PROJECT REFERENCE NO.	SHEET NO.
R-2519B	2D-3
R/W SHEET NO.	

HYDRAULICS ENGINEER

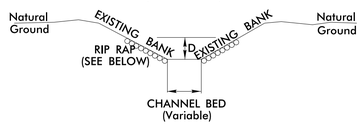
NORTH CAROLINA PROFESSIONAL SEAL 20329 ENGINEER AMY A. BILLINGS

DocuSigned by: Amy A. Billings 9/19/2014

97988B640AB844A...

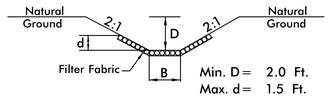
8/17/99

DETAIL 'AW'
BANK STABILIZATION
(Not to Scale)



STA. 55+00 –L– LT, CLASS I, D=4'
STA. 79+36 –L– LT, CLASS II, D=8'
STA. 179+80 –L– LT, CLASS II, D=3' (RIGHT SIDE ONLY)
STA. 186+50 –L– LT, CLASS I, D=4'
STA. 205+66 –L– LT, CLASS I, D=2'
STA. 206+55 –L– LT, CLASS I, D=2'
STA. 247+85 –L–, CLASS II, D=4' TO 5'
STA. 250+30 –L– (RT), CLASS II, D=3'
STA. 302+50 –L–, CLASS II, D=5'
STA. 305+50 –L–, CLASS I, D=2'
STA. 320+00 –L–, CLASS II, D=8' TO 13'
STA. 327+50 –L– RT, CLASS B, D=1.5' TO 2.5'
STA. 357+89 –L– RT, CLASS I, D=3'
STA. 366+54 –L– RT, CLASS I, D=6'
STA. 383+79 –L– RT, CLASS I, D=2'
STA. 404+50 –L–, CLASS I, D=2'
STA. 409+00 –L– RT, CLASS I, D=2'
STA. 15+00 –Y23A–, CLASS I, D=5'
STA. 11+00 –Y34–, CLASS I, D=3'

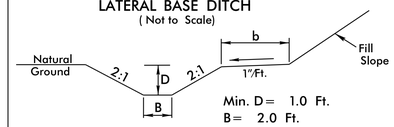
DETAIL 'AY'
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.0 Ft.
Max. d= 1.5 Ft.
B= 3.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 1 Rip-Rap

FROM STA. 11+80 TO STA. 12+10 –Y30– LT
STA. 230+67 –L– RT
FROM STA. 348+64 TO STA. 349+43 –L– RT

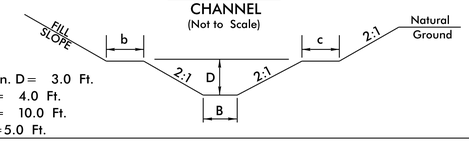
DETAIL 'AZ'
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.

FROM STA. 316+50 TO STA. 319+50 –L– RT

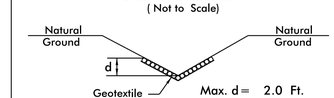
DETAIL 'BA'
CHANNEL
(Not to Scale)



Min. D= 3.0 Ft.
B= 4.0 Ft.
b= 10.0 Ft.
c=5.0 Ft.

FROM STA. 244+10 TO STA. 248+10 –L– RT

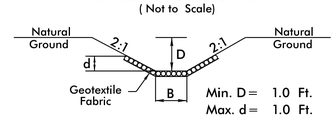
DETAIL 'BK'
EXISTING DITCH
(Not to Scale)



Max. d= 2.0 Ft.
Type of Liner= CLASS I Rip-Rap

STA. 388+40 –L– RT

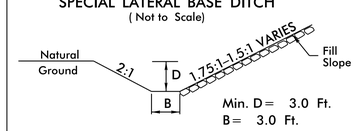
DETAIL 'BC'
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 1 Rip-Rap

FROM STA. 241+00 TO STA. 241+80 –L– RT
FROM STA. 347+16 TO STA. 347+39 –L– LT

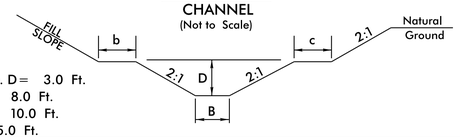
DETAIL 'BD'
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 3.0 Ft.
B= 3.0 Ft.
Type of Liner= CLASS II RIP RAP

FROM STA. 179+50 TO STA. 180+00 –L– LT

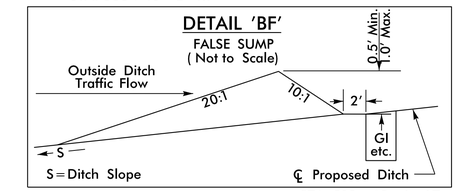
DETAIL 'BE'
CHANNEL
(Not to Scale)



Min. D= 3.0 Ft.
B= 8.0 Ft.
b= 10.0 Ft.
c=5.0 Ft.

FROM STA. 346+35 TO STA. 348+35 –L– RT

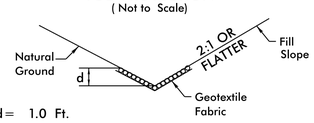
DETAIL 'BF'
FALSE SUMP
(Not to Scale)



STA. 32+30 –L– LT
STA. 35+17 –L– LT
STA. 41+23 –L– LT
STA. 45+85 –L– RT
STA. 48+05 –L– RT
STA. 49+77 –L– RT
STA. 85+36 –L– RT
STA. 86+02 –L– RT
STA. 86+84 –L– RT
STA. 89+11 –L– RT
STA. 91+85 –L– RT
STA. 94+85 –L– RT
STA. 96+24 –L– RT
STA. 128+87 –L– RT
STA. 130+30 –L– RT
STA. 133+86 –L– RT
STA. 159+84 –L– RT
STA. 161+31 –L– RT
STA. 162+84 –L– RT
STA. 164+50 –L– RT
STA. 165+34 –L– RT
STA. 166+86 –L– RT
STA. 168+34 –L– RT
STA. 169+52 –L– RT
STA. 171+43 –L– RT
STA. 173+56 –L– RT
STA. 177+41 –L– RT
STA. 183+77 –L– RT
STA. 187+34 –L– RT
STA. 189+85 –L– RT
STA. 192+84 –L– RT
STA. 194+36 –L– RT
STA. 195+20 –L– RT
STA. 196+83 –L– RT
STA. 199+55 –L– RT

STA. 219+68 –L– LT
STA. 227+17 –L– LT
STA. 227+61 –L– LT
STA. 229+61 –L– LT
STA. 232+63 –L– LT
STA. 240+13 –L– LT
STA. 242+00 –L– LT
STA. 243+15 –L– LT
STA. 289+17 –L– LT
STA. 293+78 –L– LT
STA. 295+64 –L– LT
STA. 297+65 –L– LT
STA. 312+12 –L– LT
STA. 334+47 –L– RT
STA. 335+20 –L– RT
STA. 337+87 –L– RT
STA. 339+36 –L– RT
STA. 341+25 –L– RT
STA. 342+86 –L– RT
STA. 377+56 –L– RT
STA. 388+71 –L– RT
STA. 402+73 –L– LT
STA. 403+54 –L– LT
STA. 404+76 –L– LT
STA. 408+45 –L– LT
STA. 410+10 –L– LT
STA. 414+98 –L– LT
STA. 416+66 –L– LT
STA. 418+37 –L– LT
STA. 422+25 –L– LT
STA. 424+14 –L– LT
STA. 425+05 –L– LT
STA. 427+82 –L– LT

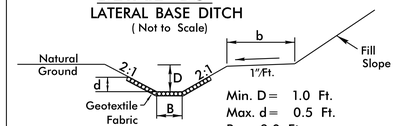
DETAIL 'BB'
TOE PROTECTION
(Not to Scale)



d= 1.0 Ft.
Type of Liner= CLASS B Rip-Rap

FROM STA. 344+00 TO STA. 345+00 –L– RT
FROM STA. 368+10 TO STA. 369+00 –L– LT
FROM STA. 409+00 TO STA. 410+88 –L– RT
FROM STA. 413+76 TO STA. 414+87 –L– RT

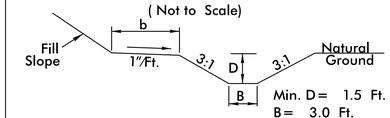
DETAIL 'BG'
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 0.5 Ft.
B= 3.0 Ft.
b= 5.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 1 Rip-Rap

FROM STA. 369+10 TO STA. 370+00 –L– LT

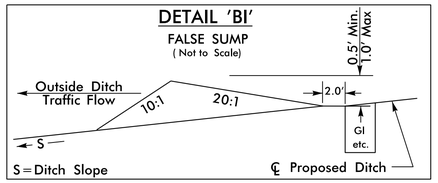
DETAIL 'BH'
LATERAL BASE GRASSED SWALE
(Not to Scale)



Min. D= 1.5 Ft.
B= 3.0 Ft.
b= 5.0 Ft.

FROM STA. 379+00 TO STA. 381+50–L–RT

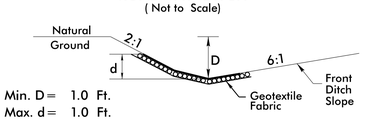
DETAIL 'BI'
FALSE SUMP
(Not to Scale)



STA. 13+37 –Y5– LT
STA. 12+33 –Y5– LT
STA. 64+33 –L– LT
STA. 76+65 –L– RT
STA. 77+16 –L– RT
STA. 10+97 –Y8– LT
STA. 11+60 –Y8– LT
STA. 80+66 –L– RT
STA. 82+50 –L– RT
STA. 100+87 –L– RT
STA. 103+65 –L– RT
STA. 106+00 –L– RT
STA. 108+65 –L– RT
STA. 130+30 –L– LT
STA. 143+34 –L– LT
STA. 191+38 –L– LT
STA. 216+63 –L– LT
STA. 253+87 –L– LT

STA. 260+87 –L– LT
STA. 263+90 –L– LT
STA. 280+14 –L– LT
STA. 11+64 –Y21– RT
STA. 13+38 –Y24– RT
STA. 349+37 –L– LT
STA. 355+85 –L– LT
STA. 360+35 –L– LT
STA. 365+36 –L– LT
STA. 370+35 –L– LT
STA. 377+87 –L– LT
STA. 378+37 –L– LT
STA. 381+39 –L– LT
STA. 388+83 –L– LT
STA. 390+86 –L– LT

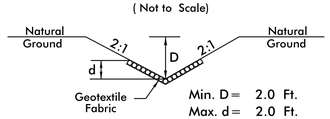
DETAIL 'BL'
ROADWAY DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= CLASS B Rip-Rap

FROM STA. 410+00 TO STA. 418+24 –L– LT
FROM STA. 420+10 TO STA. 424+00 –L– LT
FROM STA. 425+50 TO STA. 427+90 –L– RT

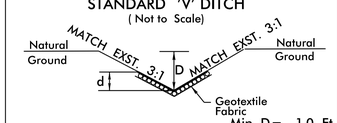
DETAIL 'BM'
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
Type of Liner= CLASS I Rip-Rap

FROM STA. 281+50 TO STA. 282+00 –L– RT

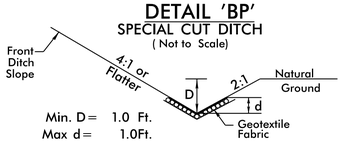
DETAIL 'BO'
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= CLASS B Rip-Rap

FROM STA. 429+10 TO STA. 430+30 –L– LT

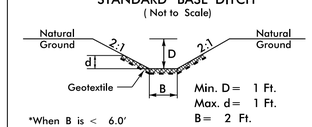
DETAIL 'BP'
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max d= 1.0Ft.
Type of Liner= CLASS B Rip-Rap

FROM STA. 423+00 TO STA. 424+00–L–RT
FROM STA. 15+00 TO STA. 15+60–Y38–RT

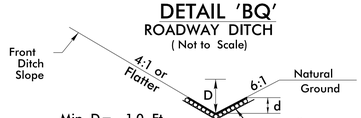
DETAIL 'X2'
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
*When B is < 6.0'
Type of Liner= CLASS B Rip-Rap

FROM STA. 11+25 TO STA. 11+50 –Y31– RT

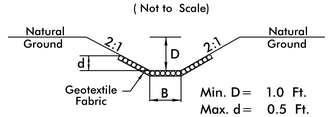
DETAIL 'BQ'
ROADWAY DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= CLASS B Rip-Rap

FROM STA. 14+25 TO STA. 15+00 –Y38– RT

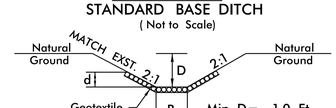
DETAIL 'BR'
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 0.5 Ft.
B= 3.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 1 RIP RAP

FROM STA. 427+90 TO STA. 429+60 –L– RT

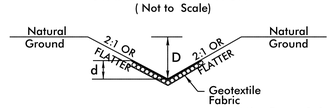
DETAIL 'BS'
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 0.5 Ft.
B= 5.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 1 RIP RAP

FROM STA. 429+60 TO STA. 431+30 –L– RT

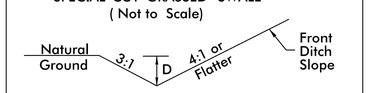
DETAIL 'BT'
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 2.0 Ft.
Max. d= 1.5 Ft.
Type of Liner= CLASS B Rip-Rap

STA. 359+00 –L– LT

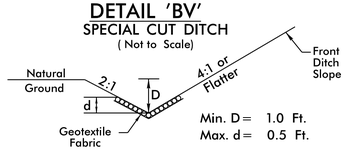
DETAIL BU'
SPECIAL CUT GRASSED SWALE
(Not to Scale)



Min. D= 1.0 Ft.

FROM STA. 331+50 TO STA. 332+50 –L– LT

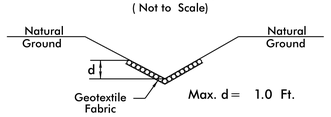
DETAIL 'BV'
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 0.5 Ft.
Type of Liner= CLASS B Rip-Rap

FROM STA. 330+78 TO STA. 331+50 –L– LT

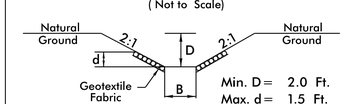
DETAIL 'BW'
EXISTING DITCH
(Not to Scale)



Max. d= 1.0 Ft.
Type of Liner= CLASS B Rip-Rap

FROM STA. 222+75 TO STA. 223+00 –L– RT
FROM STA. 330+50 TO STA. 330+78 –L– LT

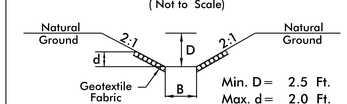
DETAIL 'BX'
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.0 Ft.
Max. d= 1.5 Ft.
B= 5.0 Ft.
When B is > _6.0'
Std. No. 876.01
Type of Liner= CLASS I Rip-Rap

STA. 214+20 –L– LT

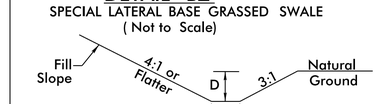
DETAIL 'BY'
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.5 Ft.
Max. d= 2.0 Ft.
B= 6.0 Ft.
When B is > _6.0'
Std. No. 876.01
Type of Liner= CLASS I Rip-Rap

STA. 9+58 –Y4– LT

DETAIL 'BZ'
SPECIAL LATERAL BASE GRASSED SWALE
(Not to Scale)



Min. D= 1.0 Ft.
B= 2.0 Ft.

FROM STA. 237+00 TO STA. 241+00 –L– RT

17-SEP-2014 10:40
S:\Structures\Proj\r2519b_det_ditches.dgn
$$$$USERNAME$$$$