



PAT McCrory  
Governor

NICHOLAS J. TENNYSON  
Secretary

July 27, 2016

**Chatham County**

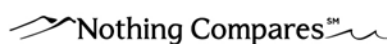
**Subject: Subdivision Final Plan Review – Brookside at Fieldstone Subdivision off of SR 1532**

Sheryl-Mar Co. LLC  
c/o Mr. James Hodgkin  
87 Norwood Road  
Chapel Hill, North Carolina 27516

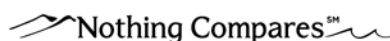
Dear Mr. Hodgkin:

The N. C. Department of Transportation, Division of Highways has reviewed the construction plans signed and sealed by George Retschle P.E. on July 19, 2016 as submitted to this office and approval is granted subject to the following stipulations and recommendations:

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



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



- A. The sight distance quadrants at the intersections shall be shown either as a public easement or as the property line.
- B. Public easements for drainage throughout the development.
- C. All roads shall be shown as public and the right of way width shown
- D. If the plans of this subdivision change in a way that would cause a change in the classification of these roads from Local Residential to Residential Collector the developer will be responsible for upgrading roads to meet Residential Collector standards prior to addition the state maintenance system.
- E. This approval does not approve the utilities within this subdivision. Any utilities shall be submitted for approval to this office via a properly executed Encroachment Agreement to be approved at the time the roads within the subdivision are petitioned to be added to the state system for maintenance. Please note that water valves should be located a minimum of 6' from edge of pavement, fire hydrants should be behind the right of way line and all service taps should be installed prior to paving.

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

Yours truly,

DocuSigned by:

*Marty C. Tillman*

E72EF75317784CB...

Marty C. Tillman  
District Engineer

#### Attachments

cc: Brandon Jones, P.E., Division Engineer  
Justin Bullock, P.E., Chatham County Maintenance Engineer  
Lynn Richardson, Chatham County Planning  
File





STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY  
GOVERNOR

DIVISION OF HIGHWAYS

ANTHONY J. TATA  
SECRETARY

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

DATE: \_\_\_\_\_

COUNTY: \_\_\_\_\_

SUBDIVISION NAME: \_\_\_\_\_

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

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

NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

NC PE LICENSE #: \_\_\_\_\_

Professional Engineer Seal



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

**ROADWAY INFORMATION:** (Please Print/Type)

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

Subdivision Name: \_\_\_\_\_ Length (miles): \_\_\_\_\_

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

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

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

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

Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Street Address: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

**PROPERTY OWNERS**

Name

Mailing Address

Telephone


**INSTRUCTIONS FOR COMPLETING PETITION:**

1. Complete Information Section
2. Identify Contact Person (This person serves as spokesperson for petitioner(s)).
3. Attach four (4) copies of recorded subdivision plat or property deeds, which refer to candidate road.
4. Adjoining property owners and/or the developer may submit a petition. Subdivision roads with prior NCDOT review and approval only require the developer's signature.
5. If submitted by the developer, encroachment agreements from all utilities located within the right of way shall be submitted with the petition for Road addition. However, construction plans may not be required at this time.
6. Submit to District Engineer's Office.

**FOR NCDOT USE ONLY:** Please check the appropriate block

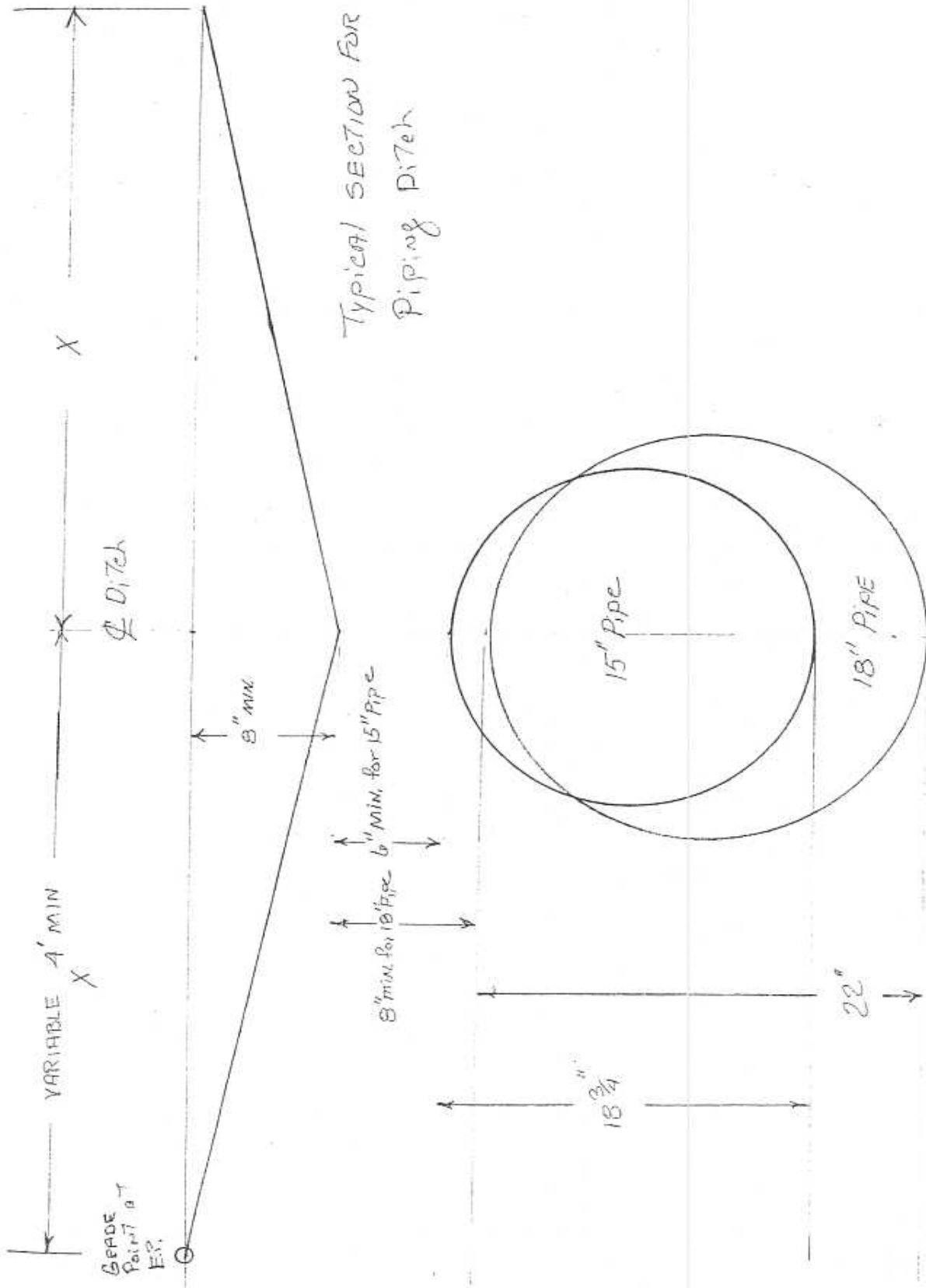
☐ Rural Road    ☐ Subdivision platted prior to October 1, 1975    ☐ Subdivision platted after September 30, 1975

**REQUIREMENTS FOR ADDITION**

If this road meets the requirements necessary for addition, we agree to grant the Department of Transportation a right-of-way of the necessary width to construct the road to the minimum construction standards of the NCDOT. The right-of-way will extend the entire length of the road that is requested to be added to the state maintained system and will include the necessary areas outside of the right-of-way for cut and fill slopes and drainage. Also, we agree to dedicate additional right-of-way at intersections for sight distance and design purposes and execute said right-of-way agreement forms that will be submitted to us by representatives of the NCDOT. The right-of-way shall be cleared at no expense to the NCDOT, which includes the removal of utilities, fences, other obstructions, etc.

General Statute 136-102.6 (see page 29 for Statute) states that any subdivision recorded on or after October 1, 1975, must be built in accordance with NCDOT standards in order to be eligible for addition to the State Road System.

<u>ROAD NAME</u>	<u>HOMES</u>	<u>LENGTH</u>	<u>ROAD NAME</u>	<u>HOMES</u>	<u>LENGTH</u>



**POSSIBLE SUPPLIERS FOR  
GRATES AND FRAMES**

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

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

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

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

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

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

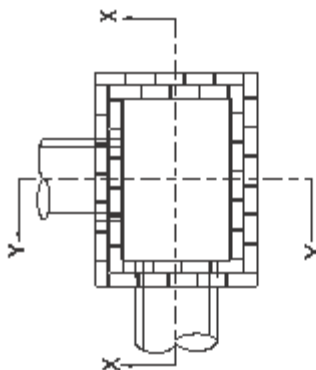
CAPITAL FOUNDRY OF VIRGINIA, INC.  
P.O. BOX 2212  
VIRGINIA BEACH, VIRGINIA 23450

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

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

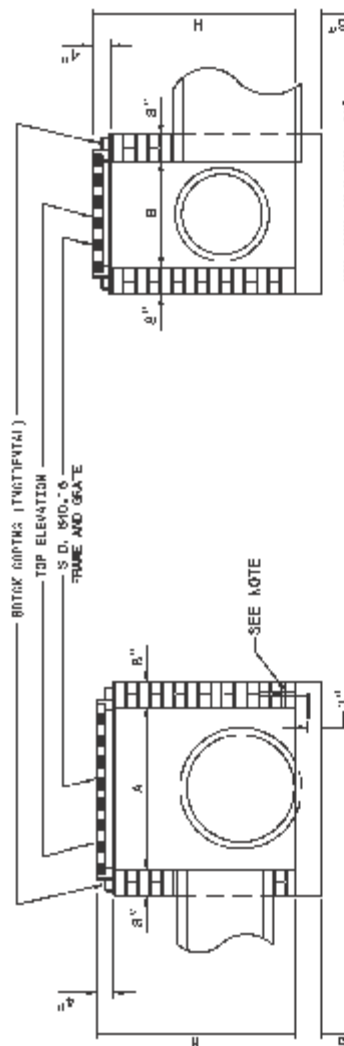
**GENERAL NOTES:**

1. MORTAR JOINTS  $\frac{1}{8}$ " +/-  $\frac{1}{16}$ " THICK.
2. USE CLASS "B" CONCRETE THROUGHOUT.
3. USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
4. USE #4 BAR CORNERS AT 12" CENTERS.
5. DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
6. PROVIDE ALL CATCH BASINS OVER 8'-8" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.68.
7. USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
8. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
9. FOR 6'-0" IN HEIGHT OR LESS, USE 8" WALL OVER 6'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY.
10. CONSTRUCT WITH PIPE CHAINS MATCHING.
11. SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.
12. DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.
13. CHAMFER ALL EXPOSED CORNERS 1".
14. DRAWING NOT TO SCALE.



**PLAN**

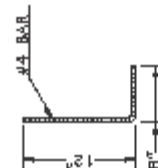
WITH COPING REMOVED



**SECTION X-X**

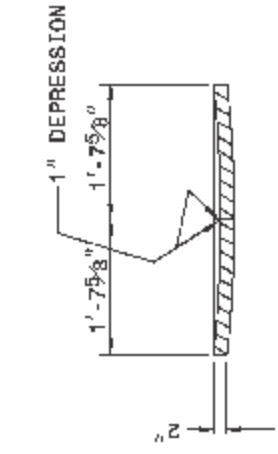
**SECTION Y-Y**

MAX. PIPE INLET SLAB - 15"

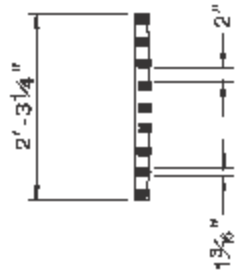


**DOWEL**

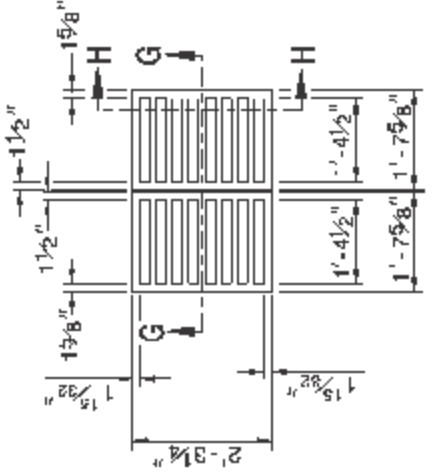
DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)					
DIMENSIONS OF BOX & PIPE			CUBIC YARDS		DEDUCTIONS FOR ONE PIPE
PIPE	SPAN	WIDTH	MIN. HEIGHT	CONCRETE	BRICK MASONRY
D	A	B	H	BOTTOM SLAB	WALL PER FOOT HT.
12"	3'-0"	2'-0"	2'-0"	0.268	0.313
15"	/	/	2'-5"	0.268	0.313
18"	/	/	2'-6"	0.268	0.313
24"	3'-0"	2'-0"	3'-0"	0.268	0.313
30"	3'-0"	2'-0"	3'-6"	0.268	0.313
				TOTAL BRICK MASONRY FOR W.P. INLET, H	C.S. R.C.
				0.032	0.032
				0.261	0.065
				0.078	0.118
				0.991	0.170



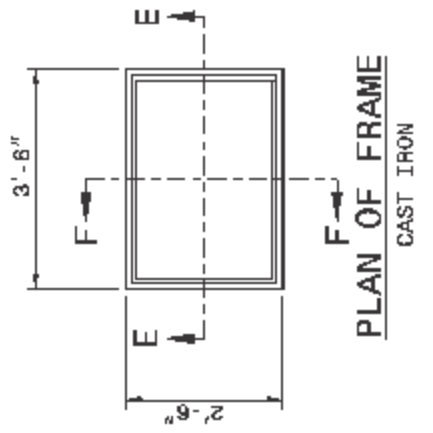
**SECTION G-G**



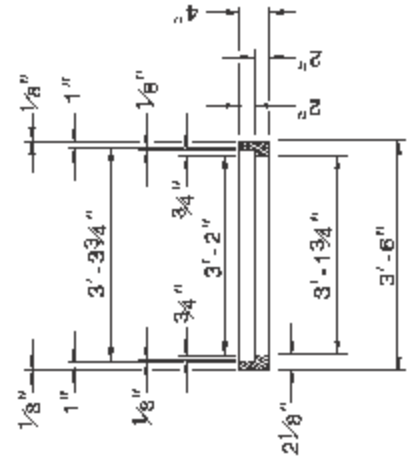
**SECTION H-H**



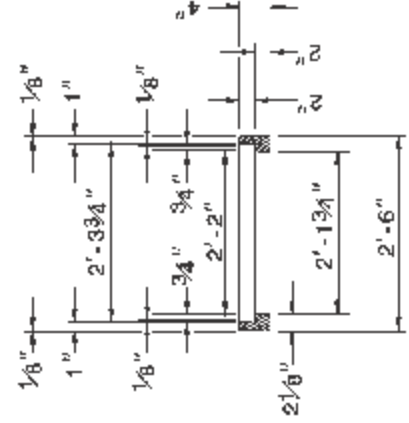
**PLAN OF GRATING**  
CAST IRON



**PLAN OF FRAME**  
CAST IRON



**SECTION E-E**



**SECTION F-F**

**VERIFICATION OF COMPLIANCE WITH  
ENVIRONMENTAL REGULATIONS**

(Check Appropriate Box)

- ☐ Permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers are not required for this project. However, all applicable federal and state regulations have been followed.
- ☐ The required permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers have been obtained for this project. Copies of permits and Completion Certificates are attached.
- ☐ All applicable NPDES Stormwater Permit requirements have been met for this project. (The applicant should contact the N.C. Division of Water Quality in Raleigh to determine if a stormwater permit is required.)
- ☐ The project is in compliance with all applicable sedimentation and erosion control laws and regulations.

Project Name: \_\_\_\_\_

Township: \_\_\_\_\_

County: \_\_\_\_\_

Project Engineer: \_\_\_\_\_

Phone No.: \_\_\_\_\_

Project Contact: \_\_\_\_\_

Applicants Name: \_\_\_\_\_

P.E. SEAL

Date Submitted: \_\_\_\_\_

(Reference Page 11, Item 10)

11/07/2003





## ATTACHMENT "A"

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

### SANDY SOIL

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

### CLAY SOIL

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

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

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

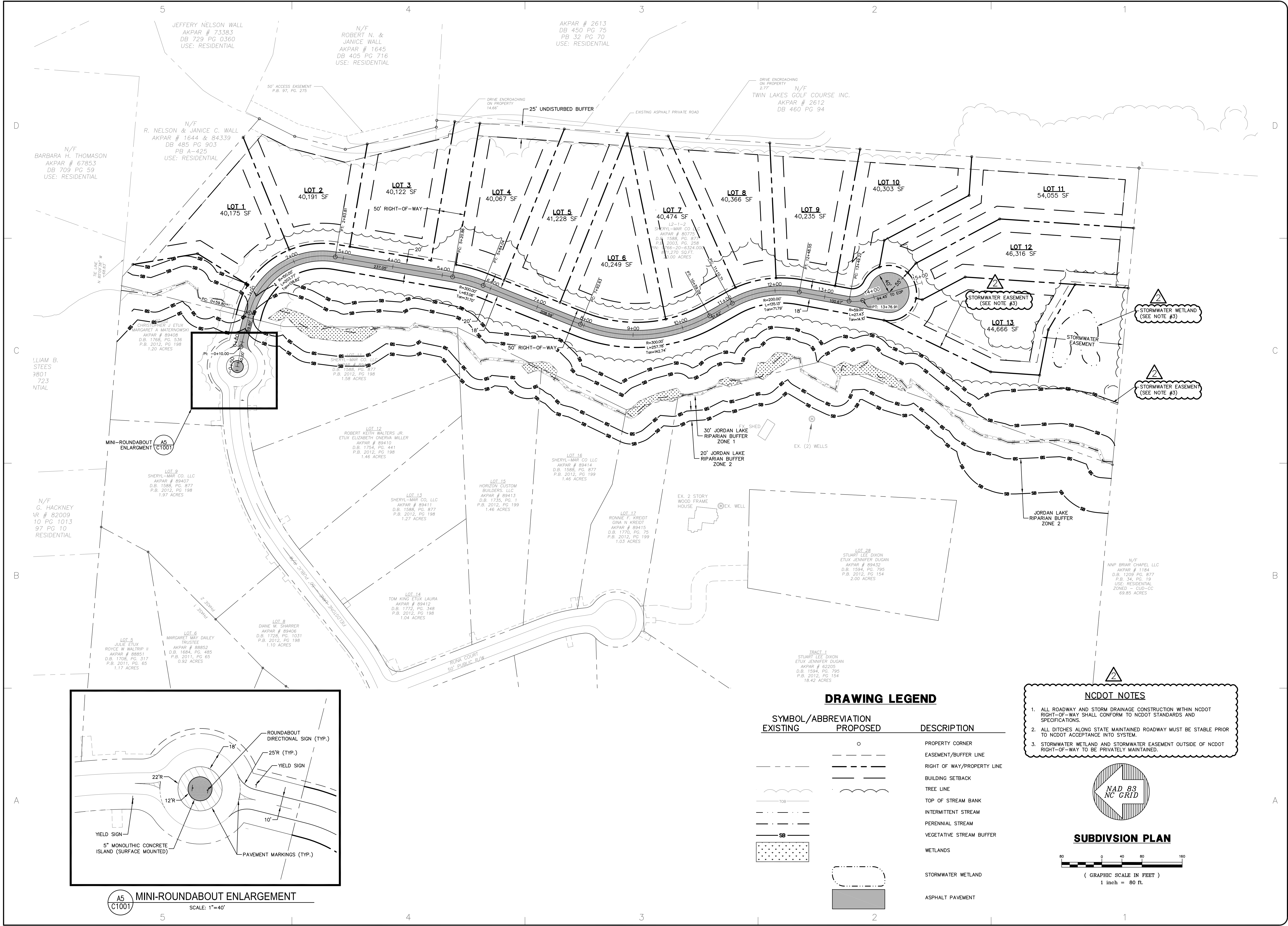
Fertilizer shall be 10-20-20 analysis. Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis.











DRAWING LEGEND

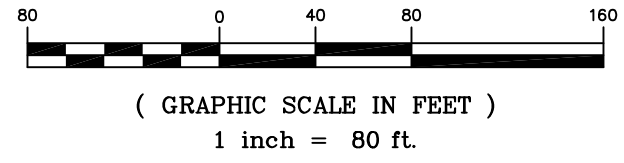
SYMBOL/ABBREVIATION		DESCRIPTION
EXISTING	PROPOSED	
	○	PROPERTY CORNER
---	---	EASEMENT/BUFFER LINE
---	---	RIGHT OF WAY/PROPERTY LINE
---	---	BUILDING SETBACK
---	---	TREE LINE
---	---	TOP OF STREAM BANK
---	---	INTERMITTENT STREAM
---	---	PERENNIAL STREAM
---	---	VEGETATIVE STREAM BUFFER
---	---	WETLANDS
---	---	STORMWATER WETLAND
---	---	ASPHALT PAVEMENT

NCDOT NOTES

1. ALL ROADWAY AND STORM DRAINAGE CONSTRUCTION WITHIN NCDOT RIGHT-OF-WAY SHALL CONFORM TO NCDOT STANDARDS AND SPECIFICATIONS.
2. ALL DITCHES ALONG STATE MAINTAINED ROADWAY MUST BE STABLE PRIOR TO NCDOT ACCEPTANCE INTO SYSTEM.
3. STORMWATER WETLAND AND STORMWATER EASEMENT OUTSIDE OF NCDOT RIGHT-OF-WAY TO BE PRIVATELY MAINTAINED.



SUBDIVISION PLAN



**BALLENTINE ASSOCIATES, P.A.**  
221 PROVIDENCE ROAD, CHAPEL HILL, NC 27514  
(919) 929-0481 FAX (919) 489-4799  
THIS DOCUMENT IS THE PROPERTY OF BALLENTINE ASSOCIATES, P.A. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT PRIOR PERMISSION OF BALLENTINE ASSOCIATES, P.A. WILL BE SUBJECT TO LEGAL ACTION.

**NOT FOR CONSTRUCTION**  
ENGINEER  
COREY J. RETZLE  
029127

DATE	REVISIONS
17 JUN 16	PER CHATHAM STORMWATER COMMENTS
19 JUL 16	PER NCDOT COMMENTS

**OWNER INFORMATION**  
SHERYL-MAR CO. LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516

**OWNERS REPRESENTATIVE:**  
JIM HODGON  
TEL: 910-210-0920  
FAX: 910-210-0920  
EMAIL: jimhodgon@hotmail.com

DATE	ISSUED
12 APR 16	TO SHERYL-MAR
15 APR 16	CHATHAM UTILITIES & NCDOT
29 APR 16	CHATHAM EROSION CONTROL
17 JUN 16	CHATHAM STORMWATER
19 JUL 16	CHATHAM STORMWATER #2
	NCDOT SUBMITTAL #2

**BROOKSIDE AT FIELDSTONE**  
CHATHAM COUNTY, NORTH CAROLINA  
CONSTRUCTION DRAWINGS

JOB NUMBER: 113022.00  
DATE: 25 MAR 2016  
SCALE: AS NOTED  
DRAWN BY: DGB  
REVIEWED BY: GJR

**SHEET C1001**

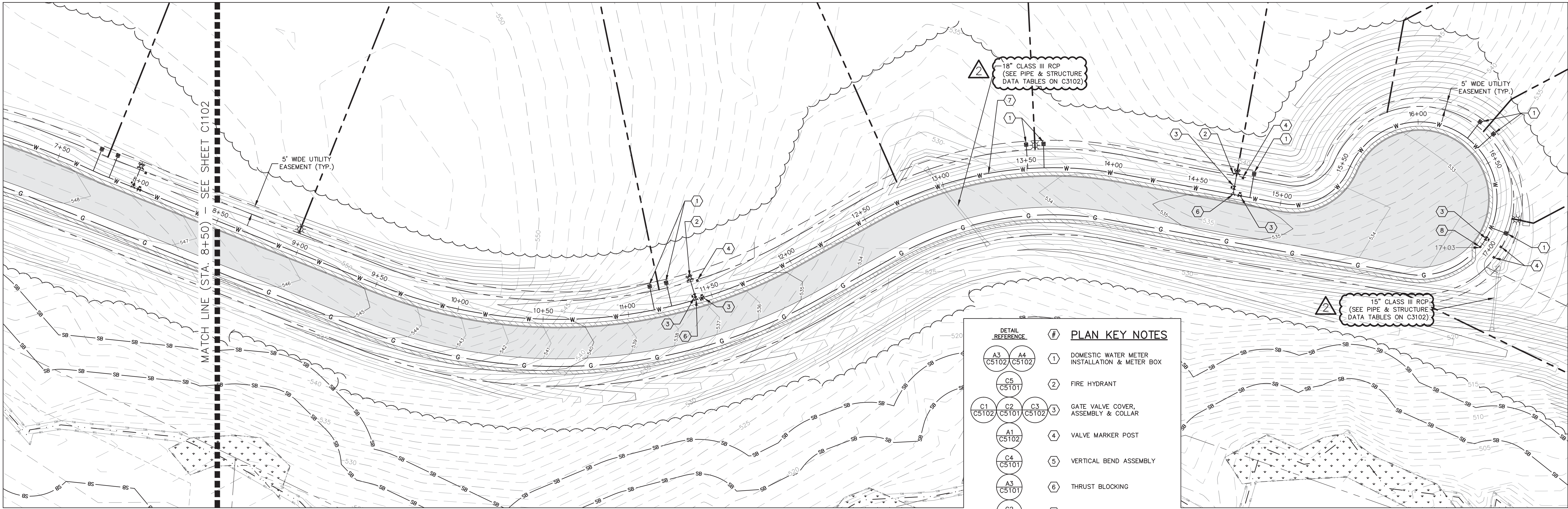












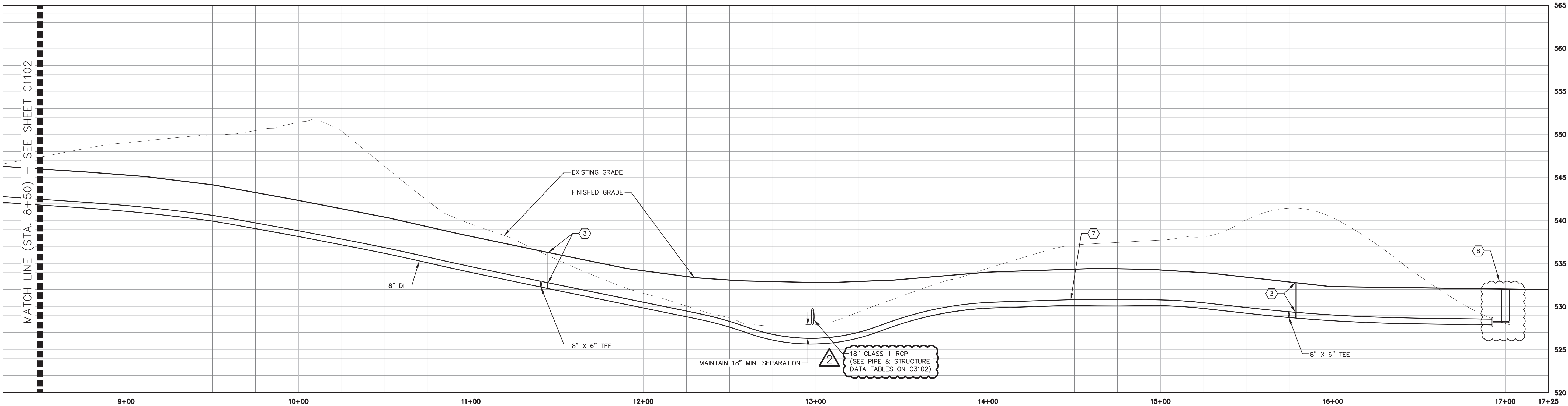
C3  
C1103

**WATER MAIN PLAN — SOUTH**

1" = 30'

NO GRID  
NAD 83

DETAIL REFERENCE	#	PLAN KEY NOTES
A3 C5102 C5101	1	DOMESTIC WATER METER INSTALLATION & METER BOX
C5 C5101	2	FIRE HYDRANT
C1 C5102 C5101	3	GATE VALVE COVER, ASSEMBLY & COLLAR
A1 C5102	4	VALVE MARKER POST
C4 C5101	5	VERTICAL BEND ASSEMBLY
A3 C5101	6	THRUST BLOCKING
C2 C5101	7	DI WATER MAIN TRENCH
C1 C5101	8	2" BLOWOFF ASSEMBLY



A3  
C1103

**WATER MAIN PROFILE — SOUTH**

SCALE: H: 1" = 30'  
V: 1" = 6'

**WATER MAIN  
PLAN & PROFILE  
SOUTH**

**BALLENTINE  
ASSOCIATES, P.A.**  
221 PROVIDENCE ROAD, CHAPEL HILL, NC 27514  
PH: 919-487-1100 FAX: 919-487-1101  
COPYRIGHT © 2016 BALLENTINE ASSOCIATES, P.A.  
THIS DOCUMENT IS THE PROPERTY OF BALLENTINE  
ASSOCIATES, P.A. NO REPRODUCTION OR REVISION  
REPRODUCTION OF THIS DOCUMENT OR REVISION  
ASSOCIATES, P.A. WILL BE SUBJECT TO LEGAL ACTION.



DATE	5 MAY 16
REVISIONS	1 PER CHATHAM CO. UTILITIES COMMENTS
NUM	2 PER NCDOT COMMENTS

**OWNER INFORMATION**  
SHERYL-MAR CO., LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516  
**OWNERS REPRESENTATIVE:**  
JIM HODGINS  
PH: 910-210-0920  
FAX: 910-210-0920  
EMAIL: jimhodgins@hotmail.com

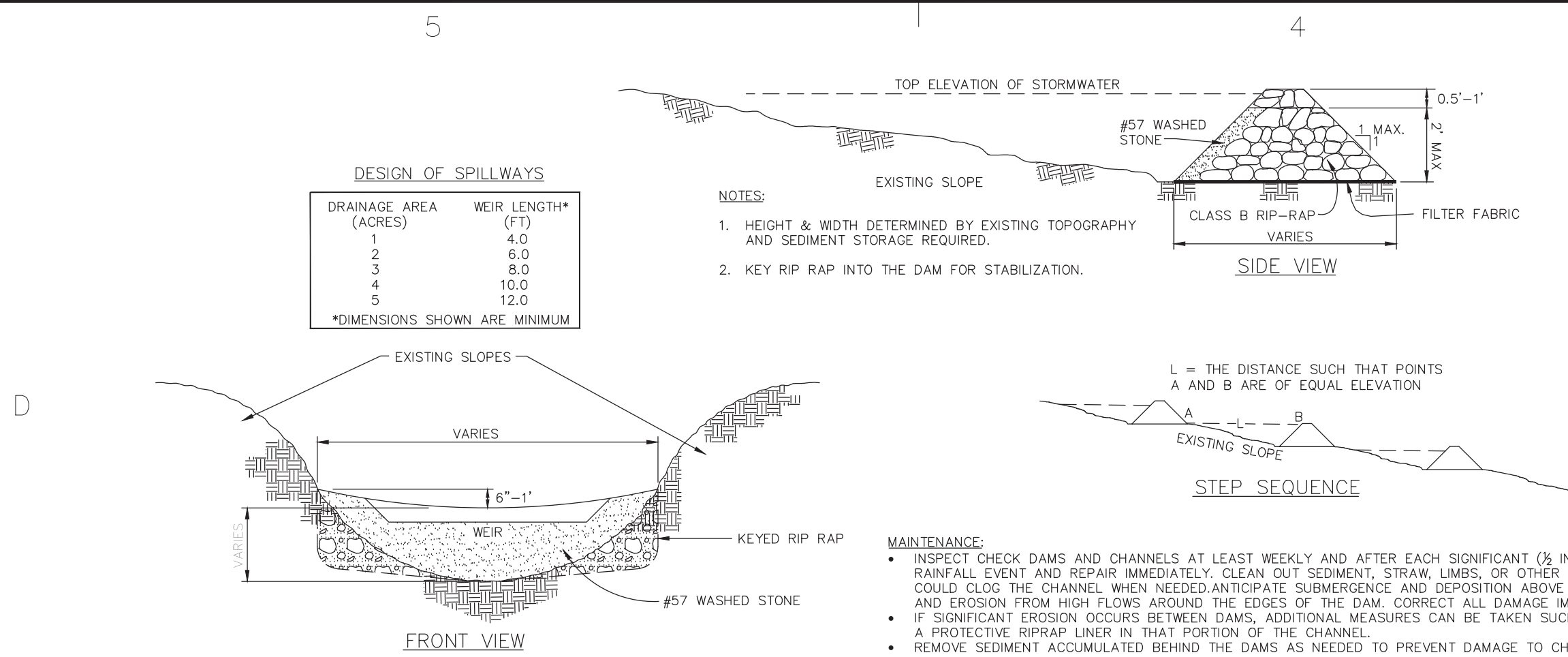
ISSUED	DATE
TO SHERYL-MAR	25 MAR 16
CHATHAM UTILITIES & NCDOT	12 APR 16
CHATHAM UTILITIES	5 MAY 16
CHATHAM STORMWATER #2	17 JUN 16
NCDOT SUBMITTAL #2	19 JUL 16

**BROOKSIDE AT FIELDSTONE**  
**CHATHAM COUNTY, NORTH CAROLINA**  
**CONSTRUCTION DRAWINGS**

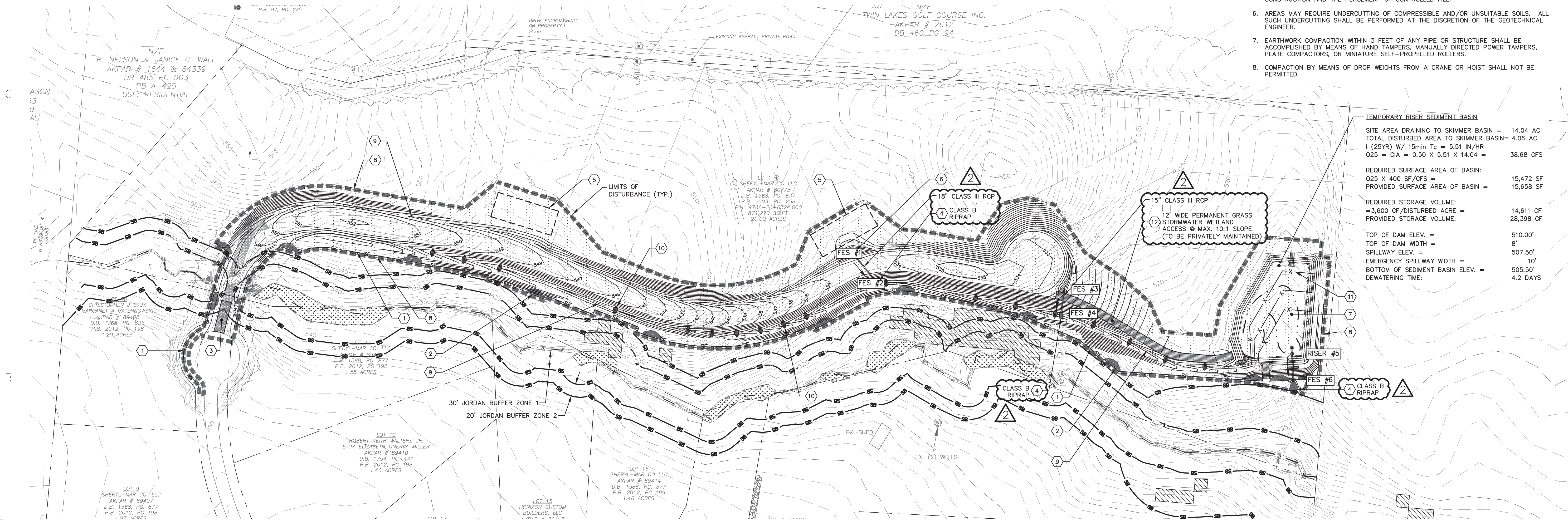
JOB NUMBER: 113022.00  
DATE: 25 MAR 2016  
SCALE: AS NOTED  
DRAWN BY: DBB  
REVIEWED BY: GJR

**SHEET  
C1103**





D5 TEMPORARY CHECK DAM  
C1301 N.T.S.



GROUND STABILIZATION REQUIREMENTS

(PER NPDES CONSTRUCTION STORMWATER GENERAL PERMIT NCG010000)

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

\* EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE" (SECTION II.B (2)(b))

SEEDBED PREPARATION

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF APPLICABLE.
- RIP THE ENTIRE AREA TO 6 INCHES DEEP.
- 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 WELL PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- SEED ON FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDBED 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.

\* APPLY: AGRICULTURAL LIMESTONE - 2 TONS/AC (3 TONS/AC IN CLAY SOILS)  
FERTILIZER - 1,000 LBS/ACRE - 10-10-10  
SUPERPHOSPHATE - 500 LBS/ACRE - 20% ANALYSIS  
MULCH - 2 TONS/ACRE - SMALL GRAIN STRAW  
ANCHOR - ASPHALT EMULSION @ 400 GALS/ACRE

TEMPORARY SEEDING SCHEDULE

DATE	SEED TYPE
APR 1 - JUL 31	BLACKJACK BERMUDA & BROWNTOP MILLET
AUG 1 - MAR 31	GERMAN MILLET & ABRUZZI RYE
DATE	SEED TYPE
APR 1 - JUL 31	BLACKJACK BERMUDA
SEP 1 - MAR 1	TALL FESCUE

PERMANENT SEEDING SCHEDULE

DATE	SEED TYPE
APR 1 - JUL 31	BLACKJACK BERMUDA
SEP 1 - MAR 1	TALL FESCUE

PLAN KEY NOTES

DETAIL REFERENCE	#	PLAN KEY NOTES
A3 C5301	1	TEMPORARY SILT FENCE
C3 C5301	2	TEMPORARY SILT FENCE STONE OUTLET (TYP.)
D1 C5301	3	TEMPORARY CONSTRUCTION EXIT
A5 C5301	4	RIPRAP APRON
D4 C5301	5	TEMPORARY STOCKPILE AREA
C5 C5301	6	TEMPORARY HORSESHOE INLET PROTECTION
A4 C4201	7	TEMPORARY RISER SEDIMENT BASIN
A1 C5301	8	TEMPORARY TREE PROTECTION FENCE
A1 C5301	9	CHANNEL LINING DITCH SECTION SCHEDULE (SEE C3101 & C3102 FOR DITCH LOCATIONS)
D5 C1301	10	TEMPORARY CHECK DAM
C4 C5302	11	COIR FIBER BAFLES
	12	STORMWATER WETLAND PERMANENT ACCESS SEE SPECIFICATIONS ON THIS SHEET

CONSTRUCTION SEQUENCE

- OBTAIN CHATHAM COUNTY PERMIT/APPROVAL TO PROCEED.
- SCHEDULE A PRECONSTRUCTION CONFERENCE WITH CHATHAM COUNTY SOIL EROSION AND SEDIMENT CONTROL DEPARTMENT (919) 545-8343. FAILURE TO PERFORM THIS STEP BEFORE PERFORMING LAND DISTURBING ACTIVITIES MAY RESULT IN A NOTICE OF VIOLATION OR FINES.
- LOCATE ALL EXISTING UTILITIES WITHIN PROJECT AREA (PUBLIC AND PRIVATE).
- CLEAR ONLY THE AREAS NECESSARY TO INSTALL EROSION CONTROL MEASURES (INCLUDING PERMANENT DITCH ON WEST SIDE OF ROAD (SEE NOTE #6)).
- INSTALL TEMPORARY CONSTRUCTION ENTRANCE, SILT FENCING, SILT FENCE STONE OUTLETS, TEMPORARY SEDIMENT BASIN & RISER #5 (PER DETAIL A2/C4202). ADJUST SILT FENCE STONE OUTLET LOCATIONS PER FIELD CONDITIONS. SEED ALL AREAS DISTURBED BY THE INSTALLATION OF THESE DEVICES IMMEDIATELY.
- INSTALL PERMANENT DITCH & BERM ON WEST SIDE OF ROAD PER GRADING PLANS. START DITCH/BERM GRADING AT SEDIMENT BASIN AND WORK NORTHWARD. INSTALL TEMPORARY ROCK CHECK DAMS AS SHOWN. INSTALL PERMANENT CULVERTS #1 & #2 AS SHOWN.
- CALL CHATHAM COUNTY SOIL EROSION AND SEDIMENT CONTROL DEPARTMENT FOR INSPECTION (919) 545-8343.
- CLEAR AND GRUB IN AREAS SHOWN. MAINTAIN EROSION CONTROL DEVICES THROUGHOUT CLEARING OPERATION.
- PROCEED WITH REMAINDER OF GRADING, UTILITY INSTALLATION & ROAD CONSTRUCTION.
- MAINTAIN EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION.
- UPON COMPLETION OF CONSTRUCTION, SEED AND STABILIZE ALL REMAINING DISTURBED AREAS.
- CALL CHATHAM COUNTY SOIL EROSION AND SEDIMENT CONTROL DEPARTMENT FOR INSPECTION.
- REMOVE SILT FENCING ONLY AFTER A GOOD STAND OF GRASS HAS BECOME ESTABLISHED AND ONLY WITH SPECIFIC APPROVAL OF CHATHAM COUNTY SOIL EROSION AND SEDIMENT CONTROL DEPARTMENT. SEED RESULTING DISTURBED AREAS.

EROSION CONTROL NOTES

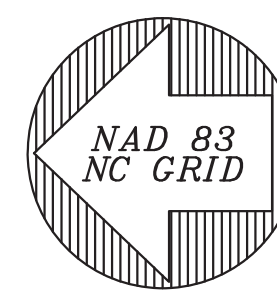
- EXCEPT AS SPECIFICALLY NOTED, THE DAM, OUTLET STRUCTURE, OUTLET PIPE AND ALL OTHER BASIN-RELATED ELEMENTS SHOWN ON THIS PLAN SHALL BE INSTALLED AS PERMANENT FACILITIES IN ACCORDANCE WITH SHEET C4203 AND ALL APPLICABLE SPECIFICATIONS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
- TOTAL DISTURBED AREA = 5.30 AC.
- MAINTENANCE, SELF-INSPECTION AND MONITORING: IN ORDER TO CONFIRM COMPLIANCE WITH NPDES GENERAL PERMIT NCG 010000, THE SITE MUST BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PERSON(S), OR AN AGENT THERE OF, AT A MINIMUM OF ONCE A WEEK AND WITHIN 24 HOURS OF ANY RAINFALL OF ONE-HALF INCH OR GREATER. COPIES OF ALL SELF-INSPECTION REPORTS MUST BE PROVIDED TO THE COUNTY EROSION AND SEDIMENTATION CONTROL OFFICE WITHIN 15 DAYS OF THE INSPECTION. SELF-INSPECTION REPORTS MAY BE SUBMITTED IN PAPER OR ELECTRONIC FORM. SELF-INSPECTIONS MUST BE PERFORMED UNTIL A CERTIFICATE OF COMPLETION HAS BEEN ISSUED BY THE COUNTY.

STORMWATER WETLAND PERMANENT ACCESS SPECIFICATIONS:

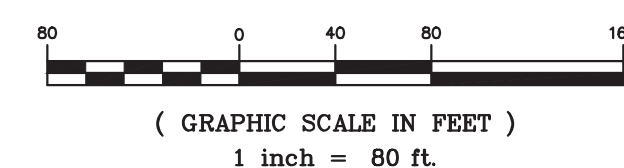
- CONTROLLED FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, ALONG THE 12' WIDE ACCESS SHALL BE PLACED IN 6-INCH LOOSE LAYERS, AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE OF + OR - 2% OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698.
- ALL VISIBLE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO THE COMPACTION OF THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 3-INCH (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
- FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS.
- ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
- SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
- AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSUITABLE SOILS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER.
- EARTHWORK COMPACTION WITHIN 3 FEET OF ANY PIPE OR STRUCTURE SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS, PLATE COMPACTORS, OR MINIATURE SELF-PROPELLED ROLLERS.
- COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.

DRAWING LEGEND

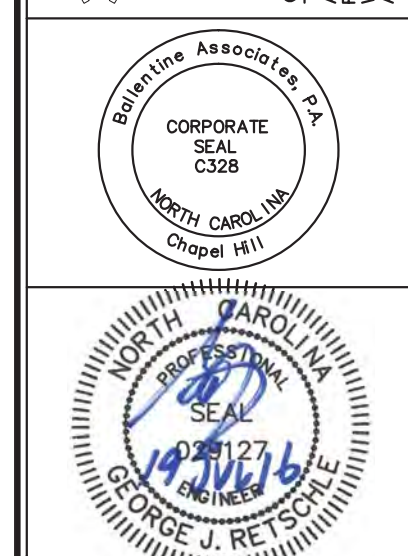
SYMBOL/ABBREVIATION	EXISTING	PROPOSED	DESCRIPTION
MAJOR CONTOUR	-280-	-280-	MAJOR CONTOUR
MINOR CONTOUR	-282-	-282-	MINOR CONTOUR
STEEP SLOPES PER CHATHAM CO. GIS (≥ 25% GRADIENTS)	X-X	X-X	STEEP SLOPES PER CHATHAM CO. GIS (≥ 25% GRADIENTS)
FENCE LINE	R/W	R/W	FENCE LINE
PROPERTY LINE	SB	SB	PROPERTY LINE
RIGHT-OF-WAY LINE			RIGHT-OF-WAY LINE
STREAM BUFFER			STREAM BUFFER
TREE LINE			TREE LINE
AREA TO BE CLEARED & GRUBBED			AREA TO BE CLEARED & GRUBBED
STORM DRAINAGE PIPE			STORM DRAINAGE PIPE
LIMITS OF DISTURBANCE			LIMITS OF DISTURBANCE
TREE PROTECTION FENCE			TREE PROTECTION FENCE
SILT FENCE			SILT FENCE
CHECK DAM			CHECK DAM
SILT FENCE STONE OUTLET			SILT FENCE STONE OUTLET
FLARED END SECTION			FLARED END SECTION
RIPRAP APRON			RIPRAP APRON
HORSESHOE INLET PROTECTION			HORSESHOE INLET PROTECTION



EROSION CONTROL PLAN



BALLENTINE ASSOCIATES, P.A.  
222 PROVIDENCE ROAD, CHAPEL HILL, NC 27514  
P.L. 1588, PG. 977  
P.B. 2012, PG. 199  
1.07 ACRES



DATE	REVISIONS
17 JUN 16	PER CHATHAM SW & EC COMMENTS
19 JUL 16	PER NCDOT COMMENTS

ISSUED	DATE
TO SHERYL-MAR	25 MAR 16
CHATHAM UTILITIES & NCDOT	12 APR 16
CHATHAM EROSION CONTROL	15 APR 16
CHATHAM STORMWATER	29 APR 16
CHATHAM SW & EC #2	17 JUN 16
NCDOT SUBMITTAL #2	19 JUL 16

OWNER INFORMATION  
SHERYL-MAR CO. LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516

OWNERS REPRESENTATIVE:  
JIM HODGINS  
PH. 910-210-0920  
FAX 910-210-0920  
EMAIL: jmhodgins@hotmail.com

BROOKSIDE AT FIELDSTONE  
CHATHAM COUNTY, NORTH CAROLINA  
CONSTRUCTION DRAWINGS

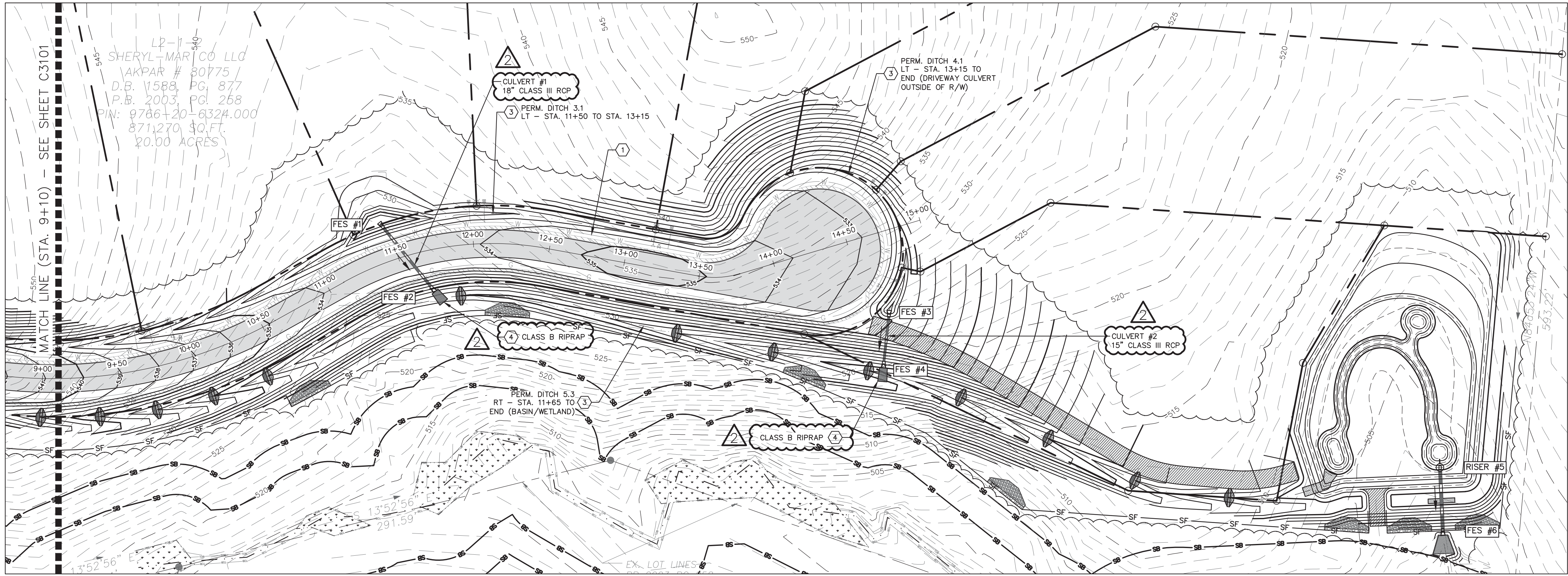
JOB NUMBER: 113022.00  
DATE: 25 MAR 2016  
SCALE: AS NOTED  
DRAWN BY: DBB  
REVIEWED BY: GJR

SHEET  
C1301



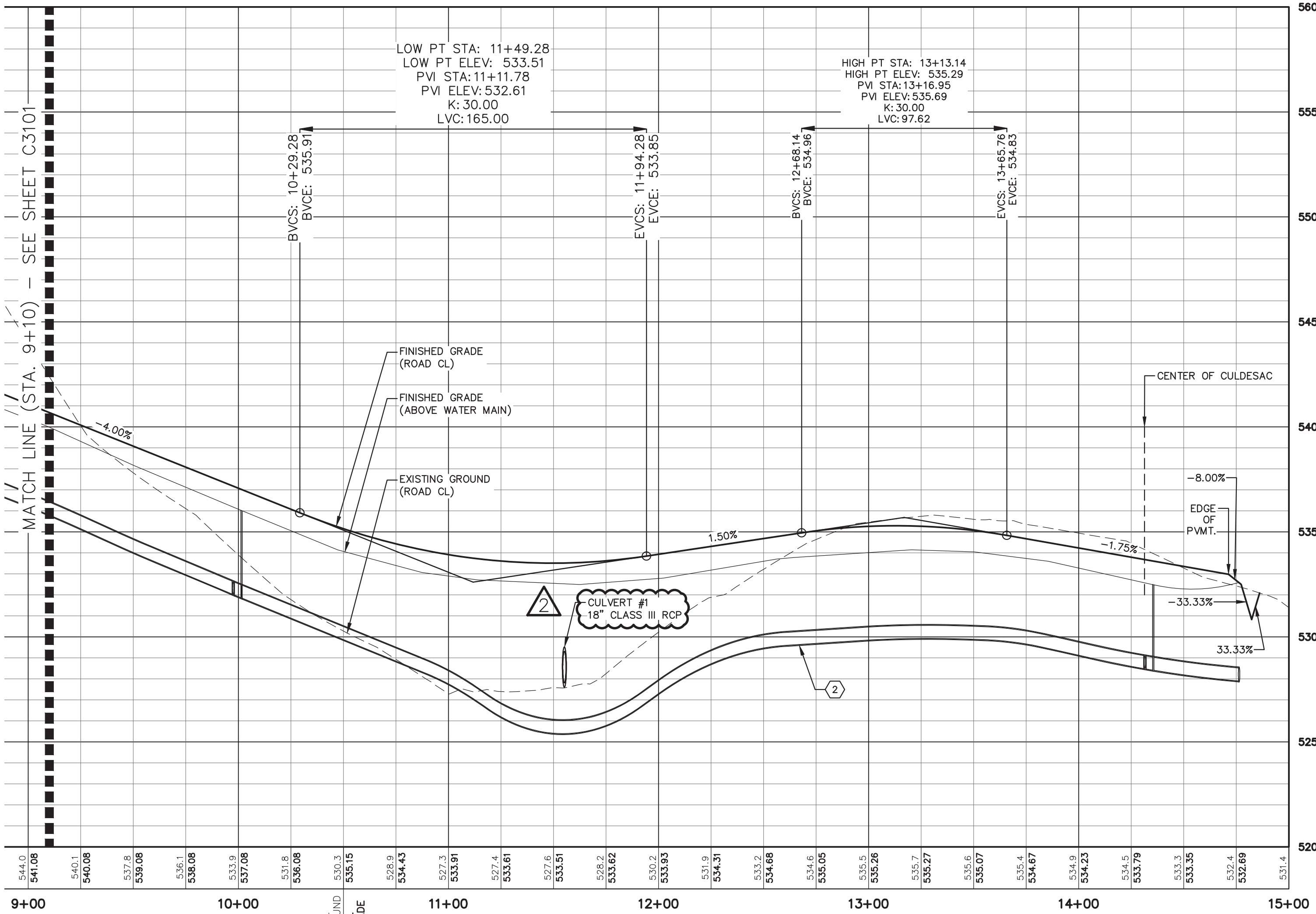






FIELDSTONE LANE PLAN - SOUTH

SCALE: 1" = 30'



FIELDSTONE LANE PROFILE - SOUTH

SCALE: H 1" = 30'  
V 1" = 4'

STRUCTURE TABLE		
STR. ID	*RIM ELEV. (FT)	STRUCTURE TYPE
FES #1	528.50	FLARED END SECTION
FES #2	527.00	FLARED END SECTION
FES #3	526.50	FLARED END SECTION
FES #4	520.00	FLARED END SECTION
FES #5	500.50	FLARED END SECTION
RISER #5	507.50	OUTLET STRUCTURE

\*FLARED END SECTIONS RIM = INV.  
\*OUTLET STRUCTURE RIM = TOP

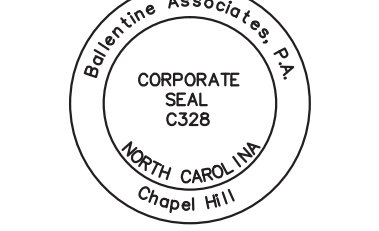
PIPE TABLE						
US STR	DS STR	DIAMETER (IN)	MATERIAL	US INV. ELEV. (FT)	DS INV. ELEV. (FT)	*LENGTH (FT) SLOPE (FT/FT)
FES #1	FES #2	18	RCP	528.50	527.00	58 0.0259
FES #3	FES #4	15	RCP	526.50	520.00	38 0.1711
FES #5	FES #6	24	RCP	500.50	500.00	42 0.0119

\*INCLUDES LENGTHS OF PIPES AND FLARED END SECTIONS

DETAIL REFERENCE	#	PLAN KEY NOTES
C3 C1103	1	WATER MAIN PLAN - SOUTH
A3 C1103	2	WATER MAIN PROFILE - SOUTH
A1 C5302	3	PERMANENT DITCH SECTION & LINING SCHEDULE
A1 C5302	4	RIPRAP APRON

FIELDSTONE LANE  
PLAN & PROFILE - SOUTH

BALLENTINE ASSOCIATES, P.A.  
221 PROVIDENCE ROAD, CHAPEL HILL, NC 27514  
COPYRIGHT © 2016 BALLENTINE ASSOCIATES, P.A.  
THIS DOCUMENT IS THE PROPERTY OF BALLENTINE ASSOCIATES, P.A. ANY REPRODUCTION OR REUSE OF THIS DOCUMENT OR ITS CONTENTS WITHOUT THE WRITTEN PERMISSION OF BALLENTINE ASSOCIATES, P.A. WILL BE SUBJECT TO LEGAL ACTION.



DATE	REVISIONS
17 JUN 16	PER CHATHAM SW & EC COMMENTS
19 JUL 16	PER NCDOT COMMENTS

OWNER INFORMATION  
SHERYL-MAR CO. LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516  
OWNERS REPRESENTATIVE:  
JIM HODGINS  
PH: 910-210-0920  
FAX: 910-210-0920  
EMAIL: jimhodgins@hotmail.com

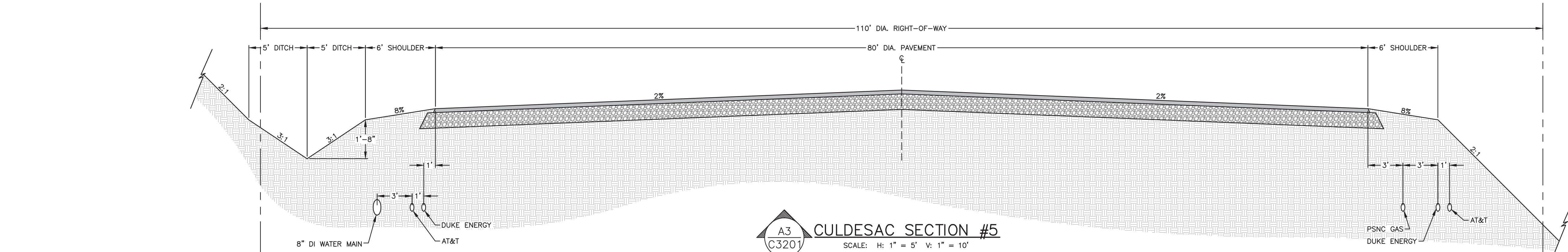
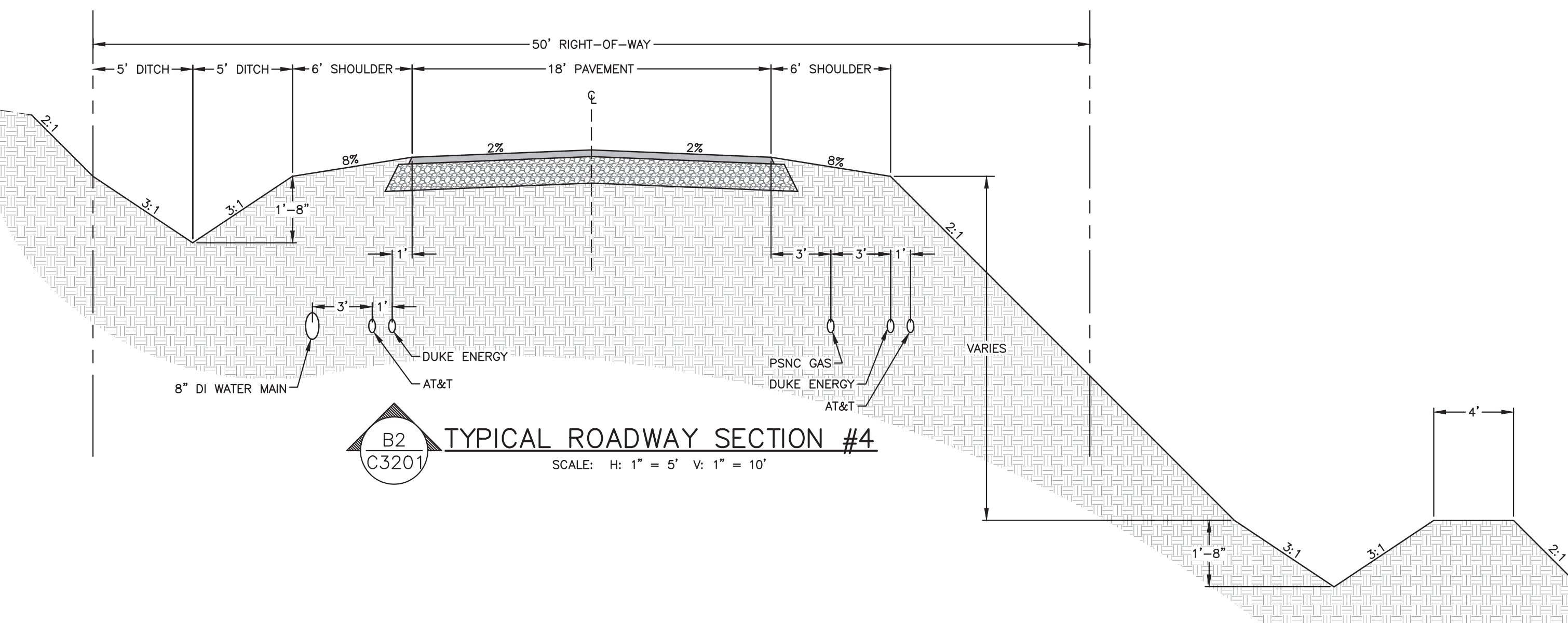
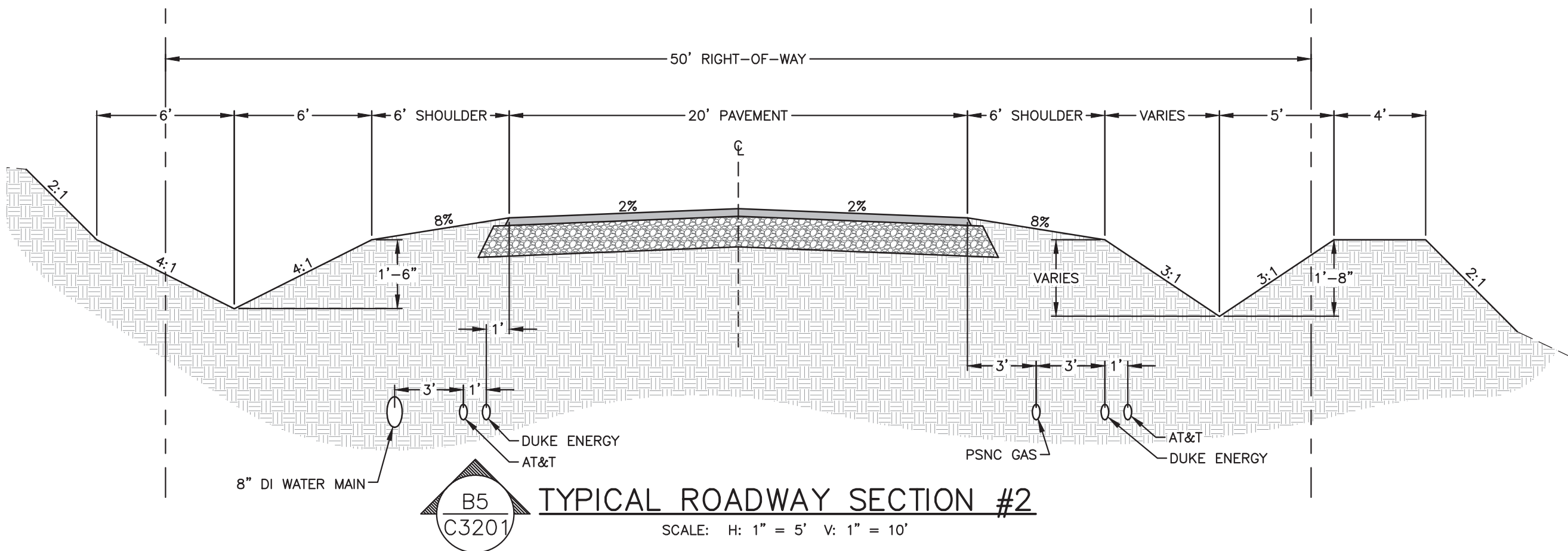
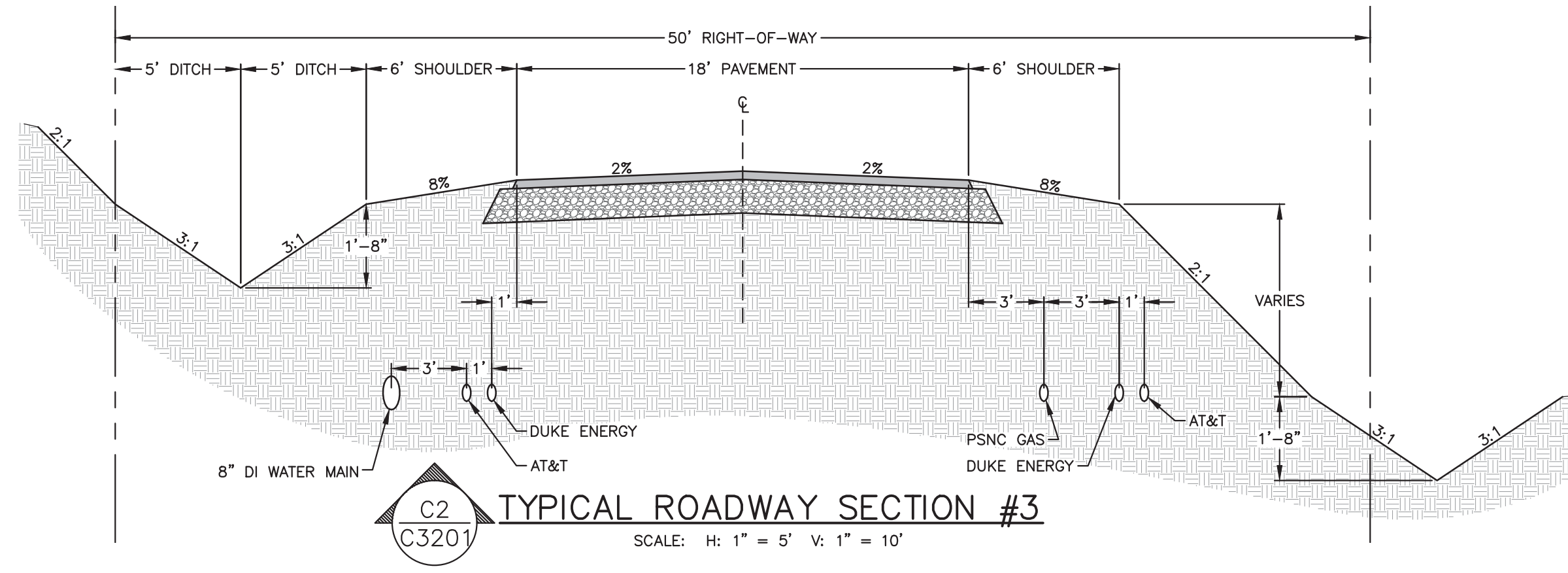
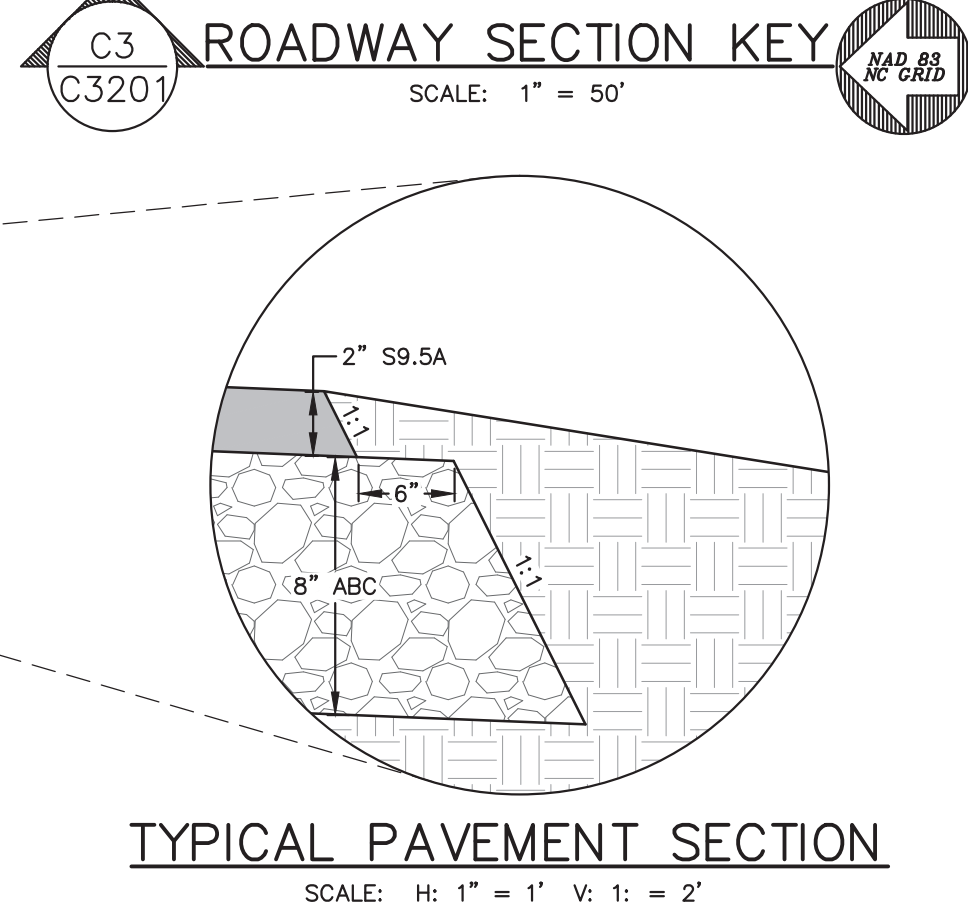
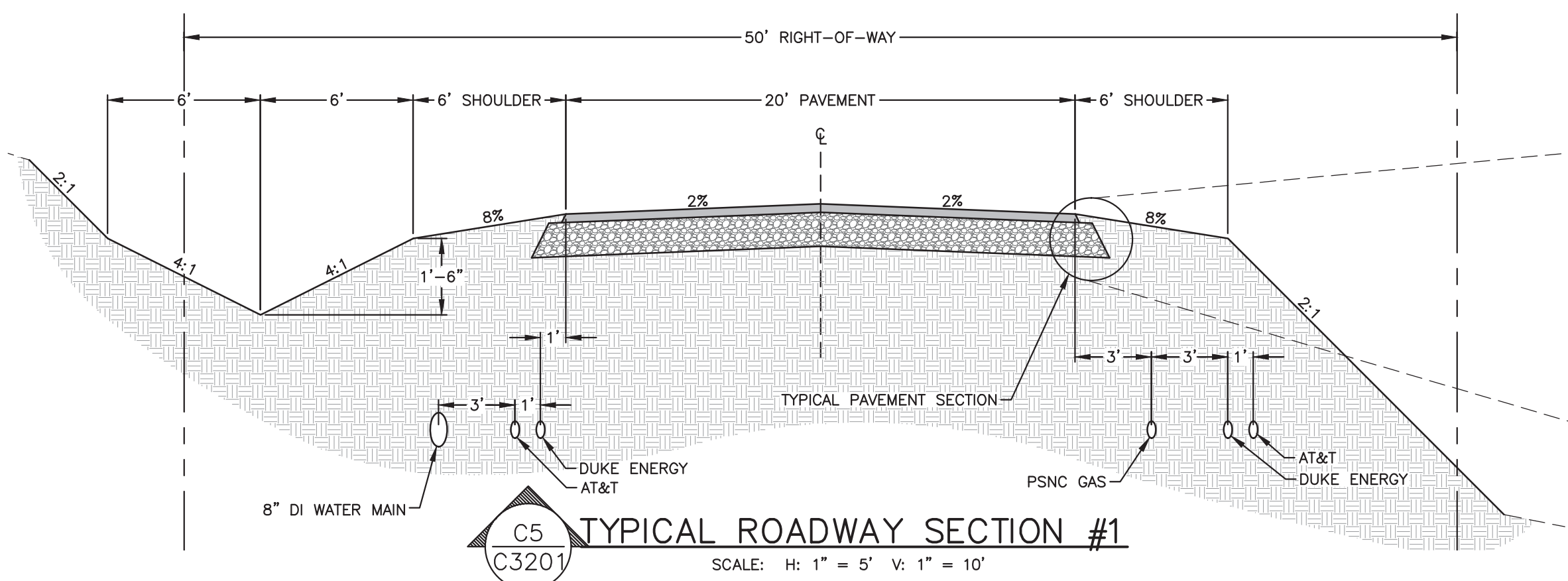
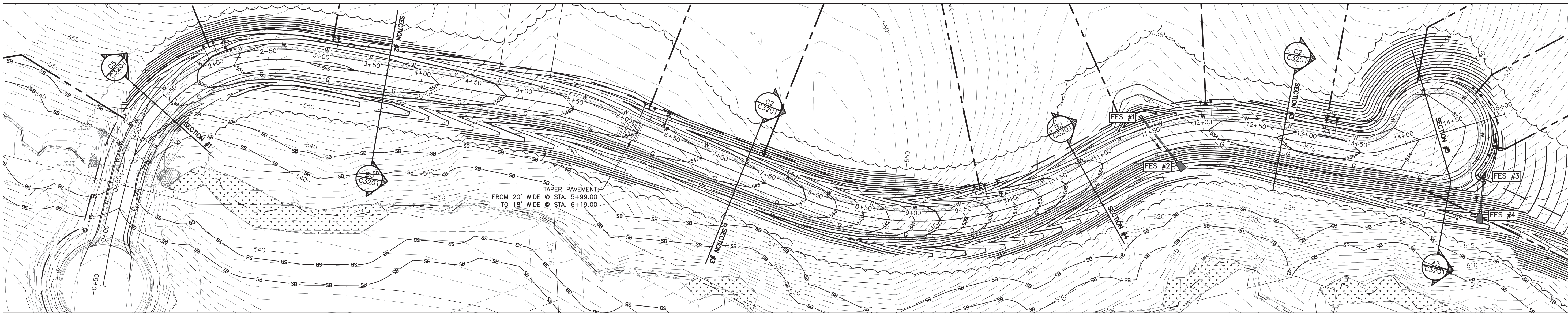
ISSUED	DATE
TO SHERYL-MAR	25 MAR 16
CHATHAM UTILITIES & NCDOT	12 APR 16
CHATHAM EROSION CONTROL	15 APR 16
CHATHAM STORMWATER	28 APR 16
CHATHAM SW & EC #2	17 JUN 16
NCDOT SUBMITTAL #2	19 JUN 16

BROOKSIDE AT FIELDSTONE  
CHATHAM COUNTY, NORTH CAROLINA  
CONSTRUCTION DRAWINGS

JOB NUMBER: 113022.00  
DATE: 25 MAR 2016  
SCALE: AS NOTED  
DRAWN BY: DBB  
REVIEWED BY: GJR

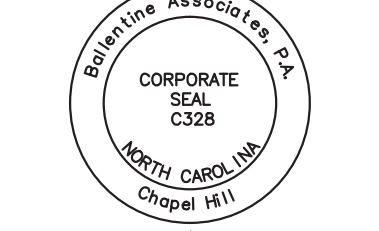
SHEET  
C3102





FIELDSTONE LANE  
TYPICAL SECTIONS

BALLENTINE  
ASSOCIATES, P.A.  
221 PROVIDENCE ROAD, CHAPEL HILL, NC 27514  
PH: 919-487-1100  
FAX: 919-487-1101  
WWW.BALLENTINE-PA.COM  
REPRODUCTION OF THIS DOCUMENT FOR ANY PURPOSE  
WITHOUT THE WRITTEN PERMISSION OF BALLENTINE  
ASSOCIATES, P.A. WILL BE SUBJECT TO LEGAL ACTION.



DATE	
REVISIONS	
NUM	

OWNER INFORMATION  
SHERYL-MAR CO. LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516  
OWNER'S REPRESENTATIVE:  
JIM HODGINS  
PH: 910-210-0920  
FAX: 910-210-0920  
EMAIL: jimhodgins@hotmail.com

ISSUED	DATE
TO SHERYL-MAR	25 MAR 16
CHATHAM UTILITIES & NCDOT	12 APR 16
CHATHAM STORMWATER #2	17 JUN 16
NCDOT SUBMITTAL #2	19 JUL 16

BROOKSIDE AT FIELDSTONE  
CHATHAM COUNTY, NORTH CAROLINA  
CONSTRUCTION DRAWINGS

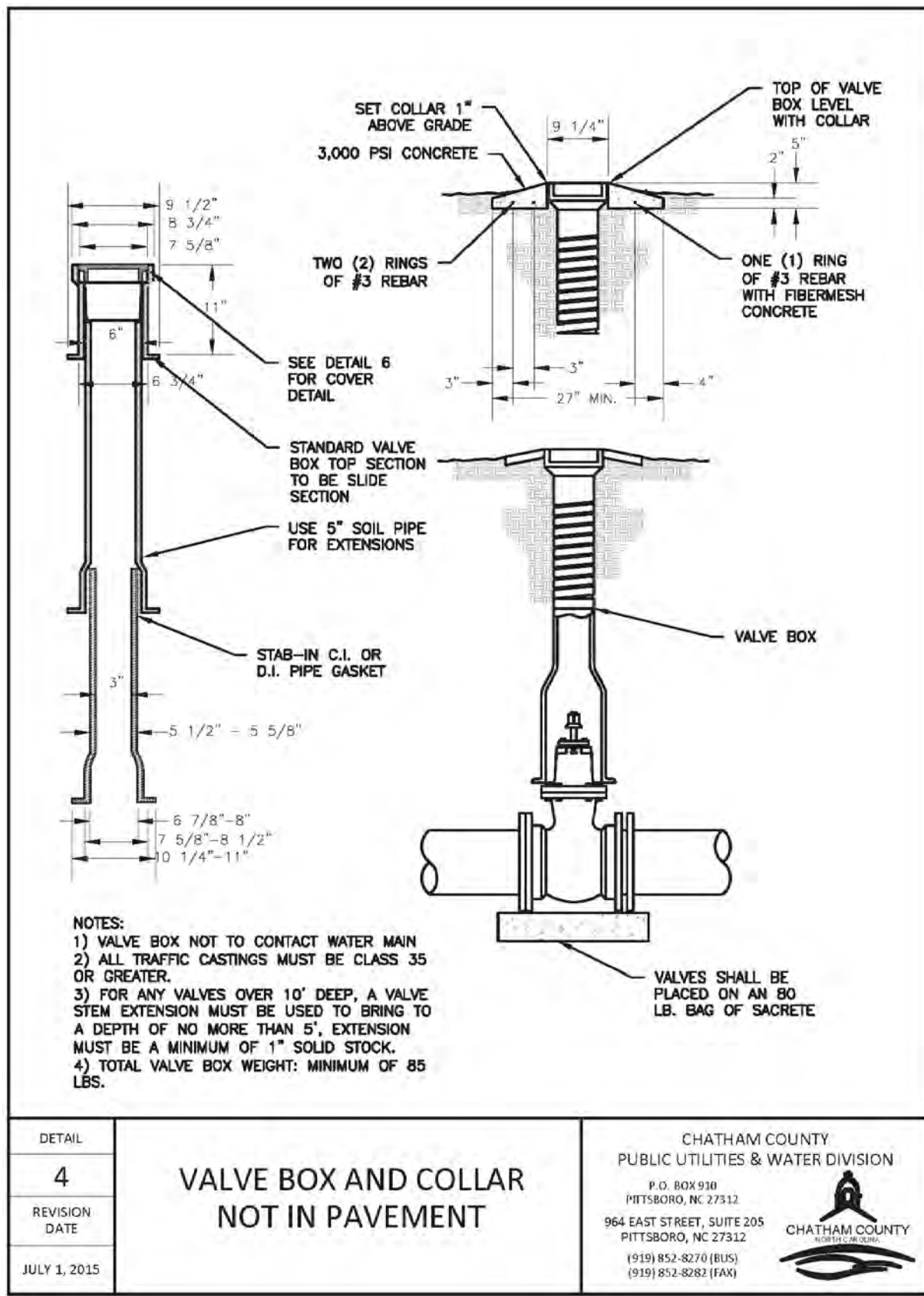
JOB NUMBER: 113022.00  
DATE: 25 MAR 2016  
SCALE: AS NOTED  
DRAWN BY: DBB  
REVIEWED BY: GJR

SHEET  
C3201

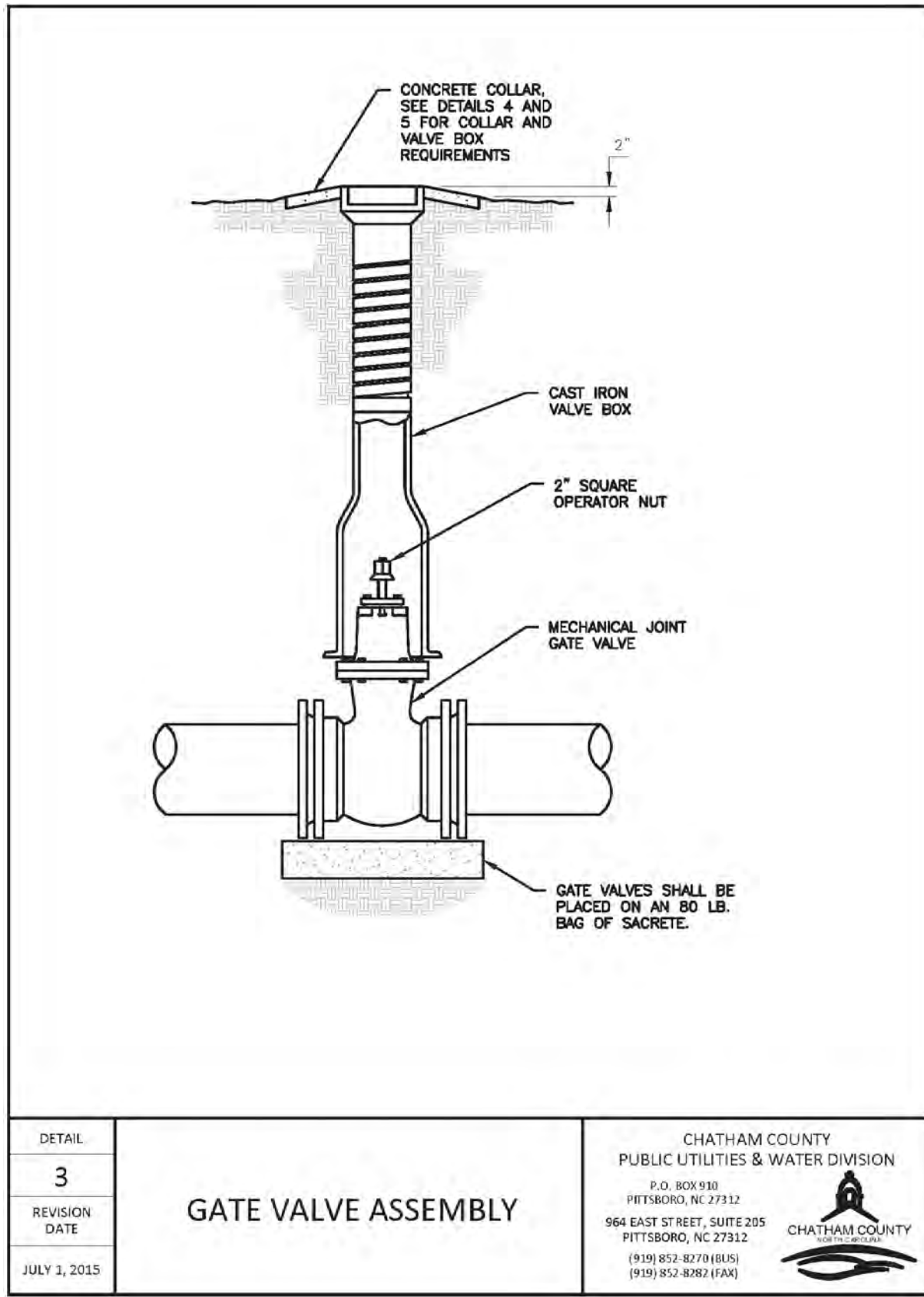




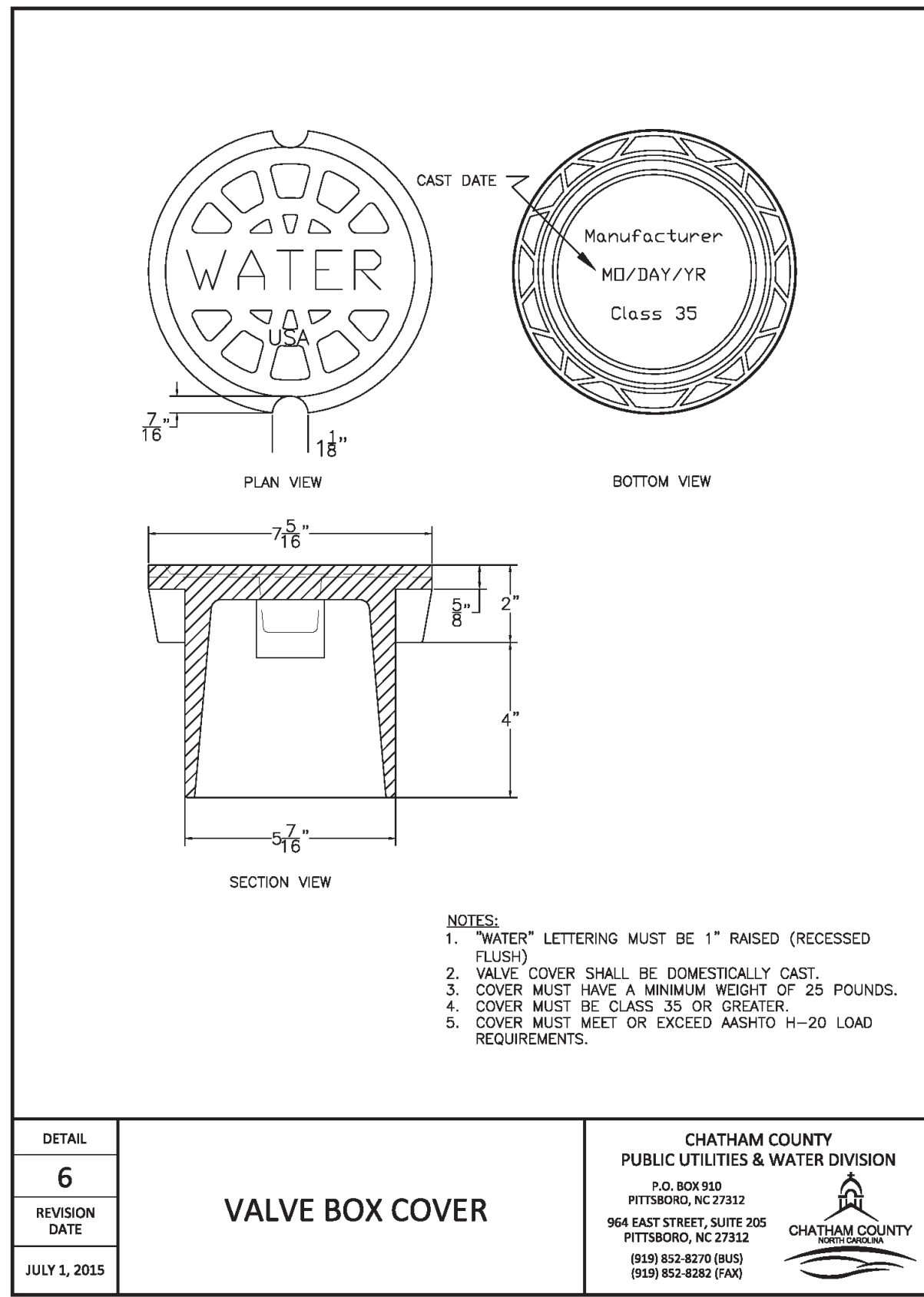




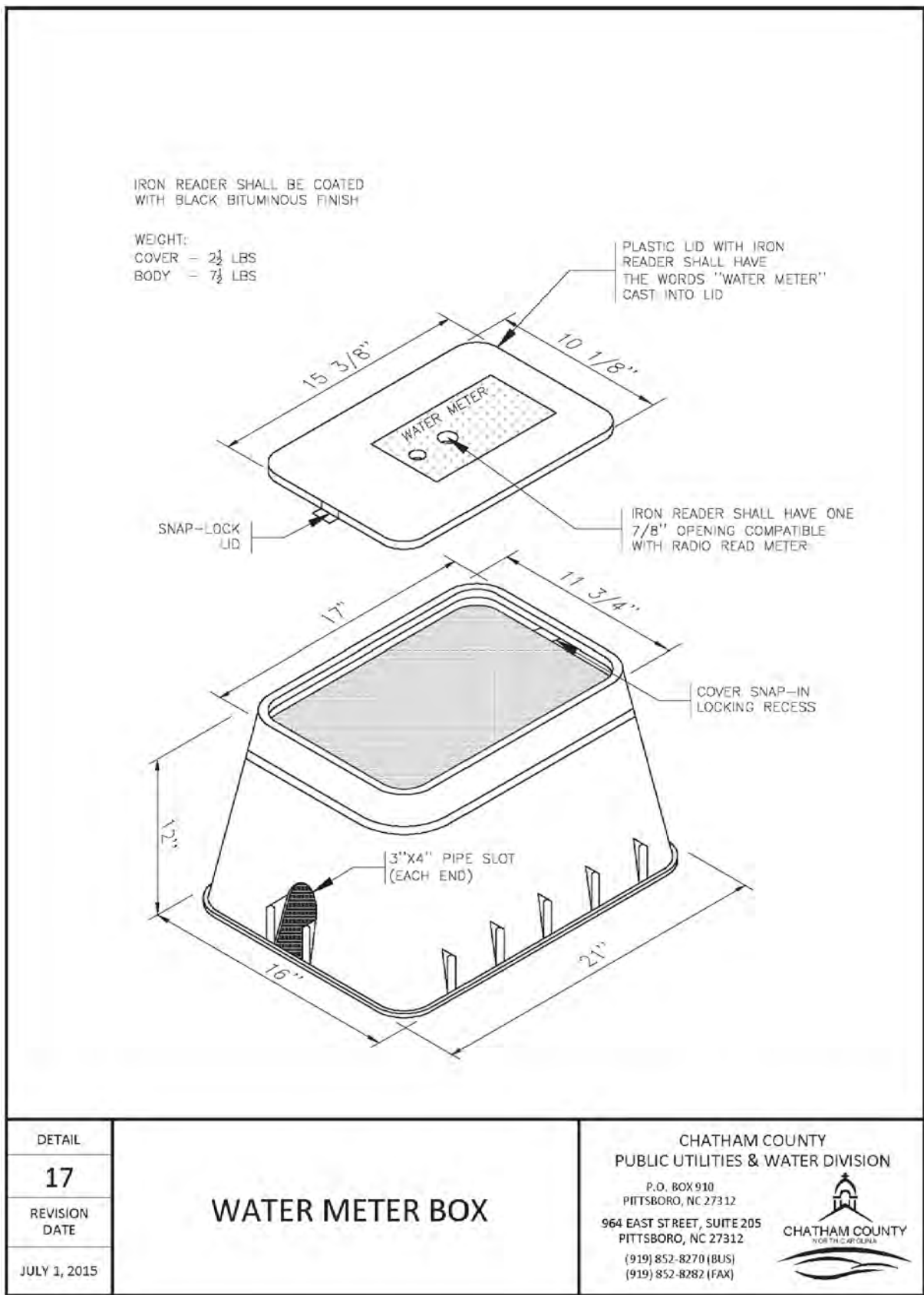
C3  
C5102 GATE VALVE BOX & COLLAR  
N.T.S.



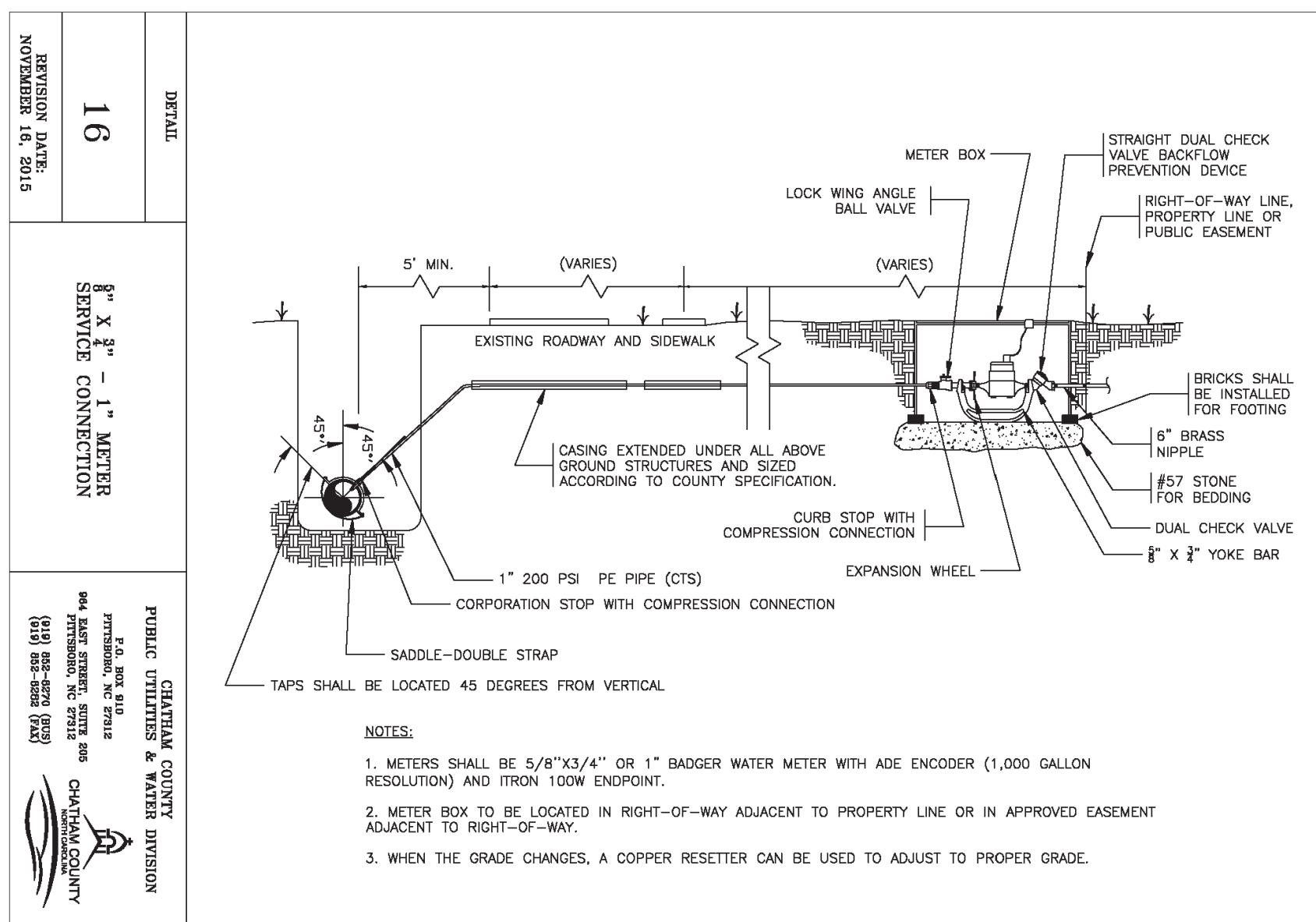
C2  
C5102 GATE VALVE ASSEMBLY  
N.T.S.



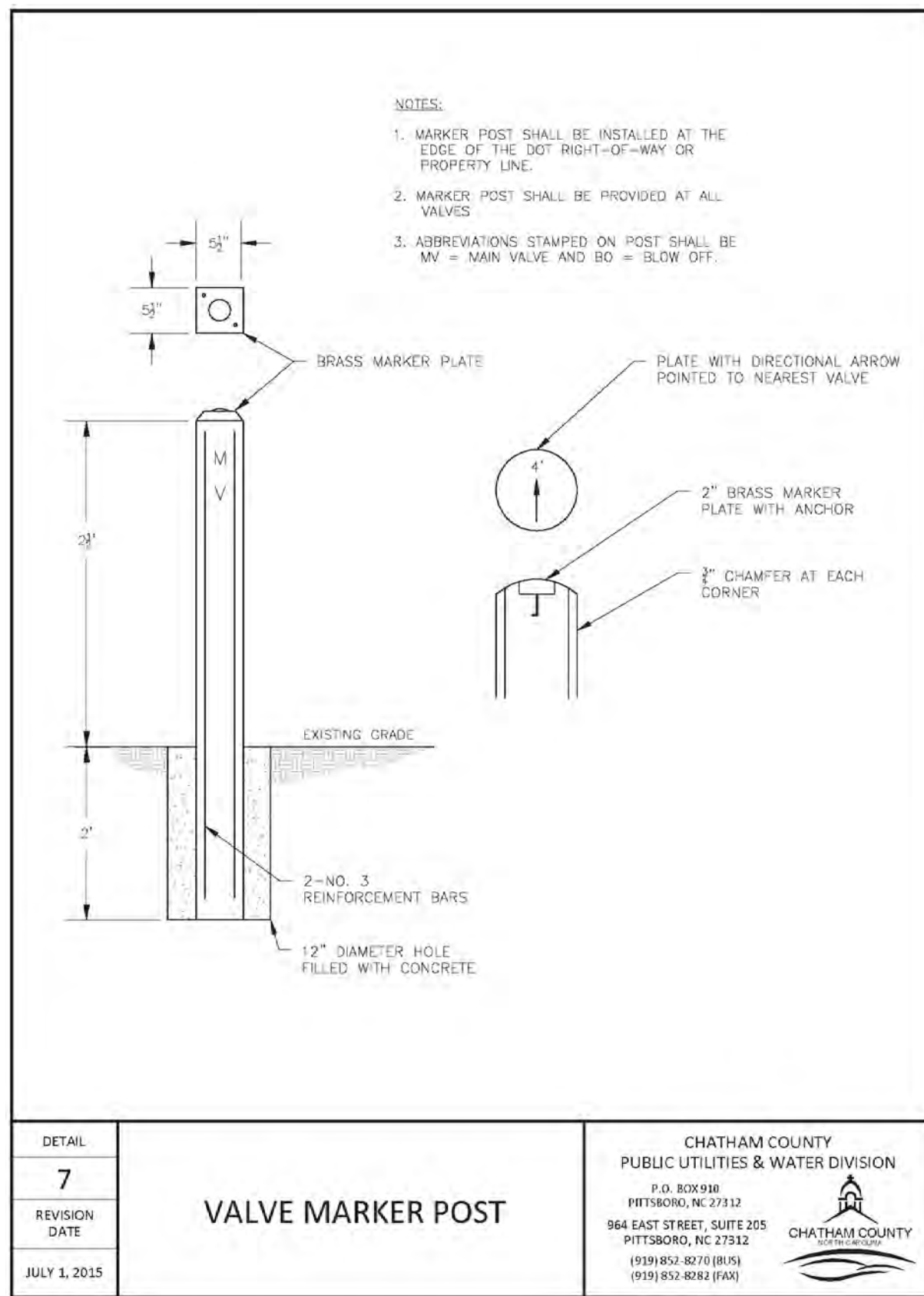
C1  
C5102 GATE VALVE BOX COVER  
N.T.S.



A4  
C5102 DOMESTIC WATER METER BOX  
N.T.S.



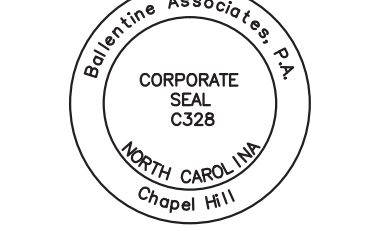
A3  
C5102 DOMESTIC WATER METER INSTALLATION  
N.T.S.



A1  
C5102 VALVE MARKER POST  
N.T.S.

UTILITY DETAILS

BALLENTINE ASSOCIATES, P.A.  
221 PROVIDENCE ROAD, CHAPEL HILL, NC 27514  
COPYRIGHT © 2016 BALLENTINE ASSOCIATES, P.A.  
ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT OR REPRODUCTION OF THIS DOCUMENT FOR ANY PURPOSE OR REASON WITHOUT THE WRITTEN PERMISSION OF BALLENTINE ASSOCIATES, P.A. WILL BE SUBJECT TO LEGAL ACTION.



DATE	
REVISIONS	
NUM	

OWNER INFORMATION  
SHERYL-MAR CO., LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516  
OWNERS REPRESENTATIVE:  
JIM HODGINS  
PH. 910-210-0920  
FAX 910-210-0920  
EMAIL: jimhodgins@hotmail.com

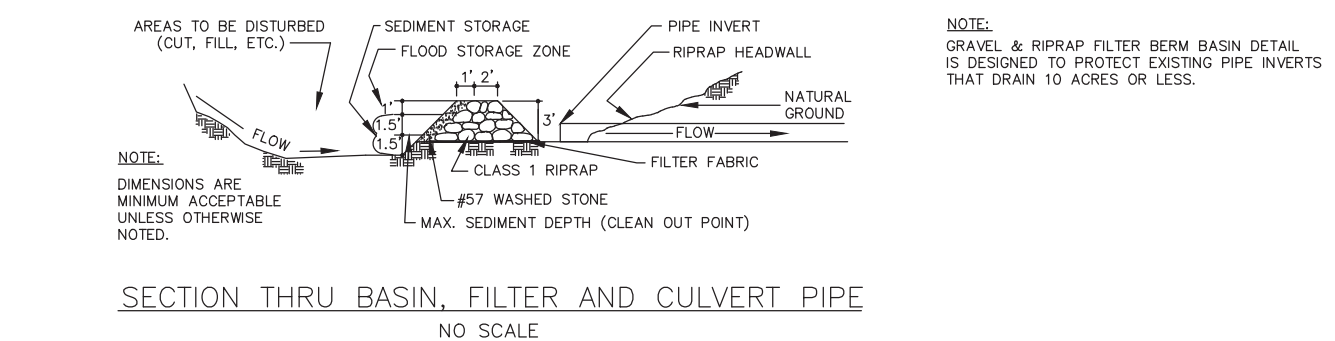
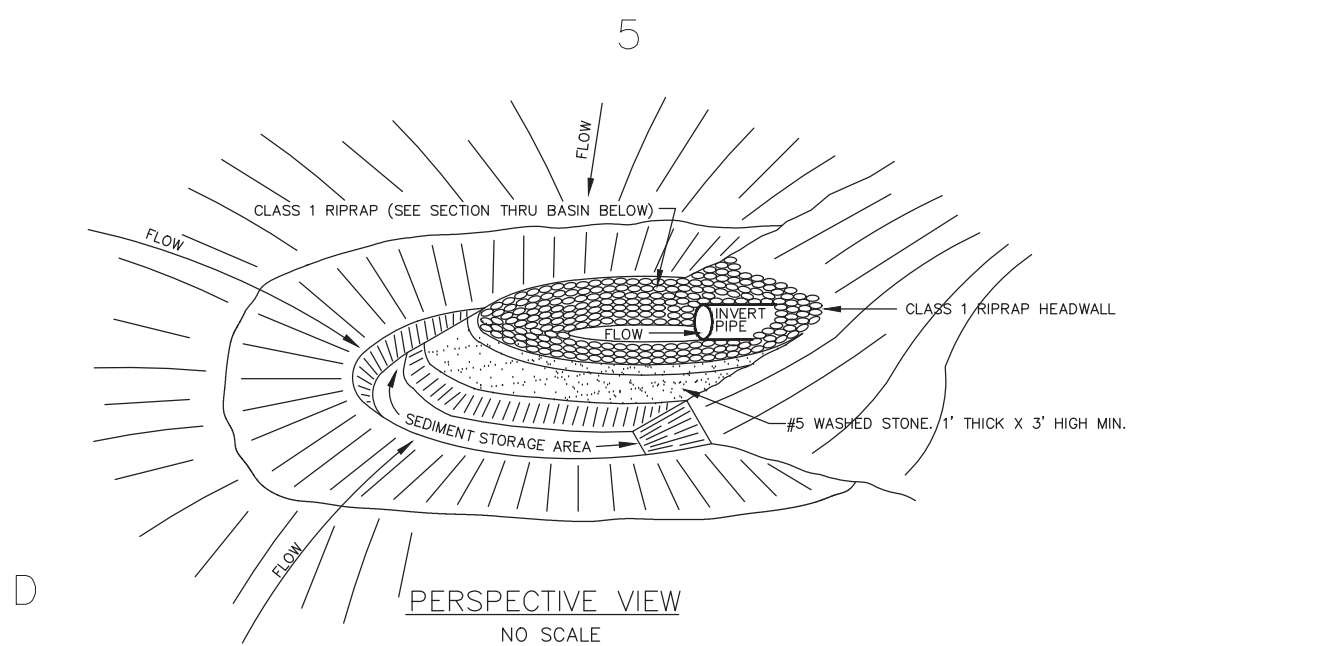
DATE	25 MAR 16
ISSUED	TO SHERYL-MAR
CHATHAM UTILITIES & NC DOT	12 APR 16
CHATHAM UTILITIES	5 MAY 16
CHATHAM STORMWATER #2	17 JUN 16
NC DOT SUBMITTAL #2	19 JUL 16

BROOKSIDE AT FIELDSTONE  
CHATHAM COUNTY, NORTH CAROLINA  
CONSTRUCTION DRAWINGS

JOB NUMBER: 113022.00  
DATE: 25 MAR 2016  
SCALE: AS NOTED  
DRAWN BY: DBB  
REVIEWED BY: GJR

SHEET  
C5102





**MAINTENANCE:**

INSPECT INLET PROTECTION WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND MAKE NECESSARY REPAIRS IMMEDIATELY:

- AT EACH OCCURRENCE WHEN THE SEDIMENT HAS ACCUMULATED & REDUCED STORAGE CAPACITY TO 1/2, REMOVE SEDIMENT AND RESTORE THE STORAGE AREA TO ITS ORIGINAL DIMENSIONS.
- PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.
- CHECK THE STRUCTURE FOR DAMAGE.
- ANY RIPRAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.
- AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER (SURFACE STABILIZATION).

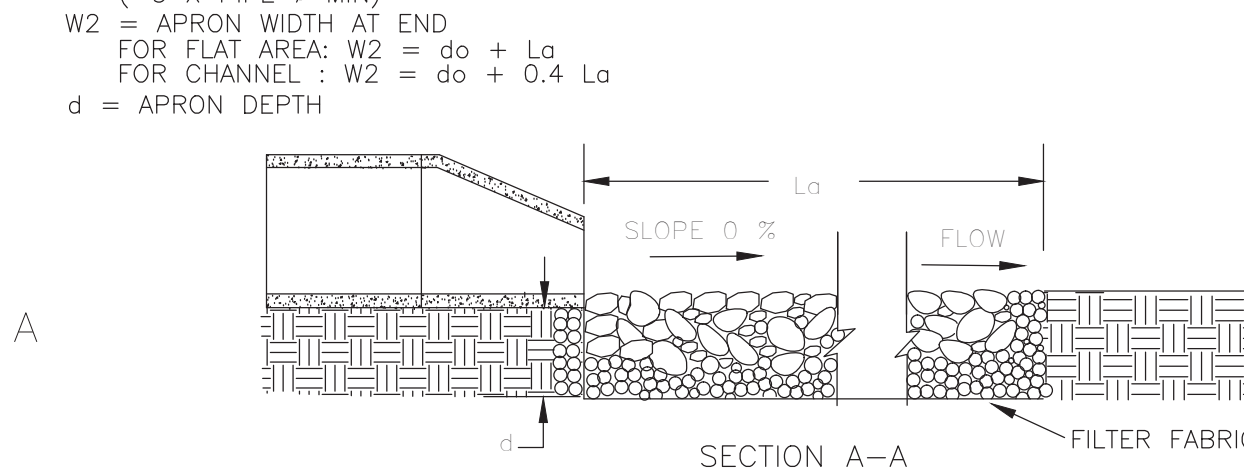
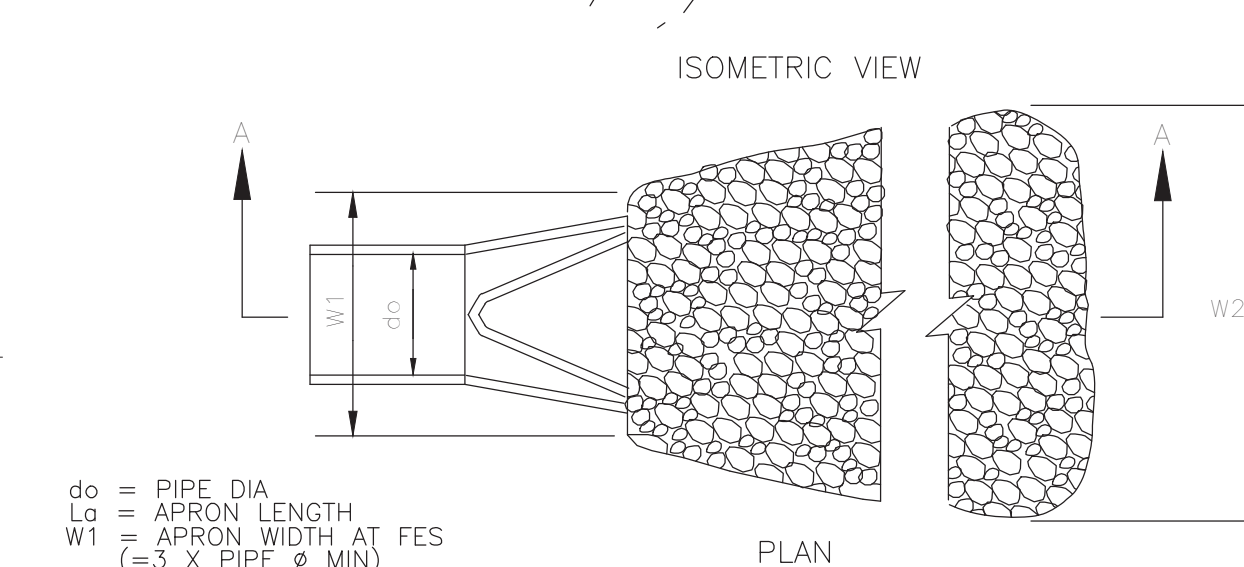
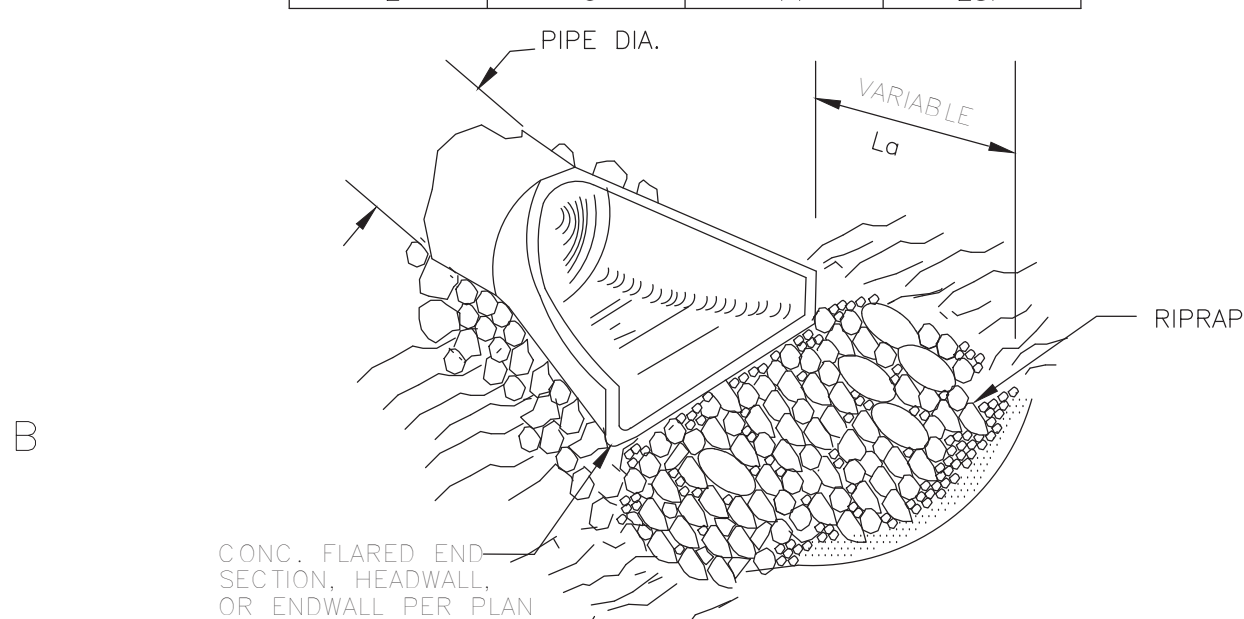
### C5 GRAVEL & RIPRAP HORSESHOE INLET PROTECTION

C5301 N.T.S.

APRON LOCATION	"do" (ft.)	"La" (ft.)	"W1" (ft.)	"W2" (ft.)	RIPRAP CLASS	"d" (in.)	COMMENTS
FES #2	1.5	9.0	5.0	6.0	B	24	EXTEND "La" TO TOP OF BERM AS NEEDED
FES #4	1.25	9.0	5.0	6.0	B	24	EXTEND "La" TO TOP OF BERM AS NEEDED
FES #6	2.0	12.0	6.0	14.0	B	24	

NOTE: FILTER FABRIC SHALL BE INSTALLED UNDER ALL RIPRAP ON THIS PROJECT

CLASS	MINIMUM	MIDRANGE	MAXIMUM
A	2	4	6
B	5	8	12
1	5	10	17
2	9	14	23f

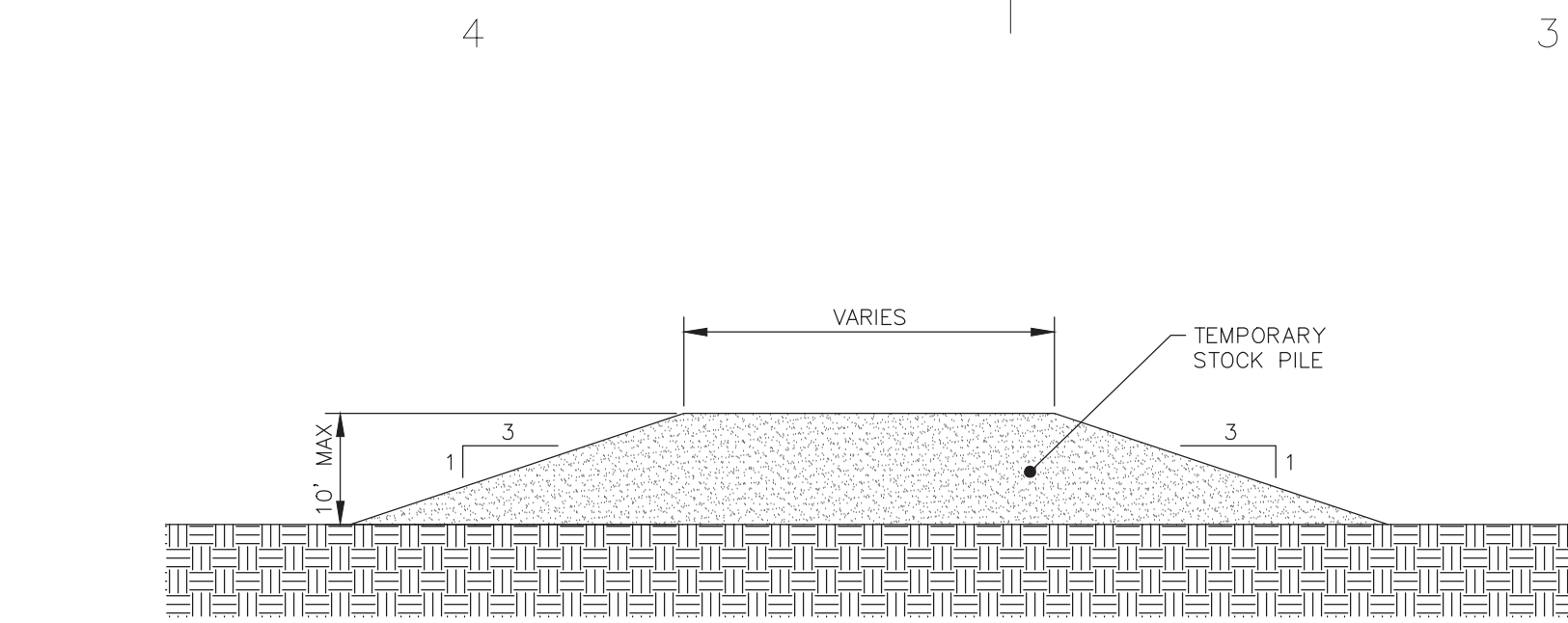


**MAINTENANCE:**

INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

### A5 RIPRAP APRON

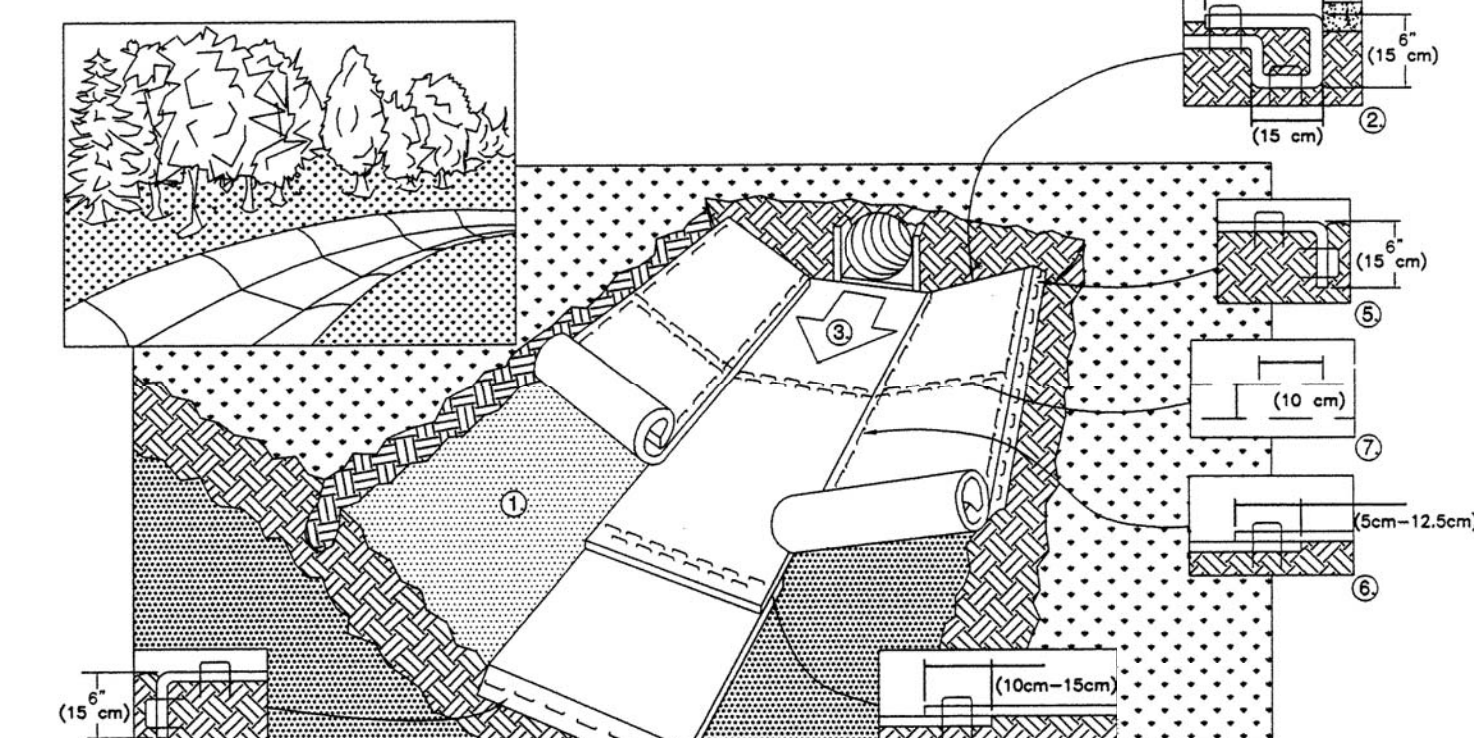
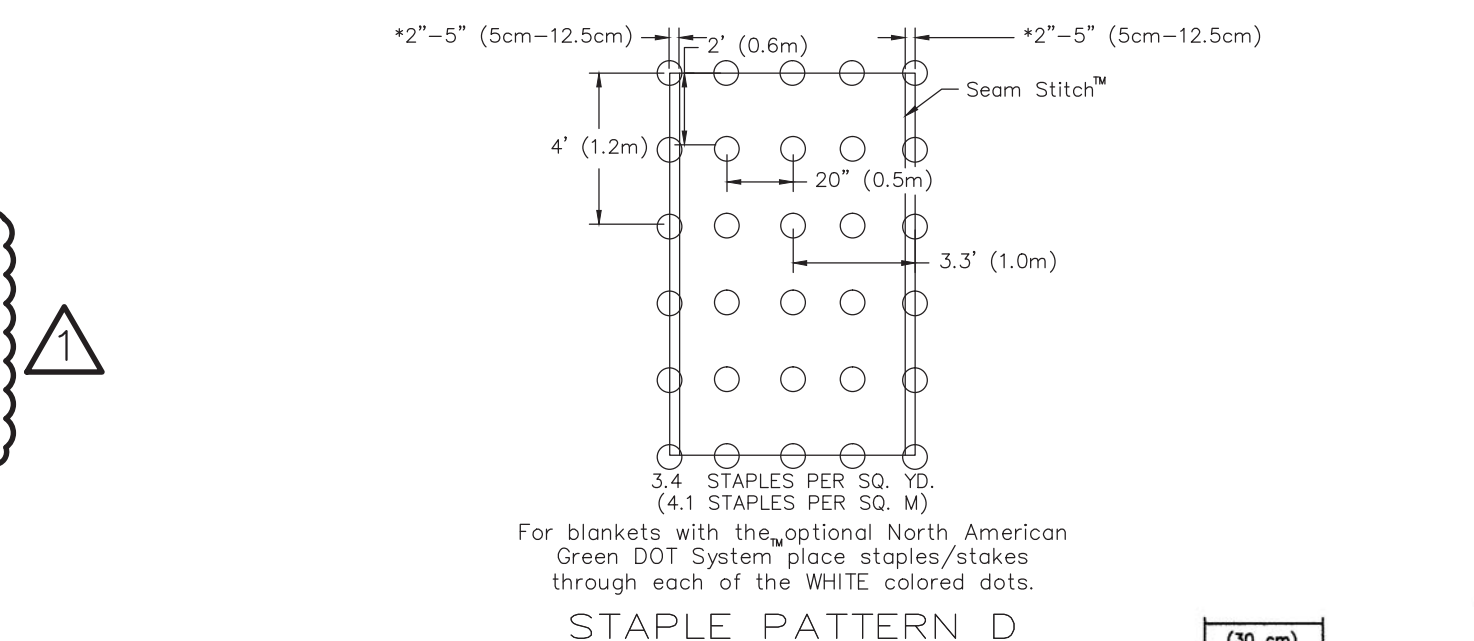
A5301 N.T.S.



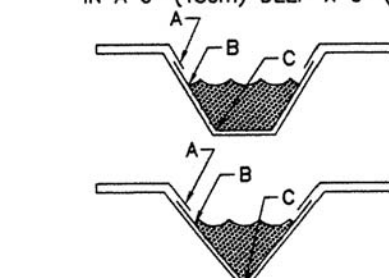
- NOTES:**
- TEMPORARY STOCK PILES SHALL HAVE A MAXIMUM HEIGHT OF 10' WITH SIDE SLOPES NO STEEPER THAN 3:1.
  - ESTABLISH TEMPORARY GROUND COVER WITHIN 14 DAYS AS DEPICTED ON THE GROUND STABILIZATION REQUIREMENTS CHART ON SHEET C1301.

### D4 TEMPORARY STOCKPILE AREA DETAIL

D4301 N.T.S.



- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED PER SEEDING SPECIFICATIONS.
- BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING PRE-MARKED BLANKETS, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE MARKS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN AS REQUIRED BY THE MANUFACTURER.
- PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
- IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
- THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



**CRITICAL POINTS**

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

**NOTE:**

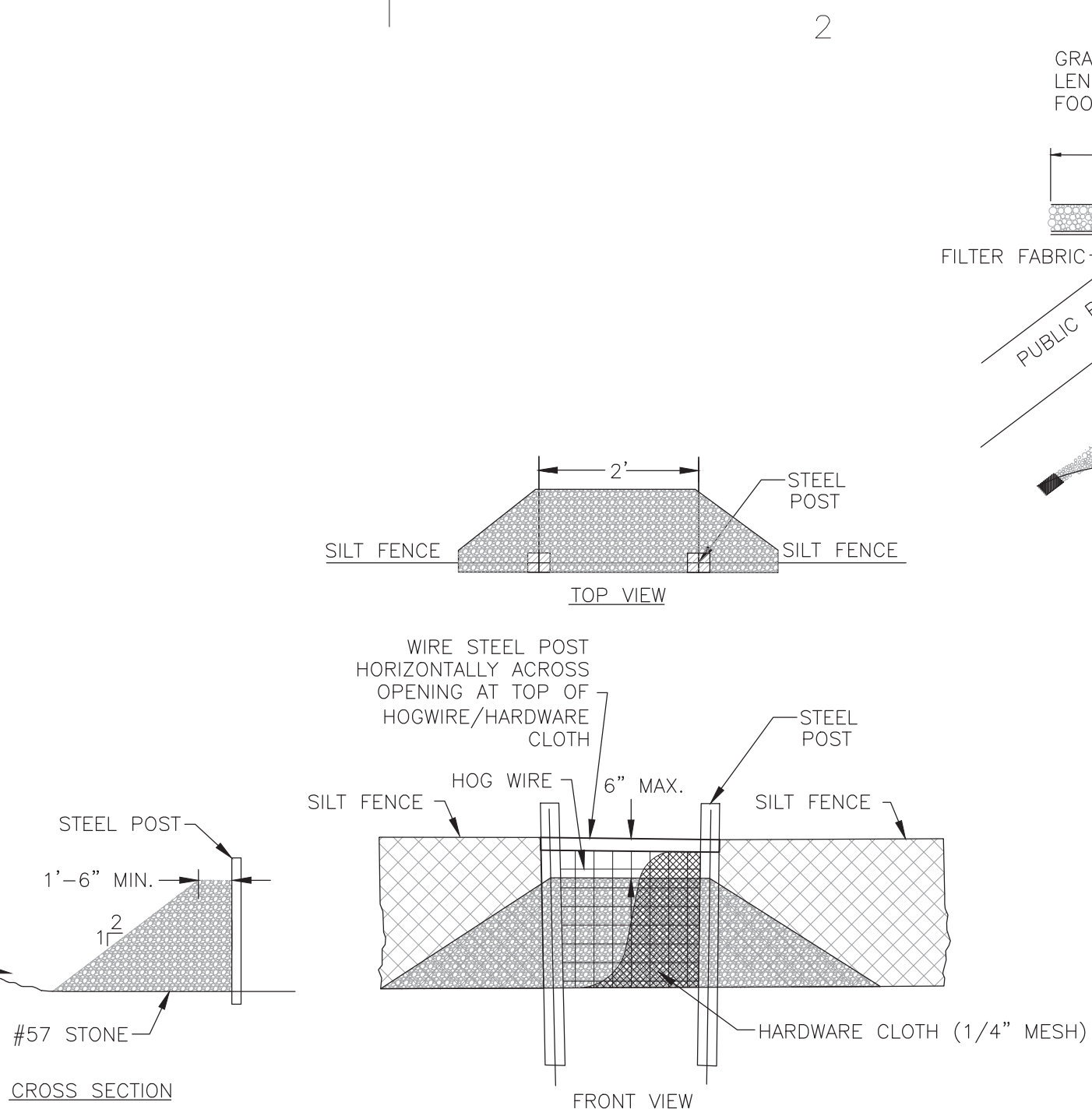
- HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- IN LOCK SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

#### MAINTENANCE:

- INSPECT ROLLED EROSION CONTROL PRODUCTS (RECP) AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAIN FALL EVENT REPAIR IMMEDIATELY.
- GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE RECP.
- ANY AREAS OF THE RECP THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
- IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
- MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

### A4 EROSION CONTROL MATTING INSTALLATION (TYP.)

A4301 N.T.S.

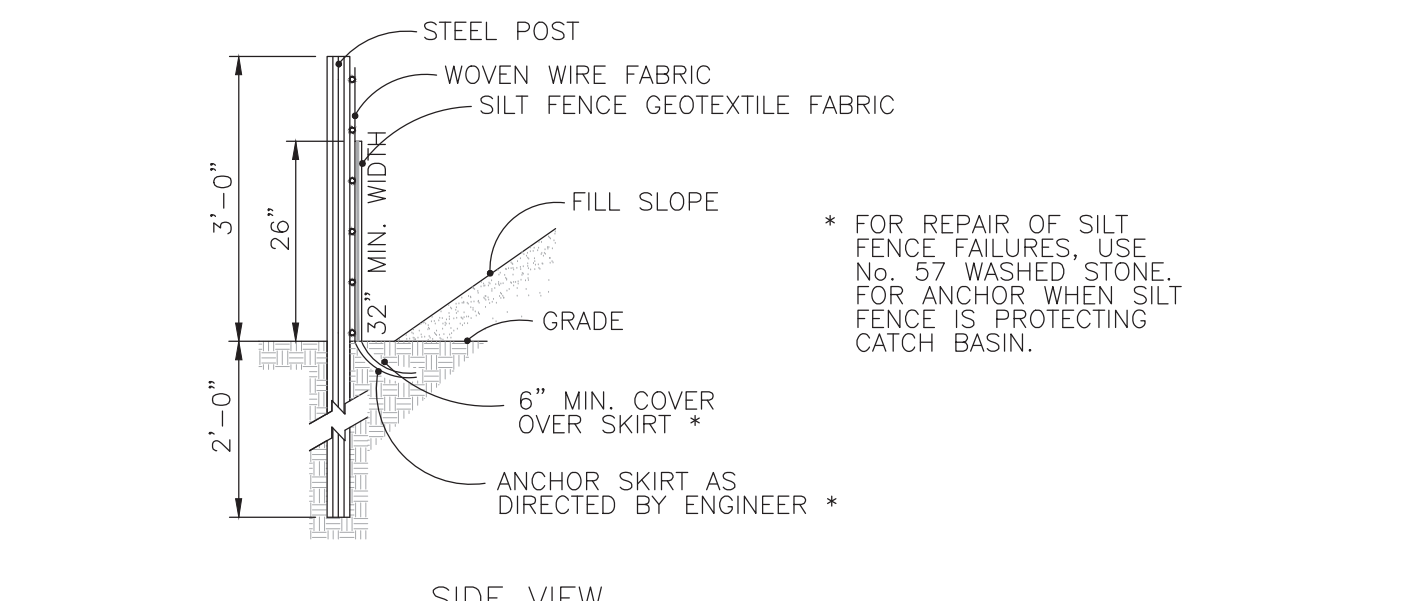
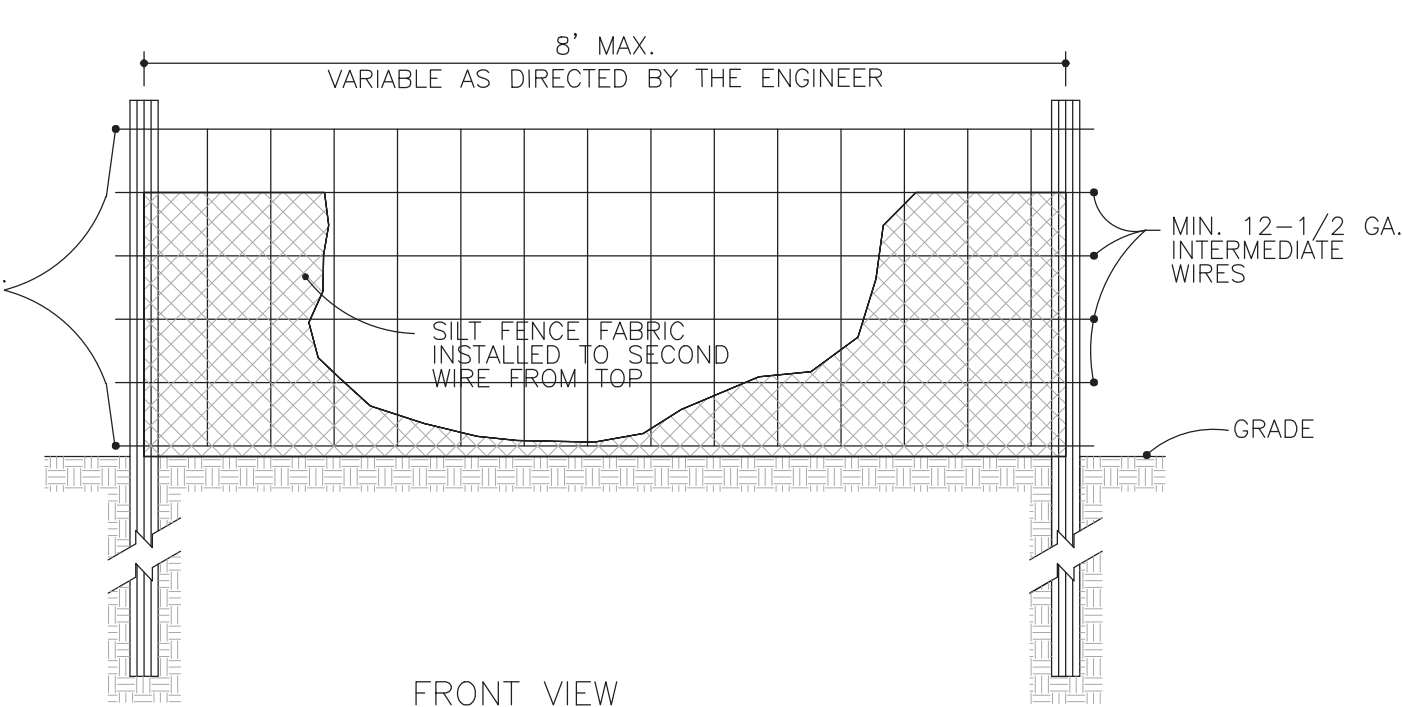


#### MAINTENANCE:

- SILT FENCE STONE OUTLET:**
  - INSPECT SILT FENCE STONE OUTLET WEEKLY OR AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER). MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
  - REMOVE SEDIMENT DEPOSITS AS NECESSARY, RESTORE TO ITS ORIGINAL DIMENSIONS AND REPLACE STONE THAT IS IMPAIRED BY SEDIMENT.
- COIR FIBER WATTLE:**
  - INSPECT WATTLE WEEKLY OR AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER). REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS.
  - REPLACE WATTLE IF CLOGGED OR TORN. REINSTALL WATTLE IF UNDERMINED OR DISLODGED.

### C3 TEMPORARY SILT FENCE STONE OUTLET

C3301 N.T.S.



#### NOTE:

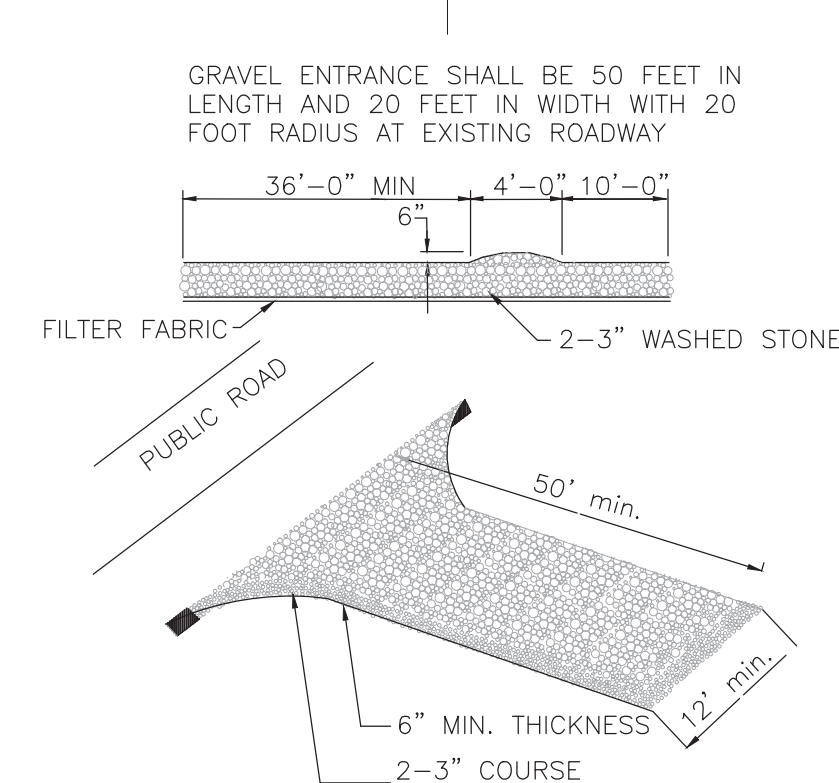
- USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW
- END OF SILT FENCE NEEDS TO BE TURNED UPHILL.

#### MAINTENANCE:

- INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
- SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
- REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
- REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

### A3 TEMPORARY SILT FENCE

A3301 N.T.S.



#### DESIGN CRITERIA

AGGREGATE SIZE — USE 2-3 INCH WASHED STONE  
DIMENSION OF GRAVEL PAD  
THICKNESS — 6 INCHES MINIMUM  
WIDTH — 12 FT. MINIMUM OR FULL WIDTH AT ACCESS POINTS OF THE VEHICULAR ENTRANCE AND EXIT AREA, WHICHEVER IS GREATER  
LENGTH — 50 FT. MINIMUM.

LOCATION — LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT FROM LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID STEEP GRADES AND ENTRANCES AT CURVES IN PUBLIC ROADS.

CONTRACTOR SHALL INSTALL ADDITIONAL GRAVEL CONSTRUCTION ENTRANCES NOT INDICATED ON THE PLANS REQUIRED FOR STAGING AND/OR BORROW AREAS AND MAINTAIN AT NO ADDITIONAL EXPENSE TO THE OWNER.

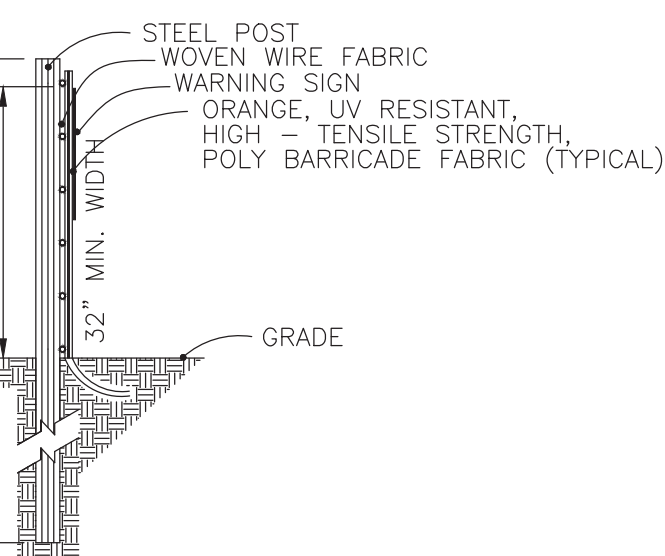
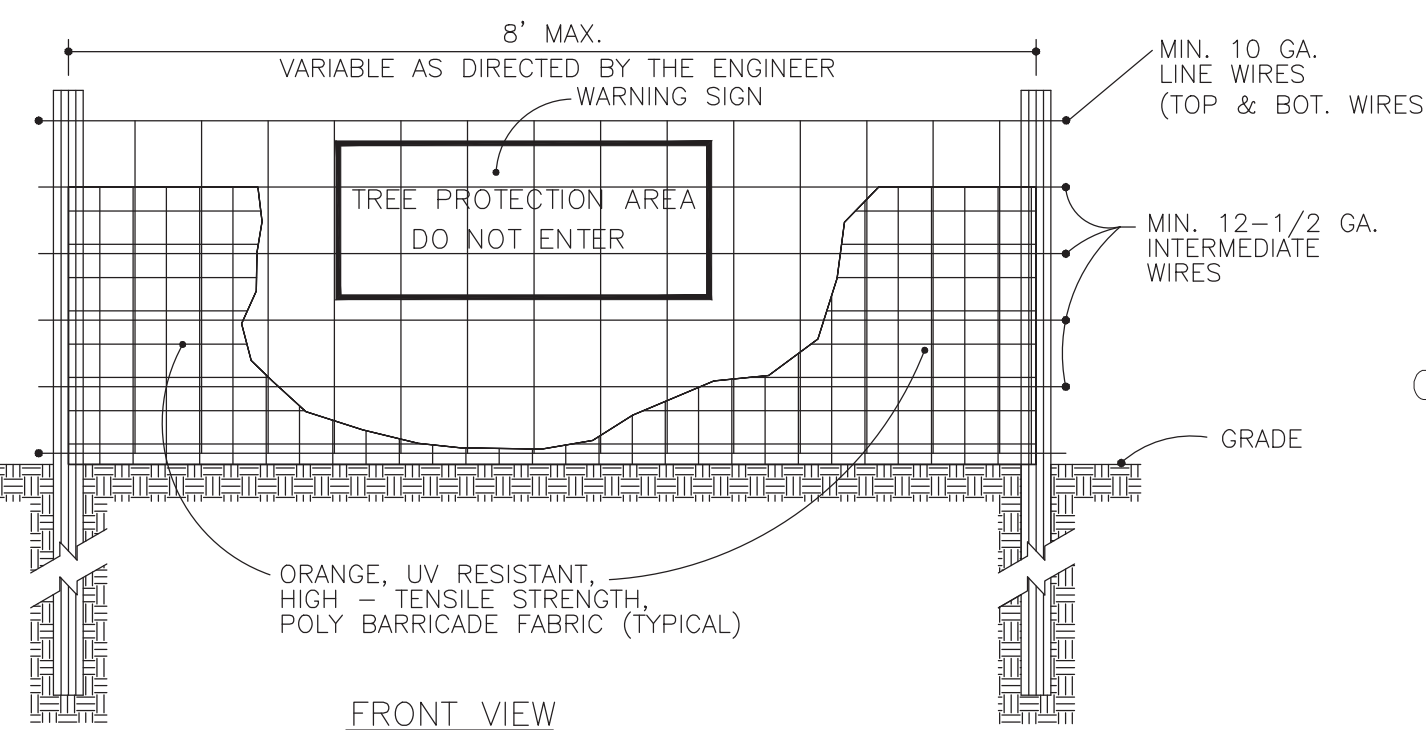
CONTRACTOR SHALL SUPPLEMENT AND MAINTAIN GRAVEL CONSTRUCTION ENTRANCES AT HIS EXPENSE UNTIL FINAL ACCEPTANCE.

#### MAINTENANCE:

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2-INCH STONE. 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.

### D1 TEMPORARY CONSTRUCTION EXIT

D1301 N.T.S.



#### WARNING SIGN DETAIL

#### 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 TOWN OF ARDEN INSPECTIONS DEPARTMENT BASED ON ACTUAL FIELD CONDITIONS.
- PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.

#### MAINTENANCE:

CONTINUE TO CARE FOR THE SITE UNTIL THE NEW OWNER TAKES POSSESSION. TAKE THESE STEPS AFTER ALL MATERIALS AND EQUIPMENT HAVE BEEN REMOVED FROM THE SITE:

- REMOVE TREE PROTECTION ZONE FENCES.
- PRUNE ANY DAMAGED TREES. IN SPITE OF PRECAUTIONS, SOME DAMAGE TO PROTECTED TREES MAY OCCUR. IN SUCH CASES, REPAIR ANY DAMAGE TO THE CROWN, TRUNK, OR ROOT SYSTEM IMMEDIATELY.
- REPAIR ROOTS BY CUTTING OFF THE DAMAGED AREAS AND PAINTING THEM WITH TREE PAINT. SPREAD PEAT MOSS OR MOIST TOPSOIL OVER EXPOSED ROOTS.
- REPAIR DAMAGE TO BARK BY TRIMMING AROUND THE DAMAGED AREA AS SHOWN IN FIGURE 6.05D, TAPER THE CUT TO PROVIDE DRAINAGE, AND PAINT WITH TREE PAINT.
- CUT OFF ALL DAMAGED TREE LIMBS ABOVE THE TREE COLLAR AT THE TRUNK OR MAIN BRANCH.
- USE THREE SEPARATE CUTS AS SHOWN IN FIGURE 6.05D TO AVOID PEELING BARK FROM HEALTHY AREAS OF THE TREE.
- CONTINUE MAINTENANCE CARE. PAY SPECIAL ATTENTION TO ANY STRESSED, DISEASED, OR INSECT-INFESTED TREES. REDUCE TREE STRESS CAUSED BY UNINTENDED CONSTRUCTION DAMAGE BY OPTIMIZING PLANT CARE WITH WATER, MULCH, AND FERTILIZER WHERE APPROPRIATE.
- CONSULT YOUR TREE EXPERT IF NEEDED.
- INFORM THE PROPERTY OWNER ABOUT THE MEASURES EMPLOYED DURING CONSTRUCTION, WHY THOSE MEASURES WERE TAKEN, AND HOW THE EFFORT CAN BE CONTINUED.

### A1 TEMPORARY TREE PROTECTION FENCE

A1301 N.T.S.

## EROSION CONTROL DETAILS

**BALLENTINE ASSOCIATES, P.A.**  
221 PRODUCE ROAD, CHAPEL HILL, NC 27514  
TEL: 919-487-1100  
FAX: 919-487-1101  
COPYRIGHT © 2016 BALLENTINE ASSOCIATES, P.A.  
THIS DOCUMENT IS THE PROPERTY OF BALLENTINE ASSOCIATES, P.A. NO PART OF THIS DOCUMENT OR REPRODUCTION OF THIS DOCUMENT FOR ANY PURPOSES WITHOUT THE WRITTEN PERMISSION OF BALLENTINE ASSOCIATES, P.A. WILL BE SUBJECT TO LEGAL ACTION.



DATE	19 JUL 16
REVISIONS	
PER NCDOT COMMENTS	
NUM	

**OWNER INFORMATION**  
SHERYL-MAR CO. LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516  
**OWNERS REPRESENTATIVE:**  
JIM HODGINS  
PH: 910-210-0920  
FAX: 910-210-0920  
EMAIL: jmhodgins@hotmail.com

DATE	25 MAR 16
ISSUED	TO SHERYL-MAR
DATE	12 APR 16
ISSUED	CHATHAM UTILITIES & NCDOT
DATE	15 APR 16
ISSUED	CHATHAM EROSION CONTROL
DATE	23 APR 16
ISSUED	CHATHAM STORMWATER
DATE	17 JUN 16
ISSUED	CHATHAM SW & EC #2
DATE	19 JUL 16
ISSUED	NCDOT SUBMITTAL #2

**BROOKSIDE AT FIELDSTONE**  
CHATHAM COUNTY, NORTH CAROLINA  
**CONSTRUCTION DRAWINGS**

JOB NUMBER: 113022.00  
DATE: 25 MAR 2016  
SCALE: AS NOTED  
DRAWN BY: DBB  
REVIEWED BY: GJR

**SHEET**  
**C5301**



D

C

B

A

A5  
C5302

**TEMPORARY SKIMMER**  
N.T.S.

**PERPECTIVE VIEW**

**END VIEW**

**FRONT VIEW**

**You Will Need:**  
6 feet or more of 1 1/2" Sch 40 PVC pipe SOLID  
Primer and glue for PVC pipe  
Phillips screw driver, maybe a knife

**Assembly and Installation Directions:**  
1. Glue on the 2" Inlet extension to the Tee on the inlet. Install the vent.  
*Details:* Prime and glue the 2" Inlet extension (with the coupling, 1 1/2" bushing and screw on one end) into the 2" end of the Tee on the side of the Inlet (4" horizontal tube suspended between the sides of the float with the aluminum screen door).  
Install the vent into the socket in the Tee, back the screw out, insert the short end of the vent, point the long end toward the door on the inlet, and tighten the screw. Use a little grease so it can be removed later.

**2.** Glue the 6' long 1 1/2" sch 40 barrel to the 1 1/2" grey coupling on the hose.  
*Details:* You will need 1 1/2" Sch 40 PVC pipe (solid, not foam core) for the barrel (or "arm") between the float assembly and the 1 1/2" hose. The length of the pipe should be about 1.4 times the depth of the basin so the skimmer floats properly when the basin fills with a minimum length of 6' so the skimmer can be pulled to the side of the basin for maintenance.  
If barrel is longer than 6' weight may have to be added to the inlet so it sits at the right depth.

**3.** Put the other end of the barrel into the socket on the inlet extension and tighten the screw.  
*Details:* Make sure the screw point is not protruding into the 1 1/2" bushing on the outlet end of the inlet extension you glued onto the Tee.  
WITHOUT GLUE OR PRIMER, but with a little grease, insert the other end of the pipe into the bushing all the way in until it hits bottom. It may be easier to do this in the basin after you have connected the hose to the pipe, near or outlet structure. Tighten the screw so the point enters the pipe to secure it; it does not have to go all the way in. This connection is not glued to allow disassembly and possible reuse of the skimmer later.

**4.** Cut the orifice in the plug (size shown on the erosion control plans), put the plug in the inlet, and tighten the screw. Close the door.  
*Details:* Refer to the erosion control plans for the orifice size. Open the door on the inlet and remove the 2" plug in the inlet. Follow the instructions below for cutting the ORIFICE. Install the orifice in the inlet, secure it with the screw (through the hole in the top of the inlet) and close the door and secure it with the screw eye.

**5.** Cut a trench in the bottom of the basin 1' to 2' deep under where the skimmer will be placed. If required, place a support under the skimmer inlet.  
*Details:* If the skimmer will settle to the bottom when the basin drains it is recommended that a 1'-2" deep trench a backhoe bucket wide should be excavated under the skimmer to catch sediment that will settle under the skimmer.  
If a pool of water is to be provided, install the support under the skimmer inlet as shown on the erosion control plans. It is recommended that the hose connection to the pipe through the dam be low enough that the whole point can be drained using the skimmer even if a pool of water is to be provided. Doing this will avoid using a pump to drain the very bottom of the pond.  
If ice is expected during winter place the skimmer near the dam or side of the basin where the ice will be the thinnest and you can get to the inlet to break the ice and keep water flowing through the skimmer. But do not put it so close to the side that the skimmer cannot settle to the bottom and drain the whole basin.

**6.** Attach the 4" coupling on the hose to the pipe through the dam or the outlet structure.  
*Details:* Make sure the screw points are not protruding into the 4" coupling on the hose and attach it to the pipe through the dam. Tighten the screws just so the points go into the plastic to secure it. Greasing the pipe is recommended so the hose can be removed later.  
If the connection pipe is larger than 4" you will need a coupling for that pipe, a bushing for that coupling with a 4" socket, and about 10' of 4" pipe to create an attachment.  
If attaching to a metal pipe you will need a rubber coupling (Fernco) and a short piece of 4" pvc pipe to make the connection.  
OR The 4" coupling can be removed and the hose connected using the 2" threaded fitting. If attaching to a concrete structure with a hole or orifice at the bottom, either: 1) grout a 4" PVC pipe into the hole and connect the hose; or 2) a more secure way is to use a steel plate with a hole cut in it and 2" coupling welded to it that will fit over the hole in the concrete and bolt the plate to the structure with sealant to make it water tight.

**7.** Attach the rope to the Tee and the other end to a stake on the side of the basin.  
*Details:* Tie one end of the rope around the Tee between the vent socket and the 4" tube on the inlet. Secure the other end to a stake or post on the dam or side of the basin where it can be used to pull the skimmer to the side if necessary to remove trash and debris.

**8.** Put a fence post, 1 not 2, on the opposite side of the barrel from where the rope is tied to a stake to keep the skimmer in place.  
*Details:* Put the skimmer where you want it to settle to the bottom and drive a metal fence post into the ground on the outside of the barrel (away from the side) 2' from the float to hold the skimmer in that place. Make sure it is high enough so the barrel does not float over the top when the basin fills. Posts on both sides of the barrel are not recommended because it will prevent pulling the skimmer to the side for maintenance.

**Maintenance:**  
**Trash:** If the inlet screen clogs and there is water in the basin, tugging on the rope several times will usually wash the trash off and restore flow. If not, pull the inlet to the side of the basin and use a stick to clean the screen. Open the screen door and remove any trash or sediment inside so grass or trees do not grow in the inlet. (Yes, this can happen!)  
**Sediment Accumulation Around Skimmer:** A shallow, long basin, using baffles, and inflow in the basin at the opposite end from the outlet help keep sediment away from the skimmer. If sediment restricts skimmer movement, pull the skimmer to one side and excavate under it.  
**Ice:** Try to keep ice broken up at the inlet and around the barrel to keep water flowing, making it less likely the inlet will freeze. Spray painting the float black to absorb heat is recommended. Use paint that will stick to PVC plastic.  
**Handling the Skimmer:** The skimmer is made of plastic and will withstand heat, cold and sunlight but it needs to be handled by hand, NOT grabbed with a backhoe bucket and yanked around, especially in cold weather. To remove the skimmer, disconnect the hose first, then disconnect the barrel from the inlet extension. DO NOT try to pull the skimmer loose with a backhoe.  
**Vandalism:** Keep unauthorized persons that may do damage off the site. Do not provide rocks close to the skimmer if possible. If possible, taking other considerations into account, position the skimmer out in the basin away from the banks to decrease the potential for a successful hit.

**COIR FIBER BAFFLE INSTALLATION**  
N.T.S.

**NOTES:**  
1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF 1/4 THE BASIN LENGTH.  
2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.  
3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

**MAINTENANCE:**  
• INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.  
• BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.  
• REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.  
• AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

**SECTION B-B**

**SECTION A-A**

**DIVERSION DITCH OUTLET AT SKIMMER BASIN / STORMWATER WETLAND**  
N.T.S.

**RISER BASIN DETAIL**  
N.T.S.

**Figure 6.61d Sediment Basin (with Riser Barrel Pipe)**

**MAINTENANCE:**  
INSPECT TEMPORARY SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.

**DITCH SECTION & CHANNEL LINING SCHEDULE**  
N.T.S.

DITCH	"A"	"B"	"C"	"D"	LINING	COMMENTS
1.1	8"	18"	0'	4.0'	STRAW BLANKET	N.A. GREEN S150
2.1	8"	18"	0'	4.0'	STRAW BLANKET	N.A. GREEN S150
2.2	6"	18"	0'	3.0'	COCONUT BLANKET	N.A. GREEN C125
3.1	6"	18"	0'	3.0'	STRAW BLANKET	N.A. GREEN S150
4.1	6"	18"	0'	3.0'	COCONUT BLANKET	N.A. GREEN C125
5.1	8"	18"	0'	4.0'	STRAW BLANKET	N.A. GREEN S150
5.2	6"	18"	0'	3.0'	COCONUT BLANKET	N.A. GREEN C125
5.3	6"	18"	0'	3.0'	COCONUT BLANKET	N.A. GREEN C125

**EROSION CONTROL DETAILS**

**BROOKSIDE AT FIELDSTONE**  
CHATHAM COUNTY, NORTH CAROLINA  
CONSTRUCTION DRAWINGS

**DATE**  
17 JUN 16

**REVISIONS**  
PER CHATHAM SW & EC COMMENTS

**NUM**  
1

**OWNER INFORMATION**  
SHERYL-MAR CO. LLC  
87 NORWOOD ROAD  
CHAPEL HILL, NC 27516

**OWNERS REPRESENTATIVE:**  
JIM HODGIN  
PH. 910-210-0920  
FAX  
EMAIL: jmhodgin@hotmail.com

**ISSUED**  
TO SHERYL-MAR  
CHATHAM UTILITIES & NC DOT  
CHATHAM EROSION CONTROL  
CHATHAM STORMWATER  
CHATHAM SW & EC #2  
NC DOT SUBMITTAL #2

**DATE**  
25 MAR 16  
12 APR 16  
15 APR 16  
29 APR 16  
17 JUN 16  
19 JUL 16

**JOB NUMBER:** 113022.00  
**DATE:** 25 MAR 2016  
**SCALE:** AS NOTED  
**DRAWN BY:** DBB  
**REVIEWED BY:** GJR

**SHEET**  
**C5302**