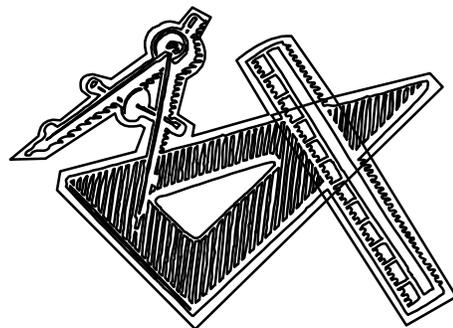


STANDARD DETAILS



STREET AND DRAINAGE FACILITIES IMPROVEMENTS

JUNE 2013



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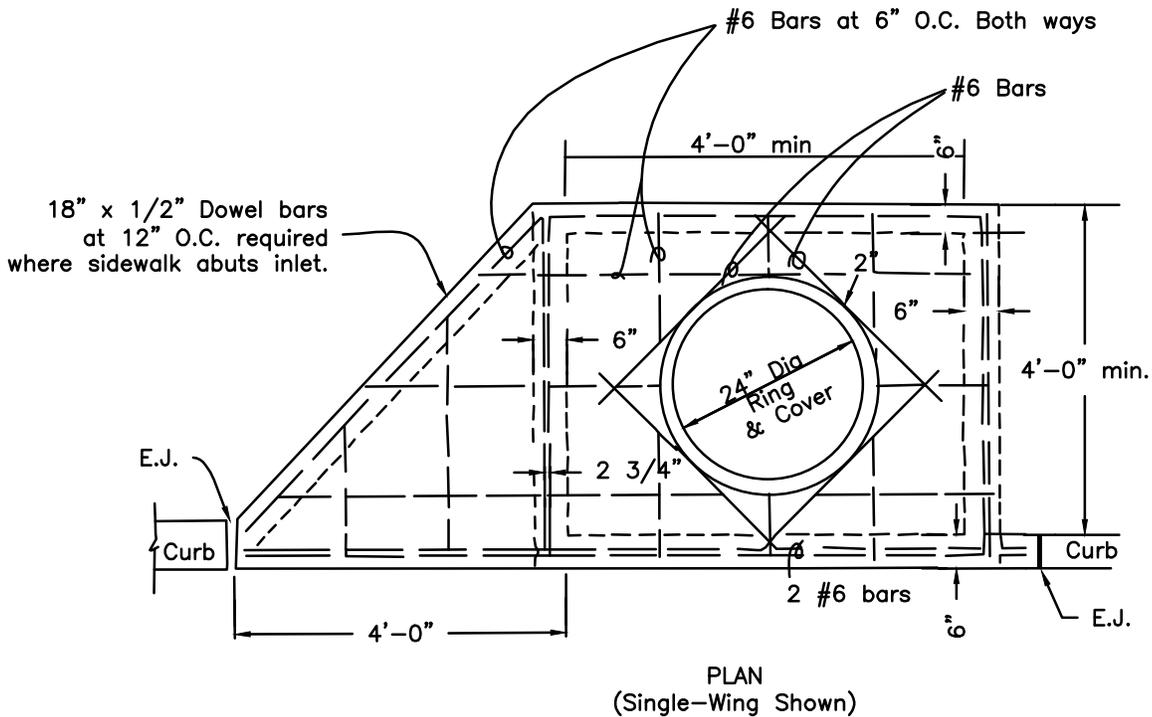
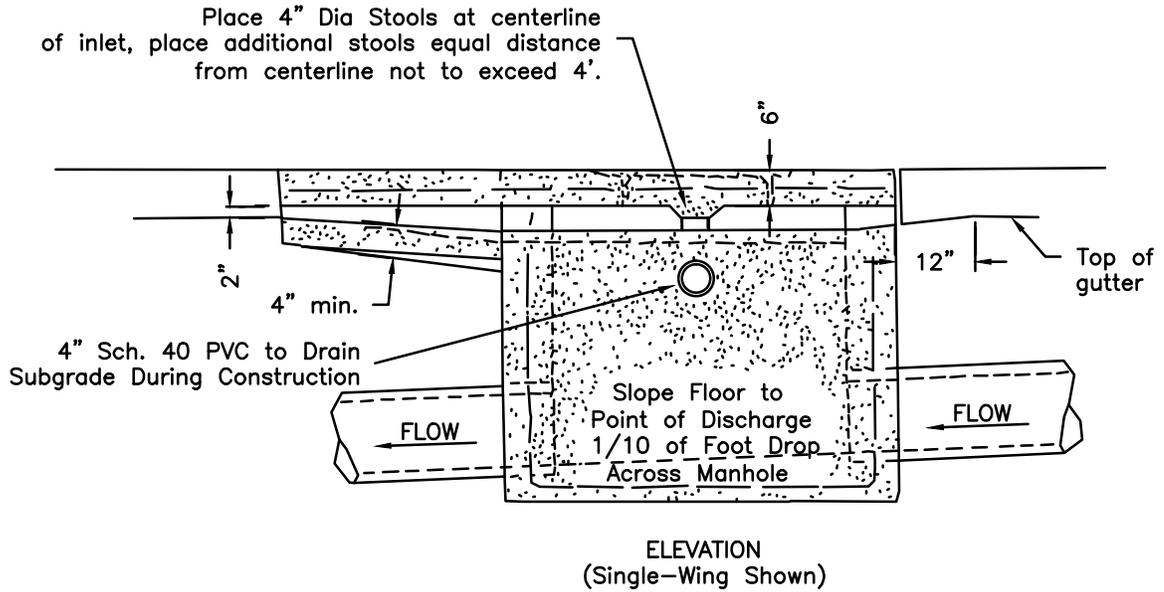
STANDARD DETAILS INDEX

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TITLE
CURB INLET - SINGLE WING
REINFORCED CONCRETE
CONSTRUCTION DETAILS

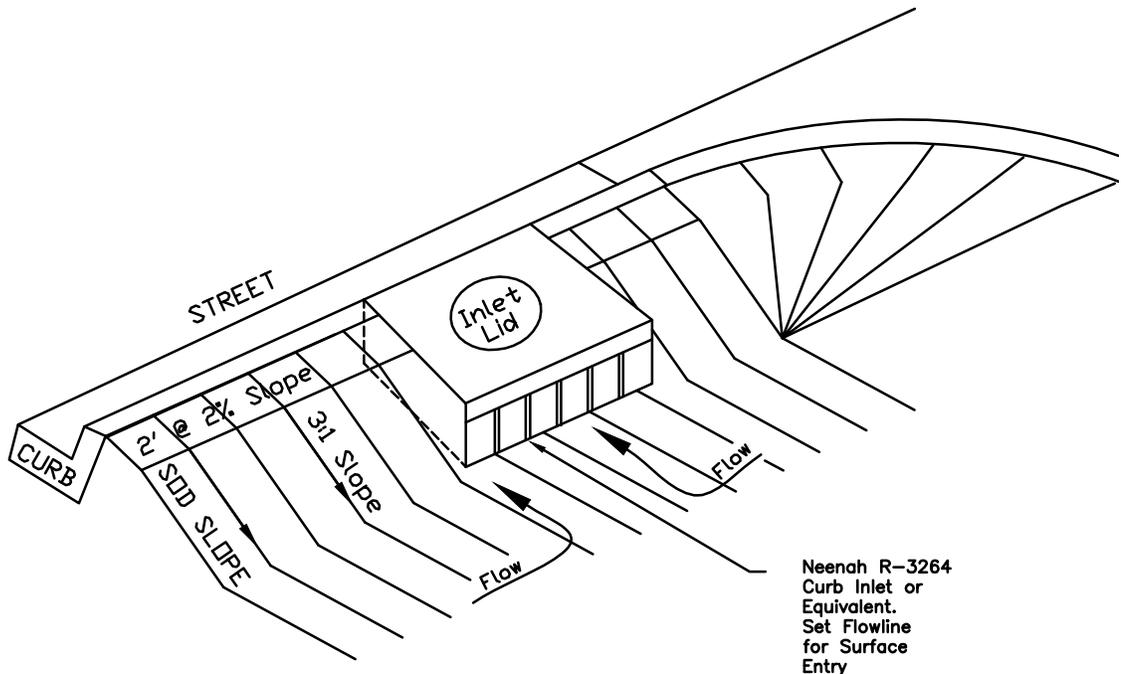
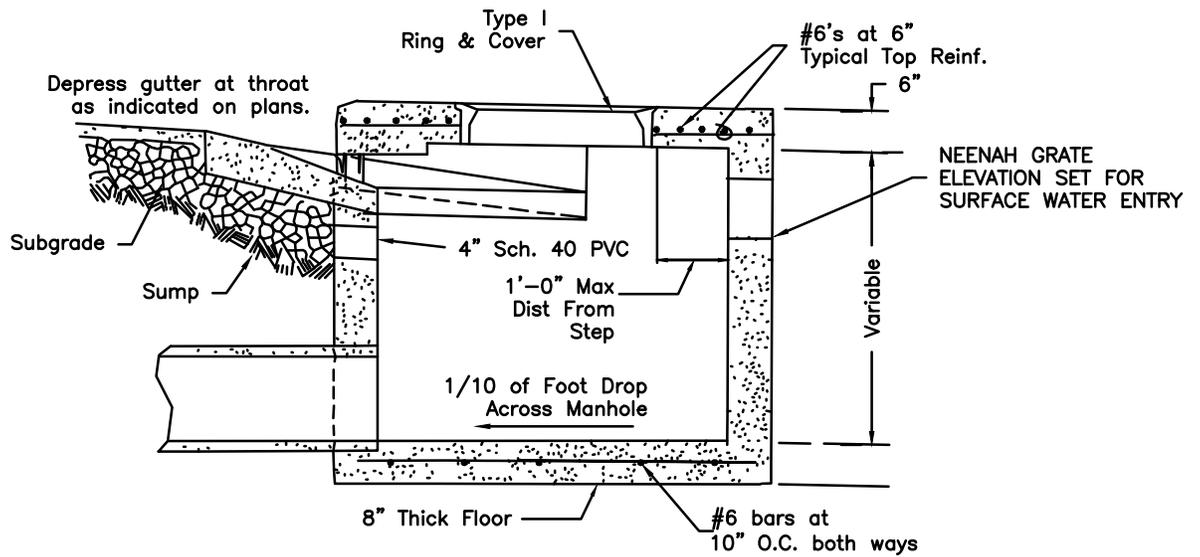
	PW-1
Issue Date	Revision Date
AUG, 2006	JUNE 2013





TITLE
INLET W/ BACK OPENING
FOR SURFACE WATER

	PW-1A
Issue Date	Revision Date
AUG, 2006	JUNE 2013

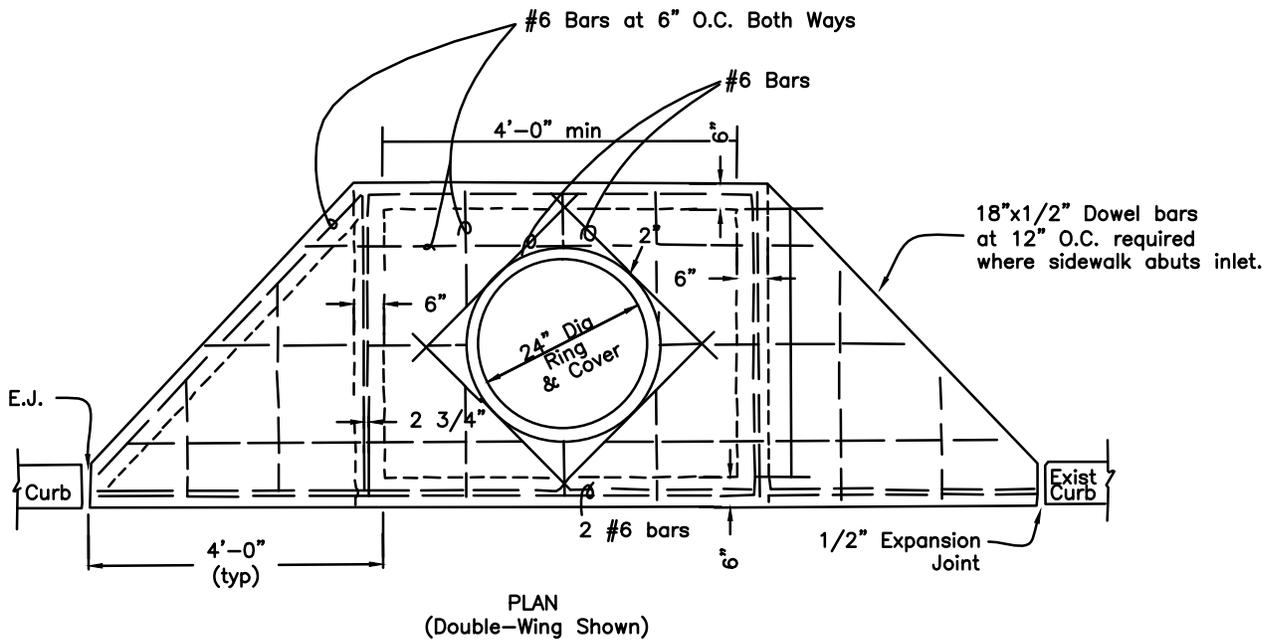
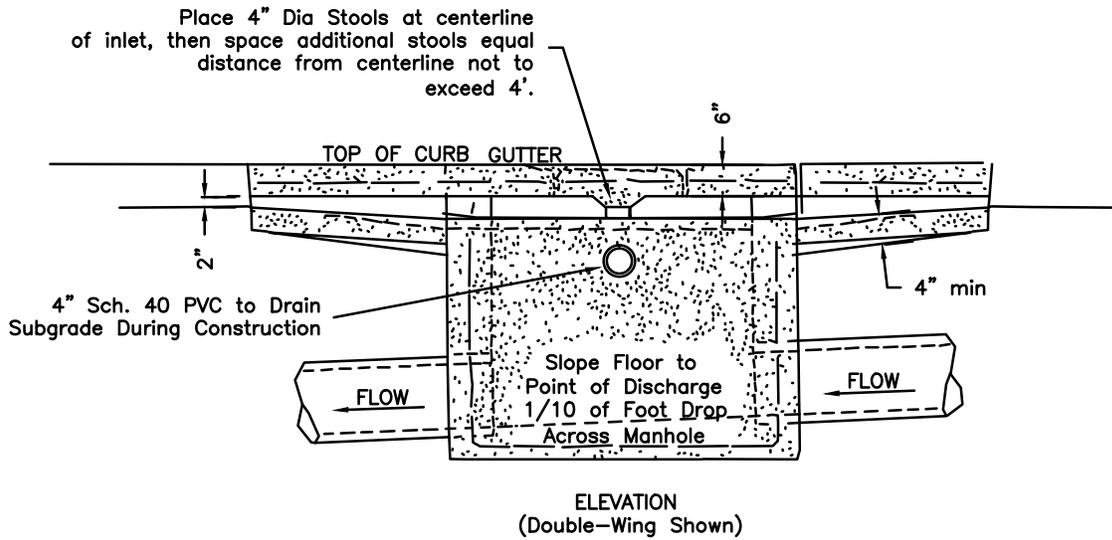


CURB INLET W/ YARD DRAINAGE



TITLE
 CURB INLET - DOUBLE WING
 REINFORCED CONCRETE
 CONSTRUCTION DETAILS

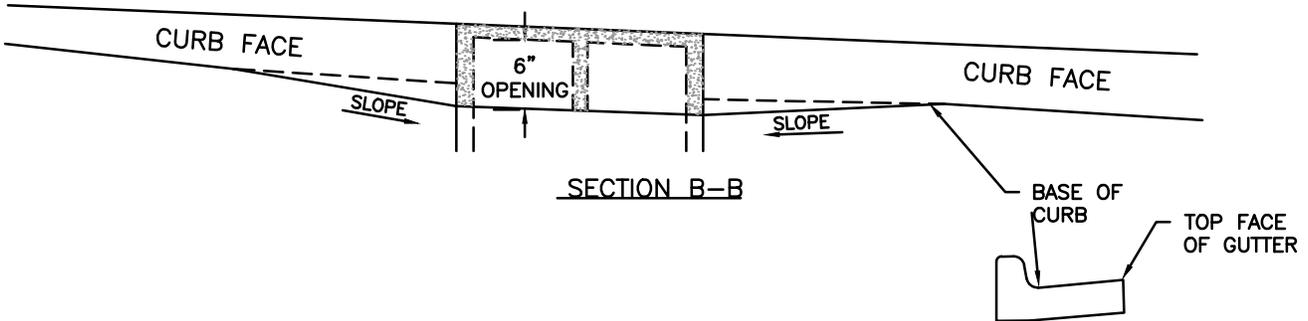
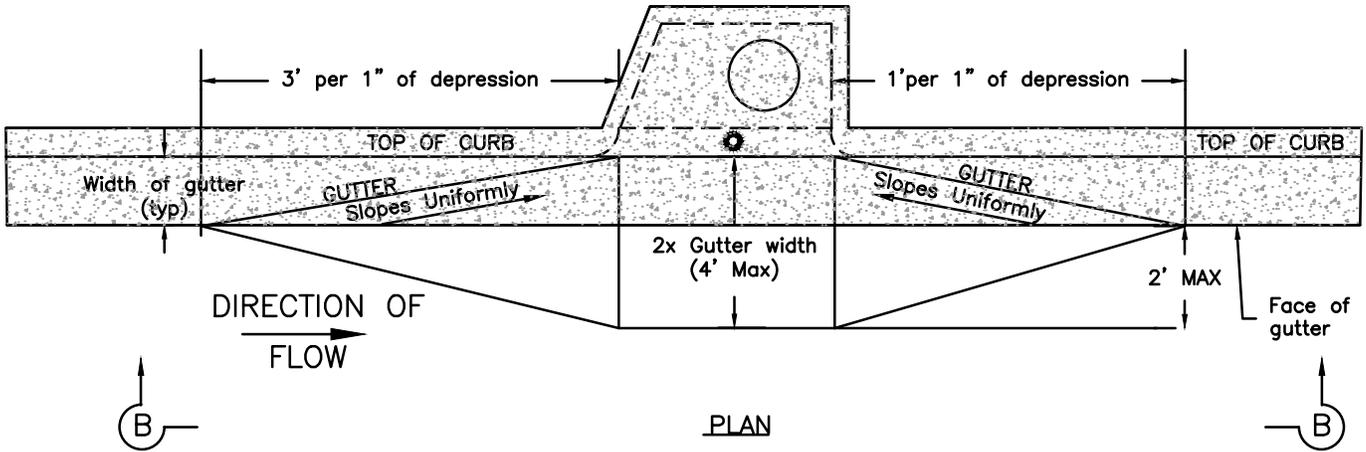
	PW-2
Issue Date	Revision Date
Aug 2006	JUNE 2013





TITLE
GUTTER DEPRESSION
DETAIL
TYPICAL DEPRESSION IS 4"

Issue Date	PW-3
AUG, 2006	Revision Date
	JUNE 2013



NOTE: LOW POINT / (SAG) INLETS : SLOPE SHALL BE 1 FT PER 1" OF DEPRESSION BOTH SIDES

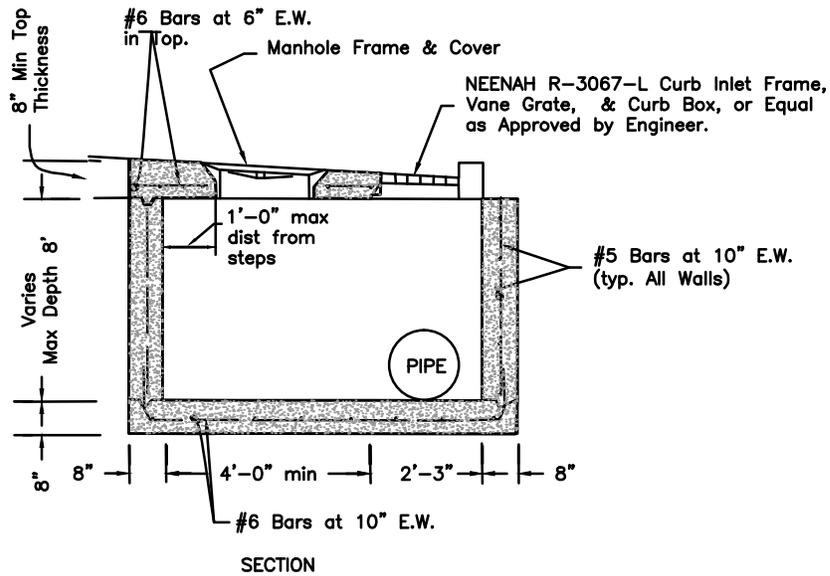
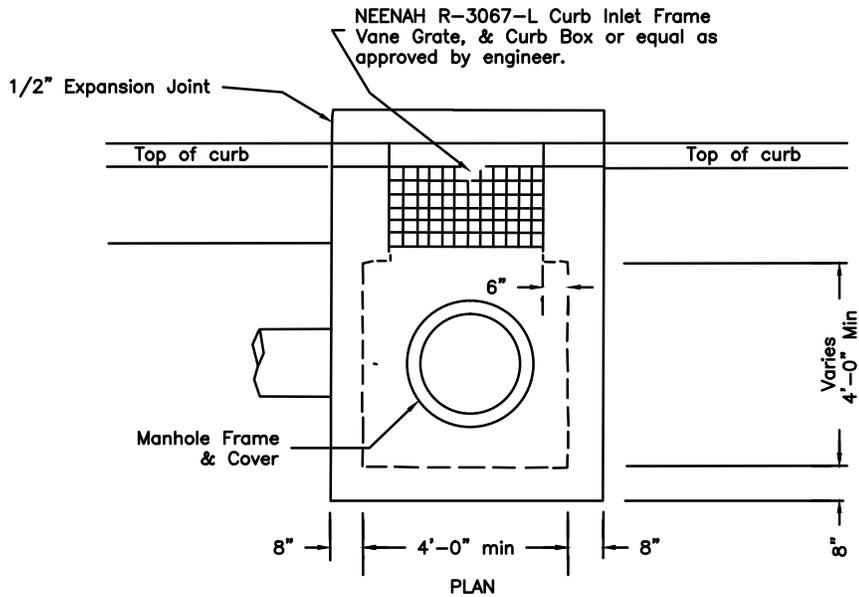
GUTTER DEPRESSION DETAIL

NOTE: THE TOP FACE OF GUTTER SHALL DROP 1/2 OF THE GUTTER DEPRESSION ACROSS THE INLET OPENING.



TITLE
 CURB GRATE INLET (SINGLE)
 REINFORCED CONCRETE
 CONSTRUCTION DETAILS TYPE 1

	PW-4
Issue Date	Revision Date
AUG, 2006	JUNE 2013

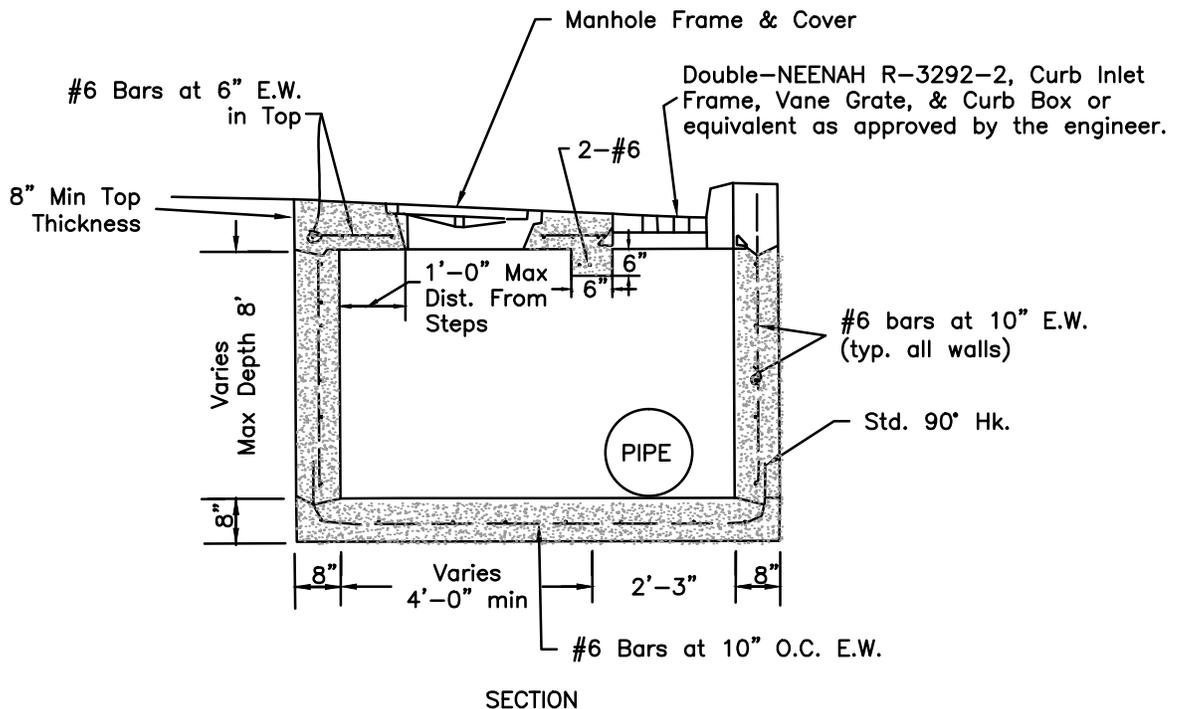
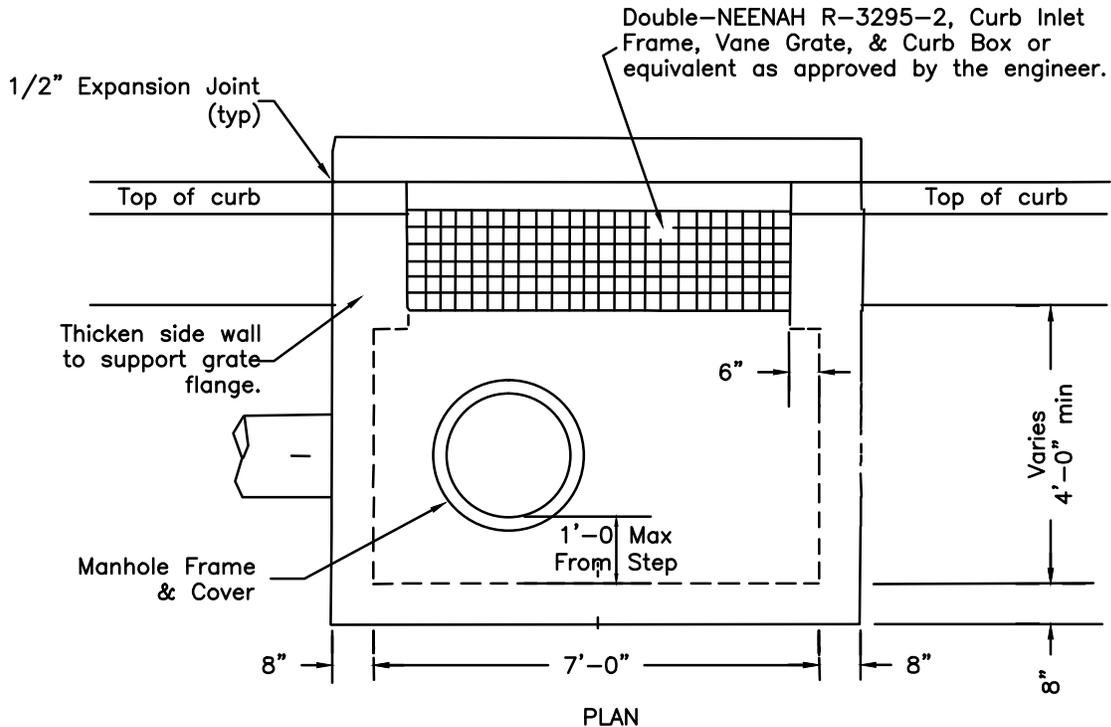


NOTE: Construct manhole steps in all inlets over 3' in depth on most accessible wall (PW-11)



TITLE
CURB GRATE INLET (DOUBLE)
REINFORCED CONCRETE
CONSTRUCTION
DETAILS

PW-5	
Issue Date	
Revision Date	
AUG, 2006	JUNE 2013



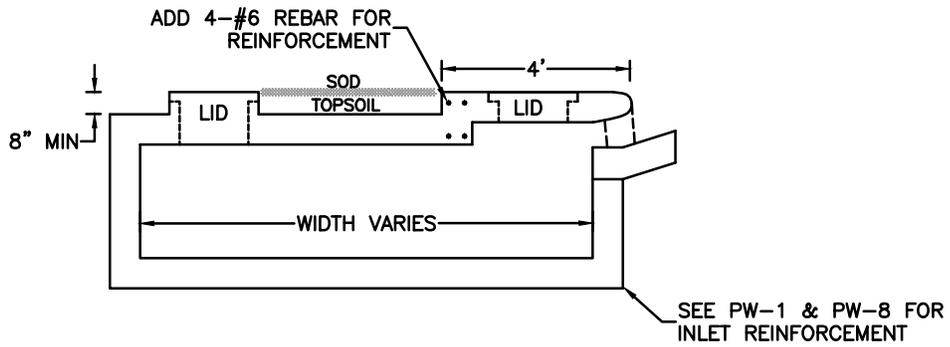
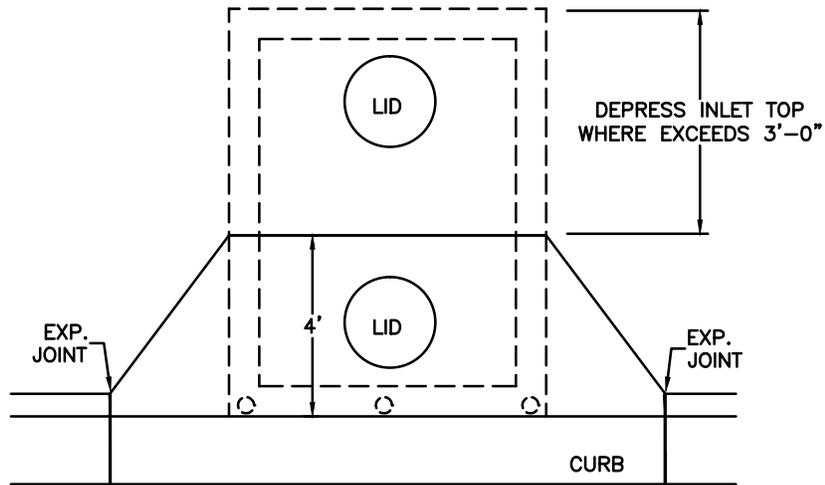
NOTE: Construct Manhole Steps in all inlets over 3' in depth on most accessible wall.



TITLE
DOUBLE WING CURB INLET TOP
WITH DEPRESSED TOP
(UTILIZED FOR LARGE BOXES)

Issue Date
AUG, 2006

PW-6
Revision Date
JUNE 2013

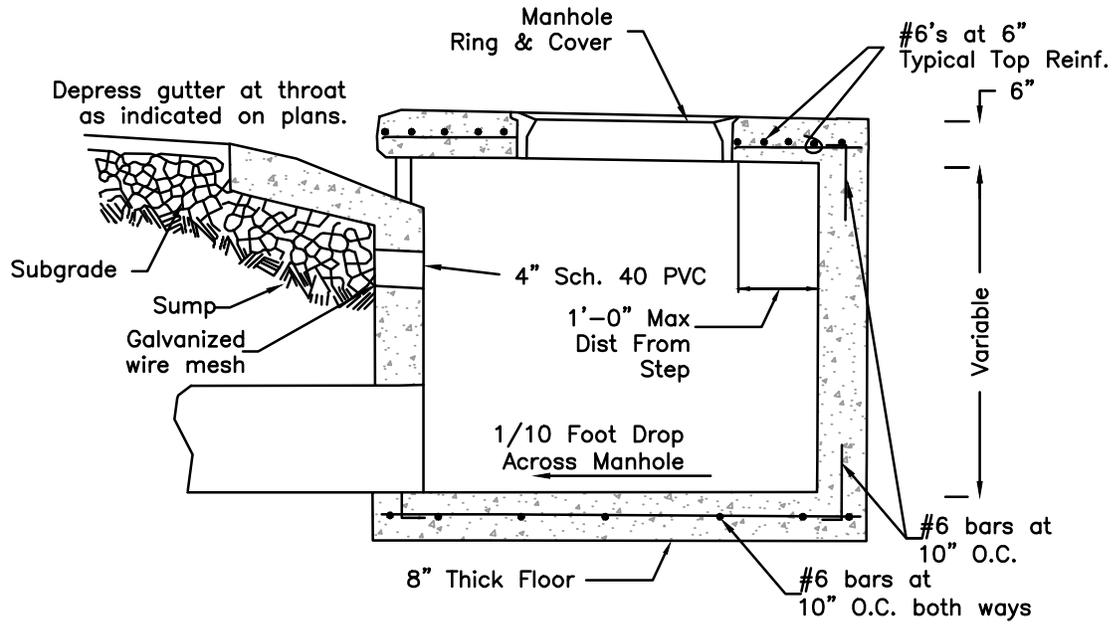


ALTERNATE LID LOCATIONS. INSTALL
LID WHERE ACCESS TO PIPE IS BEST.



TITLE
 CURB INLET – JUNCTION BOX
 CIRCULAR MONOLITHIC
 CONCRETE CONSTRUCTION
 DETAILS

	PW-7
Issue Date AUG, 2006	Revision Date JUNE 2013



NOTE: Steps required in all inlets exceeding 3'-0" in depth.
 Reinforcement not required in circular inlet walls unless specified on plans.

Depression See Detail PW-3

DIA. OF STRUCTURE	WALL THICKNESS	DIA. OF OUTLET PIPE
4' I.D.	6"	15" Thru 27"
5' I.D.	8"	30" Thru 42"
6' I.D.	8"	48" Thru 54"
8' I.D.	10"	60" Thru 72"

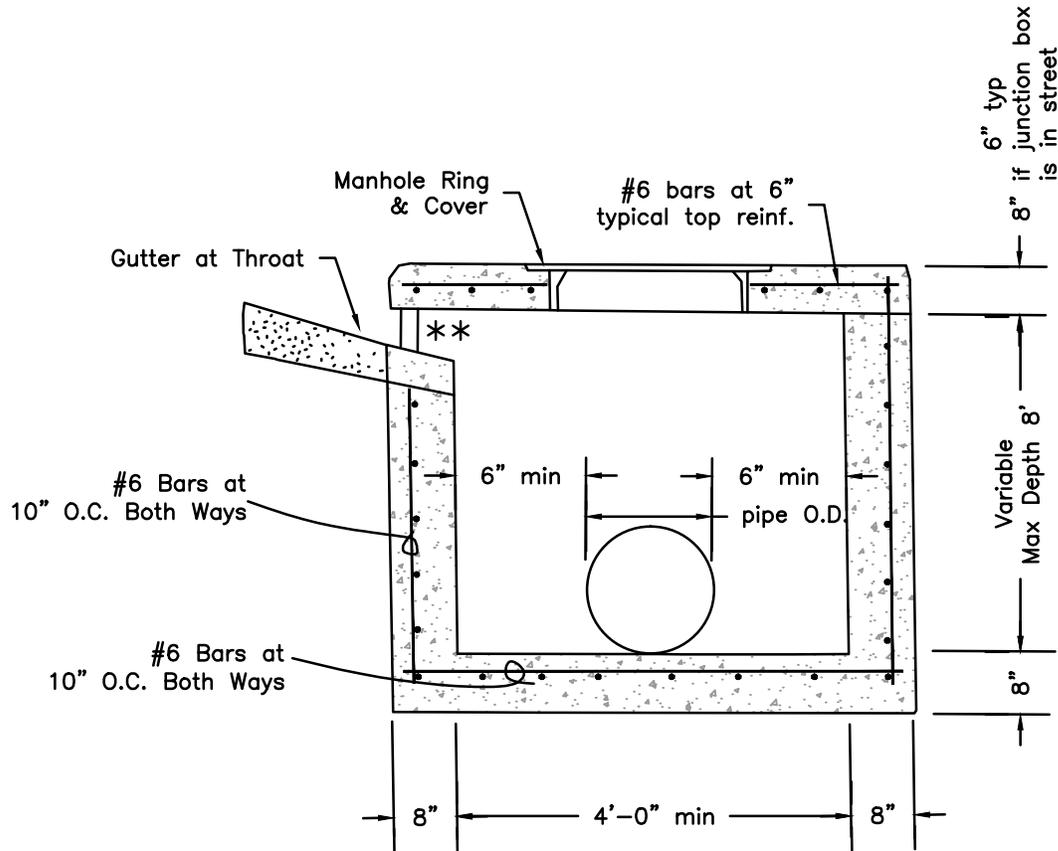


TITLE
 CURB INLET - JUNCTION
 REINFORCED CONCRETE BOX
 CONSTRUCTION DETAILS

Issue Date
 AUG, 2006

PW-8
 Revision Date

JUNE 2013



SECTION

NOTES

1. Rings and Covers see PW-13.
 2. Refer to PW-12 detail for steps.
- ** Depression Detail see PW-3.

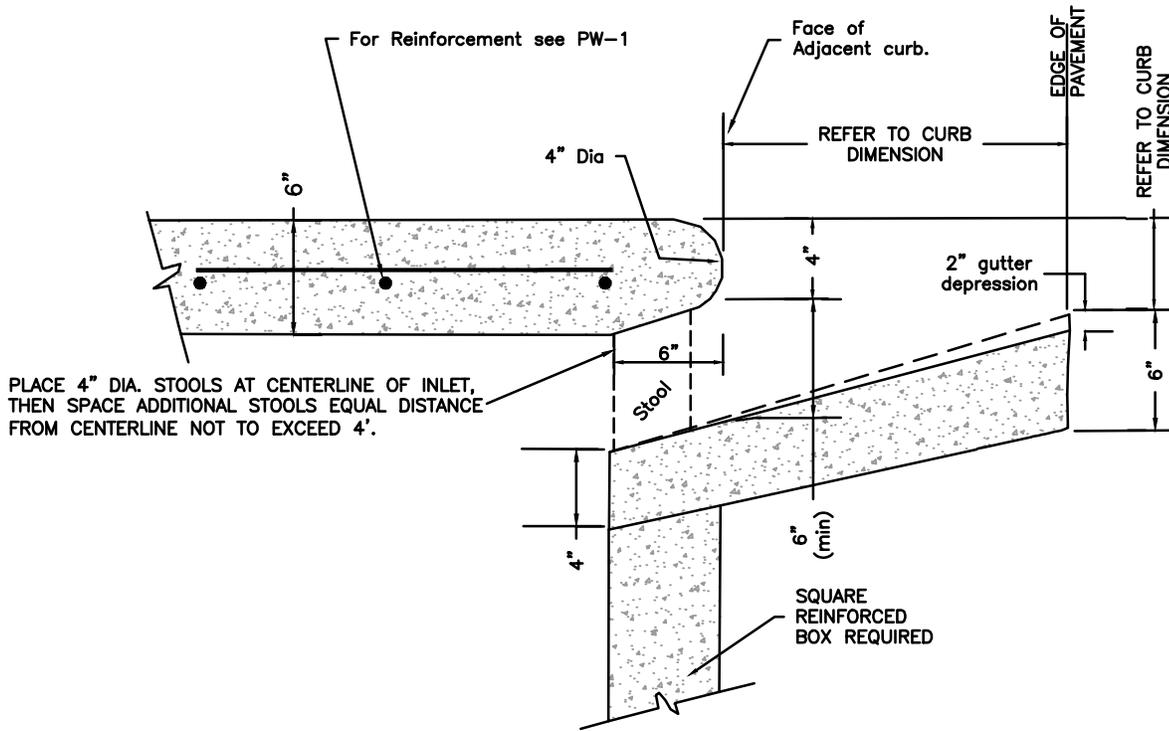


TITLE

TYPICAL DRAINAGE INLET
THROAT OPENING DETAIL
(NOT IN CURB RADIUS)

Issue Date
AUG, 2006

PW-9
Revision Date
JUNE 2013



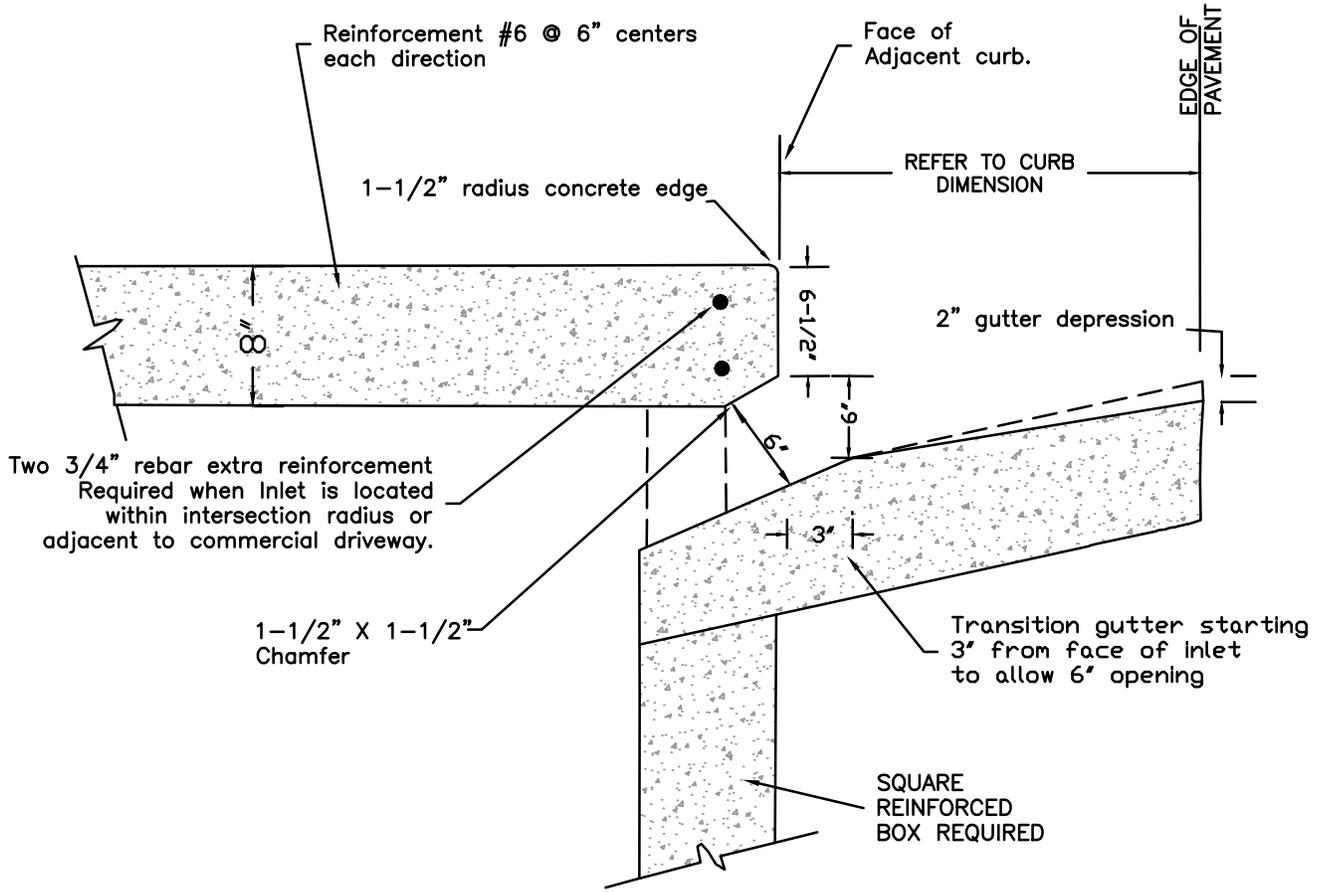
INLET THROAT BETWEEN STOOLS

NOTE: This detail is not to be used for inlets in curb radius.
See PW-10 for detail of inlet top in curb radius.

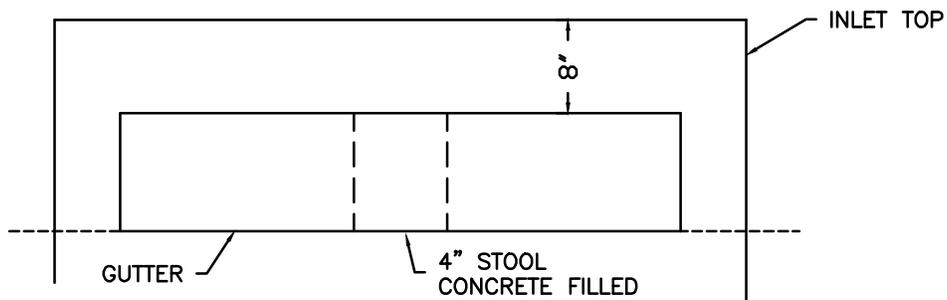


TITLE
 TYPICAL DRAINAGE INLET
 THROAT OPENING AND TOP
 DETAIL WHERE IN CURB RADIUS

	PW-10
Issue Date	Revision Date
AUG, 2006	JUNE 2013



INLET THROAT IN RADIUS (SIDE VIEW)



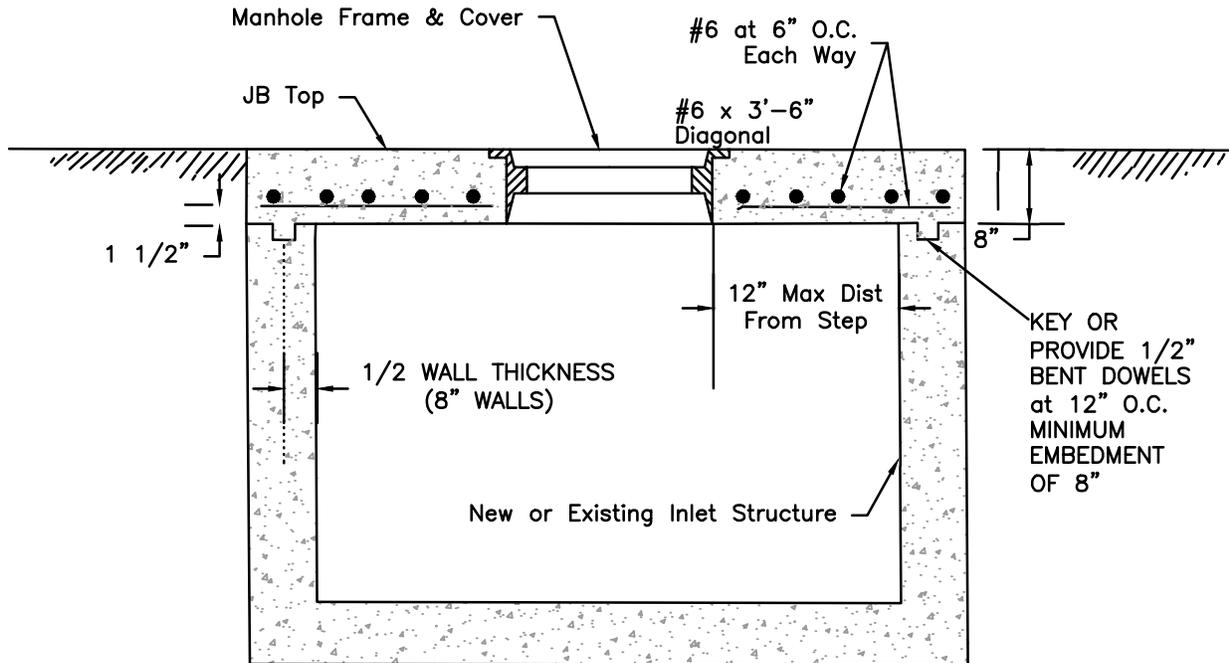
INLET THROAT IN RADIUS (FRONT VIEW)

PLACE 4" DIA. STOOLS AT CENTERLINE OF INLET,
 THEN SPACE ADDITIONAL STOOLS EQUAL DISTANCE
 FROM CENTERLINE NOT TO EXCEED 3'.

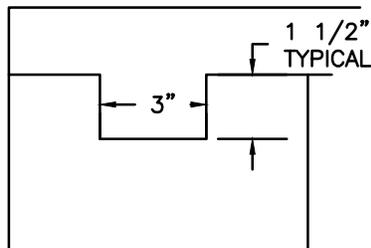


TITLE
JUNCTION BOX
IN ROADWAY

	PW-11
Issue Date	Revision Date
AUG, 2006	JUNE 2013



NOTE: Junction box top may be held below ACHM Surface and manhole cover extended up flush with paving surface.



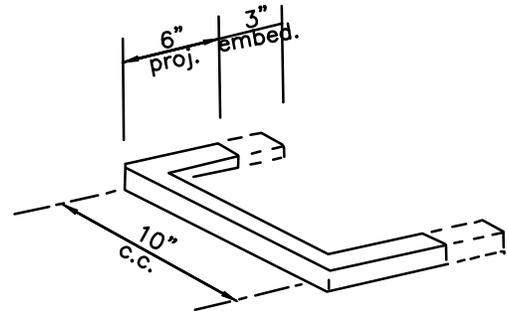
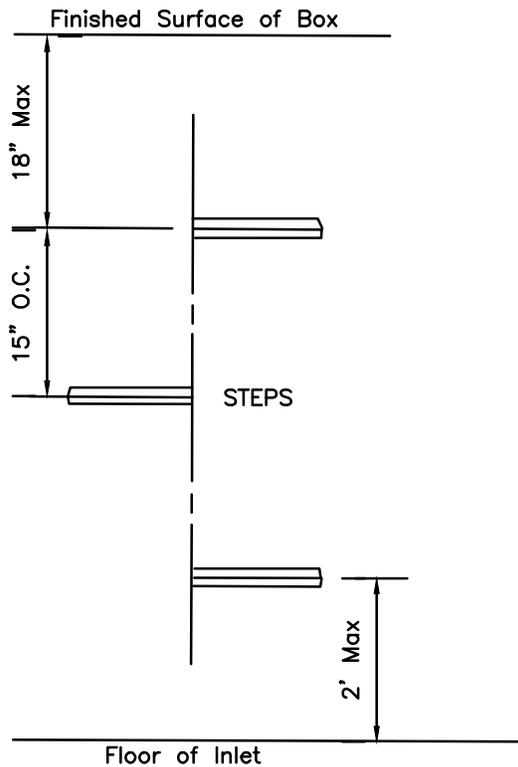
8" WALL-KEY DETAIL



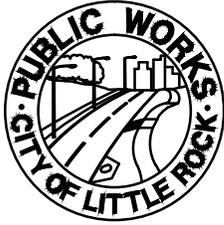
TITLE
CURB INLET STEPS

Issue Date
AUG, 2006

PW-12
Revision Date
JUNE 2013



- A. Manhole steps: corrosion resistant, coated, and reinforced with steel per ASTM C-478. Steel reinforcing minimum 1/2" diameter.
- B. Acceptable Manufacturers:
 - 1. Utility Products Inc. Perma Step 100-2
 - 2. ICM Inc. Polypropylene coated steps.
 - 3. M.A Industries, Inc. Polypropylene coated steps.
#PSI-PF
 - 4. BOWCO, by H. Bowen Co.
- C. Capable of supporting minimum 300 lb. load.
- D. Non-Slip textured treads.
- E. Required in all structures 3'-0" deep or greater.



TITLE

MANHOLE FRAME & COVER

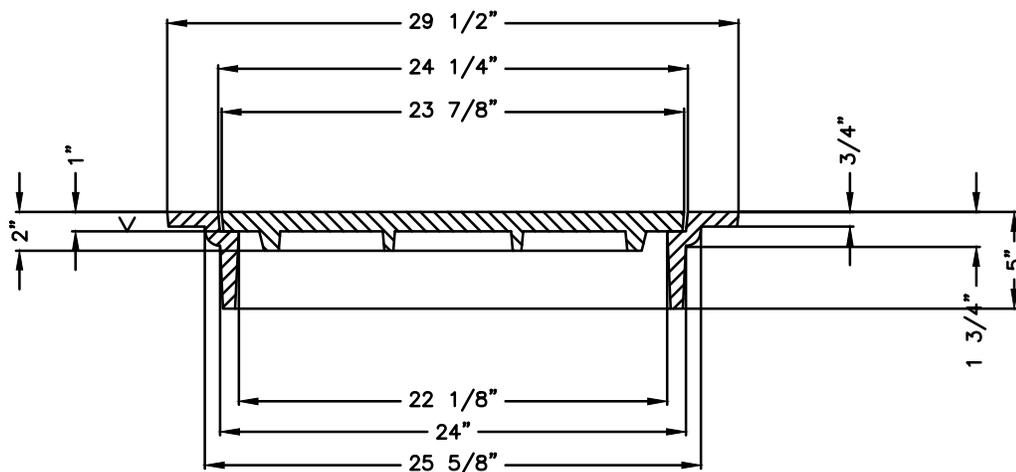
Issue Date
AUG, 2006

PW-13
Revision Date
JUNE 2013

7/8" BORDER



2 CONCEALED PICKS



NOTE:

1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES.

ITEM:

1. #2018-A (ENVIRONMENTAL) AS MANUFACTURED BY DEETER FOUNDRY, INC. OR EAST JORDAN 2750A MANHOLE COVER (275-24) WITH ABOVE LETTERING, OR APPROVED EQUAL PER ENGINEER.

MATERIAL: CAST GRAY IRON ASTM A-48,
CLASS 35B

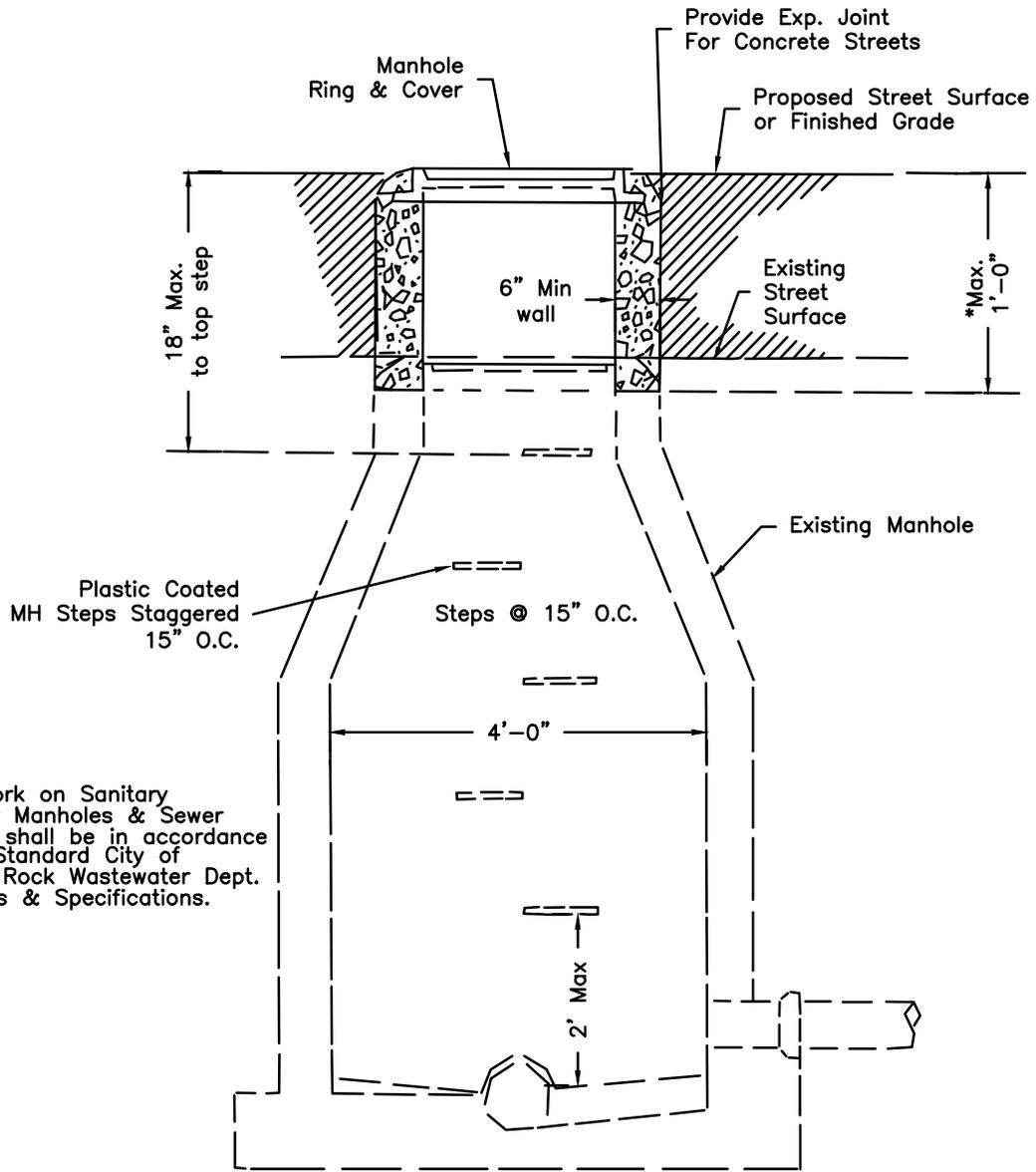
FINISH: NO PAINT

WEIGHT: COVER 140 LBS.
FRAME 133 LBS.



TITLE
MANHOLE TOP ADJUSTMENT
DETAIL

Issue Date	PW-14
AUG, 2006	Revision Date JUNE 2013



NOTE: All Work on Sanitary Sewer Manholes & Sewer Lines shall be in accordance with Standard City of Little Rock Wastewater Dept. Details & Specifications.

* NOTE: Where a neck section of greater than 12" is Required to bring the Manhole up to the New Grade, the contractor shall Rebuild the Cone Section of the Manhole.

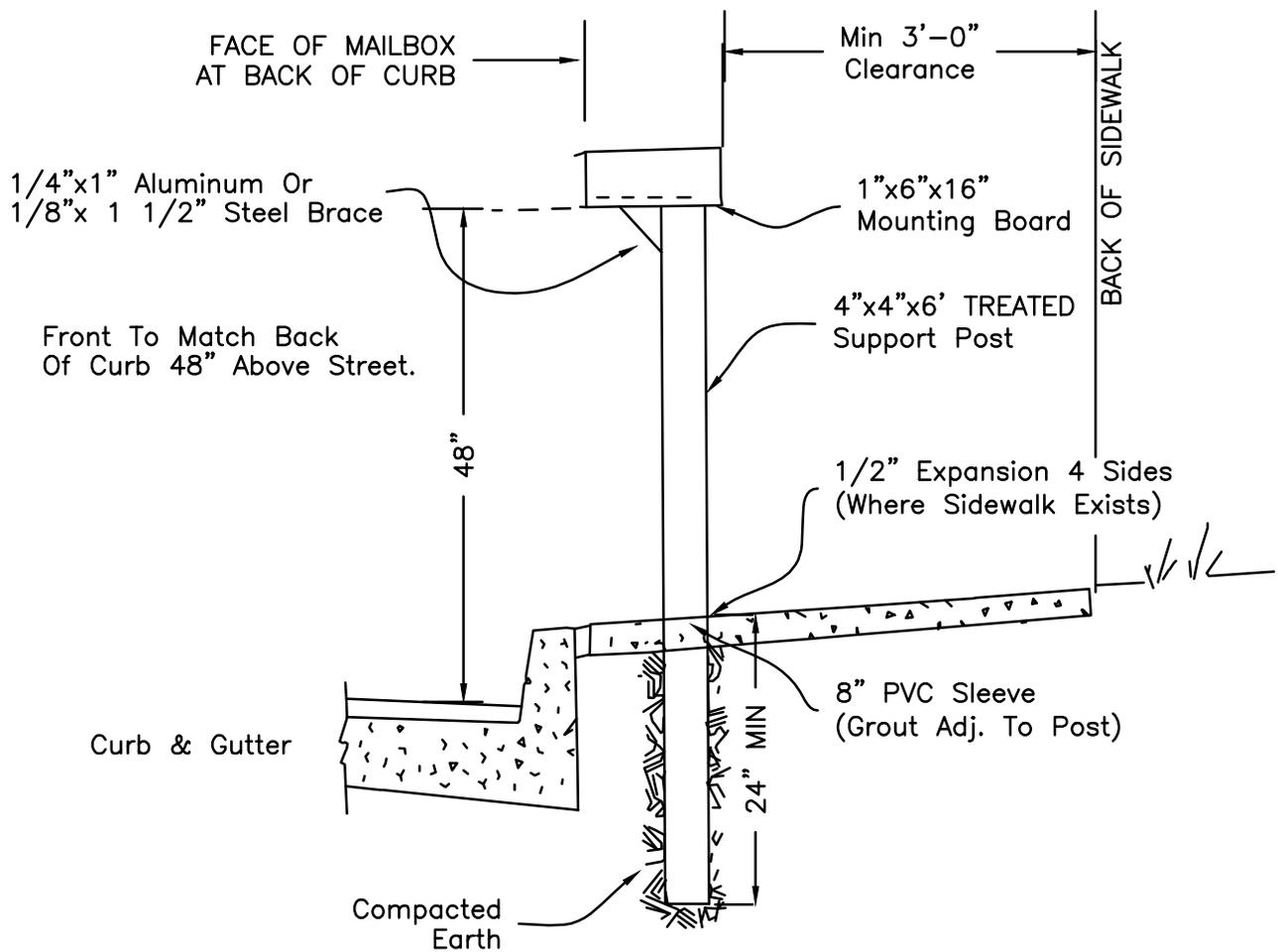


TITLE

MAIL BOX INSTALLATION
DETAIL

Issue Date
AUG, 2006

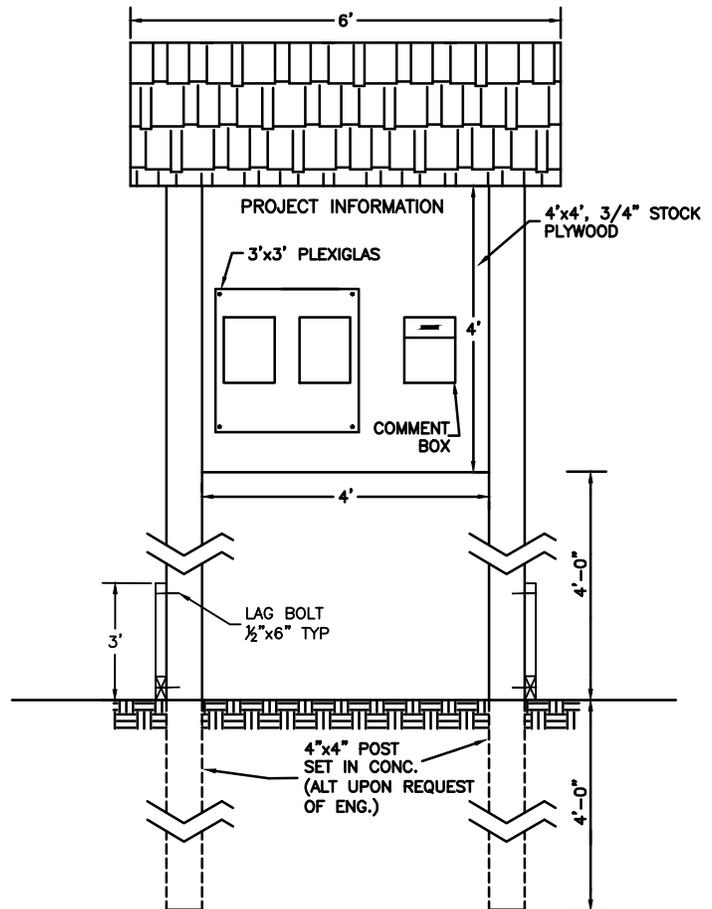
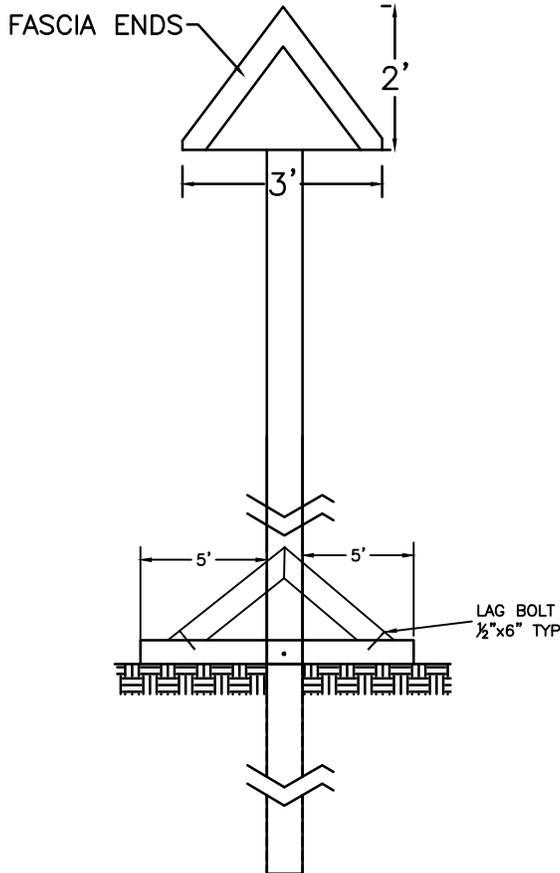
PW-17
Revision Date
JUNE 2013





TITLE
PROJECT KIOSK

	PW-18
Issue Date	Revision Date
AUG, 2006	JUNE 2013



- ROOF: 1/2" BOARD SHEATHING
RAFTERS ON 24" C-C (2"x4" HORIZONTAL)
- SHINGLES: 3-TAB SQUARE BUTT (100 LB)
OR ROLL ROOFING (MINERAL SURFACED)
ROOFING FELT (15-LB)
- PAINT: (ALL EXPOSED WOOD SHALL BE PAINTED)
LIGHT GREY, DARK ROOF
INCLUDING UNDER EAVES.
- KIOSK TO BE PLACED ON PROJECT
AS DIRECTED BY THE ENGINEER.
OR AS SHOWN ON PLANS.



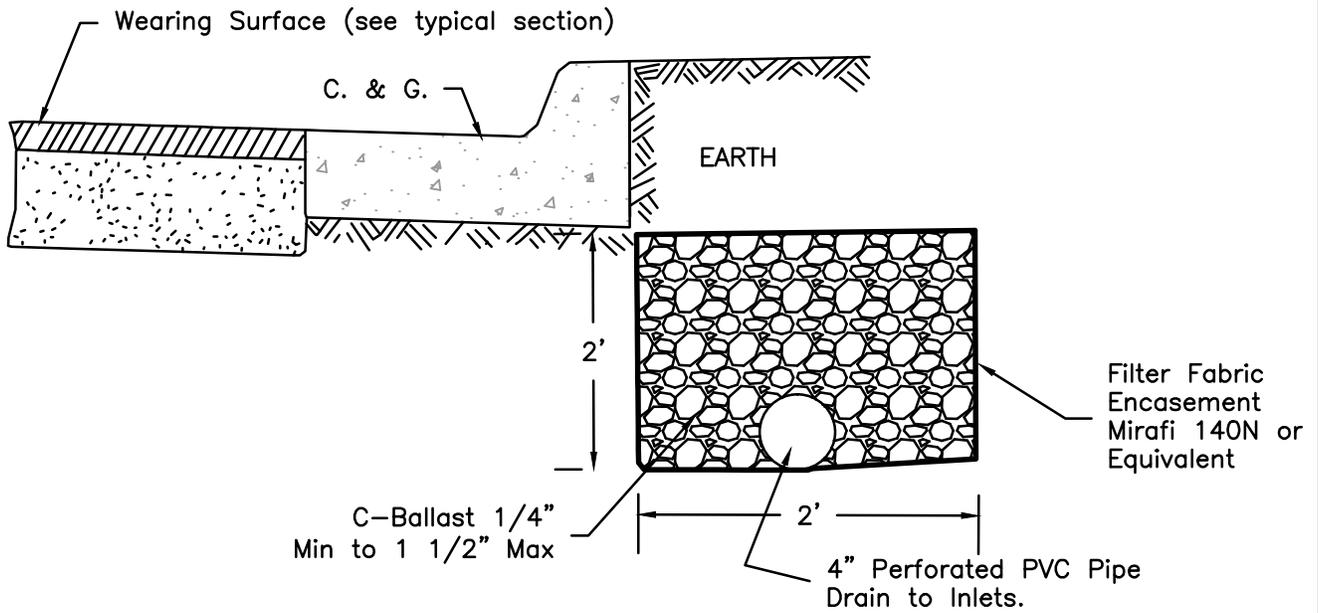
TITLE

SUB-DRAIN DETAIL

Issue Date
AUG, 2006

PW-19
Revision Date
JUNE 2013

NOTE: Placement and Location of Sub-Drain shall be determined by Engineer during Construction Period or as Indicated on Plans.



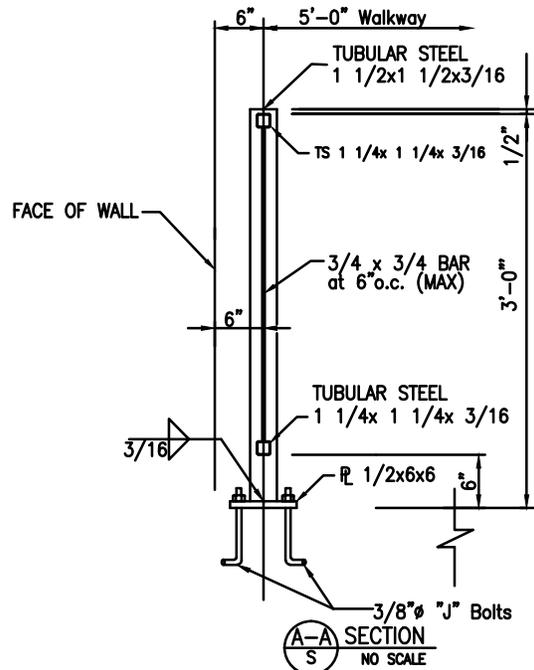
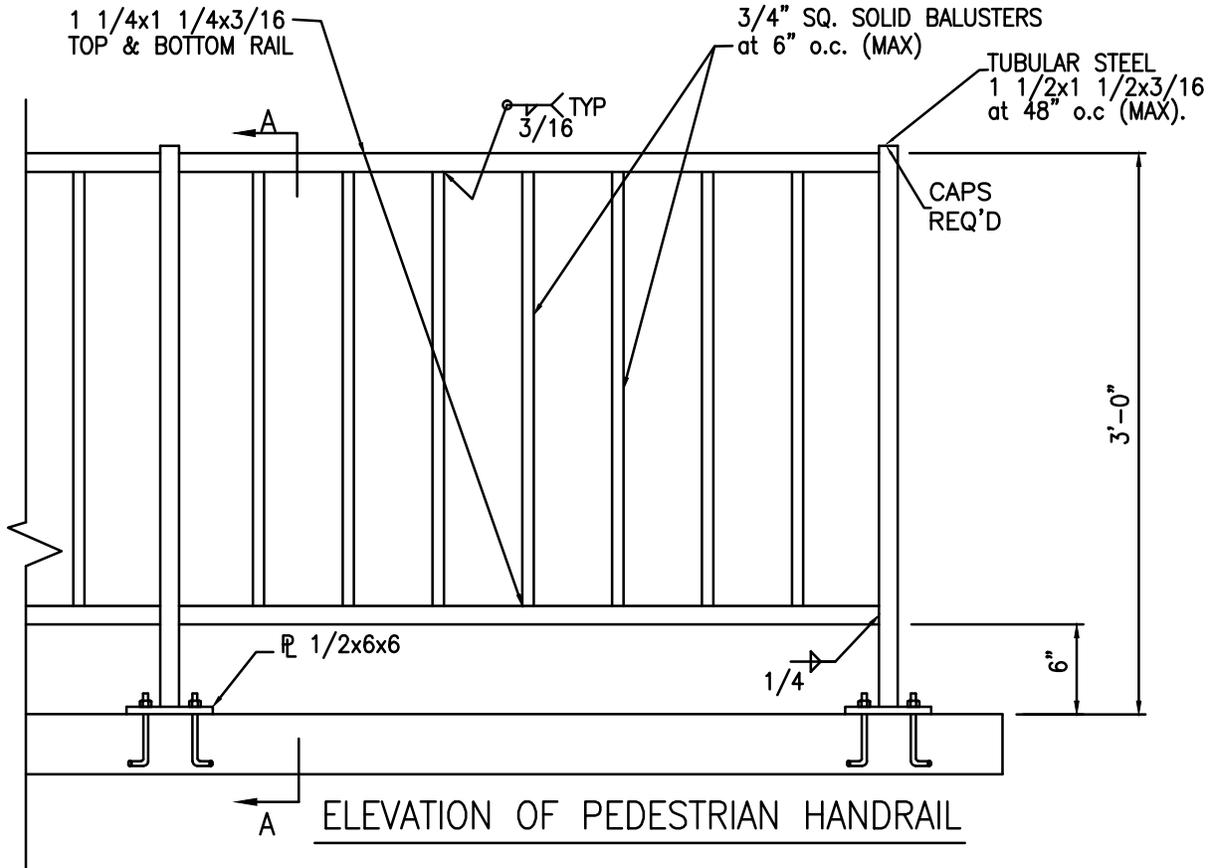
SUB-DRAIN DETAIL



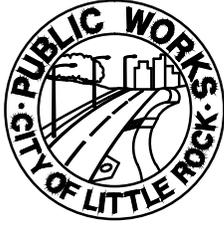
TITLE
HANDRAIL DETAIL
ALTERNATE

Issue Date
AUG, 2006

PW-20
Revision Date
JUNE 2013



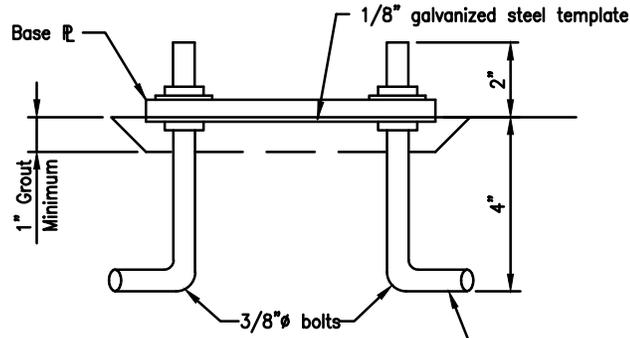
Material for pedestrian handrail shall be AASHTO M270, Gr. 36 and shall be painted (black). Nuts & washers shall be stainless steel as noted on details.



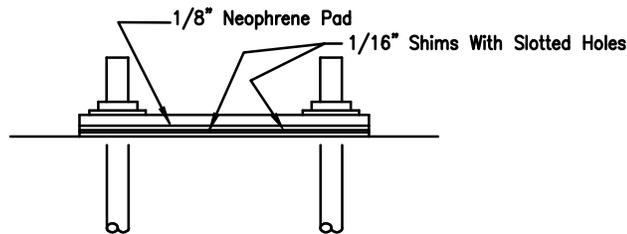
TITLE
HANDRAIL DETAIL

Issue Date
AUG, 2006

PW-21
Revision Date
JUNE 2013

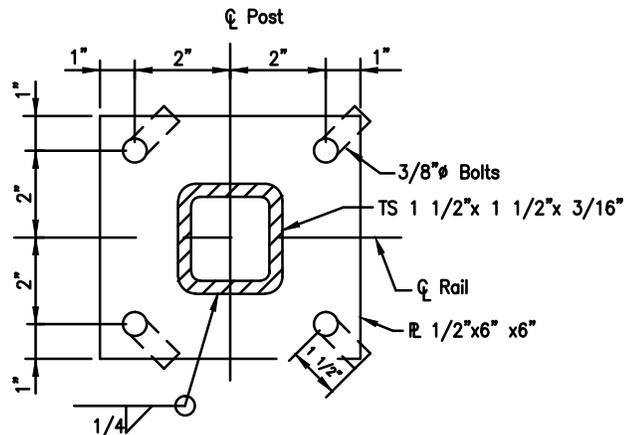


Stainless Steel Bolt ASTM A193, Grade B8 or B8A
Stainless Steel Nut AASHTO M292, Grade 8
Stainless Steel Washer ASTM A276, Grade 302

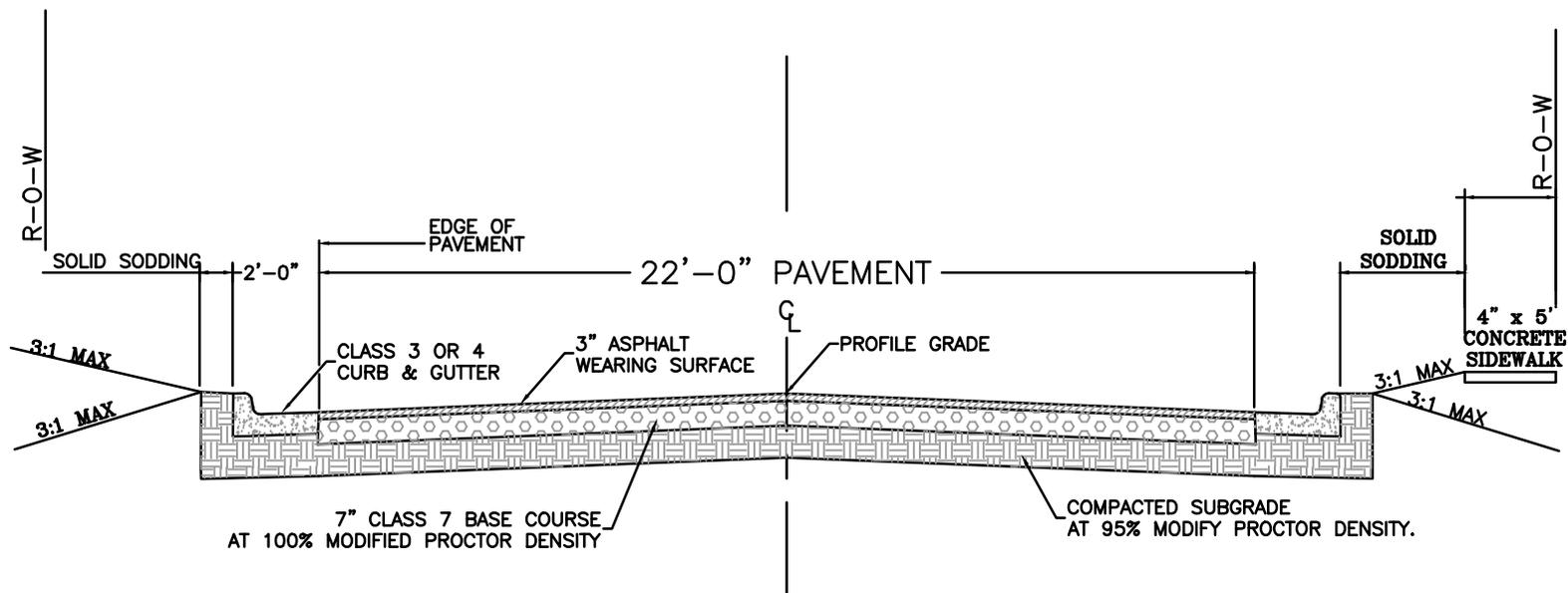


Contractor may place the 1/8" galvanized steel template on the finished sidewalk surface and provide shim plates and neoprene pads for leveling, in lieu of placing the template on nuts, leveling and finishing with grout.

Note: All posts & balusters shall be vertical.



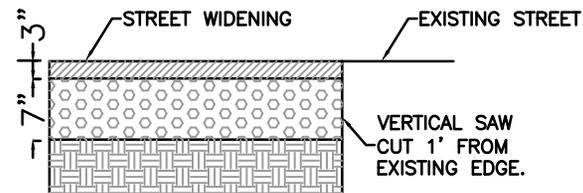
HANDRAIL ANCHOR BOLT ASSEMBLIES



GENERAL NOTES

1. IN AREAS TO RECEIVE BITUMINOUS PAVING, CONCRETE DRIVEWAYS, OR CURB AND GUTTER, SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF MAXIMUM DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT. (AASHTO T-180)
2. FOR AREAS OF SUBGRADE PREPARATION TO RECEIVE CONCRETE SIDEWALKS, SUBGRADE SHALL BE COMPACTED TO A DENSITY OF 90% MAXIMUM.(AASHTO T-180).
3. CRUSHED STONE- MATERIAL IN EACH COURSE SHALL BE COMPACTED TO A DENSITY OF 100% MAXIMUM (AASHTO T-191).
4. CENTERLINE PROFILE WILL REQUIRE HEIGHT GREATER THAN CURB FOR SOME STREETS TO MAINTAIN 2% MINIMUM CROSS-SLOPE.

THICKNESS SHALL BE DETERMINED BY SOIL TEST AND PAVEMENT DESIGN IF REQUIRED BY DEPARTMENT OF PUBLIC WORKS.
20'-0" PAVEMENT FOR MINOR RESIDENTIAL WHERE APPROVED BY CITY.



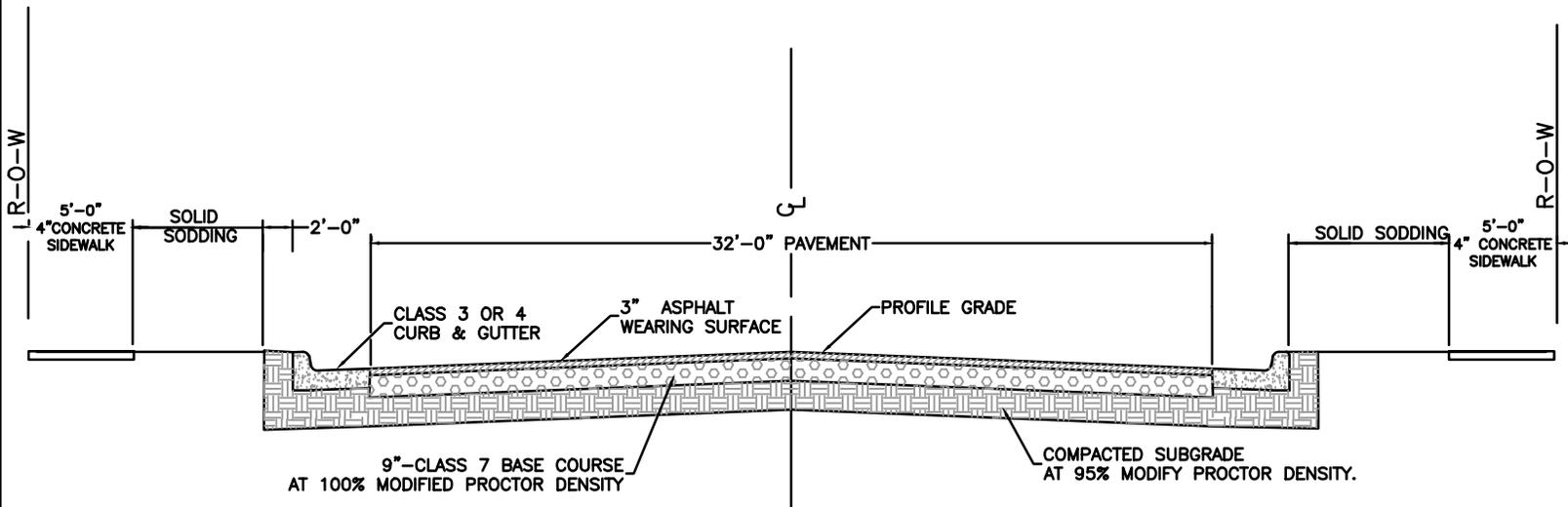
WIDENING EXISTING *

*NOTE: PAVEMENT RECONSTRUCTION TO CENTERLINE IS REQUIRED WHEN EXISTING STREET DOES NOT MEET THESE STANDARDS.

TITLE
TYPICAL SECTION
RESIDENTIAL STREET

Issue Date
AUG, 2006

Revision Date
PW-22
JUNE 2013



9"-CLASS 7 BASE COURSE
AT 100% MODIFIED PROCTOR DENSITY

COMPACTED SUBGRADE
AT 95% MODIFY PROCTOR DENSITY.

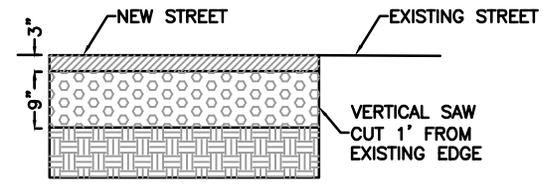
GENERAL NOTES

1. IN AREAS TO RECEIVE BITUMINOUS PAVING, CONCRETE DRIVEWAYS, OR CURB AND GUTTER, SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF MAXIMUM DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT. (AASHTO T-180)
2. FOR AREAS OF SUBGRADE PREPARATION TO RECEIVE CONCRETE SIDEWALKS, SUBGRADE SHALL BE COMPACTED TO A DENSITY 90% MAXIMUM.(AASHTO T-180).
3. CRUSHED STONE- DENSITY OF COMPACTED MATERIAL IN EACH COURSE SHALL BE COMPACTED TO A DENSITY 100% MAXIMUM .(AASHTO T-191).
4. CENTERLINE PROFILE WILL REQUIRE HEIGHT GREATER THAN CURB STREETS TO MAINTAIN 2% MINIMUM CROSS-SLOPE.

THICKNESS SHALL BE DETERMINED BY SOIL TEST AND PAVEMENT DESIGN IF REQUIRED BY DEPARTMENT OF PUBLIC WORKS.

NOTE:

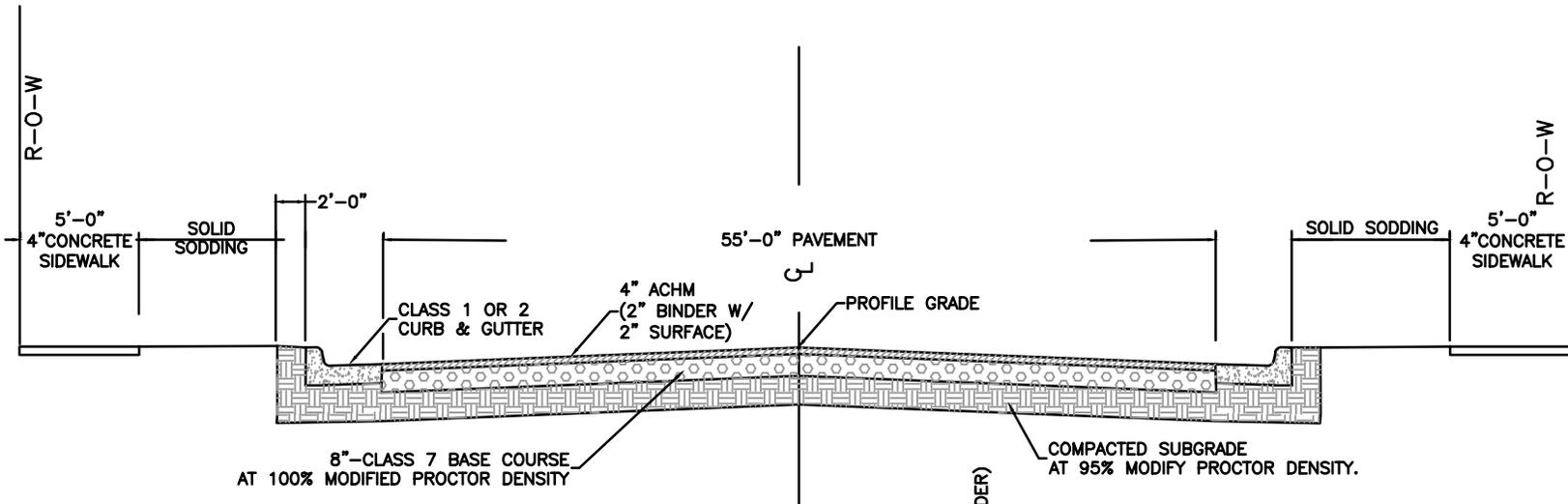
* 8" CONCRETE W/ 3" ACHM (1 1/2 BINDER / 1 1/2 SURFACE) AS APPROVED BY PUBLIC WORKS AS SUBSTITUTE CONSTRUCTION. PAVEMENT RECONSTRUCTION TO CENTERLINE IS REQUIRED, IF EXISTING PAVEMENT DOES NOT CONFORM TO THESE STANDARDS.



WIDENING EXISTING *

TITLE
TYPICAL SECTION
COLLECTOR OR COMMERCIAL
STREET

Issue Date AUG, 2006	Revision Date JUNE 2013
	PW-23



TITLE
 TYPICAL SECTION
 MINOR ARTERIAL STREET

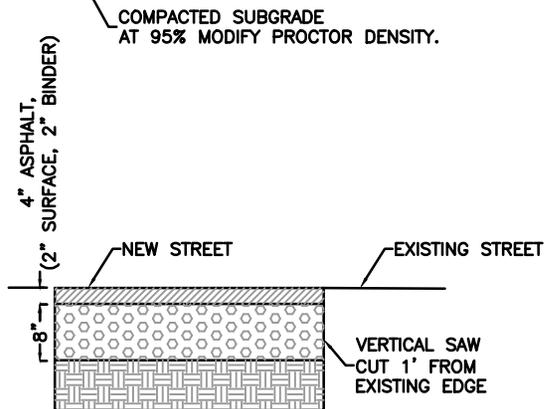
GENERAL NOTES

1. IN AREAS TO RECEIVE BITUMINOUS PAVING, CONCRETE DRIVEWAYS, OR CURB AND GUTTER, SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF MAXIMUM DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT. (AASHTO T-180)
2. FOR AREAS OF SUBGRADE PREPARATION TO RECEIVE CONCRETE SIDEWALKS, THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF 95% OF THE MAXIMUM. (AASHTO T-180).
3. CRUSHED STONE- DENSITY OF COMPACTED MATERIAL IN EACH COURSE SHALL BE COMPACTED TO A DENSITY 100% MAXIMUM (AASHTO T-191).
4. CENTERLINE PROFILE WILL REQUIRE HEIGHT GREATER THAN CURB FOR SOME STREETS TO MAINTAIN 2% MINIMUM CROSS-SLOPE.
5. WIDENING REQUIRES BUTT JOINTS SAW CUT WHERE NEW WIDENING ABUTS OLD.

ALL THICKNESS SHALL BE DETERMINED BY SOIL TEST AND PAVEMENT DESIGN IF REQUIRED BY DEPARTMENT OF PUBLIC WORKS.

NOTE:

* 8" CONCRETE W/ 4" ACHM (2" BINDER/2" SURFACE) FOR AREA AS APPROVED BY PUBLIC WORKS AS SUBSTITUTE CONSTRUCTION. PAVEMENT RECONSTRUCTION TO CENTERLINE IS REQUIRED, IF EXISTING PAVEMENT DOES NOT CONFORM TO THESE STANDARDS.



WIDENING EXISTING *

Issue Date
 AUG, 2006

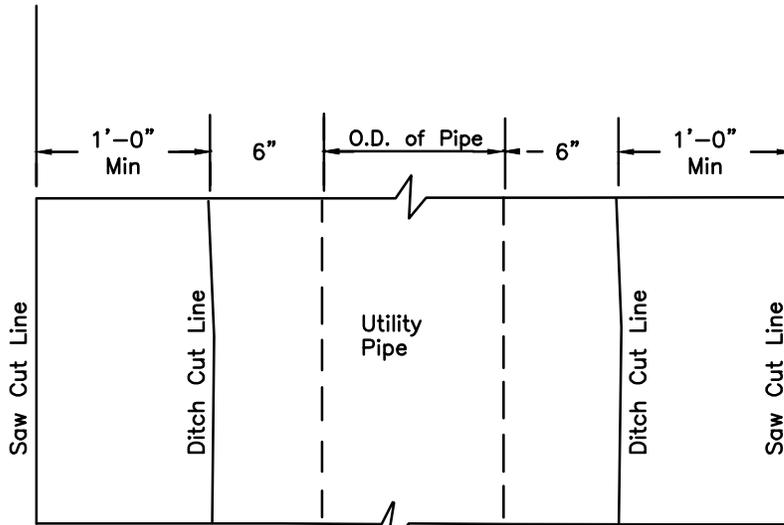
Revision Date
 JUNE 2013
 PW-24



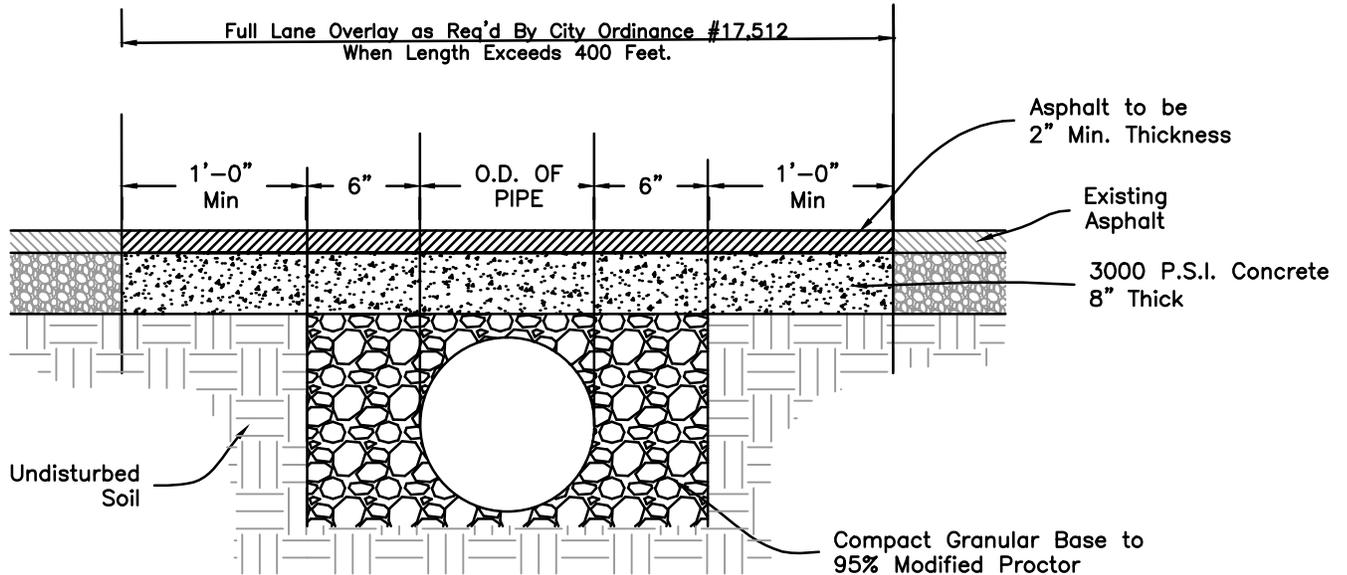
TITLE
UTILITY CUT-PAVEMENT
REPLACEMENT ON EXISTING
ASPHALT STREET

Issue Date
AUG, 2006

PW-25
Revision Date
JUNE 2013



PLAN

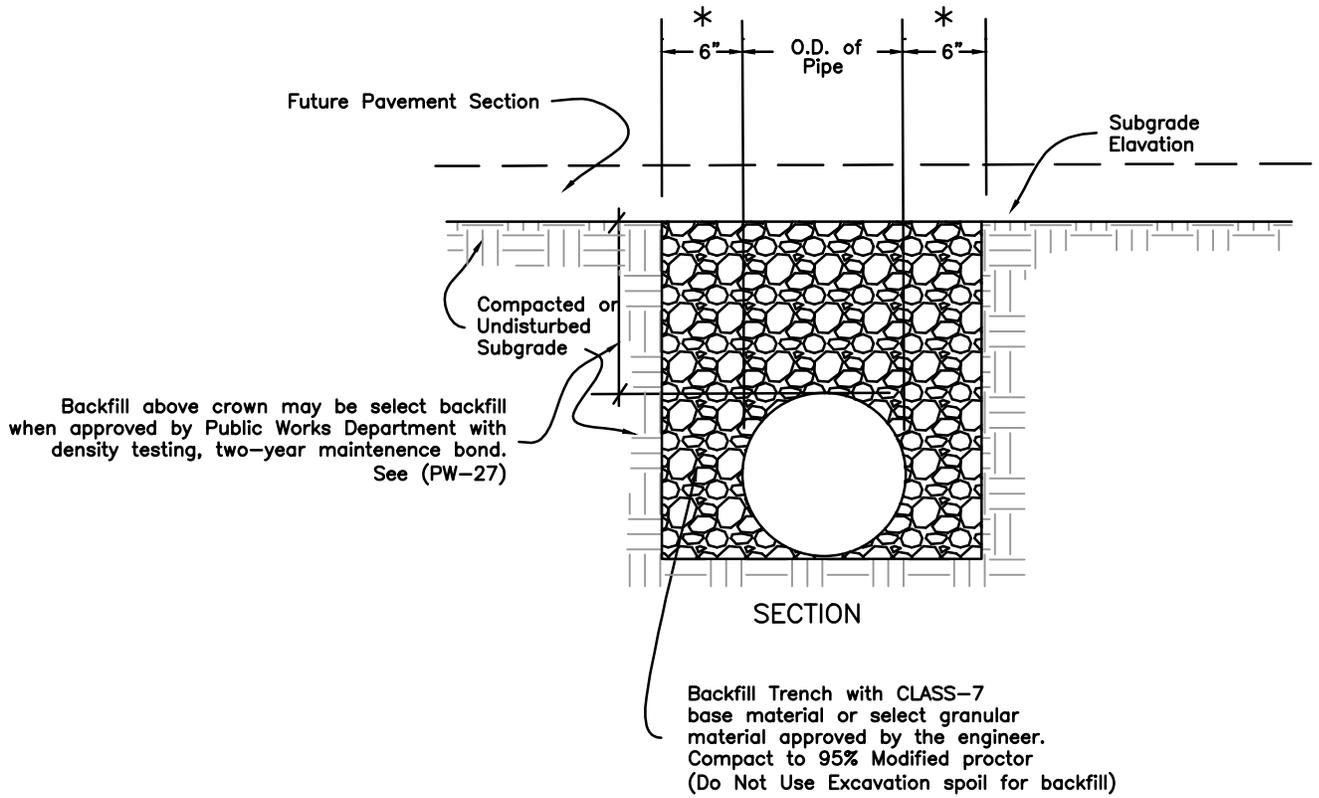


SECTION



TITLE
DRAINAGE AND
UTILITY CUT BACKFILL
ON STREET UNDER
NEW CONSTRUCTION

	PW-26
Issue Date	Revision Date
AUG, 2006	JUNE 2013



NOTE: This backfill procedure shall be utilized for all trenches excavated in area to be paved.

* SEE PUBLIC WORKS STANDARD SPECIFICATIONS FOR TRENCH WIDTH AND DEPTH REQUIRED FOR STORM DRAIN APPLICATIONS.



TITLE

TRENCH BACKFILL REQUIREMENTS
(NEW STREETS)

PW-27

Issue Date

JAN, 2003

Revision Date

JUNE 2013

The City will allow Contractor to backfill utility and stormdrain installations under a planned new street with select material or approved borrow material providing Engineer of Record and Contractor comply with following:

* Engineer of Record must submit a request in writing to Department of Public Works. Letter must note agreement with conditions of this memorandum.

* Trench backfill with other than aggregate per current City standard is not allowed in cuts of existing street, on projects where street construction is a partial widening (boundary street widening), or a street extension less than 300 feet in length. Locations must be approved prior to start of construction.

* A two year maintenance bond for one-half project's construction cost shall be provided and shall cover all construction associated with project (curbs, base, ACHM surface, drainage inlets, stormdrain, sidewalks, and other improvements in right-of-way).

* Trenches shall be a minimum of eighteen inches in width to allow for proper compaction.

* Aggregate material as approved by Department of Public Works shall be used to crown of pipe.

* Material used for backfilling may be suitable excavated material, and it may be necessary to stockpile a part or all of this suitable material for later use. Material shall be free of frozen material, trash, lumber, broken concrete having a dimension larger than two inches, or other debris. Such material shall be capable of being compacted to a density of not less than ninety-five (95) percent of maximum density, at optimum moisture, obtained in laboratory in accordance with AASHTO-Designation T-180. All tests are to be at expense of Developer or Contractor.

* A letter certifying compaction of backfill in trenches shall be furnished for a minimum of every third lift with eight inch lifts maximum (one test per two feet of fill). Test locations shall be spaced no further than one hundred feet, one per street crossing, or as required by Engineer of Record or City staff.

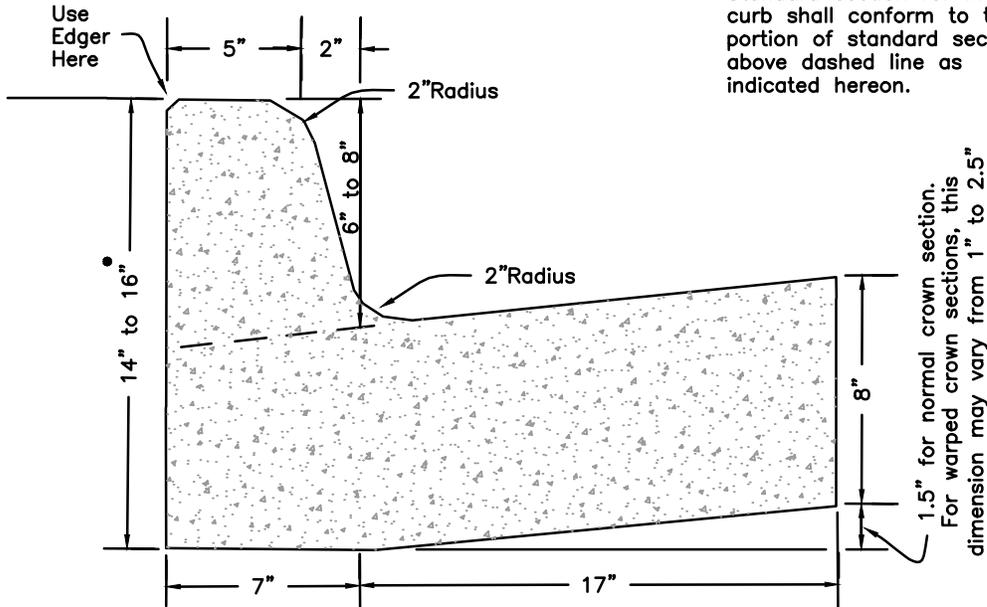
* Failure to provide satisfactory density testing of backfill for each trench will require one of three options of Contractor: A. Removal and re-compaction with certified testing. B. A maintenance bond for five (5) years shall be furnished for total project. C. A 3000 psi seven inch thick concrete cap two feet wider than trench may be installed below base course similar to Public Works Standard Detail PW-25.



TITLE
CURB & GUTTER SECTIONS
ARTERIAL STREETS

Issue Date	PW-28
AUG, 2006	Revision Date
	JUNE 2013

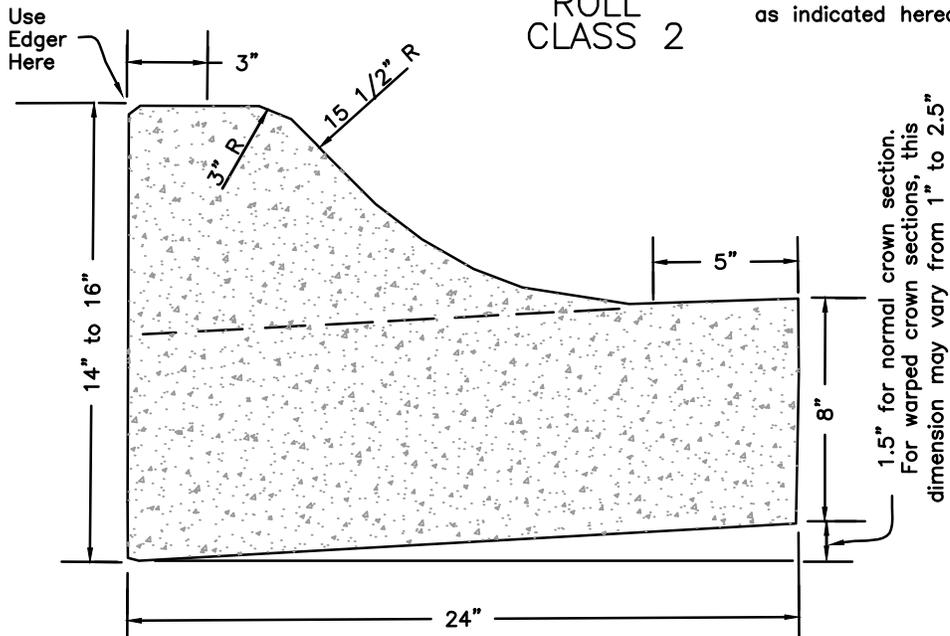
UPRIGHT
CLASS I



Standard section for integral curb shall conform to that portion of standard section above dashed line as indicated hereon.

• REQUIRED ON CHENAL PARKWAY

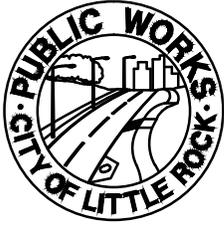
ROLL
CLASS 2



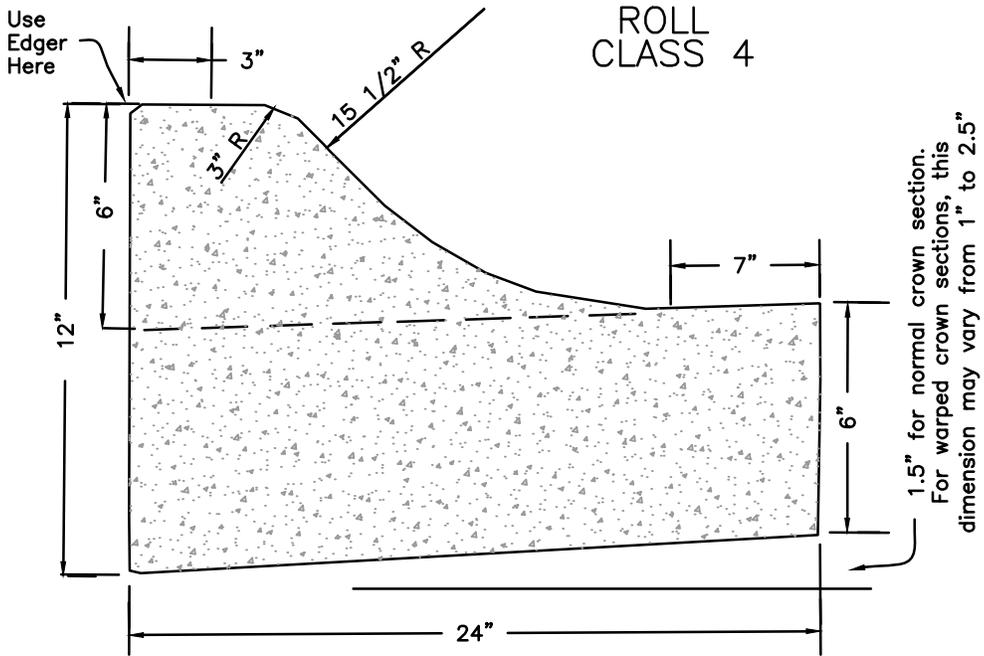
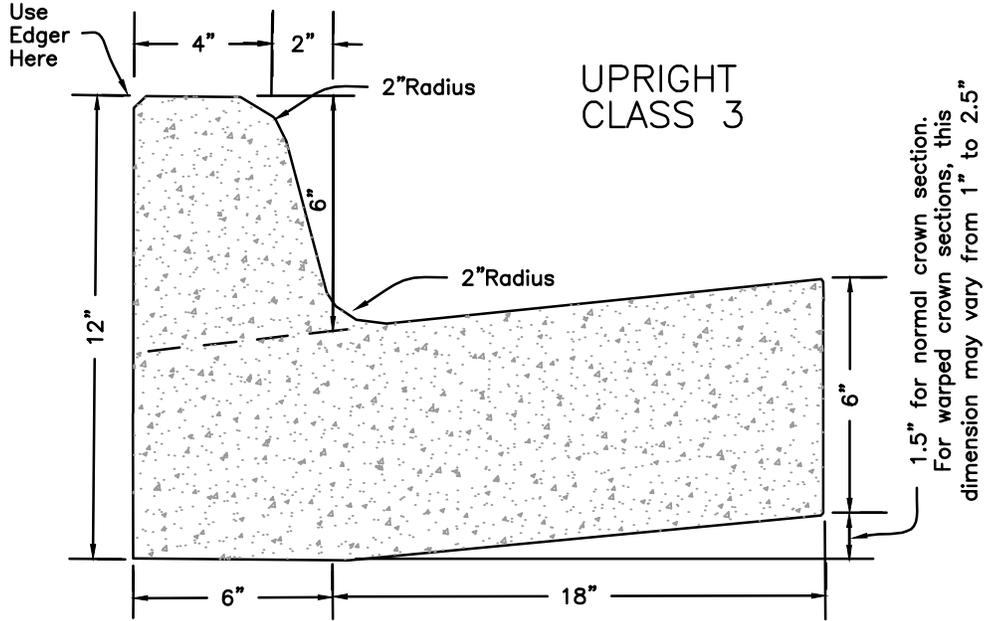
Standard section for integral curb shall conform to that portion of standard section above dashed line as indicated hereon.

Install 1/2" Bituminous Expansion Joint Material
At 100' Max. Intervals Or At Tie Ins To Boxes,
Radius Returns Or Driveway Aprons. Control Joints
15' Max. O.C.

Joint Sealant Shall be Sonneborn SL2 Self Leveling Urethane
as Manufactured by Chemrex or Equivalent.



TITLE		
CURB & GUTTER SECTIONS RESIDENTIAL & COLLECTOR STREETS		PW-29
Issue Date	AUG, 2006	Revision Date JUNE 2013



Install 1/2" Bituminous Expansion Joint Material
At 100' Max. Intervals Or At Tie Ins To Boxes,
Radius Returns Or Driveway Aprons. Control Joints
15' Max. O.C.

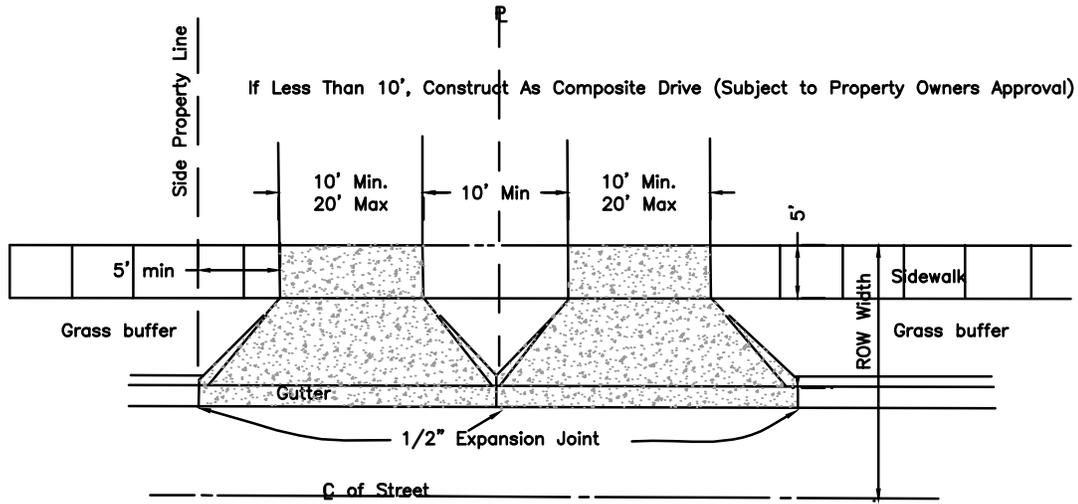
Joint Sealant Shall be Sonneborn SL2 Self Leveling Urethane
as Manufactured by Chemrex or Equivalent.



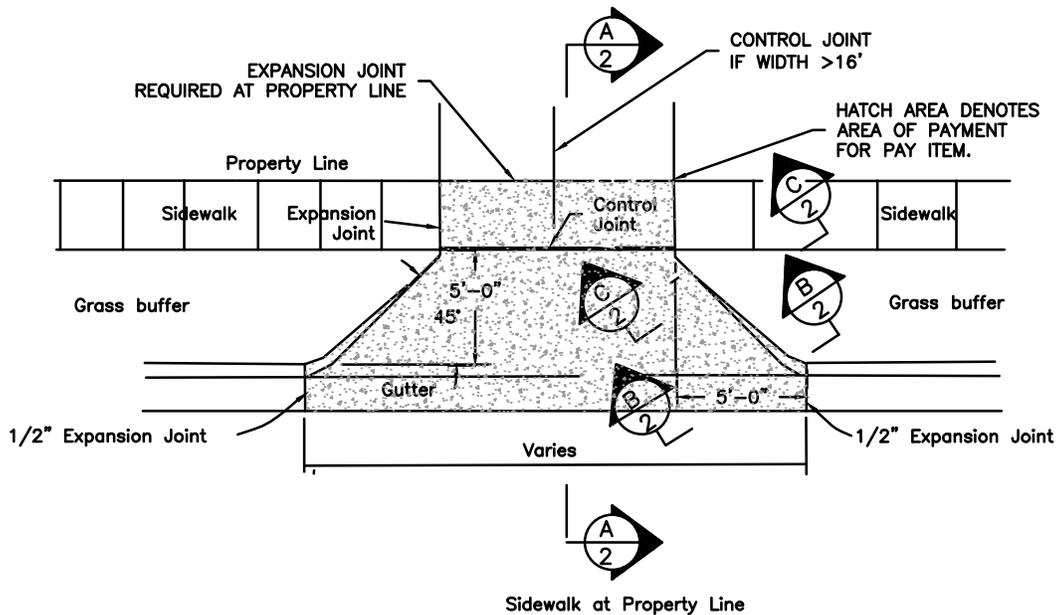
TITLE
RESIDENTIAL DRIVEWAY
DETAILS
(BUFFERED SIDEWALK)

Issue Date
AUG, 2006

PW-30
Revision Date
JUNE 2013



PLAN-PARALLEL DRIVE



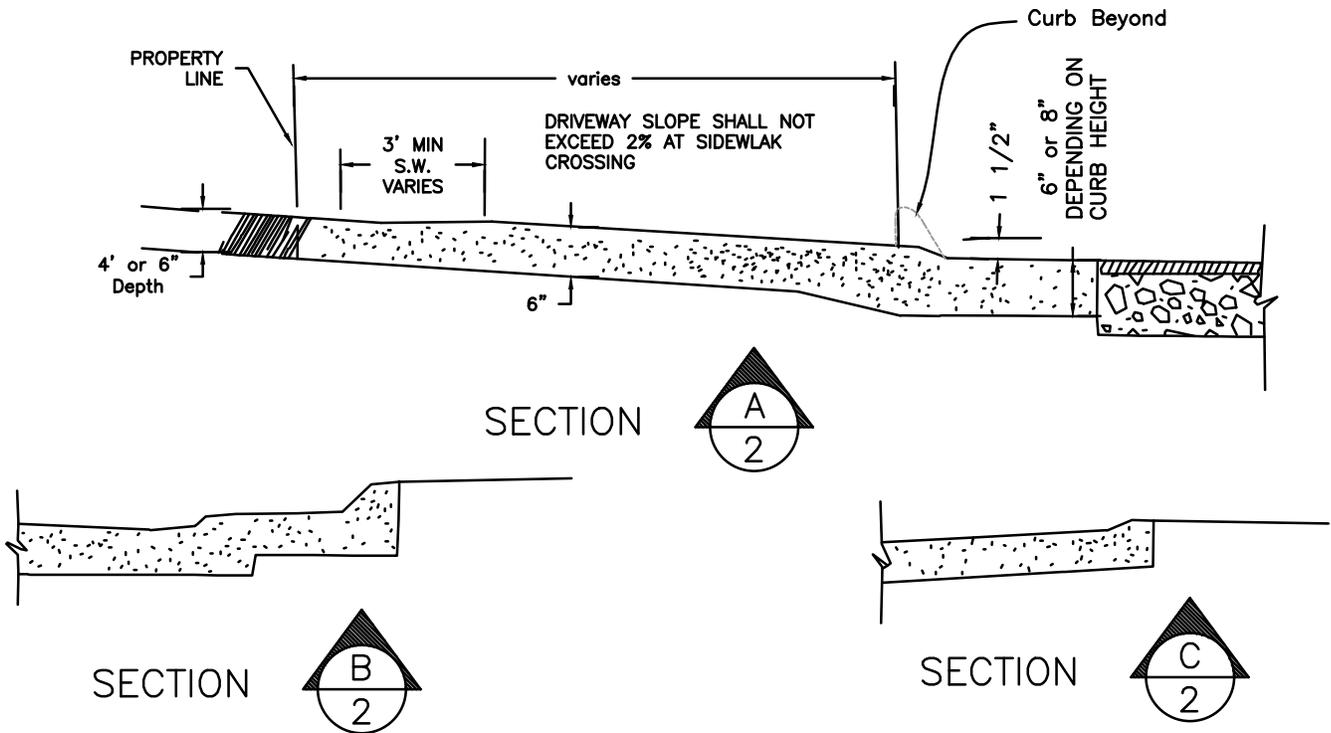
NOTE:

- CONTROL JOINTS REQUIRED IN ALL DRIVEWAYS AT 12'-0" O.C. EACH WAY OR SPACED EQUAL TO THE WIDTH OF DRIVEWAY WHICHEVER IS LESS.
- SECTIONS ARE ON PW-31.
- GRASS BUFFER TO BE 5' WIDE UNLESS APPROVED BY CITY TO BE MODIFIED. GRASS BUFFER MAY BE REDUCED TO MINIMUM 36" WITH CITY APPROVAL.
- DRIVEWAY GRADES SHALL BE DESIGNED BY ENGINEER TO KEEP STORMWATER IN STREET, 2% MINIMUM SLOPE AT SIDEWALK CROSSING, MAXIMUM % OF GRADE CHANGE IS 16.



TITLE
RESIDENTIAL DRIVEWAY
DETAILS AND NOTES

	PW-31
Issue Date	Revision Date
AUG, 2006	JUNE 2013



1. Driveway Grade Not To Exceed City Ordinance Requirements Stated in Section 31-210. Field Adjustment May Be Required At Certain Locations To Insure Proper Relation Between Driveway and Street Grades.

2. Driveways Shall Be Constructed To Property Line With Concrete Where Sidewalk Exists. Asphalt Permitted Where Sidewalk Does Not Exist.

3. Driveway Apron Shall Be Constructed Monolithically With Gutter Section, Unless Dowled Into Gutter Section With 1/2" Dowels 18" Long at 12" on Center and Approved by Engineer.

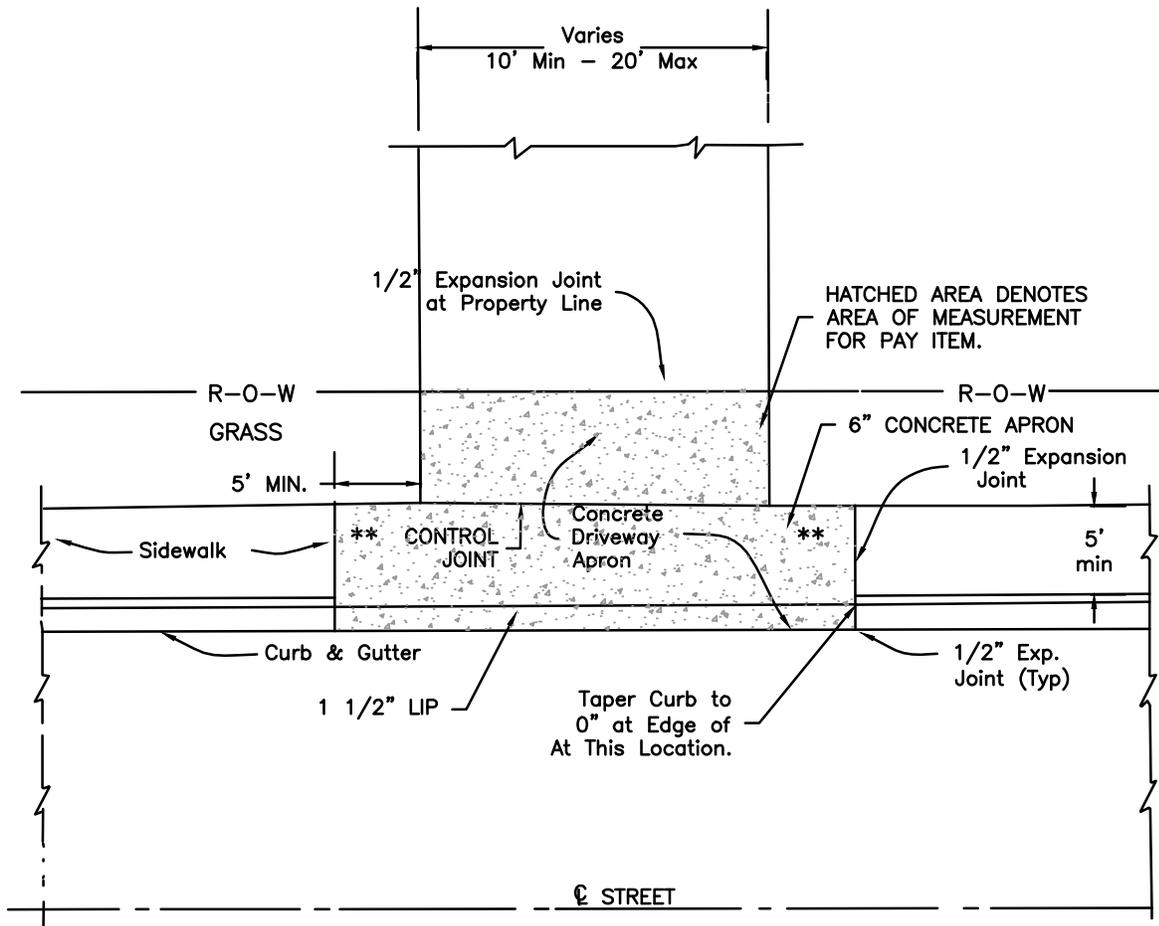
4. DRIVEWAY GRADES SHALL BE DESIGNED BY ENGINEER TO KEEP STORMWATER IN STREET, 2% MINIMUM SLOPE AT SIDEWALK CROSSING, MAXIMUM % OF GRADE CHANGE IS 16.



TITLE
DRIVEWAY DETAIL
FOR RESIDENTIAL DRIVEWAYS
(SIDEWALK AT BACK OF CURB)

	PW-32
Issue Date	Revision Date
AUG, 2006	JUNE 2013

Spacing Per City Ordinance 31-210



* Sidewalks at back of curb by permission of Department of Public Works (only when conditions dictate).

** Sidewalk area at driveway shall have cross slope of 1:50. See City Ordinance Section 31-210 for permissible driveway slopes.

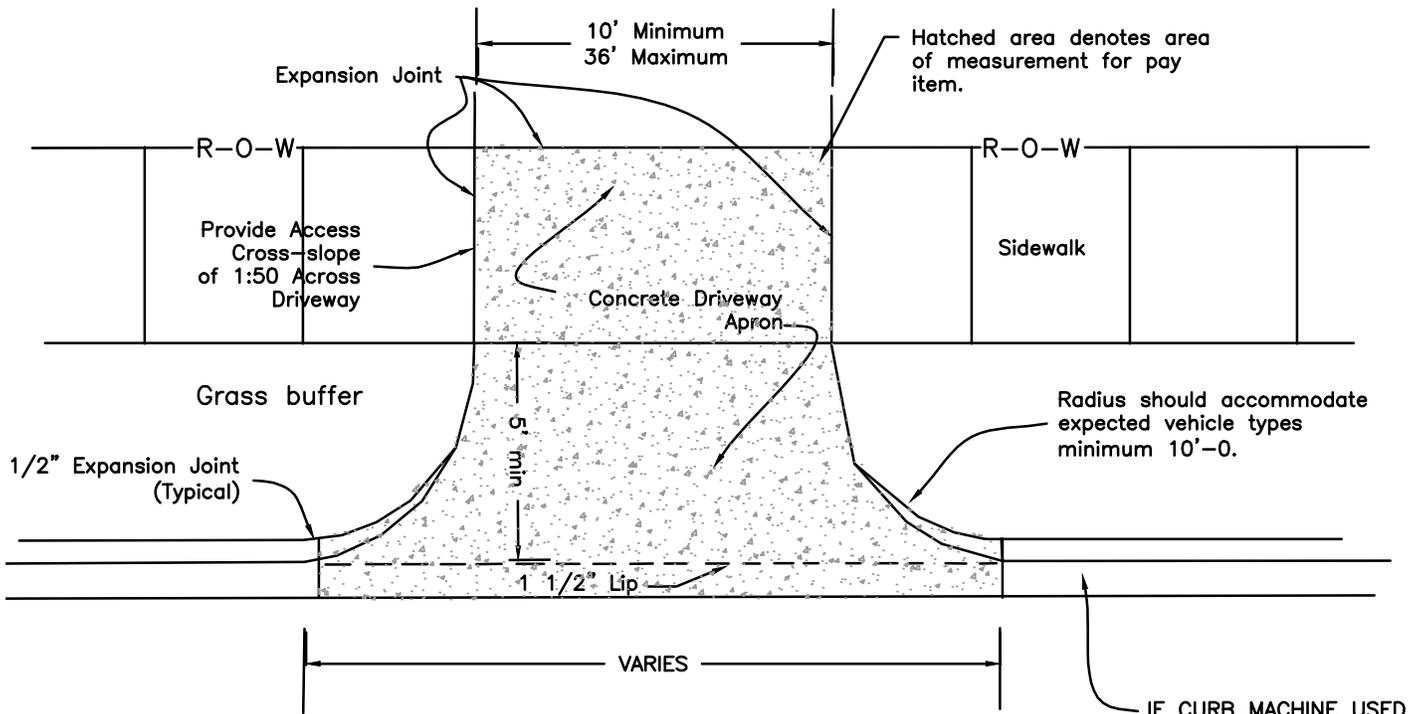
Thickness and reinforcements are required for conditions & expected wheel loading - 6" minimum thickness.

DRIVEWAY GRADES SHALL BE DESIGNED BY ENGINEER TO KEEP STORMWATER IN STREET, 2% MINIMUM SLOPE AT SIDEWALK CROSSING, MAXIMUM % OF GRADE CHANGE IS 16.



TITLE
 RADIUS DRIVEWAY DETAIL
 FOR COMMERCIAL DRIVEWAYS
 (SIDEWALK AWAY FROM CURB)

	PW-34
Issue Date	Revision Date
AUG, 2006	JUNE 2013



Thickness and reinforcements are required for conditions & expected wheel loading - 8" minimum thickness.

NOTE: Chenal Parkway Design Standards Required for Commercial Drives on Chenal Parkway. (See Master Street Plan)

DRIVEWAY GRADES SHALL BE DESIGNED BY ENGINEER TO KEEP STORMWATER IN STREET, 2% MINIMUM SLOPE AT SIDEWALK CROSSING, MAXIMUM % OF GRADE CHANGE IS 16.

IF CURB MACHINE USED (MUST STOP AT JOINT)



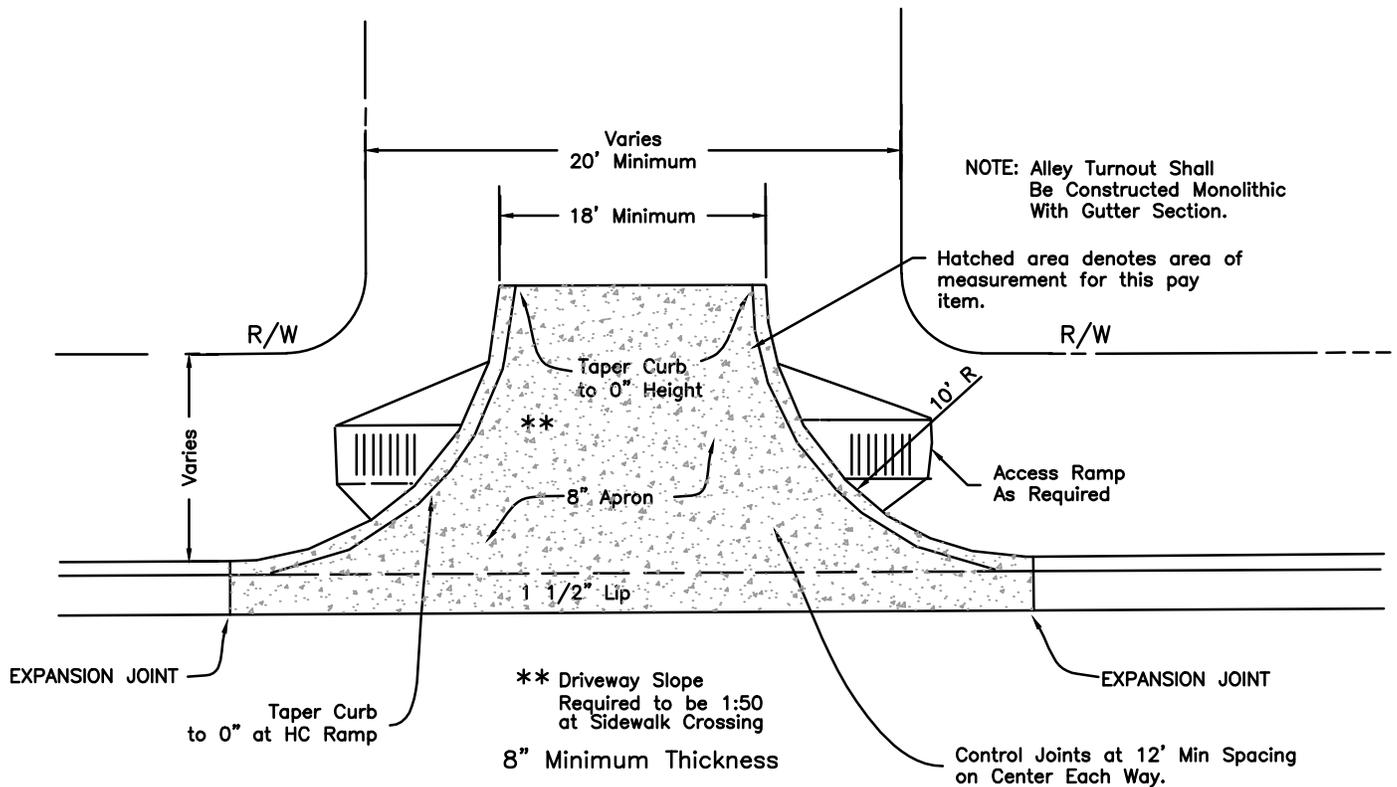
TITLE

ALLEY TURNOUT

PW-35
Revision Date

AUG, 2006

JUNE 2013



NOTE: Alley Turnout Shall Be Constructed Monolithic With Gutter Section.

Hatched area denotes area of measurement for this pay item.

DRIVEWAY GRADES SHALL BE DESIGNED BY ENGINEER TO KEEP STORMWATER IN STREET, 2% MINIMUM SLOPE AT SIDEWALK CROSSING, MAXIMUM % OF GRADE CHANGE IS 16.

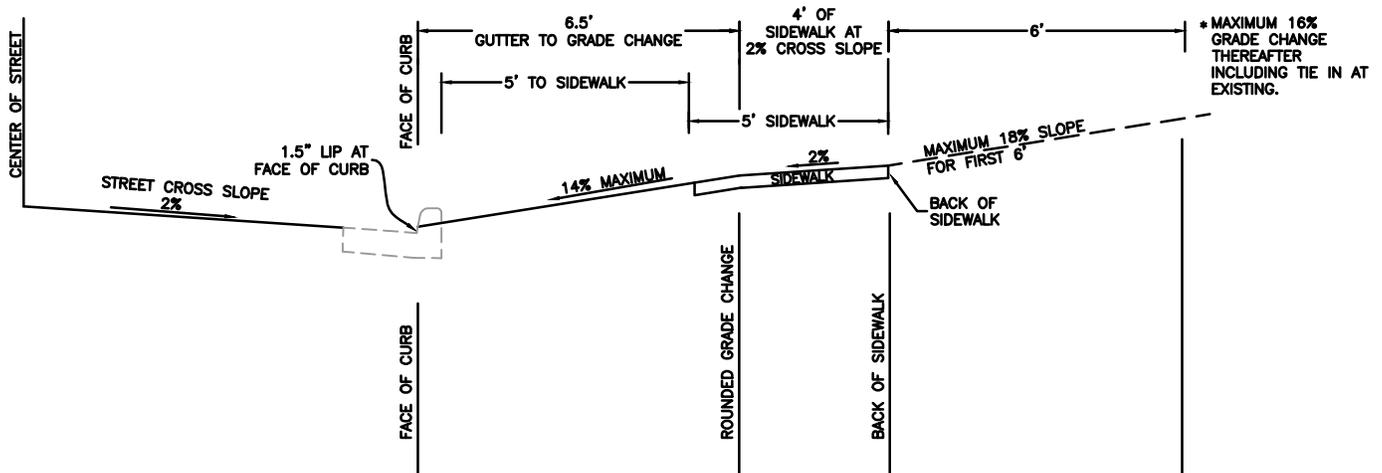


TITLE
 DRIVEWAY
 MAXIMUM GRADE
 DETAIL A

Issue Date
 AUG, 2006

PW-36
 Revision Date
 JUNE 2013

MAXIMUM GRADES FOR DRIVEWAY WITH 5'
 SIDEWALK WHICH IS 5' OFF BACK OF CURB



- NOTE: 1. ALL GRADE CHANGES SHALL BE ROUNDED OFF WITH A 2' RADIUS.
 2. THE MAXIMUM GRADE CHANGE SHALL NOT EXCEED 16%.
 3. GRADES SHOWN ARE THE MAXIMUM ALLOWED TO AVOID DRAGGING A VEHICLE.
 THE GRADES SHALL NOT BE DESIGNED OR USED EXCEPT IN EXTREME CONDITIONS.

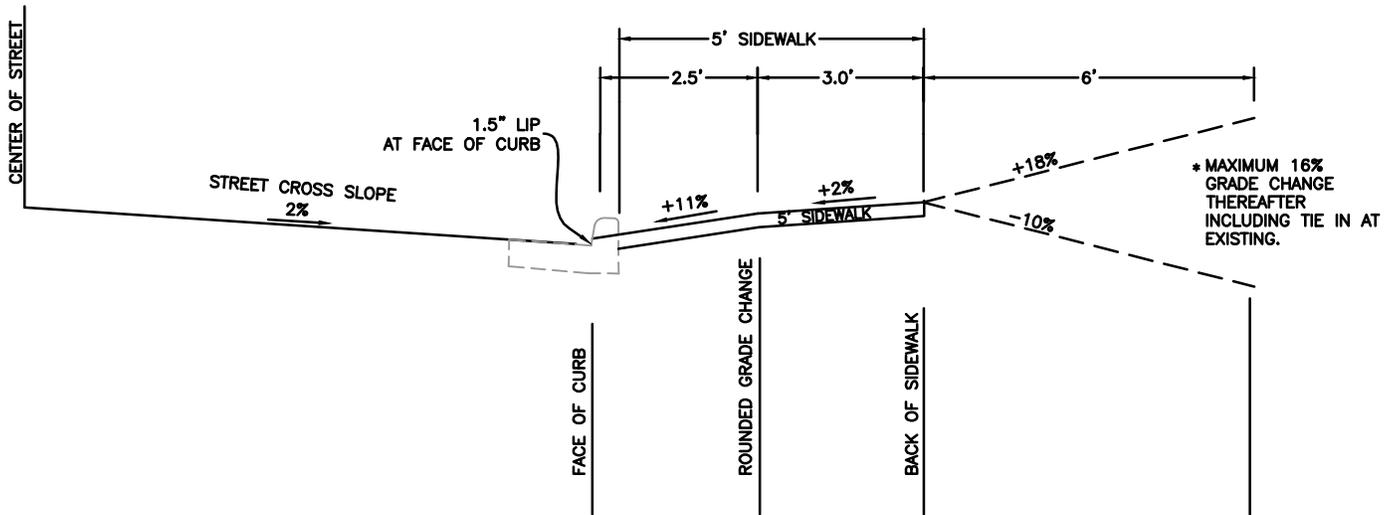


TITLE
DRIVEWAY
MAXIMUM GRADES
DETAIL B

Issue Date
AUG, 2006

PW-37
Revision Date
JUNE 2013

MAXIMUM GRADES FOR DRIVEWAY WITH 5'
SIDEWALK AT BACK OF CURB



- NOTE: 1. ALL GRADE CHANGES SHALL BE ROUNDED OFF WITH A 2' RADIUS.
2. THE MAXIMUM GRADE CHANGE SHALL NOT EXCEED 16%.
3. GRADES SHOWN ARE THE MAXIMUM ALLOWED TO AVOID DRAGGING A VEHICLE.
THE GRADES SHALL NOT BE DESIGNED OR USED EXCEPT IN EXTREME CONDITIONS.

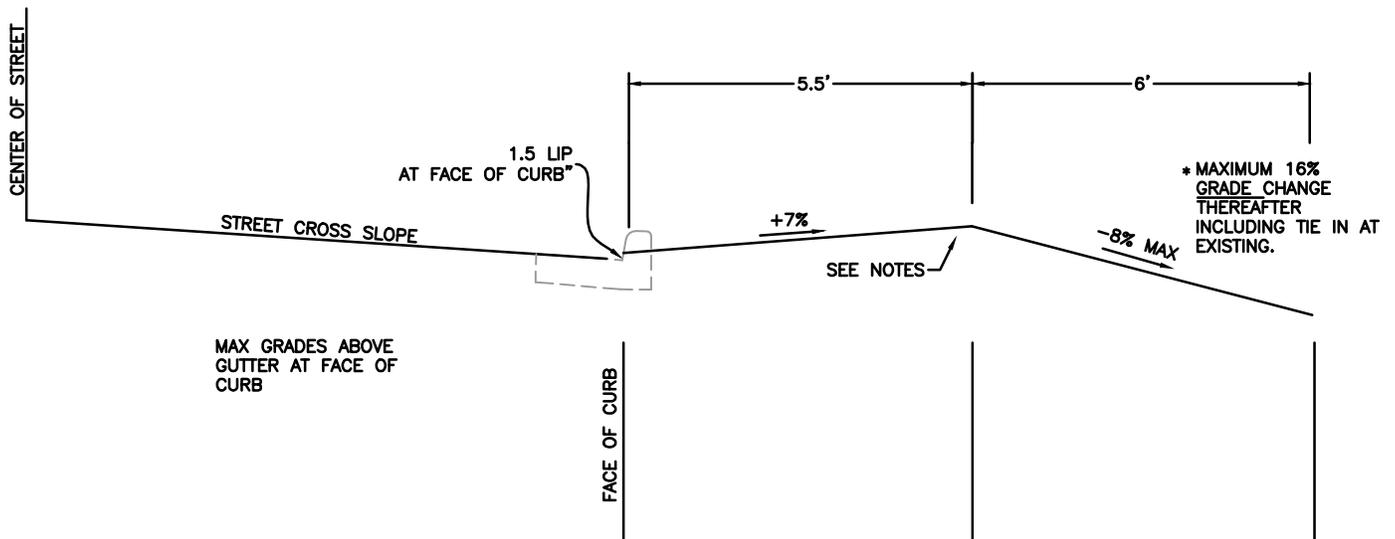


TITLE
DRIVEWAY
MAXIMUM GRADES
DETAIL C

Issue Date
AUG, 2006

PW-38
Revision Date
JUNE 2013

MAXIMUM GRADES FOR DRIVEWAY WHEN GROUND FALLS AWAY FROM STREET WITH NO SIDEWALK



- NOTE (1) DRIVEWAY AT 5.5' FROM FACE OF CURB SHALL BE LEVEL WITH TOP OF CURB TO KEEP WATER IN STREET. ANY VARIATION REQUIRES APPROVAL FROM ENGINEER.
- (2) ALL GRADE CHANGES SHALL BE ROUNDED OFF WITH A 2' RADIUS.
- (3). THE MAXIMUM GRADE CHANGE SHALL NOT EXCEED 16%.
- (4). GRADES SHOWN ARE THE MAXIMUM ALLOWED TO AVOID DRAGGING A VEHICLE. THE GRADES SHALL NOT BE DESIGNED OR USED EXCEPT IN EXTREME CONDITIONS.

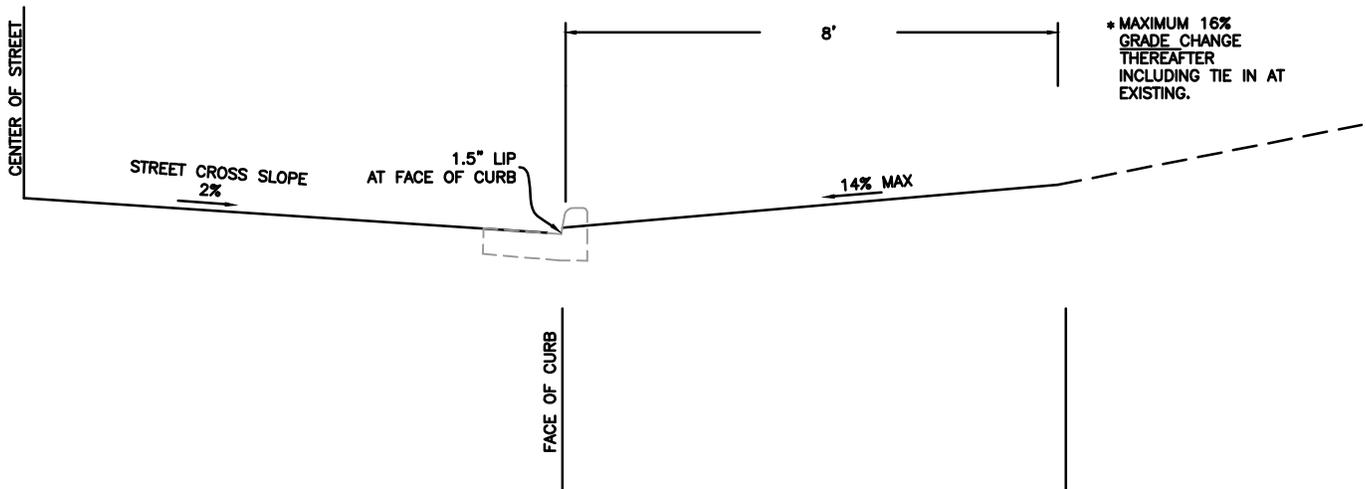


TITLE
DRIVEWAY
MAXIMUM GRADES
DETAIL D

Issue Date
AUG, 2006

PW-39
Revision Date
JUNE 2013

MAXIMUM GRADES FOR DRIVEWAY WHEN GROUND RISES FROM STREET WITH NO SIDEWALK



- NOTE: 1. ALL GRADE CHANGES SHALL BE ROUNDED OFF WITH A 2' RADIUS.
2. THE MAXIMUM GRADE CHANGE SHALL NOT EXCEED 16%.
3. GRADES SHOWN ARE THE MAXIMUM ALLOWED TO AVOID DRAGGING A VEHICLE.
THE GRADES SHALL NOT BE DESIGNED OR USED EXCEPT IN EXTREME CONDITIONS.

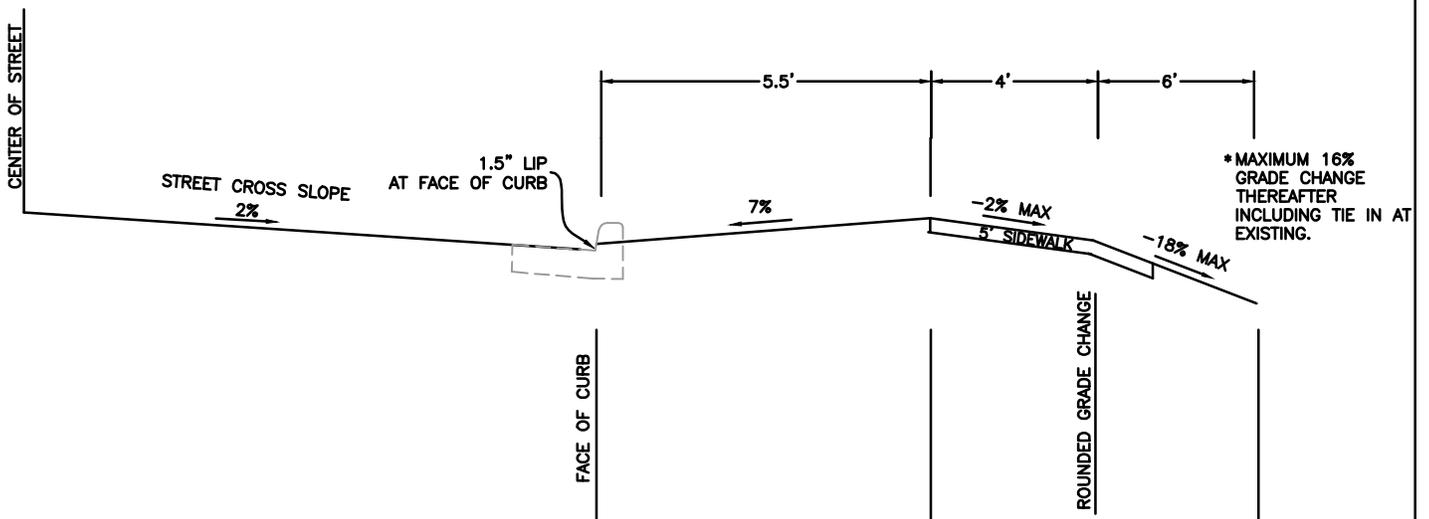


TITLE
DRIVEWAY
MAXIMUM GRADES
DETAIL E

Issue Date
AUG, 2006

PW-40
Revision Date
JUNE 2013

MAXIMUM GRADES FOR DRIVEWAY WHEN GROUND FALLS AWAY FROM STREET WITH 5' SIDEWALK 5' OFF BACK OF CURB



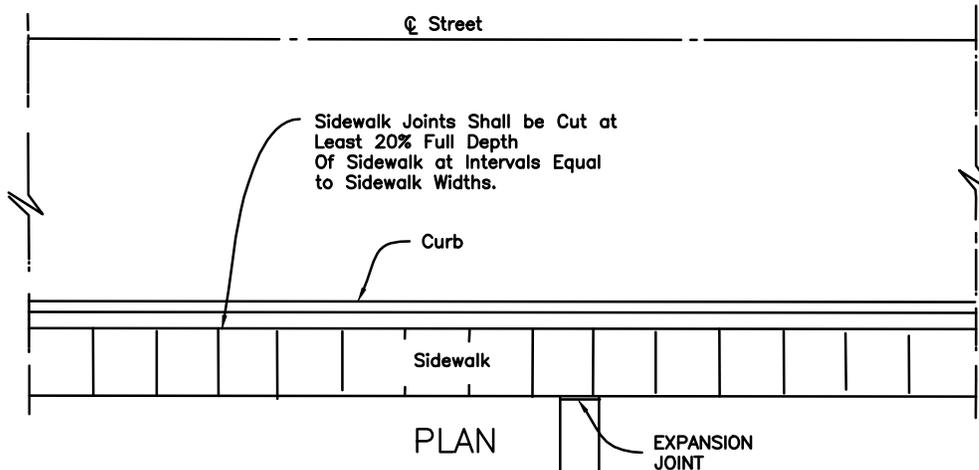
NOTE (1) DRIVEWAY AT 5.5' FROM FACE OF CURB SHALL BE LEVEL WITH TOP OF CURB TO KEEP WATER IN STREET. ANY VARIATION REQUIRES APPROVAL FROM ENGINEER.

- (2) ALL GRADE CHANGES SHALL BE ROUNDED OFF WITH A 2' RADIUS.
- (3) THE MAXIMUM GRADE CHANGE SHALL NOT EXCEED 16%.
- (4) GRADES SHOWN ARE THE MAXIMUM ALLOWED TO AVOID DRAGGING A VEHICLE. THE GRADES SHALL NOT BE DESIGNED OR USED EXCEPT IN EXTREME CONDITIONS.



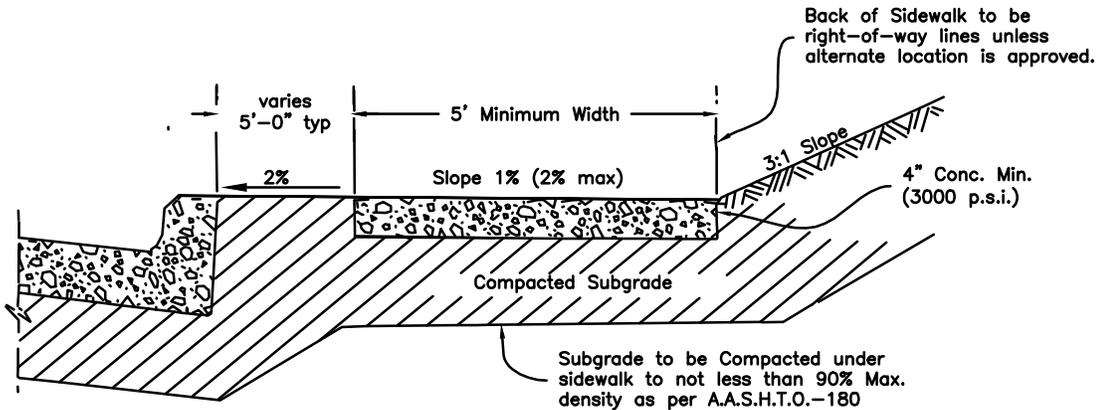
TITLE
SIDEWALK DETAILS

Issue Date	Revision Date
AUG, 2006	JUNE 2013

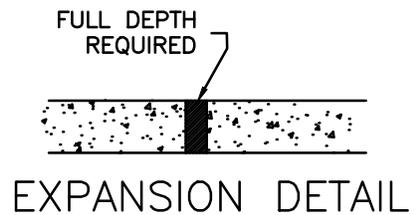


NOTE:

- (1). 1/2" Expansion Joint Spacing at 60' Or adjacent to Structures and Drives.
- (2). Sidewalk Expansion Material is Not Required Between Sidewalk and Curb Unless Noted on Plans.
- (3). Dowel bars with Expansion Joint Material required at inlets. See PW-42.



Expansion joint shall be installed between public and private sidewalk, buildings or driveways.

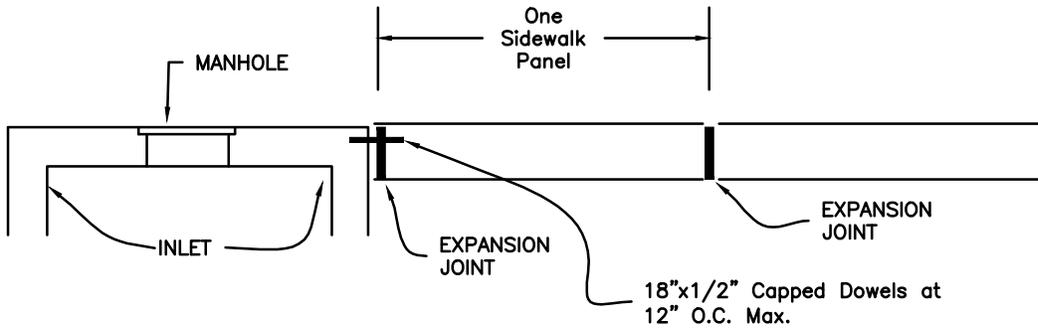




TITLE
 SIDEWALK ADJACENT TO CURB
 (AT-GRADE SECTION)

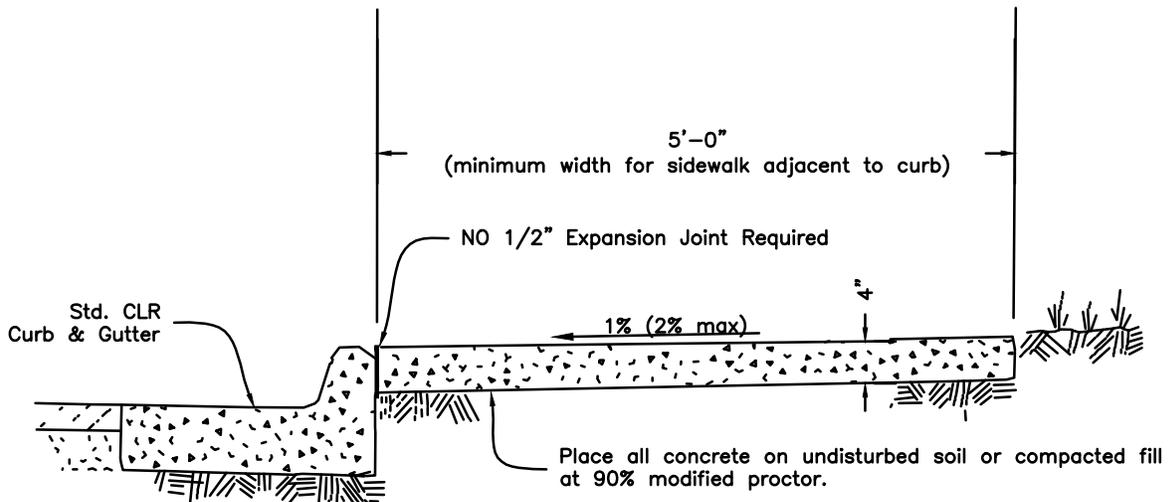
	PW-42
Issue Date	Revision Date
AUG, 2006	JUNE 2013

GENERAL NOTE: PUBLIC SIDEWALK SHALL BE BUFFERED FROM STREET. SIDEWALK MAY BE INSTALLED ADJACENT TO CURB ONLY UPON RECEIVING WRITTEN AUTHORIZATION FROM PUBLIC WORKS.



SIDEWALK AT INLETS

NOTE:
 1/2" Expansion Joint Spacing at 60' Or adjacent to Structures and Drives.
 Sidewalk Expansion Material is Required Between Sidewalks and Inlets.
 Dowel bars with Expansion Joint Material required at Inlets.



Expansion joint shall be installed between public sidewalks and private sidewalks, buildings or driveways.



TITLE

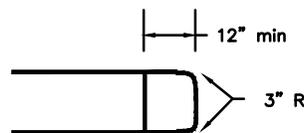
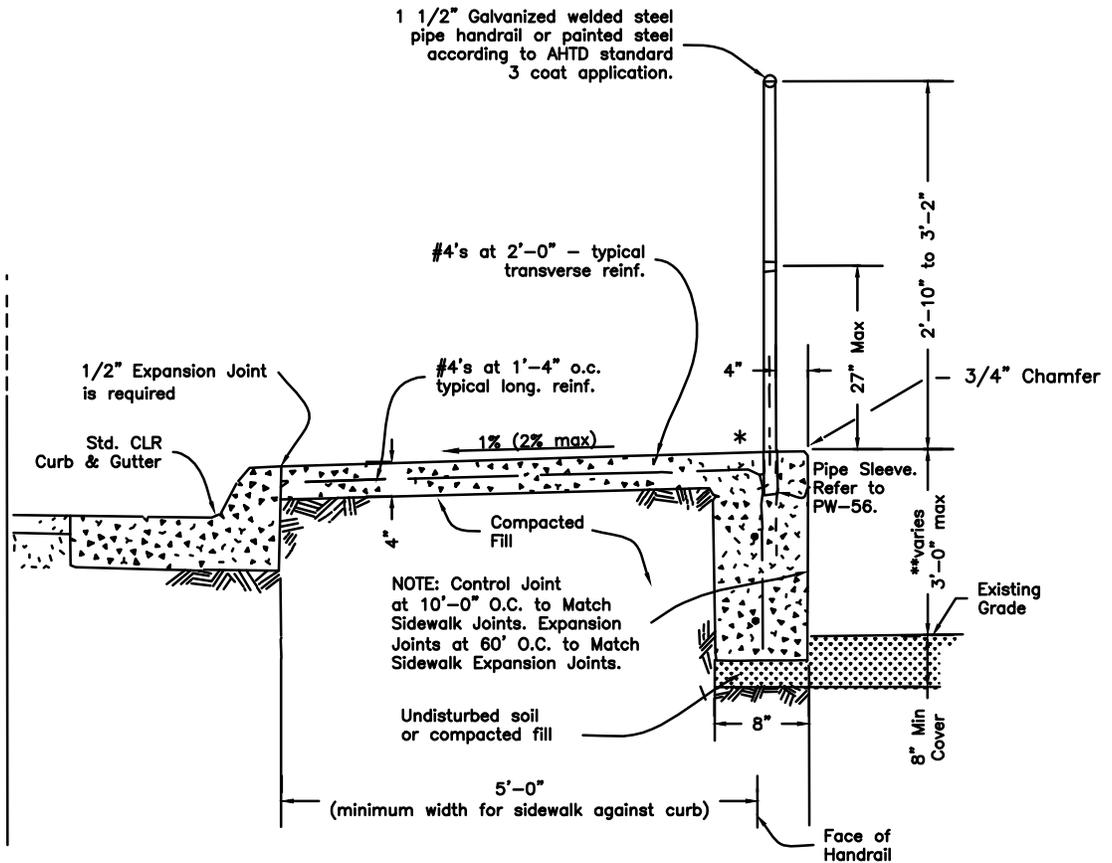
SIDEWALK ADJACENT TO CURB (FILL SECTION)

PW-43

Issue Date
AUG, 2006

Revision Date
JUNE 2013

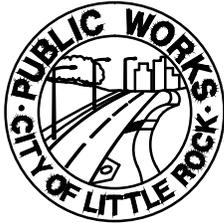
GENERAL NOTE: PUBLIC SIDEWALK SHALL BE BUFFERED FROM STREET. SIDEWALK MAY BE INSTALLED ADJACENT TO CURB ONLY UPON RECEIVING WRITTEN AUTHORIZATION FROM PUBLIC WORKS.



HANDRAIL TERMINATION DETAIL

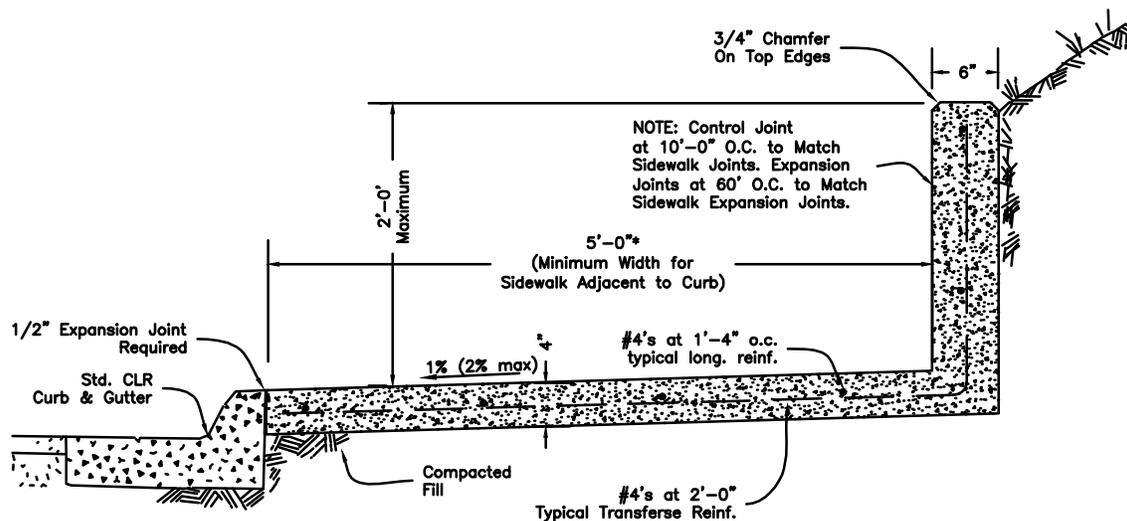
*NOTE: SUBSTITUTE 6" CURB FOR HANDRAIL WHEN HEIGHT IS LESS THAN 24" ABOVE GRADE.

** INTERGRAL TURNDOWN WALL SHALL NOT EXCEED 3'-0" IN HEIGHT. IF HEIGHTS EXCEEDS 3'-0" THEN RETAINING WALL WITH FOOTING SHALL BE PROVIDED



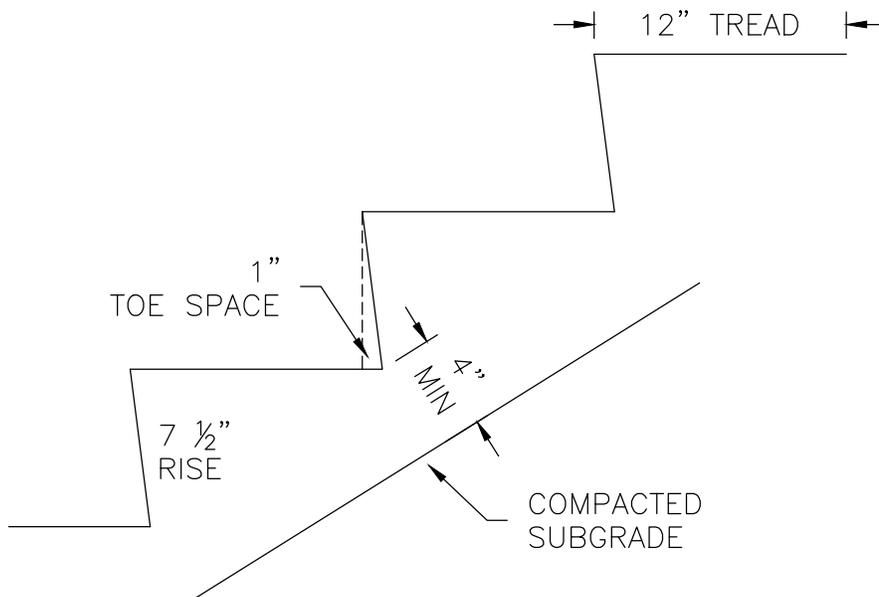
TITLE
 SIDEWALK ADJACENT
 (CUT SECTION)
 STEP DETAIL

Issue Date	Revision Date
AUG, 2006	JUNE 2013



* Minimum Width For Sidewalk Adjacent to Curb On State Or U.S. Highway is 6'-0"

NOTES: Weep holes not required in turnout wall. If height exceeds 2'-0", then this detail is not used. Retaining walls with footing required where height of turnout exceeds 2'-0". Handrail or fencing required where height of turnout exceeds 2'-0".



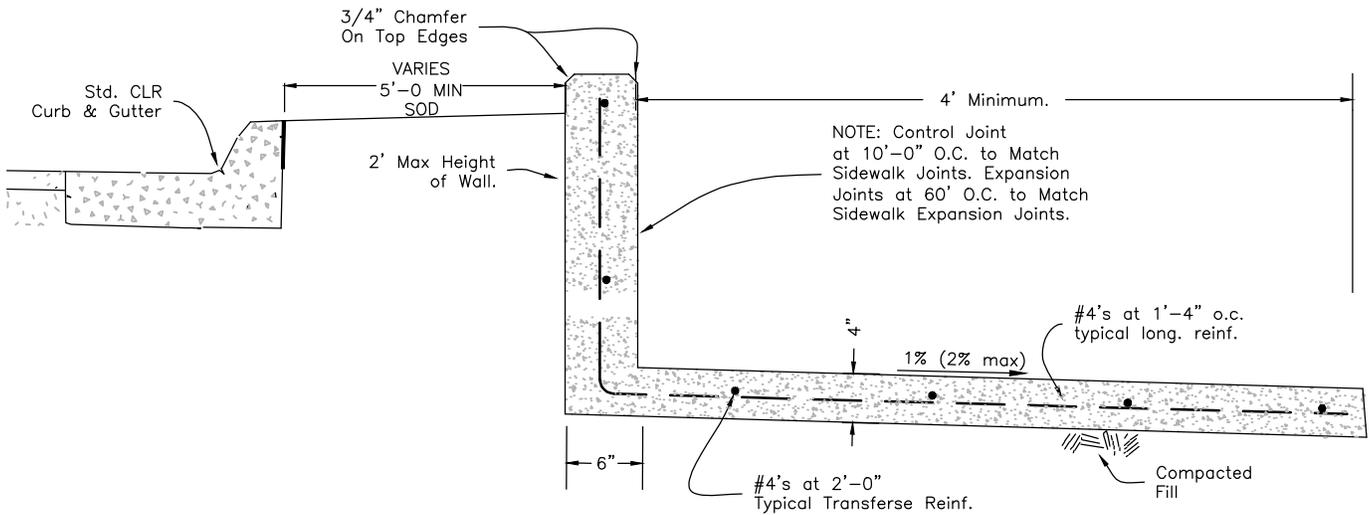
SIDEWALK STEPS



TITLE
 SIDEWALK
 (FILL SECTION)

	PW-45
Issue Date	Revision Date
AUG, 2006	JUNE 2013

USE OF THIS DETAIL IS DISCOURAGED AND REQUIRES WRITTEN AUTHORIZATION OF PUBLIC WORKS FOR SPECIAL CONDITIONS ONLY.



NOTES: Weep holes not required in turnout wall. If height exceeds 2'-0", then this detail is not used. Retaining walls with footing required where height of turnout exceeds 2'-0". Handrail or fencing required where height of turnout exceeds 2'-0".

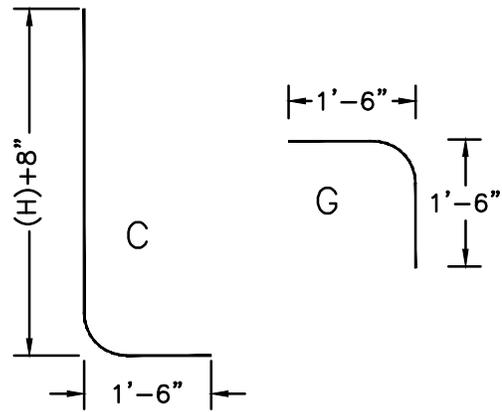
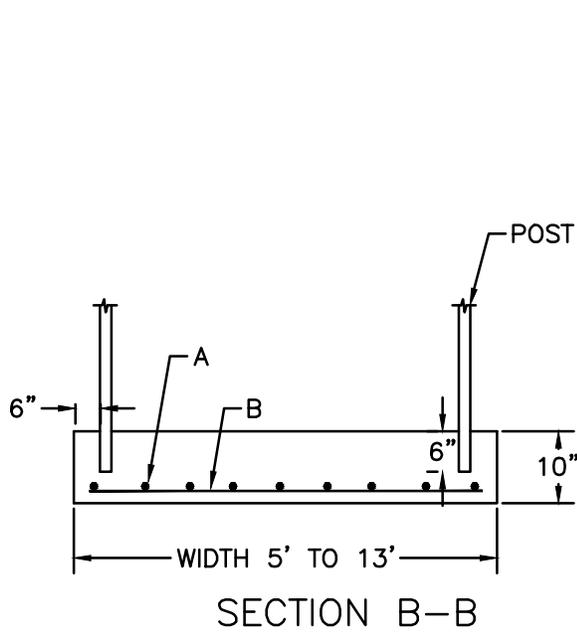


TITLE

SIDEWALK CROSSOVER BRIDGE
DESIGNED FOR 500 L.B. VEHICLE LOAD

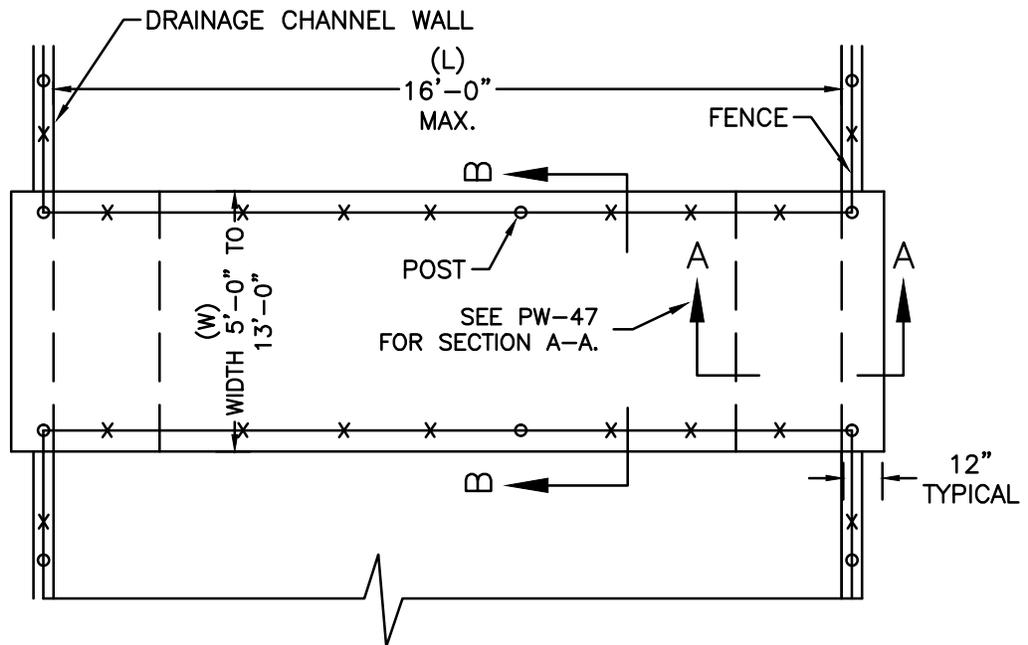
Issue Date
AUG, 2006

PW-46
Revision Date
JUNE 2013



BAR	L	No.
A	(L)+1'-6"	#7@4"
B	(W)-3"	#4@12"
C	(H)+2'-2"	#4@8"
D	(W)-2"	#4@10"
E	3'-10"	#4@8"
F	(W)-3"	#4@12"
G	3'	#4@8"

L : LENGTH OF BRIDGE
W : WIDTH OF BRIDGE

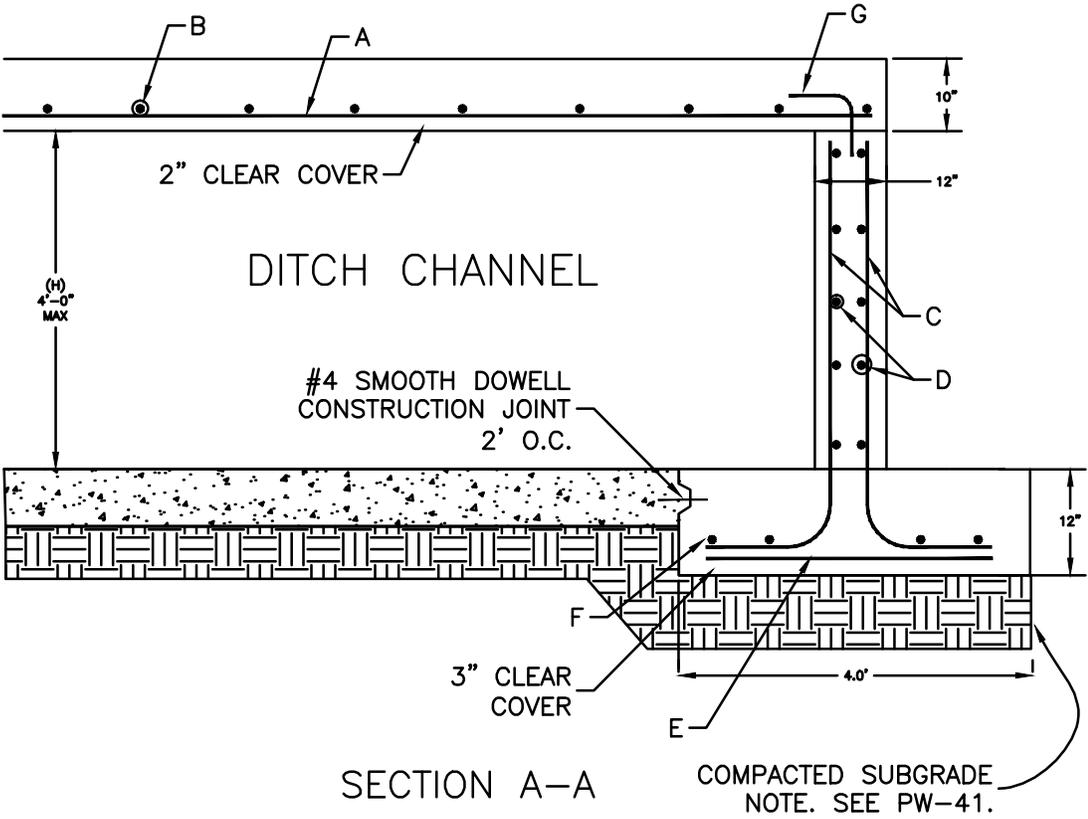




TITLE
SIDEWALK CROSSOVER BRIDGE
DESIGNED FOR 500 L.B. VEHICLE LOAD

	PW-47
Issue Date	Revision Date
AUG, 2006	JUNE 2013

- 1. SPLICE LENGTH PERMITTED FOR "B", "D", AND "F" BARS ONLY AND SHALL BE 18".
- 2. COMPRESSIVE STRENGTH OF CONCRETE SHALL BE NOT LESS THAN
4000 p.s.i. FOR BRIDGE SLAB
3500 p.s.i. FOR BRIDGE FOOTINGS AT PIERS
- 3. USE DEFORMED BARS GRADE 60
- 4. ALLOWABLE SOIL BEARING PRESSURE SHALL BE NOT LESS THAN 1000 lb PER SQ.FT.
- 5. SEE PW-46 FOR REBAR INFORMATION





TITLE
ACCESS RAMP
(GENERAL NOTES & RAMP CRITERIA)

	PW-48
Issue Date	Revision Date
AUG, 2006	JUNE 2013

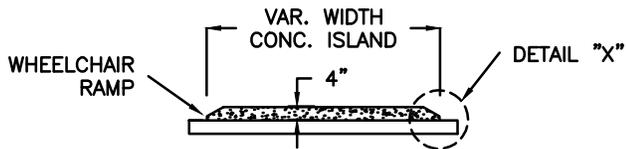
- (A) THE SLOPE OF THE RAMP SHALL NOT EXCEED 1:12 (8.33%). CONTRACTORS SHOULD FORM RAMPS AT A GRADE LOWER THAN 8.33% TO ALLOW ROOM FOR CONSTRUCTION TOLERANCES. POURING AND FINISHING RAMPS WITHOUT THE AID OF A DIGITAL LEVEL IN CHECKING GRADES IS DISCOURAGED, BECAUSE CONTRACTORS WILL BE REQUIRED TO REMOVE ANY RAMP WITH GRADES EXCEEDING REQUIREMENTS SHOWN IN STANDARD DETAILS. RAMP SURFACE SHALL BE COURSE BROOMED TRANSVERSE TO THE SLOPE. GROOVES/JOINTS ARE NOT TO BE INSTALLED IN THE RAMP SURFACE.
- (B) THE MINIMUM THICKNESS OF RAMPS, SIDEWALKS AND LANDING AREAS SHALL BE 4 INCHES. CONCRETE TO BE MINIMUM 3000 p.s.i.. EXPOSED AGGREGATE CONCRETE SHALL NOT BE USED ON SURFACE RAMPS. WIRE REINFORCEMENT IS NOT REQUIRED IN RAMPS OR SIDEWALKS UNLESS SPECIFICALLY STATED IN DESIGN PLANS.
- (C) THE MAXIMUM RAMP AND LANDING CROSS-SLOPE SHALL BE 2.0% UNLESS THE STREET GRADE EXCEEDS 2.0%, THEN THE CROSS-SLOPE OF THE RAMP SHALL MATCH THE STREET RUNNING GRADE. DO NOT PROVIDE TRANSITIONAL WARPS IN THE GUTTER, RAMP SURFACE OR LANDING AREA. THE STREET RUNNING GRADE IS MEASURED DIRECTLY IN FRONT OF THE RAMP WITH A 4 FOOT DIGITAL LEVEL AND IS THE GRADE OF THE STREET PERPENDICULAR TO THE RAMP RUNNING SLOPE WHERE THE ASPHALT ABUTS THE GUTTER.
- (D) GUTTER SHALL NOT EXCEED 5.0% DIRECTLY IN FRONT OF A CURB RAMP. NO LIP OR VERTICLE SEPARATION SHALL BE INSTALLED BETWEEN THE GUTTER AND THE RAMP.
- (E) THE MINIMUM RAMP WIDTH SHALL BE 4 FEET. A THREE FOOT WIDE RAMP IS ACCEPTABLE ONLY IN THE CASE OF AN OBSTRUCTION AND WITH PUBLIC WORKS WRITTEN APPROVAL. CURB RAMPS, SIDEWALKS, MEDIAN CUTS AND CROSSWALKS SHALL BE ALIGNED UNLESS NOT POSSIBLE TO AID IMPAIRED USERS.
- (F) RAMP SIDE FLARES SHALL NOT EXCEED 10.0% RELATIVE TO THE STREET. (EXAMPLE: IF THE STREET SLOPE IS 5.0% THEN THE SIDE FLARE SLOPE MAY BE UP TO 15.0% ON THE LOW SIDE TO ALLOW THE THE FLARE TO MATCH CURB HEIGHT IN A REASONABLE DISTANCE. THE SIDE FLARE SLOPE ON THE HIGH SIDE OF THE RAMP WOULD REMAIN AT 10.0% OR LESS GRADE SINCE IT WILL MATCH CURB HEIGHT QUICKLY).
- (G) A MINIMUM 3 FOOT LONG SIDEWALK TRANSITION SHALL BE PROVIDED WHEN MATCHING CURB RAMP/LEVEL LANDING TO EXISTING SIDEWALKS WITH CROSS SLOPE EXCEEDING 2.0%. ADDITIONAL TRANSITION LENGTH MAY BE REQUIRED WHEN MATCHING TO EXISTING SIDEWALK WITH SEVERE CROSS SLOPE.
- (H) MEDIAN CUTS: SHALL BE 6 FEET WIDE FOR TWO-WAY PEDESTRIAN TRAFFIC ALIGNED WITH CROSSING. MEDIAN CUT CROSS SLOPE SHALL BE MAXIMUM 2.0% OR MATCH STREET GRADE WHEN ROADWAY SLOPE EXCEEDS 2.0%.
- (I) RAMP LENGTH IS LIMITED TO 15 FEET.

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH WALK ADJACENT TO CURB BOTH NEW CONSTRUCTION AND ALTERATIONS
	TYPE 2	CORNER LOCATIONS WITH WALK OFFSET FROM CURB A DISTANCE INSUFFICIENT TO ALLOW REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS)
	TYPE 3	CORNER LOCATIONS WITH WALK OFFSET FROM CURB A DISTANCE SUFFICIENT TO ALLOW REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS)
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS)
SECOND	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY)

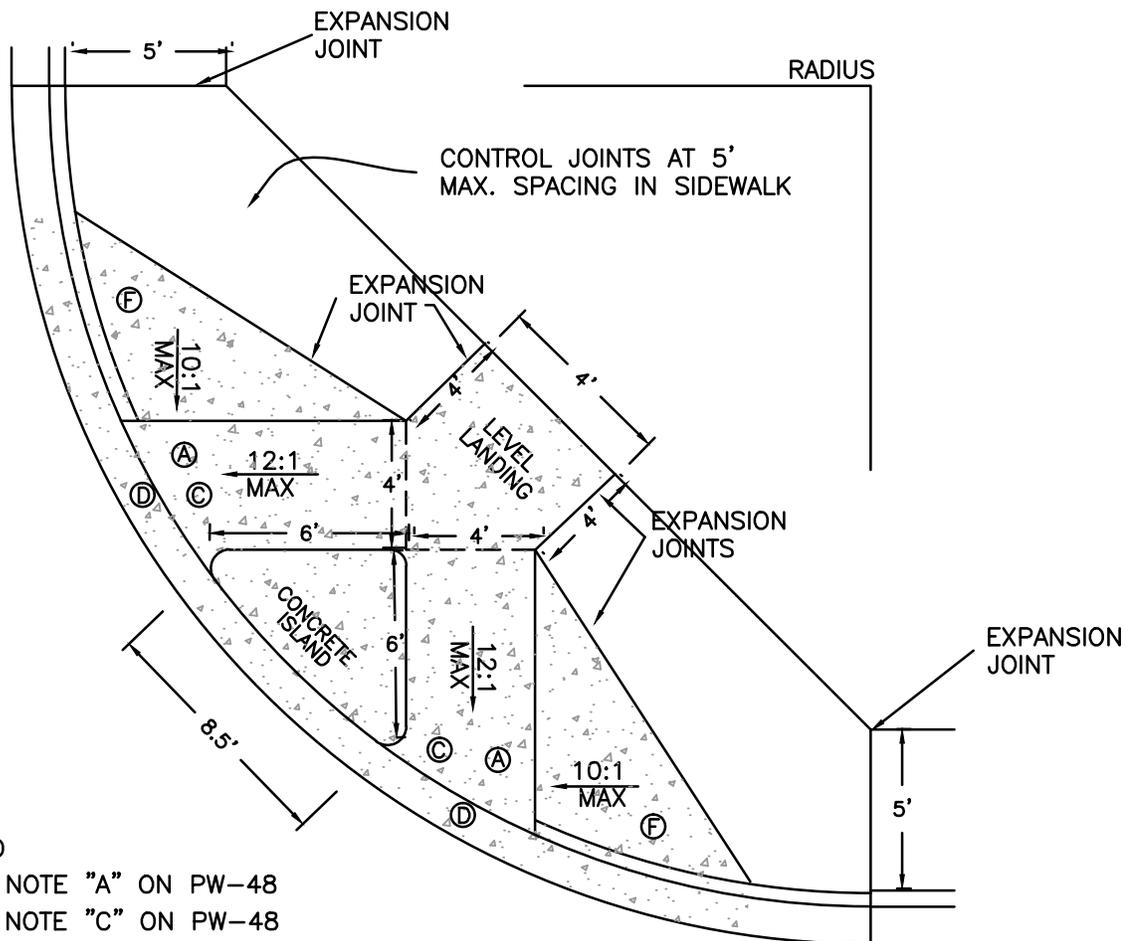
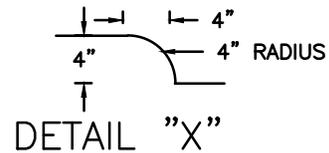


TITLE
ACCESS RAMP
TYPE 1

Issue Date	PW-49
AUG, 2006	Revision Date
	JUNE 2013



CONCRETE ISLAND DETAIL



LEGEND

- Ⓐ SEE NOTE "A" ON PW-48
- Ⓒ SEE NOTE "C" ON PW-48
- Ⓓ SEE NOTE "D" ON PW-48
- Ⓕ SEE NOTE "F" ON PW-48



DENOTES ACCESS RAMP UNIT PAY AREA

TYPE 1 RAMP
(WALK ADJACENT TO CURB)

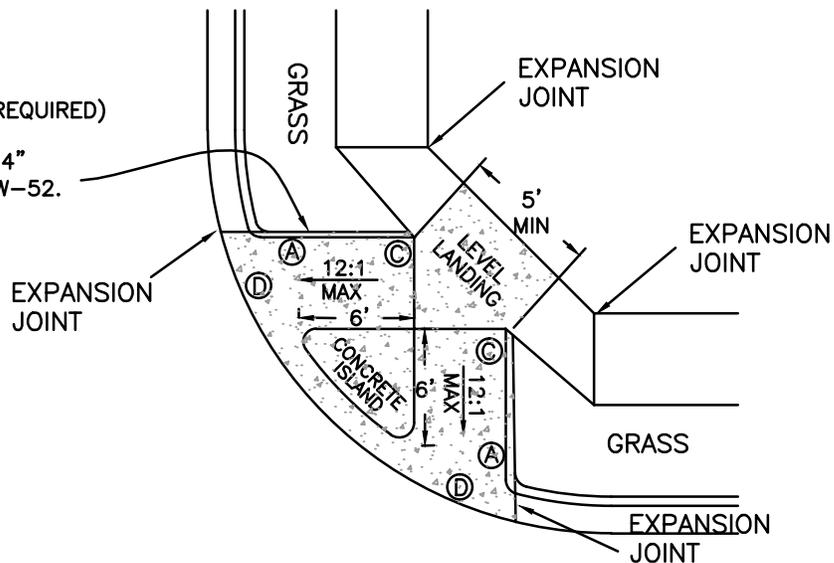


TITLE
ACCESS RAMP
TYPE 2 & TYPE 4

Issue Date	PW-50
AUG, 2006	Revision Date
	JUNE 2013

TYPE 2 RAMP
(WALK OFFSET FROM CURB-LANDING REQUIRED)

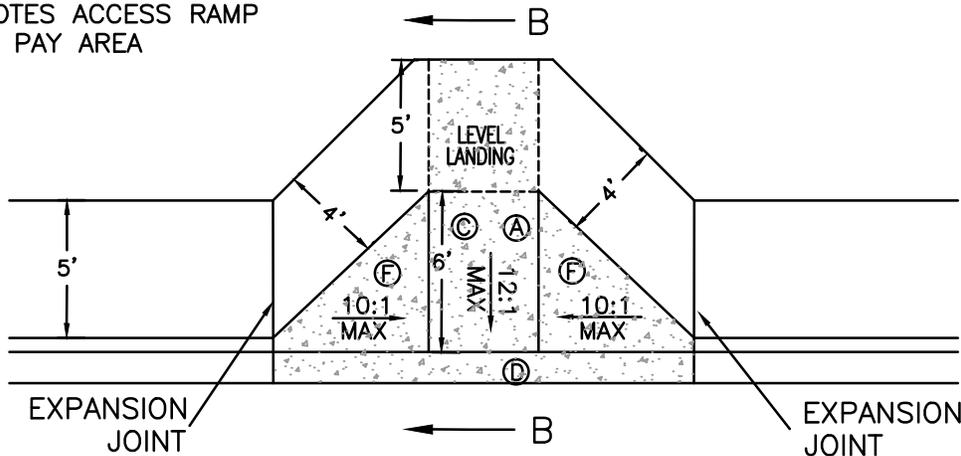
RAMPS ADJACENT TO GRASS REQUIRE 4" CURB OR 1' FLARE PER PW-51 & PW-52.



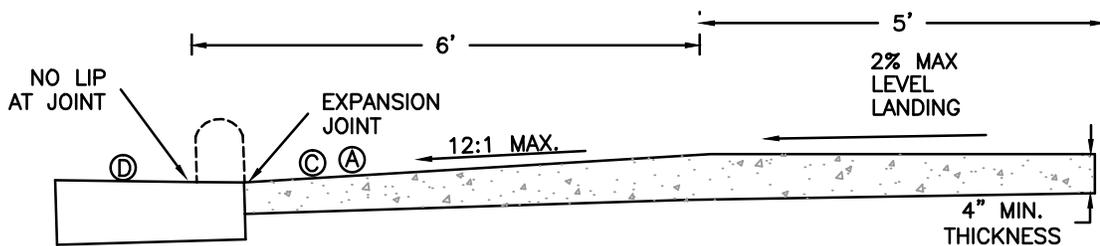
LEGEND

- Ⓐ SEE NOTE "A" ON PW-48
- Ⓒ SEE NOTE "C" ON PW-48
- Ⓓ SEE NOTE "D" ON PW-48
- Ⓕ SEE NOTE "F" ON PW-48

DENOTES ACCESS RAMP UNIT PAY AREA



TYPE 4 RAMP
(WALK ADJACENT TO CURB)



SECTION B-B

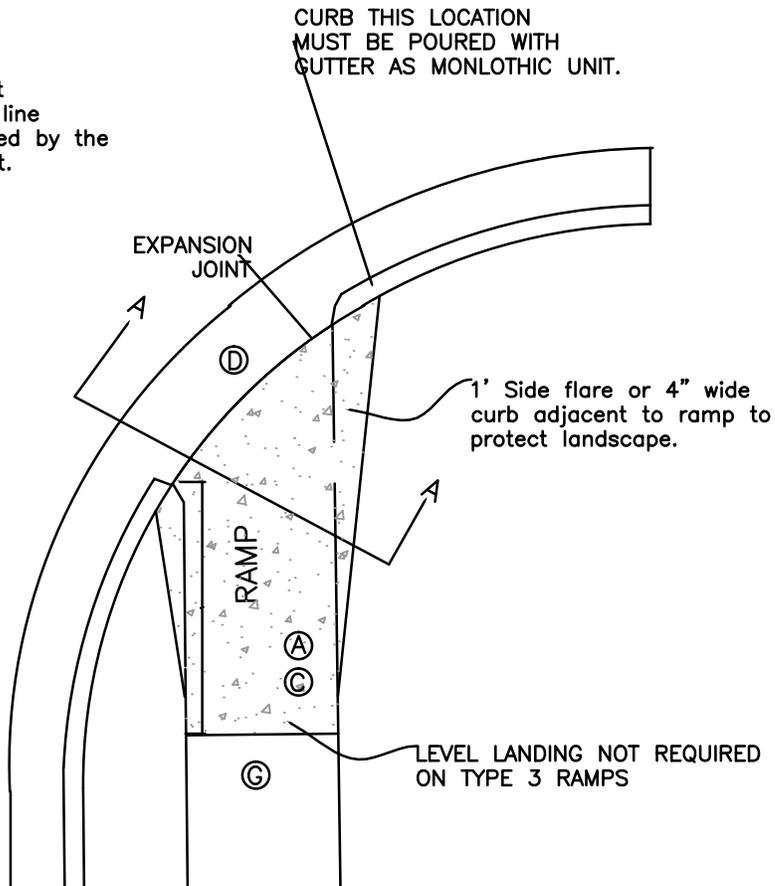


TITLE
 ACCESS RAMP
 TYPE 3 EXPANSION JOINT
 ALTERNATE 1

	PW-51
Issue Date	Revision Date
AUG, 2006	JUNE 2013

Ramp must cross street perpendicular to center line unless otherwise approved by the Public Works Department.

CURB THIS LOCATION MUST BE POURED WITH GUTTER AS MONLOTHIC UNIT.



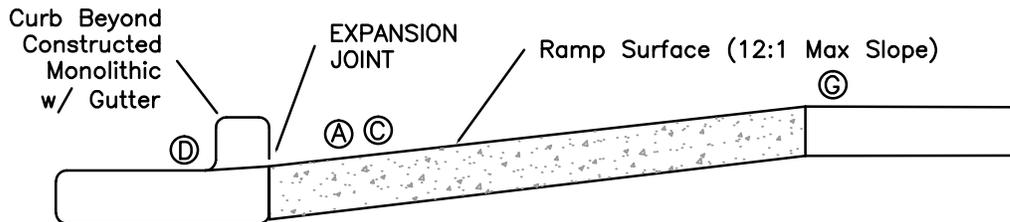
LEGEND

- Ⓐ SEE NOTE "A" ON PW-48
- Ⓒ SEE NOTE "C" ON PW-48
- Ⓓ SEE NOTE "D" ON PW-48
- Ⓔ SEE NOTE "G" ON PW-48

 DENOTES ACCESS RAMP UNIT PAY AREA

TYPE 3 RAMP
 PLAN

EXPANSION JOINT
 ALTERNATE 1



SECTION A-A

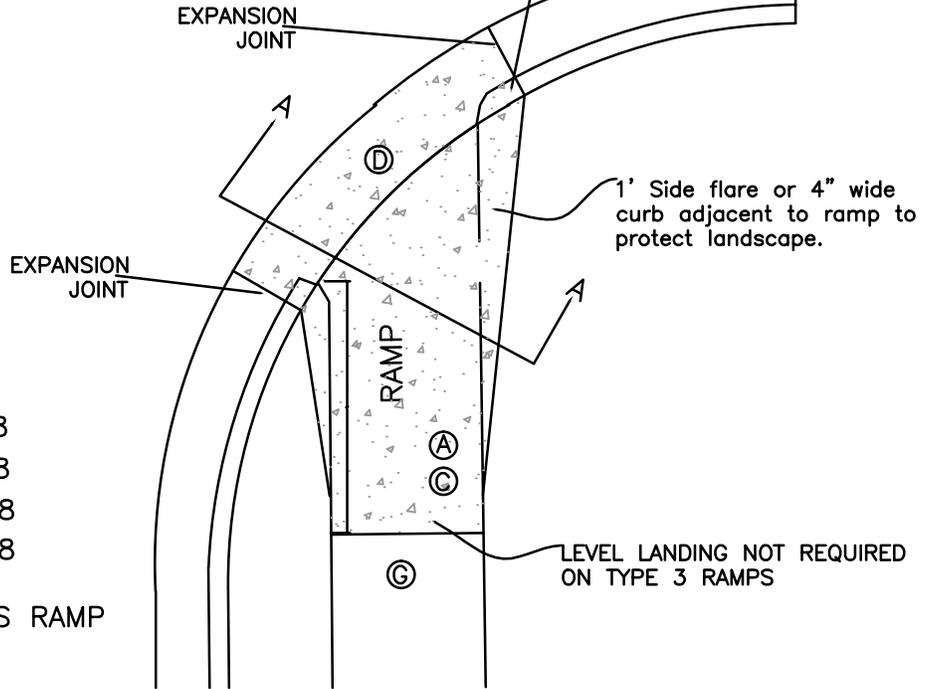


TITLE
 ACCESS RAMP
 TYPE 3 EXPANSION JOINT
 ALTERNATE 2

Issue Date	PW-52
AUG, 2006	Revision Date
	JUNE 2013

Ramp must cross street perpendicular to center line unless otherwise approved by the Public Works Department.

CURB THIS LOCATION MUST BE POURED WITH GUTTER AS MONLOTHIC UNIT.



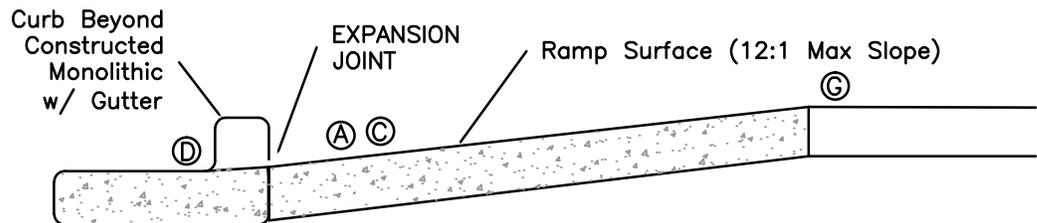
LEGEND

- Ⓐ SEE NOTE "A" ON PW-48
- Ⓒ SEE NOTE "C" ON PW-48
- Ⓓ SEE NOTE "D" ON PW-48
- Ⓔ SEE NOTE "G" ON PW-48

DENOTES ACCESS RAMP UNIT PAY AREA

TYPE 3 RAMP
 PLAN

EXPANSION JOINT
 ALTERNATE 2



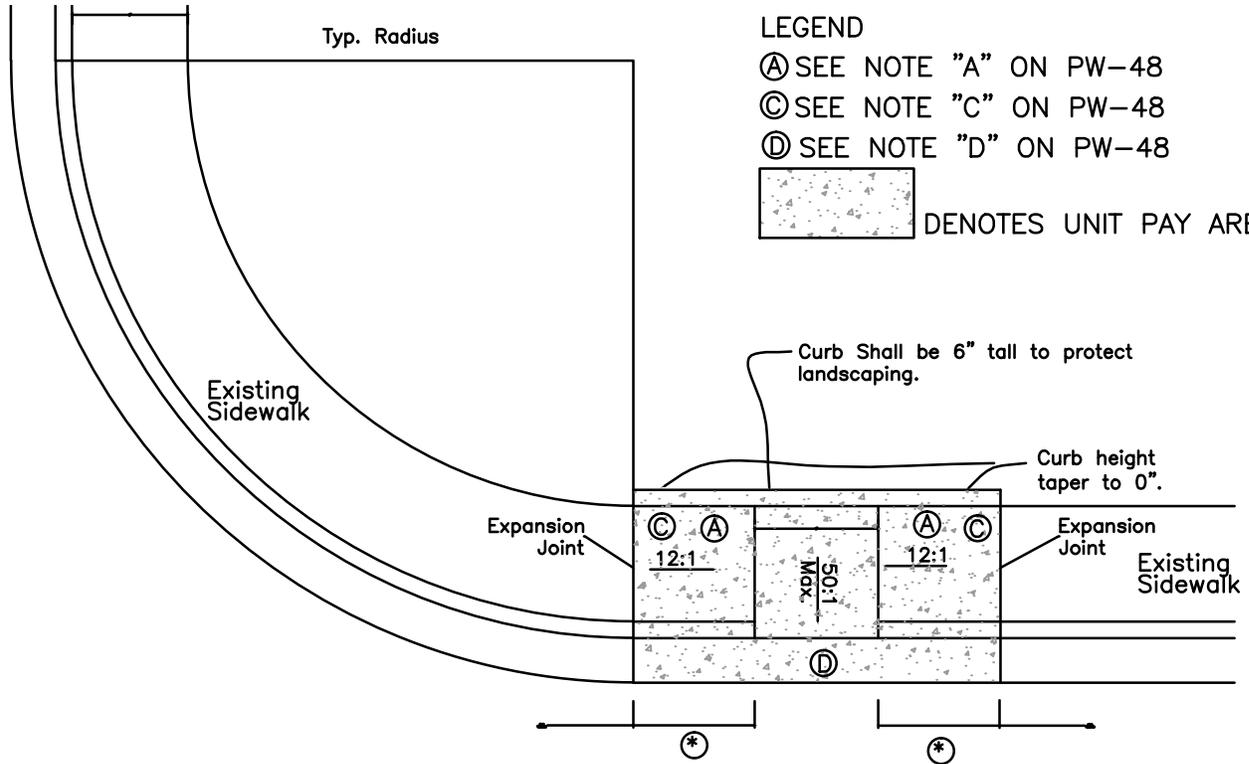
SECTION A-A



TITLE
ACCESS RAMP
TYPE 5

Issue Date
AUG, 2006

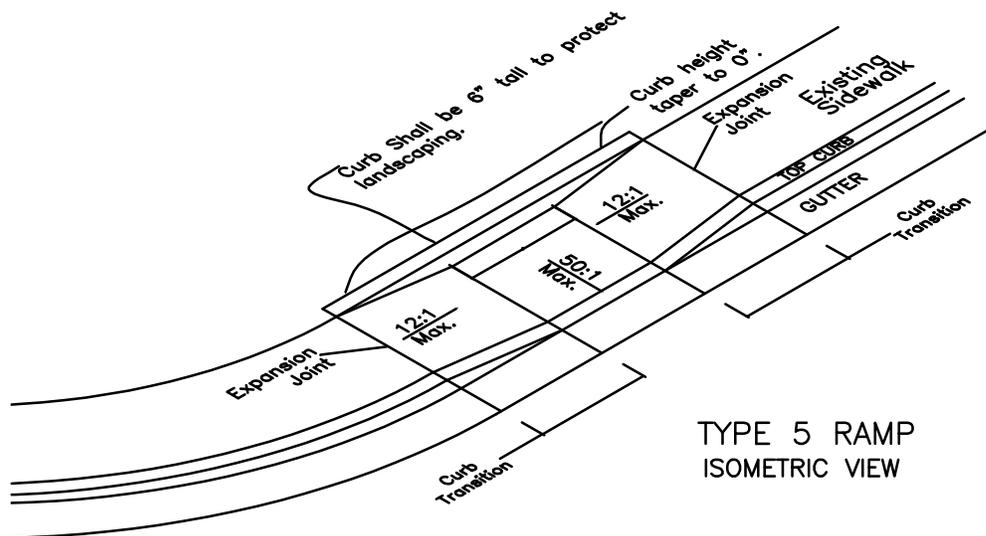
PW-53
Revision Date
JUNE 2013



TYPE 5 RAMP

THIS RAMP REQUIRES APPROVAL FROM PUBLIC WORKS DEPARTMENT.

⊛ RAMP LENGTH IS NEEDED TO OBTAIN GRADE LESS THAN 12:1 SLOPE, BUT MAXIMUM LENGTH SHALL BE 15 FEET.



TYPE 5 RAMP
ISOMETRIC VIEW



TITLE

RETAINING WALL DETAILS
(8' MAXIMUM HEIGHT)

PW-54

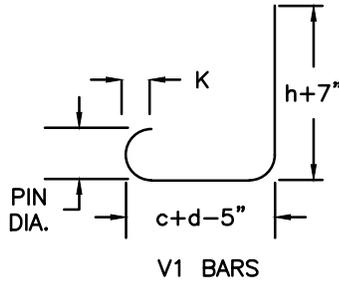
Issue Date

Revision Date

AUG, 2006

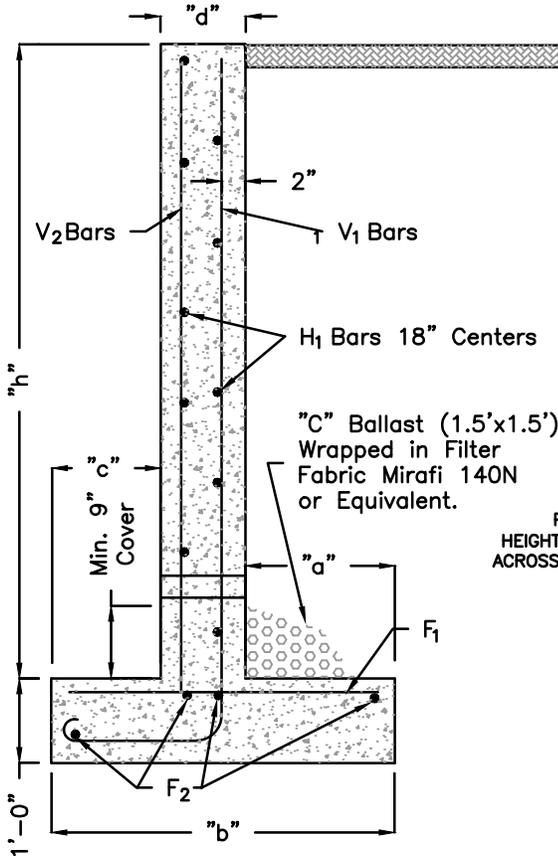
JUNE 2013

NOTE: IF WALL HEIGHT EXCEEDS 8' OR IF RETAINED EARTH SLOPES UP EXCEEDING 10% GRADE, THE WALL SHALL BE DESIGNED BY PROFESSIONAL ENGINEER WITH GEOTECHNICAL STUDY.



BENDING DIAGRAM

BAR SIZE	BAR	PIN DIA.
#4	4 1/2"	2 1/2"
#5	5"	3"

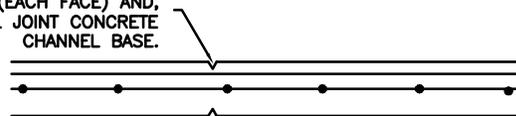


PROVIDE KEYWAY AT BASE OF WALL. KEYWAY NOT REQUIRED ON WALLS LESS THAN 4'.

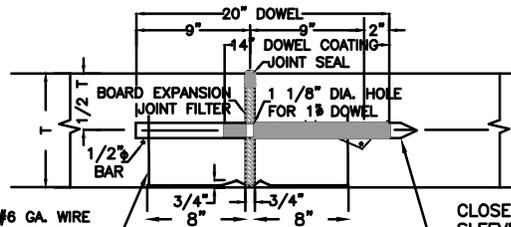
STEEL SCHEDULE

"h"	"c"	"d"	"a"	"b"	V ₁ bars		F ₁ bars		H ₁	V ₂	F ₂
					Size	Spacing	Size	Spacing	Spacing	Spacing	Spacing
1'-0"	8"	8"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
2'-0"	8"	8"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
3'-0"	8"	8"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
4'-0"	8"	8"	1'-2"	2'-6"	#4	12"	#4	12"	18"	18"	5
5'-0"	8"	8"	1'-8"	3'-0"	#4	9"	#4	9"	18"	18"	5
6'-0"	8"	8"	2'-2"	3'-6"	#4	6"	#4	6"	18"	18"	6
7'-0"	12"	8"	2'-4"	4'-0"	#4	6"	#4	6"	18"	18"	6
8'-0"	12"	8"	2'-10"	4'-6"	#4	6"	#4	6"	18"	18"	6

PROVIDE 3/4" CHAMFER FULL HEIGHT OF WALL (EACH FACE) AND, ACROSS TOP. TOOL JOINT CONCRETE CHANNEL BASE.



CONTROL JOINT
USED AT 10' O.C. EACH SIDE
(TO ALIGN WITH FENCE POSTS)



DOWEL BAR CONSISTING OF MIN. #6 GA. WIRE CHAIR & DOWEL WOLDER AT EACH DOWEL & TWO 1/2" STEEL BARS AT EACH CHAIR. 3/4" EXPANSION JOINT AT 80' O.C.

EXPANSION JOINT
(DOWEL BARS TO BE 12" ON CENTER)

CLOSED END DOWEL BAR SLEEVE TO FIT DOWEL AND BE SECURED BY BAR TIE OR WELDING.

REINFORCED CONCRETE RETAINING WALL

2" WEEP HOLES (MAX. SPACING 10'-0" CTRS.) TO BE PLACED TO ALIGN WITH CONTROL JOINTS. ALL EXPOSED EDGES TO BE CHAMFERED 3/4".

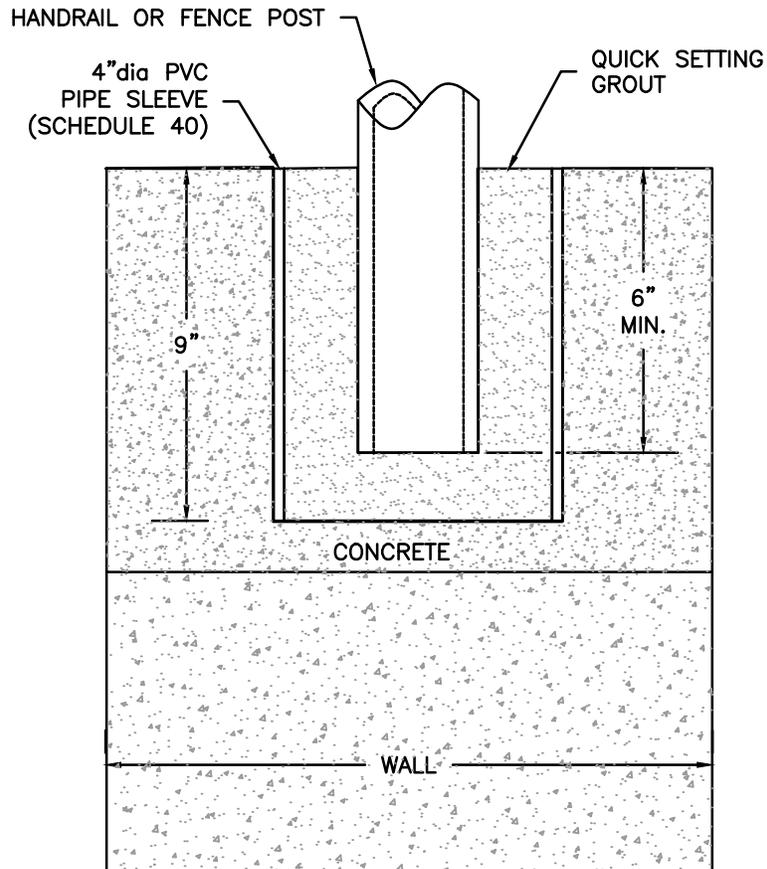


TITLE
PIPE SLEEVE DETAIL

Issue Date
AUG, 2006

PW-56
Revision Date
JUNE 2013

FENCE POST TO BE ALIGNED WITH CONTROL JOINTS.
SEE PW-59 FOR DETAIL OF FENCE POST AT EXPANSION
JOINT.





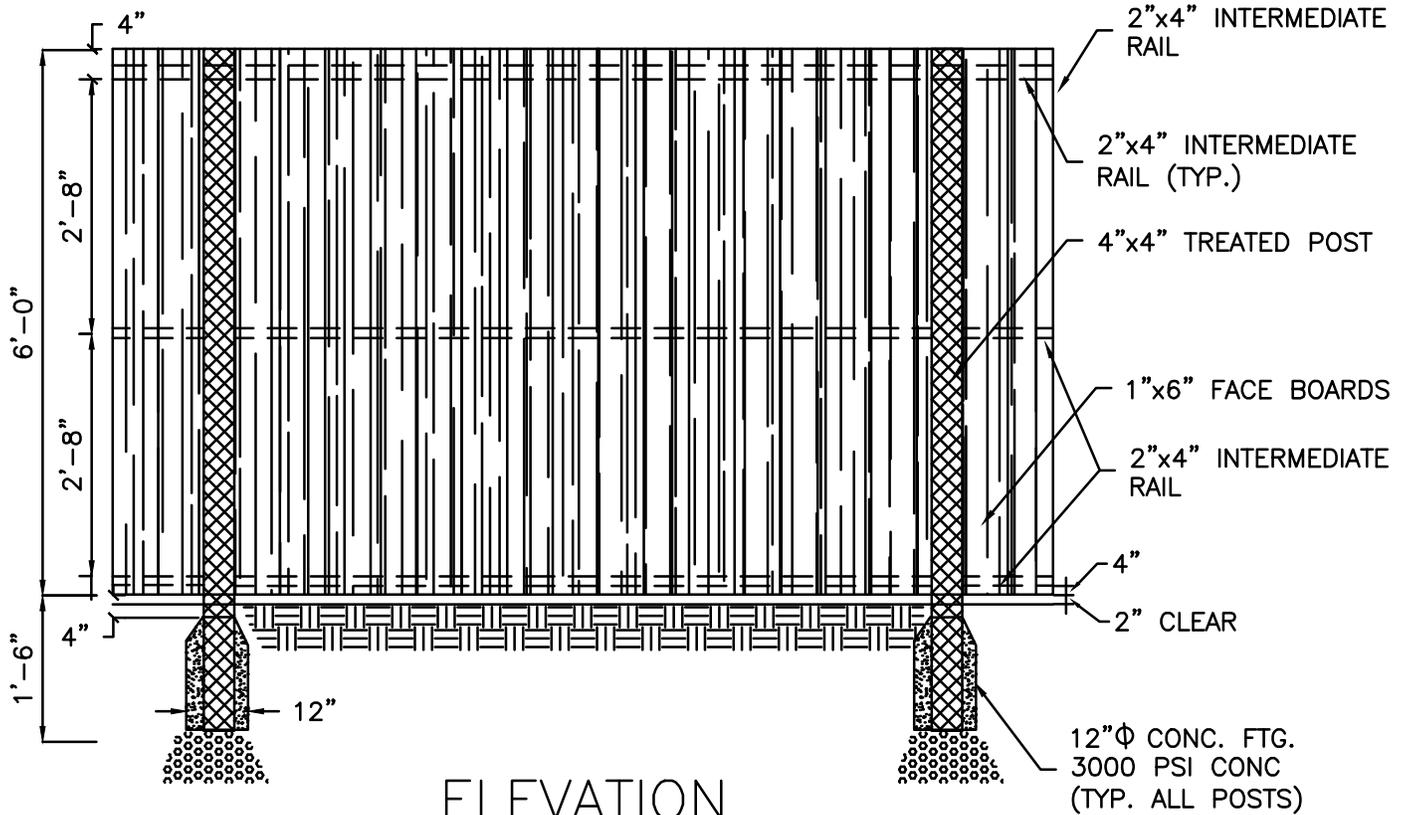
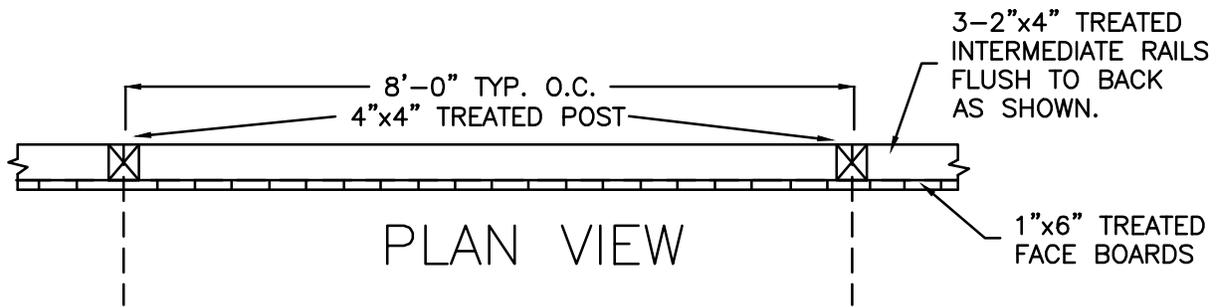
TITLE
WOOD FENCE DETAIL
(WITH WOOD POST)

Issue Date
AUG, 2006

PW-57
Revision Date
JUNE 2013

NOTES:

- *ALL FASTENING HARDWARE TO BE NON-CORROSIVE
- *CONTRACTOR SHALL USE 8p. GALVANIZED SIDING NAILS OR 2" GALVANIZED SCREWS THROUGHOUT.
- *ALL WOOD MEMBERS SHALL BE TREATED.



N.T.S.



TITLE

WOOD FENCE DETAIL
(WITH METAL POST)

Issue Date
AUG, 2006

PW-58
Revision Date
JUNE 2013

NOTES:

- *ALL FASTENING HARDWARE TO BE NON-CORROSIVE
- *CONTRACTOR SHALL USE 8p. GALVANIZED SIDING NAILS OR 2" GALVANIZED SCREWS THROUGHOUT.
- *ALL WOOD MEMBERS SHALL BE TREATED.

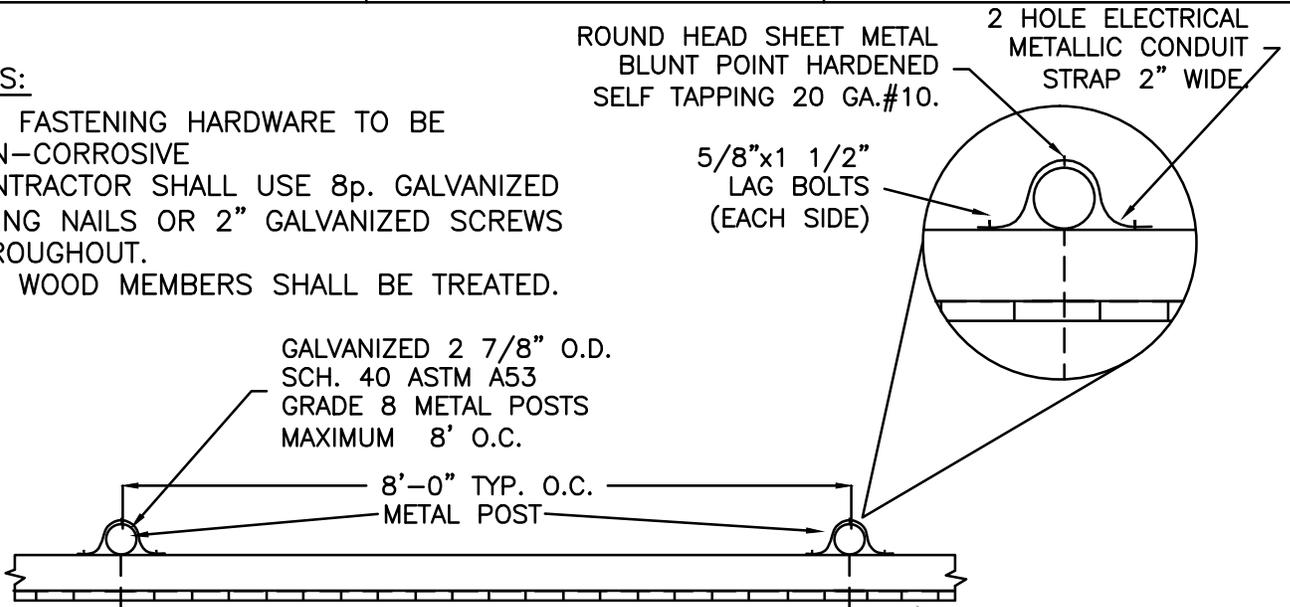
ROUND HEAD SHEET METAL
BLUNT POINT HARDENED
SELF TAPPING 20 GA.#10.

2 HOLE ELECTRICAL
METALLIC CONDUIT
STRAP 2" WIDE

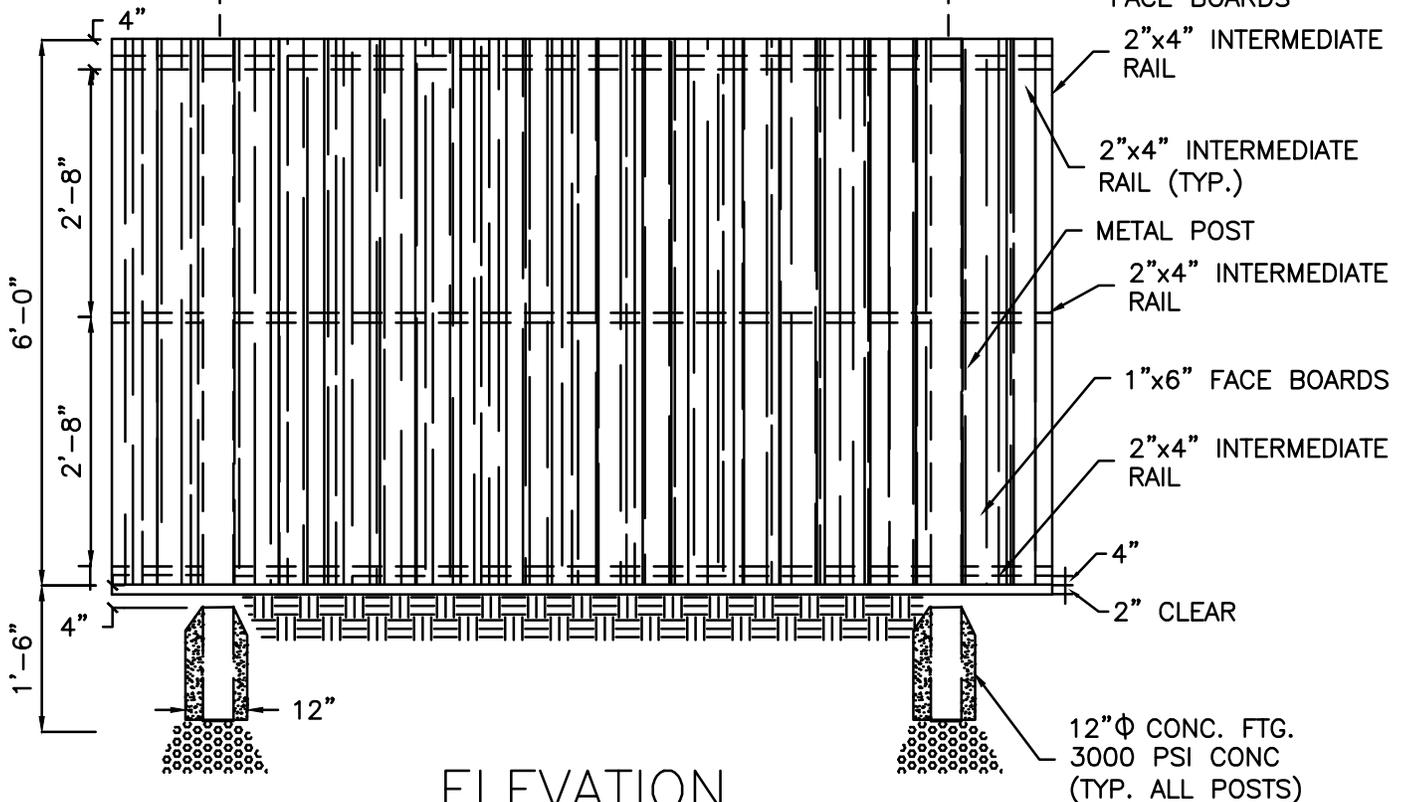
5/8"x1 1/2"
LAG BOLTS
(EACH SIDE)

GALVANIZED 2 7/8" O.D.
SCH. 40 ASTM A53
GRADE 8 METAL POSTS
MAXIMUM 8' O.C.

8'-0" TYP. O.C.
METAL POST



PLAN VIEW



ELEVATION

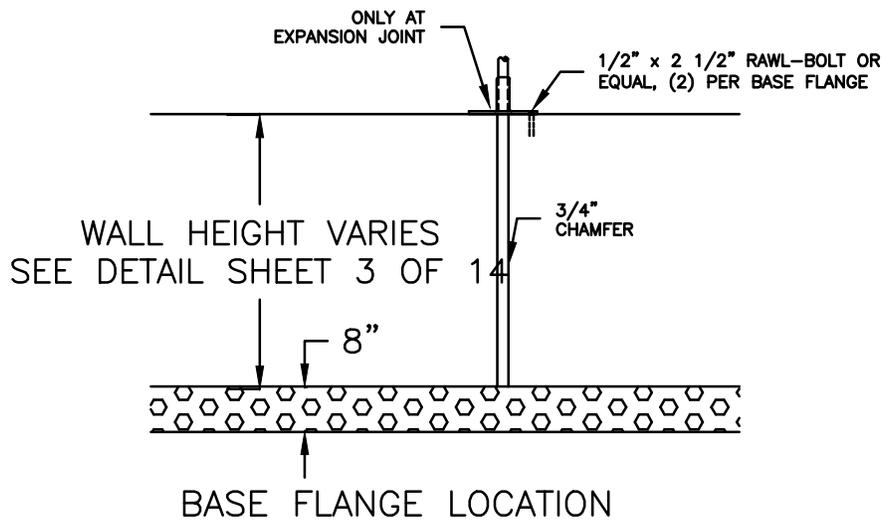
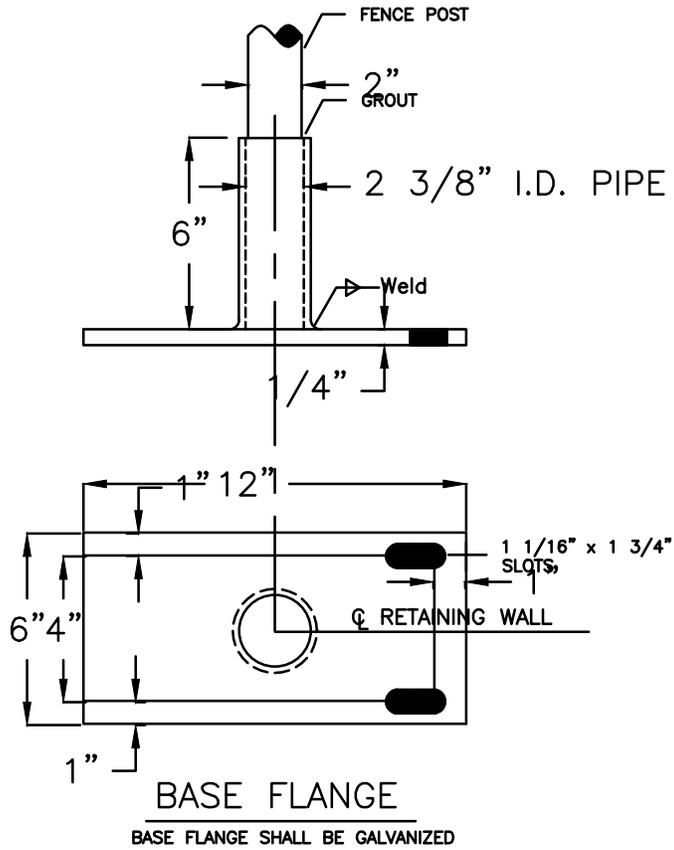
N.T.S.

12" Φ CONC. FTG.
3000 PSI CONC
(TYP. ALL POSTS)



TITLE
FENCE POST FLANGE DETAIL
AT EXPANSION JOINT

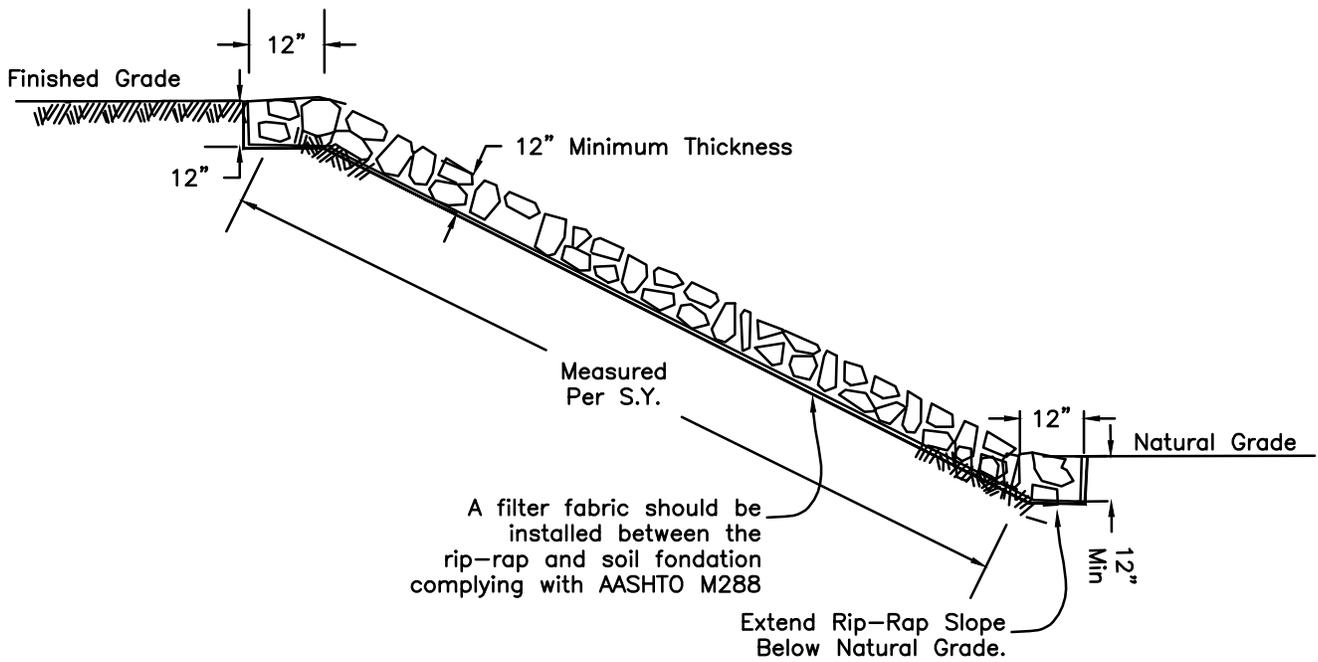
	PW-59
Issue Date	Revision Date
AUG, 2006	JUNE 2013





TITLE
 GROUTED RIP-RAP
 EMBANKMENT DETAILS

	PW-60
Issue Date	Revision Date
AUG, 2006	JUNE 2013



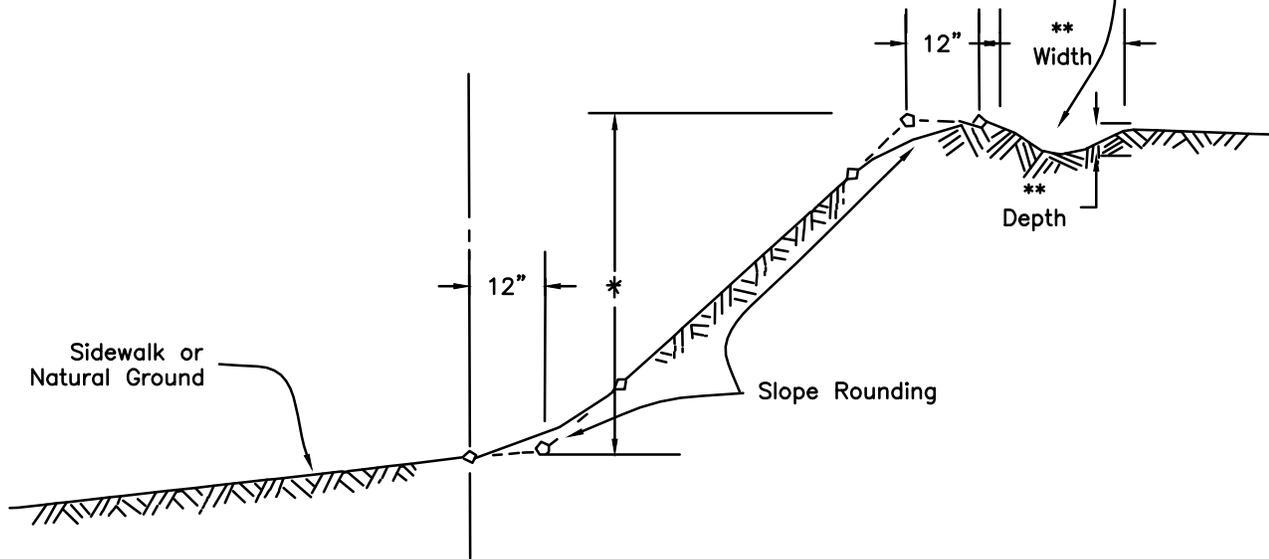
% STONE	WEIGHT OF PIECES IN POUNDS
NOT MORE THAN 15	75-150
40-45	25-75
30-35	6-25
NOT MORE THAN 15	LESS THAN 6



TITLE
SLOPE ROUNDING
DETAIL

Issue Date	PW-61
AUG, 2006	Revision Date JUNE 2013

Interceptor ditch required
on slopes greater than 44%
& 6' in height as directed.
Paved invert required if flow
exceeds 10 c.f.s.



SLOPE ROUNDING
(TYPICAL ON ALL CUT OR FILL SLOPES)

* Maximum height 15'-0" unless midheight
10' terraces utilized according to Section 29
of Little Rock Code of Ordinances.

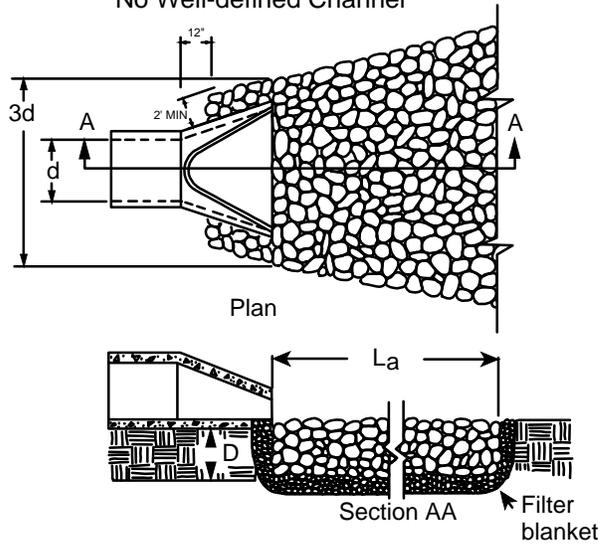
** INTERCEPTOR DITCH SIZE SHALL BE DETERMINED BY ENGINEER



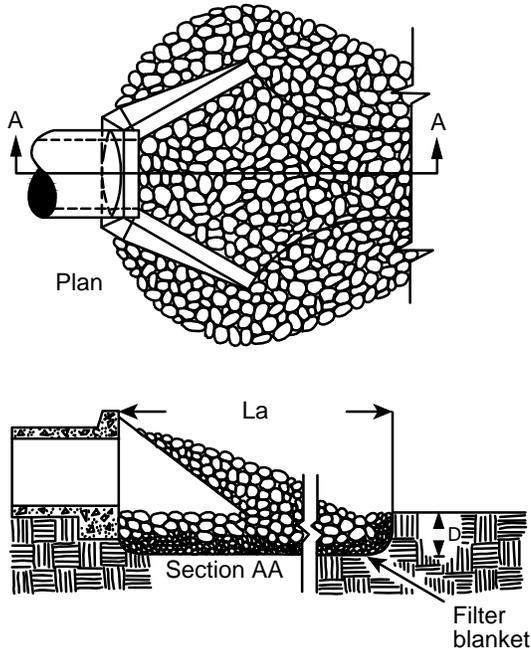
TITLE
END SECTION
RIP RAP PLACEMENT
DOWNSTREAM END

	PW-62
Issue Date AUG, 2006	Revision Date JUNE 2013

Pipe Outlet to Flat Area-
No Well-defined Channel



Pipe Outlet to Well-defined
Channel



Notes

1. L_a is the length of the riprap apron. Please see design plans for length.
2. $D = 1.5$ times the maximum stone diameter but not less than 6".
3. In a well-defined channel extend the apron up the channel banks to an elevation of 6" above the maximum tailwater depth of to the top of the bank, whichever is less.
4. A filter blanket or filter fabric should be installed between the riprap and soil foundation complying with AASHTO M288.
5. Please see design plans for stone sizing.



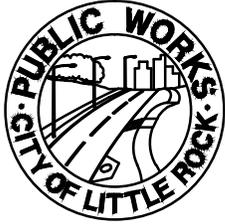
TITLE
SILT FENCE

Issue Date
AUG, 2006

PW-63 A
Revision Date
JUNE 2013

NOTES:

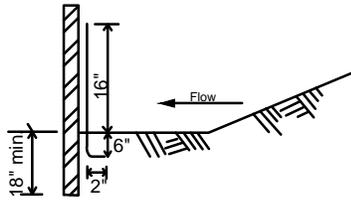
1. GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625 (AHTD SPECS).
2. TYPE A - USE ON SMALL DEVELOPMENTS WHERE THE LIFE OF THE PROJECT IS LESS THAN SIX MONTHS AND THE SLOPE GRADIENT IS LESS THAN 3:1.
3. TYPE B - USE ON DEVELOPMENTS WHERE THE LIFE OF THE PROJECT IS GREATER THAN SIX MONTHS AND WHERE THE SLOPE GRADIENT IS 3:1 OR GREATER.
4. TYPE C - USE WHERE SLOPES EXCEED A VERTICAL HEIGHT OF 20 FEET AND THE SLOPE GRADIENT IS STEEPER THEN 3:1.
5. INSPECT BARRIERS AT THE END OF EACH WORKING DAY, OR AFTER EACH RAIN, AND REPAIR OR CLEAN AS NECESSARY.
6. REMOVE SEDIMENT FROM BARRIER WHEN ONE HALF FULL.
7. DISPOSE OF SEDIMENT AND STABILIZE IT WITH VEGETATION.
8. REPLACE FILTER FABRIC WHEN DETERIORATED.
9. DESIGN LIFE OF A SYNTHETIC SILT FENCE IS APPROXIMATELY 6 MONTHS.
10. MAINTAIN UNTIL THE PROJECT IS VEGETATED OR OTHERWISE STABILIZED.
11. REMOVE BARRIERS AND ACCUMULATED SEDIMENT AND STABILIZE THE EXPOSED AREA WHEN THE PROJECT IS STABILIZED.
12. SILT FENCE SHALL BE INSTALLED ALONG THE CONTOUR, NEVER UP OR DOWN A SLOPE.
13. THE MAXIMUM DRAINAGE AREA FOR A CONTINUOUS FENCE WITHOUT BACKING SHALL BE 1/4 ACRE PER 100 LINEAR FEET OF FENCE LENGTH, UP TO A MAXIMUM AREA OF 2 ACRES. THE MAXIMUM SLOPE LENGTH BEHIND THE FENCE ON THE UPSLOPE SIDE SHOULD BE 110 FEET (AS MEASURED ALONG THE GROUND SURFACE).
14. THE MAXIMUM DRAINAGE AREA FOR A CONTINUOUS SILT FENCE WITH BACKING SHALL BE 1 ACRE PER 150 LINEAR FEET OF FENCE LENGTH. THE SLOPE LENGTH ABOVE THE SILT FENCE WITH BACKING SHOULD BE NO MORE THAN 300 FEET.



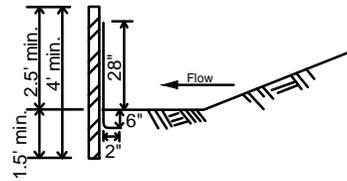
TITLE
SILT FENCE

Issue Date
AUG, 2006

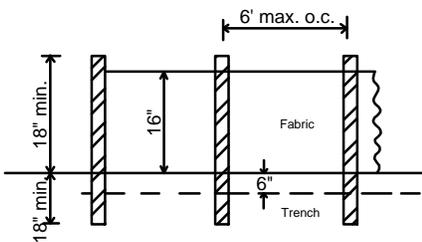
PW-63
Revision Date
JUNE 2013



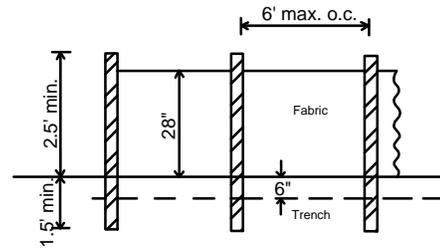
SIDE VIEW



SIDE VIEW



FRONT VIEW



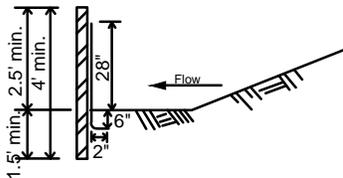
FRONT VIEW

NOTE:
Use wood or steel posts

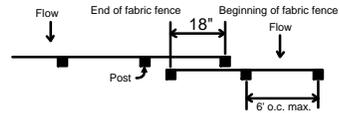
NOTE:
Use wood or steel posts

SF-A SILT FENCE (TYPE A)
NTS

SF-B SILT FENCE (TYPE B)
NTS

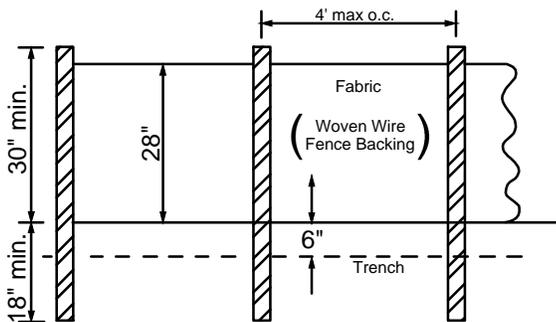


SIDE VIEW

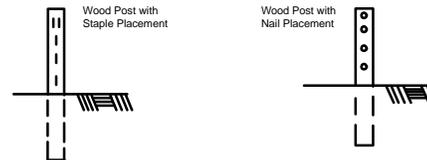


TOP VIEW - (Not to scale)

OVERLAP AT FABRIC ENDS



FRONT VIEW



FRONT VIEWS

FASTENERS FOR SILT FENCES

NOTE:
Use steel posts - only

SF-C SILT FENCE (TYPE C)
NTS

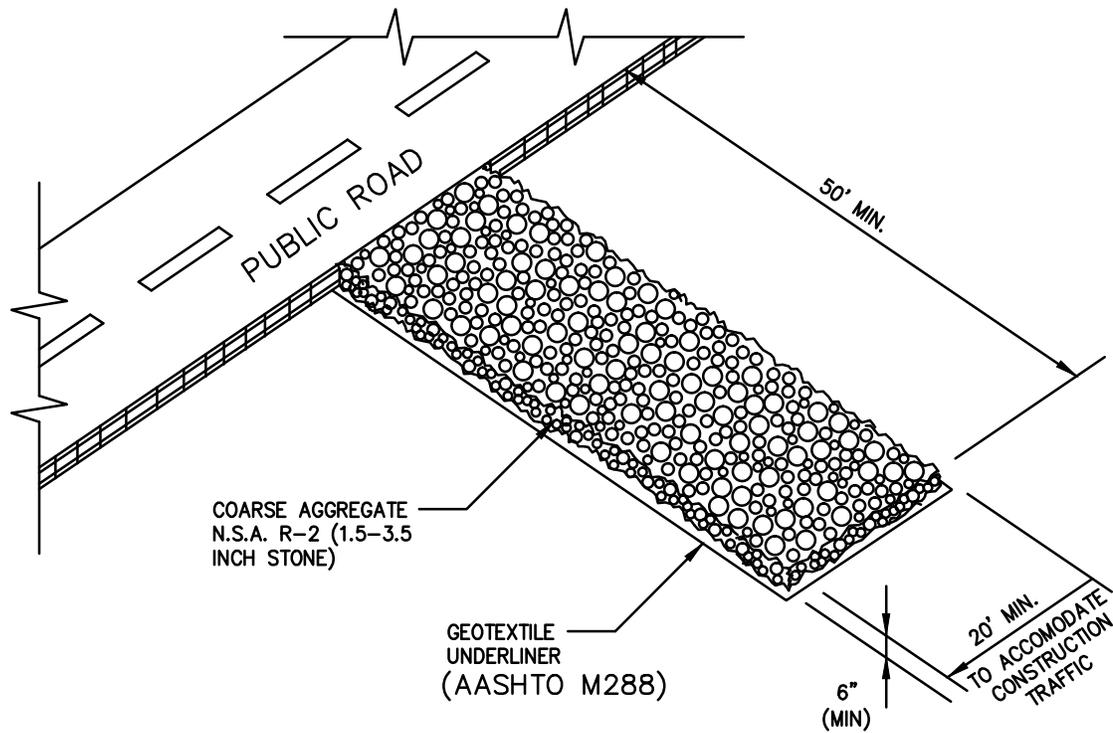


TITLE
CONSTRUCTION
EXIT

Issue Date
AUG, 2006

PW-64
Revision Date
JUNE 2013

1. LOCATE STONE STABILIZED PAD AT ANY POINT WHERE VEHICULAR TRAFFIC WILL BE LEAVING THE CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY, STREET, ALLEY, SIDEWALK, OR PARKING AREA OR ANY OTHER AREA WHERE THERE IS A TRANSITION FROM BARE SOIL TO A PAVED AREA.
2. WIDTH - 20'-0 MINIMUM BUT NOT LESS THAN FULL WIDTH OF ALL POINTS OF VEHICULAR EGRESS. LENGTH - 50'-0 MINIMUM
3. MAINTAIN THE EXIT TO PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS- OF-WAY. PROVIDE PERIODIC TOP DRESSING WITH 1.5 - 3.5" STONE, AS CONDITIONS DEMAND. IMMEDIATELY REMOVE ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE OR SITE ONTO ROADWAY OR INTO STORM DRAINS. CLEAN WHEELS TO REMOVE MUD PRIOR TO ENTRANCE ON TO PUBLIC RIGHTS-OF-WAY.
4. WHEN WASHING IS REQUIRED, DO SO ON AREAS STABILIZED WITH CRUSHED STONE DRAINING INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

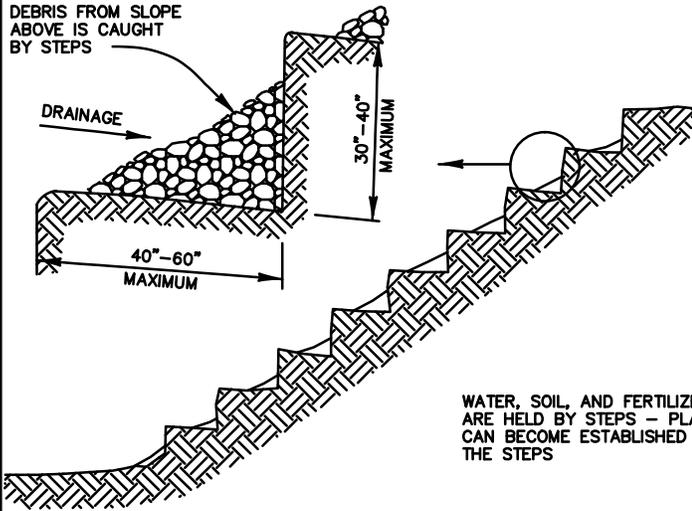


CO CONSTRUCTION EXIT
NTS



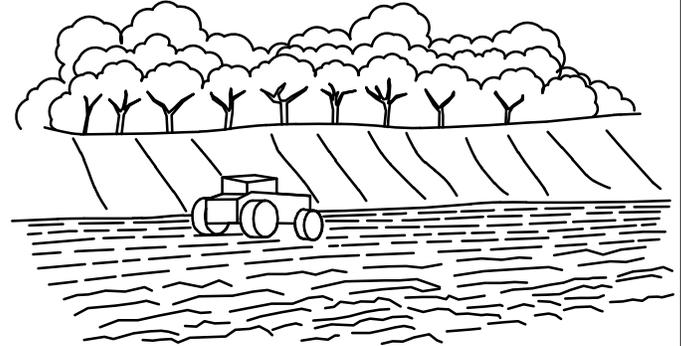
TITLE
SURFACE
ROUGHENING

	PW-65
Issue Date	Revision Date
AUG, 2006	JUNE 2013



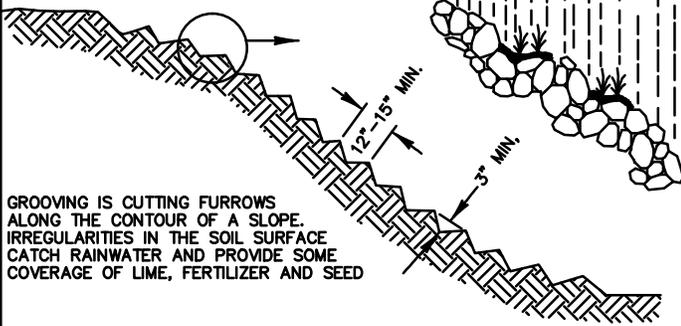
STAIR STEPPING CUT SLOPES

WATER, SOIL, AND FERTILIZER ARE HELD BY STEPS - PLANTS CAN BECOME ESTABLISHED ON THE STEPS



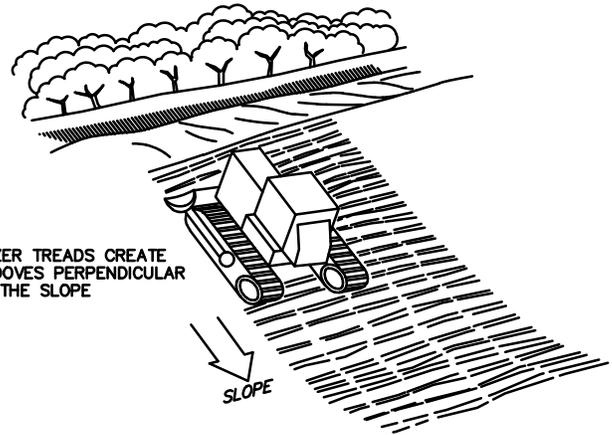
EACH LIFT OF THE FILL IS COMPACTED, BUT THE OUTER FACE OF THE SLOPE IS ALLOWED TO REMAIN LOOSE SO THAT THE ROCKS, CLODS, ETC. REACH THE NATURAL ANGLE OF REPOSE

FILL SLOPE TREATMENT



GROOVING IS CUTTING FURROWS ALONG THE CONTOUR OF A SLOPE. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND PROVIDE SOME COVERAGE OF LIME, FERTILIZER AND SEED

GROOVING SLOPES



TRACKING

SU SURFACE ROUGHENING
NTS



TITLE
 TEMPORARY STABILIZATION
 TEMPORARY GRASSING
 PERMANENT GRASSING

	PW-66
Issue Date	Revision Date
AUG, 2006	JUNE 2013

Ts1

TEMPORARY STABILIZATION

SPECIES	RATE / 1000 SF.	PLANTING DATES
STRAW MULCH	92 LB.	ANY TIME FOR TEMPORARY COVER.

Ts2

TEMPORARY GRASSING

SPECIES	RATE / ACRE	PLANTING DATES	FERTILIZER	RATE / ACRE	MULCH RATE
MILLET	50 LB	JAN 21 TO AUG 14	10-20-10	500 LB	REFER TO TS-1
RYE	100 LB	AUG 15 TO JAN 20	10-20-10	500 LB	

Ts3

PERMANENT GRASSING

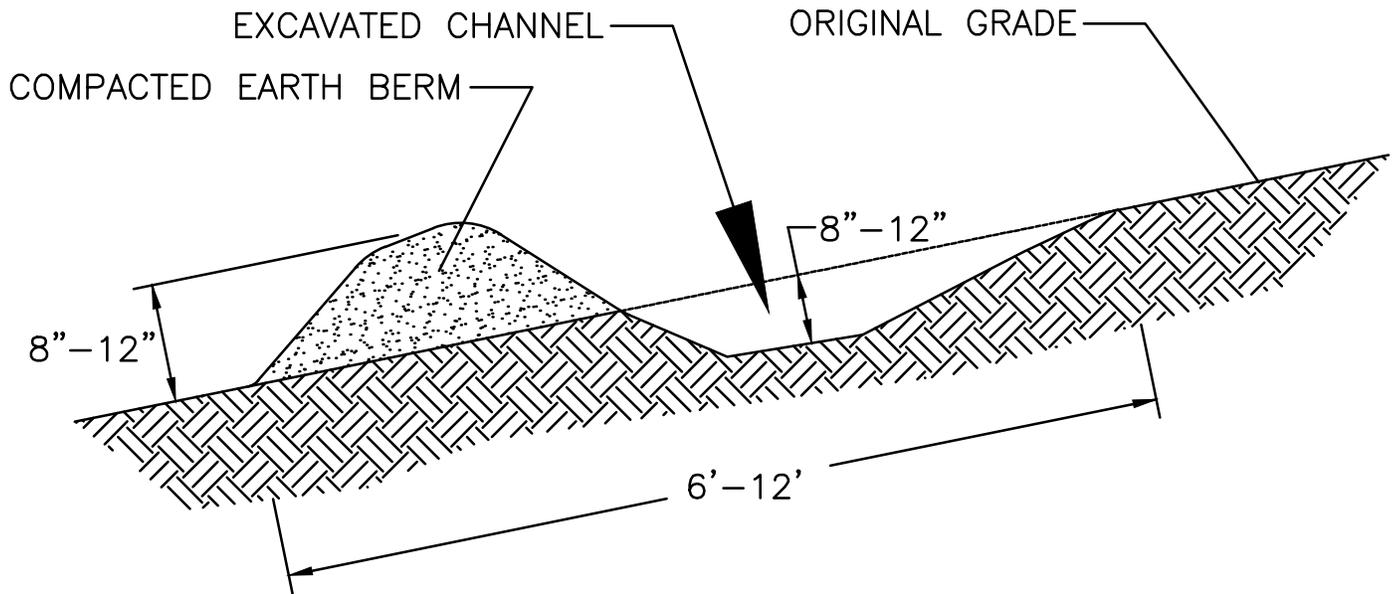
SPECIES	RATE / ACRE	PLANTING DATES	FERTILIZER	RATE / ACRE	MULCH RATE
BERMUDA GRASS (UNHULLED) BERMUDA GRASS (HULLLED) LESPEDEZA (KOBE)	5 LB. 10 LB. 10 LB.	MARCH 1 TO JUNE 15	10-20-10	800 LB.	REFER TO TS-1
BERMUDA GRASS (UNHULLED) BERMUDA GRASS (HULLLED)	5 LB. 10 LB.	JUNE 16 TO AUGUST 31	10-20-10	800 LB.	
BERMUDA GRASS (UNHULLED) WHEAT	20 LB. 15 LB.	SEPTEMBER 1 TO FEBRUARY 29	10-20-10	800 LB.	



TITLE
DIVERSION BERM

Issue Date
AUG, 2006

PW-67
Revision Date
JUNE 2013



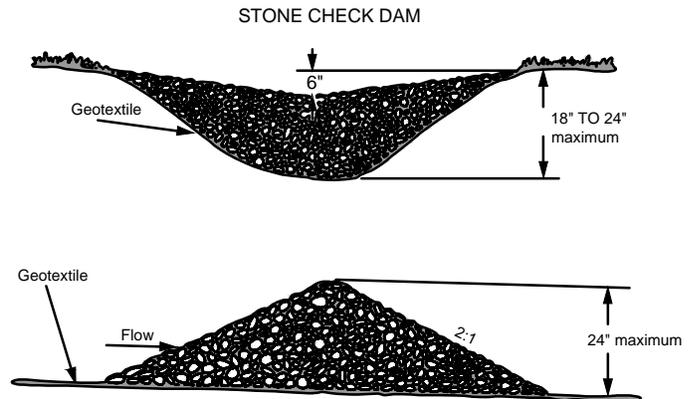
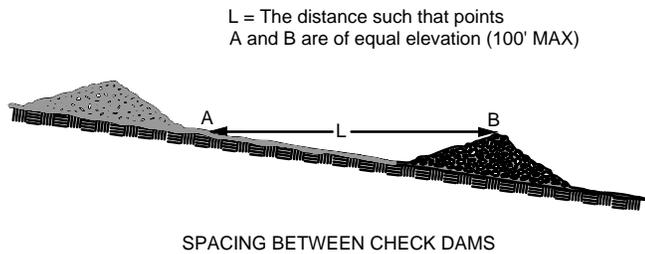
DI DIVERSION BERM
NTS



TITLE
CHECK DAM

Issue Date
AUG, 2006

PW-68
Revision Date
JUNE 2013



NOTES:

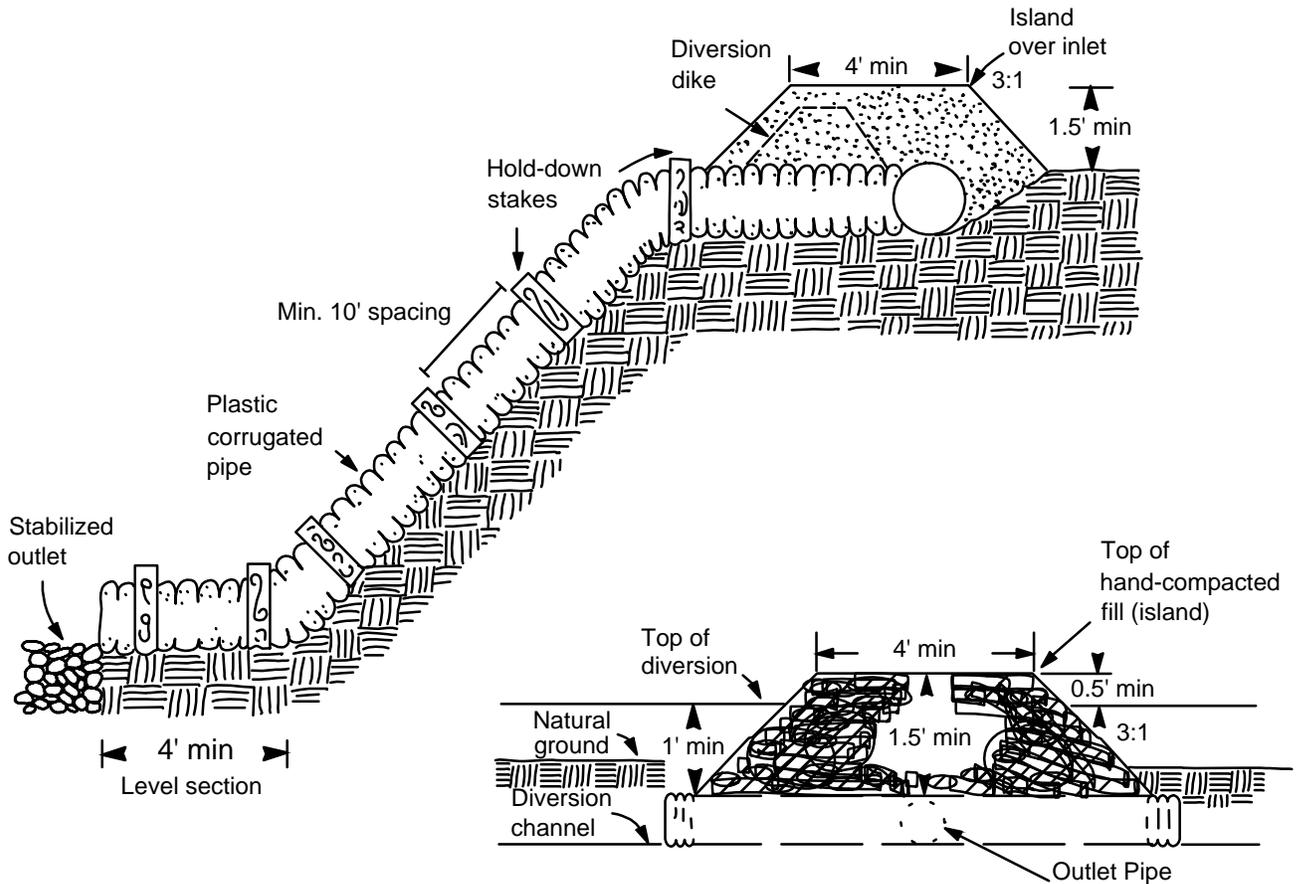
1. PLACE IN SMALL, OPEN CHANNELS, NOT IN LIVE STREAMS.
2. CONSTRUCT CENTER AT LEAST 6 INCHES LOWER THAN OUTER EDGES.
3. EXTEND ACROSS ENTIRE WIDTH OF DITCH OR SWALE.
4. MAKE SIDE SLOPES 2:1 OR FLATTER.
5. DRAINAGE AREA NOT TO EXCEED 2 ACRES.
6. CONSTRUCTED OF GRADED SIZE 2 IN-10 IN STONE. PLEASE SEE DESIGN PLANS FOR STONE SIZING.
7. PERIODIC INSPECTION AND MAINTENANCE REQUIRED.
8. REMOVE SEDIMENT WHEN IT REACHES A DEPTH OF ONE-HALF THE ORIGINAL DAM HEIGHT.
9. SAND BAGS MAY BE USED AS AN ALERNATE. GEOTEXTILE MAY BE OMITTED WHEN USING SAND BAGS

CD CHECK DAM
NTS



TITLE
 TEMPORARY
 DOWN DRAIN

	PW-69
Issue Date	Revision Date
AUG, 2006	JUNE 2013



Inlet Detail

NOTES:

1. PLACE ON UNDISTURBED SOIL OR WELL-COMPACTED FILL.
2. INSTALL TEE, "L" OR FLARED END SECTION INLET AT THE TOP OF THE SLOPE.
3. ENTRANCE SLOPED 1/2" PER FOOT TOWARD INLET.
4. COMPACT A DIKE RIDGE NO LESS THAN ONE FOOT ABOVE THE TOP OF THE PIPE.
5. ANCHOR WITH HOLD-DOWN GROMMETS OR STAKES AT INTERVALS NOT TO EXCEED 10 FEET.
6. ENSURE CONNECTIONS ARE WATERTIGHT.
7. EXTEND PIPE BEYOND THE TOE OF THE SLOPE.
8. DIRECT OUTLET UPHILL.
9. STABILIZE OUTLET WITH TEE, RIPRAP OR OTHER SUITABLE MATERIAL.

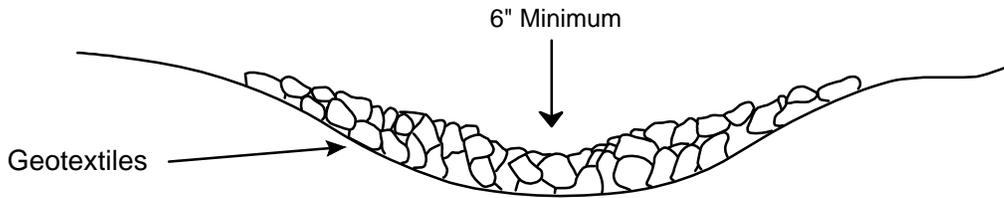
MAXIMUM DRAINAGE PIPE DIAMETER (ACRES)	AREA PER PIPE (INCHES)
0.3	10
0.5	12
1.0	18

DN DOWN DRAIN
 NTS

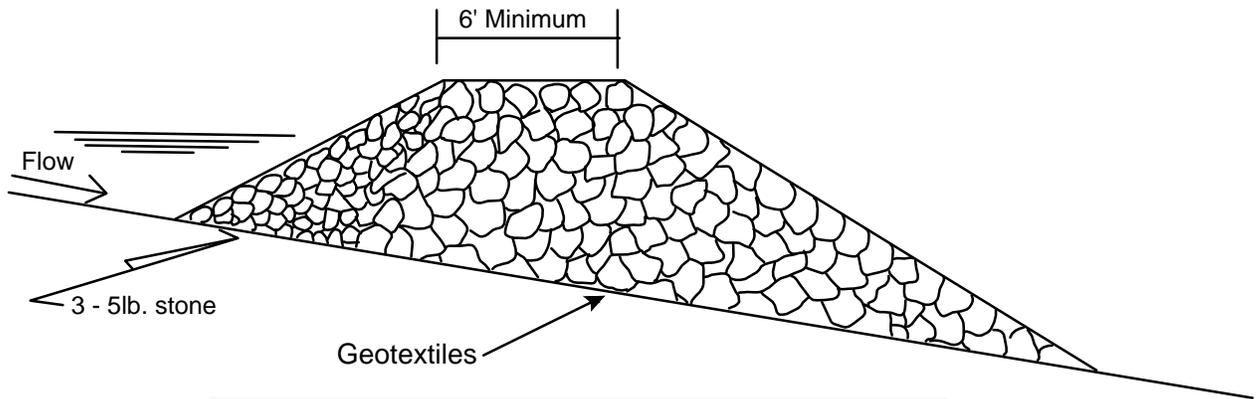


TITLE
ROCK DAM

	PW-70
Issue Date	Revision Date
AUG, 2006	JUNE 2013



NOTE: Sediment Trap is to be cleaned out when volume becomes half full.



Flow Velocity (ft./sec.)	N.S.A. No. ¹	Size Inches (Sq. Opening) Avg. ²			Filter Stone N.S.A. No. ¹
		Max.		Min.	
2.5	R-1	1 1/2	3/4	No. 8	FS-1
4.5	R-2	3	1 1/2	1	FS-1
6.5	R-3	6	3	2	FS-2
9.0	R-4	12	6	3	FS-2
11.5	R-5	18	9	5	FS-2
13.0	R-6	24	12	7	FS-3
14.5	R-7	30	15	12	FS-3

¹ National Stone Association

² At least 50% of the individual stone particles must be equal or larger than this listed size

NOTES:

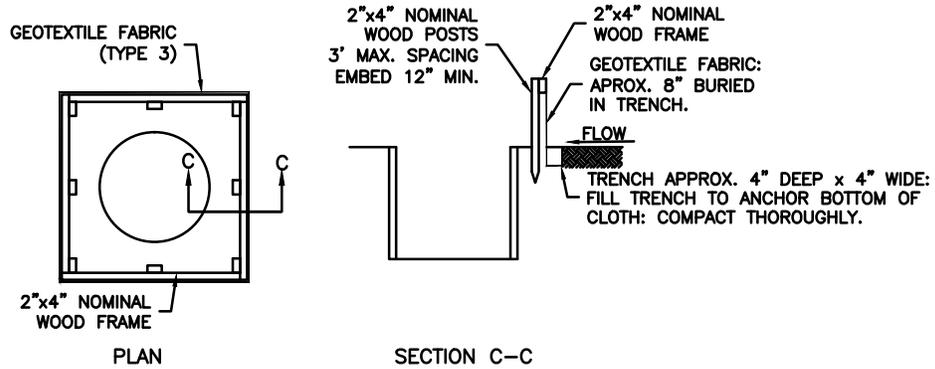
- FOR USE IN SMALL CHANNELS WITH DRAINAGE AREAS OF 50 ACRES OR LESS.
- MUST BE USED IN CONJUNCTION WITH OTHER APPROPRIATE SEDIMENT CONTROL MEASURES.
- USE BELOW CULVERT INSTALLATIONS, DAM CONSTRUCTION, OR ANY PROJECT THAT MAY INVOLVE GRADING ACTIVITY DIRECTLY IN A STREAM.
- NOT INTENDED TO SUBSTANTIALLY IMPOUND WATER.
- USE AT THE UPSTREAM END OF PONDS OR LAKES.
- EDGES SHOULD NOT BE HIGHER THAN THE CHANNEL BANKS.
- CENTER SHOULD BE AT LEAST 6 INCHES LOWER THAN THE OUTER EDGES OF THE DAM AT THE CHANNEL BANKS.
- HEIGHT SHOULD NOT EXCEED ELEVATION OF UPSTREAM PROPERTY LINE.
- SIDE SLOPES SHOULD BE 2:1 OR FLATTER.
- TOP WIDTH SHOULD BE GREATER THAN 6 FEET.
- EXTEND COMPLETELY ACROSS THE CHANNEL AND SECURELY TIE INTO BOTH CHANNEL BANKS
- REQUIRES PERIODIC INSPECTION AND MAINTENANCE.
- SEDIMENT REMOVED WHEN IT REACHES ONE-HALF OF THE ORIGINAL DAM HEIGHT



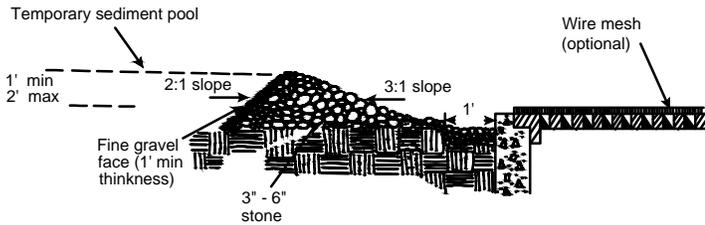
TITLE
INLET PROTECTION

Issue Date
AUG, 2006

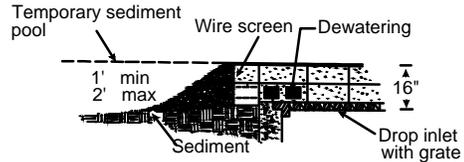
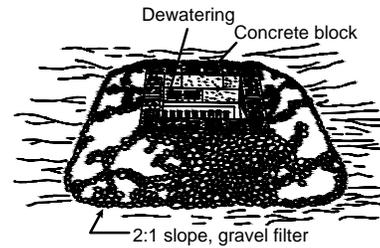
PW-71
Revision Date
JUNE 2013



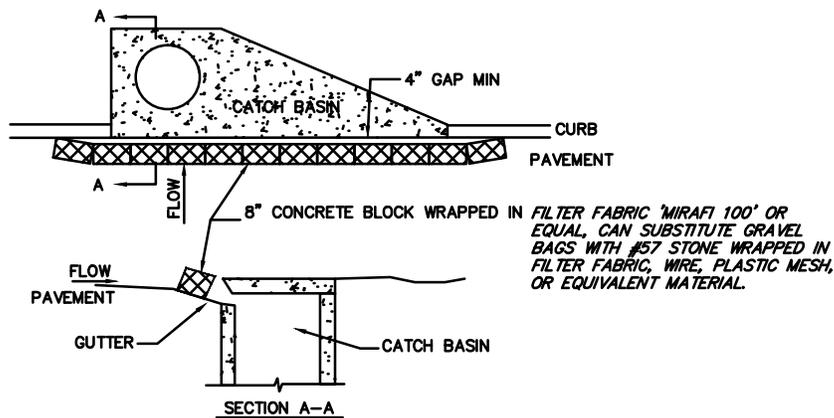
SD-1 SILT FENCE
NTS



SD-2 GRATE INLET - GRAVEL RING
NTS



SD-3 GRATE INLET - BLOCK & GRAVEL
NTS



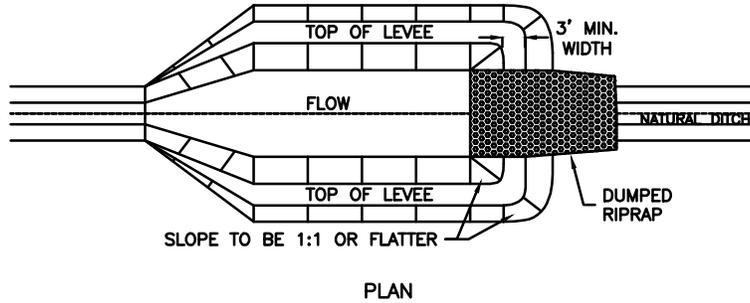
NOTE: INSTALL FILTER AFTER ANY ASPHALT PAVING

SD-4 CURB INLET - BLOCK
NTS

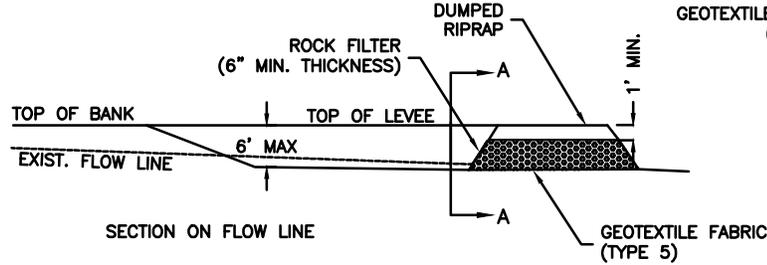
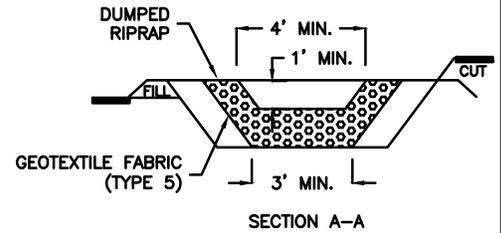


TITLE
SEDIMENT BASIN

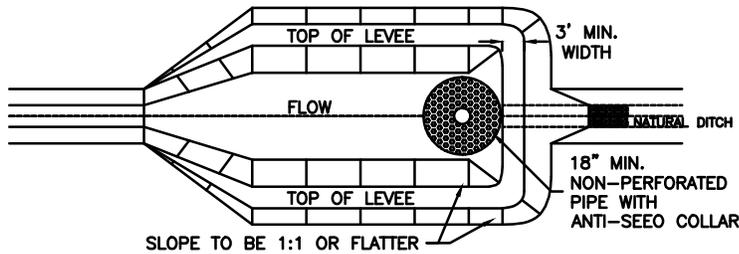
Issue Date	PW-72 Revision Date
AUG, 2006	JUNE 2013



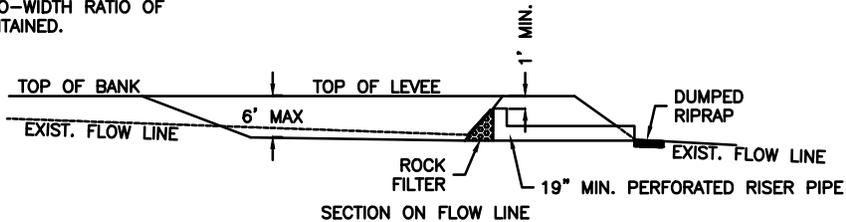
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED, HOWEVER, A
MINIMUM LENGTH-TO-WIDTH RATIO OF
2:1 SHALL BE MAINTAINED.



SECTION ON FLOW LINE
SEDIMENT BASIN WITH RIPRAP OUTLET



NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED, HOWEVER, A
MINIMUM LENGTH-TO-WIDTH RATIO OF
2:1 SHALL BE MAINTAINED.



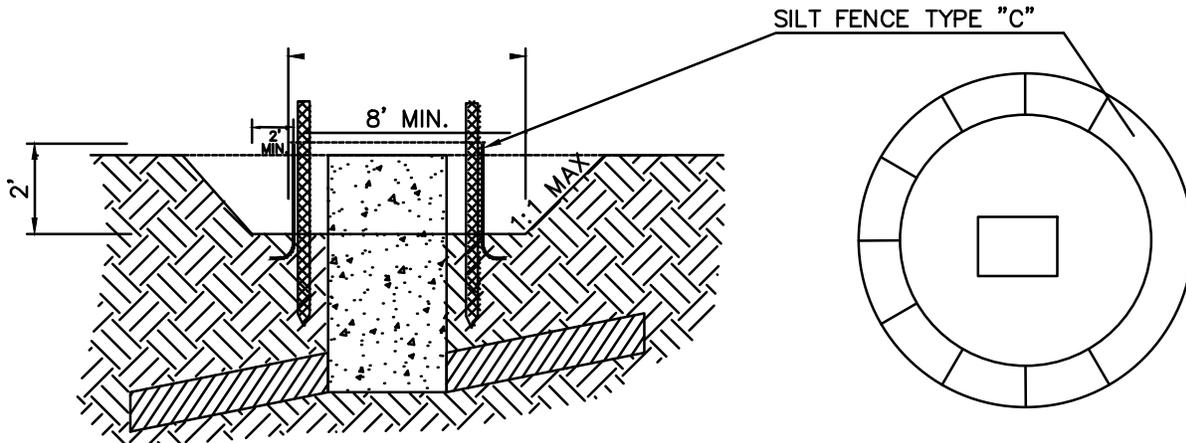
SECTION ON FLOW LINE
SEDIMENT BASIN WITH PIPE OUTLET



TITLE
SEDIMENT BASIN

Issue Date
AUG, 2006

PW-72 A
Revision Date
JUNE 2013



PROTECT INLETS DURING CONSTRUCTION. KEEP SEDIMENT OUT OF STORM DRAINAGE SYSTEM. USE HALF CIRCLE BEHIND CURB INLETS DURING STREET CONSTRUCTION. CIRCULAR SHAPE IS NOT ESSENTIAL - VARY SHAPE TO FIT DRAINAGE AREA AND TERRAIN. OBSERVE TO CHECK TRAP EFFICIENCY AND MODIFY AS NECESSARY TO TRAP SEDIMENT.

CLEAN WHEN SEDIMENT IS 6" BELOW RIM ELEVATION.



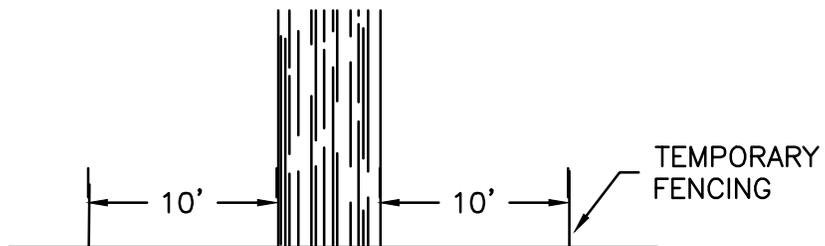
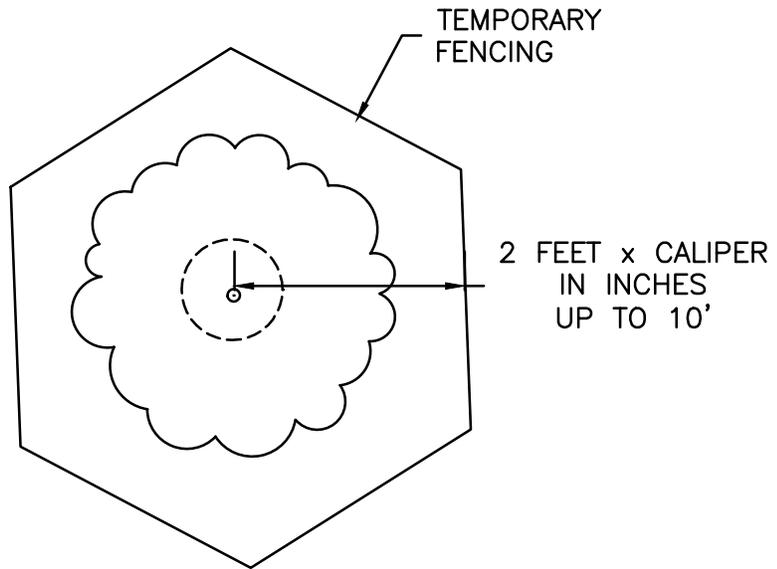
NOTES:

THE SEDIMENT STORAGE VOLUME OF THE BASIN, AS MEASURED TO THE ELEVATION OF THE CREST OF THE SPILLWAY, SHALL BE AT LEAST 67 CUBIC YARDS PER ACRE FOR THE DISTURBED AREA DRAINING INTO THE BASIN (67 CUBIC YARDS IS EQUIVALENT TO 1/2 INCH OF SEDIMENT PER ACRE OF DRAINAGE AREA). THE ENTIRE DRAINAGE BASIN AREA SHOULD BE USED FOR THIS COMPUTATION, RATHER THAN THE DISTURBED AREA ALONE, TO HELP ENSURE ADEQUATE TRAPPING EFFICIENCY. SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN APPROXIMATELY ONE-THIRD OF THE STORAGE VOLUME HAS BEEN LOST TO SEDIMENT ACCUMULATION. THIS VOLUME SHALL BE MARKED ON THE RISER OR BY SETTING A MARKED POST NEAR THE RISER.



TITLE
TREE PROTECTION

	PW-73
Issue Date	Revision Date
AUG, 2006	JUNE 2013



NO FILL WITHIN
10' OF TRUNK OF
TREE

NOTE: TEMPORARY FENCING SHALL BE PLACED PRIOR TO CONSTRUCTION IN AREA.



TITLE

FRAME BARRICADE TYPE 3
PERMANENT INSTALLATION

Issue Date
AUG, 2006

PW-74
Revision Date
JUNE 2013

NOTE:
FASTEN TREATED LUMBER WITH $\frac{3}{8}$ "x6" LAG
SCREWS, WITH WASHERS 2 EACH SIDES

BARRICADE SHALL CONFORM TO THE
MANUAL ON UNIFORM TRAFFIC CONTROL
DEVICES. SECTION 3F.01

