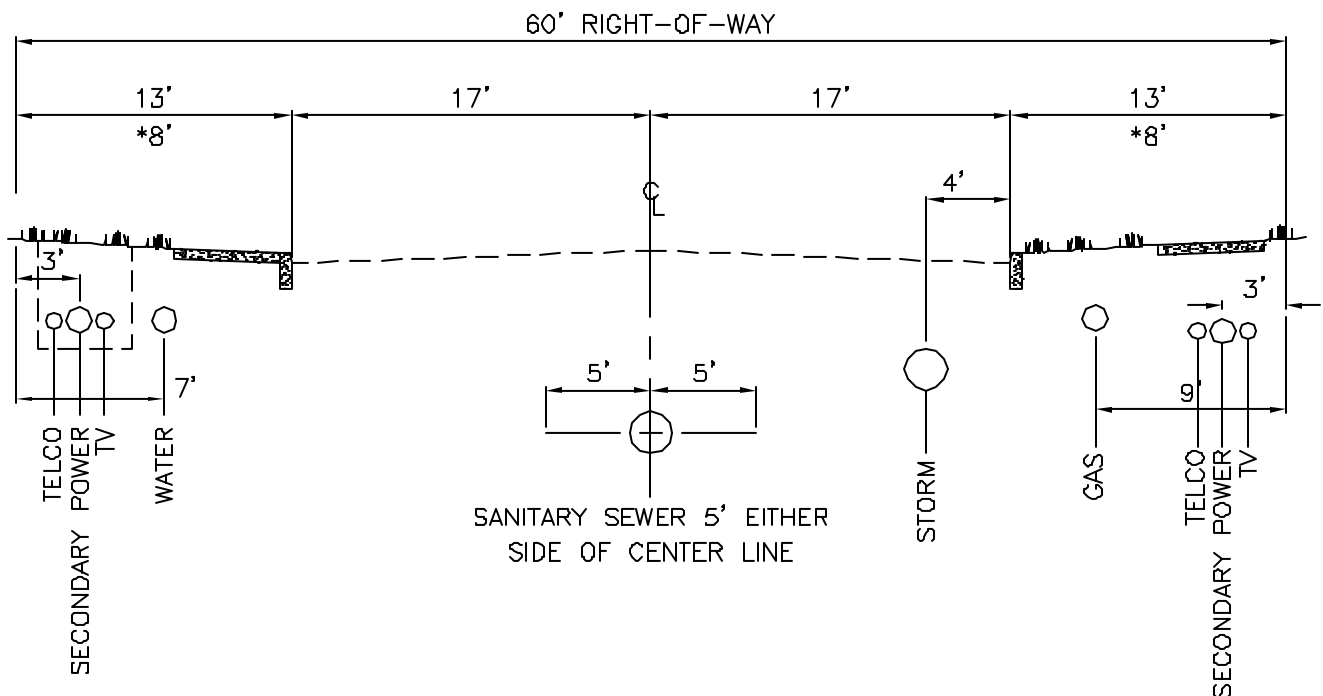
TYPICAL CROSS SECTIONS FOR URBAN STREETS

Des.	Eng.	Date: 10-28-93	Revised:
Reviewed By:—Survey:	Datum: NONE	SCALES	
Appd.	Inspecd.	Drawn: HGT	Horz: NONE Vert: NONE

CURB LINE SIDEWALK



PROPERTY LINE SIDEWALK



NOTES:

1. TELCO, POWER, T.V., WATER — SOUTH AND WEST SIDE
GAS — NORTH SIDE
2. TELCO, POWER, T.V., WATER —
MINIMUM COVER 30 INCHES

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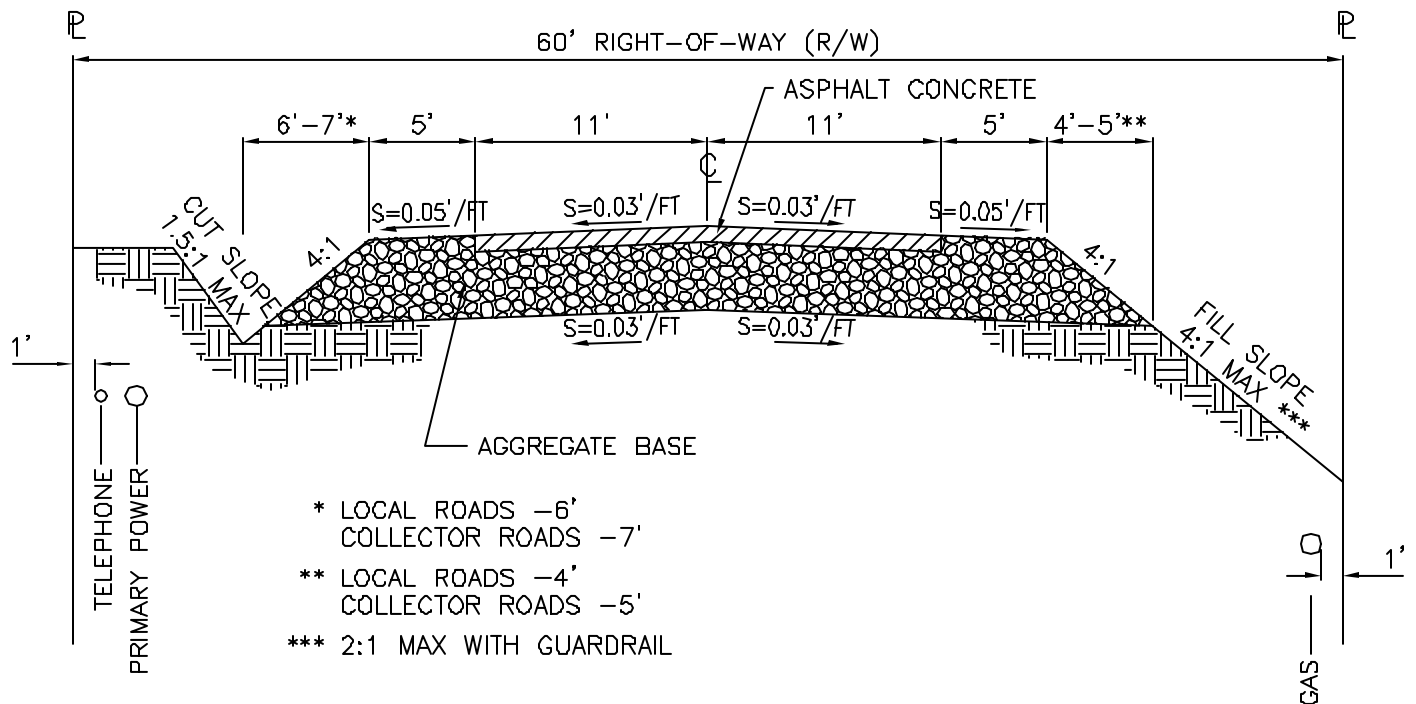
Salem, Oregon

2



STANDARD UTILITY LOCATION FOR URBAN STREETS

Des.	Eng.	Date: 10-26-93	Revised:
Reviewed By:--Survey		Datum: NONE	SCALES
Appd.	Inspect.	Drawn: HOT	Har: NONE Vert: NONE



NO SCALE

NOTES:

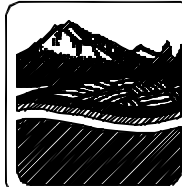
1. ASPHALT CONCRETE AND AGGREGATE BASE SHALL CONFORM TO MARION COUNTY D.P.W. ENGINEERING STANDARDS.
2. UTILITIES MAY BE PLACED IN SHOULDER AREA IF CUT OR FILL SLOPES EXTEND OUTSIDE OF R/W.
3. IN NEW SUBDIVISIONS: TELCO AND POWER -SOUTH AND WEST SIDE; GAS -NORTH AND EAST SIDE.
4. TELCO, POWER, GAS -MINIMUM COVER 30 INCHES.
5. 50' R/W WIDTH IS PERMITTED ON CUL-DE-SACS LESS THAN 500' LONG.

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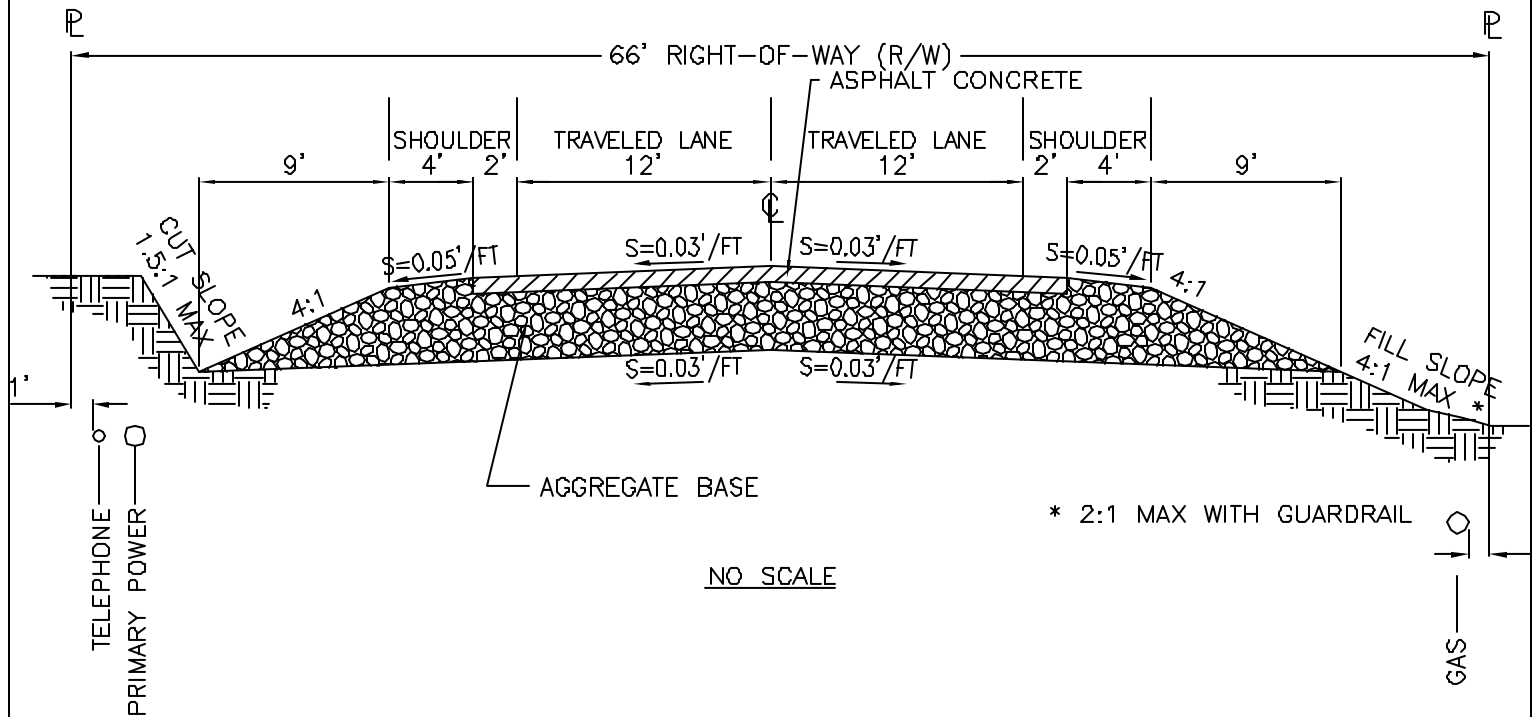
Salem, Oregon

3



TYPICAL 22' WIDE TURNPIKE SECTION AND UTILITY LOCATION FOR RURAL, LOCAL AND COLLECTOR ROADS

Des.	Eng.	Date: 10-26-93	Revised:
Reviewed By--Survey:		Datum: NONE	SCALES
Appd.	Inspec:	Drwn. HOT	Har: NONE Vert: NONE



NOTES:

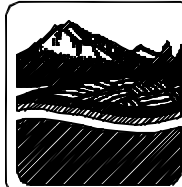
1. ASPHALT CONCRETE AND AGGREGATE BASE SHALL CONFORM TO SECTION IV OF THE MARION COUNTY D.P.W. ENGINEERING STANDARDS.
2. UTILITIES MAY BE PLACED IN SHOULDER AREA IF CUT OR FILL SLOPES EXTEND OUTSIDE OF R/W.
3. IN NEW SUBDIVISIONS: TELCO AND POWER -SOUTH AND WEST SIDE; GAS -NORTH AND EAST SIDE.
4. TELCO, POWER, GAS -MINIMUM COVER 30 INCHES.

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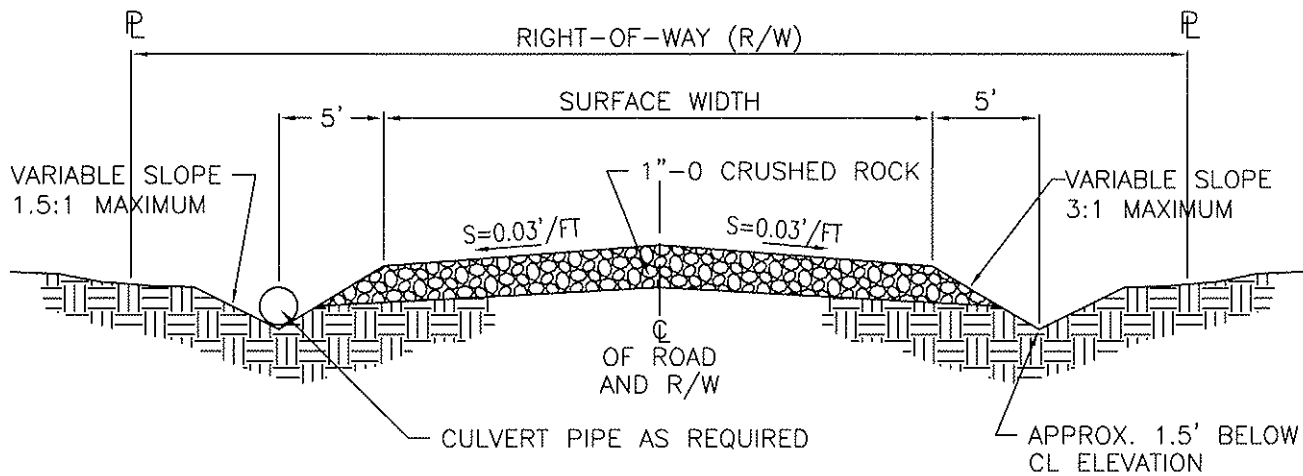
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4



TYPICAL 28' WIDE TURNPIKE SECTION AND UTILITY LOCATION FOR RURAL ARTERIAL ROADS

Des.	Eng.	Date: 10-27-93	Revised:
Reviewed By:--Survey:		Datum: NONE	SCALES
Appd.	Inspec:	Drwn. HOT	Har: NONE Vert: NONE



NOTES:

1. SURFACE WIDTH AND CRUSHED ROCK SHALL CONFORM TO THE FOLLOWING:

NUMBER OF DWELLINGS SERVED	SURFACE WIDTH (FEET)	1"-0 CRUSHED ROCK THICKNESS (INCHES)
1	10'	6"
2 OR MORE	16'	8"

2. UTILITIES SHALL BE LOCATED AS SHOWN ON TYPICAL 22' TURNPIKE SECTION FOR RURAL ROADS (MARION COUNTY STANDARD DRAWING NUMBER 3)

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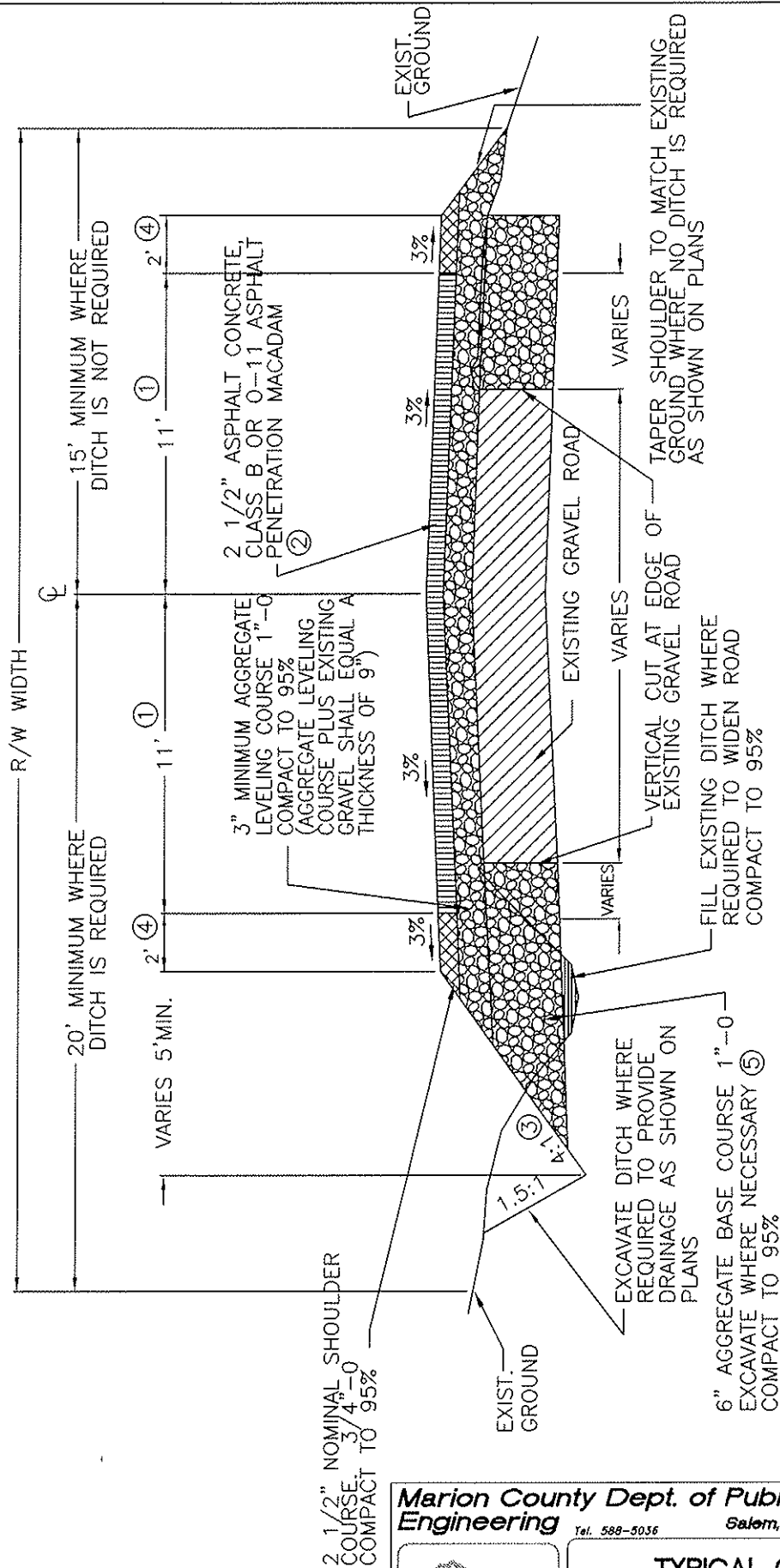
Salem, Oregon

5
1



TYPICAL GRAVEL SECTION FOR PRIVATELY MAINTAINED RURAL ROADS

Des.	Eng.	Date: 12-15-09	Revised:
Reviewed By--Survey:	Datum: NONE	SCALES	
Appd.	Inspec:	Drwn. HOT	Hor: NONE Vert: NONE

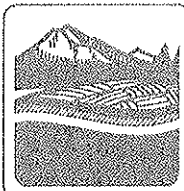


- ① 10' WHERE R/W WIDTH IS LESS THAN 50'
- ② FOR EACH PROJECT, THE LEAST EXPENSIVE METHOD OF PAVING SHALL BE SELECTED
- ③ 3:1 WHERE R/W WIDTH IS LESS THAN 50'
- ④ 1' WHERE R/W WIDTH LESS THAN 40'
- ⑤ DISPOSE OF EXCAVATED MATERIAL OFF-SITE

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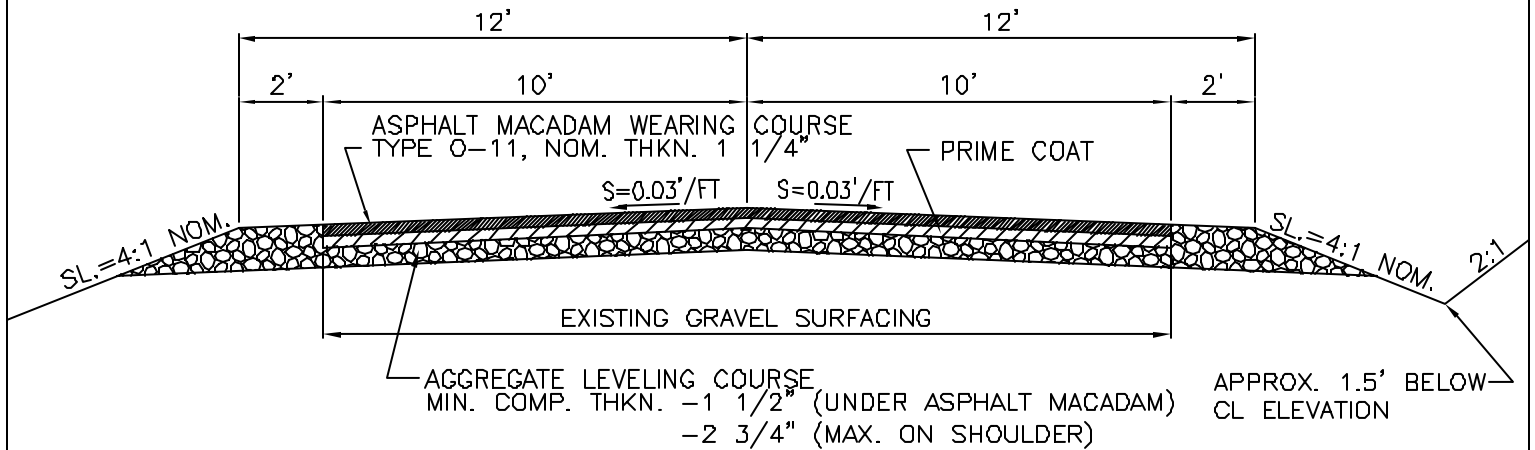
TYPICAL CROSS SECTION FOR PAVING GRAVEL ROADS

Des.	Eng.	Date: 12-15-09	Revised:
Reviewed By: --Survey:	Datum: NONE	SCALES	
Appd.	Inspec:	Drwn. HOT	Hor: NONE Vert: NONE

6A

ASPHALT PENETRATION MACADAM (O-11)

TYPICAL SECTION



WHERE THE MACADAM PAVEMENT IS WIDER THAN THE EXISTING GRAVEL SURFACE, THE AGGREGATE LEVELING COURSE SHALL HAVE A MINIMUM THICKNESS OF 6"

MINIMUM

	ASPHALT		AGGREGATE	
	TYPE	GALS./S.Y.	GRAVEL	CU.YDS./S.Y.*
PRIME COAT	MC-250	0.55	3/4"-0	0.019
1ST SPREAD	CRS-2	0.45	1 1/4"-3/4"	0.019
2ND SPREAD	CRS-2	0.55	3/4"-1/2"	0.019
3RD SPREAD	CRS-2	0.55	1/2"-1/4"	0.014
SEAL COAT	CRS-2	0.45	1/4"-#10	0.009

* MEASURED IN TRUCK

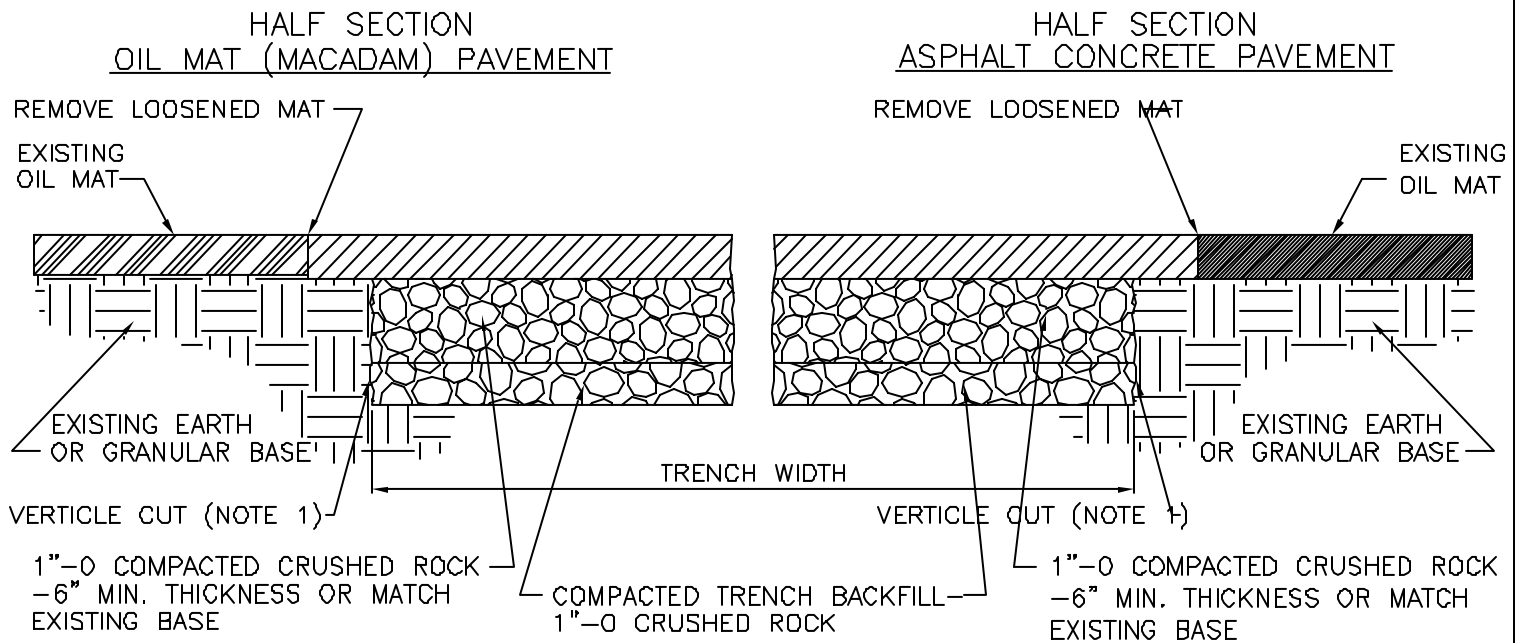
THE CATIONIC EMULSION ASPHALT SHALL MEET THE SPECIFICATIONS OF AASHTO M208-72 OR ASTM D2397-73. AGGREGATES SHALL BE IN DESIGNATED SIZES AND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 703.12 OF THE STANDARD SPECIFICATIONS OF THE OREGON STATE HIGHWAY DEPARTMENT, CURRENT ISSUE.

NOTES:

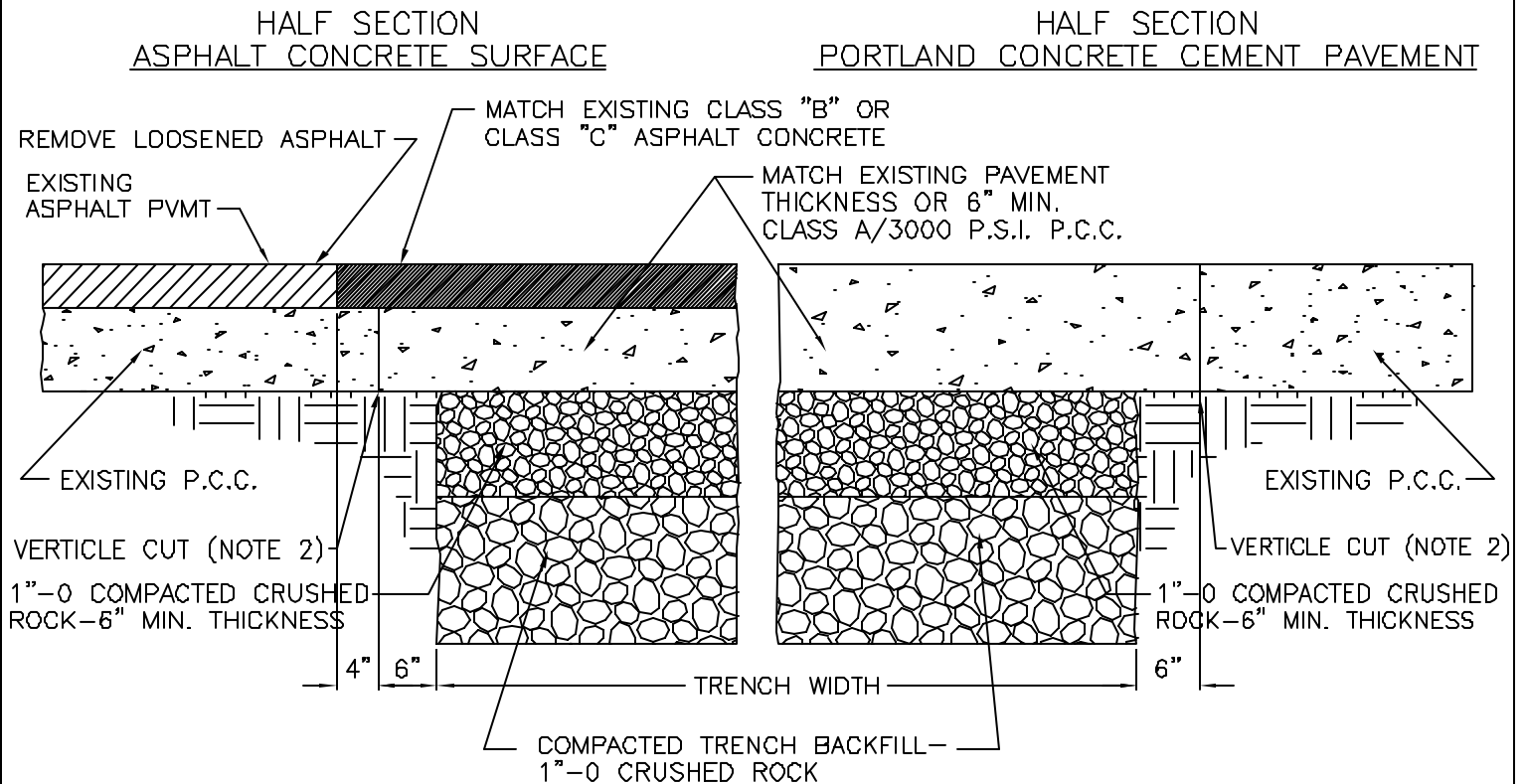
1. THE MINIMUM THICKNESS OF THE AGGREGATE LEVELING COURSE MAY HAVE TO BE INCREASED, DEPENDING ON THE THICKNESS AND CONDITION OF THE EXISTING GRAVEL SURFACE.

2. CONSTRUCTION OF DRAINAGE CULVERTS, ROADSIDE DITCHES AND/OR ELEVATION OF ROADWAY MAY BE REQUIRED.

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Engineering			Salem, Oregon
Tel. 688-6036			
TYPICAL ASPHALT PENETRATION MACADAM (O-11) SURFACING DETAILS			
Des.	Eng.	Date: 10-27-93	Revised:
Reviewed By: Survey		Datum: NONE	SCALES
Appd.	Inspect.	Drawn: HOT	Har: NONE Vert: NONE



TYPICAL PATCH FOR FLEXIBLE PAVEMENT



TYPICAL PATCH FOR RIGID PAVEMENT

NOTES:

1. CUTS IN ASPHALT CONCRETE PAVEMENT SHALL BE MADE WITH HYDRAULICALLY-OPERATED SPADE-TIPPED PAVEMENT BREAKER, CUTTING WHEEL, CONCRETE SAW, OR OTHER APPROVED METHOD. INTERMITTENT PUNCHING WITH A POINTED JACK HAMMER BIT WILL NOT BE PERMITTED.
2. CUTS IN PORTLAND CONCRETE CEMENT PAVEMENT SHALL BE MADE WITH A CONCRETE SAW.
3. ALL JOINTS BETWEEN EXISTING AND NEW ASPHALT SHALL BE SEALED WITH AR-4000 (OR EQUIVALENT) AND SANDED.

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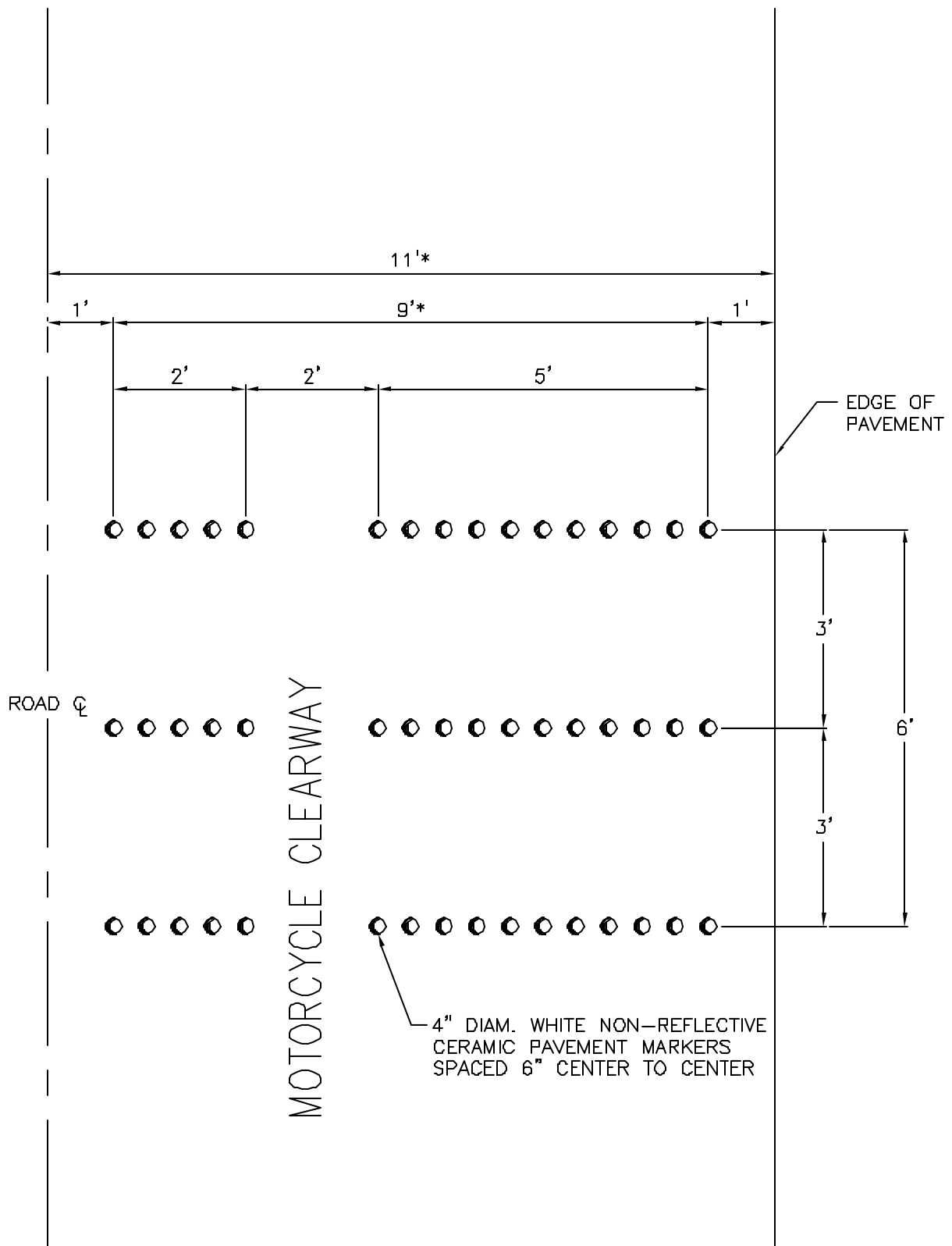
Salem, Oregon

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1



PAVEMENT PATCHING

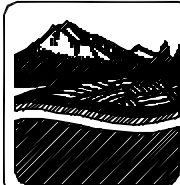
Des.	Eng.	Date: 10-28-93	Revised:
Reviewed By:--Survey:		Datum: NONE	SCALES
Appd.	Inspect:	Drawn: HOT	Har: NONE Vert: NONE



* DIMENSION SHOWN ARE TYPICAL. THEY SHALL BE VARIED AS NECESSARY TO CONFORM TO PAVEMENT WIDTH

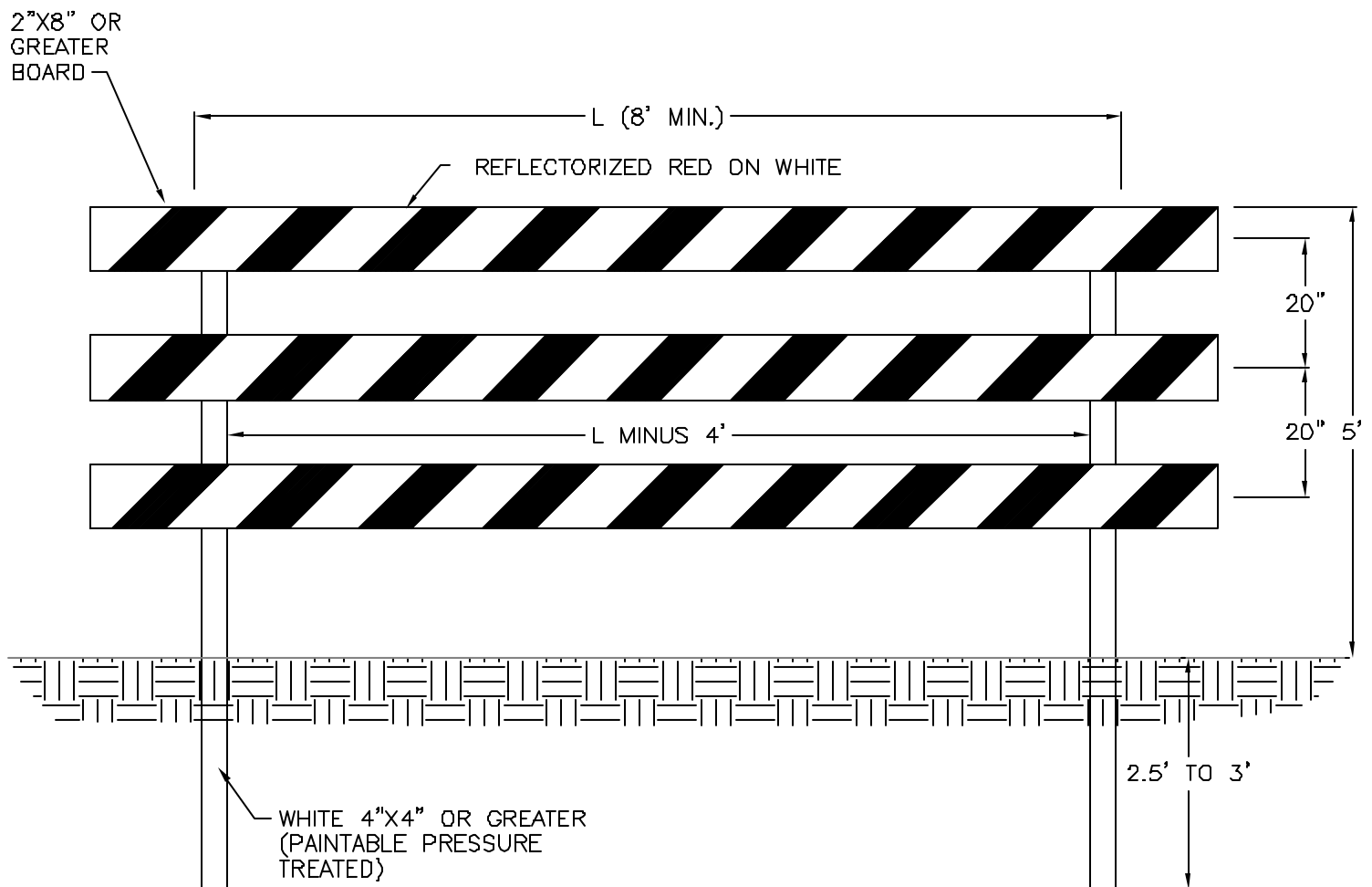
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Engineering Tel. 688-6036 **Salem, Oregon**

9
 10



RUMBLE STRIPS

Des.	Eng.	Date: 10-28-93	Revised:
Reviewed By: --Survey:		Datum: NONE	SCALES
Appd.	Inspe:	Drwn: HOT	Har: NONE Vert: NONE

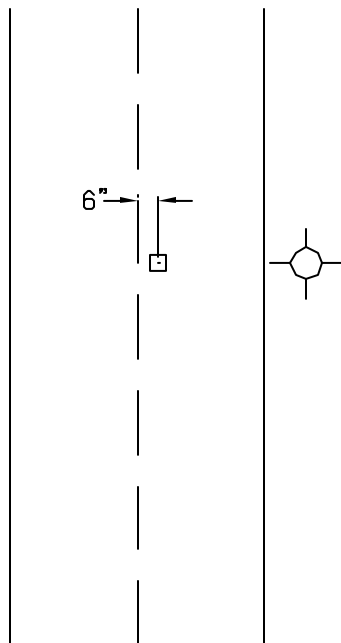


NOTES:

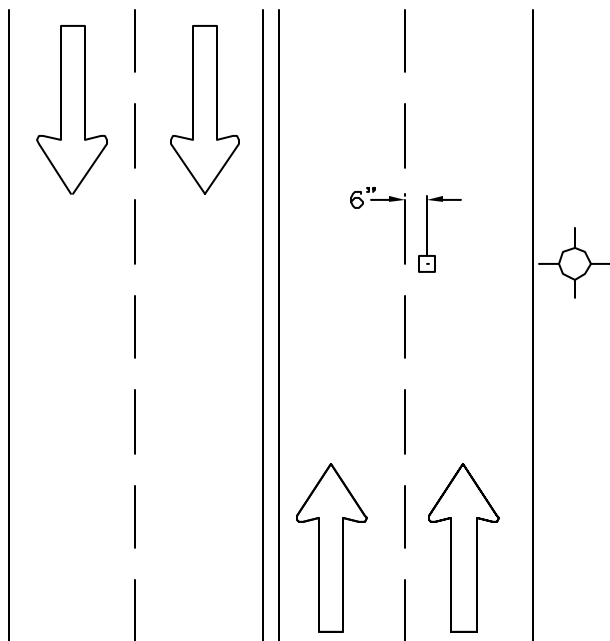
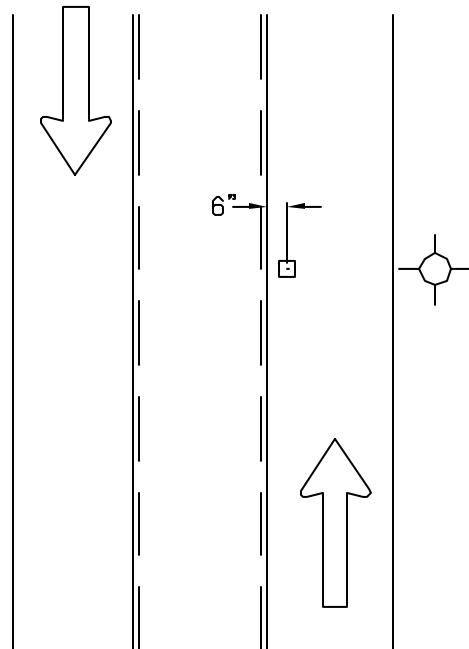
- 1) REFLECTORIZED SHEETING SHALL BE ENGINEERING GRADE, CONFORMING TO THE OSHD "STD. SPECS. FOR HWY. CONSTRUCTION" 02910
2. THE LENGTH OF THE BARRICADE UNIT "L" NORMALLY WILL BE SHOWN ON PROJECT PLANS OR PERMITS. WHEN NO "L" IS SHOWN, THE 8' MIN. SHALL BE USED

Marion County Dept. of Public Works Engineering				Salem, Oregon		9 <small>Sheet</small>
<small>Tel. 588-6036</small>						
PERMANENT BARRICADE UNIT						
<small>Date:</small>	<small>Eng:</small>	<small>Date:</small> 70-28-83	<small>Revised:</small>			
<small>Reviewed By:</small>	<small>Survey:</small>	<small>Datum:</small> NONE	<small>SCALES</small>			
<small>Appd.</small>	<small>Inspec:</small>	<small>Drwn:</small> HQT	<small>Hor:</small> NONE	<small>Vert:</small> NONE		

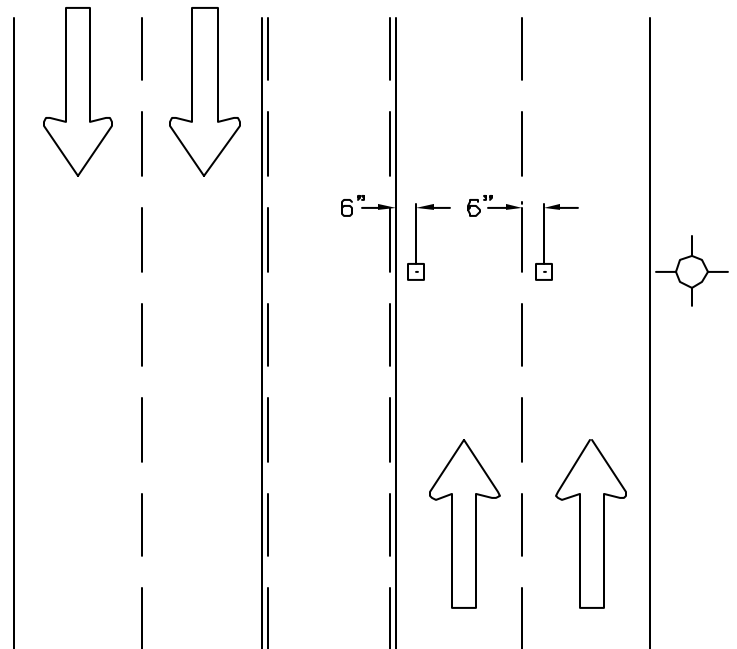
**2 LANE
ONE-WAY OR TWO-WAY**



**2 LANE TWO-WAY
CONTINUOUS LEFT TURN LANE**

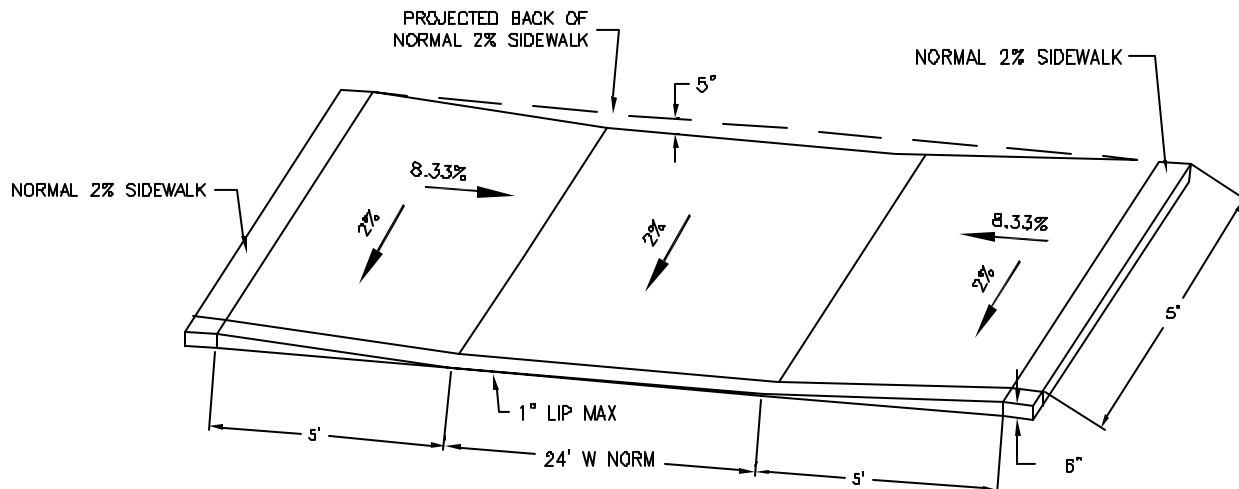


**4 LANE TWO-WAY
UNDIVIDED**

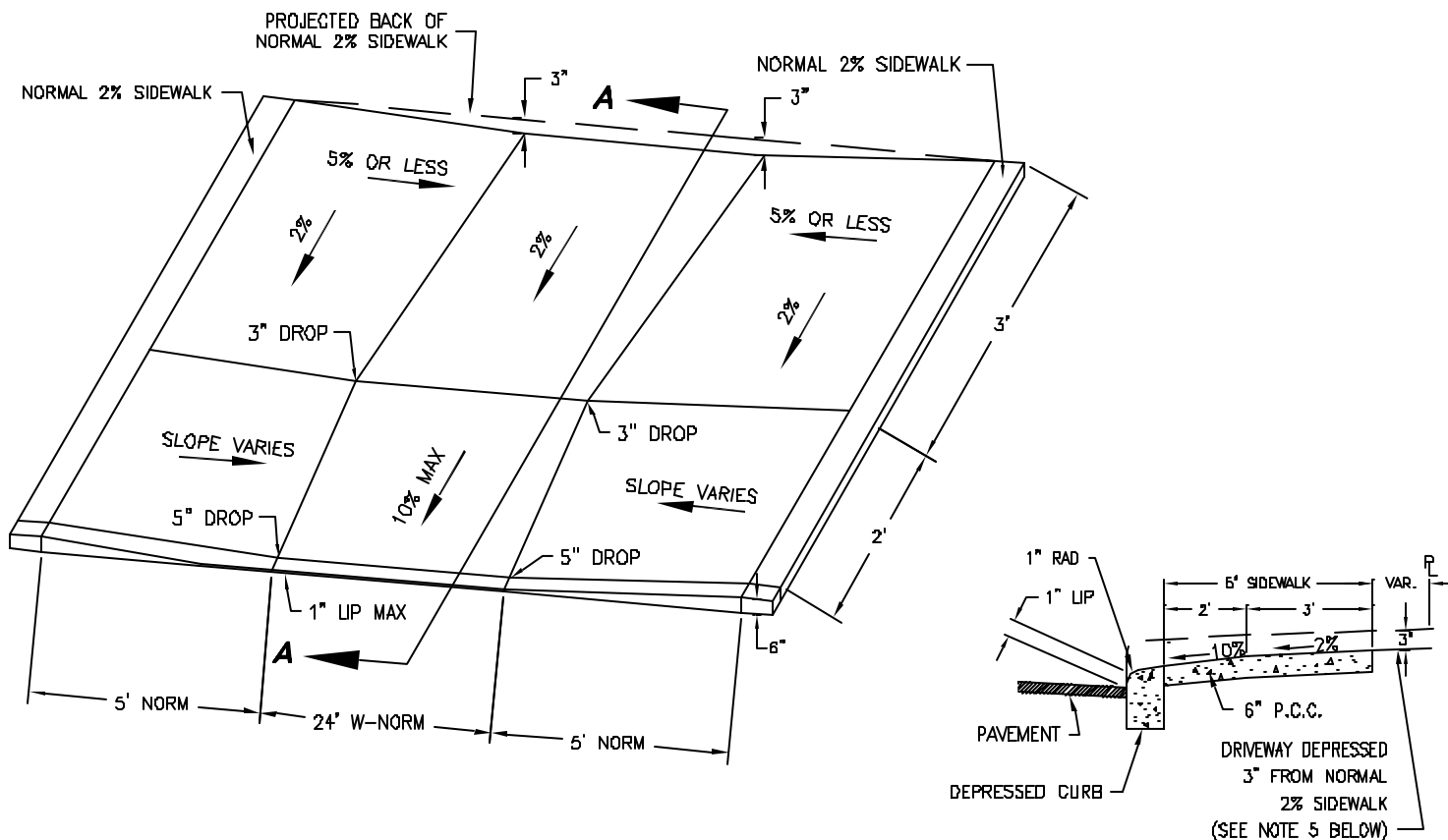


**4 LANE TWO-WAY
CONTINUOUS LEFT TURN LANE**

Marion County Dept. of Public Works Engineering				TEL. 588-6036	Salem, Oregon	10 <small>Sheet</small>
				AUTHORIZED HYDRANT MARKER INSTALLATION LOCATIONS		
<small>Date:</small> <small>Reviewed By:</small>	<small>Eng:</small> <small>Survey:</small>	<small>Date:</small> 71-18-83 <small>Datum:</small> NONE	<small>Revised:</small> <small>Hor:</small> NONE	<small>VERT:</small> NONE		
<small>Appd.</small>	<small>Inspc.</small>	<small>Drwn.</small> HQT	<small>SCALES</small>			



DRIVEWAY APPROACH WITH CURB-LINE WALK
OPTION #1 OF 3 - 2% CROSS SLOPE



DRIVEWAY APPROACH WITH CURB-LINE WALK
OPTION #2 OF 3 - SPLIT 2%/10% CROSS SLOPE

SECTION A-A
 NO SCALE

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 Engineering

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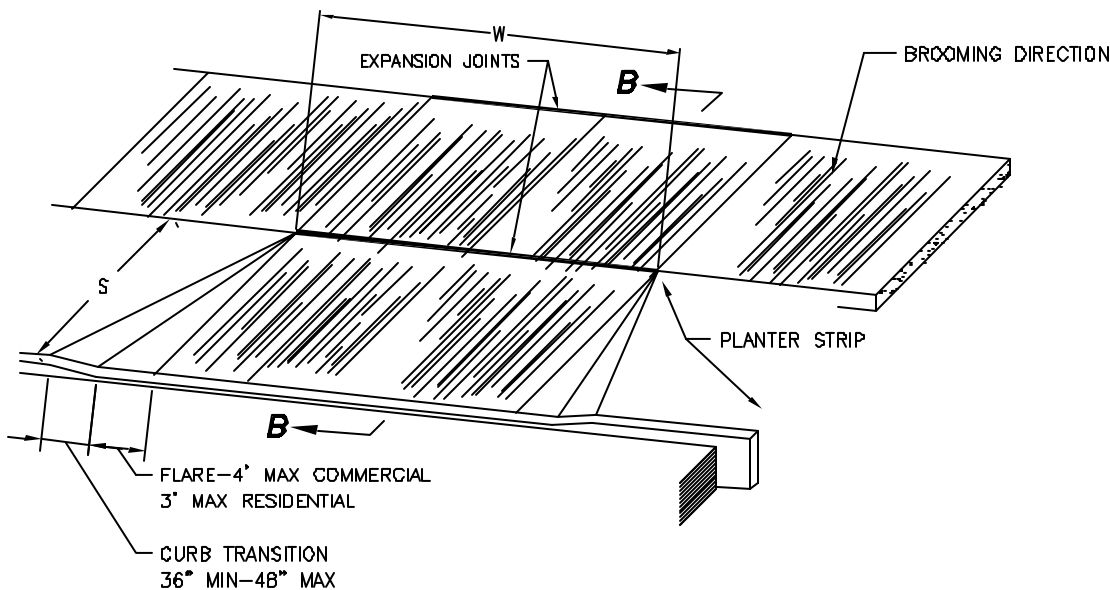
Salem, Oregon

11A

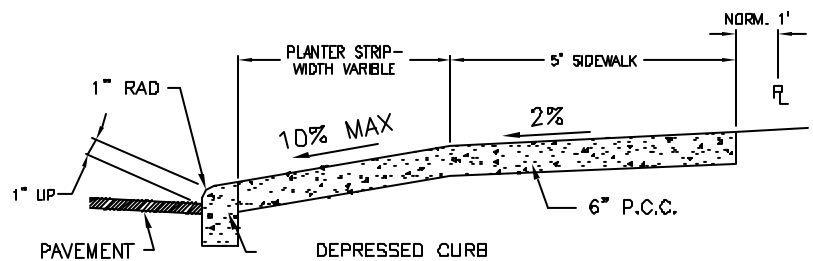


STANDARD DRAWING
ACCESSIBLE ROUTE DRIVEWAYS
DETAIL

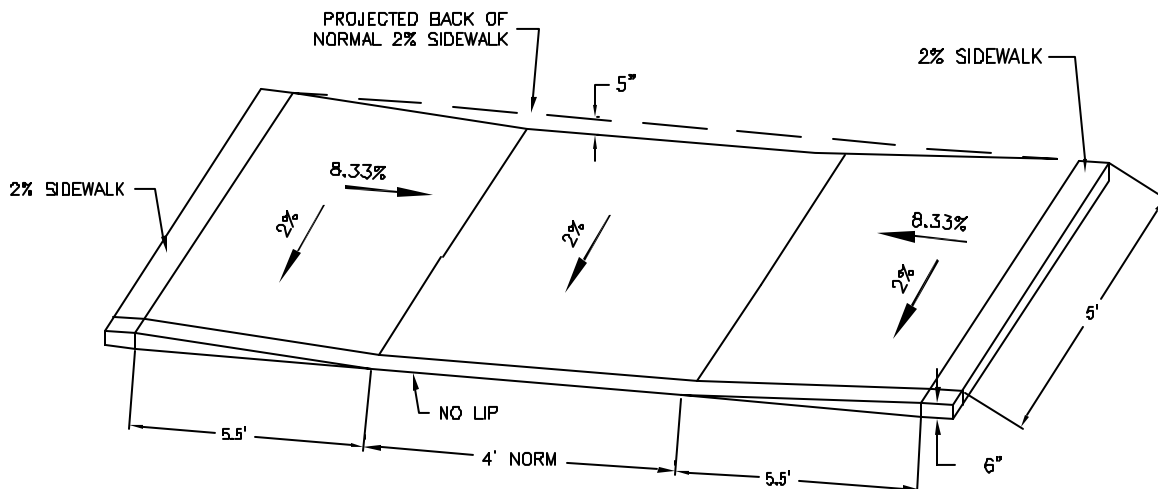
Des. TJ	Eng:	Date: 2-9-98	Revised: 10-98
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc:	Drwn. LJR	Hor: NONE Vert: NONE



DRIVEWAY APPROACH WITH PROPERTY-LINE WALK



SECTION B-B
NO SCALE



CURLINE SIDEWALK WHEELCHAIR RAMP DETAIL (FOR CORNERS AND STRAIGHT WALKS) RAMP OPTION #1 OF 3 - 2% CROSS SLOPE

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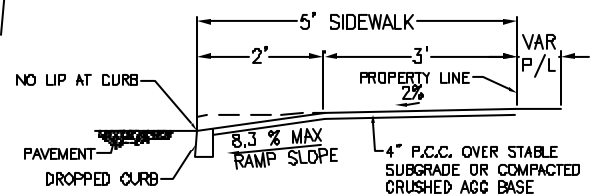
Salem, Oregon

11B



STANDARD CURBED SECTION DRIVEWAY

Des. TJ	Eng:	Date: 71-22-83	Revised: 10-88
Reviewed By:—Survey:	Datum: NONE	SCALES	
Appd.	Inspec:	Drwn. HOT/LJR	Hor: NONE Vert: NONE

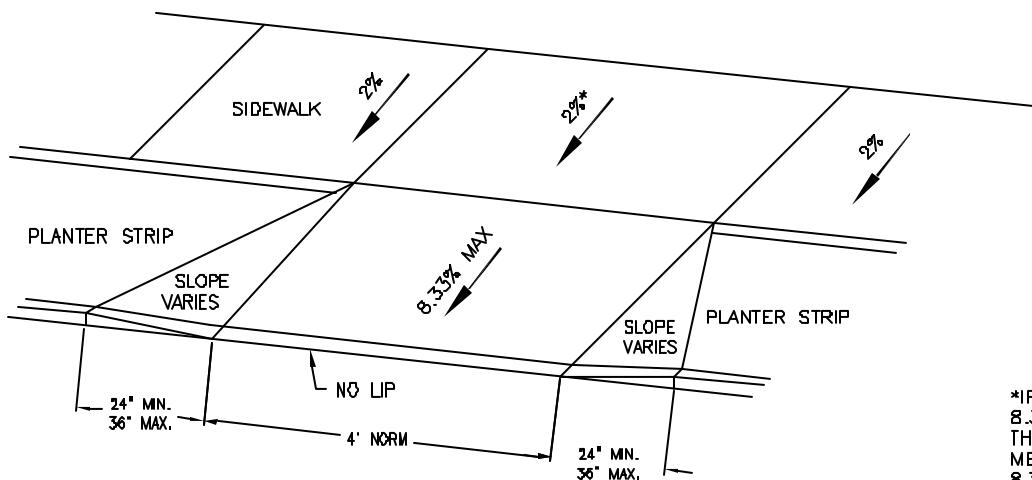


**CURBLINE SIDEWALK
WHEELCHAIR RAMP DETAIL
(FOR CORNERS AND STRAIGHT WALKS)**

RAMP OPTION #2 OF 3 - SPLIT 2/8.33% CROSS SLOPE

SECTION A-A

NO SCALE



*IF THE EXISTING SIDEWALK IS MORE THAN 8.33% HIGHER THAN THE TOP OF CURB, THE SIDEWALK SECTION WHERE THE RAMP MEETS MUST BE LOWERED TO HOLD THE 8.33% MAX ON THE RAMP.

**PROPERTY-LINE SIDEWALK
WHEELCHAIR RAMP DETAIL**

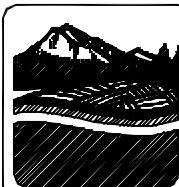
RAMP OPTION #3 OF 3 - 8.33% MAX CROSS SLOPE

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Engineering** Tel. 668-6733 **Salem, Oregon**

TV. 666-6236

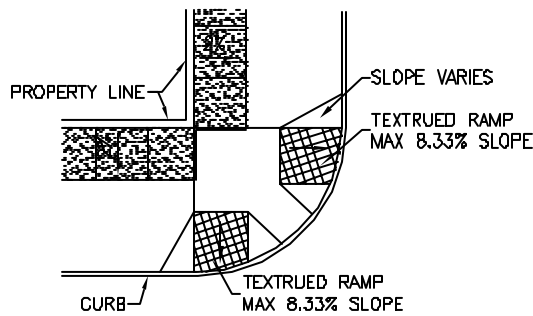
Salem, Oregon

11C

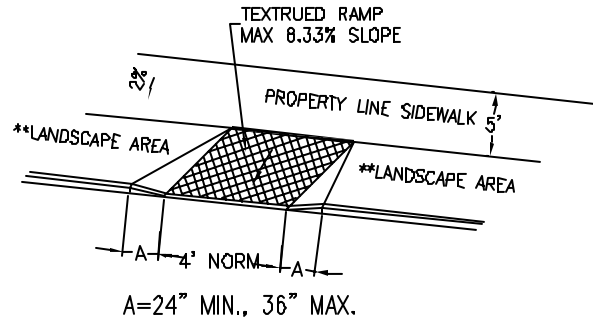


STANDARD DRAWINGS RAMP DETAILS

Des. Td	Eng:	Date: 8-98	Revised: 10-98
Reviewed By --Survey		Datum: NONE	SCALES
Appd.	Inspec:	Drwn. LJR	Hor: NONE Vert: NONE



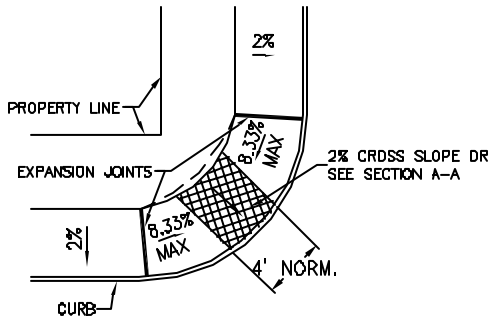
END RAMP
(PROPERTY-LINE WALKS)



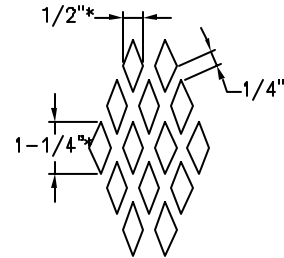
PROPERTY LINE
SIDEWALK RAMP DETAIL

NOTE:

** IF THE "LANDSCAPED AREA" IS PAVED, TREAT CURB TRANSITION LENGTH AND SURFACE TEXTURING LIMITS THE SAME AS CURBLINE SIDEWALK RAMP DETAIL.



CENTER RAMP
(CURB-LINE WALKS)



* NOMINAL DIMENSIONS

RAMP TEXTURE DETAIL

LEGEND

— EXPANSION JOINTS

■ PORTION OF RAMP
THAT IS TEXTURED

NOTE:

RAMP TEXTURING IS TO BE DONE WITH AN EXPANDED METAL GRATE PLACED AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN AS SHOWN OR APPROVED EQUAL DIAMOND PATTERN. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE PERPENDICULAR TO THE CURB. GROOVES SHALL BE 1/8" DEEP AND 1/4" WIDE. THE TEXTURED PORTION OF THE RAMP SHALL BE 5 FEET MINIMUM LENGTH MEASURED PERPENDICULAR TO THE CURB.

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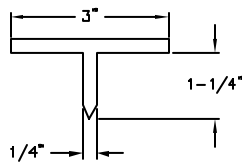
Salem, Oregon

11D



**WHEELCHAIR RAMP
LAYOUT AND TEXTURING**

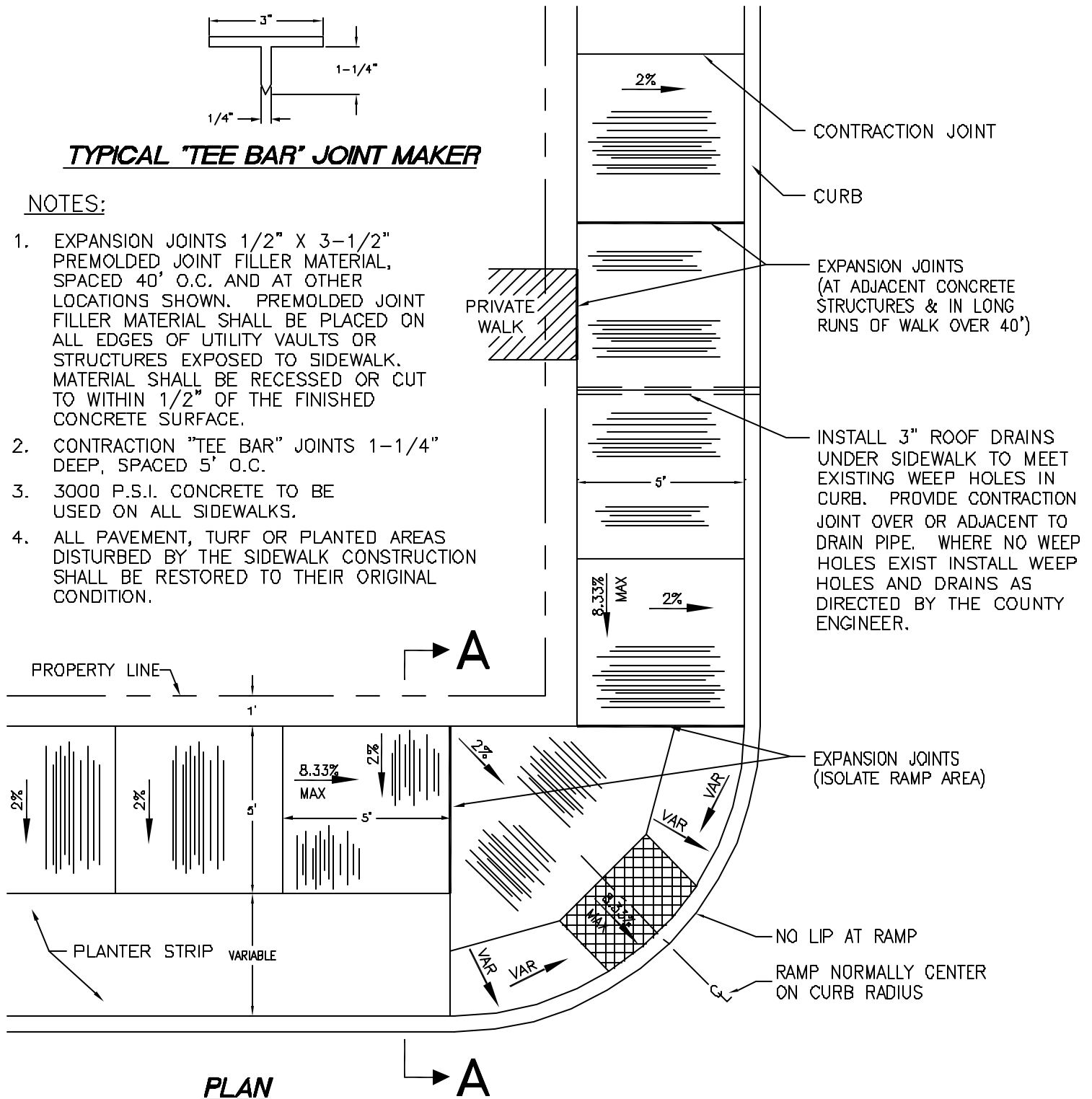
Des. TJ	Eng:	Date: 72-87	Revised: 8-88
Reviewed By:--Survey:	Datum: NONE	SCALES	
Appd.	Inspec:	Drwn. LJR	Hor: NONE Vert: NONE



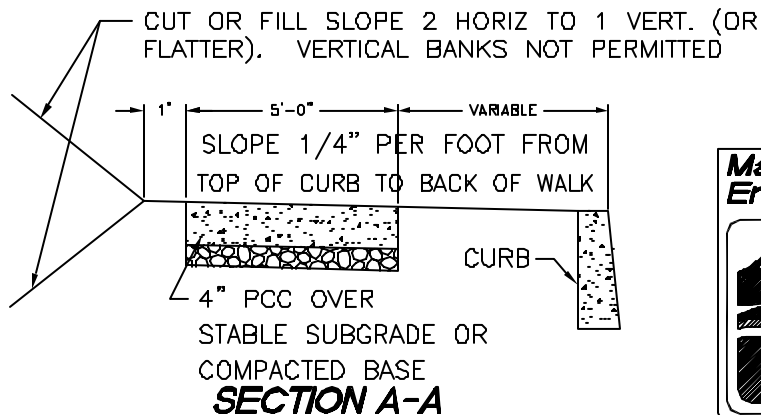
TYPICAL 'TEE BAR' JOINT MAKER

NOTES:

1. EXPANSION JOINTS 1/2" X 3-1/2" PREMOLDED JOINT FILLER MATERIAL, SPACED 40' O.C. AND AT OTHER LOCATIONS SHOWN. PREMOLDED JOINT FILLER MATERIAL SHALL BE PLACED ON ALL EDGES OF UTILITY VAULTS OR STRUCTURES EXPOSED TO SIDEWALK. MATERIAL SHALL BE RECESSED OR CUT TO WITHIN 1/2" OF THE FINISHED CONCRETE SURFACE.
2. CONTRACTION "TEE BAR" JOINTS 1-1/4" DEEP, SPACED 5' O.C.
3. 3000 P.S.I. CONCRETE TO BE USED ON ALL SIDEWALKS.
4. ALL PAVEMENT, TURF OR PLANTED AREAS DISTURBED BY THE SIDEWALK CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.



PLAN



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11E
Sheet

MISC. SIDEWALK DETAILS

Des. TJ	Eng:	Date: 7-26-83	Revised: 10-88
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc:	Drwn. HQT/LJR	Hor: NONE Vert: NONE

NOTES:

- A. APPROACH WIDTH (W):
 RESIDENTIAL 12'-24'
 COMMERCIAL* 28'-40'

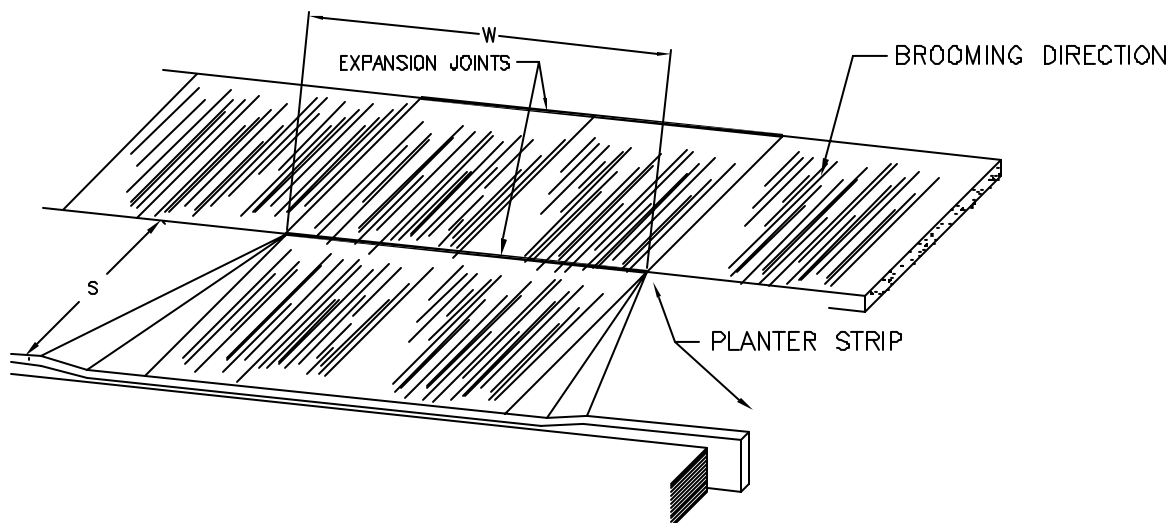
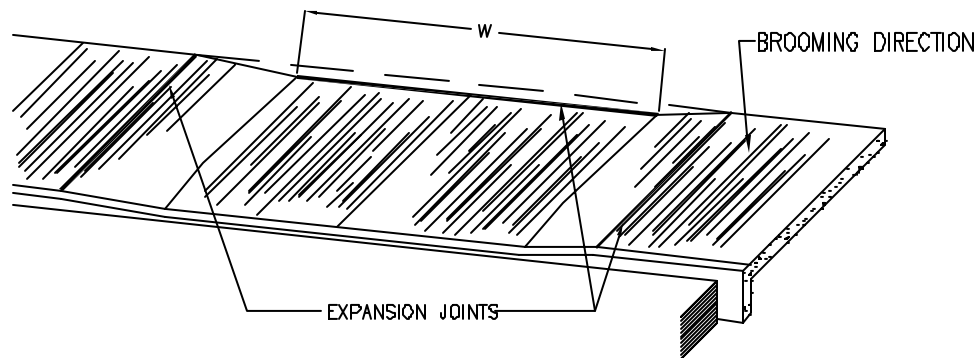
* FOR COMMERCIAL DRIVEWAYS, W SHALL BE SET BY THE DIRECTOR OF PUBLIC WORKS ON A SITE SPECIFIC BASIS.

B. FLARE

A. 36" FOR COMMERCIAL AND INDUSTRIAL WHERE TRAVELED LANE IN STREET IS ADJACENT TO THE CURB. (I.E. PARKING PROHIBITED).

B. NONE REQUIRED FOR RESIDENTIAL AND COMMERCIAL WHERE PARKING IS ALLOWED IN STREET ADJACENT TO CURB.

C. BROOMING DIRECTIONS



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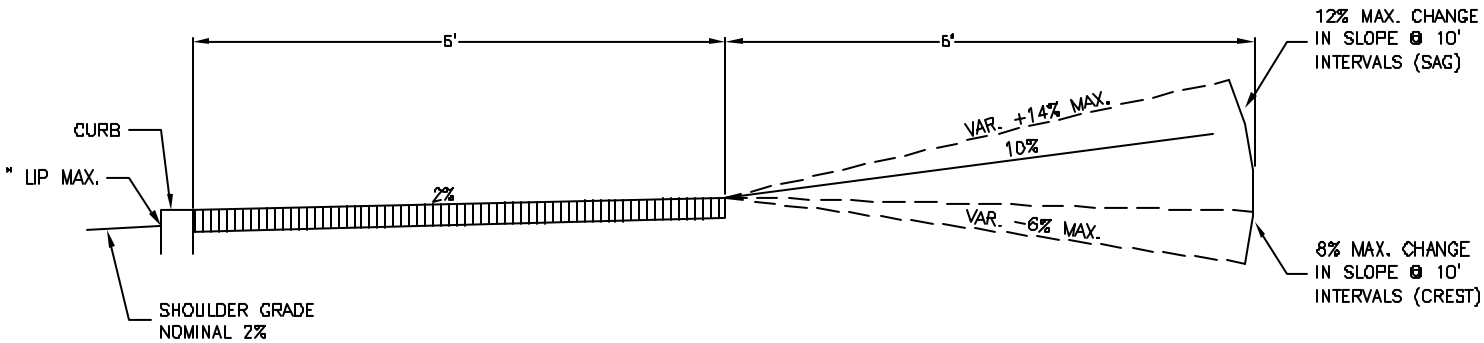
11F



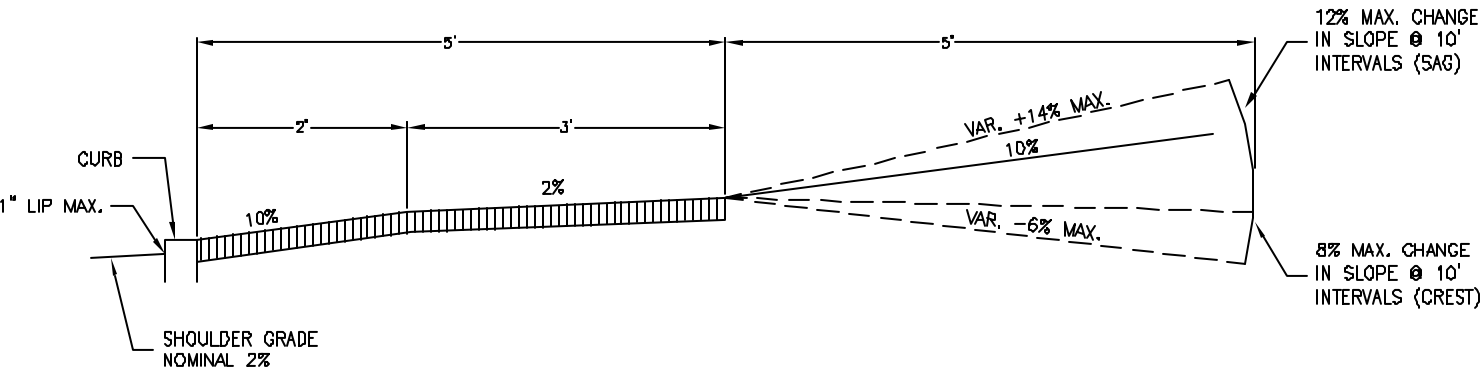
STANDARD CURBED SECTION DRIVEWAY

Des. TJ	Eng:	Date: 8-3-98	Revised:
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc:	Drwn. LJR	Hor: NONE Vert: NONE

D. MATCHING EXISTING DRIVEWAY SLOPES.



2% SIDEWALK
-5% STREET SLOPE +7% MATCHING GRADE=12% MAX.



SPLIT SLOPE SIDEWALK

NOTES:

WHEN EXISTING DRIVEWAY CANNOT BE MATCHED TO THE NEW APPROACH WITHIN SLOPE LIMITATION AS SHOWN, ADJUST THE EXISTING DRIVEWAY; NOT THE CURB, APPROACH OR SIDEWALK.

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Salem, Oregon

11G

STANDARD DRAWING
MATCHING EXISTING DWY SLOPES

Des. TJ	Eng:	Date: 8-3-98	Revised:
Reviewed By:--Survey:	Datum: NONE	SCALES	
Appd.	Inspec:	Drwn. LJR	Hor: NONE Vert: NONE

E. CURB REMOVAL

WHEN AN EXISTING FULL HEIGHT CURB SECTION IS REMOVED FOR CONSTRUCTION, THE FOLLOWING PROVISIONS SHALL APPLY:

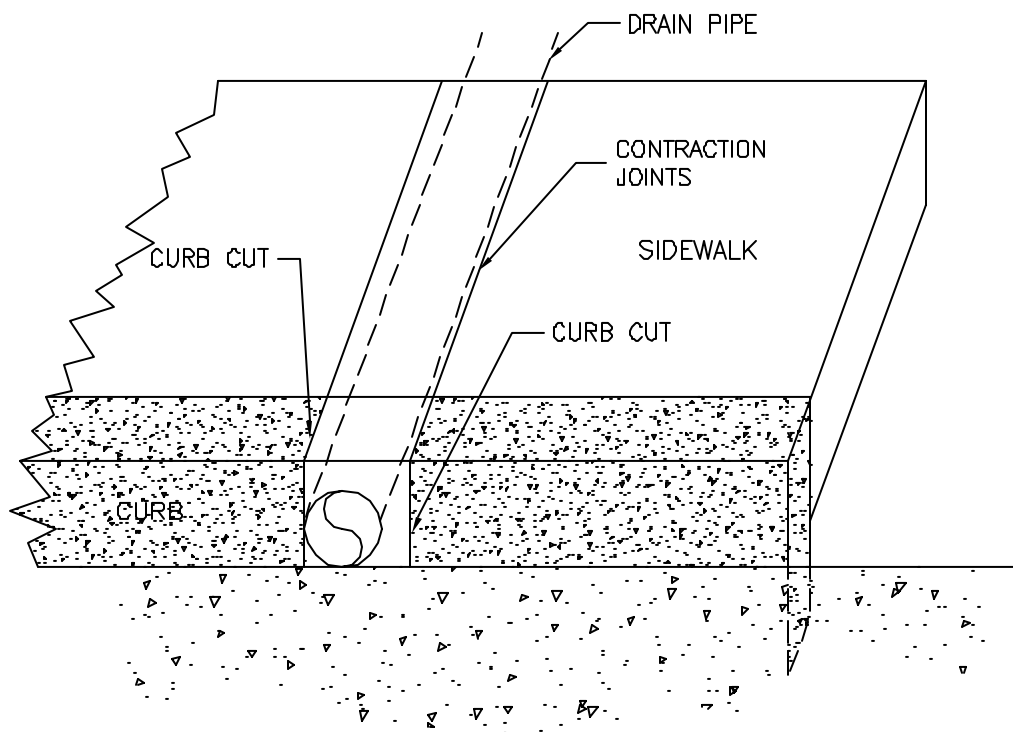
1. VERTICAL SAW CUTS SHALL BE MADE OUTSIDE THE EDGES OF THE CURB TRANSITIONS (THIS APPLIES TO BOTH TYPE A AND C CURBS). WHERE WEEP HOLES ARE TO BE INSTALLED, ADDITIONAL CURB WILL NEED TO BE REMOVED.
2. TYPE A "CURB AND GUTTERS": THE ENTIRE CURB AND GUTTER SHALL BE REMOVED AND REPOURED; OR, A LONGITUDINAL VERTICAL CUT SHALL BE MADE AT THE FLOW LINE OF THE GUTTER LEAVING THE APRON IN TACT. ALL MATERIAL IN THE CURB AREA SHALL BE REMOVED TO SUBGRADE AND REPOURED. PROVIDE 6" OF CONCRETE BELOW THE FLOW LINE IN THE CURB AREA.
3. TYPE C CURB: THE ENTIRE CURB SHALL BE REMOVED TO FULL DEPTH AND REPOURED; OR, THE CURB SHALL BE BROKEN OUT FROM A POINT 2" BELOW THE ADJACENT ASPHALT DOWNWARD AND AWAY FROM THE STREET AT NO LESS THAN A 45° ANGLE AND REPOURED. PROVIDE 10" OF CONCRETE BELOW THE ASPHALT IN THE CURB AREA.

F. DRAIN LINES

WEEP HOLES FOR DRAINS ARE TO EXIT IN A FULL HEIGHT CURB SECTION OUTSIDE THE CURB TRANSITION AREA OF DRIVEWAY. THE DRAIN LINES IN THE SIDEWALK ARE TO BE LOCATED UNDER OR ADJACENT TO A CONTRACTION JOINT. DRAIN LINES ARE TO CROSS SIDEWALKS AT 90° (PERPENDICULAR) TO THE SIDEWALK, NOT ASKEW.

WHERE CURB CUTS ARE MADE FOR CONSTRUCTION OF A DRIVEWAY APPROACH, ONE DRAIN LINE IS ALLOWABLE IN THE CURB TRANSITION AREA IF THE LINE IS PLACED DIRECTLY ADJACENT TO THE CURB CUT (HIGHEST POINT IN THE TRANSITION).


ALL DRAIN LINES ARE TO BE PLACED DOWN AT THE FLOW LINE OF THE GUTTER.



NOTE:

DRAIN PIPE IS TO BE PLACED ADJACENT TO ONE OF THE CURB CUTS. A CONTRACTION JOINT IS TO BE SCORED ALONG BOTH CUTS. THE PIPE IS TO BE DOWN TO THE FLOW LINE OF THE GUTTER.

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Des. TJ		Eng:		Date: 8-1-98		Revised:	
Reviewed By:--Survey:		Datum: NONE		SCALES			
Appd.		Inspec:		Drwn. LJR		Hor: NONE Vert: NONE	



STANDARD DRAWING
CURB REMOVAL AND
DRAIN LINES

G. DEEP SCORING, SHINING & EXPANSION JOINTS

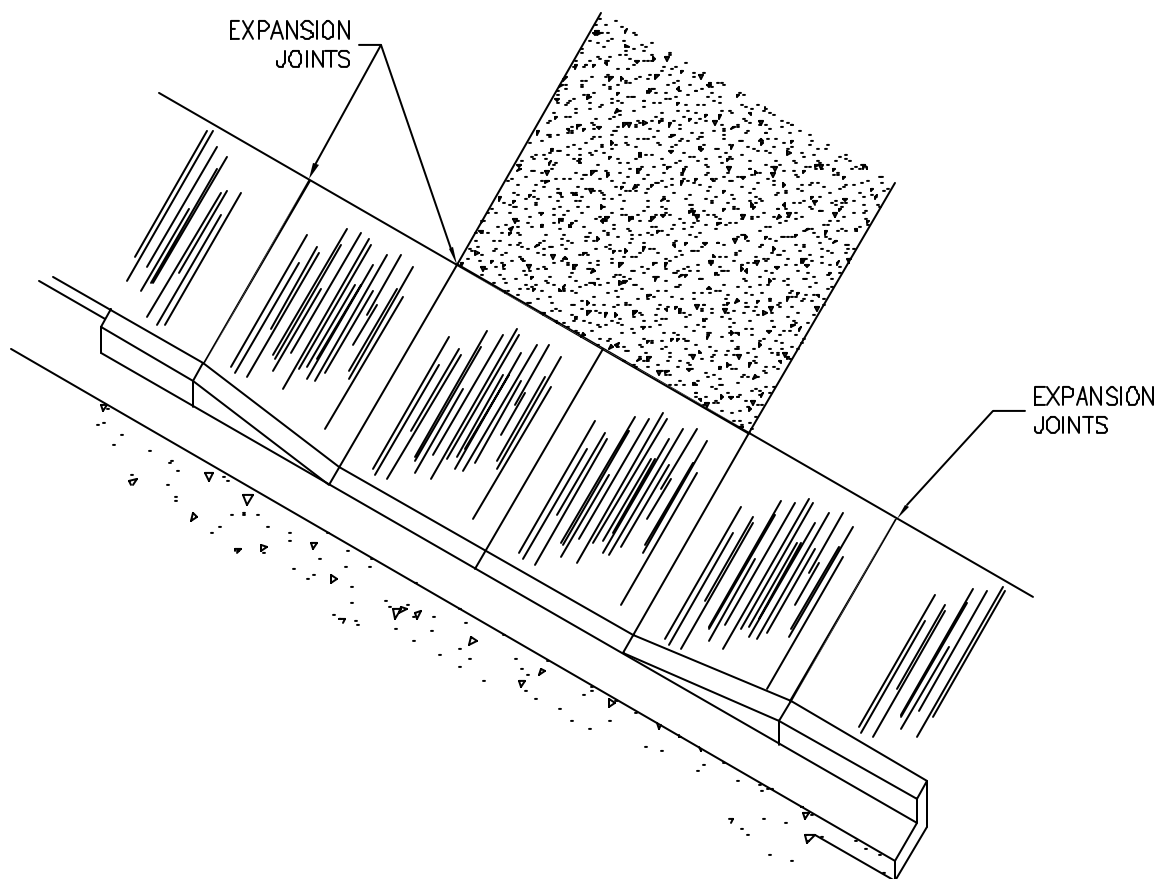
DEEP SCORED CONTRACTION JOINTS ARE TO BE MADE EVERY 5 FEET OF SIDEWALK AND EVERY 15 FEET OF CURB. WHERE THE CURB IS CUT TO ALLOW FOR A DRAIN LINE, THE DEEP SCORE IS TO BE MADE AT BOTH CURB EDGES, NOT OVER THE PIPE. SEE NOTE E ABOVE.

DEEP SCORED CONTRACTION JOINTS ARE TO BE FORMED TO A DEPTH OF $\frac{1}{3}$ OF THE THICKNESS OF CONCRETE AND A WIDTH OF ABOUT $\frac{1}{8}$ INCH.

AFTER BROOMING, TOOL ROUND & SHINE THE OUTER EDGE OF THE SIDEWALK (NOT THE CONTRACTION JOINTS) & THE OUTER EDGE OF THE DRIVEWAY IN THE PLANTER STRIP.


EXPANSION JOINTS USING $\frac{1}{2}$ " X $3\frac{1}{2}$ " PRE-MOLDED JOINT FILLER MATERIAL ARE REQUIRED:

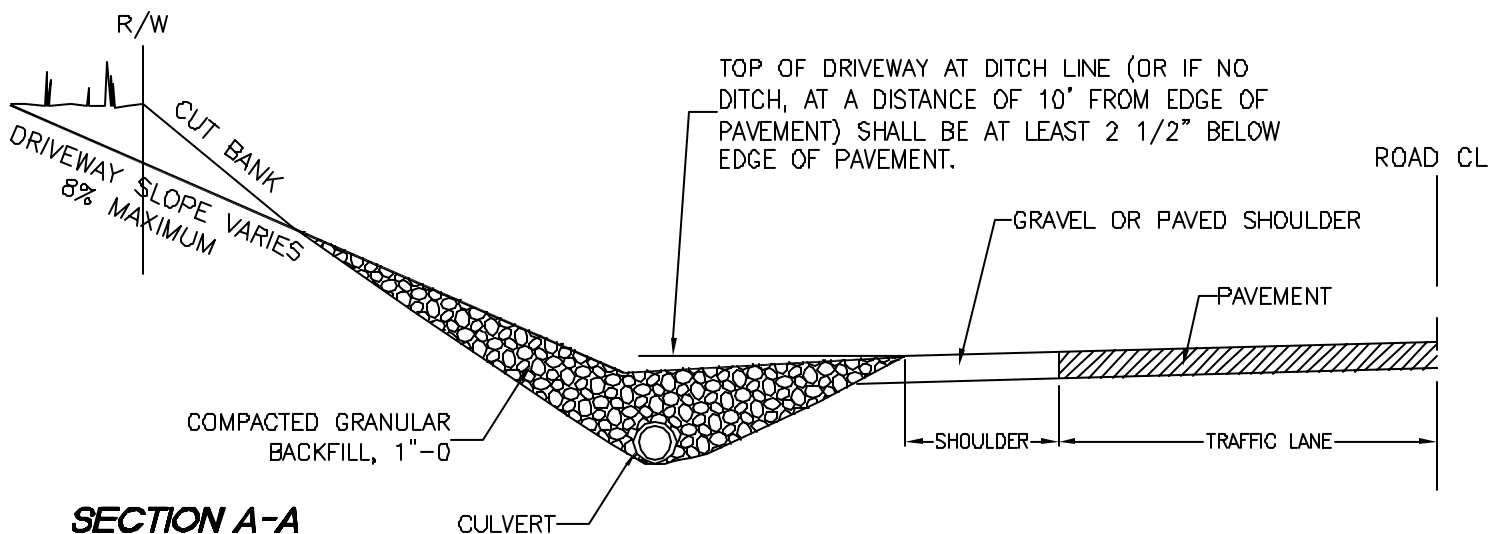
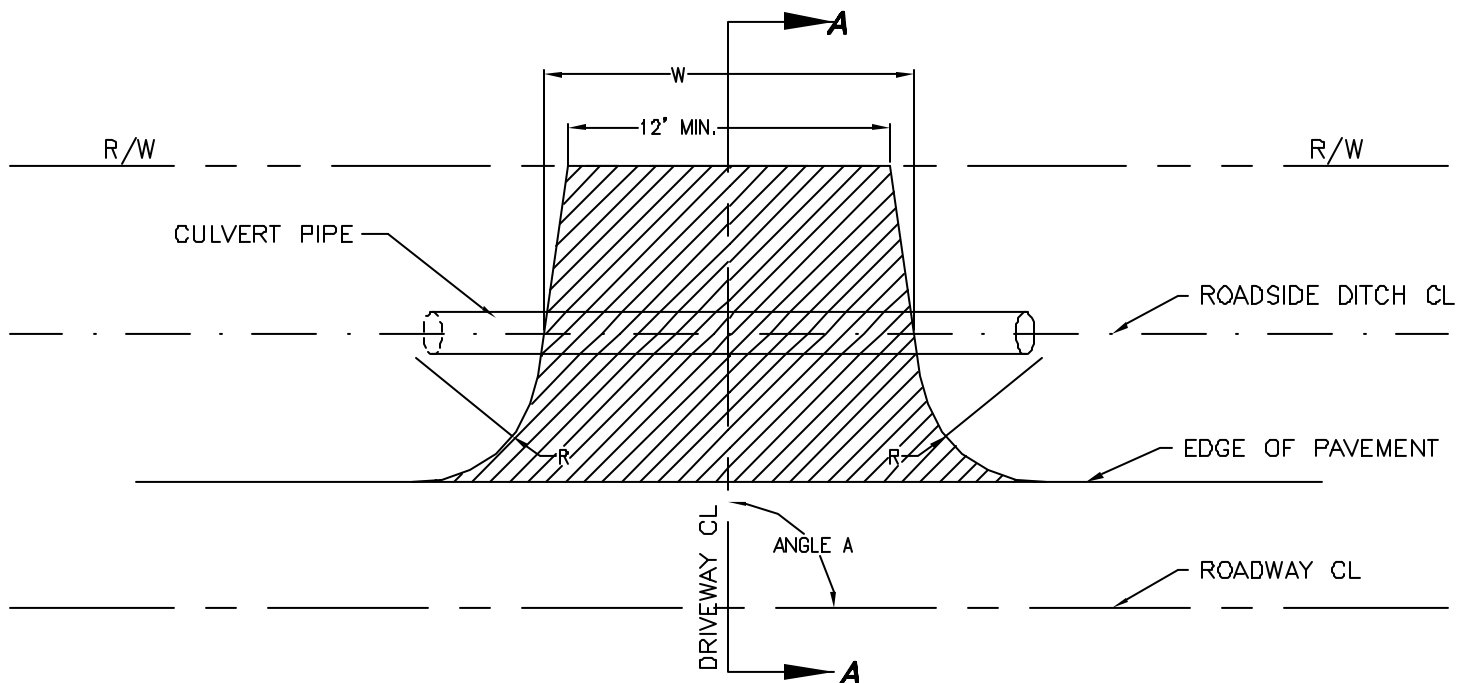
- A. ALONG THE SIDEWALK AT THE DRIVEWAY (A PROPERTY LINE SIDEWALK WILL REQUIRE EXPANSION JOINTS ON BOTH SIDES OF THE SIDEWALK);
- B. ALONG THE SIDEWALK WHERE IT INTERSECTS ANOTHER SIDEWALK;
- C. ON THE EDGES OF UTILITY VAULTS OR OTHER STRUCTURES EXPOSED TO THE SIDEWALK;
- D. IN THE SIDEWALK TO ISOLATE A WHEELCHAIR RAMP (SEE SHEET 5);
- E. ON CURB-SIDE SIDEWALKS PLACED AT 90 DEGREES ACROSS THE SIDEWALK AT THE BEGINNING (TOP) OF THE CURB TRANSITION; AND
- F. IN SIDEWALKS WITH THE LONG RUNS. NO RUNNING PIECE OF SIDEWALK SHALL BE MORE THAN 40' WITHOUT AN EXPANSION JOINT.



H. CONCRETE SPECIFICATIONS

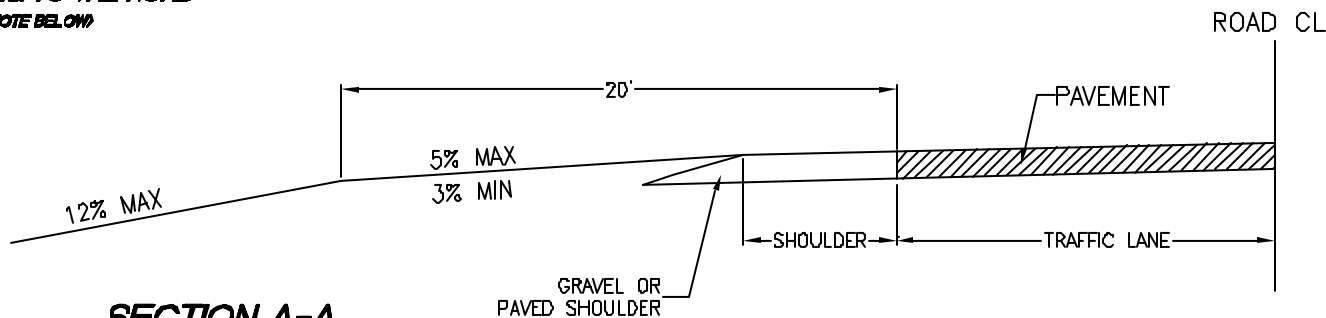
A MINIMUM OF 3,000 PSI CONCRETE SHALL BE USED FOR ALL CURBS, DRIVEWAY APPROACHES AND SIDEWALKS. CONCRETE SHALL BE AIR ENTRAINED, TOTAL AIR CONTENT (PERCENT BY VOLUME OF CONCRETE) SHALL BE NOT LESS THAN 5 PERCENT OR MORE THAN 7 PERCENT.

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Engineering				
Tel. 688-6036		Salem, Oregon		
				
SIDEWALK / RAMP FINISHING AND EXPANSION JOINT DETAILS				
Des. TJ	Eng:	Date: 8-4-98	Revised: 10-98	
Reviewed By:--Survey:	Datum: NONE	SCALES		
Appd.	Inspc:	Drwn. LJR	Hor: NONE	Vert: NONE



SECTION A-A

WHEN SLOPING TO THE ROAD
(SEE NOTE BELOW)



SECTION A-A

WHEN SLOPING FROM THE ROAD

NOTE:

DRIVEWAY SHALL BE CROWNED (ABOUT 3" HIGHER IN THE MIDDLE TO SHED WATER TO THE SIDES) AND SHALL HAVE SIDE DITCHES. STEEPER DRIVEWAYS MAY REQUIRE ASPHALT PAVING & SLOTTED DRAINS ACROSS THE DRIVEWAY TO PICK UP DRAINAGE BEFORE IT FLOWS TO THE ROAD.

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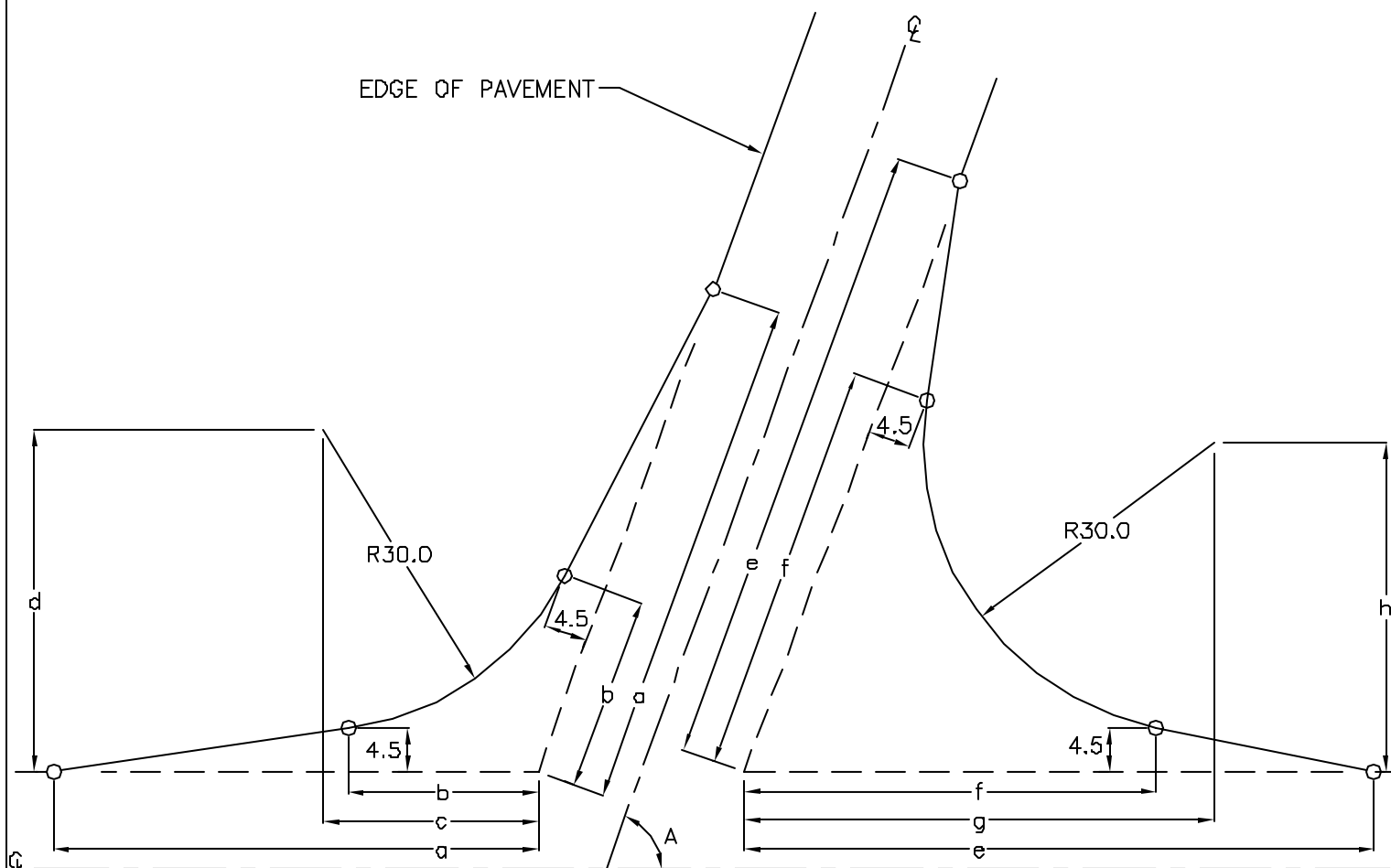
Salem, Oregon

11J



DRIVEWAY ACCESS TO NON-CURBED (TURNPIKE) STREET

Des.	Eng.	Date: 71-22-83	Revised: 5-98 LWR
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspec.	Drwn. HQT	Hor: NONE Vert: NONE



NOTES:

1. SURFACING AND BASE COURSE OF THE INTERSECTION, INCLUDING THE FLARE AREA, SHALL CONFORM TO SECTION IV OF THE ENGINEERING STANDARDS.

ANGLE A	a	b	c	d	e	f	g	h
60°	50.0	15.9	19.8	34.2	74.0	52.5	58.7	33.9
70°	50.0	19.5	23.9	34.2	65.0	42.8	48.5	34.0
80°	50.0	23.6	28.6	34.1	57.0	34.5	40.4	33.9
90°	50.0	27.9	33.9	33.9	=a	=b	=c	=d
100°	57.0	34.5	40.4	33.9	50.0	23.6	28.6	34.1
110°	65.0	42.8	48.5	34.0	50.0	19.6	23.9	34.2
120°	74.0	58.7	58.7	33.9	50.0	15.9	19.8	34.2

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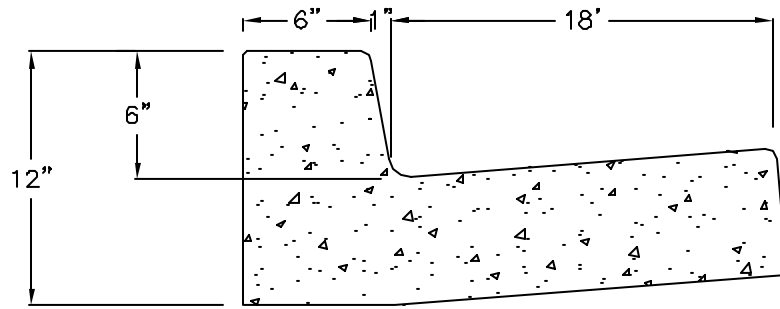
Salem, Oregon

13
SHEET

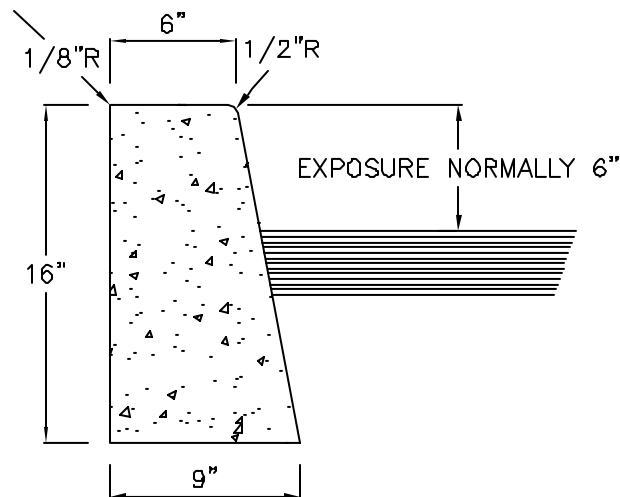


ARTERIAL INTERSECTIONS AND MAJOR COMMERCIAL-INDUSTRIAL DRIVEWAYS-VARIOUS ANGLES

Des.	Eng.	Date: 7-1-83	Revised:
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc.	Drwn. HGT	Hor: NONE Vert: NONE



TYPE "A" CURB AND GUTTER



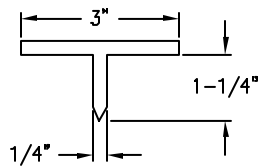
TYPE "C" CURB

NOTES:

1. CURBS AND GUTTERS SHOWN MAY BE USED WITH EITHER A.C. OR P.C.C. PAVEMENTS.
2. TRANSITIONS FROM ONE TYPE CURB TO ANOTHER WILL BE DETAILED ON PROJECT PLANS AS NECESSARY.
3. "TEE-BAR" CONTRACTION JOINT TO BE INSTALLED EVERY 15' OF CURB.
4. 3300 P.S.I. CONCRETE TO BE USED FOR ALL CURBS.

CURB QUANTITIES	
CU. YD. PER LIN. FT.	
TYPE	TYPE
A	0.04942
C	0.03085

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Tel. 588-6036					
		STANDARD P.C.C. CURB AND GUTTER SECTIONS			
		Des.	Eng.	Date: 71-23-83	Revised:
		Reviewed By: Survey	Datum: NONE	SCALES	
		Appd.	Inspc.	Drwn. HQT	Hor: NONE Vert: NONE



TYPICAL 'TEE BAR' JOINT MAKER

NOTES:

1. EXPANSION JOINTS 1/2" X 3-1/2" PREMOLDED JOINT FILLER MATERIAL, SPACED 15' O.C. AND AT OTHER LOCATIONS SHOWN. PREMOLDED JOINT FILLER MATERIAL SHALL BE PLACED ON ALL EDGES OF UTILITY VAULTS OR STRUCTURES EXPOSED TO SIDEWALK. MATERIAL SHALL BE RECESSED OR CUT TO WITHIN 1/2" OF THE FINISHED CONCRETE SURFACE
2. CONTRACTION "TEE BAR" JOINTS 1-1/4" DEEP, SPACED 5' O.C.
3. 3300 P.S.I. CONCRETE TO BE USED ON ALL SIDEWALKS.
4. APPROXIMATE QUANTITIES: 0.01234 CU. YD. PER SQ. FT. OF 4" WALK
5. ALL PAVEMENT, TURF, OR PLANTED AREAS DISTURBED BY THE SIDEWALK CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

PRIVATE WALK

INSTALL 3" ROOF DRAINS UNDER SIDEWALK TO MEET EXISTING WEEP HOLES IN CURB. WHERE NO WEEP HOLES EXIST INSTALL WEEP HOLES AND DRAINS AS DIRECTED BY THE COUNTY ENGINEER.

EXPANSION JOINT

5'

CONTRACTION JOINT

CURB

PROPERTY LINE

A

5'

5'

EXPANSION JOINTS

EXPANSION JOINT IN RADIUS WHERE SIDEWALK ABUTS CURB.

VARIABLE

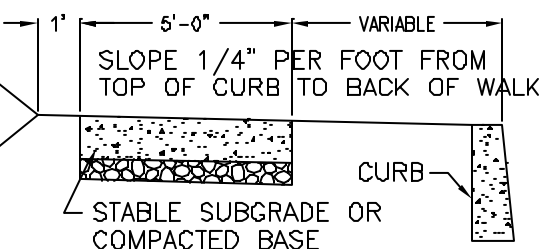
INSTALL 3" ROOF DRAIN UNDER SIDEWALK IN ALIGNMENT WITH EXISTING WEEP HOLES IN CURB. (AT CONTRACTION JOINT)

EXISTING CURB WEEP HOLE

PLAN

A

CUT OR FILL SLOPE 2 HORIZ TO 1 VERT. (OR FLATTER). VERTICAL BANKS NOT PERMITTED



SECTION A-A

**Marion County Dept. of Public Works
Engineering**

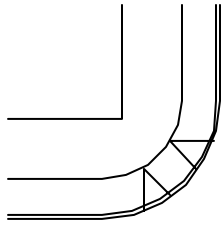
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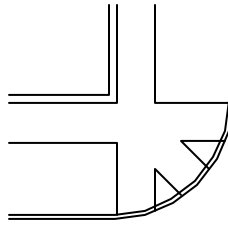
15
SHEET

**STANDARD
SIDEWALK
DETAILS**

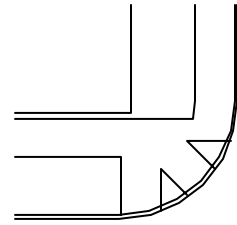
Des.	Eng.	Date: 7-26-83	Revised:
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc.	Drwn. HQT	Hor: NONE Vert: NONE



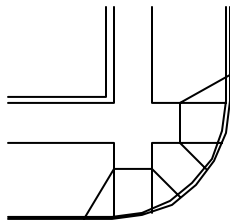
**CENTER RAMP
CURB-LINE WALKS**



**CENTER RAMP
PROPERTY-LINE WALKS**



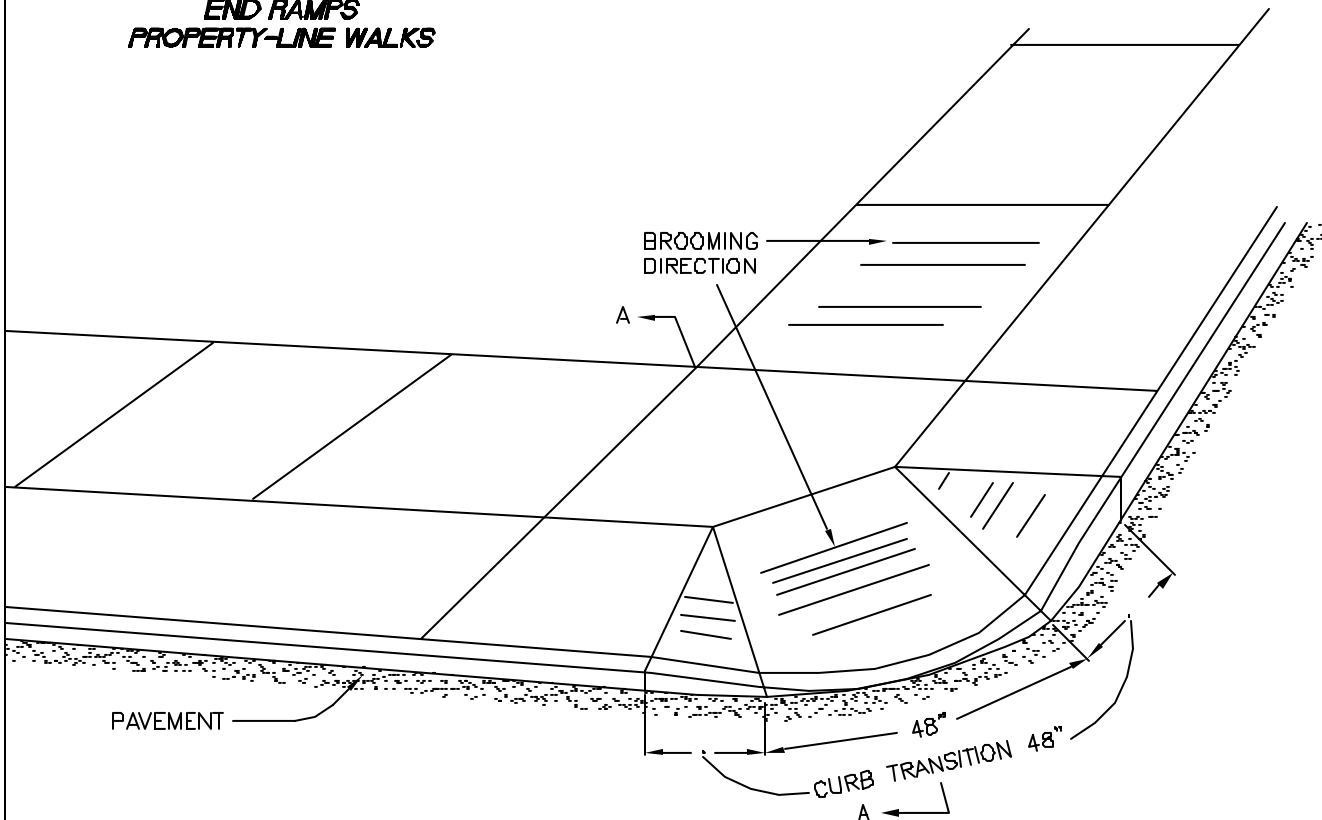
**CENTER RAMP, CURB-LINE
AND PROPERTY-LINE WALKS**



**END RAMPS
PROPERTY-LINE WALKS**

TYPICAL RAMP LOCATIONS

NO SCALE



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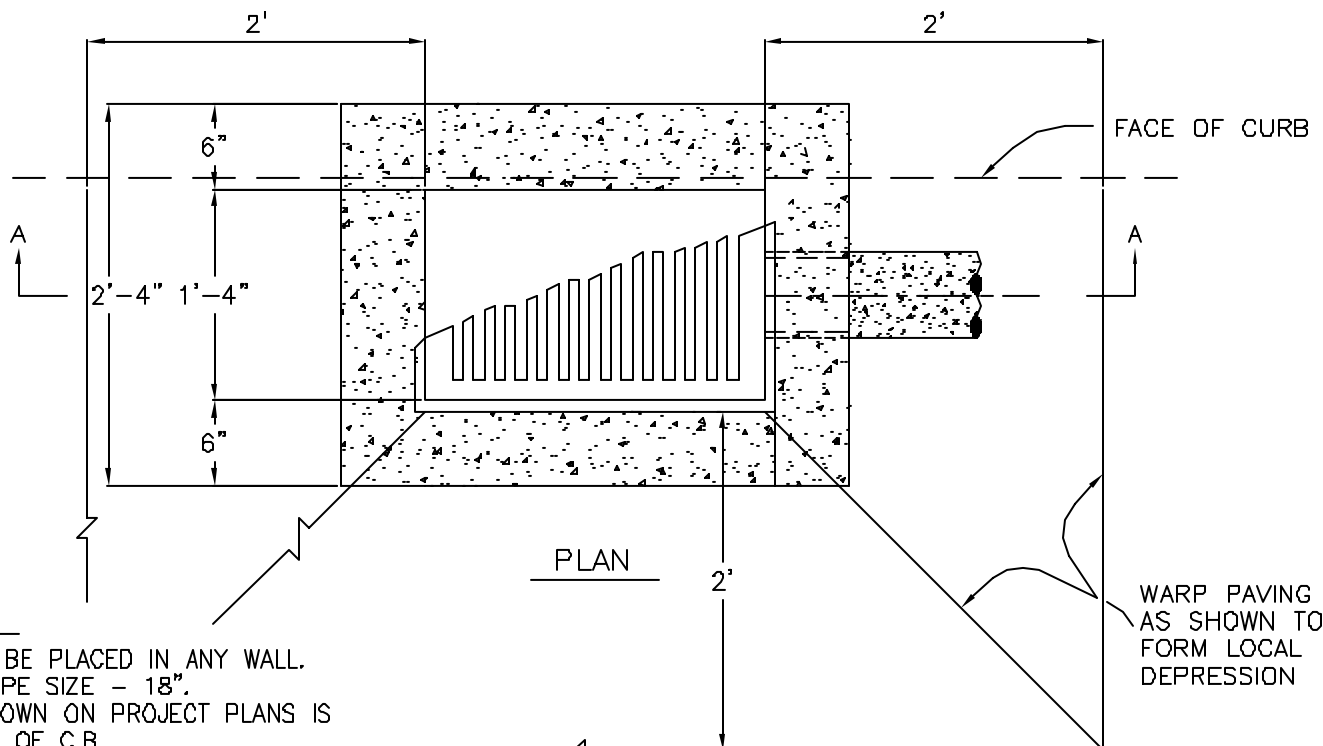
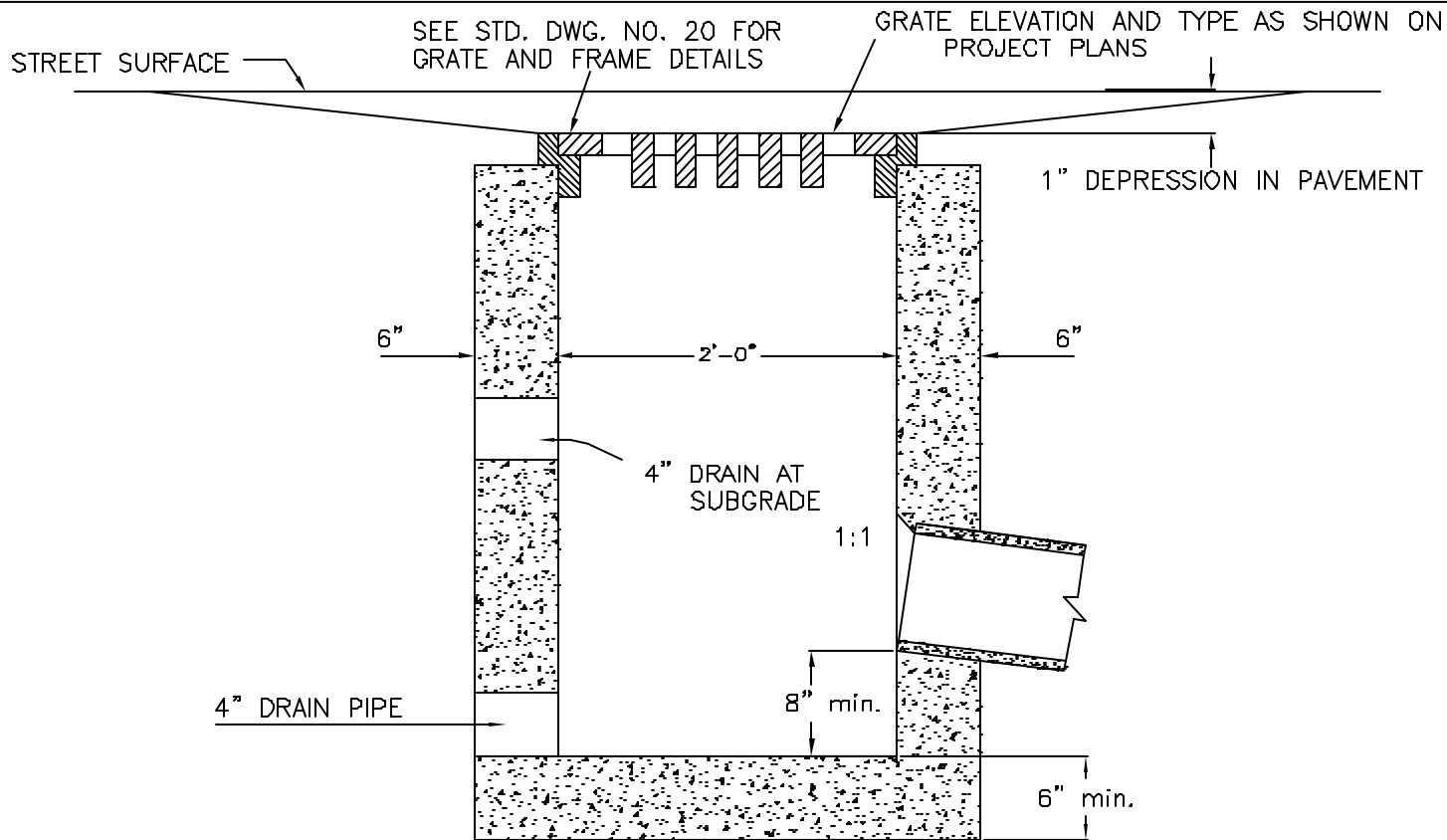
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16
1



TYPICAL BICYCLE AND WHEELCHAIR RAMPS

Des.	Eng.	Date: 11-23-93	Revised:
Reviewed By: Survey	Datum:	SCALES	
Appd.	Drawn: HOT	Hor: NONE	Vert: NONE



NOTES

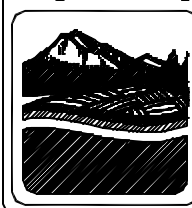
1. PIPES CAN BE PLACED IN ANY WALL. MAXIMUM PIPE SIZE - 18".
2. STATION SHOWN ON PROJECT PLANS IS CENTERLINE OF C.B.
3. ALL CONCRETE SHALL BE CLASS 3300 - 11/2 PER SECTION 504 OF THE STANDARD SPECIFICATIONS OF THE OREGON STATE HIGHWAY DIVISION.
4. DRAINS SHALL BE 4" CONCRETE DRAIN TILE.
5. TO CONSTRUCT CLEANOUT, REPLACE GRATE WITH 1'-3 1/2" X 1'-11 1/2" STEEL PLATE 3/4" THICK. DRILL ONE 1" DIA. LIFT HOLE NEAR ONE END PLATE.
6. FOR LOCATION, PIPE SIZE, AND ELEVATION, SEE PROJECT PLANS.

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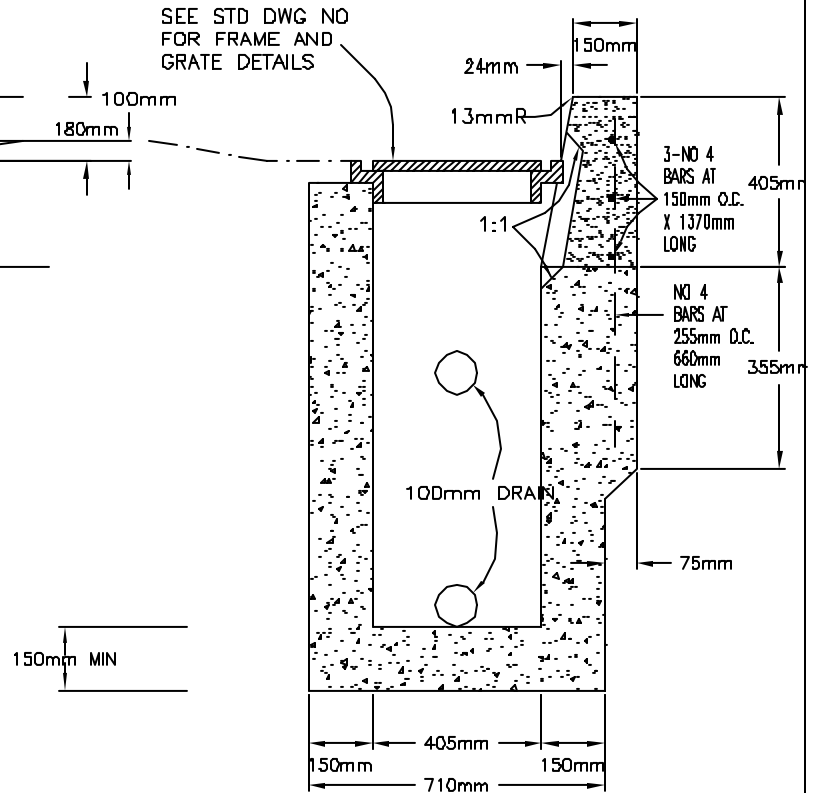
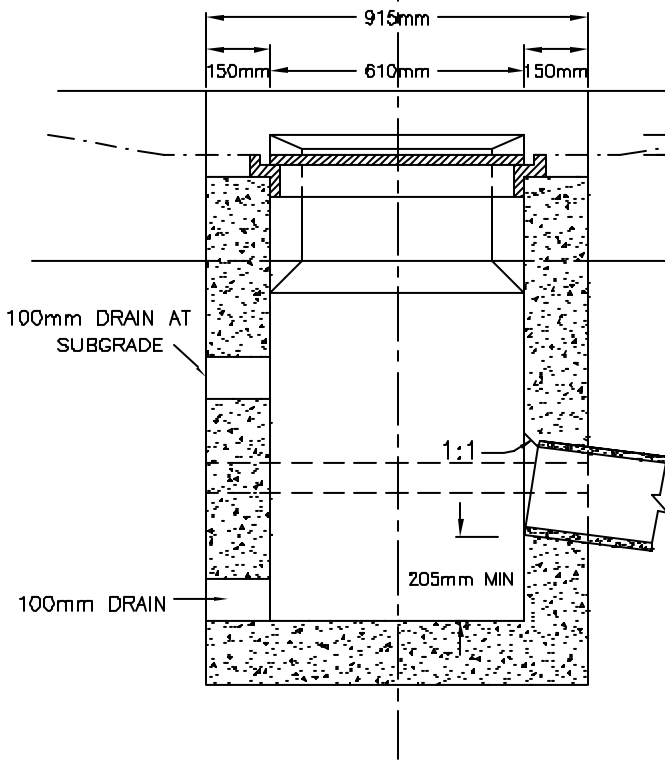
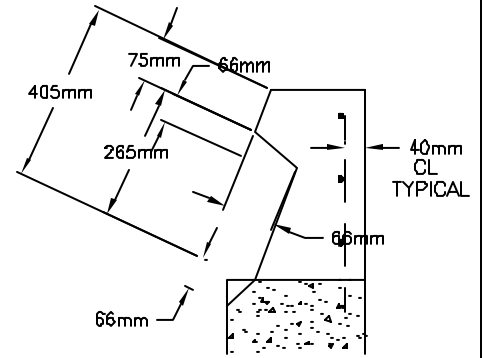
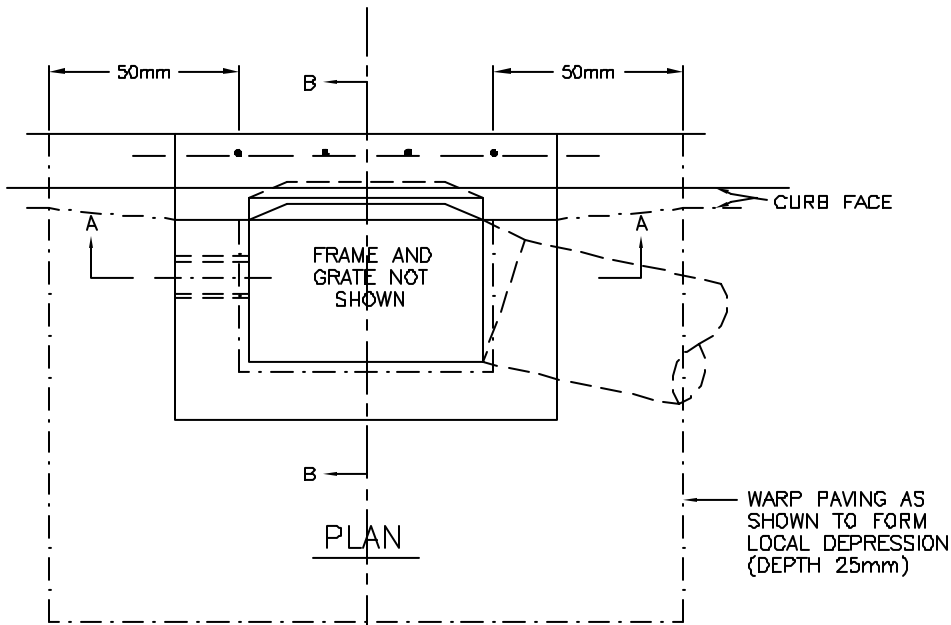
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17
17



STANDARD CATCH BASIN DETAILS TYPE "I" CATCH BASIN AND JUNCTION BOXES

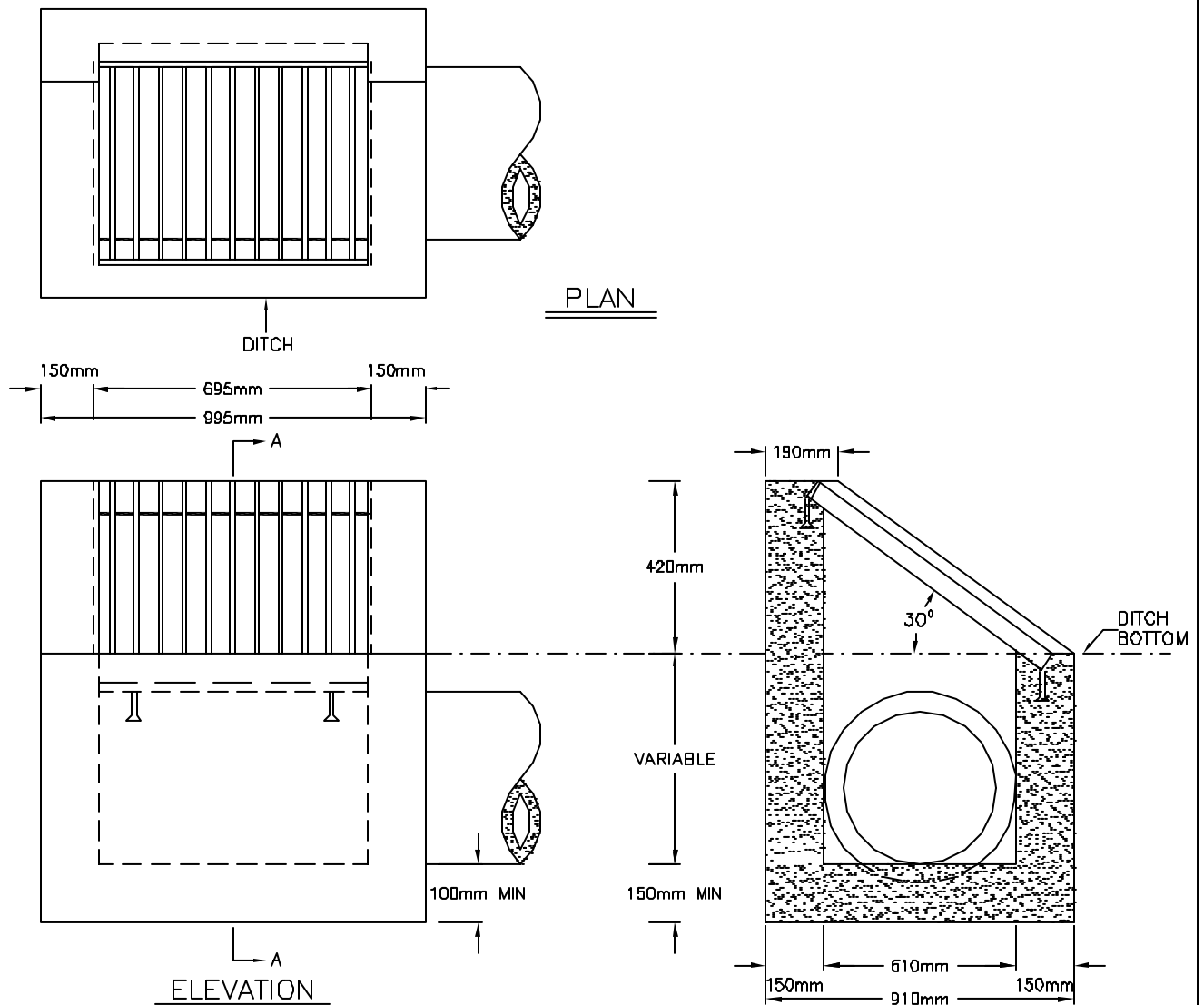
Des.	Eng.	Date: 7-26-83	Revised: 5-22-84
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc.	Drwn. HQT	Hor: NONE Vert: NONE



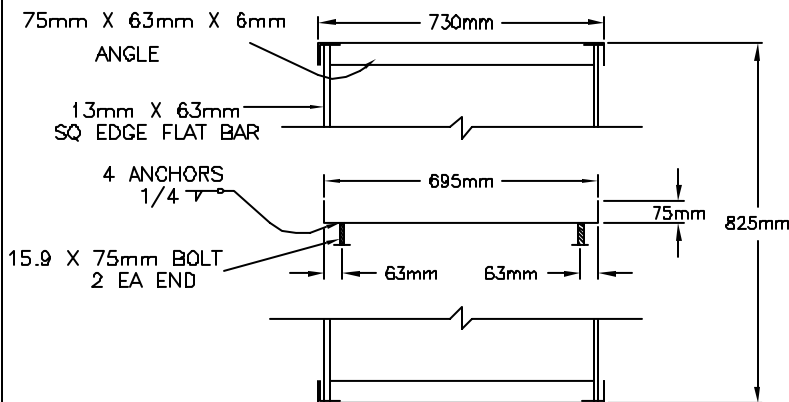
NOTES:

1. SEE STD. DWG. 17.
2. DRAINS SHALL BE 100mm CONCRETE DRAIN TILE.
3. FOR LOCATION, PIPE SIZE, AND ELEVATION, SEE PROJECT PLANS.
4. PIPES CAN BE PLACED IN ANY WALL. MAXIMUM PIPE SIZE 455mm.
5. STATION SHOWN ON PROJECT PLAN IS TO CENTERLINE OF CATCH BASIN.

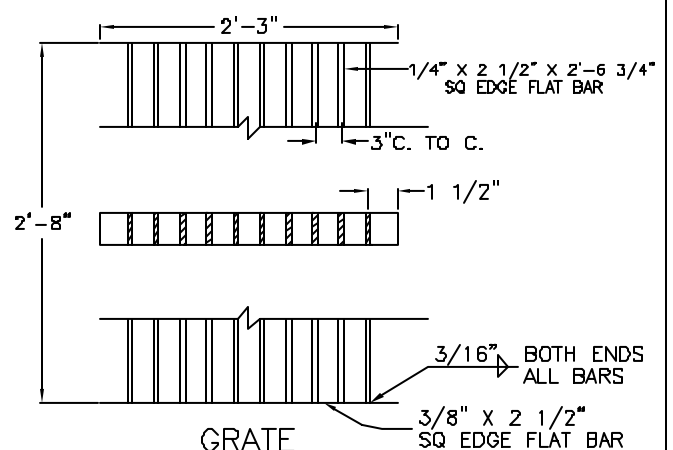
Marion County Dept. of Public Works Engineering TEL. 688-6036		Salem, Oregon		18 SHEET
STANDARD CATCH BASIN DETAILS TYPE 2 (SIDE INLET) CATCH BASIN				
Des.	Eng.	Date: 6-22-84	Revised:	
Reviewed By: Survey	Datum: NONE	SCALES		
Appd.	Inspc:	Drwn: CDM	Hor: NONE	Vert: NONE



SECTION A-A



FRAME



NOTES

1. FOR LOCATION, PIPE SIZE, AND ELEVATION, SEE PROJECT PLANS.
2. SEE STD DWG 17.
3. CATCH BASIN MAY BE BUILT WITH OR WITHOUT A SUMP, AS DIRECTED BY THE ENGINEER.
4. FRAME AND GRATE MATERIAL SHALL BE STEEL (A.S.T.M. A-36) AND BE GALVANIZED IN ACCORDANCE WITH A.S.T.M A-123.

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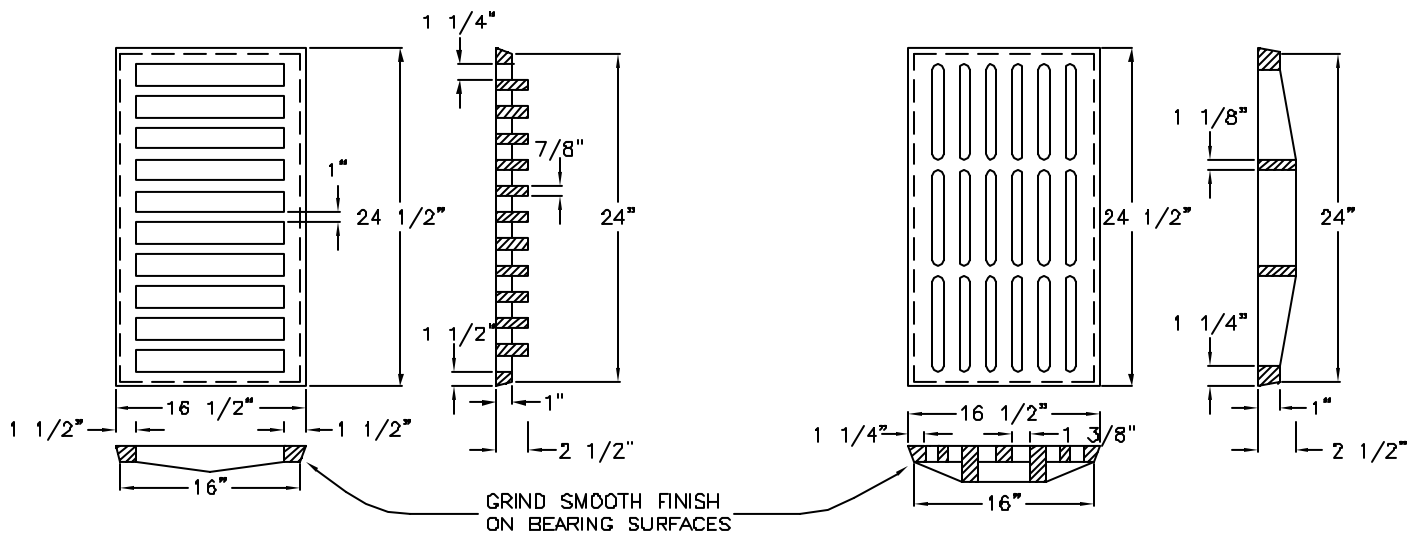
Salem, Oregon

19
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**TYPE 3 CATCH BASIN,
FRAME AND GRATE**

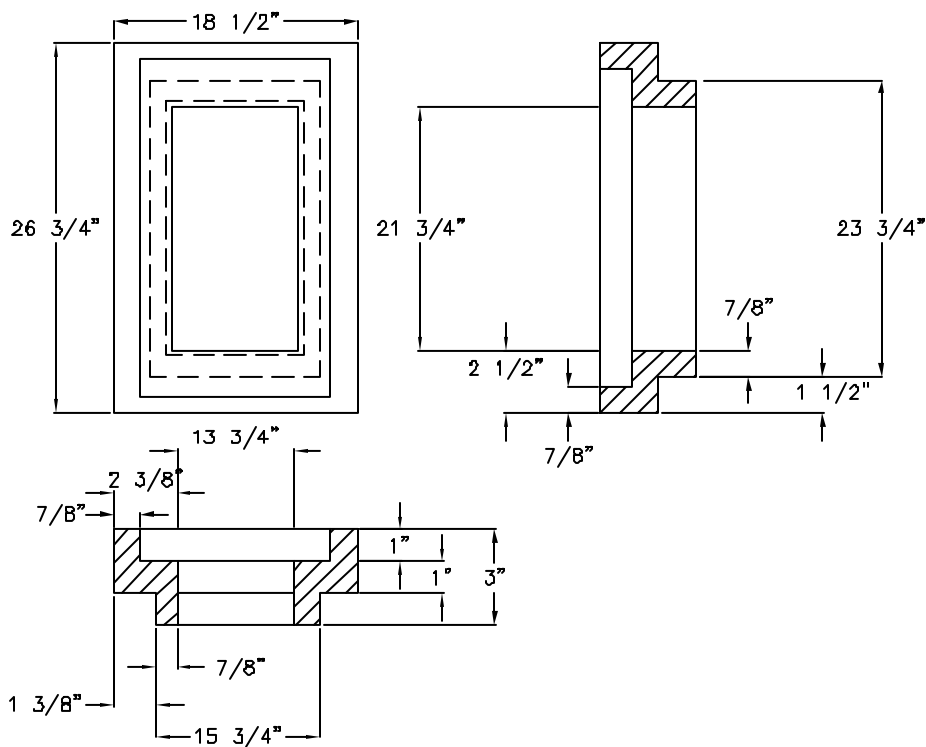
Des.	Eng.	Date: 6-23-84	Revised:
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspec:	Drwn. CDM	Hor: NONE Vert: NONE



TYPE A GRATE
1-1/4" CLEAR SPACING

TYPE A GRATE
1-3/8" CLEAR SPACING

CAST IRON / CAST STEEL GRATES



CAST IRON / CAST STEEL
GRATE FRAMES

NOTES

1. ALL CASTINGS SHALL CONFORM TO ASTM A-48 (AASHTO M105) FOR GRAY IRON CASTINGS, CLASS 30, OR (AASHTO M192), CLASS 70, FOR CAST STEEL.
2. ROUNDS, FILLETS, TAPERS AND OTHER MINOR MODIFICATIONS TO THE DIMENSIONS SHOWN FOR CASTINGS MAY BE MADE TO CONFORM TO COMMON SHOP PRACTICES.

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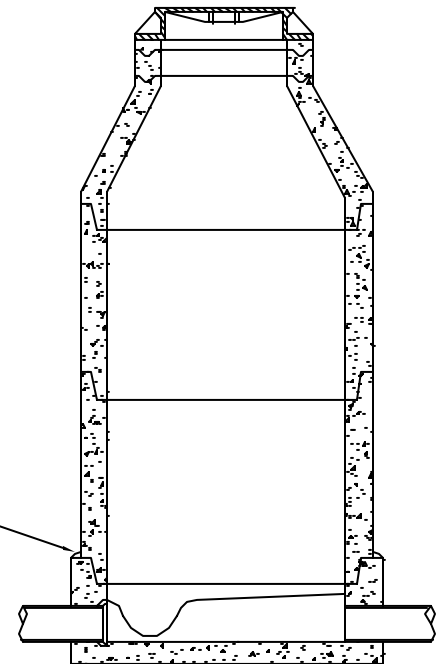
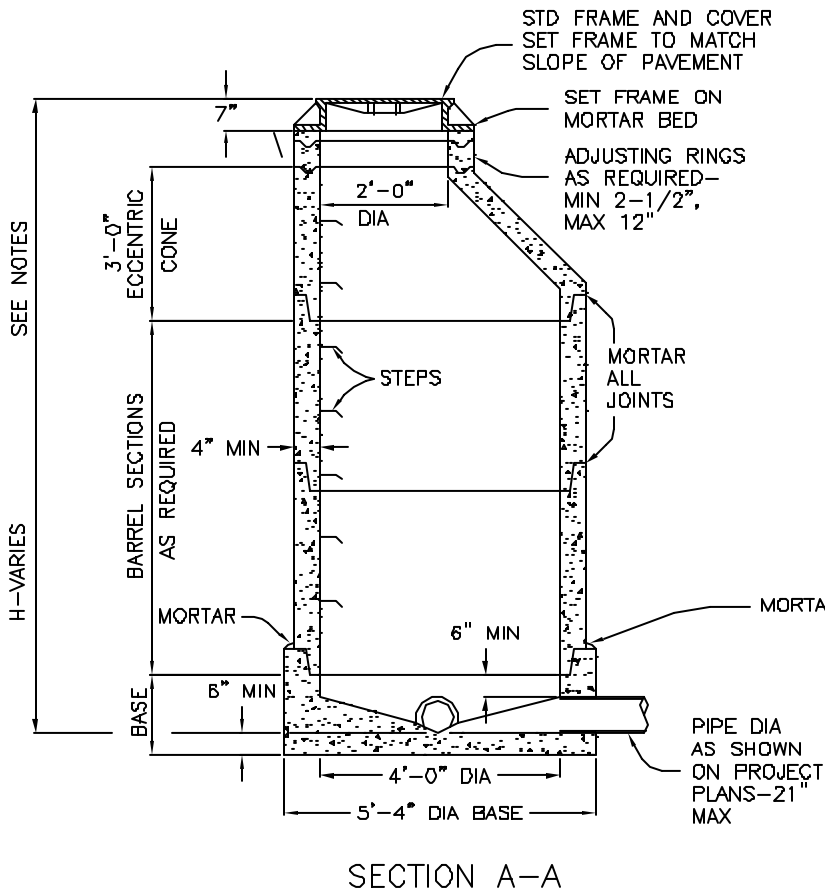
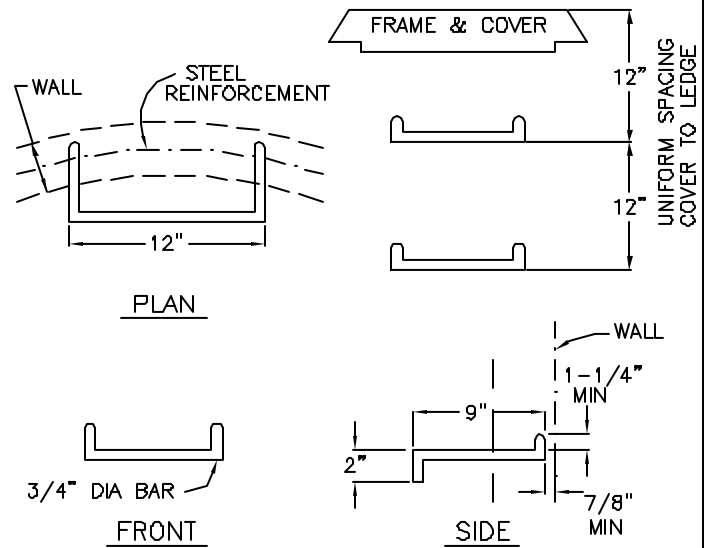
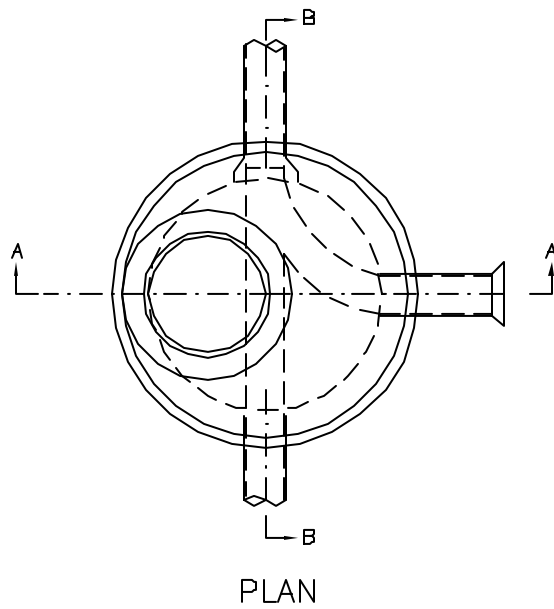
Salem, Oregon

20
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CATCH BASIN
GRATES AND FRAMES
TYPES A AND B

Des.	Eng.	Date: 6-24-84	Revised:
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc:	Drwn. CDM	Hor: NONE Vert: NONE



NOTES

1. PRECAST BARREL, CONE, AND EXTENSION RINGS SHALL BE REINFORCED CONCRETE MANHOLE SECTIONS CONFORMING TO ASTM C 478, AASHTO M199.
2. FOR STANDARD MANHOLE FRAME AND COVER DETAILS SEE DWG 23.
3. FOR MANHOLE WITH "H" LESS THAN 4'-0" SEE PROJECT PLANS AND/OR DWG 21B.
4. INSIDE JOINTS SHALL NOT EXCEED 3/8" IN THICKNESS.
5. FORM CHANNELS IN MANHOLE BASE AS SHOWN.
6. FOR LOCATION, PIPE SIZE, AND ELEVATION, SEE PROJECT PLANS. MAXIMUM PIPE SIZE - 21".
7. PLYWOOD FORM MANHOLE BASE.
8. CONCRETE FOR BASE SHALL BE CLASS 3300 1-1/2" PER SECTION 504 OF THE STANDARD SPECIFICATIONS OF THE OREGON STATE HIGHWAY DIVISION.

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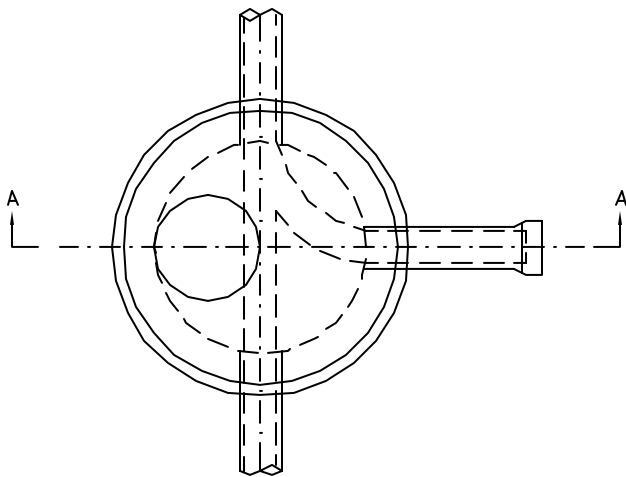
Salem, Oregon

21A
OF

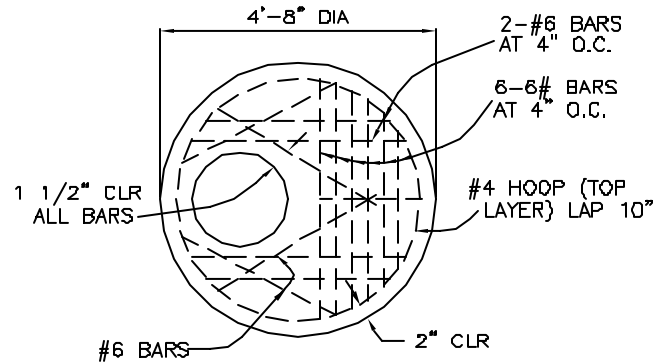


STORM DRAIN STANDARD PRECAST MANHOLE

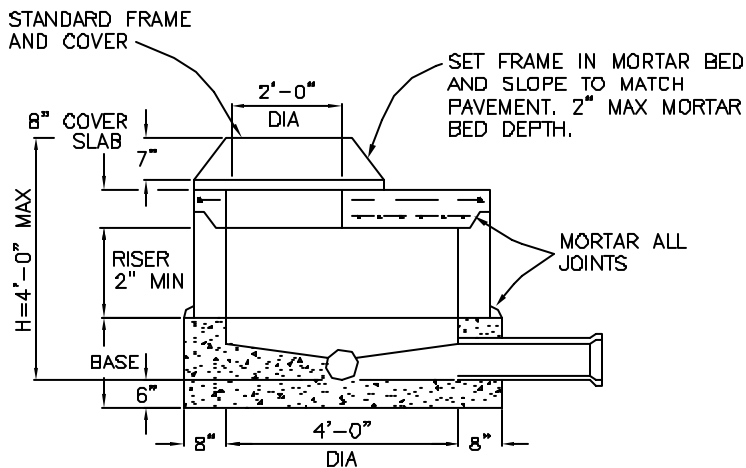
Des.	Eng.	Date: 6/25/84	Revised:
Reviewed By: Survey	Datum:		SCALES
Appd.	Inspc:	Drwn: CDM	Hor: NONE Vert: NONE



PLAN
(FRAME AND COVER
NOT SHOWN)



COVER SLAB REINFORCEMENT



SECTION A-A

NOTES

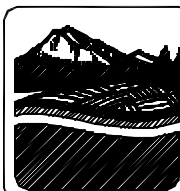
1. PRECAST BARREL SHALL BE REINFORCED CONCRETE MANHOLE SECTION CONFORMING TO ASTM C478, AASHTO M199.
2. FOR STANDARD MANHOLE FRAME AND COVER DETAILS, SEE STD DWG 23.
3. ALL CONCRETE SHALL BE CLASS 3300-1 1/2 PER SECTION 504 OF THE STANDARD SPECIFICATIONS OF THE OREGON STATE HIGHWAY DIVISION.
4. FORM CHANNELS IN MANHOLE AS SHOWN.
5. FOR LOCATION, PIPE SIZE AND ELEVATION, SEE PROJECT PLANS. MAXIMUM PIPE SIZE - 21".
6. PLYWOOD FORM MANHOLE BASE.

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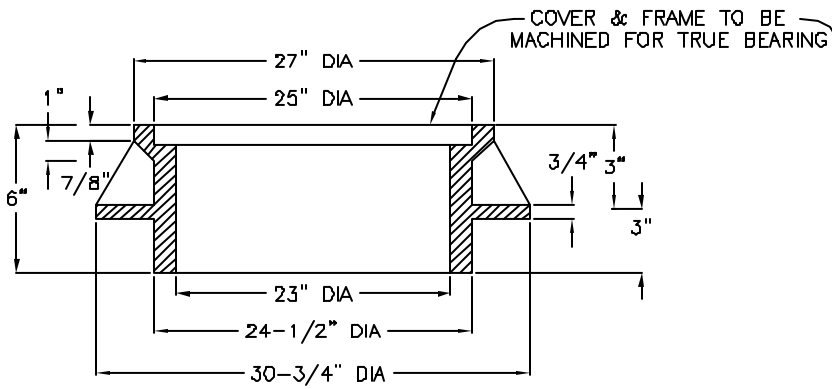
Salem, Oregon

21B

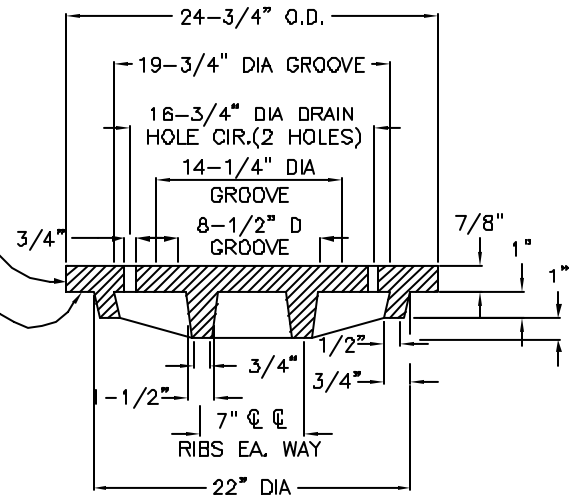


STORM DRAIN SHALLOW PRECAST MANHOLE (H LESS THAN 4'-0")

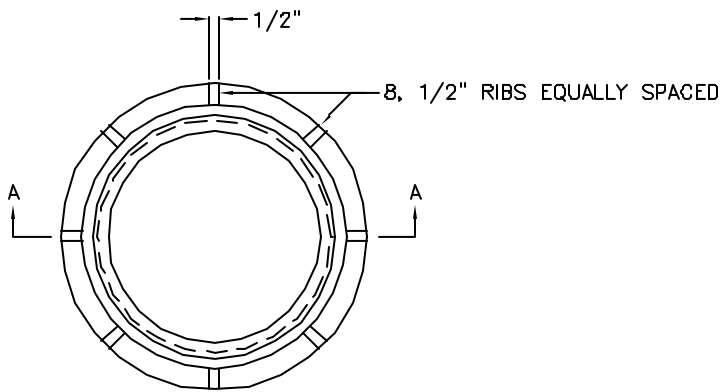
Des.	Eng.	Date: 6-27-84	Revised:
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspc.	Drwn. CDM	Hor: NONE Vert: NONE



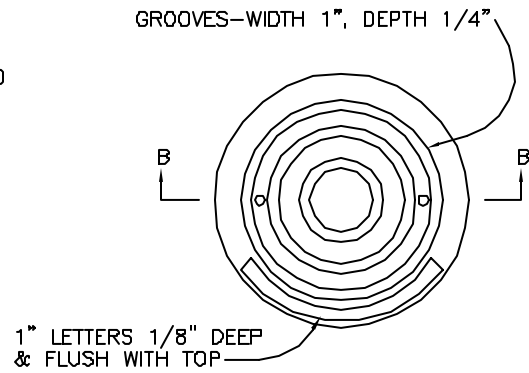
SECTION A-A



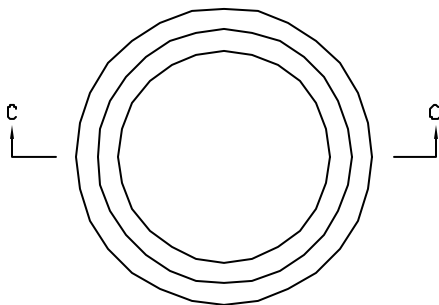
SECTION B-B



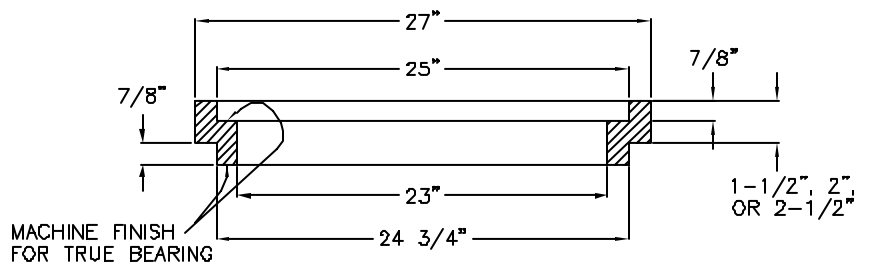
MANHOLE FRAME



MANHOLE COVER



ADAPTOR RING



SECTION C-C

Marion County Dept. of Public Works
Engineering

Tel. 588-6036

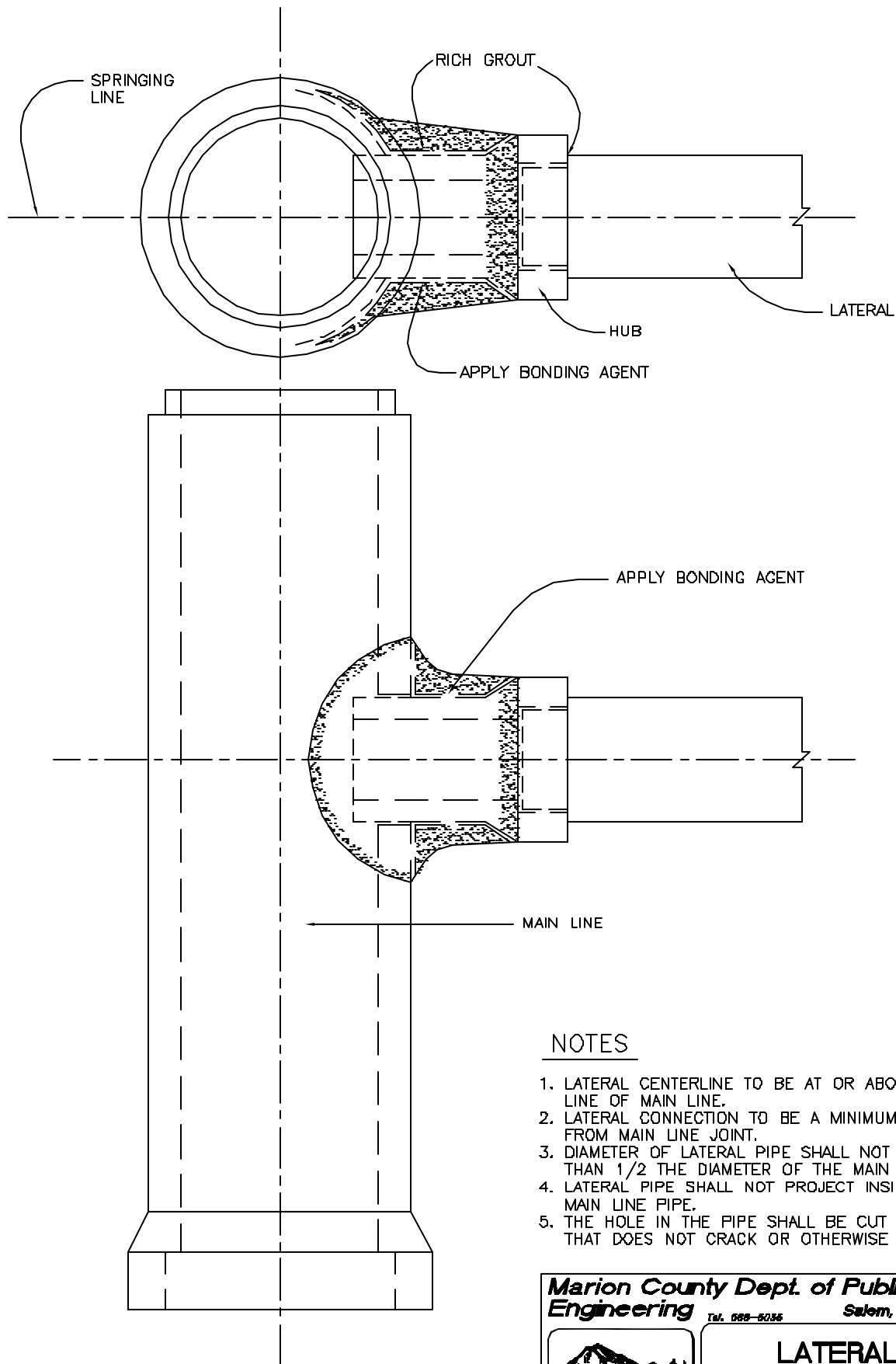
Salem, Oregon

23
Sheet



STANDARD MANHOLE CASTING DETAILS

Des.	Eng.	Date: 6-30-84	Revised:
Reviewed By: Survey	Datum: NONE	SCALES	
Appd.	Inspec:	Drwn. CDM	Hor: NONE Vert: NONE



NOTES

1. LATERAL CENTERLINE TO BE AT OR ABOVE SPRINGING LINE OF MAIN LINE.
2. LATERAL CONNECTION TO BE A MINIMUM OF 1 1/2' FROM MAIN LINE JOINT.
3. DIAMETER OF LATERAL PIPE SHALL NOT BE GREATER THAN 1/2 THE DIAMETER OF THE MAIN LINE PIPE.
4. LATERAL PIPE SHALL NOT PROJECT INSIDE OF THE MAIN LINE PIPE.
5. THE HOLE IN THE PIPE SHALL BE CUT IN A MANNER THAT DOES NOT CRACK OR OTHERWISE DAMAGE THE PIPE.

**Marion County Dept. of Public Works
Engineering**

Tel. 688-6036

Salem, Oregon

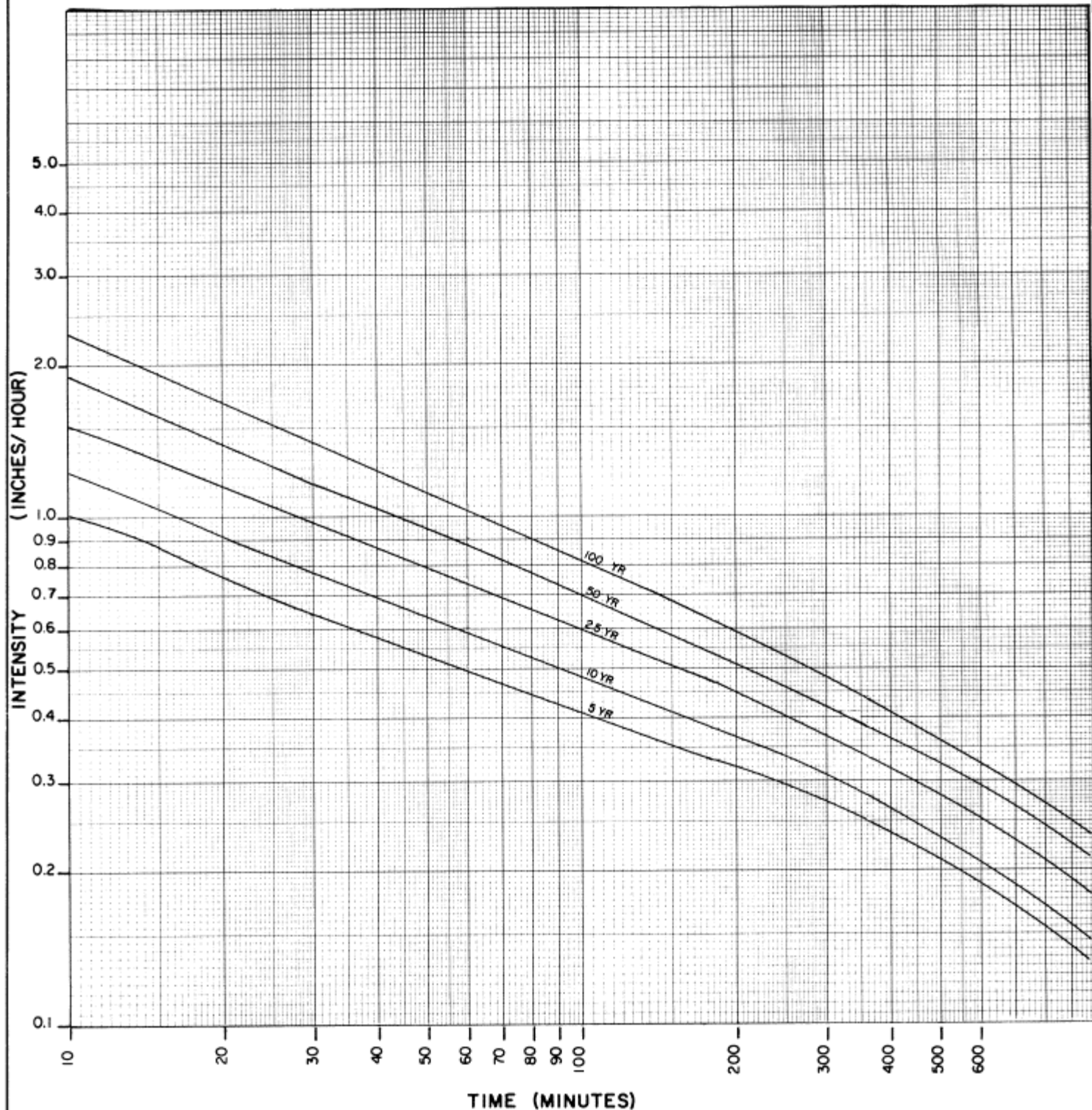
24
Sheet



LATERAL CONNECTION TO STORM DRAIN PIPE

Des.	Eng.	Date: 7-5-84	Revised:
Reviewed By: Survey		Datum: NONE	SCALES
Appd.	Inspc.	Drwn. CDM	Hor: NONE Vert: NONE

RAINFALL INTENSITY-DURATION CURVES FOR MARION COUNTY



Source: U.S. Geological Survey
Water Resources Investigation
for Salem, Oregon

MARION COUNTY, OREGON
DEPARTMENT OF PUBLIC WORKS

RAINFALL INTENSITY-DURATION
CURVES

DATE: 1/18/83 STD. DWG. NO. 27

SOIL CONSERVATION SERVICE

TR-55 LAG-T_c METHOD PEAK DISCHARGE COMPUTATION SHEET

PROJECT _____ WATERSHED CONDITION _____

BY _____ DATE _____

CHECKED BY _____ DATE _____

INPUT

<p>1. (IN) (24 HOUR) (____-YR FREQ.)</p> <p>RAINFALL (MAP EXHIBIT 2-3A)</p>	<p>2. </p> <p>RUNOFF CURVE NO. (EXHIBIT 2-2A)</p>	<p>3. FT</p> <p>HYDRAULIC LENGTH</p>	<p>4. %</p> <p>WATERSHED SLOPE</p>	<p>5. %</p> <p>HYDR. LENGTH MODIFIED</p>	<p>6. %</p> <p>IMPERVIOUS AREA</p>	<p>7. SQ MI</p> <p>DRAINAGE AREA (DA)</p>	<p>8. %</p> <p>PONDS, SWAMPS</p>	<p>9. HR</p> <p>BASIC LOG X</p>	<p>10. </p> <p>HYDR. LENGTH ADJ. X</p>	<p>11. </p> <p>IMP. AREA ADJ. =</p>	<p>12. HR</p> <p>T_c</p>	<p>13. IN</p> <p>RUNOFF VOLUME X</p>	<p>14. CSM/IN</p> <p>BASIC PEAK DISCHARGE X</p>	<p>15. SQ. MI.</p> <p>DRAINAGE AREA X</p>	<p>16. </p> <p>PONDS, SWAMPS ADJ. =</p>	<p>17. CFS</p>
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**T_c
FACTOR**

1.67

CONSTANT
X

**PEAK
FACTOR**

ADJUSTED PEAK DISCHARGE

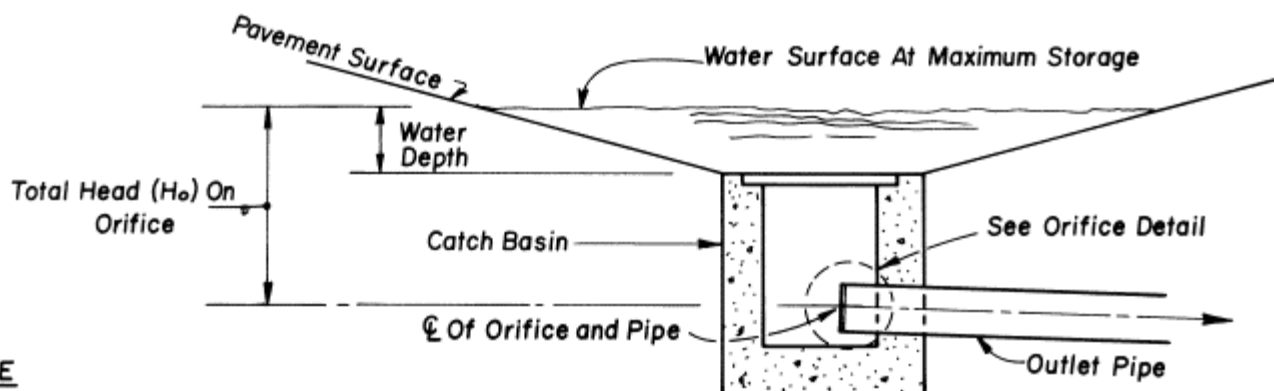
DETERMINATION OF REQUIRED DETENTION STORAGE

[illegible]

Area of Developed Site (acres) ①	Allowable Outflow (cubic feet per second)	Orifice Diameter (inches) ②	Volume of Water to Be Stored (cubic feet)	Water Depth Over Inlet Grate (feet) ③	Water Storage Area (square feet) ③
0.5	0.10	1-11/16	780	0.5	4,690
1.0	0.20	2-3/8	1,560	"	9,380
1.5	0.30	2-7/8	2,350	"	14,070
2.0	0.40	3-5/16	3,130	"	18,760
2.5	0.50	3-11/16	3,910	"	23,450
3.0	0.60	4	4,690	"	28,150
3.5	0.70	4-3/8	5,470	"	32,830
4.0	0.80	4-11/16	6,250	"	37,520
4.5	0.90	4-15/16	7,040	"	42,220
5.0	1.00	5-3/16	7,820	"	46,910

- ① For areas less than 0.5 acre, detention is not required. For areas greater than 5.0 acres, the detention system must be designed on a site-specific basis with an allowable outflow based on a 5-year storm with a runoff factor of 0.20 and storage for a 10-year storm with a runoff factor of 0.90.
- ② Orifice diameter (D_o) is based on the allowable flow (Q_o) and an assumed total head (H_o) on the orifice of 2.00 feet (see typical details). If the total head is different, the diameter must be determined from the graph on Sheet 2.
- ③ If site conditions necessitate the use of a different water storage area, the water depth must be calculated and an orifice diameter determined per Note 2 above. In most cases, the following formula can be used for calculating the depth:

$$\text{Water Depth} = 3 \times \text{Volume of Stored Water} \div \text{Water Storage Area}$$

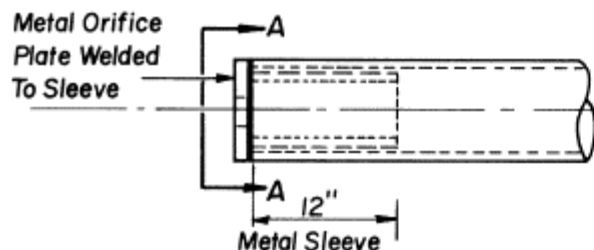


NOTE

Catch Basin may be round, square, or rectangular.

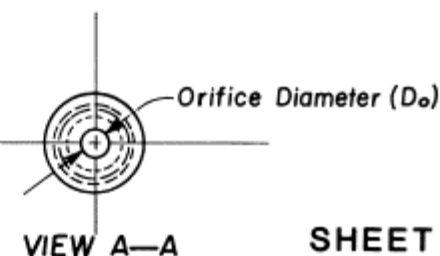
TYPICAL CATCH BASIN DETAIL

NO SCALE



TYPICAL ORIFICE DETAIL

NO SCALE



SHEET 1 OF 2

MARION COUNTY, OREGON
DEPARTMENT OF PUBLIC WORKS

**STORM WATER
DETENTION**

FOR SITES OF 5 ACRES OR LESS

DRAWN BY: MWS DATE: 10/10/85

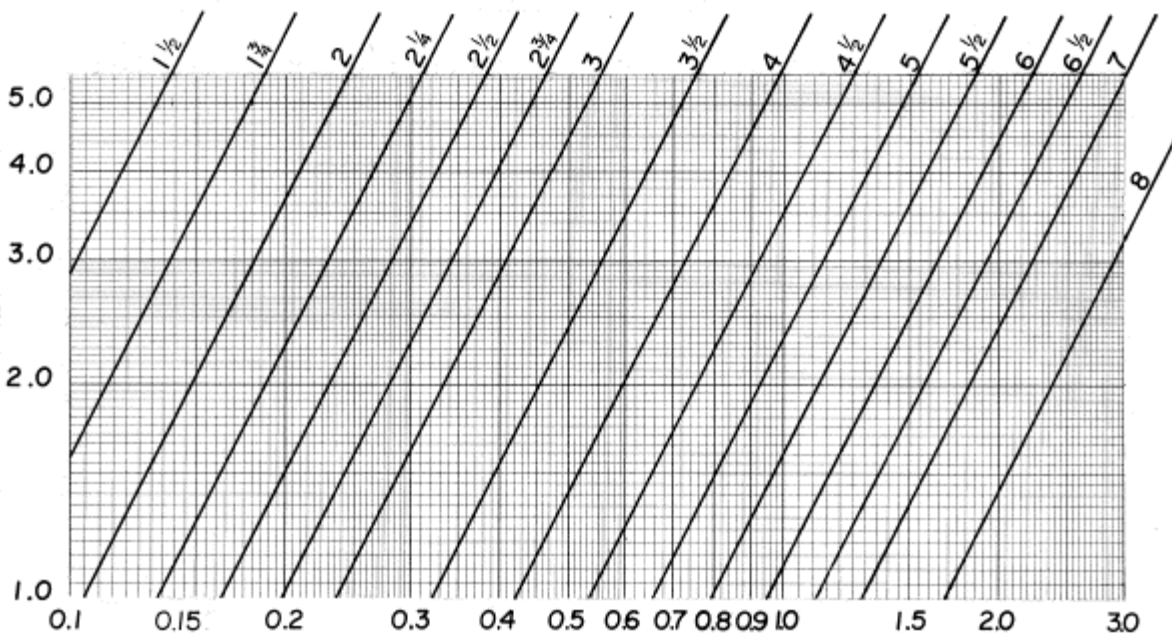
APPROVED BY: DWG. NO.: 30

REV.	DESCRIPTION	DATE	BY	APPV.



TOTAL HEAD ON ORIFICE (H_o) -
feet

ORIFICE DIAMETER (D_o) -
inches



ALLOWABLE OUTFLOW (Q_o) -
cubic feet per second

SHEET 2 OF 2

MARION COUNTY, OREGON
DEPARTMENT OF PUBLIC WORKS

**STORM WATER
DETENTION**

FOR SITES OF 5 ACRES OR LESS

DRAWN BY: MWS

DATE: 10/10/85

APPROVED BY: *[Signature]*

DWG. NO.: 30

REV.	DESCRIPTION	DATE	BY	APPVD.

