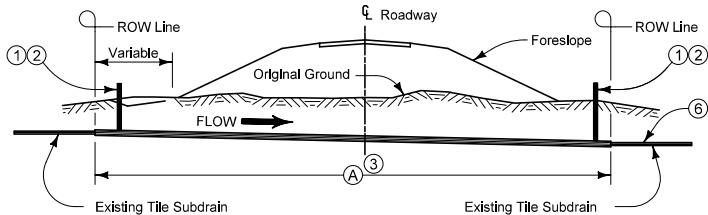
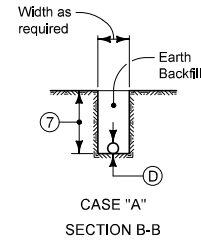


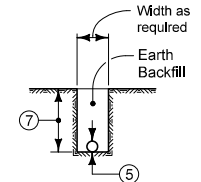
TYPICAL PLAN FOR REPLACING OR RELOCATING EXISTING FIELD TILE



CASE "A"  
SECTION A-A



CASE "A"  
SECTION B-B



CASE "B"  
SECTION C-C

When the existing tile lines are intercepted by roadway construction, replace them within the ROW limits of the project, or outlet them in a ditch or channel. Where the roadway intersects the tile line in an undesirable alignment, as shown in Case 'A', relocate the tile line to accomplish a more nearly right angle. Where the existing tile line alignment is more parallel to the roadway and within the construction limits, relocate the tile 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', provide the Standard Subdrain Outlet shown in RF-19F.

Replace tile lines within the ROW limits according to the replacement schedule shown below. Install an inspection access at each end of replaced tile line. Replace tile lines outside the ROW limits using the same size of pipe as existing line.

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)

Install relocated or replacement subdrain so as to cause a minimum of disturbance to existing field tile. Connect to lines of existing tile drains in such a way as to leave the existing tile drains in a functional condition.

Cap blind ends of subdrains with a metal cap or as approved by the Engineer.

When concrete culvert pipe of 2000D (Class III) or stronger is required, furnish and install a RF-14 Type 1 connection at no additional cost to the Contracting Authority.

Possible Tabulation:  
104-5C

Possible Contract Items:  
Standard Subdrain  
Subdrain Outlet

- ① 4" Diameter inspection access with cap. Minimum of 3' above ground. Use PVC meeting the requirements of Article 4146.03.
- ② 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.
- ③ Dimension (A) indicates the R.O.W. limits in which replacement of tile subdrain in accordance with the replacement schedule is required.
- ④ 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).
- ⑤ Replace in kind (size and type) or with 'PE' slotted pipe, a minimum of one size larger than existing line.
- ⑥ When multiple drains are connected to one outlet, the outlet is to provide full capacity for all connected drain systems.
- ⑦ Depth as required

 Iowa Department of Transportation	REVISION 6 04-17-12
	RF-19B
	SHEET 1 of 1
REVISIONS: Updated notes and added Possible tabulation and Possible contract items.	
 APPROVED BY DESIGN METHODS ENGINEER	
<b>SUBDRAINS STANDARD (FARM TILE REPLACEMENT)</b>	