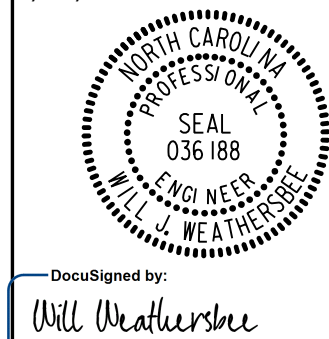

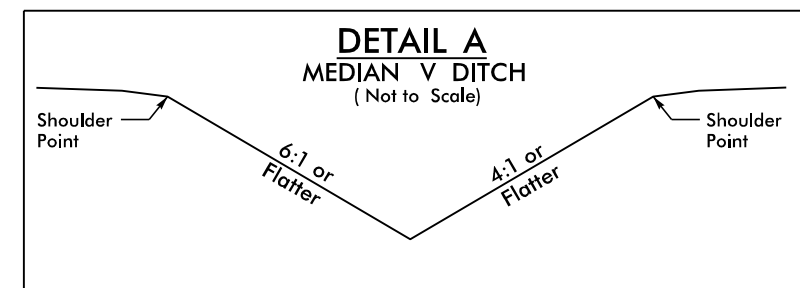
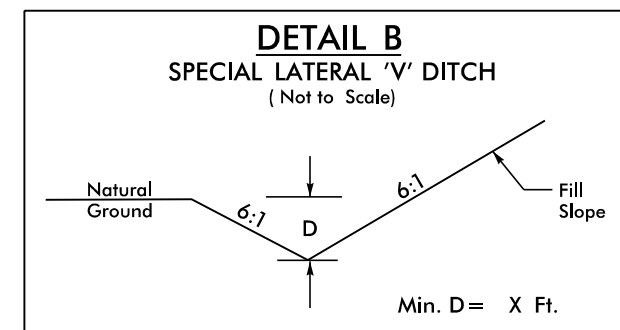


PROJECT REFERENCE NO. 1-5987A	SHEET NO. 2D-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER 5/19/2022
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
NIV5 ENGINEERS & CONSULTANTS, INC. 7500 E. INDEPENDENCE BLVD, STE 100 CHARLOTTE, NC 28227 P: 704.537.7300 www.niv5.com NC License # F-1333	

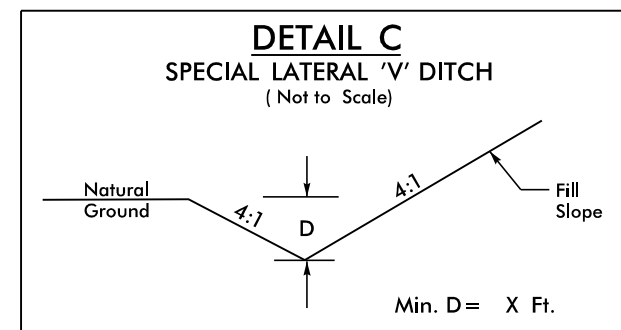


-L- STA. 89+50 TO STA. 91+00 RT
 -YIRPB- STA. 15+00 TO STA. 16+50 LT
 -YIARPA DETOUR- STA. 15+50 TO STA. 16+50 LT



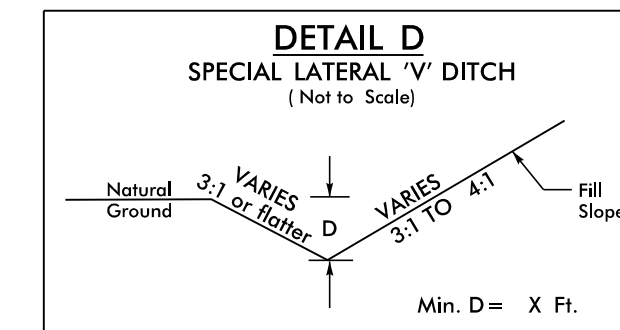
Min. D = X Ft.

-L- STA. 91+00 TO STA. 95+50 LT, X=1
 -L- STA. 97+50 TO STA. 101+00 RT, X=1
 -L- STA. 99+50 TO STA. 102+50 LT, X=1
 -L- STA. 166+50 TO STA. 168+00 RT, X=1
 -L- STA. 174+00 TO STA. 178+00 RT, X=1.5
 -L- STA. 211+50 TO STA. 216+50 LT, X=1
 -L- STA. 217+50 TO STA. 217+50 RT, X=1
 -L- STA. 235+15 TO STA. 236+00 RT, X=1
 -L- STA. 238+00 TO STA. 241+70 RT, X=1
 -L- STA. 242+00 TO STA. 243+00 LT, X=1
 -L- STA. 247+50 TO STA. 250+00 LT, X=1
 -L- STA. 261+50 TO STA. 264+90 LT, X=1
 -YIARPB- STA. 12+00 TO STA. 15+50 LT, X=0.5
 -YIARPB- STA. 15+50 TO STA. 16+00 LT, X=1.0
 -L- STA. 287+50 TO STA. 298+00 LT, X=1.5
 -L- STA. 288+50 TO STA. 293+50 RT, X=0.5
 -L- STA. 320+00 TO STA. 324+00 LT, X=1
 -YIARPC- STA. 14+00 TO STA. 18+00 RT, X=1
 -YIARPA- STA. 14+00 TO STA. 16+50 RT, X=1
 -YIA- STA. 17+65 TO STA. 22+50 LT, X=1
 -YIARPA DETOUR- STA. 12+50 TO STA. 15+00 RT, X=1.5



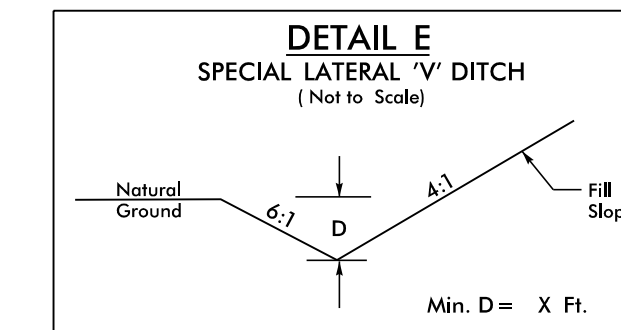
Min. D = X Ft.

-L- STA. 112+00 TO STA. 135+00 LT, X=2
 -L- STA. 120+50 TO STA. 123+50 RT, X=2
 -L- STA. 128+00 TO STA. 137+50 RT, X=2
 -L- STA. 200+00 TO STA. 209+00 RT, X=2
 -L- STA. 317+00 TO STA. 319+00 RT, X=2
 -L- STA. 332+00 TO STA. 332+50 RT, X=2
 -L- STA. 337+50 TO STA. 339+00 RT, X=2
 -L- STA. 319+50 TO STA. 320+00 LT, X=2
 -L- STA. 331+50 TO STA. 332+00 LT, X=2
 -L- STA. 337+50 TO STA. 339+10 LT, X=2
 -YIARPB- STA. 18+85 TO STA. 19+50 LT, X=1
 -YIARPC- STA. 18+25 TO STA. 22+10 LT, X=2



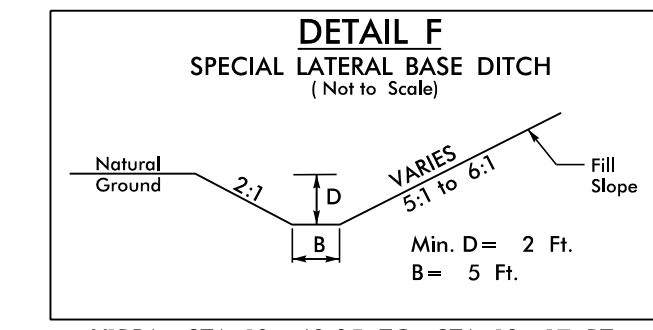
Min. D = X Ft.

-L- STA. 123+50 TO STA. 128+00 RT, X=1
 -L- STA. 180+95 TO STA. 184+50 RT, X=1
 -L- STA. 199+50 TO STA. 208+50 LT, X=3
 -YIARPC- STA. 18+00 TO STA. 18+50 RT, X=1



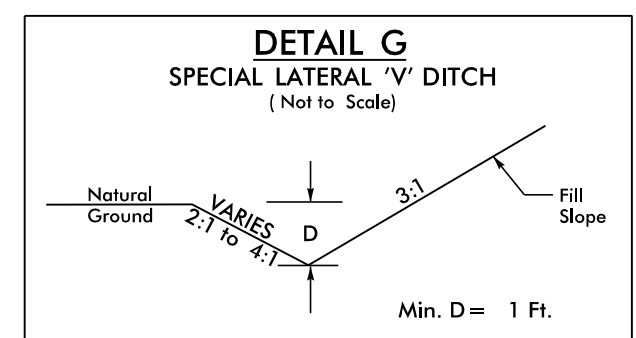
Min. D = X Ft.

-L- STA. 101+00 TO STA. 102+50 RT, X=1
 -L- STA. 135+00 TO STA. 140+00 LT, X=1
 -L- STA. 137+50 TO STA. 140+00 RT, X=1
 -L- STA. 140+00 TO STA. 148+50 LT, X=2
 -L- STA. 140+00 TO STA. 144+00 RT, X=2
 -L- STA. 166+50 TO STA. 168+00 LT, X=1
 -L- STA. 177+00 TO STA. 180+50 LT, X=1
 -L- STA. 178+50 TO STA. 180+95 RT, X=2
 -L- STA. 192+50 TO STA. 197+50 RT, X=1
 -L- STA. 197+50 TO STA. 199+80 RT, X=1
 -L- STA. 198+50 TO STA. 199+50 LT, X=1



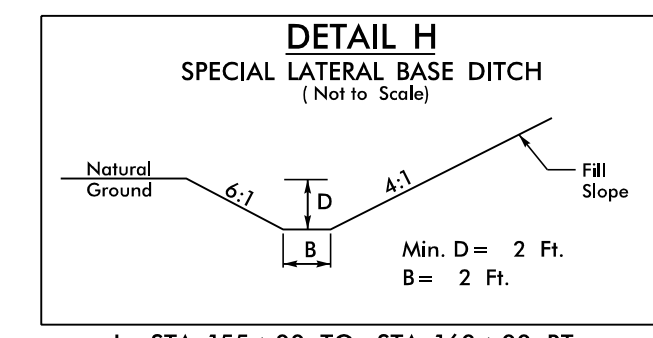
Min. D = 2 Ft.
 B = 5 Ft.

-YIRPA- STA. 12+43.35 TO STA. 13+17 RT



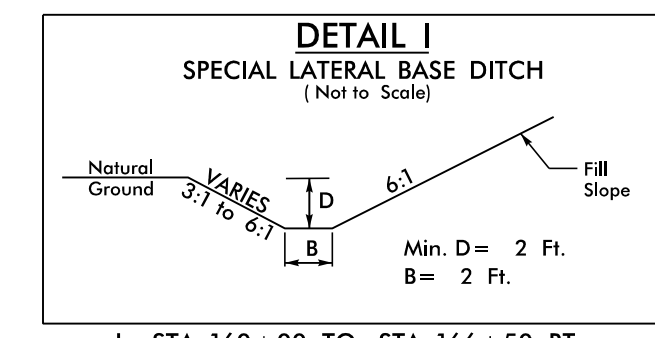
Min. D = 1 Ft.

-DR3- STA. 14+05.64 TO STA. 15+56.14 RT



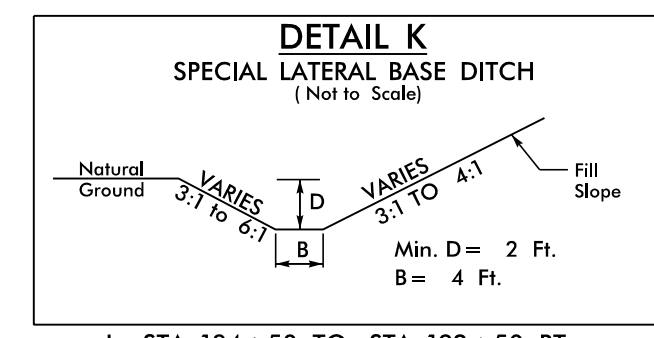
Min. D = 2 Ft.
 B = 2 Ft.

-L- STA. 155+00 TO STA. 160+00 RT
 -L- STA. 183+00 TO STA. 198+50 LT



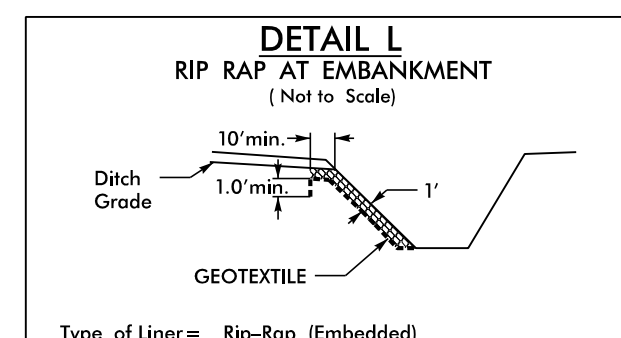
Min. D = 2 Ft.
 B = 2 Ft.

-L- STA. 160+00 TO STA. 166+50 RT



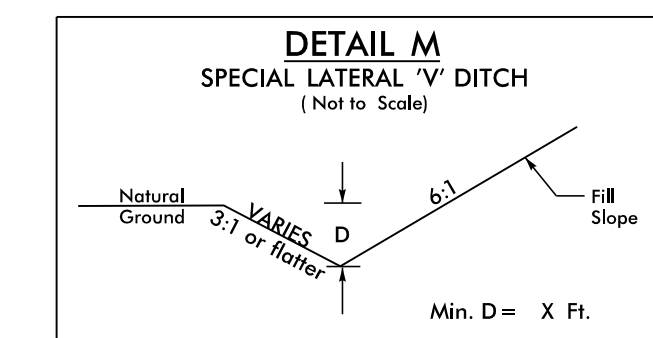
Min. D = 2 Ft.
 B = 4 Ft.

-L- STA. 184+50 TO STA. 192+50 RT



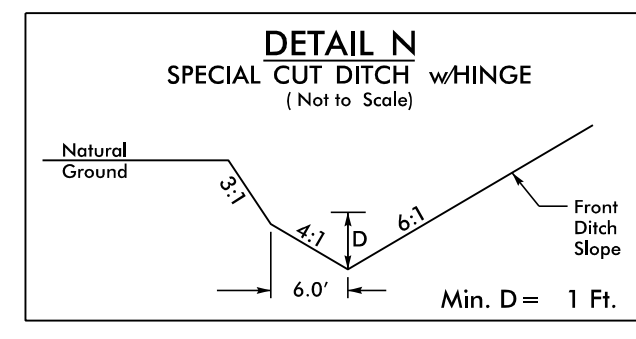
Type of Liner = Rip-Rap (Embedded)

-L- STA. 111+00 LT, 21 Tons CL-B, 45 SY Geotextile
 -L- STA. 112+00 RT, 12 Tons CL-B, 27 SY Geotextile
 -L- STA. 112+50 RT, 20 Tons CL-B, 44 SY Geotextile
 -L- STA. 226+67 RT, 5 Tons CL-B, 11 SY Geotextile
 -L- STA. 241+72 RT, 3 Tons CL-B, 6 SY Geotextile
 -L- STA. 244+95 LT, 21 Tons CL-B, 43 SY Geotextile
 -L- STA. 265+10 LT, 21 Tons CL-B, 43 SY Geotextile
 -L- STA. 265+00 RT, 10 Tons CL-B, 14 SY Geotextile
 -SR2- STA. 31+90 RT, 23 Tons CL-B, 50 SY Geotextile
 -Y2- STA. 17+30 LT, 16 Tons CL-B, 36 SY Geotextile



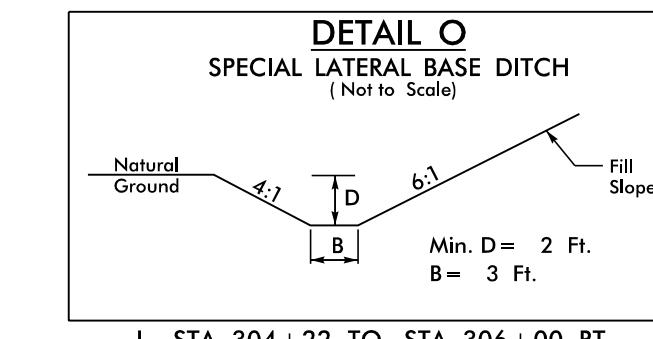
Min. D = X Ft.

-L- STA. 91+00 TO STA. 94+00 RT, X=1
 -L- STA. 178+00 TO STA. 178+50 RT, X=1.5
 -L- STA. 258+00 TO STA. 261+50 LT, X=1
 -L- STA. 265+10 TO STA. 269+34 LT, X=1
 -L- STA. 265+00 TO STA. 270+00 RT, X=1
 -L- STA. 277+00 TO STA. 278+18 RT, X=1
 -L- STA. 278+50 TO STA. 281+00 RT, X=1
 -L- STA. 281+50 TO STA. 285+50 LT, X=1
 -L- STA. 283+00 TO STA. 285+50 RT, X=1
 -L- STA. 319+00 TO STA. 332+00 RT, X=1
 -L- STA. 332+50 TO STA. 337+50 RT, X=1
 -L- STA. 335+00 TO STA. 337+50 LT, X=1
 -YIARPD- STA. 12+10 TO STA. 18+50 LT, X=2.0



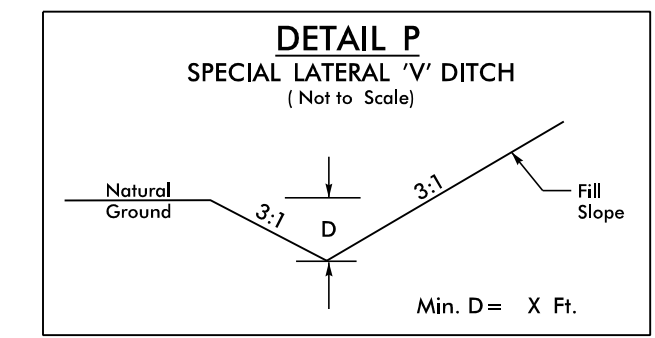
Min. D = 1 Ft.

-L- STA. 282+50 TO STA. 283+00 RT
 -YIARPB- STA. 20+00 TO STA. 20+50 LT



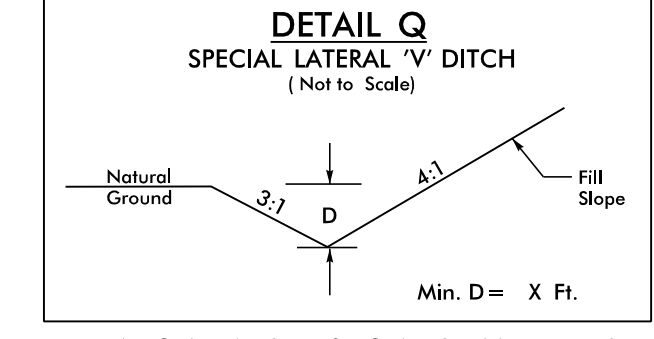
Min. D = 2 Ft.
 B = 3 Ft.

-L- STA. 304+22 TO STA. 306+00 RT
 -YIARPD- STA. 10+00 TO STA. 12+10 LT



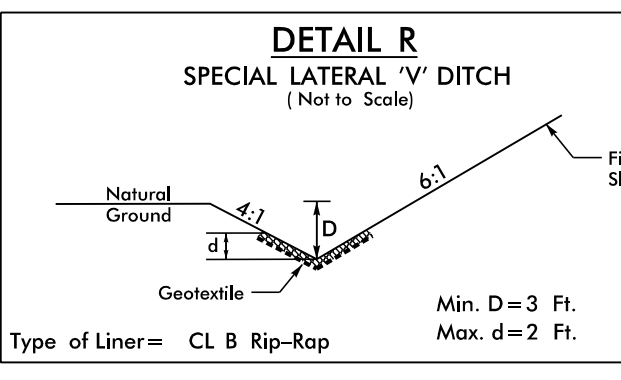
Min. D = X Ft.

-Y2- STA. 12+50 TO STA. 17+00 LT, X=1
 -Y2- STA. 17+50 TO STA. 21+00 LT, X=2
 -Y2- STA. 31+00 TO STA. 35+70 LT, X=1
 -Y2- STA. 36+30 TO STA. 38+30 LT, X=1
 -Y2- STA. 36+50 TO STA. 39+00 RT, X=1
 -DR3- STA. 10+75 TO STA. 16+00 LT, X=1
 -DR3- STA. 11+55 TO STA. 15+56 RT, X=1
 -DR4- STA. 10+29 TO STA. 12+55 RT, X=1
 -SR2- STA. 16+40 TO STA. 18+50 LT, X=1
 -SR2- STA. 18+50 TO STA. 19+00 LT, X=0.5
 -SR2- STA. 19+00 TO STA. 25+50 LT, X=1
 -SR2- STA. 19+00 TO STA. 28+20 RT, X=1
 -SR2- STA. 33+00 TO STA. 34+10 RT, X=1
 -SR2- STA. 39+00 TO STA. 39+90 RT, X=1
 -SR2- STA. 40+20 TO STA. 42+50 RT, X=1
 -SR2- STA. 40+00 TO STA. 43+00 LT, X=1.5
 -YIA- STA. 19+50 TO STA. 21+00 RT, X=1
 -YIA- STA. 26+00 TO STA. 28+00 LT, X=1
 -YIA- STA. 26+00 TO STA. 29+00 RT, X=1
 -YIA- STA. 28+00 TO STA. 32+50 LT, X=0.5
 -YIA- STA. 30+00 TO STA. 32+50 RT, X=0.8
 -YIA- STA. 51+00 TO STA. 56+85 LT, X=1
 -YIA- STA. 53+00 TO STA. 57+10 RT, X=1
 -SR1- STA. 12+00 TO STA. 13+20 LT, X=0.6
 -YIA DETOUR- STA. 16+50 TO STA. 19+50 LT, X=1



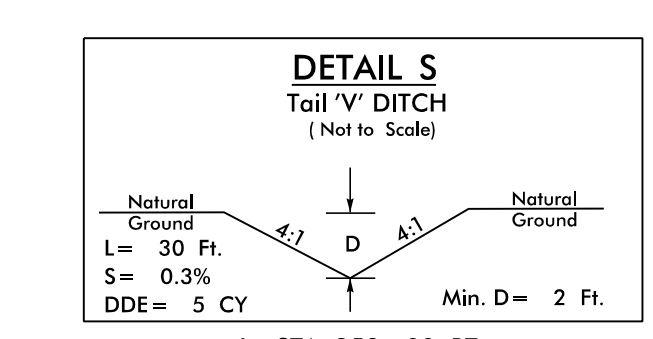
Min. D = X Ft.

-YIRPA- STA. 14+95 TO STA. 18+00 RT, X=2
 -YIRPD- STA. 13+39 TO STA. 14+50 LT, X=2
 -L- STA. 111+00 TO STA. 112+00 LT, X=2
 -L- STA. 112+50 TO STA. 120+50 RT, X=2
 -L- STA. 250+00 TO STA. 251+00 LT, X=1
 -L- STA. 251+00 TO STA. 258+00 LT, X=1



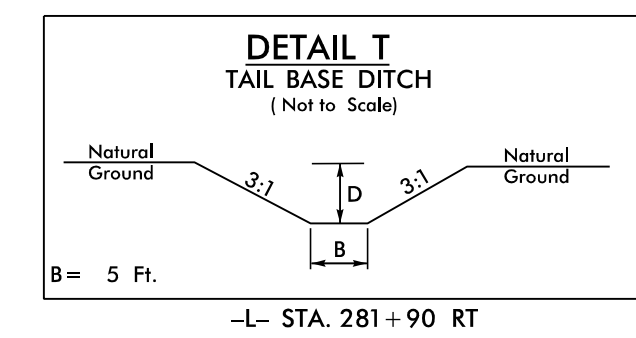
Min. D = 3 Ft.
 Max. d = 2 Ft.

-L- STA. 281+00 TO STA. 281+50 RT



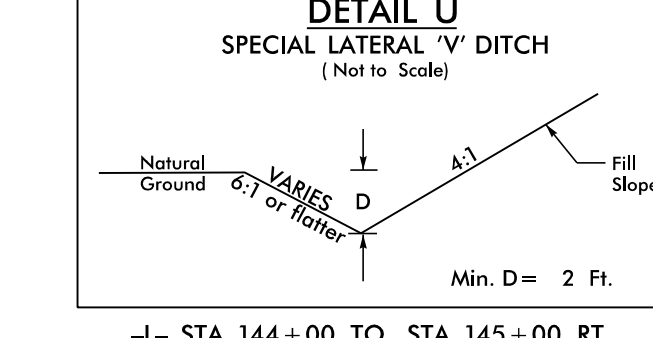
Min. D = 2 Ft.

-L- STA. 258+00 RT



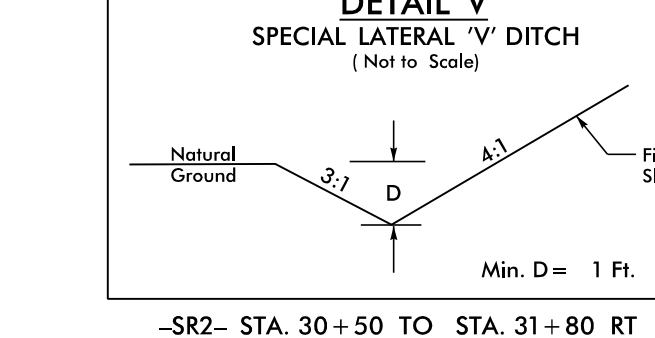
B = 5 Ft.

-L- STA. 281+90 RT
 MIN. D = 5 Ft., L = 50 Ft., S = 0.3%, DDE = 190 CY
 -SR2 DETOUR- STA. 14+45 LT
 MIN. D = 3 Ft., L = 75 Ft., S = 0.2%, DDE = 92 CY



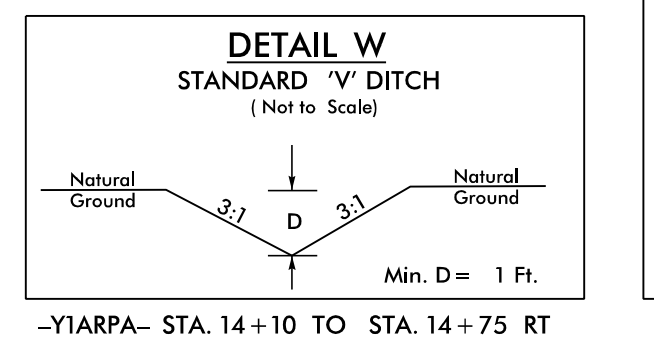
Min. D = 2 Ft.

-L- STA. 144+00 TO STA. 145+00 RT
 -L- STA. 148+50 TO STA. 151+25 LT
 -L- STA. 158+00 TO STA. 166+50 LT
 -L- STA. 168+00 TO STA. 177+00 LT



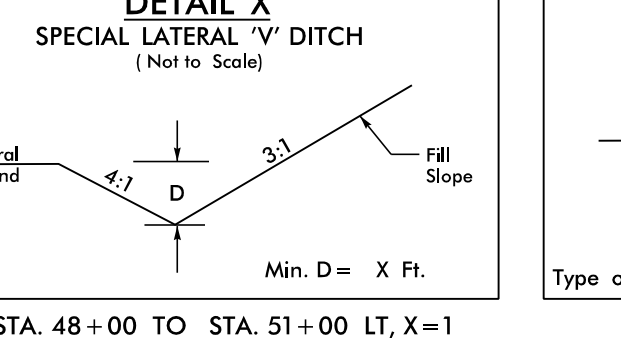
Min. D = 1 Ft.

-SR2- STA. 30+50 TO STA. 31+80 RT
 -SR2- STA. 32+00 TO STA. 33+00 RT



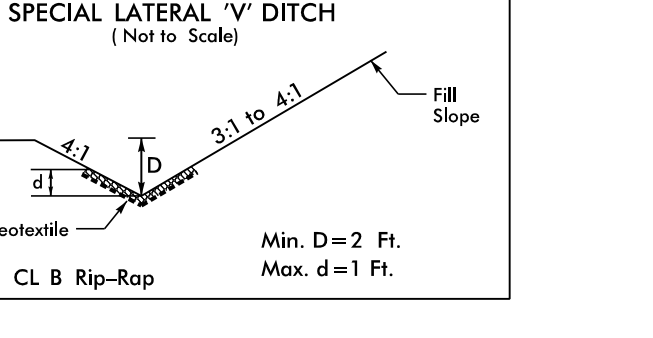
Min. D = 1 Ft.

-YIARPA- STA. 14+10 TO STA. 14+75 RT
 DDE = 4 CY
 -YIARPB- STA. 16+20 TO STA. 17+20 RT
 DDE = 11 CY
 -YIARPA DETOUR- STA. 10+00 RT
 DDE = 2 CY



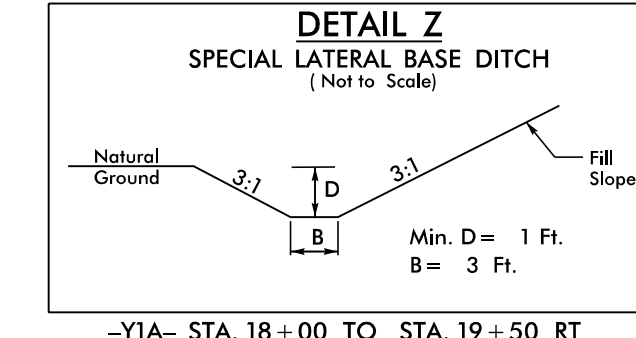
Min. D = X Ft.

-SR6- STA. 48+00 TO STA. 51+00 LT, X=1



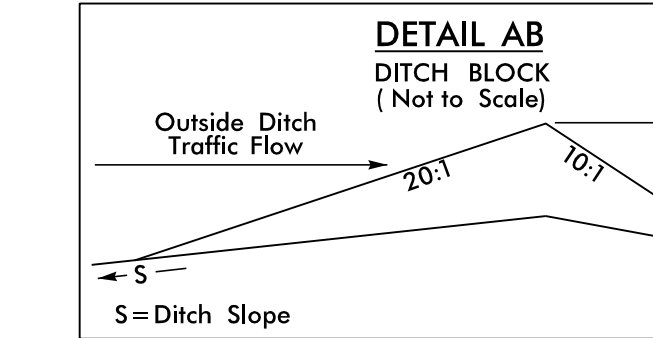
Min. D = 2 Ft.
 Max. d = 1 Ft.

-L- STA. 307+50 TO STA. 308+50 LT
 -YIARPB- STA. 19+50 TO STA. 20+00 LT



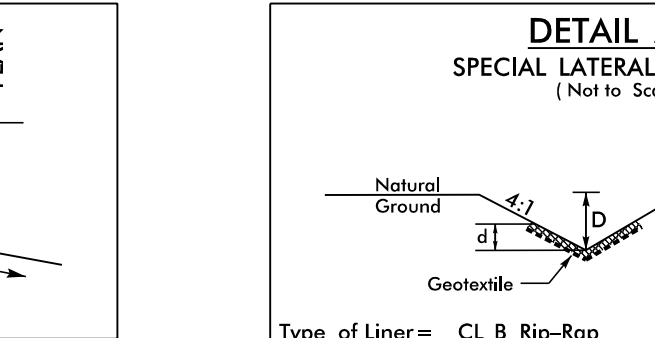
Min. D = 1 Ft.
 B = 3 Ft.

-YIA- STA. 18+00 TO STA. 19+50 RT



S = Ditch Slope

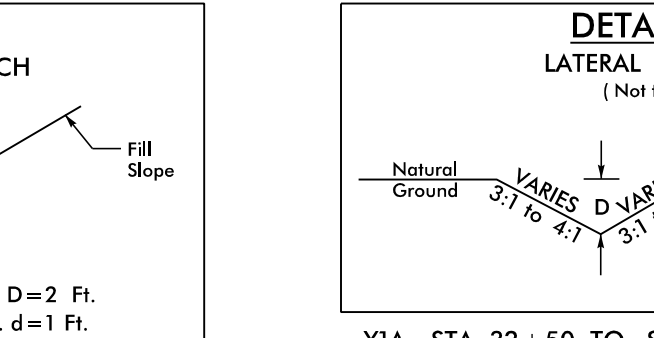
STA. -L- 137+50 RT EL = 136.0'
 STA. -L- 168+50 RT EL = 141.0'
 STA. -L- 197+50 RT EL = 145.0'
 STA. -L- 217+50 RT EL = 146.6'
 STA. -YIA- 25+50 LT EL = 150.0'
 STA. -YIA- 31+00 LT EL = 150.0'
 STA. -SR2- 19+00 LT EL = 149.2'



Min. D = 2 Ft.
 Max. d = 1 Ft.

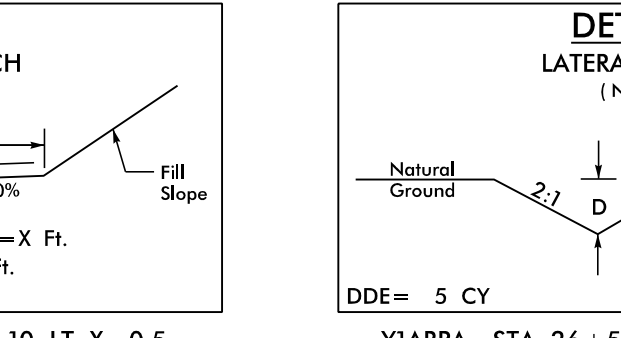
Type of Liner = CL B Rip-Rap

-L- STA. 307+50 TO STA. 308+50 LT



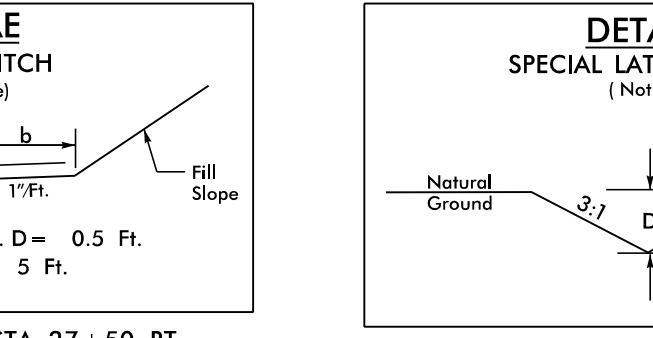
Min. D = X Ft.
 b = 5 Ft.

-YIA- STA. 32+50 TO STA. 35+10 LT, X=0.5
 DDE = 29 CY
 -YIA- STA. 45+15 TO STA. 46+90 RT, X=1
 DDE = 49 CY
 -YIARPB- STA. 21+50 TO STA. 24+90 LT, X=1.0
 DDE = 76 CY
 -YIARPD- STA. 18+50 TO STA. 20+50 LT, X=2.5
 DDE = 156 CY
 -Y2- STA. 21+00 TO STA. 28+50 LT, X=1
 DDE = 456 CY



Min. D = 0.5 Ft.
 b = 5 Ft.

-YIARPA- STA. 26+50 TO STA. 27+50 RT



Min. D = 1 Ft.

-Y2- STA. 17+00 TO STA. 17+50 LT