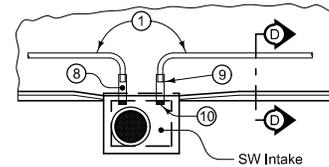
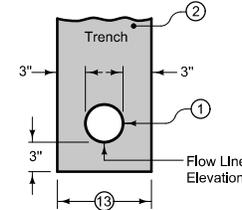


PLAN



INTAKE OUTLET



TUBING PLACEMENT ALL TYPES

When culverts which are less than 1 foot below the trench bottom are encountered within a tabulated subdrain, stop the trench 3 feet from the culvert and resume 3 feet beyond the culvert.

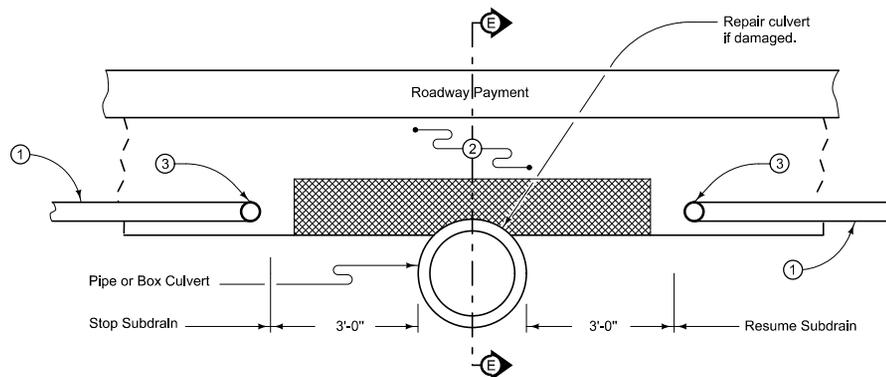
On new construction projects, place the subdrain after the special backfill, if required, and prior to granular or paved shoulder material.

Except for backslope installations, if the Contractor's operations result in a trench, place and compact granular shoulder material in the trench to be level with the adjacent surface prior to opening lanes to traffic.

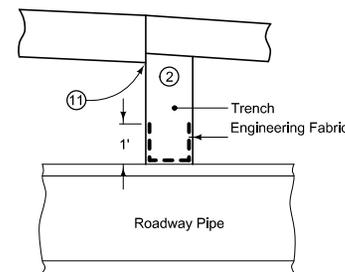
- ① Perforated Subdrain (Corrugated Polyethylene Tubing).
- ② Porous Backfill for Subdrain (compacted).
- ③ Subdrain outlets. See RF-19E.
- ⑧ 2 foot section of corrugated metal pipe of diameter 2" larger than subdrain or 2 foot section of double-walled PE or PVC pipe of the same diameter as subdrain. Pipe will be paid for as "Subdrain Outlet (RF-19C)".
- ⑨ Connect PE or PVC outlet with an appropriate coupler. Connect CMP outlet one of two ways: (1) Inside-fit reducer coupler (1 foot minimum fit inside CMP); or (2) Insert 1 foot of the 4 inch subdrain into 6 inch CMP and full seal entire opening with grout.
- ⑩ Removable Grate Rodent Guard. See Materials I.M. 443.01.
- ⑪ Place porous backfill in direct contact with a minimum of 2 inches of pavement and continuous to shoulder material as per note 6 or 7.
- ⑫ If the trench is inadvertently carried over the culvert, repair the trench as detailed on this sheet. If obstruction is 1 foot or more below trench bottom, carry subdrain line over in continuous alignment. No payment will be made for trench repair.
- ⑬ 10 inches for 4 inch subdrain; 12 inches for 6 inch subdrain.

Possible Contract Items:
 Subdrain, Longitudinal, (Backslope)
 Subdrain, Longitudinal, (Shoulder)
 Subdrain Outlet (RF-19C)
 Subdrain Outlet (RF-19E)

Possible Tabulation:
 104-9



TRENCH REPAIR AT PIPE CULVERT ⑫



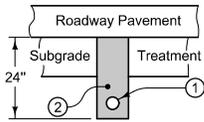
SECTION E-E

 STANDARD ROAD PLAN	REVISION 16 10-16-12	
	RF-19C SHEET 1 of 2	

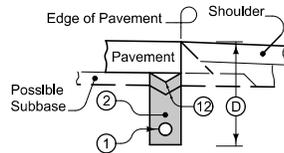
REVISIONS: Revised circle notes 1 and 8. Added circle note 13. Revised Possible Contract Items.

Deanna McFisht
 APPROVED BY DESIGN METHODS ENGINEER

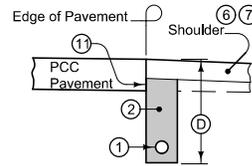
**SUBDRAINS
 (LONGITUDINAL)**



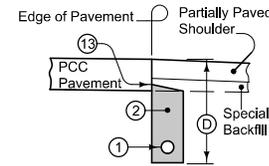
**TYPE 5 INSTALLATION
SECTION A-A**
Subgrade Treatment Subdrain



**TYPE 6 INSTALLATION
SECTION C-C**
For Drain Placement Prior to
Subbase or Pavement Placement

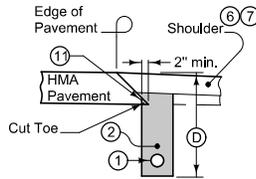


**TYPE 7A INSTALLATION
SECTION C-C**

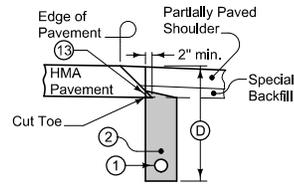


**TYPE 7B INSTALLATION
SECTION C-C**

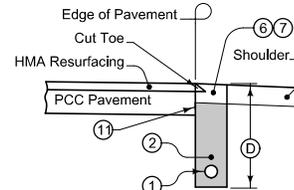
- ① Perforated Subdrain (Corrugated Polyethylene Tubing).
- ② Porous Backfill for Subdrain (compacted).
- ⑤ Install subdrain as cut proceeds.
- ⑥ On existing Granular or Earth Shoulders, replace with 4 inch minimum depth granular shoulder material.
- ⑦ On Paved Shoulders, refer to Section 2502 in the current Standard Specifications for finishing shoulder.
- ⑪ Place porous backfill in direct contact with a minimum of 2 inches of pavement and continuous to shoulder material as per note 6 or 7.
- ⑫ Cut "V" notch just prior to subbase (if proposed) or pavement placement to assure uncontaminated contact.
- ⑬ Place top of subdrain trench at the bottom of pavement. Backfill trench so that a wedge of porous backfill has a minimum vertical contact of 2 inches with the pavement.



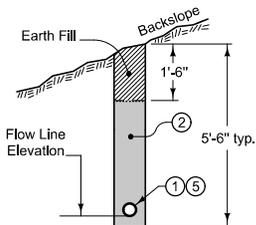
**TYPE 8A INSTALLATION
SECTION C-C**



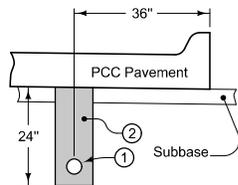
**TYPE 8B INSTALLATION
SECTION C-C**



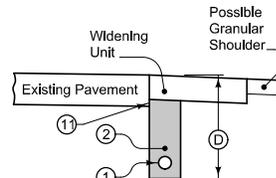
**TYPE 9 INSTALLATION
SECTION C-C**
Composite Pavement
with Existing Shoulder



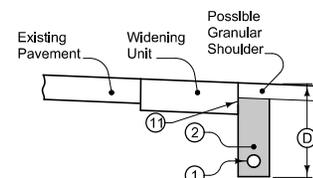
**TYPE 11 INSTALLATION
SECTION B-B**
Backslope



**TYPE 12 INSTALLATION
SECTION D-D**



**TYPE 13 INSTALLATION
SECTION C-C**
For New Widening Unit if
Thinner than Existing Pavement



**TYPE 14 INSTALLATION
SECTION C-C**
For New Widening Unit if
Thicker than Existing Pavement

 Iowa Department of Transportation	REVISION	
	16	10-16-12
	RF-19C	
STANDARD ROAD PLAN		
SHEET 2 of 2		
REVISIONS: Revised circle notes 1 and 8. Added circle note 13. Revised Possible Contract Items.		
<i>Deanna Mufson</i> APPROVED BY DESIGN METHODS ENGINEER		
SUBDRAINS (LONGITUDINAL)		