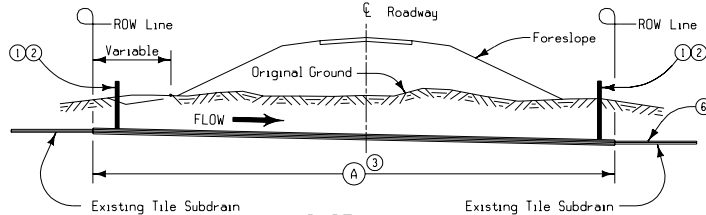
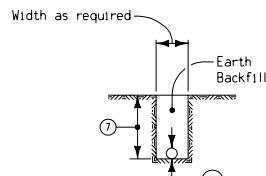


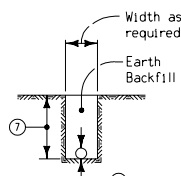
TYPICAL PLAN FOR REPLACING OR RELOCATING EXISTING FIELD TILE



CASE "A" SECTION A-A



CASE "A" SECTION B-B



CASE "B" SECTION C-C

REPLACEMENT SCHEDULE CASE 'A'		
(Pipe size in inches)		
Existing Tile Size	PROPOSED SUBDRAIN SIZE (D) (4)	
	Concrete Pipe	Coated CMP Pipe
4	-	10
6	-	12
8	12	15
10	15	18
12	15	21
15	18	24
18	21	30
21	24	36
24	30	36
> 24	Existing tile size + 6"	(6)

- 4" Diameter inspection access with cap. Minimum of 3' above ground. Materials shall be PVC meeting the requirements of Article 4146.04
- Inspection access is required to allow inspection by the upstream and downstream property owners. Perforated pipe may be used to allow ditch drainage into subdrain if approved by adjacent property owners.
- Dimension (A) indicates the R.O.W. limits in which replacement of tile subdrain in accordance with the replacement schedule is required.
- Replacement sizes provide equivalent capacity based on a 6" settlement assuming a 0.20% slope with  $n=0.013$  for concrete pipe and  $n=0.025$  for corrugated pipe (Manning's Formula).
- Replace in kind (size and type) or with "PE" slotted pipe, a minimum of one size larger than existing line.
- When multiple drains are connected to one outlet, the outlet shall provide full capacity for all connected drain systems.
- Depth as required

GENERAL NOTES:

The RF-19B shows the method of connecting and outletting farm tile lines that have been intersected by roadway construction.

Materials and construction methods used shall be in accordance with current Standard and Supplemental Specifications.

When the existing tile lines are intercepted by roadway construction they shall be replaced within the ROW limits of the project, or outletted in a ditch or channel. Where the roadway intersects the tile line in an undesirable alignment, as shown in Case 'A', the tile line shall be relocated to accomplish a more nearly right angle. Where the existing tile line alignment is more parallel to the roadway and within the construction limits, the tile shall be relocated outside the ROW line, as shown in Case 'B'. In cases where new construction requires existing subdrain to outlet into the roadway ditch, as shown in Case 'C', the Standard Subdrain Outlet shown in Standard Road Plan RF-19F shall be provided.

Tile lines replaced within the right of way limits shall be done so in accordance with the replacement schedule below and will require an inspection access at each end of replaced tile line. Generally replacement of the tile lines outside the right of way limits should be done utilizing the same size and type of pipe as existing tile line.

Relocated or replacement subdrain shall be installed so as to cause a minimum of disturbance to existing field tile. Connections to lines of existing tile drains shall be made in such a way as to leave the existing tile drains in a functional condition.

Blind ends of subdrains shall be capped with a metal cap or by other methods approved by the Engineer.

When concrete culvert pipe of 2000D classification or greater is required the price bid for "Standard Subdrain" shall include furnishing and installing a RF-14 Type 1 connection. Concrete pipe classified as 1500D does not require connectors.

Price bid for "Standard Subdrain" per linear foot shall include all necessary elbows, tees, access pipe and caps, connections, blind end capping and any other items not specifically paid for which are necessary to construct subdrain as described hereon and as shown in the plans.

**Iowa Department of Transportation Highway Division**

**STANDARD ROAD PLAN RF-19B**

RECOMMENDED BY ROAD DESIGN ENGINEER: *Donald L. East* 11-22-93  
 DATE: 02/29/94

APPROVED BY DEPUTY DIRECTOR DEVELOPMENT: *George F. Assen* 11-22-93  
 DATE: 11-22-93

REVISIONS: None, other details to Standard Road Plan RF-19B.

**SUBDRAINS STANDARD ( FARM TILE REPLACEMENT )**