



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

DIVISION OF HIGHWAYS

ANTHONY J. TATA
SECRETARY

July 21, 2015

Chatham County

**Subject: Subdivision Final Plan Review – Boulder Point Drive Extension – Briar Chapel
Subdivision off of Boulder Point Drive near SR 1532**

Newland Communities, LLC
c/o Bill Mumford
13777 Ballantyne Corporate Pl, Ste. 550
Charlotte, North Carolina 28277

Dear Mr. Mumford:

The N. C. Department of Transportation, Division of Highways has reviewed the construction plans signed and sealed by Gareth Avant P.E. on June, 25/2015 as submitted to this office and approval is granted subject to the following stipulations and recommendations:

1. All Construction is to be in accordance with the details as shown on the plans, as well as conform to the most recent edition of the *Standard Specifications for Roads and Structures*.
2. A Driveway Permit is not needed for this package.
3. The entire proposed right of way is to be cleared and grubbed throughout the whole phase of the project. Please be aware that the areas within the sight distance quadrants are to be treated as right of way.
4. All soil areas within the proposed right of way and any other soil areas disturbed during construction shall be seeded and mulched immediately upon completion of roadway construction. The seeding shall be done as outlined in the seeding specification attachment.
5. The crossline drainage is approved as proposed on the construction plans. If, however field conditions dictate any changes, these shall be made upon approval by NCDOT. If any of the property owners desire to pipe their ditches within the proposed NCDOT right of way, please advise them that this work should conform to NCDOT specifications for this type of work (see attached). If any ditches are piped and not satisfactorily completed to NCDOT specifications, this could result in the road not being accepted for addition to the state maintained system of roads. Any ditches piped or other encroachment prior to addition to the state maintained system are subject to an encroachment agreement, as are utility companies, when the road is added.

6. The typicals as shown in the plans, are approved.
7. The Division of Highways will only allow mailboxes, with non-rigid type post, such as 4" x 4" wooden or small diameter metal type on new additions. Brick columns or mailboxes on rigid stands such as block, stone or any other type deemed to be a traffic hazard will not be allowed within the right of way. This policy applies to all roads being considered for addition to the State Maintained System.
8. An erosion control plan shall require approval from Chatham County. The developer should forward this plan to Mr. Jim Willis, Erosion and Sediment Control Officer, 80 East, P.O. Box 130, Pittsboro, N.C. 27312, phone (919) 545-8343 for his review and approval.
9. As this subdivision is proposed to be public and is likely to be requested to be added to the state maintained system of roads, the developer will be responsible for providing a PE Certification, (See Attached) and testing results for base and asphalt density stating that the streets have been built in accordance with the most current "Subdivision Roads: Minimum Construction Standards" manual and with the attached approved plans. Please be advised that this PE Certification does not approve the road for addition to the State Highway System for maintenance. When the proper home density is achieved and roads have been satisfactorily maintained, the developer or property owners must submit Form SR-1, Petition for Road Addition (copy attached to this correspondence), and four (4) copies of the recorded plat to request that the road or roads be added to the State Highway system. Any maintenance problems found when the road is requested to be added must be repaired by the developer prior to the road becoming state maintained. As stated in GS 136-102.6, final acceptance by the Division of Highways of the public streets and placing them on the State highway system for maintenance shall be conclusive proof that the streets have been constructed according to the minimum standards of the Board of Transportation.
10. The developer shall comply with all applicable local, state, and federal environmental regulations, and shall obtain all necessary local, state, and federal environmental permits, including, but not limited to, those related to sediment control, stormwater, wetlands, streams, endangered species, and historical sites.
11. A properly completed Verification of Compliance with the Department of Environment and Natural Resources (DENR)(page 35, attached) must be submitted prior to the road(s) being considered for addition to the NCDOT System.
12. In preparing the final plat for certification by this office and subsequent recording, the following information will be incorporated:
 - A. The sight distance quadrants at the intersections shall be shown either as a public easement or as the property line.
 - B. Public easements for drainage throughout the development.
 - C. All roads shall be shown as public and the right of way width shown

13. If the plans of this subdivision change in a way that would cause a change in the classification of these roads from Local Residential to Residential Collector the developer will be responsible for upgrading roads to meet Residential Collector standards prior to addition the state maintenance system.
14. This approval does not approve the utilities within this subdivision. Any utilities shall be submitted for approval to this office via a properly executed Encroachment Agreement to be approved at the time the roads within the subdivision are petitioned to be added to the state system for maintenance. Please note that water valves should be located a minimum of 6' from edge of pavement, fire hydrants should be behind the right of way line and all service taps should be installed prior to paving.

If you have any further questions regarding this matter, please do not hesitate to call this office at 336. 318.4000

Yours truly,
DocuSigned by:
Jeff Loflin
2D8073931376436...

Jeff B. Loflin, PE
District Engineer

Attachments

cc: Rob W. Stone II, P.E., Division Engineer
Justin Bullock, P.E., Chatham County Maintenance Engineer
Lynn Richardson, Chatham County Planning
Chris Seamster, RLA McKim & Creed
File



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT McCRORY
GOVERNOR

DIVISION OF HIGHWAYS

ANTHONY J. TATA
SECRETARY

**PROFESSIONAL ENGINEER CERTIFICATION
SUBDIVISIONS AND COMMERCIAL DRIVEWAYS
DIVISION 8, DISTRICT 1**

DATE: _____

COUNTY: _____

SUBDIVISION NAME: _____

STREET NAMES From Sta. No. To Sta. No.

This is to certify that the above listed roads have been constructed in accordance with the approved plans and all aspects of the most current Subdivision Roads: Minimum Construction Standards manual.

NAME: _____
SIGNATURE: _____
NC PE LICENSE #: _____

Professional Engineer Seal

**North Carolina Department of Transportation
Division of Highways
Petition for Road Addition**

ROADWAY INFORMATION: (Please Print/Type)

County: _____ Road Name: _____
(Please list additional street names and lengths on the back of this form.)

Subdivision Name: _____ Length (miles): _____

Number of occupied homes having street frontage: _____ Located (miles): _____

miles N S E W of the intersection of Route _____ and Route _____ .
(Check one) (SR, NC, US) (SR, NC, US)

We, the undersigned, being property owners and/or developers of _____ in _____ County, do hereby request the Division of Highways to add the above described road.

CONTACT PERSON: Name and Address of First Petitioner. (Please Print/Type)

Name: _____ Phone Number: _____

Street Address: _____

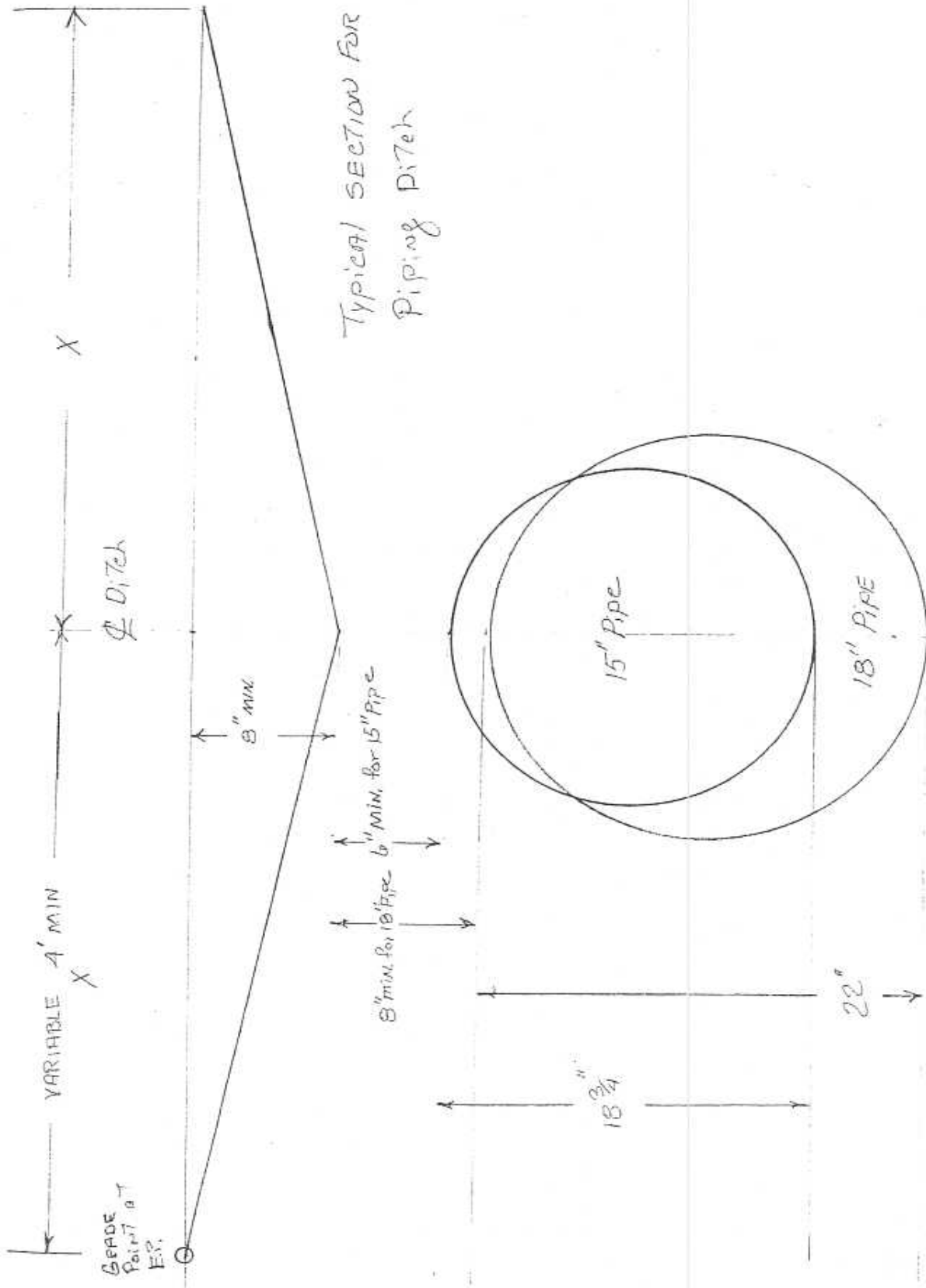
Mailing Address: _____

PROPERTY OWNERS

Name

Mailing Address

Telephone



**POSSIBLE SUPPLIERS FOR
GRATES AND FRAMES**

SOUTHERN FOUNDRY
P.O. BOX 186
APEX, N.C. 27502
(919) 362-7744

NORFOLK CAST, INC.
P.O. BOX 328
NORFOLK, VA. 23501

VULCAN FOUNDRY CORP.
P.O. BOX 905
DENHAM SPRINGS, LA.
1(800)626-4653

US FOUNDRY
8351 N. W. 93RD ST
MEDLEY, FLA. 33166
(305) 885-0301 FAX (305) 844-3253

SUPER CAST, INC.
1104 US HWY. 117 BYPASS, S.
GOLDSBORO, N.C. 27530
(919) 736-9010 FAX (919) 736-0290

BUNCH PATTERN WORKS, INC.
P.O. BOX 267 HWY 308 N.
LEWISTON-WOODVILLE, N.C. 27849

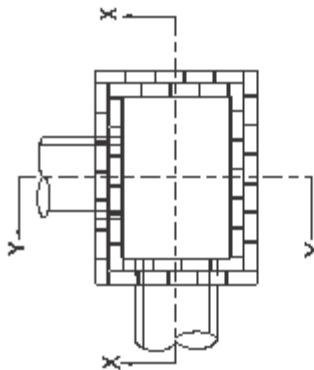
CAPITAL FOUNDRY OF VIRGINIA, INC.
P.O. BOX 2212
VIRGINIA BEACH, VIRGINIA 23450

EMPORIA FOUNDRY, INC.
620 REESE STREET
EMPORIA, VIRGINIA 23847

ENNIS ENTERPRISES
P.O. BOX 931
WILMINGTON, N.C. 28402
(910) 371-9323

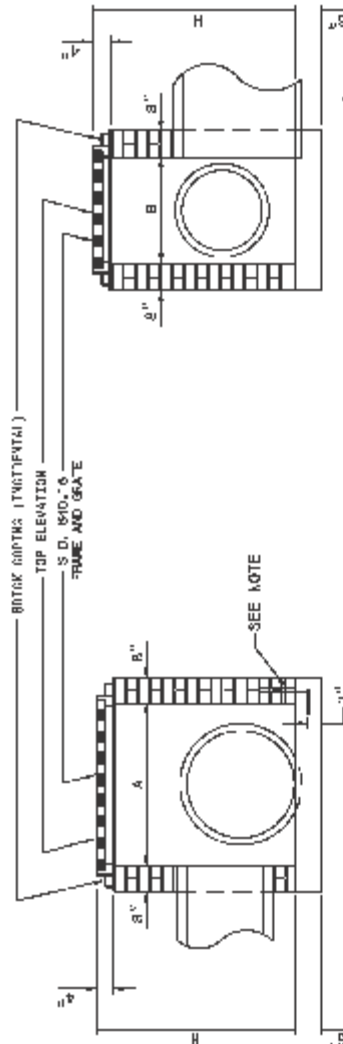
GENERAL NOTES:

- MORTAR JOINTS $1\frac{1}{2}$ " +/- $\frac{1}{8}$ " THICK.
- USE CLASS "B" CONCRETE THROUGHOUT.
- USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
- USE #4 BAR DOWELS AT 12" CENTERS.
- DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
- PROVIDE ALL CATCH BASINS OVER 8'-8" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
- USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 540 OF THE STANDARD SPECIFICATIONS.
- IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 340.00.
- FOR 6'-0" IN HEIGHT OR LESS, USE 8" WALL OVER 6'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0" QUANTITIES TO BE ADJUSTED ACCORDINGLY.
- CONSTRUCT WITH PIPE CHAINS MATCHING.
- SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.
- DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.
- CHAMFER ALL EXPOSED CORNERS 1".
- DRAWING NOT TO SCALE.



PLAN

WITH GOPLAG REMOVED

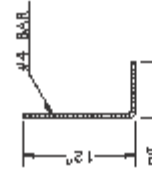


SECTION X-X

SECTION Y-Y

DIMENSIONS OF BOX & PIPE		CUBIC YARDS CONCRETE		CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY FOR WALLS, SETBACK, H	C.S., P.C.,
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	2.662	0.1032
15"	/	/	2'-5"	0.268	0.313	2.600	0.201
18"	/	/	2'-6"	0.260	0.313	0.678	0.074
24"	3'-0"	2'-0"	3'-0"	0.253	0.313	5.885	0.076
30"	3'-0"	2'-0"	3'-6"	0.288	0.313	0.901	0.122
							0.170

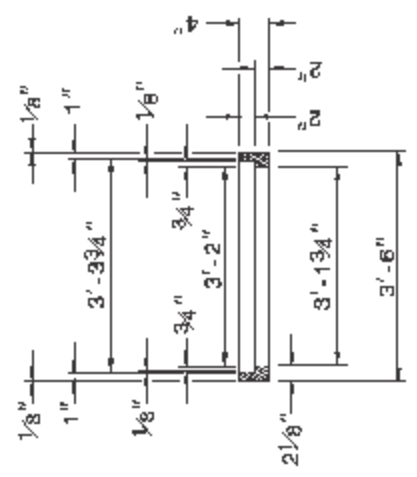
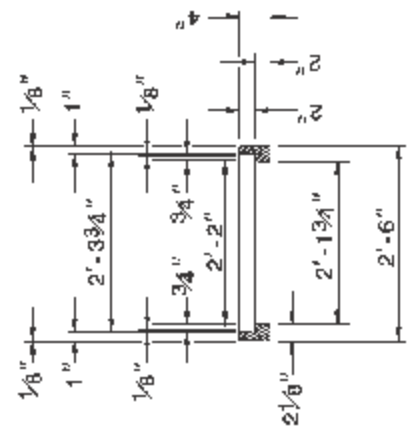
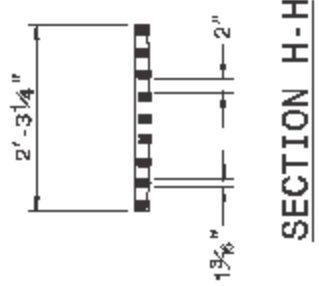
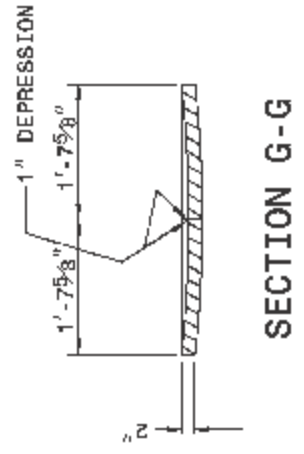
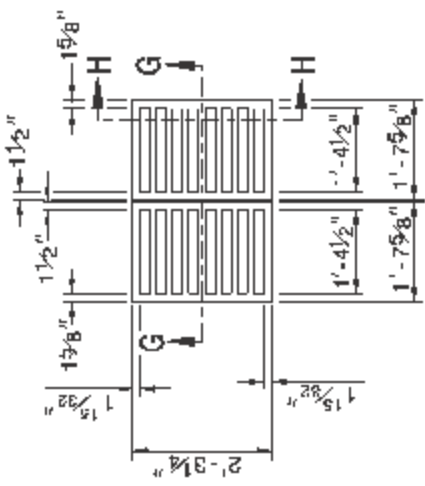
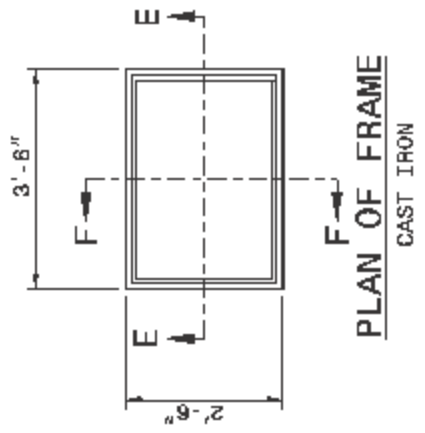
DOWEL



STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DROP INLET FRAME AND GRATES
 FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1
840.16



STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DROP INLET FRAME AND GRATES
 FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1
840.16

**VERIFICATION OF COMPLIANCE WITH
ENVIRONMENTAL REGULATIONS**

(Check Appropriate Box)

- Permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers are not required for this project. However, all applicable federal and state regulations have been followed.

- The required permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers have been obtained for this project. Copies of permits and Completion Certificates are attached.

- All applicable NPDES Stormwater Permit requirements have been met for this project. (The applicant should contact the N.C. Division of Water Quality in Raleigh to determine if a stormwater permit is required.)

- The project is in compliance with all applicable sedimentation and erosion control laws and regulations.

Project Name: _____

Township: _____

County: _____

Project Engineer: _____

Phone No.: _____

Project Contact: _____

Applicants Name: _____

P.E. SEAL

Date Submitted: _____

(Reference Page 11, Item 10)

11/07/2003

ATTACHMENT "A"

Seeding and mulching shall be in accordance with Section 880 of the North Carolina Standard Specifications for Roads and Structures, except that Articles 880-8(B) shall not apply. Final determination of soil type shall be made by the Engineer. The following rates in pounds per acre shall apply:

SANDY SOIL

50# - KY 31 Tall Fescue or
Alta Tall Fescue
5# - Centipede
50# - Pensacola Bahiagrass
500# - Fertilizer
4000# - Limestone

CLAY SOIL

100# - KY 31 Tall Fescue or
Alta Tall Fescue
15# - Kenblue Bluegrass
500# - Fertilizer
4000# - Limestone

Add 10# Kobe or Korean Lespedeza and 10# Millet to the above mixture from May 1 to August 31.

On cut and fill slopes 2:1 or steeper, add 30# Sericea Lespedeza from January 1 to December 31.

Fertilizer shall be 10-20-20 analysis. Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis.

BRIAR CHAPEL

BOULDER POINT DRIVE EXTENSION

CONSTRUCTION DOCUMENTS

U.S. HWY 15-501 and MANN'S CHAPEL ROAD

CHATHAM COUNTY, NORTH CAROLINA

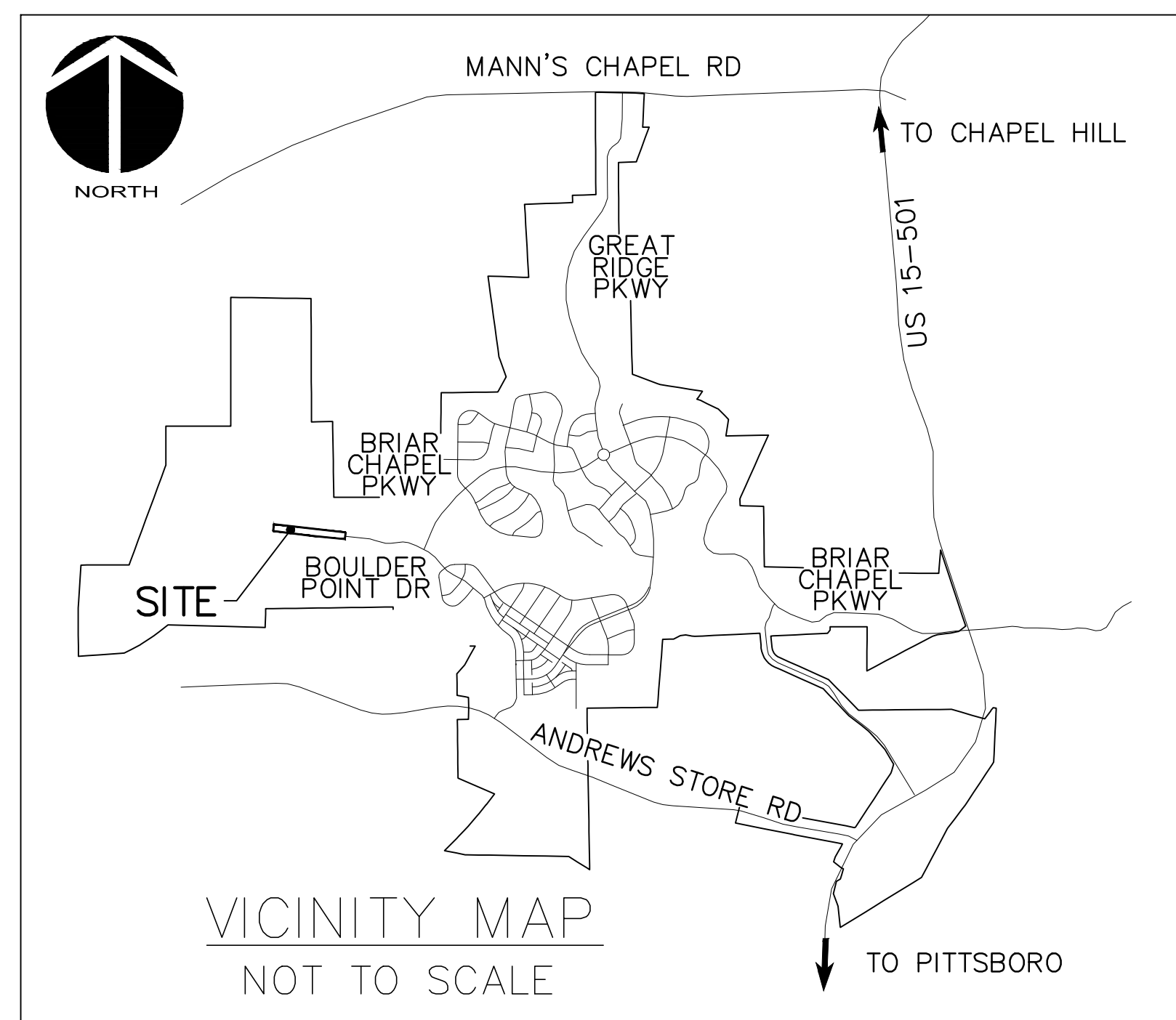
DATE: JUNE 25, 2015

SHEET INDEX

C0.1	COVER SHEET
C0.2	EXISTING CONDITIONS/DEMOLITION PLAN
C1.1	SITE PLAN
C2.1	UTILITY PLAN
C3.1	STAGE 1 EROSION CONTROL PLAN
C3.2	STAGE 2 GRADING, DRAINAGE & EROSION CONTROL PLAN
C4.1	PLAN & PROFILE BOULDER POINT EXTENSION
D1.1	DETAILS-EROSION AND SEDIMENTATION CONTROL
D1.2	DETAILS-EROSION AND SEDIMENTATION CONTROL
D2.1	DETAILS-NCDOT DRAINAGE
D2.2	DETAILS-ROADWAY TYPICAL SECTIONS
D2.3	DETAILS-GUARDRAIL DETAILS
D3.1	BMP #20 DETAILS

COUNTY AND AGENCY CONTACTS

- | | |
|---|--|
| <p>A. Chatham County
Planning Department
Dunlap Building
80 East Street
Pittsboro, NC 27312
(919) 542-8204 phone
Contact: Jason Sullivan
Email: jason.sullivan@chathamnc.org</p> <p>B. Chatham County
Environmental Services
Dunlap Building
80 East Street
Pittsboro, NC 27312
(919) 542-0945 phone
Contact: Dan LaMontagne, PE
Email: dan.lamontagne@chathamnc.org</p> <p>C. Chatham County
Soil Erosion and Sedimentation Control
Dunlap Building
80 East Street
Pittsboro, NC 27312
(919) 545-8339 phone
Contact: Rachael Thorn
Email: rachael.thorn@chathamnc.org</p> <p>D. Chatham County
Public Works
964 East Street, 2nd Floor, Suite 205
Pittsboro, NC 27312
(919) 545-8530 phone
Contact: Larry Bridges
Email: larry.bridges@chathamnc.org</p> | <p>E. NCDOT
Division 8, District 1
300 DOT Drive
P.O. Box 1164
Asheboro, NC 27204
(336) 318-4000 phone
Contact: Jeff B. Loflin, PE
Email: jloflin@ncdot.gov</p> <p>F. NCDENR
Division of Water Quality
512 N. Salisbury St
Archdale Building, 9th Floor
Raleigh, NC 27604
(919) 807-6373 phone
Contact: Boyd Devane
Email: boyd.devane@ncdenr.gov</p> <p>G. NCDENR
Division of Environmental Health
Public Water Supply Section
1634 Mail Service Center
Raleigh, NC 27699-1634
(919) 707-9064 phone
Contact: Shashi Bhatta
Email: shashi.bhatta@ncdenr.gov</p> <p>H. NCDENR
Division of Water Quality
Surface Water Protection
3800 Barrett Drive
Raleigh, NC 27609
(919) 791-4200 phone
Contact: Danny Smith
Email: danny.smith@ncdenr.gov</p> |
|---|--|



VICINITY MAP

NTS

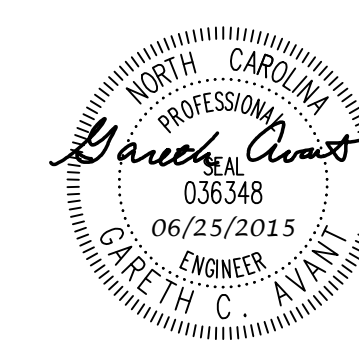
PROJECT DATA

NAME OF PROJECT:
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA

OWNER:
NMP BRIAR CHAPEL, LLC
16 WINDY KNOLL CIRCLE
CHAPEL HILL, NC 27516
PHONE: (919) 951-0700
FAX: (919) 240-4963
CONTACT: LEE BOWMAN
EMAIL: lbowman@newlandco.com

PREPARED BY:
McKIM & CREED
1730 VARSITY DRIVE, SUITE 500
RALEIGH, NORTH CAROLINA 27606
PHONE: (919) 233-8091
FAX: (919) 233-8031
CONTACT: GARETH AVANT, PE
EMAIL: gavant@mckimcreed.com

PROJECT AREA: 3.59 ACRES
These improvements shall be constructed in accordance with the following plans, and the Standard Specifications of NCDOT and Chatham County.



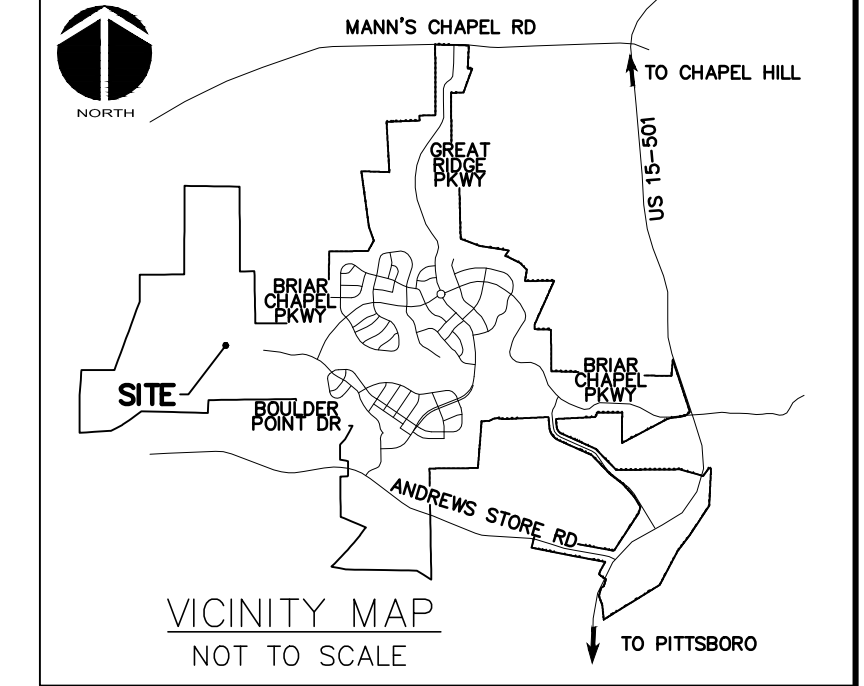
FINAL DRAWINGS
FOR REVIEW PURPOSES ONLY

LEGEND:

- R/W LINE
- FUTURE R/W LINE
- EXISTING R/W LINE
- HOA EASEMENT LINE
- PUBLIC UTILITY EASEMENT LINE
- PUBLIC DRAINAGE EASEMENT
- EXISTING POWER LINE EASEMENT
- OVERHEAD POWER LINE
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- BMP MAINTENANCE & ACCESS EASEMENT
- ROADWAY CENTERLINE

SITE GENERAL NOTES:

1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. REFER TO THE FOLLOWING MCKIM & CREED, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE:
 - BRIAR CHAPEL - GRANITE MILL BOULEVARD AND BOULDER POINT DRIVE CONSTRUCTION PLANS SEALED JUNE 8, 2010
 - BRIAR CHAPEL - PHASE 5 NORTH CONSTRUCTION PLANS SEALED MARCH 30, 2011
 - BRIAR CHAPEL - BRIAR CHAPEL PARKWAY AND BOULDER POINT DRIVE EXTENSION SEALED JANUARY 31, 2012
 - BRIAR CHAPEL - PHASE 6 SOUTH CONSTRUCTION PLANS SEALED JANUARY 27, 2012
 - BRIAR CHAPEL - GREAT RIDGE PARKWAY CONSTRUCTION PLANS SEALED APRIL 4, 2013.
 - BRIAR CHAPEL - PHASE 7 CONSTRUCTION PLANS SEALED MAY 29, 2013.
 - BRIAR CHAPEL - PHASE 8 CONSTRUCTION PLANS SEALED AUGUST 25, 2013.
 - BRIAR CHAPEL - PHASE 9 CONSTRUCTION PLANS SEALED MAY 9, 2014.
 - BRIAR CHAPEL - GRANITE MILL BOULEVARD REALIGNMENT PLANS SEALED JUNE 2, 2014.
3. REFER TO THE FOLLOWING JOHN R. MCADAMS COMPANY, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE:
 - BRIAR CHAPEL - RECLAMATION FACILITY EROSION CONTROL PLAN SEALED JULY 29, 2005
 - BRIAR CHAPEL - PHASE 1 CONSTRUCTION PLANS SEALED OCTOBER 21, 2005.
 - BRIAR CHAPEL - WEST EXTENSION GRADING PLAN (INTERIM) SEALED MARCH 1, 2007.
 - BRIAR CHAPEL - PHASE 3 CONSTRUCTION PLANS SEALED DECEMBER 4, 2006.
 - BRIAR CHAPEL - PHASE 4 CONSTRUCTION PLANS SEALED JANUARY 15, 2007.
 - BRIAR CHAPEL - WATER QUALITY PONDS 5 AND 6 CONSTRUCTION PLANS SEALED AUGUST 24, 2006.
 - BRIAR CHAPEL - PUMP STATION CONSTRUCTION PLANS DATED APRIL 3, 2006.
 - BRIAR CHAPEL - PHASE 4 - POND CONSTRUCTION PLANS SEALED SEPT. 17, 2007.
 - BRIAR CHAPEL - PHASE 3 & 4 EROSION CONTROL PLANS SEALED JULY 26, 2007.
 - BRIAR CHAPEL - PHASE 5 SOUTH SECTION 1 CONSTRUCTION PLANS SEALED NOVEMBER 9, 2009.
 - BRIAR CHAPEL - PHASE 5 SOUTH SECTION 2 CONSTRUCTION PLANS SEALED OCTOBER 8, 2009.
 - BRIAR CHAPEL - PHASE 6 NORTH SECTIONS 1 AND 2 CONSTRUCTION PLANS SEALED OCTOBER 8, 2012.
4. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT NIKKI THOMSON AT 919-846-5900.
5. A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.
6. ALL PROPOSED ROADWAY DIMENSIONS AS SHOWN ARE MEASURED FROM BACK OF CURB TO BACK OF CURB, ALL PROPOSED ALLEY DIMENSIONS AS SHOWN ARE MEASURED FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.
7. BEFORE STARTING ANY CONSTRUCTION OF IMPROVEMENTS WITHIN ANY NCDOT STREET OR HIGHWAY RIGHT-OF-WAY, CONTACT NCDOT DISTRICT OFFICE AND OBTAIN ALL PERMITS AND ENCROACHMENTS. KEEP COPIES ON CONSTRUCTION SITE. ALSO CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER AT 336-629-1423.
8. REFER TO PLAN AND PROFILE SHEETS FOR DETAILED SANITARY SEWER AND STORM DRAINAGE INFORMATION WITHIN PUBLIC ROADS AND PRIVATE ALLEYS.

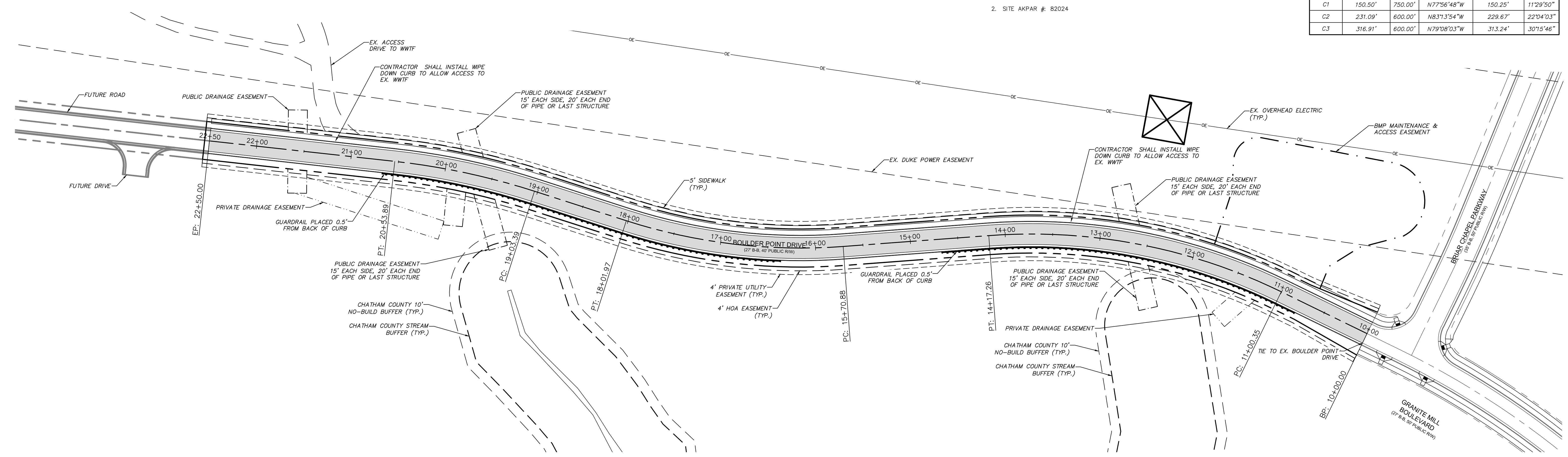


ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L1	100.35'	N64°00'10"W
L2	153.62'	S85°44'04"W
L3	101.41'	N72°11'53"W
L4	196.11'	N83°41'43"W

CHATHAM COUNTY REQUIRED SITE NOTES:

1. PROPERTY OWNER/DEVELOPER:
NWP BRIAR CHAPEL, LLC
16 WINDY KNOLL CIRCLE
CHAPEL HILL, NC 27516
PHONE: (919) 951-0700
2. SITE AKPAR #: 82024

ALIGNMENT CURVE DATA					
CURVE #	ARCH LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH	DELTA
C1	150.50'	750.00'	N77°56'48"W	150.25'	11°29'30"
C2	231.09'	600.00'	N83°13'54"W	229.67'	22°04'03"
C3	316.91'	600.00'	N79°08'03"W	313.24'	30°15'46"

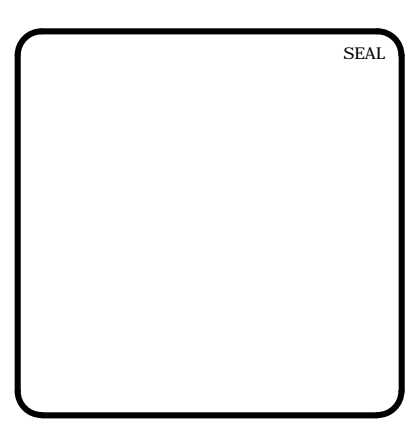


CALL N.C. ONE CALL CENTER BEFORE YOU DIG
STOP
1-800-632-4949
AVOID UTILITY DAMAGE

NORTH

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
2	2015.06.25	REVISED PER COMMENTS RECEIVED FROM NCDOT	
1	2015.04.17	ISSUED FOR PERMITTING	



MCKIM & CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919) 233-8091, Fax: (919) 233-8031
F-1222
www.mckimcreed.com

BRIAR CHAPEL™
by
Newland COMMUNITIES

**BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA**

SITE PLAN

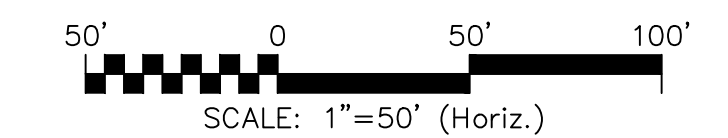
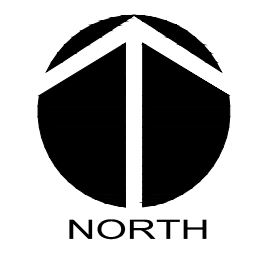
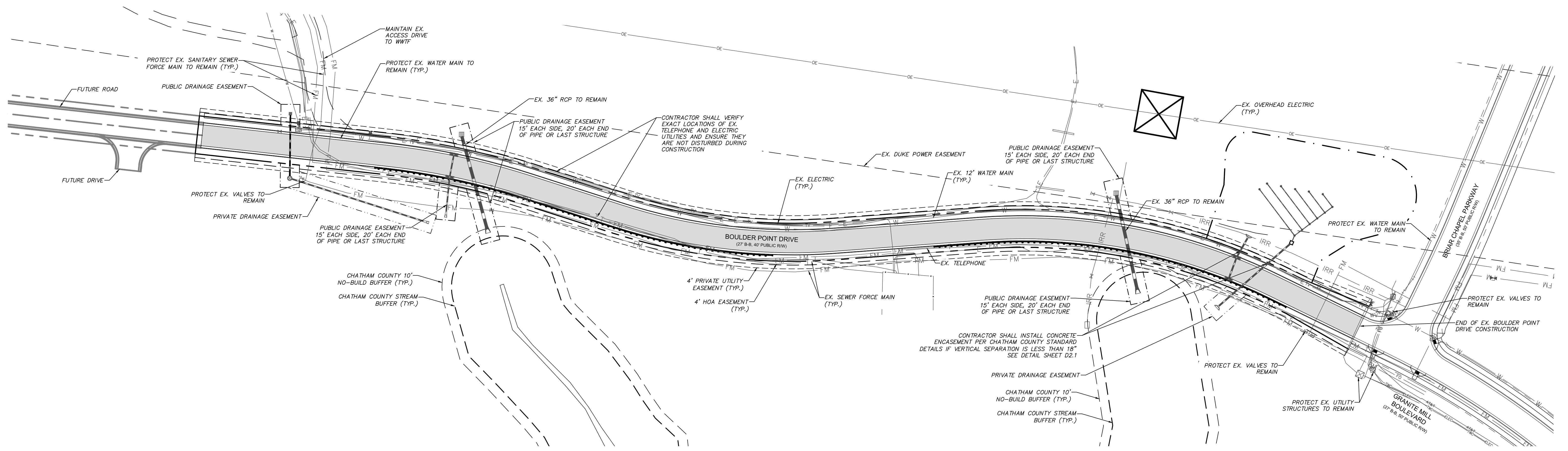
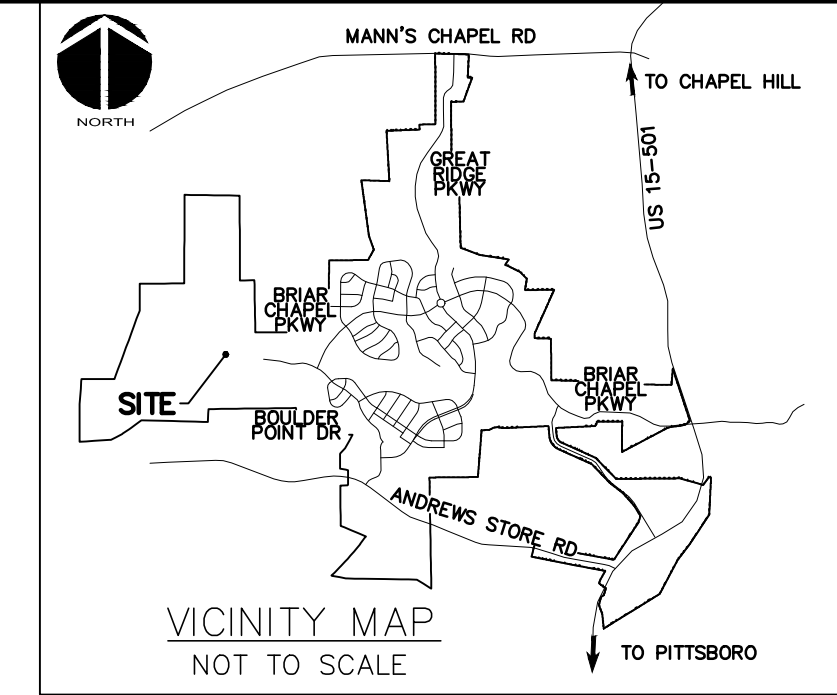
DATE: APRIL 17, 2015	SCALE: HORIZONTAL	MISC FILE NUMBER: C1.X
MCE PROJ. # 02735-0113	HORIZONTAL: AS NOTED	DRAWING NUMBER: C1.1
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CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 2	

LEGEND:

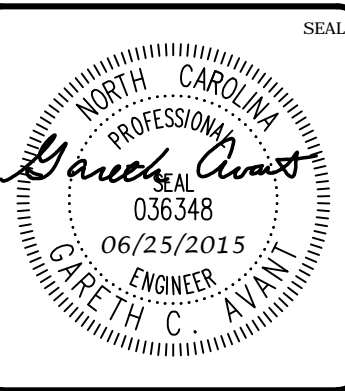
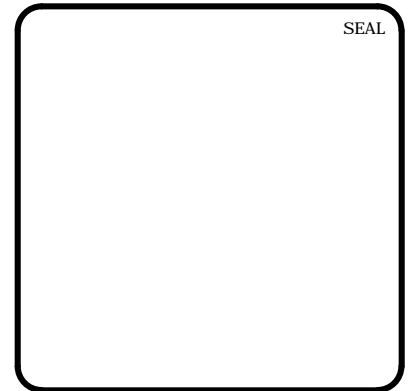
- R/W LINE
- EXISTING R/W LINE
- HOA EASEMENT LINE
- PUBLIC UTILITY EASEMENT LINE
- PUBLIC DRAINAGE EASEMENT
- EX. POWER LINE EASEMENT
- OVERHEAD POWER LINE
- BMP MAINTENANCE & ACCESS EASEMENT
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- FM ----- EX. SANITARY SEWER FORCE MAIN
- IRR ----- EX. REUSE IRRIGATION MAIN
- W ----- EX. WATER MAIN
- NEW STORM DRAINAGE PIPE

UTILITY NOTES:

1. ALL SANITARY SEWER CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT NCDENR & CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
2. ALL WATER MAIN CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
3. ALL PERMITS RELATING TO THIS PROJECT MUST BE OBTAINED PRIOR TO CONSTRUCTION.
4. ALL WATER MAINS SHALL HAVE A MIN. OF 3'-6" OF COVER AS MEASURED FROM FINISHED GRADE TO TOP OF PIPE AT THE LOCATION WHERE INSTALLED.
5. WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION, IN WHICH CASE:
 - (1) THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER; OR
 - (2) THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
6. WHERE A WATER MAIN CROSSES OVER A SANITARY SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18-INCH VERTICAL SEPARATION, IN WHICH CASE BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
7. WHERE A WATER MAIN CROSSES UNDER A SANITARY SEWER, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING. SEE NCAC 15A, 18C, SECTION .090B.
8. CONTRACTOR SHALL USE A MIN. 20' SECTION DIP CLASS 350 CENTERED UNDER STORMWATER PIPE WHERE 18" MIN. VERTICAL CLEARANCE CANNOT BE MET BETWEEN STORMWATER AND WATER.
9. TRACER WIRE AND TRACER WIRE TEST STATIONS ARE TO BE INSTALLED ON ALL WATER MAINS. TRACER WIRE TEST STATIONS ARE TO BE LOCATED AT ALL FIRE HYDRANTS WITHIN A 3 FOOT RADIUS OF THE HYDRANT AND PREFERABLY TO THE REAR OF THE HYDRANT.
10. WATER SERVICES SHALL BE EXTENDED FROM THE MAIN TO A METER BOX LOCATED WITHIN THE RIGHT OF WAY. THE METER SHALL BE PLACED AT THE EDGE OF THE SERVICED LOT'S RIGHT OF WAY LINE OR EASEMENT. SERVICE LINE SHALL BE RUN ON A TRUE LINE FROM THE WATER MAIN TO THE METER BOX, AND WHERE POSSIBLE, SERVICE LINE SHALL BE PERPENDICULAR TO THE MAIN LINE. NO WATER BOXES OR VAULTS SHALL BE PLACED IN STREETS, SIDEWALKS, PARKING AREAS, OR DRIVEWAYS.
11. MANHOLES SHALL BE SPACED A MAXIMUM DISTANCE OF 400 FEET APART.
12. MANHOLES SHALL BE INSTALLED AT EACH DEFLECTION OF LINE AND/OR GRADE WITH A MINIMUM DROP OF 0.2 FEET. MANHOLES FOR SEWERS GREATER THAN 21 INCHES IN DIAMETER SHALL BE 5 FOOT MANHOLES. MANHOLES FOR SEWERS 12 FEET OR DEEPER SHALL BE MINIMUM 5 FOOT DIAMETER. MANHOLE TOPS SHALL BE SET FLUSH WITH PAVEMENT WHERE INSTALLED IN A STREET.
13. SERVICE CONNECTIONS FOR THE SANITARY SEWER LINES SHOULD BE PERPENDICULAR FROM THE MAIN LINE TO THE EDGE OF THE SERVICED LOT'S RIGHT OF WAY LINE OR EASEMENT WITH A MINIMUM GRADE OF 1/4 INCH/FOOT FOR 4 INCH AND .6 FOOT/100 FOOT FOR 6 INCH. ALL CLEANOUTS SHALL EXTEND A MINIMUM OF 6 INCHES ABOVE THE FINISHED GRADE. WHERE A SERVICE LINE IS CONNECTED TO A MANHOLE, THE LINE SHALL TERMINATE AT THE EDGE OF THE INVERT IN THE MANHOLE. NO CLEANOUTS SHALL BE PLACED IN STREETS, SIDEWALKS, PARKING AREAS, OR DRIVEWAYS.
14. ALL SANITARY SEWER LINES ARE 8" PVC SDR 35 UNLESS OTHERWISE NOTED AND ALL WATER MAIN LINES ARE 6" DI CLASS 350 UNLESS OTHERWISE NOTED. ALL SANITARY SEWER SERVICES ARE 4" SCHEDULE 40 PVC AND ALL WATER MAIN SERVICES ARE 1".
15. MINIMUM COVER OF 5 FEET IN TRAFFIC AREAS TO BE PROVIDED FOR ALL COLLECTOR LINES 4 INCHES AND LARGER. IF LESS THAN 5 FEET, DUCTILE IRON PIPE SHALL BE REQUIRED.
16. USE WATERTIGHT RIMS FOR SANITARY SEWER MANHOLES LOCATED IN PAVED ALLEYS.
17. SANITARY SEWER WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNERS ASSOCIATION OR AGENT THEREOF.
18. WATER MAINS WILL BE 3.5' OFF CURB AND GUTTER UNLESS SHOWN OTHERWISE.
19. ALL WATER MAINS WITHIN PUBLIC EASEMENTS AND PUBLIC RIGHT-OF-WAY TO BE OWNED, OPERATED AND MAINTAINED BY CHATHAM COUNTY, AND WILL BE CONTAINED WITHIN 20' WIDE PUBLIC WATER LINE EASEMENT (MINIMUM) CENTERED ON THE PROPOSED WATER MAIN.
20. CONTRACTOR TO COORDINATE WITH CHATHAM COUNTY PUBLIC WORKS FOR ALL IRRIGATION SLEEVE SIZING.



REV. NO.	DATE	DESCRIPTIONS / REVISIONS
2	2015.06.25	REVISED PER COMMENTS RECEIVED FROM NCDOT
1	2015.04.17	ISSUED FOR PERMITTING



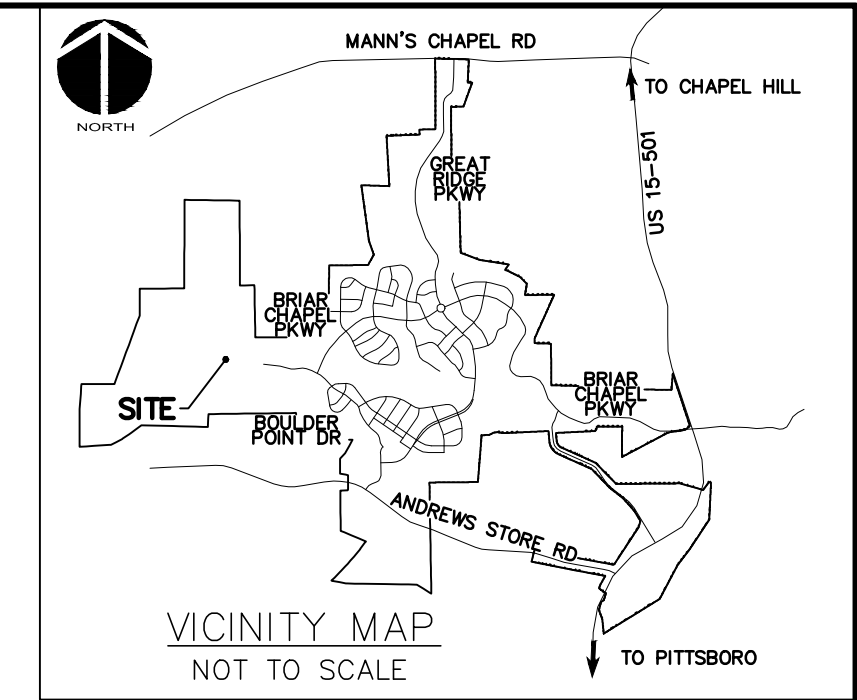
MCKIM & CREED
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 F-1222
www.mckimcreed.com

BRIAR CHAPEL™
 by
Newland COMMUNITIES

**BRIAR CHAPEL
 BOULDER POINT DRIVE EXTENSION
 CHATHAM COUNTY, NORTH CAROLINA**

UTILITY PLAN

DATE: APRIL 17, 2015	SCALE: HORIZONTAL: 1" = 50'	MISC FILE NUMBER: C2.X
MCE PROJ. # 02735-0113	VERTICAL: N/A	DRAWING NUMBER: C2.1
DRAWN: BSS		
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PROJ. MGR: CHS		
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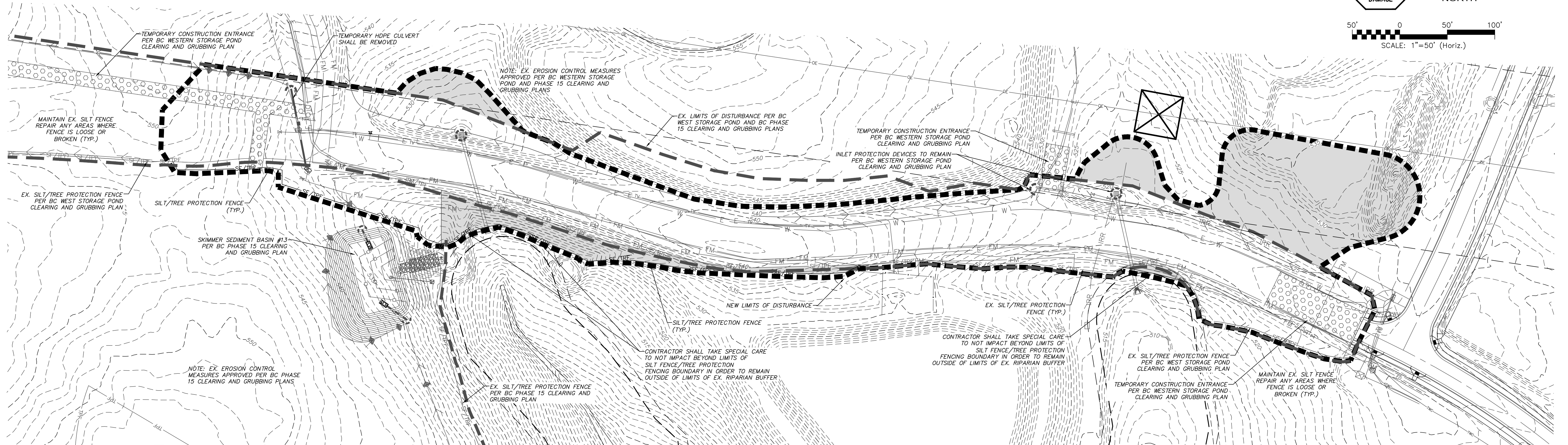


- LEGEND:**
- EXISTING POWER LINE EASEMENT
 - OVERHEAD POWER LINE
 - 10' NO BUILD BUFFER LINE
 - RIPARIAN BUFFER LINE
 - COMBINATION SILT/TREE PROTECTION FENCING
 - TREE PROTECTION FENCING
 - EXISTING CONTOUR
 - PROPOSED CONTOUR
 - EX. LIMITS OF DISTURBANCE
 - LIMITS OF DISTURBANCE
 - ADDITIONAL DISTURBED AREA
 - STAGE 1 DIVERSION DITCH
 - TEMPORARY CONSTRUCTION ENTRANCE
 - STAGE 1 CHECK DAM
 - STAGE 1 ARC FILTER INLET PROTECTION
 - STAGE 1 RIPRAP OUTLET PROTECTION

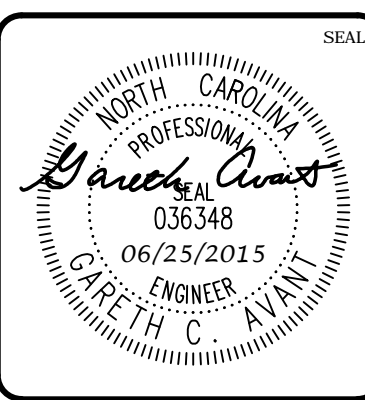
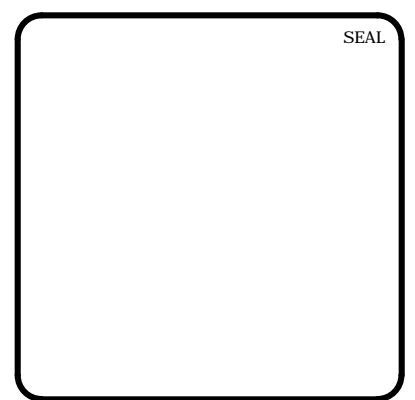
PLAN FOR REFERENCE ONLY

CALL N.C. ONE CALL CENTER BEFORE YOU DIG
STOP
 1-800-632-4949
 AVOID UTILITY DAMAGE

SCALE: 1" = 50' (Horiz.)



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2	REVISED PER COMMENTS RECEIVED FROM NCDOT	2015.06.25
1	ISSUED FOR PERMITTING	2015.04.17



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BRIAR CHAPEL™

by **Newland COMMUNITIES**

BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
STAGE 1
GRADING, DRAINAGE & EROSION CONTROL PLAN

DATE:	APRIL 17, 2015	SCALE:	1" = 50'	MSC FILE NUMBER:	C3.X
MCE PROJ. #	02735-0113	HORIZONTAL:	1" = 50'	DRAWING NUMBER:	C3.1
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DESIGNED:	BSS				
CHECKED:	GCA				
PROJ. MGR.:	CHS				
STATUS:	FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION:	2		

GENERAL NOTES:

- ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR TO CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL".
- OVERHEAD ELECTRIC LINES MAY EXIST ON THE SITE. CONTRACTOR SHALL CONTACT DUKE POWER AT (336) 634-4633 PRIOR TO COMMENCING ANY ACTIVITY WITHIN 200'-FT OF DUKE POWER RIGHT OF WAY.
- PRIOR TO CONSTRUCTION, CONTRACTOR SHALL ARRANGE AND ATTEND A PRECONSTRUCTION CONFERENCE WITH CHATHAM COUNTY, OWNER AND ENGINEER.
- EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON BEST AVAILABLE RECORD DRAWINGS.
- SOIL UNDER BUILDINGS, PAVED AREAS AND WITHIN SLOPES GREATER THAN 3:1 (H:V) SHALL BE APPROVED, PLACED AND COMPACTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. THESE SOILS SHALL BE COMPACTED TO THE STANDARD PROCTOR MAXIMUM DRY DENSITY UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- ALL GRADED AREAS SHALL BE SLOPED SUCH THAT NO AREAS OF STANDING WATER OCCUR AND ALL AREAS POSITIVELY DRAIN TO DRAINAGE STRUCTURES, SWALES OR STORMWATER MANAGEMENT FACILITIES.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND SHALL REPLACE ALL MARKERS REMOVED IF DAMAGED DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING AS NECESSARY THROUGHOUT CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL PERMIT CONDITIONS, MONITORING AND REPORTING REQUIREMENTS.
- REFER TO SHEET D2.1 FOR PROPOSED ROAD CROSS SECTION DETAILS AND PAVEMENT SCHEDULE.
- GRADED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH CURLEX SINGLE NET (CURLEX 1) MATING BY AMERICAN EXCELSIOR COMPANY OR APPROVED EQUAL OR AS APPROVED BY THE GEOTECHNICAL ENGINEER.
- STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT SEAN CLARK AT 919-846-5900.
- NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #371097650J DATED FEBRUARY 2, 2007.
- EXISTING INFRASTRUCTURE AS SHOWN MAY BE UNDER CONSTRUCTION AND SHALL BE FIELD VERIFIED BY CONTRACTOR.
- BRIAR CHAPEL PARKWAY AND BOULDER POINT DRIVE EXTENSION SEALED JANUARY 1, 2012
- BEFORE STARTING ANY CONSTRUCTION OF IMPROVEMENTS WITHIN ANY NCDOT STREET OR HIGHWAY RIGHT-OF-WAY, CONTACT NCDOT DISTRICT OFFICE AND OBTAIN ALL PERMITS AND ENCROACHMENTS AND KEEP COPIES ON CONSTRUCTION SITE AT ALL TIMES. CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER AT (336) 629-1423.

STAGE 2 CONSTRUCTION SEQUENCE:

- THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
- IF IT IS DETERMINED DURING CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE, DESPITE PROPER IMPLEMENTATION AND MAINTENANCE, THE CONTRACTOR IS OBLIGATED TO TAKE ADDITIONAL CORRECTIVE ACTION. CONTACT CHATHAM COUNTY ENVIRONMENTAL QUALITY DEPARTMENT, OWNER'S REPRESENTATIVE AND ENGINEER WITH ANY ADDITIONAL MEASURES NEEDED.
- CONTRACTOR SHALL ESTABLISH GROUNDCOVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:

GRADUAL SLOPES:	(14) CALENDAR DAYS
MODERATE SLOPES:	(10) CALENDAR DAYS
STEEP SLOPES:	(7) CALENDAR DAYS
- SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
- TEMPORARY CONSTRUCTION ENTRANCES, TEMPORARY DIVERSION DITCHES, SILT FENCING, TREE PROTECTION FENCING AND TEMPORARY SKIMMER BASINS WERE INSTALLED AS PART OF THE BC WESTERN STORAGE POND AND BC PHASE 15 CLEARING AND GRUBBING PLANS. CONTRACTOR SHALL INSPECT THESE DEVICES TO ENSURE COMPLIANCE PRIOR TO FINAL GRADING OPERATIONS.
- BEGIN FINAL GRADING OPERATIONS FOR ROADWAY.
- AS ELEVATIONS ARE BROUGHT TO FINAL GRADES AND STORM PIPING IS INSTALLED IN ROADWAY SECTIONS, CONTRACTOR SHALL INSTALL HARDWARE CLOTH AND GRAVEL INLET PROTECTION AS SHOWN ON PLANS.
- CONTRACTOR SHALL ENSURE THAT ALL SEDIMENT LADEN RUNOFF IS DIRECTED TO ROADWAY INLET PROTECTION PRIOR TO REMOVAL OF ANY SKIMMER SEDIMENT BASINS. NO BASINS SHALL BE REMOVED UNTIL INSPECTED AND APPROVED BY CHATHAM COUNTY SESC STAFF.
- PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE TEMPORARY AND PERMANENT SEEDING SCHEDULES LOCATED ON SHEET D1.2 AND NOTE #5 OF THIS SEQUENCE
- ONCE GROUNDCOVER HAS BEEN ESTABLISHED AND OTHER CONSTRUCTION IS COMPLETE, CONTACT CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION AND ENGINEER FOR SITE INSPECTION BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES OR CONVERTING BASINS TO PERMANENT BMPs.

LIMITS OF DISTURBANCE NOTES:

- SILT FENCE AND TREE PROTECTION FENCE LINES ALSO DELINEATE THE LIMITS OF DISTURBANCE. ALL SILT FENCING OR TREE PROTECTION FENCING SHALL BE INSTALLED INSIDE LIMITS OF DISTURBANCE.
- LIMITS OF DISTURBANCE BEYOND PREVIOUSLY APPROVED AREAS: 0.83 ACRES

STORM DRAINAGE NOTES:

- STORM DRAINAGE PIPES SHALL BE:
 - RCP/CLASS III UNLESS OTHERWISE NOTED IN THESE PLANS. ALL PIPES INSTEAD OF THE PUBLIC RIGHT-OF-WAY SHALL ADHERE TO PIPE DEPTH, COVER AND MATERIAL REQUIREMENTS IN ACCORDANCE WITH THE NCDOT PIPE MATERIAL SELECTION GUIDE AS LOCATED ON THE NCDOT HYDRAULICS WEBSITE.
- ALL CONCRETE SHALL MEET A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH.
- ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
- THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.
- ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATION MATTER, WASTE CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. UTILIZED MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
- MATERIALS DEEMED AS UNSUITABLE FOR BACKFILL PURPOSES BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
- BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST. THE TOP EIGHT (8) INCHES SHALL BE COMPACTED TO 100% STANDARD PROCTOR.
- UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
- ALL FLARED END SECTIONS DISCHARGING INTO WATER QUALITY PONDS WILL HAVE A CONCRETE PAD POURED UNDERNEATH THE FLARED END SECTION IN ACCORDANCE WITH PROVIDED CONSTRUCTION DETAILS.
- RIM ELEVATIONS OF STORM DRAIN STRUCTURES SHALL BE FIELD VERIFIED.
- STORM DRAINAGE WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNER'S ASSOCIATION OR AGENT THEREOF.
- LENGTHS SHOWN FOR STORM DRAINAGE PIPES ARE MEASURED FROM CENTER OF STORM STRUCTURES AND TO ENDS OF FLARED END SECTIONS. SLOPES CALCULATED ARE BASED ON THIS LENGTH.
- CB DENOTES CATCH BASINS TO BE INSTALLED IN THE CENTERS OF PAVED ALLEYS AND NON-PAVED AREAS. REFER TO NCDOT DETAILS 840.19 AND 840.24 ON SHEET D-2.2.
- CI DENOTES CURB INLETS TO BE INSTALLED IN THE CURB LINES OF ROADWAYS. REFER TO NCDOT DETAILS 840.02 AND 840.03 ON SHEET D-2.2.

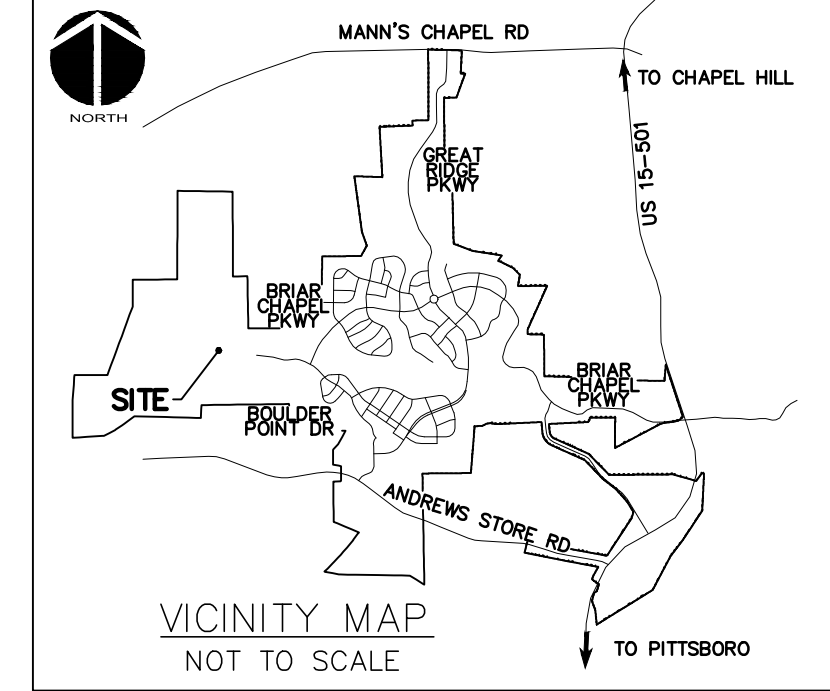
RETAINING WALL NOTES:

- RETAINING WALL DESIGN IS BY OTHERS. OWNER SHALL PROCURE A QUALIFIED RETAINING WALL DESIGNER FOR THE PROJECT. RETAINING WALL INFORMATION SHOWN ON THESE PLANS ARE FOR LOCATION AND GRADE INFORMATION ONLY. OWNER SHALL ADJUST SHOP DRAWING WALL ELEVATIONS FOR THE TOP AND BOTTOM OF WALL TO MEET SPECIFIC PRODUCT DESIGN CRITERIA AND WALL GEOMETRY AS NECESSARY TO ACHIEVE DESIRED FINISHED GRADES. THE HORIZONTAL WALL LOCATION AS SHOWN IS THE FINISHED LOCATION OF THE BOTTOM OF WALL. THE WALL DESIGNER SHALL COORDINATE WITH THE ENGINEER TO VERIFY WHETHER CONFLICTS EXIST. THE WALL DESIGNER SHALL NOTIFY THE ENGINEER IN CASE OF ANY CONFLICTS, INCLUDING BUT NOT LIMITED TO EXISTING OR PROPOSED UTILITIES, WALL BATTER, GEOROID PLACEMENT, ETC., OR IF ANY ASPECT OF WALL PLACEMENT CAN NOT BE ACCOMPLISHED. ALL WORK RELATED TO THE RETAINING WALL CONSTRUCTION SHALL BE ACCOMPLISHED WITHIN THE BOUNDARIES OF THE PROJECT PROPERTY, WITHOUT IMPACTING BUFFERS.
- IT IS THE RESPONSIBILITY OF THE OWNER AND WALL DESIGNER TO ASSURE THAT THE REQUIRED SOIL BEARING PRESSURE, SUBSURFACE DRAINAGE AND SURFACE DRAINAGE ARE ACHIEVED AS RELATED TO THE RETAINING WALL DESIGN. THIS SHOULD BE VERIFIED BY A GEOTECHNICAL ENGINEER. SPECIAL ATTENTION IS REQUIRED TO ENSURE BEARING CAPACITY HAS BEEN ACHIEVED AT LOCATIONS WHERE PIPE PENETRATIONS ARE TO OCCUR. IT SHALL BE THE RESPONSIBILITY OF THE CLIENT TO PROVIDE QUALITY CONTROL / QUALITY ASSURANCE TESTING ASSOCIATED WITH THE WALL CONSTRUCTION. THE GEOTECHNICAL ENGINEER OR WALL DESIGNER SHALL PROVIDE ANY CERTIFICATIONS AS MAY BE REQUIRED TO SHOW COMPLIANCE WITH ORIGINAL DESIGN DOCUMENTS AS RELATED TO THE WALL DESIGN AND CONSTRUCTION.

SELF INSPECTION NOTICE:

NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM.
 THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010. THE SELF-INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS MUST BE CONDUCTED AFTER EACH PHASE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCGS 4B.0131. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM [HTTP://WWW.DNR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML](http://www.dnr.state.nc.us/pages/sedimentation_new.html). IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791-4200.

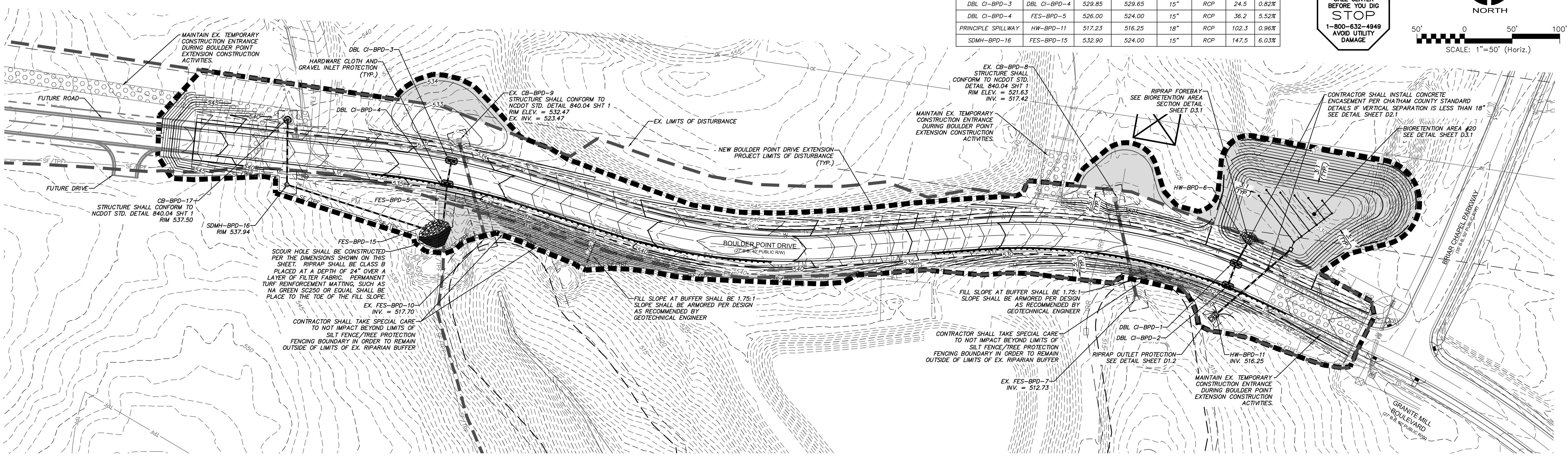
NPDES GROUNDCOVER STABILIZATION TIMEFRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	14 DAYS FOR SLOPES 10' OR LESS IN LENGTH AND NOT STEEPER THAN 2:1
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES



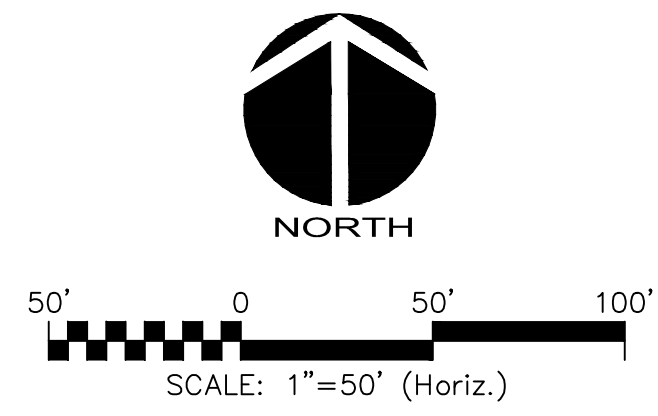
LEGEND:

- TEMPORARY CONSTRUCTION ENTRANCE
- RIPRAP OUTLET PROTECTION
- ADDITIONAL DISTURBED AREA
- COMBINATION SILT/TREE PROTECTION FENCE
- TEMPORARY DIVERSION DITCH
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EX. LIMITS OF DISTURBANCE
- LIMITS OF DISTURBANCE
- SEDIMENT BASIN BAFFLE
- HARDWARE CLOTH & GRAVEL INLET PROT.
- ARC PIPE INLET PROTECTION
- CHECK DAM

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CB-BPD-17	SDMH-BPD-16	534.00	533.00	15"	RCP	67.9	1.47%
DBL CI-BPD-1	HW-BPD-6	522.20	522.00	18"	RCP	24.2	0.83%
DBL CI-BPD-2	DBL CI-BPD-1	522.50	522.30	18"	RCP	24.5	0.82%
DBL CI-BPD-3	DBL CI-BPD-4	529.85	529.65	15"	RCP	24.5	0.82%
DBL CI-BPD-4	FES-BPD-5	526.00	524.00	15"	RCP	36.2	5.52%
PRINCIPLE SPILLWAY	HW-BPD-11	517.23	516.25	18"	RCP	102.3	0.96%
SDMH-BPD-16	FES-BPD-15	532.90	524.00	15"	RCP	147.5	6.03%



CALL N.C. ONE CALL CENTER BEFORE YOU DIG STOP
 1-800-632-4949
 AVOID UTILITY DAMAGE



REV. NO.	DESCRIPTIONS	DATE
2	REVISED PER COMMENTS RECEIVED FROM NCDOT	2015.06.25
1	ISSUED FOR PERMITTING	2015.04.17

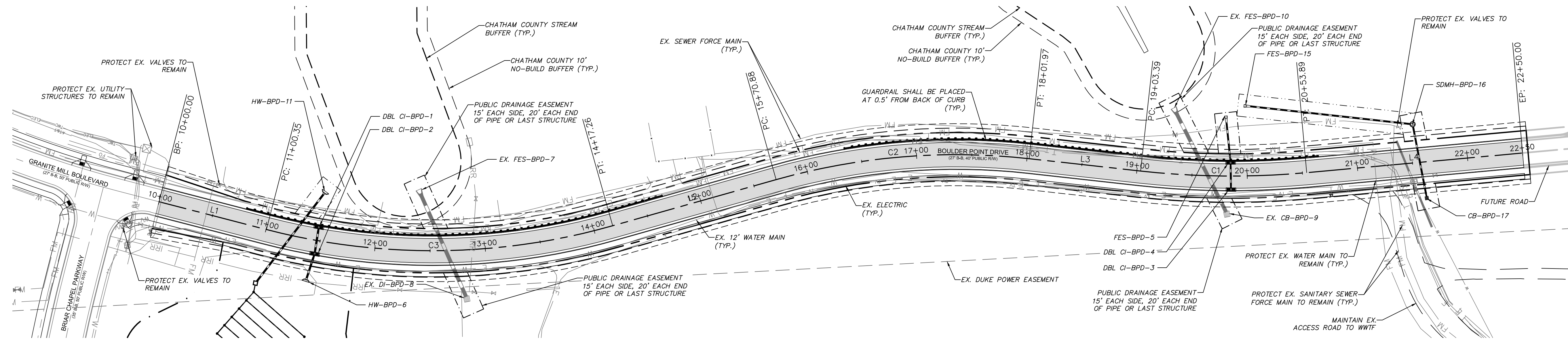
Professional Engineer Seal for **David A. Covert**, License No. 036348, dated 06/25/2015. The seal is for the State of North Carolina.

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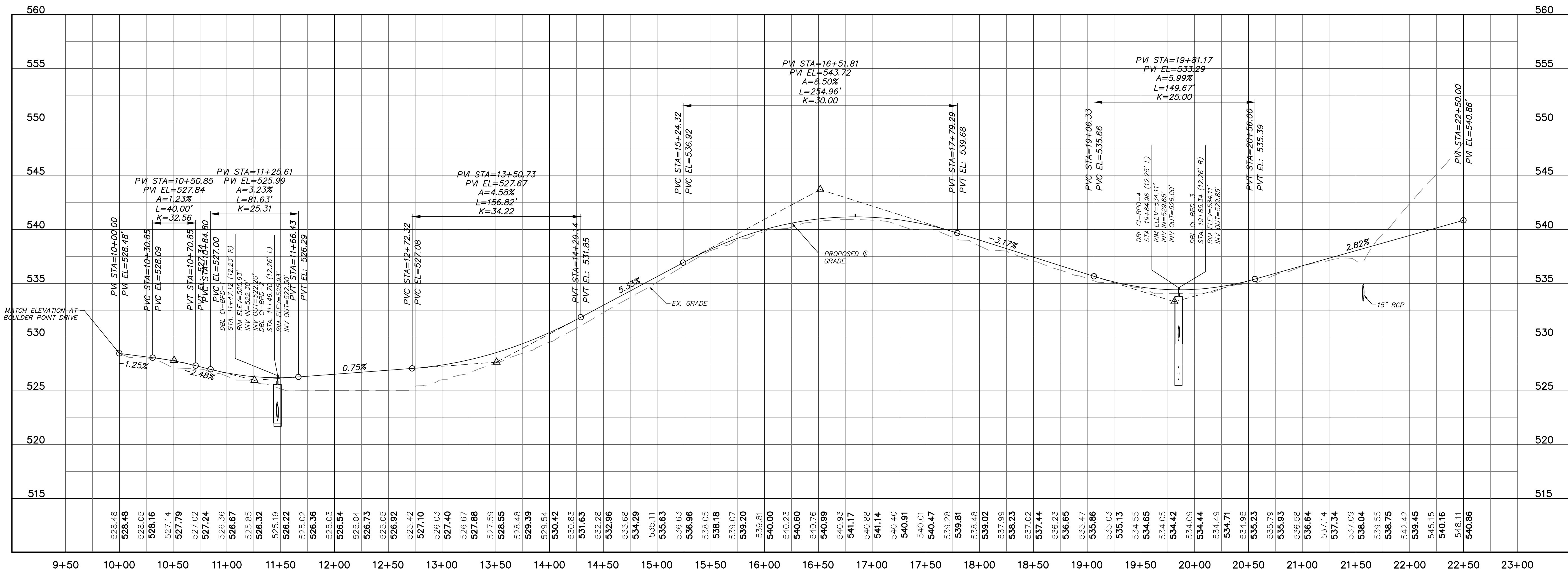
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BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
STAGE 2
GRADING, DRAINAGE & EROSION
CONTROL PLAN

DATE: APRIL 17, 2015	SCALE: HORIZONTAL: 1" = 50'	MSC FILE NUMBER: C3.X
MCE PROJ. # 02735-0113	VERTICAL: N/A	DRAWING NUMBER: C3.2
DRAWN: BSS		
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 2	

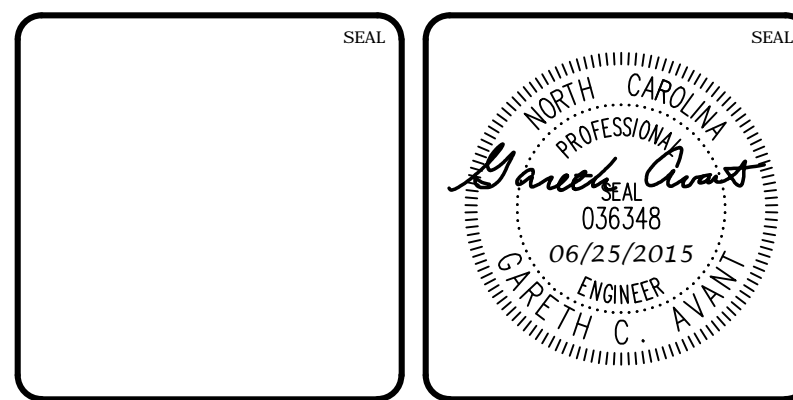


BOULDER POINT DRIVE EXTENSION PLAN
 (40' PUBLIC R/W, STA. 10+00 TO 22+50)
 SCALE: 1"=50'



BOULDER POINT DRIVE EXTENSION PROFILE
 (STA. 10+00 TO 22+50)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DESCRIPTIONS	DATE
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1	ISSUED FOR PERMITTING	2015.04.17

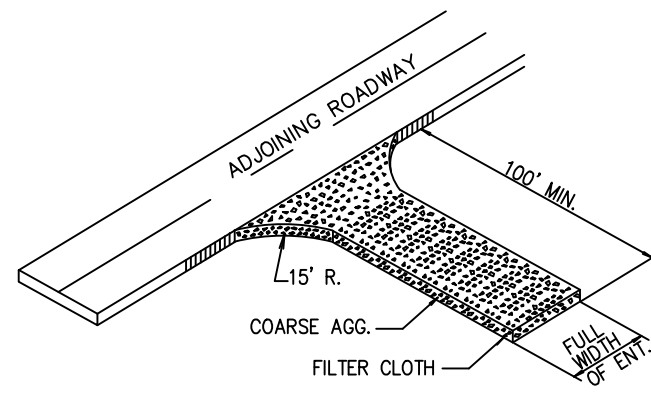


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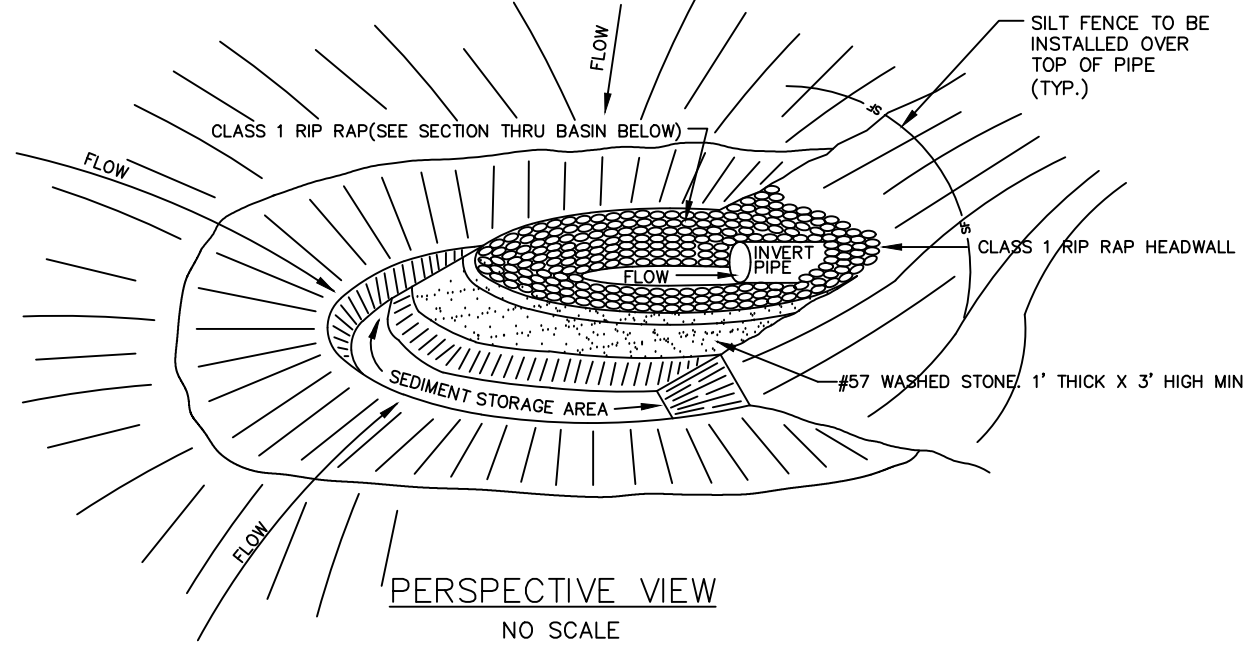
BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
BOULDER POINT DRIVE
STA. 10+00 TO STA. 22+50

DATE:	APRIL 17, 2015	SCALE:	1" = 50'	MSC FILE NUMBER:	C4.X
MCE PROJ. #	02735-0113	HORIZONTAL:	1" = 50'	DRAWING NUMBER:	C4.1
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DESIGNED:	GCA				
CHECKED:	BSS				
PROJ. MGR.:	CHS				
STATUS:	FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION:	2		

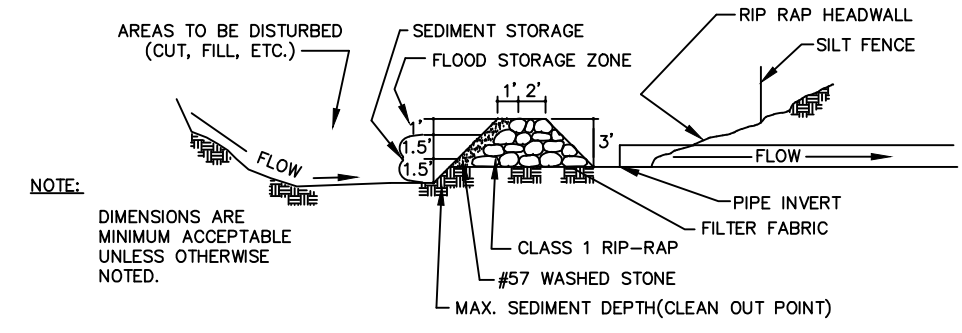


- COARSE AGGREGATE (2"-3" STONE) SHALL BE USED. PAD TO BE 100'L X 25'W X 6"D MIN. PLACE A MINIMUM OF 3" OF STONE IN A CUT SECTION TO HELP SECURE FILTER CLOTH.
- TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
- ENTRANCES SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
- MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOP DRESSING MAY BE NECESSARY. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.
- TEMPORARY PADS MUST BE LOCATED ON EACH SIDE OF ADJOINING ROADWAY.

TEMPORARY CONSTRUCTION ENTRANCE
NTS

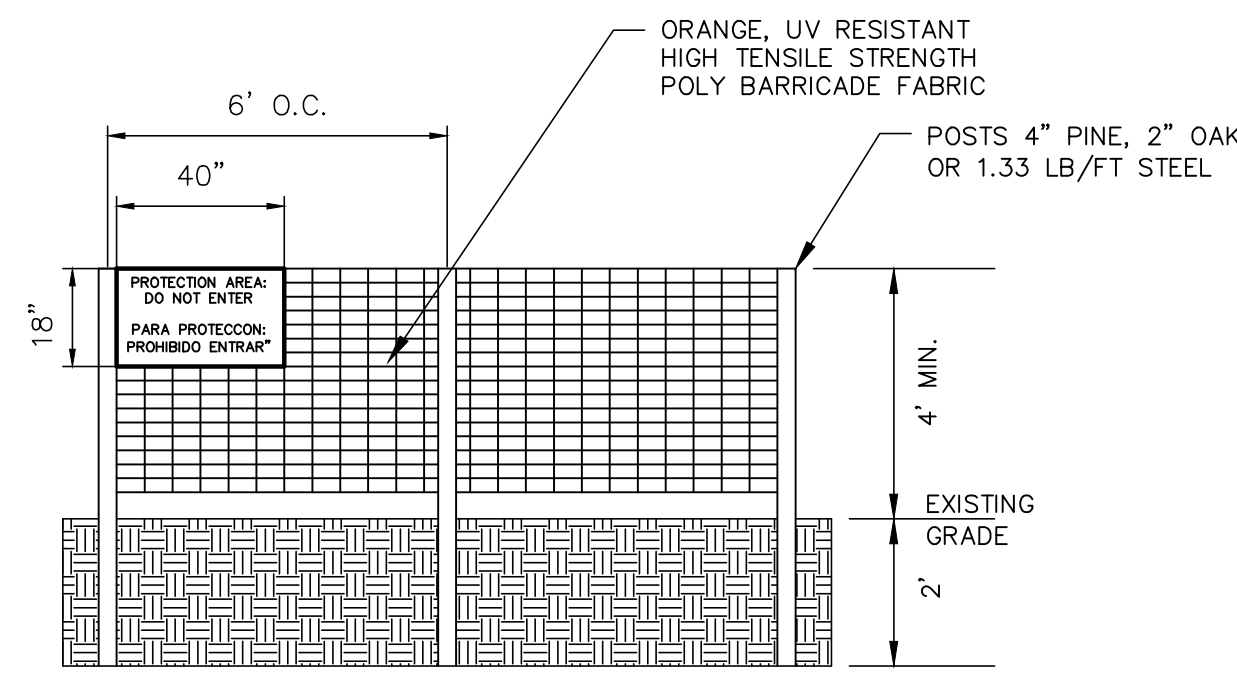


PERSPECTIVE VIEW
NO SCALE



SECTION THRU BASIN, FILTER AND CULVERT PIPE
NO SCALE

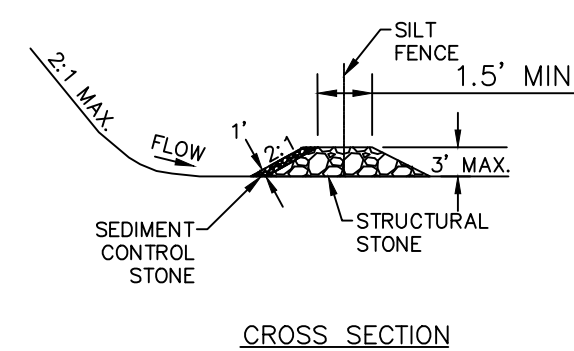
ARC FILTER INLET PROTECTION
NTS



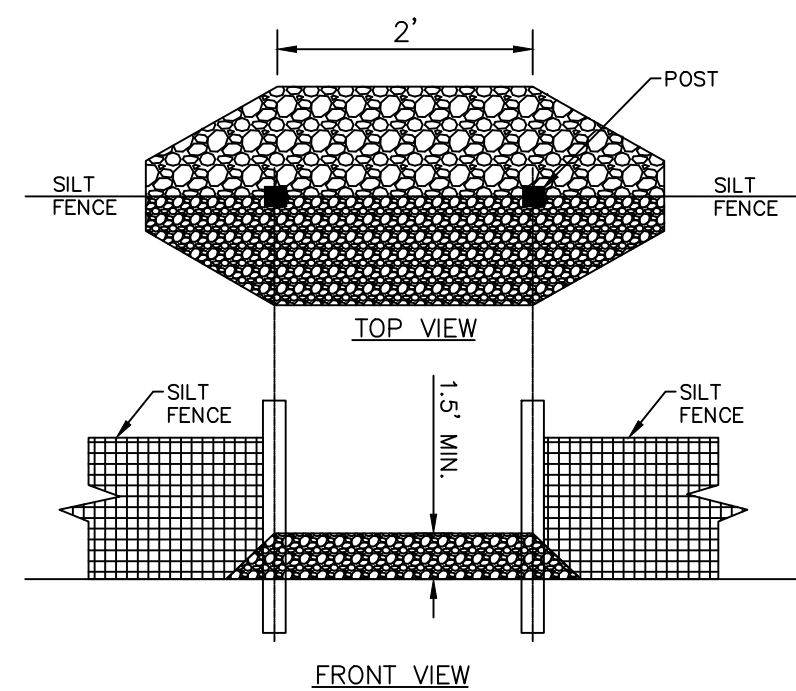
- WARNING SIGNS TO BE MADE OF DURABLE WATERPROOF PLASTIC.
- ALL LETTERS TO BE AT LEAST 3" HIGH, CLEARLY LEGIBLE AND SPACED APPROPRIATELY.
- SIGNS TO BE PLACED AT EACH END OF LINER PROTECTION AREA AND 200' ON CENTER (MAX.) THEREAFTER FOR PROTECTION AREA LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA AND/OR SIDE.
- ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. FABRIC MUST BE ATTACHED TO APPROVED POSTS ONLY. DO NOT ATTACH TO TREES.
- ADDITIONAL FENCING MAY BE REQUIRED BASED ON FIELD CONDITIONS.
- FAILURE TO MAINTAIN PROTECTION FENCING MAY RESULT IN CIVIL PENALTIES.

TREE PROTECTION FENCE
NTS

NOTE: STRUCTURAL STONE SHALL BE CLASS B STONE FOR EROSION CONTROL PURPOSES. SEDIMENT CONTROL STONE SHALL BE NO. 5 OF NO. 57 STONE.

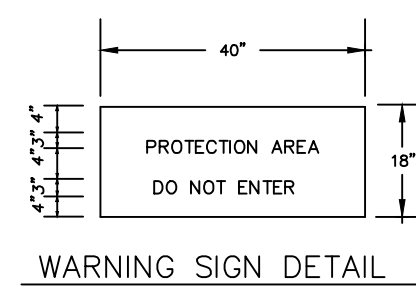


CROSS SECTION

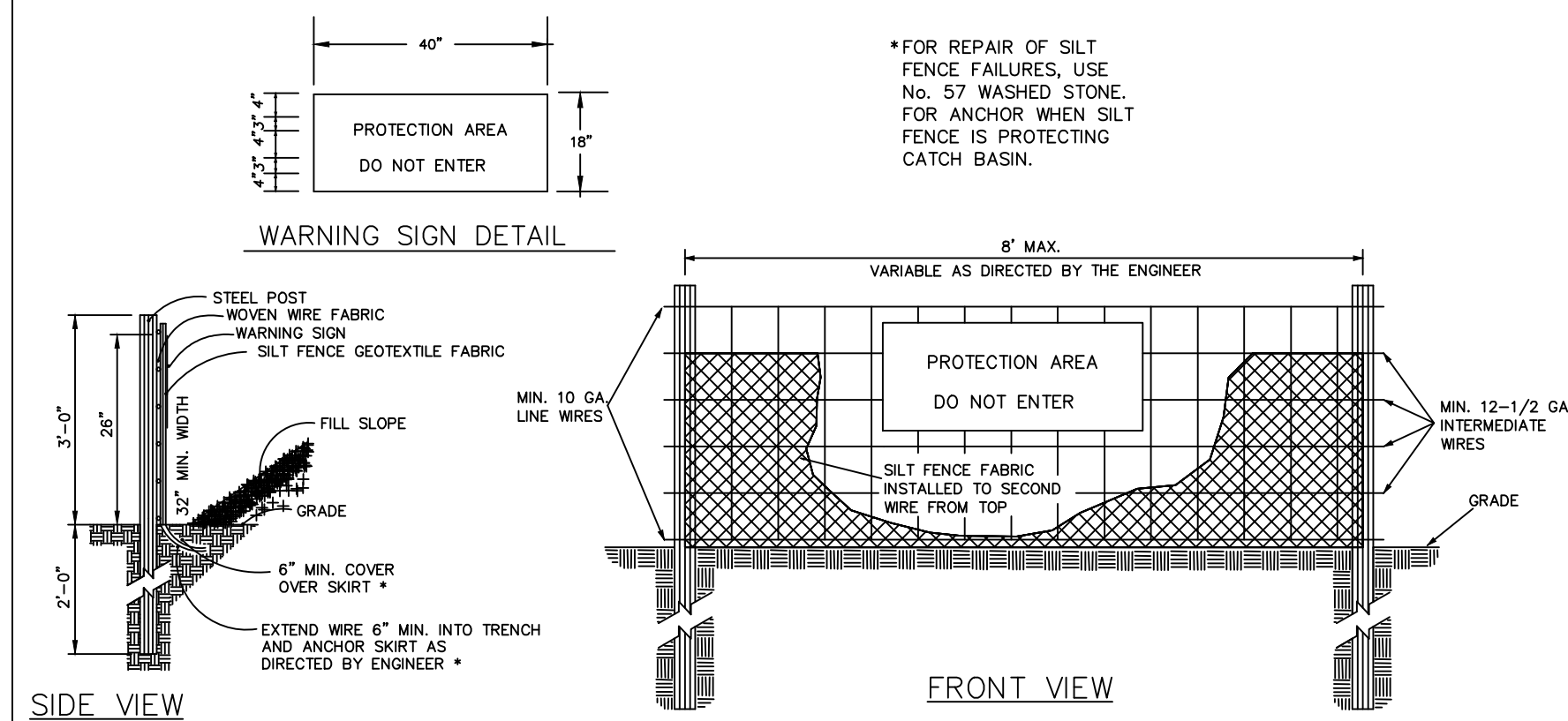


FRONT VIEW

SILT FENCE OUTLET
NTS



WARNING SIGN DETAIL

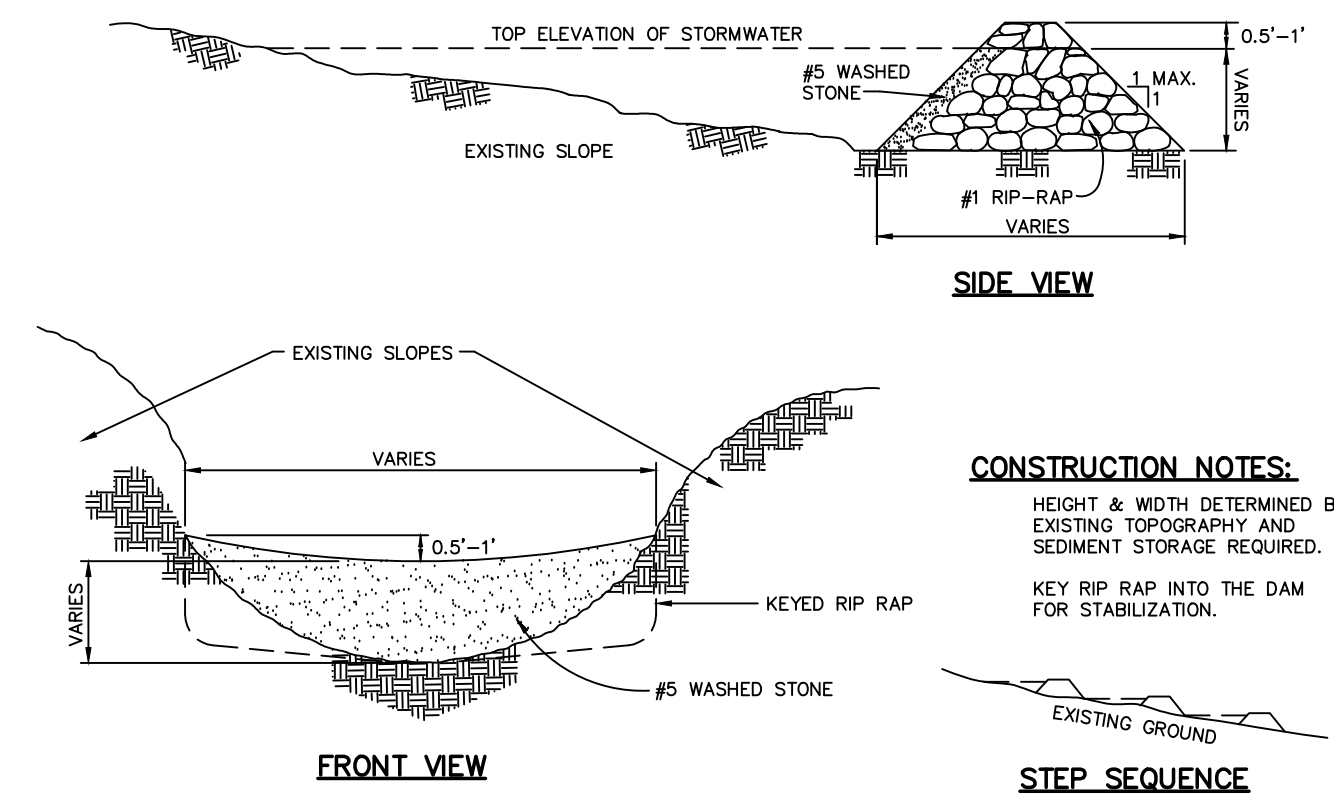


SIDE VIEW

FRONT VIEW

COMBINATION SILT/TREE PROTECTION FENCE
NTS

- NOTES:
- WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
 - LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
 - SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
 - PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
 - FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
 - ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
 - MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
 - ADDITIONAL SIGNS MAY BE REQUIRED BY CHATHAM COUNTY BASED ON ACTUAL FIELD CONDITIONS.
 - PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
 - FLOW SHALL NOT RUN PARALLEL WITH THE FENCE.
 - END OF SILT FENCE NEEDS TO BE TURNED UPHILL.
 - SEE NCDENR PRACTICE & SPECIFICATIONS MANUAL SEDIMENTS FENCE SECTION FOR CONDITIONS WHERE PRACTICE APPLIES AND DESIGN CRITERIA.



CONSTRUCTION NOTES:

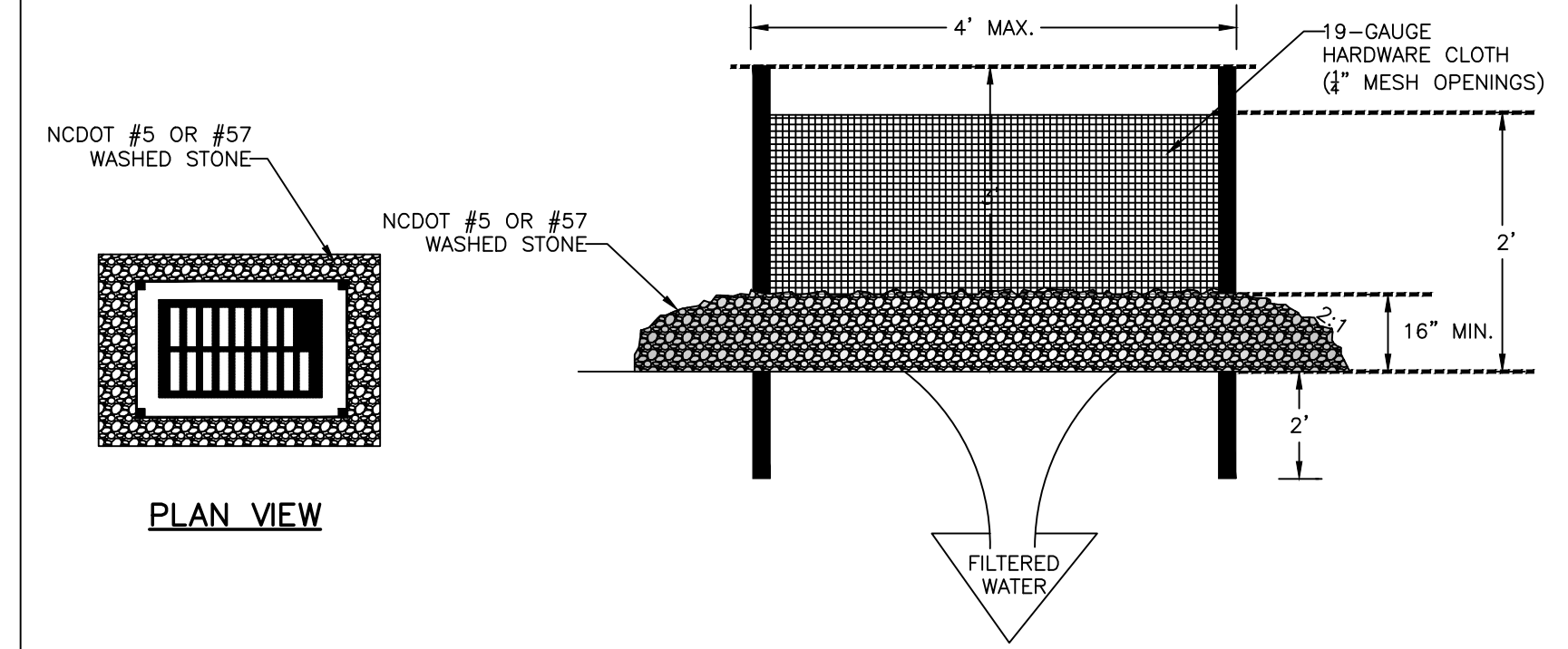
HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED. KEY RIP RAP INTO THE DAM FOR STABILIZATION.

NOTE: REMOVE SEDIMENT ACCUMULATION FROM BEHIND CHECK DAMS TO PREVENT DAMAGE TO CHANNEL, VEGETATION. FLOW SHOULD BE MAINTAINED THROUGH THE DAM.

CHECK DAM
NTS

NOTES:

- UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
- DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
- SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
- PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
- ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
- COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUND COVER.

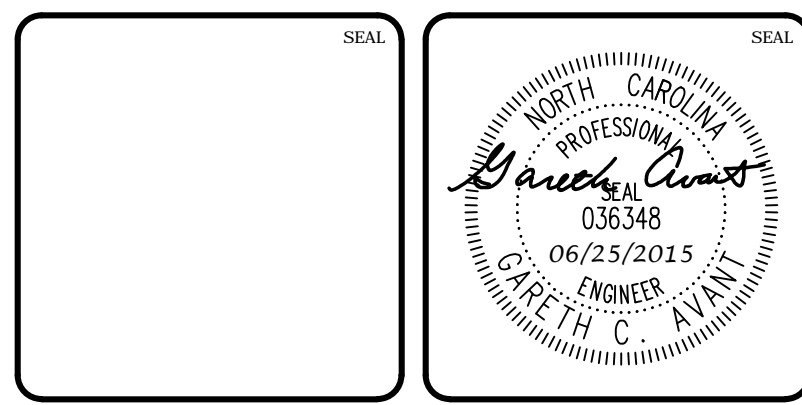


PLAN VIEW

CROSS SECTION

HARDWARE CLOTH & GRAVEL INLET PROTECTION
NTS

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BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
EROSION AND SEDIMENTATION
CONTROL DETAILS

DATE: APRIL 17, 2015	SCALE: HORIZONTAL 1" = 50'	MISC FILE NUMBER: D1.X
MCE PROJ. # 02735-0113	DRAWN: BSS	DRAWING NUMBER: D1.1
DESIGNED: BSS	CHECKED: GCA	VERTICAL: N/A
PROJ. MGR. CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 2

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE SPECIES	RATE (lb/acre)
TALL FESCUE	80
KOBE LESPEDEZA	40

NURSE PLANTS: BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre GERMAN MILLET OR 15 lb/acre SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:

	BEST	POSSIBLE
FALL	AUG. 15 - SEPT. 15	AUG. 20 - OCT. 25
LATE WINTER:	FEB. 15 - MAR. 21	FEB. 1 - APR. 15.

FALL IS BEST FOR TALL FESCUE AND LATER WINTER FOR LESPEDEZAS. OVERSEEDING OF KOBE LESPEDEZA OVER FALL-SEEDED TALL FESCUE IS VERY EFFECTIVE.

SOIL AMENDMENTS: FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH: APPLY 4,000 lb/acre STRAW. 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.

MAINTENANCE: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR GRASS-LINED CHANNELS

SEEDING MIXTURE SPECIES	RATE (lb/acre)
TALL FESCUE	200

NURSE PLANTS: BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre SUDANGRASS OR 15 lb/acre GERMAN MILLET. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:

	BEST	POSSIBLE
FALL	AUG. 25 - OCT.	
LATE WINTER:	FEB. - APR. 15	

AVOID SEEDING FROM NOV. TO JAN. IF SEEDING MUST BE DONE AT THIS TIME, ADD 40 lb/acre RYE GRAIN AND USE A CHANNEL LINING THAT OFFERS MAXIMUM PROTECTION

SOIL AMENDMENTS: FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/acre 10-10-10 FERTILIZER

MULCH: USE ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF THE CHANNELS AND DITCHES, AND STAPLE SECURELY. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 lb/acre GRAIN STRAW, AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE THEY CAN CLOG DRAINAGE DEVICES.

MAINTENANCE: INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 lb/acre 10-10-10. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

NOTE: SEE NCDENR'S EROSION AND SEDIMENT CONTROL PLANNING DESIGN MANUAL SECTION 6.11 FOR ADDITIONAL PERMANENT SEEDING OPTIONS.

PERMANENT SEEDING SCHEDULE
NTS

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE SPECIES	RATE (lb/acre)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT & COASTAL PLAIN, KOREAN IN MOUNTAINS)	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE

SEEDING DATES:

	(ABOVE 2,500')	FEB. 15 - MAY 15
MOUNTAINS		
	(BELOW 2,500')	FEB. 1 - MAY 1
PIEDMONT:		
COASTAL PLAIN:		JAN. 1 - MAY 1
		DEC. 1 - APR. 15

SOIL AMENDMENTS: FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH: APPLY 4,000 lb/acre STRAW. 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.

MAINTENANCE: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE SPECIES	RATE (lb/acre)
GERMAN MILLET	40

IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 lb/acre.

SEEDING DATES:

	MAY 15 - AUG. 15
MOUNTAINS	
PIEDMONT:	MAY 1 - AUG. 15
COASTAL PLAIN:	APR. 15 - AUG. 15

SOIL AMENDMENTS: FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH: APPLY 4,000 lb/acre STRAW. 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.

MAINTENANCE: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR FALL

SEEDING MIXTURE SPECIES	RATE (lb/acre)
RYE (GRAIN)	120

SEEDING DATES:

	AUG. 15 - DEC. 15
MOUNTAINS:	
COASTAL PLAIN AND PIEDMONT:	AUG. 15 - DEC. 30

SOIL AMENDMENTS: FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

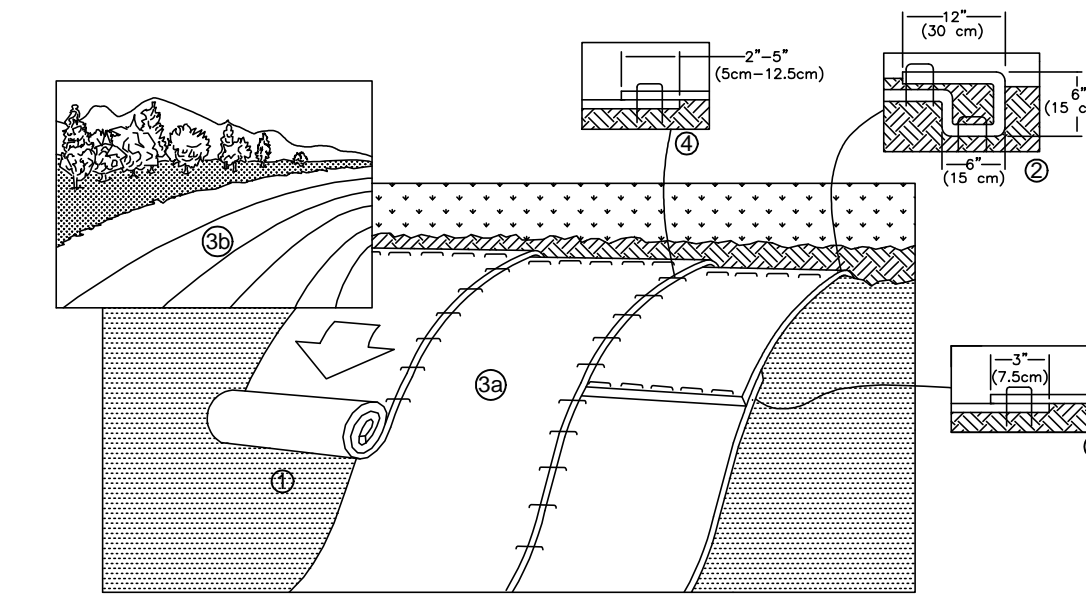
MULCH: APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE: REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 lb/acre OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 lb/acre KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

TEMPORARY SEEDING SCHEDULE
NTS

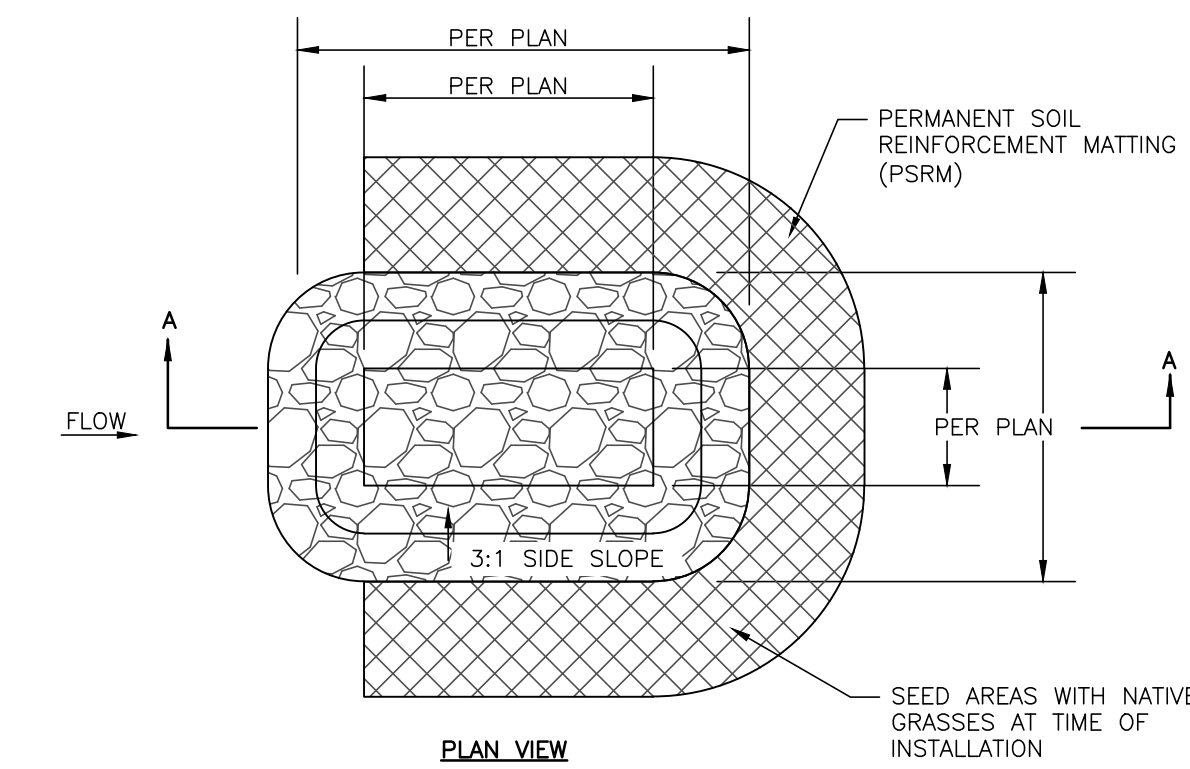
- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
 - RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
 - REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
 - APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW*).
 - CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
 - SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
 - MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
 - INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
 - CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
- * APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ACRE OR 3 TONS/ACRE IN CLAY SOILS
FERTILIZER - 1000 LBS/ACRE (10-10-10)
SUPERPHOSPHATE - 500 LBS/ACRE (20%)
MULCH - 2 TONS/ACRE (SMALL GRAIN STRAW)ANCHOR - ASPHALT EMULSION AT 450 GAL./ACRE

SEEDBED PREPARATION
NTS

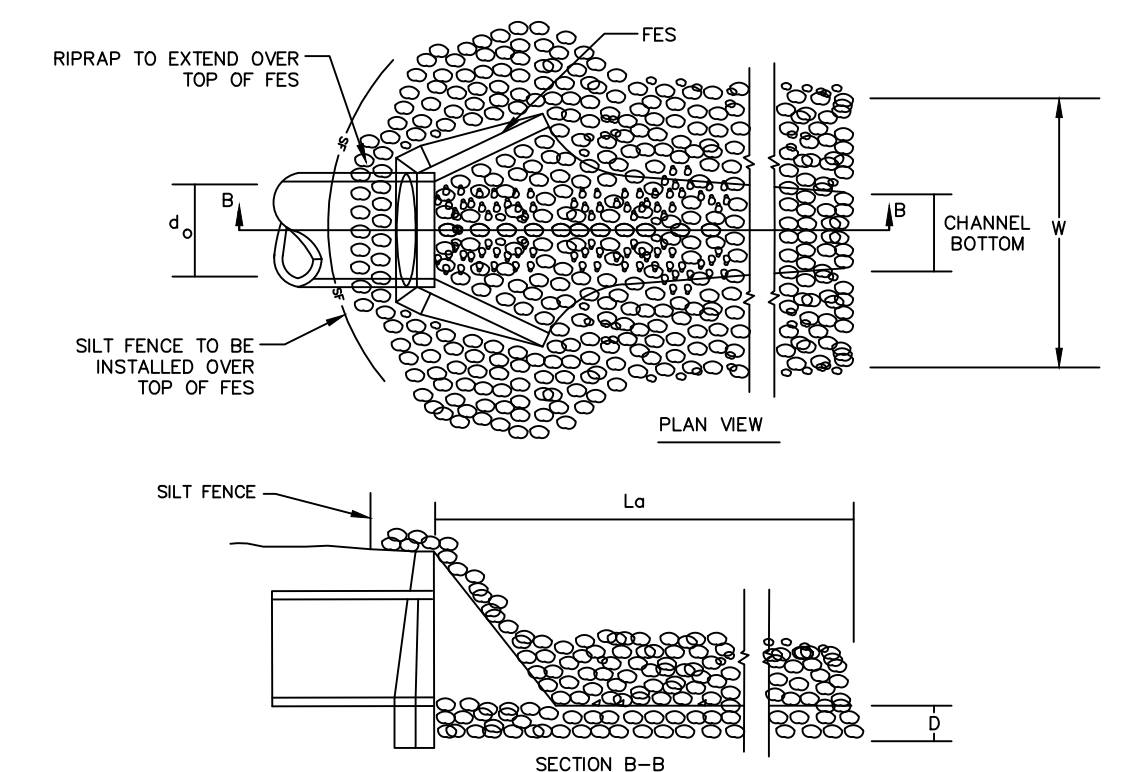


- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPs EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECPs BACK OVER SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECPs.
 - ROLL THE RECPs (A.) DOWN (FOR SLOPES 3:1 OR GREATER) OR (B.) HORIZONTALLY (FOR SLOPES LESS THAN 3:1) ACROSS THE SLOPE. RECPs WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 - THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH APPROXIMATELY 2" -5" (5 CM -12.5 CM) OVERLAP DEPENDING ON RECP'S TYPE.
 - CONSECUTIVE RECPs SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP'S WIDTH.
- NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECPs.

TEMPORARY STABILIZATION FOR SLOPES GREATER THAN 10 FEET
NTS



SCOUR HOLE
NTS



OUTLET NO.	Do (IN.)	Lo (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
HW-BPD-6	18	9.0	5.0	22	CLASS B
HW-BPD-11	18	9.0	5.0	22	CLASS B

STONE CLASSIFICATIONS OF CLASS B REQUIRE A SUBLAYER OF FILTER FABRIC OR FS-2 FILTER STONE WITH A BEDDING THICKNESS OF 6".

RIPRAP OUTLET PROTECTION
NTS

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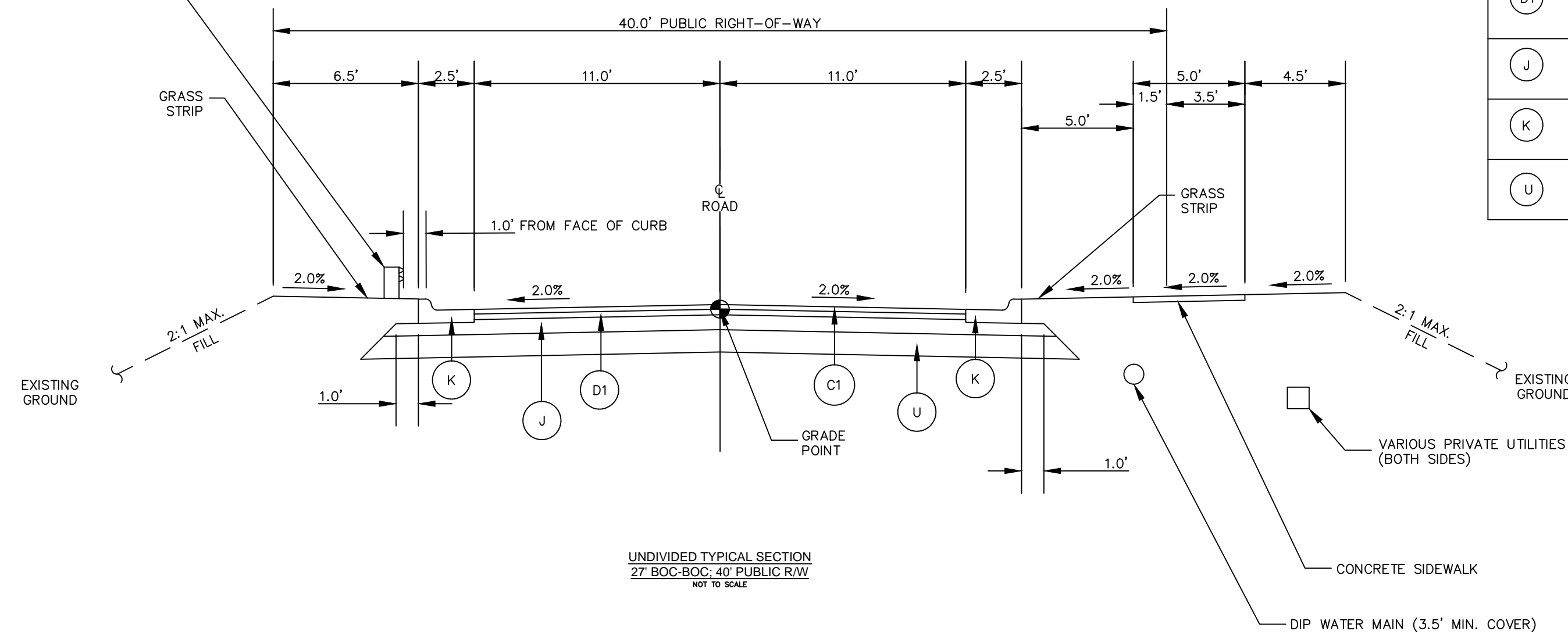
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BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA

EROSION AND SEDIMENTATION CONTROL DETAILS

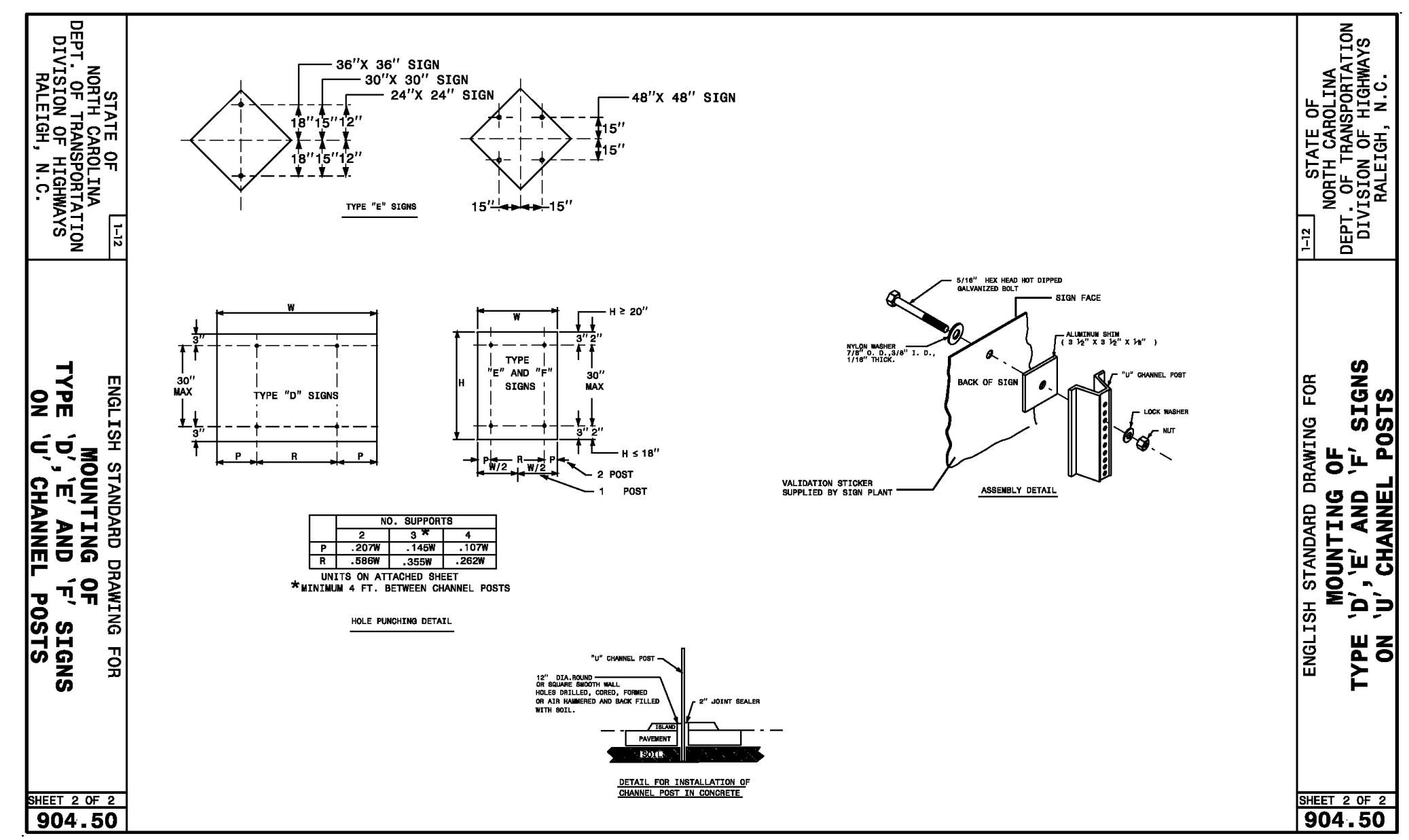
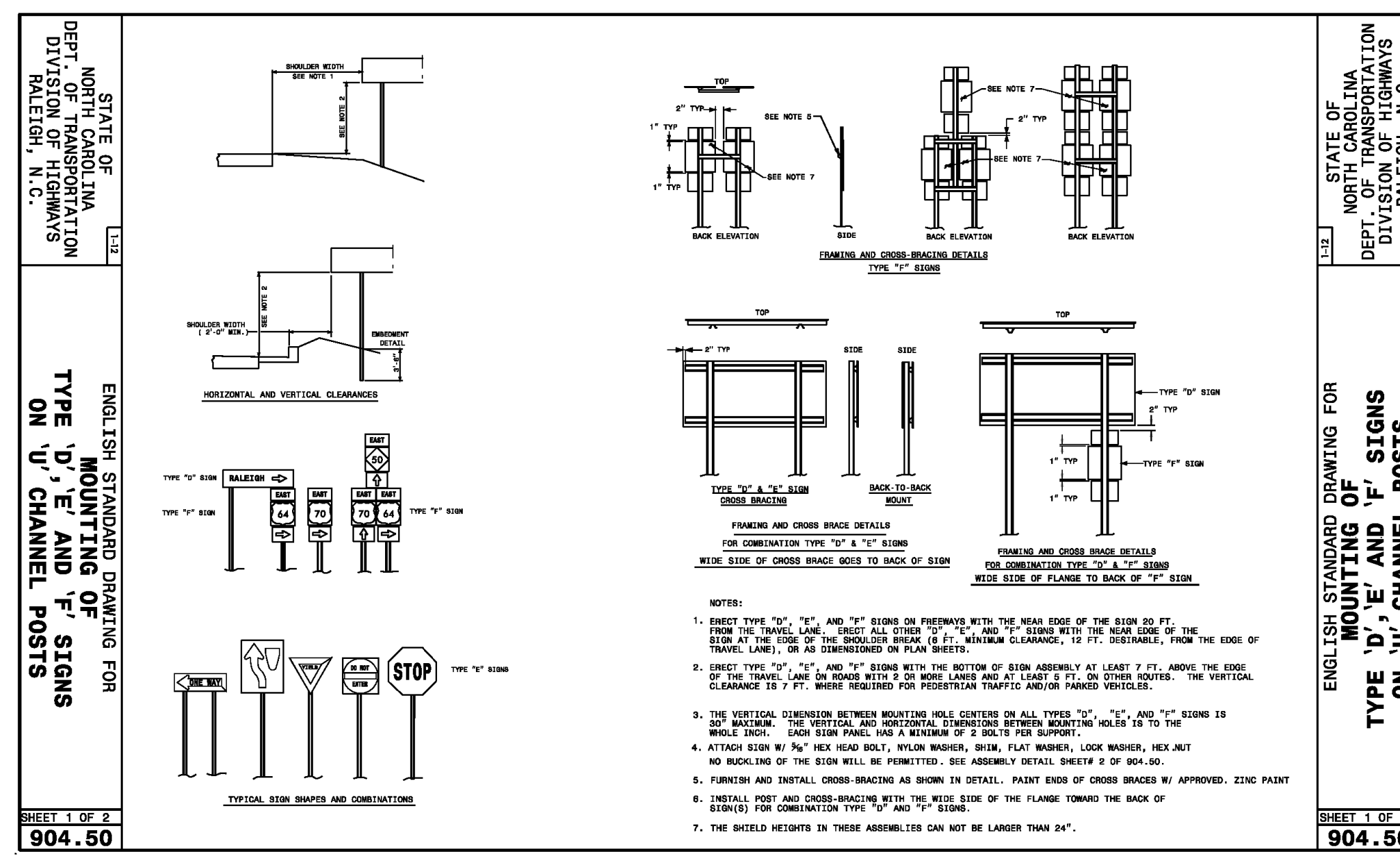
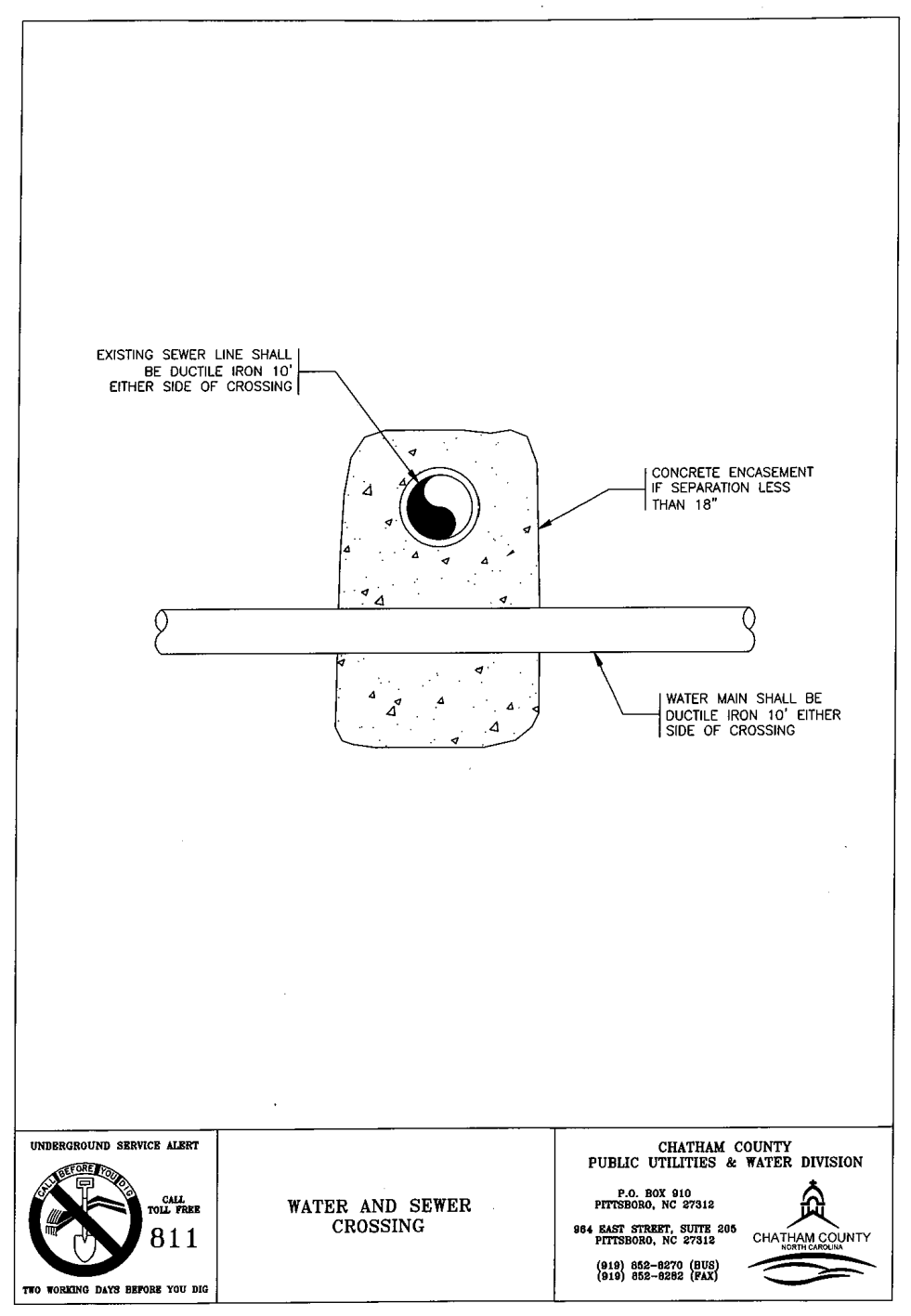
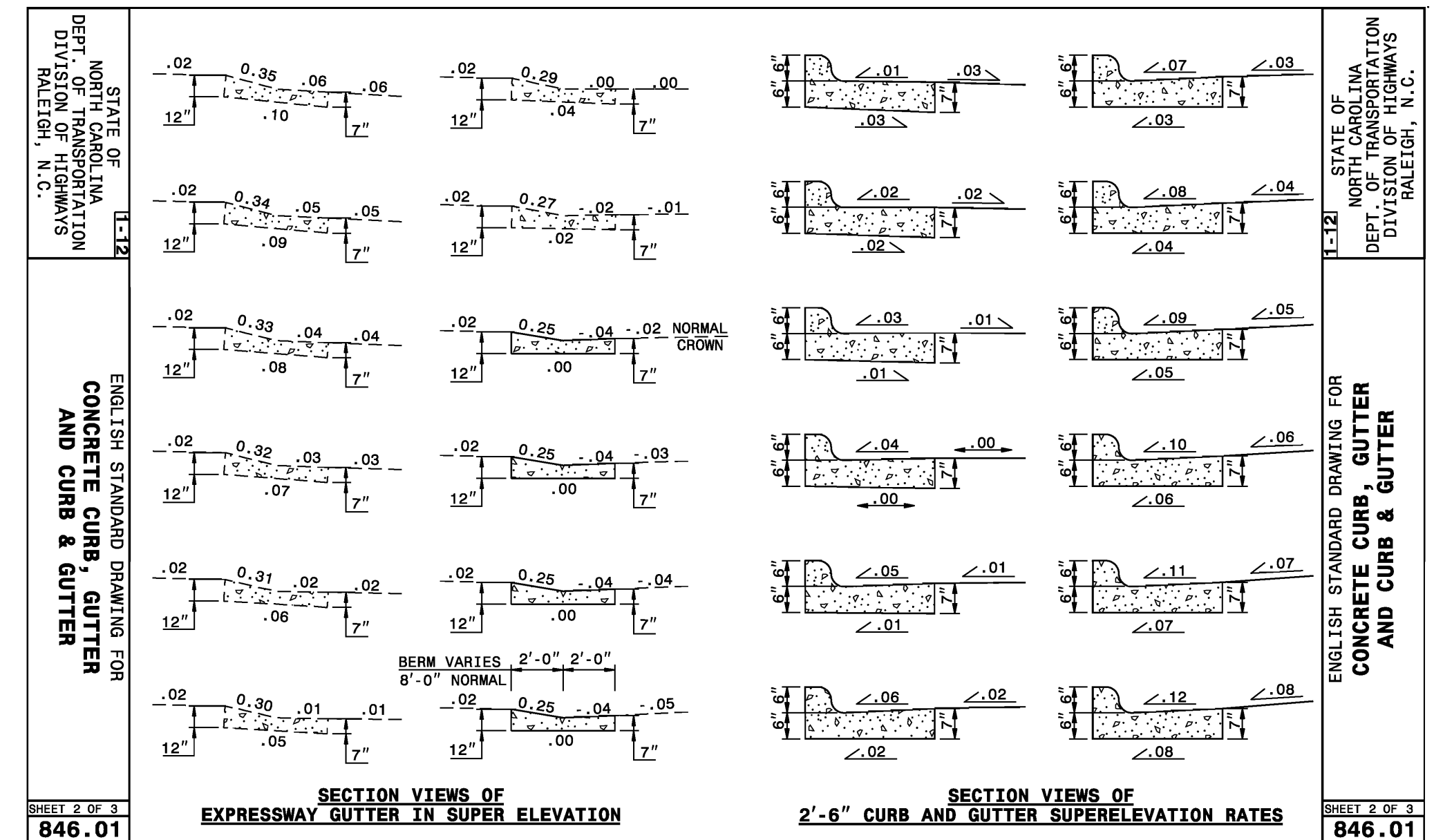
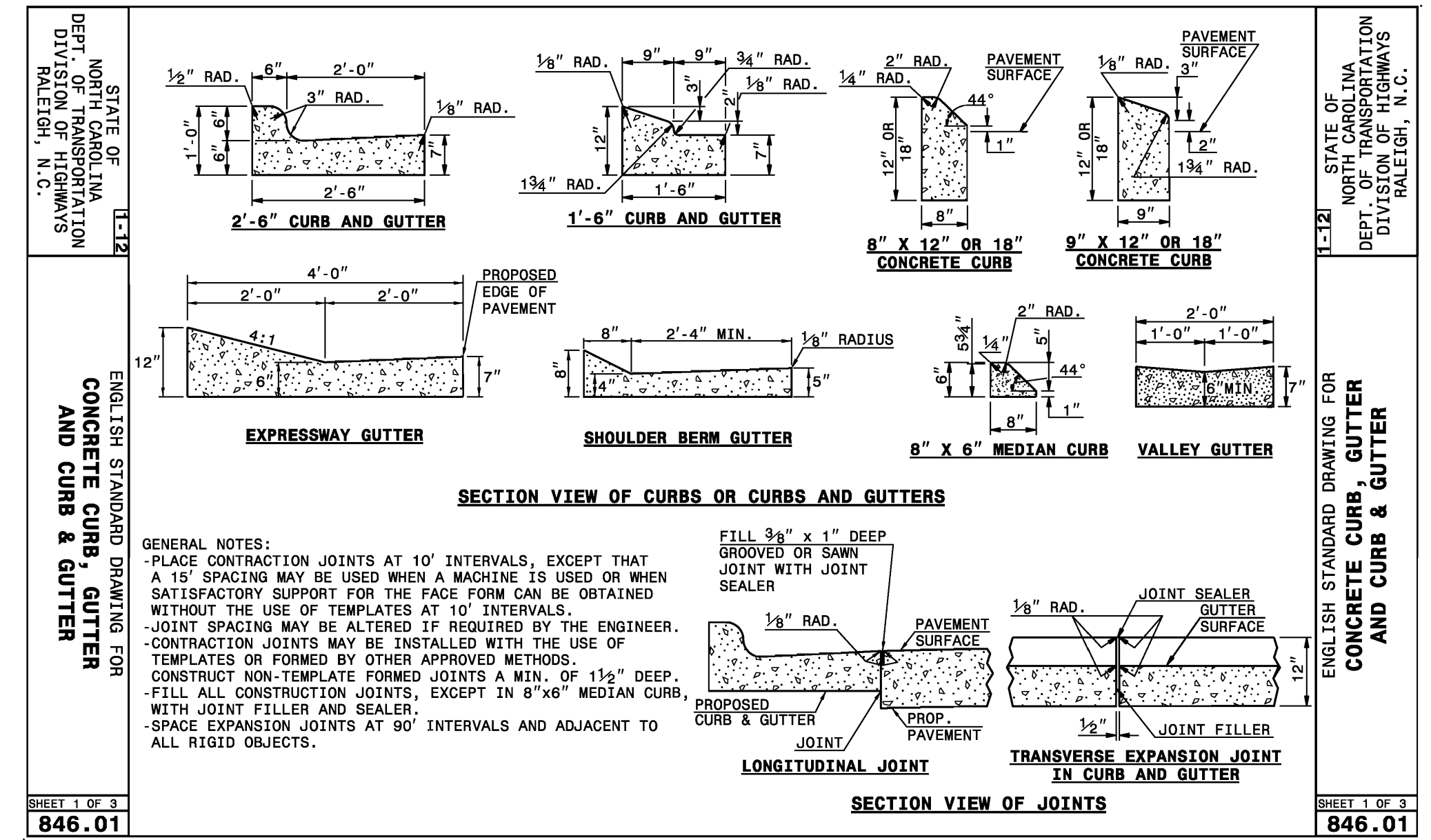
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DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR. CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 2	

GUARDRAIL TO BE USED WHERE TOE OF SLOPE IS GREATER THAN 5' GRADE DIFFERENTIAL FROM TOP OF SHOULDER

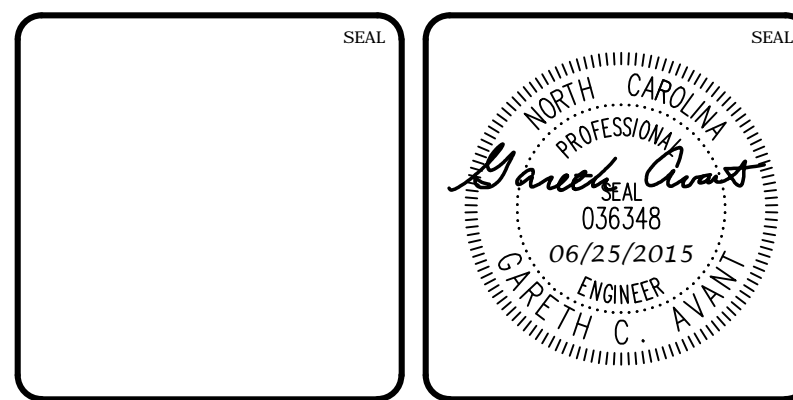


UNDIVIDED TYPICAL SECTION
27' BOC-BOC, 40' PUBLIC ROW
NOT TO SCALE

PAVEMENT SCHEDULE	
(C1)	1.0" SF9.5A ASPHALT SURFACE COURSE AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD.
(D1)	2.0" S9.5B ASPHALT SURFACE COURSE AT AN AVERAGE RATE OF 224 LBS. PER SQ. YARD.
(J)	8" COMPACTED ABC STONE BASE COURSE
(K)	30" CURB AND GUTTER
(U)	COMPACTED SUBGRADE



REV. NO.	DESCRIPTIONS	DATE
2	REVISED PER COMMENTS RECEIVED FROM NCDOT	2015.06.25
1	ISSUED FOR PERMITTING	2015.04.17



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BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
NCDOT ROADWAY DETAILS

DATE: APRIL 17, 2015	SCALE: HORIZONTAL	MISC FILE NUMBER: D2.X
MCE PROJ. # 02735-0113	DRAWN: BSS	DRAWING NUMBER: D2.1
DESIGNED: BSS	CHECKED: GCA	REVISION: 2
PROJ. MGR. CHS	STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
FRAMES AND NARROW SLOT SAG GRATES

NOTE: SEE STD. DWG. 840.25 FOR FRAME ANCHORAGE.

SHEET 1 OF 1
840.24

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE GRATED DROP INLET TYPE 'D'

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC ROAD, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CHAINS MATCHING.
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.
USE STANDARD FRAMES AND GRATES 840.22 (BROWN), 840.24 (BROWN), 840.20, 840.26, AND 840.33.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

PIPE	SPAN		WIDTH	HEIGHT	PER SQ. YD. MIN.		TOTAL	REDUCTIONS FOR ONE PIPE		
	D	A			CONCRETE	C.S.		R.C.		
12"	3'-6"	2'-0"	2'-0"	1'-0"	0.362	0.247	0.381	0.753	0.020	0.032
15"	3'-6"	2'-0"	2'-0"	1'-11"	0.362	0.247	0.453	0.815	0.023	0.036
18"	3'-6"	2'-0"	2'-0"	2'-2"	0.362	0.247	0.515	0.877	0.033	0.048
24"	3'-6"	2'-0"	2'-0"	2'-8"	0.362	0.247	0.659	1.021	0.059	0.085
30"	3'-6"	2'-0"	3'-2"	3'-2"	0.362	0.247	0.782	1.144	0.082	0.127
36"	3'-6"	2'-0"	3'-6"	3'-6"	0.362	0.247	0.906	1.268	0.132	0.178

SHEET 1 OF 1
840.19

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 2'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC ROAD, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
USE TYPE "E", "F", AND "G" GRATES UNLESS OTHERWISE INDICATED.
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
CONSTRUCT WITH PIPE CHAINS MATCHING.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

SHEET 1 OF 2
840.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN

NOTES: USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 2'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC ROAD, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CHAINS MATCHING.
INITIAL 2" REEHOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE GRATING, OF A MINIMUM OF 1 QUADRANT FOOT OF NO. 7MM STONE IN A PORTLAND FIBER BAG OR WAMP, AT EACH WEEP HOLE ON AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.
INCREASE THE SIZE OF THE OPENING TO 8" MAX., AS DIRECTED BY THE ENGINEER BY ADDING 2" TO THE WALL HEIGHT ABOVE THE TOP ELEVATION. ADJUST QUANTITIES ACCORDINGLY.

PIPE	SPAN		WIDTH	HEIGHT	PER SQ. YD. MIN.		TOTAL	REDUCTIONS FOR ONE PIPE		
	D	A			CONCRETE	C.S.		R.C.		
12"	3'-6"	2'-3"	1'-10"	4'-3"	0.181	0.271	0.250	0.753	0.020	0.046
15"	3'-6"	2'-3"	1'-11"	4'-3"	0.181	0.271	0.250	0.753	0.020	0.046
18"	3'-6"	2'-3"	1'-11"	4'-3"	0.226	0.340	0.284	0.877	0.033	0.053
24"	3'-6"	2'-3"	2'-0"	4'-3"	0.226	0.340	0.284	0.877	0.033	0.053
30"	3'-6"	2'-3"	2'-0"	4'-3"	0.278	0.417	0.315	1.021	0.059	0.085
36"	3'-6"	2'-3"	2'-0"	4'-3"	0.278	0.417	0.315	1.021	0.059	0.085
42"	3'-6"	2'-3"	2'-0"	4'-3"	0.407	0.611	0.369	1.268	0.132	0.178
48"	3'-6"	2'-3"	2'-0"	4'-3"	0.407	0.611	0.369	1.268	0.132	0.178

SHEET 1 OF 2
840.04

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD

NOTE: USE TYPE "E", "F", AND "G" GRATE UNLESS OTHERWISE NOTED.
ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT.

SHEET 1 OF 2
840.03

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 2'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC ROAD, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
USE TYPE "E", "F", AND "G" GRATES UNLESS OTHERWISE INDICATED.
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
CONSTRUCT WITH PIPE CHAINS MATCHING.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

PIPE	SPAN		WIDTH	HEIGHT	PER SQ. YD. MIN.		TOTAL	REDUCTIONS FOR ONE PIPE		
	D	A			CONCRETE	C.S.		R.C.		
12"	3'-6"	2'-2"	2'-0"	1'-0"	0.235	0.325	0.250	0.753	0.020	0.046
15"	3'-6"	2'-2"	2'-0"	1'-11"	0.235	0.325	0.250	0.753	0.020	0.046
18"	3'-6"	2'-2"	2'-0"	1'-11"	0.280	0.410	0.284	0.877	0.033	0.053
24"	3'-6"	2'-2"	2'-0"	1'-11"	0.280	0.410	0.284	0.877	0.033	0.053
30"	3'-6"	2'-2"	2'-0"	1'-11"	0.335	0.500	0.315	1.021	0.059	0.085
36"	3'-6"	2'-2"	2'-0"	1'-11"	0.335	0.500	0.315	1.021	0.059	0.085
42"	3'-6"	2'-2"	2'-0"	1'-11"	0.490	0.730	0.369	1.268	0.132	0.178
48"	3'-6"	2'-2"	2'-0"	1'-11"	0.490	0.730	0.369	1.268	0.132	0.178

SHEET 2 OF 2
840.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD

DETAIL SHOWING TYPES OF GRATES
USE ACCORDING TO WATER FLOW.

RAISED FLOW ARROW
3/8" HIGH

SHEET 2 OF 2
840.03

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
PRECAST CONCRETE ENDWALL

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 8" CTS. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ENDWALL DIMENSIONS		MIN./MAX.		MIN./MAX.		MIN./MAX.	
PIPE DIA.	BAR SIZE	H1(FT.)	H2(FT.)	D (FT.)	W1	W2	
1.25	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00	
1.50	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75	
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75	
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25	
2.5	#5 @ 8"	2.50/3.00	4.00/6.00	2.50/3.00	4.50/5.50	10.00/11.50	
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75	11.00/11.75	
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75	12.00/13.25	
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25	
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75	
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75	
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75	
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75	

SHEET 1 OF 1
838.80

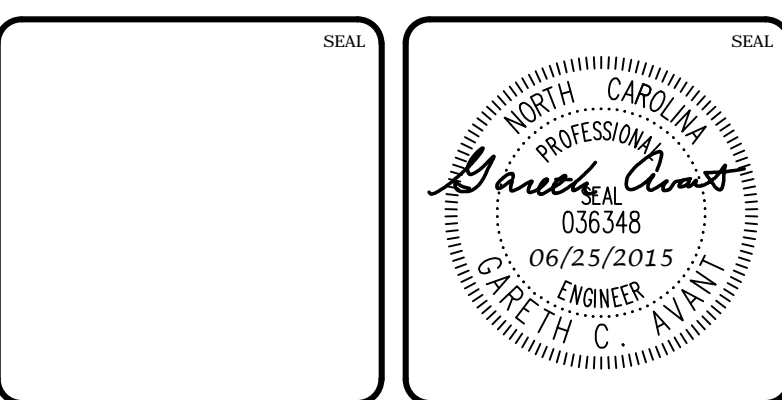
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN

NOTE: USE TYPE "E", "F", AND "G" GRATE UNLESS OTHERWISE NOTED.
ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT.

SHEET 1 OF 2
840.03

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
2	2015.06.25	REVISED PER COMMENTS RECEIVED FROM NCDOT	
1	2015.04.17	ISSUED FOR PERMITTING	



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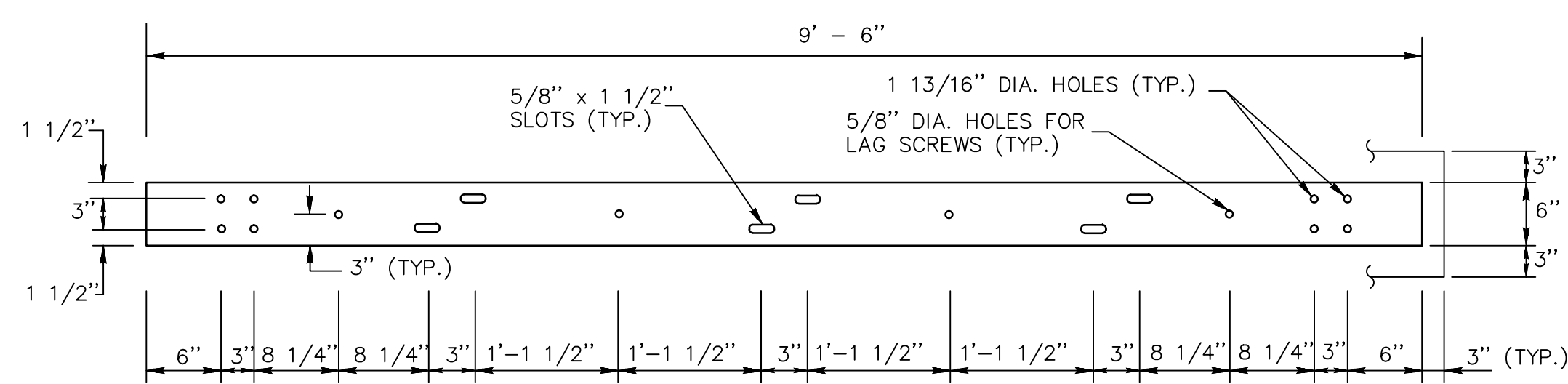
NCDOT DRAINAGE DETAILS

DATE: APRIL 17, 2015
MCE PROJ. # 02735-0113
DRAWN: BSS
DESIGNED: BSS
CHECKED: GCA
PROJ. MGR. CHS

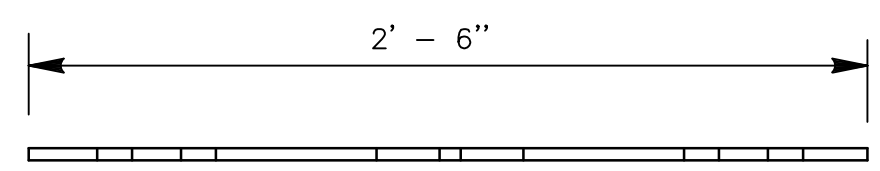
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VERTICAL: N/A

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DRAWING NUMBER: D2.2

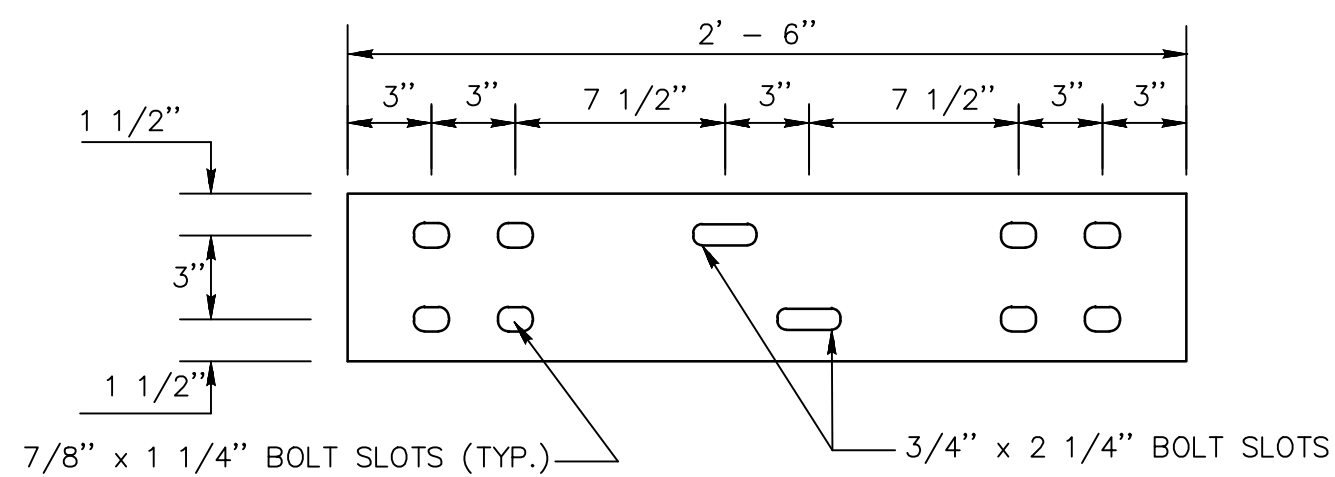
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 2



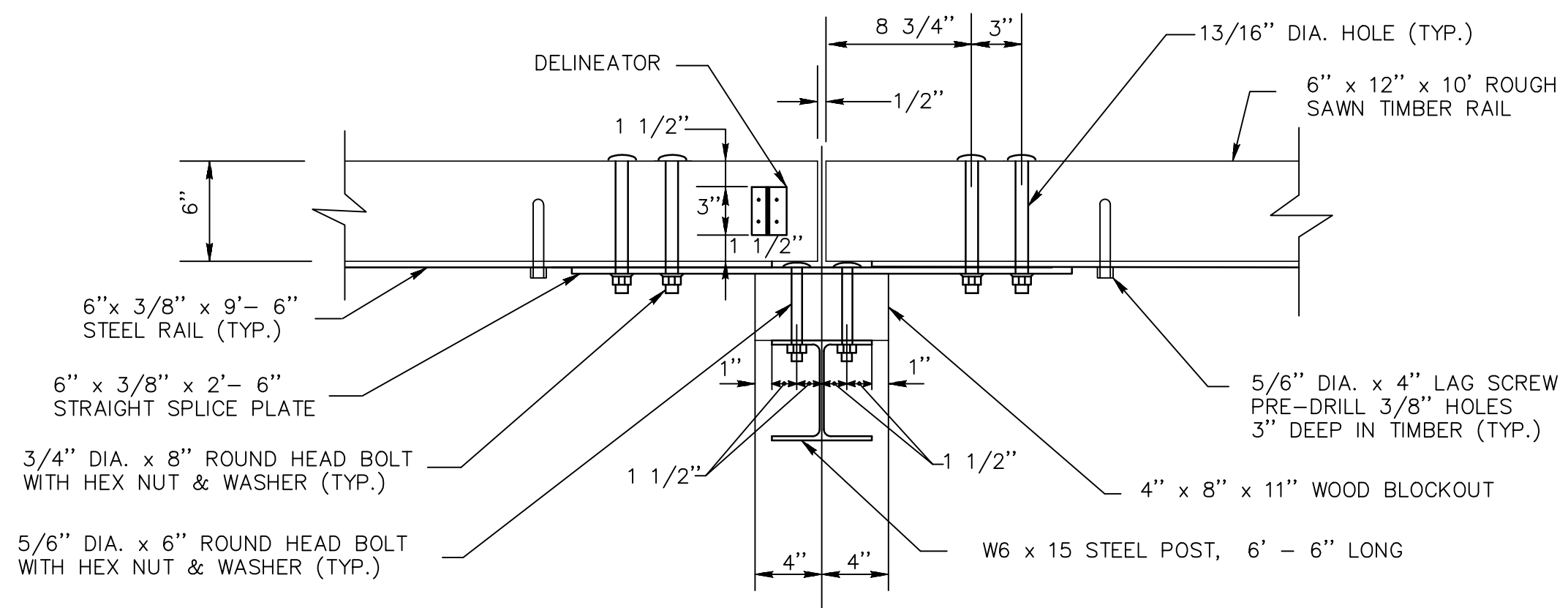
STANDARD STEEL RAIL DETAIL
6" x 3/8" x 9' - 6"
NTS



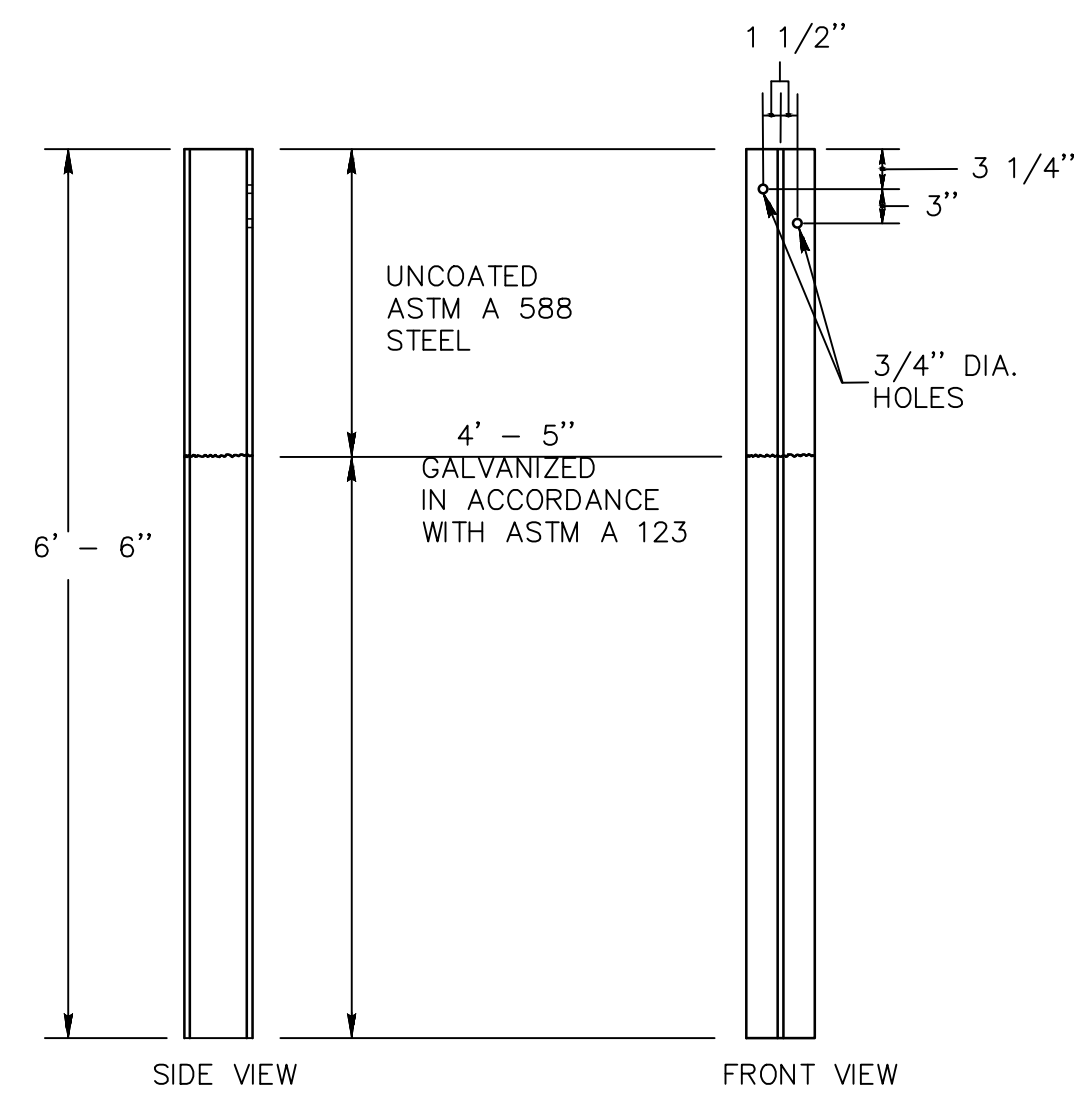
STRAIGHT SPLICE PLATE ELEVATION
NTS



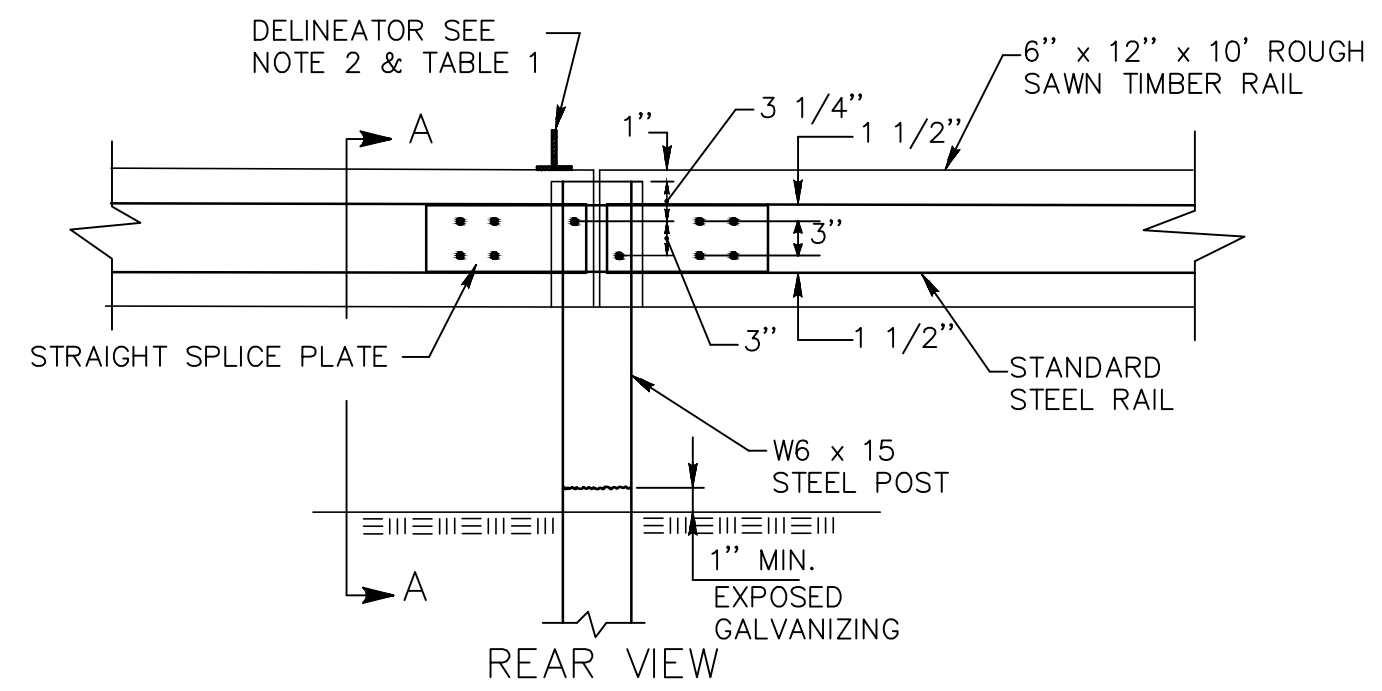
SPLICE PLATE DETAIL
6" x 3/8" x 2'-6"
NTS



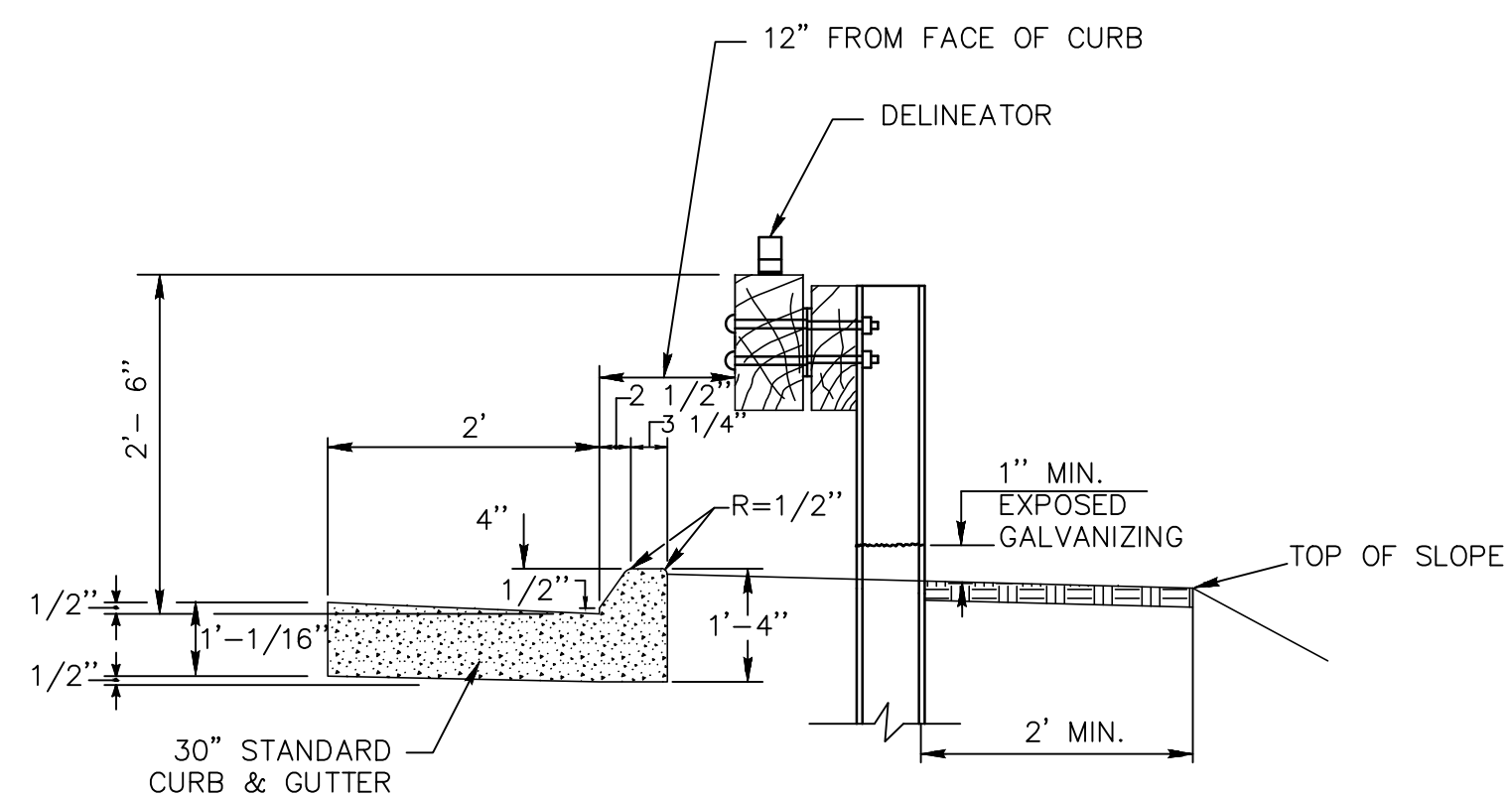
POST CONNECTION FOR STRAIGHT SECTIONS
NTS



POST DETAIL
W6 x 15
NTS



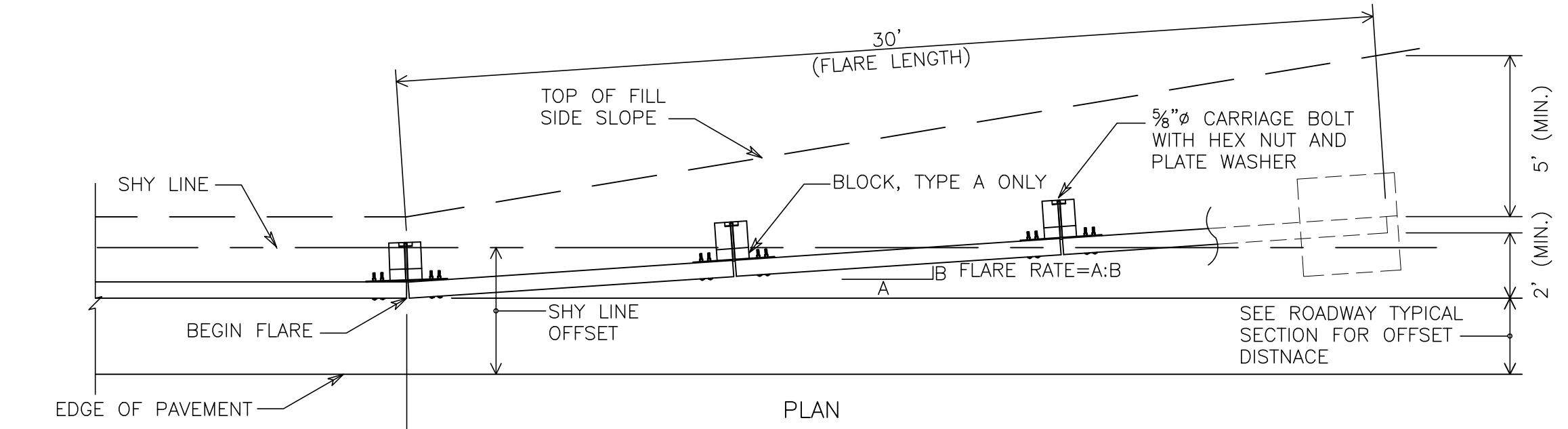
POST CONNECTION ELEVATION
NTS



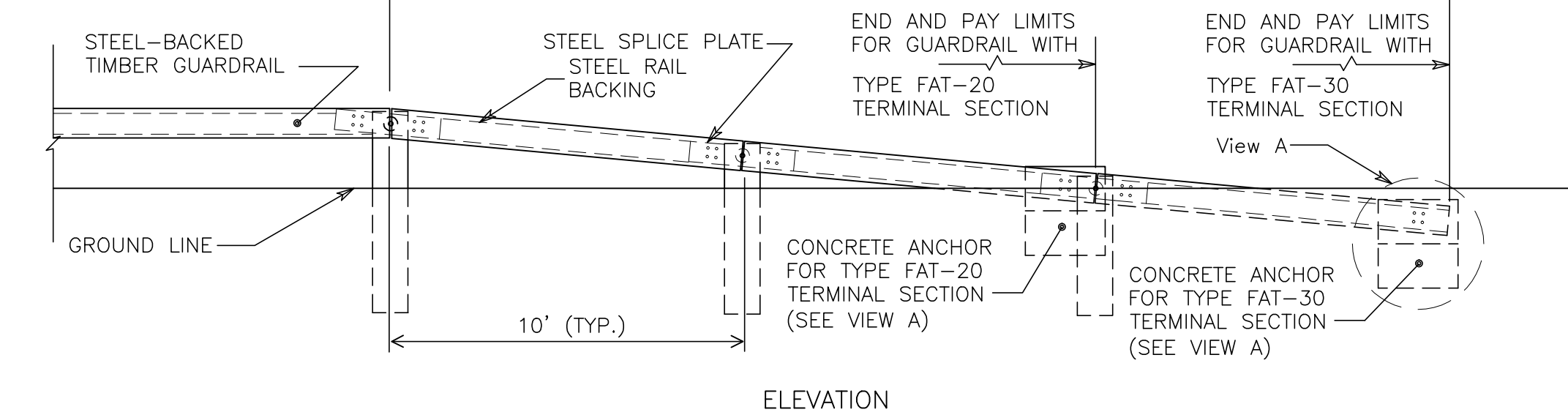
STANDARD SECTION WITH CURB
NTS

TABLE 1
DELINATOR SPACING

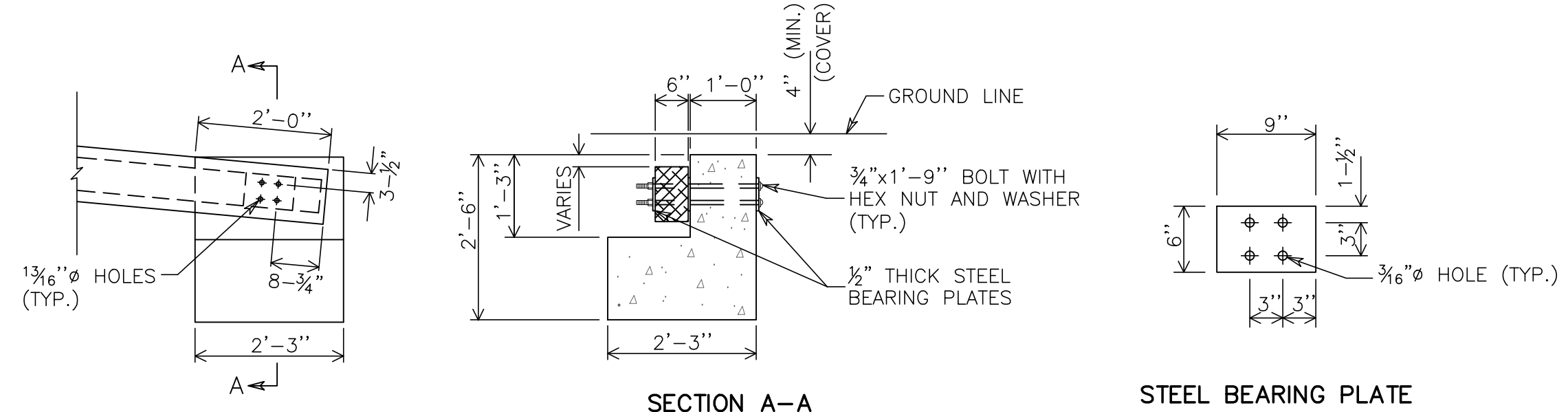
CURVE RADIUS	SPACE
< 300'	20'
> 300'	50'



APPROACH AND DEPARTURE FLARE WITH FLARED ANCHOR TERMINAL (FAT)
NTS



APPROACH AND DEPARTURE FLARE WITH FLARED ANCHOR TERMINAL (FAT)
NTS

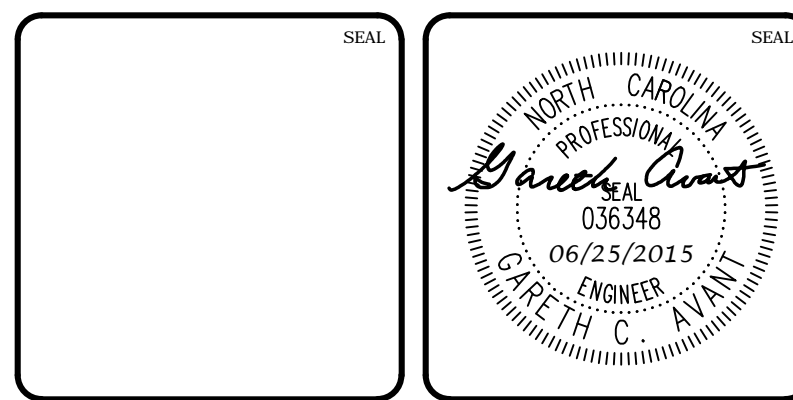


CONCRETE ANCHOR
NTS

NOTES

- MATERIALS AND CONSTRUCTION OF THE GUARDRAIL SHALL CONFORM TO SPECIAL PROVISION PROVIDED WITH THE PROJECT. ALL HARDWARE IN CONTACT WITH THE GROUND SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIAL PROVISION.
- DELINATOR REFLECTORS SHALL BE BROWN PLASTIC INVERTED T-SECTIONS CONFORMING TO DURAFLEX CORP. SLEXX 2020, OR APPROVED EQUAL. REFLECTIVE SHEETING SHALL BE SQUARE, AND A MINIMUM OF 19 SQ. IN., AND CONFORM TO SECTION M.18.09. DELINATORS SHALL BE ATTACHED WITH FOUR (4) 1" - LONG, GALVANIZED WOOD SCREWS. REFLECTORS SHALL BE SPACED IN ACCORDANCE WITH THE TABLE, AND POSITIONED PERPENDICULAR TO THE ADJACENT EDGE OF LANE. DO NOT ATTACH REFLECTORS ON FLAIR OR TERMINAL SECTIONS. REFLECTIVE SHEETING SHALL BE SILVER-WHITE ON ALL RAIL SECTIONS ADJACENT TO THE RIGHT SHOULDER, AND YELLOW ON RAIL SECTIONS ADJACENT TO THE LEFT SHOULDER OF TRAVEL LANES.
- TWO ADDITIONAL 5/8" DIA. X 4" LONG LAG SCREWS AND WASHERS SHALL BE INSTALLED AT ALL MID-SPAN POINTS FOR STANDARD SYSTEMS.
- ALL CONNECTION HARDWARE SHALL BE SUFFICIENTLY TIGHTENED TO ACCOMMODATE FOR SHRINKAGE OF THE WOOD ELEMENTS.
- FOR THE END ANCHOR TYPE II, EXTEND THE FLARE INTO THE CUT SLOPE UNTIL A MINIMUM 12" OF COVER IS OBTAINED OVER THE GUARDRAIL END.
- FOR THE END ANCHOR TYPE I, EXTEND THE FLARE OUT SIDE THE CLEAR ZONE AND BURY THE GUARDRAIL END TO OBTAIN A MINIMUM COVER OF 4".
- BEGIN THE CUT FLARE AT THE NEAREST POST TO A TRANSITION POINT BETWEEN FILL AND CUT AS DIRECTED BY THE ENGINEER.
- THE GUARDRAIL FLARE SHOWN ON THE MISCELLANEOUS DETAILS IS THE MINIMUM LENGTH AND RATE REQUIRED AS DIRECTED BY THE ENGINEER. FLARE THE GUARDRAIL SO THAT THE TERMINAL SECTION IS OUTSIDE THE CLEAR ZONE.

REV. NO.	DATE	DESCRIPTIONS
2	2015.06.25	REVISED PER COMMENTS RECEIVED FROM NCDOT
1	2015.04.17	ISSUED FOR PERMITTING

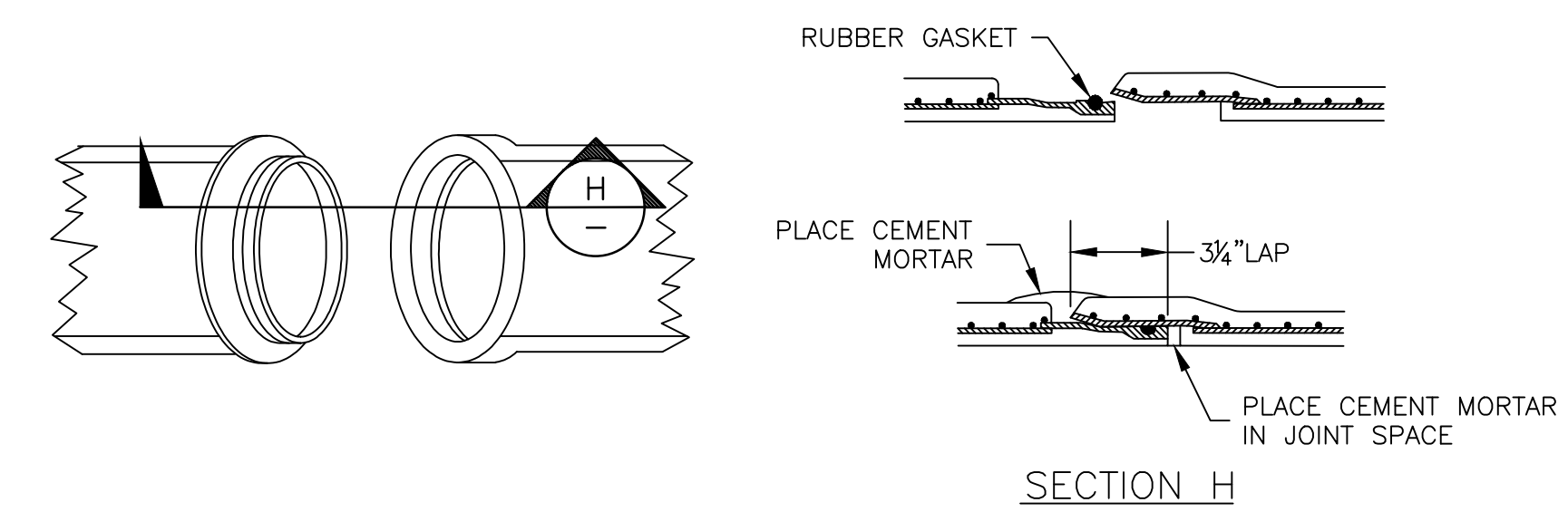
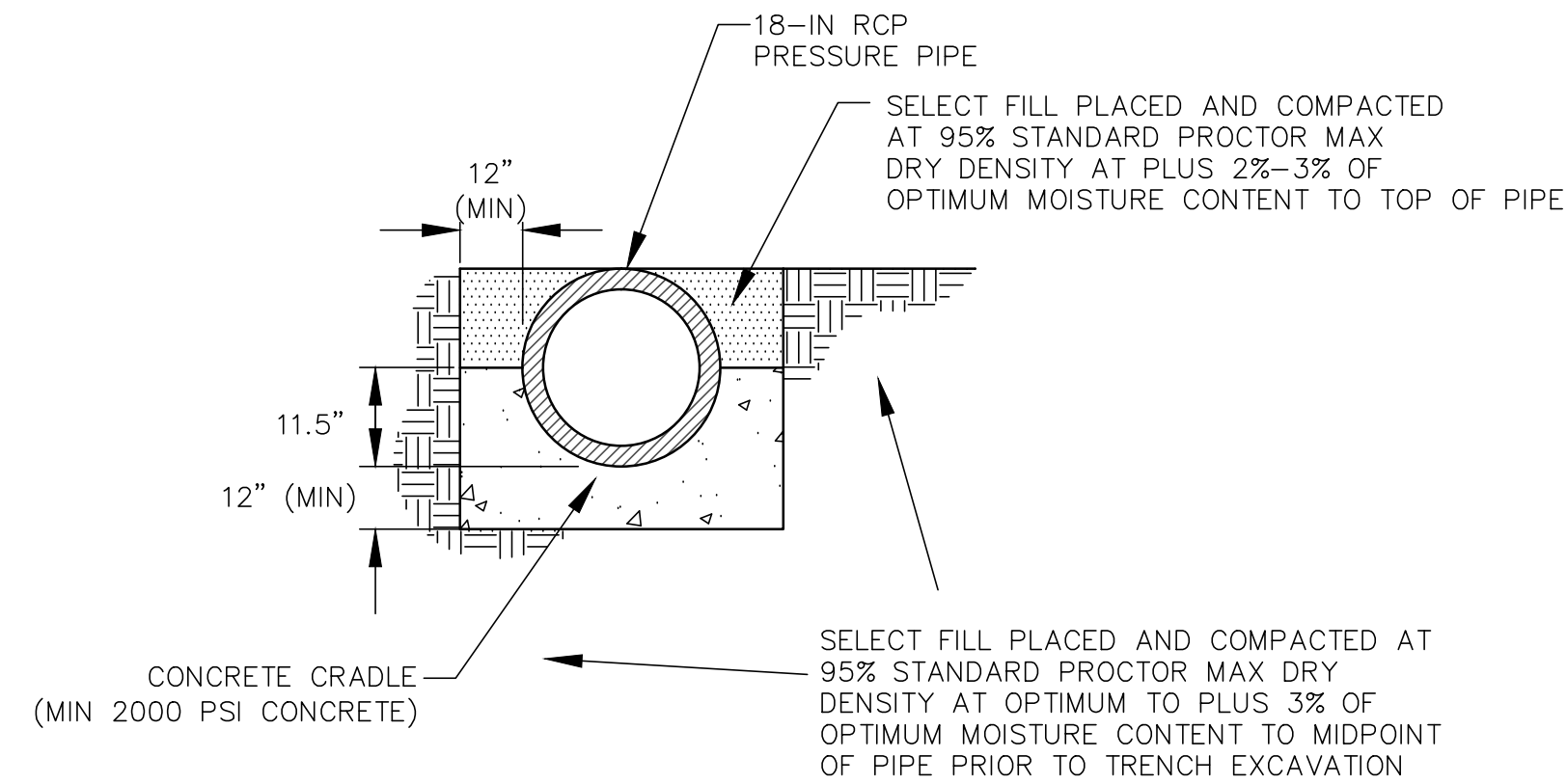
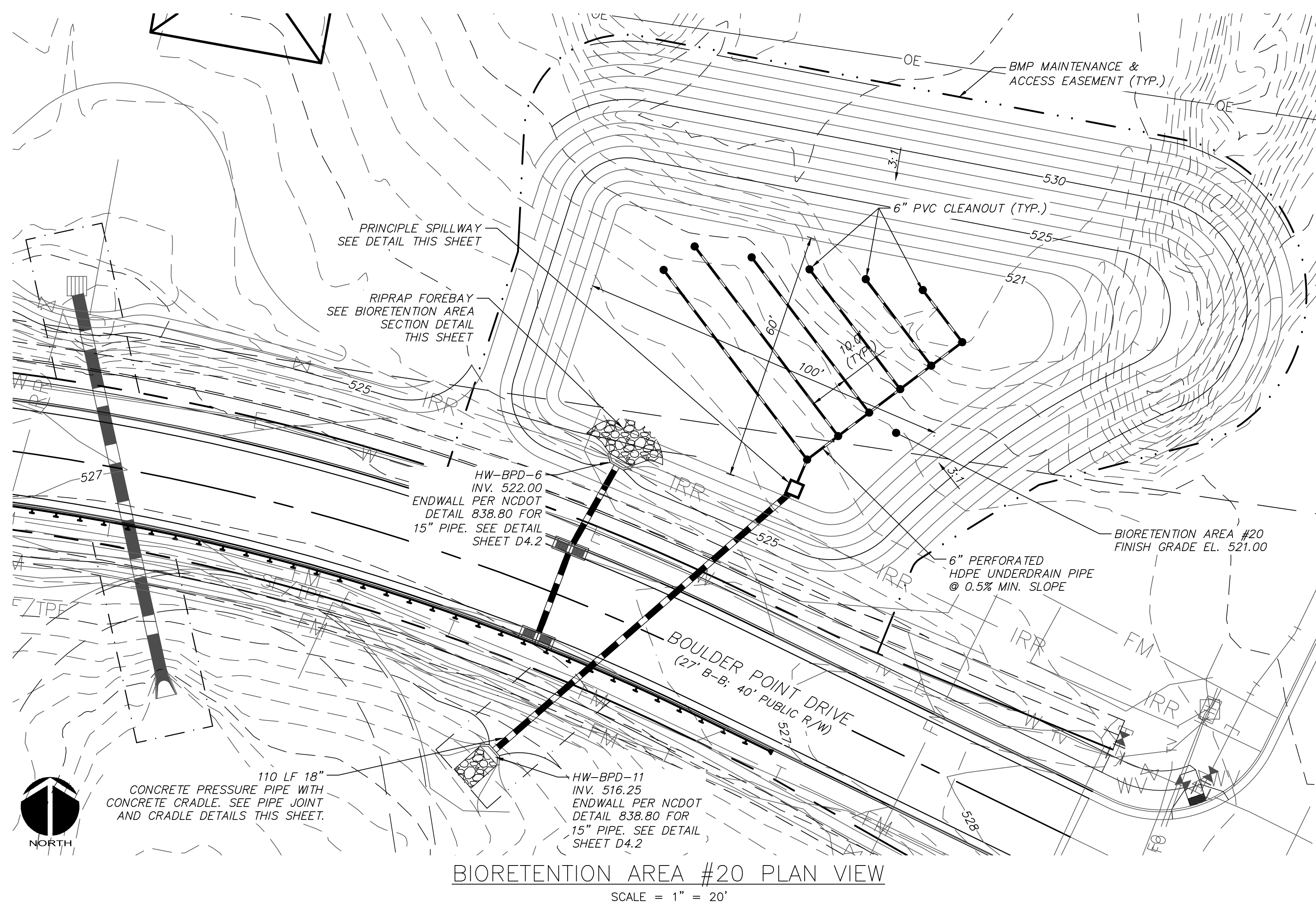


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BRIAR CHAPEL™
by **Newland COMMUNITIES**

BRIAR CHAPEL
BOULDER POINT DRIVE EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
GUARDRAIL DETAILS

DATE: APRIL 17, 2015	SCALE: D2.X	MISC FILE NUMBER: D2.3
MCE PROJ. # 02735-0113	HORIZONTAL: N/A	DRAWING NUMBER: D2.3
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 2	



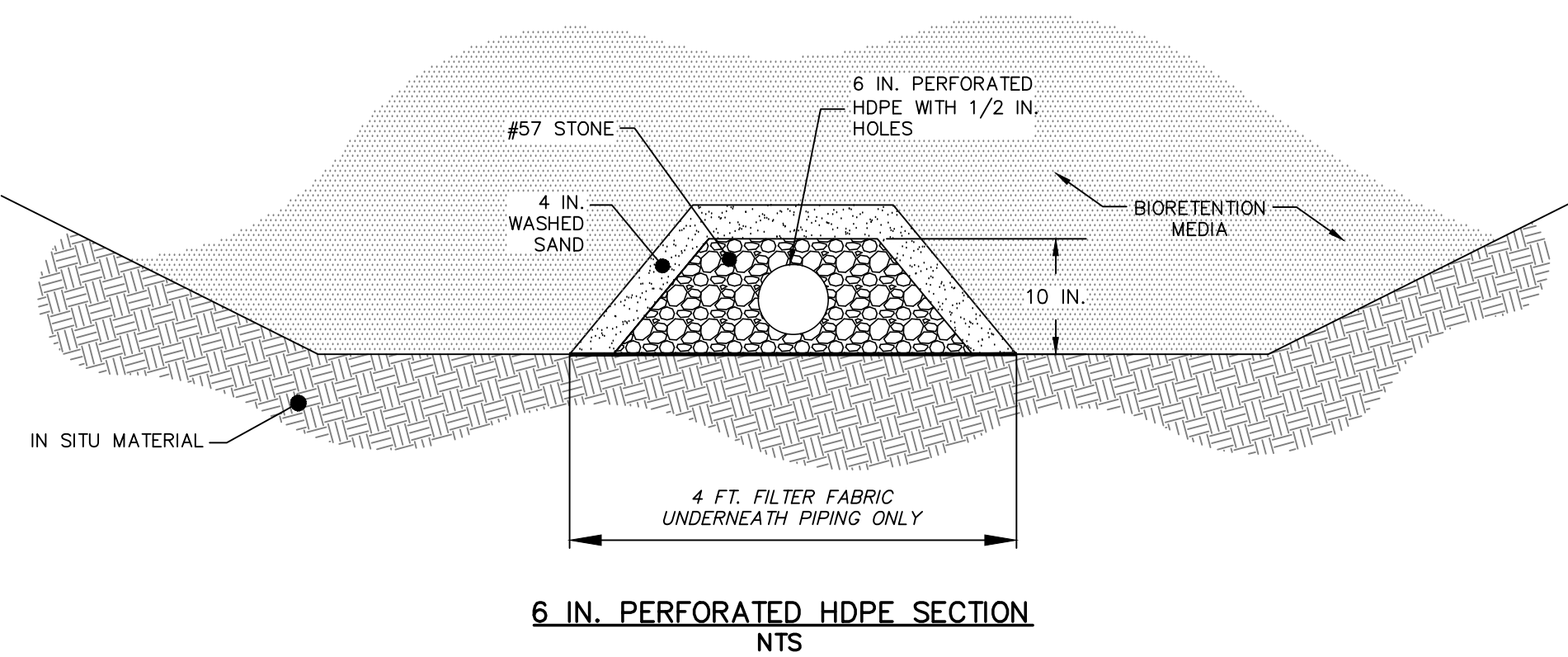
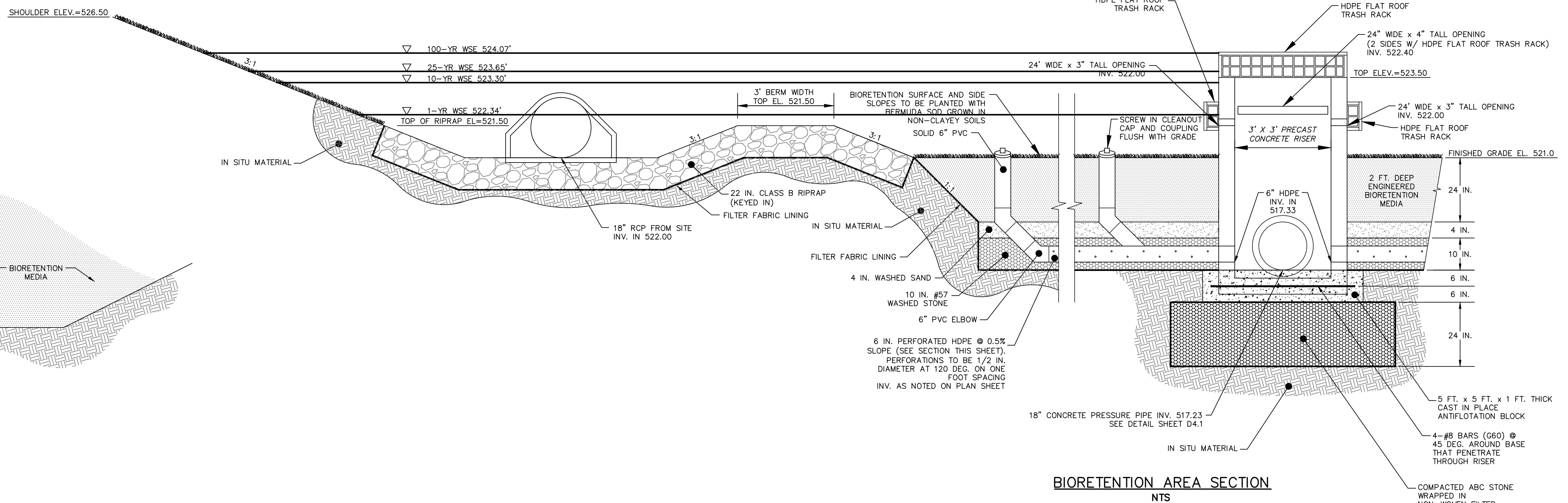
BIORETENTION AREA NOTES:

1. ALL CONCRETE TO BE 3000 PSI @ 28 DAYS.
2. ALL STORM DRAIN CLEANOUTS ARE TO BE SPACED AT 75' MAX.
3. CONTRACTOR SHALL CALL ENGINEER FOR ON-SITE INSPECTION OF BIORETENTION AREA DURING CONSTRUCTION.
4. BIORETENTION AREA TO BE PROTECTED FROM SEDIMENT ACCUMULATION DURING ALL PHASES OF CONSTRUCTION.
5. BIORETENTION MEDIA SHALL NOT BE PLACED UNTIL 100% OF DRAINAGE AREA TO POND IS STABILIZED WITH HARDSCAPE, TURF, ETC.
6. BIORETENTION MEDIA IS TO BE PLACED AND RAKED IN-BY HAND, AT NO TIME SHALL LARGE EQUIPMENT DRIVE OVER THE MEDIA AFTER IT HAS BEEN PLACED. THE MEDIA SHALL NOT BE COMPACTED OVER 85% STANDARD PROCTOR IN ORDER TO MAINTAIN PROPER INFILTRATION RATES.
7. MAXIMUM TIME WATER SHOULD POND IS 12 HOURS.
8. IF SOD IS TO BE INSTALLED, ONLY SOD GROWN IN SANDY SOILS ARE TO BE ALLOWED. SOD GROWN IN CLAY SOILS WILL NOT BE ALLOWED.

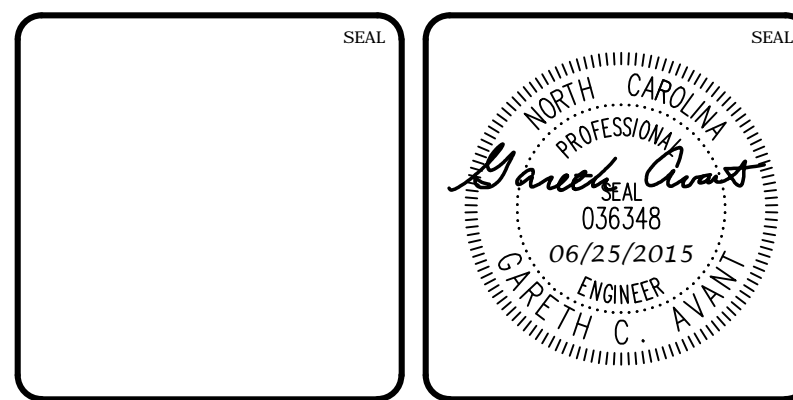
ENGINEERED BIORETENTION AREA MEDIA:

1. THE PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:

A) PH RANGE:	5.5 - 6.5	ASTM D4972
B) ORGANIC MATTER:	3 - 5%	AASHTO T194
C) SAND CONTENT	85 - 88%	AASHTO T88
D) FINES (SILT AND CLAY) CONTENT	8 - 12%	AASHTO T88
E) PHOSPHOROUS INDEX (P-I)	10 - 30	NCDA
2. BIORETENTION MEDIA SHALL HAVE A MINIMUM INFILTRATION RATE OF 1.0"/HR.
3. BIORETENTION MEDIA SHALL HAVE A MAXIMUM INFILTRATION RATE OF 6.0"/HR.
4. THE MEDIA SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS.
5. PLANTING MEDIA SHALL BE TESTED PRIOR TO INSTALLATION TO MEET THE CRITERIA LISTED ABOVE AND RESULTS SENT TO CIVIL ENGINEER FOR REVIEW AND APPROVAL.
6. BIORETENTION MEDIA SHALL BE 'BIORETENTION MIX' FROM WADE MOORE EQUIPMENT COMPANY, INC. IN LOUISBURG, NC. (919) 496-3794.



REV. NO.	DATE	DESCRIPTIONS	REVISIONS
2	2015.06.25	REVISED PER COMMENTS RECEIVED FROM NCDOT	
1	2015.04.17	ISSUED FOR PERMITTING	



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CHATHAM COUNTY, NORTH CAROLINA

BMP #20 PLAN & DETAILS

DATE: APRIL 17, 2015	SCALE: D3.X	MSC FILE NUMBER: D3.1
MCE PROJ. # 02735-0113	HORIZONTAL: AS NOTED	DRAWING NUMBER: D3.1
DRAWN: BSS	VERTICAL: N/A	
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CHECKED: GCA		
PROJ. MGR. CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 2	