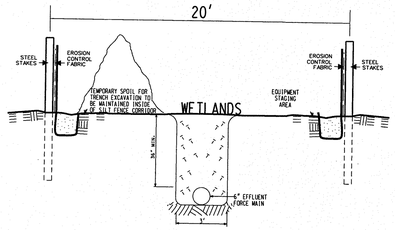
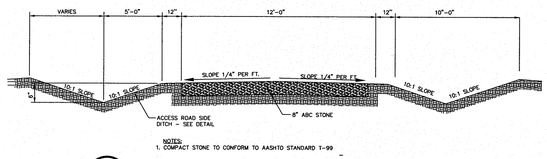


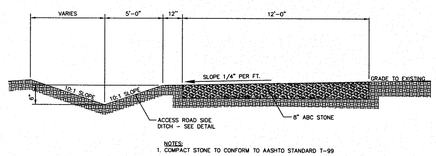
FORCE MAIN TRENCH WITH SILT FENCE

N.T.S.



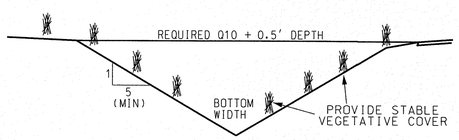
1/2 INFILTRATION SITE ACCESS ROAD SECTION

NOT TO SCALE



2/2 INFILTRATION SITE ACCESS SUPERELEVATED ROAD SECTION

NOT TO SCALE



SWALE DETAIL

NTS

NOTES:

THE REQUIRED DEPTH INCLUDES THE FLOW DEPTH OF THE 10 YEAR STORM PLUS 0.5' OF FREEBOARD.

THE MAXIMUM FLOW 10 YEAR STORM FLOW VELOCITY IS 4 FPS IN ROADSIDE SWALE AND 2 FPS IN OUTLET SWALES.

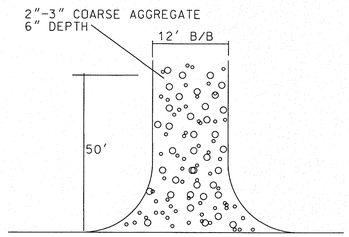
MAXIMUM SIDE SLOPES OF SWALES SHALL BE 5:1.

IMPROVEMENTS, INCLUDING RETAINING WALLS, DRIVES ROADWAYS, ETC. SHALL BE PERMITTED ABOVE THE REQUIRED SWALE DEPTH.

SWALES AND OTHER AREAS SUBJECT TO EROSIVE FLOWS SHALL BE PERMANENTLY SEEDED OR SODDED WITH BERMUDAGRASS OR APPROVED EQUAL IN ACCORDANCE WITH STABILIZATION SCHEDULE.

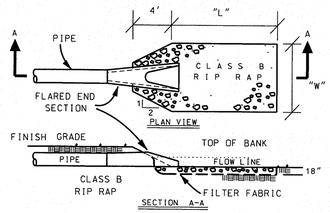
EITHER SOD OR TEMPORARY SEEDING SHALL BE PROVIDED FOR STABILIZATION OUTSIDE OF THE RECOMMENDED PERMANENT SEEDING DATES.

SEEDED (TEMPORARY OR PERMANENT) SWALES SHALL BE LINED WITH EXCELSIOR MAT.



EXISTING ROAD

CONSTRUCTION ENTRANCE DETAIL



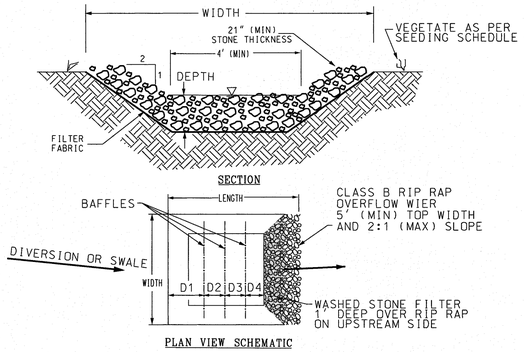
FILTER FABRIC TO BE TREVIRA SPUNBOUND TYPE 11/120

RIP RAP APRONS SHALL BE PROVIDED ON DOWNSTREAM ENDS OF CULVERT FLARED END SECTIONS

RIP RAP APRON DETAIL

NTS

RIP RAP APRON SCHEDULE		
PIPE	LENGTH	WIDTH
6"	10'	10'



SEDIMENT TRAP DETAIL

NTS

NOTE:

PROVIDE (3) BAFFLES ACROSS WIDTH OF TRAP SPACED PER THE SCHEDULE OF DIMENSIONS.

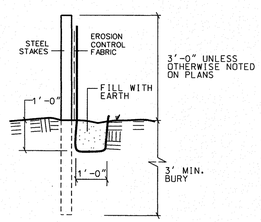
REFER TO BAFFLE DETAILS

SEDIMENT TRAP SCHEDULE				
SEDIMENT TRAP	LENGTH (FT)	WIDTH (FT)	DEPTH (FT)	BATTEN SPACING (FT)
"A"	52	26	3.5	13/13/13/13
"B"	50	26	3.5	12.5/12.5/12.5/12.5
"C"	40	18	3.5	10/10/10/10
"D"	32	16	3.5	8/8/8/8
"E"	32	16	3.5	8/8/8/8
"F"	32	16	3.5	8/8/8/8
"G"	28	16	3.5	7/7/7/7

BAFFLE DETAIL

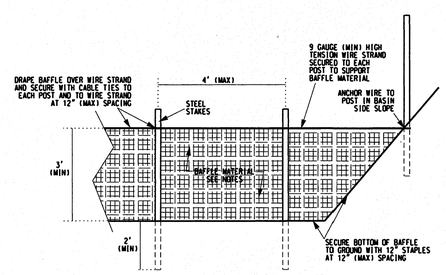
NTS

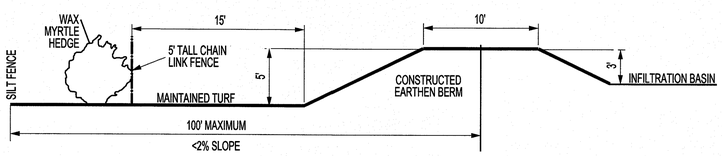
COIR BAFFLE MATERIAL PROPERTY REQUIREMENTS	
THICKNESS	0.30 IN (MIN)
TENSILE STRENGTH (WET)	900 x 680 LB/FT (MIN)
ELONGATION (WET)	69% x 34% (MAX)
FLOW VELOCITY	10-12 FT/SEC
WEIGHT	20 OZ/SY (MIN)
MINIMUM WIDTH	6.5 FT
OPEN AREA	50% (MAX)



TYPICAL SILT FENCE

NTS





PER TABLE 6.62A
NC SOIL EROSION &
SEDIMENTAION CONTROL MANUAL

INFILTRATION BASIN BERM AND LANDSCAPE SECTION

NPDES STABILIZATION TIMEFRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, AND DITCHES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND FLATTER THAN 2:1 THEN 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE

EROSION & SEDIMENT CONTROL MAINTENANCE PLAN

1. ALL EROSION AND SEDIMENTATION CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT WILL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT BECOMES ABOUT 0.5 FT DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER.
3. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

   PROVISIONS FOR GROUNDCOVER ON EXPOSED SLOPES WITHIN 21 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING: PERMANENT GROUNDCOVER FOR ALL DISTURBED AREAS WITHIN 21 CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMNENT. ALL SLOPES 5:1 OR STEEPER SHALL BE STABILIZED WITHIN 15 DAYS OF COMPLETION OF GRADING.
4. DIVERSION DITCHES WILL BE CLEANED OUT IMMEDIATLEY TO REMOVE SEDIMENT OR OBSTRUCTIONS FROM THE FLOW AREA. THE DIVERSION RIDGES WILL ALSO BE REPAIRED. SWALES MUST BE RESTABLIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.
5. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF FILLED. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL. STAKE SPACING WILL BE 6 FEET (MAX) WITH THE USE OF EXTRA STRENGHT FABRIC WITHOUT WIRE BACKING. STAKE SPACING WILL BE 6 FEET (MAX) WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS ARE USED AT LOW POINTS IN THE SEDIMENT FENCE, THE ROCK WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF FULL OF SEDIMENT, NO LONGER DRAINS AS DESIGNED, OR IS DAMAGED.
6. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE FIRST BAFFLE. IF APPLICABLE, FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
7. CONTACT PERSON RESPONSIBLE FOR MAINTENANCE: MARTIN LASHUA

CONSTRUCTION SEQUENCE

1. INSTALL SILT FENCE, AND STONE CONSTRUCTION ENTRANCES.
2. CLEAR, GRADE & CONSTRUCT SWALES
3. INSTALL UNDERGROUND UTILITIES
4. PROVIDE VEGETATIVE COVER TO THE GREATEST EXTENT PRACTICABLE
5. INSTALL GRAVEL ROAD
6. PROVIDE 100% VEGETATIVE COVER OF ALL DISTURBED SOILS

COASTAL PLAIN SITE STABILIZATION SCHEDULE

1. Fertilize and lime per recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.
2. Incorporate lime/fertilizer 4-6 inches.
3. Roughen steep slopes by tracked machinery.
4. Select species based on season. Refer to tables.
5. Broadcast seeds evenly and cover by raking or dragging a chain. Firm soil by rolling.
6. Apply straw mulch at a rate 1-2 tons per acre. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool.
   A disk with blades set nearly straight can be used as a mulch anchoring tool.
7. Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

PERMANENT SEEDING TABLE 1

Seeding Dates	Recommended Planting	Rate (lb/ac)
Feb. 15 - Apr. 1 Sep. 1 - Nov. 1	Tall Fescue Mixture	see table 2
Apr. 1 - Aug. 1	Hybrid Bermudagrass	see table 2
Apr. 1 - Jul. 15	Common Bermudagrass	see table 2
Mar. 1 - Jul. 1	Centipedegrass	see table 2

PERMANENT SEEDING TABLE 2a-LOW MAINTENANCE MIXTURES

Site Description	Recommended Planting	Rate (lb/ac)
Well to poorly drained soils	Tall Fescue Mixture Pensacola Bahiagrass Kobe Lespedeza	80 50 40
Dry to well drained soils	Pensacola Bahiagrass Common Bermudagrass Kobe Lespedeza German Millet	50 30 10 10
Swales	Common Bermudagrass	40-80

PERMANENT SEEDING TABLE 2b-HIGH MAINTENANCE MIXTURES

Site Description	Recommended Planting	Rate (lb/ac)
Well to poorly drained soils	Tall Fescue Mixture Rye Grain	200 25
Dry to well drained soils	Hybrid Bermudagrass	50
Well drained sandy loam to sand, lawns.	Centipedegrass	10-20

Notes:
For seeding outside of recommended dates and/or for temporary stabilization, refer to temporary seeding table.

For highly erosive areas or as directed by an engineer, sod shall be provided.

TEMPORARY SEEDING TABLE

Seeding Dates	Recommended Planting	Rate (lb/ac)
Dec. 1 - Apr. 15	Kobe Lespedeza with Rye Grain	50 120
Apr. 15 - Aug. 15	German Millet	40
Aug. 15 - Dec. 1	Rye Grain	120

SOD INSTALLATION

1. Fertilize and lime per recommendations of soil tests or apply 100 lb/1,000 sf ground agricultural limestone and 25 lb/1,000 sf fertilizer. In the fall, use 10-10-10. In the spring, use 5-10-10.
2. Incorporate lime/fertilizer 4-6 inches.
3. Rake or harrow to achieve a smooth final grade.
4. Roll to achieve a smooth, firm surface on which to lay the sod.
5. Lightly rake and irrigate top layer of soil just prior to installation.
6. Lay sod in a staggered, brick-like pattern with the longest dimension perpendicular to the slope. Avoid gaps. Use a knife to fit irregular shapes.
7. Roll sod lightly after installation to ensure good sod to soil contact.
8. Irrigate initially to wet soil to a depth of 4". Keep soil moist for 2-3 weeks thereafter or until sod has taken root.

NORTH CAROLINA PROFESSIONAL SEAL 20849 ENGINEER JAMES H. FENTRESS, JR.

JAMES H. FENTRESS, JR., P.E.

DATE 2/20/2015

MAJOR SITE PLAN: SOIL EROSION & SEDIMENTATION CONTROL/STORMWATER PLAN

BELVEDERE PLANTATION TREATED WASTEWATER APPLICATION SITE

TOPSAIL TOWNSHIP PENDER COUNTY NORTH CAROLINA

OWNER: CAROLINA WATER SERVICE, INC. OF NC
ADDRESS: P.O. BOX 240908 CHARLOTTE, NC 28224
PHONE: (704) 525-7990

STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28412
(910) 815-0775
LICENSE NO.C-0647

DESIGNED: JHF	
DRAWN: KBN	
APPROVED: JHF	
DATE: 2/20/15	
SCALE: 1" = 60'	
SHEET 3	

PROJECT NO.: PW1038
DRAWING NO.: W:/MASTER/PW1038/MAJOR SITE DEVELOPMENT PLAN/MAJOR SITE PLAN.DGN