



PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

November 19, 2015

Chatham County

**Subject: Revised Subdivision Final Plan Review – Phase 15 – Briar Chapel
Subdivision off of Great Ridge Parkway near SR 1528**

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

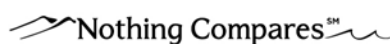
Dear Mr. Mumford:

The N. C. Department of Transportation, Division of Highways has reviewed the **REVISED** construction plans signed and sealed by Gareth Avant P.E. on November 6, 2015 as submitted to this office and approval is granted subject to the stipulations and recommendations included in the original approval issued on September 11, 2015

Sincerely,
Digitally signed by:

A handwritten signature in black ink that reads "Marty C. Tillman".

E72EF75317784CB...
Marty C. Tillman
District Engineer



BRIAR CHAPEL

PHASE 15 NORTH

CONSTRUCTION DOCUMENTS

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

CHATHAM COUNTY, NORTH CAROLINA

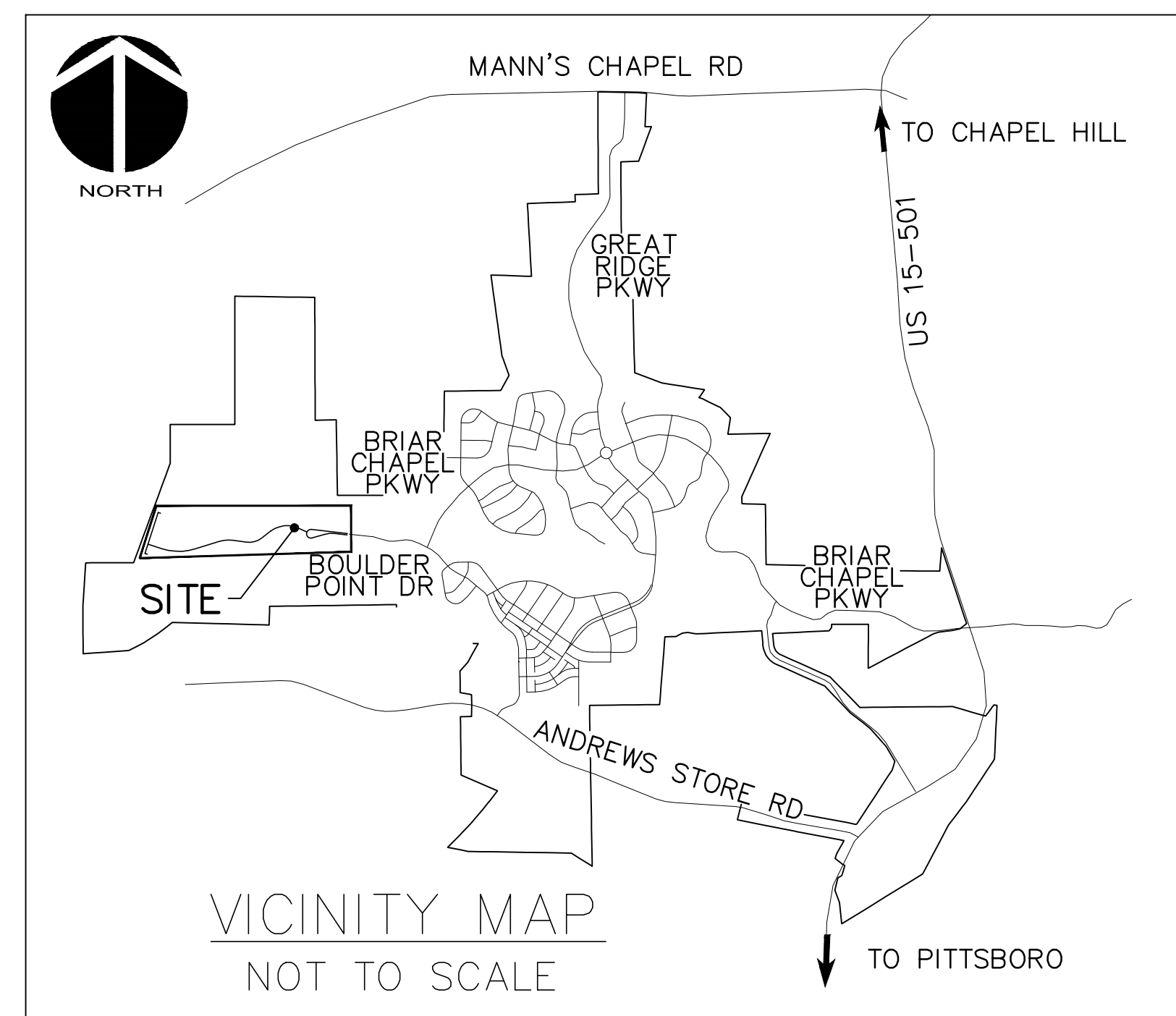
DATE: NOVEMBER 6, 2015

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COUNTY AND AGENCY CONTACTS

- 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
- 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
- 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
- D. Chatham County
Public Works
964 East Street, 2nd Floor, Suite 205
Pittsboro, NC 27312
(919) 545-8530 phone
Contact: Larry Bridges
Email: larry.bridges@chathamnc.org
- E. NCDOT
Division 8, District 1
300 DOT Drive
P.O. Box 1164
Asheboro, NC 27204
(336) 318-4000 phone
Contact: Jeff B. Loflin, PE
Email: jloflin@ncdot.gov
- F. NCDENR
Division of Water Quality
512 N. Salisbury St
Archdale Building, 9th Floor
Raleigh, NC 27604
(919) 807-6373 phone
Contact: Boyd Devane
Email: boyd.devane@ncdenr.gov
- G. NCDENR
Division of Environmental Health
Public Water Supply Section
1634 Mail Service Center
Raleigh, NC 27699-1634
(919) 707-9064 phone
Contact: Shashi Bhatta
Email: shashi.bhatta@ncdenr.gov
- H. NCDENR
Division of Water Quality
Surface Water Protection
3800 Barrett Drive
Raleigh, NC 27609
(919) 791-4200 phone
Contact: Danny Smith
Email: danny.smith@ncdenr.gov



VICINITY MAP
NOT TO SCALE

VICINITY MAP

NTS

PROJECT DATA

NAME OF PROJECT:
PHASE 15 NORTH
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: LEE BOWMAN
EMAIL: lbowman@newlandco.com

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

PROJECT AREA: 20.32 ACRES

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



by
Newland COMMUNITIES



1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222

www.mckimcreed.com



FINAL DRAWINGS
FOR REVIEW PURPOSES ONLY

***** 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.

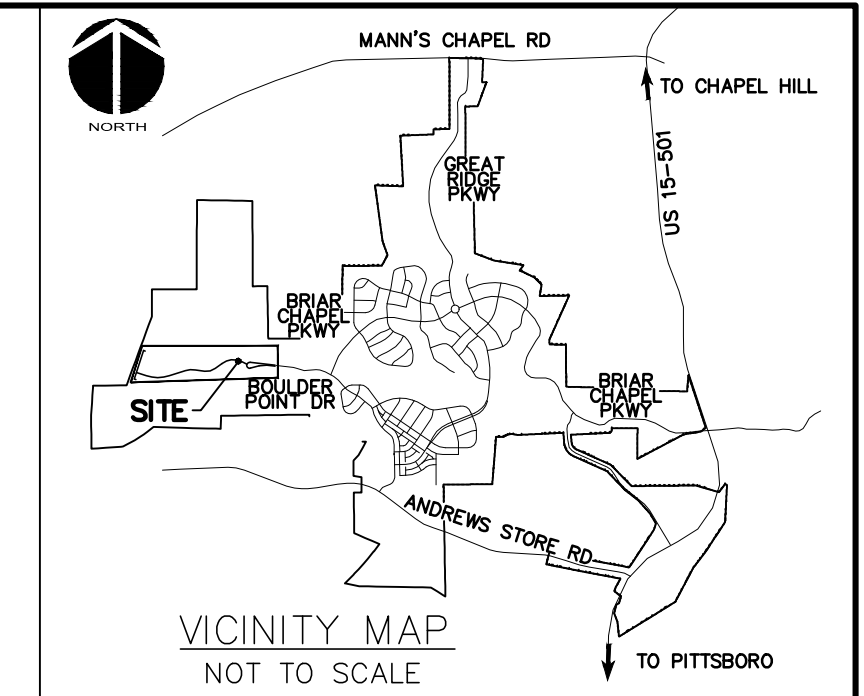
SURVEY REFERENCES:
 DEED BOOK 1492, PAGE 581
 DEED BOOK 1198, PAGE 510
 DEED BOOK 833, PAGE 752
 DEED BOOK 1461, PAGE 244

GENERAL NOTES:

- REFER TO THE FOLLOWING MCKIM & CREED, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE:
 - BRIAR CHAPEL - GRANITE MILL BOULEVARD AND BOULDER POINT DRIVE CONSTRUCTION PLANS SEALED JUNE 8, 2010
 - BRIAR CHAPEL - PHASE 5 NORTH CONSTRUCTION PLANS SEALED MARCH 30, 2011
 - BRIAR CHAPEL - BRIAR CHAPEL PARKWAY AND BOULDER POINT DRIVE EXTENSION SEALED JANUARY 31, 2012
 - BRIAR CHAPEL - PHASE 6 SOUTH CONSTRUCTION PLANS SEALED JANUARY 27, 2012
 - BRIAR CHAPEL - GREAT RIDGE PARKWAY CONSTRUCTION PLANS SEALED APRIL 4, 2013
 - BRIAR CHAPEL - PHASE 7 CONSTRUCTION PLANS SEALED MAY 29, 2013
 - BRIAR CHAPEL - PHASE 8 CONSTRUCTION PLANS SEALED AUGUST 25, 2013
 - BRIAR CHAPEL - PHASE 9 CONSTRUCTION PLANS SEALED MAY 9, 2014
 - BRIAR CHAPEL - GRANITE MILL BOULEVARD REALIGNMENT PLANS SEALED JUNE 2, 2014
 - BRIAR CHAPEL - PHASE 11 CONSTRUCTION PLANS SEALED SEPTEMBER 9, 2014
- REFER TO THE FOLLOWING JOHN R. MCADAMS COMPANY, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE:
 - BRIAR CHAPEL - RECLAMATION FACILITY EROSION CONTROL PLAN SEALED JULY 29, 2005
 - BRIAR CHAPEL - PHASE 1 CONSTRUCTION PLANS SEALED OCTOBER 21, 2005
 - BRIAR CHAPEL - WEST EXTENSION GRADING PLAN (INTERIM) SEALED MARCH 1, 2007
 - BRIAR CHAPEL - PHASE 3 CONSTRUCTION PLANS SEALED DECEMBER 4, 2006
 - BRIAR CHAPEL - PHASE 4 CONSTRUCTION PLANS SEALED JANUARY 15, 2007
 - BRIAR CHAPEL - WATER QUALITY PONDS 5 AND 6 CONSTRUCTION PLANS SEALED AUGUST 24, 2006
 - BRIAR CHAPEL - PUMP STATION CONSTRUCTION PLANS DATED APRIL 3, 2006
 - BRIAR CHAPEL - PHASE 4 - 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
- THIS PROPERTY IS ZONED CC-CUP.
- ALL DISTANCES SHOWN ARE HORIZONTAL GROUND MEASUREMENTS.
- BEARINGS SHOWN HEREON ARE BASED ON NC GRID NAD83. THIS PROJECT IS LOCALIZED ABOUT NCGS MONUMENT "MEACHAM" HAVING NC GRID COORDINATES N: 768,595.12', E: 1,963,424.93' USING A COMBINED FACTOR OF 0.99990676.
- EXISTING TOPOGRAPHIC DATA IS BASED ON AERIAL MAPPING PERFORMED BY AVIOMAGE MAPPING SERVICES IN FEBRUARY 2010. ELEVATIONS ARE BASED ON NAVD 88 NCGS MONUMENT "F-92" WITH AN ELEVATION OF 476.06'.
- HORIZONTAL AND VERTICAL CONTROL FOR THIS SITE WAS INSTALLED BY GPA PROFESSIONAL LAND SURVEYORS OF NC.
- PROJECT IS LOCATED IN THE CAPE FEAR RIVER BASIN.
- STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT NIKKI THOMSON AT 919-846-5900.
- NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710978500J DATED FEBRUARY 2, 2007.

DEMOLITION NOTES:

- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PUBLIC DURING CONSTRUCTION, WHICH INCLUDES, BUT IS NOT LIMITED TO, CONSTRUCTION FENCING, BARRICADES, SIGNAGE, ETC.
- CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH ALL REGULATIONS GOVERNING THE DEMOLITION, REMOVAL, TRANSPORTATION AND DISPOSAL OF ALL DEMOLITION DEBRIS.
- 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.
- CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ALL UTILITIES AND APPURTENANCES TO REMAIN.



LEGEND:

- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- 480----- EX. CONTOUR
- EX. POWER LINE EASEMENT
- 0E----- OVERHEAD POWER LINE
- EX. FORCE MAIN EASEMENT
- FM ----- EX. SANITARY SEWER FORCE MAIN
- IRR ----- IRR ----- EX. REUSE IRRIGATION MAIN
- W ----- W ----- EX. WATER MAIN
- EX. STORM DRAINAGE PIPE



MATCHLINE - SEE SHEET C03

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

NORTH

SCALE: 1"=50' (Horiz.)

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.09
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER
 Jared A. Covert
 036348
 11/6/2015
 ENGINEER
 GARETH C. AVANT

MCKIM & CREED

1730 Varsity Drive, Suite 500
 Raleigh, North Carolina 27606
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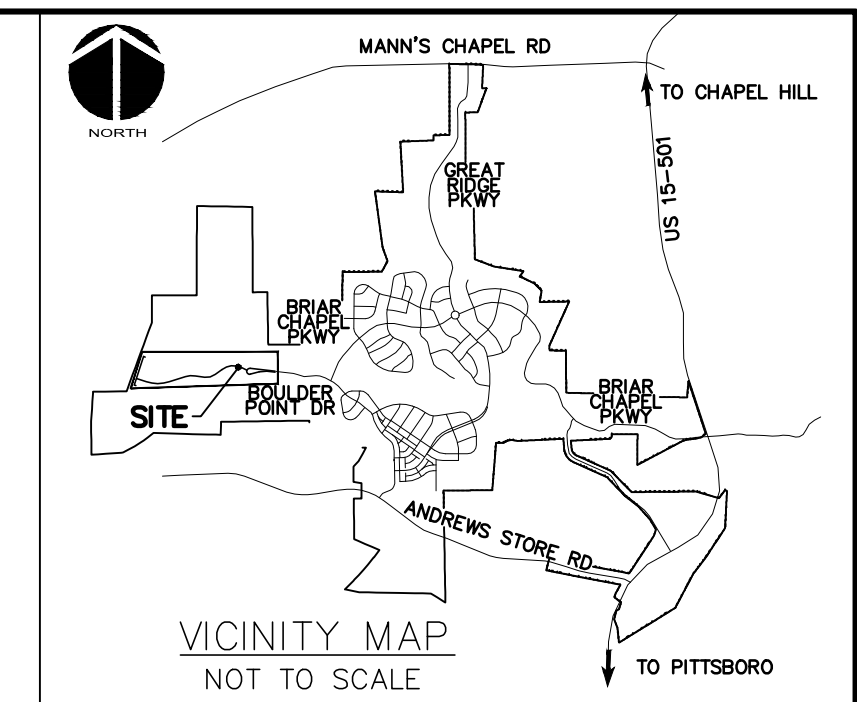
BRIAR CHAPEL™

by
Newland COMMUNITIES

**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA**

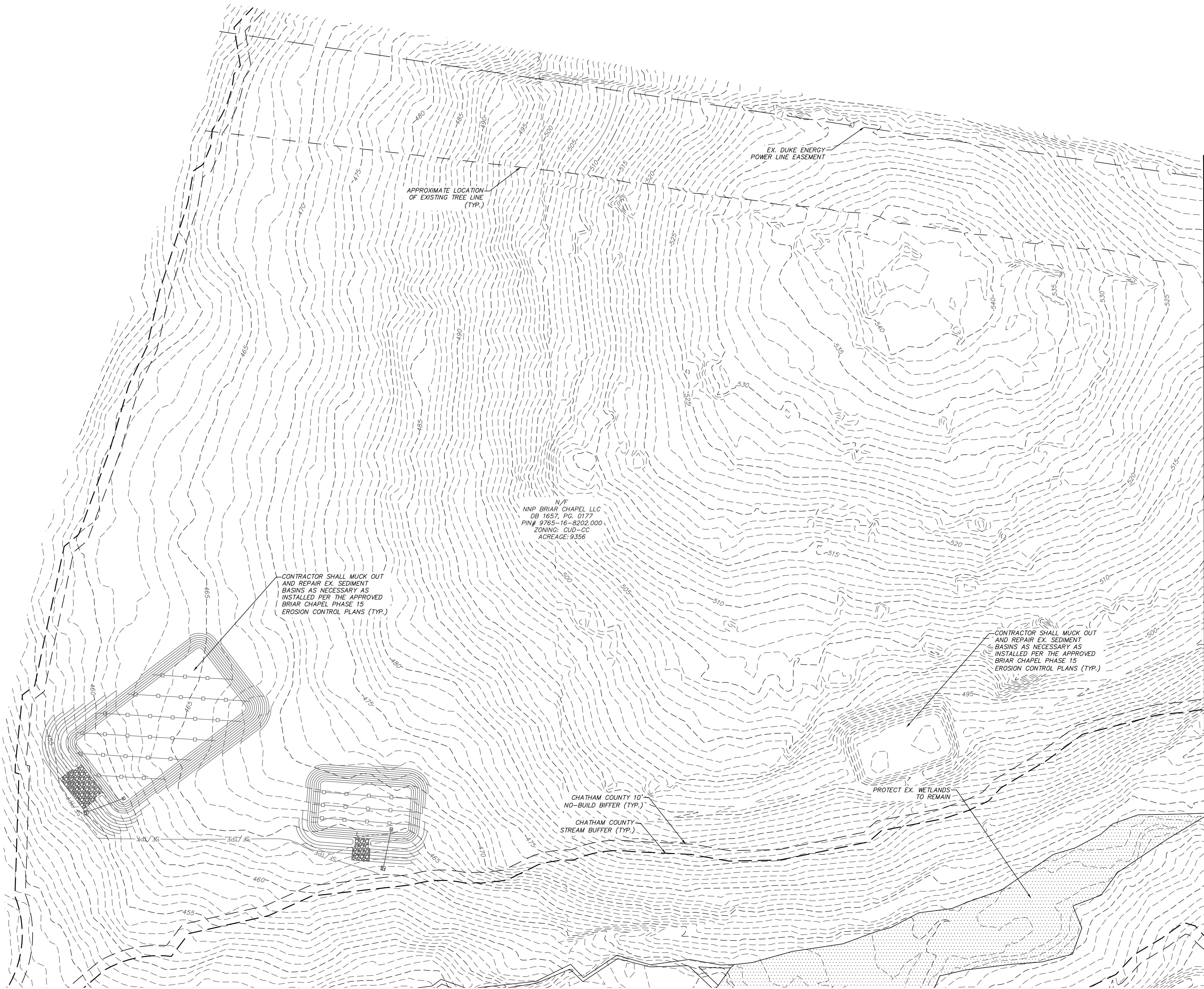
**EXISTING CONDITIONS/
 DEMOLITION PLAN**

DATE: JUNE 17, 2015	SCALE: HORIZONTAL: 1" = 50'	MSC FILE NUMBER: C0.2
MCE PROJ. # 02735-0113	DRAWN: BSS	DRAWING NUMBER: C0.2
DESIGNED: BSS	CHECKED: GCA	REVISION: 3
PROJ. MGR. CHS	VERTICAL: N/A	
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		

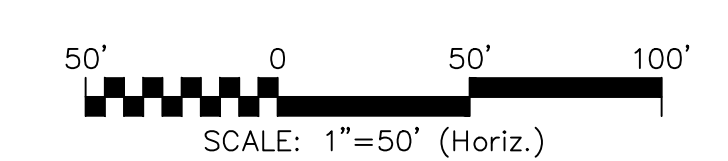
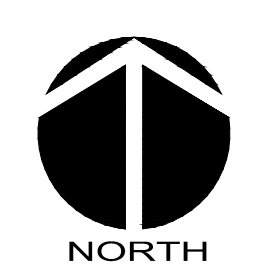


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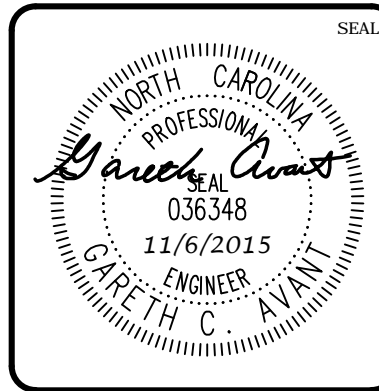
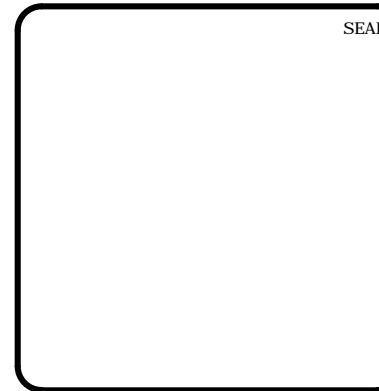
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- 480----- EX. CONTOUR
- EX. POWER LINE EASEMENT
- O----- OVERHEAD POWER LINE
- EX. FORCE MAIN EASEMENT
- FM -----
- IRR ----- EX. REUSE IRRIGATION MAIN
- W ----- EX. WATER MAIN
- EX. STORM DRAINAGE PIPE



MATCHLINE - SEE SHEET C02



REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.08
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



MCKIM & CREED
 1730 Varsity Drive, Suite 500
 Raleigh, North Carolina 27606
 Phone: (919)233-8091, Fax: (919)233-8031
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BRIAR CHAPEL™
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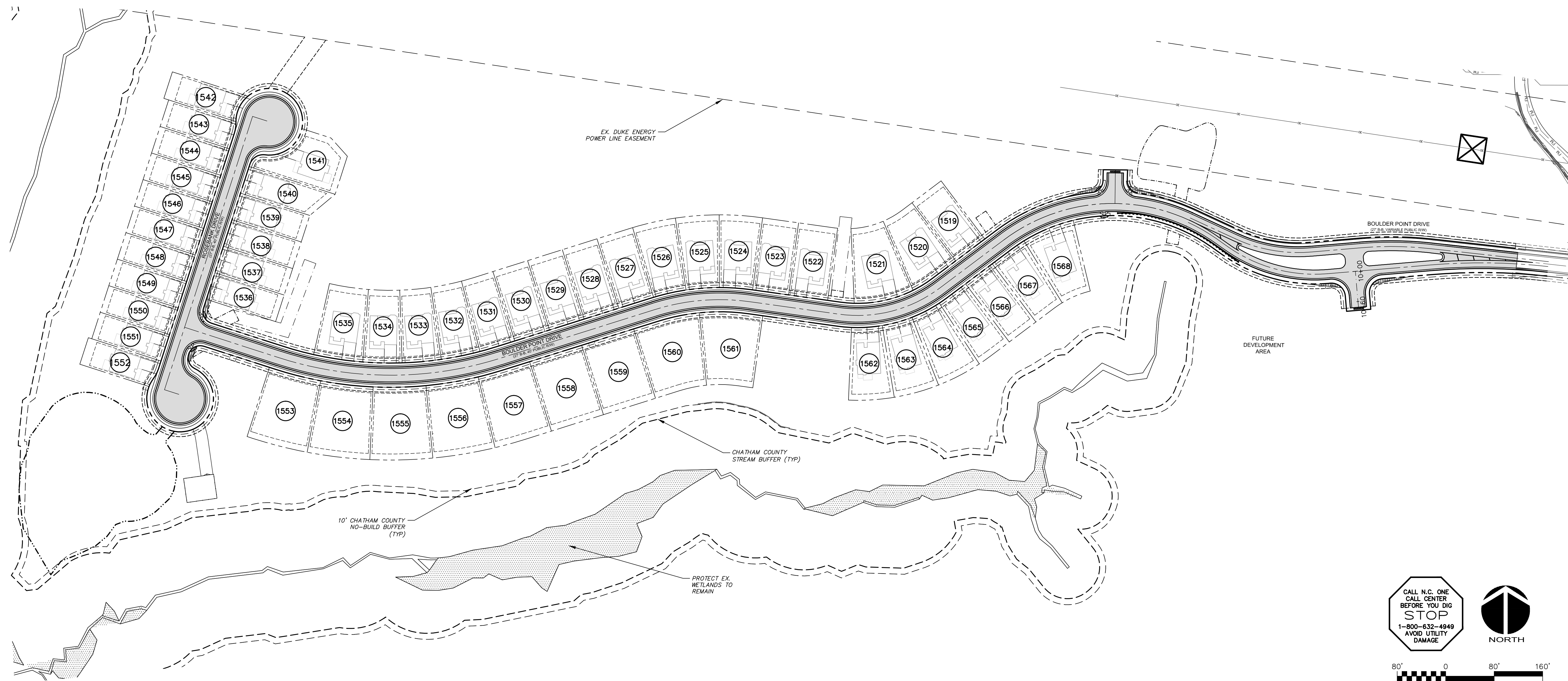
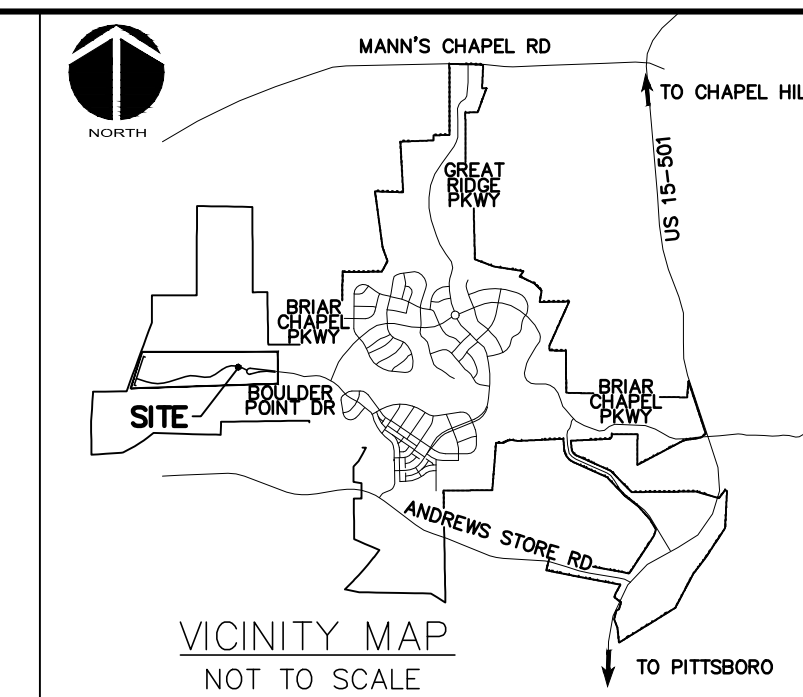
**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA**

**EXISTING CONDITIONS/
 DEMOLITION PLAN**

DATE: JUNE 17, 2015	SCALE: HORIZONTAL: 1" = 50'	MSC FILE NUMBER: C0.3
MCE PROJ. # 02735-0113	DRAWN: BSS	DRAWING NUMBER: C0.3
DESIGNED: BSS	CHECKED: GCA	VERTICAL: N/A
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3

LEGEND:

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

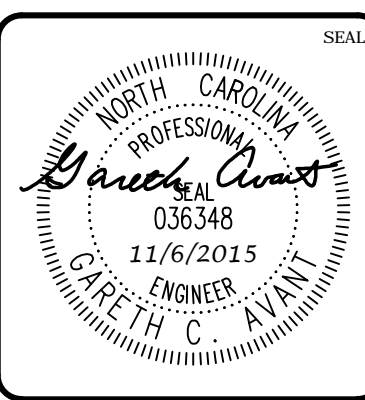
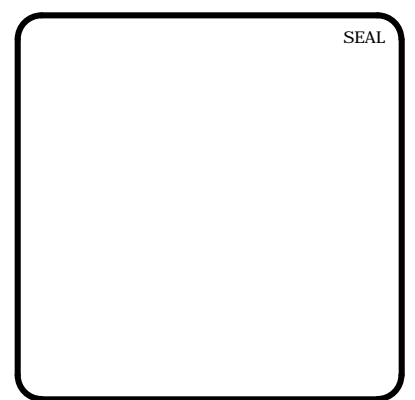


CALL N.C. ONE
CALL CENTER
BEFORE YOU DIG
STOP
1-800-632-4949
AVOID UTILITY
DAMAGE

NORTH

80' 0 80' 160'
SCALE: 1"=80' (Horiz.)

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.08
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



MCKIM & CREED

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F-1222
www.mckimcreed.com

BRIAR CHAPEL™

by
Newland COMMUNITIES

**BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

OVERALL SITE PLAN

DATE: JUNE 17, 2015	SCALE: N/A	MSC FILE NUMBER: C1.X
MCE PROJ. # 02735-0113	HORIZONTAL: AS NOTED	DRAWING NUMBER: C1.0
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	

LEGEND:

- R/W LINE
- FUTURE R/W LINE
- EXISTING R/W LINE
- HOA EASEMENT LINE
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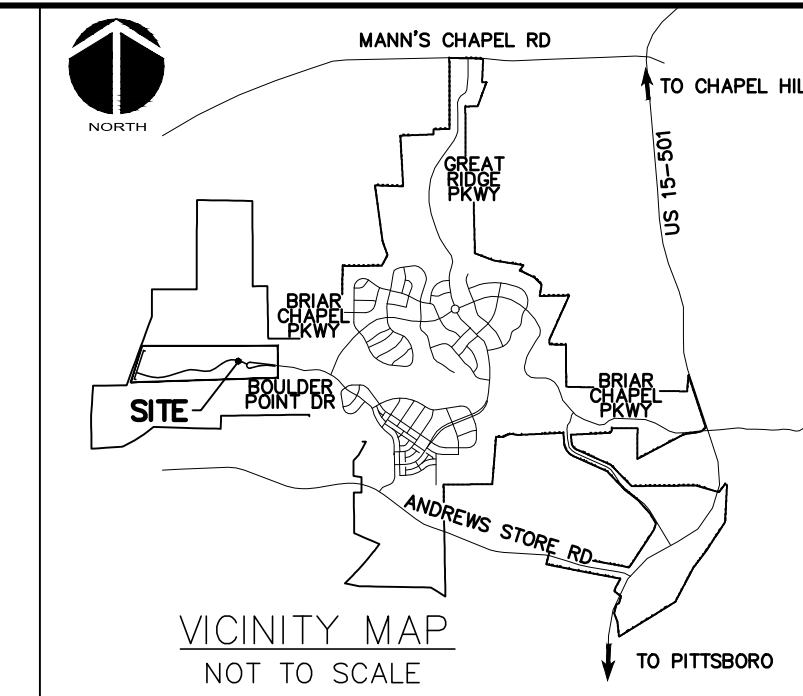
LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
1519	7200.00	0.17
1520	8614.81	0.20
1521	9689.45	0.22
1522	7800.16	0.18
1523	7200.00	0.17
1524	7620.14	0.17
1525	7648.79	0.18
1526	7648.79	0.18
1527	7294.44	0.17
1560	11932.89	0.27
1561	10917.90	0.25
1562	7609.93	0.17
1563	7609.93	0.17
1564	7609.93	0.17
1565	6901.93	0.16
1566	6600.00	0.15
1567	7098.23	0.16
1568	8331.68	0.19

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L1	194.62'	N83°41'43"W
L2	81.98'	S85°08'42"W
L3	82.15'	N65°13'43"W
L4	169.64'	S85°08'42"W
L5	24.50'	N54°57'08"W
L6	132.34'	S53°04'30"W
L7	148.11'	N82°03'12"W
L8	267.49'	S72°31'22"W
L9	163.46'	N72°08'33"W
L10	473.83'	N17°51'27"E

ALIGNMENT CURVE DATA					
CURVE #	ARCH LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH	DELTA
C1	117.65'	604.00'	N89°16'31"W	117.46'	11°09'36"
C2	127.20'	246.00'	N80°02'31"W	125.79'	29°37'35"
C3	195.07'	1001.50'	N89°16'31"W	194.76'	11°09'36"
C4	173.07'	248.50'	N74°54'13"W	169.59'	39°54'11"
C5	323.04'	300.00'	S83°55'23"W	307.86'	61°41'47"
C6	176.21'	225.00'	S75°30'39"W	171.74'	44°52'18"
C7	159.74'	360.00'	S85°14'05"W	158.44'	25°25'26"
C8	370.02'	600.00'	N89°48'36"W	364.19'	35°20'05"

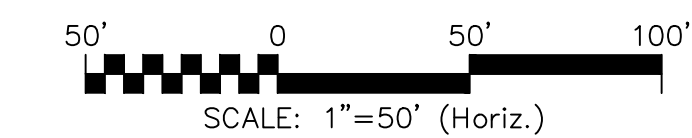
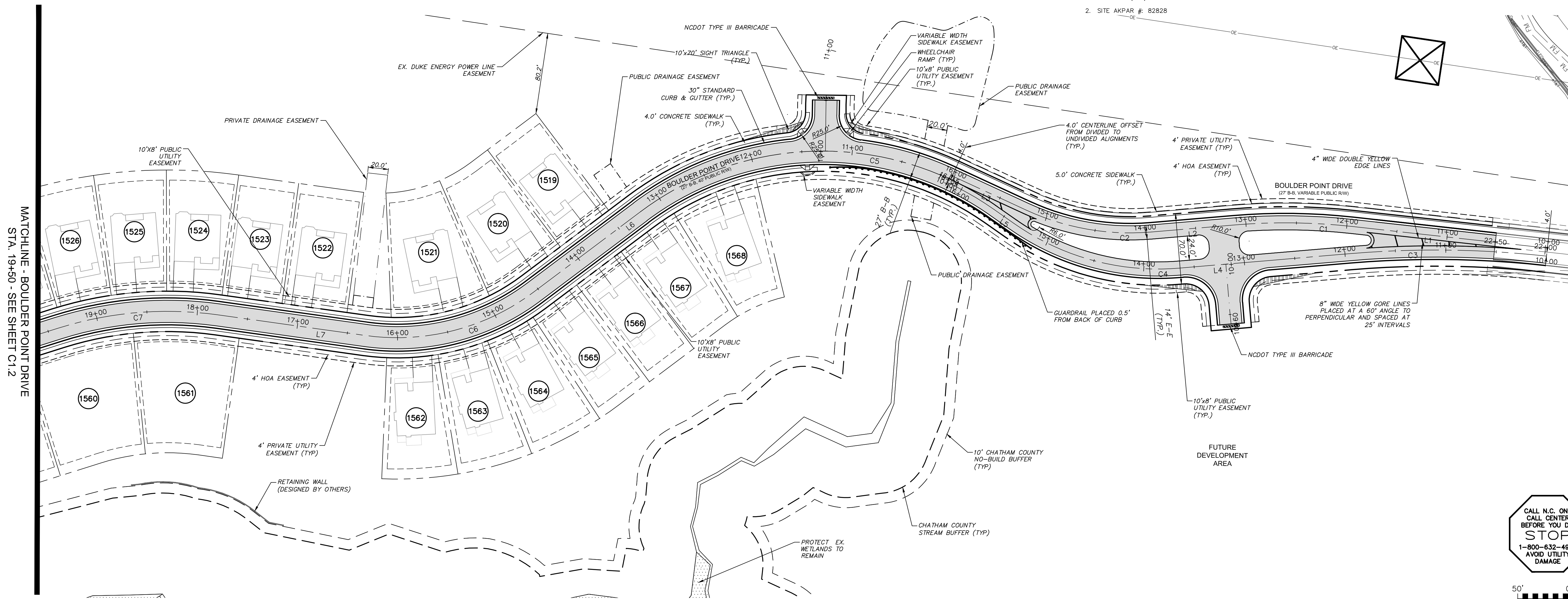
SITE GENERAL NOTES:

- ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- REFER TO THE FOLLOWING MCKIM & CREED, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE.
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 - BRIAR CHAPEL - PHASE 11 CONSTRUCTION PLANS SEALED SEPTEMBER 9, 2014.
- REFER TO THE FOLLOWING JOHN R. MCADAMS COMPANY, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE.
 - BRIAR CHAPEL - RECLAMATION FACILITY EROSION CONTROL PLAN SEALED JULY 29, 2005
 - BRIAR CHAPEL - PHASE 1 CONSTRUCTION PLANS SEALED OCTOBER 21, 2005.
 - BRIAR CHAPEL - WEST EXTENSION GRADING PLAN (INTERIM) SEALED MARCH 1, 2007.
 - BRIAR CHAPEL - PHASE 3 CONSTRUCTION PLANS SEALED DECEMBER 4, 2006.
 - BRIAR CHAPEL - PHASE 4 CONSTRUCTION PLANS SEALED JANUARY 15, 2007.
 - BRIAR CHAPEL - WATER QUALITY PONDS 5 AND 6 CONSTRUCTION PLANS SEALED AUGUST 24, 2006.
 - BRIAR CHAPEL - PUMP STATION CONSTRUCTION PLANS DATED APRIL 3, 2006.
 - BRIAR CHAPEL - PHASE 4 - 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.
- STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT NIKKI THOMSON AT 919-846-5900.
- A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.
- ALL PROPOSED ROADWAY DIMENSIONS AS SHOWN ARE MEASURED FROM BACK OF CURB TO BACK OF CURB, ALL PROPOSED ALLEY DIMENSIONS AS SHOWN ARE MEASURED FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.
- BEFORE STARTING ANY CONSTRUCTION OF IMPROVEMENTS WITHIN ANY NCDOT STREET OR HIGHWAY RIGHT-OF-WAY, CONTACT NCDOT DISTRICT OFFICE AND OBTAIN ALL PERMITS AND ENCROACHMENTS. KEEP COPIES ON CONSTRUCTION SITE. ALSO CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER AT 336-629-1423.
- REFER TO PLAN AND PROFILE SHEETS FOR DETAILED SANITARY SEWER AND STORM DRAINAGE INFORMATION WITHIN PUBLIC ROADS.



CHATHAM COUNTY REQUIRED SITE NOTES:

- PROPERTY OWNER/DEVELOPER:
NNP BRIAR CHAPEL, LLC
16 WINDY KNOLL CIRCLE
CHAPEL HILL, NC 27516
PHONE: (919) 951-0700
- SITE AKPAR #: 82828



REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2015.11.08	REVISED PER COMMENTS FROM COUNTY	
2	2015.08.13	REVISED PER COMMENTS FROM NCDOT	
1	2015.06.17	ISSUED FOR PERMITTING	

Professional Engineer Seal for **Garrett C. Avant**, License No. 036348, dated 11/6/2015.

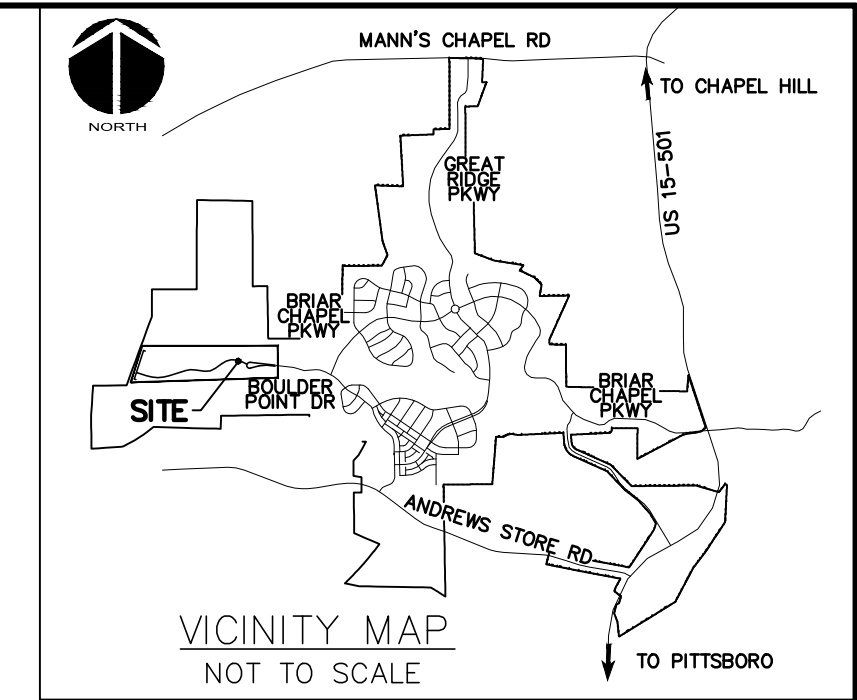
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**BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

SITE PLAN

DATE: JUNE 17, 2015	SCALE: N/A	MSC FILE NUMBER: C1.X
MCE PROJ. #: 02735-0113	HORIZONTAL: AS NOTED	DRAWING NUMBER: C1.1
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	



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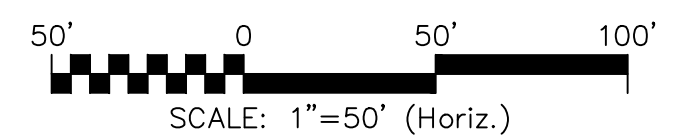
- R/W LINE
- FUTURE R/W LINE
- EXISTING R/W LINE
- HOA EASEMENT LINE
- PUBLIC UTILITY EASMENT LINE
- PUBLIC DRAINAGE EASEMENT
- EXISTING POWER LINE EASEMENT
- OVERHEAD POWER LINE
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- BMP MAINTENANCE & ACCESS EASEMENT
- ROADWAY CENTERLINE

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L1	194.62'	N83°41'43"W
L2	81.98'	S85°08'42"W
L3	82.15'	N65°13'43"W
L4	169.64'	S85°08'42"W
L5	24.50'	N54°57'08"W
L6	132.34'	S53°04'30"W
L7	148.11'	N82°03'12"W
L8	267.49'	S72°31'22"W
L9	163.46'	N72°08'33"W
L10	473.83'	N17°51'27"E

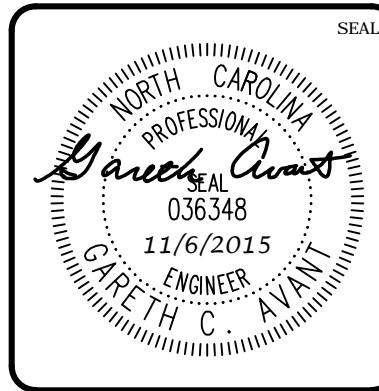
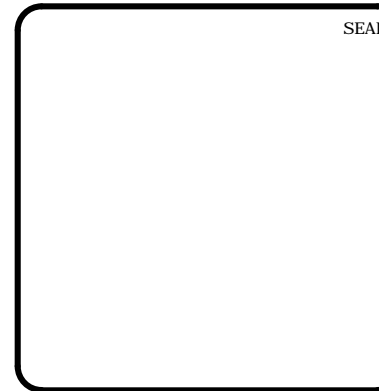
ALIGNMENT CURVE DATA					
CURVE #	ARCH LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH	DELTA
C1	117.65'	604.00'	N89°16'31"W	117.46'	11°09'36"
C2	127.20'	246.00'	N80°02'31"W	125.79'	29°37'35"
C3	195.07'	1001.50'	N89°16'31"W	194.76'	11°09'36"
C4	173.07'	248.50'	N74°54'13"W	169.59'	39°54'11"
C5	323.04'	300.00'	S83°55'23"W	307.66'	61°41'47"
C6	176.21'	225.00'	S75°30'39"W	171.74'	44°52'18"
C7	159.74'	360.00'	S85°14'05"W	158.44'	25°25'26"
C8	370.02'	600.00'	N89°48'36"W	364.19'	35°20'05"

LOT AREA TABLE			LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)	LOT #	AREA (SF)	AREA (AC)
1527	7294.44	0.17	1549	5520.00	0.13
1528	7200.00	0.17	1550	5520.00	0.13
1529	7200.00	0.17	1551	5520.00	0.13
1530	7200.00	0.17	1552	5703.09	0.13
1531	6858.97	0.16	1553	11408.14	0.26
1532	6996.77	0.16	1554	11484.48	0.26
1533	6996.77	0.16	1555	11484.48	0.26
1534	6997.27	0.16	1556	11484.48	0.26
1535	8824.74	0.20	1557	11136.43	0.26
1536	5520.00	0.13	1558	10800.00	0.25
1537	5520.00	0.13	1559	10800.00	0.25
1538	5520.00	0.13			
1539	5520.00	0.13			
1542	5725.43	0.13			
1543	5520.00	0.13			
1544	5520.00	0.13			
1545	5520.00	0.13			
1546	5520.00	0.13			
1547	5520.00	0.13			
1548	5520.00	0.13			

MATCHLINE - BOULDER POINT DRIVE STA. 19+50 - SEE SHEET C1.1



REV. NO.	DATE	DESCRIPTIONS	DATE
3	2015.11.08	REVISED PER COMMENTS FROM COUNTY	2015.11.08
2	2015.08.13	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	2015.06.17	ISSUED FOR PERMITTING	2015.06.17



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**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA**

SITE PLAN

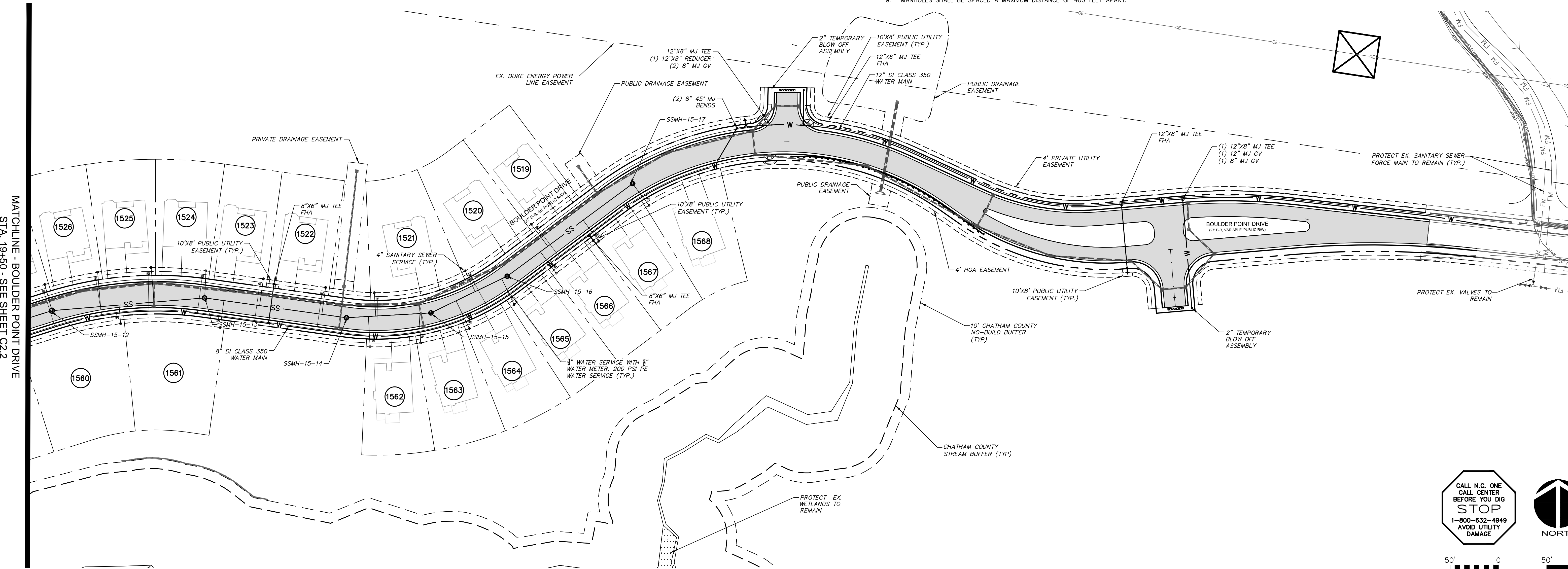
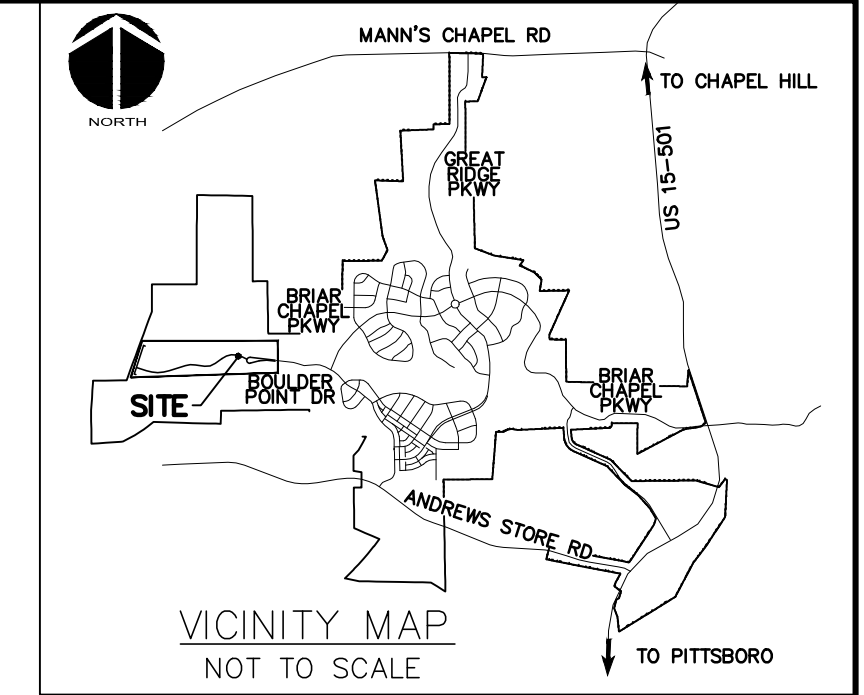
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DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3

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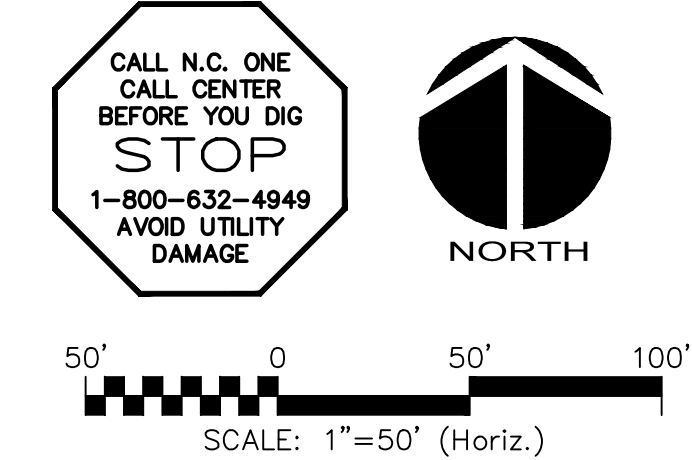
- R/W LINE
- EXISTING R/W LINE
- HOA EASEMENT LINE
- PUBLIC UTILITY EASEMENT LINE
- PUBLIC DRAINAGE EASEMENT
- EX. POWER LINE EASEMENT
- OVERHEAD POWER LINE
- BMP MAINTENANCE & ACCESS EASEMENT
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- FM EX. SANITARY SEWER FORCE MAIN
- IRR EX. REUSE IRRIGATION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

UTILITY NOTES:

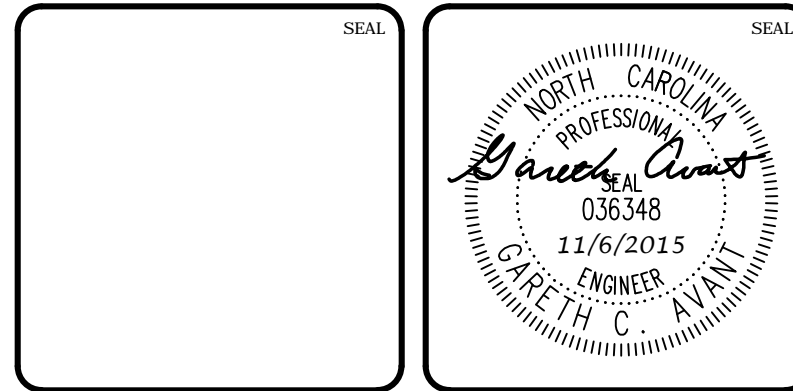
1. ALL SANITARY SEWER CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT NCDENR & CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
2. ALL WATER MAIN CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
3. ALL PERMITS RELATING TO THIS PROJECT MUST BE OBTAINED PRIOR TO CONSTRUCTION.
4. ALL WATER MAINS SHALL HAVE A MIN. OF 3'-6" OF COVER AS MEASURED FROM FINISHED GRADE TO TOP OF PIPE AT THE LOCATION WHERE INSTALLED.
5. WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION, IN WHICH CASE:
 - (1) THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER; OR
 - (2) THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
- 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, 16C, SECTION .0906.
6. CONTRACTOR SHALL USE A MIN. 20' SECTION DIP CLASS 350 CENTERED UNDER STORMWATER PIPE WHERE 18" MIN. VERTICAL CLEARANCE CANNOT BE MET BETWEEN STORMWATER AND WATER.
7. TRACER WIRE AND TRACER WIRE TEST STATIONS ARE TO BE INSTALLED ON ALL WATER MAINS. TRACER WIRE TEST STATIONS ARE TO BE LOCATED AT ALL FIRE HYDRANTS WITHIN A 3 FOOT RADIUS OF THE HYDRANT AND PREFERABLY TO THE REAR OF THE HYDRANT.
8. WATER SERVICES SHALL BE EXTENDED FROM THE MAIN TO A METER BOX LOCATED WITHIN THE RIGHT OF WAY. THE METER SHALL BE PLACED AT THE EDGE OF THE SERVICED LOT'S RIGHT OF WAY LINE OR EASEMENT. SERVICE LINE SHALL BE RUN ON A TRUE LINE FROM THE WATER MAIN TO THE METER BOX, AND WHERE POSSIBLE, SERVICE LINE SHALL BE PERPENDICULAR TO THE MAIN LINE. NO WATER BOXES OR VAULTS SHALL BE PLACED IN STREETS, SIDEWALKS, PARKING AREAS, OR DRIVEWAYS.
9. MANHOLES SHALL BE SPACED A MAXIMUM DISTANCE OF 400 FEET APART.
10. MANHOLES SHALL BE INSTALLED AT EACH DEFLECTION OF LINE AND/OR GRADE WITH A MINIMUM DROP OF 0.2 FEET. MANHOLES FOR SEWERS GREATER THAN 21 INCHES IN DIAMETER SHALL BE 5 FOOT MANHOLES. MANHOLES FOR SEWERS 12 FEET OR DEEPER SHALL BE MINIMUM 5 FOOT DIAMETER. MANHOLE TOPS SHALL BE SET FLUSH WITH PAVEMENT WHERE INSTALLED IN A STREET.
11. SERVICE CONNECTIONS FOR THE SANITARY SEWER LINES SHOULD BE PERPENDICULAR FROM THE MAIN LINE TO THE EDGE OF THE SERVICED LOT'S RIGHT OF WAY LINE OR EASEMENT WITH A MINIMUM GRADE OF 1/4 INCH/FOOT FOR 4 INCH AND .6 FOOT/100 FOOT FOR 6 INCH. ALL CLEANOUTS SHALL EXTEND A MINIMUM OF 6 INCHES ABOVE THE FINISHED GRADE. WHERE A SERVICE LINE IS CONNECTED TO A MANHOLE, THE LINE SHALL TERMINATE AT THE EDGE OF THE INVERT IN THE MANHOLE. NO CLEANOUTS SHALL BE PLACED IN STREETS, SIDEWALKS, PARKING AREAS, OR DRIVEWAYS.
12. ALL SANITARY SEWER LINES ARE 8" PVC SDR 35 UNLESS OTHERWISE NOTED AND ALL WATER MAIN LINES ARE 6" DI CLASS 350 UNLESS OTHERWISE NOTED. ALL SANITARY SEWER SERVICES ARE 4" SCHEDULE 40 PVC AND ALL WATER MAIN SERVICES ARE 1".
13. MINIMUM COVER OF 5 FEET IN TRAFFIC AREAS TO BE PROVIDED FOR ALL COLLECTOR LINES 4 INCHES AND LARGER. IF LESS THAN 5 FEET, DUCTILE IRON PIPE SHALL BE REQUIRED.
14. USE WATERTIGHT RIMS FOR SANITARY SEWER MANHOLES LOCATED IN PAVED ALLEYS.
15. SANITARY SEWER WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNERS ASSOCIATION OR AGENT THEREOF.
16. WATER MAINS WILL BE 3.5' OFF CURB AND GUTTER UNLESS SHOWN OTHERWISE.
17. ALL WATER MAINS WITHIN PUBLIC EASEMENTS AND PUBLIC RIGHT-OF-WAY TO BE OWNED, OPERATED AND MAINTAINED BY CHATHAM COUNTY, AND WILL BE CONTAINED WITHIN 20' WIDE PUBLIC WATER LINE EASEMENT (MINIMUM) CENTERED ON THE PROPOSED WATER MAIN.
18. CONTRACTOR TO COORDINATE WITH CHATHAM COUNTY PUBLIC WORKS FOR ALL IRRIGATION SLEEVE SIZING.



MATCHLINE - BOULDER POINT DRIVE STA. 19+50 - SEE SHEET C2.2



REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.09
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



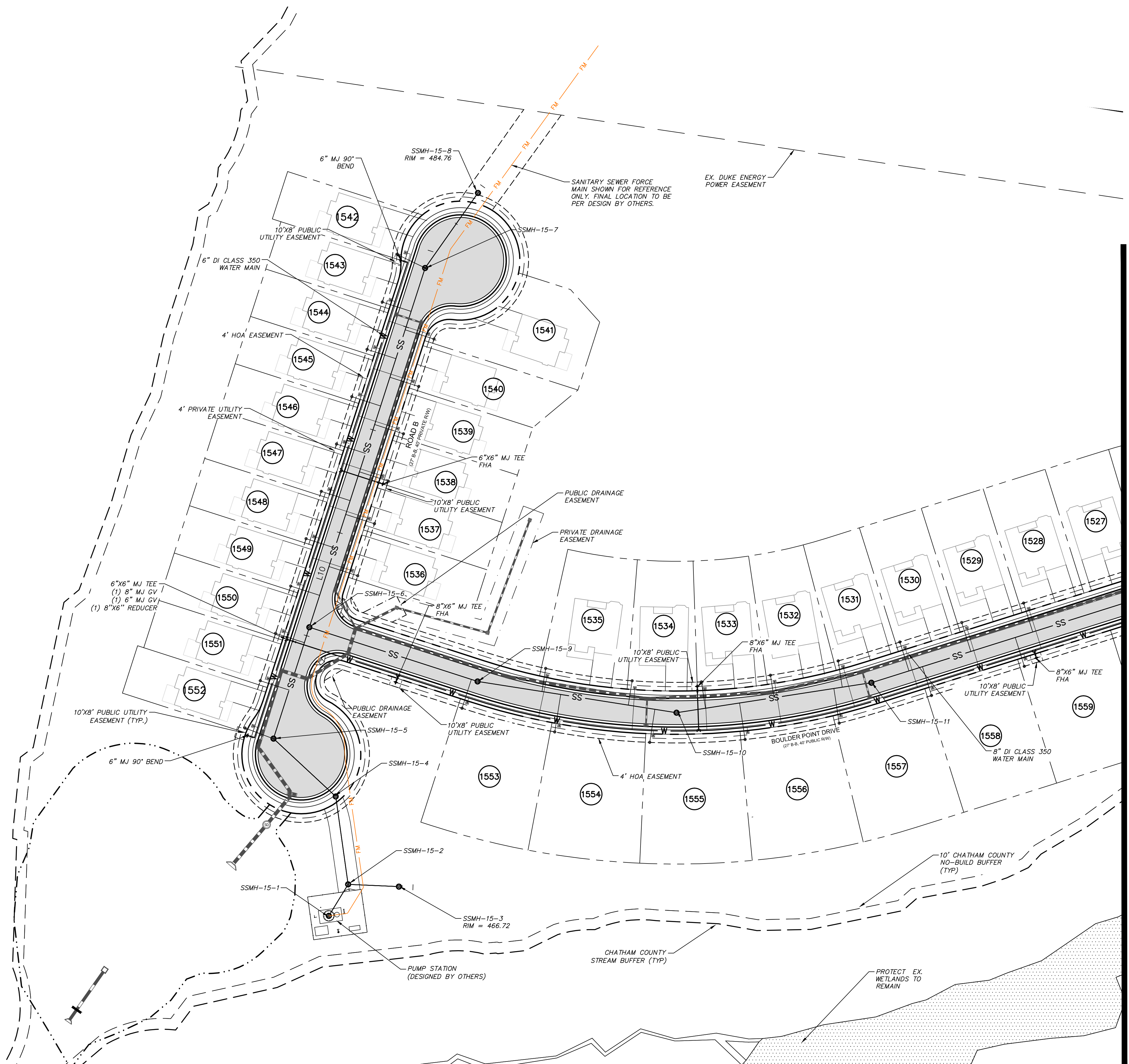
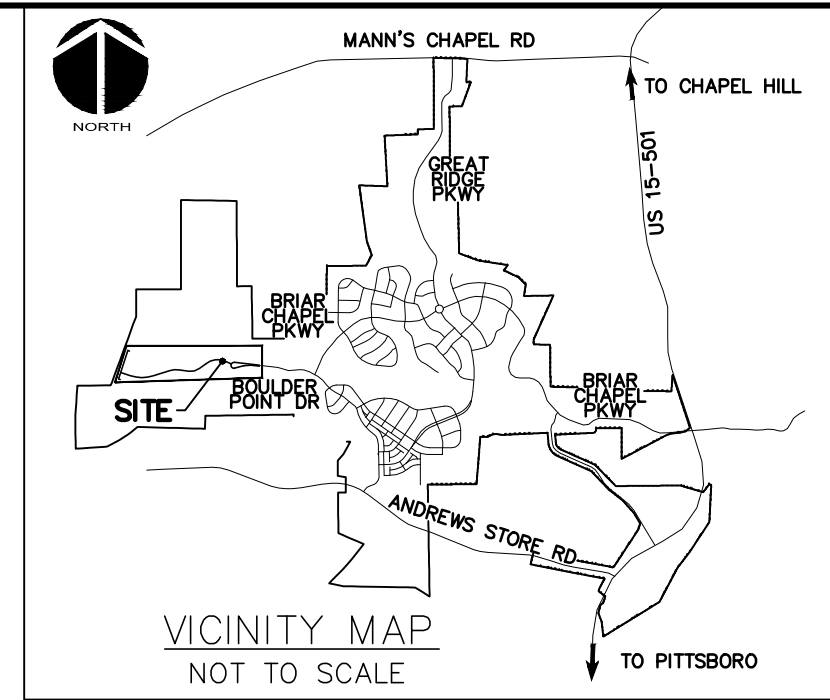
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**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA**

UTILITY PLAN

DATE: JUNE 17, 2015.	SCALE: 1" = 50'	MISC. FILE NUMBER: C2.X
MCE PROJ. # 02735-0113.	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C2.1
DRAWN: BSS	VERTICAL: N/A	REVISION: 3
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		



LEGEND:

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

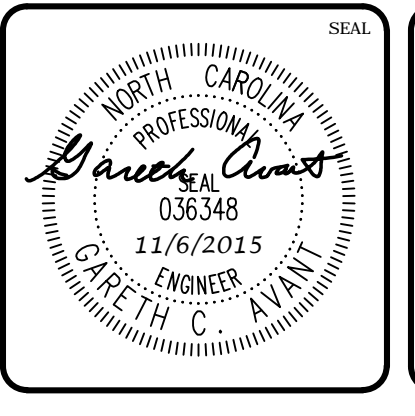
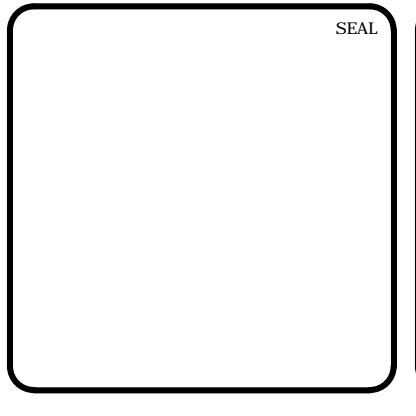
MATCHLINE - BOULDER POINT DRIVE
STA. 19+50 - SEE SHEET C2.1

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

NORTH

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

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.06
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



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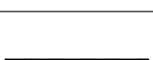



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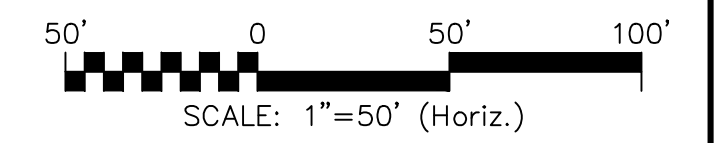
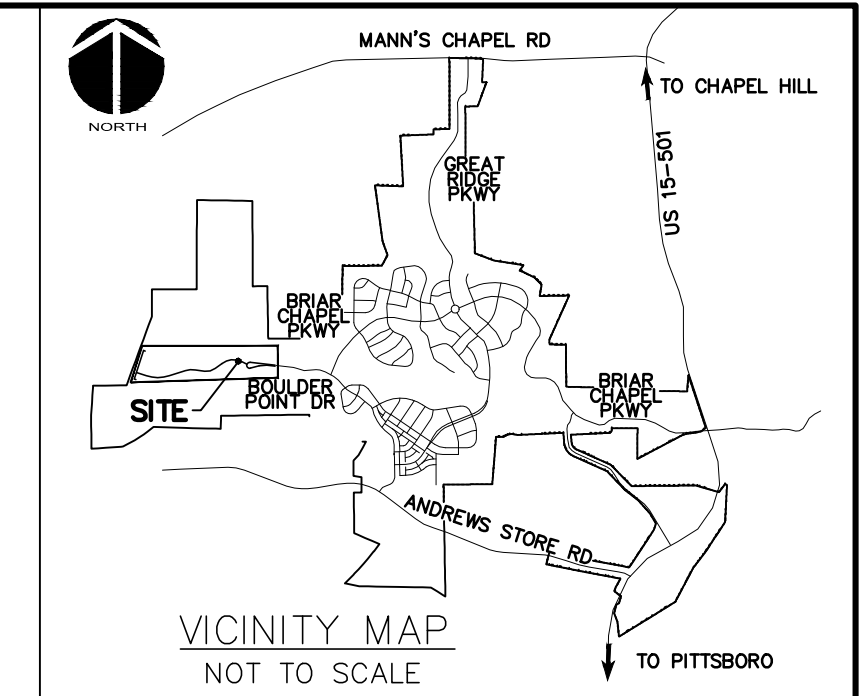
**BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

UTILITY PLAN

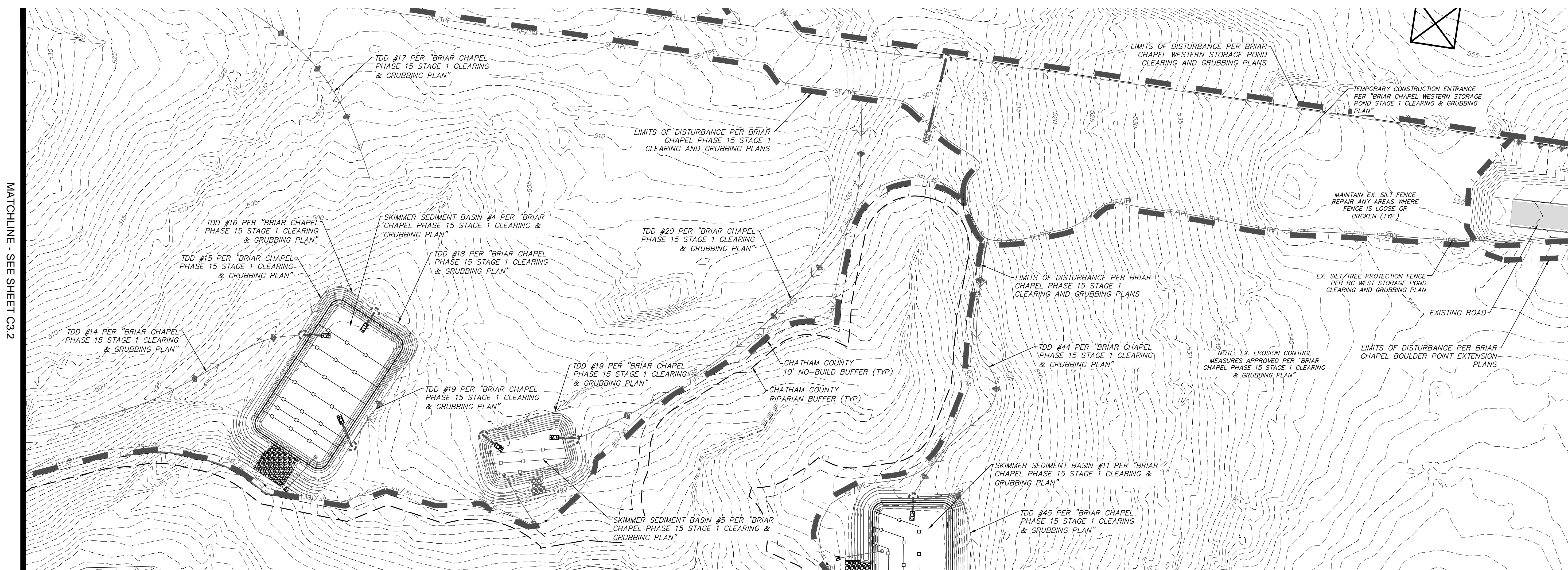
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DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3

LEGEND:

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

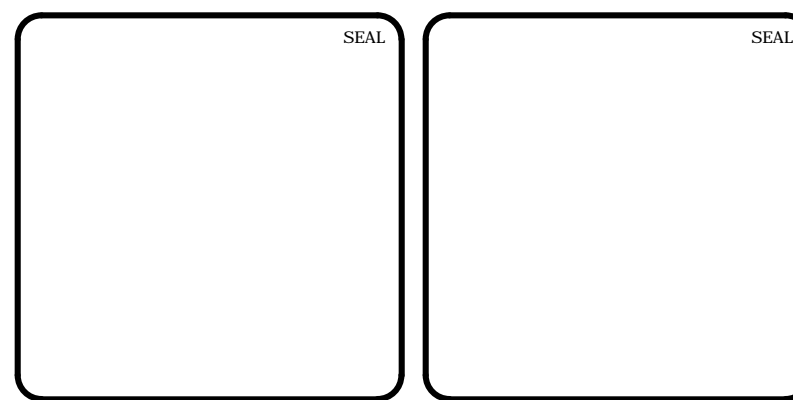


PLAN FOR REFERENCE ONLY



MATCHLINE - SEE SHEET C3.2

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2015.11.09	REVISED PER COMMENTS FROM COUNTY	
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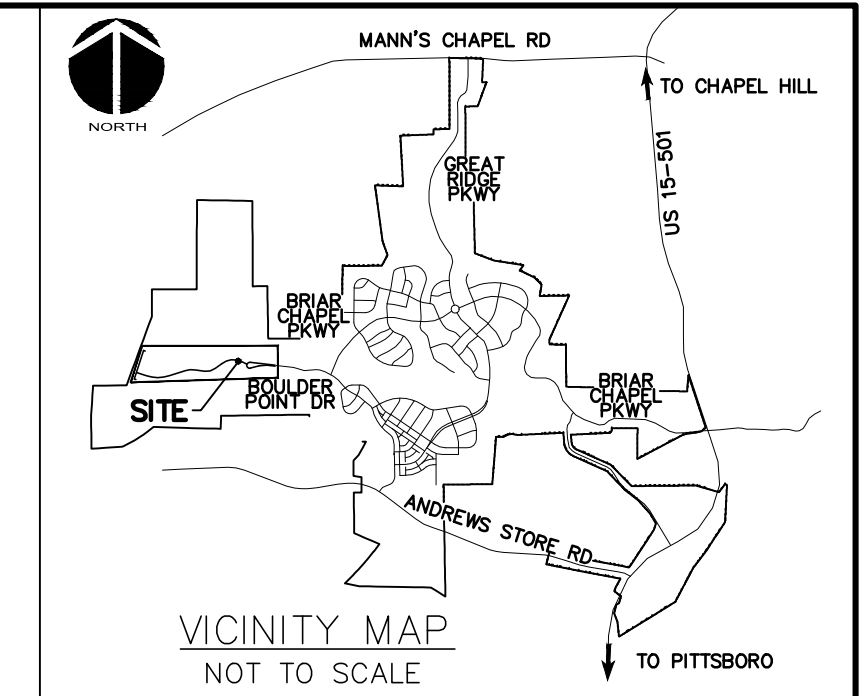
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**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA
 STAGE 1
 GRADING, DRAINAGE & EROSION
 CONTROL PLAN**

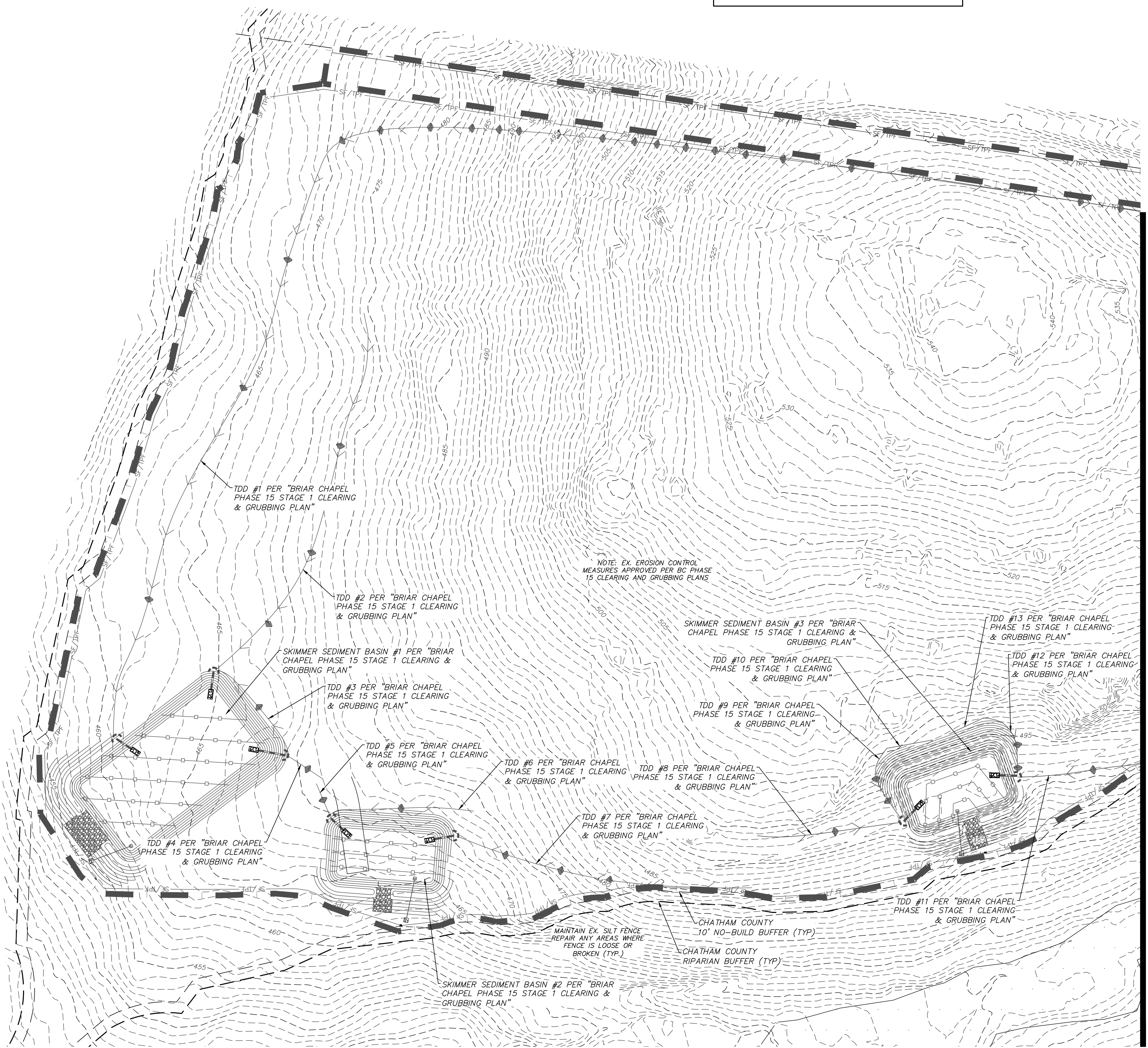
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DRAWN: BSS	VERTICAL: N/A	
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STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	

PLAN FOR REFERENCE ONLY

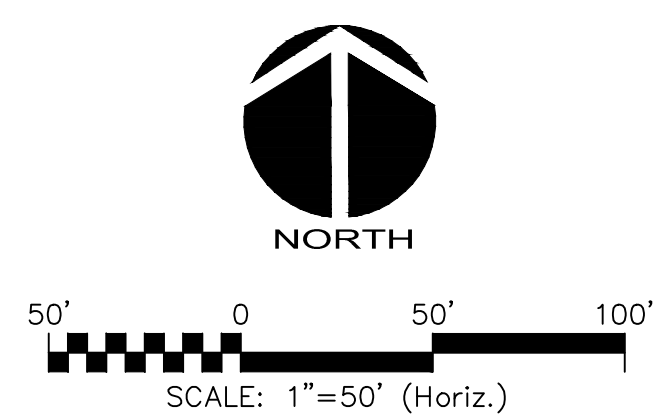


LEGEND:

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



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



REV. NO.	DATE	DESCRIPTIONS	REVISIONS
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SEAL

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 CHATHAM COUNTY, NORTH CAROLINA
 STAGE 1
 GRADING, DRAINAGE & EROSION
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DATE: JUNE 17, 2015	SCALE: C3.X	MSC FILE NUMBER: C3.2
MCE PROJ. # 02735-0113	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C3.2
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	

GENERAL NOTES:

- 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.
- CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR TO CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL".
- OVERHEAD ELECTRIC LINES MAY EXIST ON THE SITE. CONTRACTOR SHALL CONTACT DUKE POWER AT (336) 634-4633 PRIOR TO COMMENCING ANY ACTIVITY WITHIN 200'-FT OF DUKE POWER RIGHT OF WAY.
- PRIOR TO CONSTRUCTION, CONTRACTOR SHALL ARRANGE AND ATTEND A PRECONSTRUCTION CONFERENCE WITH CHATHAM COUNTY, OWNER AND ENGINEER.
- EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON BEST AVAILABLE RECORD DRAWINGS.
- SOIL UNDER BUILDINGS, PAVED AREAS AND WITHIN SLOPES GREATER THAN 3:1 (H:V) SHALL BE APPROVED, PLACED AND COMPACTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. THESE SOILS SHALL BE COMPACTED TO THE STANDARD PROCTOR MAXIMUM DRY DENSITY UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- ALL GRADED AREAS SHALL BE SLOPED SUCH THAT NO AREAS OF STANDING WATER OCCUR AND ALL AREAS POSITIVELY DRAIN TO DRAINAGE STRUCTURES, SWALES OR STORMWATER MANAGEMENT FACILITIES.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND SHALL REPLACE ALL MARKERS REMOVED IF DAMAGED DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING AS NECESSARY THROUGHOUT CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL PERMIT CONDITIONS, MONITORING AND REPORTING REQUIREMENTS.
- REFER TO SHEET D2.1 FOR PROPOSED ROAD CROSS SECTION DETAILS AND PAVEMENT SCHEDULE.
- GRADED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH CURLEX SINGLE NET (CURLEX I) MATTING BY AMERICAN EXCELSIOR COMPANY OR APPROVED EQUAL.
- STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT SEAN CLARK AT 919-846-5900.
- NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.
- EXISTING INFRASTRUCTURE AS SHOWN MAY BE UNDER CONSTRUCTION AND SHALL BE FIELD VERIFIED BY CONTRACTOR.
 - BRIAR CHAPEL PARKWAY AND BOULDER POINT DRIVE EXTENSION SEALED JANUARY 1, 2012
- BEFORE STARTING ANY CONSTRUCTION OF IMPROVEMENTS WITHIN ANY NCDOT STREET OR HIGHWAY RIGHT-OF-WAY, CONTACT NCDOT DISTRICT OFFICE AND OBTAIN ALL PERMITS AND ENCROACHMENTS AND KEEP COPIES ON CONSTRUCTION SITE AT ALL TIMES. ALSO CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER AT (336) 629-1423.

EROSION CONTROL GENERAL NOTES:

- ALL PREVIOUSLY APPROVED EROSION CONTROL MEASURES ARE TO BE MAINTAINED AT ALL TIMES.
- HYDROSEED WITH GRASS SEED ON ALL DISTURBED AREAS. SEE SEEDING SCHEDULE FOR SPECIFIC GRASS SEED TYPE. SEEDING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER SEEDBED PREPARATION. HYDROSEED MIXTURE SHALL CONTAIN CELLULOSE MULCH APPLIED AT A RATE OF 2,000 LBS./ACRE, WITH A MAXIMUM OF 50 LBS./100 GAL. OF WATER. IF SEEDING IS DELAYED AFTER MIXING 1/2-2 HOURS ADD AN ADDITIONAL 50% OF SEED MIX. IF DELAY IS LONGER THAN 2 HOURS, BEGIN WITH NEW MIXTURE. ALL SLOPES 2:1 OR GREATER SHALL BE COVERED WITH "CURLEX" BLANKETS. SEE SPECIFICATIONS FOR SEED ESTABLISHMENT REQUIREMENTS.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED ACCORDING TO THE NPDES GROUNDCOVER STABILIZATION TIMEFRAME TABLE PROVIDED ON SHEET C3.1.
- THE CONTRACTOR SHALL INSPECT, REPAIR AND ADD STONE TO THE EXISTING ACCESS ROADS WHEN IT BECOMES SATURATED WITH MUD TO INSURE IT FUNCTIONS AS IT WAS INTENDED.
- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AFTER EACH RAIN EVENT AND AT LEAST ONCE PER WEEK. IF REPAIRS ARE NECESSARY, DEVICES SHOULD BE REBUILT TO MEET PLAN, DETAIL AND SPECIFICATION REQUIREMENTS.
- ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY NEED TO BE INSTALLED IF DEEMED NECESSARY BY EITHER ENGINEER OR WATERSHED MANAGER.
- TEMPORARY SEDIMENT CONTROL MEASURES (SILT FENCE, CONSTRUCTION ENTRANCE, ETC.) SHALL BE MAINTAINED UNTIL ALL CONTRIBUTING AREAS ARE GRADED AND STABILIZED.
- DUST CONTROL ON SITE SHALL BE MINIMIZED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION IS STRICTLY PROHIBITED.
- IF THE MAJORITY OF MUD OR DIRT IS NOT REMOVED FROM CONSTRUCTION TRAFFIC, CONTRACTOR SHALL CONSTRUCT VEHICLE WASH AREAS AT CONSTRUCTION TRAFFIC EXIT POINTS. MUD AND DIRT SHALL BE INTERCEPTED AND TRAPPED BEFORE WASH WATER IS ALLOWED TO BE DISCHARGED OFFSITE. RINSE-OFF WILL NOT BE ALLOWED OUTSIDE THE PROJECT CONSTRUCTION LIMITS.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT REACHES 4-INCHES DEEP.
- EROSION AND SEDIMENTATION CONTROL MEASURES, STRUCTURES, AND DEVICES SHALL BE SO PLANNED, DESIGNED, AND CONSTRUCTED AS TO PROVIDE PROTECTION FROM THE CALCULATED MAXIMUM PEAK RATE OF RUN-OFF FROM THE 10-YEAR STORM. RUNOFF RATES SHALL BE CALCULATED USING THE PROCEDURES AS OUTLINED IN THE WAKE COUNTY SEDIMENTATION AND EROSION CONTROL ORDINANCE.

LIMITS OF DISTURBANCE NOTES:

- SILT FENCE AND TREE PROTECTION FENCE LINES ALSO DELINEATE THE LIMITS OF DISTURBANCE. ALL SILT FENCING OR TREE PROTECTION FENCING SHALL BE INSTALLED INSIDE LIMITS OF DISTURBANCE.
- LIMITS OF DISTURBANCE BEYOND PREVIOUSLY APPROVED AREAS: 0.59 ACRES

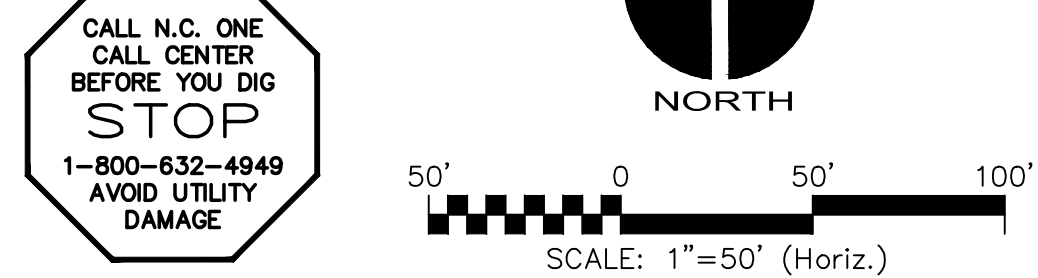
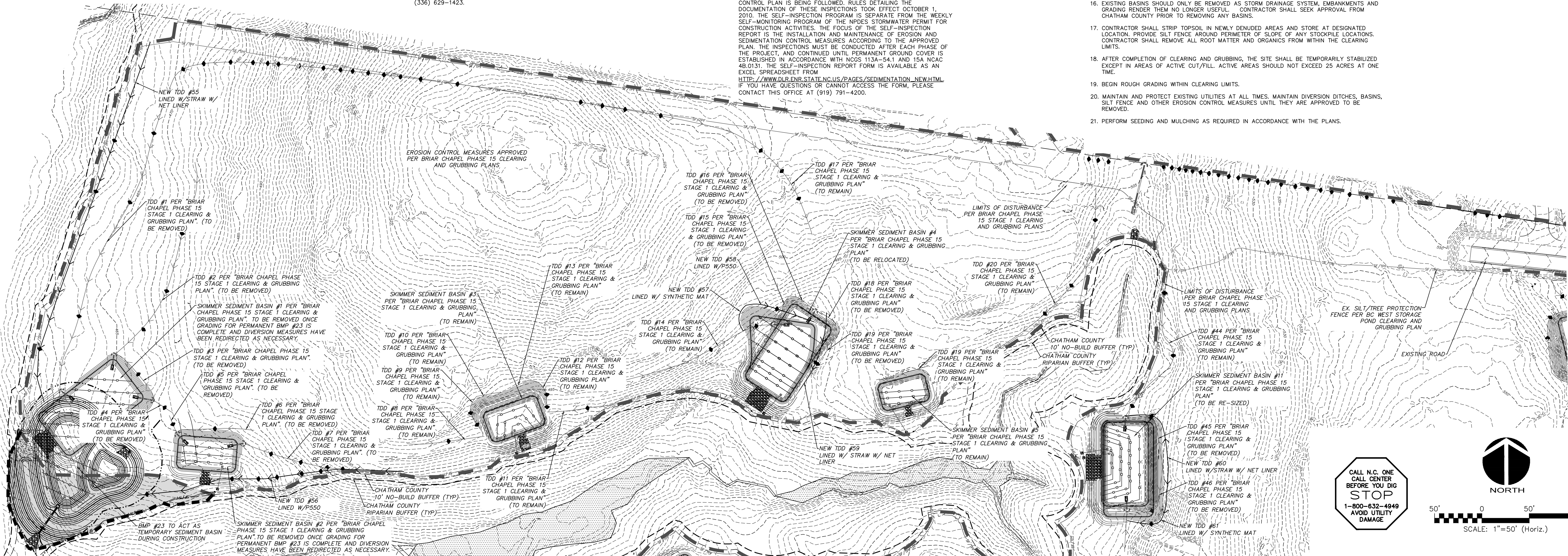
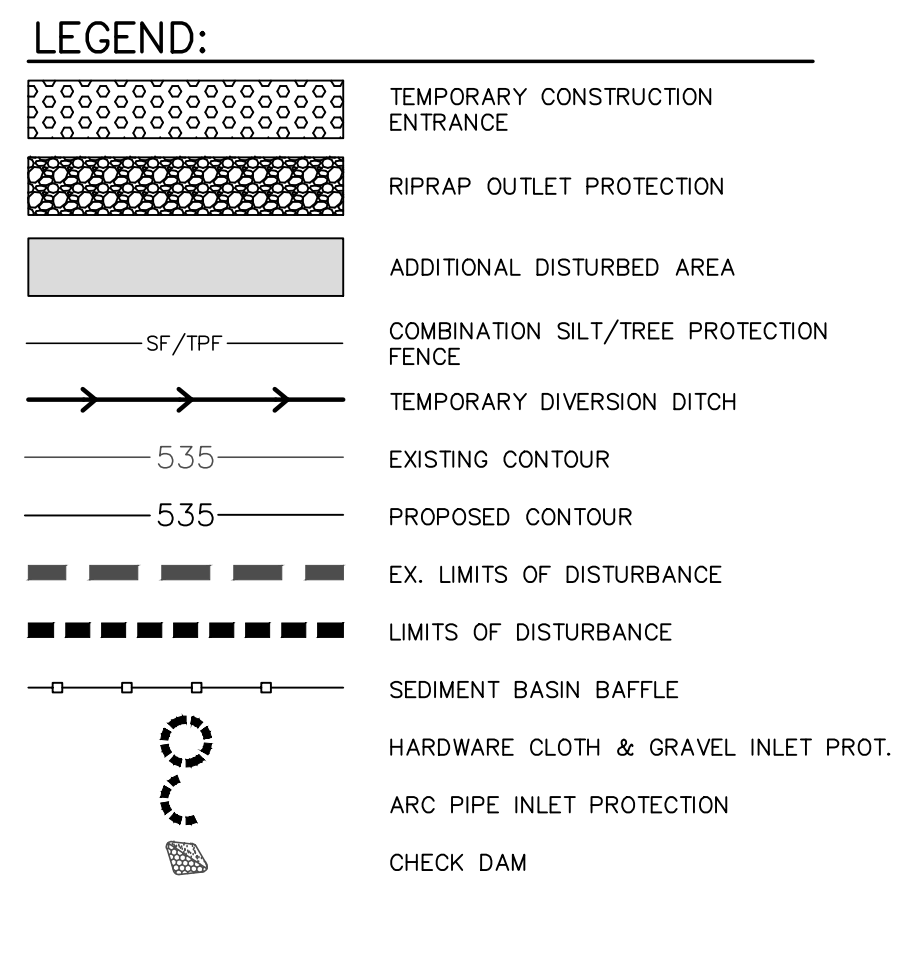
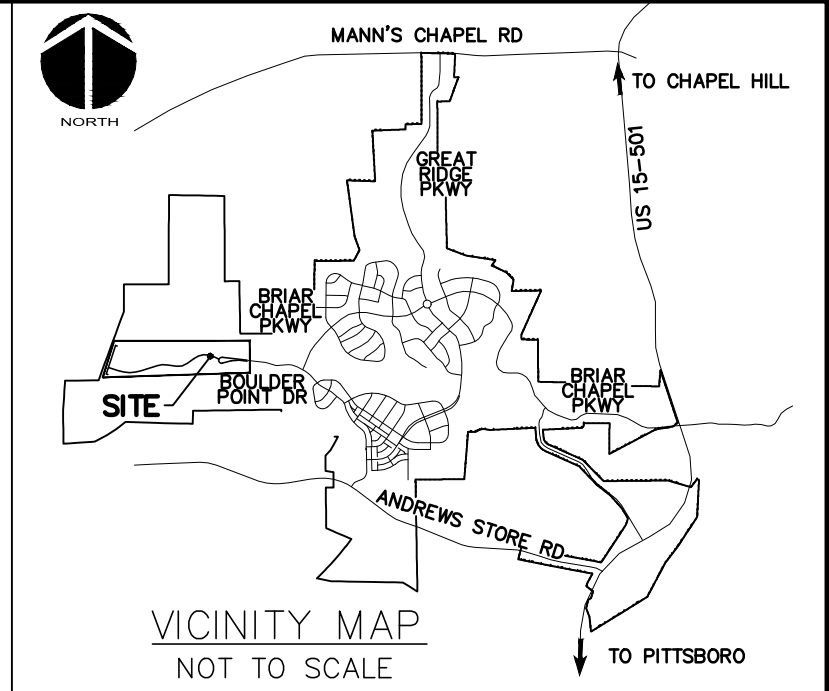
SELF INSPECTION NOTICE:

NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM

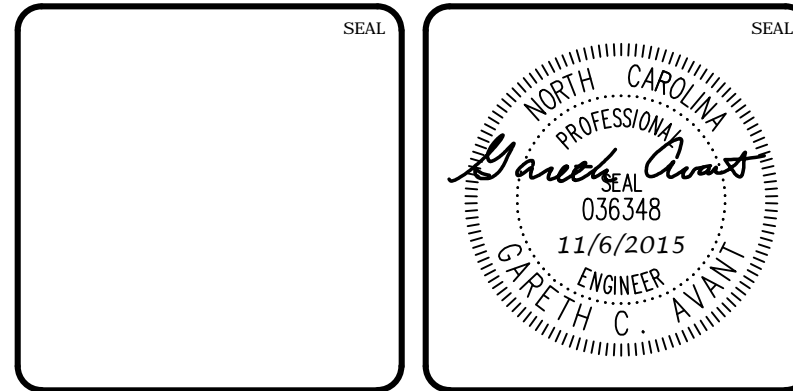
THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010. THE SELF-INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS MUST BE CONDUCTED AFTER EACH PHASE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCA 48.0131. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM [HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML](http://www.dlr.enr.state.nc.us/pages/sedimentation_new.html). IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791-4200.

STAGE 2 CONSTRUCTION SEQUENCE:

- THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
- IF IT IS DETERMINED DURING CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE, DESPITE PROPER IMPLEMENTATION AND MAINTENANCE, THE CONTRACTOR IS OBLIGATED TO TAKE ADDITIONAL CORRECTIVE ACTION. CONTACT CHATHAM COUNTY ENVIRONMENTAL QUALITY DEPARTMENT, OWNER'S REPRESENTATIVE AND ENGINEER WITH ANY ADDITIONAL MEASURES NEEDED.
- CONTRACTOR SHALL ESTABLISH GROUNDCOVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:
 - GRADUAL SLOPES: (14) CALENDAR DAYS
 - MODERATE SLOPES: (10) CALENDAR DAYS
 - STEEP SLOPES: (7) CALENDAR DAYS
- SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- CONTRACTOR 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 1-800-632-4949 FOR "NC 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.
- CONTRACTOR SHALL MAINTAIN ALL EXISTING STAGE 1 EROSION CONTROL MEASURES UNTIL NEW DOWNSTREAM MEASURES HAVE BEEN INSTALLED AND ARE OPERATIONAL.
- INSTALL ADDITIONAL TREE PROTECTION FENCING AND SILT FENCING AS SHOWN AND DETAILED ON PLAN. TIMBER ONLY AS NECESSARY TO INSTALL THESE DEVICES.
- CONTRACTOR SHALL INSTALL DAM AND RISER/BARREL/SKIMMER PORTIONS OF BMP #23 WHILE MAINTAINING STORAGE WITHIN SKIMMER SEDIMENT BASIN #1 AS INSTALLED IN STAGE 1. AS THOSE FEATURES REACH FINAL GRADES, STORAGE IN BMP #23 IS SUFFICIENT. TODS #55 AND #56 SHALL BE CONSTRUCTED, REDIRECTING RUNOFF INTO THE NEW BASIN. CONTRACTOR SHALL 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. AT SUCH TIME THAT THESE MEASURES ARE INSTALLED AND FUNCTIONING AS INTENDED, SKIMMER SEDIMENT BASINS #1 AND #2 CAN BE REMOVED WITH APPROVAL FROM CHATHAM COUNTY.
- CONTRACTOR SHALL ADJUST SHAPE OF SKIMMER SEDIMENT BASINS #4 & #11 WHILE MAINTAINING THE DESIGN STORAGE AND REQUIREMENTS IN ORDER TO BETTER FACILITATE FUTURE CONSTRUCTION. CONTRACTOR SHALL MAINTAIN DIVERSIONS DIRECTING RUNOFF INTO THE NEWLY SHAPED BASINS AT ALL TIMES DURING CONSTRUCTION.
- CONTACT CHATHAM COUNTY SOIL EROSION & SEDIMENTATION AT 919-545-8339 AND ENGINEER UPON COMPLETION OF INITIAL EROSION CONTROL MEASURES.
- EXISTING BASINS SHOULD ONLY BE REMOVED AS STORM DRAINAGE SYSTEM, EMBANKMENTS AND GRADING RENDER THEM NO LONGER USEFUL. CONTRACTOR SHALL SEEK APPROVAL FROM CHATHAM COUNTY PRIOR TO REMOVING ANY BASINS.
- CONTRACTOR SHALL STRIP TOPSOIL IN NEWLY DENUDE AREAS AND STORE AT DESIGNATED LOCATION. PROVIDE SILT FENCE AROUND PERIMETER OF SLOPE OF ANY STOCKPILE LOCATIONS. CONTRACTOR SHALL REMOVE ALL ROOT MATTER AND ORGANICS FROM WITHIN THE CLEARING LIMITS.
- AFTER COMPLETION OF CLEARING AND GRUBBING, THE SITE SHALL BE TEMPORARILY STABILIZED EXCEPT IN AREAS OF ACTIVE CUT/FILL. ACTIVE AREAS SHOULD NOT EXCEED 25 ACRES AT ONE TIME.
- BEGIN ROUGH GRADING WITHIN CLEARING LIMITS.
- MAINTAIN AND PROTECT EXISTING UTILITIES AT ALL TIMES. MAINTAIN DIVERSION DITCHES, BASINS, SILT FENCE AND OTHER EROSION CONTROL MEASURES UNTIL THEY ARE APPROVED TO BE REMOVED.
- PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.



REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.08
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



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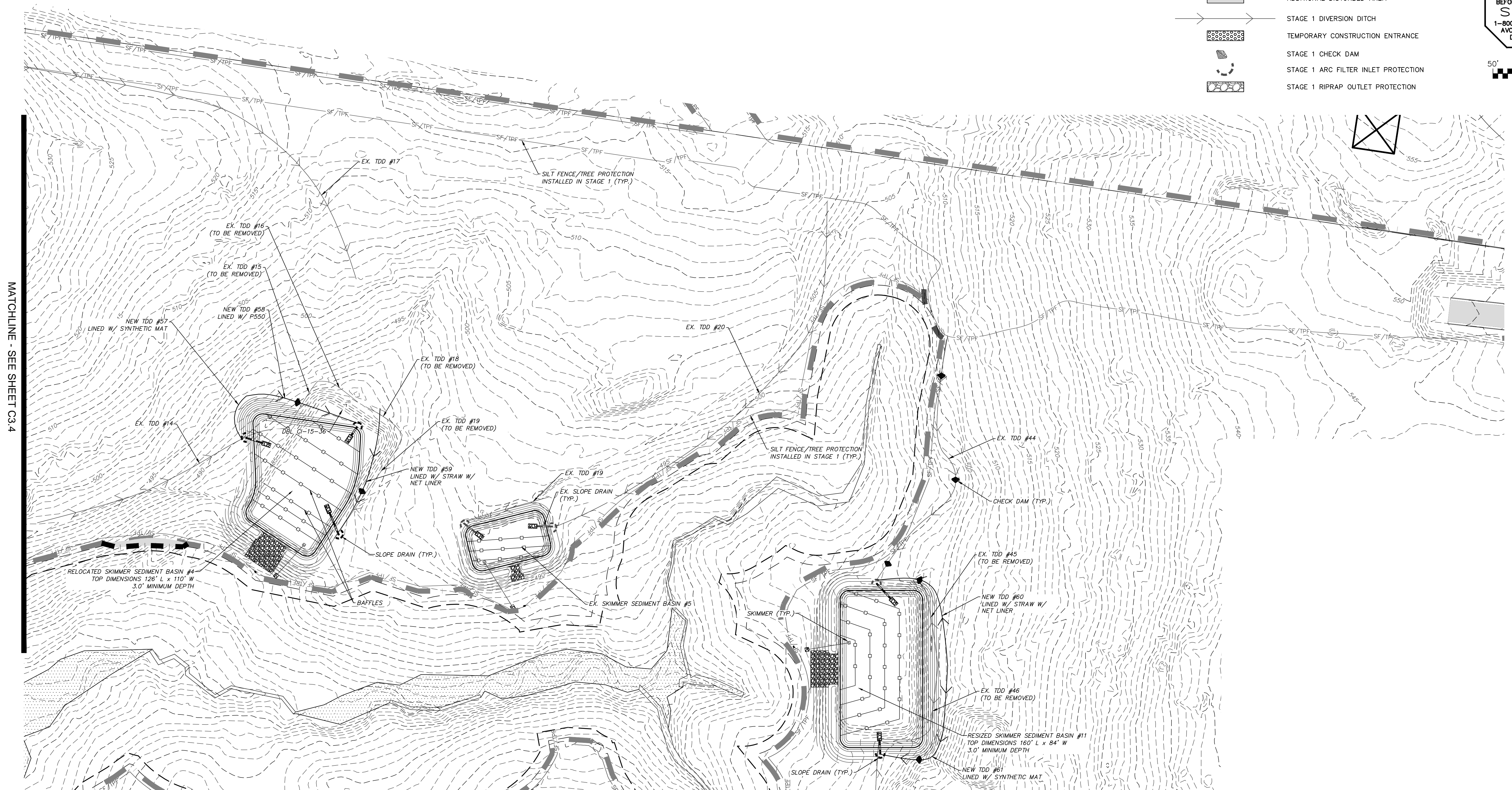
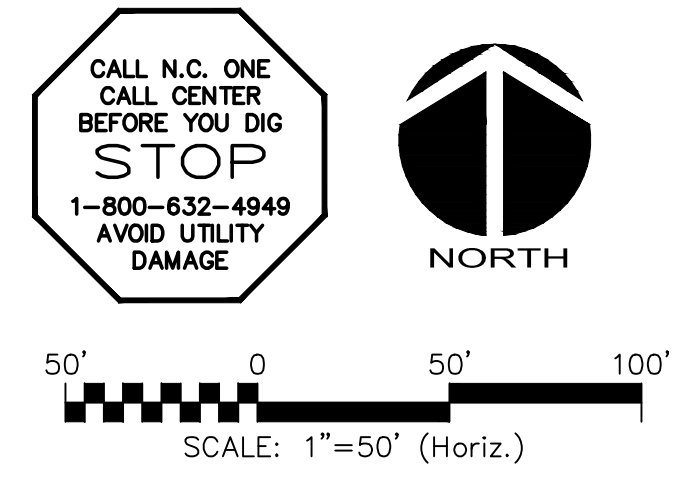
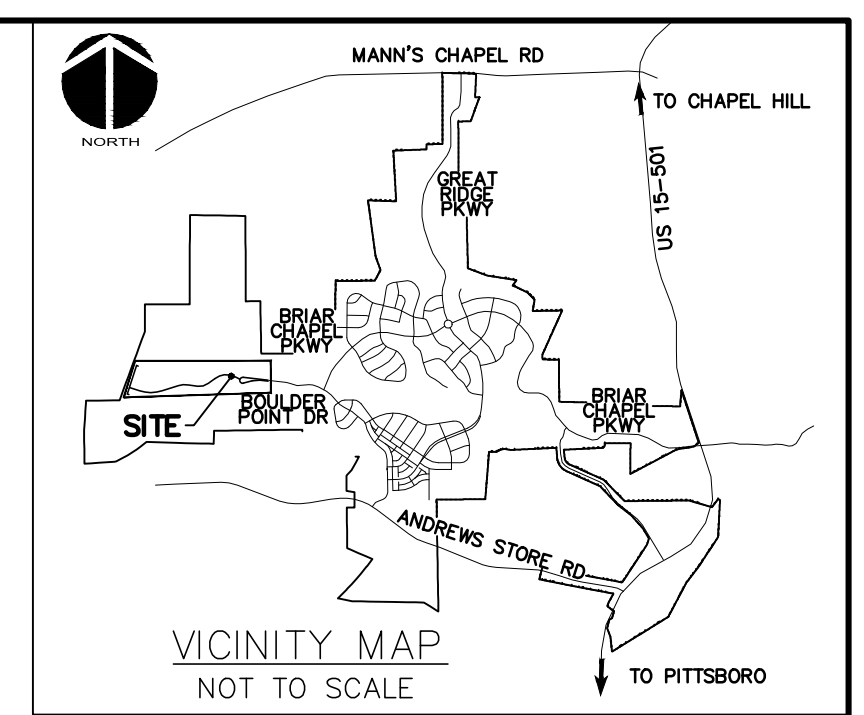
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BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA
OVERALL STAGE 2
GRADING, DRAINAGE & EROSION
CONTROL PLAN

DATE: JUNE 17, 2015.	SCALE: C3.X	MISC FILE NUMBER: C3.X
MCE PROJ. # 02735-0113.	HORIZONTAL: 1" = 50'	DRAWING NUMBER:
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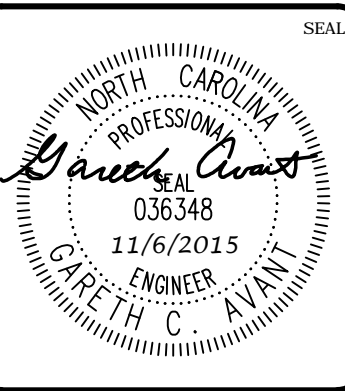
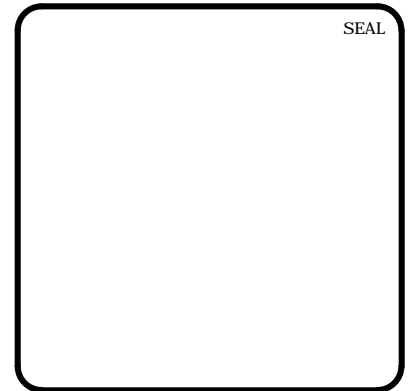
LEGEND:

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



MATCHLINE - SEE SHEET C3.4

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.06
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



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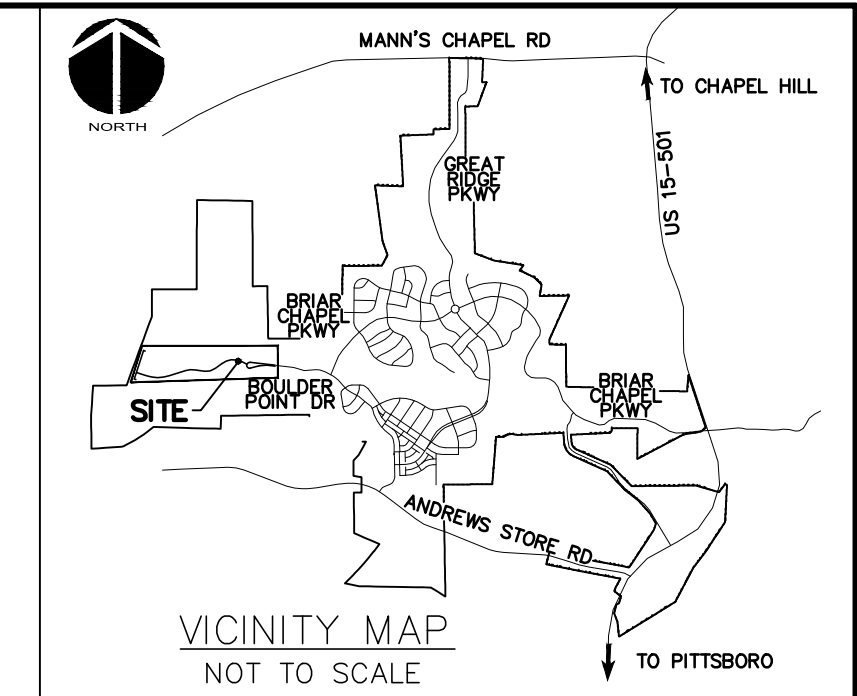
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**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA
 STAGE 2
 GRADING, DRAINAGE & EROSION
 CONTROL PLAN**

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

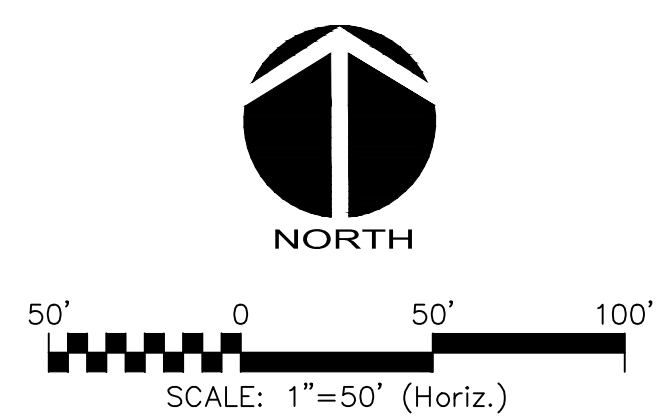
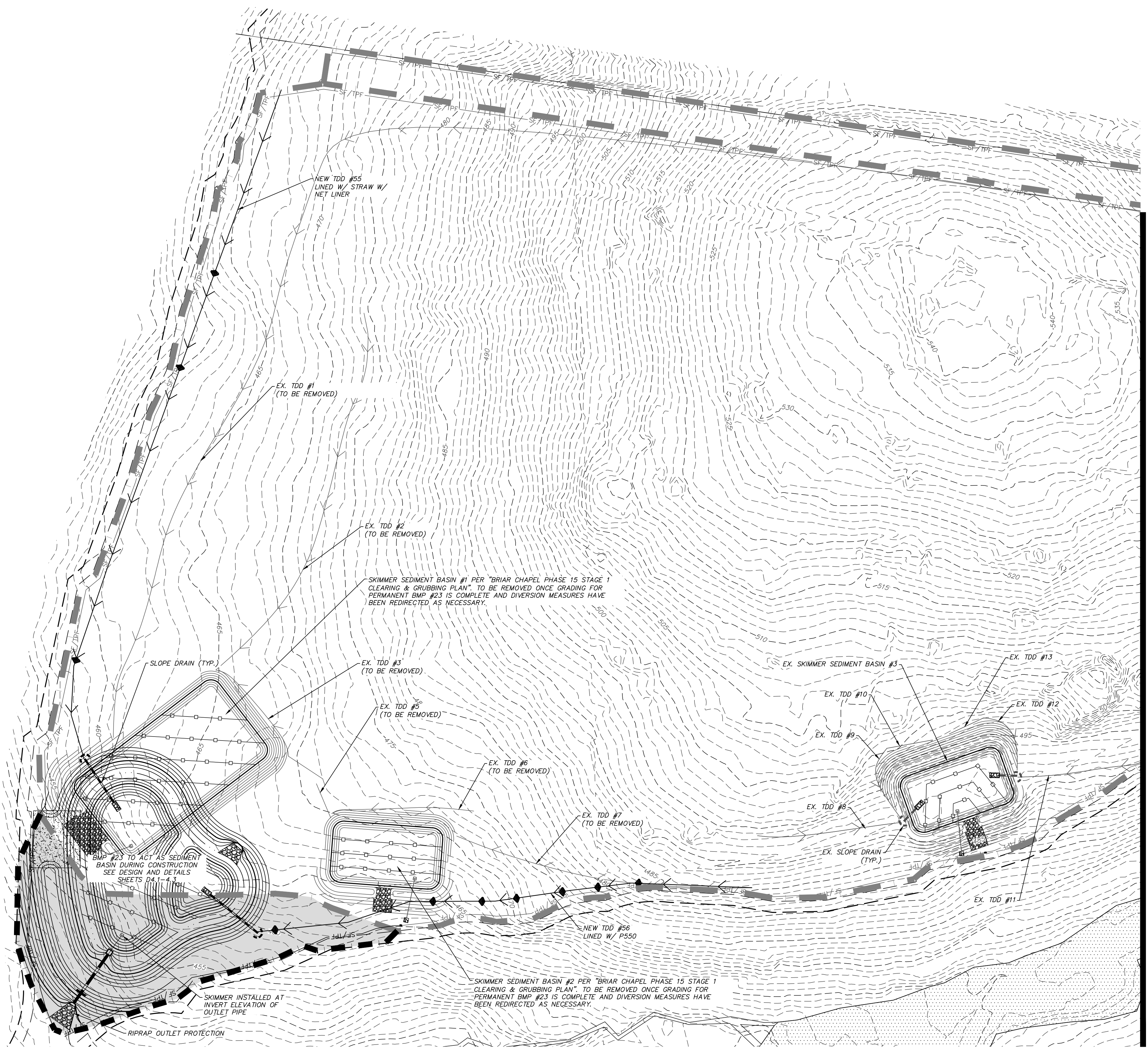
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HORIZONTAL:	1" = 50'
VERTICAL:	N/A
REVISION	3

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

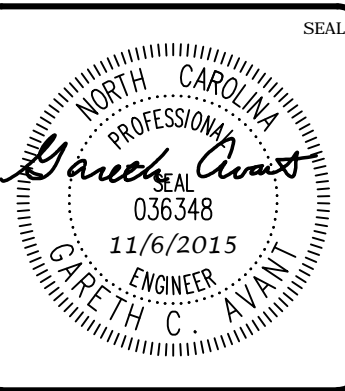
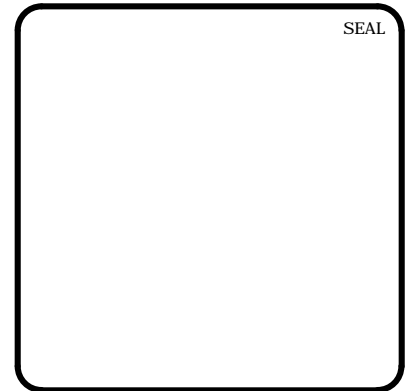


LEGEND:

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



REV. NO.	DATE	DESCRIPTIONS	DATE
3	2015.11.06	REVISED PER COMMENTS FROM COUNTY	
2	2015.08.13	REVISED PER COMMENTS FROM NCDOT	
1	2015.06.17	ISSUED FOR PERMITTING	



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 STAGE 2
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 CONTROL PLAN**

DATE: JUNE 17, 2015	SCALE: C3.X	MSC FILE NUMBER: C3.X
MCE PROJ. # 02735-0113	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C3.5
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	

STAGE 3 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
6. SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
7. CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
8. CONTRACTOR SHALL ENSURE THAT ALL EROSION CONTROL MEASURES INSTALLED IN STAGES 1 & 2 ARE OPERATING AS INTENDED PRIOR TO FINAL GRADING OPERATIONS. ANY MEASURES THAT ARE TO BE REMOVED SHALL BE APPROVED BY CHATHAM COUNTY.
9. BEGIN FINAL GRADING OPERATIONS FOR ROADWAY.
10. AS ELEVATIONS ARE BROUGHT TO FINAL GRADES AND STORM PIPING IS INSTALLED IN ROADWAY SECTIONS, CONTRACTOR SHALL INSTALL HARDWARE CLOTH AND GRAVEL INLET PROTECTION AS SHOWN ON PLANS.
11. CONTRACTOR SHALL ENSURE THAT ALL SEDIMENT LADEN RUNOFF IS DIRECTED TO ROADWAY INLET PROTECTION PRIOR TO REMOVAL OF ANY SKIMMER SEDIMENT BASINS. NO BASINS SHALL BE REMOVED UNTIL INSPECTED AND APPROVED BY CHATHAM COUNTY SESC STAFF.
12. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE TEMPORARY AND PERMANENT SEEDING SCHEDULES LOCATED ON SHEET D1.2 AND NOTE #5 OF THIS SEQUENCE.
13. 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 OR CONVERTING BASINS TO PERMANENT BMPs.

STORM DRAINAGE NOTES:

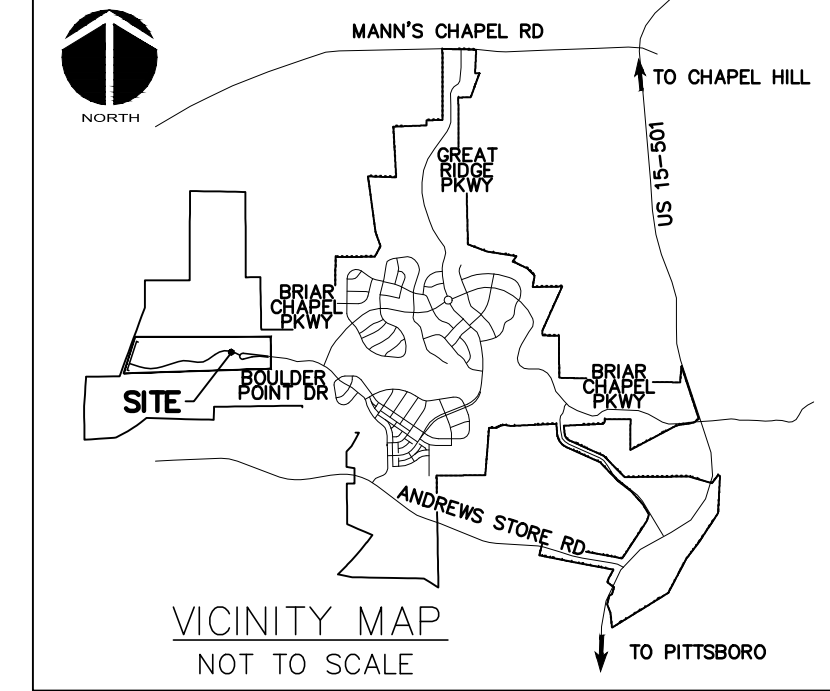
1. STORM DRAINAGE PIPES SHALL BE:
 - RCP/CLASS III FOR STORM DRAINAGE INSIDE PUBLIC RIGHT-OF-WAY OR CONNECTING INTO STRUCTURE INSIDE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH NCDOT STANDARDS UNLESS NOTED OTHERWISE.
2. ALL CONCRETE SHALL MEET A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH.
3. ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
4. 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.
5. 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.
6. MATERIALS DEEMED AS UNSUITABLE FOR BACKFILL PURPOSES BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
7. 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.
8. UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
9. 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.
10. RIM ELEVATIONS OF STORM DRAIN STRUCTURES SHALL BE FIELD VERIFIED.
11. STORM DRAINAGE WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNER'S ASSOCIATION OR AGENT THEREOF.
12. 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.
13. CB DENOTES CATCH BASINS TO BE INSTALLED IN THE CENTERS OF PAVED ALLEYS AND NON-PAVED AREAS. REFER TO NCDOT DETAILS 840.19 AND 840.24 ON SHEET D-2.2.
14. CI DENOTES CURB INLETS TO BE INSTALLED IN THE CURB LINES OF ROADWAYS. REFER TO NCDOT DETAILS 840.02 AND 840.03 ON SHEET D-2.2.

RETAINING WALL NOTES:

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

LEGEND:

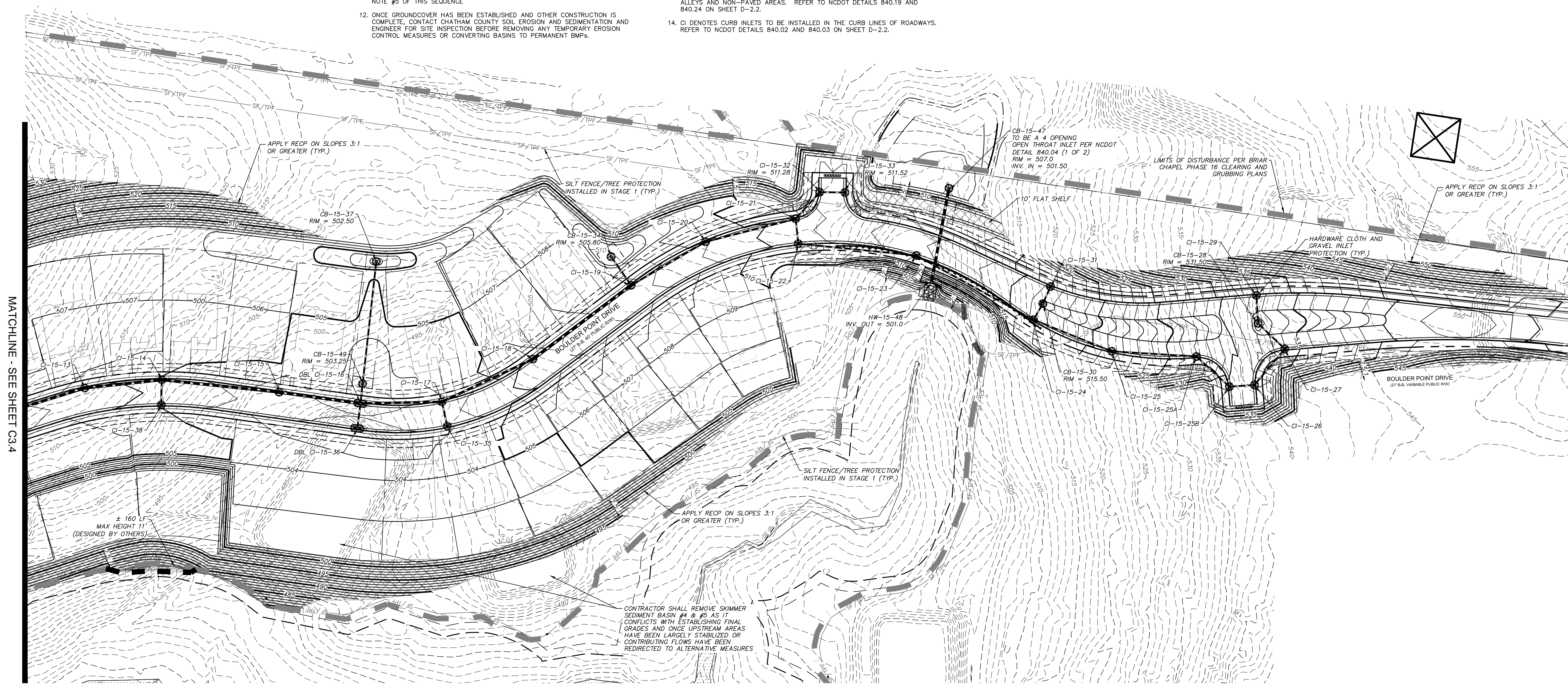
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	RIPRAP OUTLET PROTECTION
	ADDITIONAL DISTURBED AREA
	COMBINATION SILT/TREE PROTECTION FENCE
	TEMPORARY DIVERSION DITCH
	EXISTING CONTOUR
	PROPOSED CONTOUR
	EX. LIMITS OF DISTURBANCE
	LIMITS OF DISTURBANCE
	SEDIMENT BASIN BAFFLE
	HARDWARE CLOTH & GRAVEL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



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

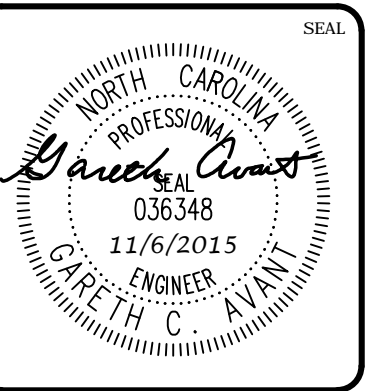
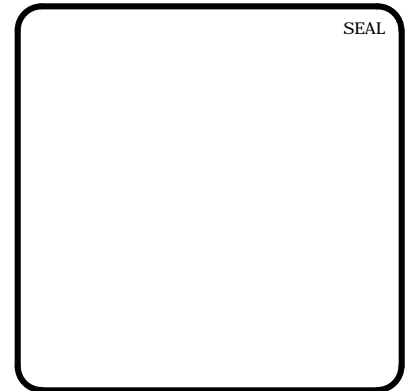
NORTH

50' 0 50' 100'
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MATCHLINE - SEE SHEET C3.4

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.09
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



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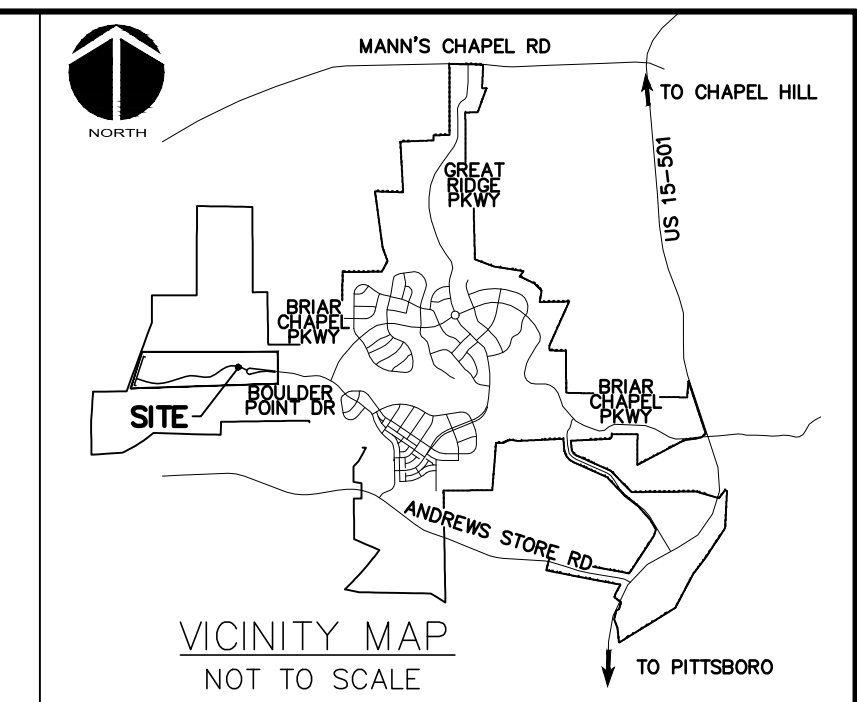
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CHATHAM COUNTY, NORTH CAROLINA**

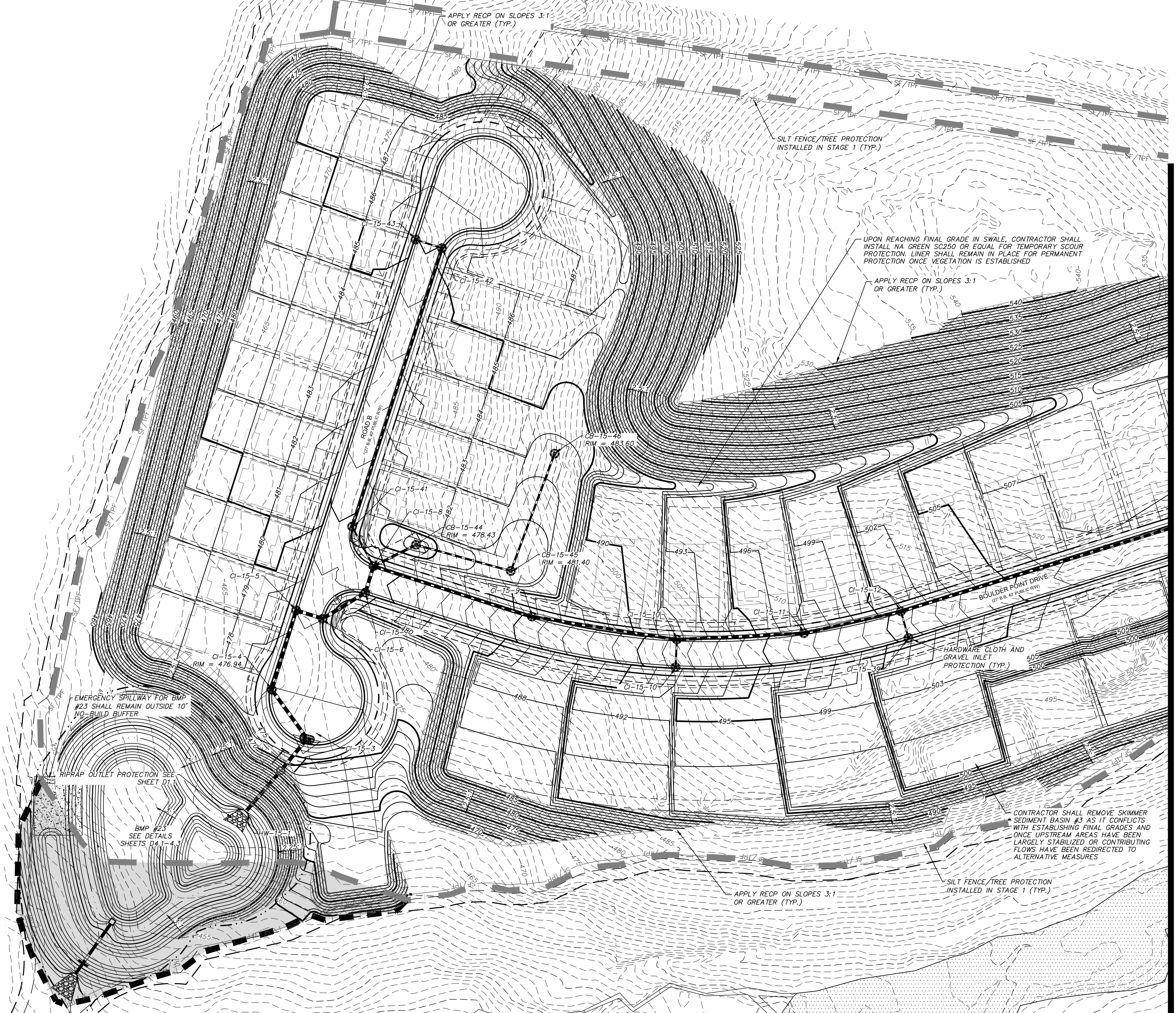
**STAGE 3
GRADING, DRAINAGE & EROSION
CONTROL PLAN**

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DESIGNED: BSS		
CHECKED: GCA		
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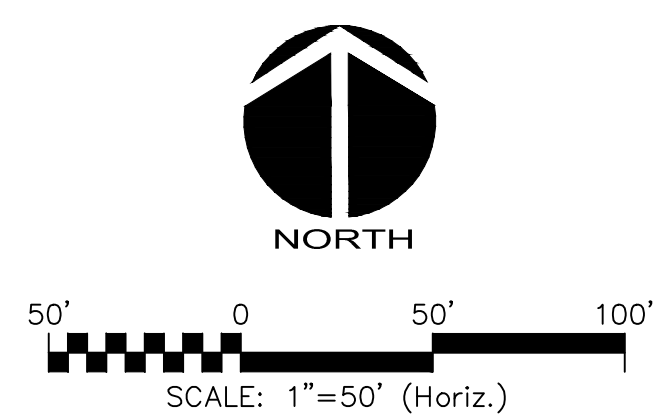
LEGEND:

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

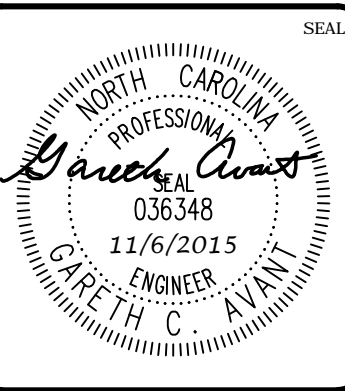
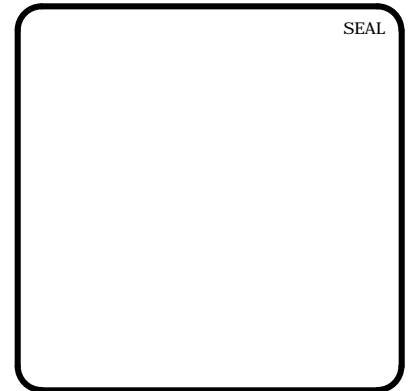


MATCHLINE - SEE SHEET C3.1

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



REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2015.11.06	REVISED PER COMMENTS FROM COUNTY	
2	2015.08.13	REVISED PER COMMENTS FROM NCDOT	
1	2015.06.17	ISSUED FOR PERMITTING	

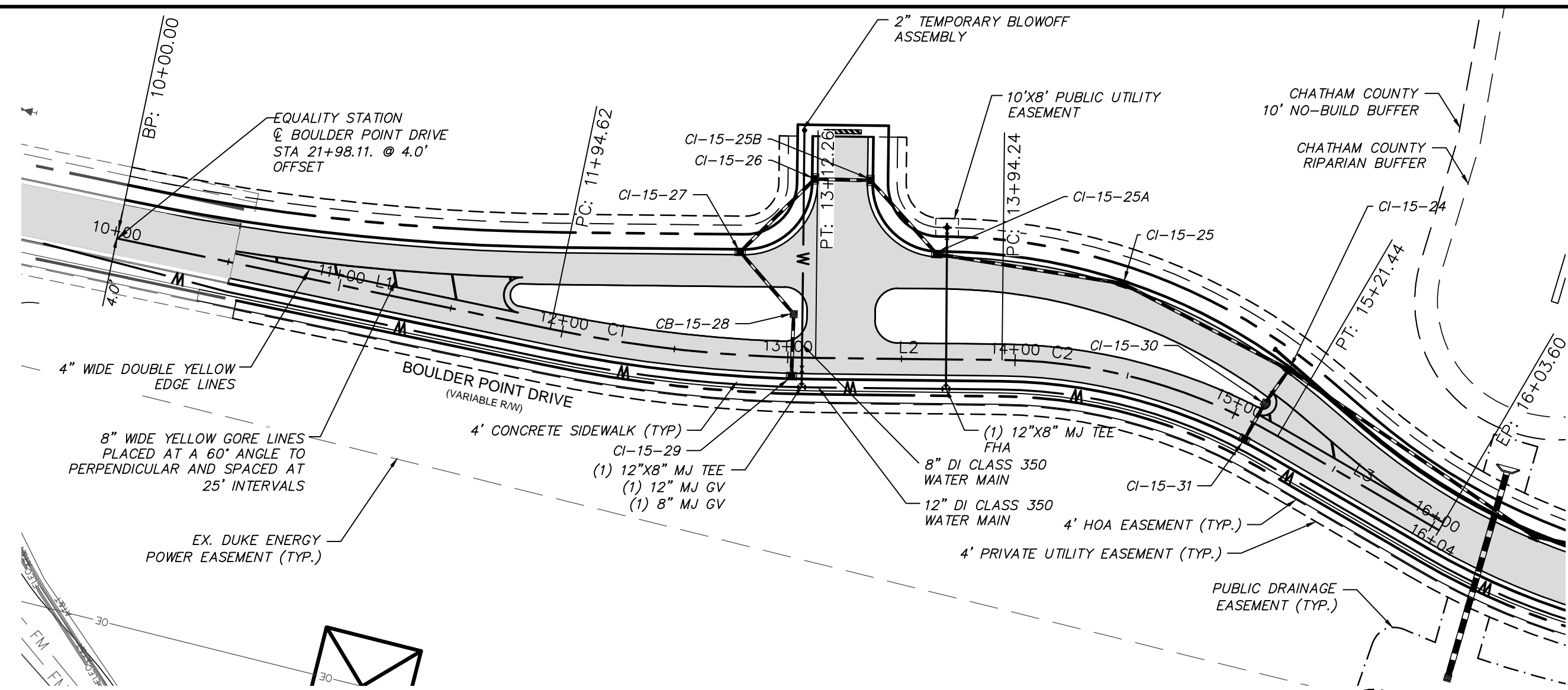


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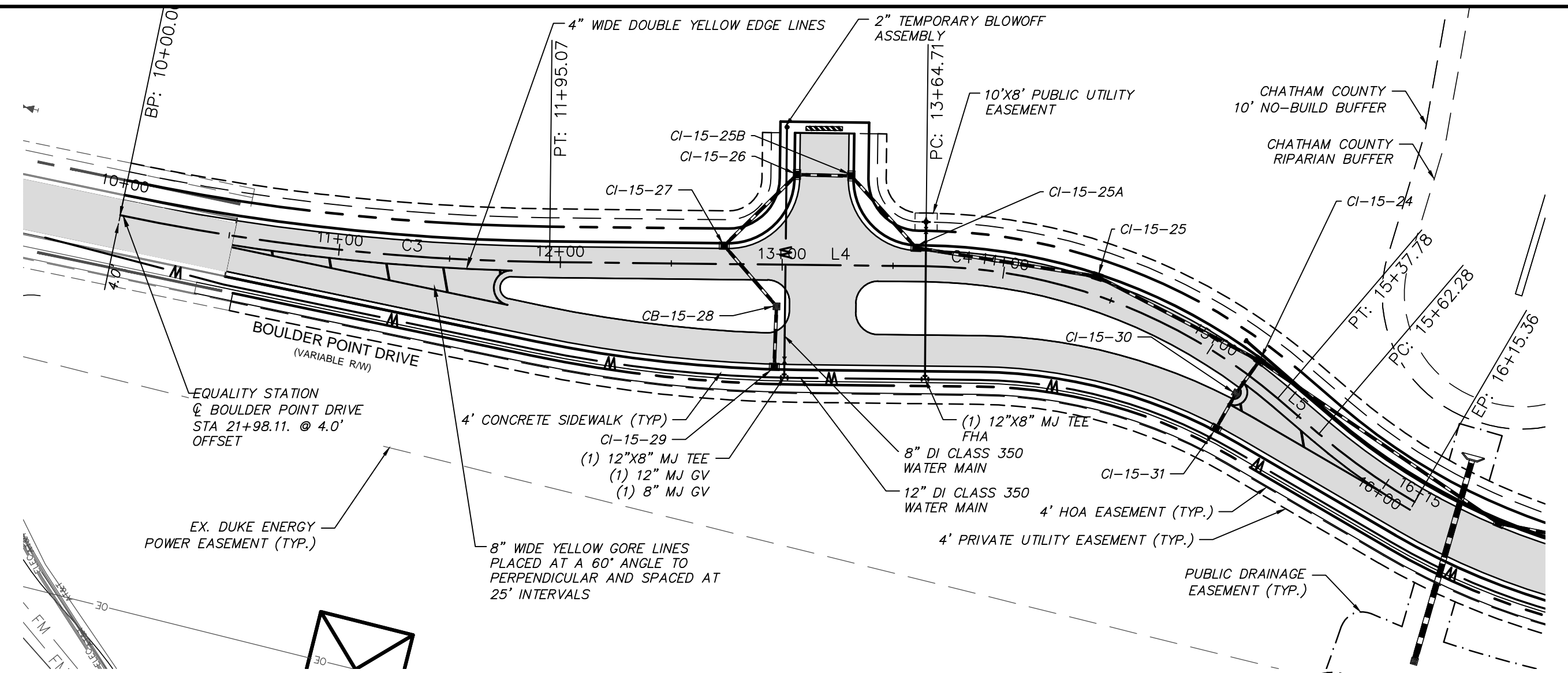
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**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA
 STAGE 3
 GRADING, DRAINAGE & EROSION
 CONTROL PLAN**

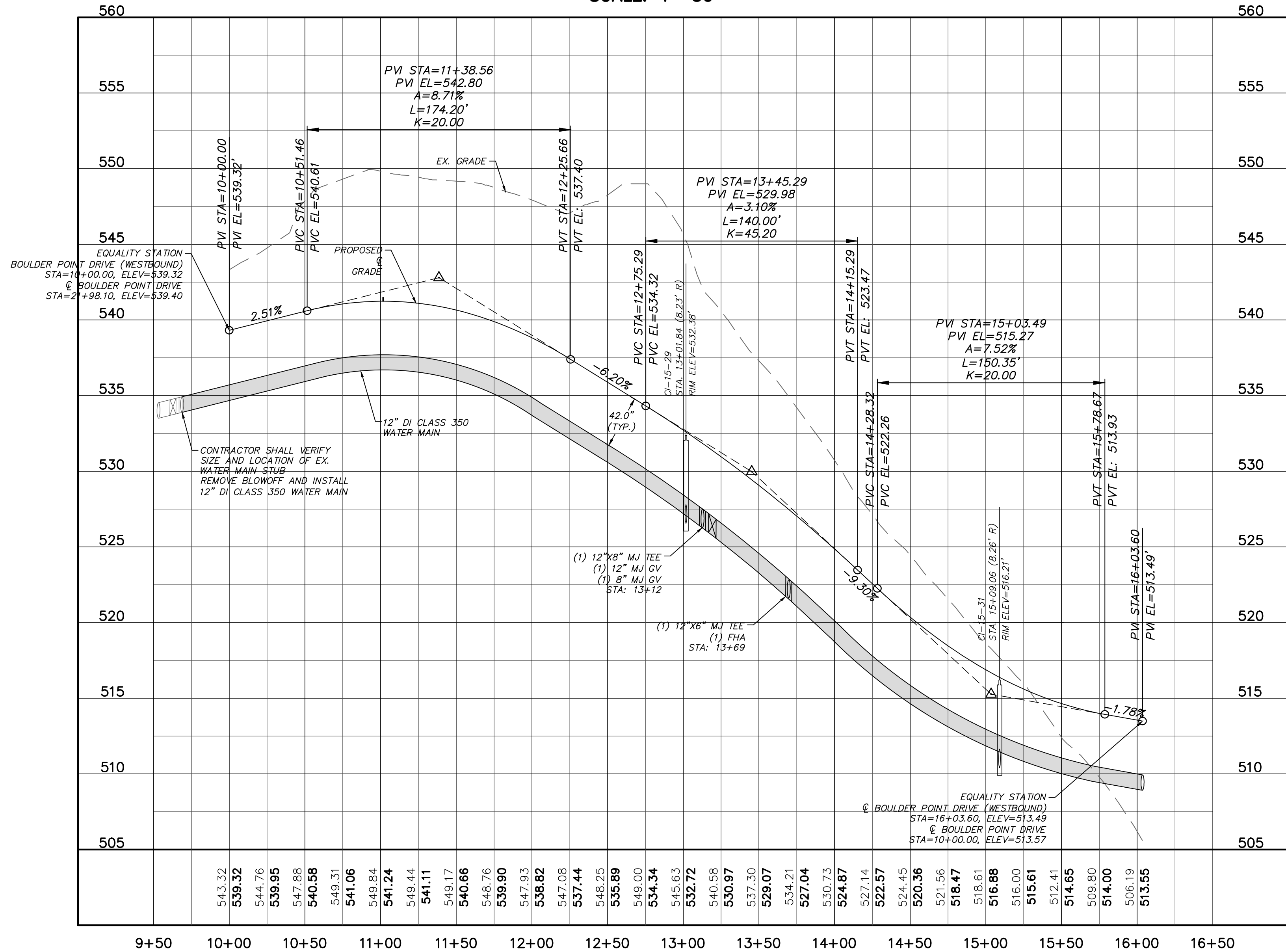
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STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3	



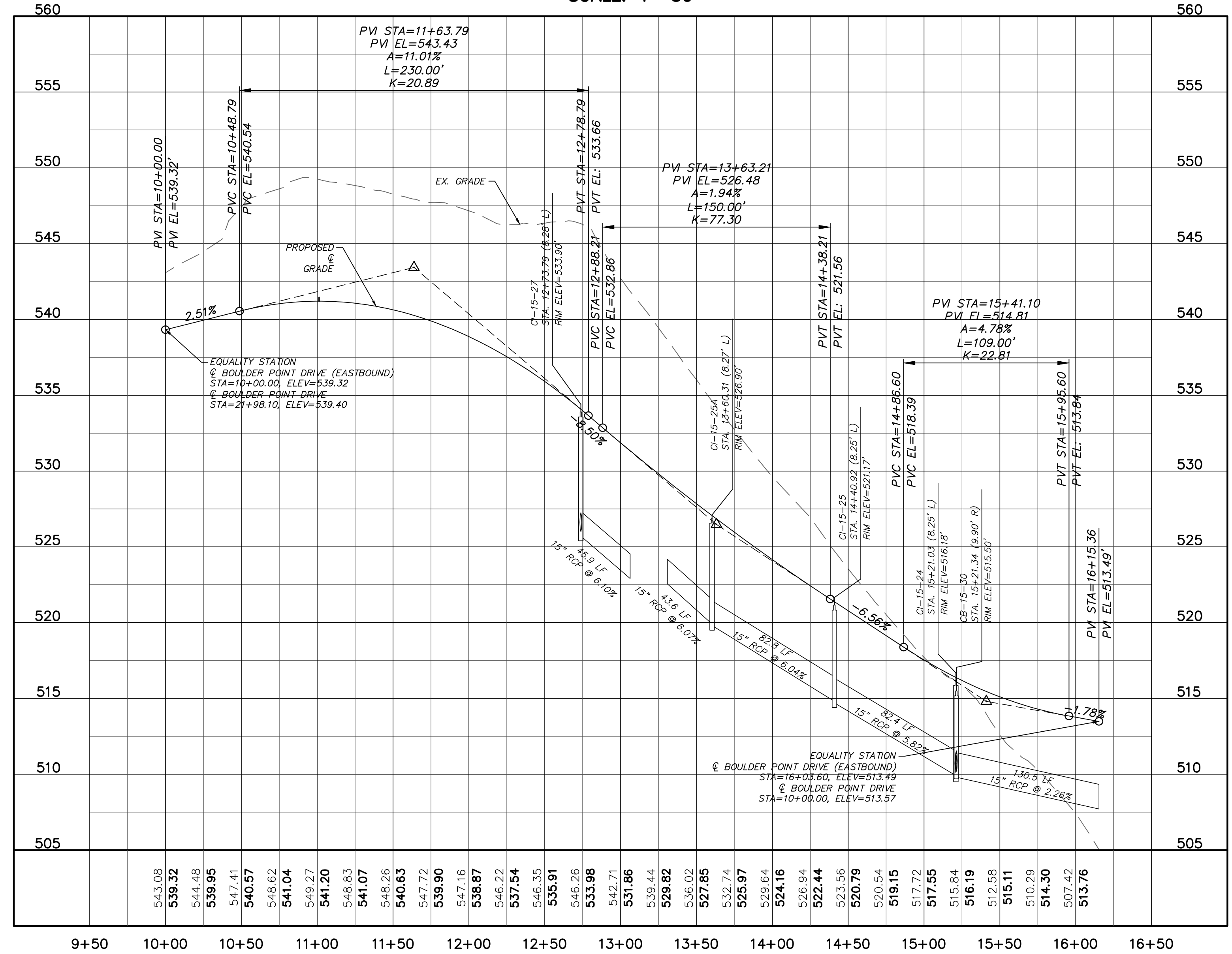
BOULDER POINT DRIVE (DIVIDED ROAD - WESTBOUND) PLAN
 (VARIABLE R/W, STA. 10+00.00 TO 16+03.60)
 SCALE: 1"=50'



BOULDER POINT DRIVE (DIVIDED ROAD - EASTBOUND) PLAN
 (VARIABLE R/W, STA. 10+00.00 TO 16+15.36)
 SCALE: 1"=50'

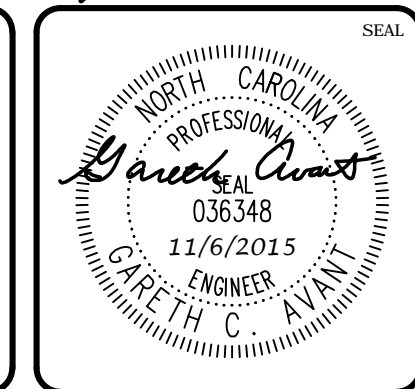
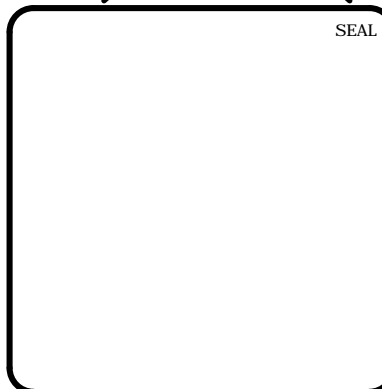


BOULDER POINT DRIVE (DIVIDED ROAD - WESTBOUND) PROFILE
 (STA. 10+00.00 TO 16+03.60)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



BOULDER POINT DRIVE (DIVIDED ROAD - EASTBOUND) PROFILE
 (STA. 10+00.00 TO 16+15.36)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.06
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17

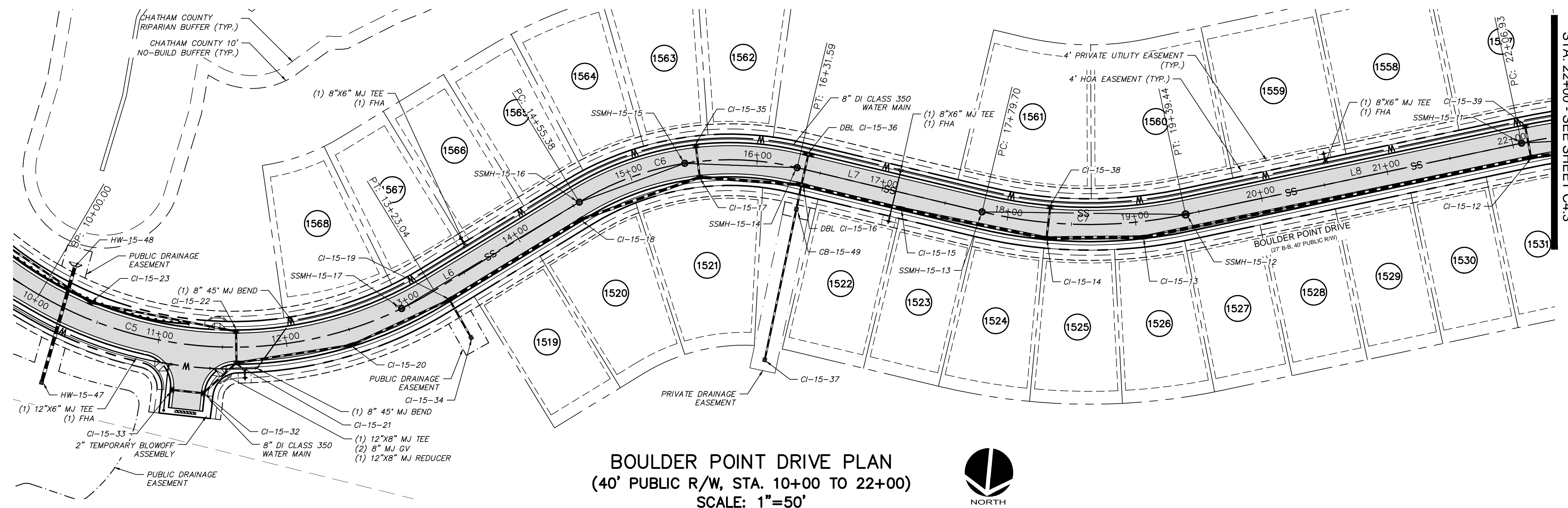


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 PLAN & PROFILE
 BOULDER POINT DRIVE (DIVIDED ROAD - WESTBOUND)
 STA. 10+00.00 TO STA. 16+03.60
 BOULDER POINT DRIVE (DIVIDED ROAD - EASTBOUND)
 STA. 10+00.00 TO STA. 16+15.36

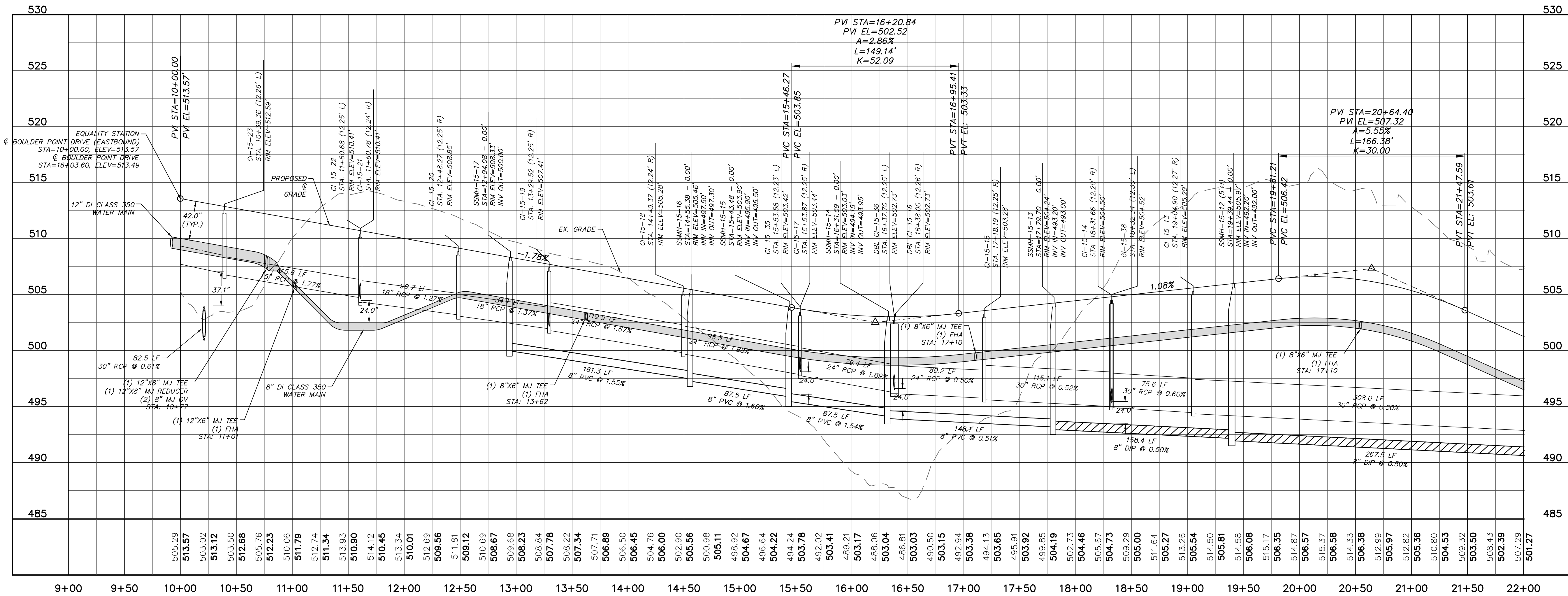
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DRAWN: BSS		
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3



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

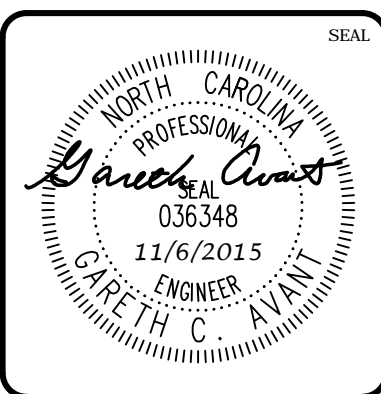
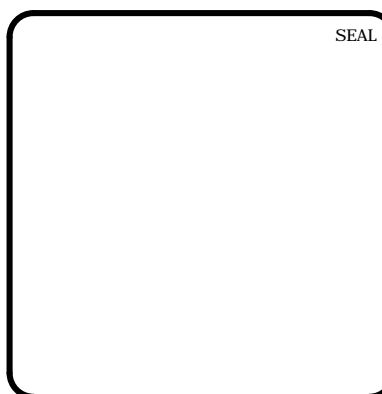


MATCHLINE - BOULDER POINT DRIVE
 STA. 22+00 - SEE SHEET C4.3



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

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.06
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



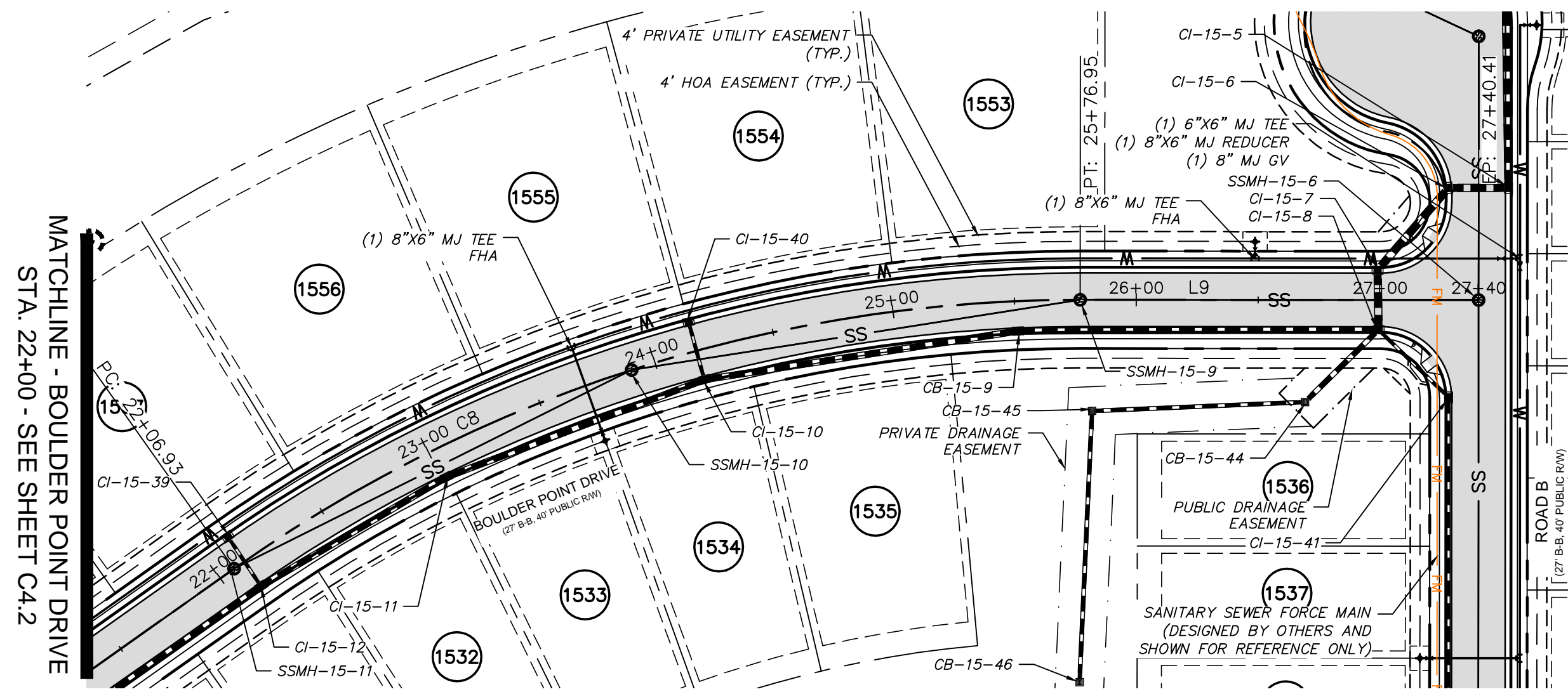
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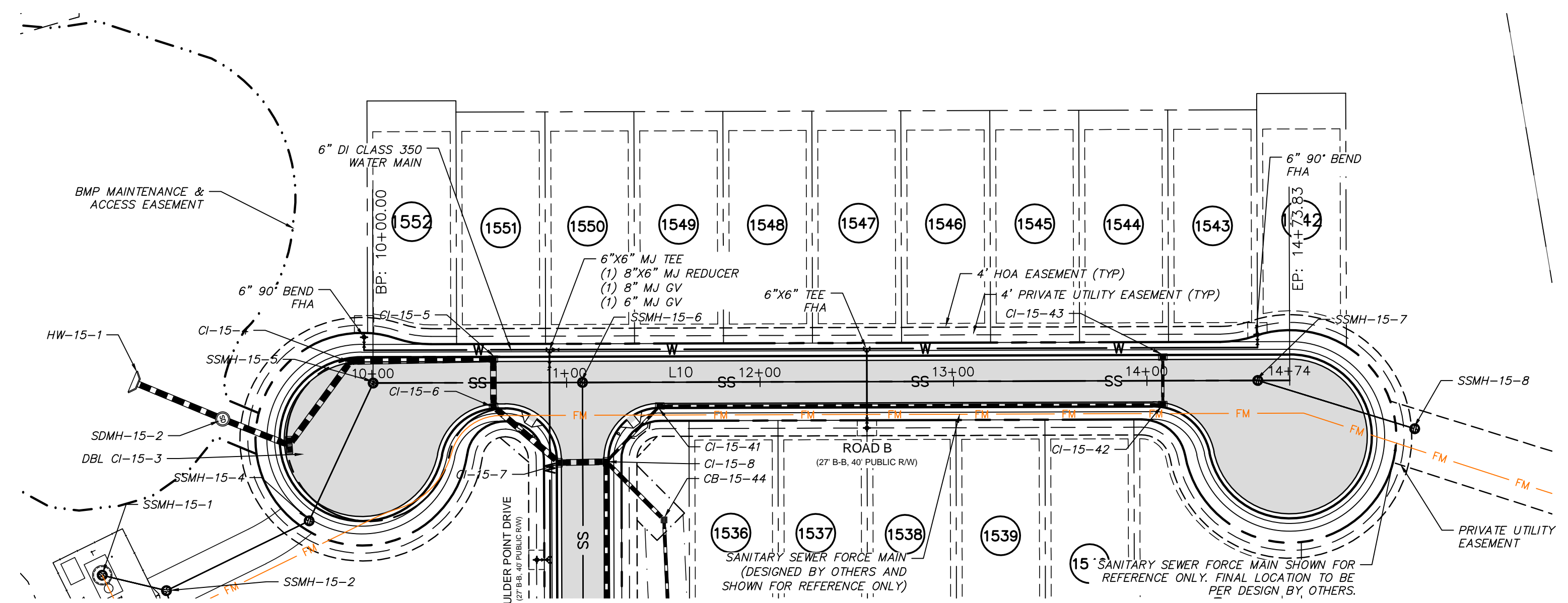
**BRIAR CHAPEL
 PHASE 15 NORTH
 CHATHAM COUNTY, NORTH CAROLINA**
PLAN & PROFILE
BOULDER POINT DRIVE
 STA. 10+00 TO STA. 22+00

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

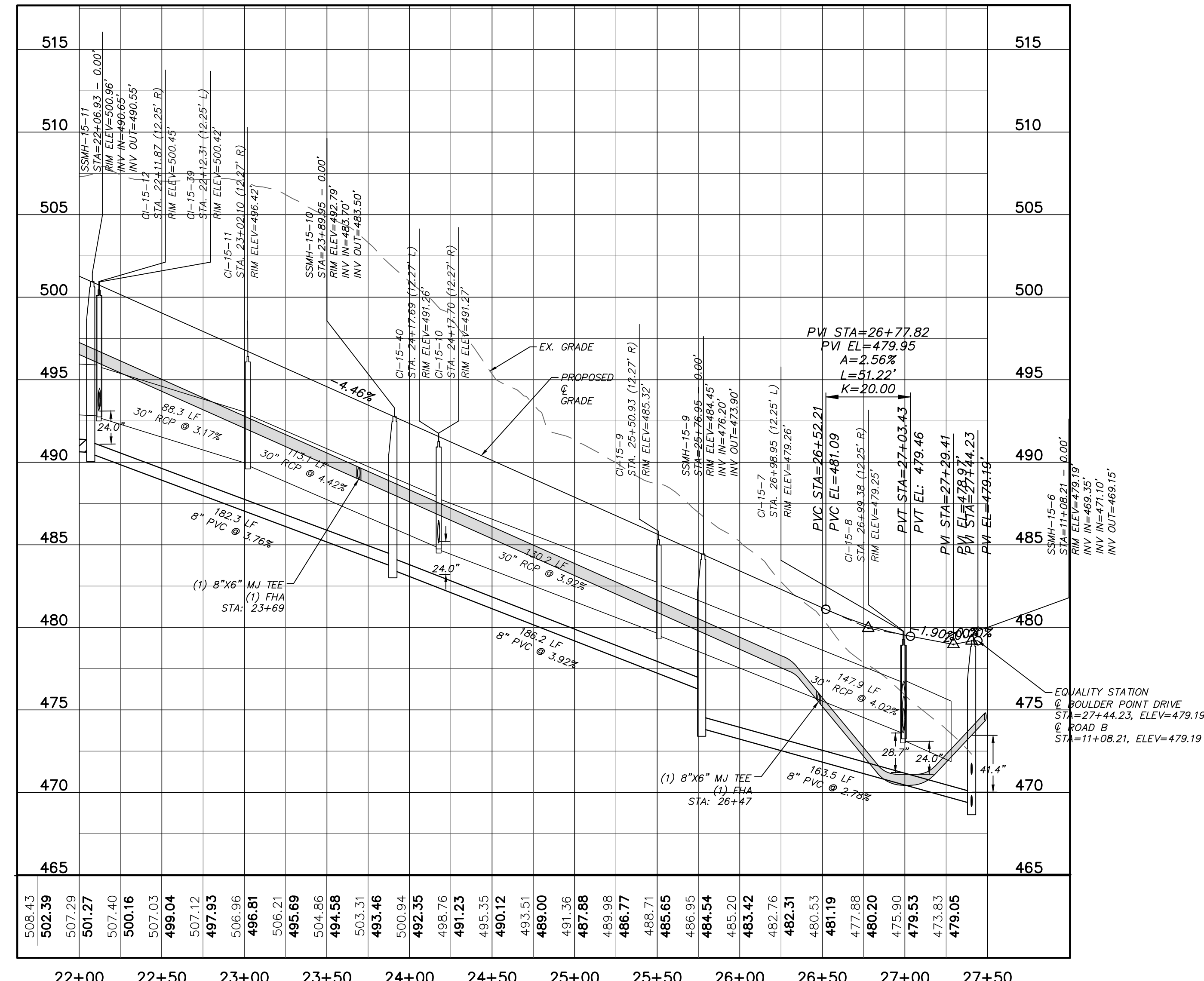
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STATUS:	FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION	3



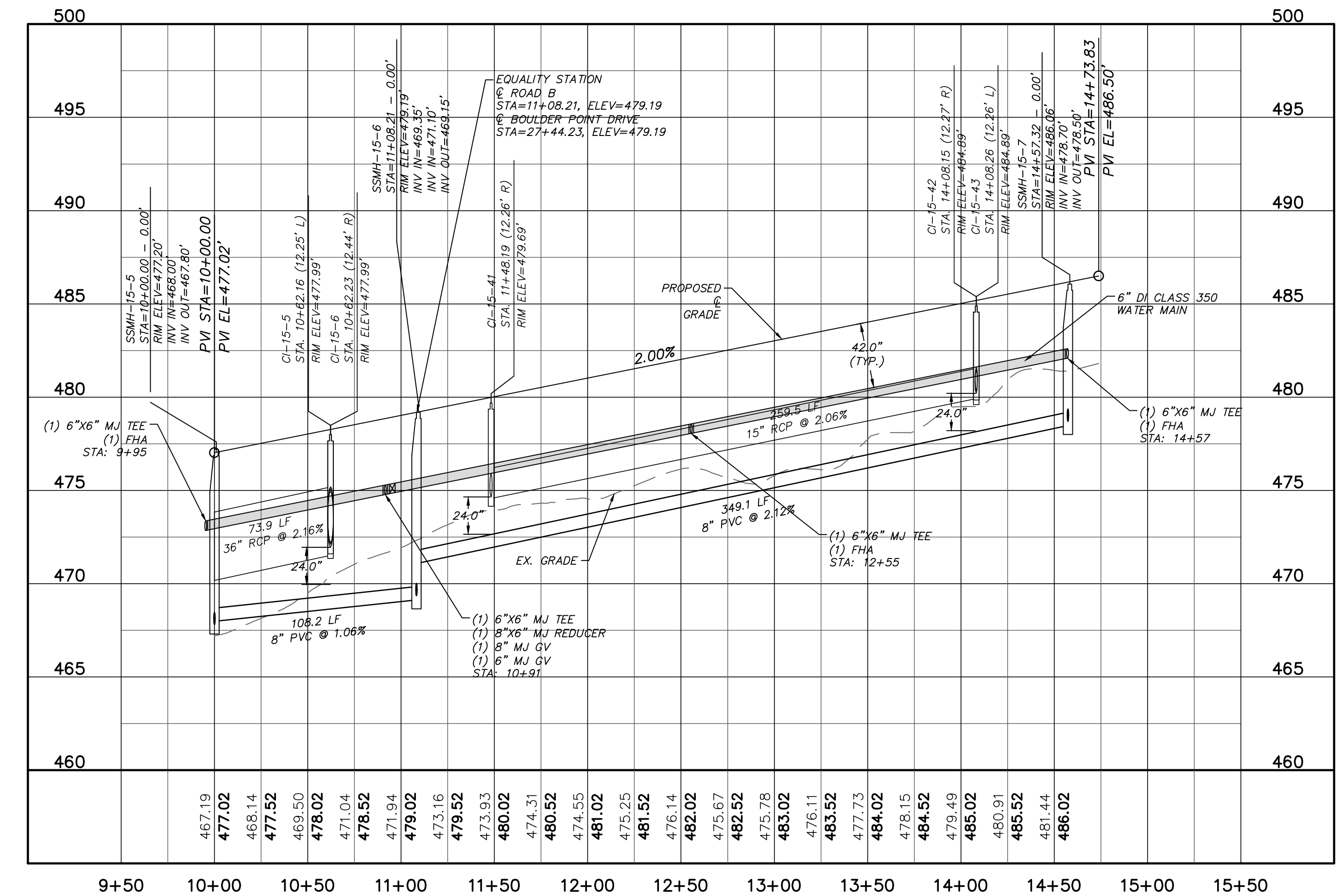
BOULDER POINT DRIVE
(40' PUBLIC R/W, STA. 22+00 TO 27+44.23)
SCALE: 1"=50'



ROAD B PLAN
(40' PUBLIC R/W, STA. 10+00 TO 14+73.83)
SCALE: 1"=50'

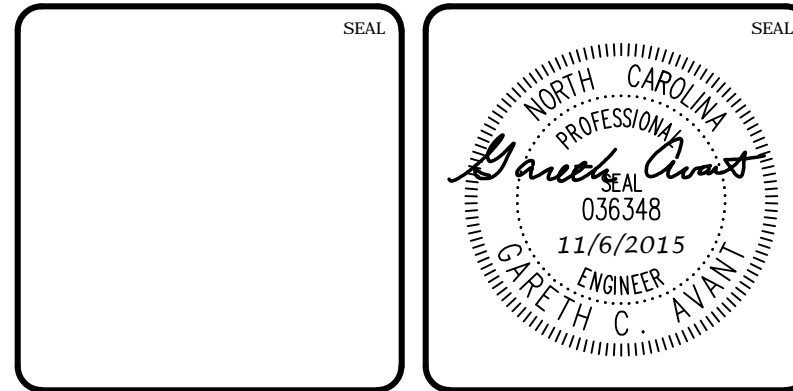


BOULDER POINT DRIVE
(STA. 22+00 TO 27+44.23)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



ROAD B
(STA. 10+00 TO 14+73.83)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DESCRIPTIONS	DATE
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2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
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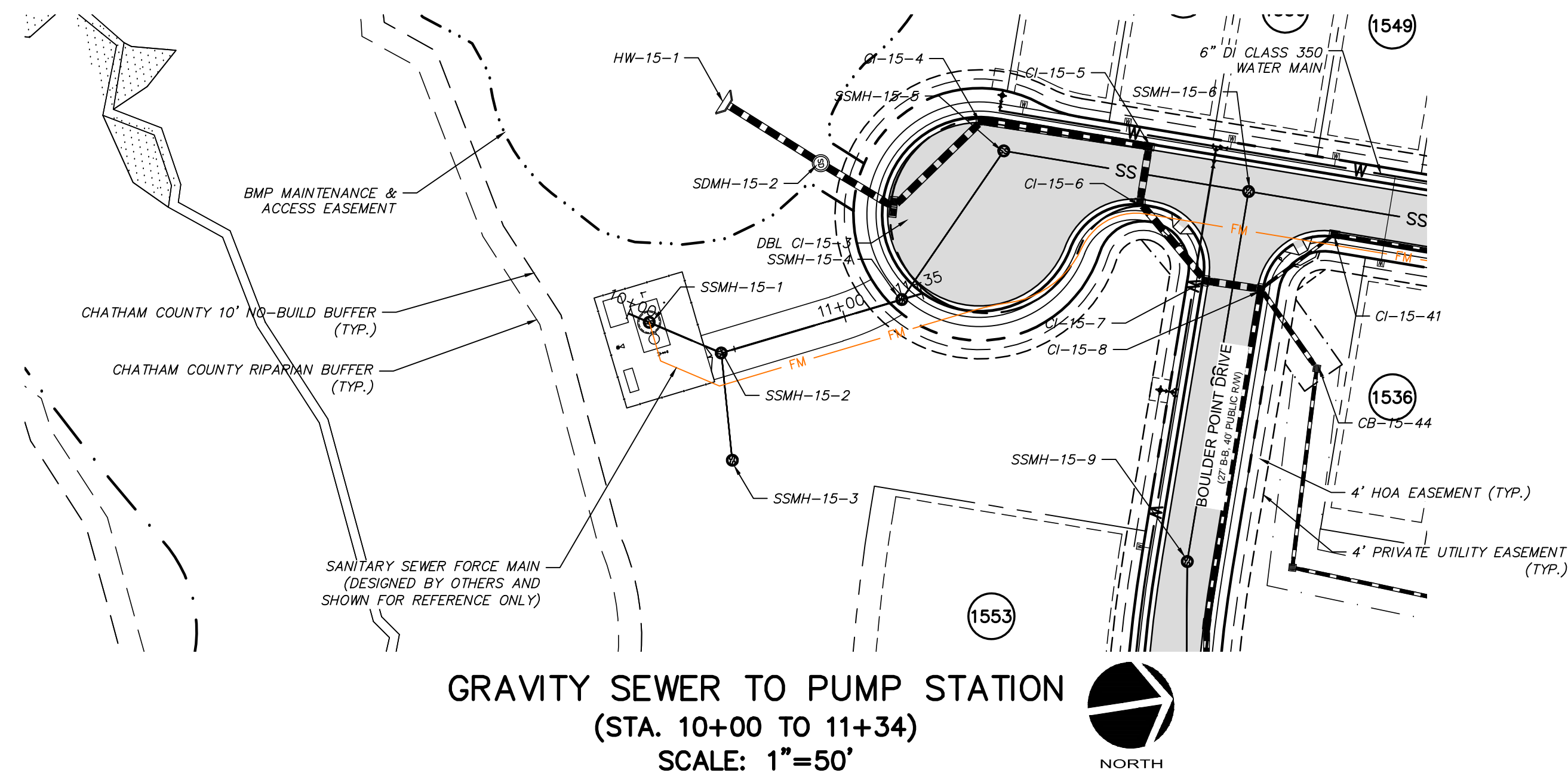


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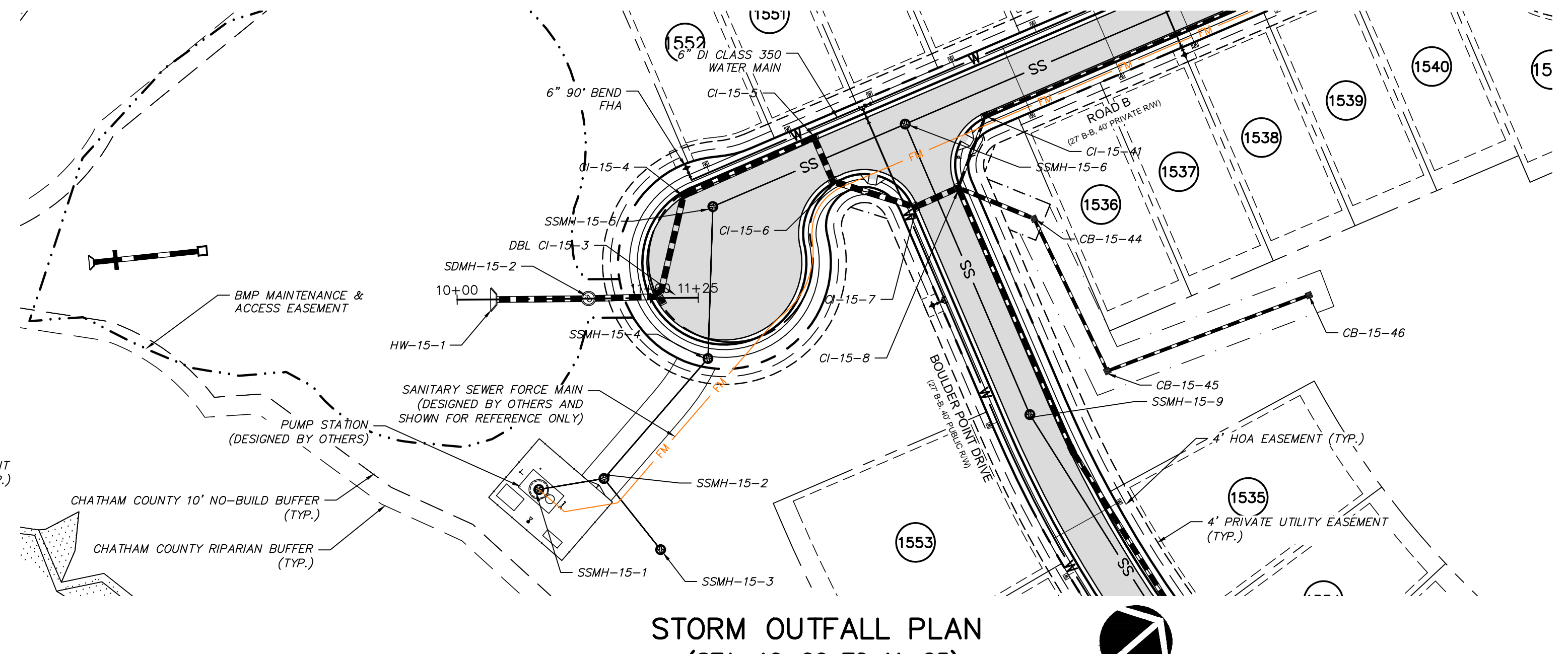
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CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
BOULDER POINT DRIVE
STA. 22+00 TO STA. 27+44.23
ROAD B
STA. 10+00 TO STA. 14+73.83

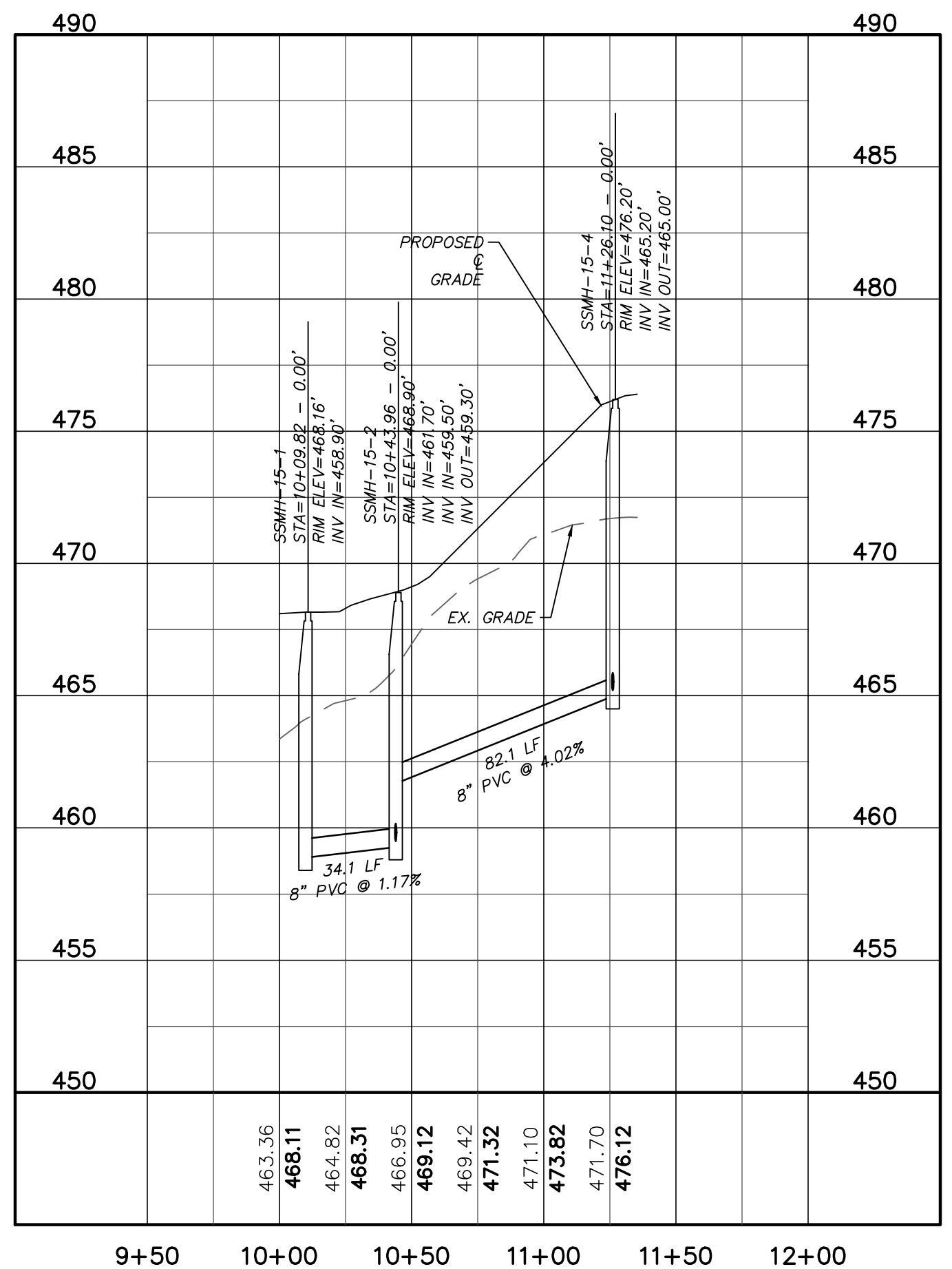
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STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	



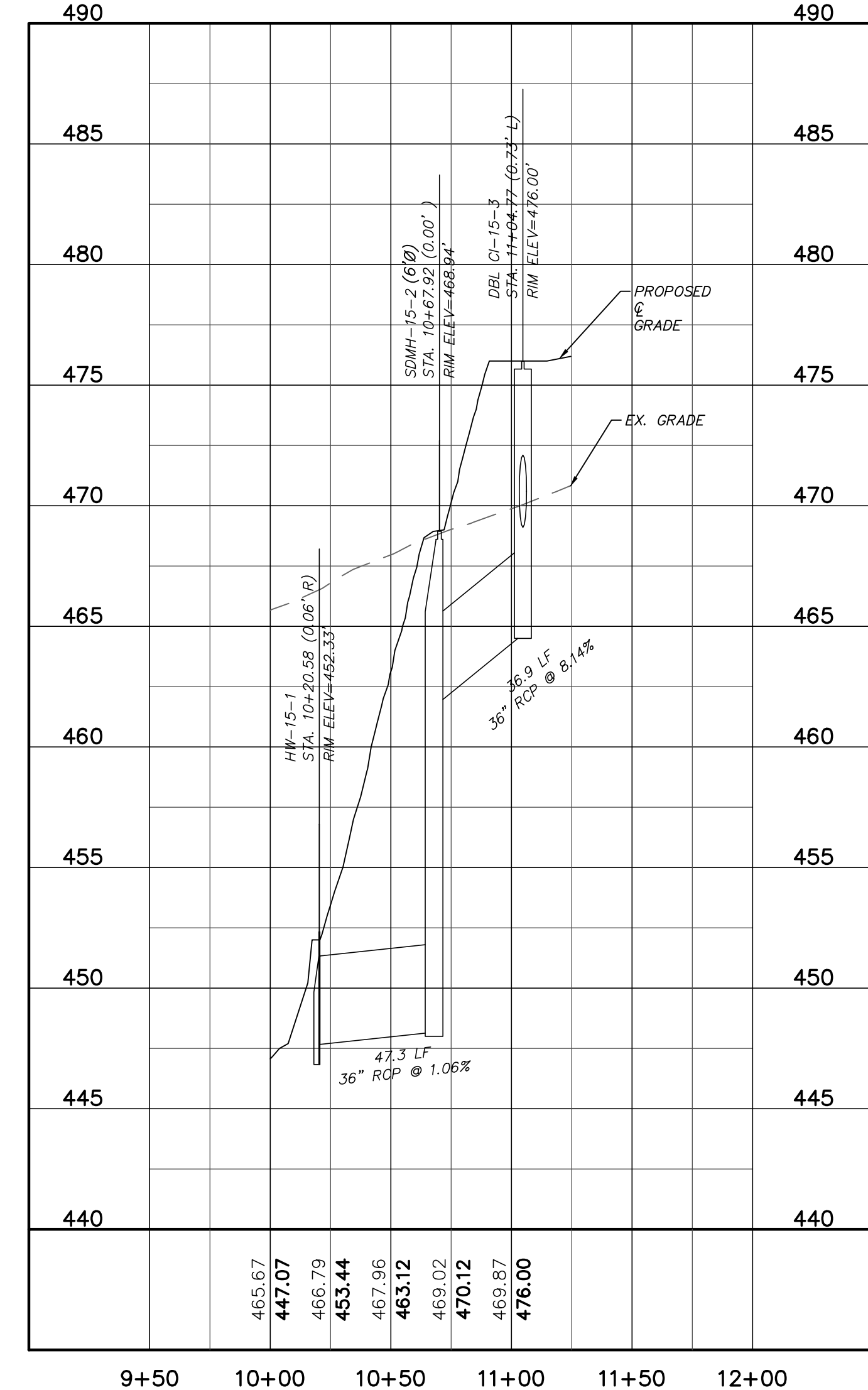
GRAVITY SEWER TO PUMP STATION
 (STA. 10+00 TO 11+34)
 SCALE: 1"=50'



STORM OUTFALL PLAN
 (STA. 10+00 TO 11+25)
 SCALE: 1"=50'

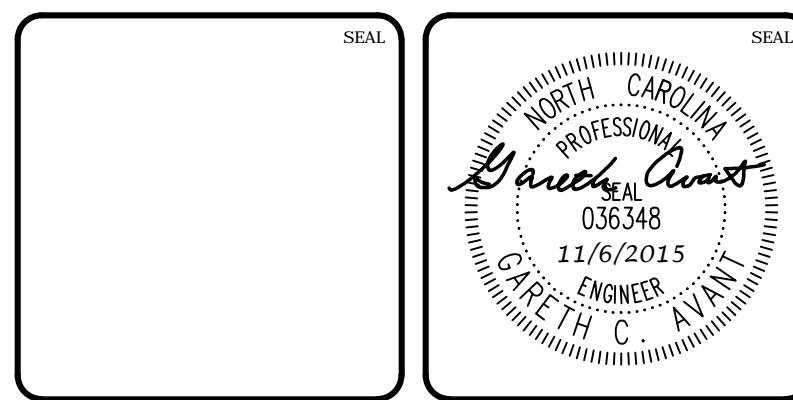


GRAVITY SEWER TO PUMP STATION
 (STA. 10+00 TO 11+34)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



STORM OUTFALL
 (STA. 10+00 TO 11+25)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2015.11.09	REVISED PER COMMENTS FROM COUNTY	
2	2015.08.13	REVISED PER COMMENTS FROM NCDOT	
1	2015.06.17	ISSUED FOR PERMITTING	

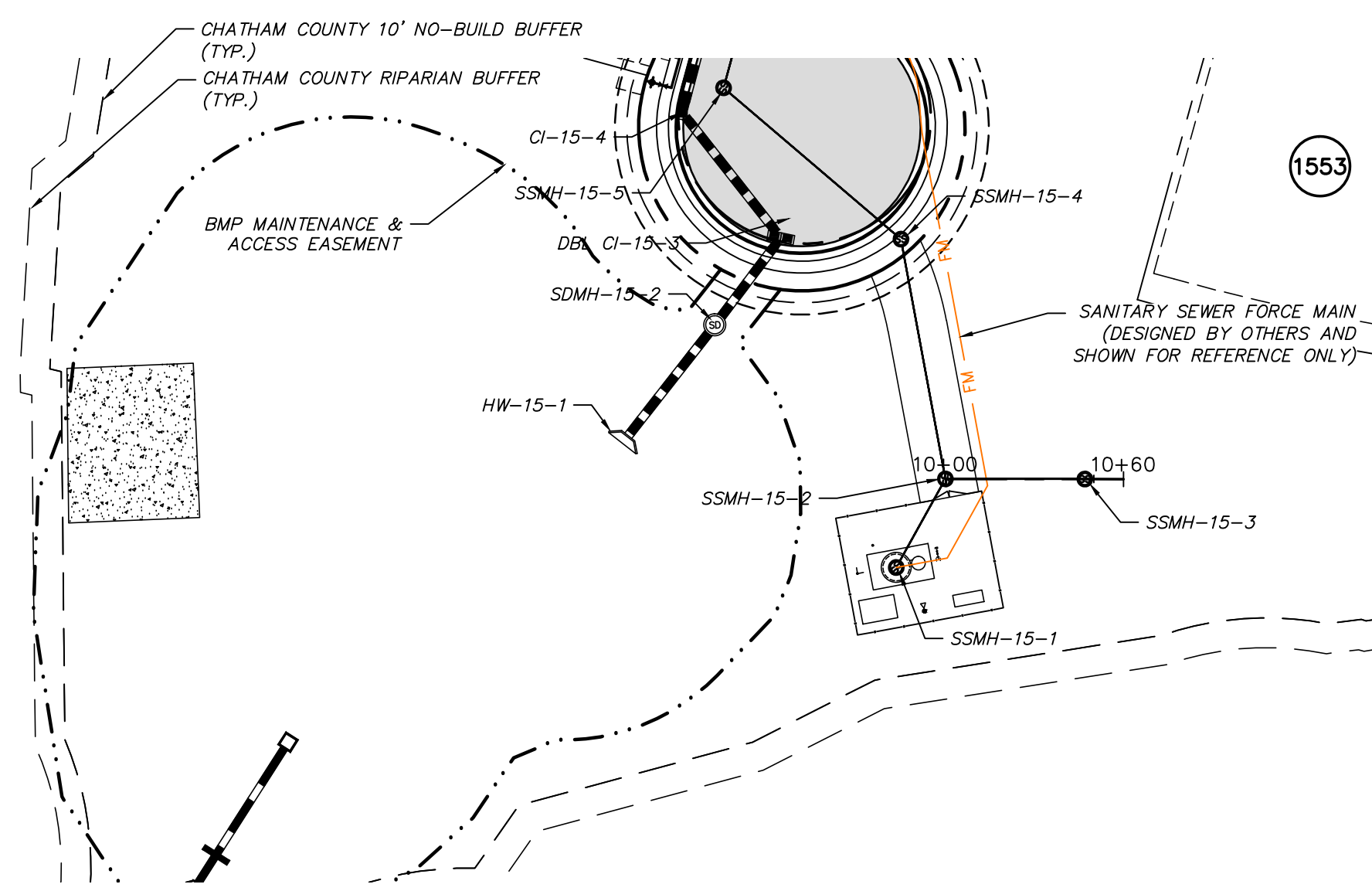


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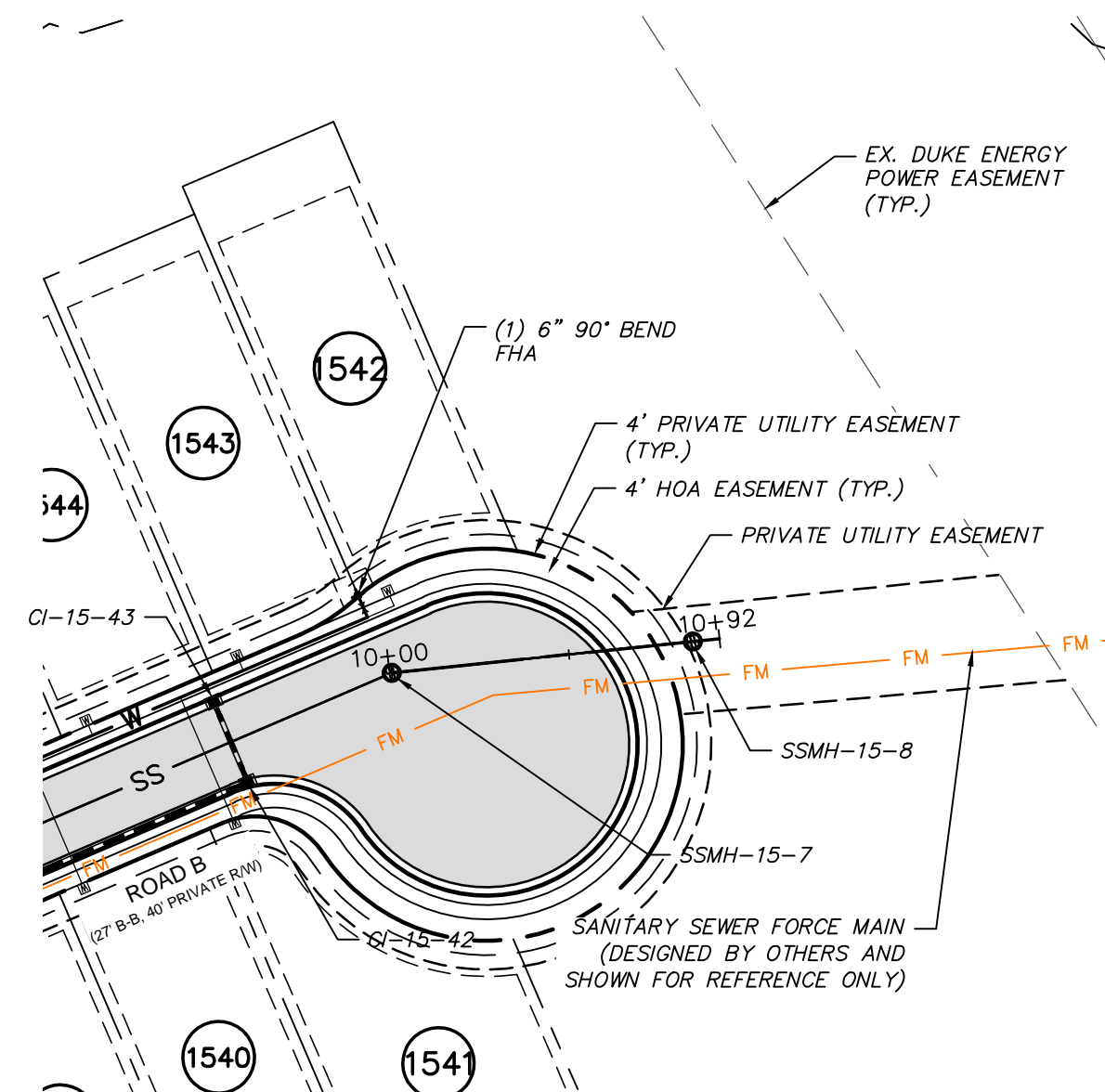
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 PLAN & PROFILE
 GRAVITY SEWER TO PUMP STATION
 STA. 22+00 TO STA. 11+34
 STORM OUTFALL
 STA. 10+00 TO STA. 11+25

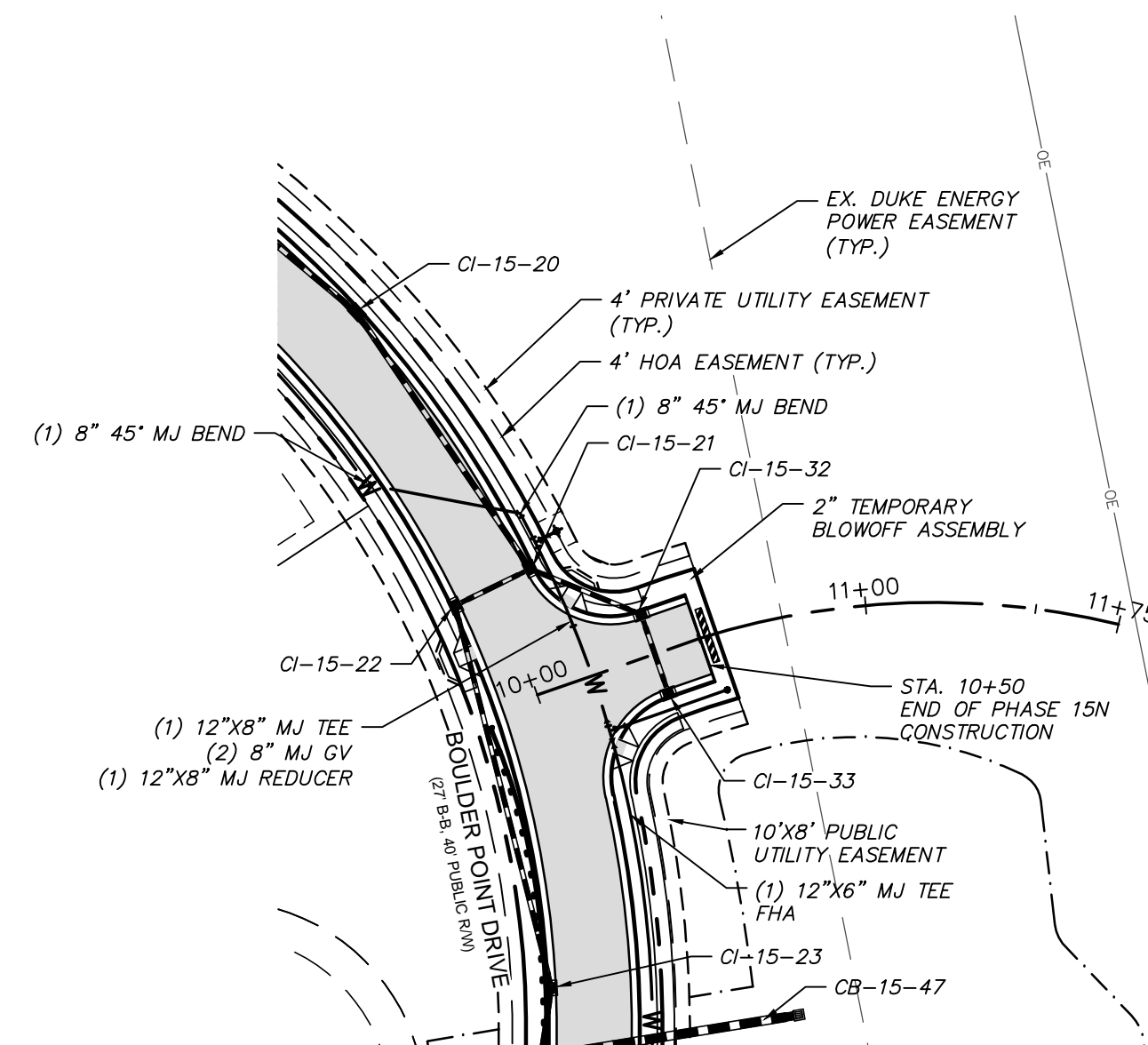
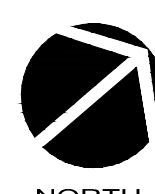
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STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3



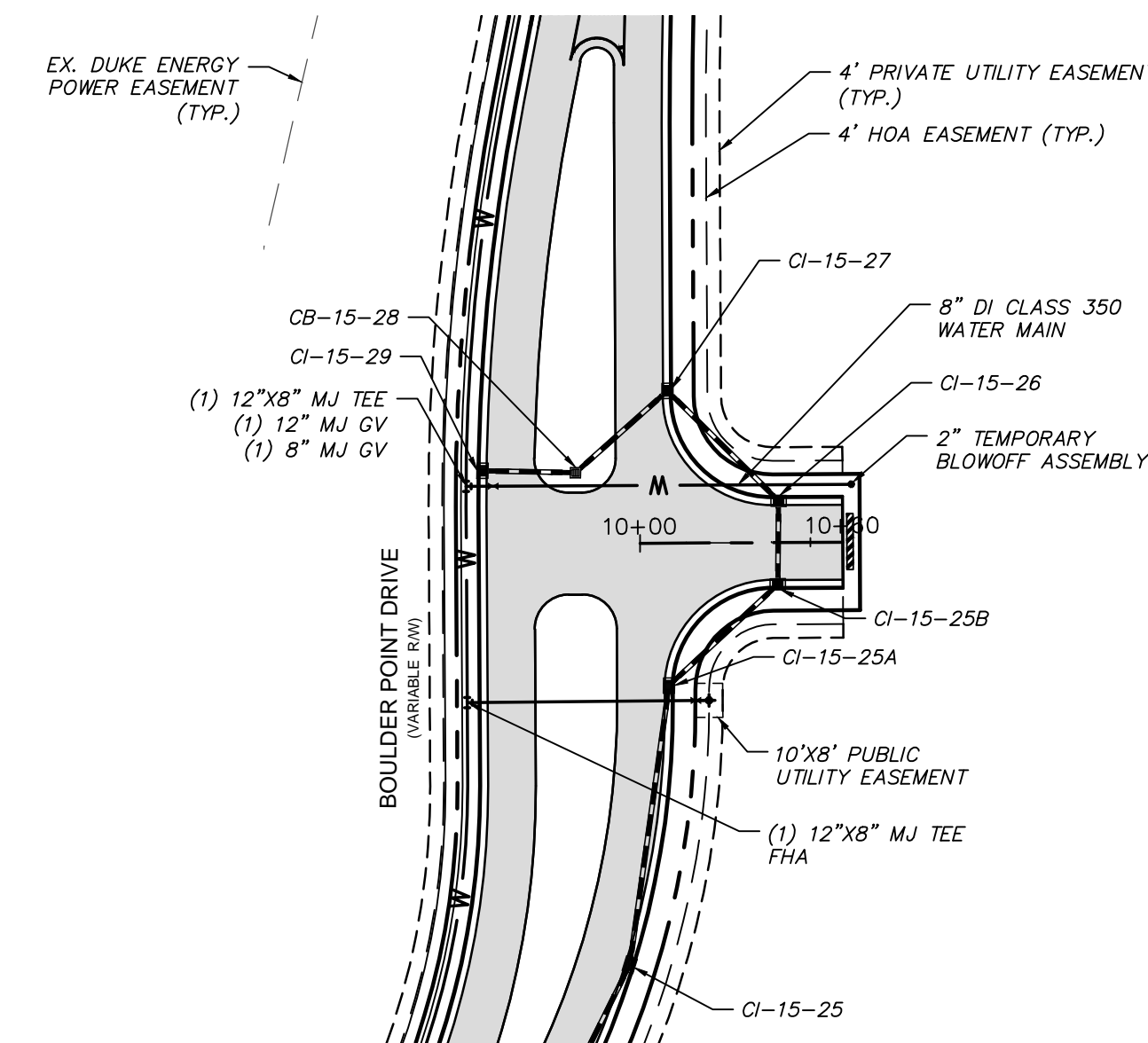
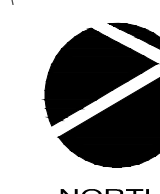
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 (STA. 10+00 TO 10+60)
 SCALE: 1"=50'



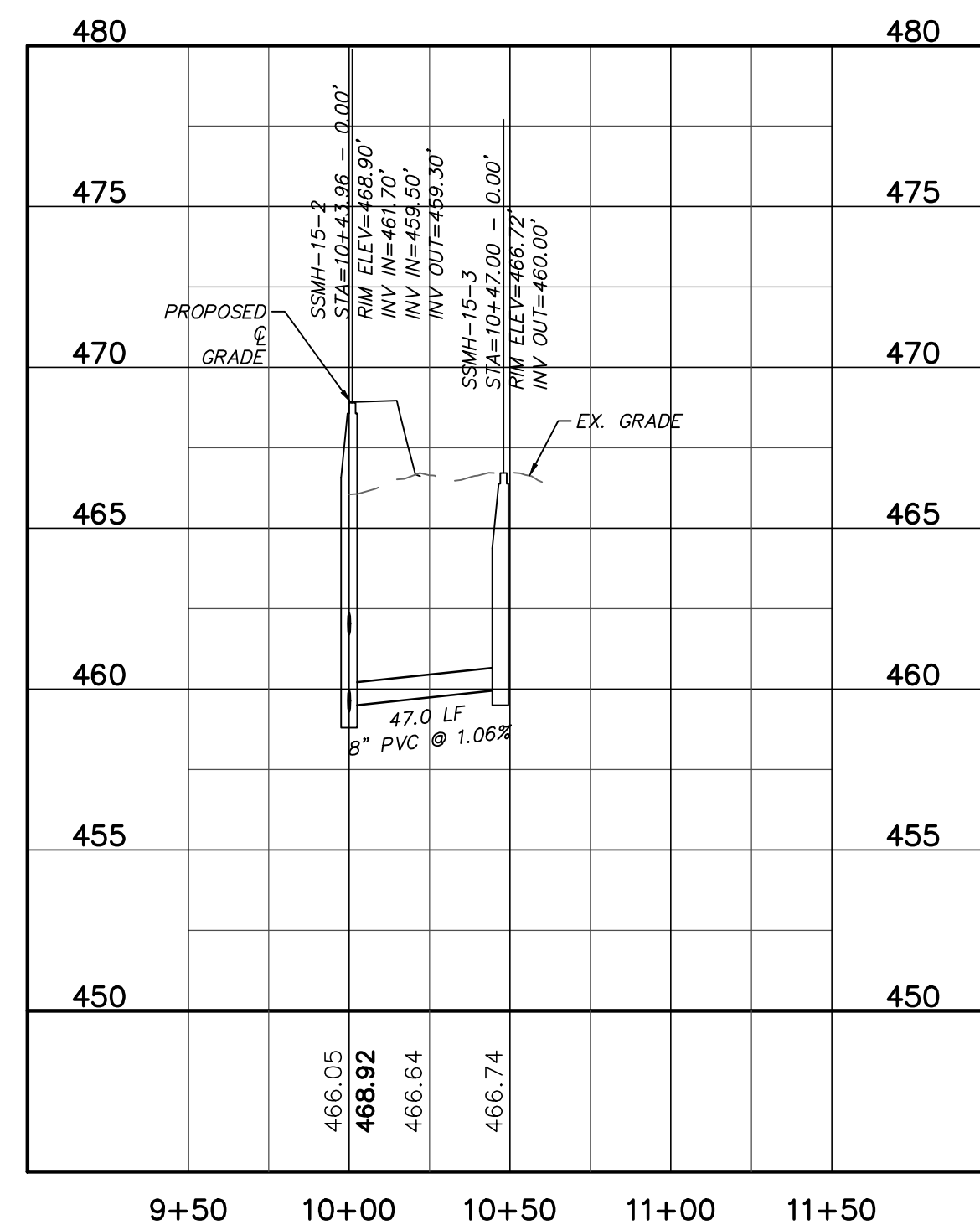
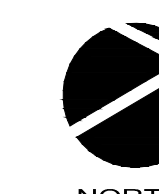
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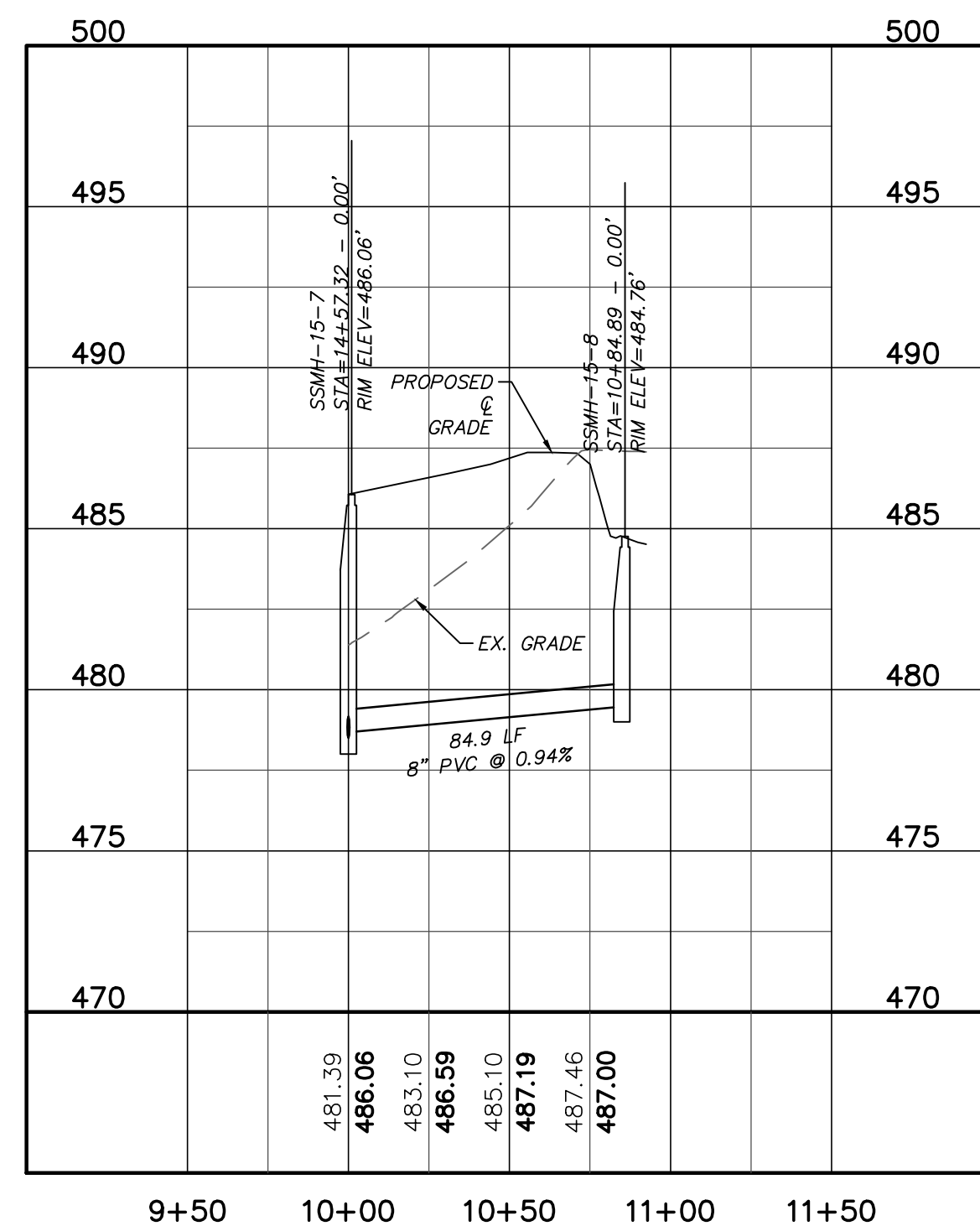
PHASE 16 STUB
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 SCALE: 1"=50'



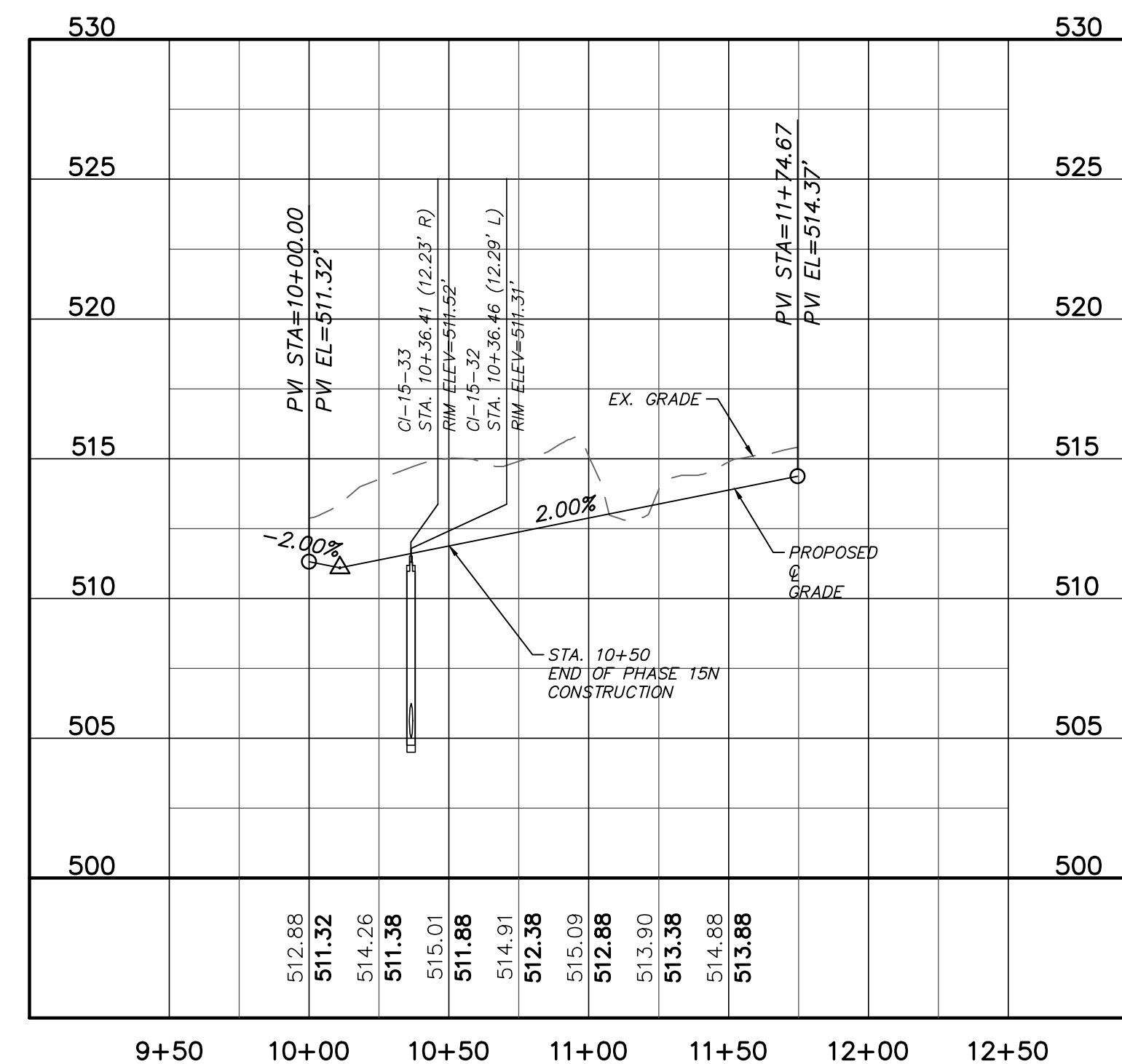
PHASE 15S STUB
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 SCALE: 1"=50'



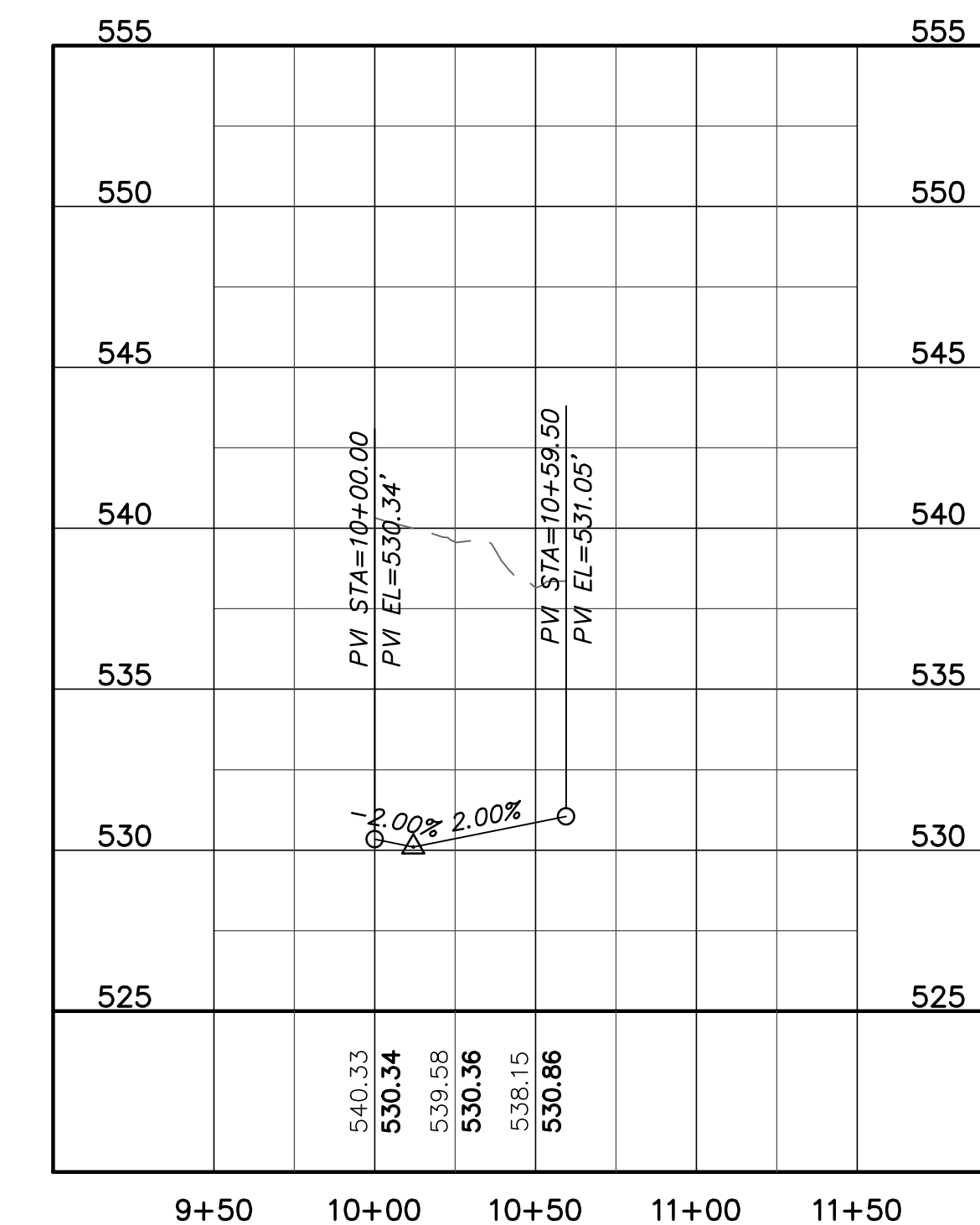
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 (STA. 10+00 TO 10+60)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



SSMH-15-7 TO SSMH-15-8
 (STA. 10+00 TO 10+92)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

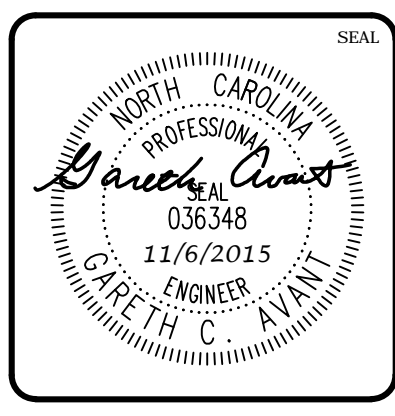
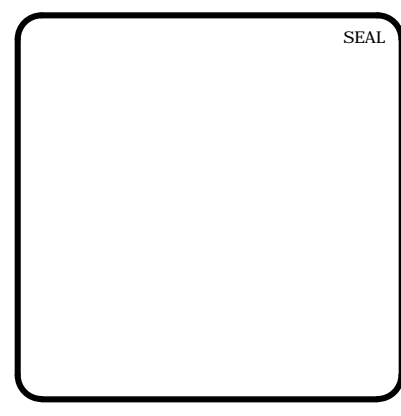


PHASE 16 STUB
 (STA. 10+00 TO 11+75)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



PHASE 15S STUB
 (STA. 10+00 TO 10+60)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DESCRIPTIONS	DATE
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2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17

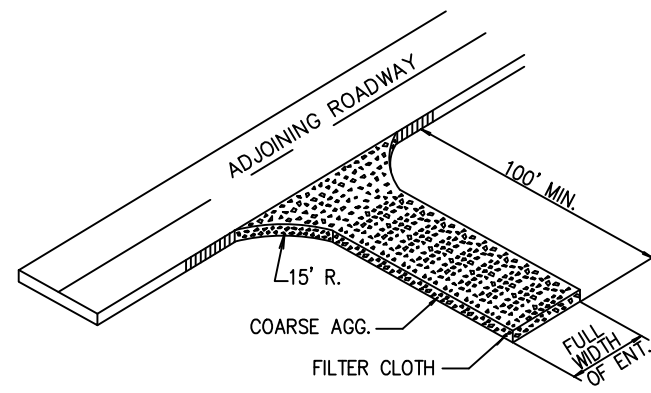


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BRIAR CHAPEL™
 by
Newland COMMUNITIES

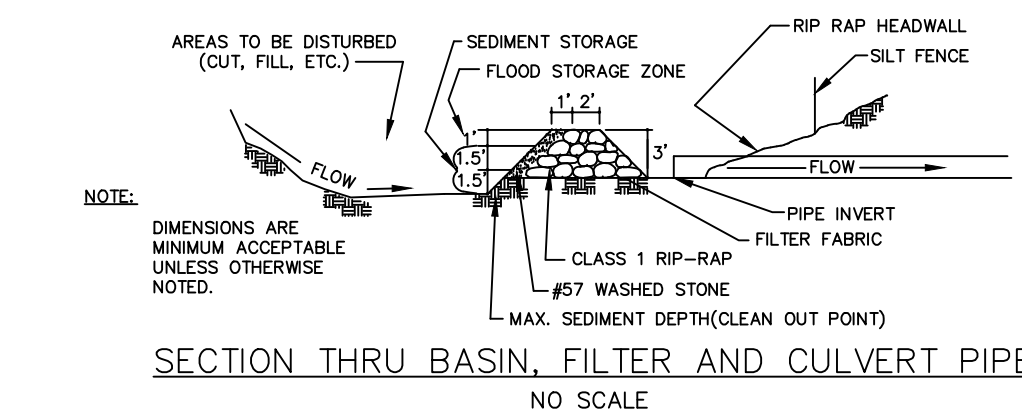
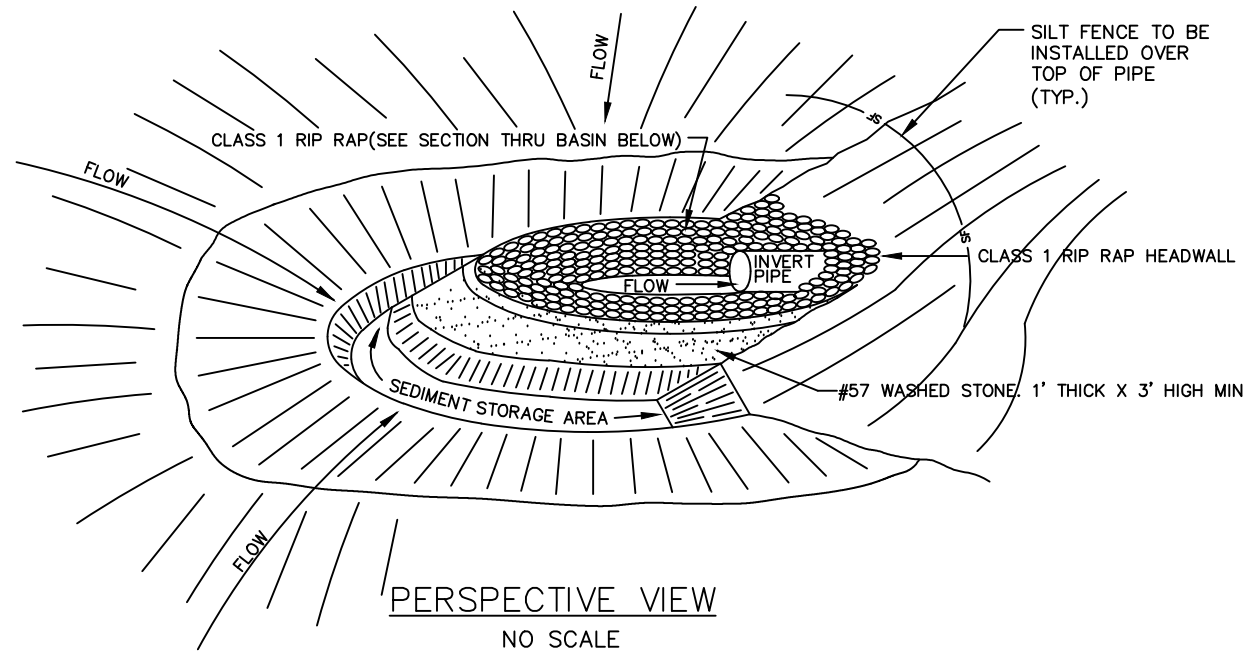
BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA
 PLAN & PROFILE
 GRAVITY SEWER TO PUMP STATION
 STA. 22+00 TO STA. 11+34
 STORM OUTFALL
 STA. 10+00 TO STA. 11+25

DATE: JUNE 17, 2015	SCALE: 1"=50'	MSC FILE NUMBER: C4.X
MCE PROJ. # 02735-0113	HORIZONTAL: 1"=50'	DRAWING NUMBER: C4.5
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR. CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	

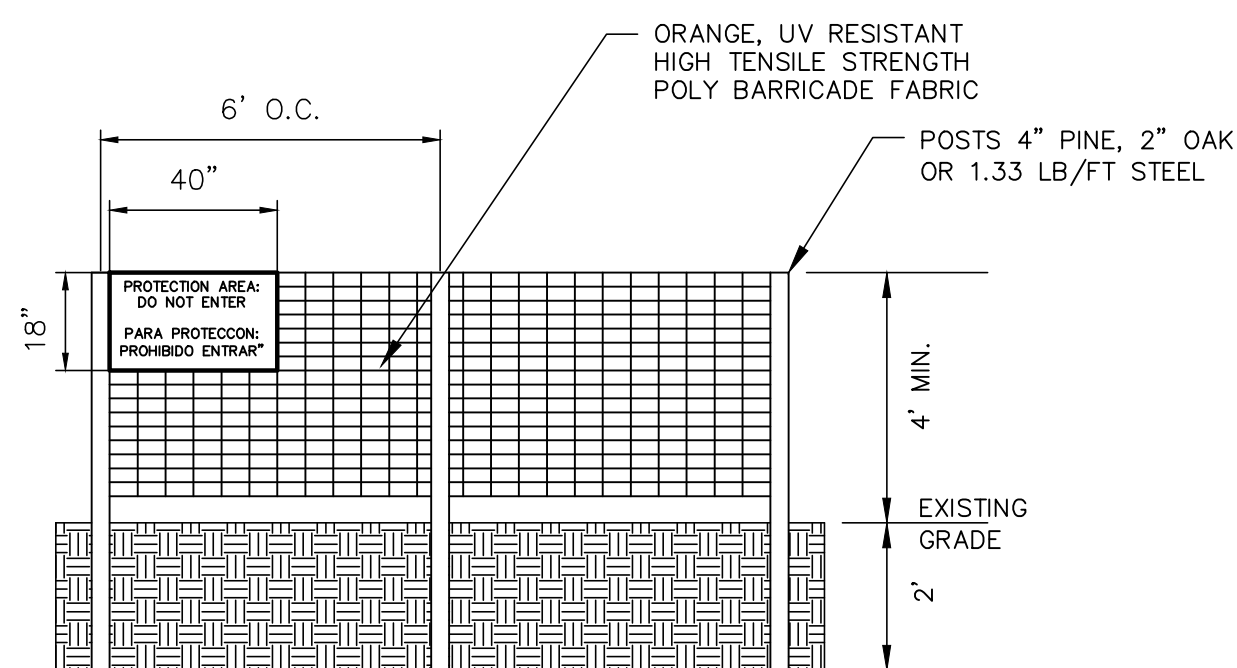


- COARSE AGGREGATE (2"-3" STONE) SHALL BE USED. PAD TO BE 100' X 25' X 6" MIN. PLACE A MINIMUM OF 3" OF STONE IN A CUT SECTION TO HELP SECURE FILTER CLOTH.
- TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
- ENTRANCES SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION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

TEMPORARY CONSTRUCTION ENTRANCE
NTS

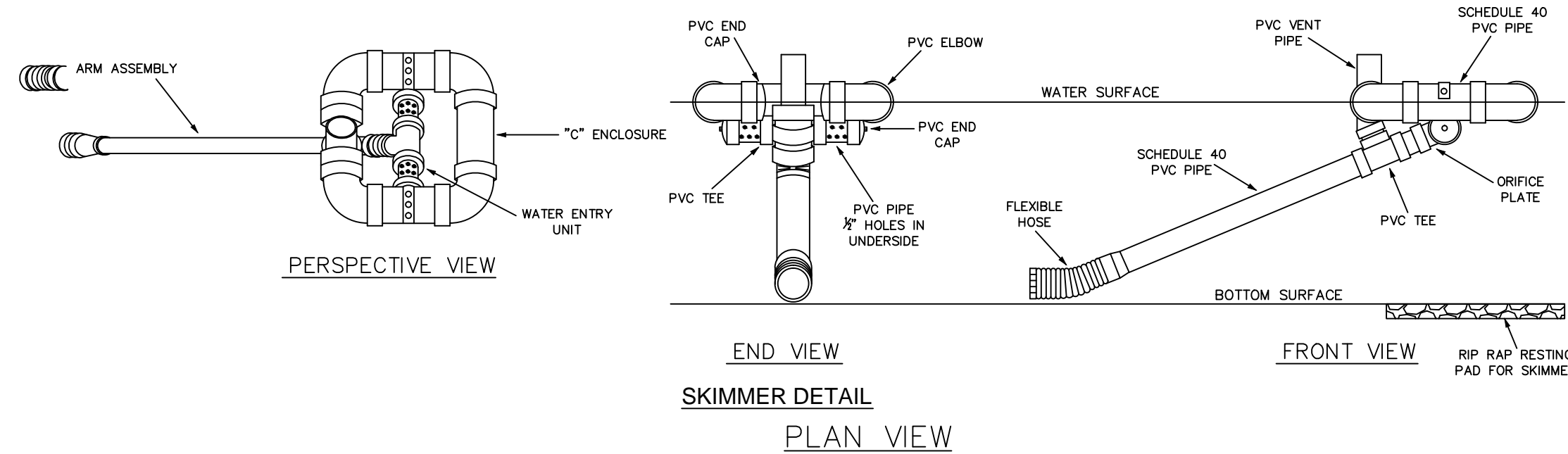


ARC FILTER INLET PROTECTION
NTS



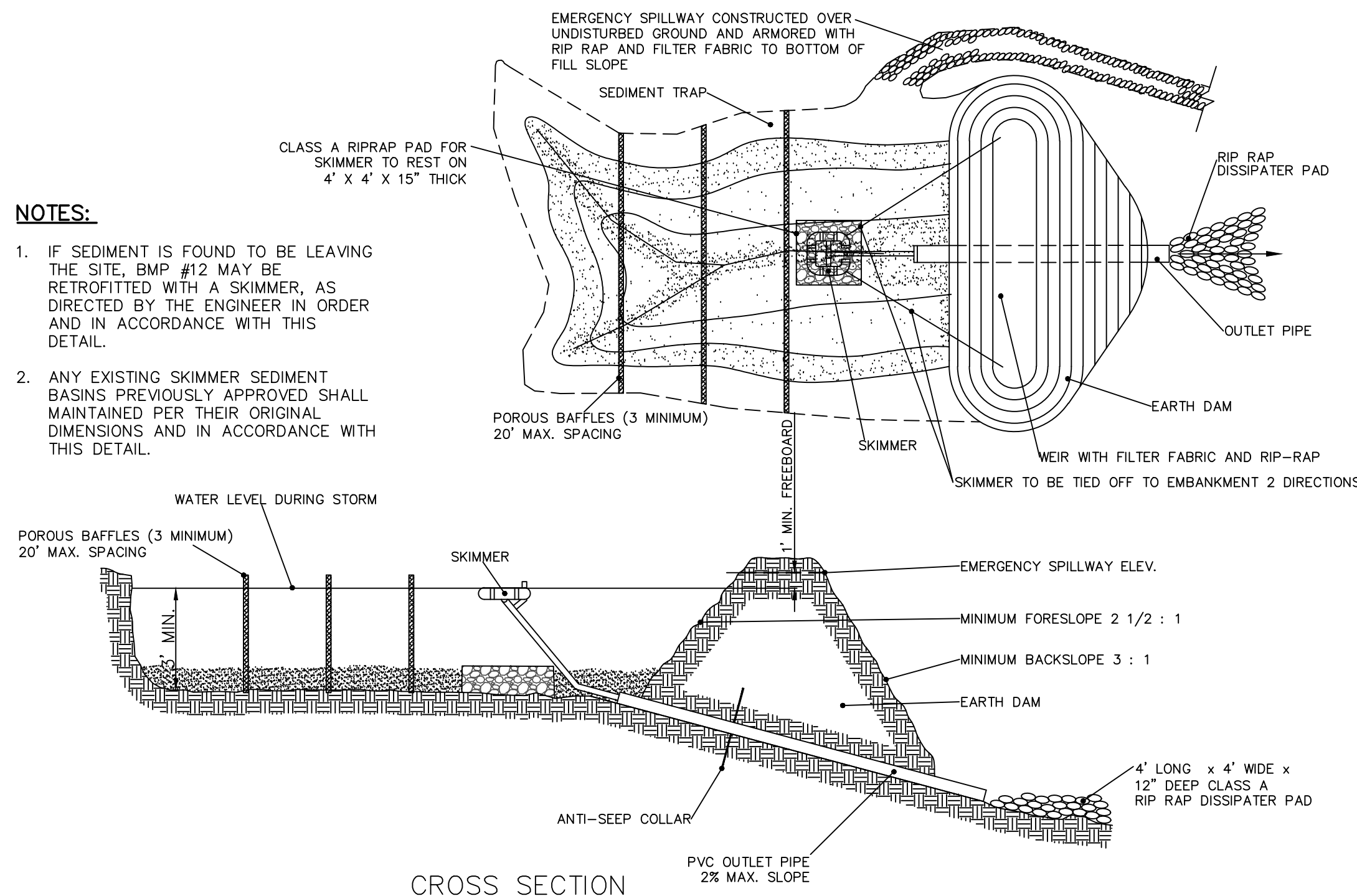
- WARNING SIGNS TO BE MADE OF DURABLE WATERPROOF PLASTIC.
- ALL LETTERS TO BE AT LEAST 3" HIGH, CLEARLY LEGIBLE AND SPACED APPROPRIATELY.
- SIGNS TO BE PLACED AT EACH END OF LINER PROTECTION AREA AND 200' ON CENTER (MAX.) THEREAFTER FOR PROTECTION AREA LESS THAN 200' IN PERIMETER. PROVIDE NO LESS THAN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

TREE PROTECTION FENCE
NTS



NOTES:

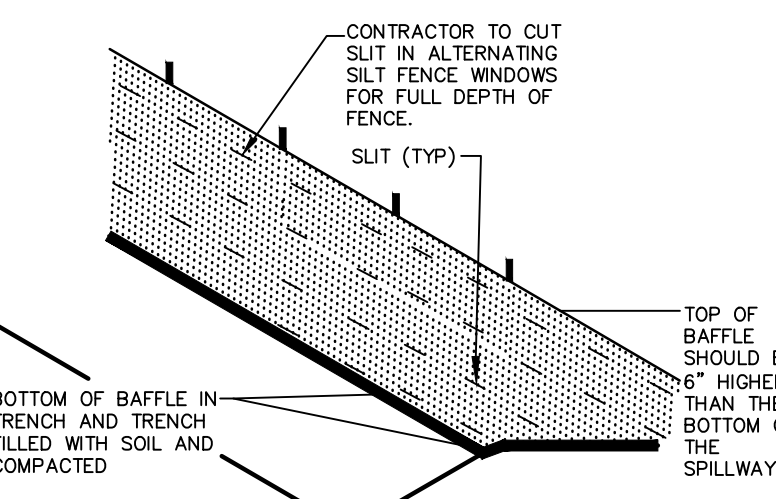
- IF SEDIMENT IS FOUND TO BE LEAVING THE SITE, BMP #12 MAY BE RETROFITTED WITH A SKIMMER, AS DIRECTED BY THE ENGINEER IN ORDER AND IN ACCORDANCE WITH THIS DETAIL.
- ANY EXISTING SKIMMER SEDIMENT BASINS PREVIOUSLY APPROVED SHALL MAINTAINED PER THEIR ORIGINAL DIMENSIONS AND IN ACCORDANCE WITH THIS DETAIL.



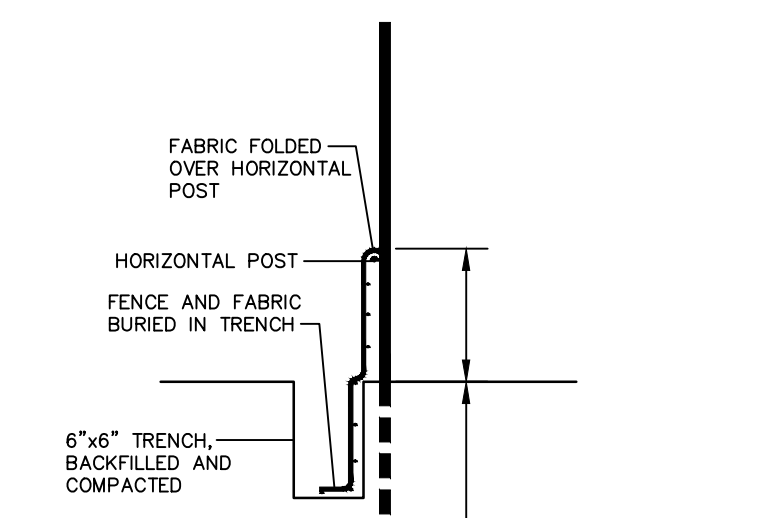
TEMPORARY SKIMMER SEDIMENT BASIN
NTS

BASIN #	DISTURBED AREA (ac)	TOTAL DRAINAGE AREA (ac)	REQUIRED STORAGE	REQUIRED SURFACE AREA	MINIMUM DEPTH	BOTTOM ELEVATION	TOP WIDTH	TOP LENGTH	PROVIDED STORAGE	PROVIDED SURFACE AREA	SPILLWAY ELEVATION	SPILLWAY WIDTH	TOP OF DAM ELEVATION	SKIMMER SIZE	SKIMMER DIAMETER
1	7.40	7.40	26,640 CF	13,170 SF	3.0'	457.0'	88'	164'	34,656 CF	14,432 SF	460.0'	31.0'	462.0'	4.0'	3.0'
2	3.00	3.00	10,800 CF	5,340 SF	3.0'	462.0'	56'	100'	11,616 CF	5,600 SF	465.0'	13.0'	467.0'	2.5'	2.0'
3	2.80	2.80	10,080 CF	4,980 SF	3.0'	484.0'	54'	96'	10,584 CF	5,184 SF	487.0'	12.0'	489.0'	2.5'	1.9'
4	7.00	7.00	25,200 CF	12,450 SF	3.0'	482.0'	82'	152'	29,400 CF	12,464 SF	485.0'	29.0'	487.0'	4.0'	2.8'
5	2.00	2.00	7,200 CF	3,560 SF	3.0'	489.0'	47'	82'	7,350 CF	3,854 SF	492.0'	9.0'	494.0'	2.0'	1.7'
11	6.30	6.30	22,680 CF	11,210 SF	3.0'	493.0'	78'	144'	26,136 CF	11,232 SF	496.0'	27.0'	498.0'	3.0'	2.8'
STAGE 2															
11-RESIZED	7.42	7.42	26,710 CF	13,200 SF	3.0'	494.0'	84'	160'	31,968 CF	13,440 SF	497.0'	31.0'	499.0'	4.0'	2.9'
BMP #23	9.93	9.93	35,750 CF	17,670 SF	5.0'	441.0'	PER PLAN	PER PLAN	52,919 CF	19,786 SF	452.0'	42.0'	454.0'	5.0'	4.5'

BAFFLE INSTALLATION - STEP 1



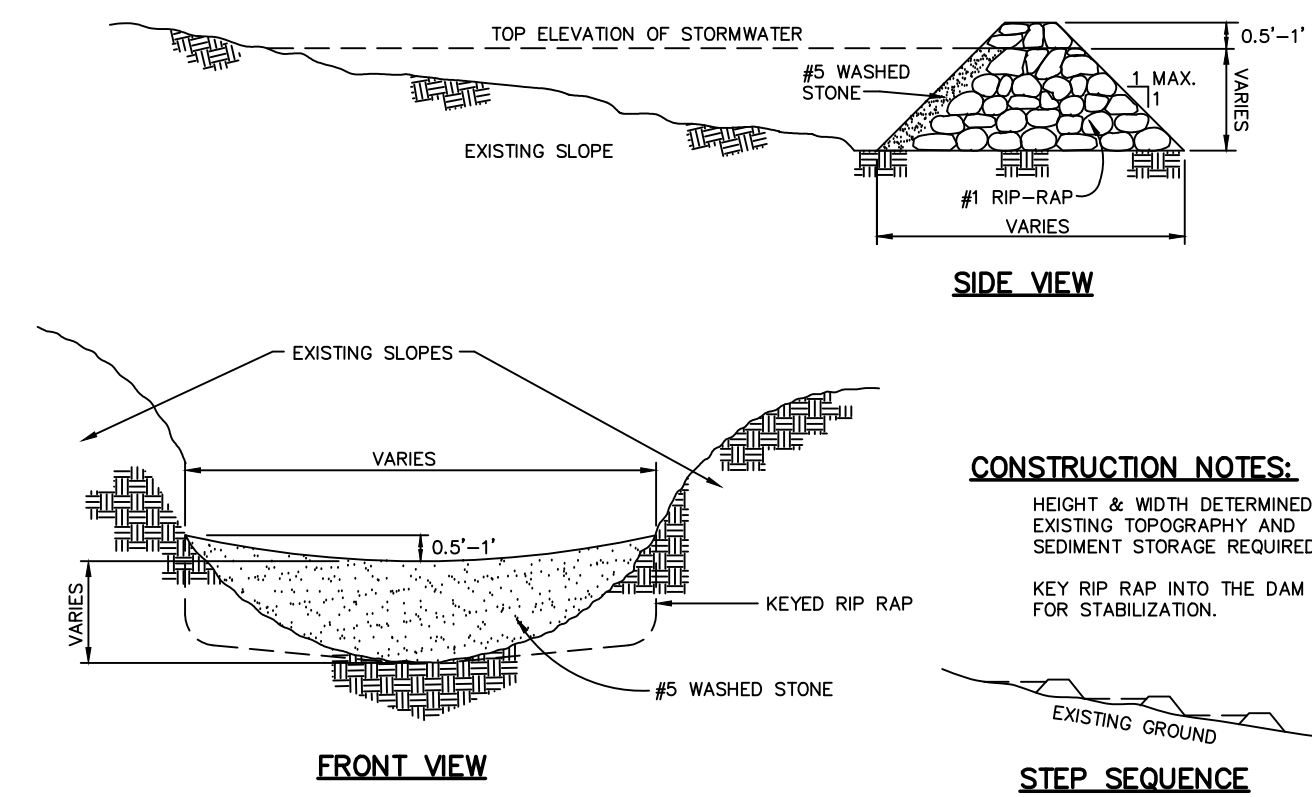
BAFFLE INSTALLATION - STEP 2



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

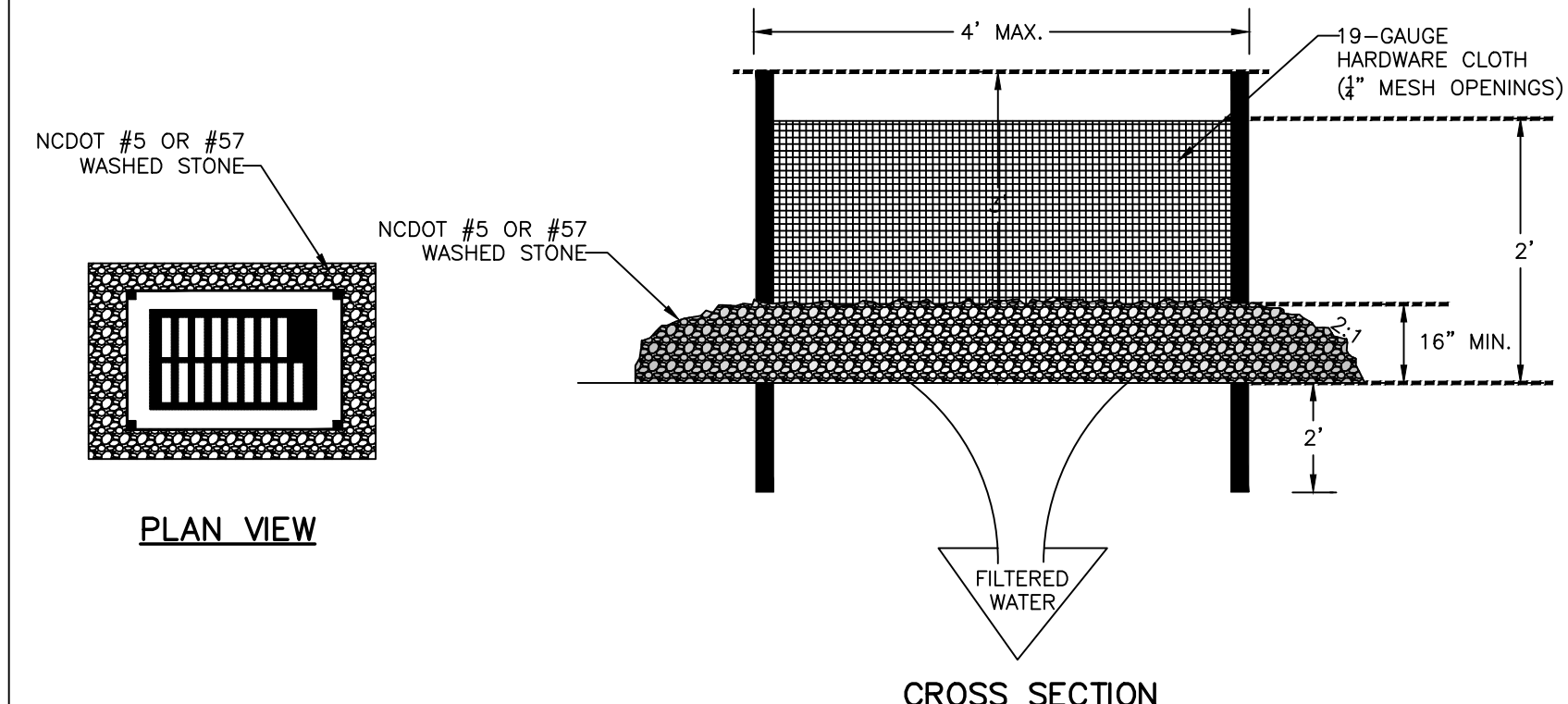


- CONSTRUCTION NOTES:**
- HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
 - KEY RIP RAP INTO THE DAM FOR STABILIZATION.

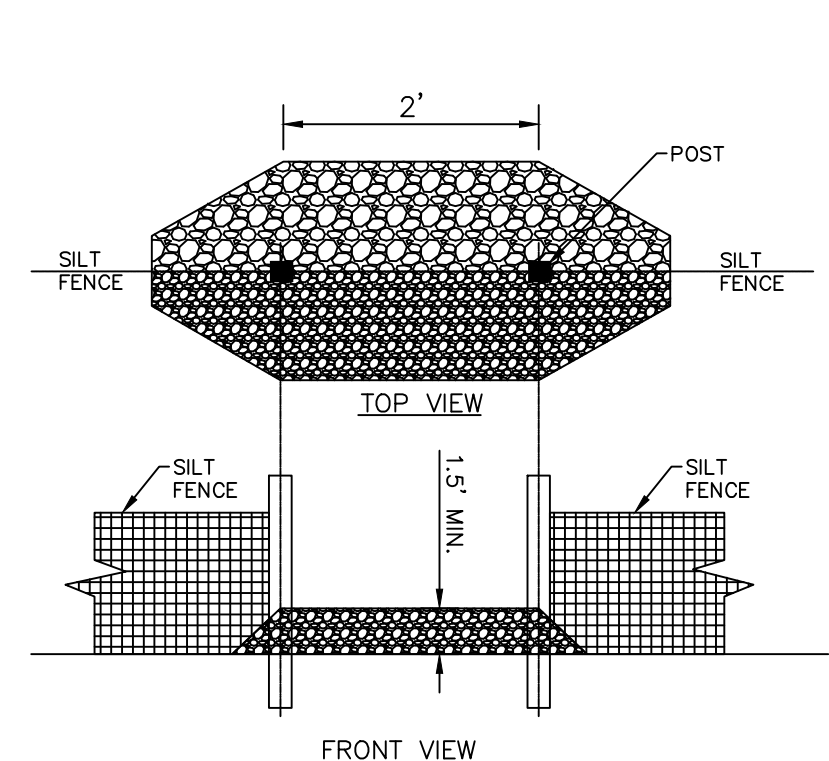
CHECK DAM
NTS

NOTES:

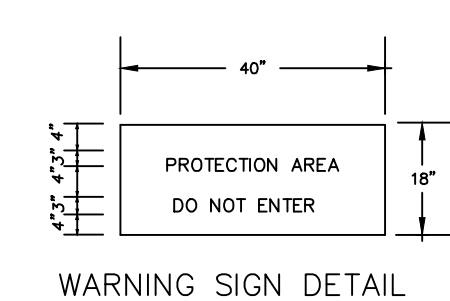
- UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
- DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
- SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL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



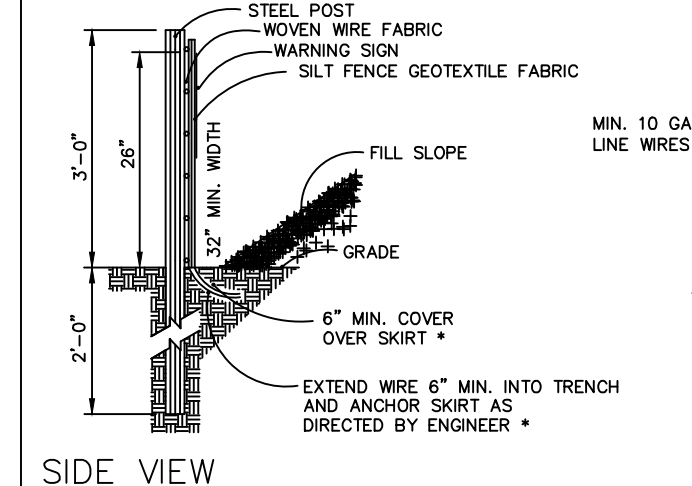
HARDWARE CLOTH & GRAVEL INLET PROTECTION
NTS



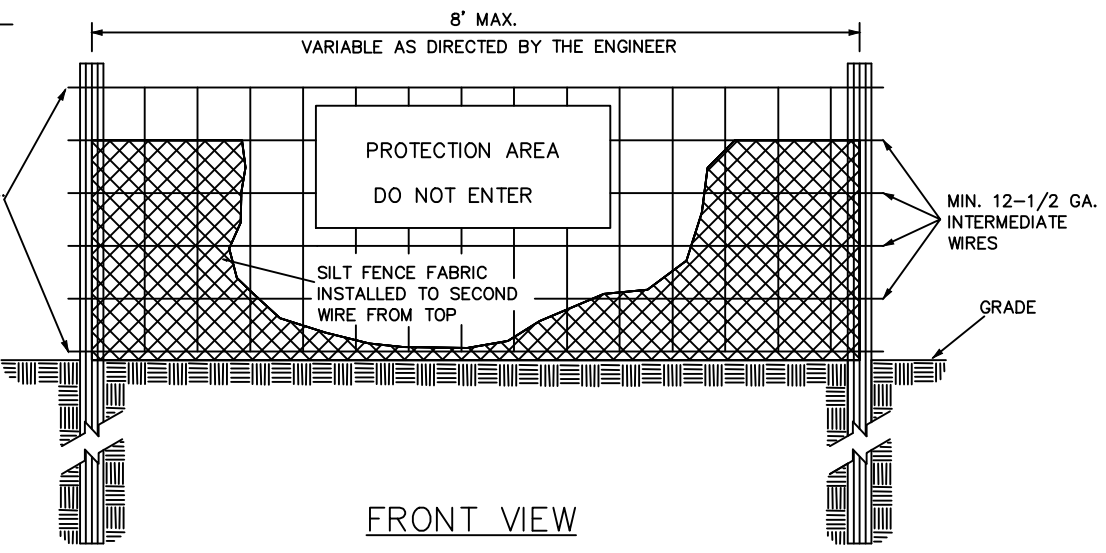
SILT FENCE OUTLET
NTS



WARNING SIGN DETAIL



SIDE VIEW



FRONT VIEW

COMBINATION SILT/TREE PROTECTION FENCE
NTS

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

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.09
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17

Professional Engineer Seal for **Harold A. Cox**, No. 036348, dated 11/6/2015.

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BRIAR CHAPEL™
by **Newland COMMUNITIES**

BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA
EROSION AND SEDIMENTATION CONTROL DETAILS

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

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

MFC FILE NUMBER: D1.X
DRAWING NUMBER: D1.1

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 3

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

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

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

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

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

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

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

MAINTENANCE:
REFERTILIZE 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 _____ RATE (lb./acre)
TALL FESCUE _____ 200

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

SEEDING DATES:
BEST: 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

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

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

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

SEEDING DATES:
(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 _____ RATE (lb./acre)
GERMAN MILLET _____ 40

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

SEEDING DATES:
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 _____ RATE (lb./acre)
RYE (GRAIN) _____ 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

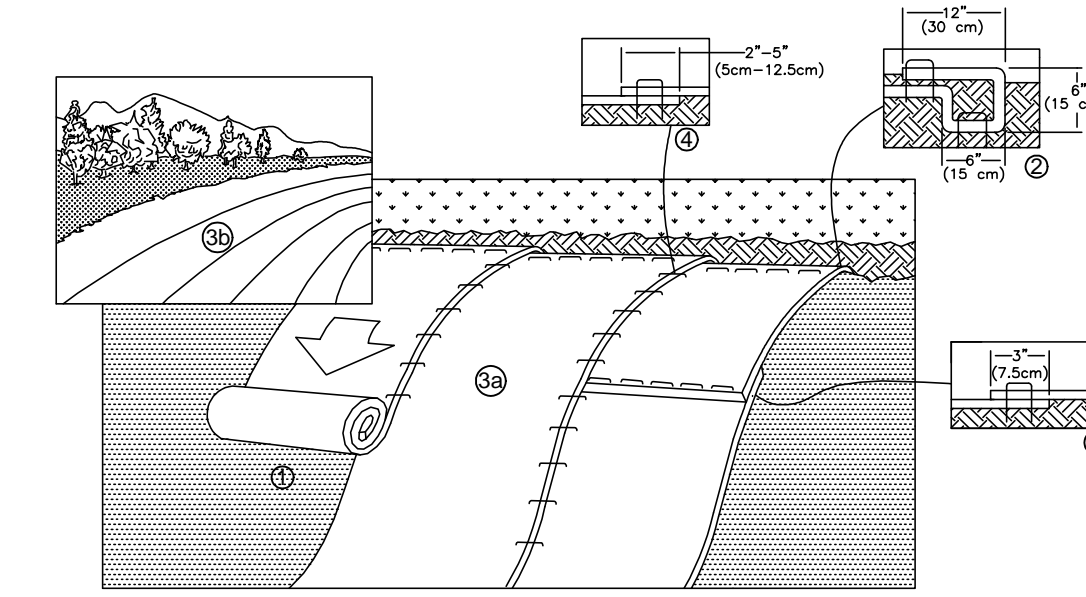
MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

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

NTS

TDD #	TOTAL LENGTH	SLOPE (%)	LINER	RECEIVING SLOPE DRAIN SIZE (IN.)
STAGE 1 DIVERSIONS				
(APPROVED WITH BC PHASE 15 CLEARING & GRUBBING PLANS)				
1	1,139'	6.5	PSSO	24
2	367'	2.6	STRAW W/NET	24
3	107'	3.7	STRAW W/NET	12
4	38'	5.3	STRAW W/NET	12
5	34'	2.1	STRAW W/NET	12
6	131'	3.1	STRAW W/NET	24
7	275'	5.1	SYNTHETIC MAT	18
8	132'	2.3	STRAW W/NET	12
9	73'	13.7	STRAW W/NET	12
10	42'	7.1	SYNTHETIC MAT	15
11	146'	1.0	STRAW W/NET	15
12	67'	13.4	SYNTHETIC MAT	12
13	35'	5.8	STRAW W/NET	12
14	275'	2.7	STRAW W/NET	24
15	57'	5.3	STRAW W/NET	12
16	48'	7.3	SYNTHETIC MAT	12
17	745'	5.0	SYNTHETIC MAT	18
18	49'	7.2	STRAW W/NET	12
19	127'	4.7	SYNTHETIC MAT	15
20	467'	3.6	SYNTHETIC MAT	24
21	96'	2.3	STRAW W/NET	12
43	122'	5.3	SYNTHETIC MAT	15
44	284'	3.4	SYNTHETIC MAT	24
45	134'	4.9	SYNTHETIC MAT	18
STAGE 2 DIVERSIONS				
55	644'	1.2	STRAW W/NET	30
56	455'	5.7	PSSO	24
57	49'	7.2	SYNTHETIC MAT	15
58	120'	9.6	PSSO	24
59	143'	1.8	STRAW W/NET	12
60	142'	4.9	STRAW W/NET	15
61	151'	4.6	SYNTHETIC MAT	18



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

TEMPORARY STABILIZATION FOR SLOPES GREATER THAN 10 FEET

NTS

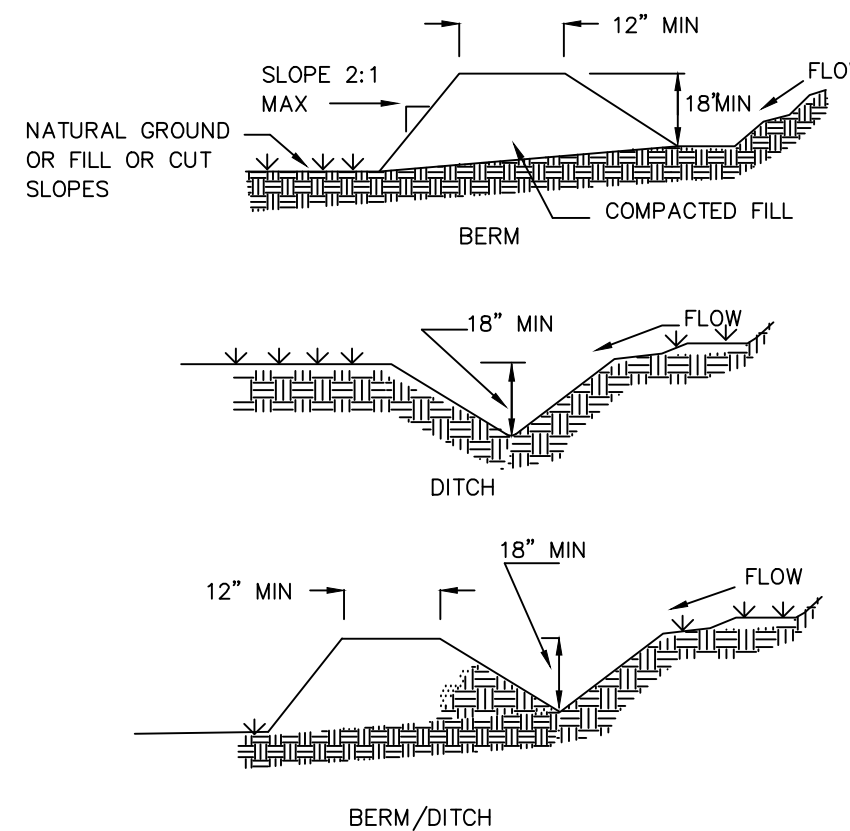
NOTES:

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

- 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.
- ALL TEMPORARY DIVERSION AND CLEAN WATER DITCHES SHALL BE MAINTAINED PER THEIR ORIGINAL DESIGN DIMENSIONS DURING CONSTRUCTION ACTIVITIES. ANY DITCHES THAT REQUIRE REMOVAL OR RELOCATION SHALL RECEIVE APPROVAL FROM CHATHAM COUNTY EROSION CONTROL INSPECTOR.



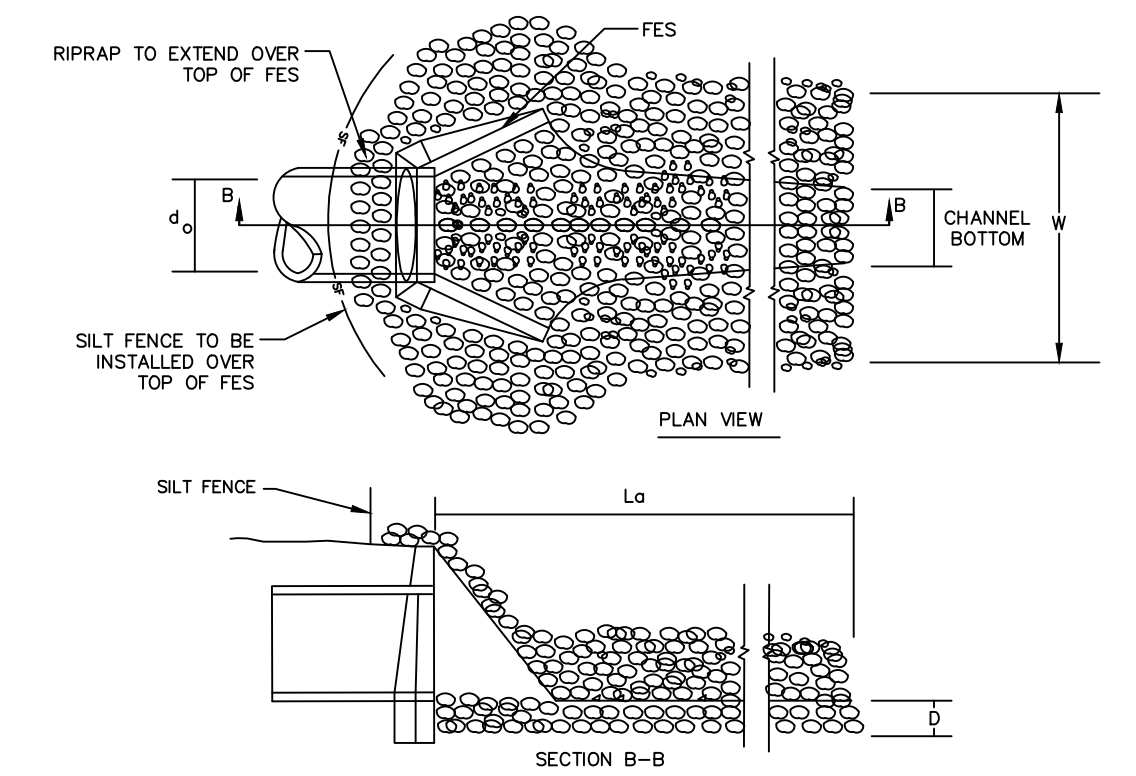
TEMPORARY DIVERSION/CLEAN WATER DIVERSION DITCH

NTS

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

SEEDBED PREPARATION

NTS



OUTLET NO.	Do (IN.)	Lo (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
HW-15-1	36	24	9	24	CLASS 1
HW-15-48	30	15	8	22	CLASS B

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

RIPRAP OUTLET PROTECTION

NTS

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2013.11.09
2	REVISED PER COMMENTS FROM NCDOT	2013.08.13
1	ISSUED FOR PERMITTING	2013.06.17

Professional Engineer Seal for GARETH C. AVANT, License No. 036348, dated 11/6/2015.

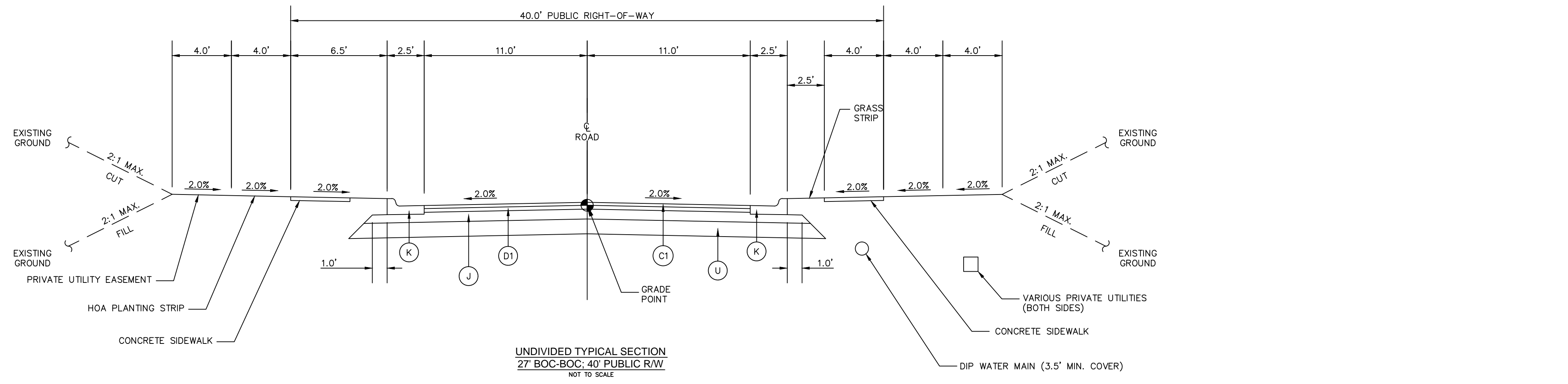
MCKIM & CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222
www.mckimcreed.com

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by **Newland COMMUNITIES**

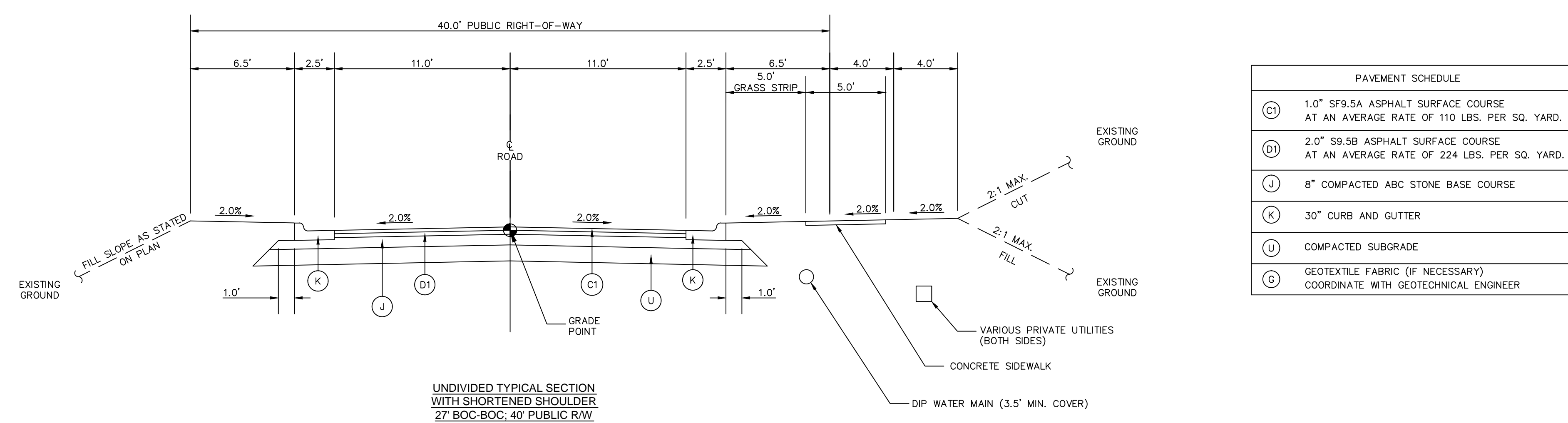
**BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

**EROSION AND SEDIMENTATION
CONTROL DETAILS**

DATE: JUNE 17, 2015.	SCALE: HORIZONTAL: 1" = 50'	MISC FILE NUMBER: D1.X
MCE PROJ. # 02735-0113	DRAWN: BSS	DRAWING NUMBER: D1.2
DESIGNED: BSS	CHECKED: GCA	VERTICAL: N/A
PROJ. MGR. CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	

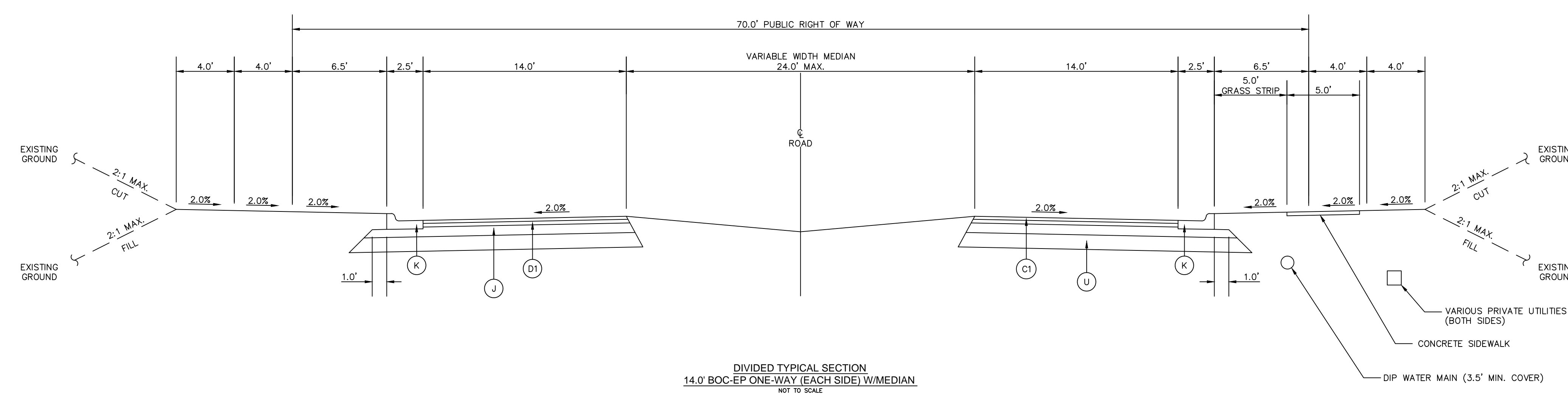


UNDIVIDED TYPICAL SECTION
27' BOC-BOC: 40' PUBLIC R/W
NOT TO SCALE

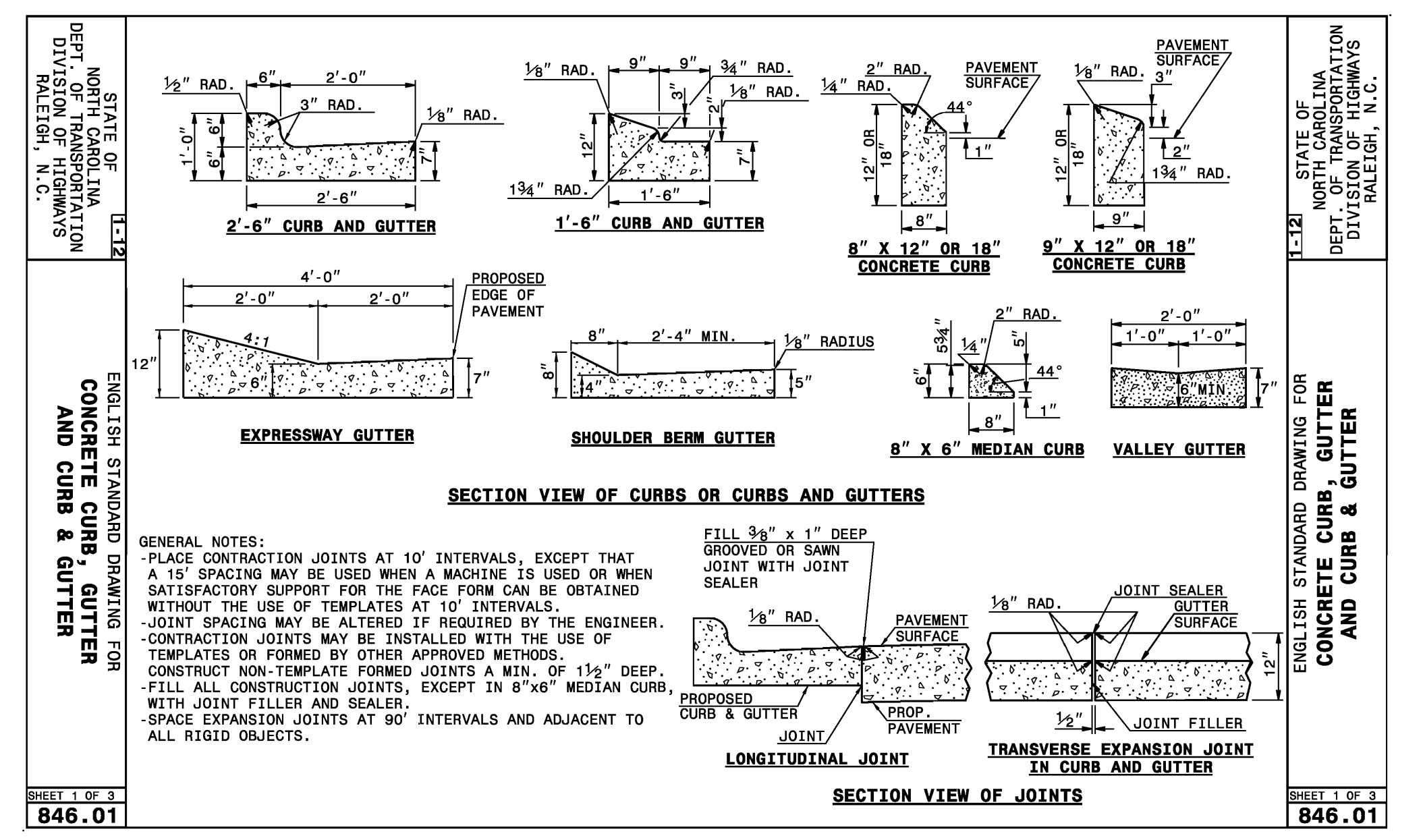


UNDIVIDED TYPICAL SECTION
WITH SHORTENED SHOULDER
27' BOC-BOC: 40' PUBLIC R/W
NOT TO SCALE

PAVEMENT SCHEDULE	
(C)	1.0" SF9.5A ASPHALT SURFACE COURSE AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD.
(D)	2.0" SF9.5B ASPHALT SURFACE COURSE AT AN AVERAGE RATE OF 224 LBS. PER SQ. YARD.
(J)	8" COMPACTED ABC STONE BASE COURSE
(K)	30" CURB AND GUTTER
(U)	COMPACTED SUBGRADE
(G)	GEOTEXTILE FABRIC (IF NECESSARY) COORDINATE WITH GEOTECHNICAL ENGINEER



DIVIDED TYPICAL SECTION
14.0' BOC-EP ONE-WAY (EACH SIDE) W/MEDIAN
NOT TO SCALE

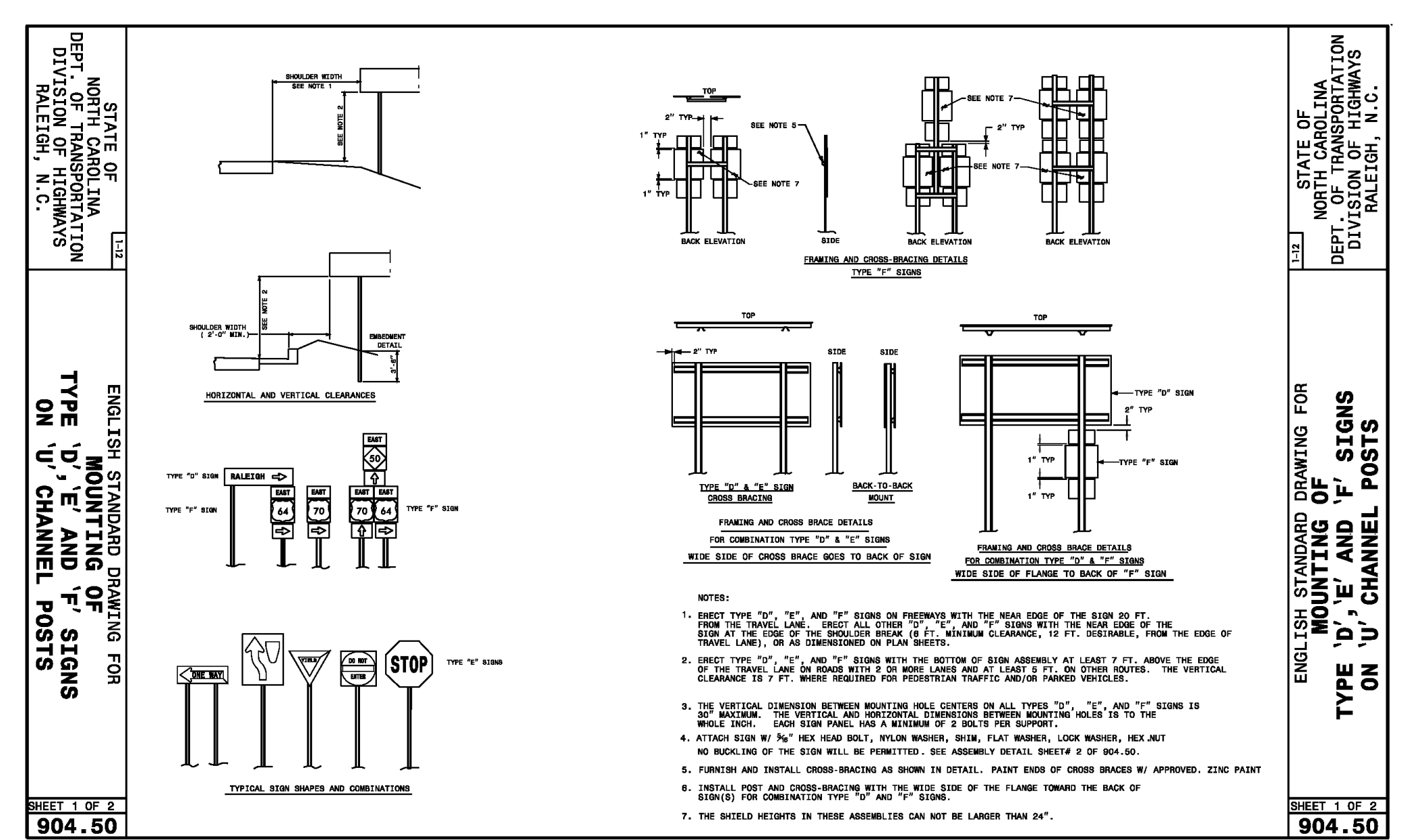


ENGLISH STANDARD DRAWING FOR
CONCRETE CURB & GUTTER

ENGLISH STANDARD DRAWING FOR
CONCRETE CURB, GUTTER
AND CURB & GUTTER

SHEET 1 OF 3
846.01

SHEET 1 OF 3
846.01

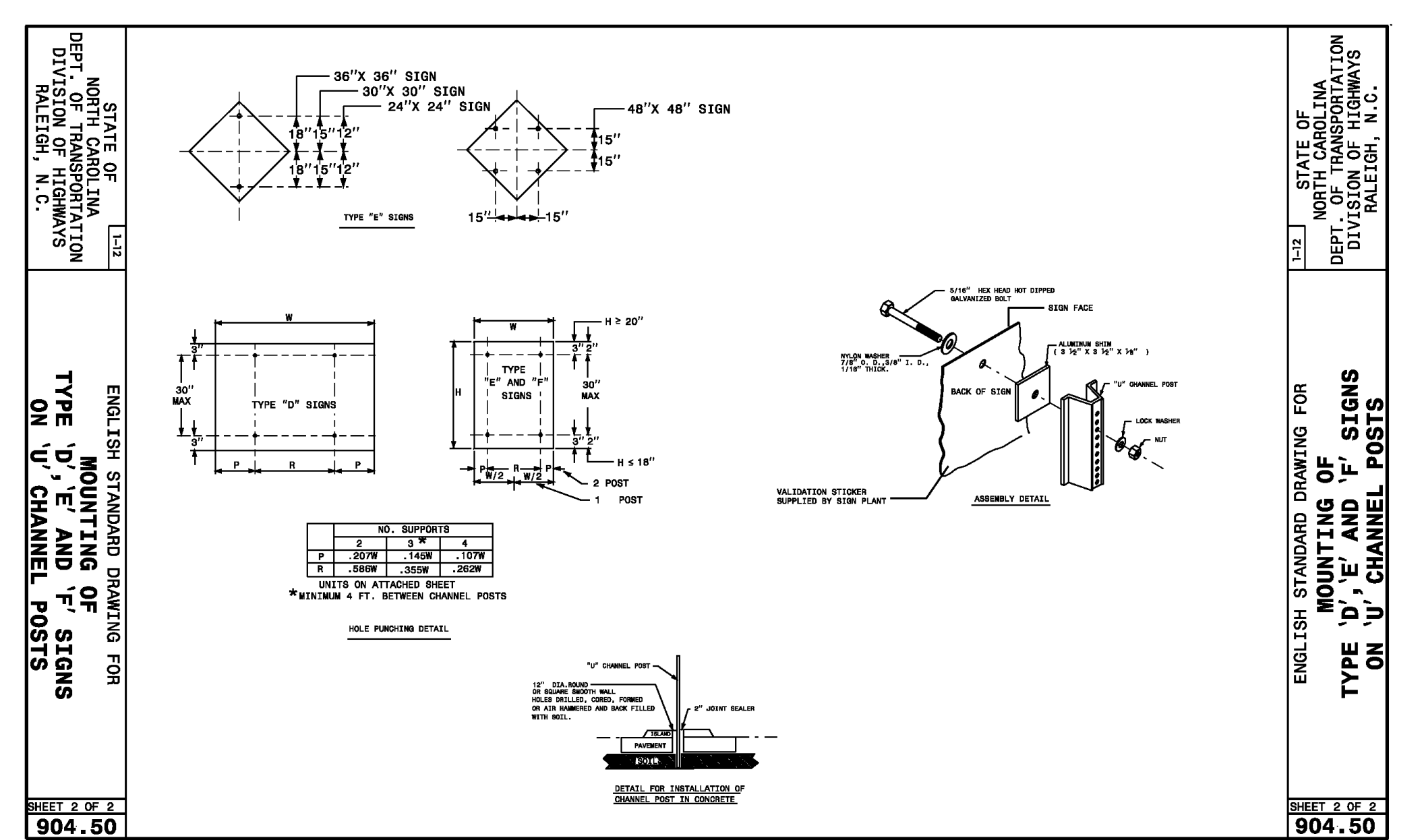


ENGLISH STANDARD DRAWING FOR
MOUNTING OF SIGN
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

ENGLISH STANDARD DRAWING FOR
MOUNTING OF SIGN
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

SHEET 1 OF 2
904.50

SHEET 1 OF 2
904.50



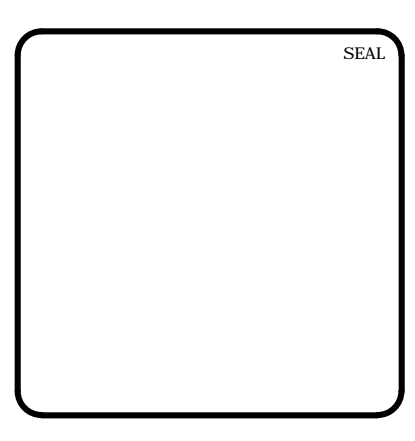
ENGLISH STANDARD DRAWING FOR
MOUNTING OF SIGN
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

ENGLISH STANDARD DRAWING FOR
MOUNTING OF SIGN
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

SHEET 2 OF 2
904.50

SHEET 2 OF 2
904.50

REV. NO.	DESCRIPTION	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.09
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



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BRIAR CHAPEL™
by
Newland COMMUNITIES

**BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

NCDOT ROADWAY DETAILS

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

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

ENGLISH STANDARD DRAWING FOR
FRAMES AND NARROW SLOT SAG GRATES

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

SHEET 1 OF 1
840.24

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

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

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

PIPE	SPAN	WIDTH	HEIGHT	NO. PER SPAN	MIN. TOTAL	REDUCTIONS FOR ONE PIPE
D	A	B	H			C.S. R.C.
12"	3'-8"	2'-0"	1'-0"	0.362	0.247	0.381 0.753 0.020 0.032
15"	3'-8"	2'-0"	1'-11"	0.362	0.247	0.453 0.815 0.023 0.038
18"	3'-8"	2'-0"	2'-2"	0.362	0.247	0.515 0.877 0.033 0.048
24"	3'-8"	2'-0"	2'-8"	0.362	0.247	0.659 1.021 0.059 0.085
30"	3'-8"	2'-0"	3'-2"	0.362	0.247	0.782 1.144 0.082 0.127
36"	3'-8"	2'-0"	3'-6"	0.362	0.247	0.906 1.268 0.132 0.178

SHEET 1 OF 1
840.19

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

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN

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

SHEET 1 OF 2
840.02

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

ENGLISH STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN

NOTES: USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 2'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC FORM, 2" KEWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CHAINS MATCHING.
INITIAL 2" REEHOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE GRATING, OF A MINIMUM OF 1.0 QUIC FOOT OF NO. 7MM STONE IN A POUND FABRIC BAG OR WAMP, AT EACH WEEP HOLE ON AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.
INCREASE THE SIZE OF THE OPENING TO 8" MAX., AS DIRECTED BY THE ENGINEER BY ADDING 2" TO THE WALL HEIGHT ABOVE THE TOP ELEVATION. ADJUST QUANTITIES ACCORDINGLY.

PIPE	SPAN	WIDTH	HEIGHT	NO. PER SPAN	MIN. TOTAL	REDUCTIONS FOR ONE PIPE
D	A	B	H			C.S. R.C.
12"	3'-8"	2'-3"	1'-10"	0.362	0.247	0.453 0.815 0.023 0.038
15"	3'-8"	2'-3"	2'-1"	0.362	0.247	0.515 0.877 0.033 0.048
18"	3'-8"	2'-3"	2'-4"	0.362	0.247	0.577 0.939 0.043 0.058
24"	3'-8"	2'-3"	2'-10"	0.362	0.247	0.719 1.062 0.069 0.095
30"	3'-8"	2'-3"	3'-4"	0.362	0.247	0.842 1.185 0.092 0.128
36"	3'-8"	2'-3"	3'-8"	0.362	0.247	0.965 1.308 0.115 0.153
42"	3'-8"	2'-3"	4'-2"	0.362	0.247	1.088 1.431 0.138 0.178
48"	3'-8"	2'-3"	4'-6"	0.362	0.247	1.211 1.554 0.161 0.203

SHEET 1 OF 2
840.04

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

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD 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 FOR WALL SECTION.

SHEET 1 OF 2
840.03

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

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER)

PIPE	SPAN	WIDTH	HEIGHT	NO. PER SPAN	MIN. TOTAL	REDUCTIONS FOR ONE PIPE
D	A	B	H			C.S. R.C.
12"	3'-8"	2'-3"	1'-10"	0.362	0.247	0.453 0.815 0.023 0.038
15"	3'-8"	2'-3"	2'-1"	0.362	0.247	0.515 0.877 0.033 0.048
18"	3'-8"	2'-3"	2'-4"	0.362	0.247	0.577 0.939 0.043 0.058
24"	3'-8"	2'-3"	2'-10"	0.362	0.247	0.719 1.062 0.069 0.095
30"	3'-8"	2'-3"	3'-4"	0.362	0.247	0.842 1.185 0.092 0.128
36"	3'-8"	2'-3"	3'-8"	0.362	0.247	0.965 1.308 0.115 0.153
42"	3'-8"	2'-3"	4'-2"	0.362	0.247	1.088 1.431 0.138 0.178
48"	3'-8"	2'-3"	4'-6"	0.362	0.247	1.211 1.554 0.161 0.203

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

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

TYPE "G" TYPE "E" TYPE "F"

WATER FLOW SAG WATER FLOW

WATER FLOW SAG WATER FLOW

WATER FLOW SAG WATER FLOW

RAISED FLOW ARROW 1/8" HIGH

SHEET 2 OF 2
840.03

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

ENGLISH STANDARD DRAWING FOR
PRECAST CONCRETE ENDWALL

NOTE: THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.35, 838.39, 838.41, 838.57, 838.63 AND 838.69.
INSTALL PRECAST ENDWALLS WITH WEIRS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.
USE 4000 PSI CONCRETE.
PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM #615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM #118 WITH 2" MIN. CLEARANCE.
PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
PIPE TO BE GROUTED INTO HEADWALL AT JOB SITE BY CONTRACTOR.
ALL ELEMENTS PRECAST TO MEET ASTM #913.
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 8" CTS. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

FT.	MINIMUM	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
PIPE DIA.	BAR SIZE	H1(FT.)	H2(FT.)	D (FT.)	W1	W2
1.25	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.80/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.50/3.00	4.50/5.50	10.00/11.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75	11.50/11.75
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	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

SHEET 1 OF 1
838.80

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

ENGLISH STANDARD DRAWING FOR
PRECAST CONCRETE ENDWALL

NOTE: THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.35, 838.39, 838.41, 838.57, 838.63 AND 838.69.
INSTALL PRECAST ENDWALLS WITH WEIRS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.
USE 4000 PSI CONCRETE.
PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM #615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM #118 WITH 2" MIN. CLEARANCE.
PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
PIPE TO BE GROUTED INTO HEADWALL AT JOB SITE BY CONTRACTOR.
ALL ELEMENTS PRECAST TO MEET ASTM #913.
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 8" CTS. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

FT.	MINIMUM	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
PIPE DIA.	BAR SIZE	H1(FT.)	H2(FT.)	D (FT.)	W1	W2
1.25	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.80/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.50/3.00	4.50/5.50	10.00/11.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75	11.50/11.75
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	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

SHEET 1 OF 1
838.80

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2015.11.09	REVISED PER COMMENTS FROM COUNTY	
2	2015.08.19	REVISED PER COMMENTS FROM NCDOT	
1	2015.06.17	ISSUED FOR PERMITTING	

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER
GARETH C. AVANT
036348
11/6/2015

MCKIM & CREED

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Raleigh, North Carolina 27606
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F-1222

www.mckimcreed.com

BRIAR CHAPEL

by Newland COMMUNITIES

BRIAR CHAPEL
PHASE 15 NORTH CHATHAM COUNTY, NORTH CAROLINA

NCDOT DRAINAGE DETAILS

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

SCALE: HORIZONTAL: D2.X
VERTICAL: D2.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 3

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

ENGLISH STANDARD DRAWING FOR
PRECAST MANHOLE 4', 5' AND 6' DIAMETER
12" THRU 48" PIPE

GENERAL NOTES
USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.
FABRICATE, ASSEMBLE AND DESIGN PRECAST MANHOLE COMPONENTS ACCORDANCE WITH AASHTO M199.
ASSEMBLE RISER AND GRADE RINGS WITH THE STEPS SPACED 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.
WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND AND A MINIMUM OF 4" ABOVE THE GROUND AT OTHER LOCATIONS.
LIMIT DEPTH OF FILL TO 30'-0" FROM FINISH GRADE TO TOP OF BOTTOM SLAB.
THE MIN. SLAB THICKNESS 'T' IS THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.
* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
4	4	6	0.12
5	5	8	0.15
6	6	8	0.18

CONCENTRIC CONE SECTION
ALTERNATE CONE SECTION
FLAT TOP SLAB
TYPICAL MANHOLE SECTION
GRADED INLET OPTION
MANHOLE OPTION

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

ENGLISH STANDARD DRAWING FOR
PRECAST MANHOLE 4', 5' AND 6' DIAMETER
12" THRU 48" PIPE

SHEET 1 OF 1
840.52

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)

PLAN OF FRAME
PLAN OF COVER
SECTION A-A
SECTION B-B

MINIMUM WEIGHTS - LBS.
FRAME - 180
COVER - 120
TOTAL - 300

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

ENGLISH STANDARD DRAWING FOR
MANHOLE FRAME AND COVER

SHEET 1 OF 1
840.54

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

ENGLISH STANDARD DRAWING FOR
DRAINAGE STRUCTURE STEPS

NOTES:
INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL.
STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

PLAN
SIDE ELEVATION
ELEVATION
PLAN
SIDE ELEVATION
ELEVATION
PLAN
SIDE ELEVATION
ELEVATION
SECTION A-A

CAST IRON
POLYPROPYLENE COMPOSITE
REINFORCING STEEL

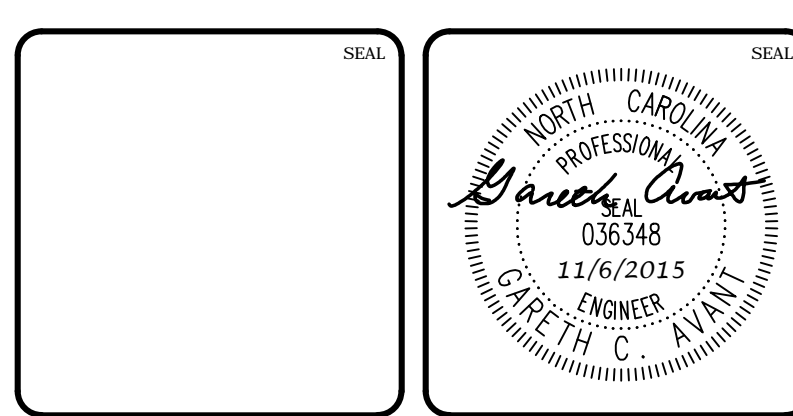
NOTE: DO NOT USE IN SANITARY SEWER MANHOLES.

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

ENGLISH STANDARD DRAWING FOR
DRAINAGE STRUCTURE STEPS

SHEET 1 OF 1
840.66

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.08
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



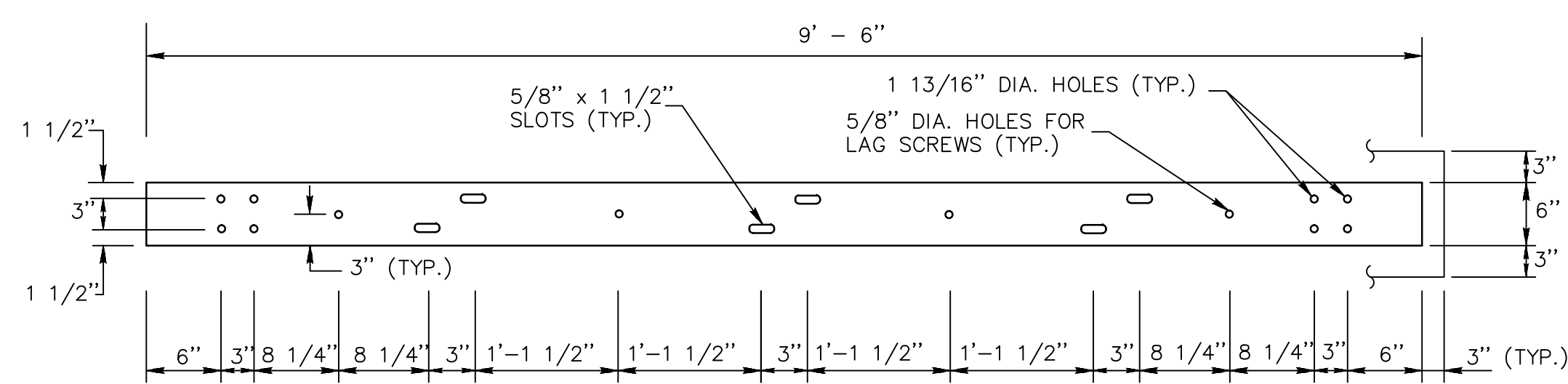
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1730 Varsity Drive, Suite 500
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Phone: (919)233-8091, Fax: (919)233-8031
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www.mckimcreed.com

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by
Newland COMMUNITIES

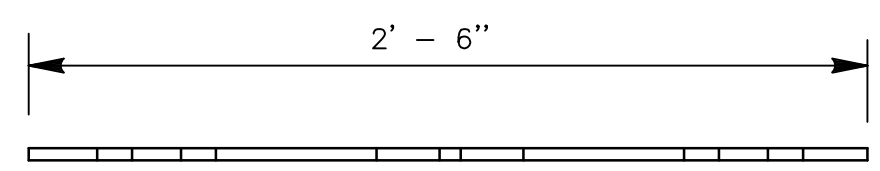
**BRIAR CHAPEL
PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

NCDOT DRAINAGE DETAILS

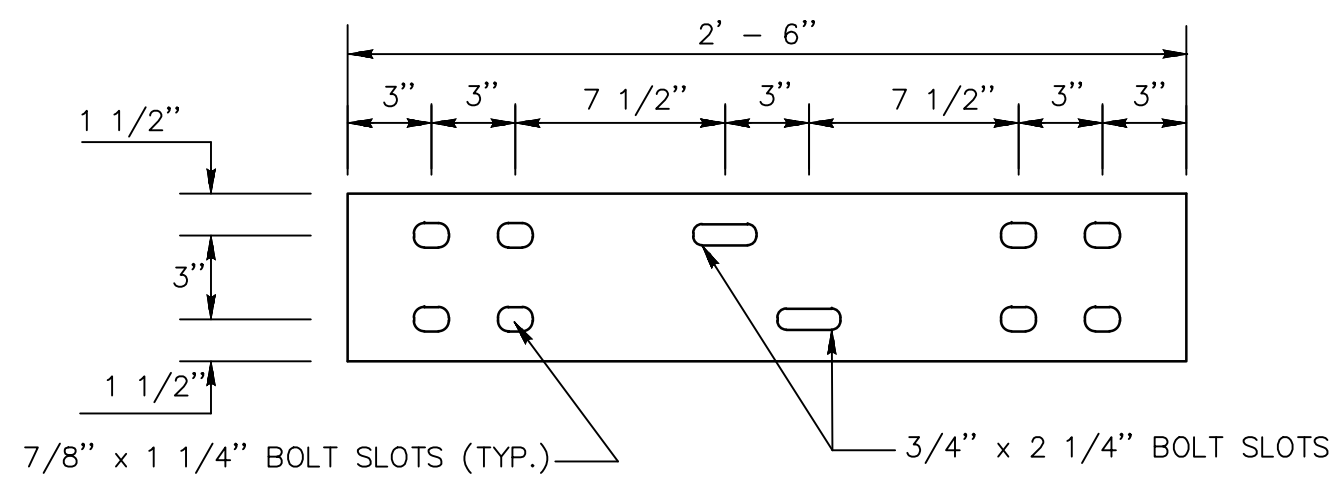
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DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	



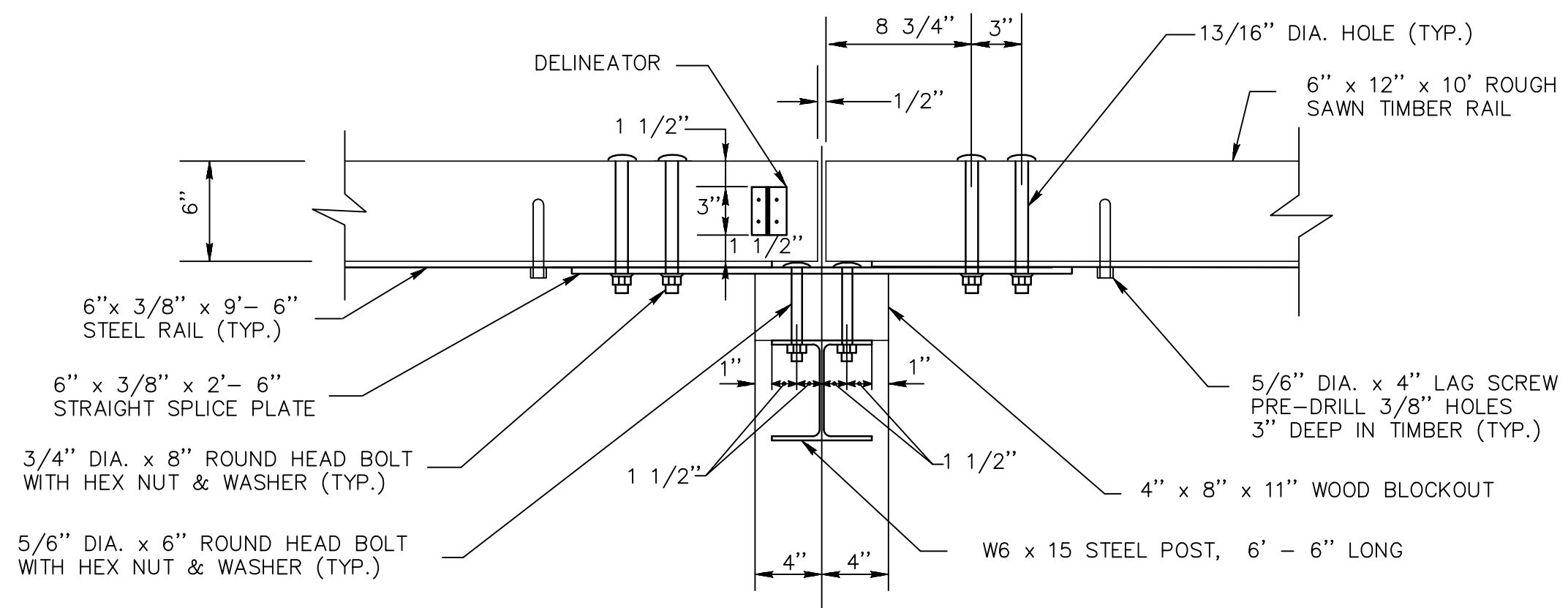
STANDARD STEEL RAIL DETAIL
6" x 3/8" x 9' - 6"
NTS



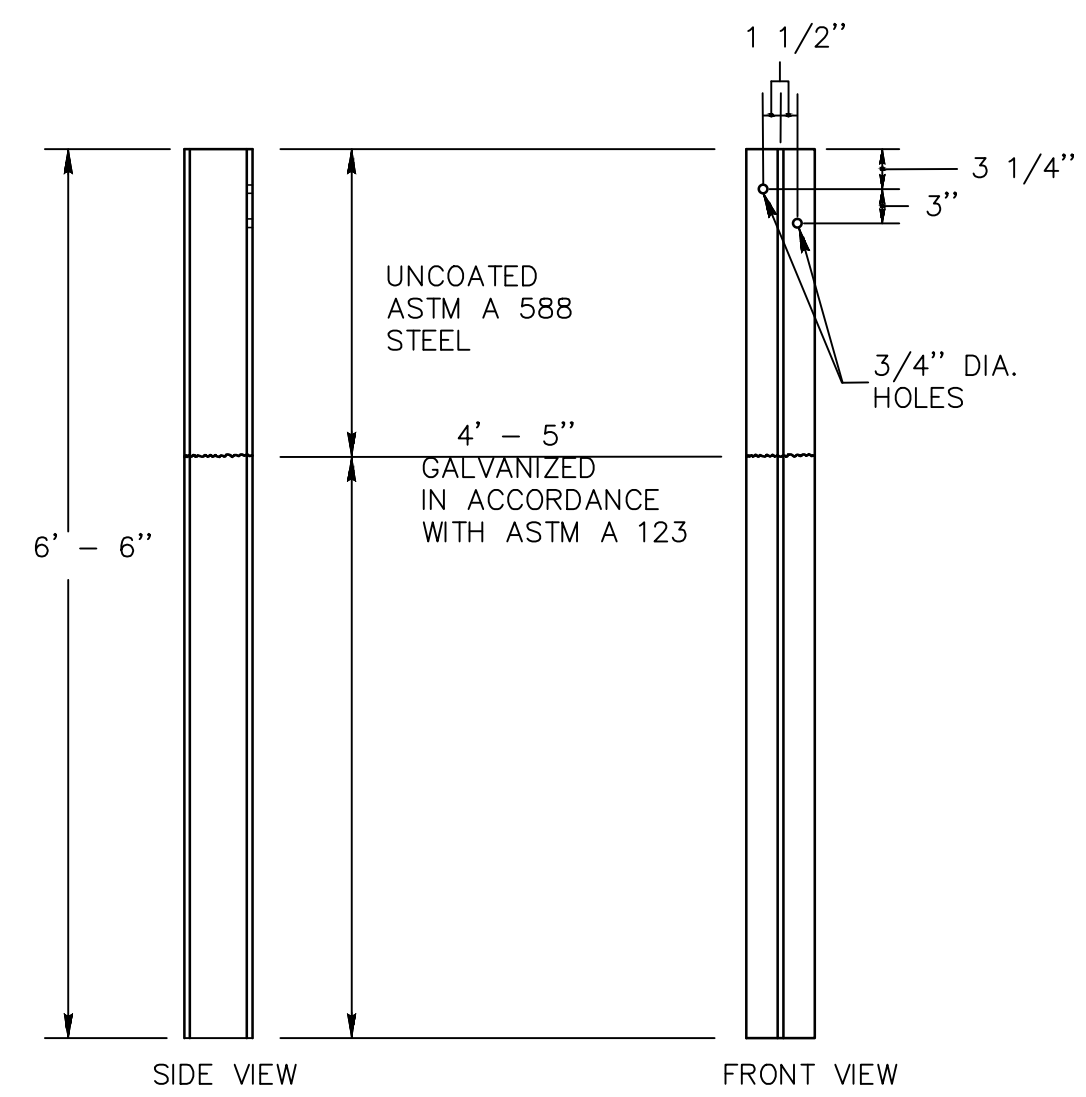
STRAIGHT SPLICE PLATE ELEVATION
NTS



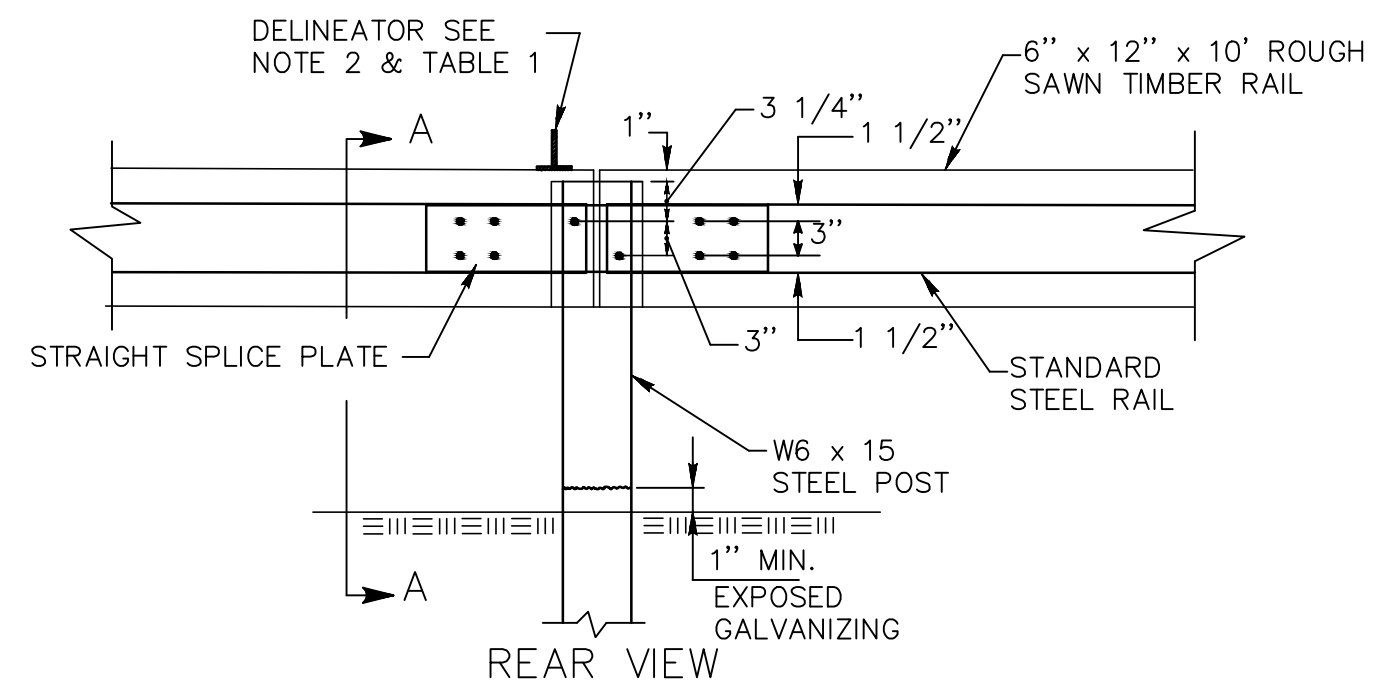
SPLICE PLATE DETAIL
6" x 3/8" x 2' - 6"
NTS



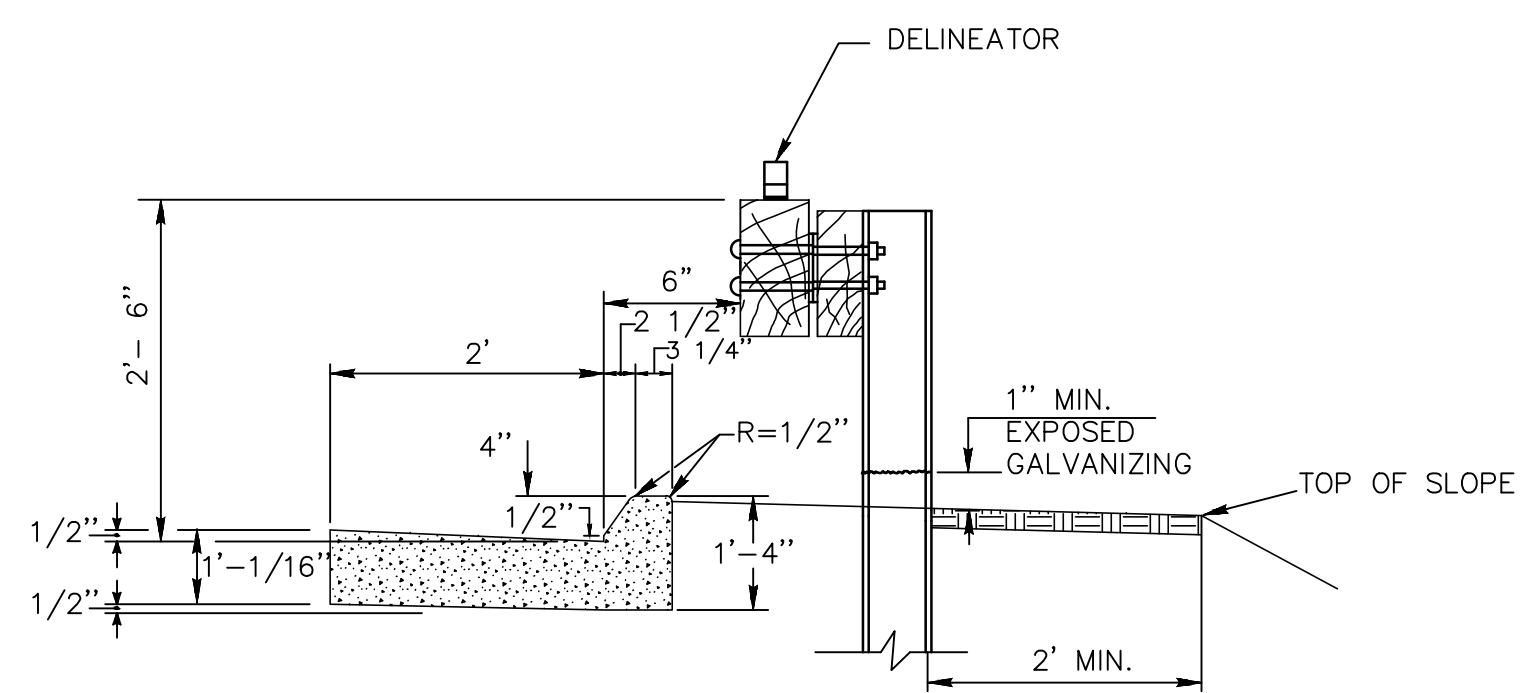
POST CONNECTION FOR STRAIGHT SECTIONS
NTS



POST DETAIL
W6 x 15
NTS



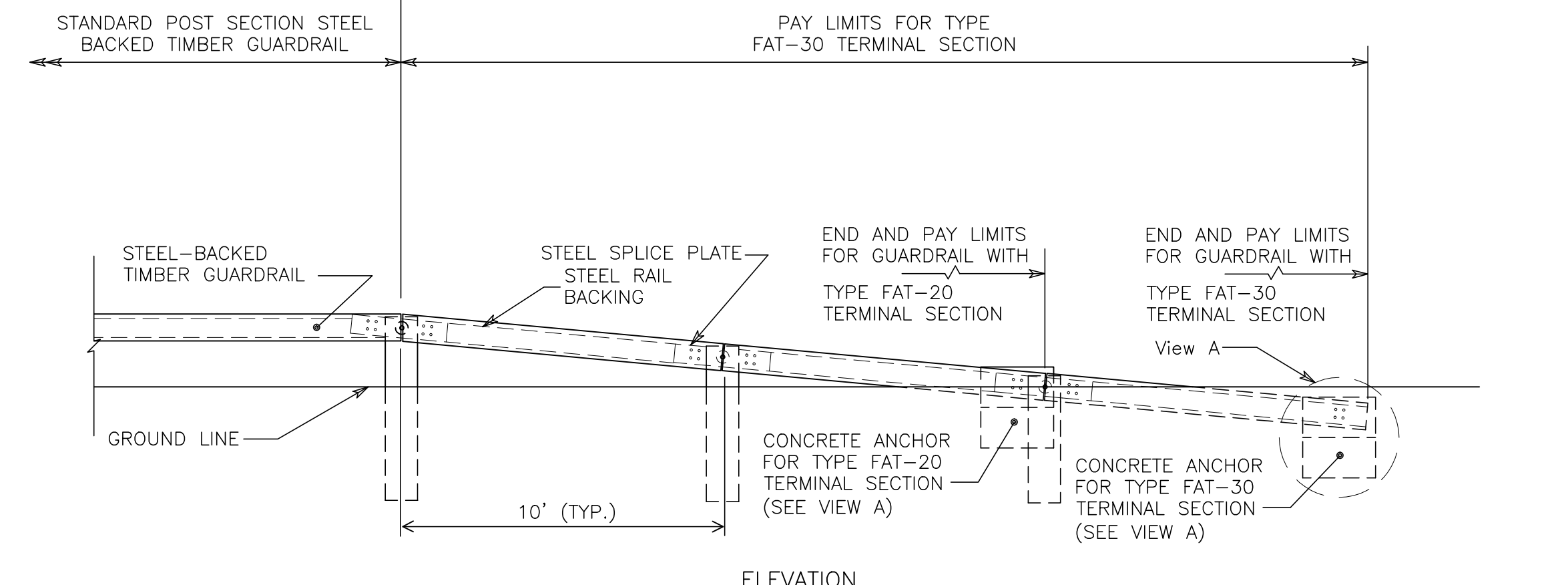
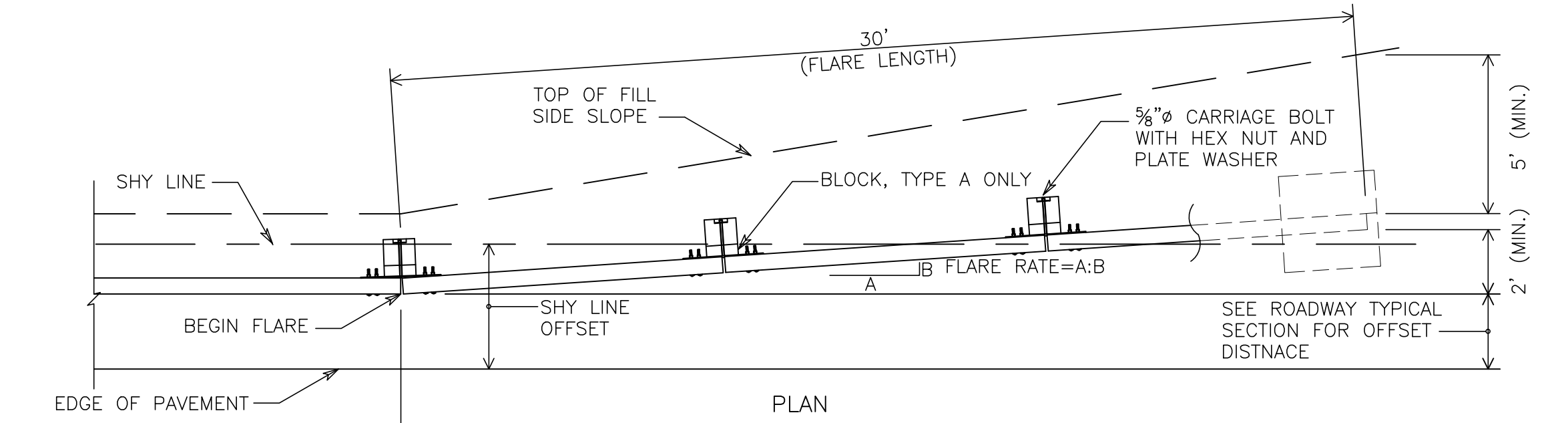
POST CONNECTION ELEVATION
NTS



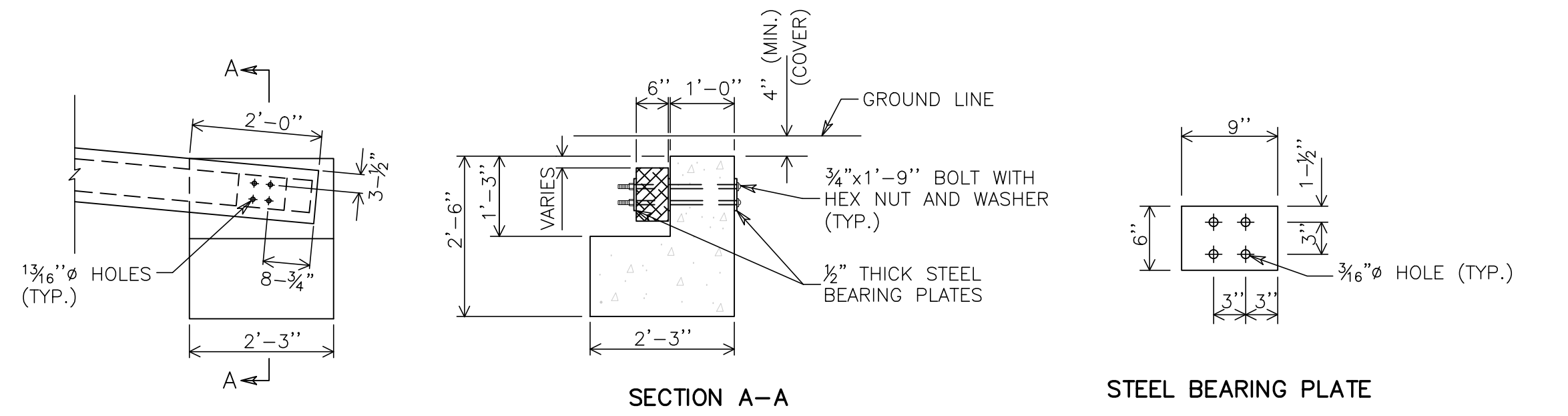
STANDARD SECTION WITH CURB
NTS

TABLE 1
DELINEATOR SPACING

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



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

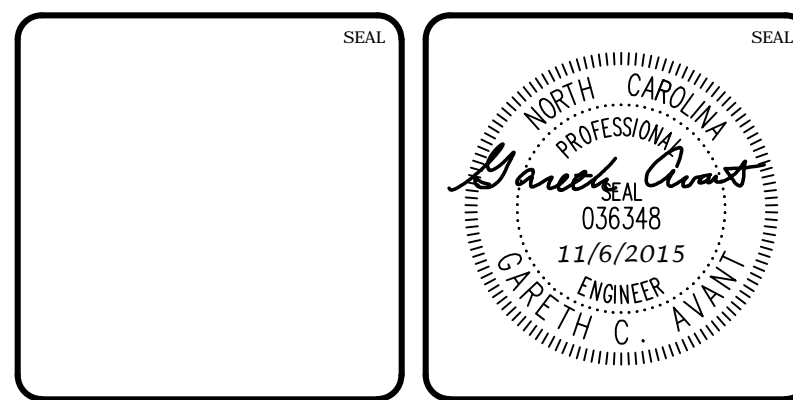


CONCRETE ANCHOR
NTS

NOTES

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

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2015.11.08	REVISED PER COMMENTS FROM COUNTY	
2	2015.08.13	REVISED PER COMMENTS FROM NCDOT	
1	2015.06.17	ISSUED FOR PERMITTING	

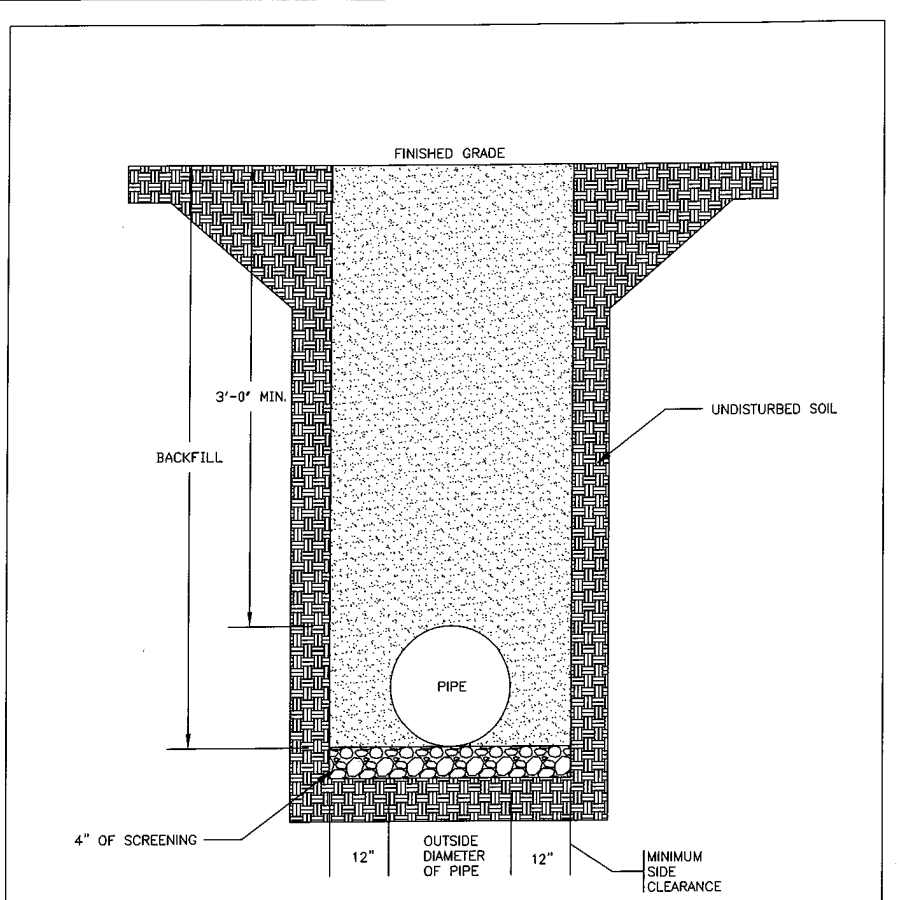


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CHATHAM COUNTY, NORTH CAROLINA**
GUARDRAIL DETAILS

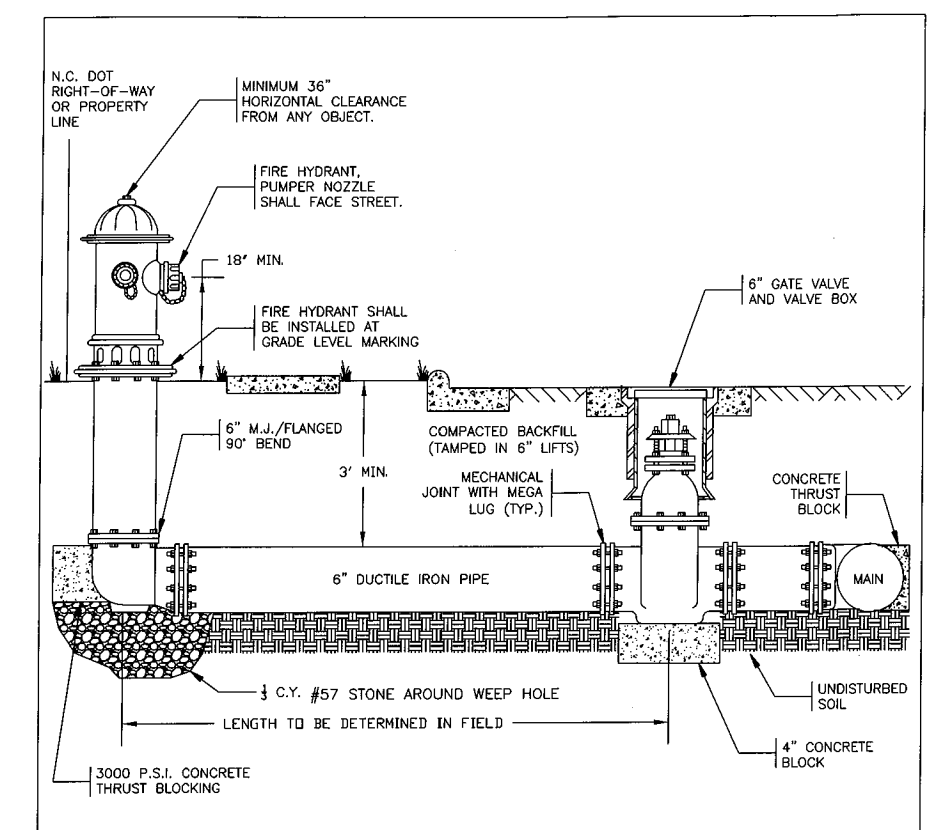
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DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 3	



NOTES:
 1. TRENCHES REQUIRING BENCHING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE BENCHING AND BRACING.
 2. THE BACKFILL SHALL BE PLACED IN LAYERS IN 6" TO 8" LAYERS TO BE USED IN BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 5. ACHIEVE 95% COMPACTION IN BACKFILL.

UNDERGROUND SERVICE ALERT
 811
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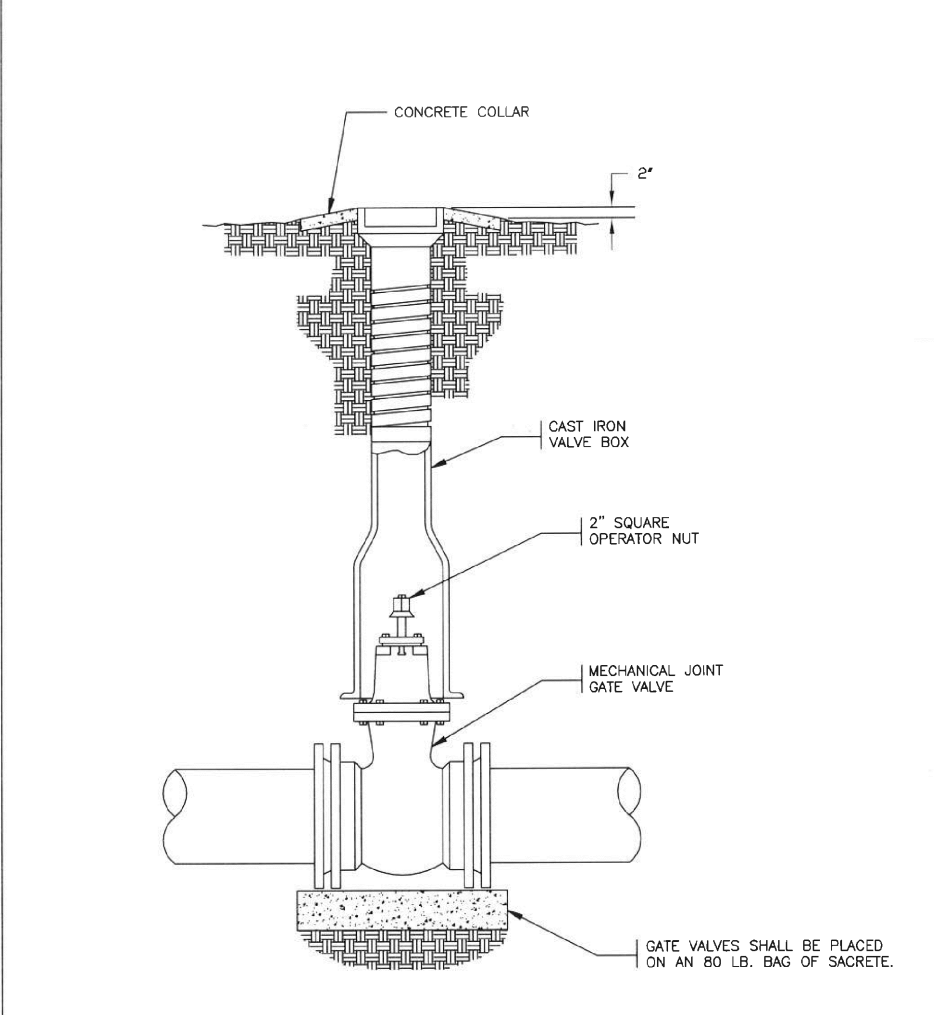
DUCTILE IRON PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS



NOTES:
 1. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96.
 2. GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT.
 3. FIRE HYDRANTS SHALL BE INSTALLED IN TRUE VERTICAL POSITION.
 4. FIRE HYDRANTS SHALL BE LOCATED IN ROW OR 5' EASEMENT ADJACENT TO ROW.
 5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF VARYING HORIZONTAL AND VERTICAL ALIGNMENT. HAVING THE WORK, CONSTRUCTION ROAD WORK OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

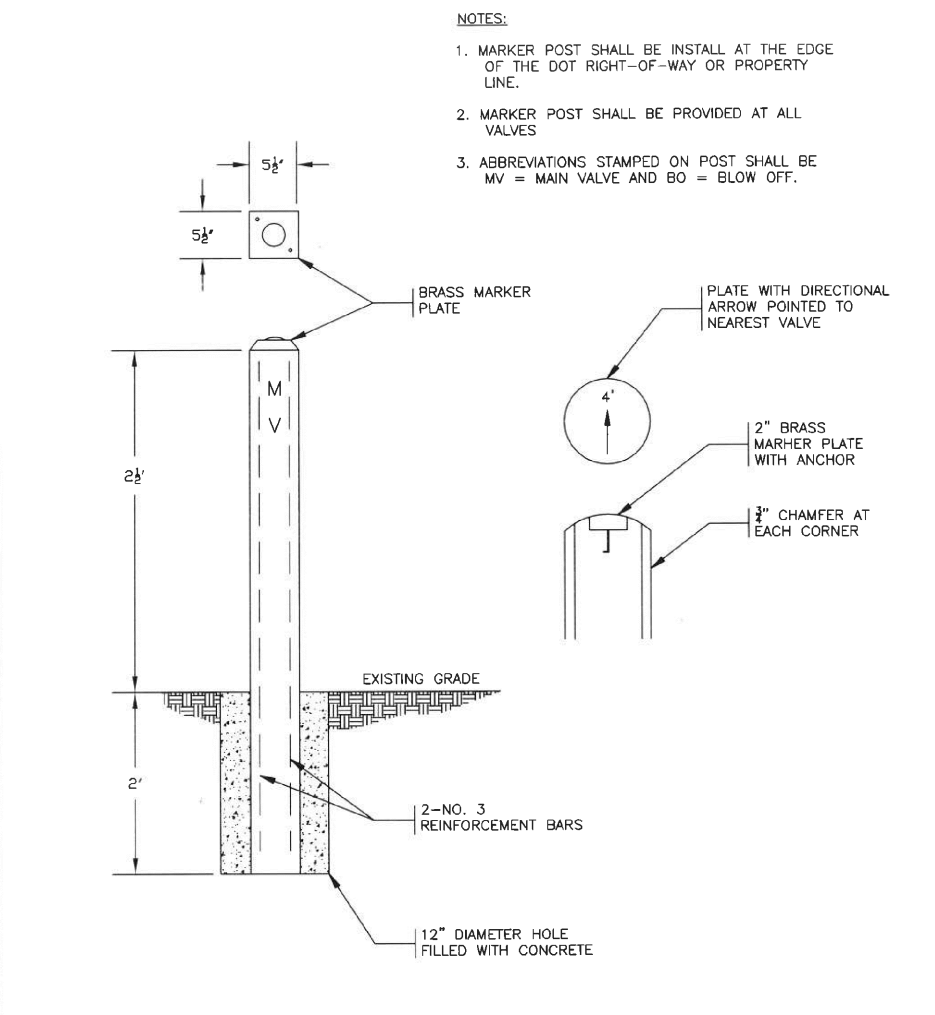
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FIRE HYDRANT ASSEMBLY



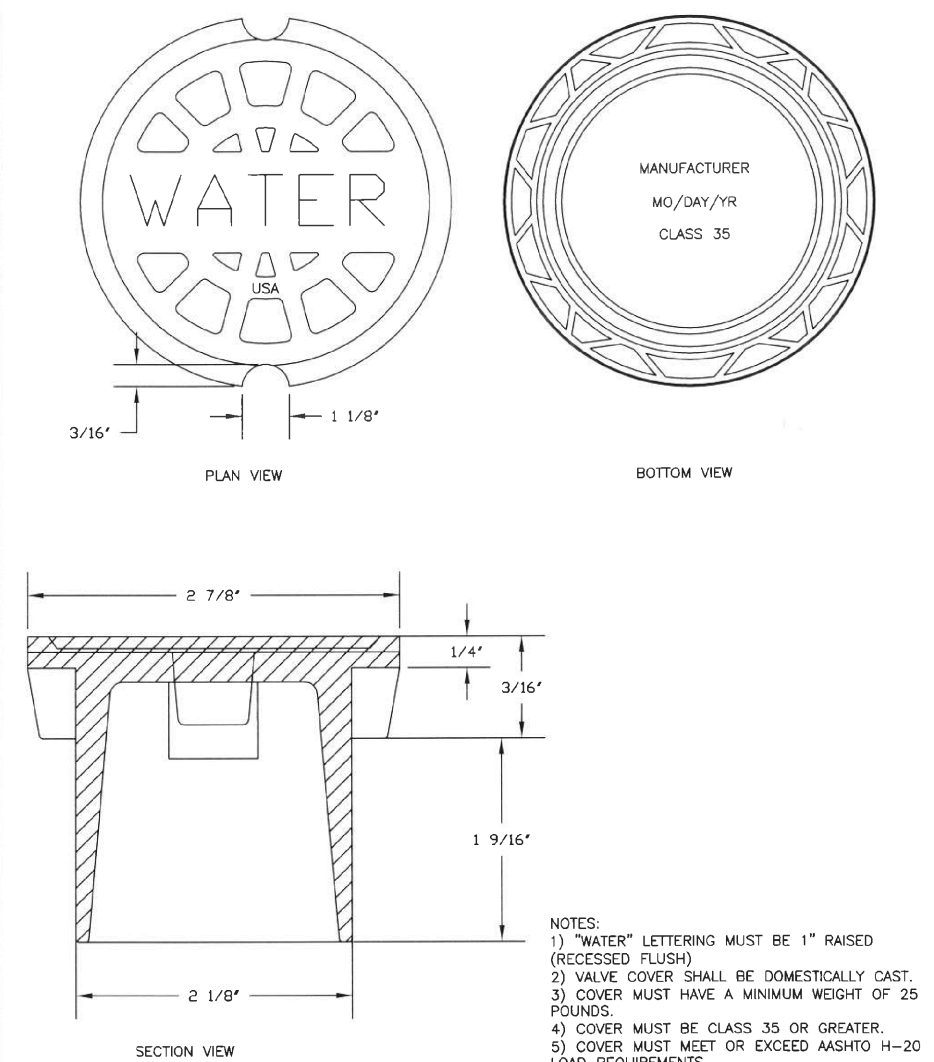
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GATE VALVE ASSEMBLY



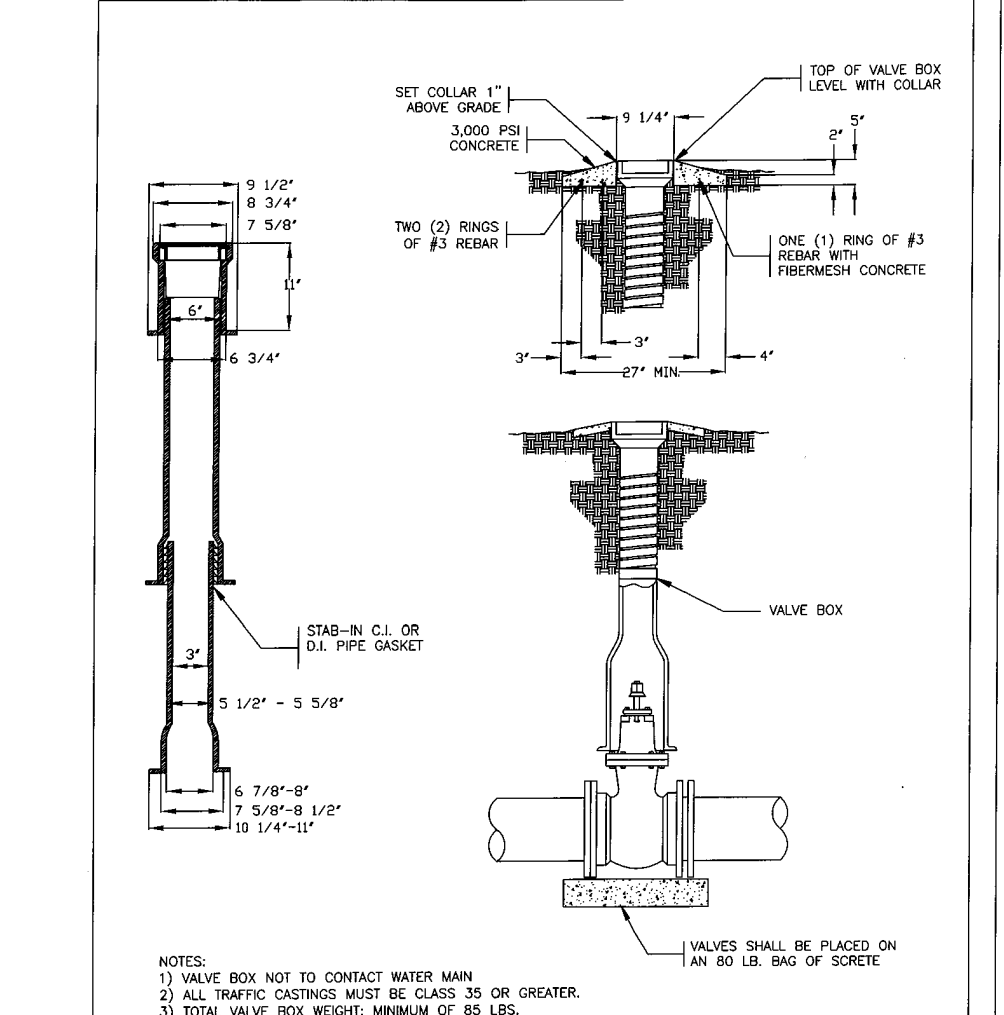
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VALVE MARKER POST



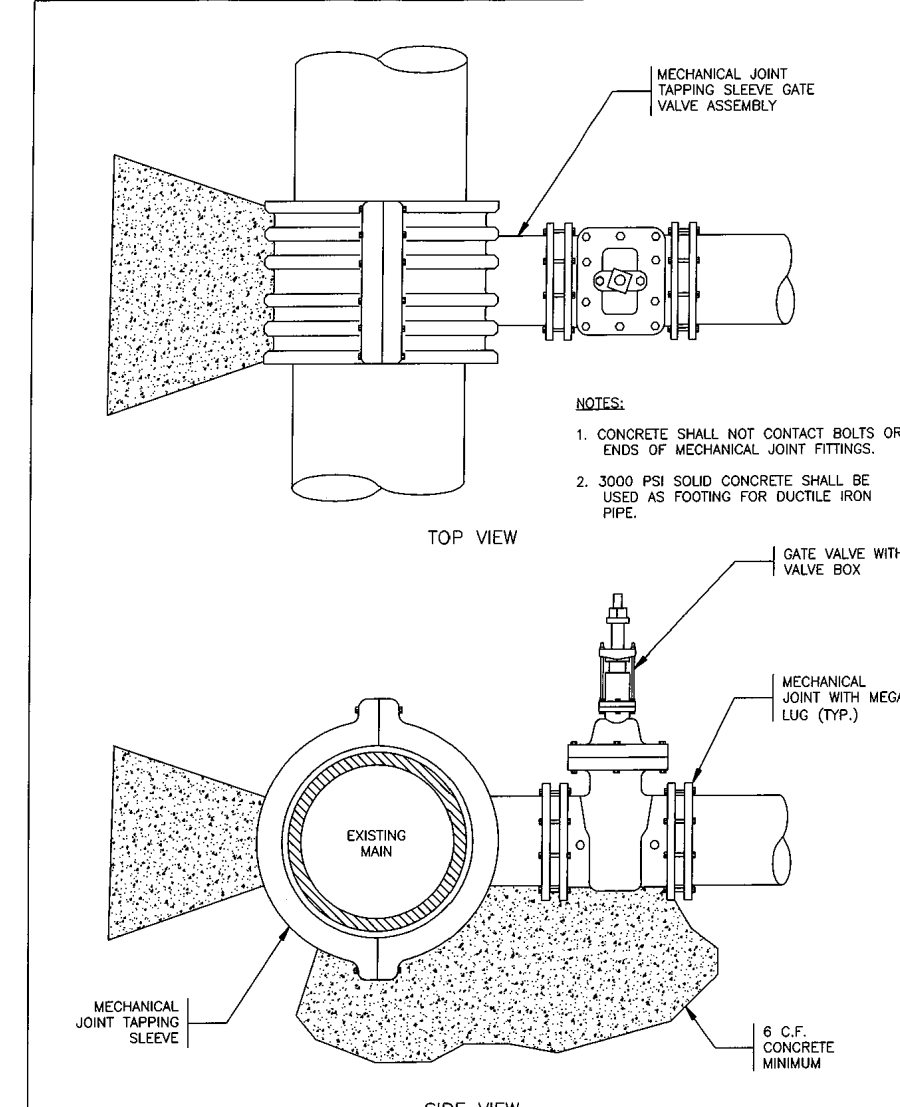
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VALVE BOX COVER



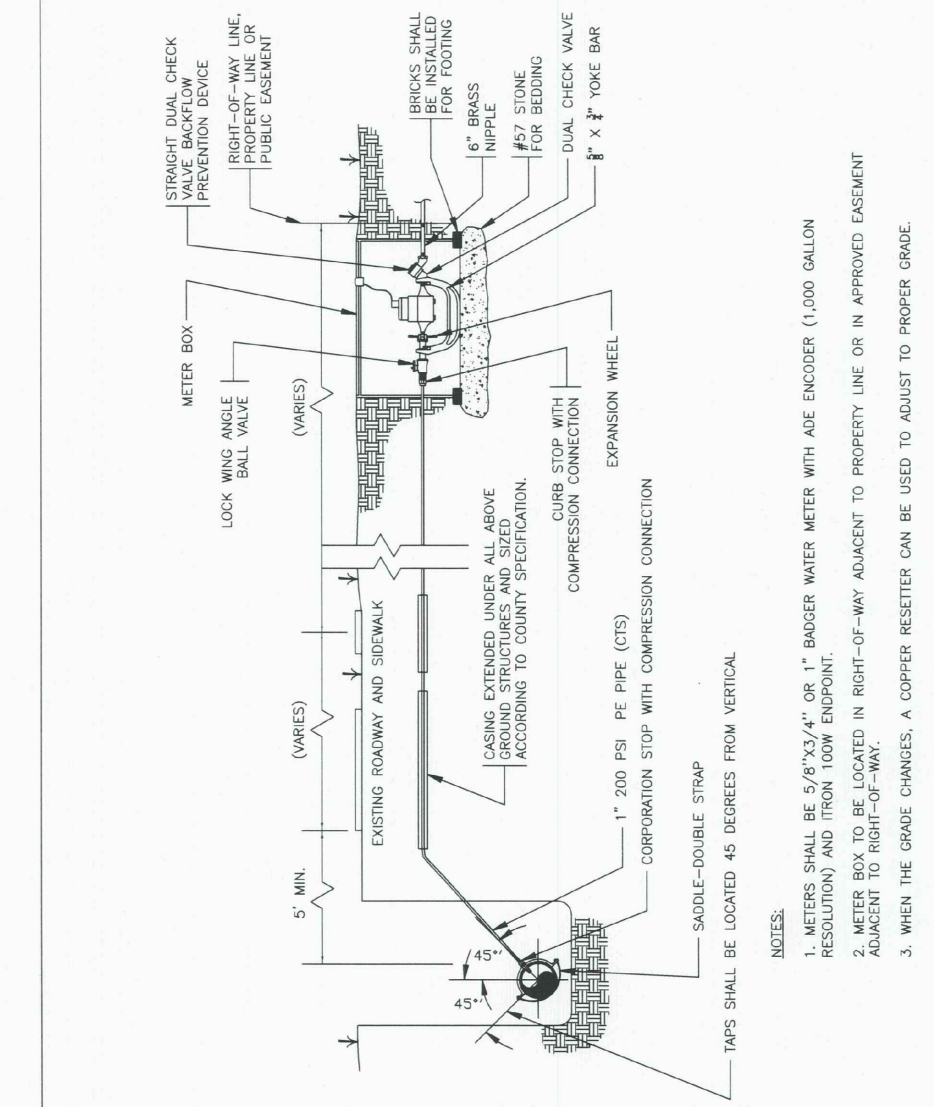
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VALVE BOX AND COLLAR



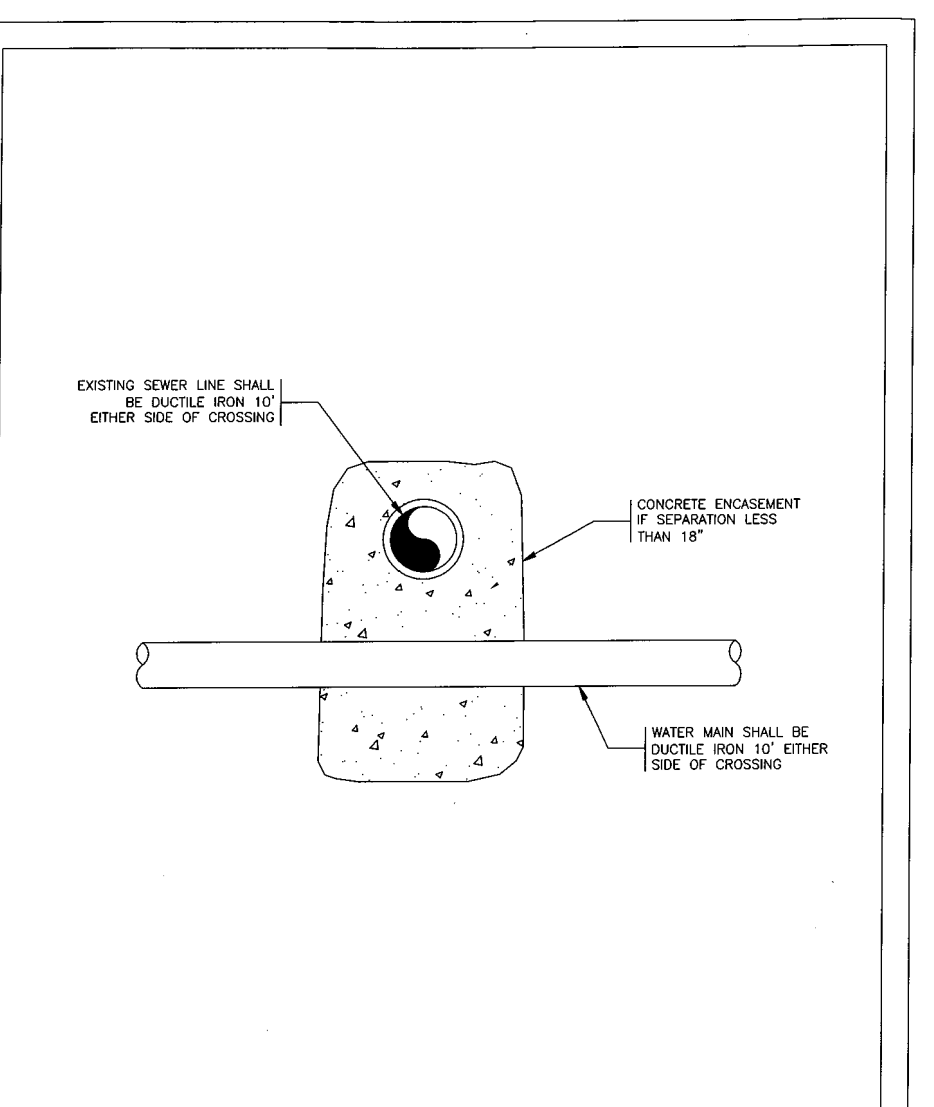
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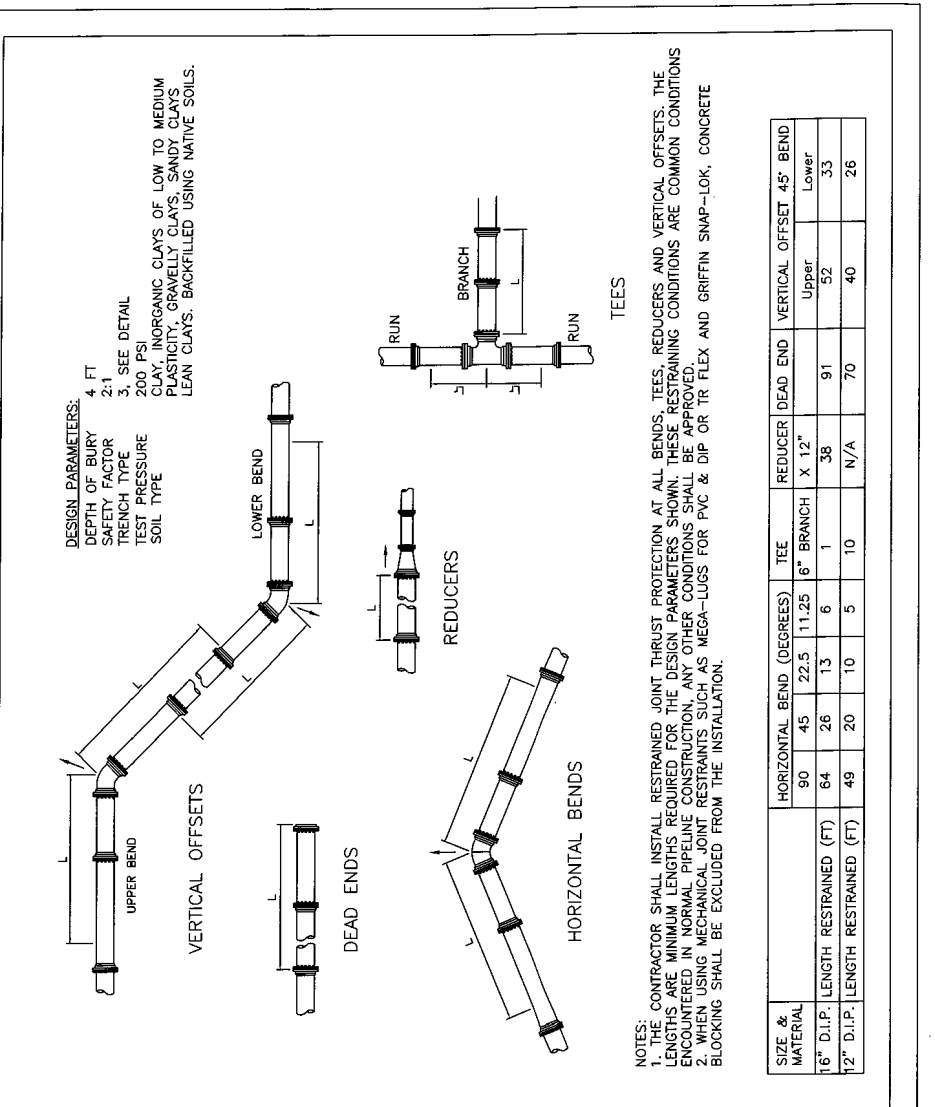
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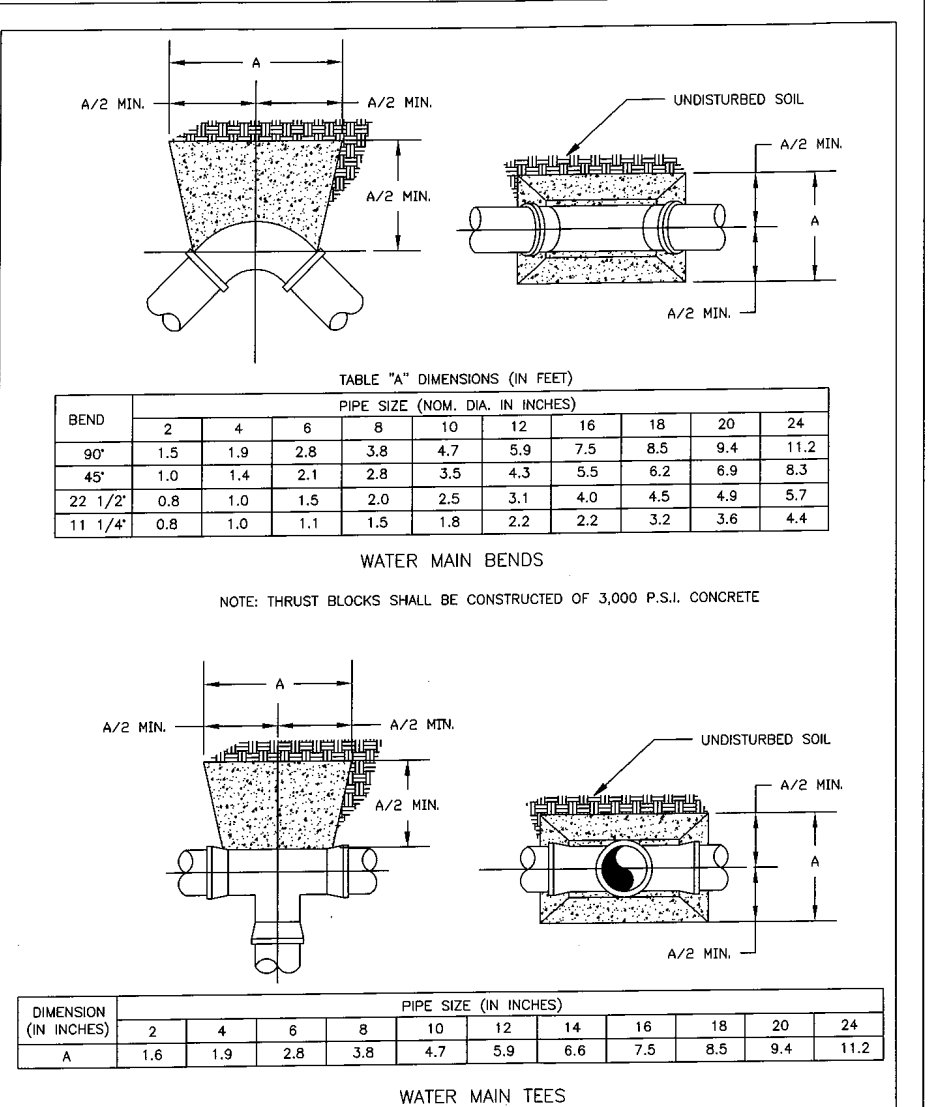
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WATER AND SEWER CROSSING



UNDERGROUND SERVICE ALERT
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MECHANICAL JOINT RESTRAINT



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CONCRETE THRUST BLOCKING QUANTITY TABLE

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
 BASED ON TEST PRESSURE OF 200 P.S.I.
 ALL AREAS GIVEN IN SQUARE FEET

SIZE AND BEGREE OF BEND	STATIC THURST IN POUNDS	MINIMUM REINFORCED CONCRETE	MINIMUM REINFORCED CONCRETE	MINIMUM REINFORCED CONCRETE	MINIMUM REINFORCED CONCRETE	MINIMUM REINFORCED CONCRETE	MINIMUM REINFORCED CONCRETE
6"							
11 1/4"	1,108	1	1	1	1	1	2
22 1/2"	2,207	1	2	2	1	1	3
45"	4,328	2	3	3	1	1	5
90"	7,996	2	4	5	1	1	8
PLUG	5,655	2	3	4	1	1	6
8"							
11 1/4"	1,970	1	1	2	1	1	2
22 1/2"	3,922	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	10,653	3	5	6	2	2	10
12"							
11 1/4"	4,433	2	3	3	1	1	5
22 1/2"	8,826	3	5	6	2	2	9
45"	17,312	5	9	11	3	3	18
90"	31,983	8	16	19	4	4	32
PLUG	22,619	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"	56,861	13	29	35	8	8	57
PLUG	40,213	10	21	25	5	5	41

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90 TO THE THURST VECTOR.
 USE 4" x 6" 50% BARS, 8" DIA. VALVE PLUGS FOR ATTACHMENT FOR ADDITIONAL SAFETY FACTOR.

UNDERGROUND SERVICE ALERT
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CONCRETE THRUST BLOCKING QUANTITY TABLE

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.06
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17

SEAL

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 CHATHAM COUNTY, NORTH CAROLINA**

UTILITY DETAILS

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

SCALE: HORIZONTAL: N/A
 VERTICAL: N/A

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

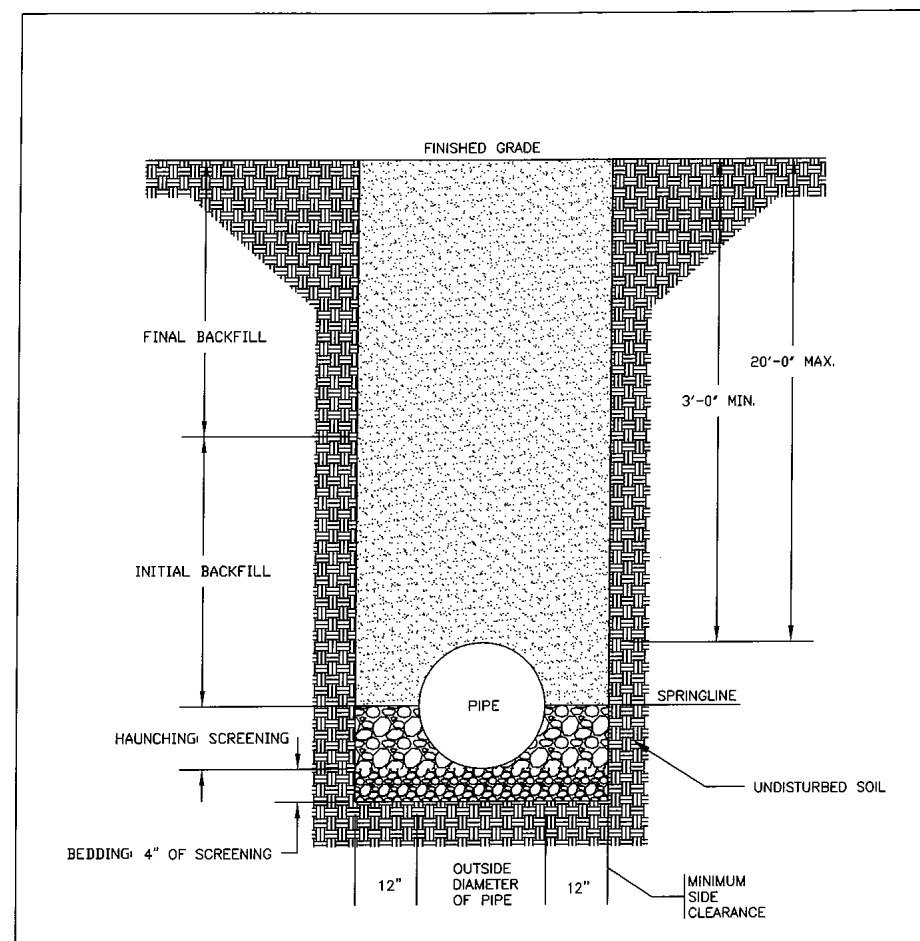
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
 REVISION: 3

DETECTABLE WARNING TAPE NOTES:

1. THE TAPE SHALL BE AN INERT, BONDED LAYER PLASTIC WITH A METALIZED FOIL CORE AND SHALL BE HIGHLY RESISTANT TO ALKALIS, ACID, OR OTHER DESTRUCTIVE CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS.
2. THE TAPE SHALL BE BRIGHTLY COLORED TO CONTRAST WITH SOIL AND SHALL BEAR AN IMPRINT IDENTIFYING THE TYPE OF LINE BURIED BELOW. THE TAPE SHALL BE A MINIMUM OF 2" WIDE.
3. THE TAPE SHALL BE BURIED A MINIMUM OF 6" AND A MAXIMUM OF 12" BELOW THE GROUND SURFACE DIRECTLY ABOVE THE WATER LINE WITH PRINTED SIDE UP.

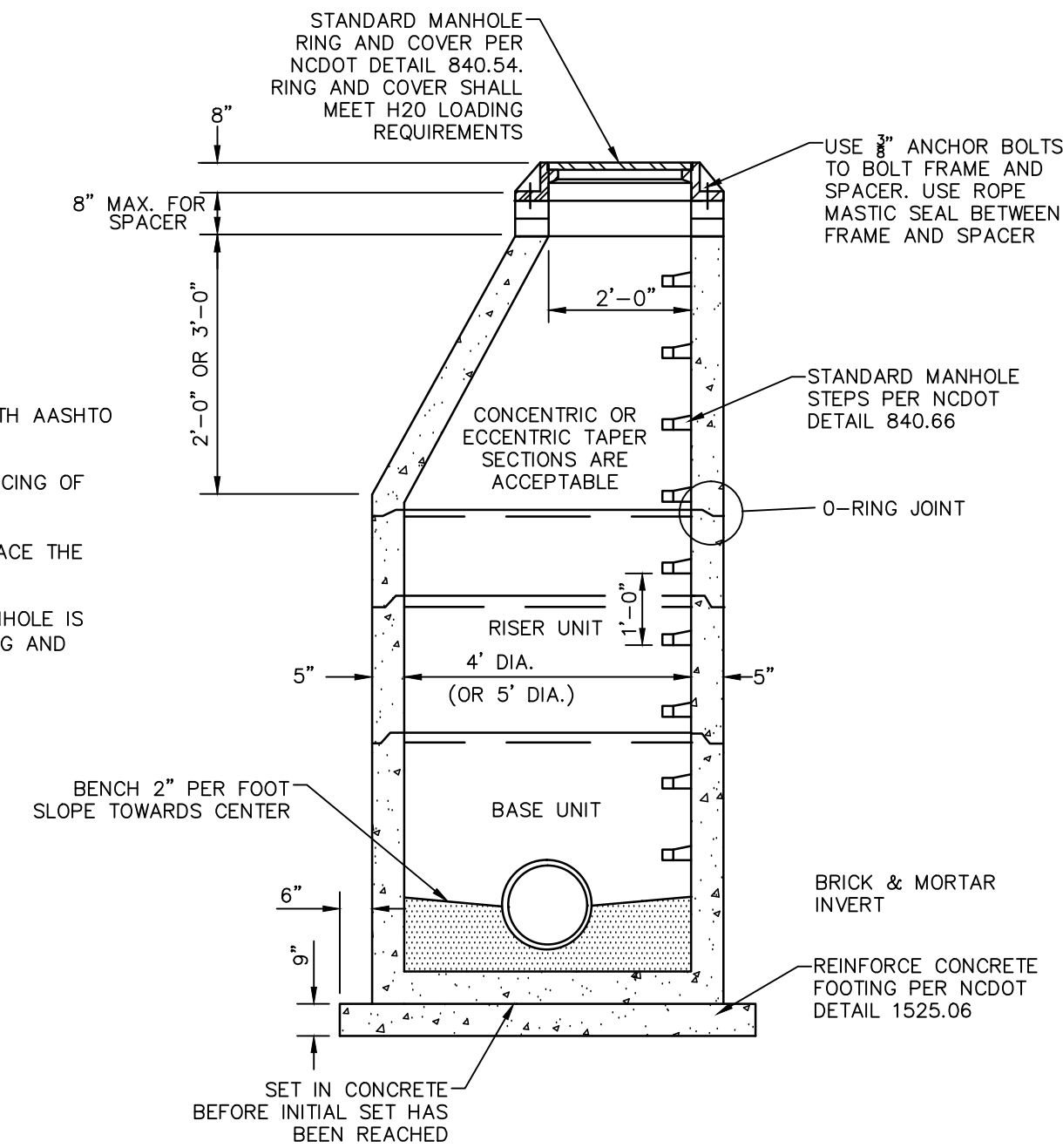
TRACER WIRE NOTES:

1. TRACER WIRE IS TO BE STANDARD NO. 12 GAUGE COATED COPPER WIRE.
2. LOCATION WIRE CONNECTIONS ARE TO BE A WATER TIGHT CONNECTION USING TWISTER DB PLUS WATERPROOF WIRE CONNECTORS OR AN APPROVED EQUAL.



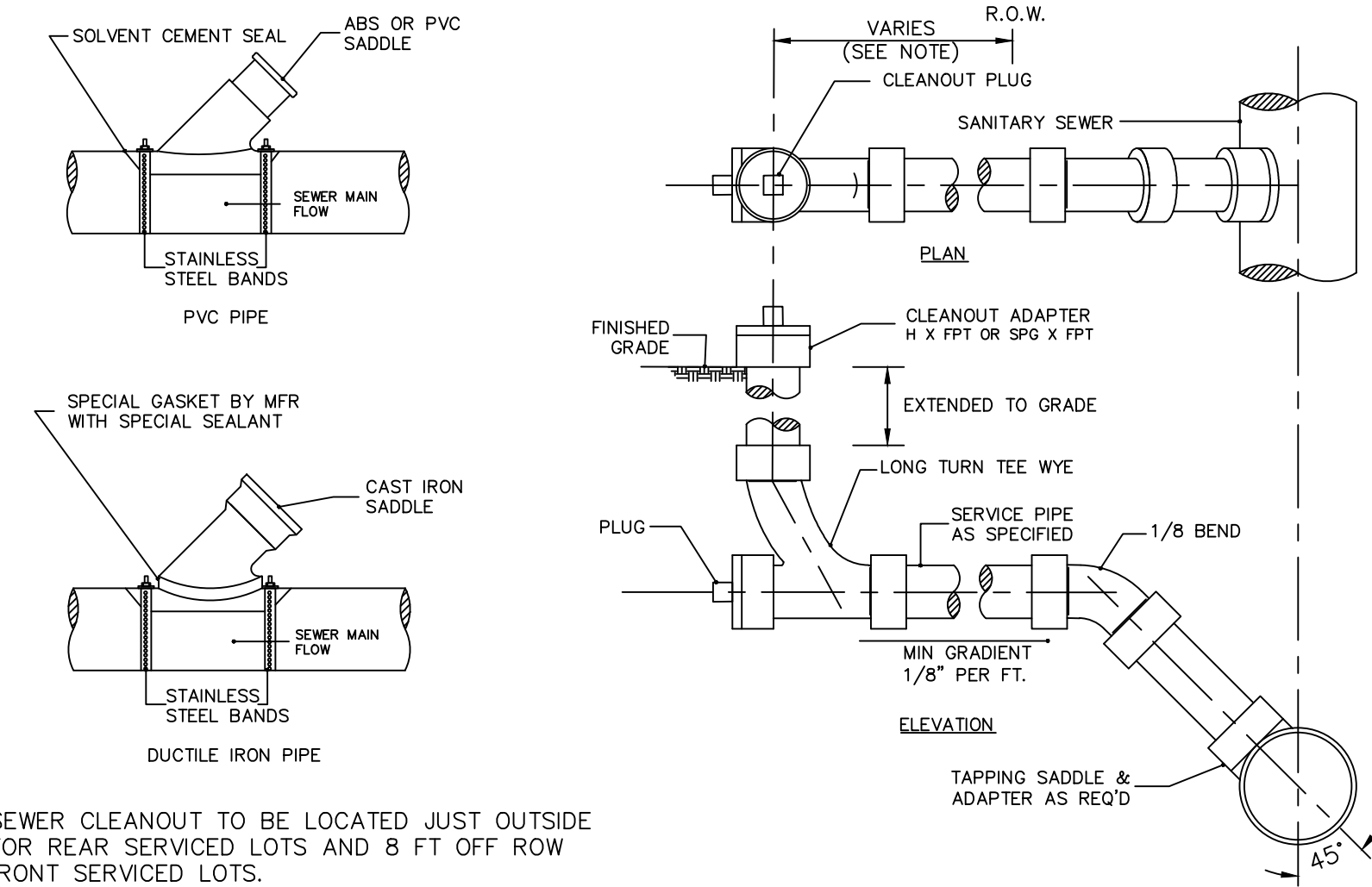
- NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BODILY DEBRIS OF LARGER IN DIAMETER TO BE USED IN BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 5. ACHIEVE 95% COMPACTION IN BACKFILL.

<p>UNDERGROUND SERVICE ALERT 811 FOR WARNING DATE BEFORE YOU DIG</p>	<p>PVC PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS</p>	<p>CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION P.O. BOX 400 RALEIGH, NC 27602 (919) 986-8878 (EXT. 2000) (919) 986-8888 (EXT. 2000)</p>
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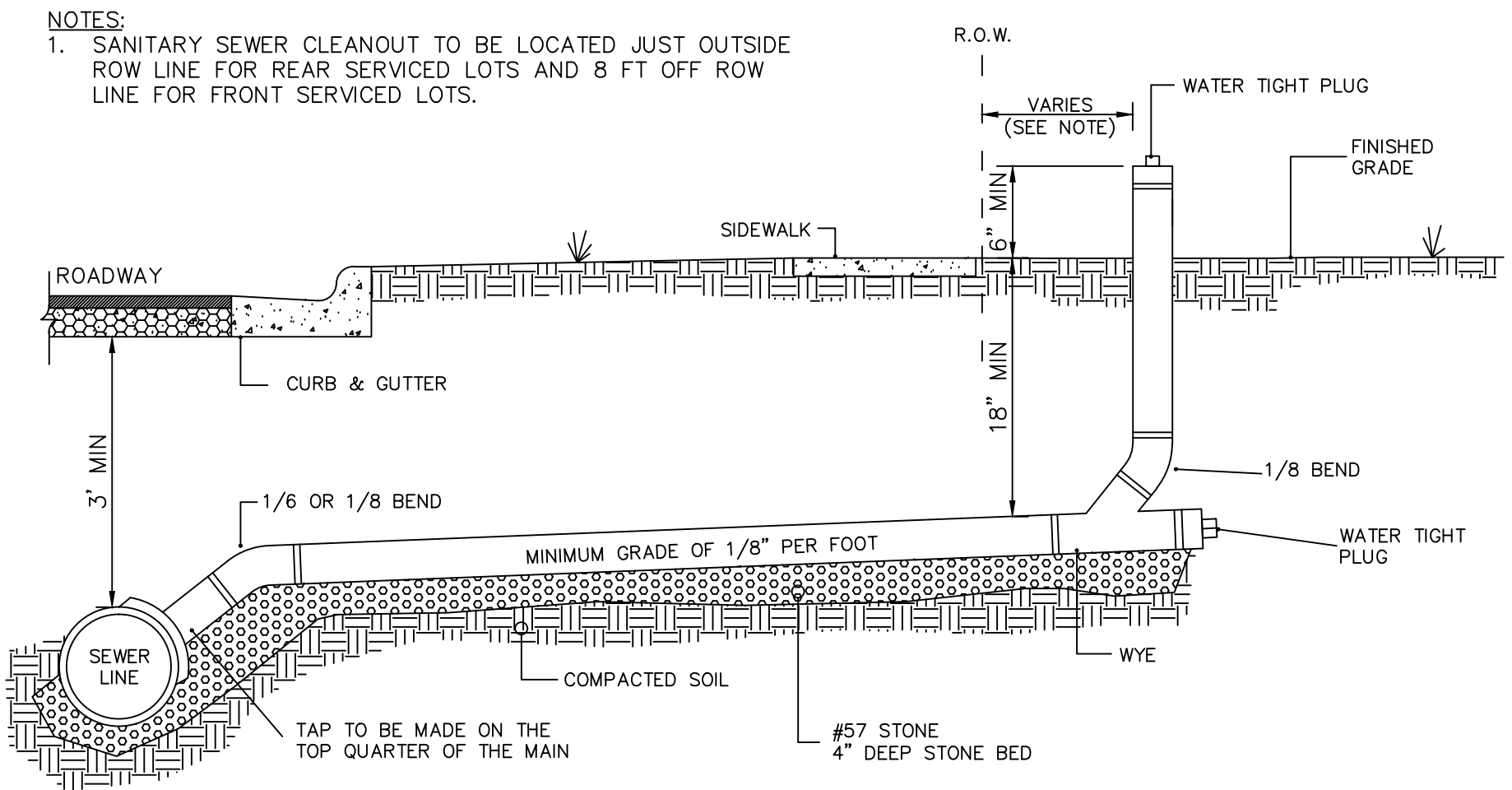
- NOTES:
1. PROVIDE PRECAST MANHOLE COMPONENTS WHICH COMPLY WITH AASHTO M199.
 2. ASSEMBLE RISERS AND GRADE RINGS SO STES HAVE A SPACING OF 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.
 3. WHERE THE MANHOLE IS EXPOSED TO ROADWAY TRAFFIC, PLACE THE TOP OF THE MANHOLE FLUSH WITH THE GROUND.
 4. REINFORCED CONCRETE FOOTING IS REQUIRED WHEN THE MANHOLE IS OVER 12" IN DEPTH OR ON A POOR SOIL BASE. THE FOOTING AND BASE SECTION MAY BE PRECAST.

STANDARD SANITARY SEWER PRECAST CONCRETE MANHOLE
NTS



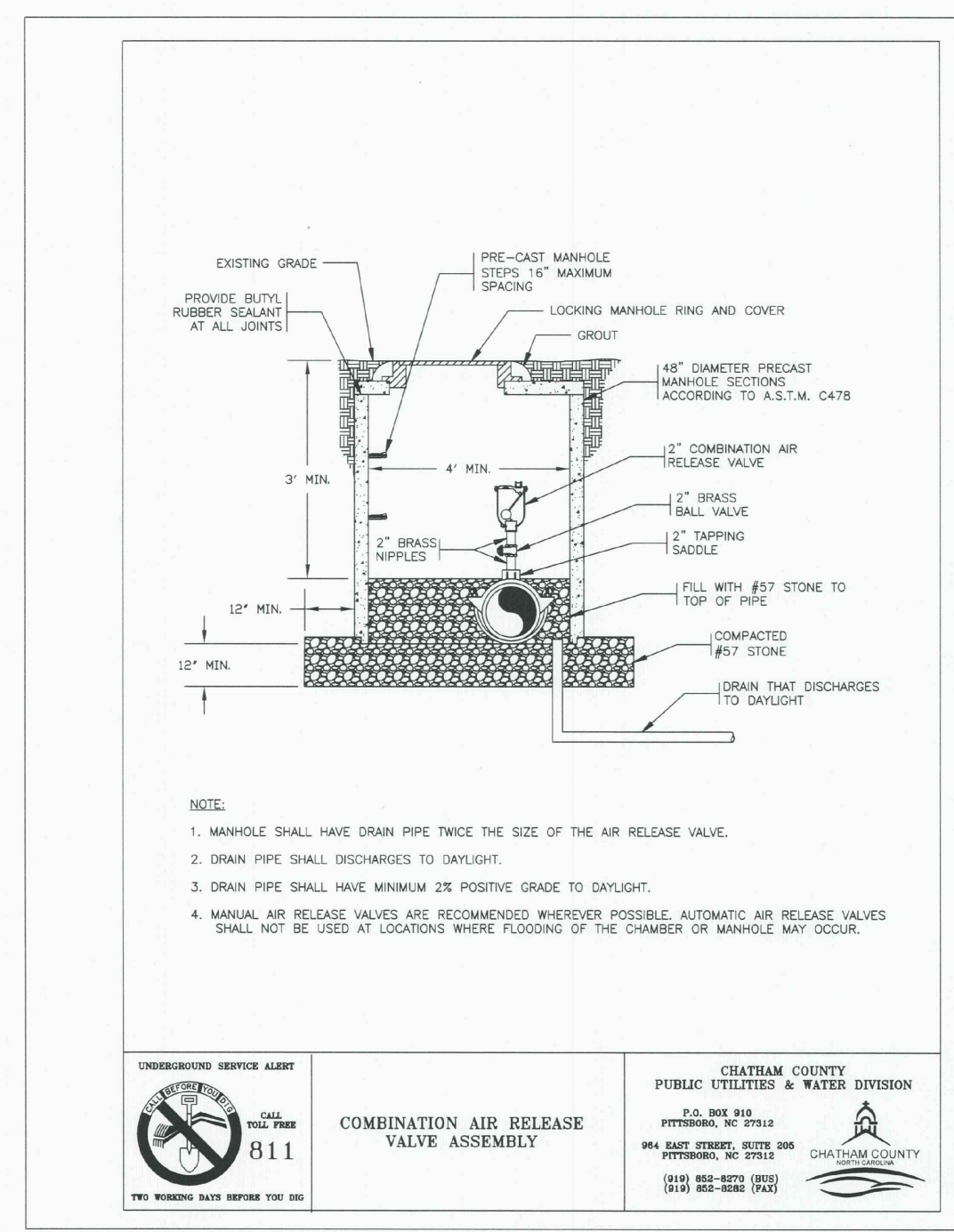
- NOTES:
1. SANITARY SEWER CLEANOUT TO BE LOCATED JUST OUTSIDE ROW LINE FOR REAR SERVICED LOTS AND 8 FT OFF ROW LINE FOR FRONT SERVICED LOTS.

SANITARY SEWER SERVICE CONNECTIONS
NTS



- NOTES:
1. SANITARY SEWER CLEANOUT TO BE LOCATED JUST OUTSIDE ROW LINE FOR REAR SERVICED LOTS AND 8 FT OFF ROW LINE FOR FRONT SERVICED LOTS.

STANDARD SANITARY SEWER TAP AND SERVICE
NTS



- NOTE:
1. MANHOLE SHALL HAVE DRAIN PIPE TWICE THE SIZE OF THE AIR RELEASE VALVE.
 2. DRAIN PIPE SHALL DISCHARGE TO DAYLIGHT.
 3. DRAIN PIPE SHALL HAVE MINIMUM 2% POSITIVE GRADE TO DAYLIGHT.
 4. MANUAL AIR RELEASE VALVES ARE RECOMMENDED WHEREVER POSSIBLE. AUTOMATIC AIR RELEASE VALVES SHALL NOT BE USED AT LOCATIONS WHERE FLOODING OF THE CHAMBER OR MANHOLE MAY OCCUR.

<p>UNDERGROUND SERVICE ALERT 811 FOR WARNING DATE BEFORE YOU DIG</p>	<p>COMBINATION AIR RELEASE VALVE ASSEMBLY</p>	<p>CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION P.O. BOX 400 RALEIGH, NC 27602 (919) 986-8878 (EXT. 2000) (919) 986-8888 (EXT. 2000)</p>
--	---	--

<p>STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION RALEIGH, N.C.</p>		<p>STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.</p>
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ENGLISH STANDARD DRAWING FOR PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

SHEET 2 OF 2
1525.06

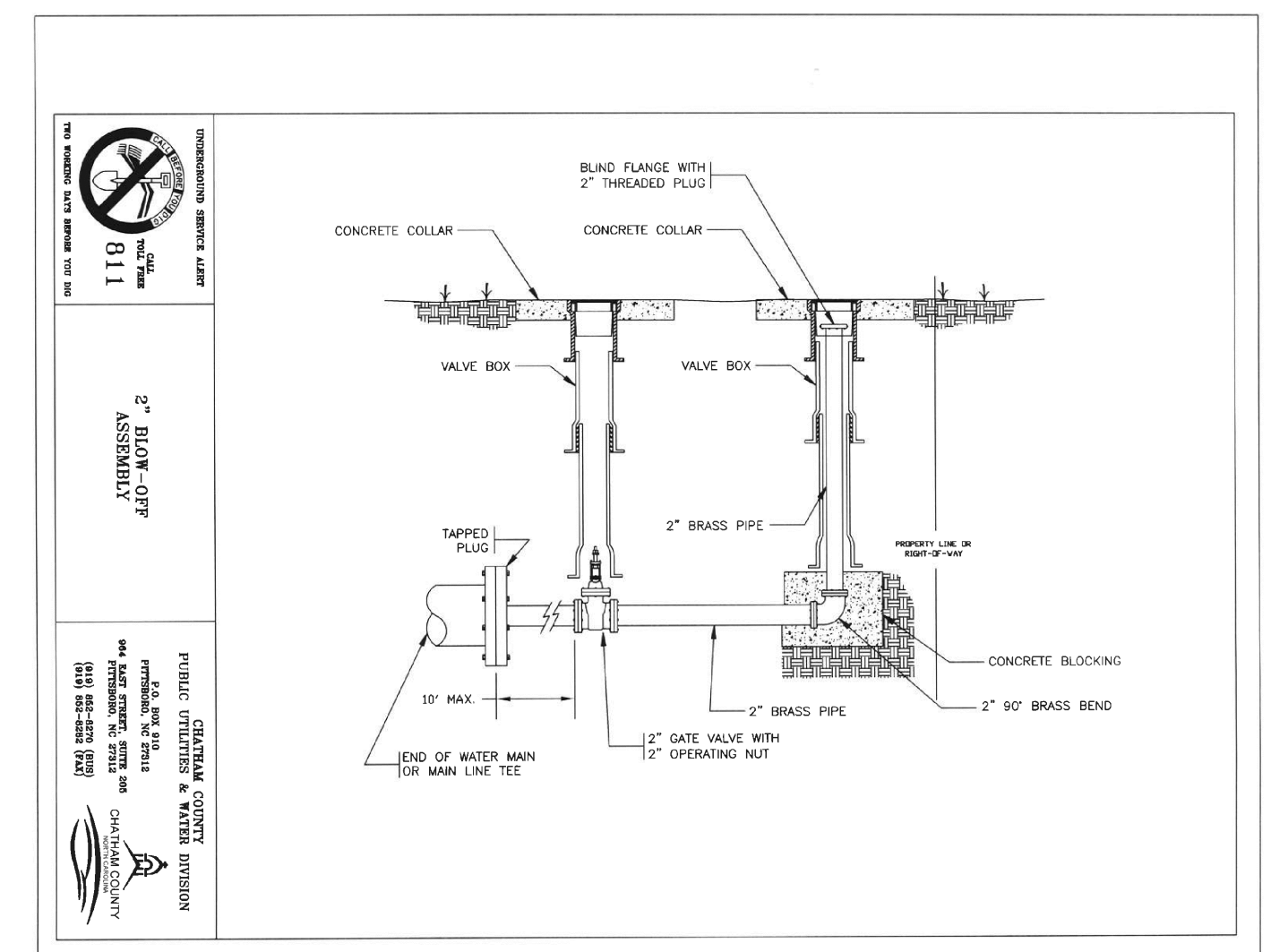
BAR SIZE	LENGTH	NO.	WT. lbs.
T1	#5 5'-6"	18	103
CLASS "A" CONC. YD ³ 9" THICK 1.00			

BAR SIZE	LENGTH	NO.	WT. lbs.
T2	#5 6'-6"	20	136
CLASS "A" CONC. YD ³ 9" THICK 1.36			
CLASS "A" CONC. YD ³ 12" THICK 1.82			

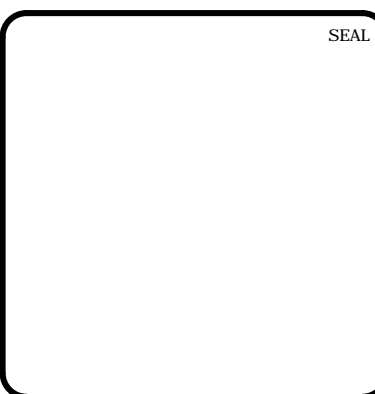
BAR SIZE	LENGTH	NO.	WT. lbs.
T3	#5 7'-6"	24	188
CLASS "A" CONC. YD ³ 12" THICK 2.37			

PLACE REINFORCING STEEL SO THAT STEEL IS PLACED A MIN. OF 2" AND A MAX. OF 4" FROM THE TOP OF THE SLAB.

T1, T2 OR T3 BAR
7" HOOK (PER CRSI)



REV. NO.	DESCRIPTION	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.06
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



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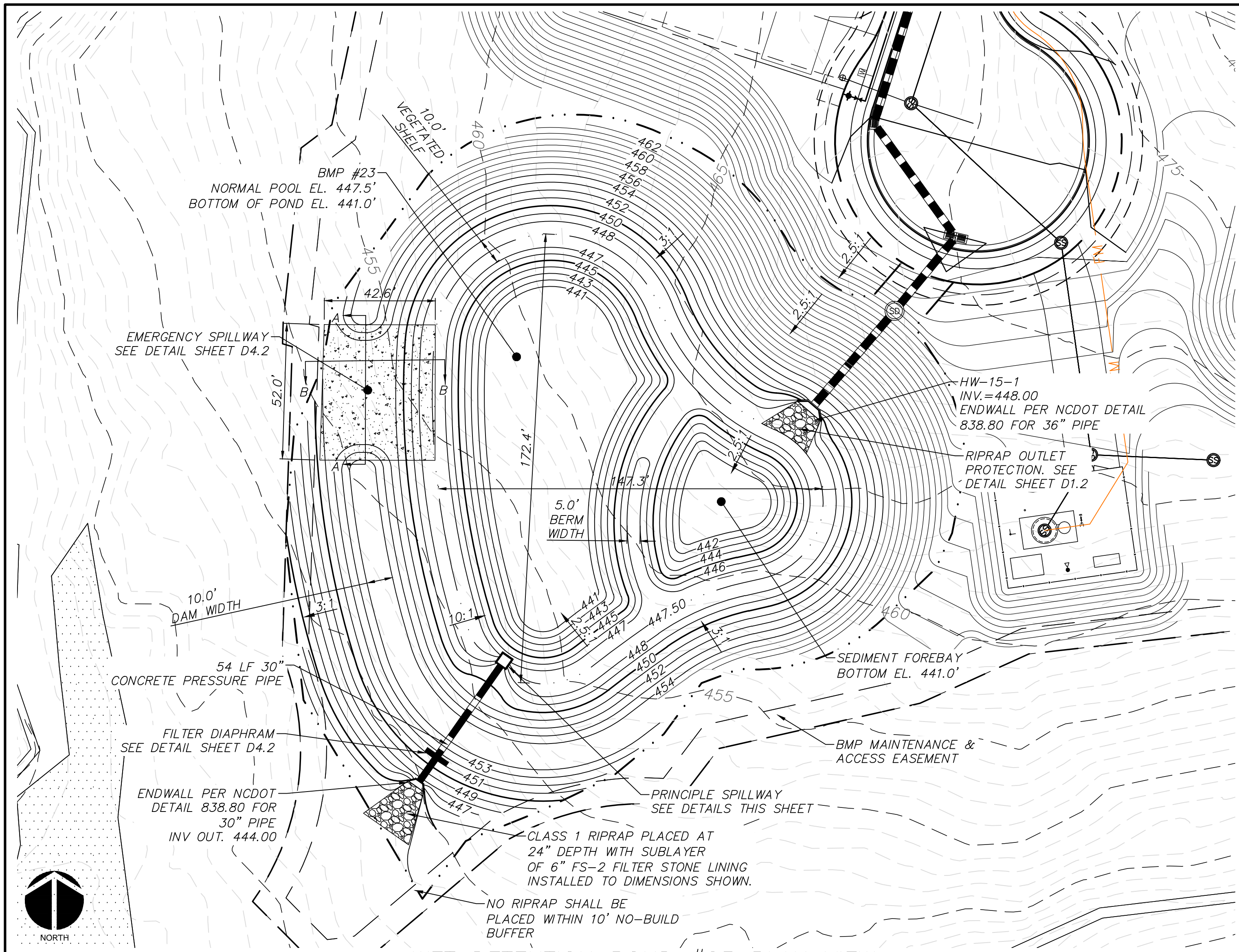
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222
www.mckimcreed.com

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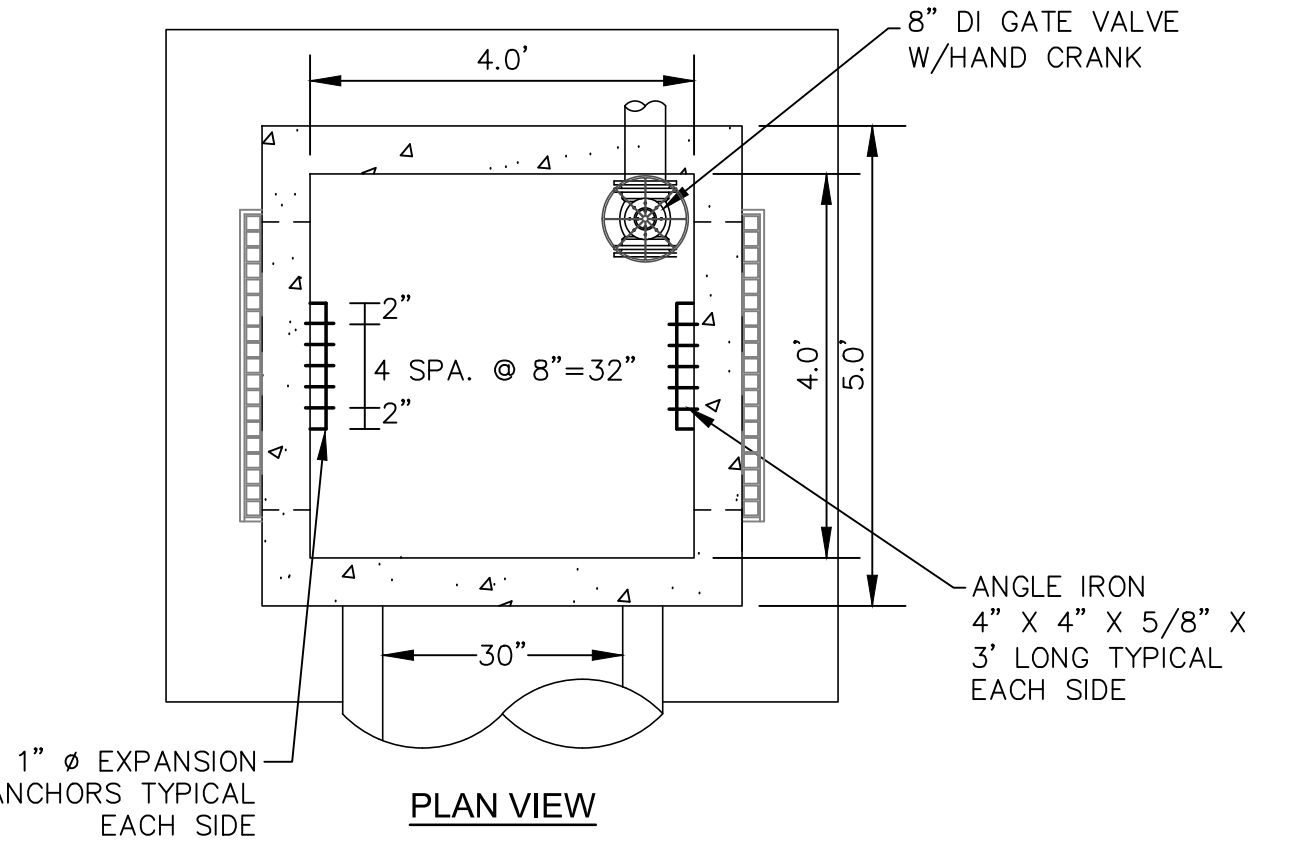
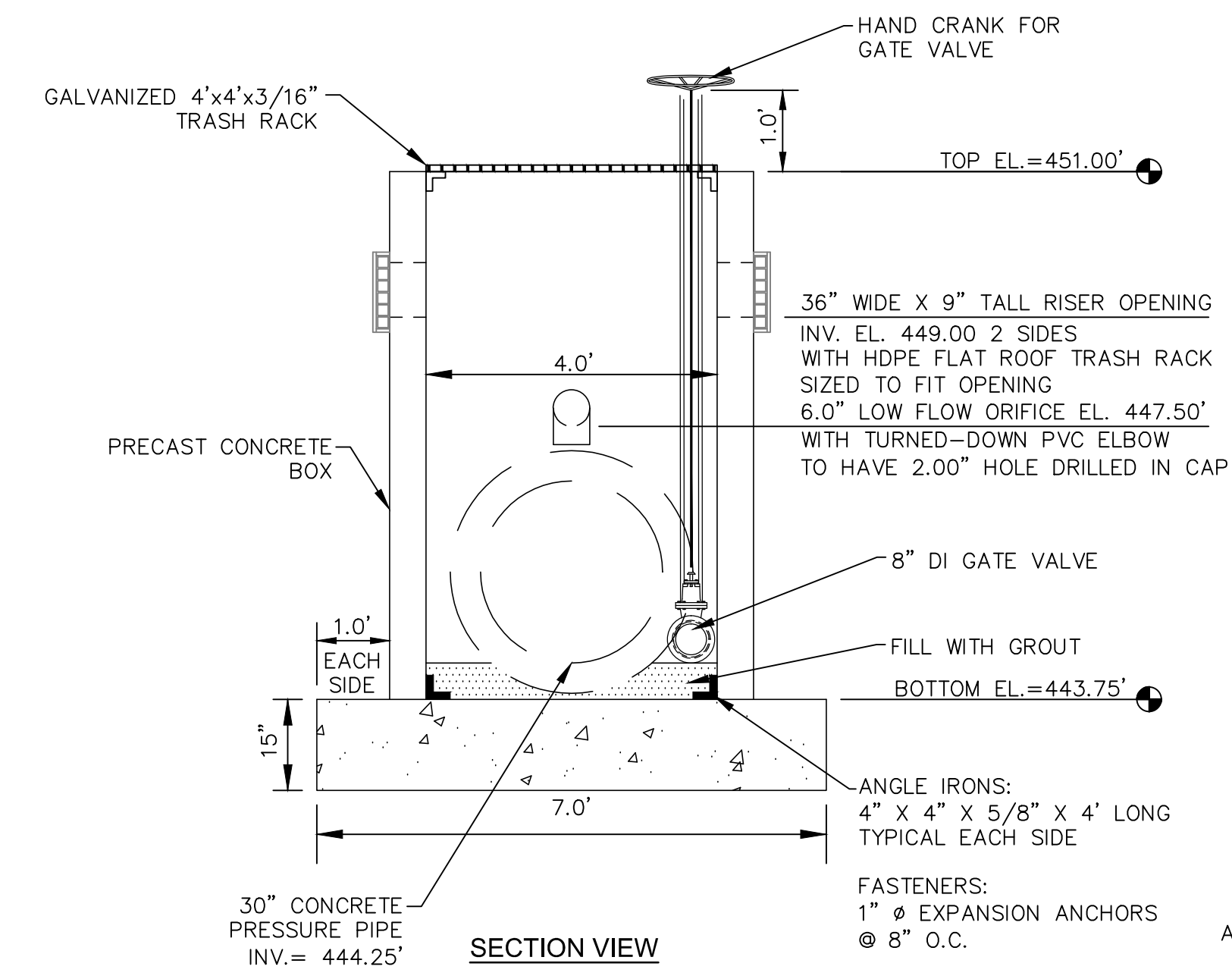
BRIAR CHAPEL PHASE 15 NORTH CHATHAM COUNTY, NORTH CAROLINA

UTILITY DETAILS

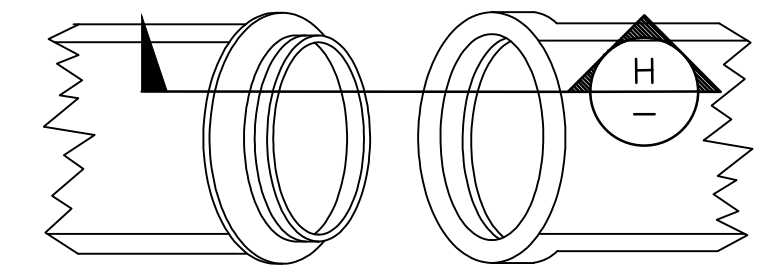
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DRAWN: BSS		
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3



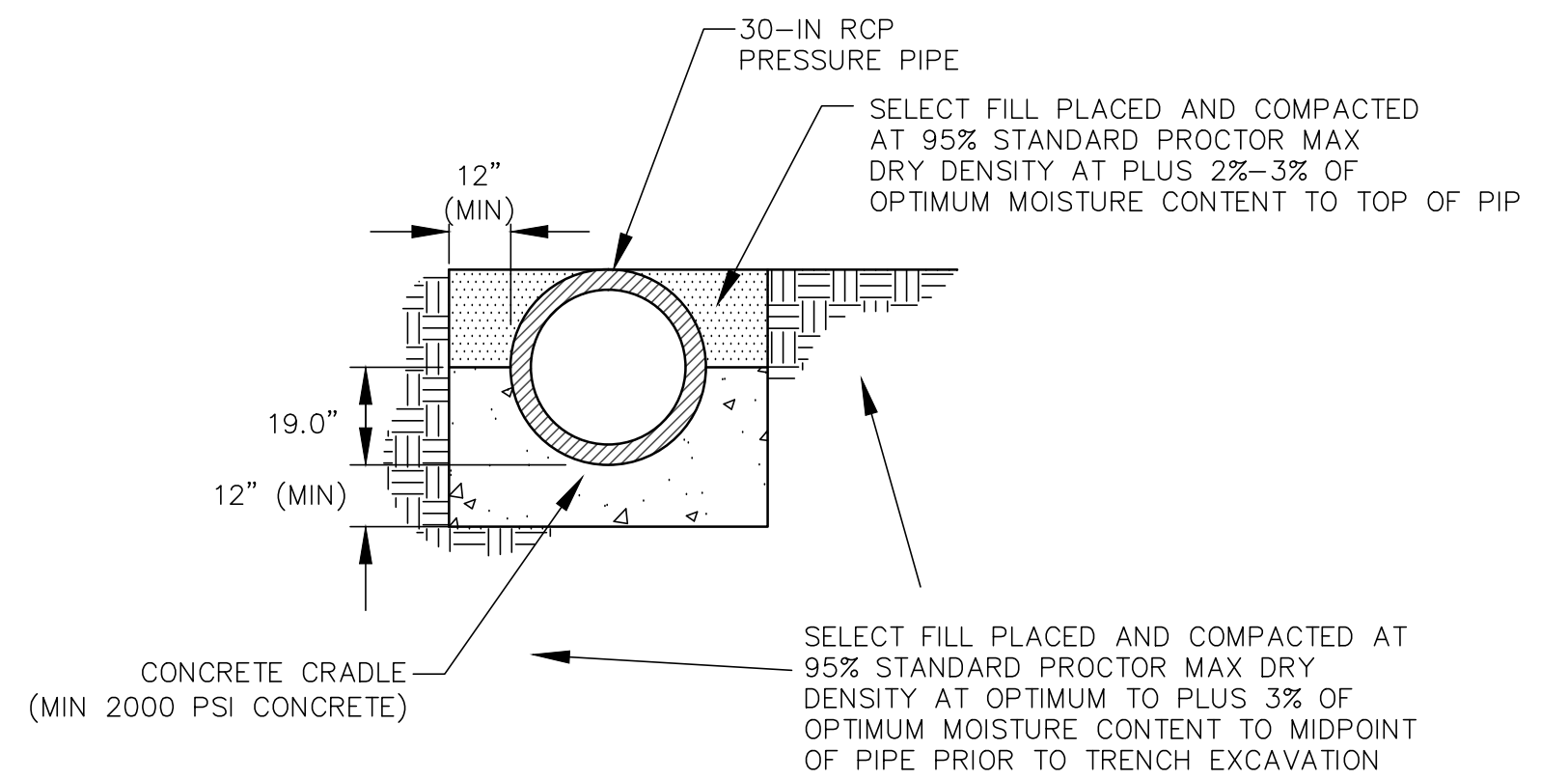
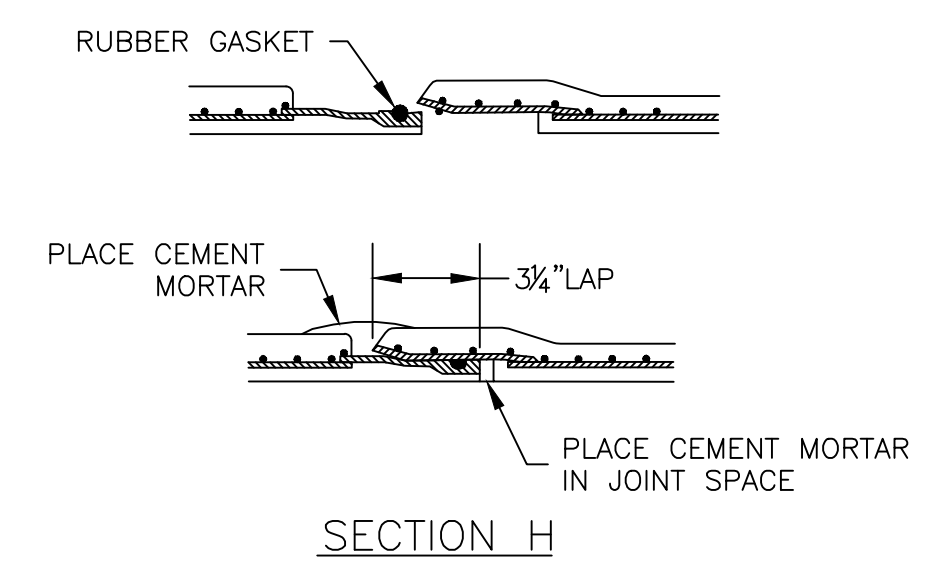
WET DETENTION POND #23 PLAN VIEW
SCALE = 1" = 30'



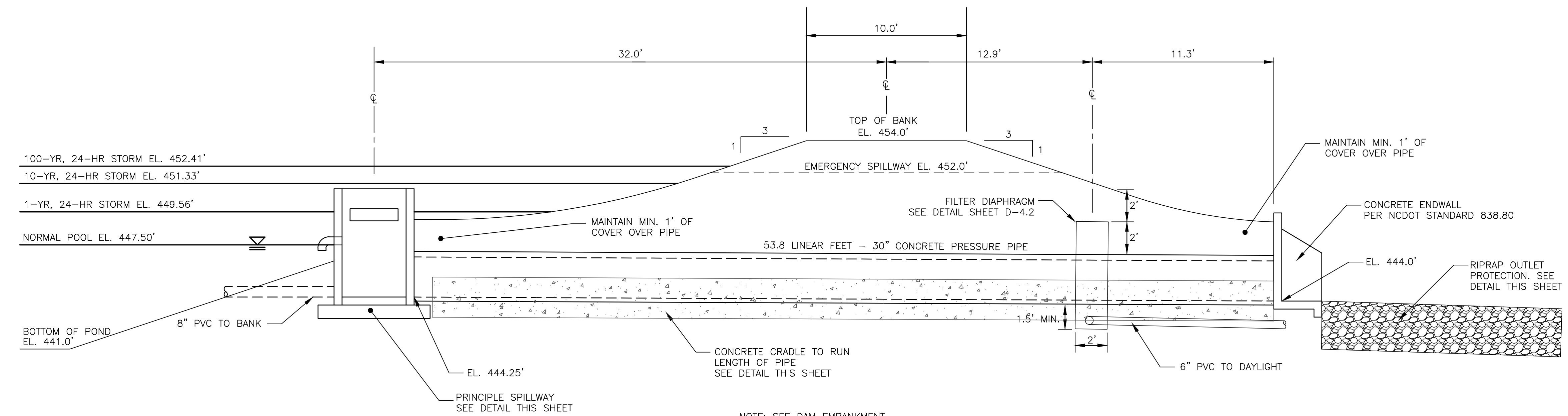
PRINCIPLE SPILLWAY
SCALE = 1" = 2'



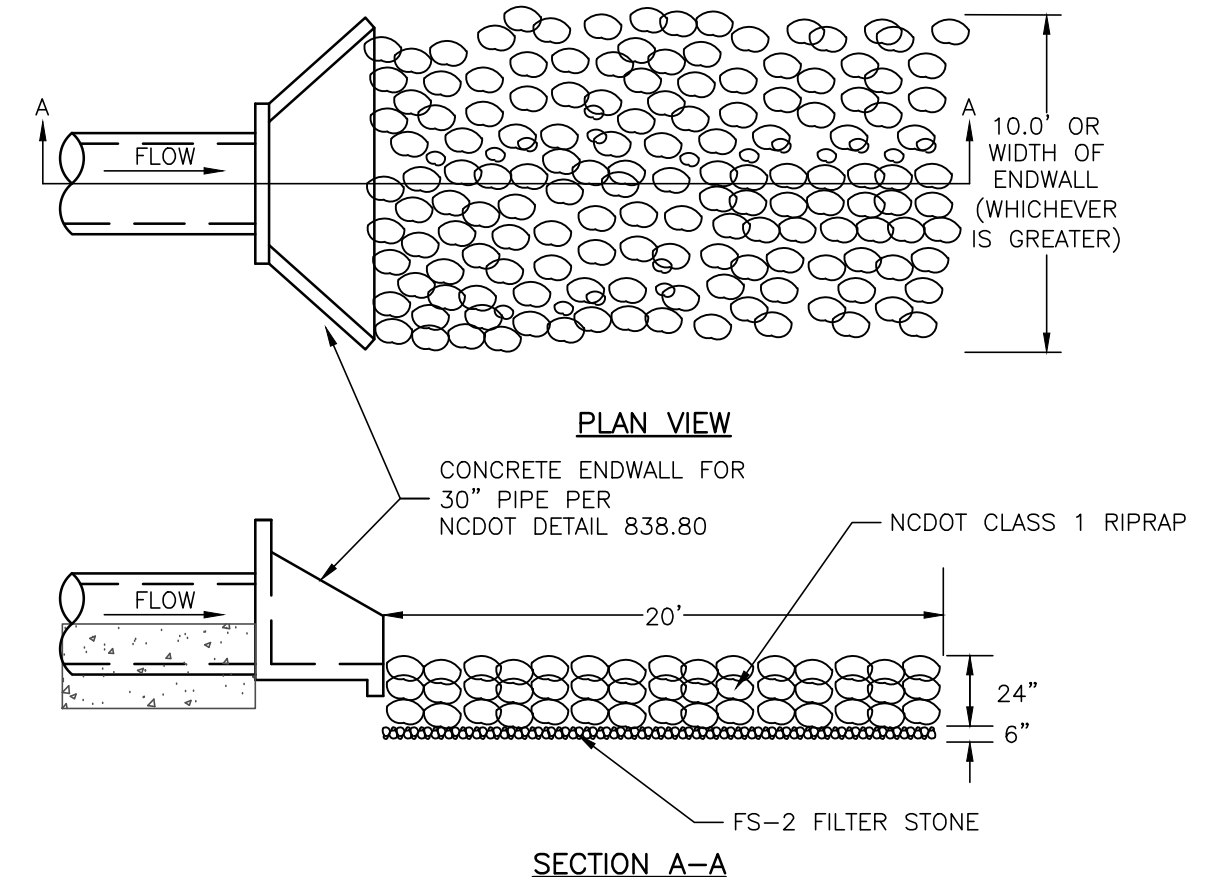
CONCRETE PRESSURE PIPE JOINT DETAIL
NTS



CONCRETE CRADLE DETAIL
NTS

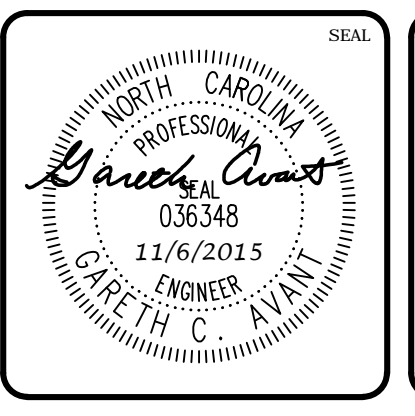
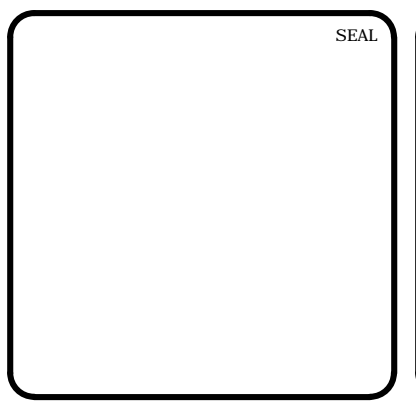


SECTION AT PRINCIPLE SPILLWAY
SCALE = 1" = 4'



RIPRAP OUTLET PROTECTION
NTS

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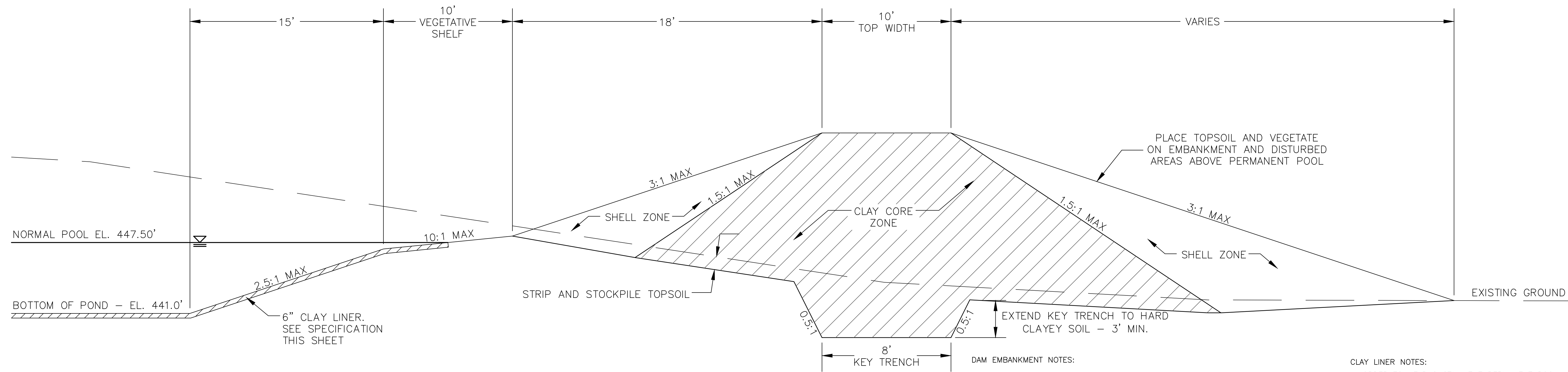


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PHASE 15 NORTH
CHATHAM COUNTY, NORTH CAROLINA**
BMP #23 PLAN & DETAILS

DATE: JUNE 17, 2015	SCALE: D4.X	MAC FILE NUMBER: D4.1
MCE PROJ. # 02735-0113	HORIZONTAL: AS NOTED	DRAWING NUMBER: D4.1
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3



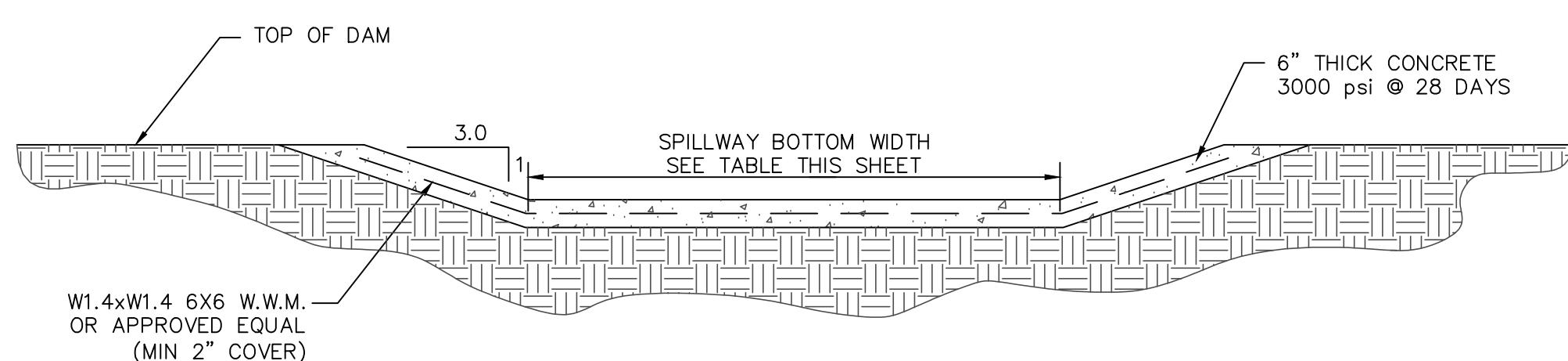
DAM EMBANKMENT DETAIL
NTS

DAM EMBANKMENT NOTES:

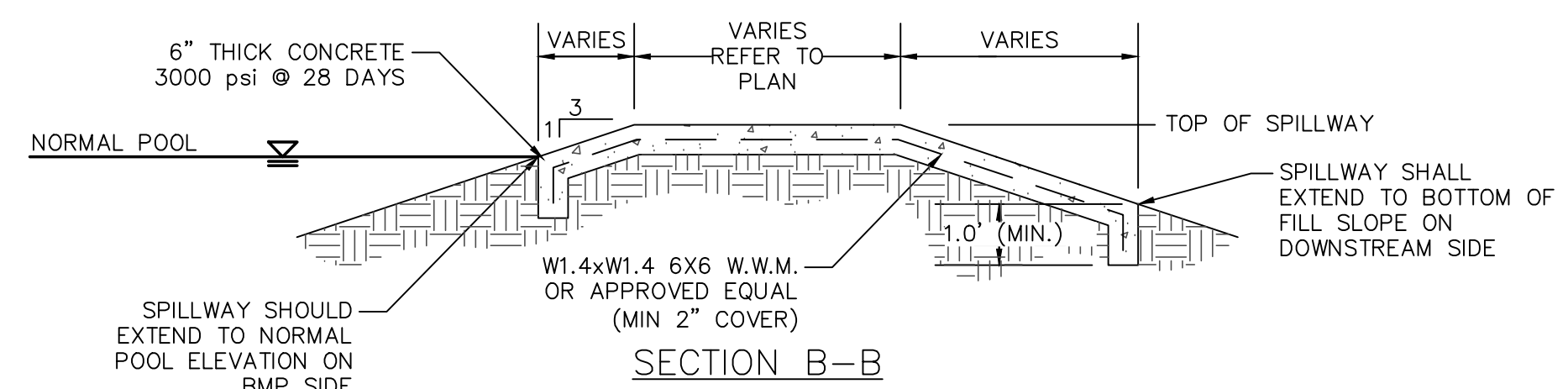
- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
- 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE 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 BMP AREA UP TO THE NORMAL POOL ELEVATION. 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 BENTOMAT 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 0.01 IN/HR IN ACCORDANCE WITH THE NCDENR BMP MANUAL. 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 4" MINIMUM LAYER OF TOPSOIL SHALL BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.



SECTION A-A

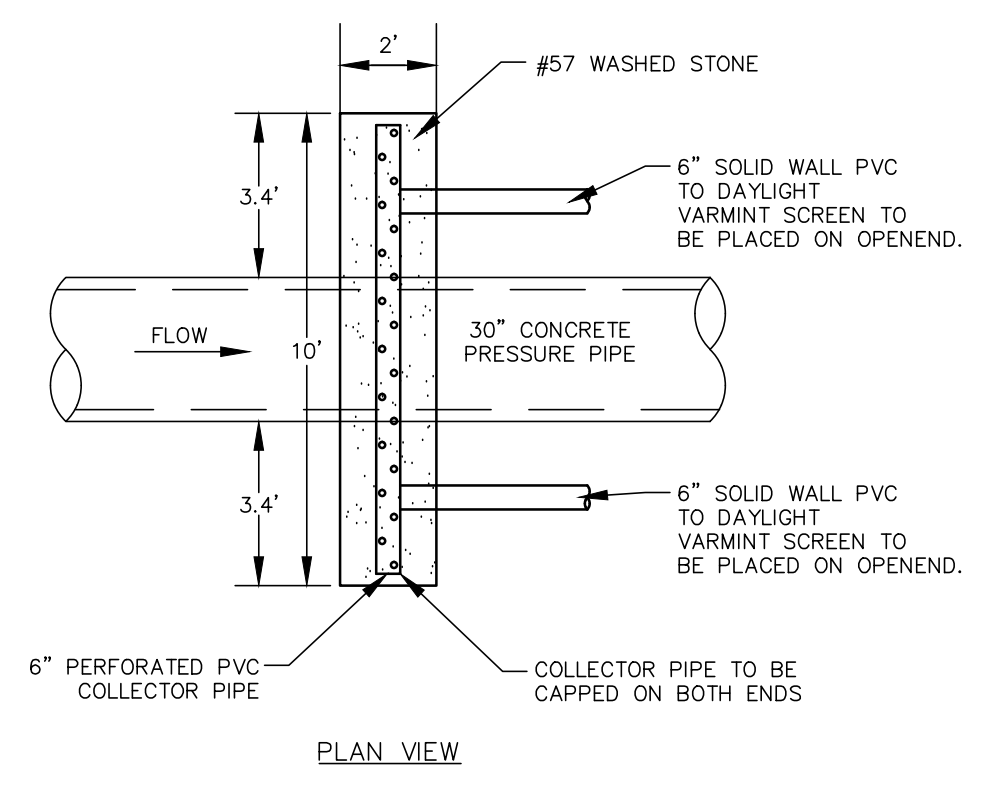


SECTION B-B

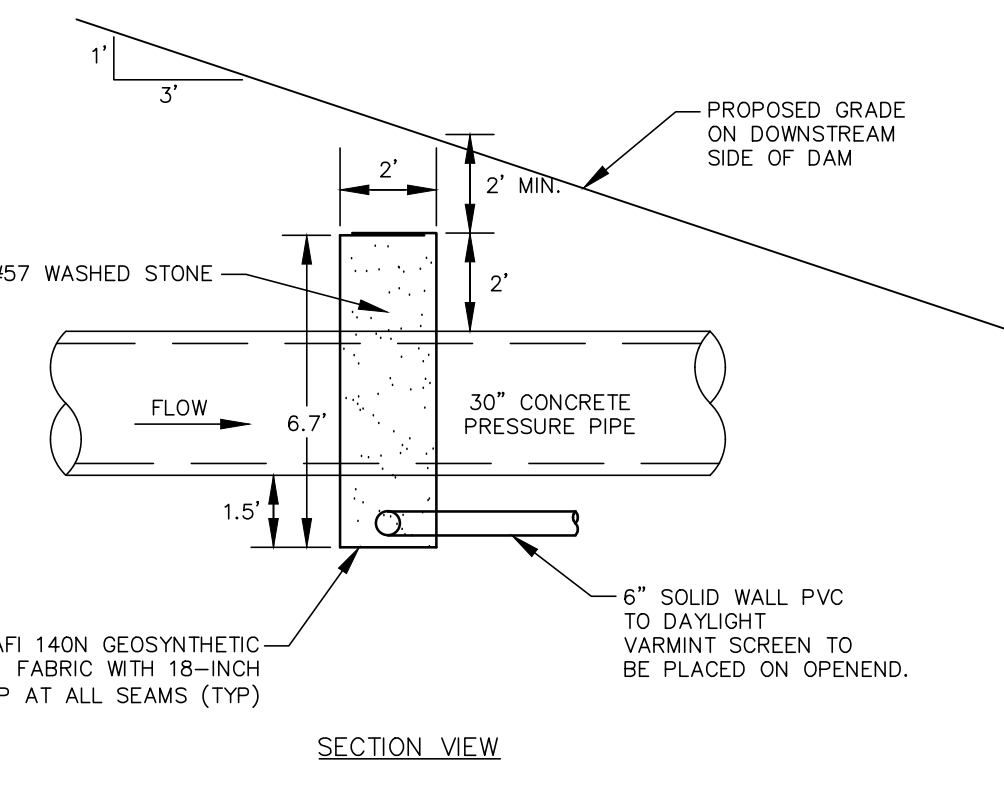
BMP #21	NORMAL POOL EL.	TOP DAM EL.	SPILLWAY BOTTOM EL.	SPILLWAY BOTTOM WIDTH
	447.50	454.00	452.00	40'

NOTE: EXPANSION/CONTRACTION JOINTS PER AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS FOR SLABS ON GRADE.

EMERGENCY SPILLWAY DETAIL
NTS



PLAN VIEW



SECTION VIEW

FILTER DIAPHRAGM DETAIL
NTS

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

SHEET 1 OF 1
838.80

ENDWALL DIMENSIONS

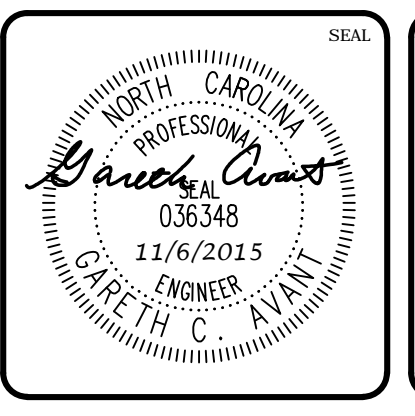
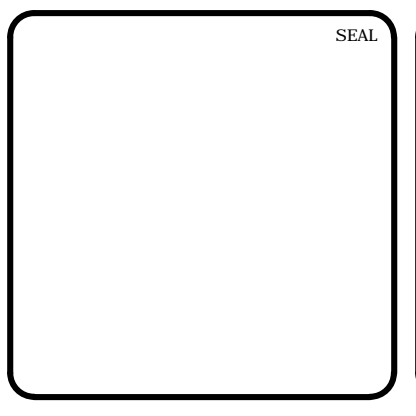
PIPE DIA.	MINIMUM BAR SIZE	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	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	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

NOTES:

- THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.33, 838.39, 838.51, 838.57, 838.63 AND 838.69.
- INSTALL PRECAST ENDWALLS WITH WINGS AND PAY 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 LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- PIPE TO BE GROUDED INTO HEADWALL AT JOB SITE BY CONTRACTOR.
- ALL ELEMENTS PRECAST TO MEET ASTM C913.
- 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 6" CTS. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

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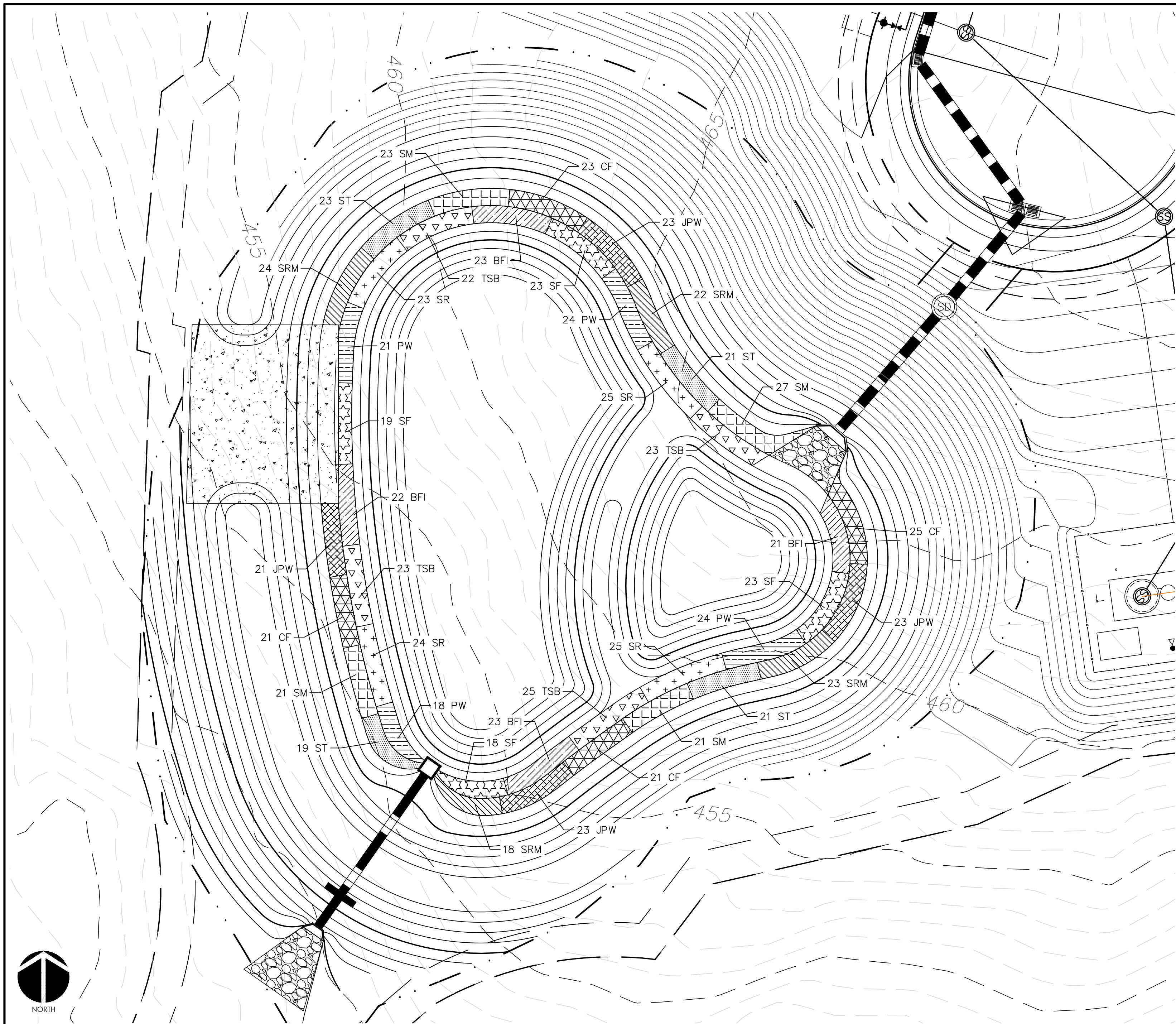
BMP #23 PLAN & DETAILS

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

SCALE: HORIZONTAL: AS NOTED, VERTICAL: N/A

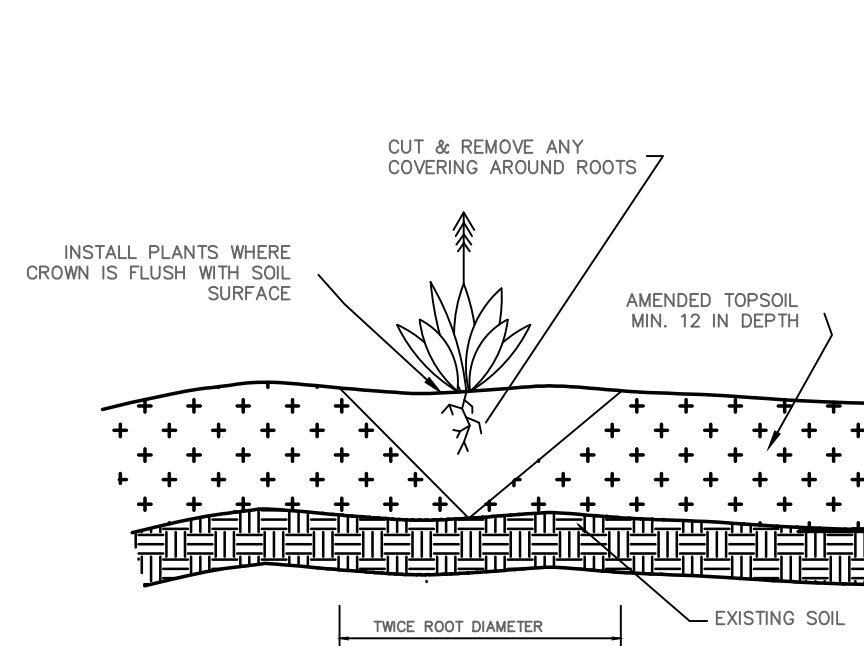
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REVISION: 3

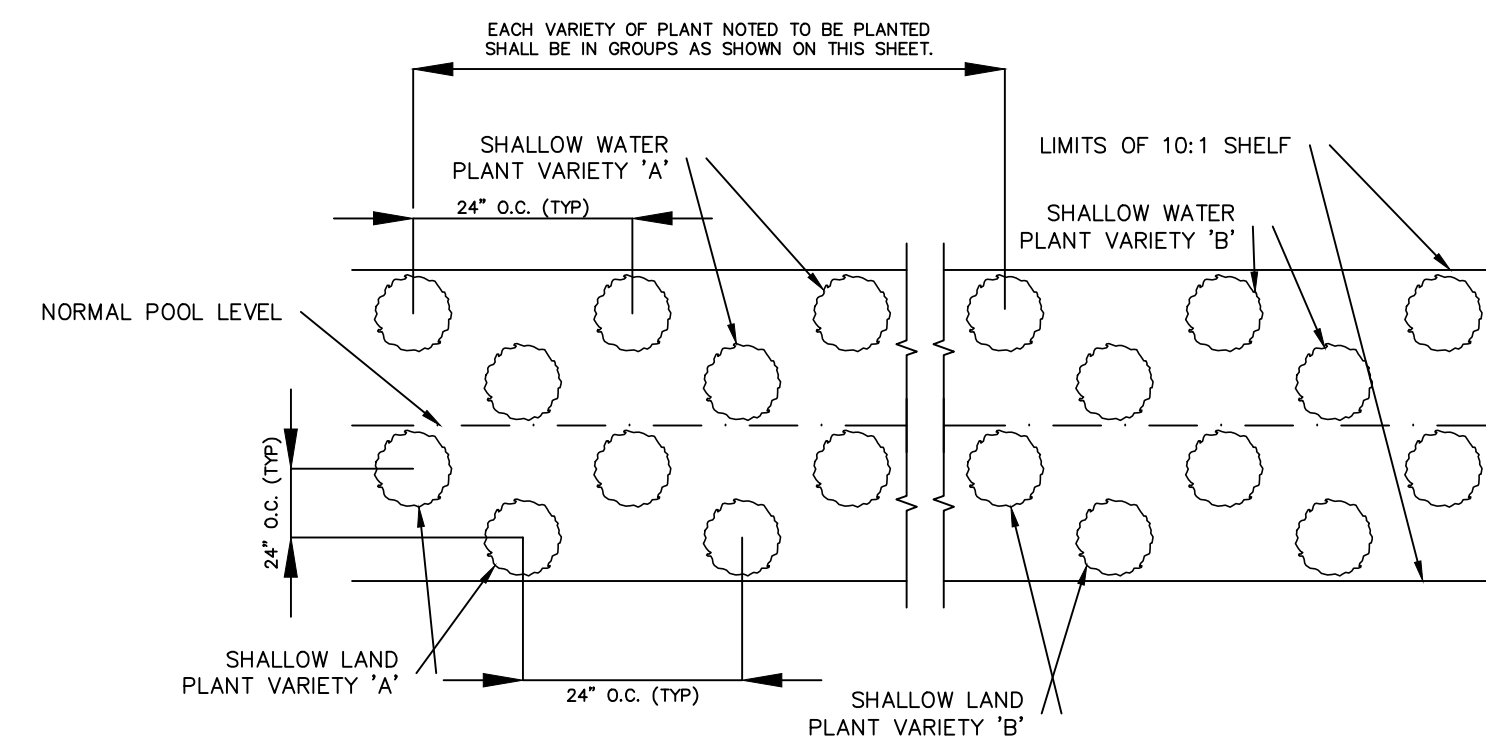


WET DETENTION POND #23 PLANTING PLAN
SCALE = 1" = 20'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
[Symbol]	SF	SWEETFLAG	<i>Acorus subcordatum</i>	83	24"-30" O.C.	1 QT.
[Symbol]	PW	PICKERELWEED	<i>Pontederia cordata</i>	87	24"-30" O.C.	1 QT.
[Symbol]	BFI	BLUE FLAG IRIS	<i>Iris virginica</i>	89	24"-30" O.C.	1 QT.
[Symbol]	SR	SOFT RUSH	<i>Juncus effusus var. pygmaei or solutus</i>	97	24"-30" O.C.	1 QT.
[Symbol]	TSB	THREE SQUARE BULRUSH	<i>Schoenoplectus americanus</i>	93	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
[Symbol]	SM	SWAMP MILKWEED	<i>Asclepias incarnata</i>	92	24"-30" O.C.	1 QT.
[Symbol]	CF	CARDINAL FLOWER	<i>Lobelia cardinalis</i>	90	24"-30" O.C.	1 QT.
[Symbol]	SRM	SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	87	24"-30" O.C.	1 QT.
[Symbol]	JPW	DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	90	24"-30" O.C.	1 QT.
[Symbol]	ST	SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	84	24"-30" O.C.	1 QT.



GENERAL PLANTING DETAIL
NTS



VEGETATED PLANTING SHELF DETAIL
NTS

NOTES:
1. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW WATER PLANTING ZONE.
2. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW LAND PLANTING ZONE.
3. OTHER SPECIES WITH SIMILAR GROWTH HABITS AND MAY BE APPROVED AS LISTED IN THE "STORMWATER BEST MANAGEMENT PRACTICES MANUAL" TABLE 9-1.

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 D1.2 FOR SEEDBED PREPARATION AND SEEDING SCHEDULES FOR AREAS NOT SPECIFIED IN THIS PLAN.

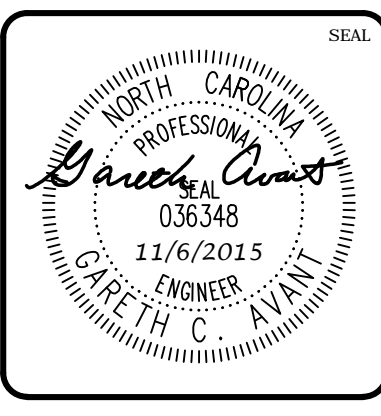
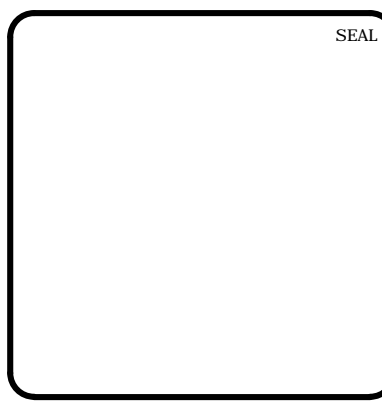
SHALLOW WATER PLANTING NOTES:

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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MCE PROJ. # 02735-0113	HORIZONTAL: AS NOTED
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DESIGNED: BSS	N/A
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STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 3

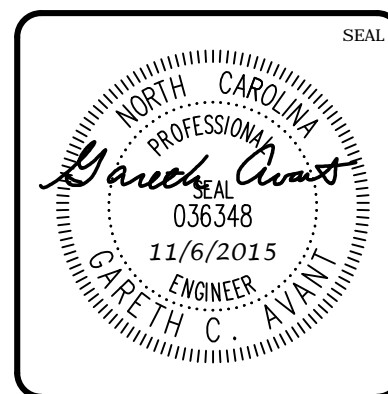
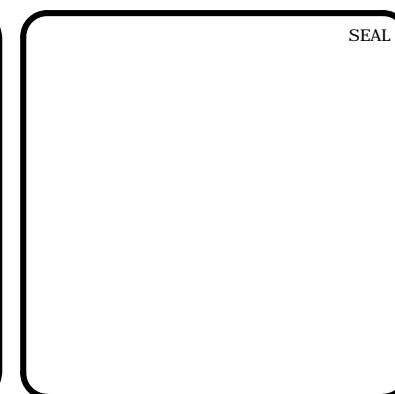
STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CB-15-28	CI-15-27	526.30	526.00	15"	RCP	36.1	0.83%
CB-15-30	CI-15-24	510.20	510.10	15"	RCP	18.2	0.55%
CB-15-34	CI-15-19	502.35	502.15	15"	RCP	34.0	0.59%
CB-15-37	CB-15-49	498.70	496.90	15"	RCP	120.0	1.50%
CB-15-44	CI-15-8	475.00	473.85	24"	RCP	42.3	2.72%
CB-15-45	CB-15-44	476.90	475.10	18"	RCP	87.4	2.06%
CB-15-46	CB-15-45	479.20	477.00	18"	RCP	111.4	1.97%
CB-15-47	HW-15-48	501.50	501.00	30"	RCP	94.1	0.53%
CB-15-49	DBL CI-15-16	496.70	496.50	15"	RCP	19.3	1.03%
CI-15-4	DBL CI-15-3	470.15	469.10	36"	RCP	53.6	1.96%
CI-15-5	CI-15-4	471.85	470.25	36"	RCP	73.9	2.16%
CI-15-6	CI-15-5	472.10	471.95	36"	RCP	24.7	0.61%
CI-15-7	CI-15-6	473.50	472.20	36"	RCP	44.5	2.92%
CI-15-8	CI-15-7	473.75	473.60	36"	RCP	24.5	0.61%
CI-15-9	CI-15-8	479.80	473.85	30"	RCP	147.9	4.02%
CI-15-10	CI-15-9	485.00	479.90	30"	RCP	130.2	3.92%
CI-15-11	CI-15-10	490.10	485.10	30"	RCP	113.1	4.42%
CI-15-12	CI-15-11	493.00	490.20	30"	RCP	88.3	3.17%
CI-15-13	CI-15-12	494.65	493.10	30"	RCP	308.0	0.50%
CI-15-14	CI-15-13	495.20	494.75	30"	RCP	75.6	0.60%

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-15-15	CI-15-14	495.90	495.30	30"	RCP	115.1	0.52%
CI-15-17	DBL CI-15-16	498.00	496.50	24"	RCP	79.4	1.89%
CI-15-18	CI-15-17	499.95	498.10	24"	RCP	98.3	1.88%
CI-15-19	CI-15-18	502.05	500.05	24"	RCP	119.9	1.67%
CI-15-20	CI-15-19	503.30	502.15	18"	RCP	84.1	1.37%
CI-15-21	CI-15-20	504.55	503.40	18"	RCP	90.7	1.27%
CI-15-22	CI-15-21	504.80	504.65	15"	RCP	24.5	0.61%
CI-15-23	CI-15-22	506.95	504.90	15"	RCP	115.6	1.77%
CI-15-24	CI-15-23	510.00	507.05	15"	RCP	130.5	2.26%
CI-15-25	CI-15-24	514.90	510.10	15"	RCP	82.4	5.82%
CI-15-25A	CI-15-25	520.00	515.00	15"	RCP	82.8	6.04%
CI-15-25B	CI-15-25A	522.75	520.10	15"	RCP	43.6	6.07%
CI-15-26	CI-15-25B	523.00	522.85	15"	RCP	24.5	0.61%
CI-15-27	CI-15-26	525.90	523.10	15"	RCP	45.9	6.10%
CI-15-29	CB-15-28	526.55	526.40	15"	RCP	27.3	0.55%
CI-15-31	CB-15-30	510.40	510.30	15"	RCP	18.2	0.55%
CI-15-32	CI-15-21	505.00	504.65	15"	RCP	35.1	1.00%
CI-15-33	CI-15-32	505.25	505.10	15"	RCP	24.5	0.61%
CI-15-35	CI-15-17	498.25	498.10	15"	RCP	24.5	0.61%
CI-15-38	CI-15-14	495.45	495.30	15"	RCP	24.5	0.61%

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-15-39	CI-15-12	493.25	493.10	15"	RCP	24.5	0.61%
CI-15-40	CI-15-10	485.25	485.10	15"	RCP	24.5	0.61%
CI-15-41	CI-15-8	474.65	473.85	15"	RCP	40.0	2.00%
CI-15-42	CI-15-41	480.10	474.75	15"	RCP	259.5	2.06%
CI-15-43	CI-15-42	480.35	480.20	15"	RCP	24.5	0.61%
DBL CI-15-3	SDMH-15-2	465.00	462.00	36"	RCP	36.9	8.14%
DBL CI-15-16	CI-15-15	496.40	496.00	24"	RCP	80.2	0.50%
DBL CI-15-36	DBL CI-15-16	496.65	496.50	15"	RCP	24.5	0.61%
SDMH-15-2	HW-15-1	448.50	448.00	36"	RCP	47.3	1.06%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-15-2	SSMH-15-1	459.30	458.90	8"	PVC	34.1	1.17%
SSMH-15-3	SSMH-15-2	460.00	459.50	8"	PVC	47.0	1.06%
SSMH-15-4	SSMH-15-2	465.00	461.70	8"	PVC	82.1	4.02%
SSMH-15-5	SSMH-15-4	467.80	465.20	8"	PVC	78.6	3.31%
SSMH-15-6	SSMH-15-5	469.15	468.00	8"	PVC	108.2	1.06%
SSMH-15-7	SSMH-15-6	478.50	471.10	8"	PVC	349.1	2.12%
SSMH-15-8	SSMH-15-7	479.50	478.70	8"	PVC	84.9	0.94%
SSMH-15-9	SSMH-15-6	473.90	469.35	8"	PVC	163.5	2.78%
SSMH-15-10	SSMH-15-9	483.50	476.20	8"	PVC	186.2	3.92%
SSMH-15-11	SSMH-15-10	490.55	483.70	8"	PVC	182.3	3.76%
SSMH-15-12	SSMH-15-11	492.00	490.65	8"	DIP	267.5	0.50%
SSMH-15-13	SSMH-15-12	493.00	492.20	8"	DIP	158.4	0.50%
SSMH-15-14	SSMH-15-13	493.95	493.20	8"	PVC	148.1	0.51%
SSMH-15-15	SSMH-15-14	495.50	494.15	8"	PVC	87.5	1.54%
SSMH-15-16	SSMH-15-15	497.30	495.90	8"	PVC	87.5	1.60%
SSMH-15-17	SSMH-15-16	500.00	497.50	8"	PVC	161.3	1.55%

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM COUNTY	2015.11.06
2	REVISED PER COMMENTS FROM NCDOT	2015.08.13
1	ISSUED FOR PERMITTING	2015.06.17



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 CHATHAM COUNTY, NORTH CAROLINA**

**STORM DRAINAGE &
 SANITARY SEWER TABLES**

DATE: JUNE 17, 2015	SCALE: D4.4	MAC FILE NUMBER: D4.4
MCE PROJ. # 02735-0113	HORIZONTAL: N/A	DRAWING NUMBER: D4.4
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 3