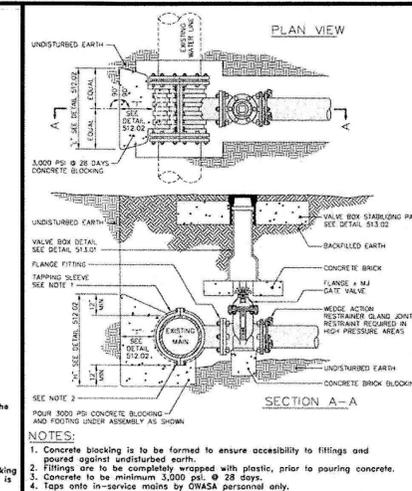


**TEST PRESSURE = 150 P.S.I.**

TYPE FITTING	DIMENSIONS (F.I.)	VOLUME CONCRETE CU. YD.
1 1/4" 22 1/2"	1.00 1.00 1.50	0.06
1 1/2" 22 1/2"	1.00 1.00 1.50	0.09
1 3/4" 22 1/2"	1.00 1.00 1.50	0.12
2" 22 1/2"	1.00 1.00 1.50	0.15
2 1/2" 22 1/2"	1.00 1.00 1.50	0.18
3" 22 1/2"	1.00 1.00 1.50	0.21
3 1/2" 22 1/2"	1.00 1.00 1.50	0.24
4" 22 1/2"	1.00 1.00 1.50	0.27
4 1/2" 22 1/2"	1.00 1.00 1.50	0.30
5" 22 1/2"	1.00 1.00 1.50	0.33
5 1/2" 22 1/2"	1.00 1.00 1.50	0.36
6" 22 1/2"	1.00 1.00 1.50	0.39
6 1/2" 22 1/2"	1.00 1.00 1.50	0.42
7" 22 1/2"	1.00 1.00 1.50	0.45
7 1/2" 22 1/2"	1.00 1.00 1.50	0.48
8" 22 1/2"	1.00 1.00 1.50	0.51
8 1/2" 22 1/2"	1.00 1.00 1.50	0.54
9" 22 1/2"	1.00 1.00 1.50	0.57
9 1/2" 22 1/2"	1.00 1.00 1.50	0.60
10" 22 1/2"	1.00 1.00 1.50	0.63
10 1/2" 22 1/2"	1.00 1.00 1.50	0.66
11" 22 1/2"	1.00 1.00 1.50	0.69
11 1/2" 22 1/2"	1.00 1.00 1.50	0.72
12" 22 1/2"	1.00 1.00 1.50	0.75
12 1/2" 22 1/2"	1.00 1.00 1.50	0.78
13" 22 1/2"	1.00 1.00 1.50	0.81
13 1/2" 22 1/2"	1.00 1.00 1.50	0.84
14" 22 1/2"	1.00 1.00 1.50	0.87
14 1/2" 22 1/2"	1.00 1.00 1.50	0.90
15" 22 1/2"	1.00 1.00 1.50	0.93
15 1/2" 22 1/2"	1.00 1.00 1.50	0.96
16" 22 1/2"	1.00 1.00 1.50	0.99
16 1/2" 22 1/2"	1.00 1.00 1.50	1.02
17" 22 1/2"	1.00 1.00 1.50	1.05
17 1/2" 22 1/2"	1.00 1.00 1.50	1.08
18" 22 1/2"	1.00 1.00 1.50	1.11
18 1/2" 22 1/2"	1.00 1.00 1.50	1.14
19" 22 1/2"	1.00 1.00 1.50	1.17
19 1/2" 22 1/2"	1.00 1.00 1.50	1.20
20" 22 1/2"	1.00 1.00 1.50	1.23
20 1/2" 22 1/2"	1.00 1.00 1.50	1.26
21" 22 1/2"	1.00 1.00 1.50	1.29
21 1/2" 22 1/2"	1.00 1.00 1.50	1.32
22" 22 1/2"	1.00 1.00 1.50	1.35
22 1/2" 22 1/2"	1.00 1.00 1.50	1.38
23" 22 1/2"	1.00 1.00 1.50	1.41
23 1/2" 22 1/2"	1.00 1.00 1.50	1.44
24" 22 1/2"	1.00 1.00 1.50	1.47
24 1/2" 22 1/2"	1.00 1.00 1.50	1.50
25" 22 1/2"	1.00 1.00 1.50	1.53
25 1/2" 22 1/2"	1.00 1.00 1.50	1.56
26" 22 1/2"	1.00 1.00 1.50	1.59
26 1/2" 22 1/2"	1.00 1.00 1.50	1.62
27" 22 1/2"	1.00 1.00 1.50	1.65
27 1/2" 22 1/2"	1.00 1.00 1.50	1.68
28" 22 1/2"	1.00 1.00 1.50	1.71
28 1/2" 22 1/2"	1.00 1.00 1.50	1.74
29" 22 1/2"	1.00 1.00 1.50	1.77
29 1/2" 22 1/2"	1.00 1.00 1.50	1.80
30" 22 1/2"	1.00 1.00 1.50	1.83
30 1/2" 22 1/2"	1.00 1.00 1.50	1.86
31" 22 1/2"	1.00 1.00 1.50	1.89
31 1/2" 22 1/2"	1.00 1.00 1.50	1.92
32" 22 1/2"	1.00 1.00 1.50	1.95
32 1/2" 22 1/2"	1.00 1.00 1.50	1.98
33" 22 1/2"	1.00 1.00 1.50	2.01
33 1/2" 22 1/2"	1.00 1.00 1.50	2.04
34" 22 1/2"	1.00 1.00 1.50	2.07
34 1/2" 22 1/2"	1.00 1.00 1.50	2.10
35" 22 1/2"	1.00 1.00 1.50	2.13
35 1/2" 22 1/2"	1.00 1.00 1.50	2.16
36" 22 1/2"	1.00 1.00 1.50	2.19
36 1/2" 22 1/2"	1.00 1.00 1.50	2.22
37" 22 1/2"	1.00 1.00 1.50	2.25
37 1/2" 22 1/2"	1.00 1.00 1.50	2.28
38" 22 1/2"	1.00 1.00 1.50	2.31
38 1/2" 22 1/2"	1.00 1.00 1.50	2.34
39" 22 1/2"	1.00 1.00 1.50	2.37
39 1/2" 22 1/2"	1.00 1.00 1.50	2.40
40" 22 1/2"	1.00 1.00 1.50	2.43
40 1/2" 22 1/2"	1.00 1.00 1.50	2.46
41" 22 1/2"	1.00 1.00 1.50	2.49
41 1/2" 22 1/2"	1.00 1.00 1.50	2.52
42" 22 1/2"	1.00 1.00 1.50	2.55
42 1/2" 22 1/2"	1.00 1.00 1.50	2.58
43" 22 1/2"	1.00 1.00 1.50	2.61
43 1/2" 22 1/2"	1.00 1.00 1.50	2.64
44" 22 1/2"	1.00 1.00 1.50	2.67
44 1/2" 22 1/2"	1.00 1.00 1.50	2.70
45" 22 1/2"	1.00 1.00 1.50	2.73
45 1/2" 22 1/2"	1.00 1.00 1.50	2.76
46" 22 1/2"	1.00 1.00 1.50	2.79
46 1/2" 22 1/2"	1.00 1.00 1.50	2.82
47" 22 1/2"	1.00 1.00 1.50	2.85
47 1/2" 22 1/2"	1.00 1.00 1.50	2.88
48" 22 1/2"	1.00 1.00 1.50	2.91
48 1/2" 22 1/2"	1.00 1.00 1.50	2.94
49" 22 1/2"	1.00 1.00 1.50	2.97
49 1/2" 22 1/2"	1.00 1.00 1.50	3.00
50" 22 1/2"	1.00 1.00 1.50	3.03
50 1/2" 22 1/2"	1.00 1.00 1.50	3.06
51" 22 1/2"	1.00 1.00 1.50	3.09
51 1/2" 22 1/2"	1.00 1.00 1.50	3.12
52" 22 1/2"	1.00 1.00 1.50	3.15
52 1/2" 22 1/2"	1.00 1.00 1.50	3.18
53" 22 1/2"	1.00 1.00 1.50	3.21
53 1/2" 22 1/2"	1.00 1.00 1.50	3.24
54" 22 1/2"	1.00 1.00 1.50	3.27
54 1/2" 22 1/2"	1.00 1.00 1.50	3.30
55" 22 1/2"	1.00 1.00 1.50	3.33
55 1/2" 22 1/2"	1.00 1.00 1.50	3.36
56" 22 1/2"	1.00 1.00 1.50	3.39
56 1/2" 22 1/2"	1.00 1.00 1.50	3.42
57" 22 1/2"	1.00 1.00 1.50	3.45
57 1/2" 22 1/2"	1.00 1.00 1.50	3.48
58" 22 1/2"	1.00 1.00 1.50	3.51
58 1/2" 22 1/2"	1.00 1.00 1.50	3.54
59" 22 1/2"	1.00 1.00 1.50	3.57
59 1/2" 22 1/2"	1.00 1.00 1.50	3.60
60" 22 1/2"	1.00 1.00 1.50	3.63
60 1/2" 22 1/2"	1.00 1.00 1.50	3.66
61" 22 1/2"	1.00 1.00 1.50	3.69
61 1/2" 22 1/2"	1.00 1.00 1.50	3.72
62" 22 1/2"	1.00 1.00 1.50	3.75
62 1/2" 22 1/2"	1.00 1.00 1.50	3.78
63" 22 1/2"	1.00 1.00 1.50	3.81
63 1/2" 22 1/2"	1.00 1.00 1.50	3.84
64" 22 1/2"	1.00 1.00 1.50	3.87
64 1/2" 22 1/2"	1.00 1.00 1.50	3.90
65" 22 1/2"	1.00 1.00 1.50	3.93
65 1/2" 22 1/2"	1.00 1.00 1.50	3.96
66" 22 1/2"	1.00 1.00 1.50	3.99
66 1/2" 22 1/2"	1.00 1.00 1.50	4.02
67" 22 1/2"	1.00 1.00 1.50	4.05
67 1/2" 22 1/2"	1.00 1.00 1.50	4.08
68" 22 1/2"	1.00 1.00 1.50	4.11
68 1/2" 22 1/2"	1.00 1.00 1.50	4.14
69" 22 1/2"	1.00 1.00 1.50	4.17
69 1/2" 22 1/2"	1.00 1.00 1.50	4.20
70" 22 1/2"	1.00 1.00 1.50	4.23
70 1/2" 22 1/2"	1.00 1.00 1.50	4.26
71" 22 1/2"	1.00 1.00 1.50	4.29
71 1/2" 22 1/2"	1.00 1.00 1.50	4.32
72" 22 1/2"	1.00 1.00 1.50	4.35
72 1/2" 22 1/2"	1.00 1.00 1.50	4.38
73" 22 1/2"	1.00 1.00 1.50	4.41
73 1/2" 22 1/2"	1.00 1.00 1.50	4.44
74" 22 1/2"	1.00 1.00 1.50	4.47
74 1/2" 22 1/2"	1.00 1.00 1.50	4.50
75" 22 1/2"	1.00 1.00 1.50	4.53
75 1/2" 22 1/2"	1.00 1.00 1.50	4.56
76" 22 1/2"	1.00 1.00 1.50	4.59
76 1/2" 22 1/2"	1.00 1.00 1.50	4.62
77" 22 1/2"	1.00 1.00 1.50	4.65
77 1/2" 22 1/2"	1.00 1.00 1.50	4.68
78" 22 1/2"	1.00 1.00 1.50	4.71
78 1/2" 22 1/2"	1.00 1.00 1.50	4.74
79" 22 1/2"	1.00 1.00 1.50	4.77
79 1/2" 22 1/2"	1.00 1.00 1.50	4.80
80" 22 1/2"	1.00 1.00 1.50	4.83
80 1/2" 22 1/2"	1.00 1.00 1.50	4.86
81" 22 1/2"	1.00 1.00 1.50	4.89
81 1/2" 22 1/2"	1.00 1.00 1.50	4.92
82" 22 1/2"	1.00 1.00 1.50	4.95
82 1/2" 22 1/2"	1.00 1.00 1.50	4.98
83" 22 1/2"	1.00 1.00 1.50	5.01
83 1/2" 22 1/2"	1.00 1.00 1.50	5.04
84" 22 1/2"	1.00 1.00 1.50	5.07
84 1/2" 22 1/2"	1.00 1.00 1.50	5.10
85" 22 1/2"	1.00 1.00 1.50	5.13
85 1/2" 22 1/2"	1.00 1.00 1.50	5.16
86" 22 1/2"	1.00 1.00 1.50	5.19
86 1/2" 22 1/2"	1.00 1.00 1.50	5.22
87" 22 1/2"	1.00 1.00 1.50	5.25
87 1/2" 22 1/2"	1.00 1.00 1.50	5.28
88" 22 1/2"	1.00 1.00 1.50	5.31
88 1/2" 22 1/2"	1.00 1.00 1.50	5.34
89" 22 1/2"	1.00 1.00 1.50	5.37
89 1/2" 22 1/2"	1.00 1.00 1.50	5.40
90" 22 1/2"	1.00 1.00 1.50	5.43
90 1/2" 22 1/2"	1.00 1.00 1.50	5.46
91" 22 1/2"	1.00 1.00 1.50	5.49
91 1/2" 22 1/2"	1.00 1.00 1.50	5.52
92" 22 1/2"	1.00 1.00 1.50	5.55
92 1/2" 22 1/2"	1.00 1.00 1.50	5.58
93" 22 1/2"	1.00 1.00 1.50	5.61
93 1/2" 22 1/2"	1.00 1.00 1.50	5.64
94" 22 1/2"	1.00 1.00 1.50	5.67
94 1/2" 22 1/2"	1.00 1.00 1.50	5.70
95" 22 1/2"	1.00 1.00 1.50	5.73
95 1/2" 22 1/2"	1.00 1.00 1.50	5.76
96" 22 1/2"	1.00 1.00 1.50	5.79
96 1/2" 22 1/2"	1.00 1.00 1.50	5.82
97" 22 1/2"	1.00 1.00 1.50	5.85
97 1/2" 22 1/2"	1.00 1.00 1.50	5.88
98" 22 1/2"	1.00 1.00 1.50	5.91
98 1/2" 22 1/2"	1.00 1.00 1.50	5.94
99" 22 1/2"	1.00 1.00 1.50	5.97
99 1/2" 22 1/2"	1.00 1.00 1.50	6.00
100" 22 1/2"	1.00 1.00 1.50	6.03
100 1/2" 22 1/2"	1.00 1.00 1.50	6.06

**CHART NOTES:**  
1. If blocking excavation is in highly compacted fill areas, or in areas where boulders or slumps have been removed, blocking size must be re-sized for the specific location/circumstance by a NC licensed Professional Engineer.  
2. Blocking sizes shown in these tables assume the following:  
a. Blocking is constructed in residual soils as shown in detail.  
b. Soil bearing pressure = 2000 psf.  
c. Velocity of flow = 15 fps.  
3. This detail not applicable to reducing bends.  
4. Neither the weight of the concrete blocking nor friction between concrete blocking and soil was added into blocking sizes compilation. Therefore, blocking size is conservative.



**ORANGE WATER AND SEWER AUTHORITY**

**3" to 8" WATER METER WITH BYPASS (UNDER GROUND VAULT)**

QTY PART	MANUFACTURER MODEL / Cat. No.	TO BE APPROVED BY OWASA
1	DISMOUNT METER OR TURBINE METER	TO BE APPROVED BY OWASA
2	OS&Y BALL VALVE WITH RESILIENT SEATS	TO BE APPROVED BY OWASA
3	STRAINER	TO BE APPROVED BY OWASA
4	DIP CLASS 300	SIZE & TYPE DETERMINED BY MIC PE
5	DIP CLASS 300	SIZE &amp



**INSTRUCTIONS FOR TEMPORARY STABILIZATION USING VEGETATION**

**INSTALLATION**

- REFER TO PLANS FOR LOCATION, EXTENT, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHODS OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. REGION CONTROL PERSONNEL MAY HAVE COPIES OF INSTRUCTIONS AND MAY BE ABLE TO OFFER ASSISTANCE.
- IF THE DISTURBANCE IS NOT PROPERLY STABILIZED THE FIRST TIME SO THAT EROSION IS PREVENTED, THE SEEDING WILL HAVE TO BE REPEATED.
- USE THE APPLICATION RATES FOR LIME, FERTILIZER, SEED, MULCH, ETC. SPECIFIED IN THE PLAN, OR USE THE RATES BELOW FOR THE APPROPRIATE SEASON.

**ALL SEASONS:**

LIME: 50 POUNDS PER 1000 SQUARE FEET (5 TONS PER ACRE).  
 FERTILIZER: 10-10-10 16 POUNDS PER 1000 SQUARE FEET (700 POUNDS PER ACRE).  
 STRAW MULCH: 80 POUNDS PER 1000 SQUARE FEET (1.5 TO 2 TONS PER ACRE); USE STRAW THICK TO COVER 75% OF THE GROUND.

**MARCH - MAY**

RYE GRASS: 3 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE).  
 OR  
 SPRING OATS: 3 POUNDS PER 1000 SQUARE FEET (125 POUNDS PER ACRE).

**MAY - AUGUST**

MILLET: 1 POUND PER 1000 SQUARE FEET (40 POUNDS PER ACRE).  
 OR  
 COMMON STRAW: 1 POUND PER 1000 SQUARE FEET (40 POUNDS PER ACRE).

**AUGUST 15 - NOVEMBER 15**

OATS: 2 POUNDS PER 1000 SQUARE FEET (125 POUNDS PER ACRE).  
 OR  
 GRASS: AFTER OCTOBER 1: 3 POUNDS PER 1000 SQUARE FEET (180 POUNDS PER ACRE).

**NOVEMBER 15 - FEBRUARY**

VEGETATION IS NOT AN APPROPRIATE STABILIZATION DURING THESE SEASONS; USE ANOTHER TYPE OF TEMPORARY GROUND COVER, SUCH AS MULCH OR STRAW.

**MAINTENANCE**

AREAS MUST BE RESEEDED AND MULCHED WHEN THE VEGETATION FAILS TO ESTABLISH ITSELF OR IS DAMAGED BY RUNOFF OR CONSTRUCTION ACTIVITY. IF THE TEMPORARY VEGETATION SHOULD FAIL FOR ANY REASON OTHER THAN EROSION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. REGION CONTROL PERSONNEL MAY HAVE COPIES OF INSTRUCTIONS AND MAY BE ABLE TO OFFER ASSISTANCE.

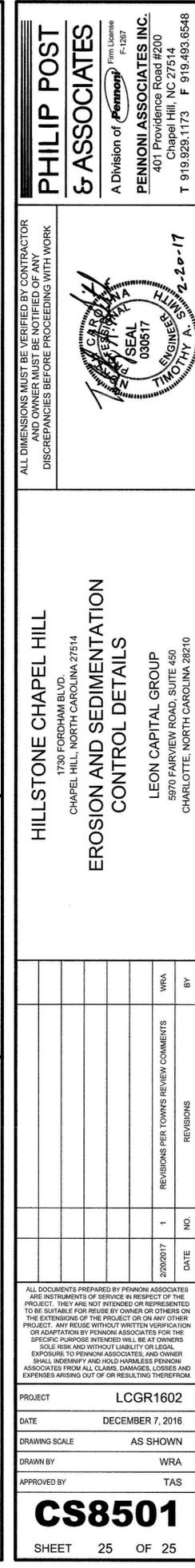
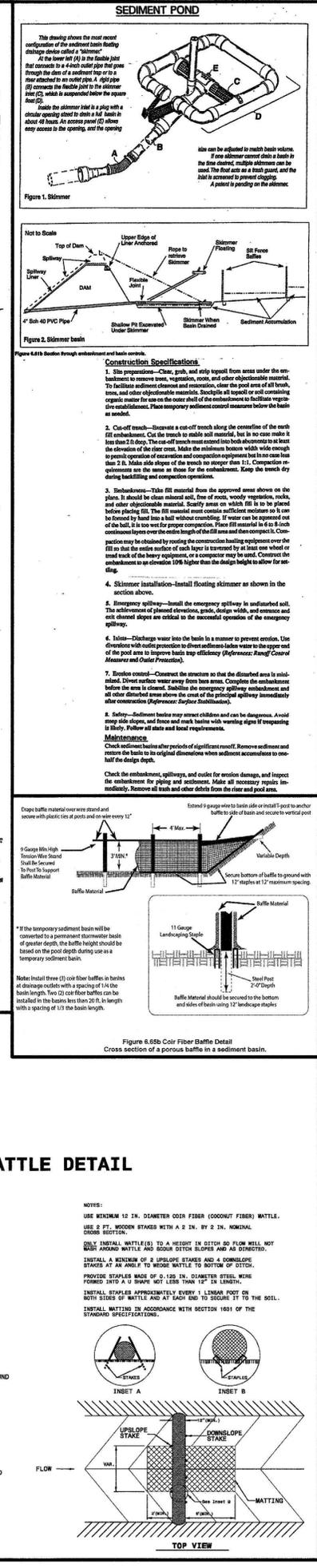
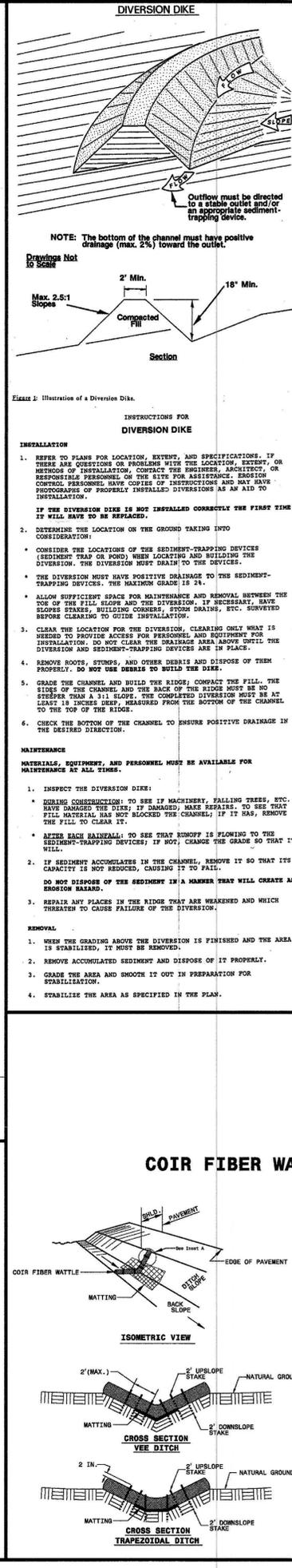
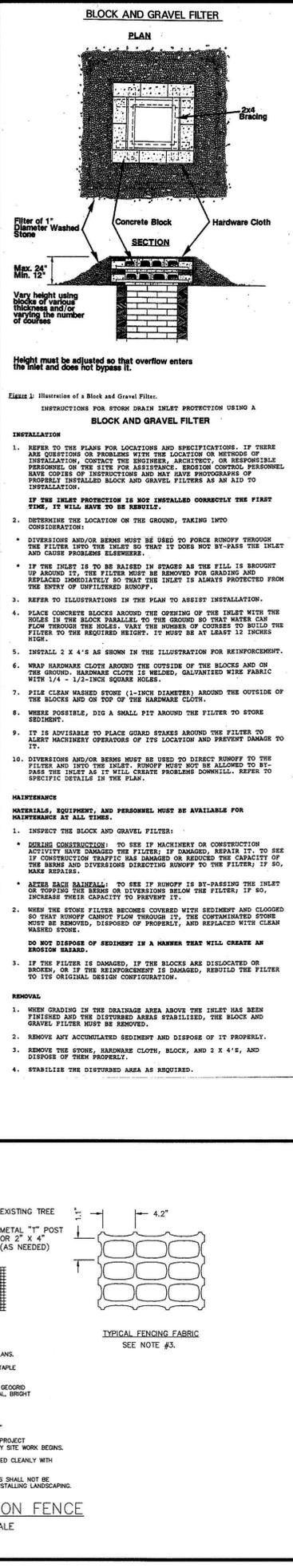
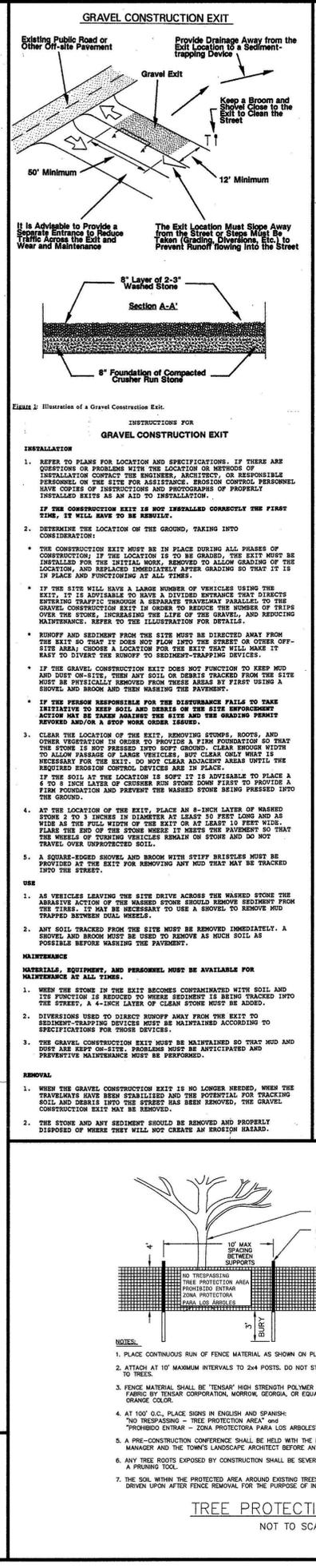
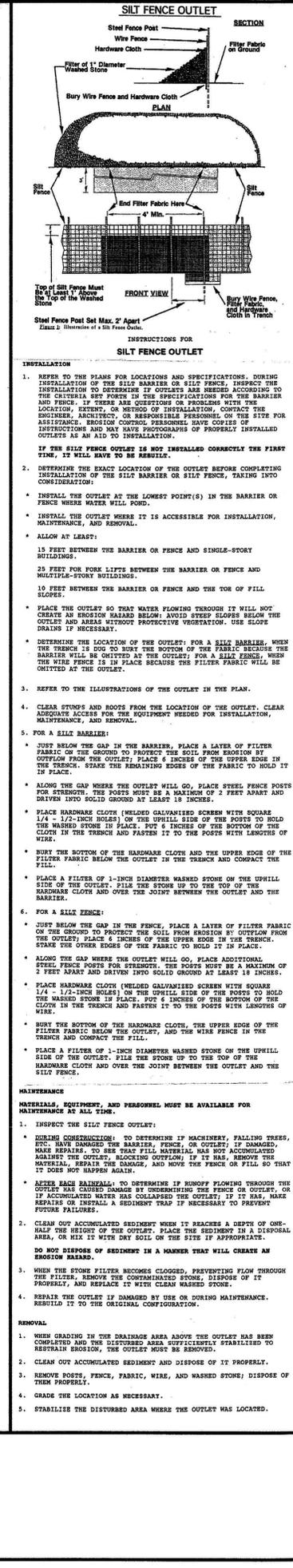
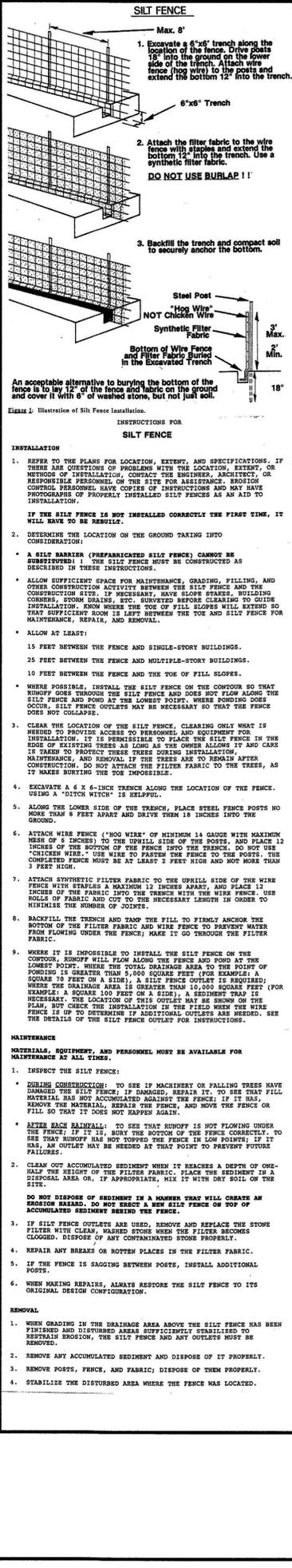
**INSTRUCTIONS FOR PERMANENT STABILIZATION USING VEGETATION**

**INSTALLATION**

- REFER TO PLANS FOR LOCATION, EXTENT, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHODS OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. REGION CONTROL PERSONNEL MAY HAVE COPIES OF INSTRUCTIONS AND MAY BE ABLE TO OFFER ASSISTANCE.
- IF THE DISTURBANCE IS NOT PROPERLY STABILIZED THE FIRST TIME SO THAT EROSION IS PREVENTED, THE SEEDING WILL HAVE TO BE REPEATED UNTIL IT IS SUCCESSFUL.
- USE THE APPLICATION RATES FOR LIME, FERTILIZER, SEED, MULCH, ETC. SPECIFIED IN THE PLAN, OR USE THE RATES BELOW FOR THE APPROPRIATE SEASON. IF SEEDING IN A SEASON NOT LISTED BELOW, USE VEGETATION COMPATIBLE WITH THAT SEASON OR ANOTHER METHOD OF PERMANENT STABILIZATION.
- SEEDING DATES: FEBRUARY 15 - MAY, OR AUGUST 15 - OCTOBER 15  
 LIME: 135 POUNDS PER 1000 SQUARE FEET (3 TONS PER ACRE)  
 FERTILIZER: 10-10-10 23 POUNDS PER 1000 SQUARE FEET (1000 POUNDS PER ACRE). A SPLIT APPLICATION OF 500 POUNDS PER ACRE INITIALLY AND ANOTHER 500 POUNDS IN THE SPRING OR FALL IS PREFERABLE. ADD 500 POUNDS PER ACRE AFTER PROSPERITY WHERE THE SOILSIL IS EXPOSED.  
 SEED: 1.5 POUNDS PER 1000 SQUARE FEET (60 POUNDS PER ACRE)  
 MULCH: 80 POUNDS OF SMALL GRASS STRAW PER 1000 SQUARE FEET (APPROXIMATELY 3 BALES) OR 1.5 TO 2 TONS PER ACRE; USE ENOUGH STRAW TO COVER 75% OF THE GROUND.
- TEMPORARY COVER: 0.5 POUNDS OF GERMAN OR BROODER MILLET PER 1000 SQUARE FEET (50 POUNDS PER ACRE).

**MAINTENANCE**

ANY PLACES WHERE THE VEGETATION FAILS TO ESTABLISH ITSELF OR IS DAMAGED BY RUNOFF OR CONSTRUCTION ACTIVITY MUST BE RESEEDED. WHEN THE VEGETATION FAILS TO RESTRAIN EROSION, OTHER EROSION CONTROL MEASURES MUST BE INSTALLED.



**HILLSTONE CHAPEL HILL**  
 1730 FORDHAM BLVD.  
 CHAPEL HILL, NORTH CAROLINA 27514

**EROSION AND SEDIMENTATION CONTROL DETAILS**

LEON CAPITAL GROUP  
 5870 FAIRVIEW ROAD, SUITE 450  
 CHARLOTTE, NORTH CAROLINA 28210

PHILIP POST & ASSOCIATES  
 A Division of Pennoni Associates, Inc.  
 PENNONI ASSOCIATES, INC.  
 401 Chapel Hill, NC 27514  
 T 919.929.1173 F 919.493.6548

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

REVISIONS PER TOWNS REVIEW COMMENTS

NO.	DATE	REVISIONS
1	2/20/2017	NO

PROJECT: LCGR1602  
 DATE: DECEMBER 7, 2016  
 DRAWING SCALE: AS SHOWN  
 DRAWN BY: WRA  
 APPROVED BY: TAS

**CS8501**  
 SHEET 25 OF 25