



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT McCRORY
GOVERNOR

DIVISION OF HIGHWAYS

ANTHONY J. TATA
SECRETARY

February 28, 2013

Chatham County

**Subject: Subdivision Final Plan Review - Great ridge Parkway - Briar Chapel Subdivision
off of Briar Chapel Parkway 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 Grant M. Livengood, PE on February 15, 2013 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.
15. The portion of roadway (including the bridge) from Sta. 10+00.00 of Great Ridge Parkway South to the tie in at Sta. 9+58.29 of the existing Great Ridge Parkway has not been approved as of February 28, 2013. This portion is still under review and will be permitted at a later date.

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

Yours truly,


Jeff B. Loflin, PE
District Engineer

Attachments

cc: Richard W. Hancock, P.E., Division Engineer
Justin Bullock, P.E., Chatham County Maintenance Engineer
Lynn Richardson, Chatham County Planning
Chris Seamster, PLA, McKim & Creed
File



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

DIVISION OF HIGHWAYS

EUGENE A. CONTI, JR.
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: _____

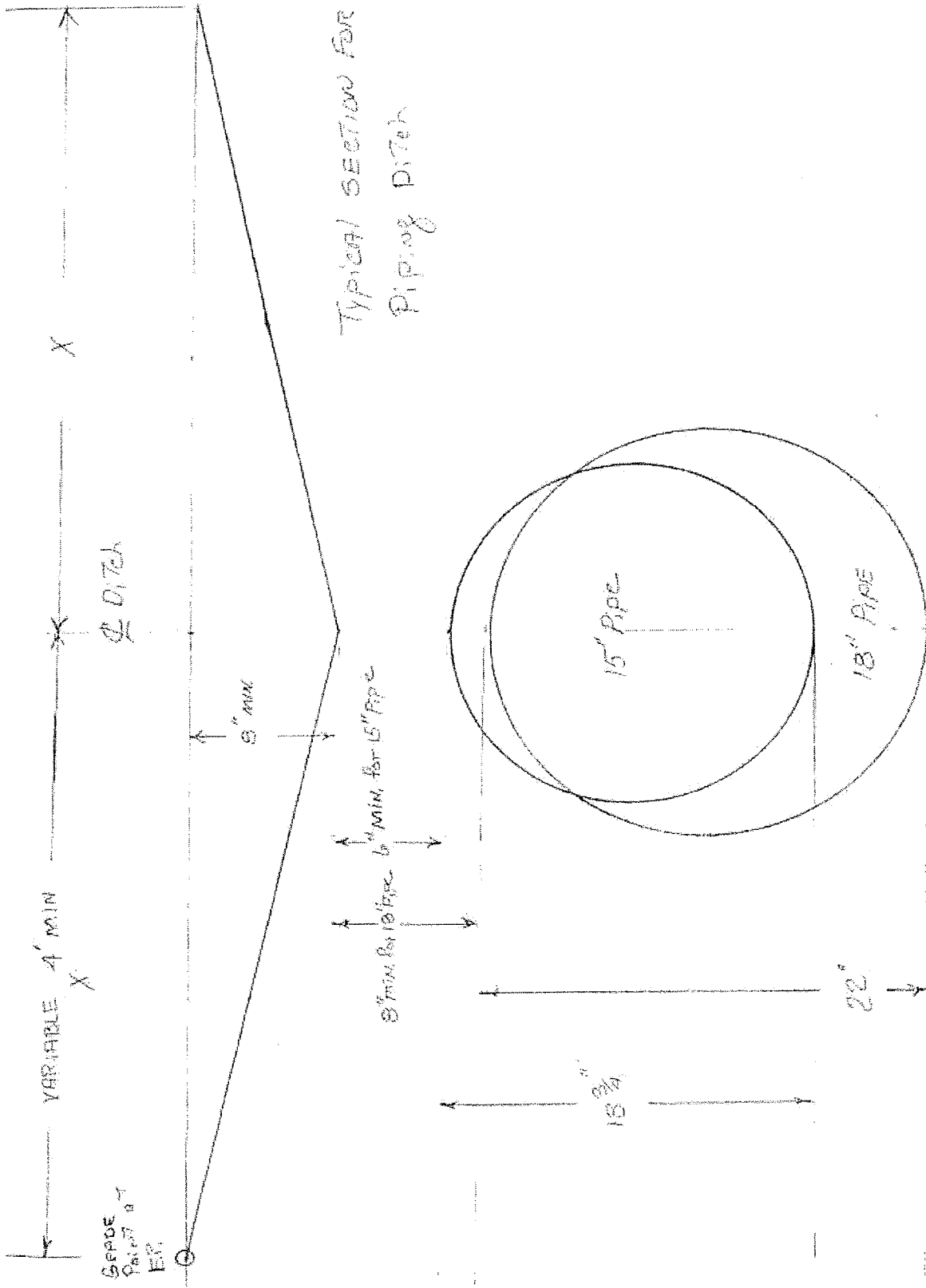
PROPERTY OWNERS

Name

Mailing Address

Telephone

<u>Name</u>	<u>Mailing Address</u>	<u>Telephone</u>



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

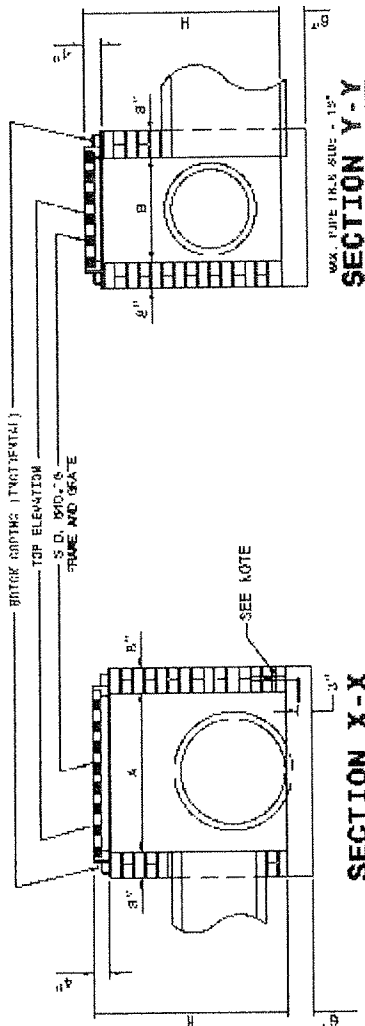
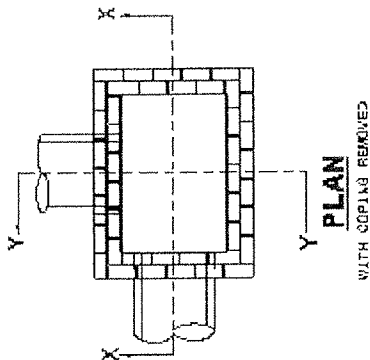
BUNCH PATTERN WORKS, INC.
P.O. BOX 267 HWY 308 N.
LEWISTON-WOODVILLE, N.C. 27849

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

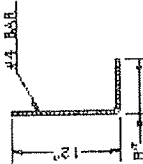
GENERAL NOTES:
 MORTAR JOINTS 1/2" +/- 1/8" THICK.
 USE CLASS "B" CONCRETE THROUGHOUT.
 USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
 USE #4 BAR TIEBARS AT 12" CENTERS.
 DEDUCT FOR PIPES FROM TOTAL CU. YDS. OF BRICK MASONRY.
 PROVIDE ALL CATCH BASINS OVER 8'-0" IN DEPTH WITH STEPS 12" OR CENTER, USE STEPS WHICH COMPLY WITH STD. DRAWING 840.06.
 USE BRICK OF CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 FOR 6'-0" IN HEIGHT OR LESS, USE 6" WALL OVER 6'-0" IN HEIGHT, USE 12" WALL TO 8'-0" FROM TOP OF WALL AND 6" WALL FOR THE REMAINDER 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY.
 CONSTRUCT WITH PIPE SHOWING MATCHING.
 SEE STANDARD DRAWING 840.03 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.



DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)

PIPE SIZE	DIMENSIONS OF BOX & PIPE		H	CUBIC YARDS CONCRETE		CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE	
	SPAN	WIDTH		MIN.	SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY PER FT. HT. (NET WT.)	C.S.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	3.622	0.092	0.032	
15"			2'-5"	0.268	0.313	3.600	0.231	0.047	
18"			2'-6"	0.268	0.313	2.578	0.044	0.085	
24"			3'-0"	0.255	0.313	2.995	0.078	0.118	
30"			3'-6"	0.228	0.313	0.901	0.122	0.170	

DOWEL



**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 080 of the North Carolina Standard Specifications for Roads and Structures, except that Articles 800-8(B) shall not apply. Final determination of soil type shall be made by the Engineer. The following rates in pounds per acre shall apply:

<u>SANDY SOIL</u>	<u>CLAY SOIL</u>
50# - KY 31 Tall Fescue or Alta Tall Fescue	100# - KY 31 Tall Fescue or Alta Tall Fescue
5# - Centipede	15# - Kenblue Bluegrass
50# - Pensacola Bahiagrass	500# - Fertilizer
500# - Fertilizer	4000# - Limestone
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.

From: Chris Seamster <cseamster@mckimcreed.com>
Sent: Friday, March 01, 2013 2:29 PM
To: Richardson, Justin T
Cc: GAvant@mckimcreed.com
Subject: Culverts on Great Ridge Parkway

Justin,

The three temporary storm drainage culverts on the Great Ridge Parkway plans are required by the roadway grading and existing topography to convey stormwater across the project boundaries when considering this roadway as a stand-alone project. When construction begins on future residential phases, these culverts will be filled and the drainage will be redirected based on the roadway configuration within the lot phases. As generally required by NCDOT, we provided drainage easements around the pipe since they are located within the proposed right-of-way. By the time these roads are turned over to NCDOT, these pipes will no longer be active and the easements around them will be released. It is very likely that culvert #1 will not be installed since the plan is to construct the lots in phase 7 this spring.

Let me know if you have any other questions. Thanks.

Chris Seamster, PLA | Project Manager/Landscape Architect
Tel 919.233.5261 x190 | Cell 919.539.5464
1730 Varsity Drive, Suite 500 | Raleigh, NC 27606
cseamster@mckimcreed.com | <http://www.mckimcreed.com>



*On February 1, 2013, McKim & Creed, Inc. expanded our water resources services in Georgia with the addition of key staff from Atlanta-based **Infratec Consultants, Inc.** On January 1, 2013, we acquired **United Engineering Group, Inc.**, adding mechanical, electrical, plumbing and fire protection services to our suite of engineering services. Combining the strengths of these award-winning firms with McKim & Creed's experience and expertise enhances our ability to provide you with sustainable, cost-effective, and practical solutions.*

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To send me a file larger than 10MB [please click here](#)
This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this e-mail in error please notify the system manager. Please note that any views or opinions presented in this e-mail are solely those of the author and do not necessarily represent those of the company. Finally, the recipient should check this e-mail and any attachments for the presence of viruses. The company accepts no liability for any damage caused by any virus transmitted by this e-mail.

BRIAR CHAPEL GREAT RIDGE PARKWAY EXTENSION

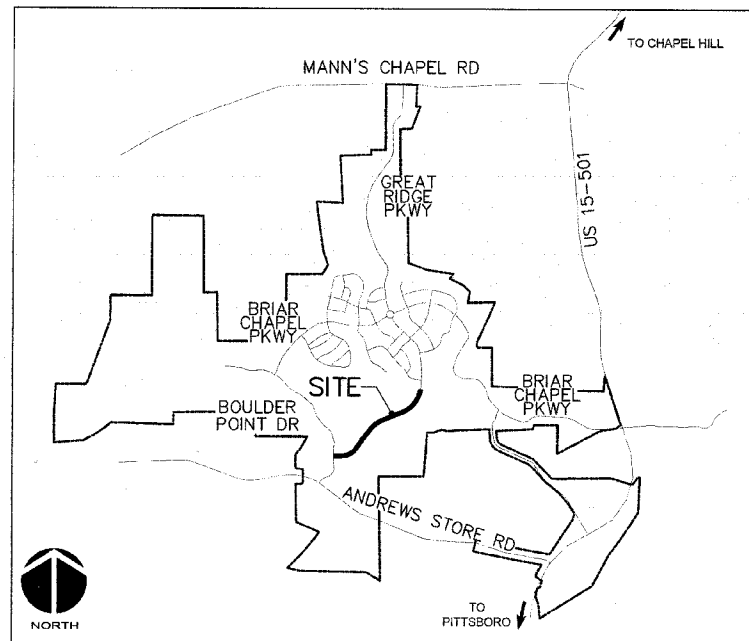
PRELIMINARY PLAT SUBMITTAL U.S. HWY 15-501 and MANN'S CHAPEL ROAD CHATHAM COUNTY, NORTH CAROLINA

DATE: FEBRUARY 15, 2013

Received
FEB 27 2013
DIVISION 8 DISTRICT
DEPT. OF TRANSPORTATION

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>D. 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>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>E. NCDENR
Division of Water Quality
2321 Crabtree Blvd., Suite 250
Raleigh, NC 27604
(919) 791-4200 phone
Contact: Annette Lucas
Email: Annette.Lucas@ncdenr.gov</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>F. NCDENR
Division of Environmental Health
Public Water Supply Section
1634 Mail Service Center
Raleigh, NC 27699-1634
(919) 715-3226 phone
Contact: Henri Ou
Email: heinrich.ou@ncdenr.gov</p> |



VICINITY MAP
NTS

PROJECT DATA

NAME OF PROJECT:
GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA

OWNER:
NNP BRIAR CHAPEL, LLC
16 WINDY KNOLL CIRCLE
CHAPEL HILL, NC 27516
PHONE: (919) 951-0700
FAX: (919) 240-4963
CONTACT: BILL MUMFORD, PE
EMAIL: bmumford@newlandco.com

PREPARED BY:
MCKIM & CREED
1730 VARSITY DRIVE, SUITE 500
RALEIGH, NORTH CAROLINA 27606
PHONE: (919) 233-8091
FAX: (919) 233-8031
CONTACT: GRANT LIVENGOOD, PE
EMAIL: glivengood@mckimcreed.com

PROJECT AREA: 14.44 AC

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

SHEET INDEX

C0.1	COVER SHEET
C0.2	EXISTING CONDITIONS/DEMOLITION PLAN
C1.1	RIGHT-OF-WAY DEDICATION & OVERALL SITE PLAN
C1.2	SIGNAGE & STRIPING PLAN
C2.1	UTILITY PLAN
C2.2	UTILITY PLAN
C3.1	STAGE 1 EROSION CONTROL PLAN
C3.2	STAGE 1 EROSION CONTROL PLAN
C3.3	STAGE 2 GRADING, DRAINAGE & EROSION CONTROL PLAN
C3.4	STAGE 2 GRADING, DRAINAGE & EROSION CONTROL PLAN
C4.1	PLAN & PROFILE STREAM CROSSING
C4.2	PLAN AND PROFILE GREAT RIDGE PARKWAY NORTH STA 10+00 TO STA 21+50
C4.3	PLAN AND PROFILE GREAT RIDGE PARKWAY NORTH STA 21+50 TO STA 30+06.53
C4.4	PLAN AND PROFILE GREAT RIDGE PARKWAY SOUTH STA 10+00 TO STA 22+00
C4.5	PLAN AND PROFILE GREAT RIDGE PARKWAY SOUTH STA 22+00 TO STA 30+12.31
C4.6	PLAN AND PROFILE TWO LANE SECTION STA 10+00 TO STA 20+49.22
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-NCDOT ROADWAY DETAILS
D3.1	DETAILS-UTILITY
D3.2	DETAILS-UTILITY
D4.1	DETAILS-STORMWATER BMP
D4.2	DETAILS-STORMWATER BMP
D4.3	DETAILS-STORMWATER BMP
D4.4	DETAILS-STORMWATER BMP LEVEL SPREADER/VEGETATIVE FILTER STRIP
S1.1	SANITARY SEWER CROSSING AERIAL CASING SUPPORT PLANS, SECTIONS & DETAILS

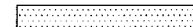
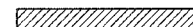


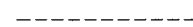

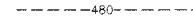


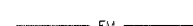


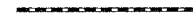


BRIAR CHAPEL[®]
by
Newland COMMUNITIES

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



RELEASED FOR
CONSTRUCTION

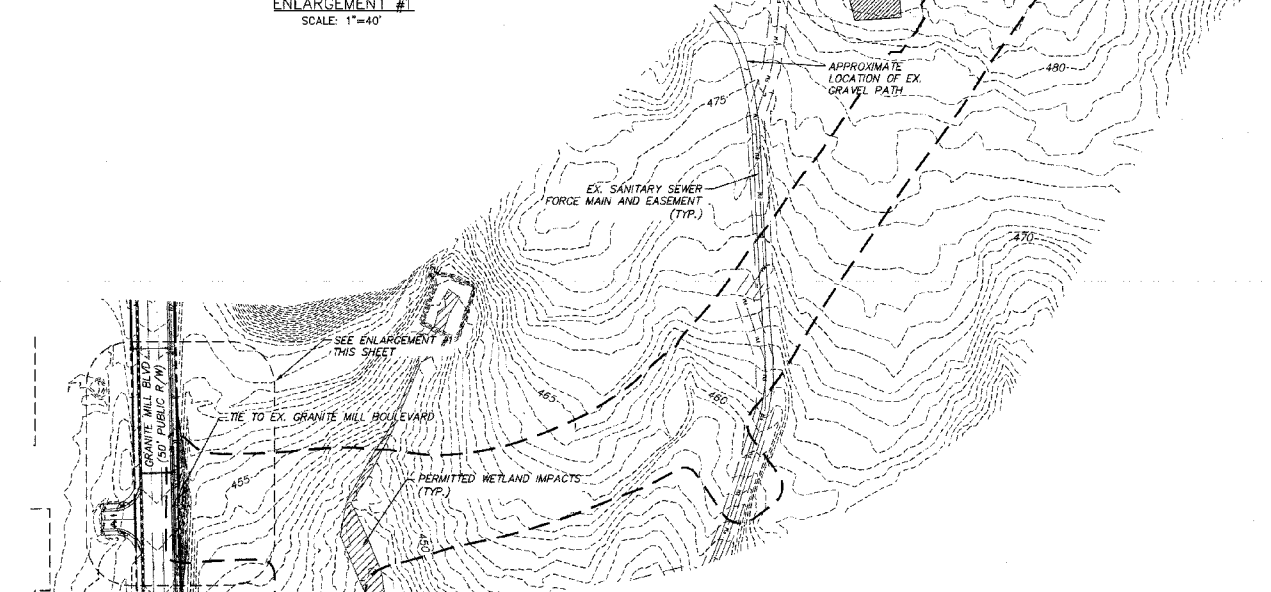
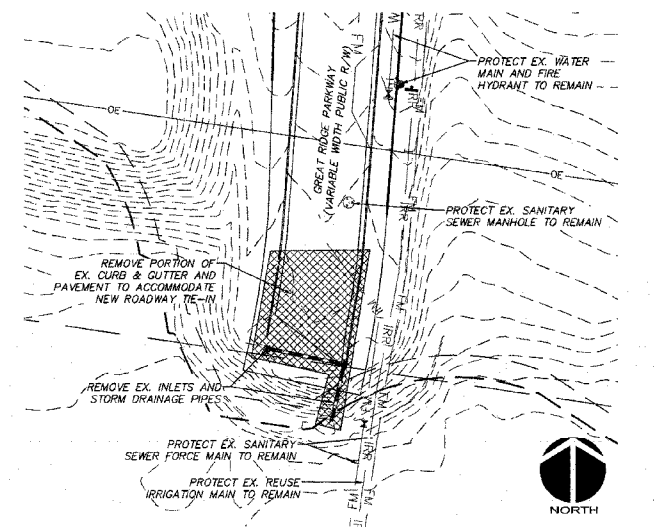
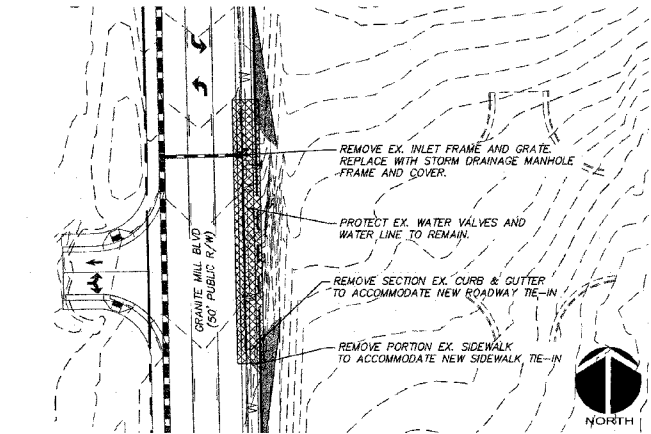
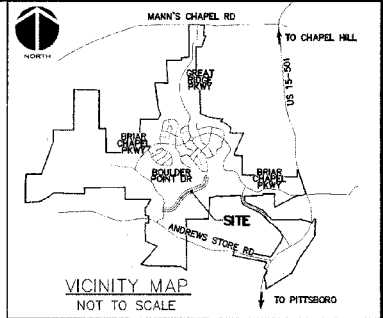
LEGEND:

-  EXISTING WETLANDS
-  PERMITTED WETLAND IMPACTS
-  PERMANENT PERMITTED STREAM IMPACTS
-  TEMPORARY PERMITTED STREAM IMPACTS
-  10' NO BUILD BUFFER LINE
-  RIPARIAN BUFFER LINE
-  EX. CONTOUR
-  EX. POWER LINE EASEMENT
-  OVERHEAD POWER LINE
-  EX. FORCE MAIN EASEMENT
-  EX. SANITARY SEWER FORCE MAIN
-  EX. REUSE IRRIGATION MAIN
-  EX. WATER MAIN
-  EX. STORM DRAINAGE PIPE
-  PROPOSED LIMITS OF DISTURBANCE

***** NOTICE TO CONTRACTOR *****

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY, IN WRITING, OF ANY DISCREPANCIES OR OMISSIONS TO THE TOPOGRAPHIC INFORMATION. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR CONFIRMING THE LOCATION (HORIZONTAL AND VERTICAL) OF ANY BURIED CABLES, CONDUITS, PIPES, AND STRUCTURES (STORM SEWER, SANITARY SEWER, WATER, GAS, TELEVISION, TELEPHONE, ETC.) WHICH IMPACT THE CONSTRUCTION SITE. THE CONTRACTOR(S) SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES ARE FOUND BETWEEN THE ACTUAL CONDITIONS VERSUS THE DATA CONTAINED IN THE CONSTRUCTION PLANS. ANY COSTS INCURRED AS THE RESULT OF NOT CONFIRMING THE CONDUITS, PIPES, AND STRUCTURES SHALL BE BORNE BY THE CONTRACTOR.

SURVEY REFERENCES:
 DEED BOOK 1482, PAGE 581
 DEED BOOK 1198, PAGE 510
 DEED BOOK 833, PAGE 752
 DEED BOOK 1481, PAGE 244

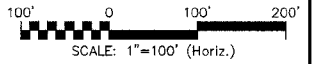


GENERAL NOTES:

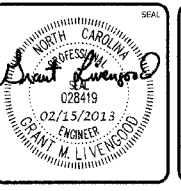
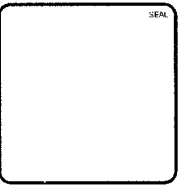
1. REFER TO THE FOLLOWING MCKIM & CREED, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE:
 - BRIAR CHAPEL - GRANITE MILL BOULEVARD AND BOULDER POINT DRIVE CONSTRUCTION PLANS SEALED JUNE 8, 2010
 - BRIAR CHAPEL - PHASE 5 NORTH CONSTRUCTION PLANS SEALED MARCH 30, 2012
 - BRIAR CHAPEL - PHASE 6 SOUTH CONSTRUCTION PLANS SEALED JANUARY 27, 2012
 - BRIAR CHAPEL - BRIAR CHAPEL PARKWAY AND BOULDER POINT DRIVE EXTENSION SEALED JANUARY 1, 2012
2. REFER TO THE FOLLOWING JOHN R. MCDAMAS 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 - POD D 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
3. THIS PROPERTY IS ZONED CC-CUD.
4. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND MEASUREMENTS.
5. BEARINGS SHOWN HEREON ARE BASED ON NC GRID NAD83. THIS PROJECT IS LOCALIZED ABOUT NGCS MONUMENT "MEACHAM" HAVING NC GRID COORDINATES N: 768,355.12', E: 1,963,424.93' USING A COMBINED FACTOR OF 0.99990676.
6. EXISTING TOPOGRAPHIC DATA IS BASED ON AERIAL MAPPING PERFORMED BY AVIOMAGE MAPPING SERVICES IN FEBRUARY 2010. ELEVATIONS ARE BASED ON NAVD 88 NGCS MONUMENT "F-92" WITH AN ELEVATION OF 476.06'.
7. HORIZONTAL AND VERTICAL CONTROL FOR THIS SITE WAS INSTALLED BY GPA PROFESSIONAL LAND SURVEYORS OF NC.
8. PROJECT IS LOCATED IN THE CAPE FEAR RIVER BASIN.
9. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT NIKKI THOMSON AT 919-848-5900.
10. A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.

DEMOLITION NOTES:

1. NO EARTH-DISTURBING ACTIVITIES SHALL COMMENCE UNTIL ALL PERIMETER EROSION CONTROL MEASURES ARE IN PLACE IN ACCORDANCE WITH THE EROSION CONTROL SEQUENCE SHOWN IN THESE PLANS.
2. NO EARTH-DISTURBING ACTIVITY OR OTHER WORK SHALL TAKE PLACE WITHIN WETLAND AREAS NOTED ON SURVEY. CONTRACTOR SHALL FIELD VERIFY WETLAND LIMITS FLAGGING IS IN PLACE AND SHALL NOT ENTER WETLAND AREAS. IF WETLAND FLAGGING IS MISSING OR OTHERWISE DAMAGED, IT IS CONTRACTOR'S RESPONSIBILITY TO NOTE WETLAND LIMITS AND PREVENT DISTURBANCE OR OTHER ACTIVITY WITHIN WETLANDS.
3. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL PROPERTY CORNER MONUMENTS, AND SHALL HAVE, AT HIS EXPENSE, ALL CORNER MONUMENTS REPLACED WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS, AT HIS EXPENSE, DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PUBLIC DURING CONSTRUCTION, WHICH INCLUDES, BUT IS NOT LIMITED TO, CONSTRUCTION FENCING, BARRICADES, SIGNAGE, ETC.
6. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH ALL REGULATIONS GOVERNING THE DEMOLITION, REMOVAL, TRANSPORTATION AND DISPOSAL OF ALL DEMOLITION DEBRIS.
7. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST OSHA STANDARDS FOR EXCAVATION AND TRENCHING PROCEDURES. CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, ETC. AS NECESSARY FOR THESE OPERATIONS, AND SHALL COMPLY WITH ALL OSHA PERFORMANCE CRITERIA.
8. CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ALL UTILITIES AND APPURTENANCES TO REMAIN.



NO.	DESCRIPTION	DATE
2	RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19
1	ISSUED FOR PERMITTING	2012.12.19



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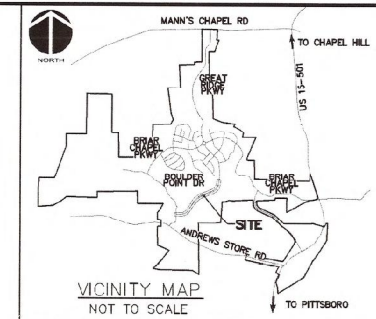
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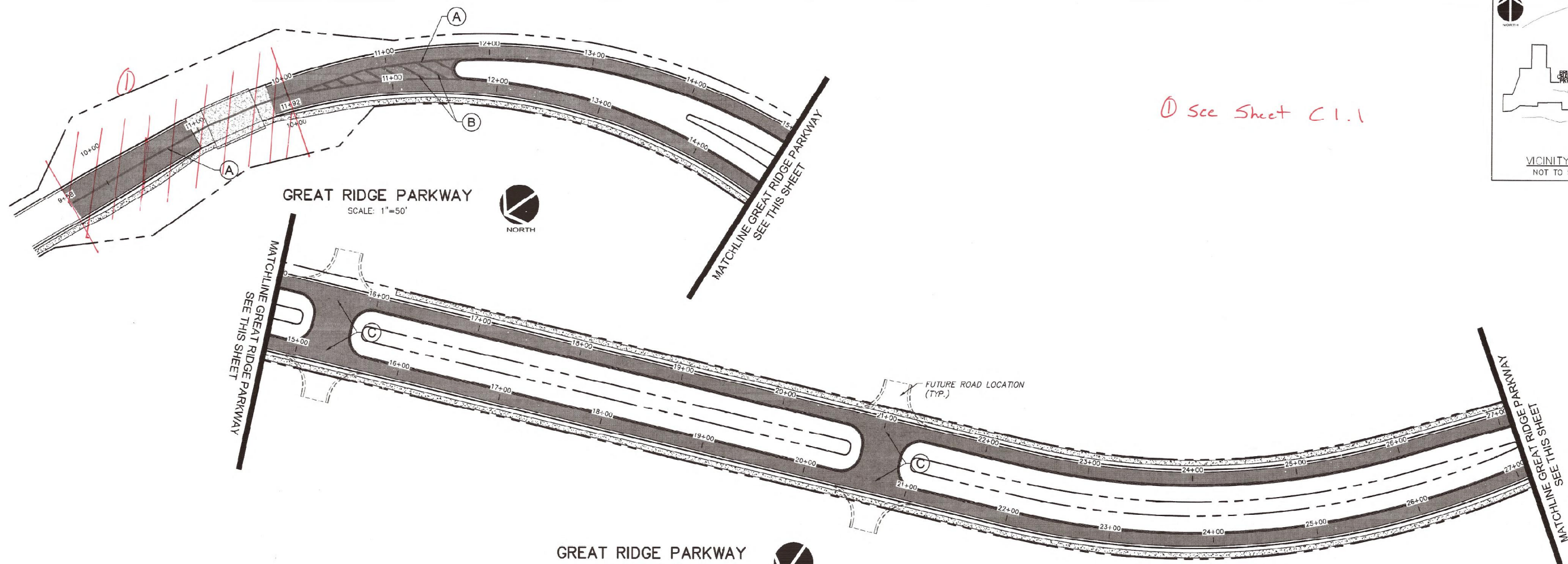
**BRIAR CHAPEL
 GREAT RIDGE PARKWAY EXTENSION
 CHATHAM COUNTY, NORTH CAROLINA**

**EXISTING CONDITIONS/
 DEMOLITION PLAN**

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	FILE NUMBER: C0.2
MCE PROJ. # 02735-0080	DESIGNED: GCA	DRAWING REVISION: C0.2
DRAWN: GCA	CHECKED: CHS	
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 2

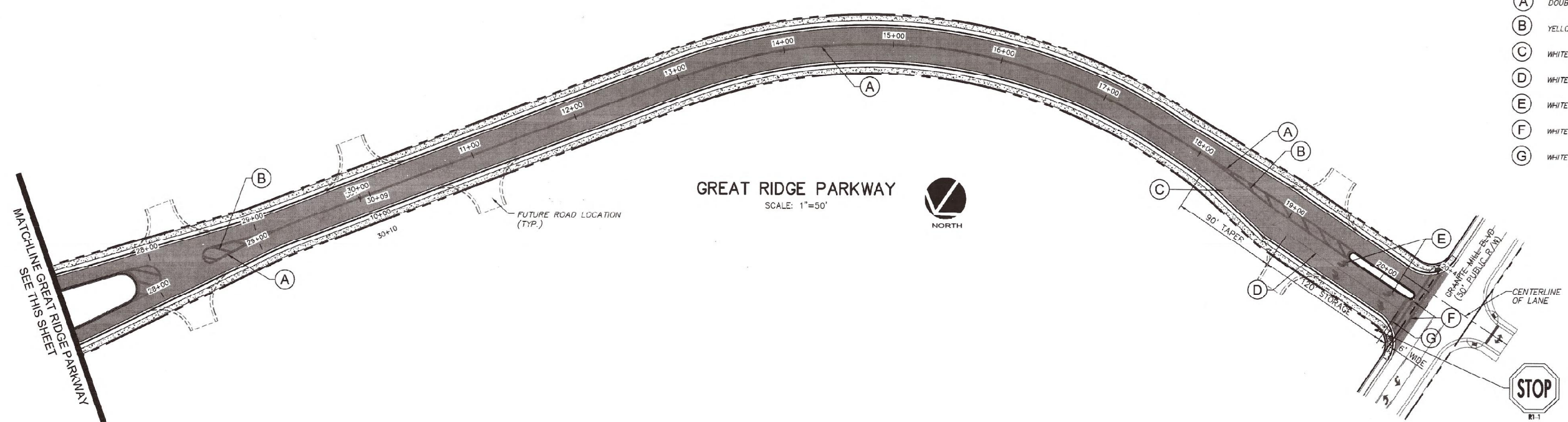


① See Sheet C1.1



GREAT RIDGE PARKWAY
SCALE: 1"=50'
NORTH

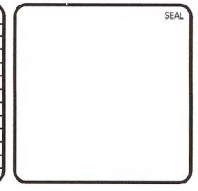
GREAT RIDGE PARKWAY
SCALE: 1"=50'
NORTH



GREAT RIDGE PARKWAY
SCALE: 1"=50'
NORTH

- LEGEND:**
- (A) DOUBLE YELLOW THERMOPLASTIC CENTER LINES (4") (120 MIL)
 - (B) YELLOW THERMOPLASTIC DIAGONAL LINE (8") (90 MIL)
 - (C) WHITE THERMOPLASTIC MINI-SKIP LINE (4") (120 MIL)
 - (D) WHITE THERMOPLASTIC TURN LANE LINE (4") (120 MIL)
 - (E) WHITE LEFT TURN, RIGHT TURN SYMBOLS (90 MIL)
 - (F) WHITE CROSSWALK LINE (8") (120 MIL)
 - (G) WHITE STOP BAR LINE (24") (120 MIL)

REV. NO.	DESCRIPTIONS	DATE
2	REVISIONS PER NCOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19
	REVISIONS	



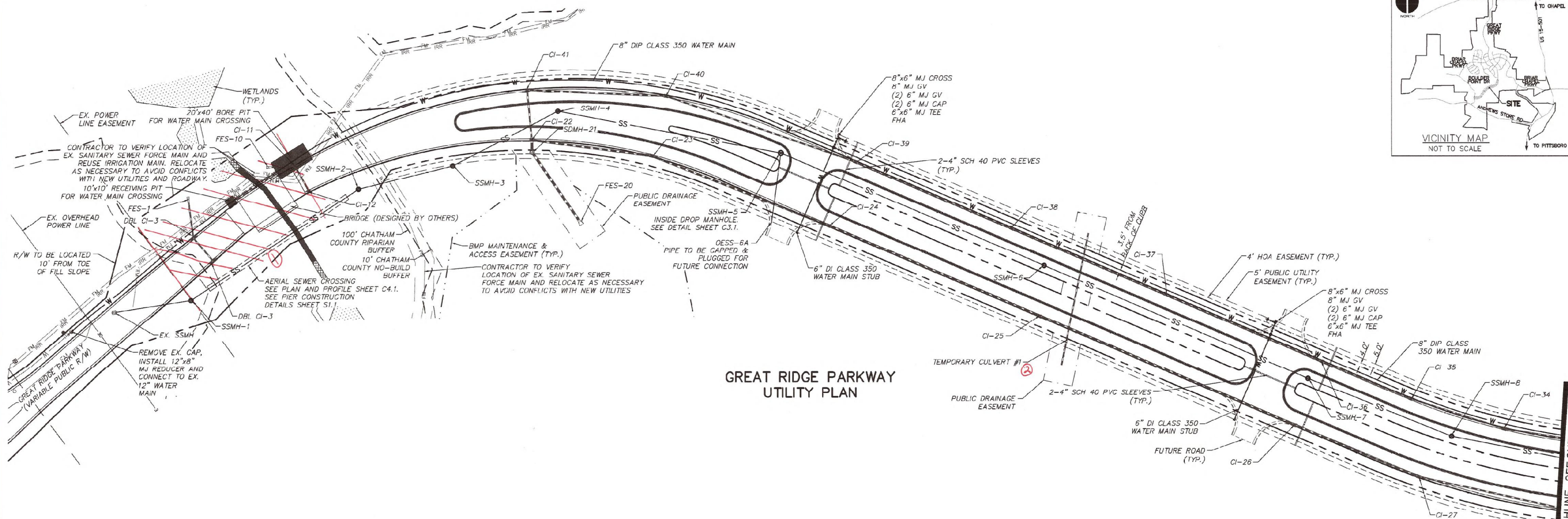
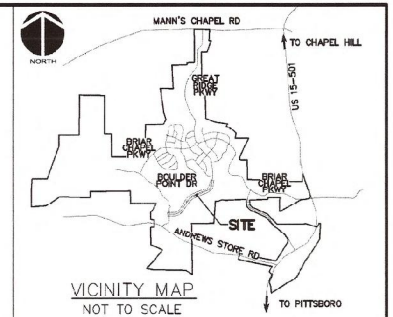
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**BRIAR CHAPEL
GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA**

SIGNAGE AND STRIPING PLAN

DATE: DECEMBER 19, 2012	SCALE: AS NOTED	NAC FILE NUMBER: C1.X
MCE PROJ. # 02735-0080	HORIZONTAL: AS NOTED	DRAWING NUMBER: C1.2
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 2



**GREAT RIDGE PARKWAY
UTILITY PLAN**

UTILITY NOTES:

- ALL WATER MAIN CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT CHATHAM COUNTY AND NCDOT STANDARDS, SPECIFICATIONS & DETAILS.
- ALL PERMITS RELATING TO THIS PROJECT MUST BE OBTAINED PRIOR TO CONSTRUCTION.
- ALL WATER MAINS SHALL HAVE A MIN. OF 3'-6" OF COVER AS MEASURED FROM FINISHED GRADE AT THE LOCATION WHERE INSTALLED.
- WATER MAINS SHALL BE LAID AT LEAST 10 FEET Laterally FROM EXISTING OR PROPOSED SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION, IN WHICH CASE:
 - 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
 - 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.
- 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.
- 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 0906.
- CONTRACTOR SHALL USE A MIN. 20' SECTION DIP CENTERED UNDER STORMWATER PIPE WHERE 24" MIN. VERTICAL CLEARANCE CANNOT BE MET BETWEEN STORMWATER AND WATER.
- 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.
- ALL WATER MAIN LINES ARE 12" AND 8" D.I. UNLESS OTHERWISE NOTED.
- WATER MAINS WILL BE LOCATED AT OR AS CLOSE AS POSSIBLE TO THE RIGHT-OF-WAY.
- 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 CENTERED ON THE PROPOSED WATER MAIN.
- EXISTING INFRASTRUCTURE AS SHOWN MAY BE UNDER CONSTRUCTION AND SHALL BE FIELD VERIFIED BY CONTRACTOR.
- CONTRACTOR TO COORDINATE WITH OWNER ON ANY IRRIGATION SLEEVE SIZING & PLACEMENT.
- AT POINTS WHERE A NEW UTILITY IS PLACED UNDER EXISTING OR PROPOSED STORM DRAINAGE PIPES, THE TRENCH SHALL BE BACKFILLED WITH EXCAVATABLE FLOWABLE FILL UP TO THE OUTSIDE DIAMETER OF THE STORM DRAINAGE PIPE.

GENERAL UTILITY NOTES:

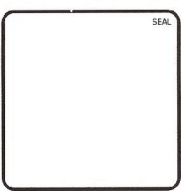
- VERIFY ALL ILLUSTRATED UTILITY CROSSINGS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF CONFLICTS ARE ENCOUNTERED.
- CONTRACTOR SHALL COORDINATE ANY UTILITY RELOCATION OR ABANDONMENT WITH LOCAL UTILITY COMPANIES AS REQUIRED.
- UTILITIES WILL NOT ENCRUCH UPON PROTECTED AREAS OR RUN PARALLEL THROUGH ANY REQUIRED BUFFER.
- ALL VALVE BOXES & COVERS, STORM DRAINAGE GRATES & MANHOLE COVERS WITHIN THE COUNTY RIGHT-OF-WAY OR EASEMENTS, SHALL MEET ASTM A48, GRADE 35B IRON REQUIREMENTS
- SLOPES SHALL NOT BE GREATER THAN 3:1 WHERE UNDERGROUND ELECTRIC UTILITY LINES ARE PROPOSED.

LEGEND:

	EXISTING WETLANDS
	PERMANENT PERMITTED STREAM IMPACTS
	TEMPORARY PERMITTED STREAM IMPACTS
	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
	EX. SANITARY SEWER FORCE MAIN
	EX. REUSE IRRIGATION MAIN
	EX. WATER MAIN
	NEW WATER MAIN
	NEW STORM DRAINAGE PIPE
	MJ
	GV
	OESS
	OESD

① See Sheet C.1.1
② See ATTACHMENT

REV. NO.	DESCRIPTION	DATE
3	REVISIONS PER NCOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
1	ISSUED FOR PERMITTING	2012.12.19



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UTILITY PLAN

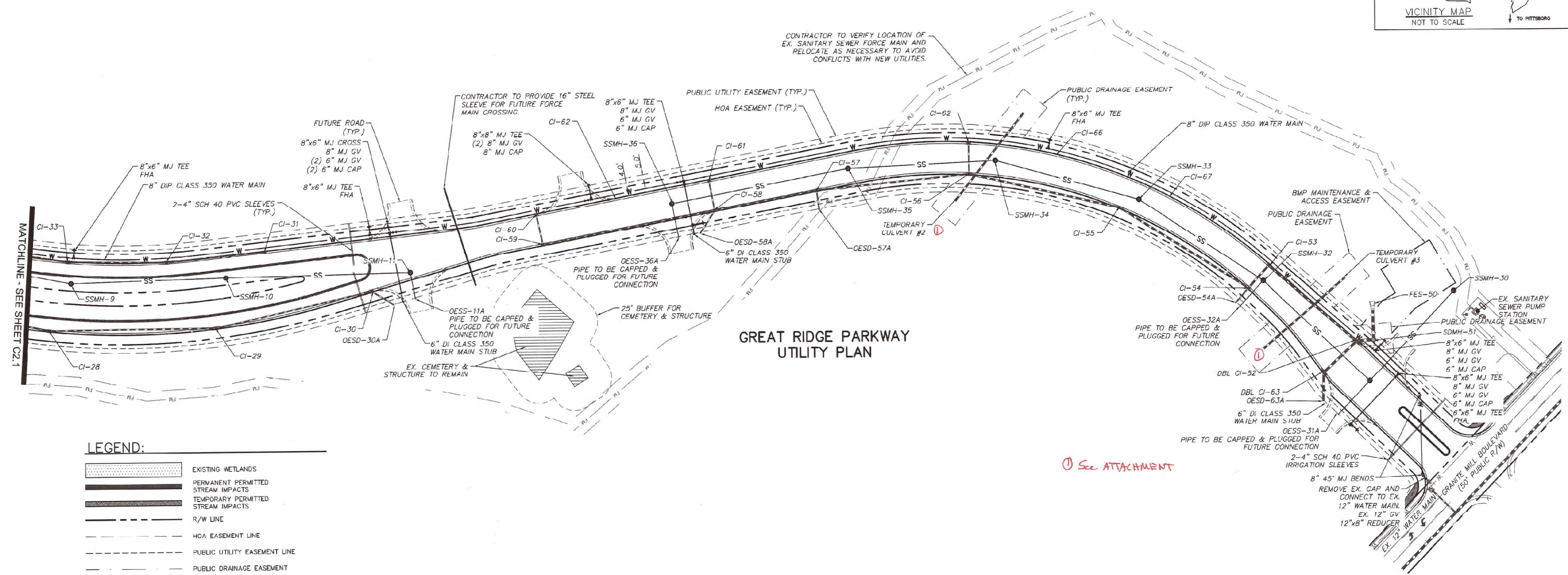
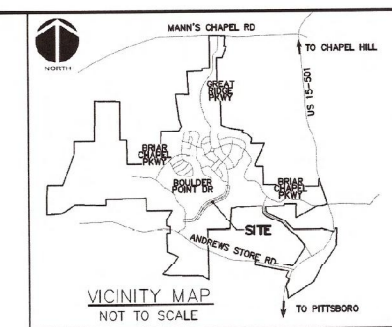
DATE: DECEMBER 19, 2012	SCALE: 1" = 50'	MATCHLINE NUMBER: C2.X
MCF PROJ. #: 02735-0082	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C2.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 5	

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.)

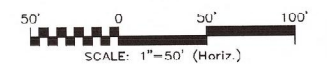


**GREAT RIDGE PARKWAY
UTILITY PLAN**

LEGEND:

- EXISTING WETLANDS
- PERMANENT PERMITTED STREAM IMPACTS
- TEMPORARY PERMITTED STREAM IMPACTS
- 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
- EX. SANITARY SEWER FORCE MAIN
- EX. REUSE IRRIGATION MAIN
- EX. WATER MAIN
- NEW WATER MAIN
- NEW STORM DRAINAGE PIPE
- MJ MECHANICAL JOINT
- GV GATE VALVE
- OESS OPEN END SANITARY SEWER
- OESD OPEN END STORM DRAIN

① SEE ATTACHMENT



REV. NO.	DESCRIPTION	DATE
8	REVISIONS PER HOOD COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
1	ISSUED FOR PERMITTING	2012.12.19



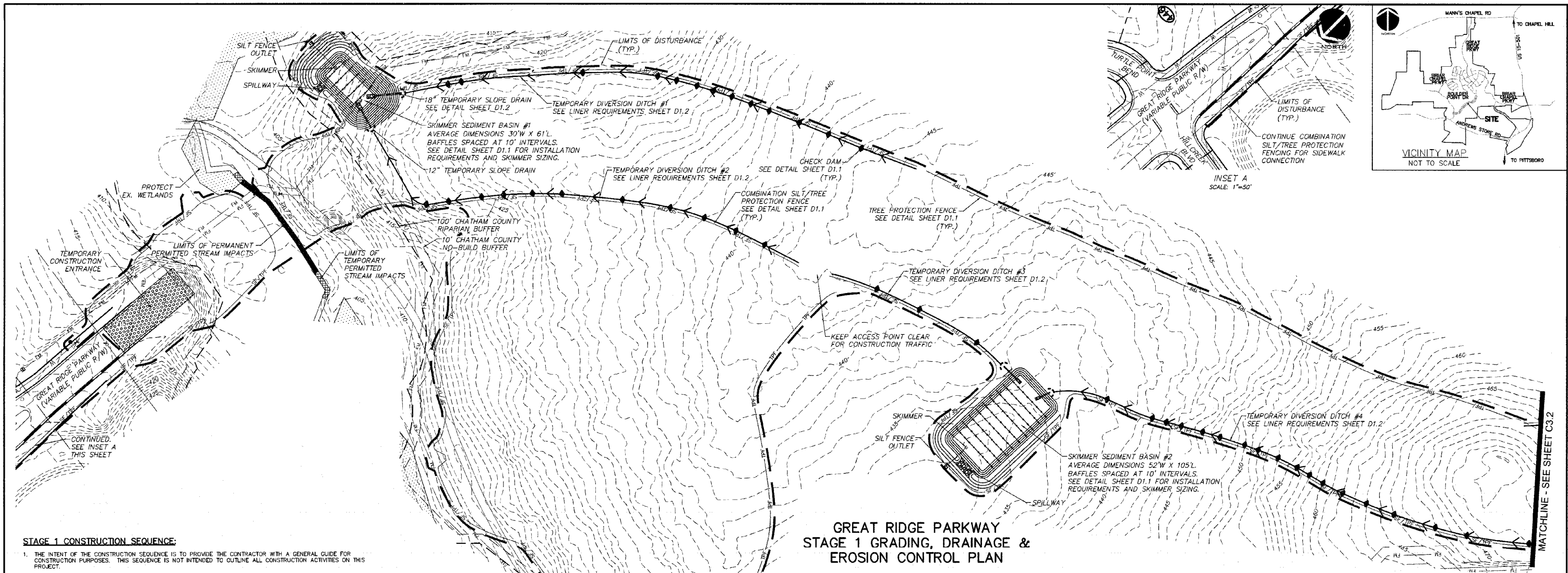
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**BRIAR CHAPEL
 GREAT RIDGE PARKWAY EXTENSION
 CHATHAM COUNTY, NORTH CAROLINA**

UTILITY PLAN

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	FILE NUMBER: C2.X
MCF PROJ. # 02735-0080	VERTICAL: N/A	DRAWING NUMBER: C2.2
DRAWN: GCA		
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 5



**GREAT RIDGE PARKWAY
STAGE 1 GRADING, DRAINAGE &
EROSION CONTROL PLAN**

STAGE 1 CONSTRUCTION SEQUENCE:

1. 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.
2. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
3. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
4. 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.
5. CONTRACTOR SHALL ESTABLISH GROUND COVER 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.

6. CONTRACTOR SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER AND CHATHAM COUNTY.
7. OBTAIN LETTER OF PLAN APPROVAL FOR SEDIMENTATION AND EROSION CONTROL FROM CHATHAM COUNTY SOIL EROSION & SEDIMENTATION CONTROL.
8. CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
9. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO AVOID CONFLICT DURING INSTALLATION OF EROSION CONTROL MEASURES AND STORM DRAINAGE. CONTRACTOR IS TO CALL 1-800-632-4949 FOR NC ONE CALL TO HAVE UTILITIES LOCATED.
10. CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
11. INSTALL TEMPORARY CONSTRUCTION ENTRANCES.
12. INSTALL TREE PROTECTION AND SILT FENCING AS SHOWN AND DETAILED ON PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.
13. INSTALL INLET PROTECTION DEVICES AS DETAILED IN THESE PLANS ON EXISTING OPEN ENDED PIPES AND INLETS.
14. CONSTRUCT TEMPORARY SKIMMER SEDIMENT BASINS TO THE REQUIRED DIMENSIONS AND ELEVATIONS AS DETAILED IN THESE PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THE BASINS. INSTALL BAFFLES PER PLAN. SEED AND MULCH SIDE SLOPES OF SEDIMENT BASINS UPON COMPLETION. INSTALL BIODEGRADABLE MATTING ON SIDE SLOPES OF BASINS IF NECESSARY TO ESTABLISH COVER.
15. CONSTRUCT STAGE 1 TEMPORARY AND CLEAN WATER DIVERSION DITCHES AS SHOWN AND DETAILED IN THESE PLANS. SEED, MULCH AND INSTALL REQUIRED LINERS IN THESE DITCHES. INSTALL CHECK DAMS IN DITCHES AS SHOWN AND DETAILED ON PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE EROSION CONTROL MEASURES.
16. INSTALL TEMPORARY CULVERTS #2 AND #3 ALONG WITH INLET AND OUTLET PROTECTION DEVICES AS SHOWN IN THESE PLANS.
17. CONTACT CHATHAM COUNTY SOIL EROSION & SEDIMENTATION AT 919-545-8339 AND ENGINEER UPON COMPLETION OF INITIAL EROSION CONTROL MEASURES.
18. ONCE CHATHAM COUNTY HAS APPROVED THESE MEASURES, THE CONTRACTOR SHALL BEGIN CLEARING AND GRUBBING WITHIN THE LIMITS OF DISTURBANCE FOR SECTION 1.
19. THE CONTRACTOR SHALL REMOVE ALL ROOT MATTER AND ORGANICS FROM WITHIN THE CLEARING LIMITS.

STAGE 1 CONSTRUCTION SEQUENCE CONTINUED:

20. THE CONTRACTOR SHALL BEGIN STRIPPING TOPSOIL STOCKPILE TOPSOIL AT A LOCATION AS DIRECTED BY OWNER
21. BEGIN GRADING AND EARTHWORKS OPERATIONS IN THE AREA OF BMP #11.
22. BEGIN REMAINDER OF SITE GRADING OPERATIONS.
23. MAINTAIN AND PROTECT ALL EXISTING UTILITIES AT ALL TIMES.
24. CONTRACTOR IS TO MAINTAIN ALL THE DIVERSION DITCHES, BASINS, SILT FENCE AND OTHER EROSION CONTROL MEASURES UNTIL THEY ARE APPROVED TO BE REMOVED.
25. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.
26. ONCE GROUND COVER 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.

LIMITS OF DISTURBANCE NOTES:

1. LIMITS OF DISTURBANCE LINES ARE CLEARING LIMIT LINES WHICH WILL BE FLAGGED FOR A MINIMUM OF ONE PER 50-FT OR CLOSER DEPENDING ON VISIBILITY.
2. 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.
3. TOTAL DISTURBED AREA: 16.47 ACRES.

SELF INSPECTION NOTICE:

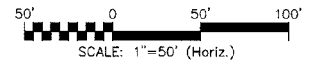
NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM:
THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH STAGE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL MEASURES ARE BEING FOLLOWED. RULES DETAILED IN 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 STAGE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCCS 113A-54.1 AND 15A NCCS 48.0131. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM [HTTP://WWW.NRC.STATE.NC.US/NCSS/SEGMENTATION_NEW.HTML](http://www.nrc.state.nc.us/ncs/npdes/segmentation_new.html). IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791-4200.

GENERAL NOTES:

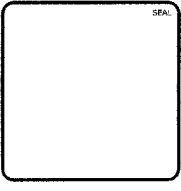
1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. 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".
3. 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.
4. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL ARRANGE AND ATTEND A PRECONSTRUCTION CONFERENCE WITH CHATHAM COUNTY, OWNER AND ENGINEER.
5. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON BEST AVAILABLE RECORD DRAWINGS.
6. SOIL UNDER BUILDINGS, PAVED AREAS AND WITHIN SLOPES GREATER THAN 3:1 (H:V) SHALL BE APPROVED, FLAGGED 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.
7. 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.
8. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND SHALL REPLACE ALL MARKERS REMOVED IF DAMAGED DURING CONSTRUCTION.
9. CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING AS NECESSARY THROUGHOUT CONSTRUCTION.
10. CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL PERMIT CONDITIONS, MONITORING AND REPORTING REQUIREMENTS.
11. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT SEAN CLARK AT 919-846-5900.
12. A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AC" AS SHOWN ON FEMA FIRM MAP #371087650J DATED FEBRUARY 2, 2007.
13. GRADED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH CURLEX SINGLE NET (CURLEX I) MATTING BY AMERICAN EXCELSIOR COMPANY OR APPROVED EQUAL.

LEGEND:

- EXISTING WETLANDS
- PERMANENT PERMITTED STREAM IMPACTS
- TEMPORARY PERMITTED STREAM IMPACTS
- 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
- LIMITS OF DISTURBANCE
- STAGE 1 DIVERSION DITCH
- TEMPORARY CONSTRUCTION ENTRANCE
- STAGE 1 CHECK DAM
- STAGE 1 ARC FILTER INLET PROTECTION
- STAGE 1 RIPRAP OUTLET PROTECTION
- STAGE 1 STORM DRAINAGE PIPE



REV. NO.	DESCRIPTION	DATE
3	REVISED PER INQUIRY COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
2	REVISED PER CHATHAM COUNTY ESC COMMENTS	2013.01.31
1	ISSUED FOR PERMITTING	2012.12.20

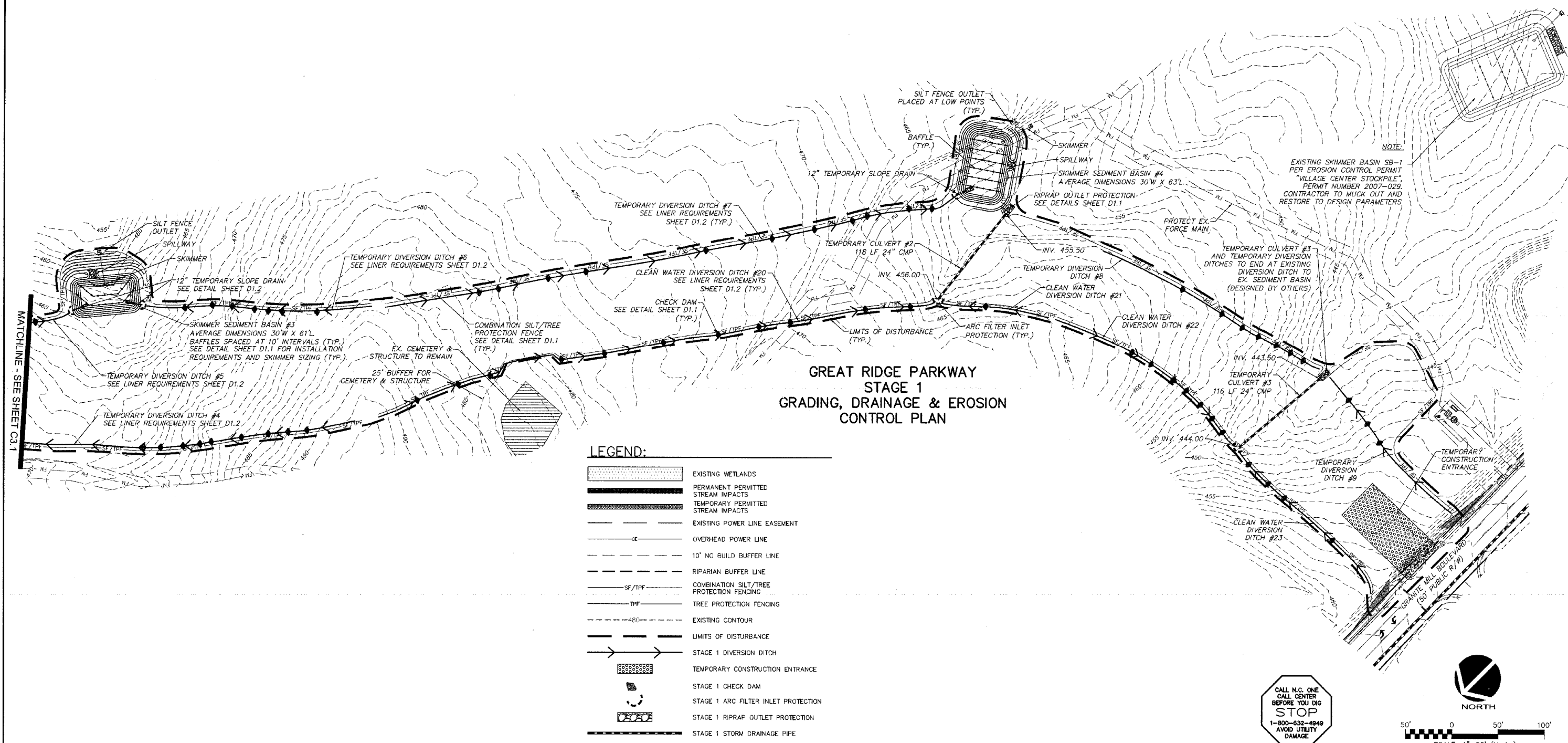
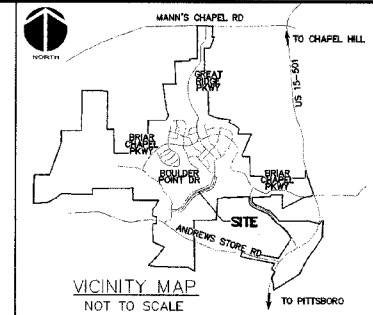


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GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
STAGE 1
GRADING, DRAINAGE & EROSION
CONTROL PLAN**

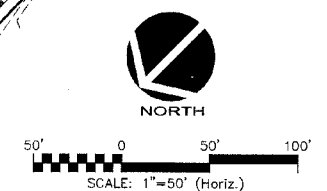
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DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 3



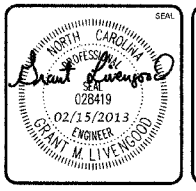
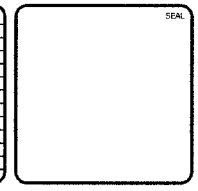
**GREAT RIDGE PARKWAY
STAGE 1
GRADING, DRAINAGE & EROSION
CONTROL PLAN**

- LEGEND:**
- EXISTING WETLANDS
 - PERMANENT PERMITTED STREAM IMPACTS
 - TEMPORARY PERMITTED STREAM IMPACTS
 - EXISTING POWER LINE EASEMENT
 - OVERHEAD POWER LINE
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 - COMBINATION SILT/TREE PROTECTION FENCING
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 - EXISTING CONTOUR
 - LIMITS OF DISTURBANCE
 - STAGE 1 DIVERSION DITCH
 - TEMPORARY CONSTRUCTION ENTRANCE
 - STAGE 1 CHECK DAM
 - STAGE 1 ARC FILTER INLET PROTECTION
 - STAGE 1 RIPRAP OUTLET PROTECTION
 - STAGE 1 STORM DRAINAGE PIPE

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



REV. NO.	DESCRIPTION	DATE
3	REVISION PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
2	REVISION PER CHATHAM COUNTY ESC COMMENTS	2013.01.31
1	PRELIMINARY REVIEW BY CLIENT	2012.12.05

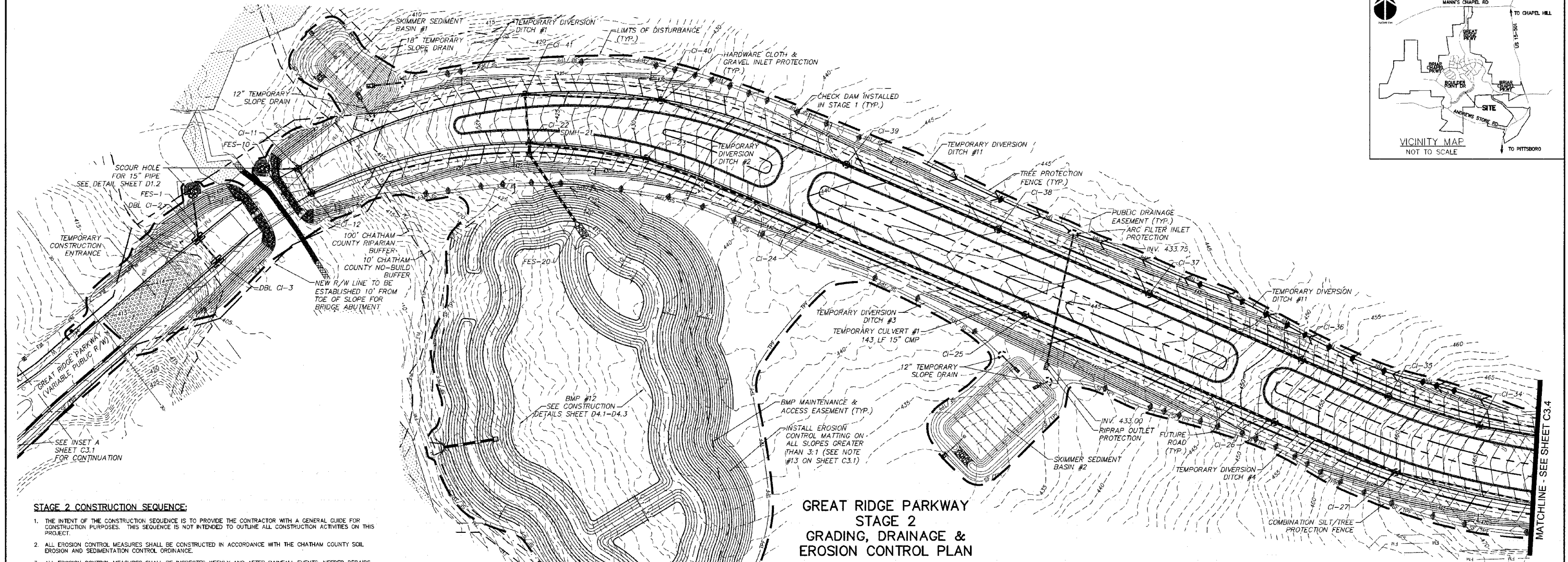
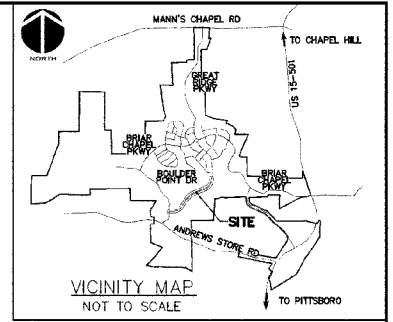


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DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	MISC FILE NUMBER: C3.X
MCE PROJ. #: 02735-0080	VERTICAL: N/A	DRAWING NUMBER: C3.2
DRAWN: GCA		
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 3



GREAT RIDGE PARKWAY STAGE 2 GRADING, DRAINAGE & EROSION CONTROL PLAN

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 GROUND COVER 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 SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER AND CHATHAM COUNTY.
- OBTAIN LETTER OF PLAN APPROVAL FOR SEDIMENTATION AND EROSION CONTROL FROM CHATHAM COUNTY SOIL EROSION & SEDIMENTATION CONTROL.
- CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
- CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO AVOID CONFLICT DURING INSTALLATION OF EROSION CONTROL MEASURES AND STORM DRAINAGE. CONTRACTOR IS TO CALL 1-800-632-4849 FOR "NO ONE CALL" TO HAVE UTILITIES LOCATED.
- CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
- AS SITE GRADING PERMITS, INSTALL TEMPORARY CULVERT #3 ALONG WITH INLET AND OUTLET PROTECTION DEVICES AS SHOWN IN THESE PLANS.
- INSTALL TEMPORARY DIVERSION DITCHES #1 AND #2. SEED, MULCH AND INSTALL REQUIRED LINERS IN THESE DITCHES. INSTALL CHECK DAMS IN DITCHES AS SHOWN AND DETAILED ON PLANS.
- PRIOR TO GRADING NEAR STREAM CROSSING, CONTRACTOR SHALL INSTALL WATER MAIN BY DIRECTIONAL BORE. REFER TO SHEET C3.1 FOR APPROXIMATE BORE PIT LOCATIONS AND SHEET D3.1 FOR BORING CONSTRUCTION DETAILS. CONTRACTOR SHALL ENSURE THAT NO SEDIMENT LEAVES THE CONSTRUCTION SITE DURING THIS PROCESS.
- INSTALL BMP #12 PER GRADES SHOWN ON PLAN AND SHEETS D4.1 THRU D4.3. CONTRACTOR TO INSTALL SKIMMER AND BAFFLES IN BMP #12 IF THE CONTRIBUTING DRAINAGE AREA IS NOT STABILIZED BEFORE THE BMP IS CONSTRUCTED.
- INSTALL STORM DRAINAGE, SANITARY SEWER, AND WATER MAIN PIPING AND STRUCTURES AS SPECIFIED IN THESE PLANS. AS STORM DRAINAGE INLETS ARE COMPLETED, INSTALL INLET PROTECTION DEVICES TO ENSURE NO SEDIMENT ENTERS THE SYSTEM.
- AS FINAL GRADES AND SLOPES ARE ESTABLISHED, THE CONTRACTOR SHALL SEED, MULCH AND INSTALL ROLLED EROSION CONTROL PRODUCTS ON SLOPES GREATER THAN 10 FEET IN HEIGHT.
- MUCK OUT VILLAGE CENTER STOCKPILE SKIMMER BASIN SB-1 AND RESTORE TO DESIGN PARAMETERS.
- CONSTRUCT ROAD BEDS, INSTALL ABC STONE FOR ROADS AS SHOWN ON PLANS, INSTALL SIDEWALKS AND MULTI-USE TRAIL AS SHOWN ON PLANS.
- REMOVE TEMPORARY CONSTRUCTION ENTRANCES AND INSTALL BINDER COURSE OF ASPHALT PAVING.
- CARRY OUT FINAL GRADING. RESPREAD TOPSOIL IN NON-STRUCTURAL LOCATIONS. CONTRACTOR TO REFER TO GEOTECHNICAL RECOMMENDATIONS FOR DEPTH COMPACTION REQUIREMENTS FOR TOPSOIL SPREADING.

STAGE 2 CONSTRUCTION SEQUENCE (CONT.):

- PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH REQUIREMENTS SHOWN ON THESE PLANS.
- REMOVE SKIMMER SEDIMENT BASINS ONLY AFTER ENSURING THAT CONTRIBUTING DRAINAGE AREAS ARE STABILIZED.
- ONCE ALL UPSTREAM AREAS HAVE BEEN SIGNIFICANTLY STABILIZED WITH IMPERVIOUS COVER OR VEGETATION, CONSTRUCT THE LEVEL SPREADERS/VEGETATED FILTER STRIPS. NO SEDIMENT SHALL DRAIN INTO THE LEVEL SPREADERS/VEGETATED FILTER STRIPS ONCE CONSTRUCTED. IF SEDIMENT ENTERS THE LEVEL SPREADERS/VEGETATED FILTER STRIPS AFTER THEY ARE CONSTRUCTED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL SEDIMENT LADEN SOIL AT NO ADDITIONAL COST TO THE OWNER.
- ONCE ALL GROUND COVER HAS BEEN ESTABLISHED, AND OTHER CONSTRUCTION IS COMPLETE, CONTACT CHATHAM COUNTY EROSION CONTROL OFFICER AND ENGINEER BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.
- AFTER SITE IS COMPLETELY STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION AS REQUIRED AND ON ANY RESULTING BARE AREAS.
- EROSION CONTROL DEVICES SHALL REMAIN IN PLACE AND SHALL BE MAINTAINED UNTIL SOIL IS NEEDED AT OTHER LOCATIONS THROUGHOUT THE BRIAR CHAPEL DEVELOPMENT, WHICH WILL BE PERMITTED SEPARATELY.

TREE SAVE NOTE:

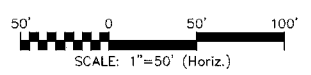
- CONTRACTOR SHALL SAVE EXISTING SPECIMEN TREES ALONG BRIAR CHAPEL PARKWAY MEDIAN WHERE DEEMED FEASIBLE AS DIRECTED BY OWNER.

STORM DRAINAGE NOTES:

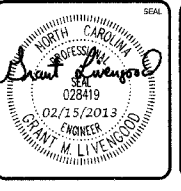
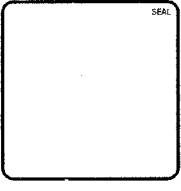
- STORM DRAINAGE PIPES SHALL BE:
 • RCP/CLASS III FOR STORM DRAINAGE INSIDE PUBLIC RIGHT-OF-WAY OR CONNECTING INTO STRUCTURE INSIDE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH NCDOT STANDARDS.
 • A-2000 PVC FOR PRIVATE STORM LINES WITHIN PRIVATE ALLEYS. ALL STORM DRAINAGE CONSTRUCTION FOR A-2000 PVC SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS. PIPE JOINTS SHALL BE WATERTIGHT PER ASTM D3212. PIPE AND FITTINGS SHALL BE INSTALLED PER AASHTO SECTION 30 AND AASHTO SECTION 12.
- 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.
- RIM ELEVATIONS FOR GRATE INLETS WITHIN ALLEYS SHALL MATCH INITIAL LIFT OF BINDER COURSE. AT TIME OF FINAL SURFACE LIFT OF ASPHALT, CONTRACTOR SHALL RAISE GRATE INLET TOPS TO MATCH FLUSH WITH FINAL SURFACE PAVEMENT ELEVATION.
- 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 840.22 ON SHEET D-3.
- 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-3.
- CONTRACTOR TO INSTALL SKIMMER AND BAFFLES IN BMP #12 IF THE CONTRIBUTING DRAINAGE AREA IS NOT STABILIZED BEFORE THE BMP IS CONSTRUCTED.

LEGEND:

	EXISTING WETLANDS		LIMITS OF DISTURBANCE
	PERMANENT PERMITTED STREAM IMPACTS		STAGE 1 DIVERSION DITCH
	TEMPORARY PERMITTED STREAM IMPACTS		STAGE 2 DIVERSION DITCH
	R/W LINE		TEMPORARY CONSTRUCTION ENTRANCE
	HOA EASEMENT LINE		STAGE 1 CHECK DAM
	PRIVATE UTILITY EASEMENT LINE		STAGE 2 CHECK DAM
	PUBLIC DRAINAGE EASEMENT		STAGE 1 ARC FILTER INLET PROTECTION
	EXISTING POWER LINE EASEMENT		STAGE 2 ARC FILTER INLET PROTECTION
	OVERHEAD POWER LINE		HARDWARE CLOTH & GRAVEL INLET PROTECTION
	BMP MAINTENANCE & ACCESS EASEMENT		STAGE 1 RIPRAP OUTLET PROTECTION
	10' NO BUILD BUFFER LINE		STAGE 2 RIPRAP OUTLET PROTECTION
	RIPARIAN BUFFER LINE		STAGE 1 STORM DRAINAGE PIPE
	COMBINATION SILT/TREE PROTECTION FENCING		STAGE 2 STORM DRAINAGE PIPE
	EXISTING CONTOUR		OPEN ENDED STORM DRAIN
	PROPOSED CONTOUR		



NO.	DESCRIPTION	DATE
3	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
2	REVISED PER CHATHAM COUNTY ESC COMMENTS	2013.01.31
1	ISSUED FOR PERMITTING	2012.12.19

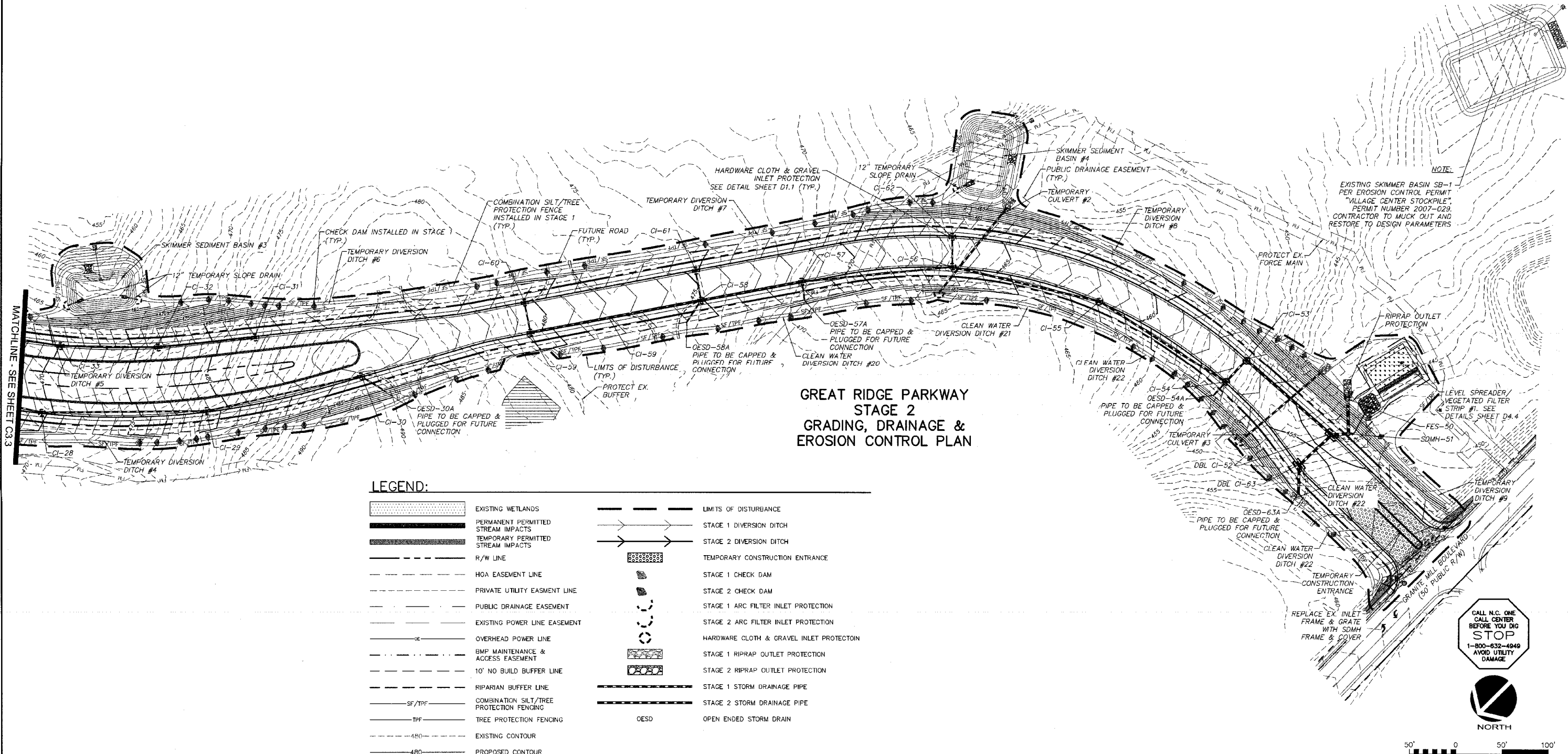
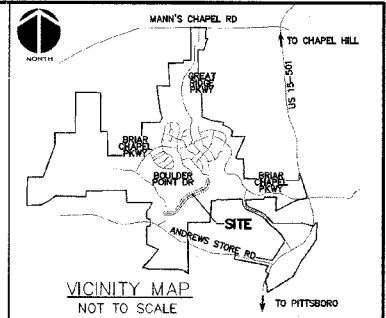


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 CHATHAM COUNTY, NORTH CAROLINA
 STAGE 2
 GRADING, DRAINAGE & EROSION
 CONTROL PLAN**

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	VERTICAL: N/A	MISC. FILE NUMBER: C3.X
MCE PROJ. # 02735-0080	DRAWN: GCA	DESIGNED: GCA	CHECKED: CHS
PROJ. MGR.: CHS	STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	



**GREAT RIDGE PARKWAY
STAGE 2
GRADING, DRAINAGE &
EROSION CONTROL PLAN**

LEGEND:

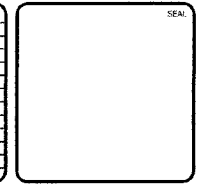
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	TREE PROTECTION FENCING		OPEN ENDED STORM DRAIN
	EXISTING CONTOUR		
	PROPOSED CONTOUR		

NOTE:
EXISTING SKIMMER BASIN SB-1 PER EROSION CONTROL PERMIT "VILLAGE CENTER STOCKPILE", PERMIT NUMBER 2007-029. CONTRACTOR TO MUCK OUT AND RESTORE TO DESIGN PARAMETERS.

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

SCALE: 1" = 50' (Horiz.)

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2	REVISED PER CHATHAM COUNTY ESC COMMENTS	2013.01.31
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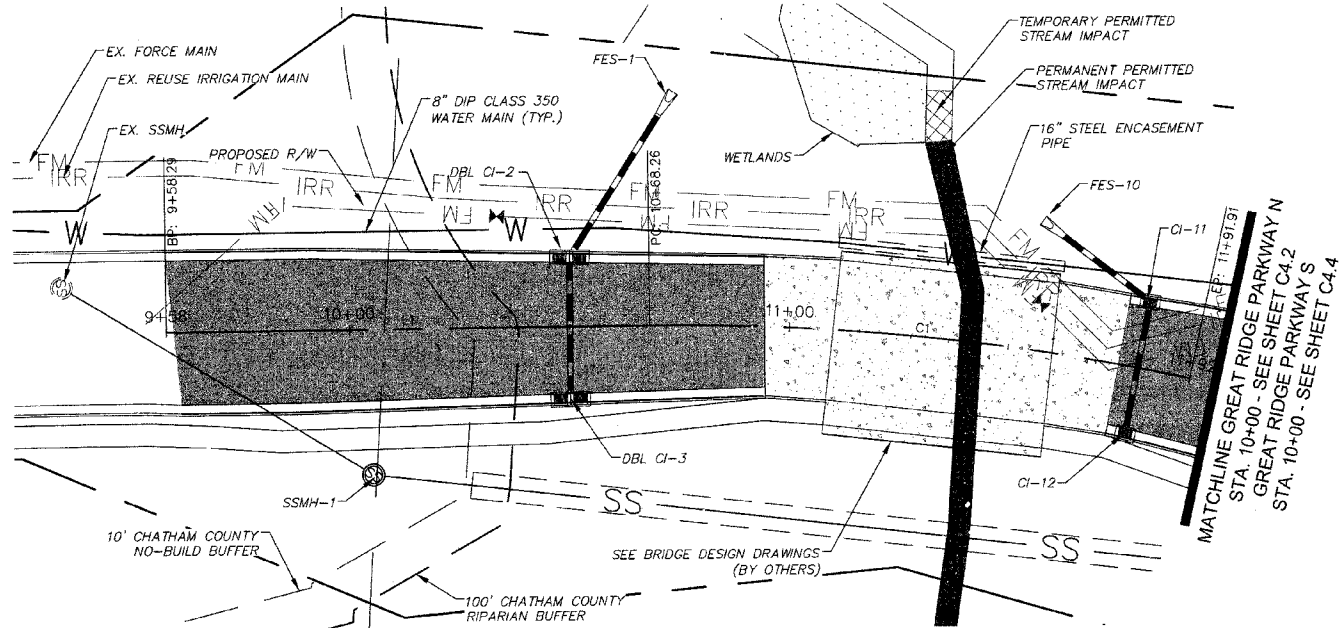


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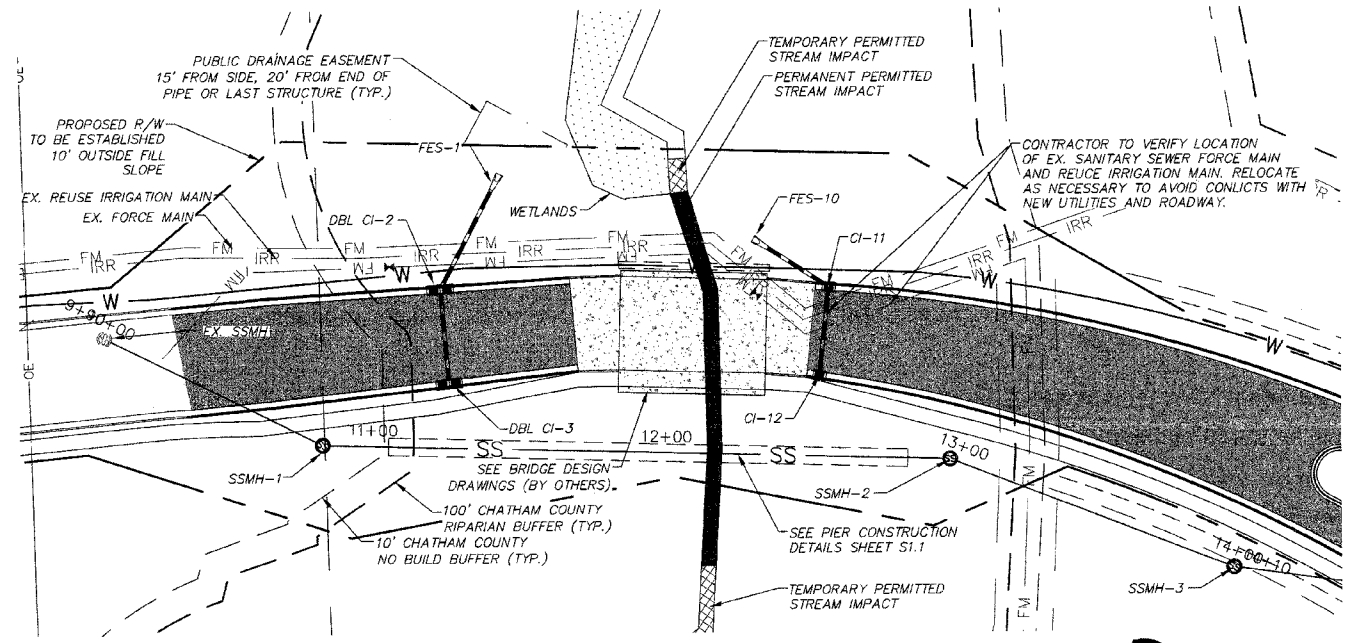
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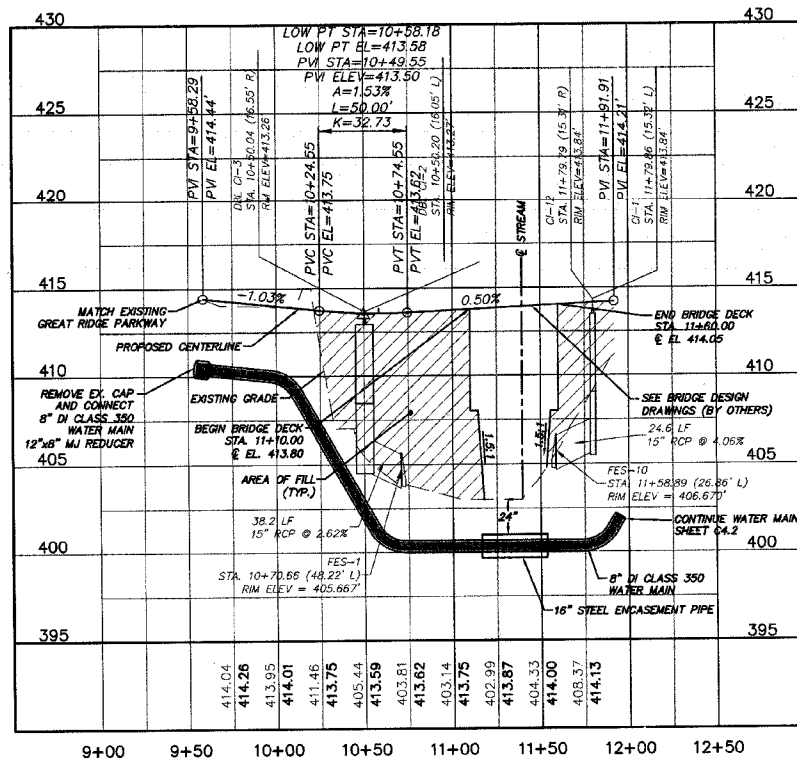
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DRAWN: SCA	VERTICAL: N/A	
DESIGNED: SCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	



GREAT RIDGE PARKWAY STREAM CROSSING PLAN
(VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 11+91.91)
SCALE: 1"=20'



GREAT RIDGE PARKWAY SANITARY SEWER CROSSING PLAN
(VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 14+10.45)
SCALE: 1"=30'



GREAT RIDGE PARKWAY STREAM CROSSING PROFILE
(STA. 10+00 TO 11+91.91)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

ALIGNMENT LINE DATA

LINE #	LENGTH	BEARING
L1	109.97	S4°33'29"W

ALIGNMENT CURVE DATA

CURVE #	RADIUS	LENGTH	BEARING
C1	550.00'	123.65'	S10°59'55"W

STORM DRAINAGE SUMMARY TABLE

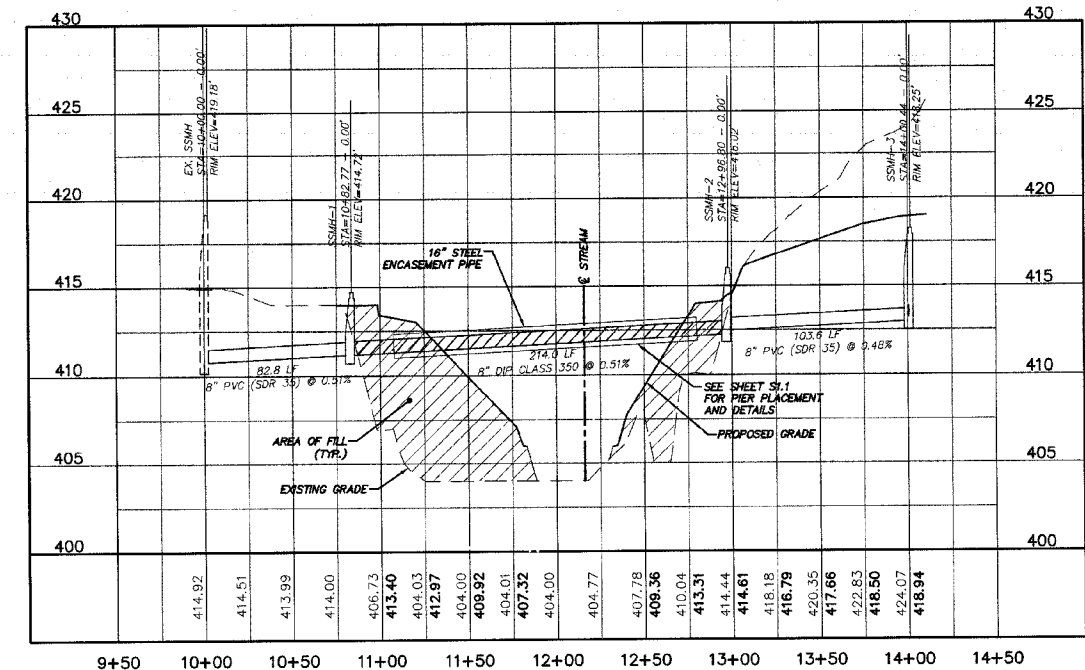
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
DBL CI-2	FES-1	405.00	404.00	15"	RCP	38.2	2.62%
DBL CI-3	DBL CI-2	408.94	408.59	15"	RCP	32.6	1.07%

STORM DRAINAGE SUMMARY TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-11	FES-10	406.00	405.00	15"	RCP	24.6	4.06%
CI-12	CI-11	409.54	408.50	15"	RCP	30.6	3.40%

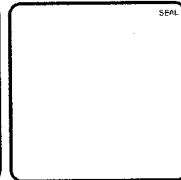
SANITARY SEWER SUMMARY TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-1	EX. SSMH	411.20	410.78	8"	PVC	82.8	0.51%
SSMH-2	SSMH-1	412.30	411.20	8"	Ductile Iron	214.0	0.51%
SSMH-3	SSMH-2	413.00	412.50	8"	PVC	103.6	0.48%



GREAT RIDGE PARKWAY SANITARY SEWER CROSSING PROFILE
(STA. 10+00 TO 14+10.45)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DESCRIPTION	DATE
3	REVISIONS PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.28
1	ISSUED FOR PERMITTING	2012.11.19

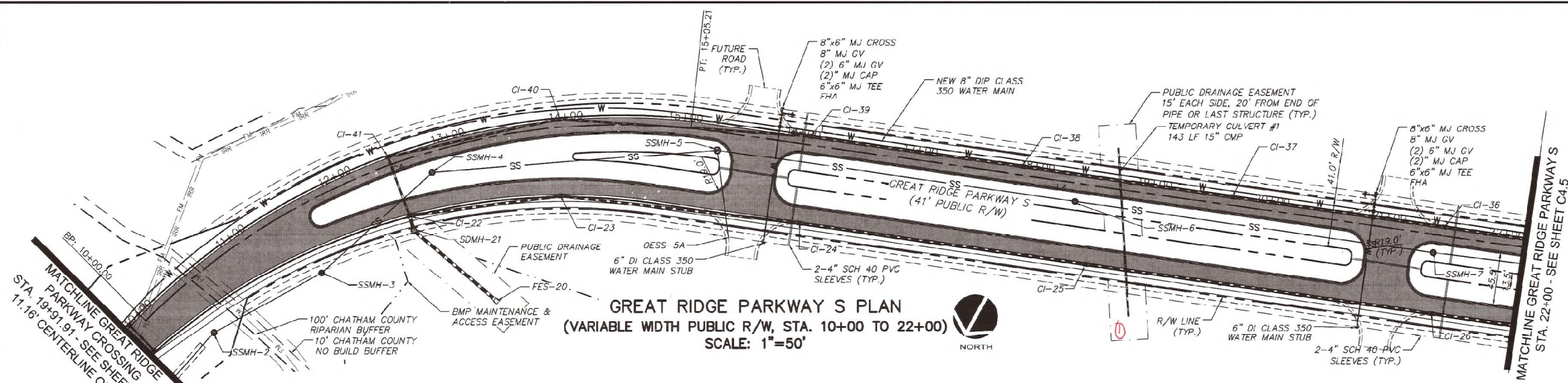


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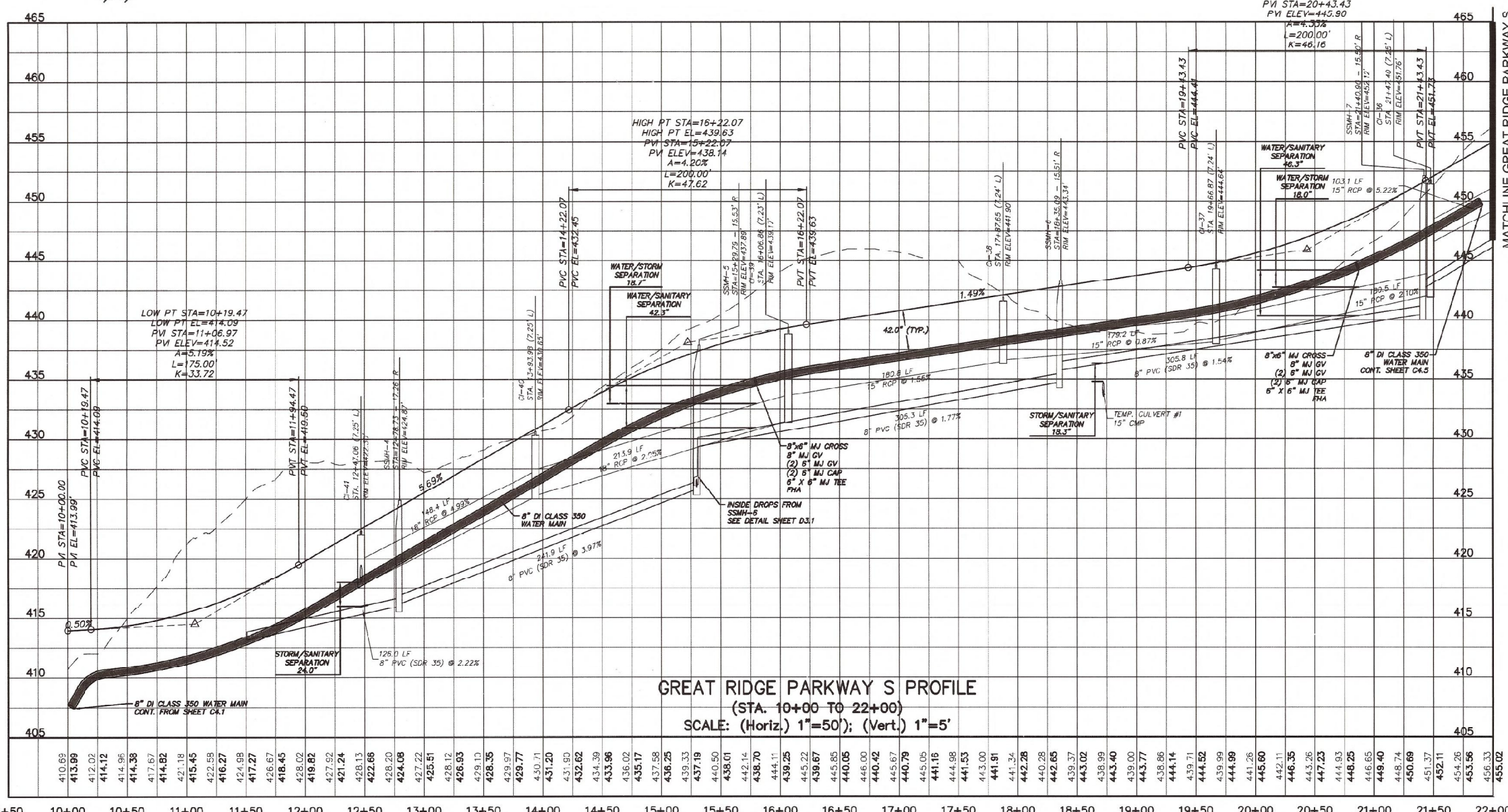
BRIAR CHAPEL
GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
STREAM CROSSING

DATE: DECEMBER 19, 2012	SCALE: 1"=50'	PROJECT NUMBER: C4.X
NCE PROJ. # 02735-0080	HORIZONTAL: 1"=50'	DRAWING NUMBER: C4.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	



GREAT RIDGE PARKWAY S PLAN
 (VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 22+00)
 SCALE: 1"=50'

① See ATTACHMENT



GREAT RIDGE PARKWAY S PROFILE
 (STA. 10+00 TO 22+00)
 SCALE: (Horiz) 1"=50'; (Vert) 1"=5'

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L4	728.36	S68°09'45"W

ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C4	569.22'	505.21'	S40°35'52"W

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-36	CI-37	442.40	438.60	15"	RCP	180.5	2.10%
CI-37	CI-38	438.50	436.95	15"	RCP	179.2	0.87%
CI-38	CI-39	436.84	434.04	15"	RCP	180.8	1.55%
CI-39	CI-40	431.90	425.60	18"	RCP	213.9	2.95%
CI-40	CI-41	425.50	418.10	18"	RCP	148.4	4.99%
CI-41	CI-22	418.00	417.50	18"	RCP	53.0	0.94%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
OESS-5A	SSMH-5	426.40	426.00	8"	PVC	74.7	0.54%
SSMH-4	SSMH-3	416.00	413.20	8"	PVC	126.0	2.22%
SSMH-5	SSMH-4	425.80	416.20	8"	PVC	241.9	3.97%
SSMH-6	SSMH-5	434.80	429.40	8"	PVC	305.3	1.77%
SSMH-7	SSMH-6	440.50	435.80	8"	PVC	305.0	1.54%

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITTING	2012.12.19
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS, PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.28
5	REVISIONS PER H2007 COMMENTS, RELEASED FOR CONSTRUCTION	2013.02.16

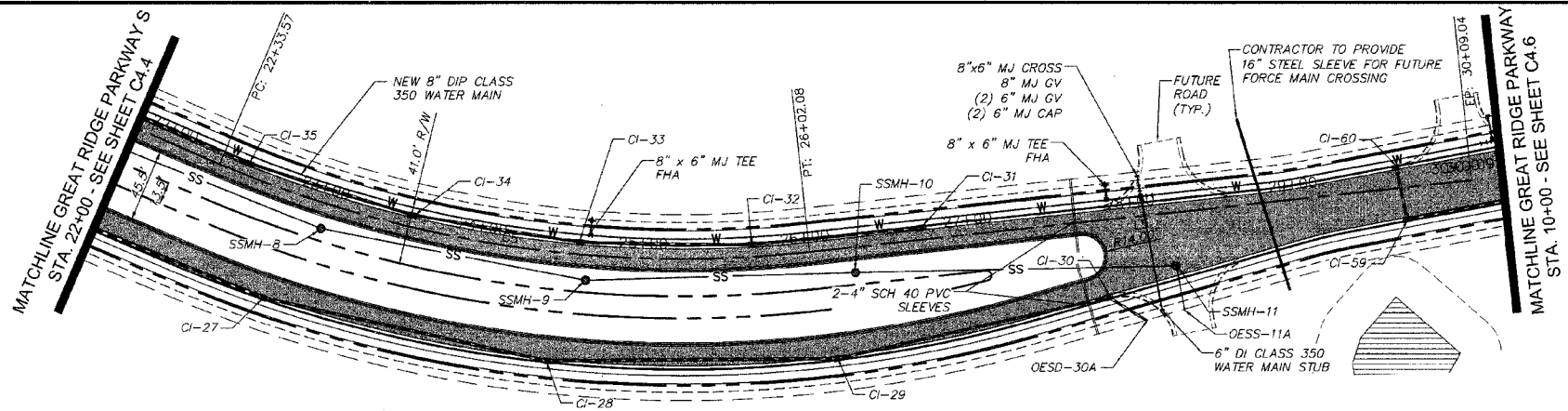


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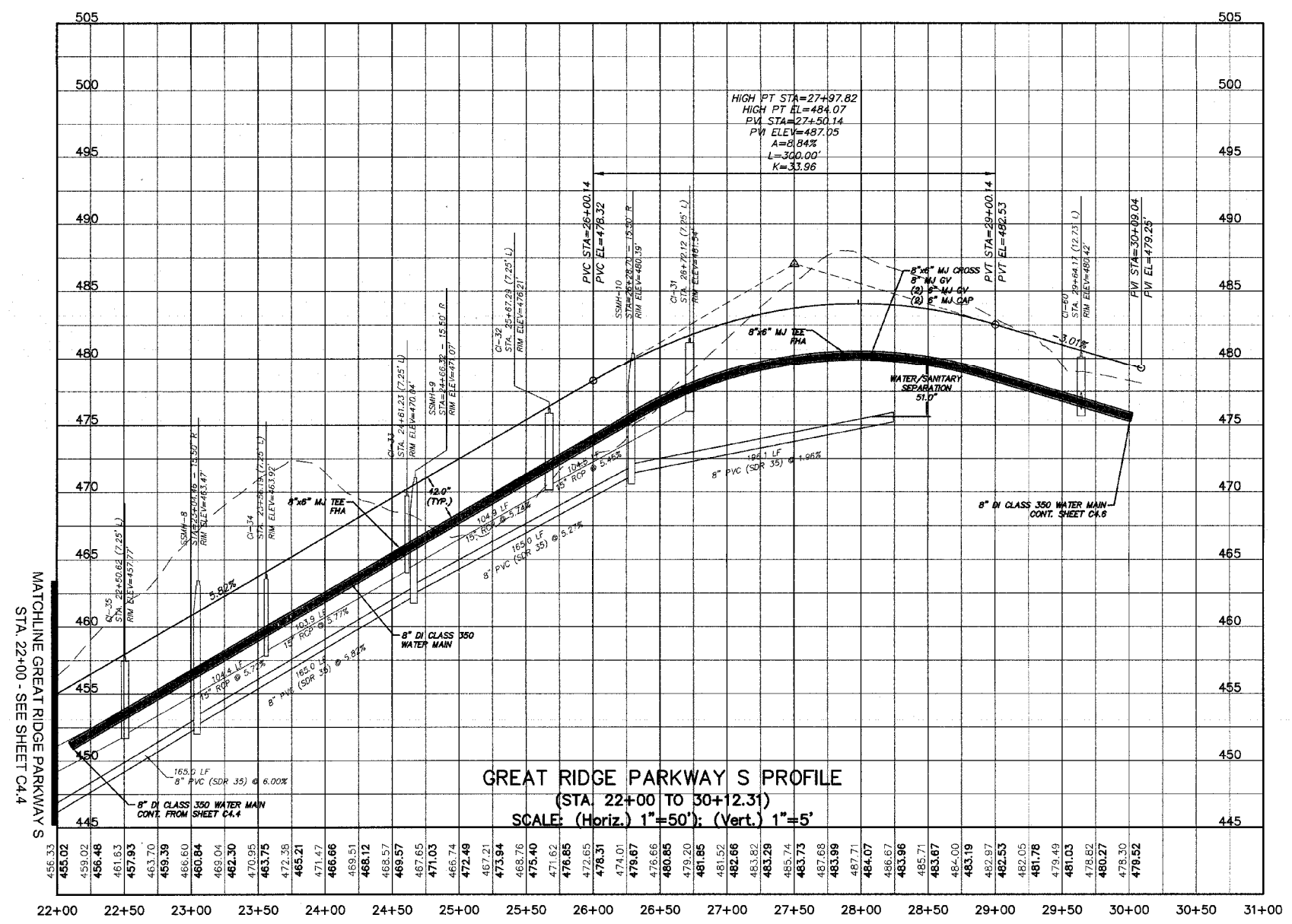
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GREAT RIDGE PARKWAY EXTENSION
 CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
GREAT RIDGE PARKWAY S
 STA. 10+00 TO STA. 22+00

DATE: DECEMBER 19, 2012	SCALE: C4.X
NCE PROJ. # C2735-0080	HORIZONTAL: 1"=50'
DRAWN: GCA	VERTICAL: N/A
DESIGNED: GCA	REVISION: 5
CHECKED: CHS	STATUS: RELEASED FOR CONSTRUCTION
PROJ. MGR.: CHS	



GREAT RIDGE PARKWAY S PLAN
 (VARIABLE WIDTH PUBLIC R/W, STA. 21+50 TO 30+12.31)
 SCALE: 1"=50'



GREAT RIDGE PARKWAY S PROFILE
 (STA. 22+00 TO 30+12.31)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L5	406.96	S38°50'06"W

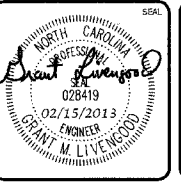
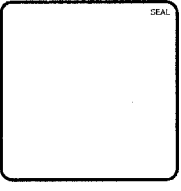
ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C5	720.00'	368.51'	S53°29'52"W

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-31	CI-32	476.50	470.80	15"	RCP	104.5	5.45%
CI-32	CI-33	470.65	464.53	15"	RCP	104.9	5.74%
CI-33	CI-34	464.52	458.53	15"	RCP	103.9	5.77%
CI-34	CI-35	458.30	452.33	15"	RCP	104.4	5.72%
CI-35	CI-36	452.18	446.80	15"	RCP	103.1	5.22%

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-59	CI-58	471.00	467.95	15"	RCP	186.5	1.64%
CI-60	CI-59	476.17	475.85	15"	RCP	32.5	0.98%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-8	SSMH-7	452.50	442.60	8"	PVC	165.0	6.00%
SSMH-9	SSMH-8	462.30	452.70	8"	PVC	165.0	5.82%
SSMH-10	SSMH-9	471.20	462.50	8"	PVC	165.0	5.27%

NO.	DESCRIPTION	DATE
4	REVISED PER WCD COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
1	ISSUED FOR PERMITTING	2012.12.13



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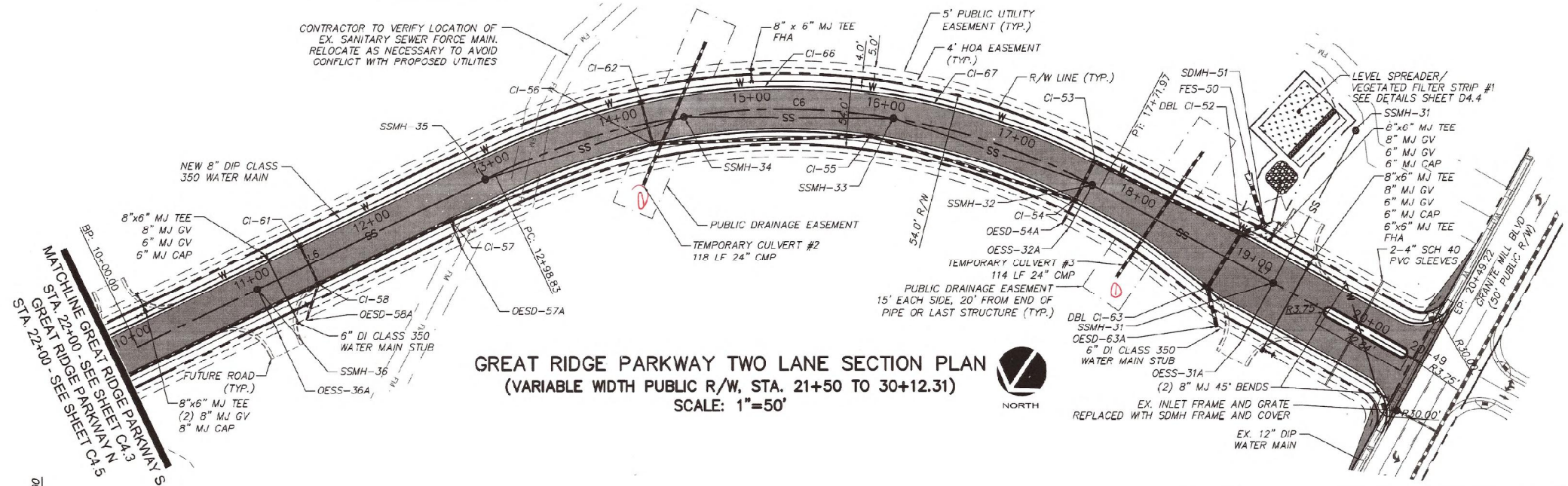
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GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
GREAT RIDGE PARKWAY S
STA. 22+00 TO STA. 30+12.31

DATE: DECEMBER 19, 2012
 NCE PROJ. #: 02735-0080
 DRAWN: GCA
 DESIGNED: GCA
 CHECKED: CHS
 PROJ. MGR.: CHS

SCALE: 1"=50'
 HORIZONTAL: 1"=50'
 VERTICAL: N/A

STATUS: RELEASED FOR CONSTRUCTION
 REVISION: 4

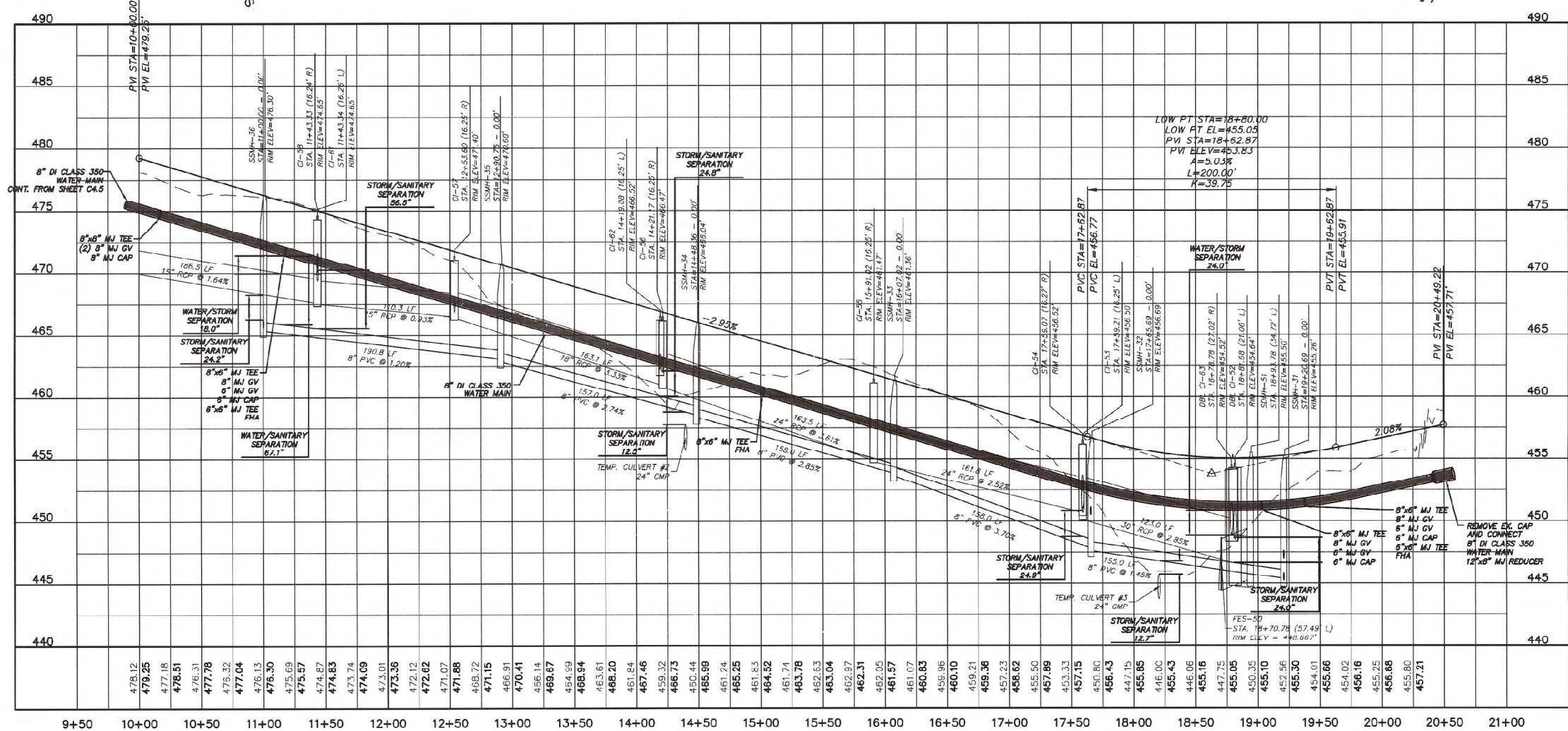


GREAT RIDGE PARKWAY TWO LANE SECTION PLAN
(VARIABLE WIDTH PUBLIC R/W, STA. 21+50 TO 30+12.31)
SCALE: 1"=50'

See ATTACHMENT

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L6	298.83	S34°17'15"W
L7	277.25	S88°30'21"W

ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C6	500.00'	473.14'	S61°23'48"W



GREAT RIDGE PARKWAY TWO LANE SECTION PROFILE
(STA. 10+00 TO 20+49.22)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-53	DBL CI-52	450.60	447.10	30"	RCP	123.0	2.85%
CI-54	CI-53	451.02	450.70	24"	RCP	32.5	0.98%
CI-55	CI-54	455.19	451.12	24"	RCP	161.8	2.52%
CI-56	CI-55	461.20	455.29	24"	RCP	163.5	3.61%
CI-57	CI-56	466.73	461.30	18"	RCP	163.1	3.33%
CI-58	CI-57	467.85	466.83	15"	RCP	110.3	0.93%
CI-61	CI-58	470.43	470.10	15"	RCP	32.5	1.02%
CI-62	CI-56	462.25	462.00	15"	RCP	32.6	0.77%
DBL CI-52	SDMH-51	445.31	445.22	36"	RCP	18.3	0.49%
DBL CI-63	DBL CI-52	448.85	448.50	30"	RCP	48.2	0.73%
OESD-54A	CI-54	453.20	452.50	15"	RCP	20.7	3.38%
OESD-57A	CI-57	467.40	466.83	15"	RCP	20.8	2.74%
OESD-58A	CI-58	469.60	469.40	15"	RCP	28.8	0.69%
OESD-63A	DBL CI-63	449.20	448.95	30"	RCP	30.9	0.81%
SDMH-51	FES-50	445.92	445.00	36"	RCP	32.4	2.84%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
OESS-31A	SSMH-31	449.00	447.00	8"	PVC	49.9	4.01%
OESS-32A	SSMH-32	451.60	450.50	8"	PVC	37.0	2.97%
OESS-36A	SSMH-36	466.70	465.60	8"	PVC	37.0	2.97%
SSMH-31	SSMH-30	445.20	443.90	8"	PVC	130.5	1.00%
SSMH-32	SSMH-31	447.65	445.40	8"	PVC	155.0	1.45%
SSMH-33	SSMH-32	453.70	447.85	8"	PVC	158.0	3.70%
SSMH-34	SSMH-33	458.40	453.90	8"	PVC	158.0	2.85%
SSMH-35	SSMH-34	462.90	458.60	8"	PVC	157.0	2.74%
SSMH-36	SSMH-35	465.39	463.10	8"	PVC	190.8	1.20%

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITTING	2012.10
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.02.20
5	REVISED PER MOST COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.18



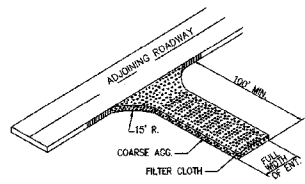
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CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
TWO LANE SECTION
STA. 10+00 TO STA. 20+49.22

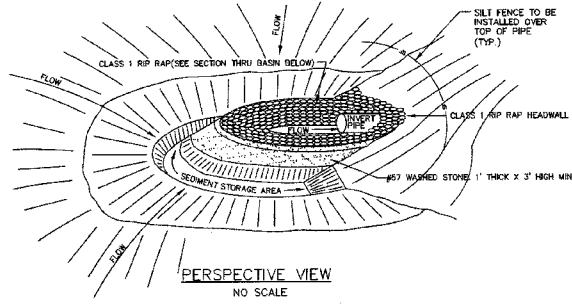
DATE:	DECEMBER 19, 2012
MILE PROJ. #	02733-0080
DRAWN	GCA
DESIGNED	GCA
CHECKED	CHS
PROJ. MGR.	CHS

SCALE	HORIZONTAL: 1" = 50' VERTICAL: N/A
MIC FILE NUMBER	C4.X
DRAWING NUMBER	C4.6
STATUS:	RELEASED FOR CONSTRUCTION
REVISION	5

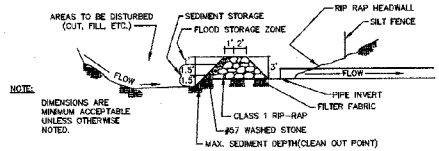


- COARSE AGGREGATE (2"-3" STONE) SHALL BE USED. PAD TO BE 100' L X 25' W X 6" D MIN. PLACE A MINIMUM OF 3" OF STONE IN A CUT SECTION TO HELP SECURE FILTER CLOTH.
- TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
- ENTRANCES SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY 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 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

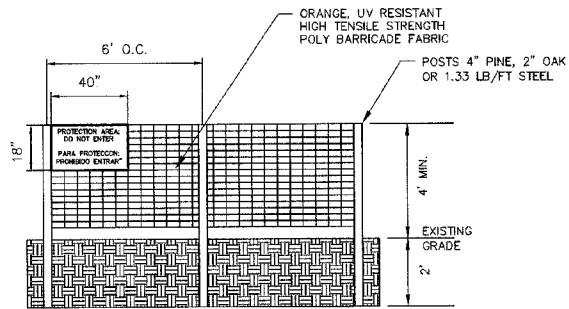


PERSPECTIVE VIEW
NO SCALE



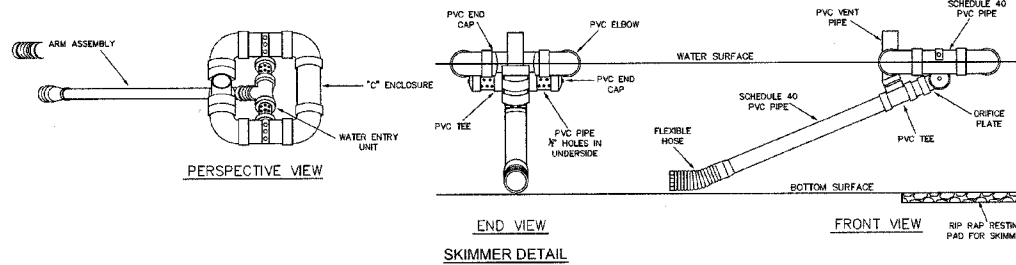
SECTION THRU BASIN, FILTER AND CULVERT PIPE
NO SCALE

ARC FILTER INLET PROTECTION
NTS

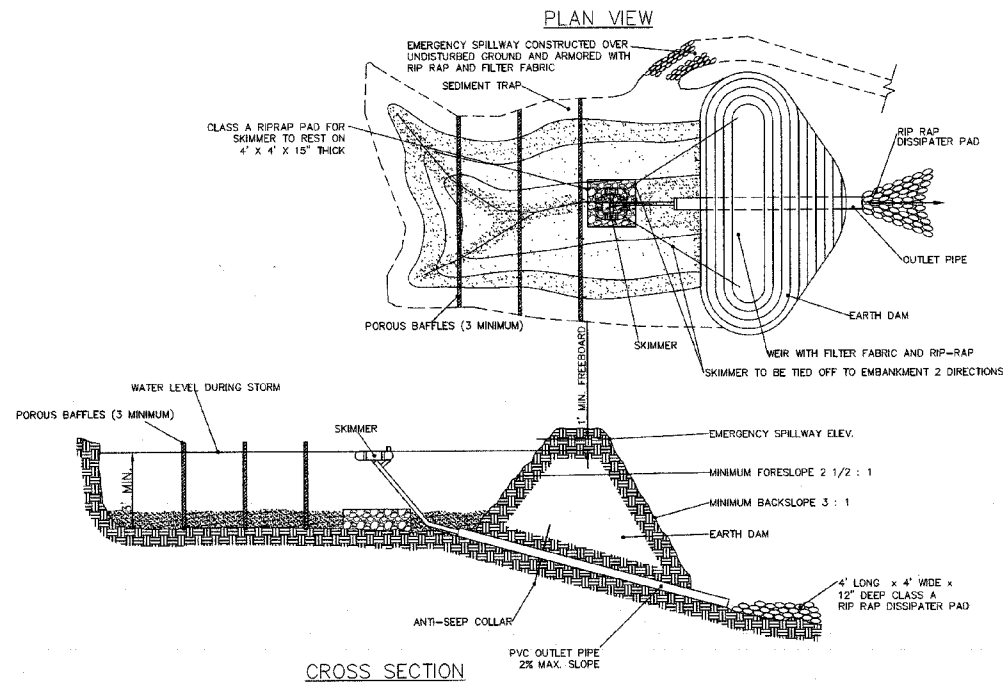


- WARNING SIGNS TO BE MADE OF DURABLE WATERPROOF PLASTIC.
- ALL LETTERS TO BE AT LEAST 3" HIGH, CLEARLY LEGIBLE AND SPACED APPROPRIATELY.
- SIGNS TO BE PLACED AT EACH END OF LINEAR PROTECTION AREA AND 200' ON CENTER (MAX.) THEREAFTER FOR PROTECTION AREA LESS THAN 200' IN PERIMETER. PROVIDE NO LESS THAN 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



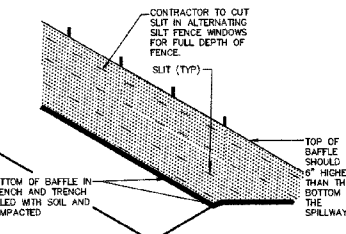
SKIMMER DETAIL



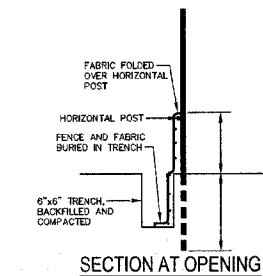
CROSS SECTION

Basin #	Disturbed Area (ac)	Total Drainage Area (ac)	Required Storage	Required Surface Area	Minimum Depth	Bottom Elevation	Top Width	Top Length	Provided Storage	Surface Area	Spillage/Spillway Elevation	Spillway Width	Top of Dam Elevation	Skimmer Size	Skimmer Orifice Diameter
1	1.51	1.51	5,440 CF	2,860 SF	3.0'	405.0'	42'	73'	5,400 CF	3,088 SF	408.0'	7.0'	410.0'	2.0'	1.4"
2	2.28	4.18	8,210 CF	7,390 SF	3.0'	432.0'	64'	117'	16,380 CF	7,488 SF	435.0'	18.0'	436.0'	2.5'	2.3"
3	1.51	1.51	5,440 CF	2,860 SF	3.0'	459.0'	42'	73'	5,490 CF	3,088 SF	462.0'	7.0'	464.0'	2.0'	1.4"
4	1.57	1.57	5,850 CF	2,770 SF	3.0'	455.0'	42'	75'	6,670 CF	3,150 SF	468.0'	7.0'	469.0'	2.0'	1.5"

BAFFLE INSTALLATION - STEP 1



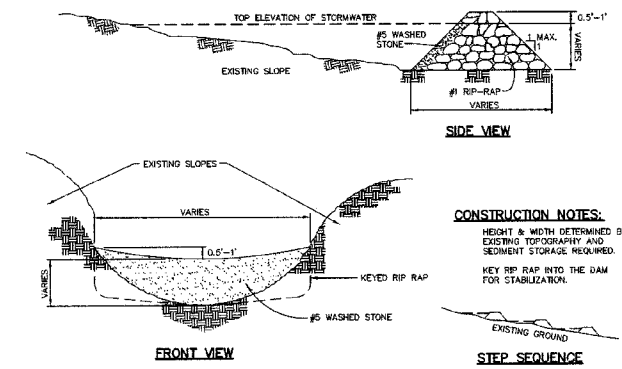
BAFFLE INSTALLATION - STEP 2



SECTION AT OPENING

- NOTES:
- DRIVE STEEL FENCE POST AT LEAST 18" INTO SOLID GROUND.
 - WOOD POSTS ARE NOT ACCEPTABLE.
 - USE STAPLES 1" APART TO ATTACH FABRIC TO "HOG WIRE".
 - BAFFLE SPACED AS PER APPROVED PLAN.

BAFFLE INSTALLATION DETAIL

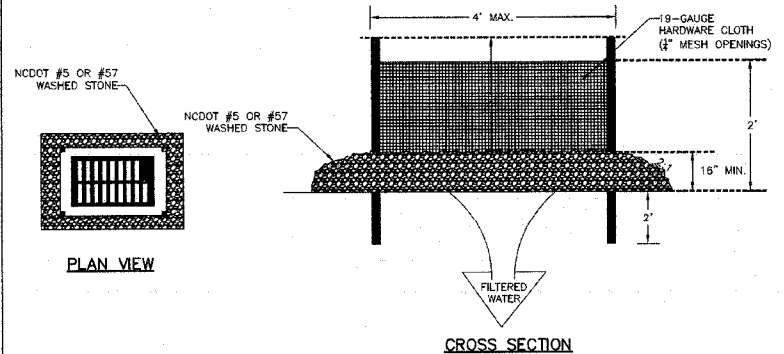


- CONSTRUCTION NOTES:**
- HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
 - KEY RIP-RAP INTO THE DAM FOR STABILIZATION.

CHECK DAM
NTS

NOTES:

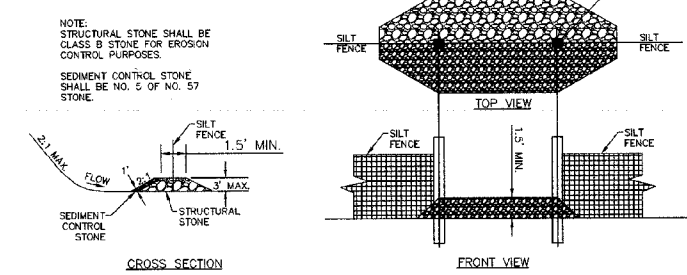
- UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
- DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
- SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL 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 (NO 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

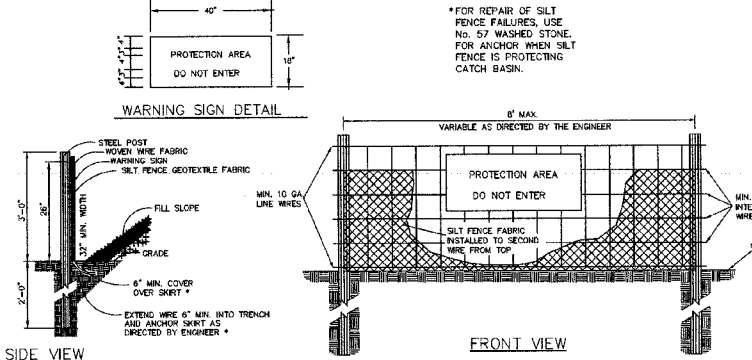
HARDWARE CLOTH & GRAVEL INLET PROTECTION
NTS



CROSS SECTION

FRONT VIEW

SILT FENCE OUTLET
NTS



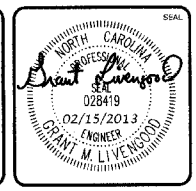
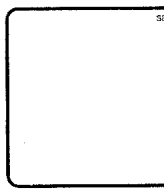
SIDE VIEW

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 INCENPR PRACTICE & SPECIFICATIONS MANUAL SEDIMENTS FENCE SECTION FOR CONDITIONS WHERE PRACTICE APPLIES AND DESIGN CRITERIA.

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITTING	2012.12.19
2	RELEASED FOR CONSTRUCTION	2013.02.15



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BRIAR CHAPEL
by
Newland COMMUNITIES

BRIAR CHAPEL
GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
EROSION AND SEDIMENTATION CONTROL DETAILS

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	HBC FILE NUMBER: D1.X
SCE PROJ. # 02735-0080	VERTICAL: N/A	DRAWING NUMBER: D1.1
DRAWN: GCA		
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 2

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

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

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

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

FALL IS BEST FOR TALL FESCUE AND LATE 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 IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

RECOMMENDATIONS FOR GRASS-LINED CHANNELS

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

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

SEEDING DATES:
BEST: AUG. 25 - OCT.
POSSIBLE: 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

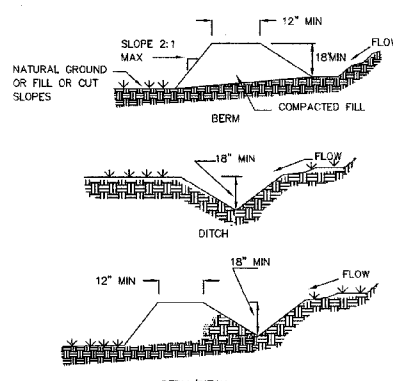
NOTES:

POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 2%, SEED AND MULCH DIVERSION. TRY NOT TO EXCEED 5% MAXIMUM D.A. = 5 ACRES WITHOUT SUPPORTING CALCS. DIVERSIONS AT THE TOP OF SLOPES MUST EMPTY INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.

- MACHINE COMPACTION OF ALL FILL IS REQUIRED. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT-LADEN STORMWATER INTO A SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF THE AREA (OR IN CONJUNCTION WITH THIS OPERATION) IF SEDIMENT CONTROLS AND DIVERSIONS ARE INSTALLED AS EACH CRITICAL POINT IS REACHED.
- DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.
- CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.

MAINTENANCE

1. INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.



TOD #	TOTAL LENGTH	SLOPE (%)	LINER
PHASE 1			
1	575'	4.6	SYNTHETIC MAT
2	519'	5.3	SYNTHETIC MAT
3	237'	3.0	STRAW W/NET
4	916'	6.0	SC250
5	153'	2.3	JUTE NET
6	245'	6.4	SYNTHETIC MAT
7	635'	4.0	SYNTHETIC MAT
8	266'	5.3	SYNTHETIC MAT
9	198'	5.8	STRAW W/NET
PHASE 2			
11	177'	3.7	STRAW W/NET
12	507'	5.6	SC250
CLEAN WATER DIVERSION			
20	819'	4.6	SYNTHETIC MAT
21	112'	2.2	JUTE NET
22	230'	7.6	SYNTHETIC MAT
23	213'	4.7	SYNTHETIC MAT

TEMPORARY DIVERSION/CLEAN WATER DIVERSION DITCH

NTS

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

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

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

SEEDING DATES:
MOUNTAINS: (ABOVE 2,500'): FEB. 15 - MAY 15
(BELOW 2,500'): FEB. 1 - MAY 1
PIEDMONT: JAN. 1 - MAY 1
COASTAL PLAIN: 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: GERMAN MILLET
RATE (lb/acre): 40

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

SEEDING DATES:
MOUNTAINS: MAY 15 - AUG. 15
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: RYE (GRAIN)
RATE (lb/acre): 120

SEEDING DATES:
MOUNTAINS: AUG. 15 - DEC. 15
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

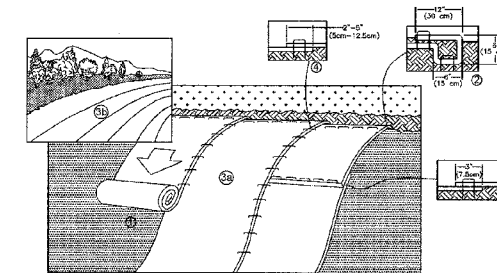
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- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY 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

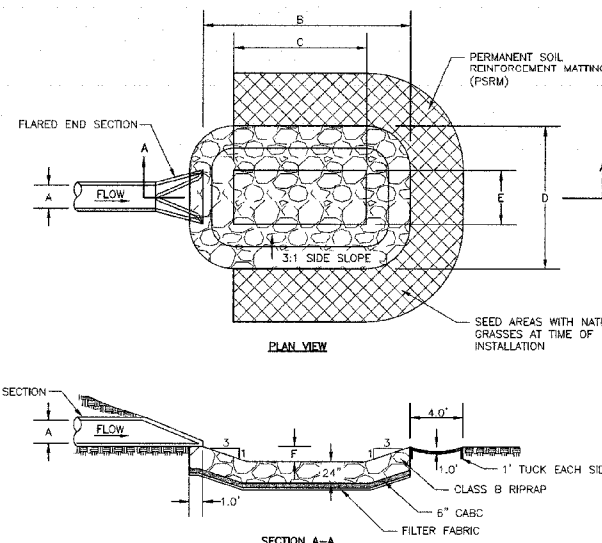
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- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH 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 RECPS TYPE.
 - CONSECUTIVE RECPS SPICED 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 RECPS 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

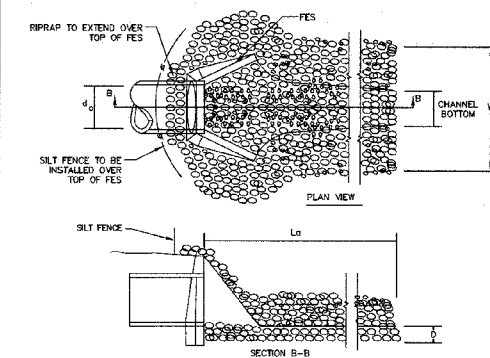
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SCOUR HOLE

NTS

	A	B	C	D	E	F
15" PIPE	15"	11.0'	3.5'	10.0'	2.5'	15"



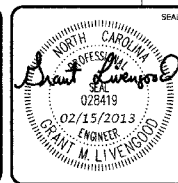
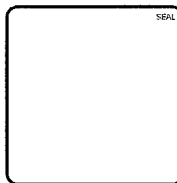
OUTLET NO.	Do (IN.)	Lo (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
FES-20	30	15.0	6.0	24	CLASS 1
FES-50	30	20.0	6.0	24	CLASS 1
TEMP CULVERT #1	15	7.5	4.0	22	CLASS B
TEMP CULVERT #2	24	12.0	6.0	22	CLASS 1
TEMP CULVERT #3	24	12.0	6.0	22	CLASS 1

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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CHECKED: CHS
PROJ. MGR: CHS

SCALE: HORIZONTAL: 1" = 50'
VERTICAL: N/A

STATUS: RELEASED FOR CONSTRUCTION

REVISION: 2

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

ENGLISH STANDARD DRAWING FOR CONCRETE JUNCTION BOX (WITH OPTIONAL MANHOLE)

GENERAL NOTES:
 1. CHAMFER ALL EXPOSED CORNERS 1".
 2. USE CLASS "B" CONCRETE THROUGHOUT.
 3. OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY OR 4" BAR CORNERS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 4. USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 5. IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 6. PROVIDE ALL SECTION SIZES OVER 3" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.00.
 7. ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE SECTION OF THE MANHOLE (I.E. SEPARATE BARS IDENTIFIED THEREON).
 8. IDENTIFY ALL REINFORCEMENT WITH "C" TO "O".
 9. MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 18 FEET.

REINFORCEMENT BARS "A" THROUGH "O"

DIMENSIONS OF BOX AND PIPE		REINFORCEMENT BARS "A" THROUGH "O"		TOP SLAB DIMENSIONS		CURB VARIOUS IN BOX		TOTAL QUANTITIES		DEDUCTIONS FOR ONE PIPE DIATCH.	
PIPE DIA.	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	NO.	WEIGHT	NO.	C.S. A.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-4"	3'-0"	3'-0"	0.187	0.186	22	0.015
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.204	24	0.020
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.232	30	0.023
24"	3'-0"	3'-0"	3'-3"	18	3'-6"	4'-0"	4'-0"	0.296	0.290	40	0.030
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.378	0.370	51	0.032
36"	4'-0"	4'-0"	4'-3"	20	4'-6"	5'-0"	5'-0"	0.460	0.380	64	0.032
42"	4'-6"	4'-6"	4'-9"	22	5'-0"	5'-6"	5'-6"	0.560	0.370	77	0.032
48"	5'-0"	5'-0"	5'-3"	24	5'-6"	6'-0"	6'-0"	0.743	0.407	111	0.032
54"	5'-6"	5'-6"	5'-9"	24	6'-0"	6'-6"	6'-6"	0.895	0.444	126	0.032
60"	6'-0"	6'-0"	6'-3"	32	7'-0"	7'-6"	7'-6"	1.042	0.451	145	0.032
66"	7'-0"	7'-0"	7'-3"	32	7'-6"	8'-0"	8'-0"	1.210	0.516	169	0.032

MINIMUM WEIGHTS - LBS.
 FRAME - 100
 COVER - 100
 TOTAL - 200

SHEET 1 OF 1
840.31

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

ENGLISH STANDARD DRAWING FOR CONCRETE GRADED DROP INLET TYPE "D" 12" THRU 36" PIPE

GENERAL NOTES:
 1. USE CLASS "B" CONCRETE THROUGHOUT.
 2. PROVIDE ALL CORNERS OVER 3" IN DEPTH WITH STEPS 12" ON CENTERS. USE STEPS WITH COMPLY WITH STD. DRAWING 840.00.
 3. OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY OR 4" BAR CORNERS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 4. USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 5. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 6. CONTRACT WITH PIPE DOWNS MATCHINGS.
 7. MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 18 FEET.
 8. SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 9. CHAMFER ALL EXPOSED CORNERS 1".
 10. DRAWINGS NOT TO SCALE.

REINFORCEMENT BARS "A" THROUGH "O"

DIMENSIONS OF BOX AND PIPE		REINFORCEMENT BARS "A" THROUGH "O"		TOP SLAB DIMENSIONS		CURB VARIOUS IN BOX		TOTAL QUANTITIES		DEDUCTIONS FOR ONE PIPE DIATCH.	
PIPE DIA.	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	NO.	WEIGHT	NO.	C.S. A.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-4"	3'-0"	3'-0"	0.187	0.186	22	0.015
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.204	24	0.020
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.232	30	0.023
24"	3'-0"	3'-0"	3'-3"	18	3'-6"	4'-0"	4'-0"	0.296	0.290	40	0.030
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.378	0.370	51	0.032
36"	4'-0"	4'-0"	4'-3"	20	4'-6"	5'-0"	5'-0"	0.460	0.380	64	0.032

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 12" THRU 54" PIPE

GENERAL NOTES:
 1. USE CLASS "B" CONCRETE THROUGHOUT.
 2. PROVIDE ALL CORNERS OVER 3" IN DEPTH WITH STEPS 12" ON CENTERS. USE STEPS WITH COMPLY WITH STD. DRAWING 840.00.
 3. OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY OR 4" BAR CORNERS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 4. USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 5. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 6. USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
 7. FOR 12" IN SETBACK OR LESS USE 4" WALLS AND BOTTOM SLAB. OVER 12" SETBACK USE 6" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES WITH PIPE CORNER MATCHINGS.
 8. CHAMFER ALL EXPOSED CORNERS 1".
 9. DRAWINGS NOT TO SCALE.

REINFORCEMENT BARS "A" THROUGH "O"

DIMENSIONS OF BOX AND PIPE		REINFORCEMENT BARS "A" THROUGH "O"		TOP SLAB DIMENSIONS		CURB VARIOUS IN BOX		TOTAL QUANTITIES		DEDUCTIONS FOR ONE PIPE DIATCH.	
PIPE DIA.	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	NO.	WEIGHT	NO.	C.S. A.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-4"	3'-0"	3'-0"	0.187	0.186	22	0.015
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.204	24	0.020
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.232	30	0.023
24"	3'-0"	3'-0"	3'-3"	18	3'-6"	4'-0"	4'-0"	0.296	0.290	40	0.030
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.378	0.370	51	0.032
36"	4'-0"	4'-0"	4'-3"	20	4'-6"	5'-0"	5'-0"	0.460	0.380	64	0.032
42"	4'-6"	4'-6"	4'-9"	22	5'-0"	5'-6"	5'-6"	0.560	0.370	77	0.032
48"	5'-0"	5'-0"	5'-3"	24	5'-6"	6'-0"	6'-0"	0.743	0.407	111	0.032
54"	5'-6"	5'-6"	5'-9"	24	6'-0"	6'-6"	6'-6"	0.895	0.444	126	0.032

SHEET 1 OF 2
840.02

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

ENGLISH STANDARD DRAWING FOR MANHOLE FRAME AND COVER

SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
 STATE USE OF SYSTEM ON COVER (I.E., SEWER, STORM DRAIN, ELECTRICAL)

MINIMUM WEIGHTS - LBS.
 FRAME - 100
 COVER - 100
 TOTAL - 200

SHEET 1 OF 1
840.54

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 CATCH BASIN 12" THRU 54" PIPE

REINFORCEMENT BARS "A" THROUGH "O"

DIMENSIONS OF BOX AND PIPE		REINFORCEMENT BARS "A" THROUGH "O"		TOP SLAB DIMENSIONS		CURB VARIOUS IN BOX		TOTAL QUANTITIES		DEDUCTIONS FOR ONE PIPE DIATCH.	
PIPE DIA.	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	NO.	WEIGHT	NO.	C.S. A.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-4"	3'-0"	3'-0"	0.187	0.186	22	0.015
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.204	24	0.020
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.232	30	0.023
24"	3'-0"	3'-0"	3'-3"	18	3'-6"	4'-0"	4'-0"	0.296	0.290	40	0.030
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.378	0.370	51	0.032
36"	4'-0"	4'-0"	4'-3"	20	4'-6"	5'-0"	5'-0"	0.460	0.380	64	0.032
42"	4'-6"	4'-6"	4'-9"	22	5'-0"	5'-6"	5'-6"	0.560	0.370	77	0.032
48"	5'-0"	5'-0"	5'-3"	24	5'-6"	6'-0"	6'-0"	0.743	0.407	111	0.032
54"	5'-6"	5'-6"	5'-9"	24	6'-0"	6'-6"	6'-6"	0.895	0.444	126	0.032

REINFORCING BARS "A" THROUGH "O"

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 FOR USE ON STANDARD 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

WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
 CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

SHEET 1 OF 3
840.03

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

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

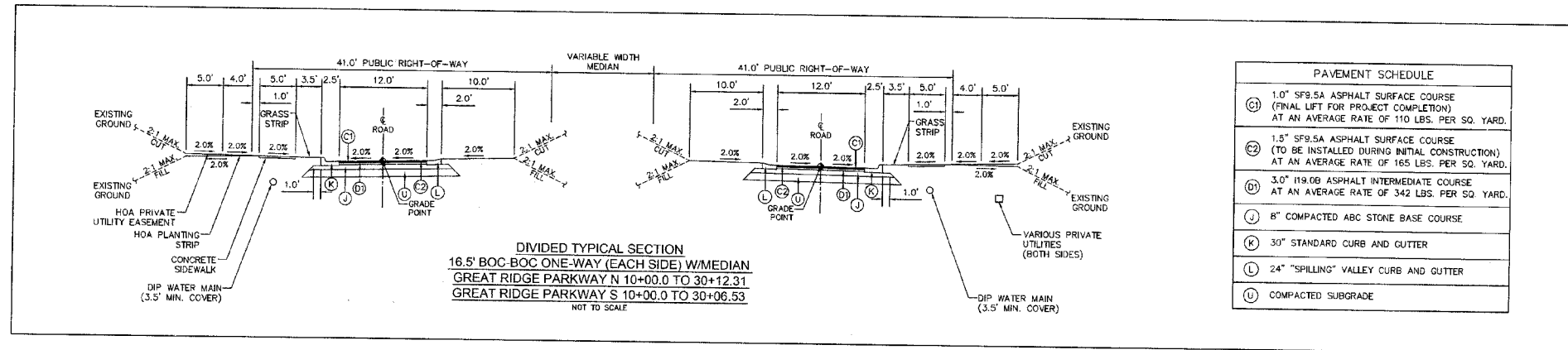
RAISED FLOW ARROW 3/8" HIGH

SHEET 2 OF 3
840.03

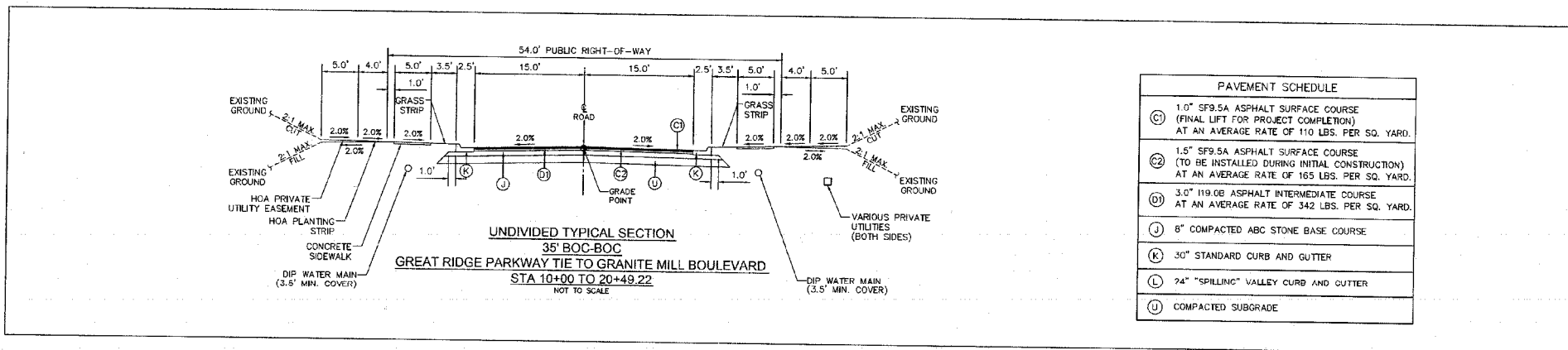
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

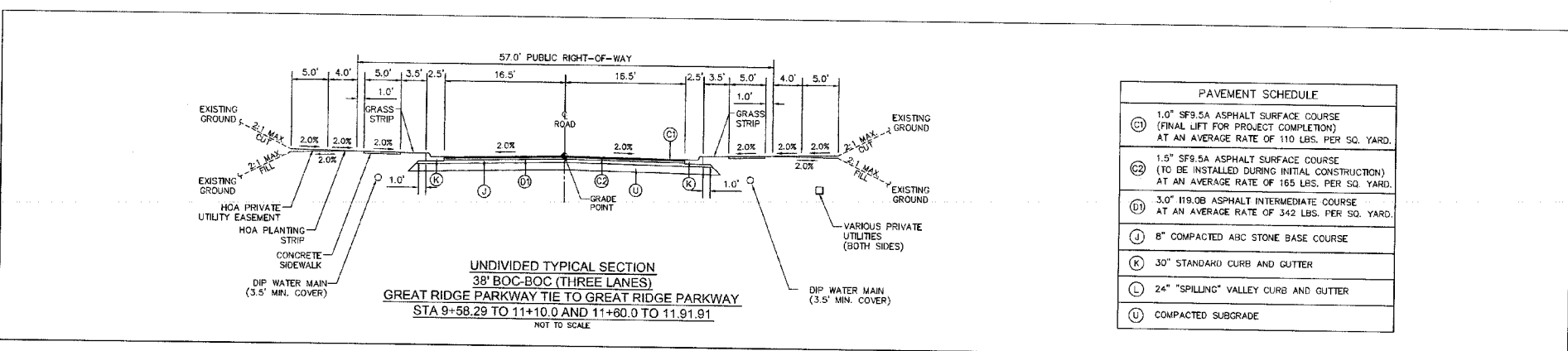
NOTE: THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.11, 840.25, 840.31, 840.33, 840.35, 840.37, 840.39, 840.41, 840.43, 840.45, 840.47, 840.49, 840.51, 840.53, 840.55, 840.57, 840.59, 840.61, 840.63, 840.65, 840.67, 840.69, 840.71, 840.73, 840.75, 840.77, 840.79, 840.81, 840.83, 840.85, 840.87, 840.89, 840.91, 840.93, 840.95, 840.97, 840.99, 840.101, 840.103, 840.105, 840.107, 840.109, 840.111, 840.113, 840.115, 840.117, 840.119, 840.121, 840.123, 840.125, 840.127, 840.129, 840.131, 840.133, 840.135, 840.137, 840.139, 840.141, 840.143, 840.145, 840.147, 840.149, 840.151, 840.153, 840.155, 840.157, 840.159, 840.161, 840.163, 840.165, 840.167, 840.169, 840.171, 840.173, 840.175, 840.177, 840.179, 840.181, 840.183, 840.185, 840.187, 840.189, 840.191, 840.193, 840.195, 840.197, 840.199, 840.201, 840.203, 840.205, 840.207, 840.209, 840.211, 840.213, 840.215, 840.217, 840.219, 840.221, 840.223, 840.225, 840.227, 840.229, 840.231, 840.233, 840.235, 840.237, 840.239, 840.241, 840.243, 840.245, 840.247, 840.249, 840.251, 840.253, 840.255, 840.257, 840.259, 840.261, 840.263, 840.265, 840.267, 840.269, 840.271, 840.273, 840.275, 840.277, 840.279, 840.281, 840.283, 840.285, 840.287, 840.289, 840.291, 840.293, 840.295, 840.297, 840.299, 840.301, 840.303, 840.305, 840.307, 840.309, 840.311, 840.313, 840.315, 840.317, 840.319, 840.321, 840.323, 840.325, 840.327, 840.329, 840.331, 840.333, 840.335, 840.337, 840.339, 840.341, 840.343, 840.345, 840.347, 840.349, 840.351, 840.353, 840.355, 840.357, 840.359, 840.361, 840.363, 840.365, 840.367, 840.369, 840.371, 840.373, 840.375, 840.377, 840.379, 840.381, 840.383, 840.385, 840.387, 840.389, 840.391, 840.393, 840.395, 840.397, 840.399, 840.401, 840.403, 840.405, 840.407, 840.409, 840.411, 840.413, 840.415, 840.417, 840.419, 840.421, 840.423, 840.425, 840.427, 840.429, 840.431, 840.433, 840.435, 840.437, 840.439, 840.441, 840.443, 840.445, 840.447, 840.449, 840.451, 840.453, 840.455, 840.457, 840.459, 840.461, 840.463, 840.465, 840.467, 840.469, 840.471, 840.473, 840.475, 840.477, 840.479, 840.481, 840.483, 840.485, 840.487, 840.489, 840.491, 840.493, 840.495, 840.497, 840.499, 840.501, 840.503, 840.505, 840.507, 840.509, 840.511, 840.513, 840.515, 840.517, 840.519, 840.521, 840.523, 840.525, 840.527, 840.529, 840.531, 840.533, 840.535, 840.537, 840.539, 840.541, 840.543, 840.545, 840.547, 840.549, 840.551, 840.553, 840.555, 840.557, 840.559, 840.561, 840.563, 840.565, 840.567, 840.569, 840.571, 840.573, 840.575, 840.577, 840.579, 840.581, 840.583, 840.585, 840.587, 840.589, 840.591, 840.593, 840.595, 840.597, 840.599, 840.601, 840.603, 840.605, 840.607, 840.609, 840.611, 840.613, 840.615, 840.617, 840.619, 840.621, 840.623, 840.625, 840.627, 840.629, 840.631, 840.633, 840.635, 840.637, 840.639, 840.641, 840.643, 840.645, 840.647, 840.649, 840.651, 840.653, 840.655, 840.657, 840.659, 840.661, 840.663, 840.665, 840.667, 840.669, 840.671, 840.673, 840.675, 840.677, 840.679, 840.681, 840.683, 840.685, 840.687, 840.689, 840.691, 840.693, 840.695, 840.697, 840.699, 840.701, 840.703, 840.705, 840.707, 840.709, 840.711, 840.713, 840.715, 840.717, 840.719, 840.721, 840.723, 840.725, 840.727, 840.729, 840.731, 840.733, 840.735, 840.737, 840.739, 840.741, 840.743, 840.745, 840.747, 840.749, 840.751, 840.753, 840.755, 840.757, 840.759, 840.761, 840.763, 840.765, 840.767, 840.769, 840.771, 840.773, 840.775, 840.777, 840.779, 840.781, 840.783, 840.785, 840.787, 840.789, 840.791, 840.793, 840.795, 840.797, 840.799, 840.801, 840.803, 840.805, 840.807, 840.809, 840.811, 840.813, 840.815, 840.817, 840.819, 840.821, 840.823, 840.825, 840.827, 840.829, 840.831, 840.833, 840.835, 840.837, 840.839, 840.841, 840.843, 840.845, 840.847, 840.849, 840.851, 840.853, 840.855, 840.857, 840.859, 840.861, 840.863, 840.865, 840.867, 840.869, 840.871, 840.873, 840.875, 840.877, 840.879, 840.881, 840.883, 840.885, 840.887, 840.889, 840.891, 840.893, 840.895, 840.897, 840.899, 840.901, 840.903, 840.905, 840.907, 840.909, 840.911, 840.913, 840.915, 840.917, 840.919, 840.921, 840.923, 840.925, 840.927, 840.929, 840.931, 840.933, 840.935, 840.937, 840.939, 840.941, 840.943, 840.945, 840.947, 840.949, 840.951, 840.953, 840.955, 840.957, 840.959, 840.961, 840.963, 840.965, 840.967, 840.969, 840.971, 840.973, 840.975, 840.977, 840.979, 840.981, 840.983, 840.985, 840.987, 840.989, 840.991, 840.993, 840.995, 840.997, 840.999, 840.1001, 840.1003, 840.1005, 840.1007, 840.1009, 840.1011, 840.1013, 840.1015, 840.1017, 840.1019, 840.1021, 840.1023, 840.1025, 840.1027, 840.1029, 840.1031, 840.1033, 840.1035, 840.1037, 840.1039, 840.1041, 840.1043, 840.1045, 840.1047, 840.1049, 840.1051, 840.1053, 840.1055, 840.1057, 840.1059, 840.1061, 840.1063, 840.



PAVEMENT SCHEDULE	
C1	1.0" SF9.5A ASPHALT SURFACE COURSE (FINAL LIFT FOR PROJECT COMPLETION) AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD.
C2	1.5" SF9.5A ASPHALT SURFACE COURSE (TO BE INSTALLED DURING INITIAL CONSTRUCTION) AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.
D1	3.0" 119.0B ASPHALT INTERMEDIATE COURSE AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD.
J	8" COMPACTED ABC STONE BASE COURSE
K	30" STANDARD CURB AND GUTTER
L	24" "SPILLING" VALLEY CURB AND GUTTER
U	COMPACTED SUBGRADE

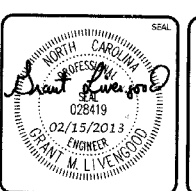
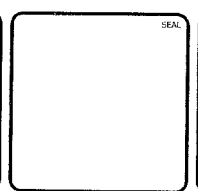


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U	COMPACTED SUBGRADE

REV. NO.	DESCRIPTIONS	DATE
2	REVISIONS PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.16
1	ISSUED FOR PERMITTING	2012.12.19



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 Raleigh, North Carolina 27606
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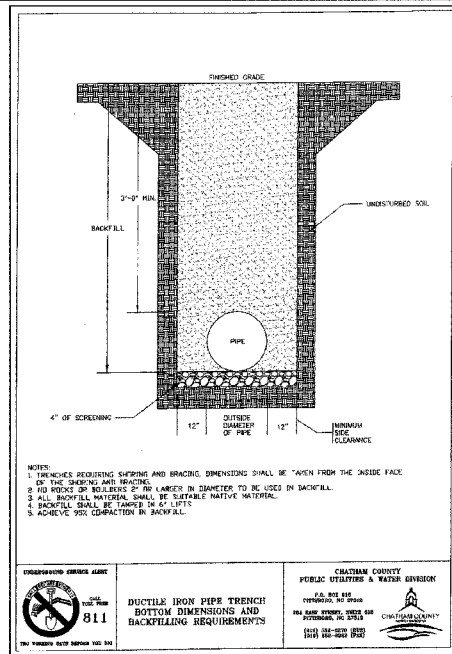
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 Newland COMMUNITIES

BRIAR CHAPEL
 GREAT RIDGE PARKWAY EXTENSION
 CHATHAM COUNTY, NORTH CAROLINA

ROADWAY TYPICAL SECTIONS

DATE: DECEMBER 19, 2012	SCALE: N/A	MSC FILE NUMBER: D2.X
MCE PROJ. # 02735-0280	HORIZONTAL: N/A	DRAWING NUMBER: D2.2
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR: CHS		

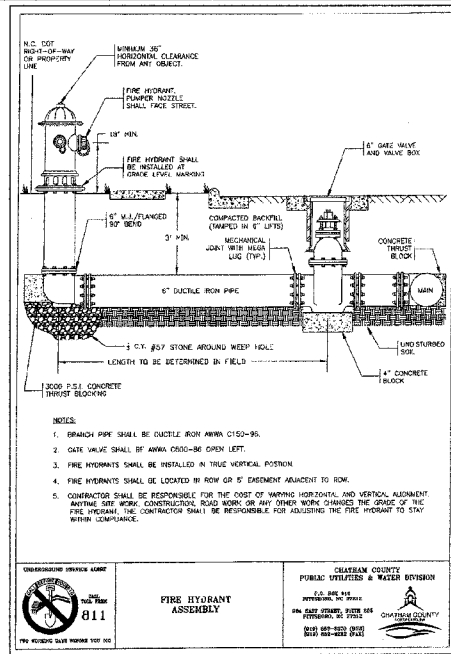
STATUS: RELEASED FOR CONSTRUCTION REVISION 2



UNDERGROUND SERVICE ALERT
811
THE PROBEING DATE BEFORE THE JOB

CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 200
WELLSVILLE, NC 27587
919-489-2222
WWW.CHATHAMCOUNTY-NC.GOV

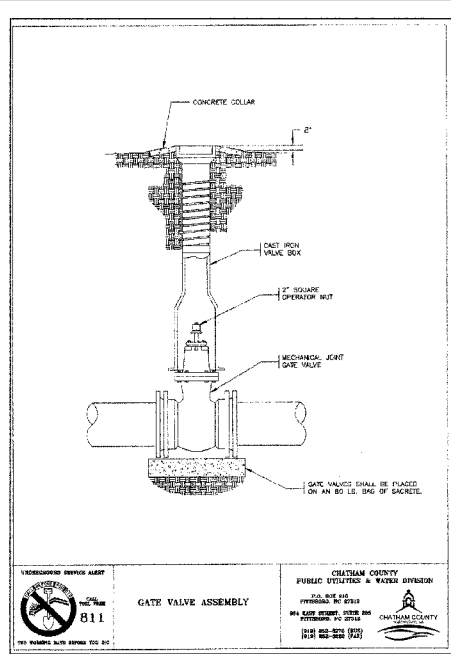
DUCTILE IRON PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS



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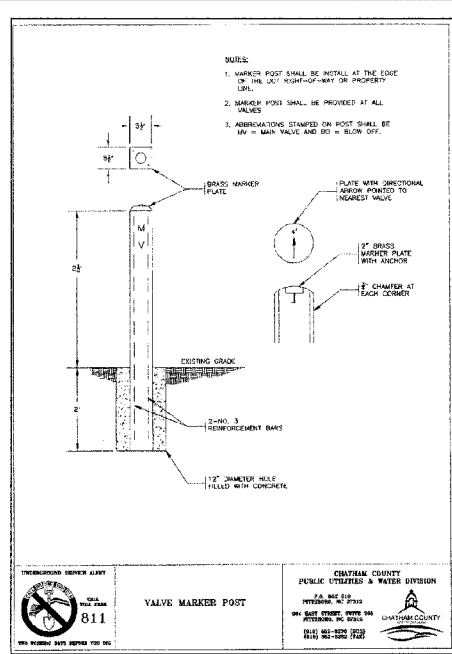
FIRE HYDRANT ASSEMBLY



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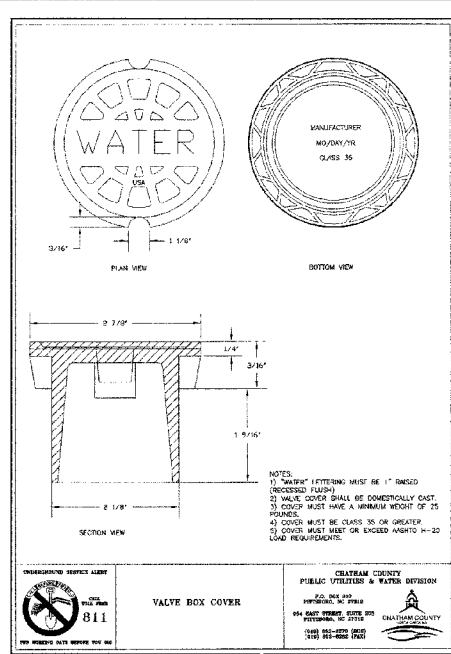
GATE VALVE ASSEMBLY



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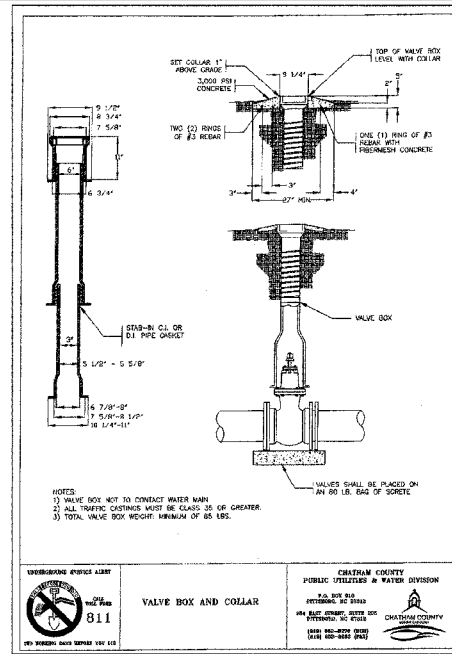
VALVE MARKER POST



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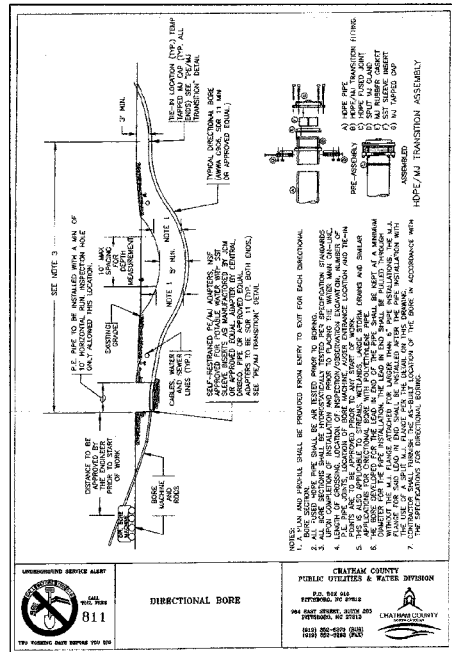
VALVE BOX COVER



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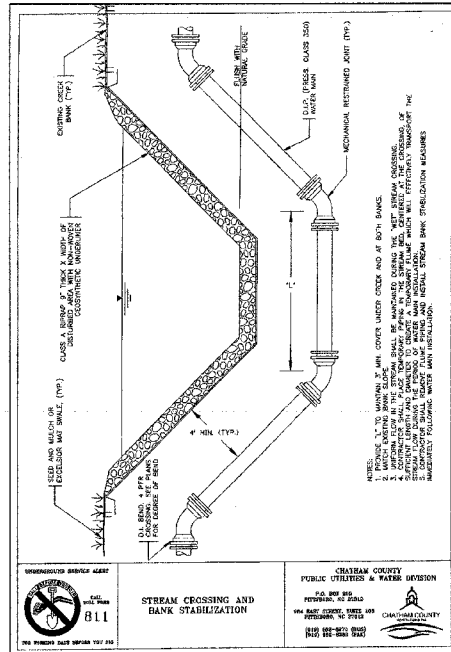
VALVE BOX AND COLLAR



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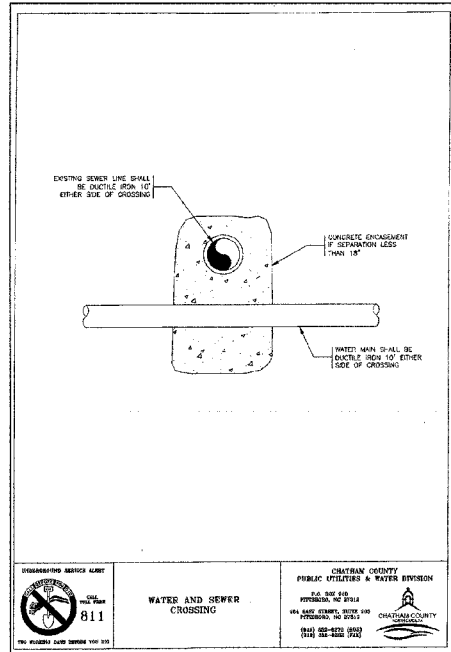
DIRECTIONAL BORE



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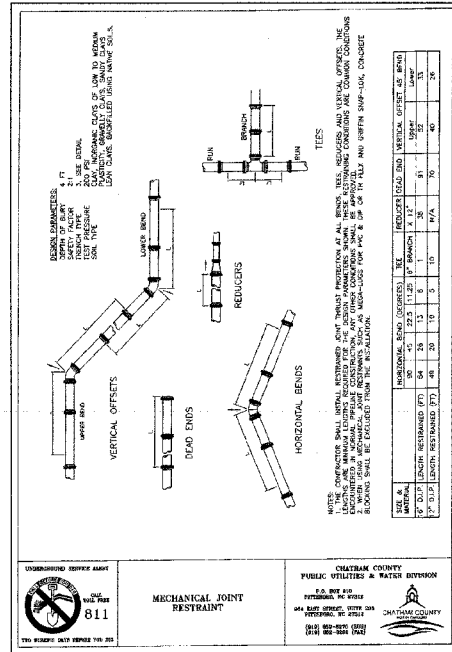
STREAM CROSSING AND BANK STABILIZATION



UNDERGROUND SERVICE ALERT
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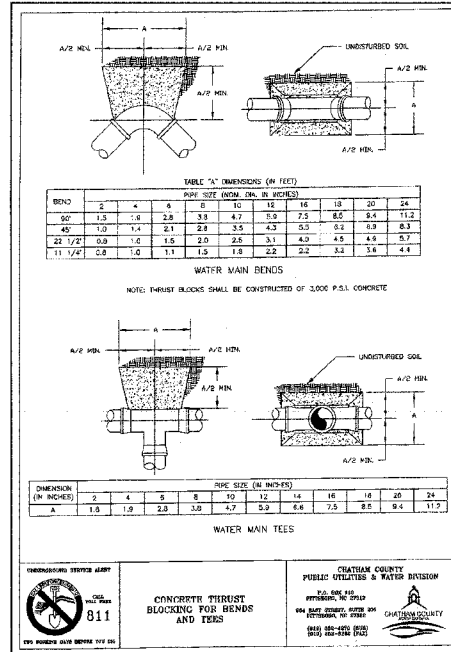
WATER AND SEWER CROSSING



UNDERGROUND SERVICE ALERT
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MECHANICAL JOINT RESTRAINT



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CONCRETE THRUST BLOCKING FOR BENDS AND TEES

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 150 P.S.I.
ALL AREAS GIVEN IN SQUARE FEET

SIZE AND R/C-RATE OF BEND	STATIC THRUST IN POUNDS	REAR BEARING AREA (SQ. FT.)	FRONT BEARING AREA (SQ. FT.)	MIN. COVER (IN.)	MIN. COVER (IN.)	MIN. COVER (IN.)	MIN. COVER (IN.)
5"							
11 1/4"	1,198	1	1	1	1	1	1
22 1/2"	2,207	1	2	2	1	1	3
45"	4,398	2	3	3	1	1	5
90"	7,996	2	4	5	1	1	8
PLUG	5,655	2	3	4	1	1	5
6"							
11 1/4"	1,970	1	1	2	1	1	2
22 1/2"	3,822	1	2	3	1	1	4
45"	7,694	2	4	5	1	1	8
90"	14,215	4	8	9	2	2	15
PLUG	10,253	3	5	6	2	2	10
12"							
11 1/4"	4,433	2	3	3	1	1	5
22 1/2"	8,866	3	5	5	2	2	9
45"	17,312	5	9	11	3	3	18
90"	35,968	8	16	19	4	4	32
PLUG	26,219	6	12	14	3	3	23
16"							
11 1/4"	7,881	2	4	5	1	1	8
22 1/2"	15,691	4	8	10	2	2	16
45"	30,779	8	16	19	4	4	31
90"	56,661	15	29	35	8	8	57
PLUG	40,213	10	21	25	5	5	41

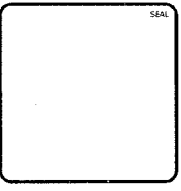
NOTE: REACTION BEARING AREAS ARE TO BE MAINTAINED IN A VERTICAL PLANE IN THE TRENCH WALL AT AN ANGLE OF 90° TO THE CENTER VECTOR.
USE 6" - 12" MINIMUM COVER FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

UNDERGROUND SERVICE ALERT
811
THE PROBEING DATE BEFORE THE JOB

CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 200
WELLSVILLE, NC 27587
919-489-2222
WWW.CHATHAMCOUNTY-NC.GOV

CONCRETE THRUST BLOCKING QUANTITY TABLE

REV. NO.	DESCRIPTION	DATE
2	RELEASED FOR CONSTRUCTION	2013.02.19
1	ISSUED FOR PERMITTING	2012.12.19



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GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA**

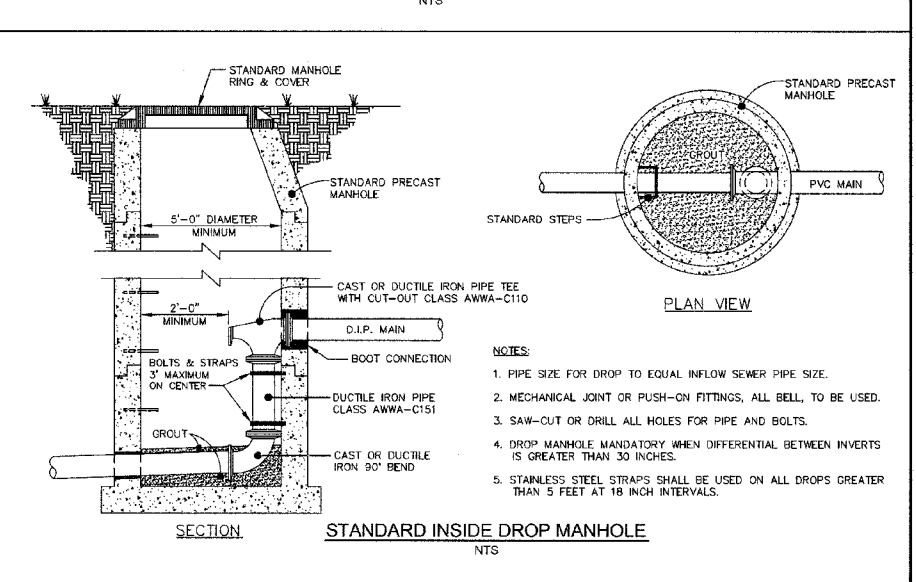
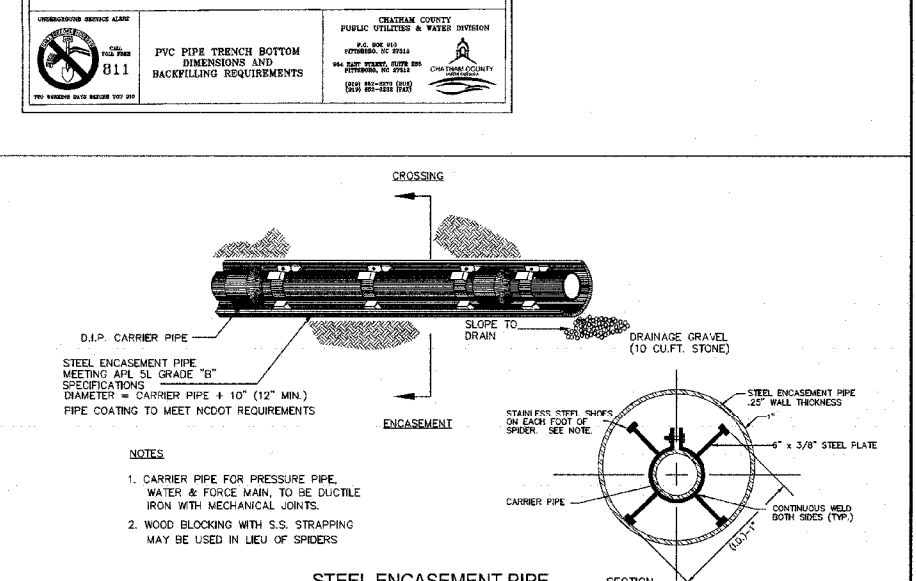
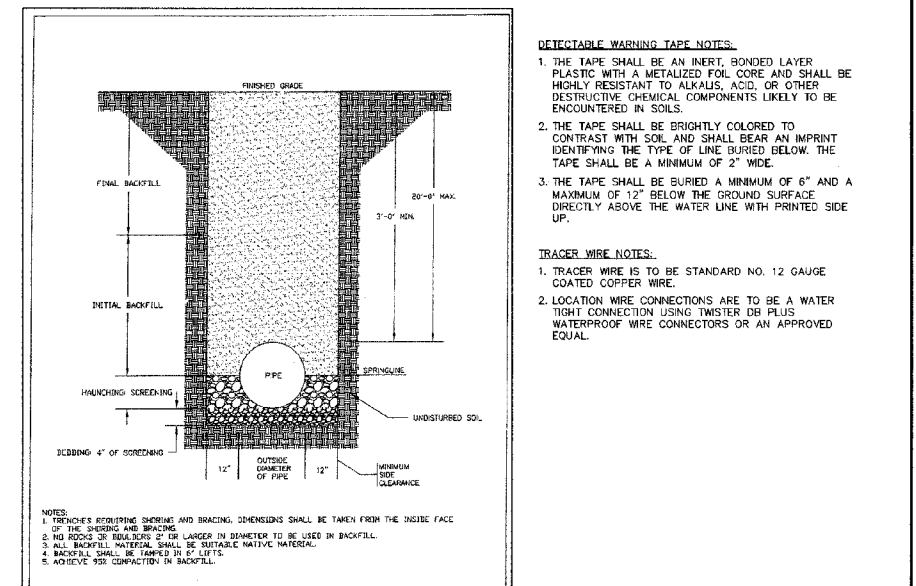
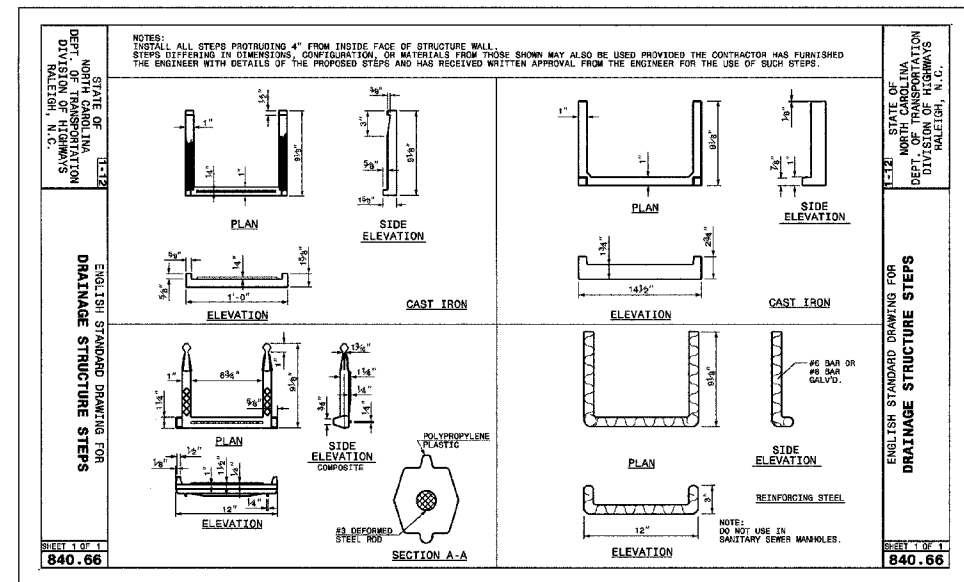
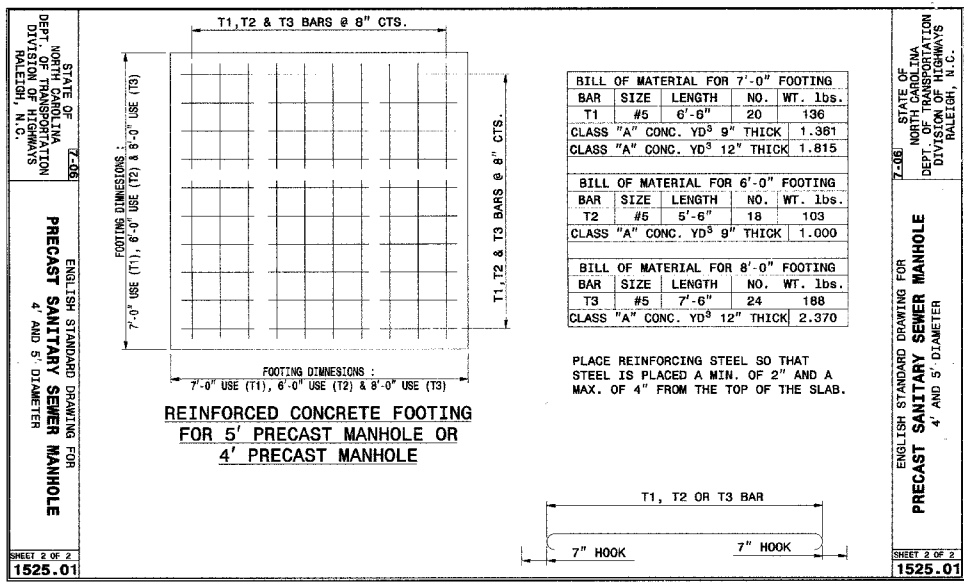
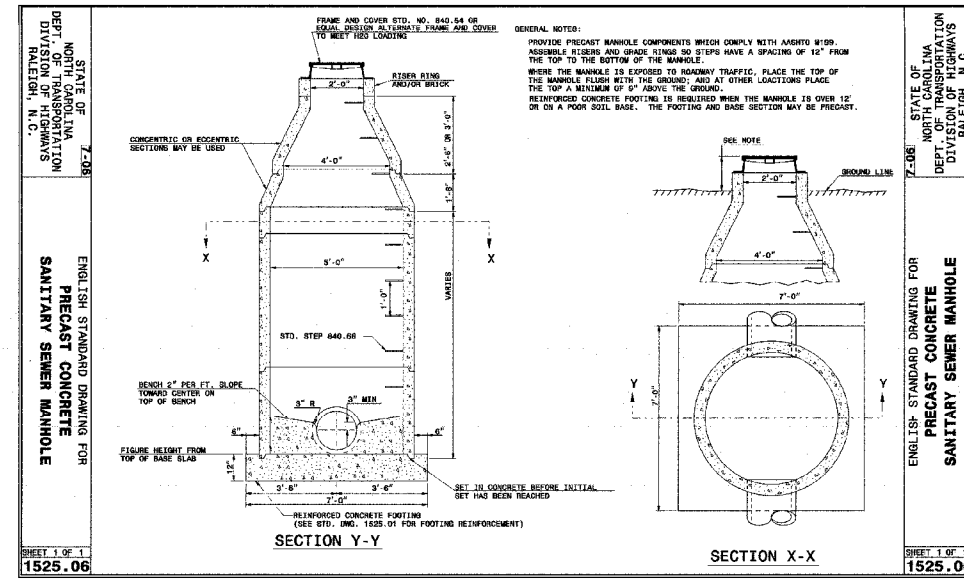
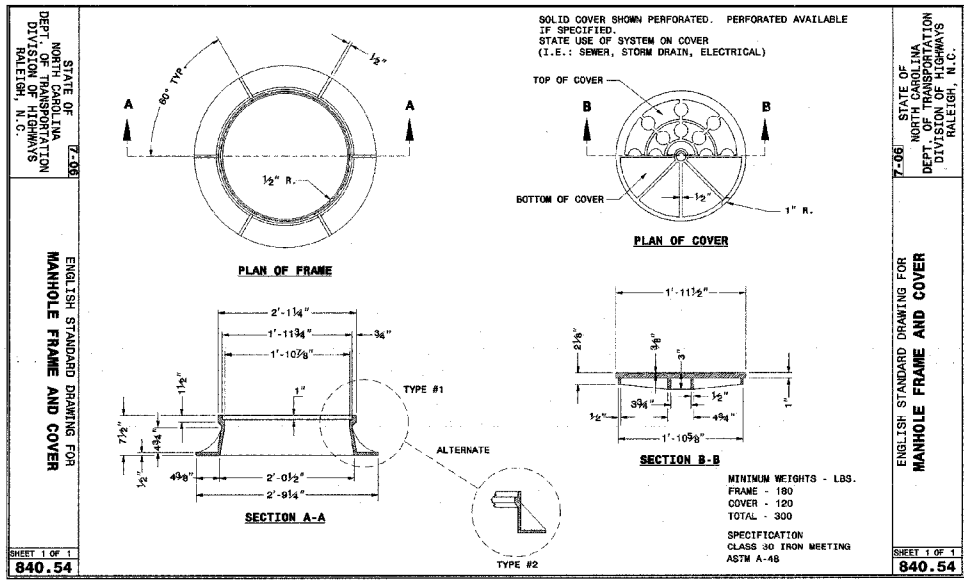
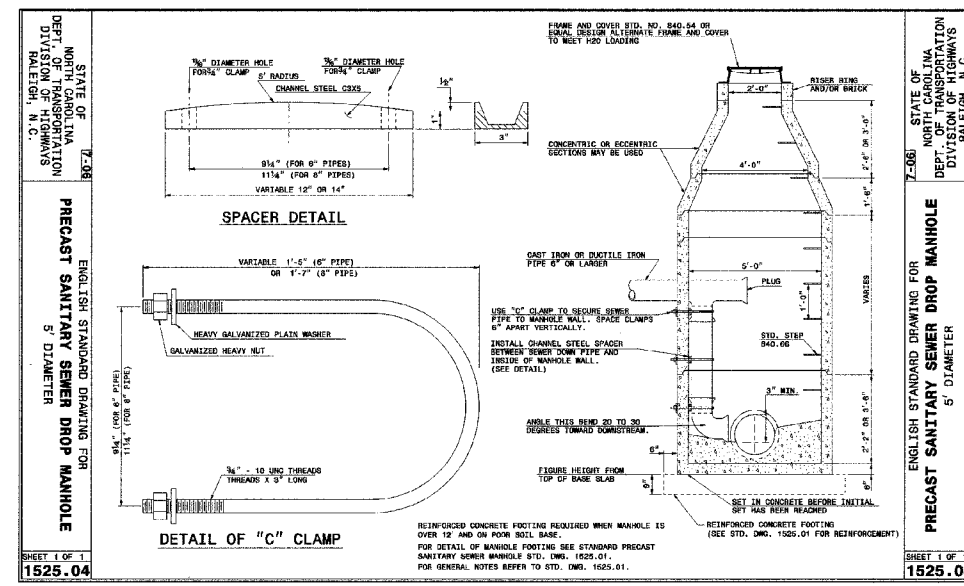
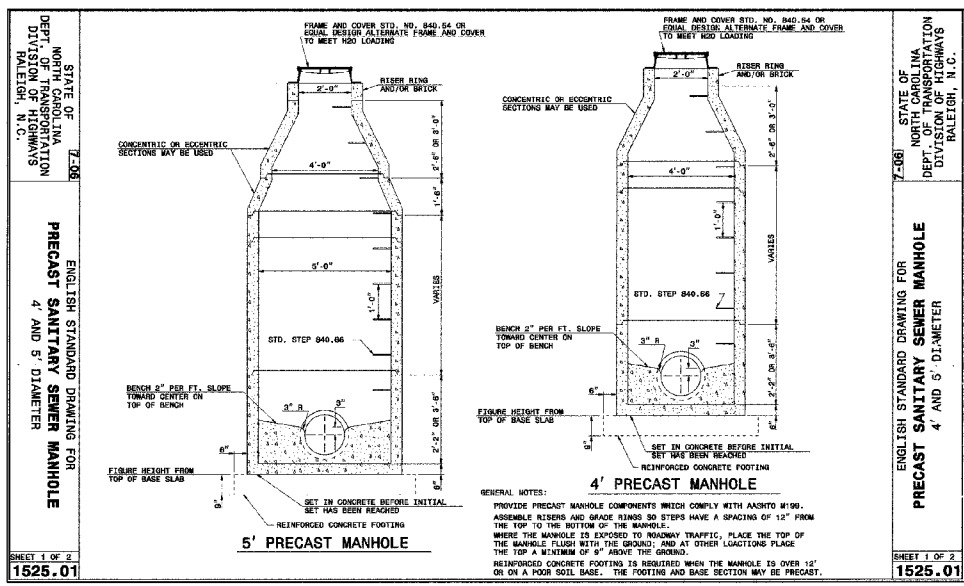
UTILITY DETAILS

DATE: DECEMBER 19, 2012
NCE PROJ. #: 02735-0080
DRAWN: GCA
DESIGNED: GCA
CHECKED: CHS
PROJ. MGR.: CHS

SCALE: HORIZONTAL: 1" = 50'
VERTICAL: N/A

PLAC FILE NUMBER: D3.X
DRAWING NUMBER: D3.1

STATUS: RELEASED FOR CONSTRUCTION
REVISION: 2



REV. NO.	DESCRIPTION	DATE
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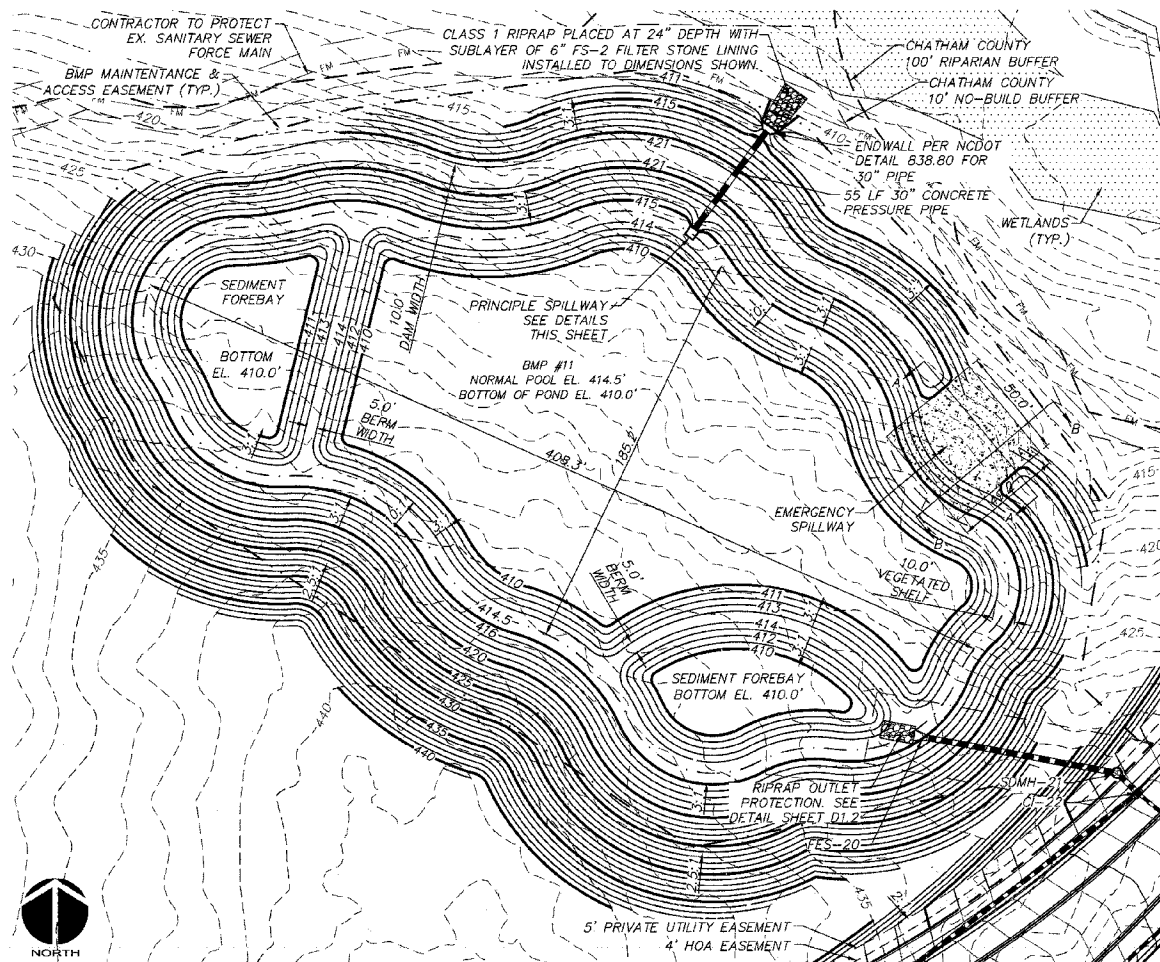
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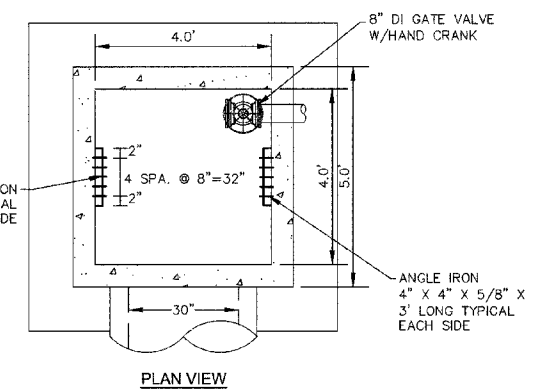
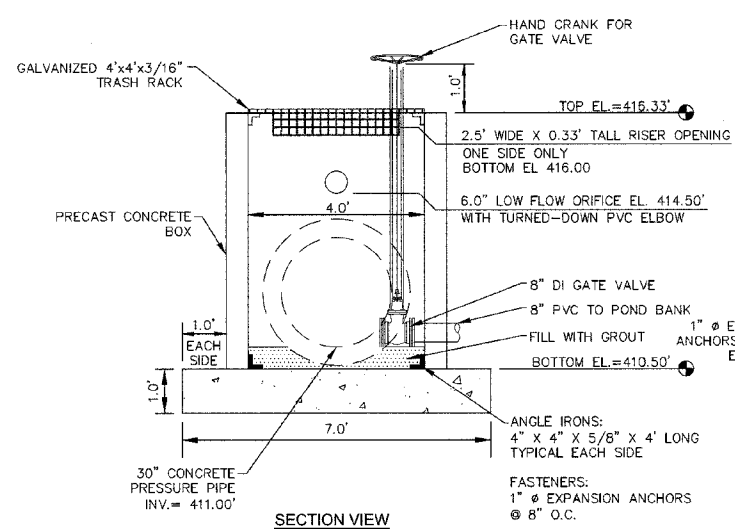
**BRIAR CHAPEL
 GREAT RIDGE PARKWAY EXTENSION
 CHATHAM COUNTY, NORTH CAROLINA**

UTILITY DETAILS

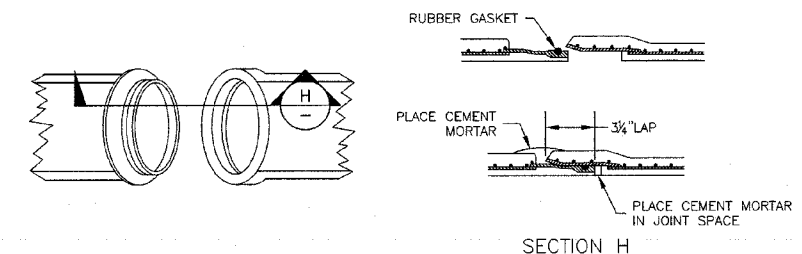
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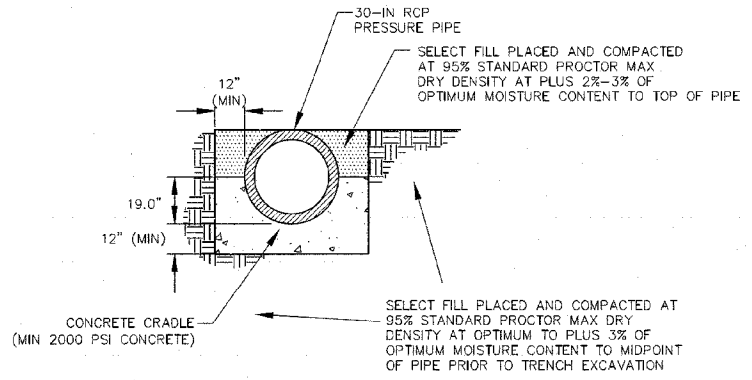
WET DETENTION POND #12 PLAN VIEW
SCALE = 1" = 40'



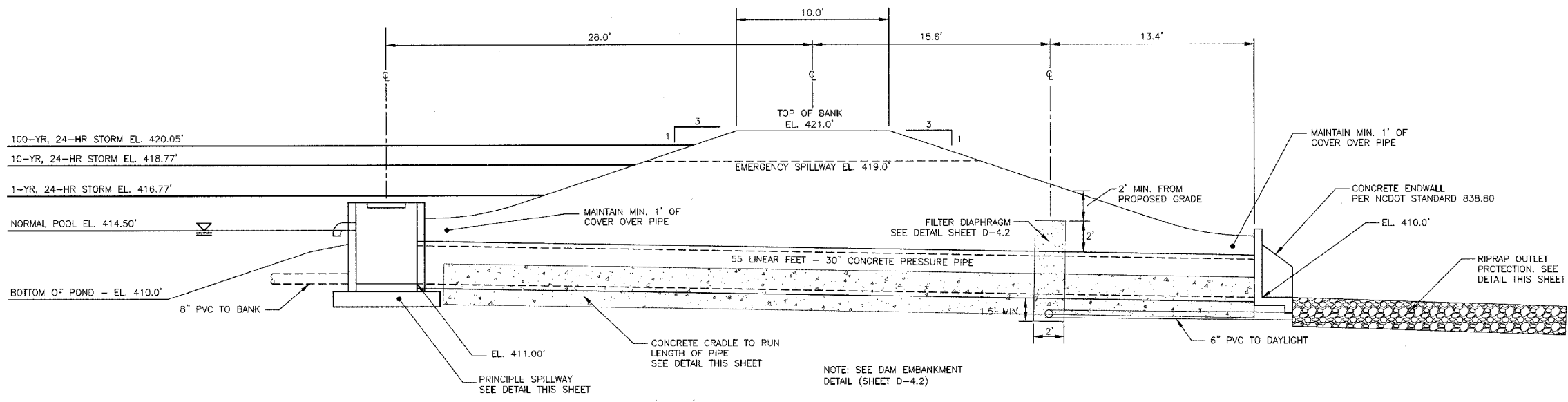
PRINCIPLE SPILLWAY
SCALE = 1" = 2'



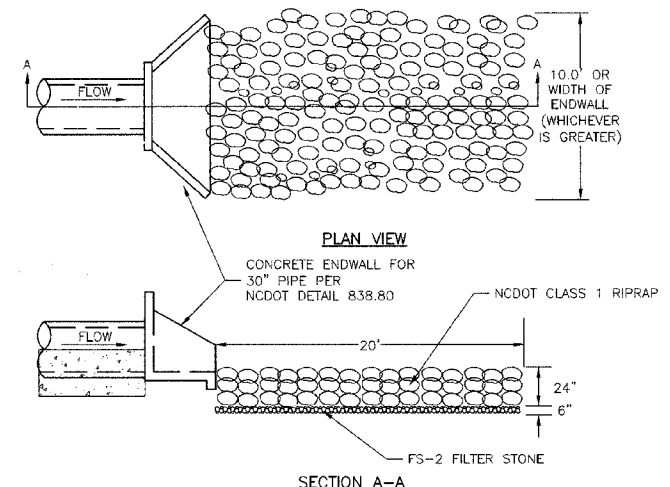
CONCRETE PRESSURE PIPE JOINT DETAIL
NTS



CONCRETE CRADLE DETAIL
NTS

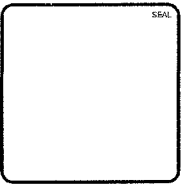


SECTION AT PRINCIPLE SPILLWAY
SCALE = 1" = 4'



RIPRAP OUTLET PROTECTION
NTS

REV. NO.	DESCRIPTION	DATE
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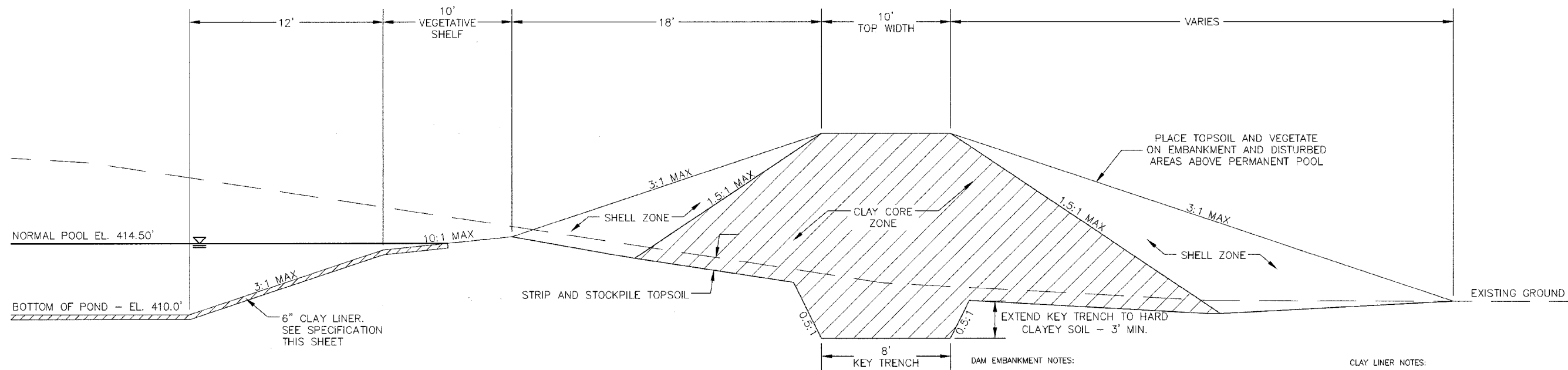
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CHATHAM COUNTY, NORTH CAROLINA**
BMP #12 PLAN & DETAILS

DATE: DECEMBER 19, 2012	SCALE: D4.X
MCE PROJ. # 02735-0080	HORIZONTAL: AS NOTED
DRAWN: GCA	VERTICAL: D4.1
DESIGNED: GCA	
CHECKED: CHS	
PROJ. MGR: CHS	

STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2
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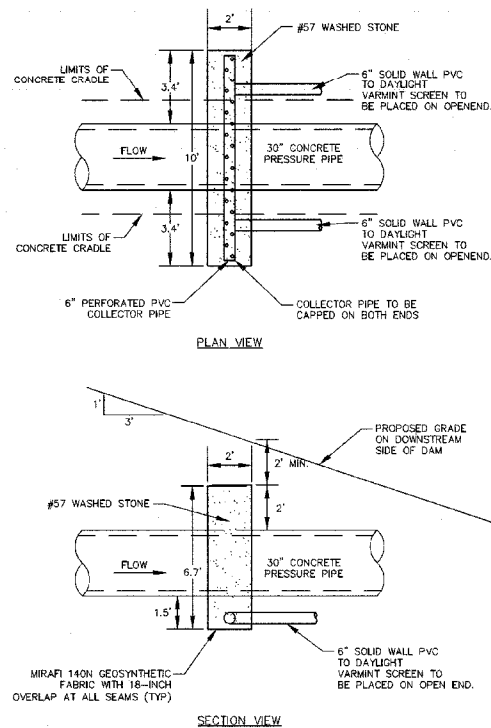
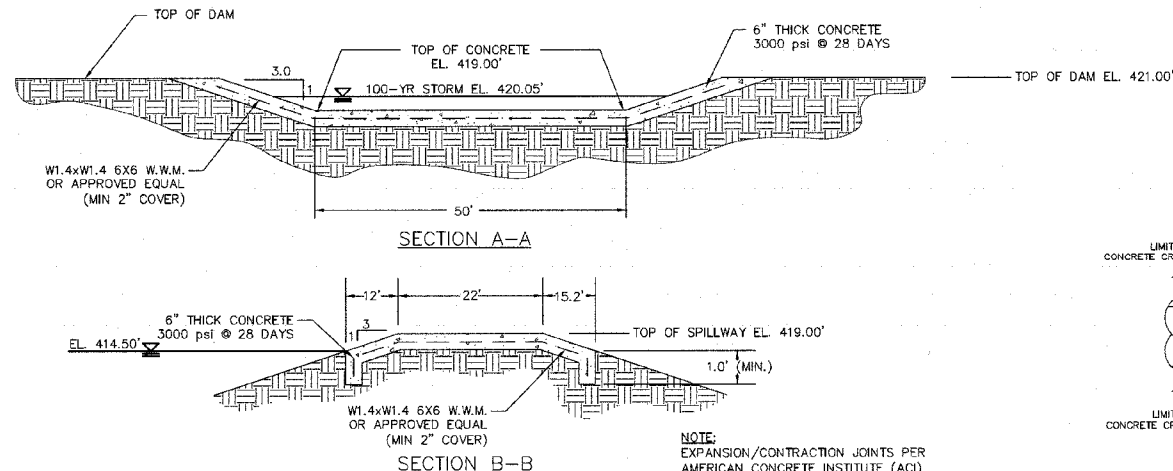


DAM EMBANKMENT NOTES:

- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
- 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE WILL HAVE A MOISTURE CONTENT OF OPTIMUM TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT. THE SHELL ZONE FILL WILL HAVE A MOISTURE CONTENT FROM 2 PERCENT BELOW OPTIMUM MOISTURE CONTENT TO 4 PERCENT ABOVE OPTIMUM.
- 3) EMBANKMENT FILL:
SHELL ZONE: SOILS WITH LESS THAN 30% PASSING THE NO. 200 SIEVE OR A PI OF LESS THAN 10 WHEN THE PERCENTAGE OF MATERIAL PASSING THE NO. 200 SIEVE IS GREATER THAN 30 PERCENT. SOILS WHICH ARE CLASSIFIED AS CLAYS (CH OR CL) SHOULD NOT BE USED AT THE FACE OF THE SHELL ZONES.
CLAY CORE ZONE: CH, CL OR SC MATERIAL WITH A PI RANGING BETWEEN 15 AND 60
- 4) NO FILL SHALL CONTAIN ROCKS OR GRAVEL LARGER THAN 4 INCHES IN DIAMETER.
- 5) A PROFESSIONAL GEOTECHNICAL ENGINEER SHALL APPROVE ALL MATERIALS USED FOR THE EMBANKMENT AND SUPERVISE CONSTRUCTION.
- 6) ALL DISTURBED AREAS ABOVE PERMANENT POOL SHALL BE SEEDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina FACW Meadow Mix ERNMX-182

CLAY LINER NOTES:

IN ORDER TO HELP SUSTAIN THE PERMANENT POOL AND TO PREVENT WATER FROM INFILTRATING TOO QUICKLY INTO THE UNDERLYING SOIL, THE CONTRACTOR SHALL INSTALL A 6" THICK CLAY LINER ON THE BOTTOM OF THE WET DETENTION POND AREA UP TO ELEVATION 454.50. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A BENTONITE CL. IF THE CONTRACTOR CHOOSES TO BLEND THE EXISTING SITE SOILS WITH CLAY, THE ONSITE GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF CLAY TO ADD, THE DEGREE OF COMPACTION, AND WILL OVERSEE THE INSTALLATION OF THE CLAY LINER. THE MAXIMUM PERMEABILITY RATE FOR THE LINER SHALL BE 0.72 CM/DAY. THE PROPOSED MATERIAL FOR THIS LINER SHALL BE TESTED BY THE ONSITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. THE RESULTS OF THIS TESTING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW PRIOR TO PLACEMENT. UPON COMPLETION OF LINER INSTALLATION, A LAYER OF TOPSOIL MAY BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS HALETOWN, N. C. 7-208

ENGLISH STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE - 80" GREN

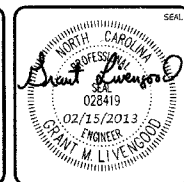
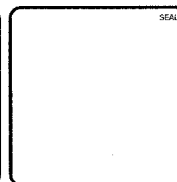
NOTES:
 * THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.81, 838.27, 838.25 AND 838.29.
 * FINISH PRECAST ENDWALLS WITH RIBBED JOINT JOINT FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.
 * USE 4000 PSI CONCRETE.
 * PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185 WITH 2" MIN. CLEARANCE.
 * PLACE LEFT HOLES OR PINS IN ACCORDANCE WITH CSA STANDARD 1589.P14.
 * PIPE TO BE GROUTED INTO HEADWALL AT JOB SITE BY CONTRACTOR.
 * ALL ELEMENTS PRECAST TO MEET ASTM A615.
 * WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
 * CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT ALL CORNERS UNLESS OTHERWISE NOTED. THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ENDWALL DIMENSIONS							
PIPE DIA.	BAR SIZE	MIN./MAX. H1 (FT.)	MIN./MAX. H2 (FT.)	MIN./MAX. D (FT.)	MIN. W1	MIN. W2	MIN. W3
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00	
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.00/3.75	6.50/6.75	
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.00	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"	2.00/3.00	4.00/6.00	2.00/3.00	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	11.50/11.75	
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	6.00/7.00	3.25/3.50	6.50/6.75	13.00/13.25	
4.5	#5 @ 8"	4.00/5.00	6.00/8.50	3.25/4.00	7.00/8.25	13.50/15.75	
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/8.25	13.75/15.75	
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/8.25	14.50/15.75	
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/8.25	14.75/15.75	

838.80

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 CHATHAM COUNTY, NORTH CAROLINA**

BMP #12 PLAN & DETAILS

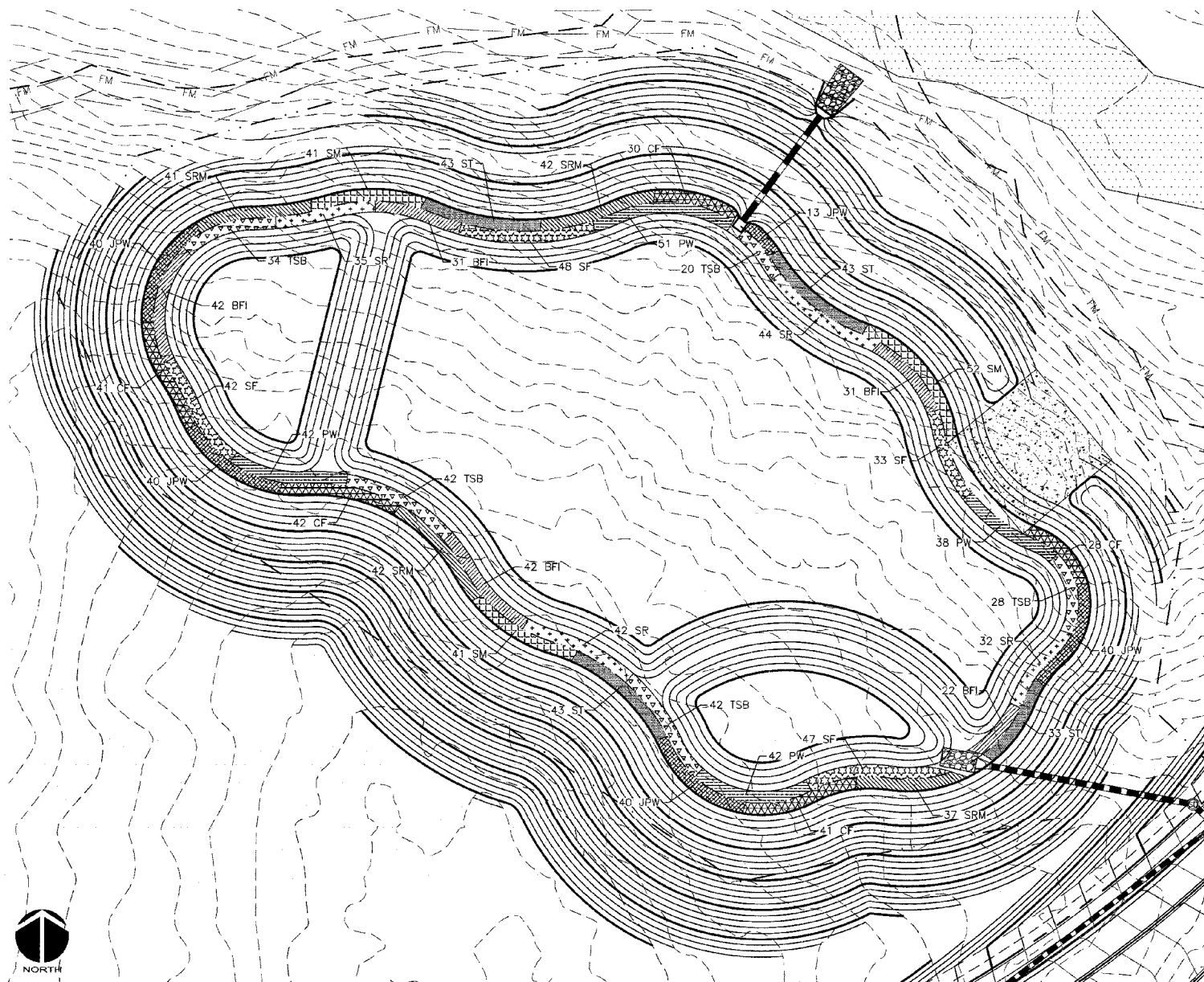
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 MCE PROJ. # 02735-0080
 DRAWN: GCA
 DESIGNED: GCA
 CHECKED: CHS
 PROJ. MGR. CHS

SCALE: HORIZONTAL: AS NOTED
 VERTICAL: N/A

STATUS: RELEASED FOR CONSTRUCTION

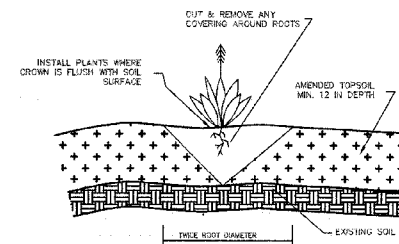
REVISION: 2

25



WET DETENTION POND #12 PLANTING PLAN
SCALE = 1" = 30'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
SF		SWEETFLAG	<i>Acorus subcordatum</i>	170	24"-30" O.C.	1 QT.
PW		PICKERELWEED	<i>Pontederia cordata</i>	173	24"-30" O.C.	1 QT.
BFI		BLUE FLAG IRIS	<i>Iris virginica</i>	168	24"-30" O.C.	1 QT.
SR		SOFT RUSH	<i>Juncus effusus</i> var. <i>pyfael</i> or <i>solutus</i>	153	24"-30" O.C.	1 QT.
TSB		THREE SQUARE BULRUSH	<i>Schoenoplectus americanus</i>	166	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
SM		SWAMP MILKWEED	<i>Asclepias incarnata</i>	134	24"-30" O.C.	1 QT.
CF		CARDINAL FLOWER	<i>Lobelia cardinalis</i>	182	24"-30" O.C.	1 QT.
SRM		SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	162	24"-30" O.C.	1 QT.
JPW		DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	173	24"-30" O.C.	1 QT.
ST		SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	162	24"-30" O.C.	1 QT.



GENERAL PLANTING DETAIL
NTS

GENERAL PLANTING NOTES:

1. AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
2. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
3. SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
4. EXCAVATE A HOLE TWICE THE DIAMETER OF ROOT BALL AND EQUAL TO THE ROOT DEPTH OF THE INDIVIDUAL PLANT. PLACE PLANT IN HOLE WITH CROWN FLUSH WITH SOIL SURFACE. BACKFILL WITH TOPSOIL AND LIGHTLY PLANT.
5. BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADEQUATE TIME TO ESTABLISH BEFORE WINTER MONTHS.
6. OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252-482-5707), MELLOW MARSH FARMS (919-742-1200), CURE NURSERY (919-542-6186) OR ENGINEER APPROVED SUBSTITUTE.
7. REFER TO EROSION CONTROL DETAIL SHEET D-2 FOR SEEDBED PREPARATION AND SEEDING SCHEDULES FOR AREAS NOT SPECIFIED IN THIS PLAN.

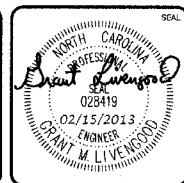
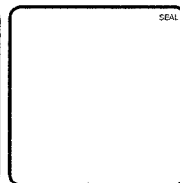
SHALLOW WATER PLANTING NOTES:

1. 70% OF PICKERELWEED SHOULD BE PLANTED WITHIN 5-6 INCHES BELOW NORMAL POOL.
2. 70% OF SWEETFLAG AND 70% OF SOUTHERN BLUE FLAG IRIS SHOULD BE PLANTED IN THE 2-3 INCHES BELOW NORMAL POOL.
3. 70% OF SOFT RUSH SHOULD BE PLANTED AT THE NORMAL POOL ELEVATION.

SHALLOW LAND PLANTING NOTES:

1. PLANTS IN THIS GROUP SHOULD NOT BE PLANTED IN AREAS THAT ARE INUNDATED FOR EXTENDED PERIODS.

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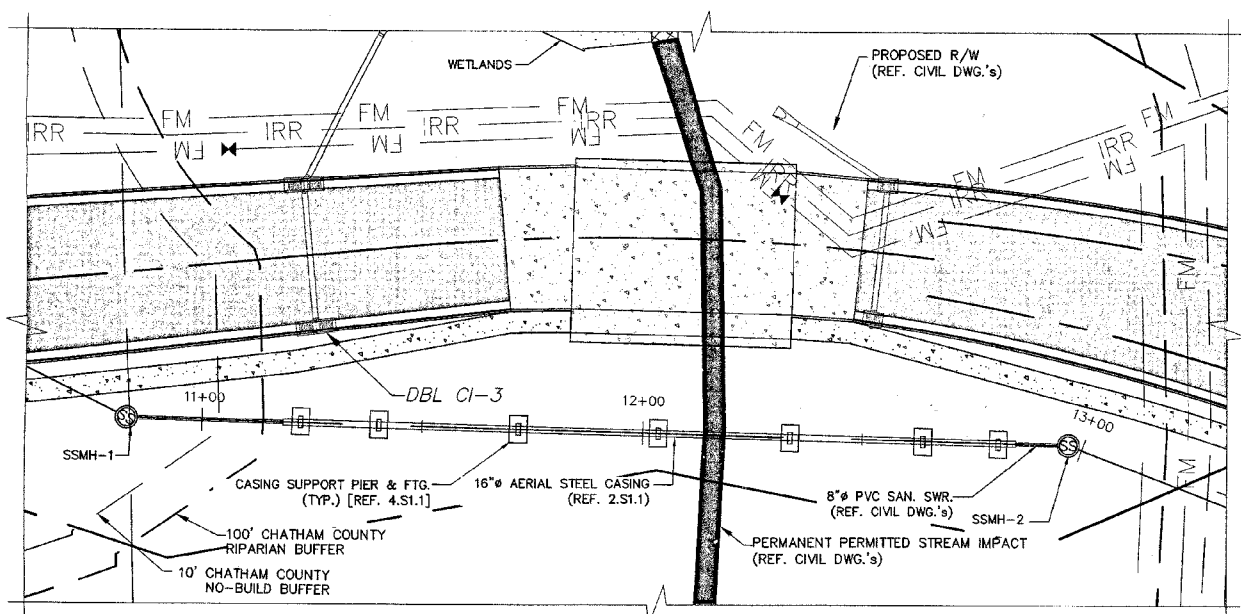


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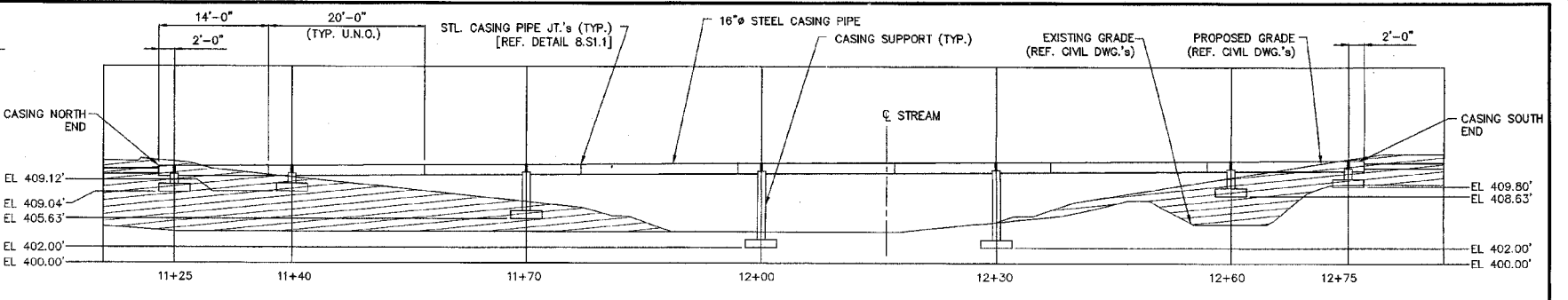
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CHATHAM COUNTY, NORTH CAROLINA
BMP #12 PLAN & DETAILS

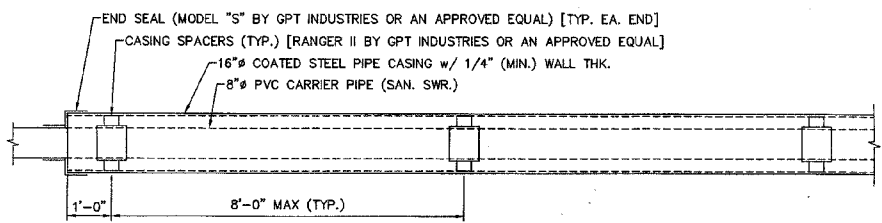
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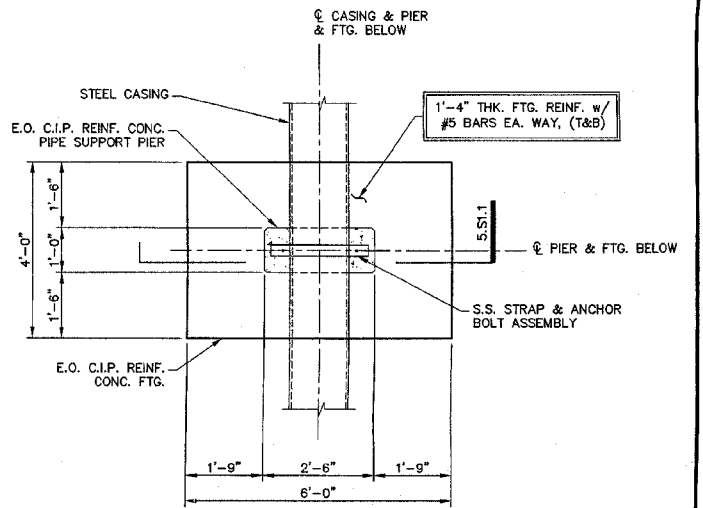
1 - PLAN - GREAT RIDGE PARKWAY SANITARY SEWER CROSSING PLAN
SCALE: 1" = 20'



2 - ELEVATION - GREAT RIDGE PARKWAY SANITARY SEWER CROSSING
SCALE: 1" = 10'



3 - DETAIL - CASING
SCALE: 1/2" = 1'-0"



4 - PLAN - CASING SUPPORT
SCALE: 1/2" = 1'-0"

GENERAL NOTES & MATERIAL SPECIFICATIONS:

1.0 FOUNDATIONS

- 1.1 DESIGN ALLOWABLE SOIL BEARING PRESSURE - 1,500 PSF. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THIS VALUE PRIOR TO FOUNDATION CONSTRUCTION. IN AREAS WHERE THE SOIL DOES NOT YIELD THIS BEARING STRESS VALUE, ADJUSTMENT IN THE FOOTING DEPTHS AND FOUNDATION DIMENSIONS MAY BE MADE BY THE ENGINEER BEFORE WORK PROCEEDS. CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY SUCH ADJUSTMENTS.
- 1.2 PREPARE THE EXISTING SUBGRADE AS SHOWN ON THIS DRAWING. IN THE EVENT UNUSUAL SOIL CONDITIONS ARE UNCOVERED, NOTIFY THE OWNER AND ENGINEER PRIOR TO FOUNDATION CONSTRUCTION FOR INSTRUCTIONS HOW TO PROCEED. ADJUSTMENT IN THE FOOTING DEPTHS AND GENERAL FOUNDATION CONSTRUCTION MAY BE MADE BY THE ENGINEER BEFORE WORK PROCEEDS. CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY SUCH ADJUSTMENTS.
- 1.3 ALL FILL BELOW FOUNDATIONS AND AS REQUIRED SHALL BE SELECT MATERIAL FREE FROM ROOTS, TRASH, WOOD SCRAPS, AND OTHER EXTRANEOUS MATERIALS. PLACE FILL IN LIFTS NOT EXCEEDING THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER.
- 1.4 FOOTING ELEVATIONS SHALL NOT BE RAISED OR LOWERED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
- 1.5 ALL EXCAVATIONS SHALL BE ADEQUATELY DEWATERED BEFORE PLACEMENT OF REINFORCING STEEL AND CONCRETE. NO CONCRETE OR CONCRETE FILL SHALL BE PLACED IN STANDING WATER.
- 1.6 FOOTING EXCAVATIONS AND FORMS SHALL BE REVIEWED BY AN OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.
- 1.7 ALL FOOTINGS SHALL BE CENTERED UNDER THE SUPPORTING MEMBER UNLESS NOTED OTHERWISE.
- 1.8 ANCHOR BOLTS SHALL BE SET BY MEANS OF TEMPLATE. "FLOATING" ANCHOR BOLTS INTO PLACE IS PROHIBITED.

3.0 CONCRETE

- 3.1 THE C.I.P. REINF. CONCRETE SUPPORTS SHALL HAVE A MINIMUM (28) DAY COMPRESSIVE STRENGTH OF 4,000 PSI. IN ADDITION THE CONCRETE MIX/WORK SHALL INCLUDE THE FOLLOWING:
 - a.) CEMENT MATERIAL SUPPLIED SHALL BE TYPE I OR TYPE II PORTLAND CEMENT THAT IS IN CONFORMANCE w/ ASTM C150.
 - b.) FLY ASH THAT IS IN CONFORMANCE w/ ASTM C618, CLASS F MAY BE INCLUDED IN THE MIX. FLY ASH SHALL USED AS A PARTIAL CEMENT REPLACEMENT & NOT EXCEED 20% OF THE TOTAL CEMENTITIOUS CONTENT.
 - c.) AGGREGATE SHALL BE "NORMAL" WEIGHT THAT IS IN CONFORMANCE w/ ASTM C33.
 - d.) WATER SHALL BE IN CONFORMANCE w/ ASTM C94.
 - e.) AIR ENTRAINING ADMIXTURE IS ALLOWED PROVIDED IT IS IN CONFORMANCE w/ASTM C260. THE TOTAL AIR CONTENT REQUIRED IS 5% ± 1%.
 - f.) WATER REDUCING ADMIXTURE IS ALLOWED PROVIDED IT IS IN CONFORMANCE w/ASTM C494, TYPE A OR D.
 - g.) MAXIMUM SLUMP = 3" w/OUT WATER REDUCING ADMIXTURE & 6" w/ A WATER REDUCING ADMIXTURE.
 - h.) WATER/CEMENT RATIO (w/c) = 0.45 MAXIMUM.
 - i.) SMOOTH FORMED FINISHES ARE REQUIRED FOR THE PIPE SUPPORT SIDES.
- 3.2 CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 (LATEST EDITION).
- 3.3 CHAMFER EXPOSED EDGES OF CONCRETE 3/4 INCH, UNLESS NOTED OTHERWISE.
- 3.4 CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER CURING OF ALL CONCRETE. ALL CONCRETE WORK IS TO BE MOISTURE CURED.
- 3.5 CONTRACTOR SHALL SUBMIT REBAR SHOP DRAWINGS FOR APPROVAL TO OWNER PRIOR TO FABRICATION. DO NOT FABRICATE REINFORCING PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS.
- 3.6 CONCRETE MIXES TO BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE. COMPRESSIVE STRENGTH TEST CYLINDERS TO BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE THROUGHOUT CONCRETE CONSTRUCTION OF THE PROJECT.
- 3.7 ROUGHEN THE "BASE" CONCRETE POUR SURFACE TO A FULL AMPLITUDE OF 1/4" MINIMUM, WHERE NOTED ON THE CONSTRUCTION DRAWINGS.
- 3.8 CONCRETE ACCESSORIES, BONDING AGENT - SHALL BE STRUCTURAL EPOXY ADHESIVE CONFORMING TO ASTM C-881 TYPE I AND II, GRADE 2, CLASS B AND C WITH A MINIMUM BOND STRENGTH OF 1900 PSI. USE SIKA ARMATEC 110 EpoCem OR AN APPROVED EQUAL.

4.0 COATINGS

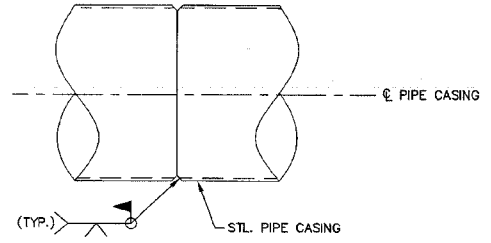
- 4.1 ALL DESIGN, DETAILING, FABRICATION, COATING AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION.
- 4.2 IN GENERAL SHOP CONNECTIONS SHALL BE WELDED AND FIELD CONNECTIONS SHALL BE WELDED.
- 4.3 FABRICATOR/CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER APPROVAL PRIOR TO FABRICATION.
- 4.4 ALL WELDED JOINTS SHALL BE BUTT JOINTS WITH FULL PENETRATION V-GROOVE WELD.
- 4.5 EXTERIOR & INTERIOR COATING ON PIPE CASING AS FOLLOWS:
 - EXTR. SURFACE = PRIMER COAT OF ZINC CHROMATE PRIMER IN CONFORMANCE w/ FED SPEC. TT-86-A AND COAL TAR ENAMEL COATING IN CONFORMANCE w/ AWWA C203.
 - INTR. SURFACE = INTERIOR OF PIPE LINED w/ COAL TAR ENAMEL COATING IN CONFORMANCE w/ AWWA C203.

2.0 REINFORCING STEEL

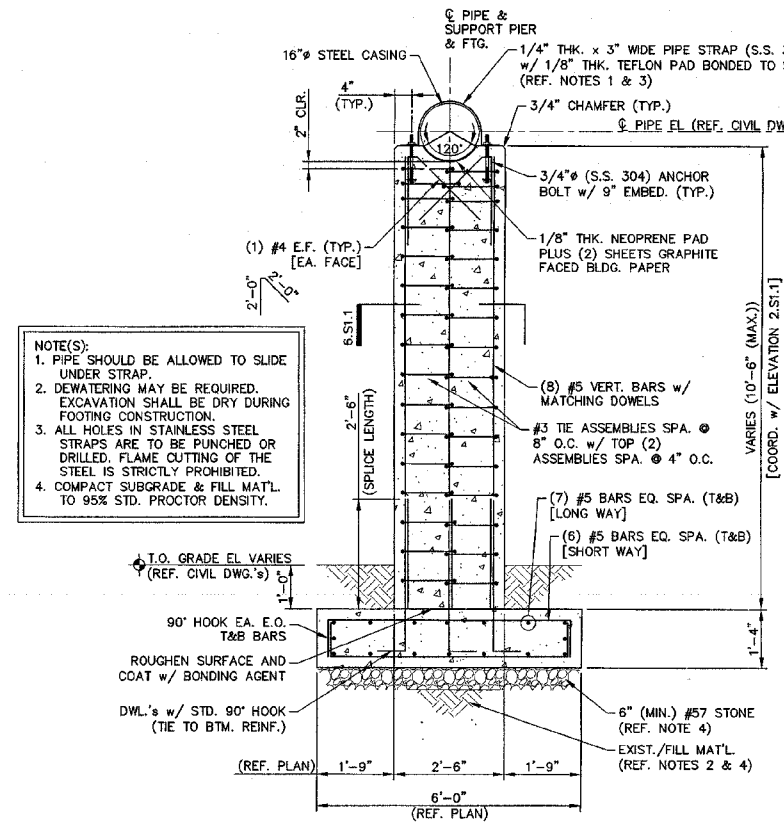
- 2.1 REINFORCING STEEL FOR ALL CONCRETE WORK SHALL BE GRADE 60 STEEL CONFORMING TO ASTM A615
- 2.2 DETAIL AND FABRICATE REINFORCING STEEL IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL," LATEST PUBLICATION.
- 2.3 REINFORCING STEEL IN PLACE SHALL BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE. IN GENERAL "CLR" DISTANCES FOR CONCRETE COVER ARE AS FOLLOWS:
 - A) SURFACES CAST AGAINST SOIL 3" MIN.
 - B) ALL OTHER SURFACES 2" MIN.
- 2.4 BARS SHALL BE COLD BENT AND SHALL NOT BE HEATED FOR ANY REASON.
- 2.5 REFERENCE DRAWINGS FOR REQUIREMENTS FOR LAP REINFORCING STEEL IN CONCRETE.
- 2.6 LAP SPLICED BARS IN CONCRETE ARE TO BE WIRE TIED.
- 2.7 FABRICATOR/CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER APPROVAL PRIOR TO FABRICATION.

4.0 STRUCTURAL STEEL

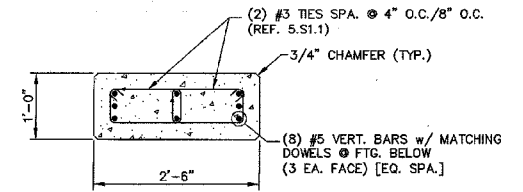
- 4.1 STEEL SHALL CONFORM TO "STANDARD SPECIFICATION FOR STRUCTURAL STEEL," ASTM A-36 (F_y=36 ksi) FOR PLATES, STEEL PIPE SHALL CONFORM TO ASTM A-53, GRADE B, (F_y=35 ksi).
- 4.2 WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY AWS D1.1 "STRUCTURAL WELDING CODE," WELDING SHALL BE PERFORMED BY CERTIFIED PERSONNEL WHO HAVE BEEN PREVIOUSLY QUALIFIED BY TEST PRESCRIBED IN THE AWS "STRUCTURAL WELDING CODE". ELECTRODES SHALL CONFORM TO AWS E.5, E70XX.



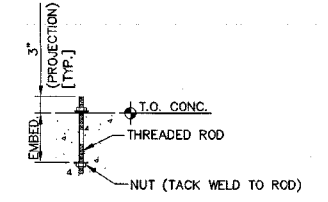
8 - DETAIL - PIPE CASING JOINT
SCALE: 1 1/2" = 1'-0"



5 - SECTION - SUPPORT PIER & FTG.
SCALE: 1/2" = 1'-0"

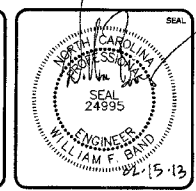
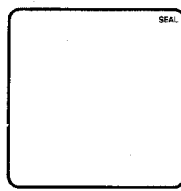


6 - DETAIL - TYP. SUPPORT REINF.
SCALE: 3/4" = 1'-0"



7 - DETAIL - TYP. ANCHOR BOLT
SCALE: 3/4" = 1'-0"

REV. NO.	DESCRIPTION	DATE
2	RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19



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GREAT RIDGE PARKWAY EXTENSION
CHATHAM COUNTY, NORTH CAROLINA
SANITARY SEWER CROSSING
AERIAL CASING SUPPORT
PLANS, SECTIONS & DETAILS**

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: AS NOTED VERTICAL: N/A	PROJECT NUMBER: SC101
NCE PROJ. # 02735-0080	DESIGNED: SH	DRAWING NUMBER: S1.1
DRAWN: SWF/SH	CHECKED: WFB	
PROJ. MGR: CHS		
STATUS: RELEASED FOR CONSTRUCTION 2		