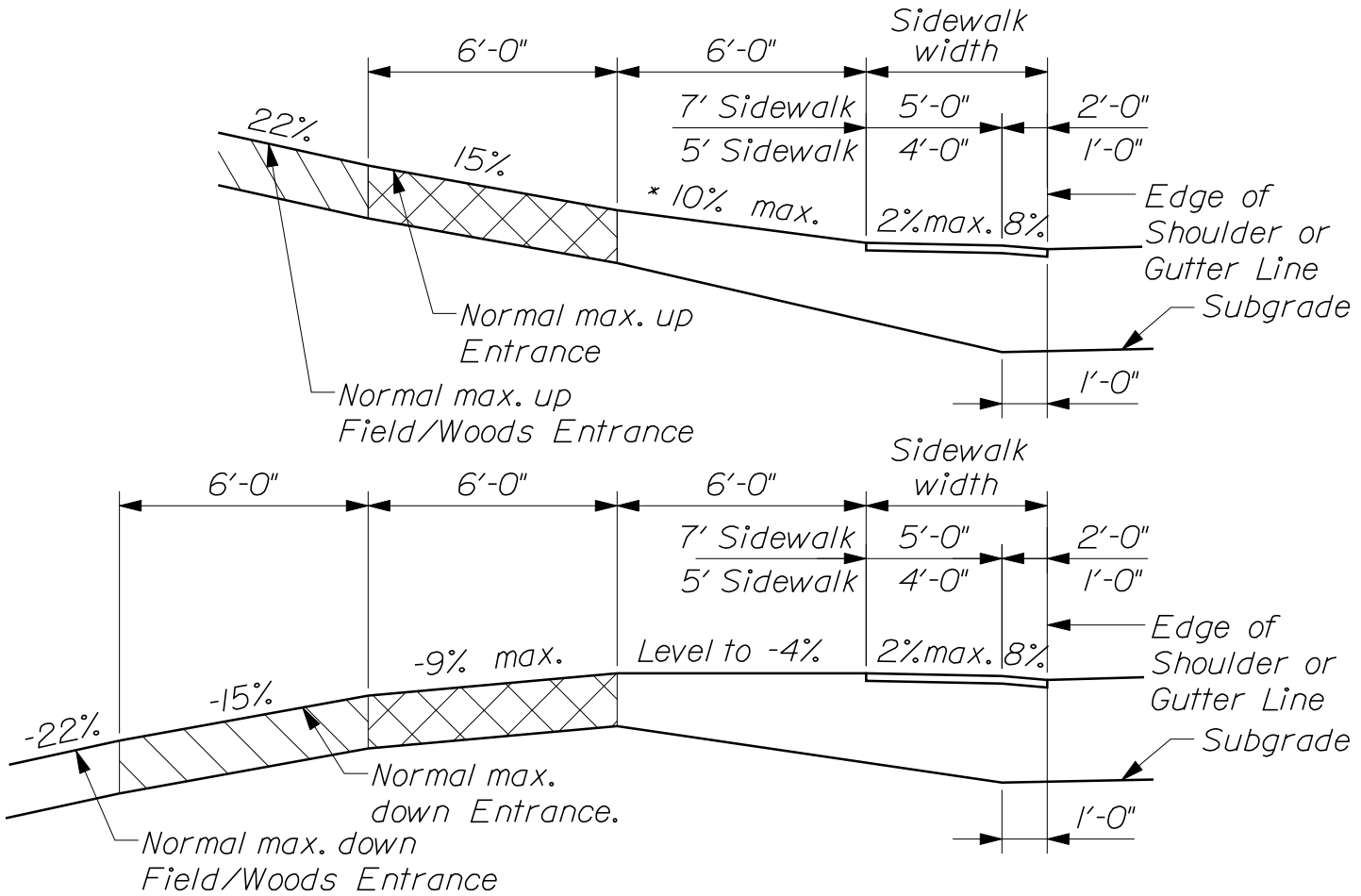
DIVISION 800

MISCELLANEOUS DETAILS



GENERAL NOTES:

1. The sidewalk width shall be paved in all cases.

2. All residential or commercial entrances 10% and over shall be paved.

NOTES ON MAXIMUM ENTRANCE PROFILES:

1. These profiles are a guide for the majority of cases, but should be field checked when the main line grade is steep (4% to 6% or greater) or the angle of approach to the entrance is unusual.

2. Generally the majority of entrances on a project will be built with flatter profiles than these maximum cases.

3. When grading entrances which are flatter than the maximum profiles the following rule of thumb should be used. Do not exceed a grade % change of more than 9% in a 6 foot increment of entrance length. This applies to both up and down profiles.

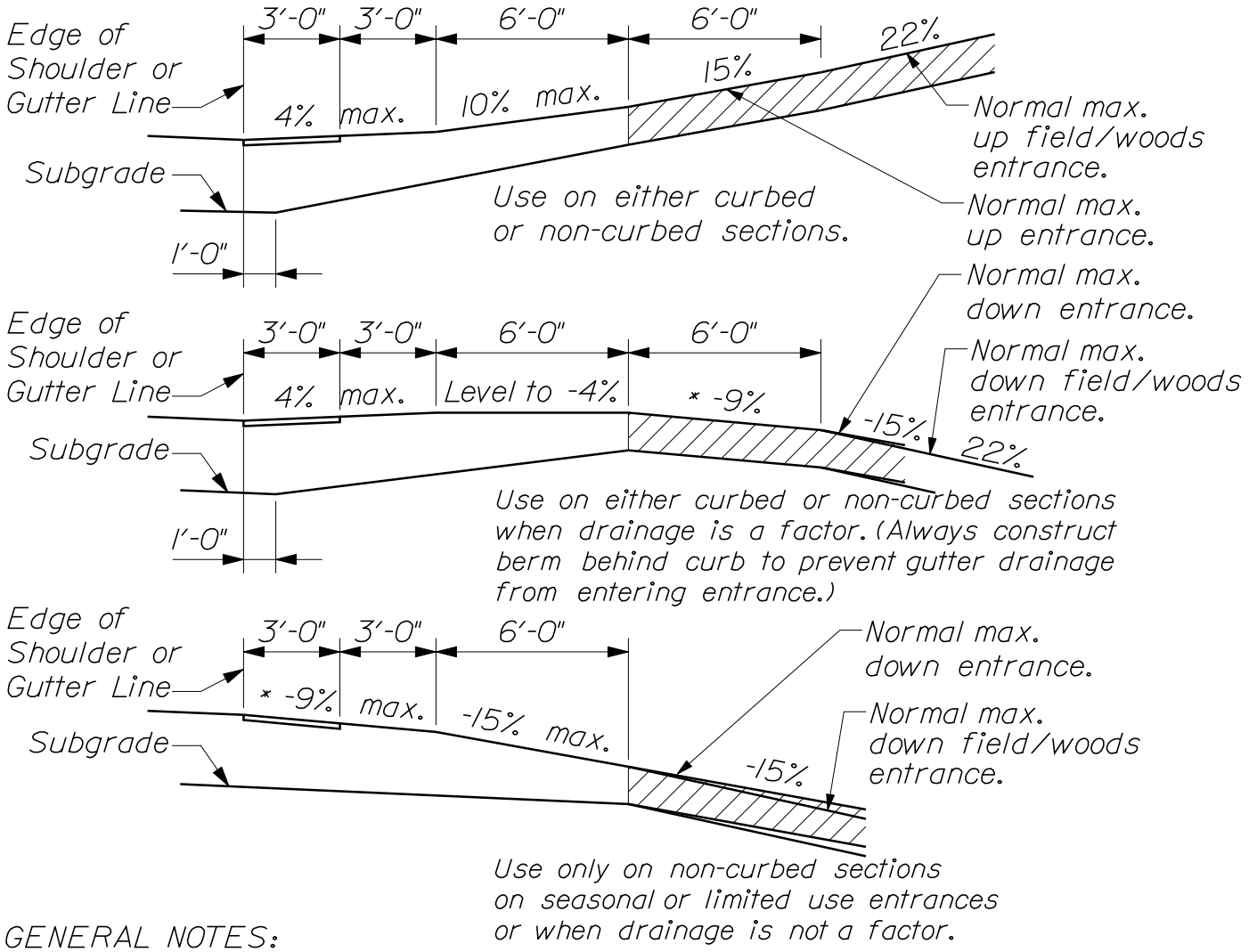
4. Entrances with grades exceeding 15% must have a design [1] exception. Field entrances with grades exceeding 22% must have a [1] design exception.

5. Any design change to an existing entrance that is steeper than (+ or -) 6% that adversely changes the grade (+ or -) by more than 3% will require a [1] design exception.

[1] Design exception to be approved by Program Manager (or designee).

ENTRANCES ON SIDEWALK SECTIONS

801(01)



GENERAL NOTES:

1. The first 3 feet shown as pavement shall be paved only when abutting a paved area.

2. All residential or commercial entrances 10% and over shall be paved.

NOTES ON MAXIMUM ENTRANCE PROFILES:

1. These profiles are a guide for the majority of cases, but should be field checked when the main line grade is steep (4% to 6% or greater) or the angle of approach to the entrance is unusual.

2. Generally the majority of entrances on a project should be built with flatter profiles than these maximum cases.

3. When grading entrances which are flatter than the maximum profiles the following rule of thumb should be used. Do not exceed a grade % change of more than 9% in a 6 foot increment of entrance length. This applies to both up and down profiles.

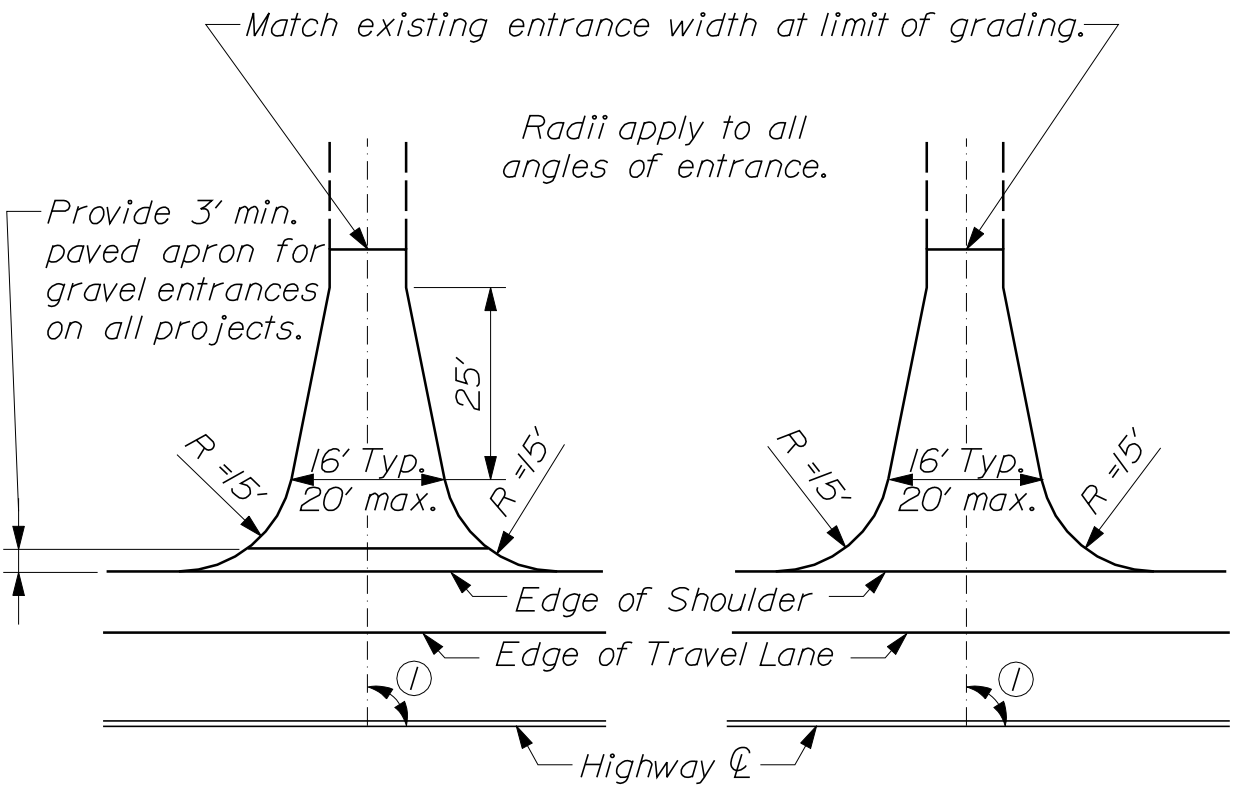
4. Entrances with grades exceeding 15% must have a [1]design exception. Field entrances with grades exceeding 22% must have a [1]design exception.

5. Any design change to an existing entrance that is steeper than (+ or -) 6% that adversely changes the grade (+ or -) by more than 3% will require a [1]design exception.

[1]Design exception to be approved by Program Manager (or designee).

ENTRANCES ON NON-SIDEWALK SECTIONS

801(02)



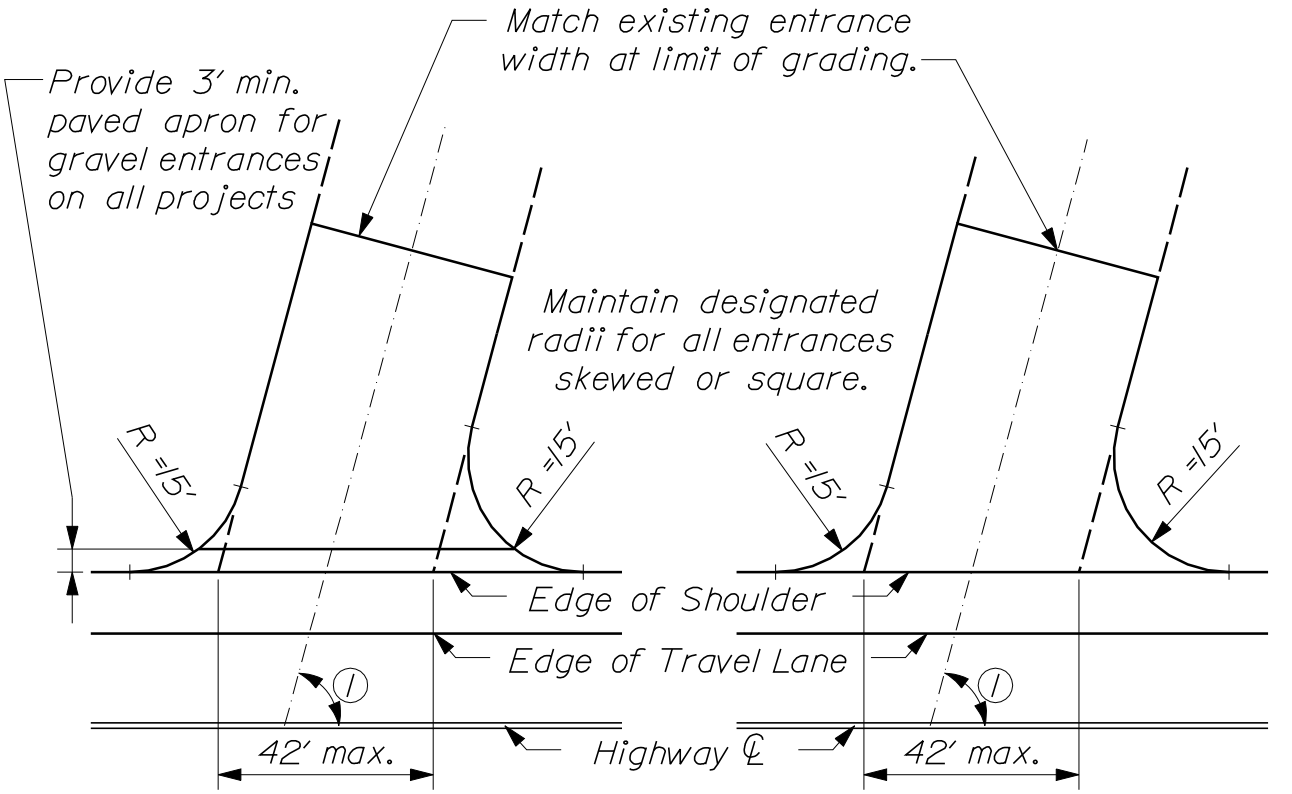
~ GRAVEL ENTRANCE ~ ~ PAVED ENTRANCE~

① Entrance angle should not be less than 45°.

RESIDENTIAL ENTRANCE ONTO UNCURBED HIGHWAY - PAVED SHOULDERS

801(03)

Entrances with a high number of truck movements may be designed on an individual basis.

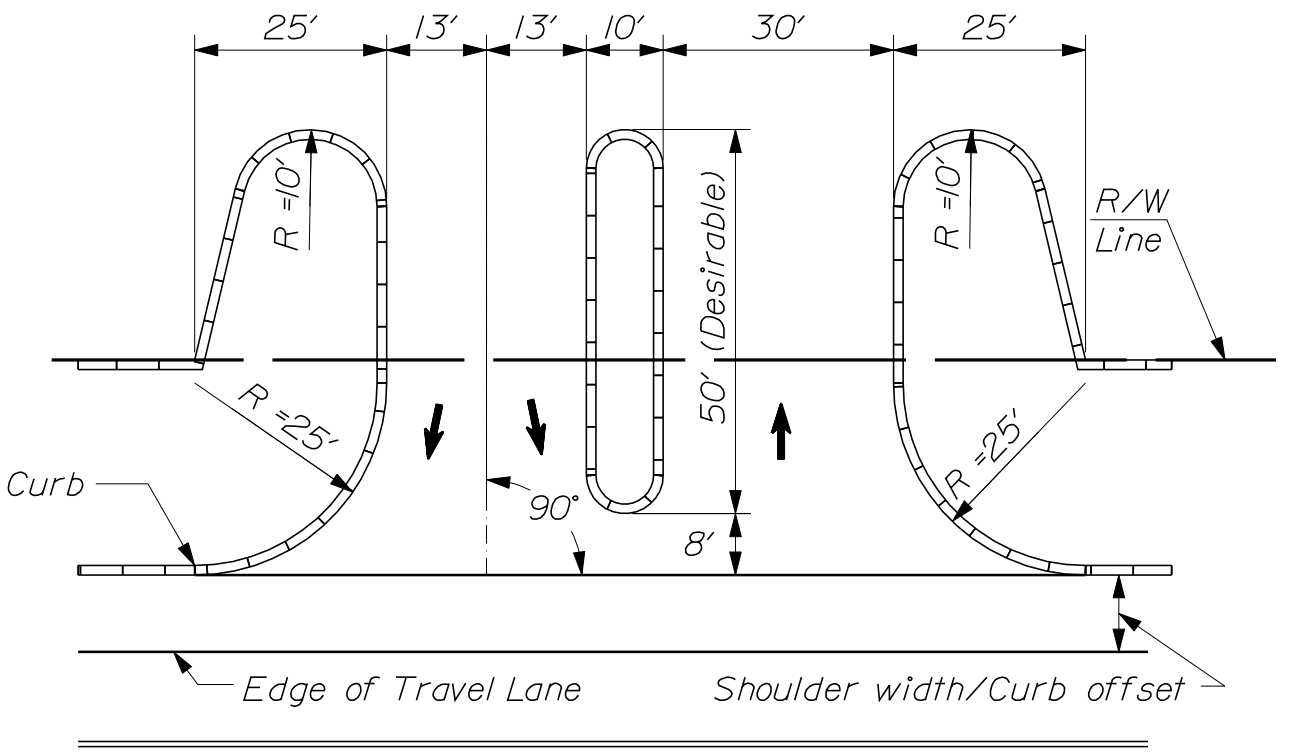


~ GRAVEL ENTRANCE ~ ~ PAVED ENTRANCE ~

(1) Entrance angle should not be less than 45°.

COMMERCIAL/INDUSTRIAL ENTRANCE ONTO ONTO UNCURBED HIGHWAY - PAVED SHOULDERS

801(04)



~ PAVED ENTRANCE ~

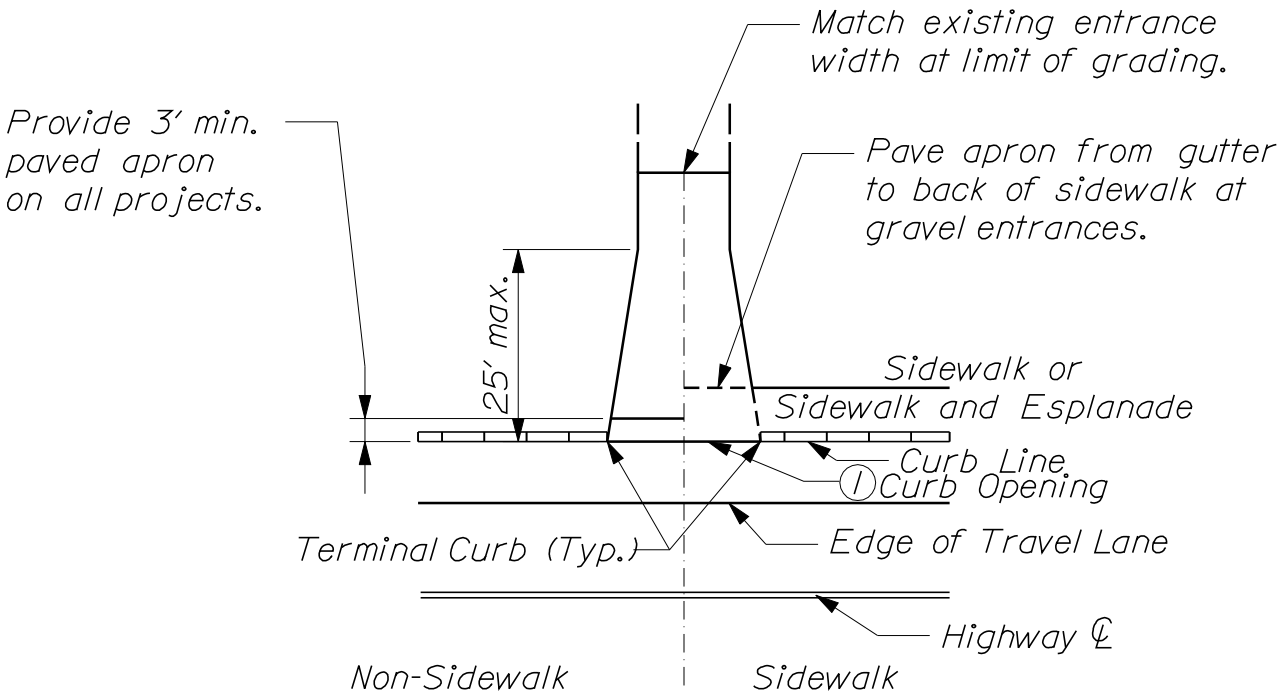
NOTES:

1. This type of entrance is suitable for other high traffic volume, public-type installations.

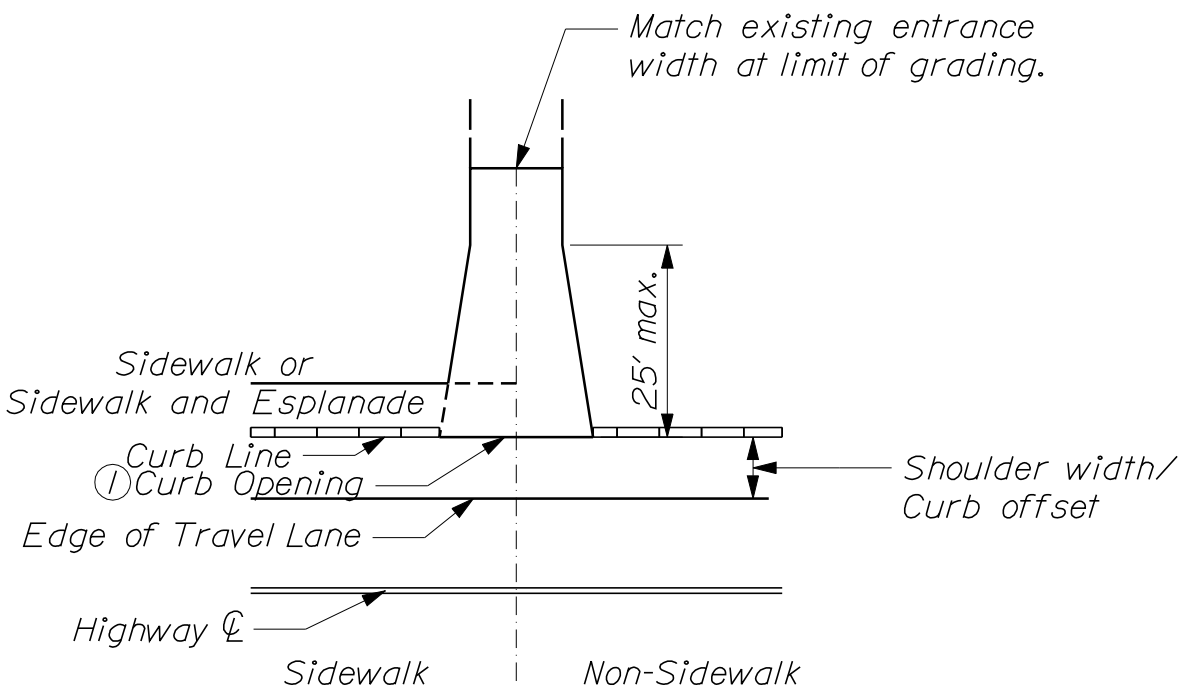
2. All island borders shall be curbed.

SHOPPING CENTER ENTRANCE ONTO HIGHWAY - PAVED SHOULDERS

801(05)



~ GRAVEL ENTRANCE ~



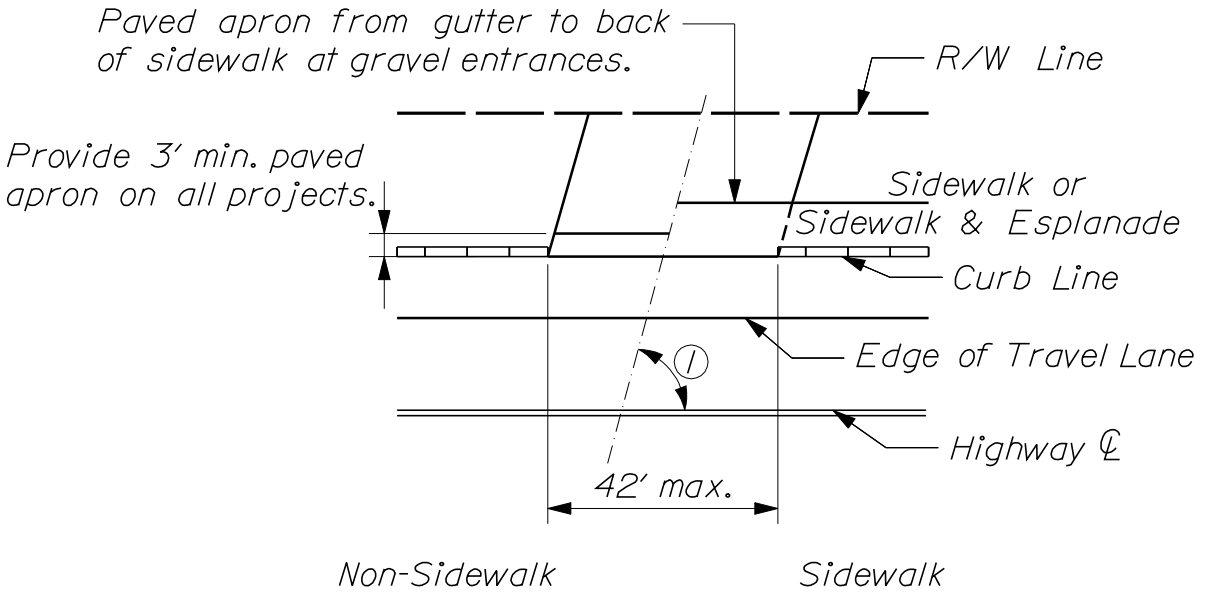
~ PAVED ENTRANCE ~

NOTES:

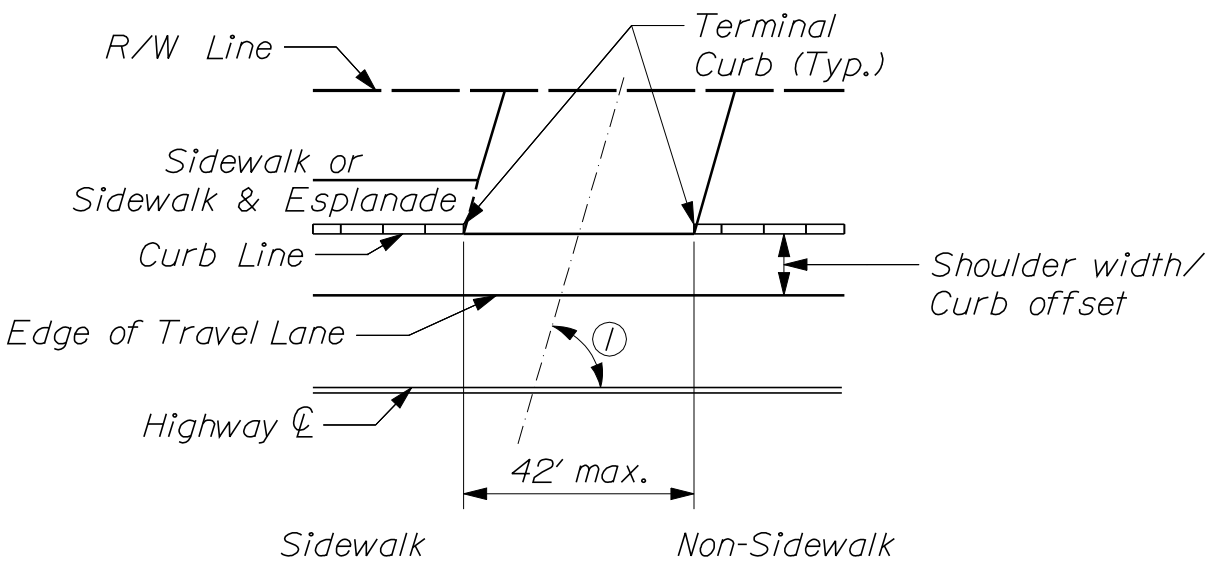
(1) Minimum curb opening is 20' where the shoulder width is ≥ 6' and 26' where the shoulder width is < 6'.

RESIDENTIAL ENTRANCE ONTO CURBED HIGHWAY (WITH/WITHOUT SIDEWALKS)

801(06)



~ GRAVEL ENTRANCE ~



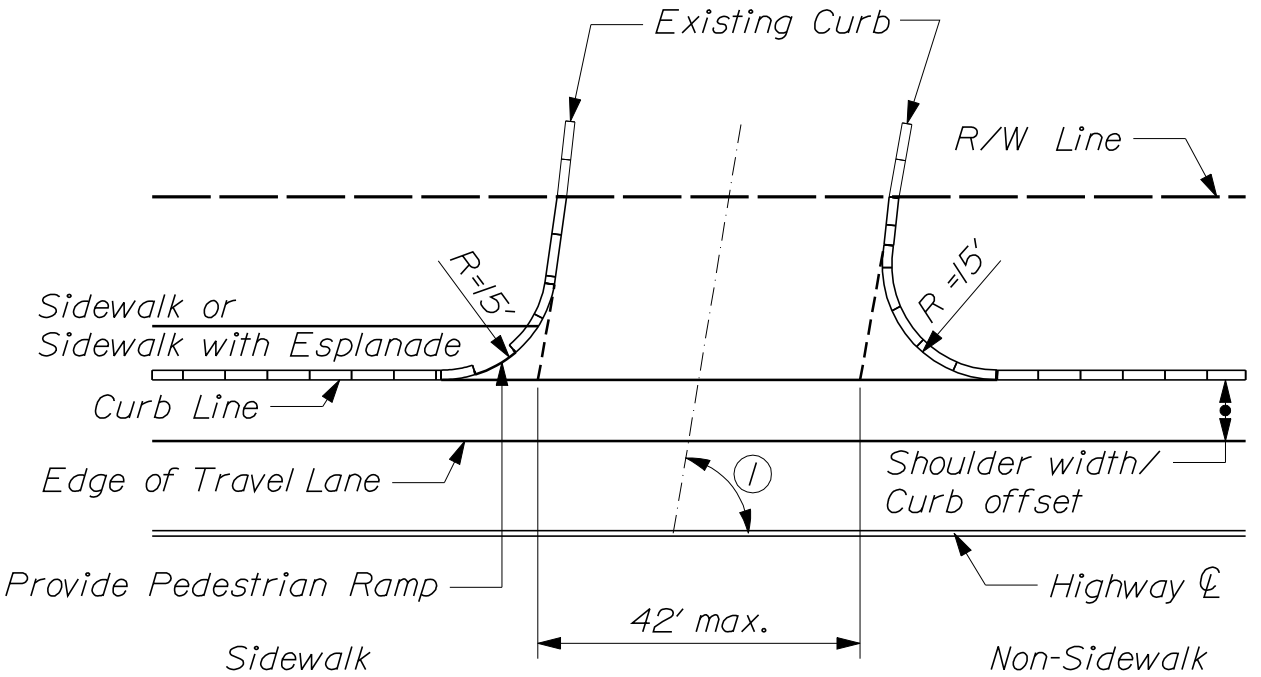
~ PAVED ENTRANCES ~

① Minimum entrance angle is 45° where the shoulder width ≥ 6′ and 60° where the shoulder width < 6′.

② If there are high truck turning volumes, the designer should consider providing turning radii of 15′ - 25′ and/or a wider opening and/or limiting the angle of turn to accomodate trucks.

UNCURBED COMMERCIAL/INDUSTRIAL ENTRANCE ONTO CURBED HIGHWAY (WITH/WITHOUT SIDEWALK)

801(07)

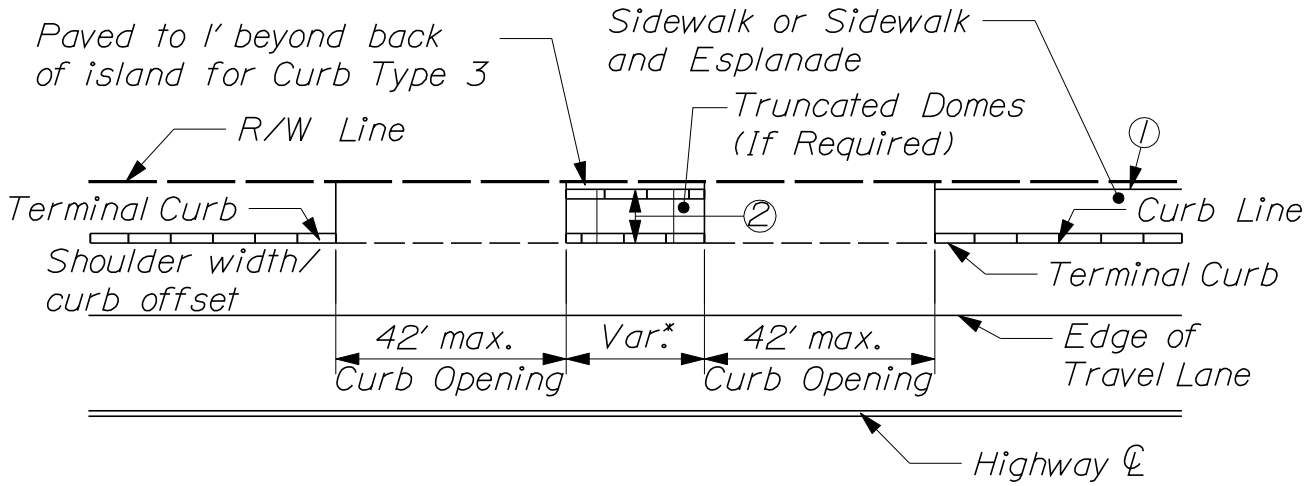


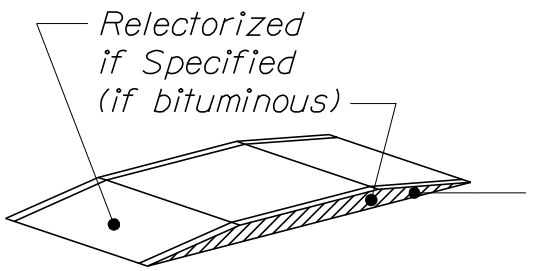
~ PAVED ENTRANCE ~

(1) Minimum entrance angle is 45° where the shoulder width ≥ 6' and 60° where the shoulder width < 6'.

CURBED COMMERCIAL/INDUSTRIAL ENTRANCE ONTO CURBED HIGHWAY WITH/WITHOUT SIDEWALK

801(08)





*21 min. Sidewalk areas
12' min. Non-sidewalk areas

Granite curb with sloped terminal ends or bituminous curb with sloped ends.

~ CENTRAL ISLAND ~

① Where parking of Service Area abuts sidewalk, a curb, guardrail or fence should be provided.

② Island width will extend within 1' of Right-of-Way line, if practical. When island width exceeds 10', use design in figure 8-41 in Highway Design Guide.

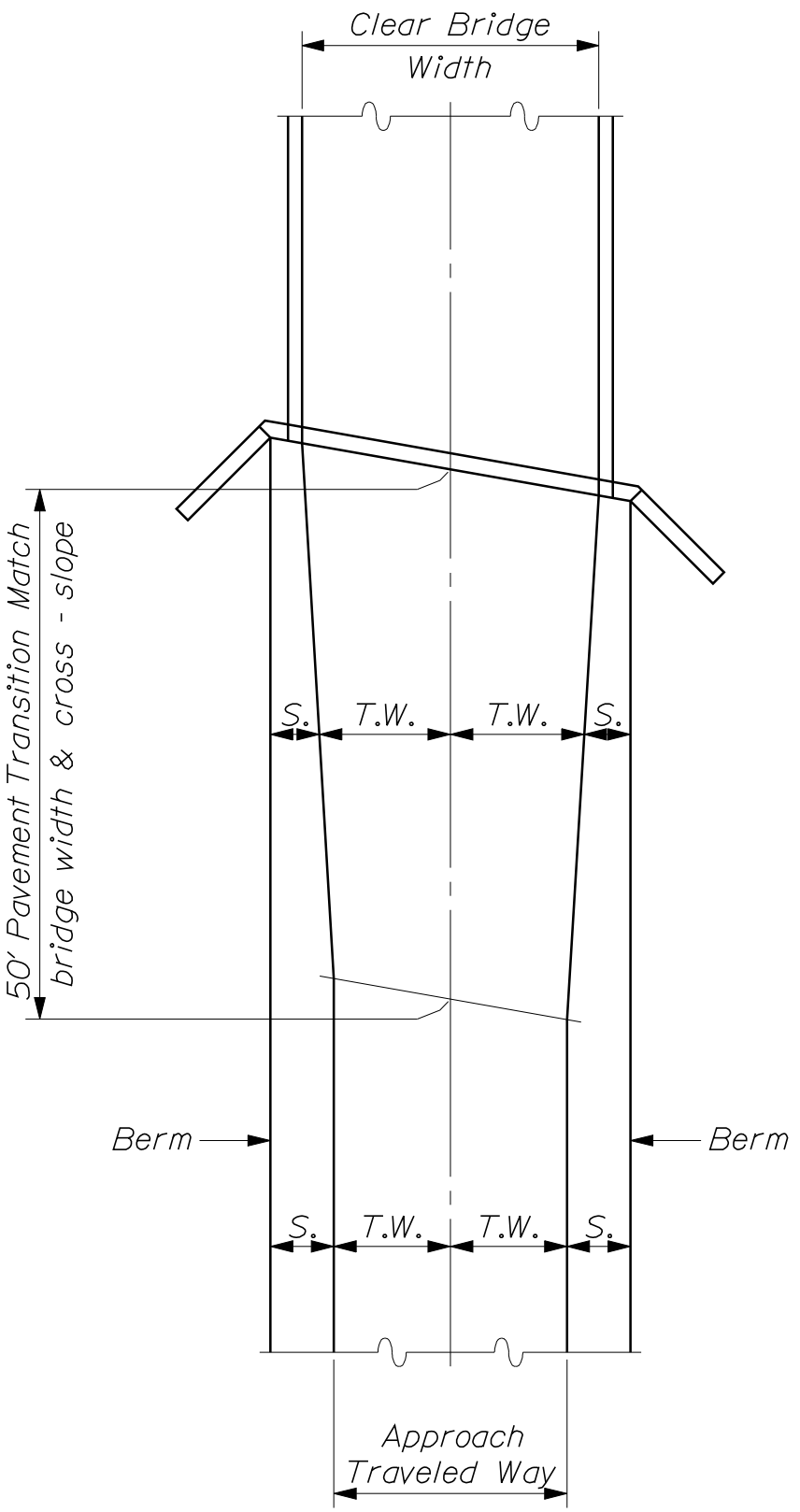
③ If there are high truck turning volumes, the designer should consider providing turning radii of 15' - 25' and/or wider opening and/or limiting the angle of turn to accomodate trucks.

④ If project requires a traffic movement permit then truncated domes will be required.

COMMERCIAL/INDUSTRIAL DOUBLE ENTRANCES ONTO CURBED HIGHWAY (NARROW RIGHT-OF-WAY)

801(09)

T.W. = Traveled Way Pavement & Cross - slope
S. = Shoulder Pavement & Cross - slope



PAVEMENT TRANSITION AT BRIDGE

801(10)

GENERAL NOTES

1. When the sidewalk is less than 5'-0" in width, a minimum pad 5'-0" x 5'-0" sloping no more than 2% shall be provided whenever a change in direction must be made.

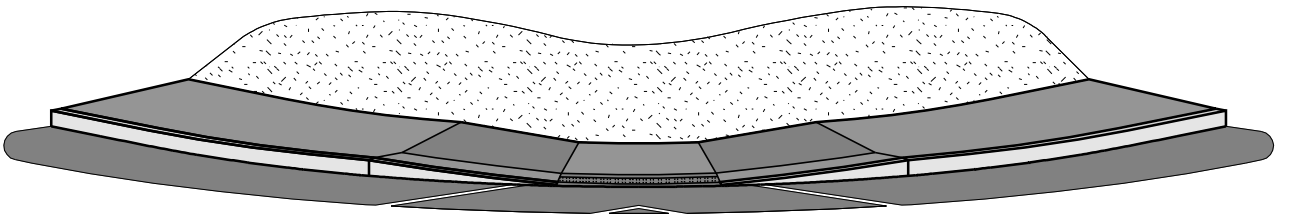
2. There shall be a minimum of 12" Aggregate Subbase Course-Gravel under the 2" pavement on pedestrian ramps.

3. Curb openings for pedestrian ramps shall be 6'-0" minimum.

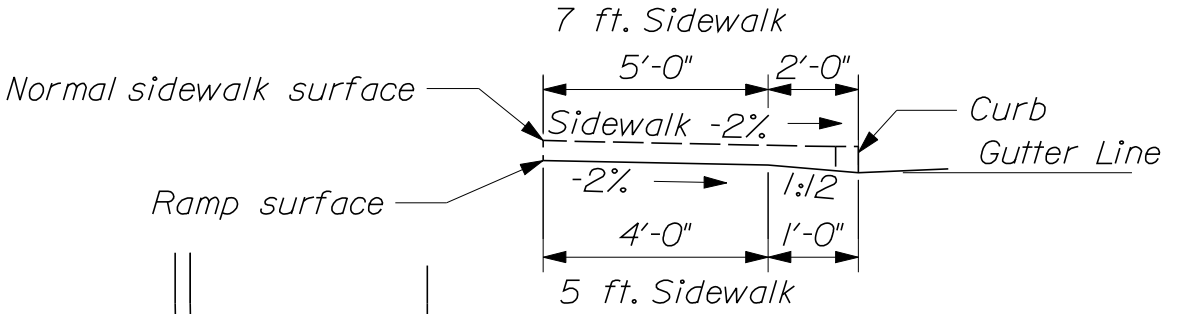
4. Detectable Warning Fields shall be installed at each pedestrian ramp in accordance with The Americans With Disabilities Act (ADA) specifications and guidelines.

PEDESTRIAN RAMP NOTES

801(11)

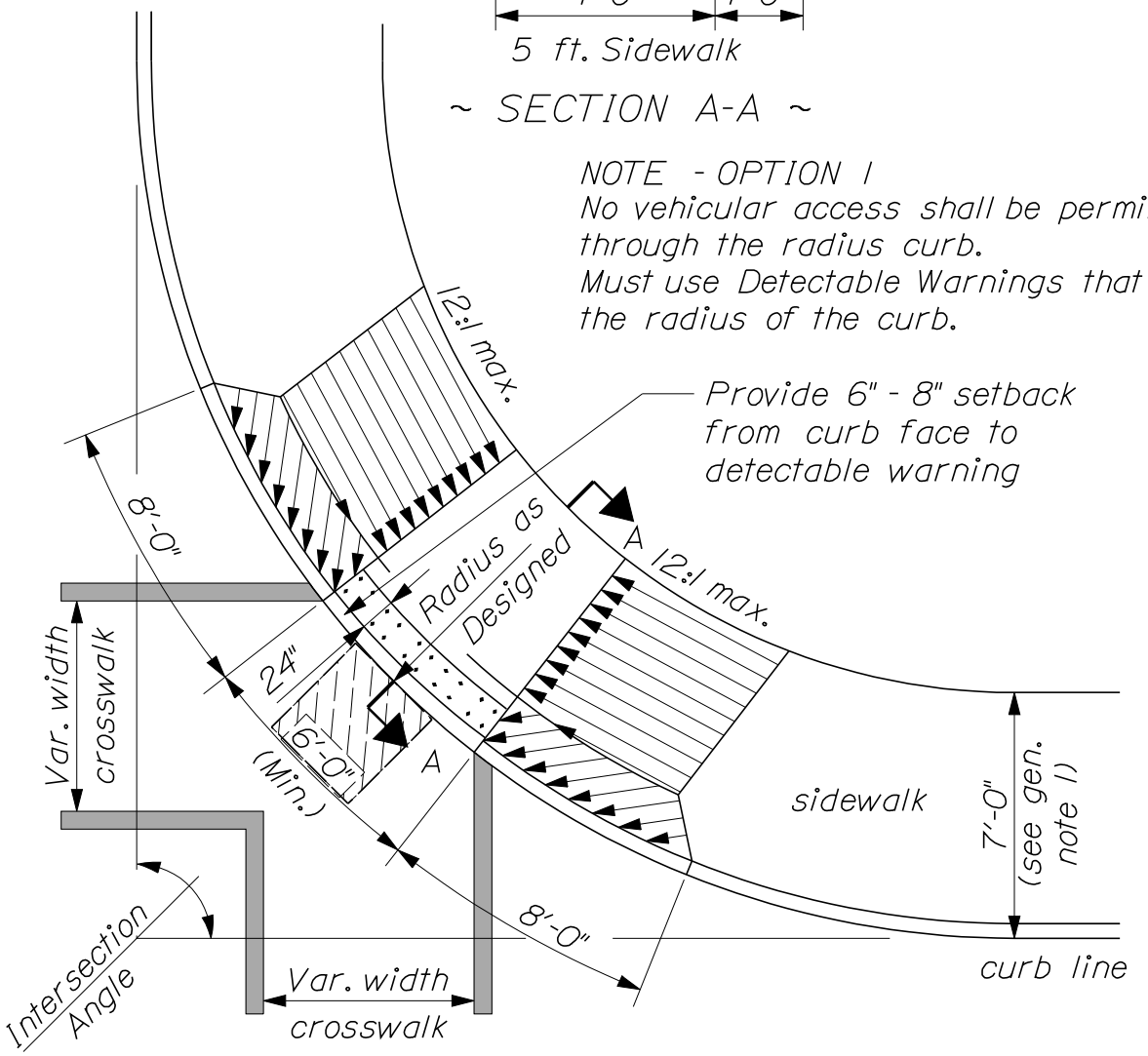


~ PERSPECTIVE VIEW ~
(not to scale)



~ SECTION A-A ~

NOTE - OPTION 1
No vehicular access shall be permitted through the radius curb.
Must use Detectable Warnings that match the radius of the curb.



Note:
This less desireable design should not be used unless design constraints require it. Does not provide directional cues. Use Option 2 when possible.

PEDESTRAIN RAMP - OPTION 1

801(12)

PEDESTRIAN RAMPS - OPTION 2

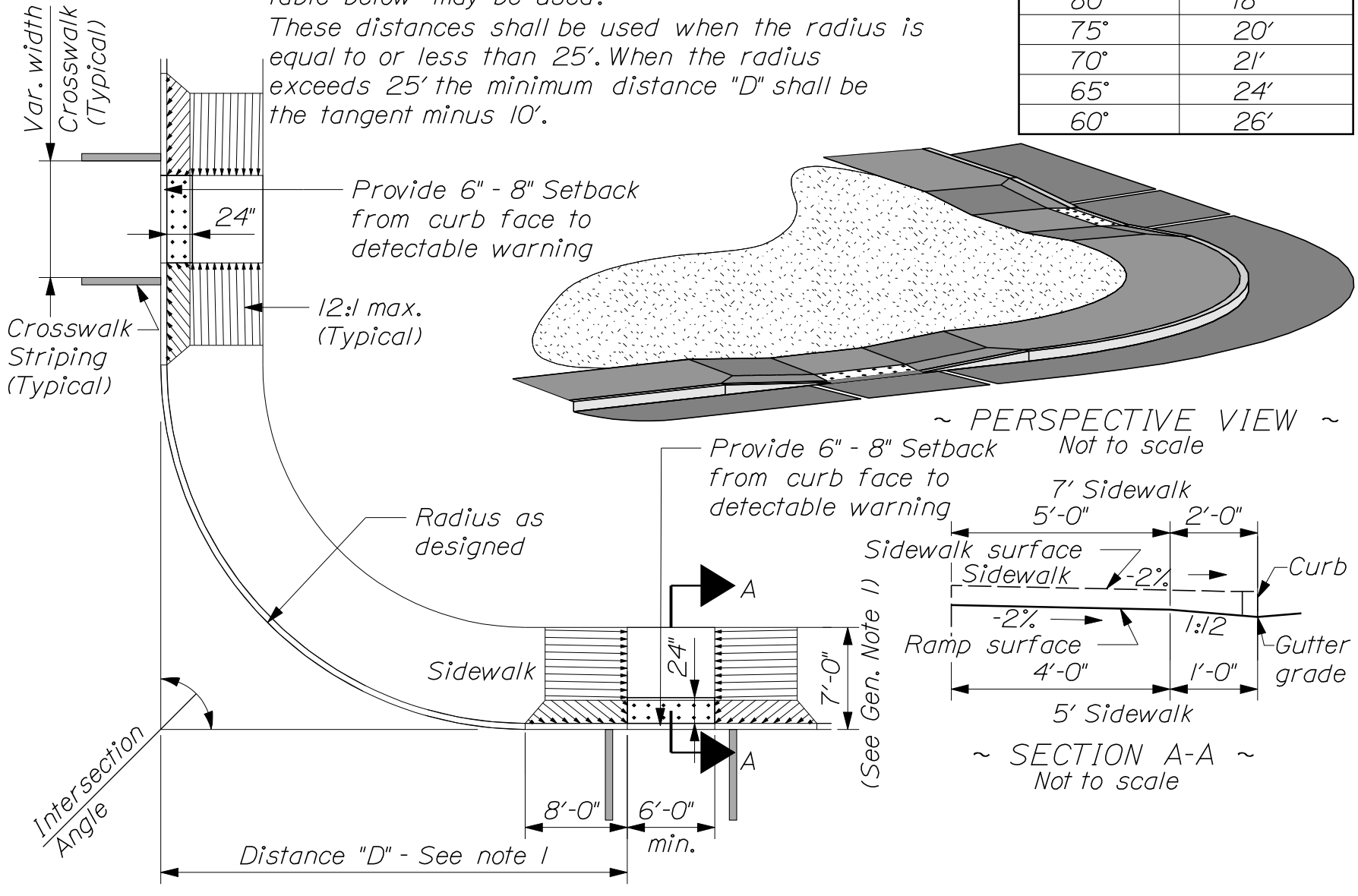
80(13)

NOTES - OPTION 2

The desirable distance "D" is the tangent distance of the curb radius plus 7'. When local conditions do not permit the use of this distance the distances shown in the table below may be used:

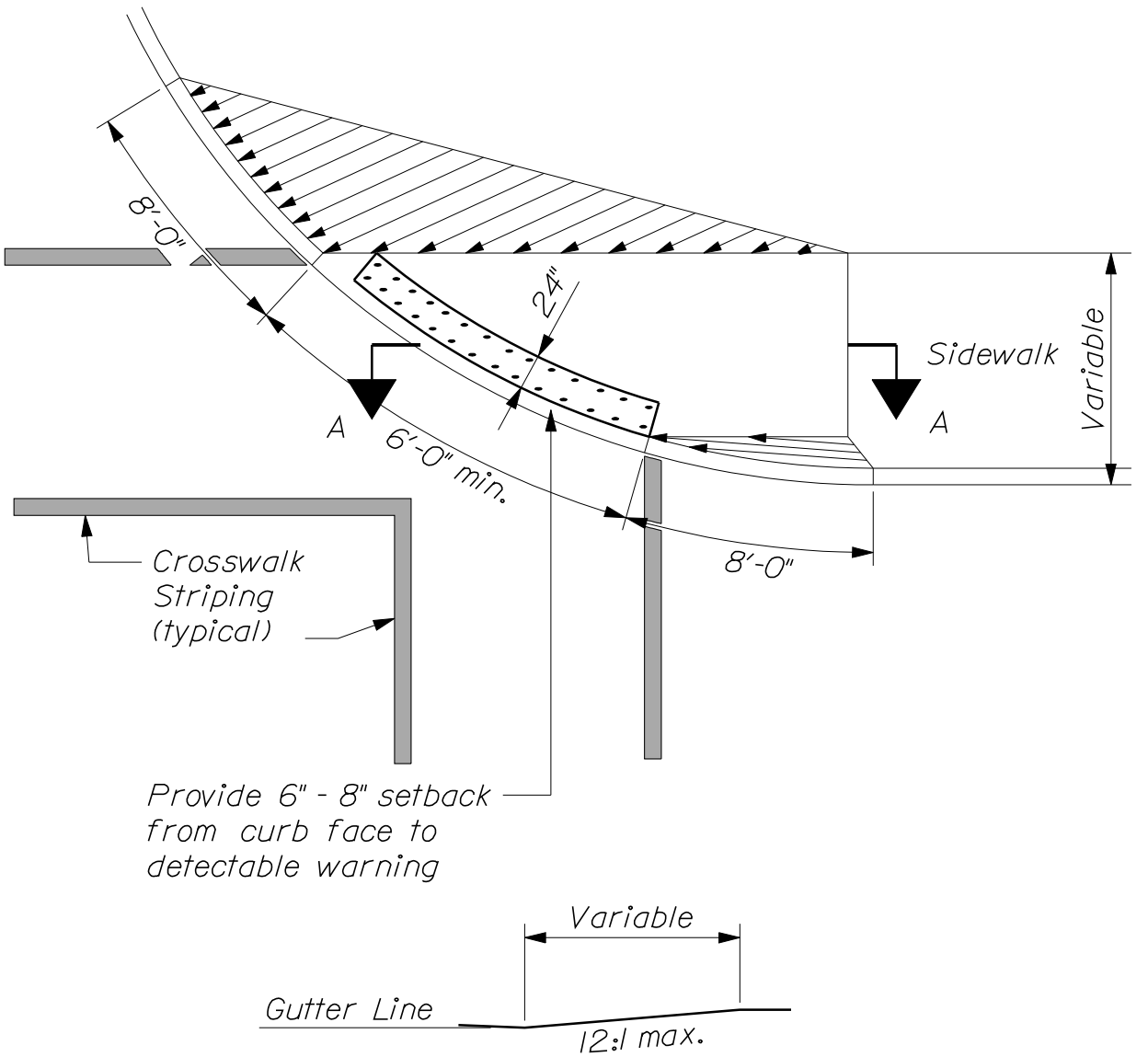
These distances shall be used when the radius is equal to or less than 25'. When the radius exceeds 25' the minimum distance "D" shall be the tangent minus 10'.

Intersection Angle	Absolute Minimum "D"
90°	15'
85°	16'
80°	18'
75°	20'
70°	21'
65°	24'
60°	26'



~ PERSPECTIVE VIEW ~
Not to scale

~ SECTION A-A ~
Not to scale



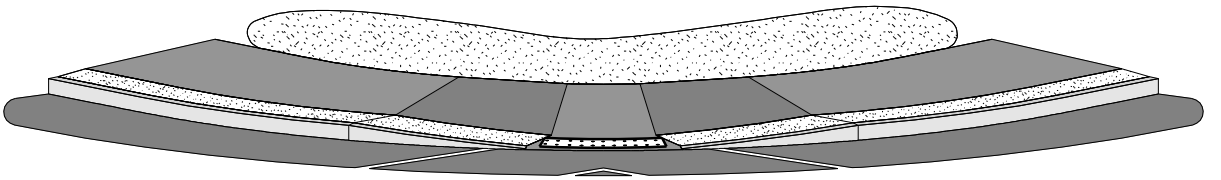
~ SECTION A-A ~

Note:
This less desireable design should not be used unless design constraints require it. Does not provide directional cues. Use Option 2 when possible.

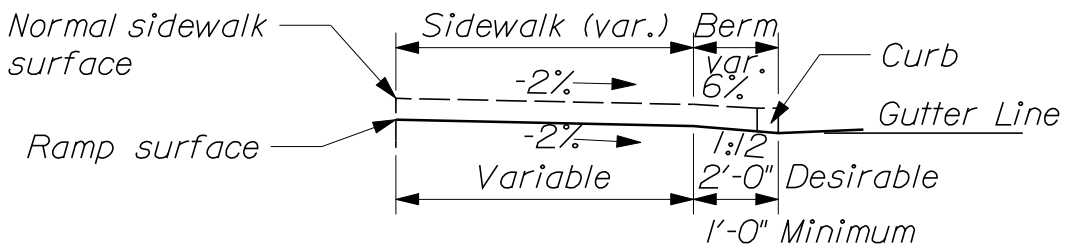
Must use Detectable Warnings that match the radius of the curb.

PEDESTRIAN RAMPS - OPTION 3

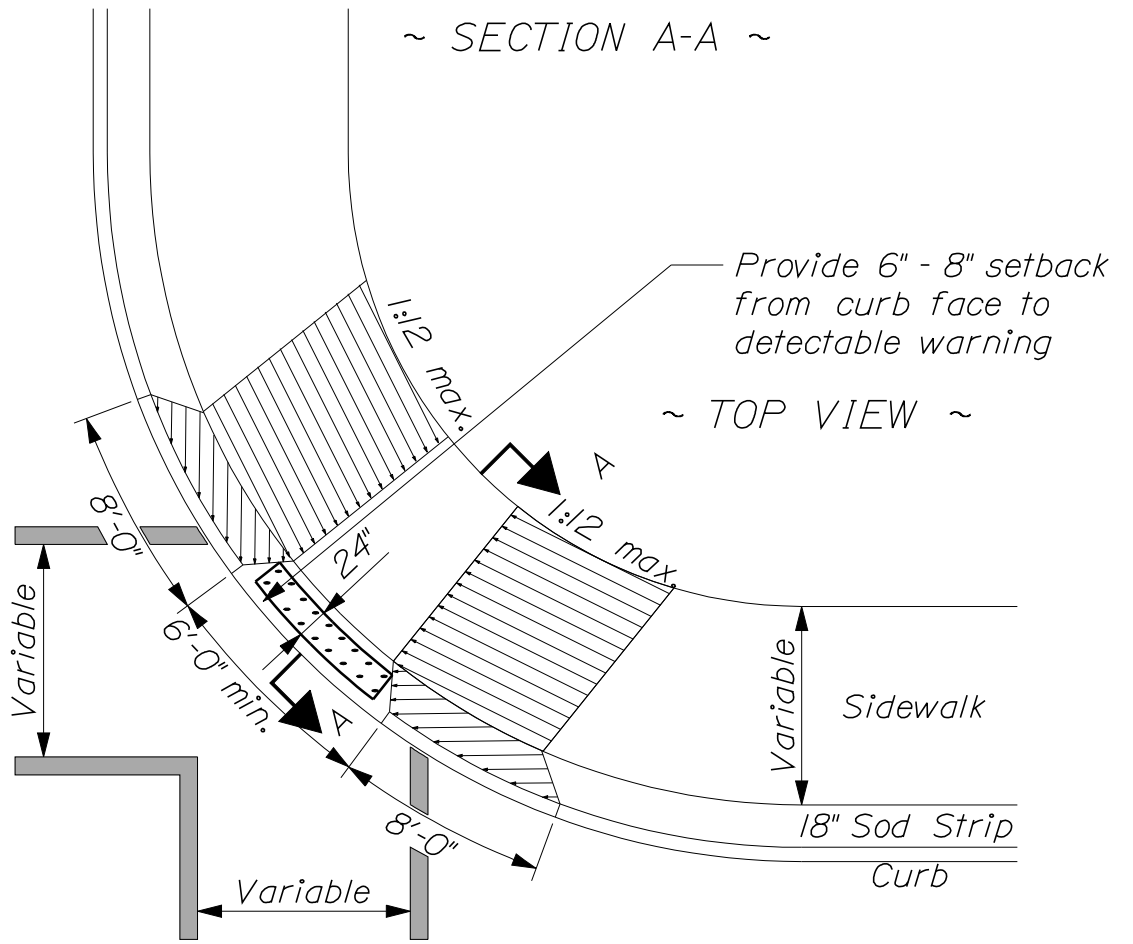
801(14)



~ PERSPECTIVE VIEW ~



~ SECTION A-A ~



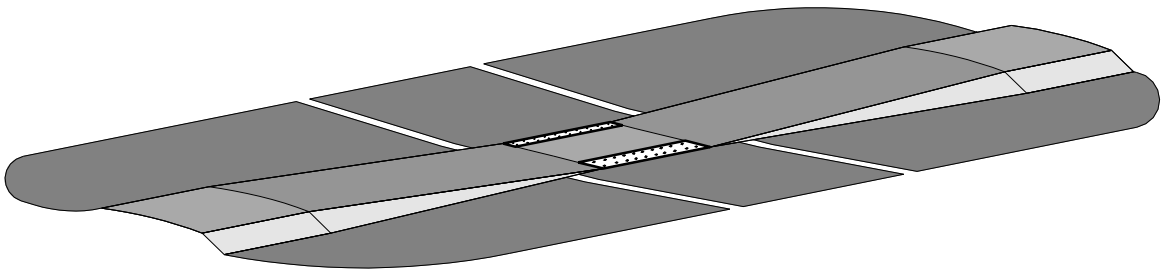
~ TOP VIEW ~

Note:
This less desireable design should not be used unless design constraints require it. Does not provide directional cues. Use Option 2 when possible.

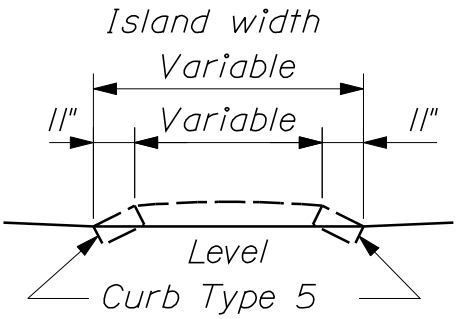
Must use Detectable Warnings that match the radius of the curb.

PEDESTRIAN RAMP WITH BERM

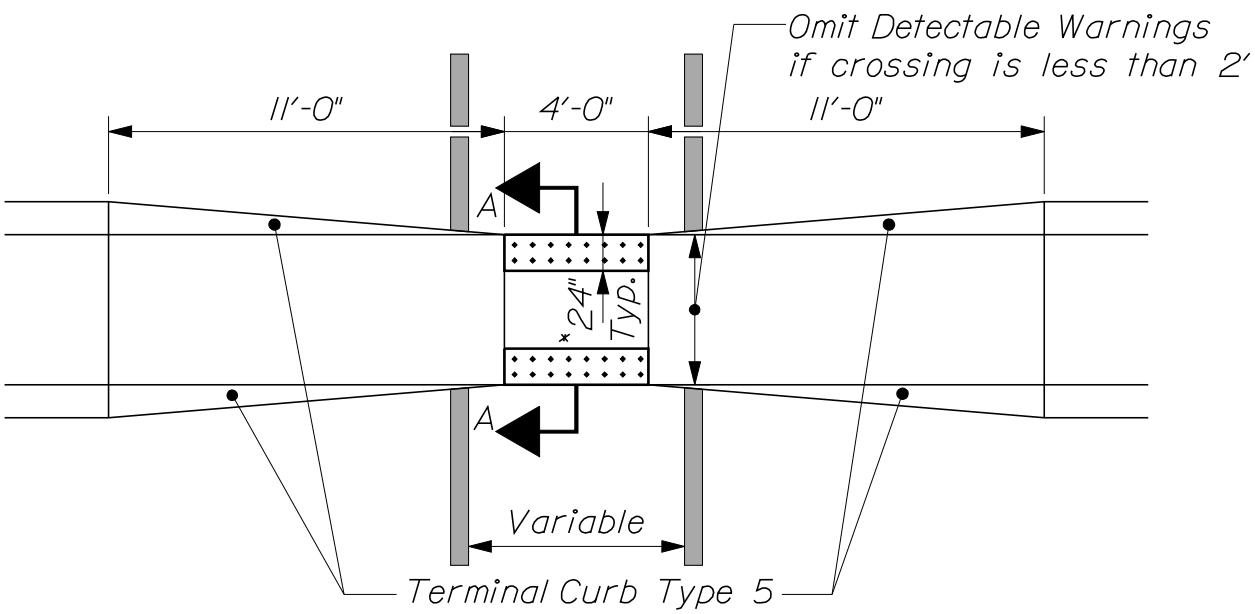
801(15)



~ PERSPECTIVE VIEW ~



~ SECTION A-A ~

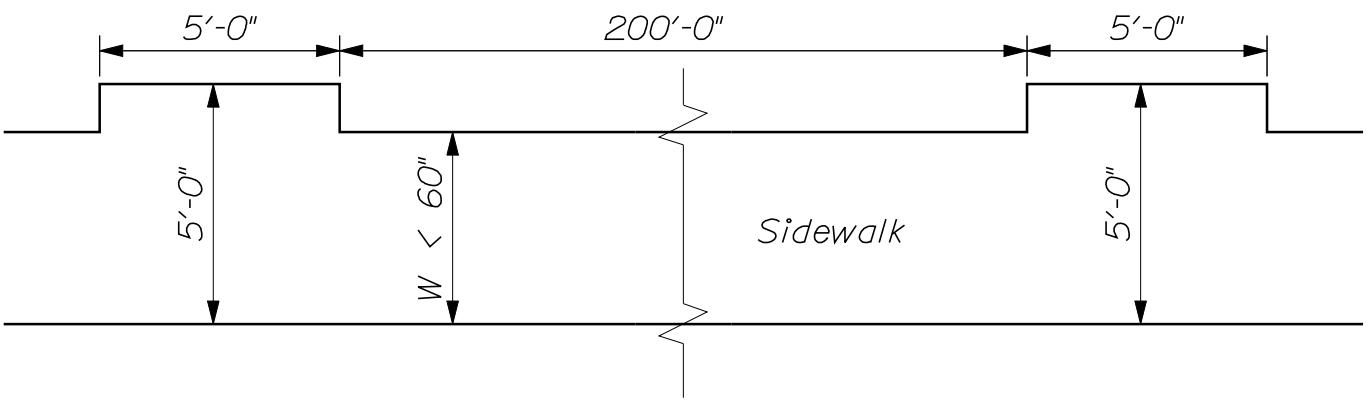


~ TOP VIEW ~

*24" Except where island or medians are less than 4' wide. The detectable warning should extend across the full length of the cut through the island or median.

PEDESTRIAN RAMP
ISLAND - CURB TYPE 5

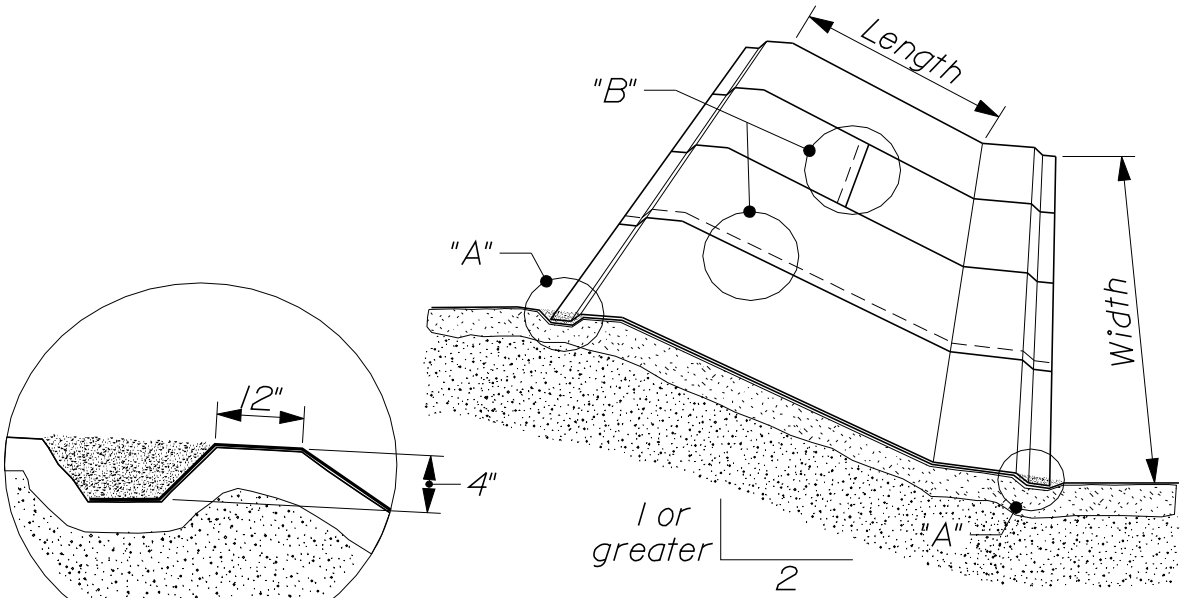
801(16)



Sidewalks less than 60″ in width require a 5′-0″ x 5′-0″ passing area every 200′.

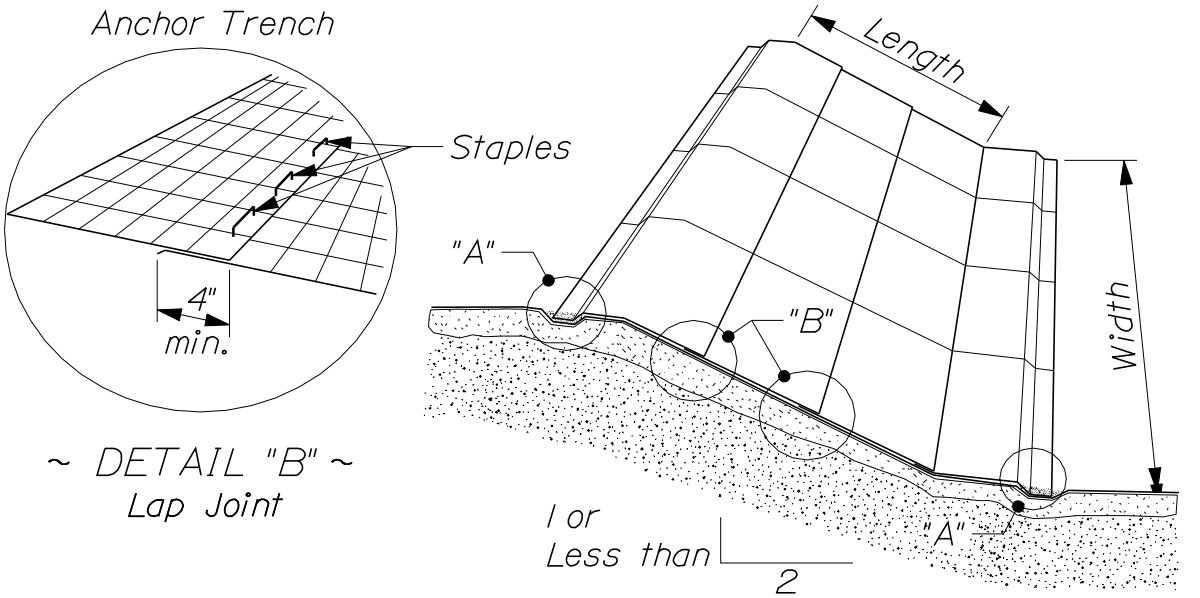
PEDESTRIAN PASSING AREAS

801(17)



~ STEEP SLOPES ~

~ DETAIL "A" ~
Anchor Trench



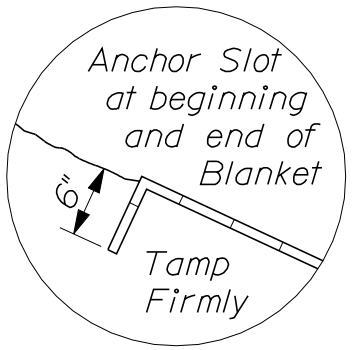
~ DETAIL "B" ~
Lap Joint

~ MODERATE SLOPES ~

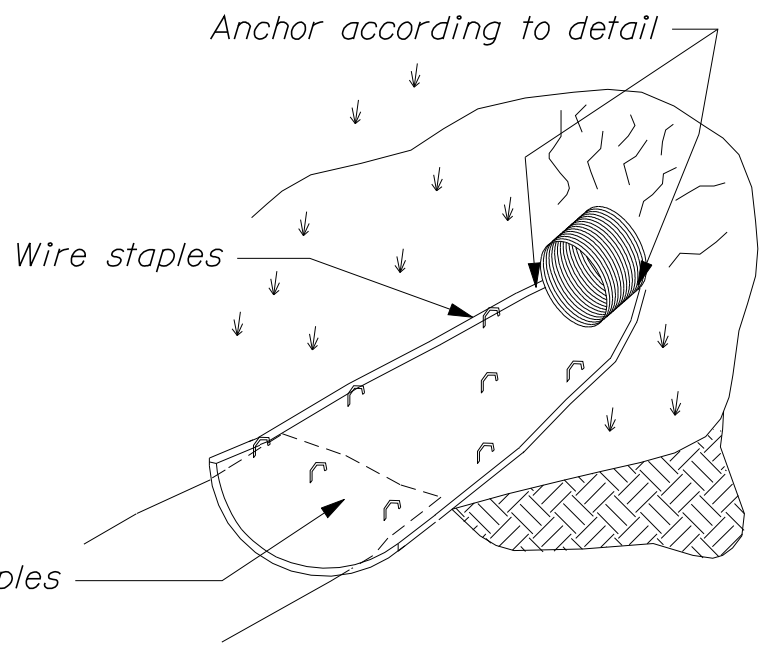
NOTES:
1. Width may vary depending on type of material chosen.
2. Follow Manufacturer's recommendations for anchoring blanket ends, overlaps, and staple spacing. Dimensions for these activities are to be used as a minimum.
3. Staples may be as provided or biodegradable staples according to the Qualified Products List*.
4. See section 717.0611 of the MaineDOT Standard Specification or MaineDOT Qualified Products List*.
*http://www.maine.gov/mdot/transportation-research/qpl.php
5. Reference the most recent version of the MaineDOT Best Management Practices for Erosion and Sedimentation Control Manual.

EROSION CONTROL BLANKET
SLOPE APPLICATION

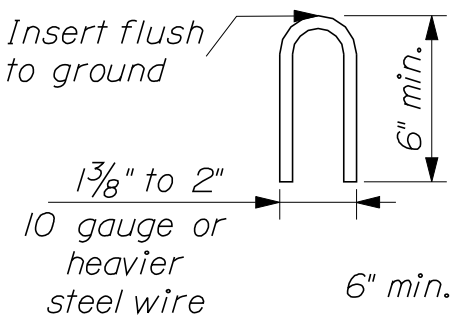
802(01)



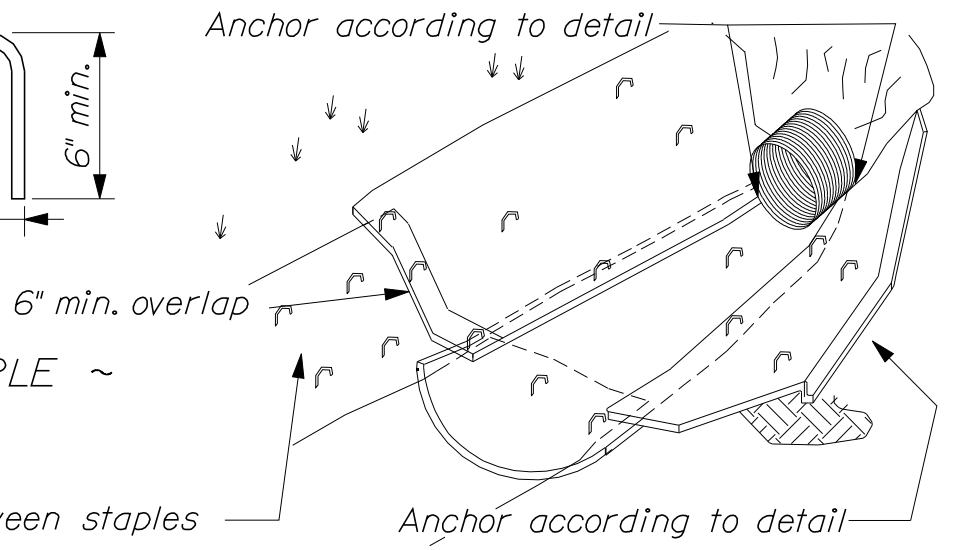
~ ANCHOR DETAIL ~



~ UNCOVERED CHANNEL SIDE SLOPES ~



~ WIRE STAPLE ~

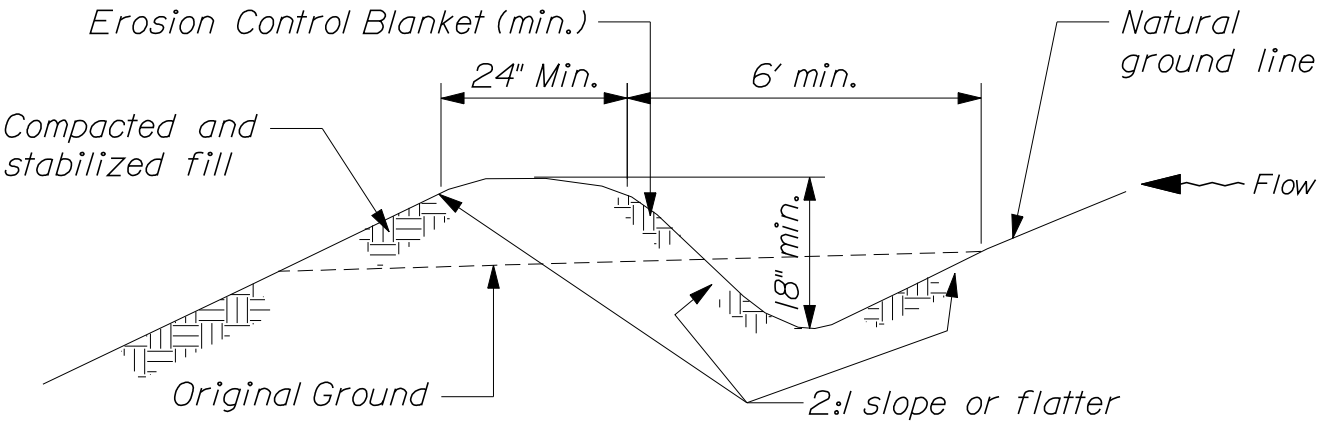


~ COVERED CHANNEL SIDE SLOPES ~

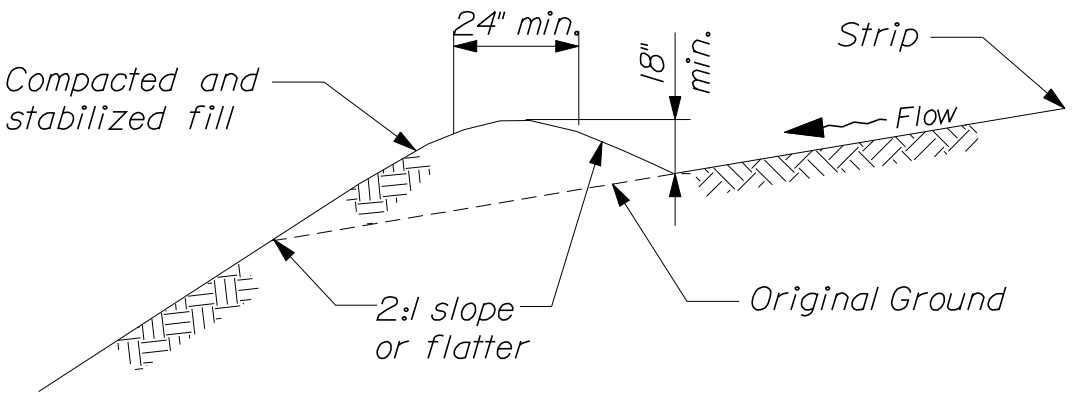
NOTES:
1. Width may vary depending on design flows, channel side slopes, and type of material chosen.
2. Follow Manufacturer's recommendations for anchoring blanket ends, overlaps, and staple spacing. Dimensions shown for these activities are to be used as a minimum.
3. Staples may be as provided or biodegradable staples according to the Qualified Products List*.
4. See Section 717.061 of the MaineDOT Standard Specifications or MaineDOT Qualified Products List*.
*http://www.maine.gov/mdot/transportation-research/qpl.php
5. Reference the most recent version of the MaineDOT Best Management Practices for Erosion and Sedimentation Control Manual.

EROSION CONTROL BLANKET
DITCH APPLICATIONS

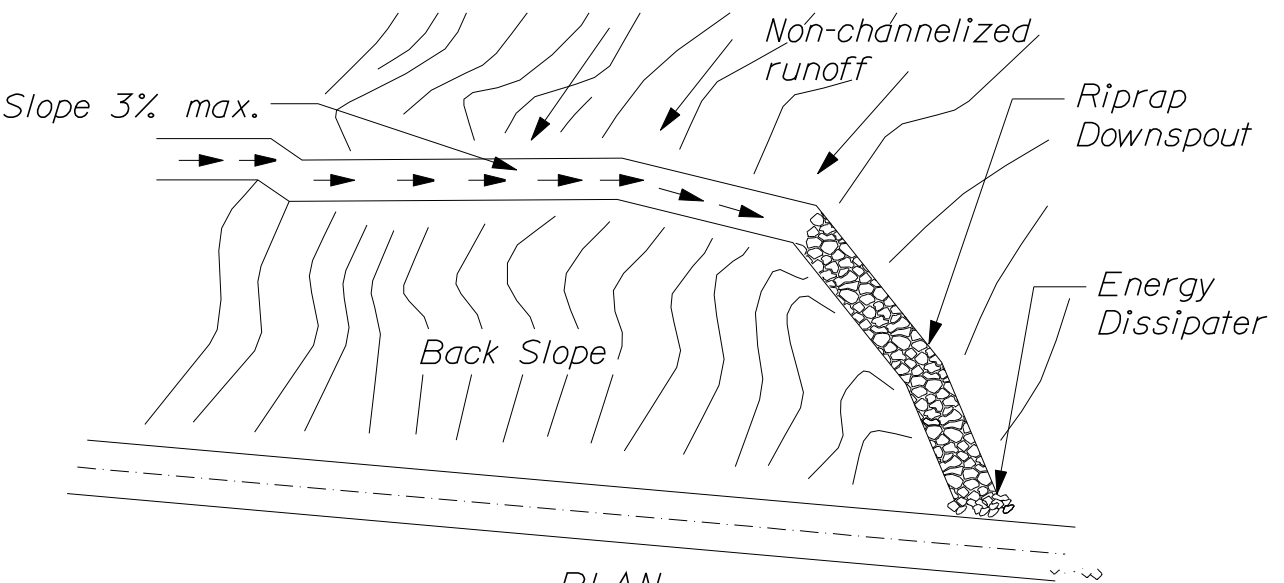
802(02)



~ EXCAVATED DIVERSION ~



~ FILL PLACED DIVERSION ~



~ PLAN ~

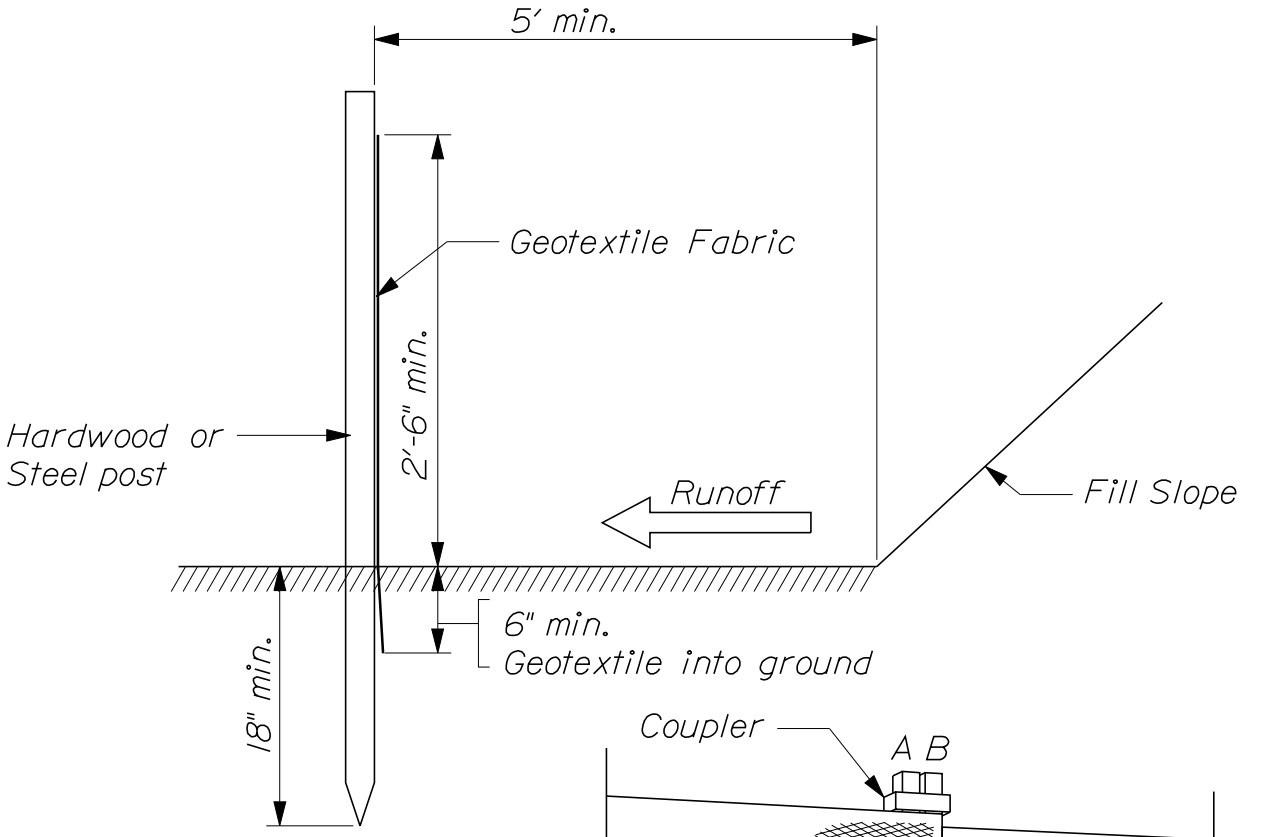
NOTES:

1. Dimensions shown are for a temporary hillside diversion; if used as a permanent practice, it must be designed by a professional engineer.

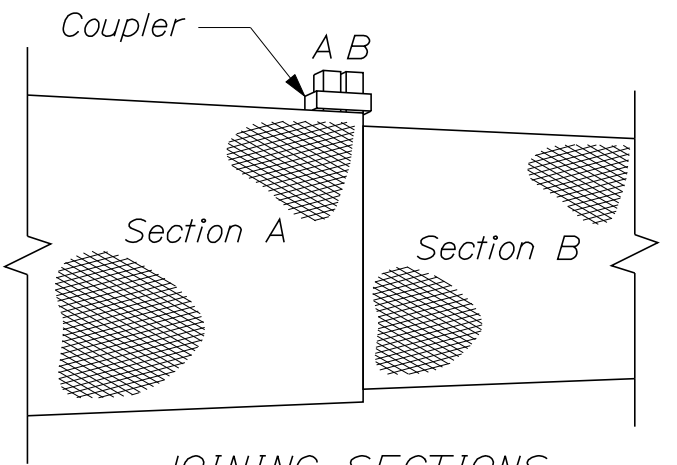
2. Reference the most recent version of the MaineDOT Best Management Practices for Erosion and Sedimentation Control Manual.

HILLSIDE DIVERSIONS

802(03)



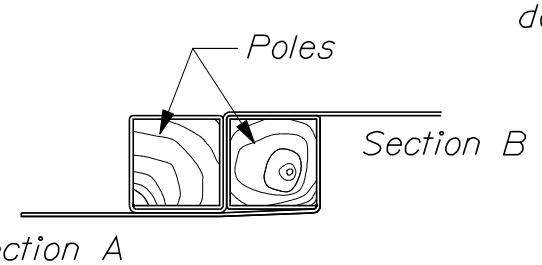
~ SIDE VIEW ~



Posts may be wired together when joining sections

~ JOINING SECTIONS ~

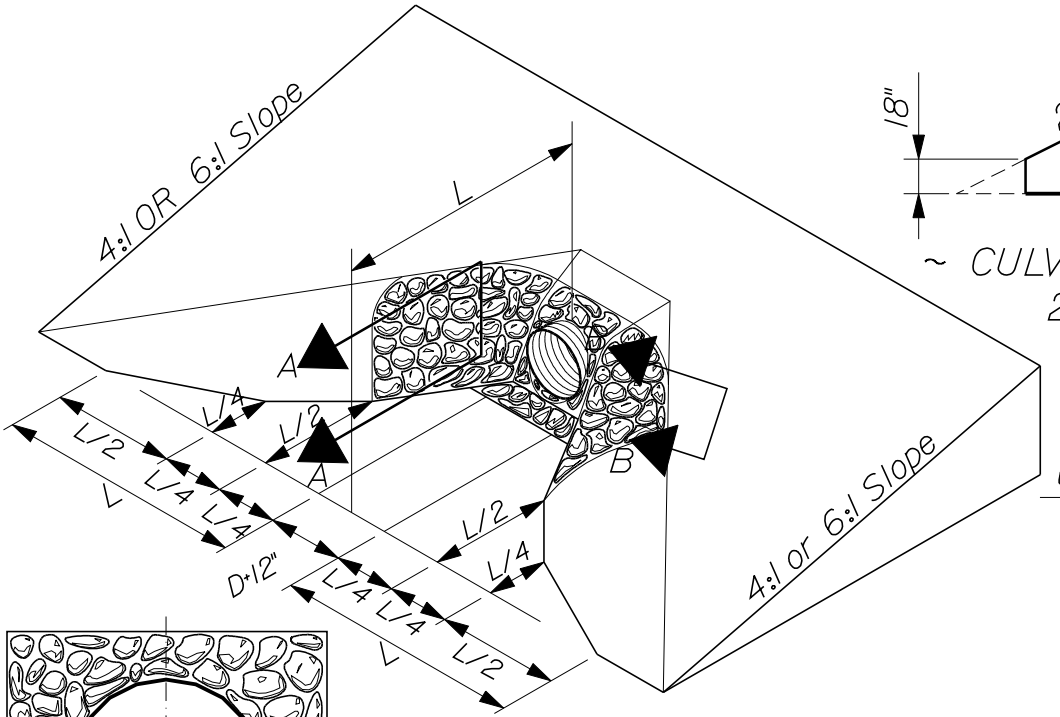
The coupler can be any acceptable device used to tie the poles together

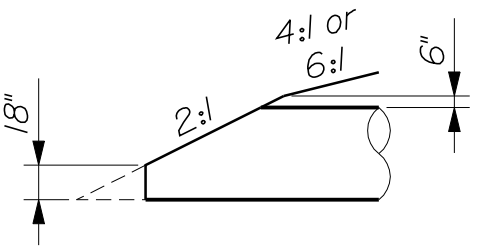


~ TOP VIEW ~

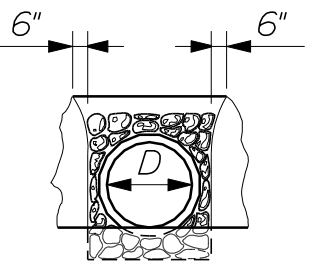
REF:
Best Management Practices for Erosion and Sedimentation Control - Level Spreader

# SILT FENCE
# SEDIMENT BARRIER
802(04)

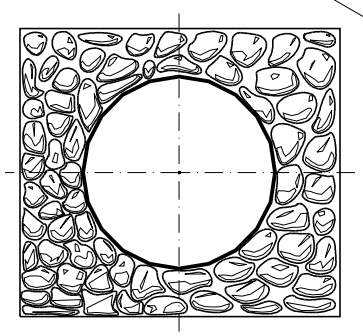




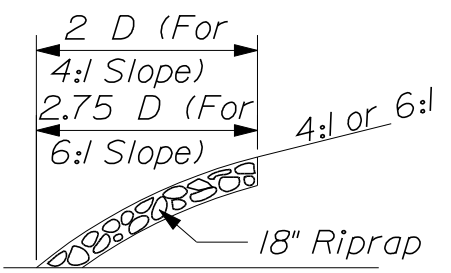
~ CULVERTS CUT ON 2:1 SLOPE ~



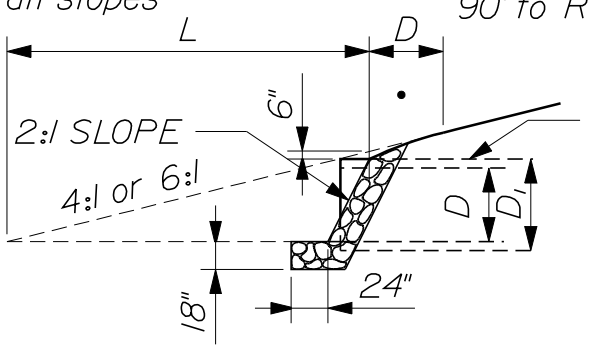
~ FRONT VIEW ~



Install riprap 24" around diameter of pipe on 2:1 guardrail slopes



~ SECTION A-A ~
90° to Roadway ℄



~ SECTION B-B ~

TABLE B		
Culvert Diameter	"L" 4:1 Slope	"L" 6:1 Slope
1'-6"	8'-10"	12'-10"
1'-9"	9'-10"	14'-9"
1'-12"	10'-10"	16'-5"
2'-6"	12'-10"	19'-8"
2'-11"	15'-1"	22'-8"
3'-5"	17'-1"	25'-7"
3'-11"	19'-1"	28'-10"
4'-5"	22'	32'-2"
4'-11"	24'	35'-5"
5'-5"	26'	38'-9"
5'-11"	28'-7"	42'
6'-11"	32'-6"	48'-3"

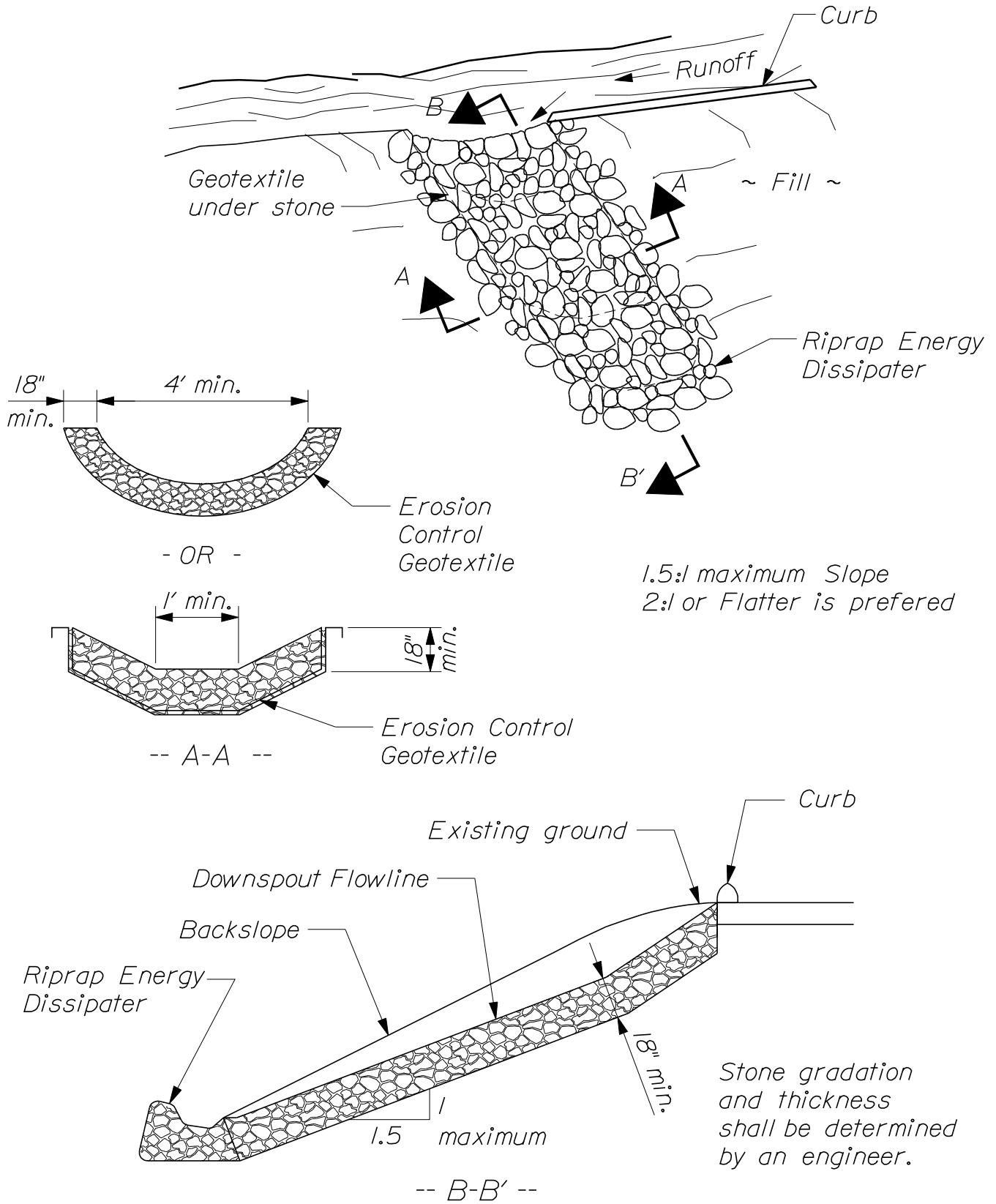
NOTES:

1. The dimensions shown are approximate and may be modified in the field by the Resident.
2. Riprap will be required on portions of the culvert end treatment of 2:1. The remaining portion shall be loamed, seeded and hay mulched as directed.
3. Culverts installed on 2:1 slopes shall have riprap laid on a 2:1 slope around the inlet and outlet.

REF: Best Mngmt. Practices for Erosion and Sediment Control - Culvert Inlet / Outlet Protection.

ROADWAY CULVERT END SLOPE TREATMENT

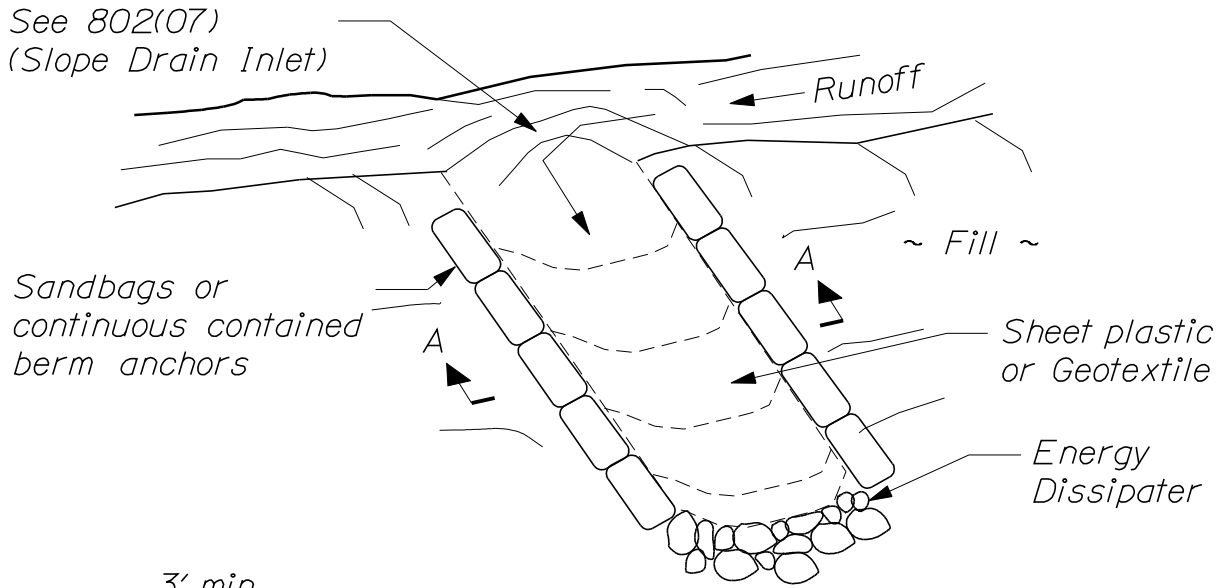
802(05)

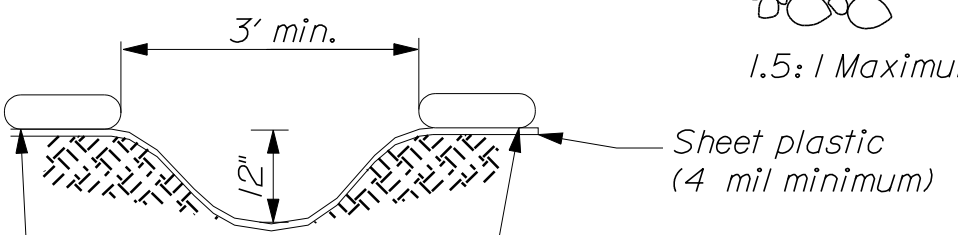


REF: Best Management Practices for Erosion and Sediment Control - Temporary Slope Drains

RIPRAP DOWNSPOUT

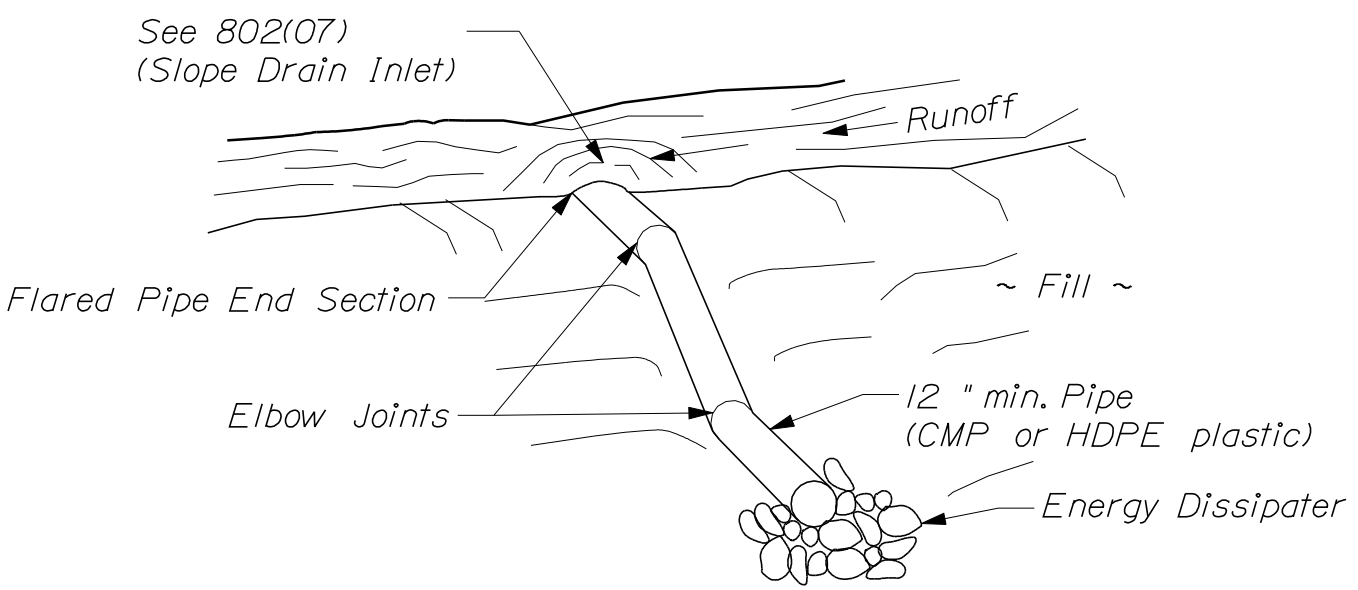
802(06)





~ SHEET PLASTIC SLOPE DRAIN ~

~ SECTION A-A ~

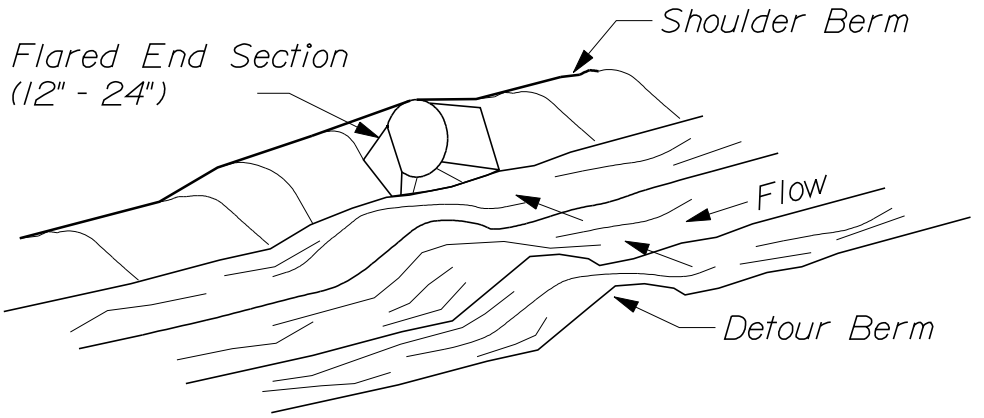


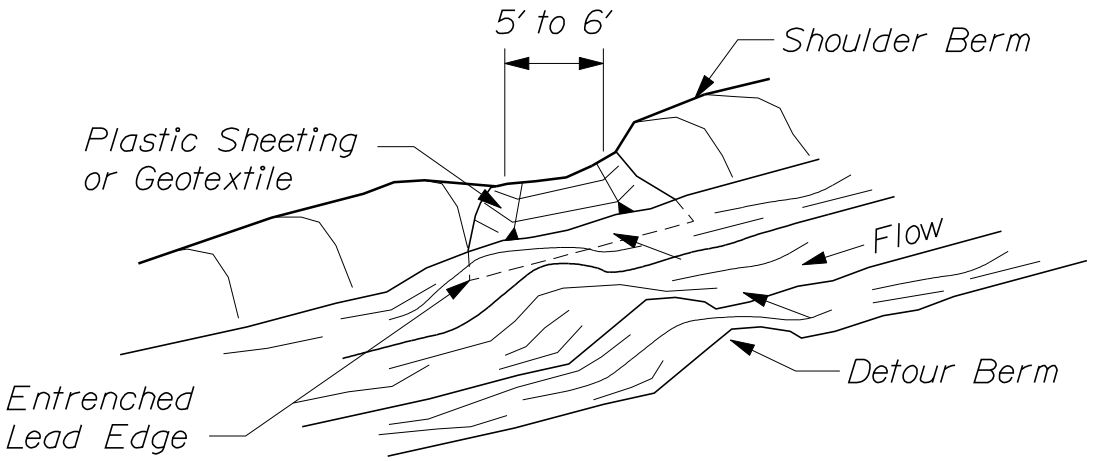
~ PIPE SLOPE DRAIN ~

REF: Best Mngmt. Practices for Erosion and Sedimentation Control - Temporary Slope Drains

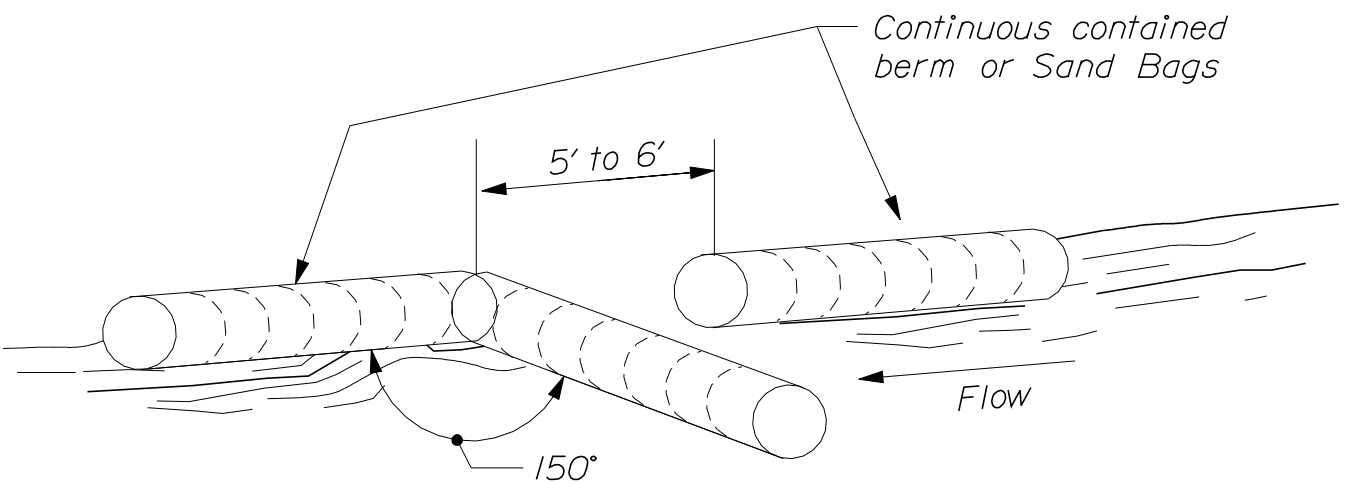
TEMPORARY SLOPE DRAINS

802(07)





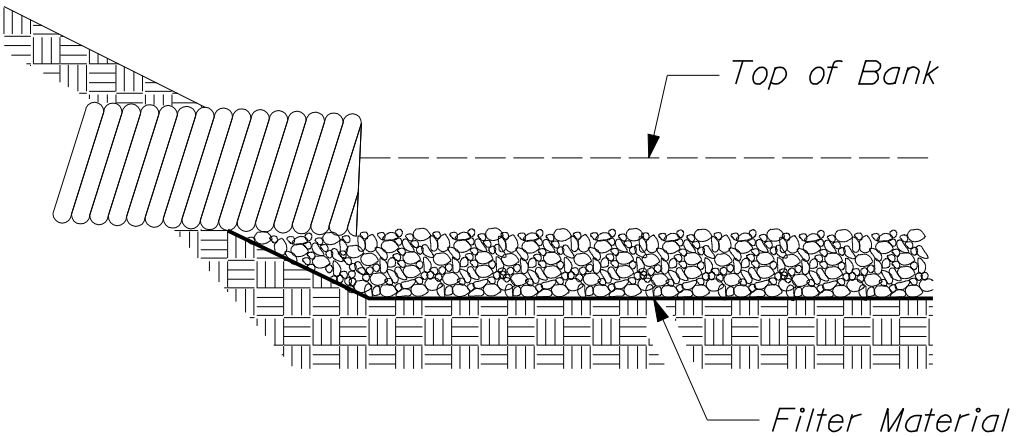
~ SLOPE DRAIN INLETS ~



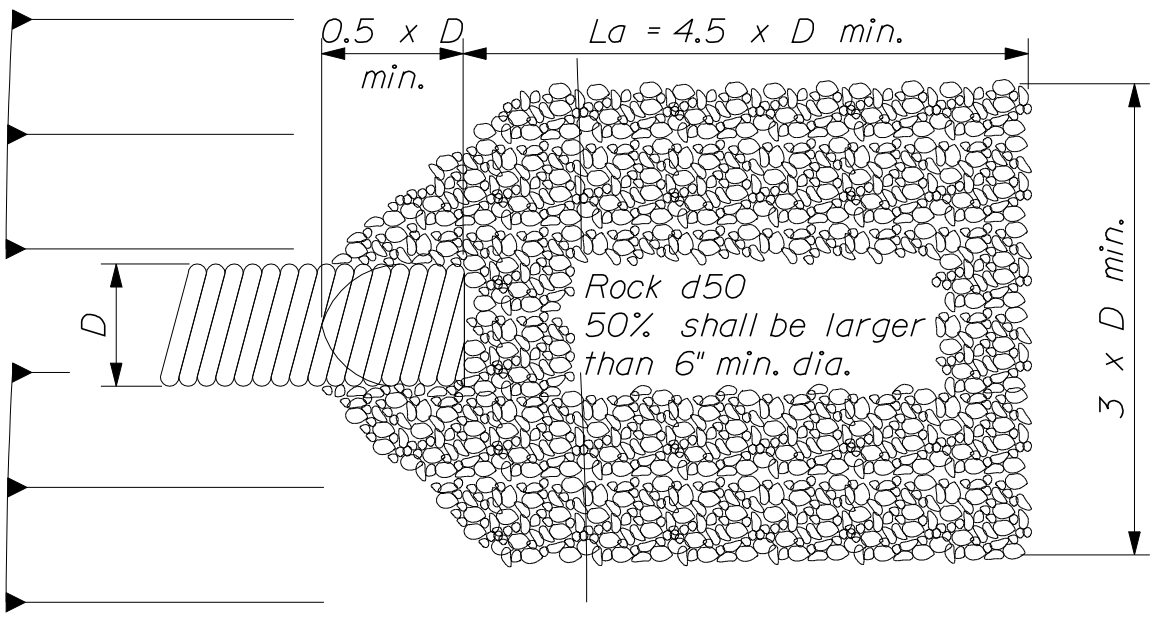
REF: Best Mngmt. Practices for Erosion and Sedimentation Control - Temporary Slope Drains

TEMPORARY SLOPE DRAIN INLETS

802(08)



~ SECTION ~



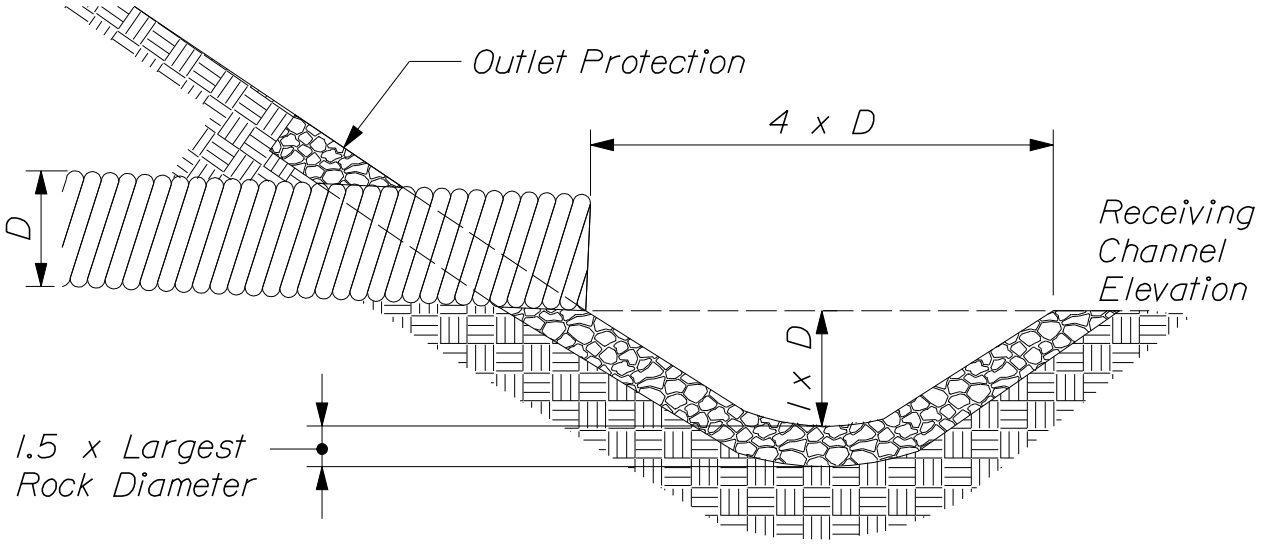
~ PLAN ~

NOTES:

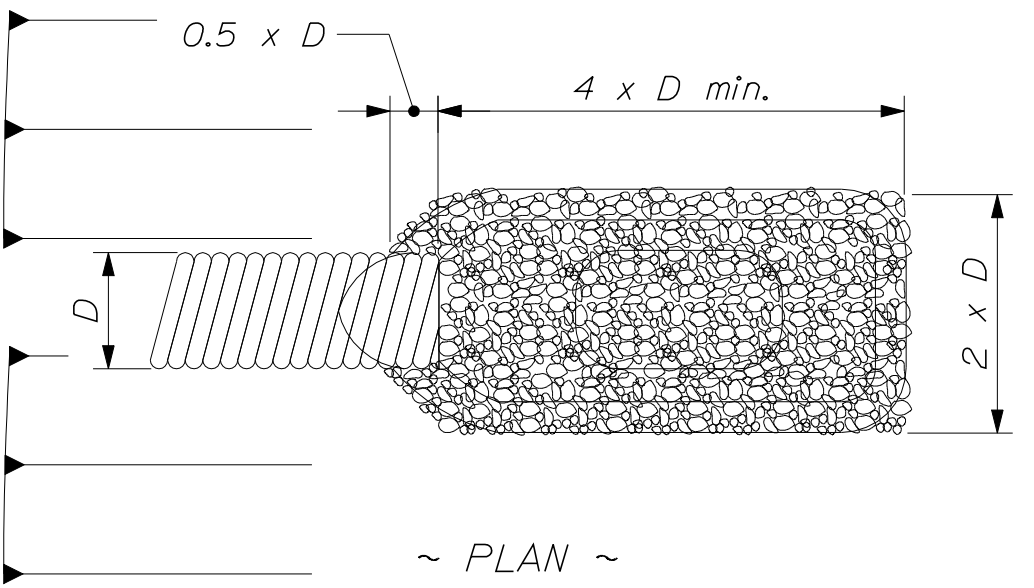
1. 'La' = Length of Apron. Distance 'La' shall be of sufficient length to dissipate energy
2. Apron shall be set to a zero grade and aligned parallel to water flow.
3. Filter material shall be filter fabric or 6" thick minimum graded gravel layer.
4. Reference: Best Management Practices for Erosion and Sediment Control - Energy Dissipater Riprap Apron
5. This detail shall apply to pipe diameters of 36" or less.
6. Larger diameter pipes shall be designed by a professional engineer.
7. Reference: Riprap spec. 703.29

ENERGY DISSIPATER - RIPRAP APRON

802(09)



~ SECTION ~



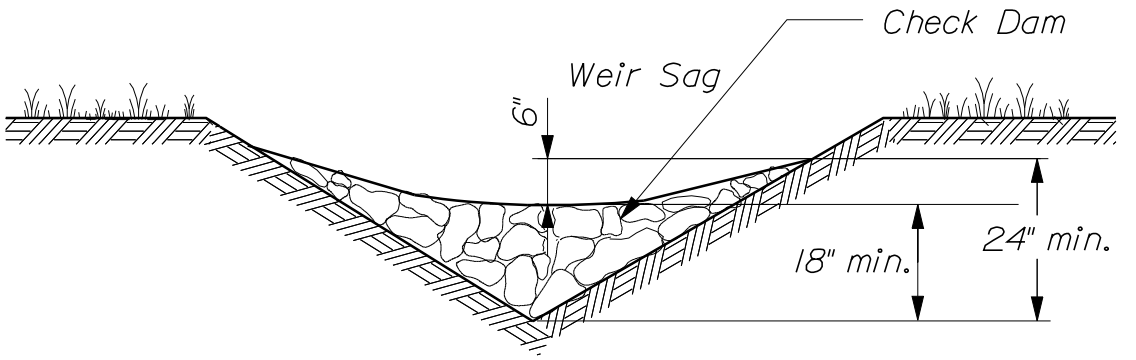
~ PLAN ~

NOTES:

1. Riprap shall be underlain by gravel bedding or non-woven geotextile.
2. REF: Best Management Practices for Erosion and Sediment Control - Energy Dissipater.
3. This detail shall apply to pipe diameters of 36" or less. Plunge pools for large diameter pipes shall be designed by a professional engineer.

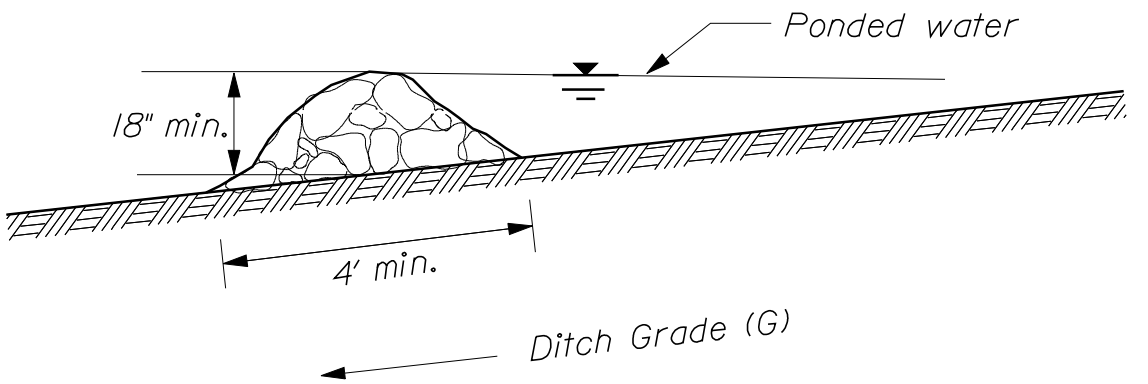
ENERGY DISSIPATER - PLUNGE POOL

802(10)



~ CROSS SECTION ~

NOTE:
Unless specified, stone shall meet requirements of material specification 703.29 stone ditch protection.

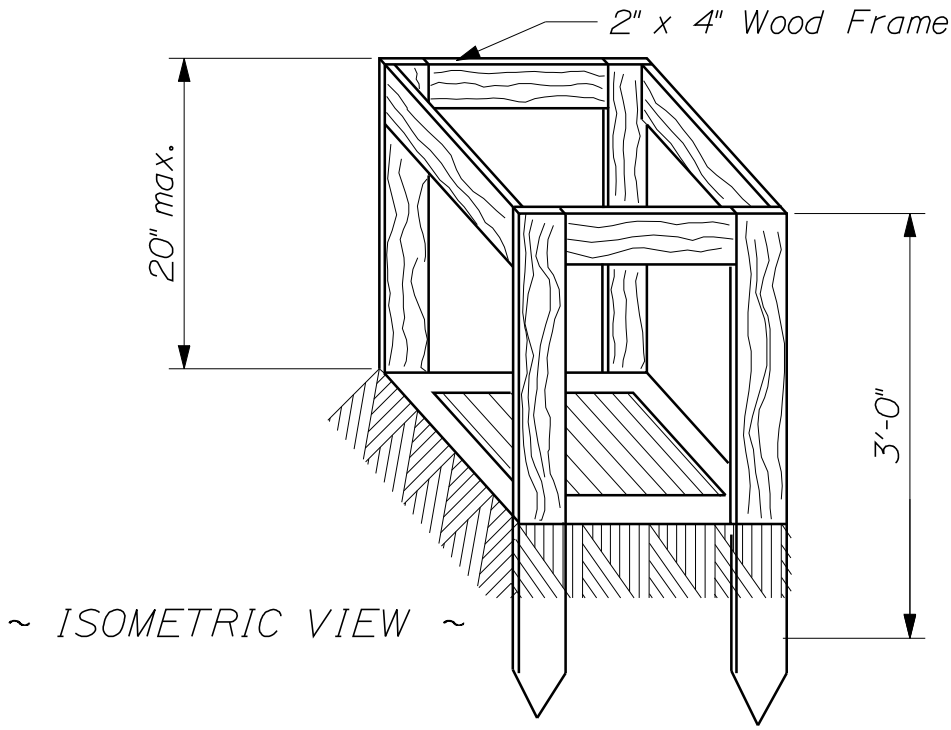


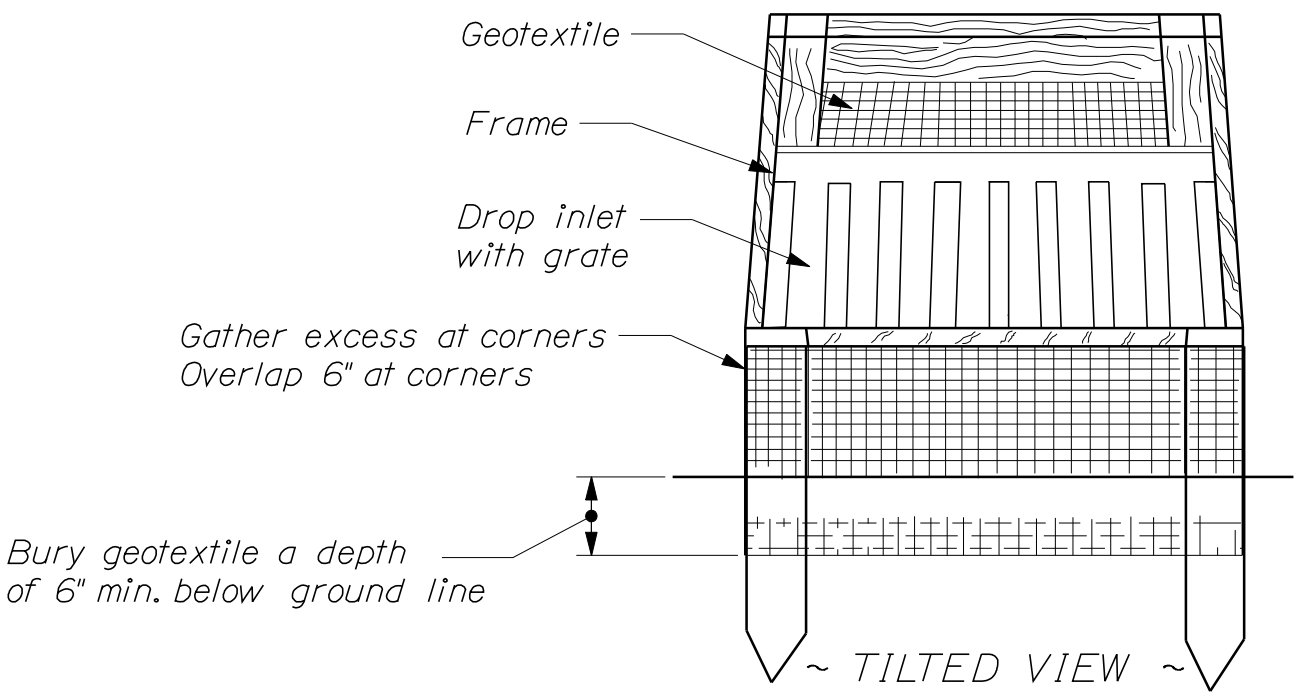
~ PROFILE @ DITCH ~

REF: Best Management Practices for Erosion and Sedimentation Control - Check Dam

STONE CHECK DAM

802(11)



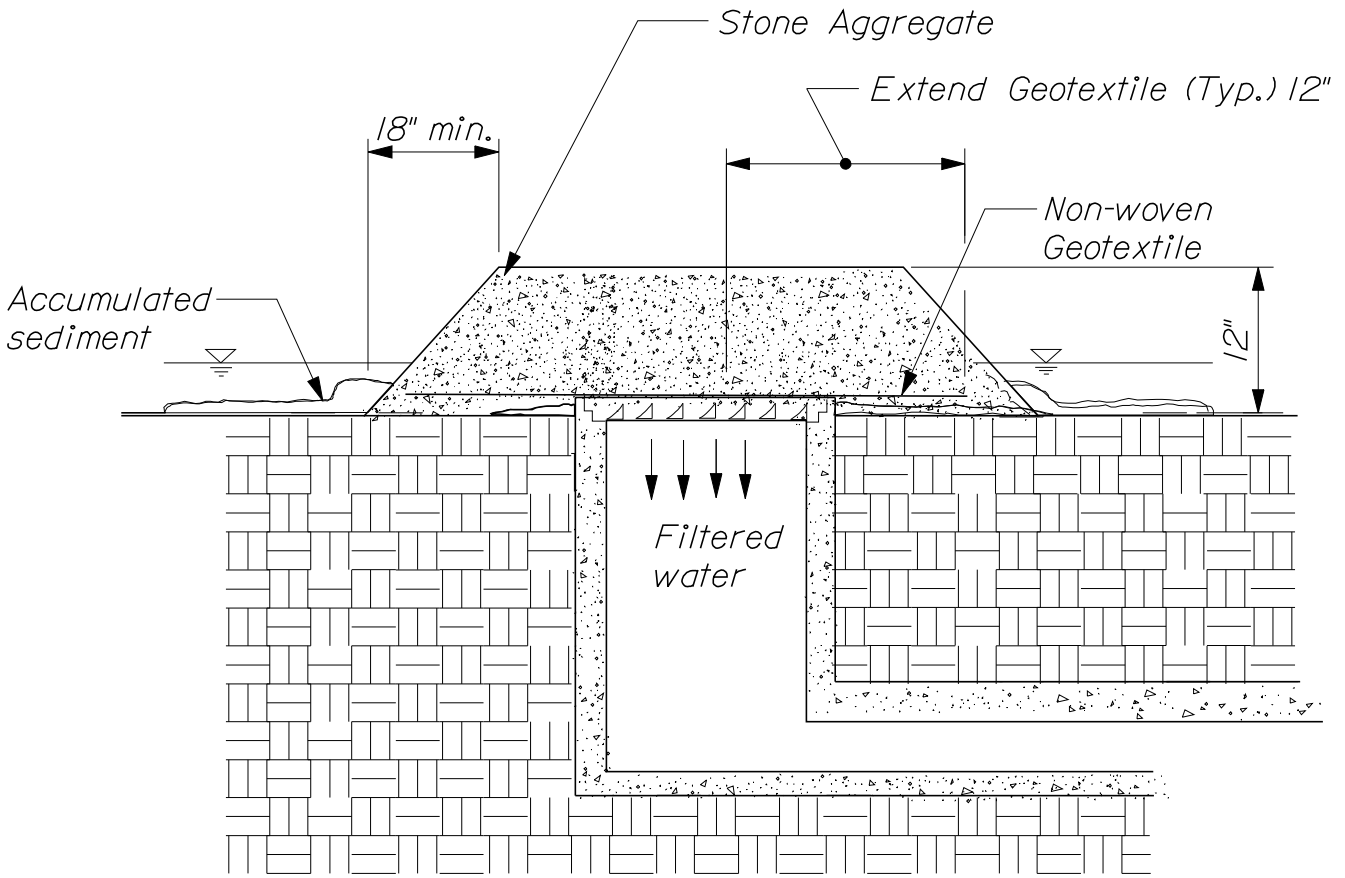


NOTE: Use Silt Fence inlet protection in sump locations only. Sheet flow less than 1 acre Drainage Area not in paved areas or with concentrated flows.

REF: Best Management Practices for Erosion and Sedimentation Control - Storm Drain Inlet Protection

SILT FENCE CB/ INLET GRATE UNIT PROTECTION

802(12)



~ SECTION ~

NOTES:

1. Use Stone aggregate and non-woven geotextile inlet protection only in sump locations where heavy concentrated flows are expected.

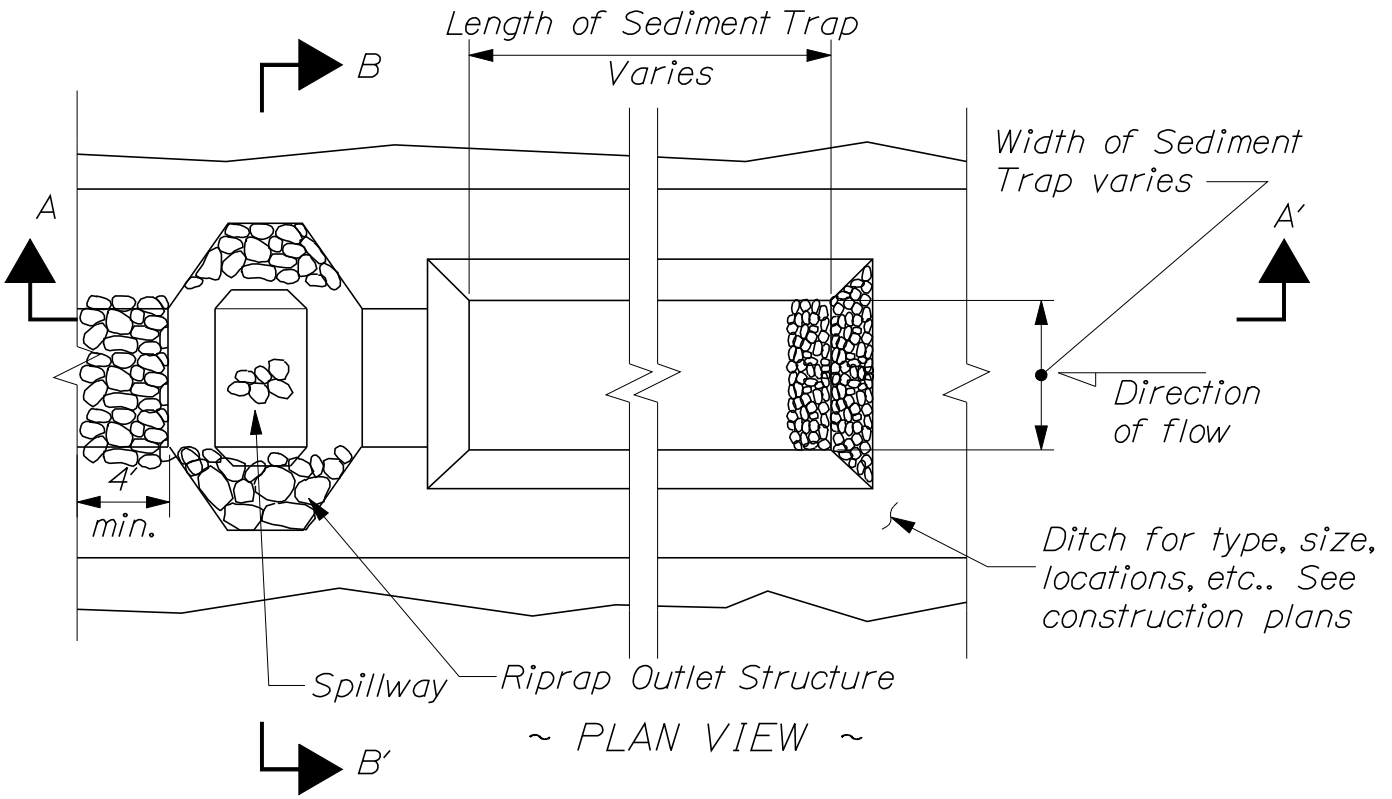
2. Do not use where ponding around the structure might cause inconvenience or damage.

3. Stone aggregate shall be Stone For French Drain 703.24 or approved by the Resident.

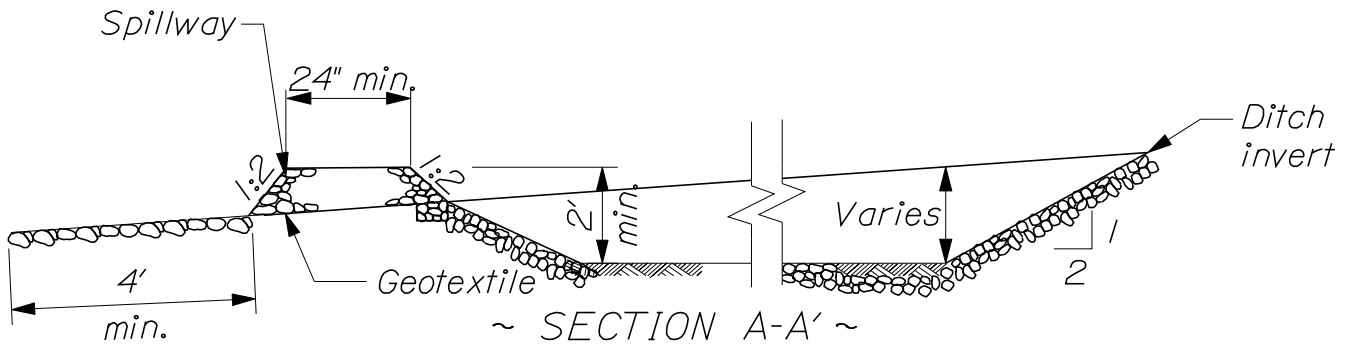
4. Ref: Best management Practices for erosion and sedimentation control - Storm Drain Inlet Protection.

STONE AGGREGATE & GEOTEXTILE CB/ INLET GRATE UNIT PROTECTION

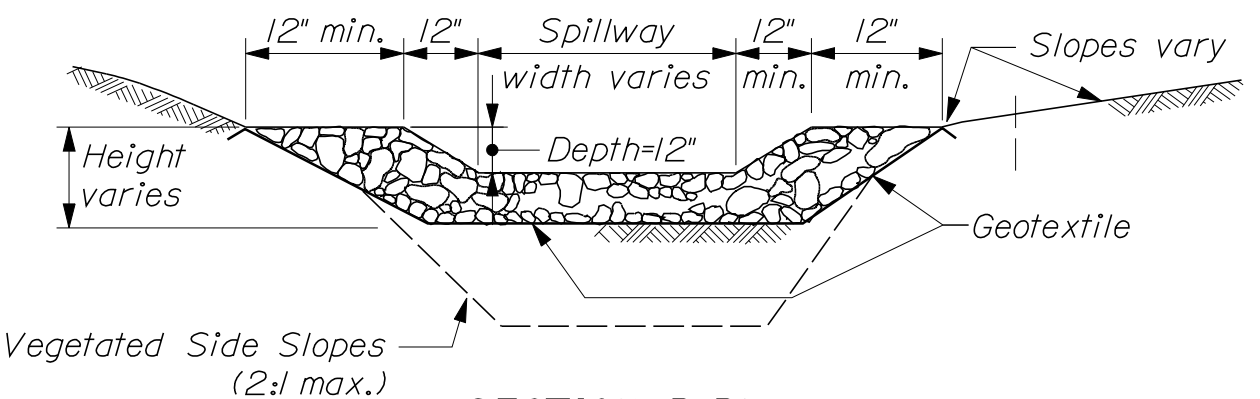
802(13)



~ PLAN VIEW ~



~ SECTION A-A′ ~

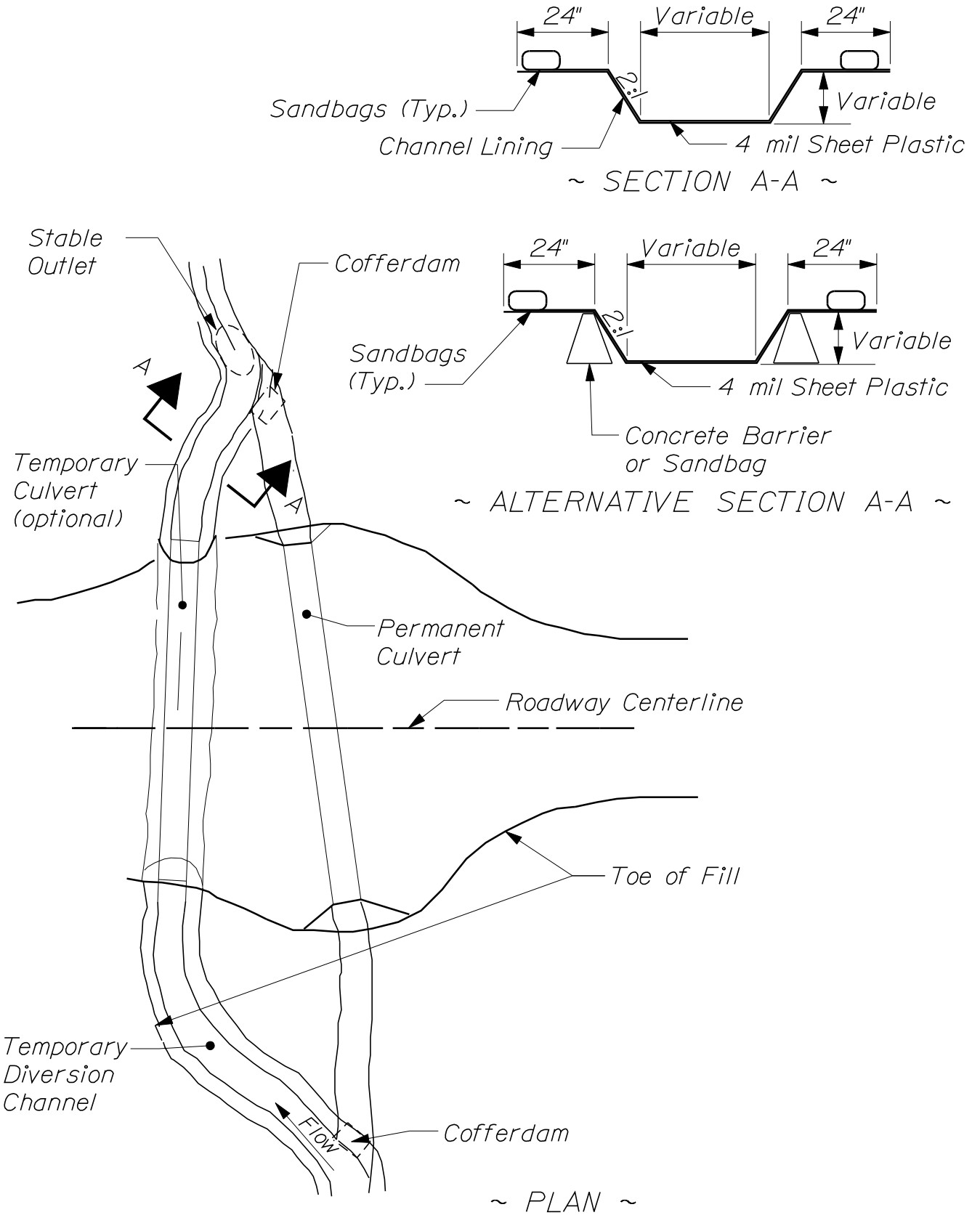


~ SECTION B-B′ ~

REF:
Best Management Practices for Erosion and Sedimentation Control - Sediment Traps

SEDIMENT TRAP

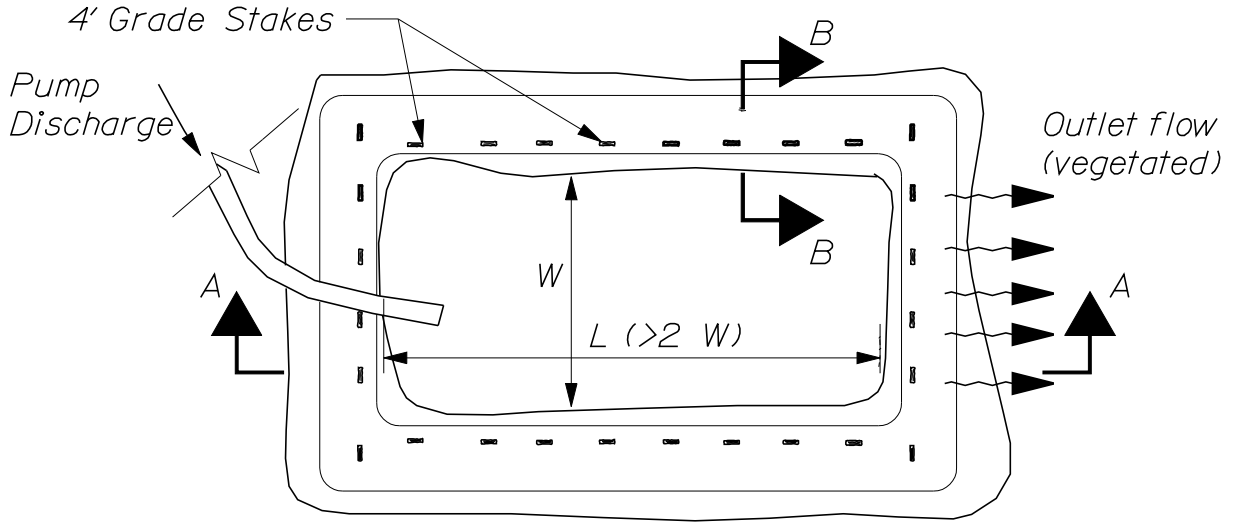
802(14)



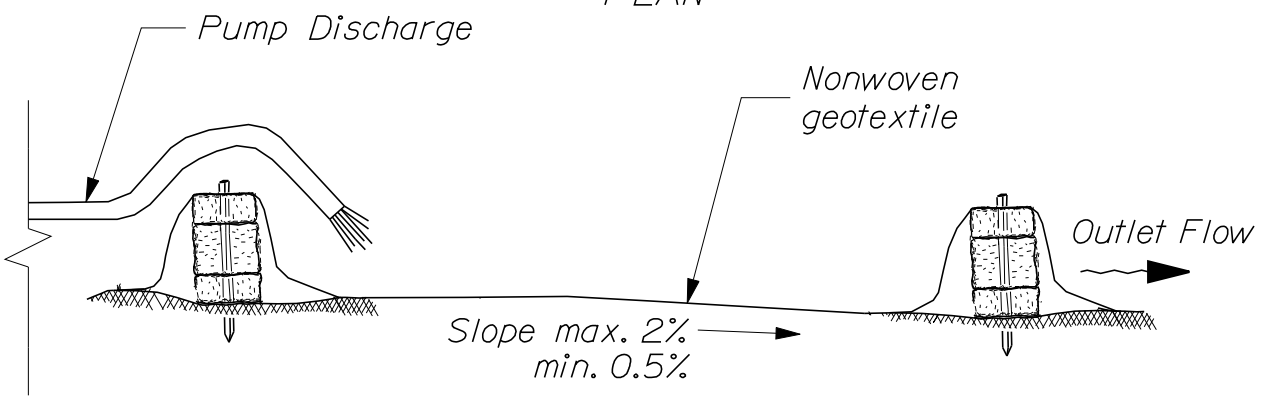
REF: Best Management Practices for Erosion and Sedimentation Control - Temporary Stream Diversion

TEMPORARY STREAM DIVERSION

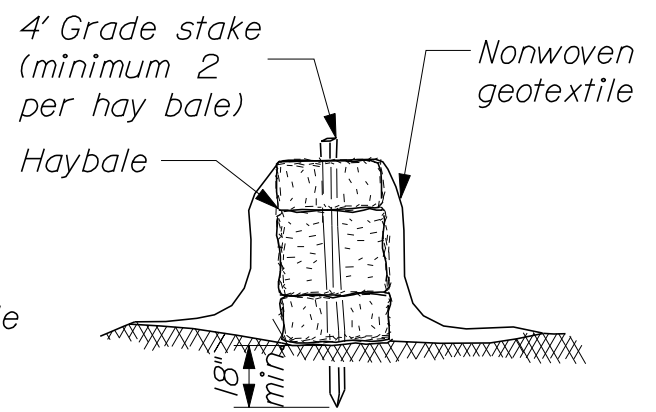
802(15)



~ PLAN ~



~ SECTION A-A ~



~ SECTION B-B ~

NOTES:

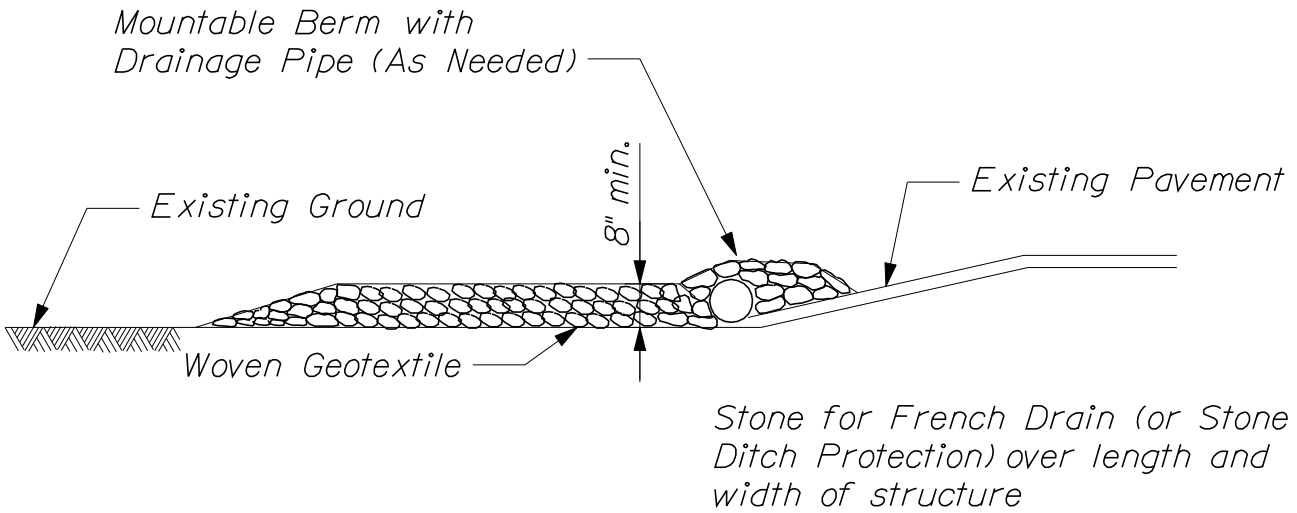
1. Most non-woven geotextile is available in 12.5' & 15' widths.

2. Overlap all temporary sediment basin geo-textile joints by 1' minimum.

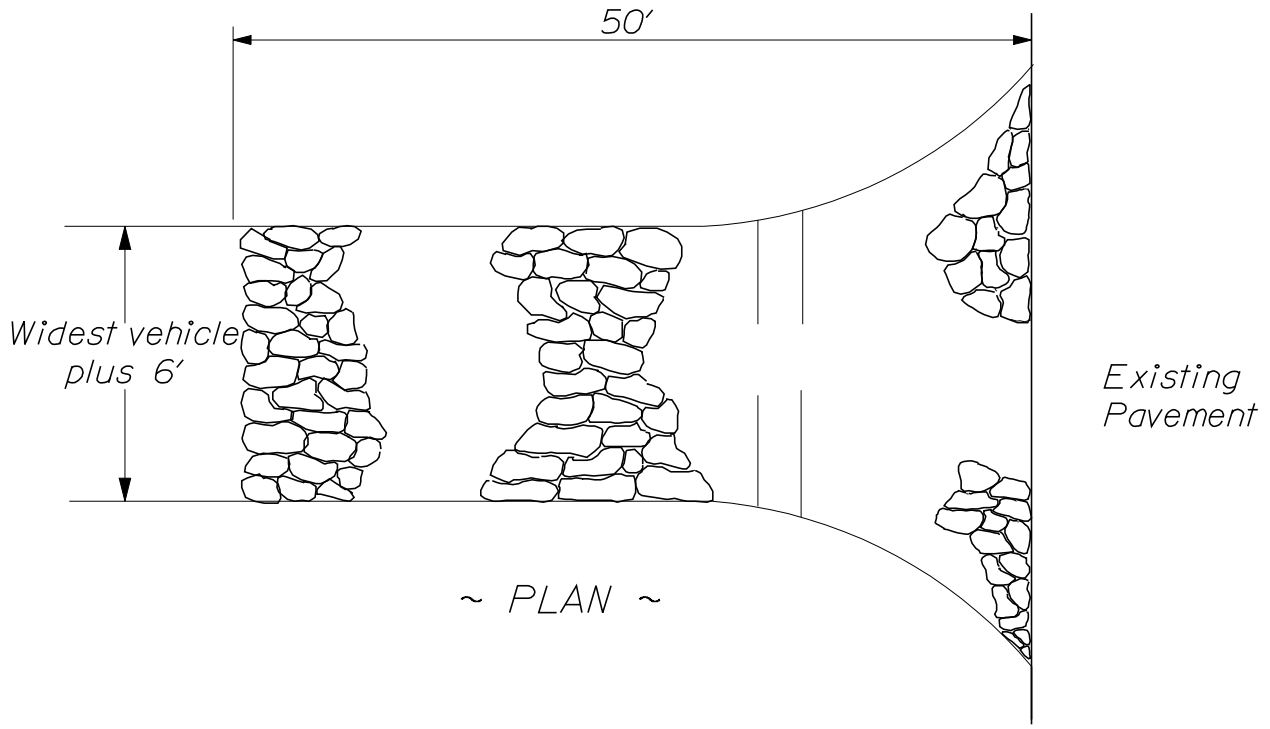
3. Design basin according to Best Management Practices for Erosion and Sedimentation Control - Temporary Sediment Basin.

TEMPORARY SEDIMENT BASIN

802(16)



~ PROFILE ~



~ PLAN ~

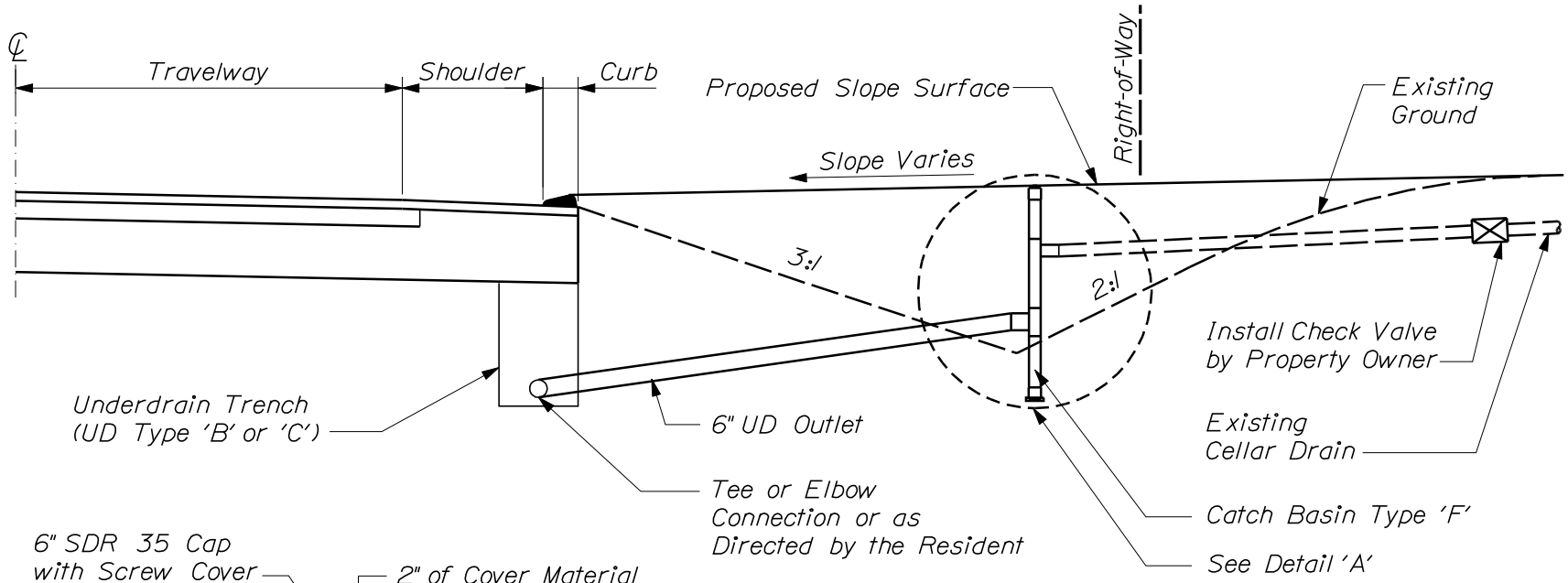
REF: Best Management Practices for Erosion and Sedimentation Control - Stabilized Construction Entrance/Exit

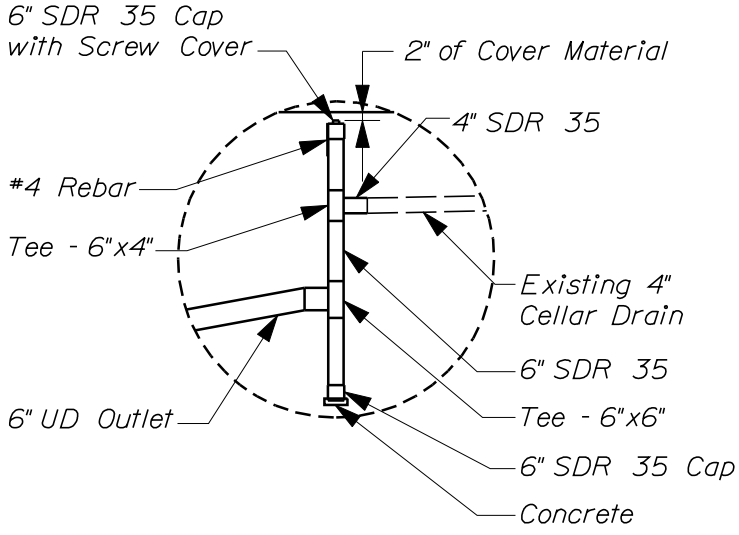
CONSTRUCTION ENTRANCE/EXIT

802(17)

CELLAR DRAIN CONNECTION

802(18)





~ DETAIL "A" INSPECTION STANDPIPE ~

~ NOTES ~

1. Payment for connection from the inspection standpipe to the proposed underdrain system shall be a 6 inch underdrain outlet, item no. 605.10, or as directed by the resident.

2. Inspection standpipe shall have a solid cover and be installed within the state's right of way.

3. A check valve to prevent back flow to property may be installed. Check valve should be installed at the upstream side of the inspection standpipe and outside of the state's right of way. Installation of check valve shall be the responsibility of the property owner.

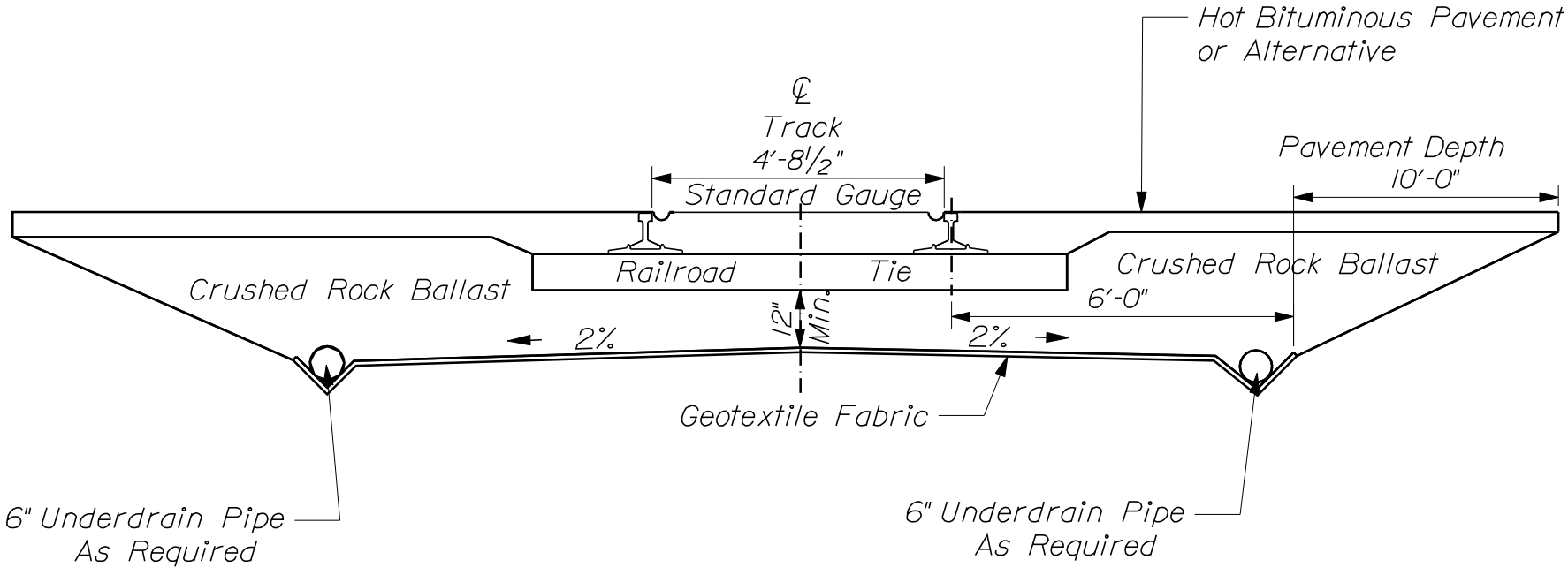
4. Payment for connection of the existing cellar drain to the inspection standpipe shall be incidental to the item no. 801.141 or 801.16.

5. The station locations may be changed to fit field conditions, as directed by the resident.

6. A 3 foot length of #4 rebar shall be placed adjacent to standpipe and flush with cap. Installation of the rebar and the concrete footing shall be incidental to item no. 801.141 or 801.16.

STANDARD RAILROAD GRADE CROSSING DETAIL

803(02)



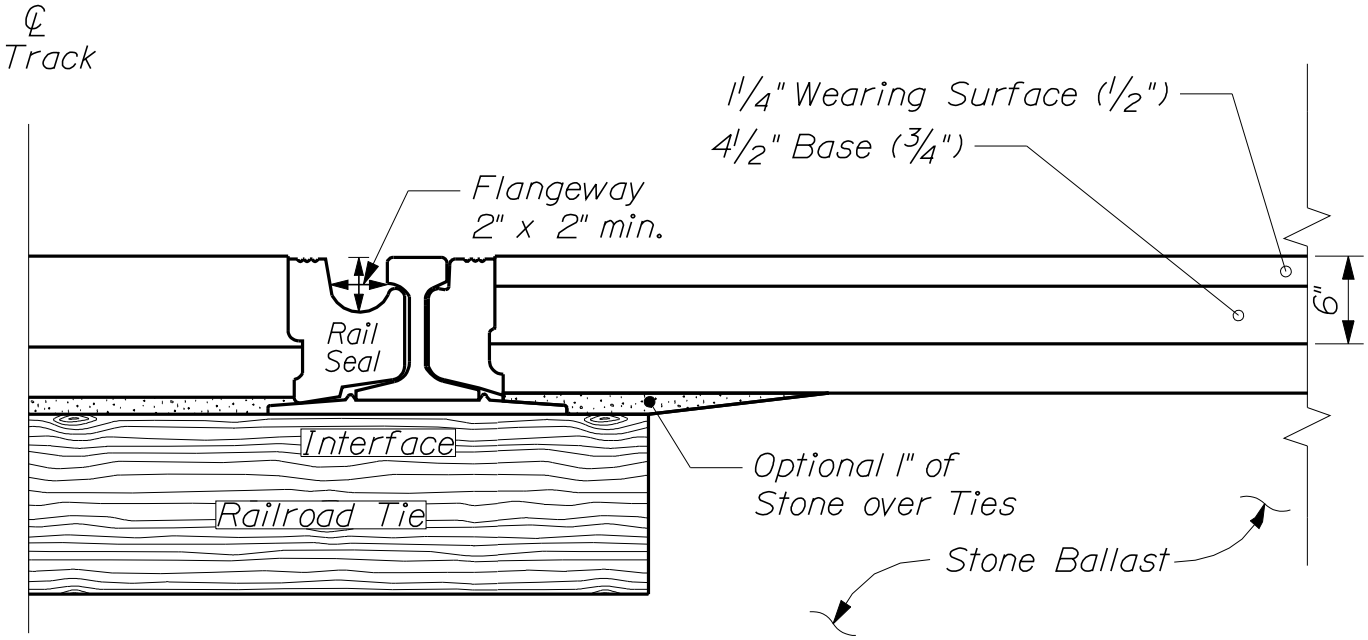
~ RAILROAD SECTION ~

Not to Scale

HIGHWAY SECTION
RAILROAD GRADE CROSSING

803(03)

PAVING DETAIL



ADDITIONAL PAVING NOTES

The Department will pay for the work specified in Subsection 401.11 for the HMA used, except that cleaning objectionable material from the pavement and furnishing and applying Item 409.15 bituminous material to joints and contract surfaces is incidental.

A tack coat of emulsified asphalt, RS-1 or HFMS-1, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.025 gal/sq.yd, and on milled pavement approximately 0.05 gal/sq.yd, prior to placing a new course. All joints between existing and new pavement will be tacked.

Crossings shall be paved within 20 days following the completion of the crossing reconstruction.

Paved shoulders within the gage of the rail to point 24" outside of the field side of each rail shall be a standard 6" depth of pavement. Paved shoulders outside of this area shall be paved with 2" surface mix only.

- *The bituminous binder material for the mixture shall be viscosity grade AC-10 or 20 asphalt cement.*
- *The density requirements are waived.*

# PAVING DETAIL
# PAVING NOTES
803(04)

RAILROAD CROSSING GENERAL NOTES

1. The highway section over railroad crossings shall be designed with a minimum of 2-11 ft travelways and 6' shoulders. 4' shoulders may be designed if field conditions warrant.

2. Signals shall be located as per standard detail and shall comply with the latest edition of the Manual of Uniform Traffic Control Devices.

3. The standard crossing surface shall consist of a rubber railseal interface as manufactured by Polycorp or Performance Polymers, Inc, or approved equivalent. Alternative crossing surfaces may be installed with approval of MaineDOT.

4. New 136 # prime welded rail shall be provided for crossing reconstruction. The minimum length of welded rail shall be 117' or extend 30' beyond each edge of pavement whichever is longer. The full depth excavation area shall extend 10' beyond the welded rail and excavated to a minimum depth of 12" below bottom of tie elevation.

5. 7" x 9" ties (8'6" or 9' long) shall be installed under the welded rail and shall be fully box anchored. Anchors may be omitted beneath the crossing surface in order to accommodate the installation of rubber railseal.

6. Geotextiles provided for rail crossings shall be the following minimum weights: 8 oz./s. y. for non-woven fabrics and 6 oz. /s.y. for woven fabrics. The minimum width through the crossing area shall be 17'. Geotextile fabrics shall be placed throughout the entire full depth construction area.

7. Construction signs and traffic control devices shall be erected and maintained during the construction of the project.

8. Field work performed between December 15 and March 15 shall be approved in advance by the MaineDOT Resident.

9. Erosion Control shall be installed and maintained as per approved Erosion Control Plan until all permanent measures are in place.

~ SPECIAL PROVISION ~

Section 403 - Bituminous Pavement

Descrip. of Course	Grad. Design	Item No.	Bit. Cont. % of Mix	Total Thick.	No. of Layers	Complementary Notes
			Railroad Planning (6" Pavement Depth)			
Wearing	1/2"	403.208	N/A	1 1/2"	1	4,9,17
Binder	3/4"	403.207	N/A	4 1/2"	2	4,9,17

~ NOTES ~

1. The design traffic level for the mix placed shall be 0.3 to <3million ESALS

2. Section 106.6 Acceptance, (2) Method C-For hot mix asphalt designated as Method C in Special Provision Section 403 - Hot Mix Asphalt, one sample will be taken from the paver hopper or the truck body per 250 ton per pay item. The mix will be tested for gradation and PGAB content. Disputes will not be allowed. If the mix is within tolerances listed in Table 9, Method C the Department will pay the contract unit price.

~ TABLE 9 ~

Property	USL and LSL - Method C
Percent passing 3/16" [No. 4] and larger sieves	Target +/- 7
Percent passing 3/32" [No. 8] to 1.18mm [No.16] sieves	Target +/- 5
Percent passing 1/32" [no. 30] sieve	Target +/- 4
Percent passing 1/64" [No. 50] to 0.003" [No.200] sieve	Target +/- 3
PGAB Content	Target +/- 0.5

If the test results for each 250 ton increment are outside these limits the following deductions (Table 9b) shall apply to the HMA quantity represented by the test. A second consecutive failing test shall result in cessation of production.

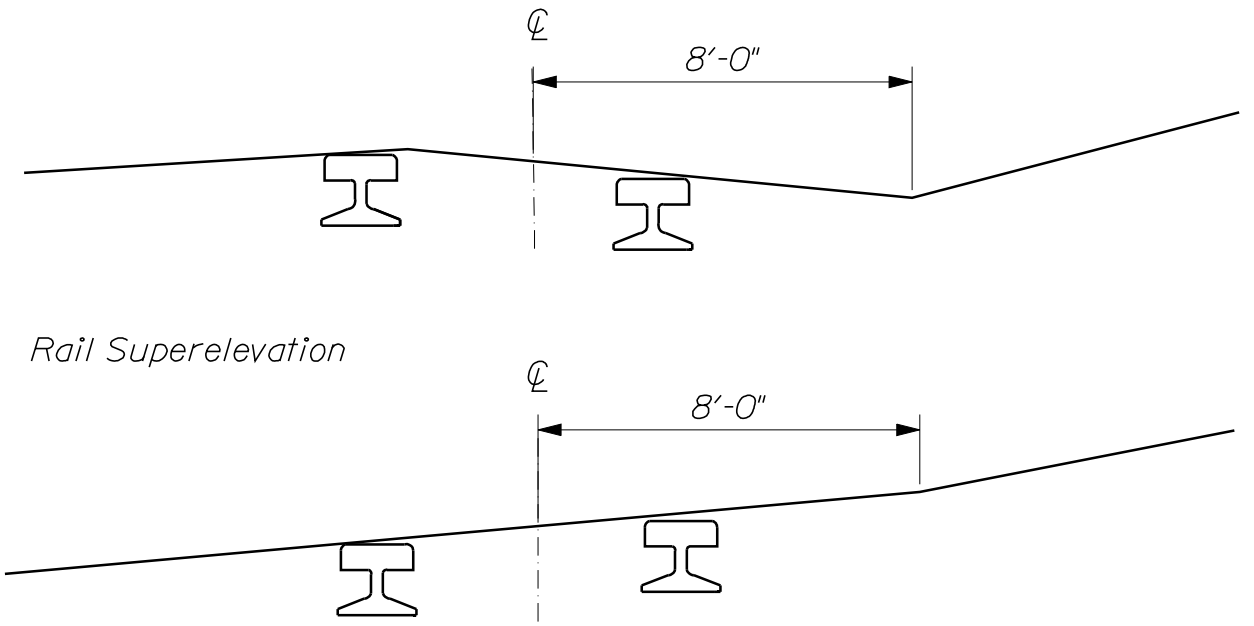
~ TABLE 9B ~

PGAB Content	- 5%
No. 8 - 3/32" sieve	- 2%
No. 50 - 1/64" sieve	- 1%
No. 200 - 0.003" sieve	- 2%

3. Compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a 3-5 ton vibratary roller. An approved release agent is required to ensure the mixture does not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils will not be permitted.

RAILROAD CROSSING PAVING NOTES

803(04)B

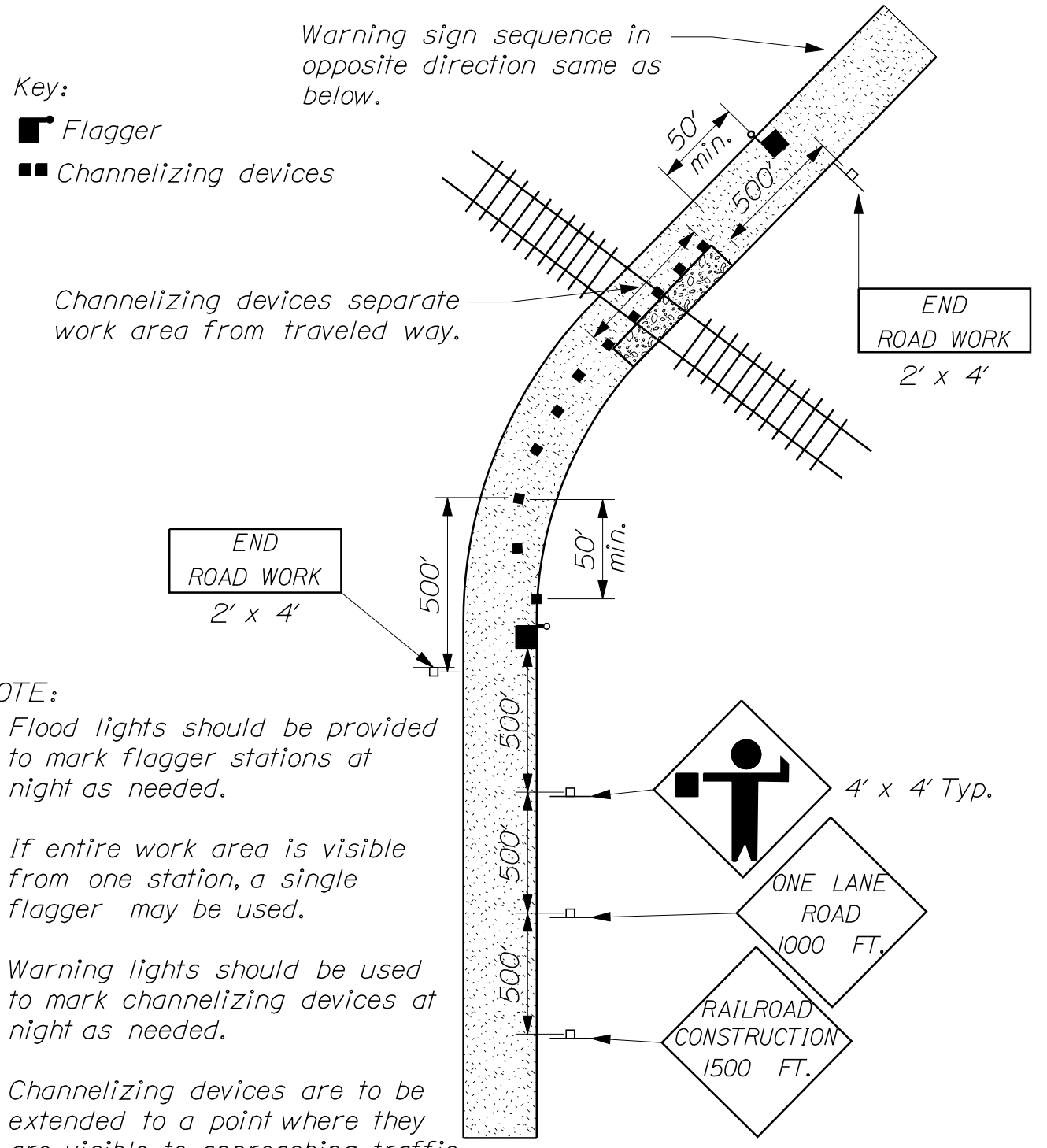


~ RAIL ROAD CROSSING GRADING ~

NOTE:
The slope of the 8′ shown, in no case, shall be above the plane of the rails either side of C/L per P.U.C. General Order # 2.

RAIL ROAD CROSSING GRADING

803(05)



NOTE:

1. Flood lights should be provided to mark flagger stations at night as needed.
2. If entire work area is visible from one station, a single flagger may be used.
3. Warning lights should be used to mark channelizing devices at night as needed.
4. Channelizing devices are to be extended to a point where they are visible to approaching traffic.

TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY. ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

803(06)

Use Highest Posted Speed	Minimum Distance (Feet)
20 mph	225′
25 mph	325′
30 mph	450′
35 mph	550′
40 mph	650′
45 mph	750′
50 mph	850′
55 mph	950′
60 mph	1100′

~ SUGGESTED MIN. PAVEMENT MARKING PLACEMENT DISTANCE ~

NOTES:

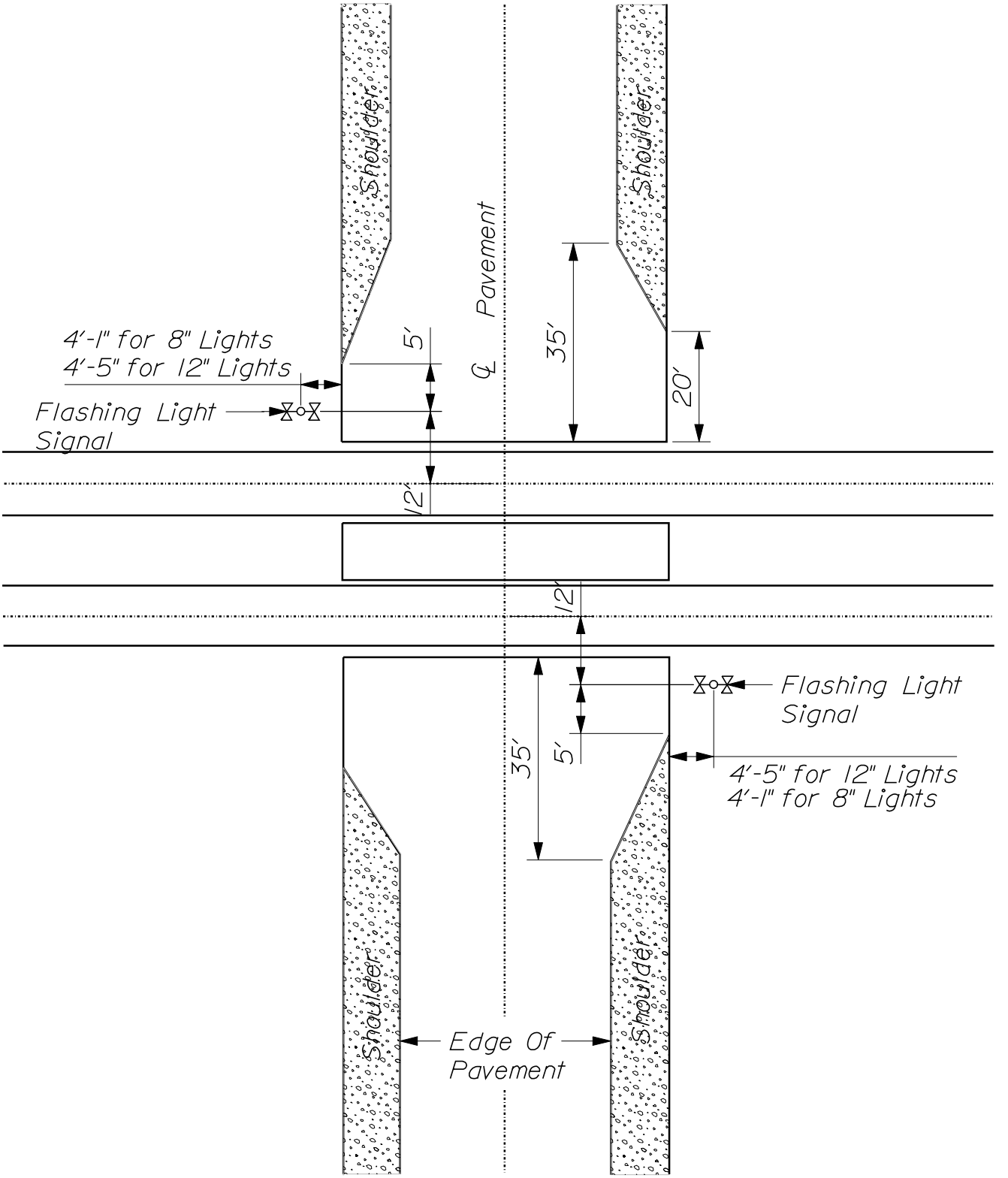
1. When used, a portion of the pavement marking symbol shall be directly opposite the Advance Warning Sign (W 10-1). If needed, supplemental pavement marking symbol(s) may be placed between the Advance Warning Sign and the crossing, but should be at least 50′ from the Stop Line.

2. A three lane roadway should be marked with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads the transverse bands should extend across all approach lanes, and individual RXR symbols should be used in each approach lane.

3. Refer to Standard Alphabet for Highway and Markings for RXR symbols details.

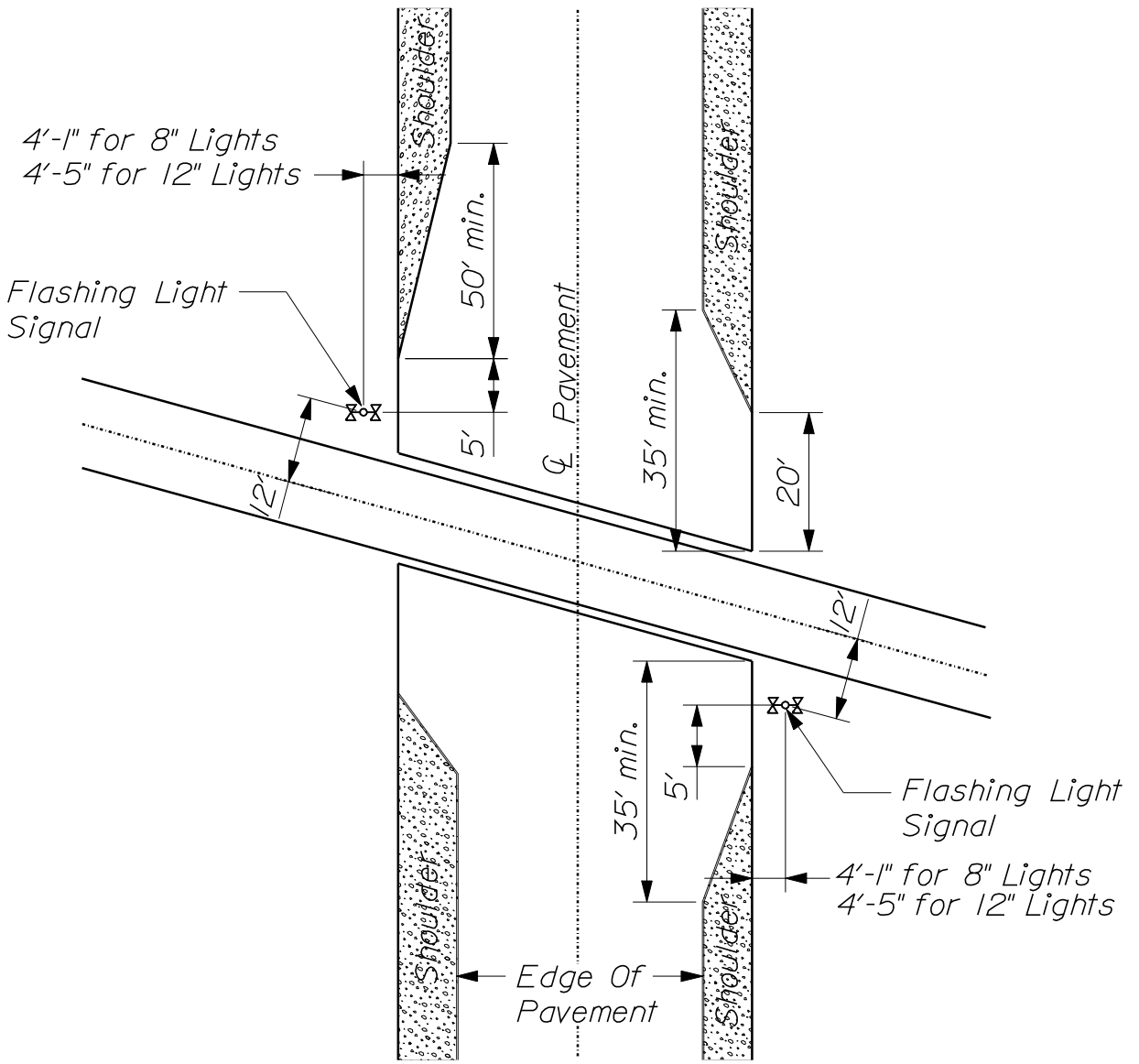
PAVEMENT MARKING NOTES

803(07)



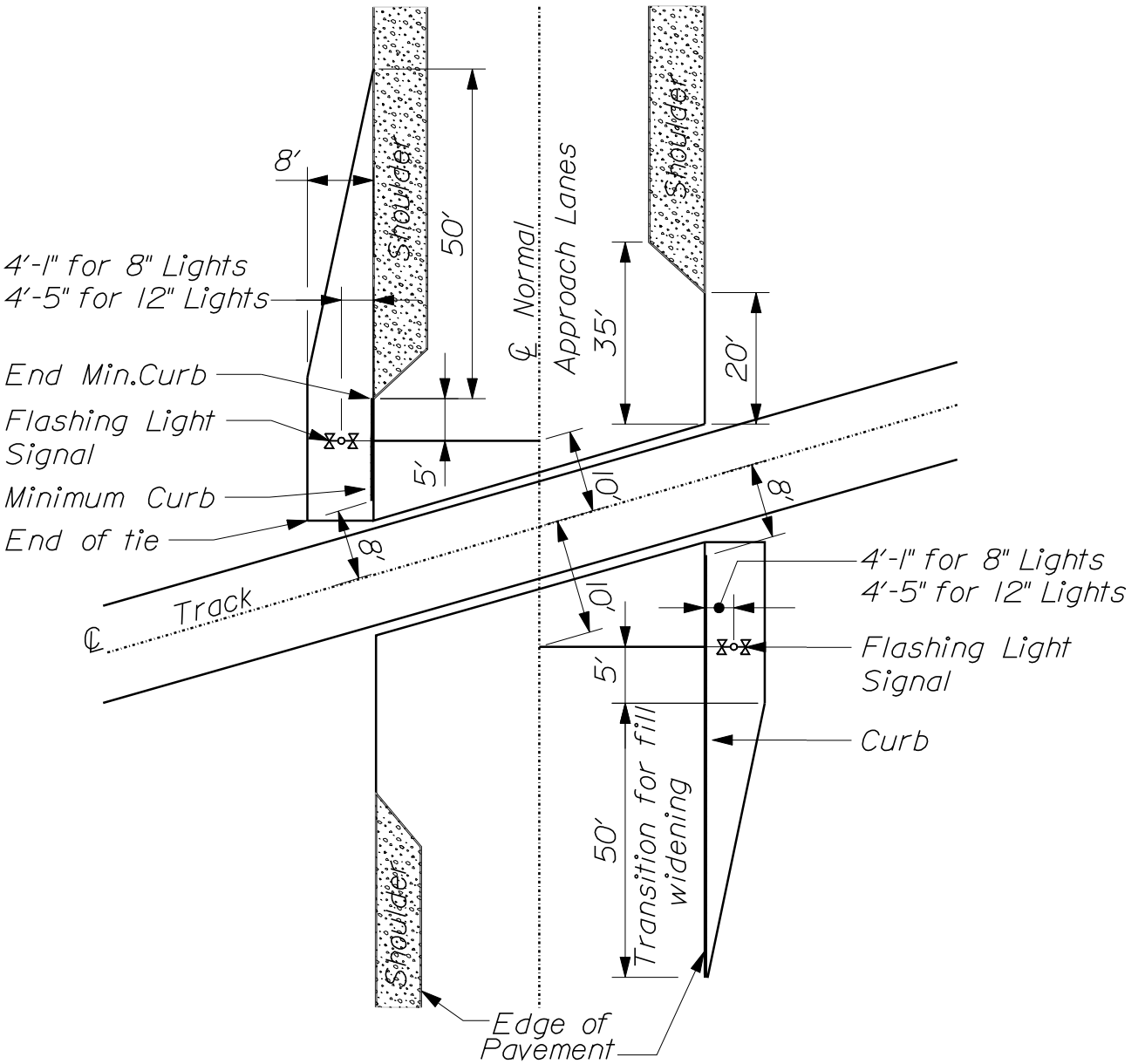
TYPICAL SIGNAL LOCATION AND PAVING PLAN FOR SQUARE CROSSING

803(08)



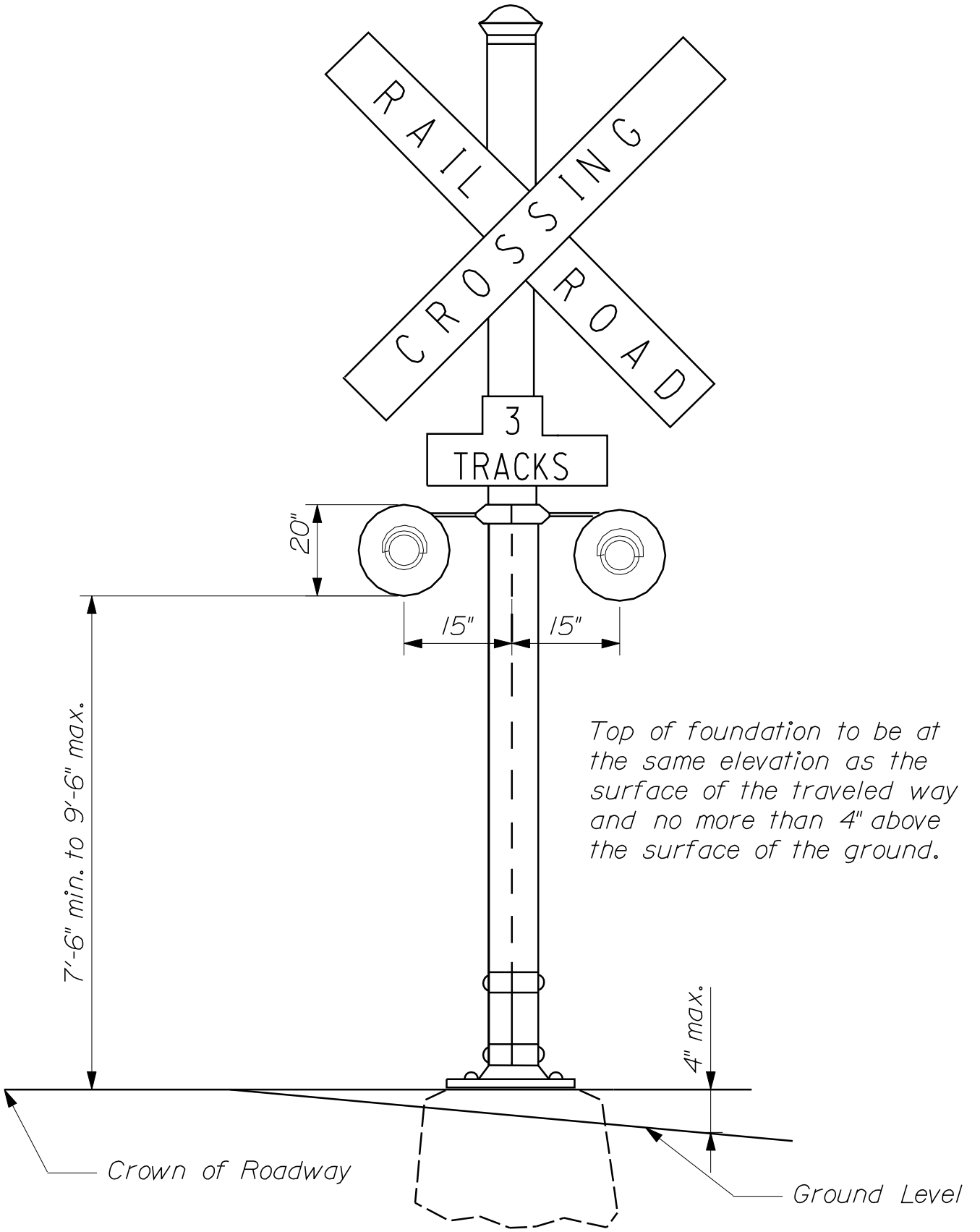
TYPICAL SIGNAL AND GUARD RAIL LOCATIONS FOR ACUTE ANGLE CROSSING

803(09)



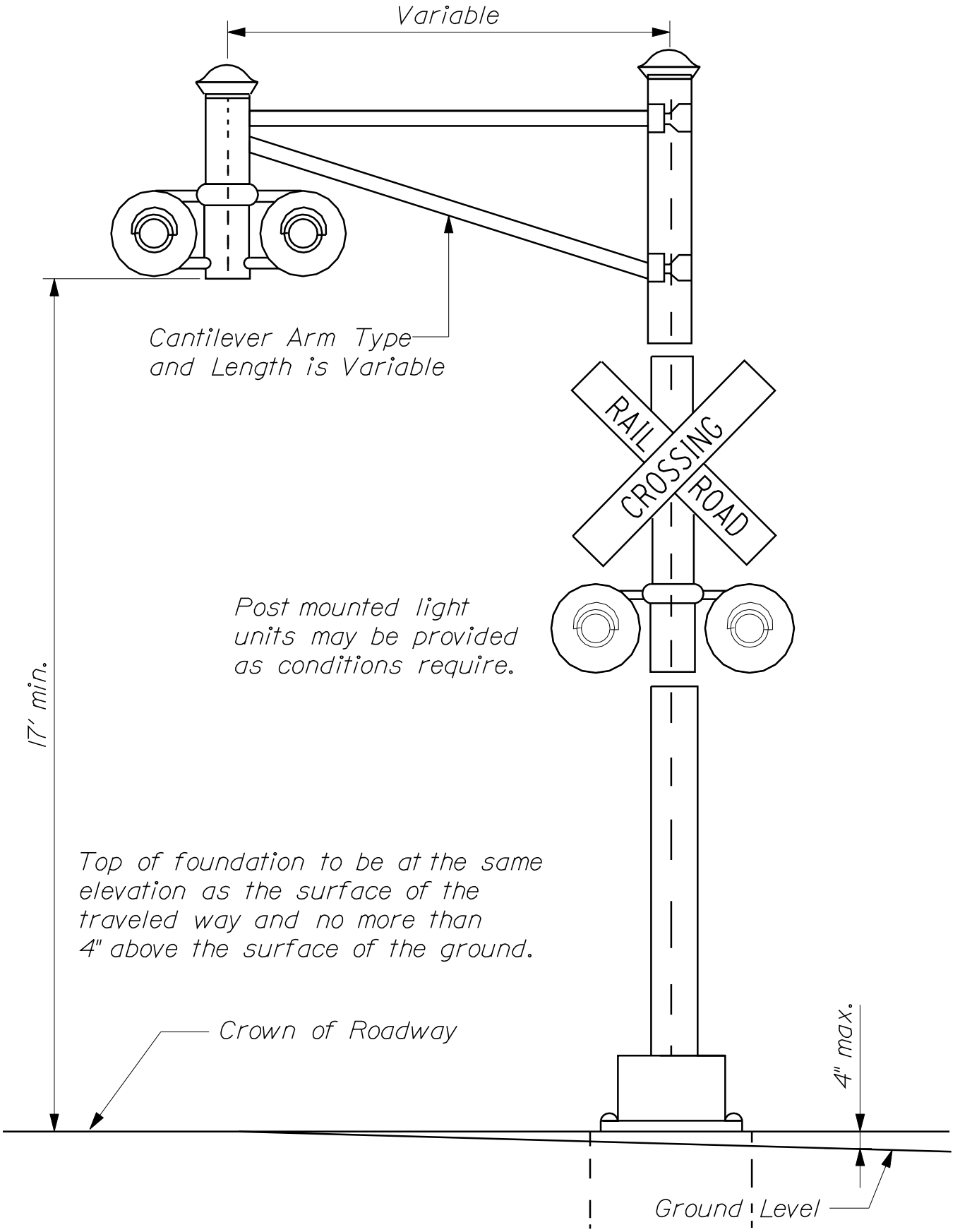
TYPICAL SIGNAL AND CURB LOCATIONS FOR OBTUSE ANGLE CROSSING

803(10)



TYPICAL FLASHING LIGHT SIGNAL - POST MOUNTED. TYPICAL SHOULDER WITHOUT CURB

803(11)



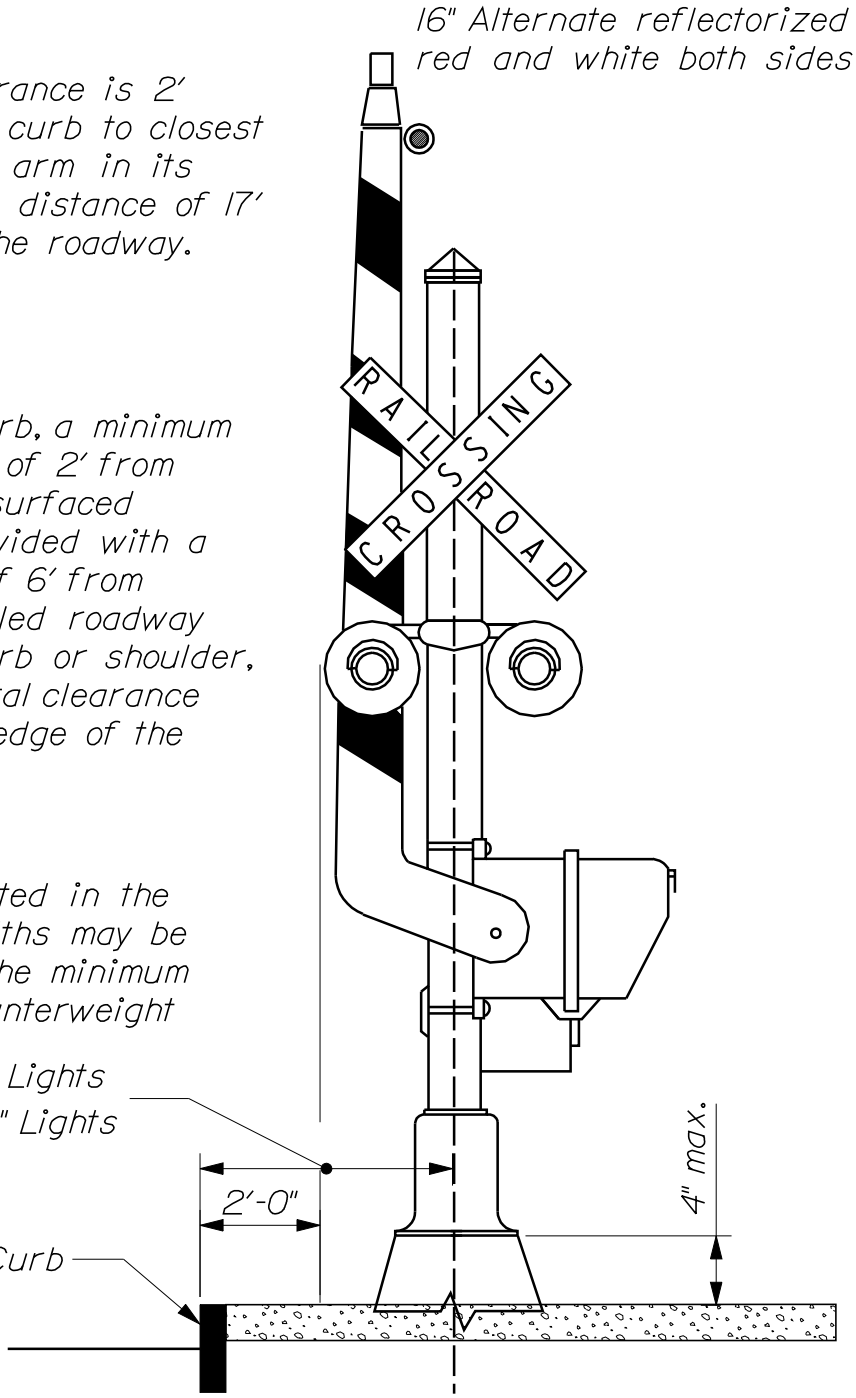
TYPICAL FLASHING LIGHT SIGNAL - CANTILEVER SUPPORTED

803(12)

Typical minimum clearance is 2′ from face of vertical curb to closest part of signal or gate arm in its upright position for a distance of 17′ above the crown of the roadway.

Where there is no curb, a minimum horizontal clearances of 2′ from edge of a paved or surfaced shoulder shall be provided with a minimum clearance of 6′ from the edge of the traveled roadway where there is no curb or shoulder, the minimum horizontal clearance shall be 6′ from the edge of the roadway.

Where gates are located in the median, additional widths may be required to provide the minimum clearance for the counterweight supports.



TYPICAL CLEARANCES FOR FLASHING LIGHT SIGNALS AND AUTOMATIC GATES TYPICAL CURB LOCATION

803(13)