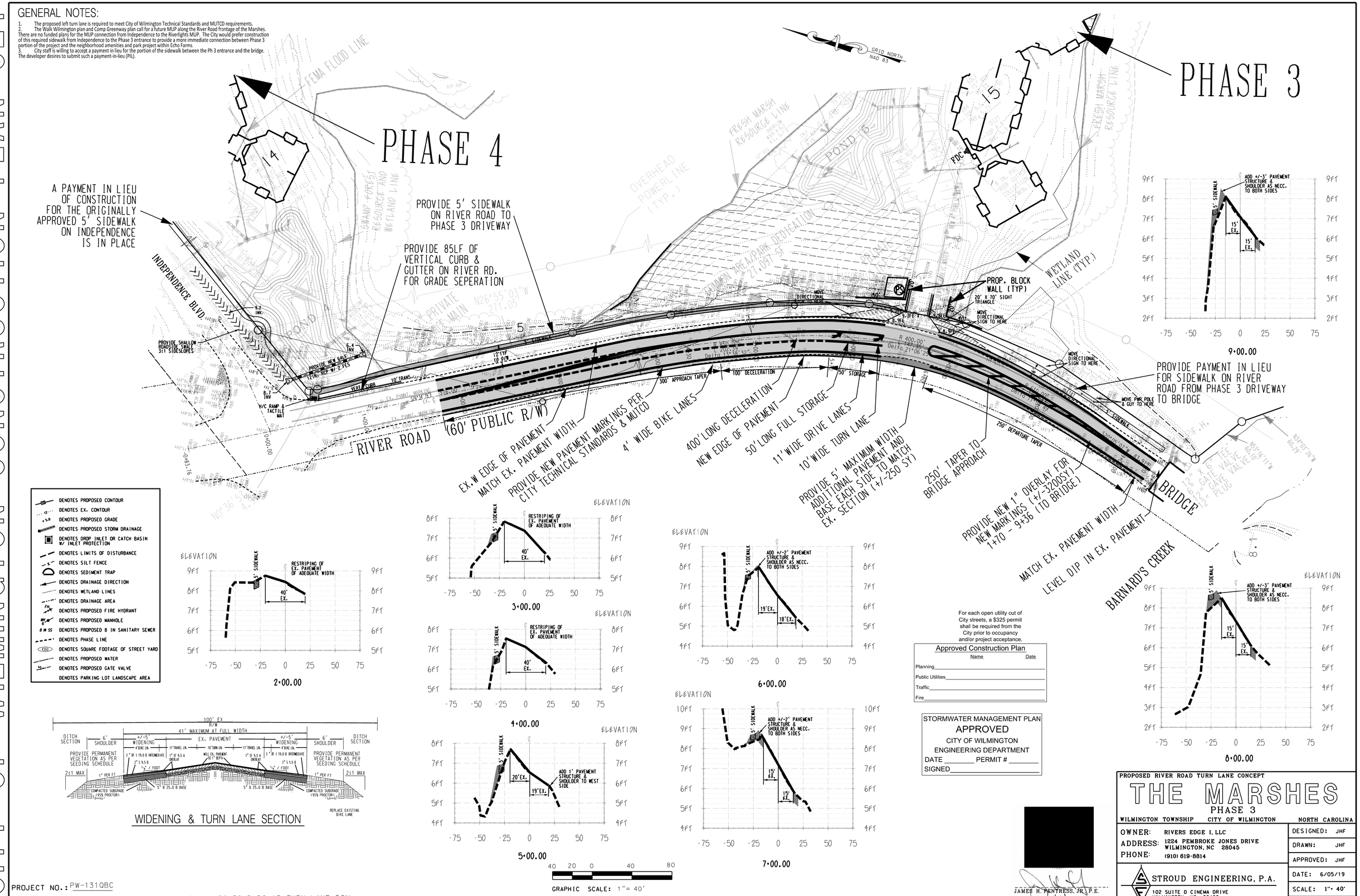
CITY OF WILMINGTON CONSTRUCTION PLAN SET

PROJECT NO.: PW-131QBC

GENERAL NOTES:

1. The proposed left turn lane is required to meet City of Wilmington Technical Standards and MUTCD requirements.
2. The Walk Wilmington plan and Comp Greenway plan call for a future MUP along the River Road frontage of the Marshes. There are no funded plans for the MUP connection from Independence to the Riverlights MUP. The City would prefer construction of this required sidewalk from Independence to the Phase 3 entrance to provide a more immediate connection between Phase 3 portion of the project and the neighborhood amenities and park project within Echo Farms.
3. City staff is willing to accept a payment in lieu for the portion of the sidewalk between the Ph 3 entrance and the bridge. The developer desires to submit such a payment-in-lieu (PIL).



DENOTES PROPOSED CONTOUR
DENOTES EX. CONTOUR
DENOTES PROPOSED GRADE
DENOTES PROPOSED STORM DRAINAGE
DENOTES DROP INLET OR CATCH BASIN W/ INLET PROTECTION
DENOTES LIMITS OF DISTURBANCE
DENOTES SILT FENCE
DENOTES SEDIMENT TRAP
DENOTES DRAINAGE DIRECTION
DENOTES WETLAND LINES
DENOTES DRAINAGE AREA
DENOTES PROPOSED FIRE HYDRANT
DENOTES PROPOSED MANHOLE
DENOTES PROPOSED 8 IN SANITARY SEWER
DENOTES PHASE LINE
DENOTES SQUARE FOOTAGE OF STREET YARD
DENOTES PROPOSED WATER
DENOTES PROPOSED GATE VALVE
DENOTES PARKING LOT LANDSCAPE AREA

WIDENING & TURN LANE SECTION

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
SIGNED _____

GRAPHIC SCALE: 1"= 40'

PROJECT NO.: PW-131QBC
DRAWING NAME.: W:/MASTER/PW131QBC/DGN/MARSHES BLDG 15 TURN LANE.DGN

JAMES H. FENTRESS, JR., P.E.
DATE 6/4/2020

PROPOSED RIVER ROAD TURN LANE CONCEPT

THE MARSHES

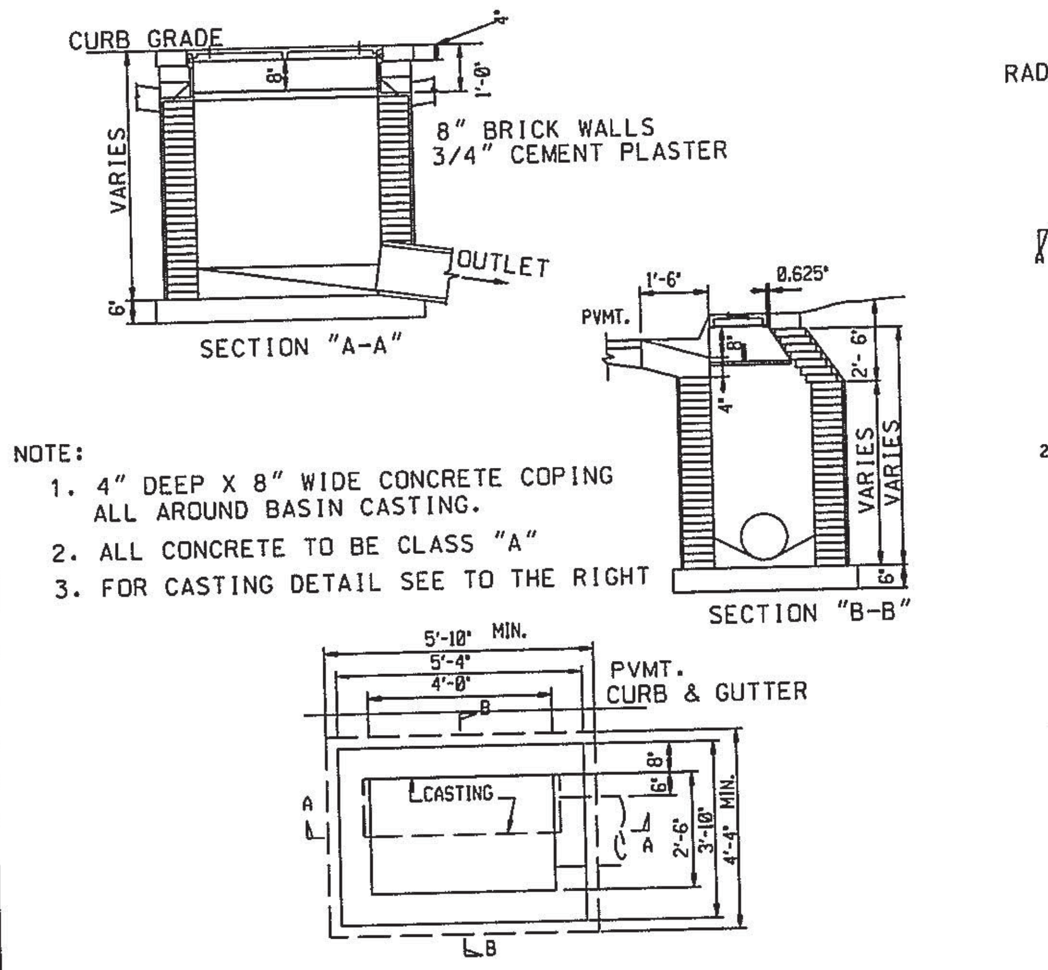
PHASE 3

WILMINGTON TOWNSHIP CITY OF WILMINGTON NORTH CAROLINA

OWNER: RIVERS EDGE I, LLC
ADDRESS: 1224 PEMBROKE JONES DRIVE WILMINGTON, NC 28045
PHONE: (910) 619-8814

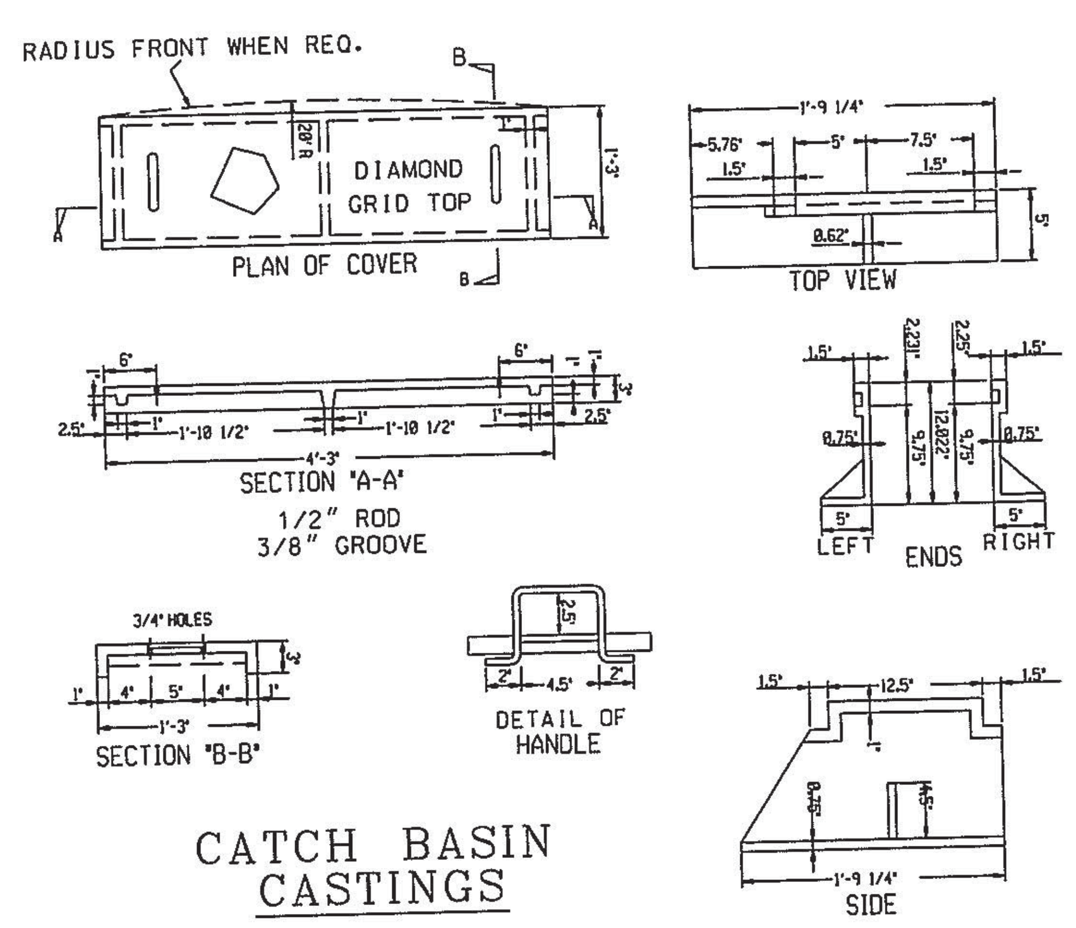
STROUD ENGINEERING, P.A.
102 SUITE D CINEMA DRIVE
WILMINGTON, NC 28403
(910) 815-0775

DESIGNED:	JHF
DRAWN:	JHF
APPROVED:	JHF
DATE:	6/05/19
SCALE:	1"= 40'
SHEET	5 OF 9



NOTE:
1. 4" DEEP X 8" WIDE CONCRETE COPING ALL AROUND BASIN CASTING.
2. ALL CONCRETE TO BE CLASS "A"
3. FOR CASTING DETAIL SEE TO THE RIGHT

CATCH BASIN



CATCH BASIN CASTINGS

MINIMUM AVERAGE WEIGHT
FRAME (EACH) 65LBS.
COVER (RADIUS) 225 LBS.
COVER (STR.) 225 LBS.

Notes:

1. The walking surface shall be slip resistant and a contrasting color to the sidewalk.

2. Crosswalk widths and configuration vary but must conform to traffic design standards.

3. North Carolina general statute 136-44.14 requires that all street curbs being constructed or reconstructed for maintenance procedures, traffic operations, repairs, correction of utilities or altered for any reason after September 1, 1973 shall provide wheelchair ramps for the physically disabled at all intersections where both curb and gutter and sidewalks are provided and at other points of pedestrian flow.

In addition, Section 228 of the 1973 Federal Aid Highway Safety Act requires provision of curb ramps on any curb construction after July 1, 1976 whether a sidewalk is proposed initially or is planned for a future date.

The Americans with disabilities Act (ADA) of 1990 extends to individuals with disabilities. Comprehensive civil rights protections similar to those provided to persons on the basis of race, sex, national origin and religion under the Civil Rights Act of 1964. These curb ramps have been designed to comply with Title III of the ADA becoming effective January 26, 1992. The ADA requirements for detectable warnings are suspended effective May 12, 1994.

4. Wheelchair ramps shall be provided at locations as shown on the plans or as directed by the engineer. Wheelchair ramps shall be located as directed by the engineer where existing light poles, fire hydrants, drop inlets, etc. affect placement. Where two ramps are installed not less than 2 feet of full height curb shall be placed between the ramps. Dual ramps should be placed as near perpendicular to the travel lane being crossed as possible.

5. All 4" concrete used for construction of wheelchair ramps will be paid for as concrete wheelchair ramps. (Sq. Yds)

6. All depressed curbs at wheelchair ramps will be paid for as the type curb and gutter used adjacent to depressed curb. (Ln. Ft.)

7. Such prices and payments will be considered full compensation for all materials, labor, equipment, tools and incidentals necessary to satisfactorily complete the work.

8. No slope on the wheelchair ramp shall exceed 1" / 1' (12:1) in relationship to the grade of the street.

9. The width of the wheelchair ramp shall be 40" (3'-4") or greater for dual ramps and 60" (5'-0") or greater for diagonal ramps.

10. Use class "B" concrete with a sidewalk finish in order to obtain a rough non-skid type surface.

11. A 23/64" expansion joint will be required where the concrete wheelchair ramp joins the curb and as shown on STD. DWG. 848.01.

12. The inside pedestrian crosswalk lines shall be set no closer in the intersection than would be established by bisecting the intersection radii, with allowance of a 4' clear zone in the vehicular travelway when one ramp is installed. (See note 17)

13. The curb cut and the pedestrian crosswalk lines shall be coordinated so the floor of the wheelchair ramp will fall within the pedestrian crosswalk lines. Diagonal ramps with flared sides shall be placed so 24" of full height curb falls within the crosswalk markings on each side of the flares.

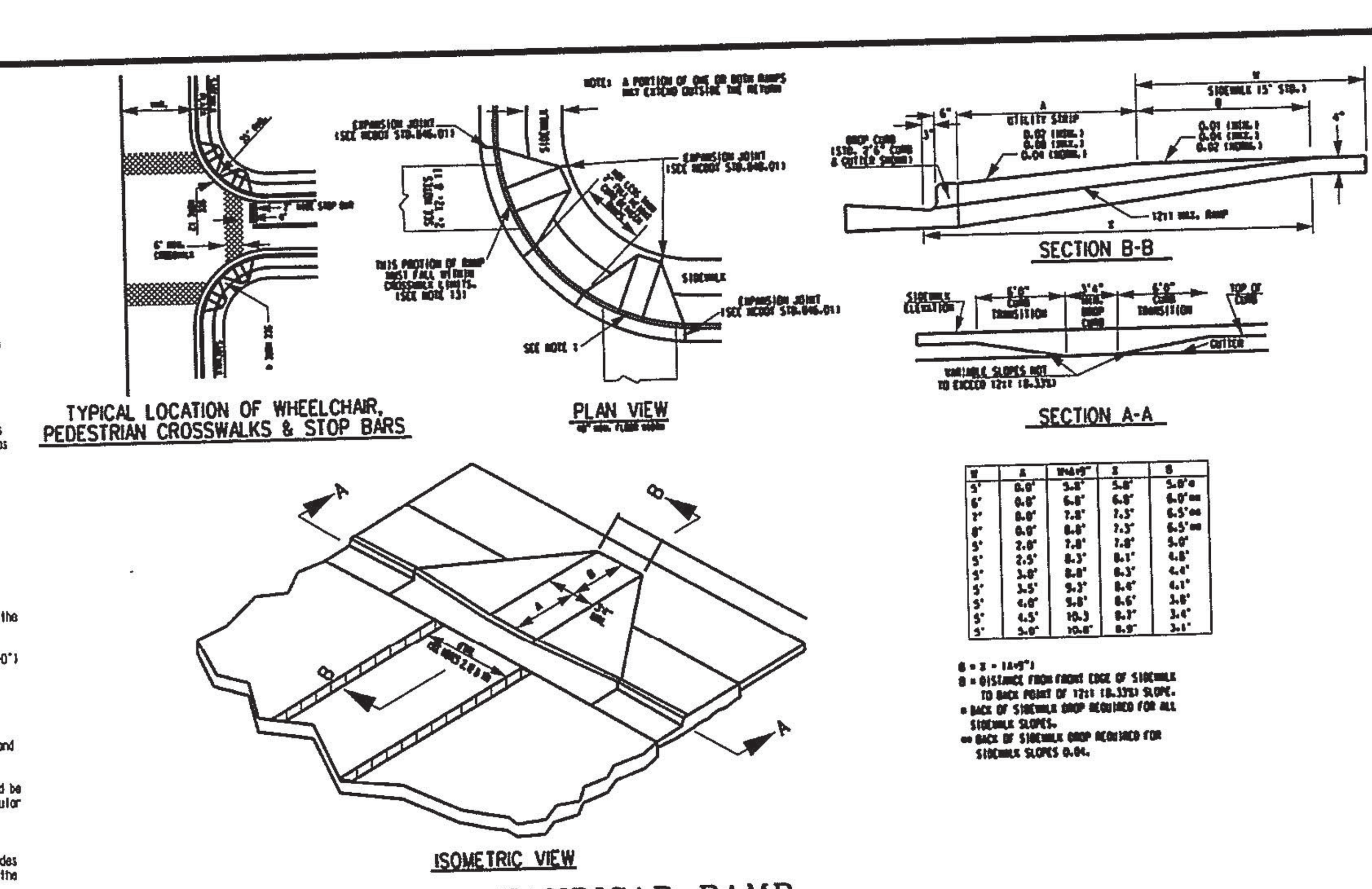
14. The minimum width of the pedestrian crosswalk shall be 6 feet. A crosswalk width of 10 feet or greater is desirable.

15. Stop lines, normally perpendicular to the lane lines, shall be used where it is important to indicate the point behind which vehicles are required to stop in compliance with a traffic signal, stop sign or other legal requirement. An unusual approach skew may require the placement of the stop line to be parallel to the intersecting roadway.

16. Parking shall be eliminated a minimum of 20 feet back of pedestrian crosswalk.

17. All pavement markings shall be in accordance with the latest edition of the manual of uniform traffic control devices (MUTCD) published by the Federal Highway Administration and The North Carolina Supplement to the MUTCD. All pavement markings shall be done by others.

18. All traffic control signs and markings off the right-of-way are to be maintained by the property owner in accordance with MUTCD standards.



HANDICAP RAMP
APPLICABLE DETAILS
FROM NCDOT STANDARD
DRAWING • 848.05

CONSTRUCTION SEQUENCE
PHASE 1

1. INSTALL SEDIMENT CONTROL MEASURES.
2. CLEAR AND GRADE AREA OF POND AND SWALES.
3. CLEAR & GRUB REMAINDER OF SITE.
4. INSTALL UNDERGROUND UTILITIES IN PHASE 1 AND MULTIFAMILY.
5. CONSTRUCT BUILDINGS
6. INSTALL CURB, GUTTER AND PAVE
7. PROVIDE 100% VEGETATIVE COVER OF ALL DISTURBED SOILS

EROSION & SEDIMENT CONTROL MAINTENANCE PLAN

1. All erosion and sediment control measures will be checked for stability and operation following every runoff-producing rainfall, but in no case, less than once every week and within 24 hours of every half inch rainfall.
2. All points of egress will have construction entrances that will be periodically top-dressed with an additional 2 inches of #4 stone to maintain proper depth. They will be maintained in a condition to prevent mud or sediment from leaving the site. Immediately remove objectionable material spilled, washed or tracked onto the construction entrance or roadways.
3. Sediment will be removed from hardware cloth and gravel inlet protection, block and gravel inlet protection, rock doughnut inlet protection and rock pipe inlet protection when the designed storage capacity has been half filled with sediment. Rock will be cleaned or replaced when the sediment pool no longer drains as designed. Debris will be removed from the rock and hardware cloth to allow proper drainage. Silt sacks will be emptied once a week and after every rain event. Sediment will be removed from around wattles, beaver dams, dandy sacks and socks once a week and after every rain event.
4. Diversion ditches will be cleaned out immediately to remove sediment or obstructions from the flow area. The diversion ridges will also be repaired. Swales must be temporarily stabilized within 21 calendar days of cease of any 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 strength fabric, without wire backing. Stake spacing will be 8 feet max., when standard strength fabric and wire backing are used. If rock filters are designed 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 1st baffle.
7. Sediment will be removed from the sediment basin when the design storage capacity has been half filled with sediment. Rock will be cleaned or replaced when the sediment pool no longer drains or if 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 from baffles when deposits reach half the height of the 1st baffle. Floating skimmers will be inspected weekly and will be kept clean.
8. 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. All slopes will be stabilized within 21 calendar days. All other areas will be stabilized within 15 working days.
9. Flocculants will be used to address turbidity issues. The pumps, tanks, hoses and injection systems will be checked for problems or turbid discharges daily.

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

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

COASTAL PLAIN SITE STABILIZATION SCHEDULE

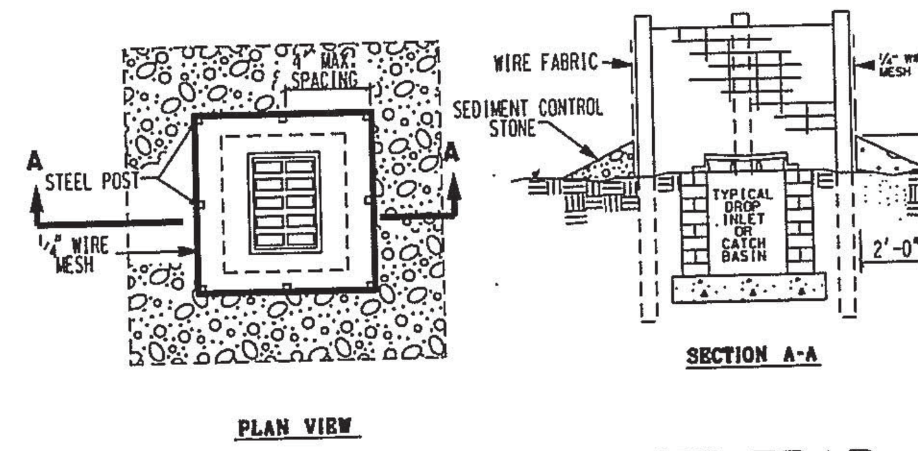
1. Fertilize and lime per recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.
2. Incorporate lime/fertilizer 4-6 inches.
3. Roughen steep slopes by tracked machinary.
4. Select species based on season. Refer to tables.
5. Broadcast seeds 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.

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.

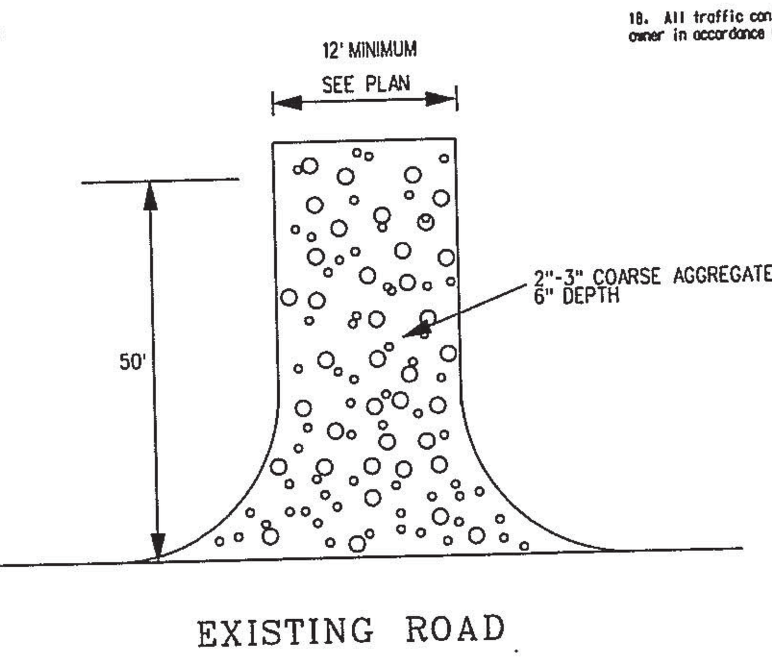
Notes:
For seeding outside of recommended dates and/or for temporary stabilization, refer to temporary seeding table.

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

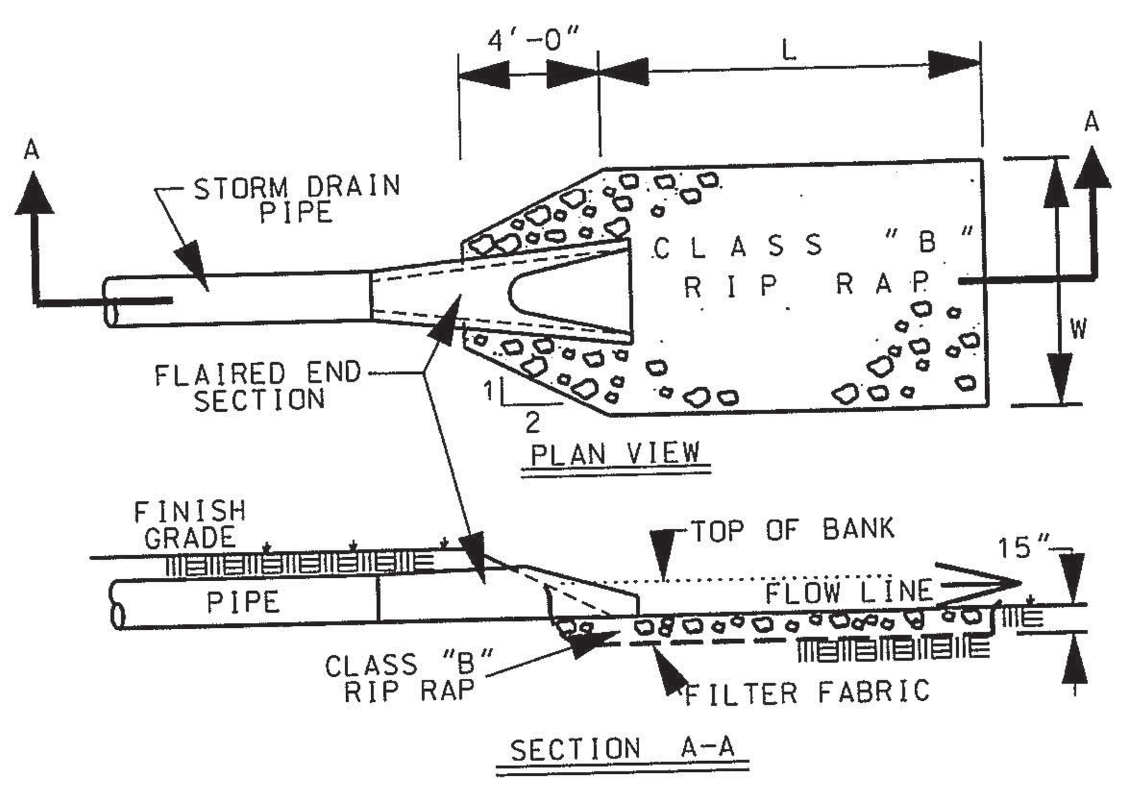


NOTE:
SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57
WIRE MESH SHALL BE HARDWARE CLOTH 23 GAUGE MIN. AND SHALL HAVE 1/4 INCH MESH OPENINGS.
TOP OF WIRE MESH SHALL BE A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR DIVERSION POINT.
STEEL POST SHALL 5 FT. IN HEIGHT, BE INSTALLED 1.5 FT. DEEP MINIMUM, AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
POST SPACING SHALL BE A MAXIMUM OF 4 FT.

"ROCK" INLET SEDIMENT TRAP



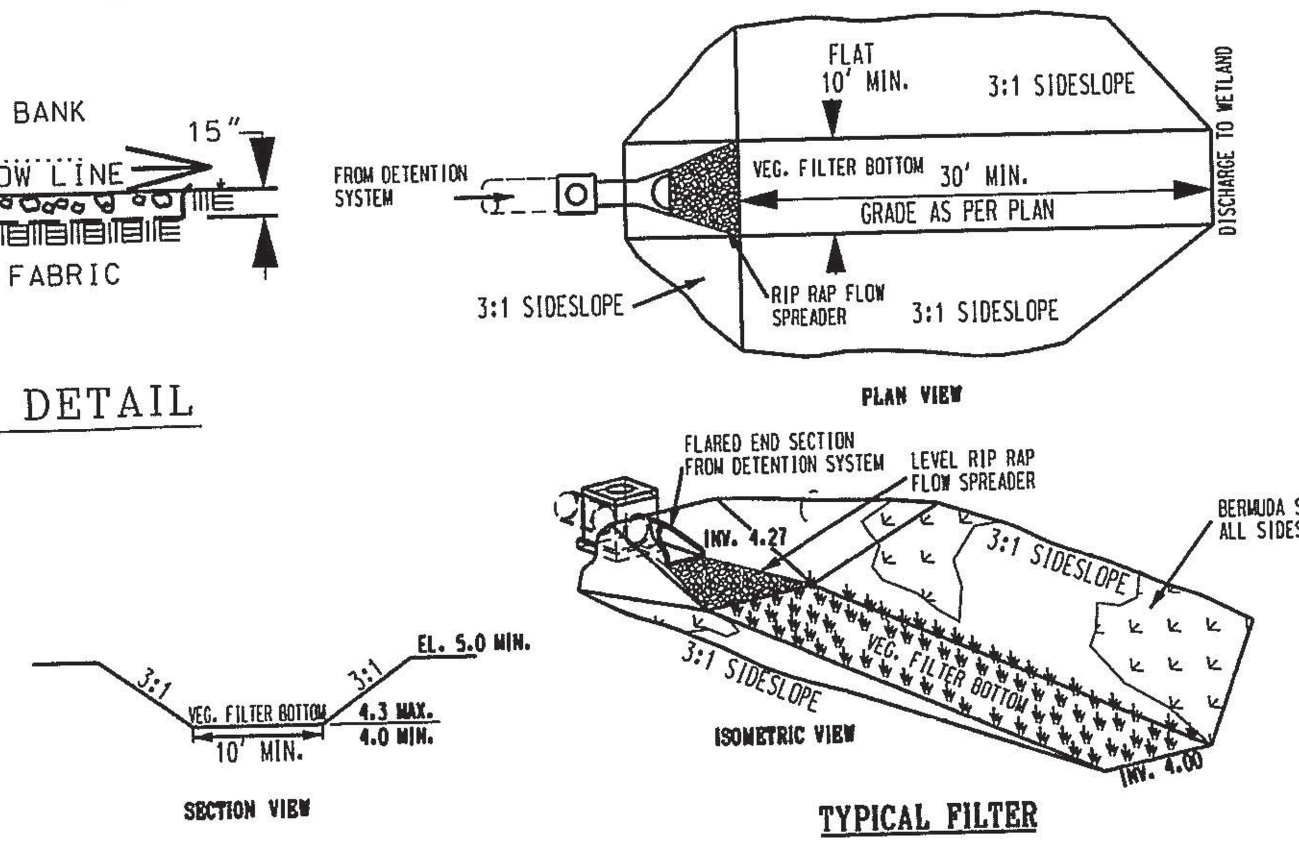
CONSTRUCTION ENTRANCE DETAIL



RIP RAP APRON DETAIL

RIP RAP APRON SCHEDULE

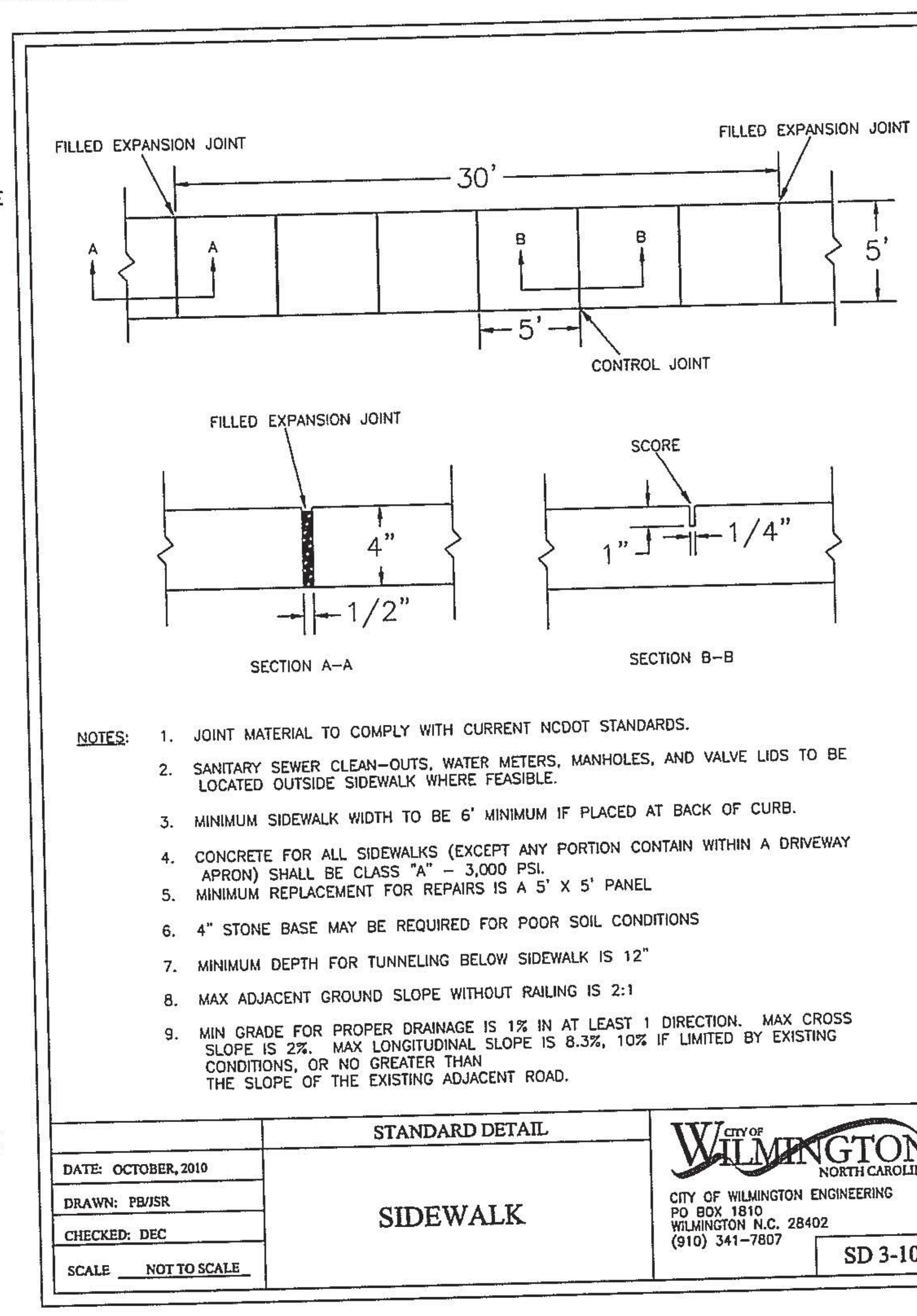
LOCATION	WIDTH	LENGTH	DEPTH	STONE
FES 1	6.0'	12.0'	18"	CLASS B
FES 2	4.5'	6.0'	12"	CLASS A
FES 3	7.5'	15.0'	18"	CLASS B
FES 4	6.0'	8.0'	12"	CLASS A
FES 6	9.0'	18.0'	18"	CLASS B
FES 7	6.0'	12.0'	18"	CLASS B
FES 8	6.0'	8.0'	12"	CLASS A
FES 9	3.75'	5.0'	12"	CLASS A
FES 10	6.0'	8.0'	12"	CLASS A
FES 11	4.5'	6.0'	12"	CLASS A
FES 12	3.75'	5.0'	12"	CLASS A
FES 13	3.75'	5.0'	12"	CLASS A
FES 15	6.0'	8.0'	12"	CLASS A
FES 17	9.0'	18.0'	18"	CLASS B



VEGETATIVE FILTER DETAIL (POND 3)

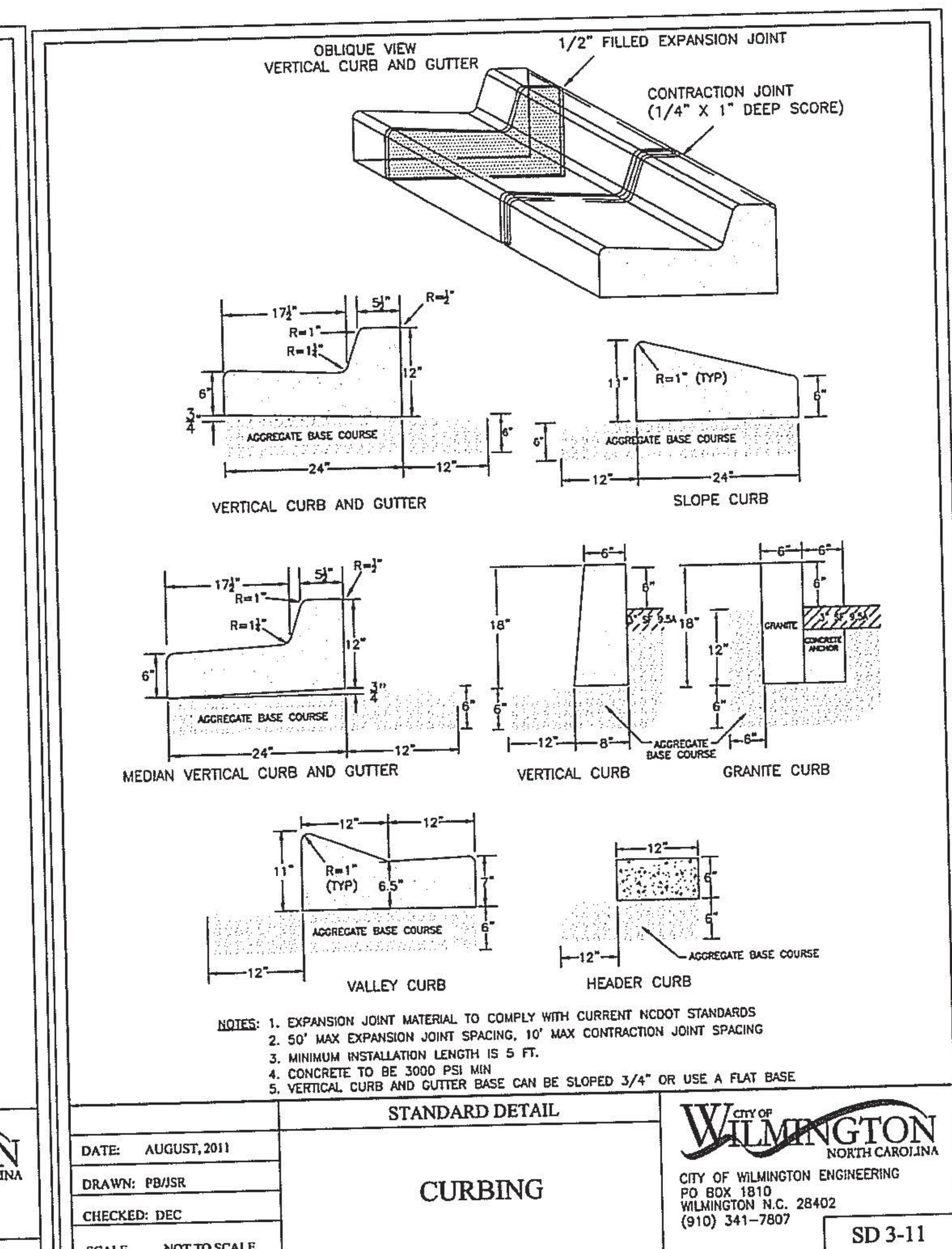
NOTE: RIP RAP FLOW SPREADER SHALL BE CONSTRUCTED LEVEL SO AS TO DISPERSE INCOMING FLOW EVENLY ACROSS BOTTOM OF VEGETATIVE FILTER.

SEED PER SEEDING SCHEDULE INITIALLY AND PROVIDE LIRIOPE SPRIGS OVER ENTIRE BOTTOM (1 SPRIG EVERY 2.5 SF)



NOTES:
1. JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS.
2. SANITARY SEWER CLEAN-OUTS, WATER METERS, MANHOLES, AND VALVE LIDS TO BE LOCATED OUTSIDE SIDEWALK WHERE FEASIBLE.
3. MINIMUM SIDEWALK WIDTH TO BE 6' MINIMUM IF PLACED AT BACK OF CURB.
4. CONCRETE FOR ALL SIDEWALKS (EXCEPT ANY PORTION CONTAIN WITHIN A DRIVEWAY APRON) SHALL BE CLASS "A" - 3,000 PSI.
5. MINIMUM REPLACEMENT FOR REPAIRS IS A 5' X 5' PANEL
6. 4" STONE BASE MAY BE REQUIRED FOR POOR SOIL CONDITIONS
7. MINIMUM DEPTH FOR TUNNELING BELOW SIDEWALK IS 12"
8. MAX ADJACENT GROUND SLOPE WITHOUT RAILING IS 2:1
9. MIN GRADE FOR PROPER DRAINAGE IS 1% IN AT LEAST 1 DIRECTION. MAX CROSS SLOPE IS 2%. MAX LONGITUDINAL SLOPE IS 8.3%, 10% IF LIMITED BY EXISTING CONDITIONS, OR NO GREATER THAN THE SLOPE OF THE EXISTING ADJACENT ROAD.

STANDARD DETAIL — SIDEWALK — SD 3-10



STANDARD DETAIL — CURBING — SD 3-11

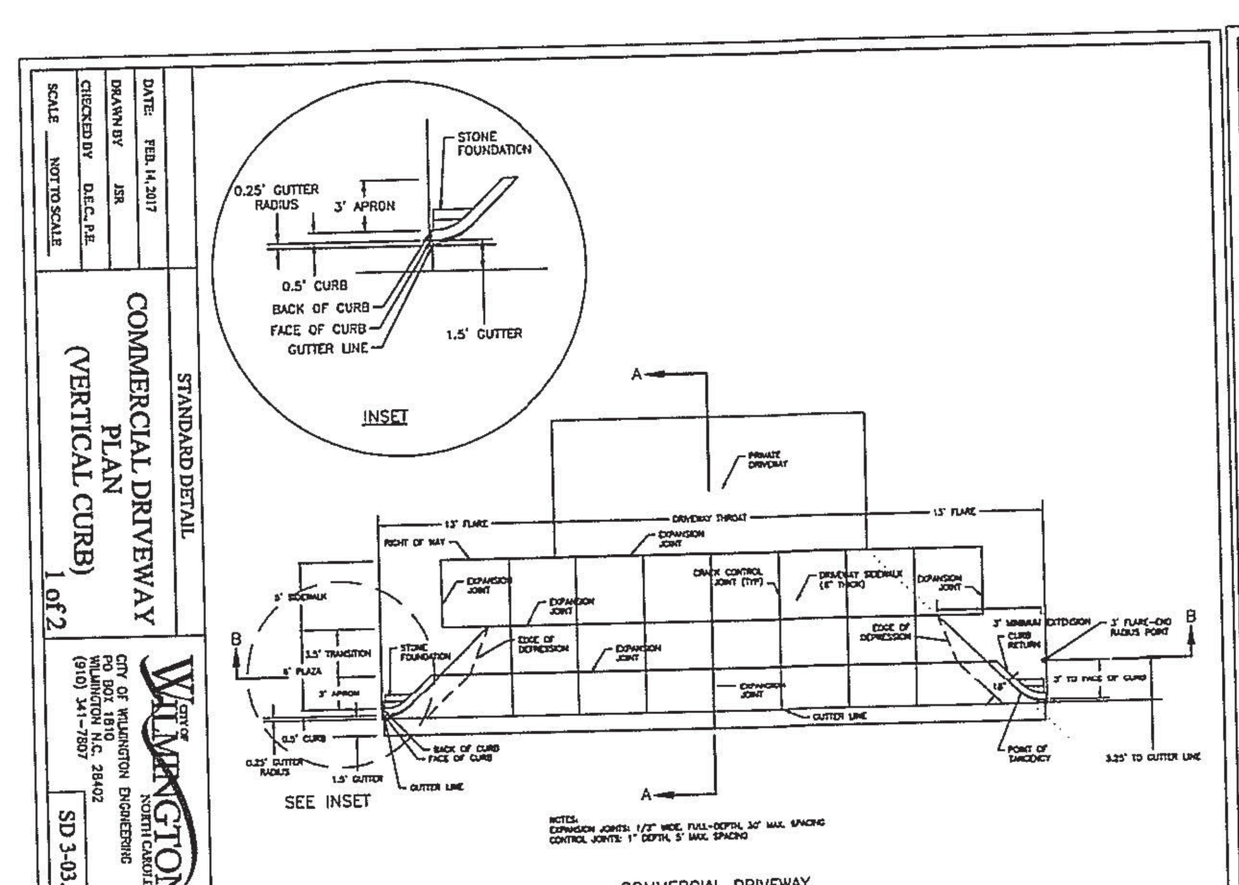
NPDES STABILIZATION TIMEFRAMES

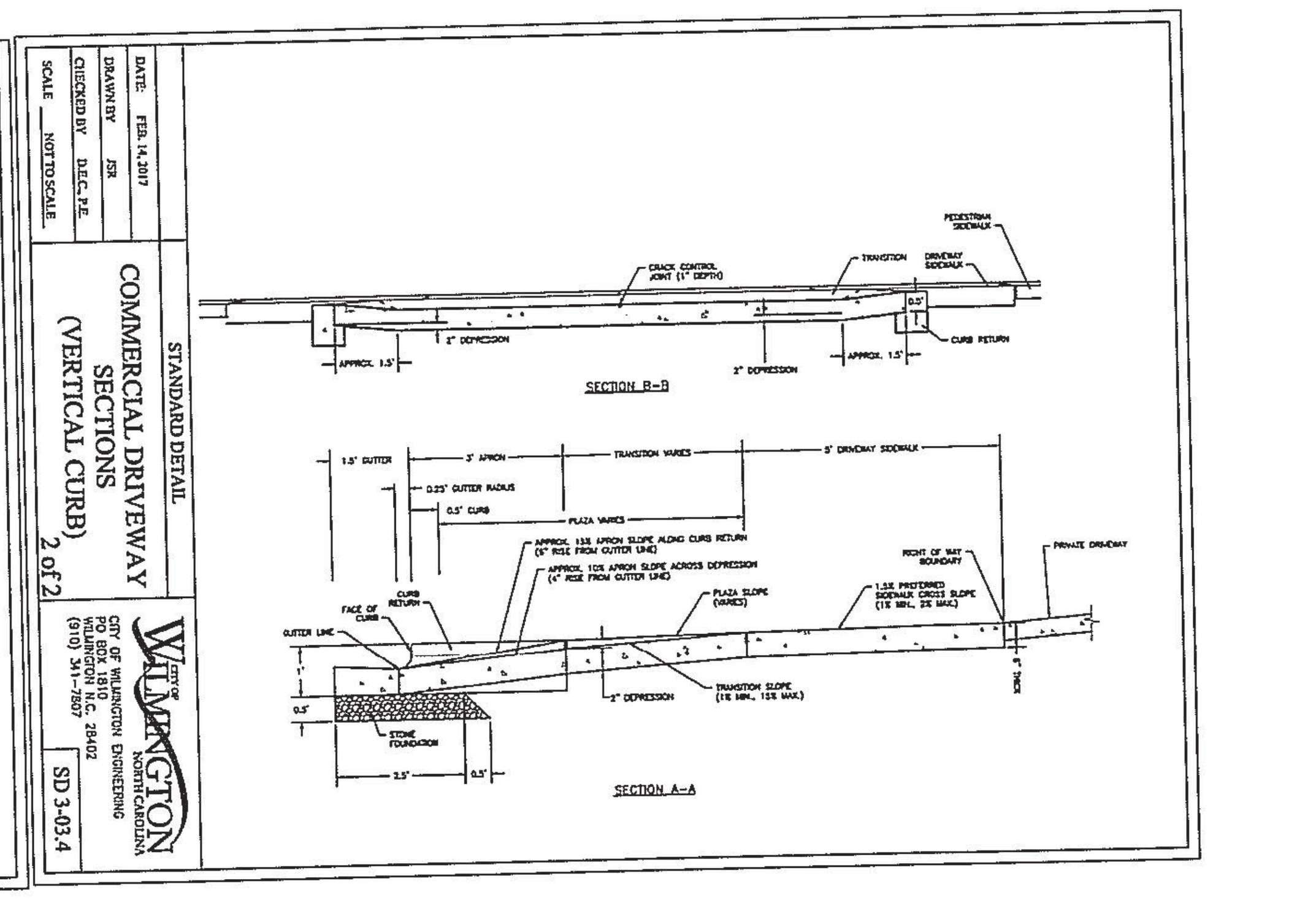
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, AND DITCHES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND FLATTER THAN 2:1 THEN 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR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

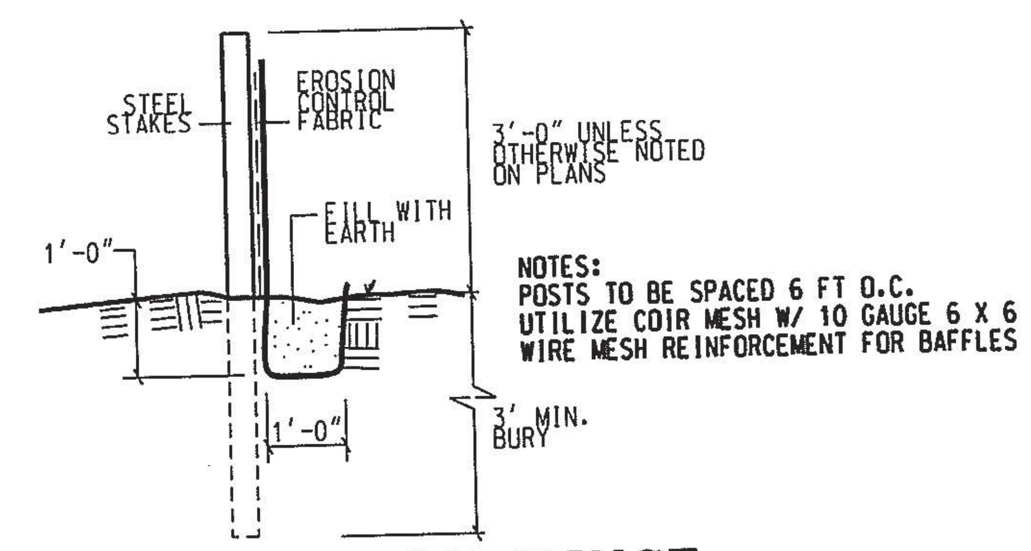
STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE 12-19-19 PERMIT # 2003029R3
SIGNED

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan
Planning — Date 12/19/19
Public Utilities — NA
Traffic — 12-18-19
Fire — 12-19-19







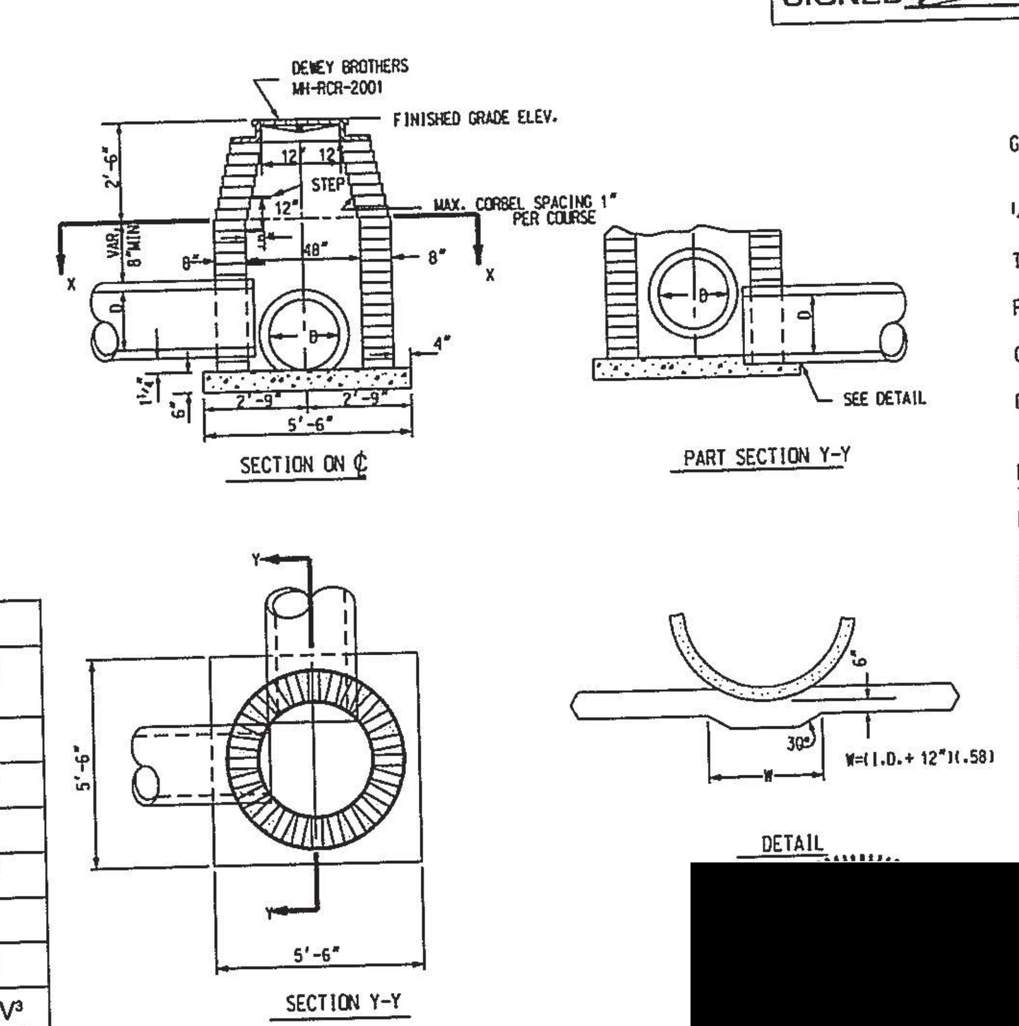
NOTES:
POSTS TO BE SPACED 6 FT O.C.
UTILIZE COIR MESH W/ 10 GAUGE 6 X 6 WIRE MESH REINFORCEMENT FOR BAFFLES

TYPICAL SILT FENCE
NTS

Table 6.62b Specifications For Sediment Fence Fabric

Temporary Silt Fence Material Property Requirements	Test Material	Units	Supported[1] Silt Fence	Un-Supported[1] Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)			
Machine Direction			400	550	MARV
			(90)	(90)	
X-Machine Direction			400	450	MARV
			(90)	(90)	
Permittivity[2]	ASTM D 4491	sec-1	0.05	0.05	MARV
Apparent Opening Size[2]	ASTM D 4751	mm	0.60	0.60	Max. ARV[3]
		(US Sieve #)	(30)	(30)	
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

[1] Silt Fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 inches), or prefabricated poylmer mesh of equivalent strength.
[2] These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
[3] As measured in accordance with Test Method D 4632.



JUNCTION BOX DETAIL

GENERAL NOTES:
ALL MORTAR JOINTS ARE TO BE 1/2" + 1/3".
ALL EXPOSED JOINTS WILL BE CONCAVE TOOLED.
CLASS "AA" CONCRETE TO BE USED FOR BASE.
FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BASE.
CONCRETE BRICK MAY BE USED IN LIEU OF CLAY BRICK.
JUMBO BRICK WILL BE PERMITTED.
WHERE THE JUNCTION BOX IS EXPOSED TO ROAD TRAFFIC, THE TOP IS TO BE FLUSH WITH THE GROUND. AT OTHER LOCATIONS IT SHOULD BE A MINIMUM OF 9" ABOVE THE GROUND.
JUNCTION BOXES OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. NO. 25.12.
PRECAST SECTIONS MAY BE USED FOR ALL SECTIONS.

[redacted]

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

REVISIONS

BY	NO.	DATE	DESCRIPTION
JHF	1.	4/28/03	FILTER DETAIL
JHF	2.	5/16/17	UPDATE DETAILS

CITY STANDARD ROADWAY DETAILS

THE MARSHES
PHASES 3,4 & 5

WILMINGTON TOWNSHIP — CITY OF WILMINGTON — NORTH CAROLINA

OWNER: RIVERS EDGE I, LLC
ADDRESS: 1224 PEMBROKE JONES DRIVE, WILMINGTON, NC 28045
PHONE: (910) 619-8814

STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE
WILMINGTON, NC 28403
(910) 815-0775

DESIGNED: CPS
DRAWN: CPS
APPROVED: JHF
DATE: 11/14/02
SCALE: NTS
SHEET 6 OF 9

PROJECT NO.: PW-1310BCI
DRAWING NAME.: F:/MASTER/DGN/PW-318/BARNARDDET.DGN

PROJECT NO.: PW-1310BCI