

PROJECT INFORMATION

NAME OF PROJECT:  
PROPERTY OWNER:

DURHAM COUNTY RTF CULVERT REPLACEMENT  
RESEARCH TRIANGLE FOUNDATION OF NORTH CAROLINA  
P.O. BOX 12255  
RESEARCH TRIANGLE PARK, NC 27709

ENGINEER:

TRC ENGINEERS, INC  
IAN SPURLOCK, PE  
ISPURLOCK@TRCCOMPANIES.COM  
114 EDINBURGH SOUTH DRIVE, SUITE 200  
CARY, NORTH CAROLINA 27511  
0739-50-17-7706

PIN:  
ZONING:  
DEVELOPMENT TIER:  
WATERSHED:  
OTHER OVERLAY DISTRICTS:  
RIVER BASIN:  
CURRENT USE:  
PROPOSED USE:  
CURRENT IMPERVIOUS:  
PROPOSED IMPERVIOUS:  
PARKING DATA:  
TREE COVERAGE DATA:

SRP  
SUBURBAN  
NORTHEAST CREEK  
NA  
CAPE FEAR  
VACANT/INDUSTRIAL  
VACANT/INDUSTRIAL  
20435.2 sq. ft  
NONE  
NO CHANGE PROPOSED  
PRE CONSTRUCTION 43.5%  
POST CONSTRUCTION 43.2%  
NONE EXISTING OR PROPOSED

BUILDING SQUARE FOOTAGE:

NONE EXISTING OR PROPOSED

LIMITS OF DISTURBANCE:

0.23 ACRES

DURHAM COUNTY RTF CULVERT REPLACEMENT

MAY 2025

BID DOCUMENTS - NOT FOR CONSTRUCTION

TRC PROJECT NUMBER:502585

GENERAL CONDITIONS OF APPROVAL

• TREE PROTECTION NOTE (UDO SECTION 8.3): TREE PROTECTION FENCE CONSTRUCTED OF A MATERIAL RESISTANT TO DEGRADATION BY SUN, WIND, AND MOISTURE FOR THE DURATION OF THE CONSTRUCTION, MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE, OR ISSUANCE OF A GRADING PERMIT. SUCH FENCING SHALL BE MOUNTED ON METAL POSTS PLACED NO FURTHER THAN 10 FEET APART. SILT FENCING SHALL NOT SERVE AS TREE PROTECTION FENCING. WARNING SIGNS SHALL BE POSTED AT EACH END OF THE TREE PROTECTION FENCE WITH PERIMETER SIGNS SPACED A MAXIMUM OF 100 FEET ON CENTER THEREAFTER. EACH SIGN SHALL READ: "NO TRESPASSING/TREE PROTECTION AREA" AND "PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ARBOLES".

• ROOT PROTECTION ZONE (UDO SECTION 8.3): SHALL BE ESTABLISHED AROUND ALL TREES TO BE PRESERVED. THE ROOT PROTECTION ZONE SHALL EITHER BE A SIX-FOOT RADIUS AROUND A TREE OR ONE FOOT OF RADIUS FOR EVERY INCH OF DIAMETER AT BREAST HEIGHT (DBH) OF EXISTING TREES, WHICHEVER IS GREATER.

• PROTECTION OF EXISTING VEGETATION (UDO SECTION 8.3): AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA PRIOR TO OR AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THIS CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE. NO STORAGE OF MATERIALS, DUMPING OF WASTE, FILL, OR PARKING OF EQUIPMENT SHALL BE ALLOWED WITHIN THE ROOT PROTECTION ZONE AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE ROOT PROTECTION ZONE.

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1. FLOODPLAIN NOTES: A CLOMR SHALL BE OBTAINED FROM FEMA PRIOR TO CONSTRUCTION DRAWING APPROVAL. A LOMR SHALL BE OBTAINED FROM FEMA PRIOR TO ISSUANCE OF ANY CERTIFICATES OF OCCUPANCY OR CERTIFICATES OF COMPLIANCE. FOR ADDITIONAL NOTES REQUIRED ON THE COVER SHEET, SEE ALSO: [HTTPS://DURHAMNC.GOV/DOCUMENTCENTER/VIEW/26456/FLOODPLAIN](https://durhamnc.gov/documentcenter/view/26456/FLOODPLAIN)

3. STREAM BUFFERS: 10 FOOT WIDE UNDISTURBED STREAM BUFFER, MEASURED FROM TOP OF BANK, EACH SIDE OF STREAM. NO CLEARING OR GRADING OTHER THAN SELECTIVE THINNING AND ORDINARY MAINTENANCE OF EXISTING VEGETATION PERMITTED. EXCEPT IN ACCORDANCE WITH 15A NCAC 02B.0714(11) VEGETATION MANAGEMENT. NO STRUCTURES OR FEATURES REQUIRING GRADING OR CONSTRUCTION MAY BE BUILT WITHIN THE 10-FOOT STREAM BUFFER SETBACK. ANY USE ALLOWED BY SECTION 8.5.5 OF THE UDO SHALL BE DESIGNED AND CONSTRUCTED TO MINIMIZE THE AMOUNT OF INTRUSION INTO THE STREAM BUFFER AND TO MINIMIZE CLEARING, GRADING, EROSION AND WATER QUALITY DEGRADATION. (UDO SECTION 8.5)

14. LANDSCAPE MULCH: PINE STRAW SHALL NOT BE USED AS MULCH OR GROUND COVER WITHIN TEN FEET OF ANY STRUCTURES CONSISTING OF EXTERIOR COMBUSTIBLE CONSTRUCTION AS SPECIFIED BY DURHAM CITY CODE SECTION 46-87.

15. LANDSCAPE/SITE COMPLIANCE INSPECTION: ALL SITE IMPROVEMENTS, INCLUDING LANDSCAPING, MUST BE IN PLACE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE. CONTACT THE DURHAM CITY-COUNTY PLANNING DEPARTMENT SITE COMPLIANCE STAFF TO SCHEDULE AN INSPECTION. SITE COMPLIANCE INSPECTION FEES MUST BE RECEIVED BY THE DURHAM CITY-COUNTY PLANNING DEPARTMENT PRIOR TO SCHEDULING AN INSPECTION. IF A RE-INSPECTION IS REQUIRED, AN ADDITIONAL INSPECTION FEE MUST BE RECEIVED BY THIS OFFICE PRIOR TO THE RE-INSPECTION.

16. UDO LANDSCAPE COMPLIANCE CERTIFICATION NOTE (UDO SECTION 9.2.5D): THESE STANDARDS MUST BE VERIFIED BY A LANDSCAPE COMPLIANCE FORM COMPLETED BY A PROFESSIONAL LANDSCAPE ARCHITECT OR LICENSED LANDSCAPE CONTRACTOR PRIOR TO THE CERTIFICATE OF COMPLIANCE BEING ISSUED. SUBMIT TO THE DURHAM CITY-COUNTY PLANNING DEPARTMENT SITE COMPLIANCE STAFF WHEN SCHEDULING A SITE COMPLIANCE INSPECTION.

1. BED AND HOLE PREPARATION:

A. TREATMENT WAS ADDED ONLY PER RECOMMENDATIONS, BASED ON SOIL TESTS; SOIL TEST RESULTS ARE ATTACHED, IF APPLICABLE

B. TREE HOLES AND PLANTING BEDS HAVE BEEN TESTED FOR INFILTRATION

C. THERE WAS NO LANDSCAPE FABRIC USED ON SITE

D. SOIL IS FRIABLE AND DRAINS AT A DEPTH OF 2' FOR TREE PLANTING AREAS

2. TREE PREPARATION:

A. THE ROOT COLLAR OF ALL TREES HAS BEEN EXPOSED AND IS FREE FROM SOIL, DEBRIS AND MULCH

B. GIRDLING ROOTS HAVE BEEN CUT AWAY FROM THE TRUNK AND CORRECTED WITHIN THE PLANTING MIX

3. TREE INSTALLATION:

A. TREES ARE INSTALLED WITH ROOT COLLARS EXPOSED AND COMPLETELY ABOVE GRADE

B. TREES AND PLANTS WERE WATERED WITHIN TWO DAYS OF INSTALLATION

C. MULCH HAS BEEN INSTALLED WITHIN A WEEK OF INSTALLATION

20. CONSTRUCTION IN PRESERVED TREE COVERAGE AREAS (UDO SECTION 8.3):

A. PRESERVED TREE COVERAGE AREAS SHALL NOT BE USED FOR ACTIVE RECREATIONAL PURPOSES, EXCEPT FOR UNPAVED WALKING PATHS AND FOOT TRAILS CONSTRUCTED WITH MINIMAL DISTURBANCE OF TREE ROOTS AND EXISTING VEGETATION. NO TREE EIGHT INCHES OR GREATER SHALL BE REMOVED FOR THE CONSTRUCTION OF TRAILS. SITE PLAN APPROVAL IS REQUIRED FOR CONSTRUCTION OF TRAILS IN PRESERVED TREE COVERAGE AREAS.

B. ALL BUILDINGS, UTILITIES, AND STORMWATER FACILITIES SHALL BE SET BACK AT LEAST 10 FEET FROM THE EDGE OF ANY PRESERVED TREE COVERAGE AREA. NO EASEMENTS, EXCEPT CONSERVATION, GREENWAY, AND LANDSCAPE EASEMENTS, SHALL BE INCLUDED WITHIN A TREE COVERAGE AREA.

PUBLIC WORKS CONDITIONS OF APPROVAL

THE DESIGNING PROFESSIONAL (A NCPE, NCPLS OR NCRLA/NCPLA - AS REQUIRED) SHALL SUBMIT THREE (3) SETS OF CONSTRUCTION DRAWINGS TO THE PUBLIC WORKS DEPARTMENT - DEVELOPMENT REVIEW FOR REVIEW AND APPROVAL. CONSTRUCTION DRAWING APPROVAL IS REQUIRED PRIOR TO COMMENCING CONSTRUCTION (SEE CONSTRUCTION PLAN APPROVAL PROCESS). THE APPROVAL OF CONSTRUCTION DRAWINGS IS SEPARATE FROM SITE PLAN APPROVAL. CITY OFFICIALS SHALL REVIEW ALL SIZES, MATERIALS, SLOPES, LOCATIONS, EXTENSIONS AND DEPTHS FOR ALL PROPOSED UTILITIES (WATERLINES, SANITARY SEWER LINES AND STORM DRAINAGE CONVEYANCE SYSTEMS) FOR COMPLIANCE WITH ALL APPLICABLE REGULATORY STANDARDS, SPECIFICATIONS, AND BEST MANAGEMENT PRACTICES.

THE DESIGNING PROFESSIONAL (A NCPE, NCPLS OR NCRLA/NCPLA - AS REQUIRED) SHALL SUBMIT ONE (1) SET OF AS-BUILT DRAWINGS TO THE PUBLIC WORKS DEPARTMENT - DEVELOPMENT REVIEW FOR REVIEW AND APPROVAL. AS-BUILT DRAWING APPROVAL IS REQUIRED PRIOR TO WATER METER INSTALLATION AND/OR SANITARY SEWER SERVICE CONNECTION AND PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

AT A MINIMUM, THE STORMWATER DESIGN DETAILS FOR THIS PROJECT SHALL BE GOVERNED BY THE MINIMUM STANDARDS OF THE MOST RECENT EDITION OF THE CITY OF DURHAM REFERENCE GUIDE FOR DEVELOPMENT (RGD) AND ANY LETTERS TO INDUSTRY POSTED ON THE CITY'S WEBSITE THAT ARE IN EFFECT THE DATE CONSTRUCTION DRAWINGS ARE FIRST RECEIVED FOR REVIEW BY THE CITY.

FINAL DESIGN CALCULATIONS FOR THE STORMWATER CONTROL MEASURE(S) (SCM(S)) REQUIRE THE USE OF STORAGE INDICATION ROUTING METHODOLOGY SUCH AS TR-20 OR HEC-1 MODELS. FOR EACH SCM, AS APPLICABLE, STAGE-STORAGE RELATIONSHIP AND INFLOW AND OUTFLOW HYDROGRAPHS ARE REQUIRED. ALL TABULATED DATA INCLUDING CALCULATIONS SHOWING THE LIMITING DISCHARGE, WHETHER ORIFICE, WEIR, BARREL, OR OUTLET CONTROL, AS APPROPRIATE IS REQUIRED. HYDROCAD, HYDRAFLOW HYDROGRAPHS, AND PONDPACK ARE COMMONLY USED AND RECOGNIZED SOFTWARE PROGRAMS WHICH INCORPORATE ROUTING METHODOLOGY ACCEPTED BY THE CITY.

AN AS-BUILT CERTIFICATION FOR THE STORMWATER CONTROL MEASURE(S) (SCM(S)), PROVIDED BY THE BMP CERTIFYING ENGINEER (BCE), IS REQUIRED. THE AS-BUILT CERTIFICATION SHALL BE SUBMITTED IN ACCORDANCE WITH THE CITY OF DURHAM BCE PROGRAM; REFER TO SECTION 8.6, BMP CERTIFYING ENGINEER PROGRAM FOR STORMWATER BMPs IN THE CITY OF DURHAM REFERENCE GUIDE FOR DEVELOPMENT. THE SCM AS-BUILT CERTIFICATION(S) SHALL BE APPROVED BY THE STORMWATER DEVELOPMENT REVIEW SECTION PRIOR TO ISSUANCE OF ANY FINAL CERTIFICATES OF OCCUPANCY/COMPLIANCE FOR DEVELOPMENT, WITH THE EXCEPTION OF WHEN AN APPROPRIATE CONSTRUCTION SECURITY HAS FORM 6399, APRIL 2023 PAGE 8 OF 10 BEEN PROVIDED FOR SINGLE FAMILY OR TOWNHOME DEVELOPMENT. WITH THIS PROVIDED CONSTRUCTION SECURITY, CERTIFICATES OF OCCUPANCY/COMPLIANCE CAN BE ISSUED FOR A PERCENTAGE OF SINGLE FAMILY LOTS IN ACCORDANCE WITH CITY REQUIREMENTS.

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BUILDING INSPECTIONS NOTES

THE WORK TAKING PLACE RELATED TO THE CHANGES IN THIS SITE PLAN WILL BE FULLY COMPLIANT WITH THE NORTH CAROLINA ACCESSIBILITY CODES (ANSI 117.1-2009 AND CHAPTER 11 OF THE NCBC) UNLESS AND EXCEPT AS AN APPROVED STATEMENT FROM A SITE ENGINEER, SURVEYOR OR ARCHITECT VERIFIES THAT SITE CONDITIONS EXIST WHERE THE TOPOGRAPHY OF THE SITE IS EXTREME AND ONLY ALTERNATE METHODS OF COMPLIANCE ARE POSSIBLE. A SEALED AS-BUILT SURVEY OF THE SITE, PERFORMED BY THE DESIGN PROFESSIONAL OR DESIGNEE, MUST BE SUBMITTED TO THE BUILDING INSPECTIONS DEPARTMENT CERTIFYING THAT ALL SITE ACCESSIBILITY CODE REQUIREMENTS SUCH AS CURB CUTS, RAMP SLOPES, SIDEWALK SLOPES AND WIDTHS, AND ACCESS AND PARKING CROSS SLOPES MEET THE REQUIREMENTS OF THE NC ACCESSIBILITY CODES PRIOR TO CO ISSUANCE.

VICINITY MAP - NOT TO SCALE

Sheet List Table	
Sheet Number	Sheet Title
C1.0	COVER
C2.0	NOTES -1
C2.1	NOTES - 2
C2.2	LANDSCAPE NOTES
C3.0	EXISTING CONDITION
C4.0	EROSION & DEMOLITION
C5.0	GRADING & DRAINAGE PLAN
C6.0	EROSION CONTROL DETAILS
C7.0	SITE DETAILS

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TRC ENGINEERS, INC REVIEW

THESE PLANS HAVE BEEN SUBJECTED TO TECHNICAL AND QUALITY REVIEWS BY:

NAME: Ian Spurlock, P.E.		5/8/2025
PROJECT DESIGNER	SIGNATURE	DATE
NAME: Ian Spurlock, P.E.		5/8/2025
PROJECT MANAGER	SIGNATURE	DATE
NAME: C. TYRUS CLAYTON, JR., P.E.		5/8/2025
QUALITY REVIEWER	SIGNATURE	DATE

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY IAN SPURLOCK, PE ON THE DATE ADJACENT TO THE SEAL.

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COVER

RTF CULVERT REPLACEMENT

DURHAM, NC

REVISIONS

DESIGNED BY: IUS

DRAWN BY: CWH

CHECKED BY: CTC

SCALE: NO SCALE

DATE: 2025-05-07

PROJECT NUMBER: 5028585

C1.0



Erosion Control Notes

1. THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICES AS REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH THE CURRENT EDITION OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL MANUAL. ALL DEVICES REFERRED TO IN THESE PLANS CAN BE FOUND IN THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL MANUAL.
2. ALL DISTURBED AREAS SHALL BE PERMANENTLY SEEDED AND MULCHED PER THE NCDEQ SCHEDULE AFTER REACHING FINAL GRADE. AREAS WHICH HAVE BEEN DISTURBED AND HAVE NOT REACHED FINAL GRADE, BUT WHICH ARE TO REMAIN UNDISTURBED FOR LONGER THAN 14 DAYS ARE TO BE TEMPORARILY SEEDED AND MULCHED PER THE NCDEQ SCHEDULE. AS UPSTREAM AREAS ARE STABILIZED WITH PERMANENT GROUND COVER, DOWNSTREAM TEMPORARY DEVICES ARE TO BE REMOVED. CONTRACTOR SHALL FOLLOW THE STABILIZATION TIME TABLE INCLUDED IN THIS SET OF DRAWINGS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERIODICALLY INSPECT ALL SEDIMENT AND EROSION CONTROL DEVICES AND ENSURE THAT THEY ARE IN GOOD WORKING ORDER. AT A MINIMUM, ALL DEVICES SHALL BE INSPECTED DAILY AND AFTER MAJOR RAINFALL EVENTS. ANY DEVICE NEEDING REPAIRS SHALL BE REPAIRED WITHIN 24 HOURS.
4. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL DEVICES IF DURING THE COURSE OF CONSTRUCTION THE ENGINEER OR NCDEQ INSPECTOR DETERMINES THAT THEY ARE REQUIRED.
5. SILT SHALL BE REMOVED FROM SILT FENCES WHEN THE SILT REACHES APPROXIMATELY ONE-THIRD (1/3) THE HEIGHT OF THE BARRIER.
6. THE CONTRACTOR SHALL PERIODICALLY TOP DRESS THE CONSTRUCTION ENTRANCE WITH CLEAN STONE. IF THE CONSTRUCTION ENTRANCE FAILS TO REMOVE DIRT FROM THE TIRES OF VEHICLES ENTERING A PUBLIC RIGHT-OF-WAY A WASH RACK SHALL BE INSTALLED AND THE TIRES WASHED. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ANY REQUIRED WATER FOR THE WASHING OF TIRES. DIRT TRACKED ONTO THE PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
7. ALL EROSION AND SILTATION MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING.
8. ALL STORM AND UTILITY LINES NOT IN STREETS ARE TO BE MULCHED AND SEEDED PER THE NCDEQ SCHEDULE AFTER BACKFILL. NO MORE THAN FIVE HUNDRED FEET OF TRENCH IS TO BE OPEN AT ONE TIME.
9. ALL TEMPORARY EARTH BERMS, DIVERSIONS, AND SILT DAMS ARE TO BE MULCHED AND SEEDED FOR VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. ADDITIONALLY ALL DIVERSION SWALES WILL BE PROTECTED AGAINST HIGH VELOCITY WITH EROSION CONTROL MEASURES AS DENOTED ON THESE PLANS. THE SAME APPLIES TO STOCKPILES ON SITE AS WELL AS SOIL (INTENTIONALLY) TRANSPORTED FROM THE PROJECT SITE.
10. ANY DISTURBED AREA NOT PAVED, SODDED, OR BUILT UPON, IS TO BE SEEDED PER THE TEMPORARY AND PERMANENT SEEDING SCHEDULE INCLUDED IN THESE DRAWINGS. MODIFY AS APPLICABLE, DEPENDING ON PROPOSED TIME OF CONSTRUCTION.
11. CONTRACTOR STAGING AREA(S) SHALL BE RETURNED TO BETTER THAN ORIGINAL CONDITIONS AT THE COMPLETION OF THE WORK.
12. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
13. A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO ISSUANCE OF A LAND DISTURBANCE PERMIT. THE CONTRACTOR SHALL SCHEDULE THE MEETING WITH THE NCDEQ INSPECTOR ASSIGNED TO THE PROJECT.
14. ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF NCDEQ EROSION AND SEDIMENT CONTROL MANUAL AND THE NORTH CAROLINA SEDIMENTATION POLLUTION CONTROL ACT OF 1973.
15. AS A CONDITION OF NPDES PERMIT NO. NCG 010000, PERMANENT GROUND COVER SHOULD BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING THE COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

Erosion Control Narrative

PROJECT DESCRIPTION  
REMOVE AND REPLACE EXISTING UNDERSIZED CULVERT AND ERODED OUTFALL.

EXISTING CONDITIONS  
THE PROJECT LOCATED AT A PARKING LOT AREA AT INTERSECTION OF S TRICENTER BLVD AND OLD CORNWALIS RD.

DEVELOPMENT IMPACTS  
THE DEVELOPMENT IMPACTS TO THE TOPOGRAPHY, SOILS, HYDROLOGY, AND GEOLOGY WILL BE MINOR.

SOILS  
SOILS THROUGHOUT THE PROJECT AREA INCLUDE CHEWACLA AND WEHADKEE SOILS. 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED AND HORNSBORO SILT LOAM 0 TO 2 PERCENT SLOPES RARELY FLOODED. HYDROLOGIC SOIL GROUPS INCLUDE B/C/D.

- CRITICAL EROSION AREAS
1. CARE MUST BE TAKEN TO PREVENT SEDIMENT FROM BEING TRACKED ONTO ADJACENT ROADWAYS.
  2. CARE MUST BE TAKEN TO PREVENT SEDIMENT FROM EXITING THE PROJECT SITE AREA.
  3. CARE MUST BE TAKEN TO PREVENT SEDIMENT FROM ENTERING ANY WATER WAY OR DRAINAGE WAYS.

STOCKPILING  
STOCKPILING IS ANTICIPATED ON-SITE.

STRUCTURAL PRACTICES  
SILT FENCE

VEGETATIVE PRACTICES  
TEMPORARY SEEDING  
PERMANENT SEEDING  
DUST CONTROL

- MANAGEMENT STRATEGIES
1. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
  2. AFTER ACHIEVING ADEQUATE STABILIZATION AND UPON APPROVAL OF THE NCDEQ INSPECTOR, THE TEMPORARY E&S CONTROLS WILL BE CLEANED UP AND REMOVED.

PERMANENT STABILIZATION  
THE DISTURBED AREAS WILL BE PERMANENTLY STABILIZED THROUGH THE USE OF PERMANENT SEEDING.

General Utility Notes

1. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA; EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION AS INDICATED. ALTHOUGH, HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE.
2. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION SO THAT CONTRACTOR IS FAMILIAR AND UNDERSTANDS EXISTING CONDITIONS.
3. FIELD CHANGES MAY BE NECESSARY DUE TO EXISTING UTILITY LOCATIONS. THE ENGINEER SHALL BE CONTACTED BEFORE MAKING THESE CHANGES.

Construction Sequence

1. SET UP PRE-CONSTRUCTION MEETING.
2. INSTALL EROSION AND SEDIMENT CONTROL FEATURES AS INDICATED
3. MINIMIZE DISTURBED AREAS AT ANY GIVEN TIME TO THOSE AREAS THAT CAN BE STABILIZED DAILY
4. INSTALL TEMPORARY COFFERDAM AND STEAM PUMP AROUND, AS NEEDED. WORK BELOW ORDINARY HIGH WATER MARK SHALL BE PERFORMED IN THE DRY.
5. CLEAR EXISTING TREES AND VEGETATION, AS NEEDED FOR ACCESS.
6. SAW CUT AND REMOVE EXISTING ASPHALT PAVEMENT, CURB, AND GUTTER.
7. DEMOLISH EXISTING PIPING AND RIPRAP.
8. INSTALL PROPOSED CULVERT TO GRADES AND LINES SHOWN. INSTALL CULVERT IN ACCORDANCE WITH CITY OF DURHAM AND NCDOT STANDARDS.
9. INSTALL CONCRETE HEADWALLS AND RIPRAP PROTECTION.
10. INSTALL ASPHALT PAVING, SUBBASE, CURB, AND GUTTER TO GRADES AND LINES SHOWN.
11. STABILIZE SITE DURING AND AT END OF CONSTRUCTION IN ACCORDANCE WITH THE NOTES AND DETAILS WITHIN THESES PLANS AND AS ESC INSPECTOR, REMOVAL OF ALL REMAINING EROSION CONTROL DEVICES.
12. PERFORM FINAL CLEANING OF SITE.

General Notes

1. THIS PROJECT, AS CURRENTLY DESIGNED, MAY NOT INCLUDE ALL COMPONENTS ADDRESSED IN THE VARIOUS GENERAL NOTES. REVIEW PLANS FOR APPLICABILITY.
2. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM THE LOCAL AND STATE AGENCIES.
3. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND AT HIS EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
4. ALL PAVING MATERIALS AND DRAINAGE STRUCTURES SHALL BE BUILT AND INSTALLED IN ACCORDANCE WITH NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
5. THE LOCATION OF EXISTING SEWER, WATER OR TELEPHONE LINES, CONDUITS OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS, IF THERE APPEARS TO BE A CONFLICT, OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLANS. FOR ASSISTANCE IN LOCATING EXISTING UTILITIES CALL "NC ONE CALL" DIAL 811.
6. WHERE PAVEMENT IS BEING REMOVED, THE CONTRACTOR SHALL REMOVE AGGREGATE BASE MATERIAL TO SUB-GRADE.
7. DAMAGE TO UTILITIES (INCLUDING UNDERGROUND) OR PROPERTY OF OTHERS BY CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS BY CONTRACTOR AT NO COST TO OWNER.
8. EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY CONTRACTOR (WHICH ARE NOT TO BE REMOVED) SHALL BE REPAIRED TO LIKE-NEW CONDITION.
9. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.
10. THE CONTRACTOR SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY INSPECTORS.
11. THE CONTRACTOR SHALL NOTIFY ALL APPLICABLE REGULATORY AGENCIES AND THE ENGINEER AT LEAST 24 HOURS PRIOR TO STARTING WORK ON THIS PROJECT.
12. UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE SHALL BE REINFORCED CONCRETE PIPE, CLASS III.
13. ALL EXCAVATION FOR UNDERGROUND PIPE INSTALLATION MUST COMPLY WITH OSHA STANDARDS FOR THE CONSTRUCTION INDUSTRY (29 CFR PART 1926).
14. VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
15. DEVIATIONS FROM, OR CHANGES TO THESE PLANS WILL NOT BE ALLOWED.
16. MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO THE PLANS IF NECESSARY. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT. TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. REPAIR AT YOUR OWN EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. IF A UTILITY IS DAMAGED DURING CONSTRUCTION, STOP WORK IMMEDIATELY AND NOTIFY THE ENGINEER AND TOWN.
17. PROPERLY SECURE THE CONSTRUCTION AREA AT ALL TIMES AGAINST UNAUTHORIZED ENTRY AND ADEQUATELY PROTECT EQUIPMENT, MATERIALS, AND COMPLETED WORK FROM THEFT AND VANDALISM. THE OWNER IS NOT RESPONSIBLE FOR THE LOSS OF ANY MATERIAL STORED AT THE SITE.

General Construction and Geotechnical Notes

Engineered Fill

1. ALL CONTROLLED FILL ZONES ARE TO BE MONITORED BY A FULL TIME GEOTECHNICAL ENGINEERING SERVICES FIRM.
2. ENGINEERED FILLS SHALL BE PROPERLY PLACED ACCORDING TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
3. ALL SUMMARY REPORTS, IF AVAILABLE FROM THE GEOTECHNICAL ENGINEER REPRESENTING THE PROJECT MUST STATE HIS PROFESSIONAL OPINION ON THE SATISFACTORILY COMPLETED PHASES OF CONSTRUCTION SUCH AS; SLOPE CUTS, SUBDRAINAGE SYSTEMS, PREPARATION OF SUBGRADES AND COMPACTION OF EARTH FILLS.
4. NO FILLS SHALL HAVE ZONES THAT EXCEED TWO (2) FEET IN ELEVATION WITHOUT CONDUCTING COMPACTION TEST AND OBTAINING RESULTS OF 95% OR GREATER.
5. THE GEOTECHNICAL ENGINEER MUST SUBMIT A DETAILED ANALYSIS, ITEMIZING THE FIELD DENSITY TEST RESULTS. THIS REPORT SHALL BE ACCOMPANIED WITH A COPY OF THE SITE PLAN SHEET AND INDICATE THE TEST LOCATIONS AND ELEVATIONS. THE GEOTECHNICAL ENGINEER MUST PROVIDE ENOUGH DESIGNATED TESTING IN ALL FILL ZONES TO ADEQUATELY EXAMINE AND CERTIFY THE INTEGRITY OF THE FILL.
6. THE GEOTECHNICAL ENGINEER MUST SUBMIT A CERTIFIED BUILDING PAD REPORT FOR EACH FILL PAD LOCATION. THIS REPORT SHALL PROFILE THE FILL MATERIAL PLACEMENT AND PROVIDE THE COMPACTION TEST RESULTS. ALL REPORTS WILL BE ACCOMPANIED BY THE SITE PLAN, INDICATING THE TEST LOCATIONS AND ELEVATIONS.
7. NO BUILDING PADS IN FILL ZONES WILL HAVE STRATUMS EXCEEDING TWO (2) FEET IN ELEVATION WITHOUT TEST VERIFYING DENSITY.
8. THESE GEOTECHNICAL NOTES SHALL IN NO WAY LESSEN THE REQUIREMENTS OF THE SUBMITTED SOILS REPORT.

Road Subgrade

1. INSPECTION AND APPROVAL OF THE SUBGRADE WILL BE REQUIRED PRIOR TO THE PLACEMENT OF THE APPROVED PAVEMENT SECTION MATERIAL.
2. ANY CLAY DEPOSITS IN THE TOP TWO FEET OF THE SUBGRADE MUST BE REMOVED OR ADDRESSED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
3. SUBGRADE APPROVAL SHALL BE ACCOMPANIED BY THE SUPPORTING DOCUMENTATION VERIFYING DENSITY TEST RESULTS OF 95% OR GREATER.
4. THE ENTIRE SUBGRADE WILL HAVE BEEN PROOF-ROLLED IN THE PRESENCE OF THE SITE INSPECTOR AND GEOTECHNICAL REPRESENTATIVE. PROOF-ROLLING SHALL BE A RUBBER TIRE VEHICLE SUCH AS A LOADED TEN (10) TON TRUCK OF APPROVED COMPACTION EQUIPMENT.
5. THE FINAL SUBGRADE SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER AND SITE INSPECTOR BEFORE PLACEMENT OF PAVEMENT SECTION MATERIALS.

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY IAN SPURLOCK, PE ON THE DATE ADJACENT TO THE SEAL ON THE COVER.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



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NOTES -1  
RTF CULVERT REPLACEMENT  
DURHAM, NC

Revisions

DESIGNED BY:	IJS
DRAWN BY:	CWH
CHECKED BY:	CTC
SCALE:	NO SCALE
DATE:	2025-05-07
PROJECT NUMBER:	5028585

C2.0



## PART III

### CORDKEEPING AND REPORTING

## SECTION A: SELF-INSPECTION

SELF-INSPECTIONS ARE REQUIRED DURING NORMAL BUSINESS HOURS IN ACCORDANCE WITH THE TABLE BELOW. WHEN ADVERSE WEATHER OR SITE CONDITIONS WOULD CAUSE THE SAFETY OF THE INSPECTION PERSONNEL TO BE IN JEOPARDY, THE INSPECTION MAY BE DELAYED UNTIL THE NEXT BUSINESS DAY ON WHICH IT IS SAFE TO PERFORM THE INSPECTION. IN ADDITION, WHEN A STORM EVENT OF EQUAL TO OR GREATER THAN 1.0 INCH OCCURS OUTSIDE OF NORMAL BUSINESS HOURS, THE SELF-INSPECTION SHALL BE PERFORMED UPON THE COMMENCEMENT OF THE NEXT BUSINESS DAY. ANY TIME WHEN INSPECTIONS WERE DELAYED SHALL BE NOTED IN THE INSPECTION RECORD.

INSPECT	FREQUENCY (DURING NORMAL BUSINESS HOURS)	INSPECTION RECORDS MUST INCLUDE:
(1) RAIN GAUGE MAINTAINED IN GOOD WORKING ORDER	DAILY	<p>DAILY RAINFALL AMOUNTS.</p> <p>IF NO DAILY RAIN GAUGE OBSERVATIONS ARE MADE DURING WEEKEND OR HOLIDAY PERIODS, AND NO INDIVIDUAL-DAY RAINFALL INFORMATION IS AVAILABLE, RECORD THE CUMULATIVE RAIN MEASUREMENT FOR THOSE UNATTENDED DAYS (AND THIS WILL DETERMINE IF A SITE INSPECTION IS NEEDED). DAYS ON WHICH NO RAINFALL OCCURRED SHALL BE RECORDED AS "ZERO." THE PERMITTEE MAY USE ANOTHER RAIN-MONITORING DEVICE APPROVED BY THE DIVISION.</p>
(2) E&S MEASUREMENTS	AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAIN EVENT $\geq 1.0$ INCH IN 24 HOURS	<ol style="list-style-type: none"> <li>1. IDENTIFICATION OF THE MEASURES INSPECTED,</li> <li>2. DATE AND TIME OF THE INSPECTION,</li> <li>3. NAME OF THE PERSON PERFORMING THE INSPECTION,</li> <li>4. INDICATION OF WHETHER THE MEASURES WERE OPERATING PROPERLY,</li> <li>5. DESCRIPTION OF MAINTENANCE NEEDS FOR THE MEASURE,</li> <li>6. DESCRIPTION, EVIDENCE, AND DATE OF CORRECTIVE ACTIONS TAKEN.</li> </ol>
(3) STORMWATER DISCHARGE OUTFALLS (SDOS)	AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAIN EVENT $\geq 1.0$ INCH IN 24 HOURS	<ol style="list-style-type: none"> <li>1. IDENTIFICATION OF THE DISCHARGE OUTFALLS INSPECTED,</li> <li>2. DATE AND TIME OF THE INSPECTION,</li> <li>3. NAME OF THE PERSON PERFORMING THE INSPECTION,</li> <li>4. EVIDENCE OF INDICATORS OF STORMWATER POLLUTION SUCH AS OIL SHEEN, FLOATING OR SUSPENDED SOLIDS OR DISCOLORATION,</li> <li>5. INDICATION OF VISIBLE SEDIMENT LEAVING THE SITE,</li> <li>6. DESCRIPTION, EVIDENCE, AND DATE OF CORRECTIVE ACTIONS TAKEN.</li> </ol>
(4) PERIMETER OF SITE	AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAIN EVENT $\geq 1.0$ INCH IN 24 HOURS	<p>IF VISIBLE SEDIMENTATION IS FOUND OUTSIDE SITE LIMITS, THEN A RECORD OF THE FOLLOWING SHALL BE MADE:</p> <ol style="list-style-type: none"> <li>1. ACTIONS TAKEN TO CLEAN UP OR STABILIZE THE SEDIMENT THAT HAS LEFT THE SITE LIMITS,</li> <li>2. DESCRIPTION, EVIDENCE, AND DATE OF CORRECTIVE ACTIONS TAKEN, AND</li> <li>3. AN EXPLANATION AS TO THE ACTIONS TAKEN TO CONTROL FUTURE RELEASES.</li> </ol>
(5) STREAMS OR WETLANDS ON-SITE OR OFF-SITE (WHERE ACCESSIBLE)	AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAIN EVENT $\geq 1.0$ INCH IN 24 HOURS	<p>IF THE STREAM OR WETLAND HAS INCREASED VISIBLE SEDIMENTATION OR A STREAM HAS VISIBLE INCREASED TURBIDITY FROM THE CONSTRUCTION ACTIVITY, THEN A RECORD OF THE FOLLOWING SHALL BE MADE:</p> <ol style="list-style-type: none"> <li>1. DESCRIPTION, EVIDENCE AND DATE OF CORRECTIVE ACTIONS TAKEN, AND</li> <li>2. RECORDS OF THE REQUIRED REPORTS TO THE APPROPRIATE DIVISION REGIONAL OFFICE PER PART II, SECTION C, ITEM (2)(A) OF THIS PERMIT.</li> </ol>
(6) GROUND STABILIZATION MEASURES AFTER EACH PHASE OF THE GRADING	AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAIN EVENT $\geq 1.0$ INCH IN 24 HOURS	<ol style="list-style-type: none"> <li>1. THE PHASE OF GRADING (INSTALLATION OF PERIMETER E&amp;S MEASURES, CLEARING AND GRUBBING, INSTALLATION OF STORMWATER GRABAGE FACILITIES, COMPLETION OF ALL LAND-DISTURBING ACTIVITY, CONSTRUCTION OR REDEVELOPMENT, PERMANENT GROUND COVER),</li> <li>2. DOCUMENTATION THAT THE REQUIRED GROUND STABILIZATION MEASURES HAVE BEEN PROVIDED WITHIN THE REQUIRED TIMEFRAME OR AN ASSURANCE THAT THEY WILL BE PROVIDED AS SOON AS POSSIBLE.</li> </ol>

NOTE: THE RAIN INSPECTION RESETS THE REQUIRED 7 CALENDAR DAY INSPECTION REQUIREMENT.

### PART III

#### SELF-INSPECTION, RECORDKEEPING AND REPORTING

## SECTION B: RECORDKEEPING

**1. E&SC PLAN DOCUMENTATION**

THE APPROVED E&SC PLAN AS WELL AS ANY APPROVED DEVIATION SHALL BE KEPT ON THE SITE. THE APPROVED E&SC PLAN MUST BE KEPT UP-TO-DATE THROUGHOUT THE COVERAGE UNDER THIS PERMIT. THE FOLLOWING ITEMS PERTAINING TO THE E&SC PLAN SHALL BE KEPT ON SITE AND AVAILABLE FOR INSPECTION AT ALL TIMES DURING NORMAL BUSINESS HOURS.

ITEM TO DOCUMENT	DOCUMENTATION REQUIREMENTS
(A) EACH E&SC MEASURE HAS BEEN INSTALLED AND DOES NOT SIGNIFICANTLY DEVIATE FROM THE LOCATIONS, DIMENSIONS AND RELATIVE ELEVATIONS SHOWN ON THE APPROVED E&SC PLAN.	INITIAL AND DATE EACH E&SC MEASURE ON A COPY OF THE APPROVED E&SC PLAN OR COMPLETE, DATE AND SIGN AN INSPECTION REPORT THAT LISTS EACH E&SC MEASURE SHOWN ON THE APPROVED E&SC PLAN. THIS DOCUMENTATION IS REQUIRED UPON THE INITIAL INSTALLATION OF THE E&SC MEASURES OR IF THE E&SC MEASURES ARE MODIFIED AFTER INITIAL INSTALLATION.
(B) A PHASE OF GRADING HAS BEEN COMPLETED.	INITIAL AND DATE A COPY OF THE APPROVED E&SC PLAN OR COMPLETE, DATE AND SIGN AN INSPECTION REPORT TO INDICATE COMPLETION OF THE CONSTRUCTION PHASE.
(C) GROUND COVER IS LOCATED AND INSTALLED IN ACCORDANCE WITH THE APPROVED E&SC PLAN.	INITIAL AND DATE A COPY OF THE APPROVED E&SC PLAN OR COMPLETE, DATE AND SIGN AN INSPECTION REPORT TO INDICATE COMPLIANCE WITH APPROVED GROUND COVER SPECIFICATIONS.
(D) THE MAINTENANCE AND REPAIR REQUIREMENTS FOR ALL E&SC MEASURES HAVE BEEN PERFORMED.	COMPLETE, DATE AND SIGN AN INSPECTION REPORT.
(E) CORRECTIVE ACTIONS HAVE BEEN TAKEN TO E&SC MEASURES.	INITIAL AND DATE A COPY OF THE APPROVED E&SC PLAN OR COMPLETE, DATE AND SIGN AN INSPECTION REPORT TO INDICATE THE COMPLETION OF THE CORRECTIVE ACTION.

## 2. DOCUMENTATION TO BE RETAINED FOR THREE YEARS

ALL DATA USED TO COMPLETE THE E-NOI AND ALL INSPECTION RECORDS SHALL BE MAINTAINED FOR A PERIOD OF THREE YEARS AFTER PROJECT COMPLETION AND MADE AVAILABLE UPON REQUEST. [40 CFR 122.41]

### 3. ADDITIONAL DOCUMENTATION TO BE KEPT ON SITE

IN ADDITION TO THE E&SC PLAN DOCUMENTS ABOVE, THE FOLLOWING ITEMS SHALL BE KEPT ON THE SITE AND AVAILABLE FOR INSPECTORS AT ALL TIMES DURING NORMAL BUSINESS HOURS, UNLESS THE DIVISION PROVIDES A SITE-SPECIFIC EXEMPTION BASED ON UNIQUE SITE CONDITIONS THAT MAKE THIS REQUIREMENT NOT PRACTICAL:

- (a) THIS GENERAL PERMIT AS WELL AS THE CERTIFICATE OF COVERAGE, AFTER IT IS RECEIVED.
- (b) RECORDS OF INSPECTIONS MADE DURING THE PREVIOUS TWELVE MONTHS. THE PERMITTEE SHALL RECORD THE REQUIRED OBSERVATIONS ON THE INSPECTION RECORD FORM PROVIDED BY THE DIVISION OR A SIMILAR INSPECTION FORM THAT INCLUDES ALL THE REQUIRED ELEMENTS. USE OF ELECTRONICALLY-AVAILABLE RECORDS IN LIEU OF THE REQUIRED PAPER COPIES WILL BE ALLOWED IF SHOWN TO PROVIDE EQUAL ACCESS AND UTILITY AS THE HARD-COPY RECORDS.

### PART III

#### SELF-INSPECTION, RECORDKEEPING AND REPORTING

## SECTION C: REPORTING

## 1. OCCURRENCES THAT MUST BE REPORTED

PERMITTEES SHALL REPORT THE FOLLOWING OCCURRENCES:

- (a) VISIBLE SEDIMENT DEPOSITION IN A STREAM OR WETLAND.
- (b) OIL SPILLS IF:
- THEY ARE 25 GALLONS OR MORE,
  - THEY ARE LESS THAN 25 GALLONS BUT CANNOT BE CLEANED UP WITHIN 24 HOURS,
  - THEY CAUSE SHEEN ON SURFACE WATERS (REGARDLESS OF VOLUME), OR
  - THEY ARE WITHIN 100 FEET OF SURFACE WATERS (REGARDLESS OF VOLUME).
- (c) RELEASES OF HAZARDOUS SUBSTANCES IN EXCESS OF REPORTABLE QUANTITIES UNDER SECTION 311 OF THE CLEAN WATER ACT (REF: 40 CFR 110.3 AND 40 CFR 117.3) OR SECTION 102 OF CERCLA (REF: 40 CFR 302.4) OR G.S. 143-215.85.
- (d) ANTICIPATED BYPASSES AND UNANTICIPATED BYPASSES.
- (e) NONCOMPLIANCE WITH THE CONDITIONS OF THIS PERMIT THAT MAY ENDANGER HEALTH OR THE ENVIRONMENT.

## 2. REPORTING TIME FRAME AND OTHER REQUIREMENTS

AFTER A PERMITTEE BECOMES AWARE OF AN OCCURRENCE THAT MUST BE REPORTED, HE SHALL CONTACT THE APPROPRIATE DIVISION REGIONAL OFFICE WITHIN THE TIME FRAMES AND IN ACCORDANCE WITH THE OTHER REQUIREMENTS LISTED BELOW. OCCURRENCES OUTSIDE NORMAL BUSINESS HOURS MAY ALSO BE REPORTED TO THE DEPARTMENT'S ENVIRONMENTAL EMERGENCY CENTER PERSONNEL AT (800) 858-0368.

OCCURRENCE	REPORTING TIMEFRAMES (AFTER DISCOVERY) AND OTHER REQUIREMENT
(A) VISIBLE SEDIMENT DEPOSITION IN A STREAM OR WETLAND	<ul style="list-style-type: none"> <li>· <b>WITHIN 24 HOURS</b>, AN ORAL OR ELECTRONIC NOTIFICATION.</li> <li>· <b>WITHIN 7 CALENDAR DAYS</b>, A REPORT THAT CONTAINS A DESCRIPTION OF THE SEDIMENT AND ACTIONS TAKEN TO ADDRESS THE CAUSE OF THE DEPOSITION. DIVISION STAFF MAY WAIVE THE REQUIREMENT FOR A WRITTEN REPORT ON A CASE-BY-CASE BASIS.</li> <li>· IF THE STREAM IS NAMED ON THE <a href="#">NC 303(D)</a> LIST AS IMPAIRED FOR SEDIMENT-RELATED CAUSES, THE PERMITTEE MAY BE REQUIRED TO PROVIDE ADDITIONAL MONITORING INSPECTIONS OR APPLY MORE STRINGENT PRACTICES IF STAFF DETERMINE THAT ADDITIONAL REQUIREMENTS ARE NEEDED TO ASSURE COMPLIANCE WITH THE FEDERAL OR STATE IMPAIRED-WATERS CONDITIONS.</li> </ul>
(B) OIL SPILLS AND RELEASE OF HAZARDOUS SUBSTANCES PER ITEM 1(B)-(C) ABOVE	<ul style="list-style-type: none"> <li>· <b>WITHIN 24 HOURS</b>, AN ORAL OR ELECTRONIC NOTIFICATION. THE NOTIFICATION SHALL INCLUDE INFORMATION ABOUT THE DATE, TIME, NATURE, VOLUME AND LOCATION OF THE SPILL OR RELEASE.</li> </ul>
(C) ANTICIPATED BYPASSES [40 CFR 122.41.(M)(3)]	<ul style="list-style-type: none"> <li>· <b>A REPORT AT LEAST TEN DAYS BEFORE THE DATE OF THE BYPASS, IF POSSIBLE.</b> THE REPORT SHALL INCLUDE AN EVALUATION OF THE ANTICIPATED QUALITY AND EFFECT OF THE BYPASS.</li> </ul>
(D) UNANTICIPATED BYPASSES [40 CFR 122.41.(M)(3)]	<ul style="list-style-type: none"> <li>· <b>WITHIN 24 HOURS</b>, AN ORAL OR ELECTRONIC NOTIFICATION.</li> <li>· <b>WITHIN 7 CALENDAR DAYS</b>, A REPORT THAT INCLUDES AN EVALUATION OF THE QUALITY AND EFFECT OF THE BYPASS.</li> </ul>
(E) NONCOMPLIANCE WITH THE CONDITIONS OF THIS PERMIT THAT MAY ENDANGER HEALTH OR THE ENVIRONMENT [40 CFR 122.41.(L)(7)]	<ul style="list-style-type: none"> <li>· <b>WITHIN 24 HOURS</b>, AN ORAL OR ELECTRONIC NOTIFICATION.</li> <li>· <b>WITHIN 7 CALENDAR DAYS</b>, A REPORT THAT CONTAINS A DESCRIPTION OF THE NONCOMPLIANCE, AND ITS CAUSES; THE PERIOD OF NONCOMPLIANCE, INCLUDING EXACT DATES AND TIMES; AND IF THE NONCOMPLIANCE HAS NOT BEEN CORRECTED, THE ANTICIPATED TIME NONCOMPLIANCE IS EXPECTED TO CONTINUE; AND STEPS TAKEN OR PLANNED TO REDUCE, ELIMINATE, AND PREVENT REOCCURRENCE OF THE NONCOMPLIANCE. [40 CFR 122.41.(L)(6).</li> <li>· DIVISION STAFF MAY WAIVE THE REQUIREMENT FOR A WRITTEN REPORT ON A CASE-BY-CASE BASIS.</li> </ul>

## GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

REQUIRED GROUND STABILIZATION TIME FRAMES		
SITE AREA DESCRIPTION	STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE	TIMEFRAME VARIATIONS
(A) PERIMETER DIKES, SWALES, DITCHES, AND PERIMETER SLOPES	7	NONE
(B) HIGH QUALITY WATER (HOW) ZONES	7	NONE
(C) SLOPES STEEPER THAN 3:1	7	IF SLOPES ARE 10' OF LESS IN LENGTH AND ARE NOTE STEEPER THAN 2:1, 14 DAYS ALLOWED
(D) SLOPES 3:1 TO 4:1	14	-7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH AND WITH SLOPES STEEPER THAN 4:1 -7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND HOW ZONES -10 DAYS FOR FALLS LAKE WATERSHED
(E) AREAS WITH SLOPES FLATTER THAN 4:1	14	-7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND HOW ZONES -10 DAYS FOR LAKE WATERSHED UNLESS THERE IS ZERO SLOPE

**NOTE: AFTER THE PERMANENT CESSATION OF CONSTRUCTION ACTIVITIES, ANY AREAS WITH TEMPORARY GROUND STABILIZATION SHALL BE CONVERTED TO PERMANENT GROUND STABILIZATION AS SOON AS PRACTICABLE BUT IN NO CASE LONGER THAN 90 CALENDAR DAYS AFTER THE LAST LAND DISTURBING ACTIVITY. TEMPORARY GROUND STABILIZATION SHALL BE MAINTAINED IN A MANNER TO RENDER THE SURFACE STABLE AGAINST ACCELERATED EROSION UNTIL PERMANENT GROUND STABILIZATION IS ACHIEVED.**

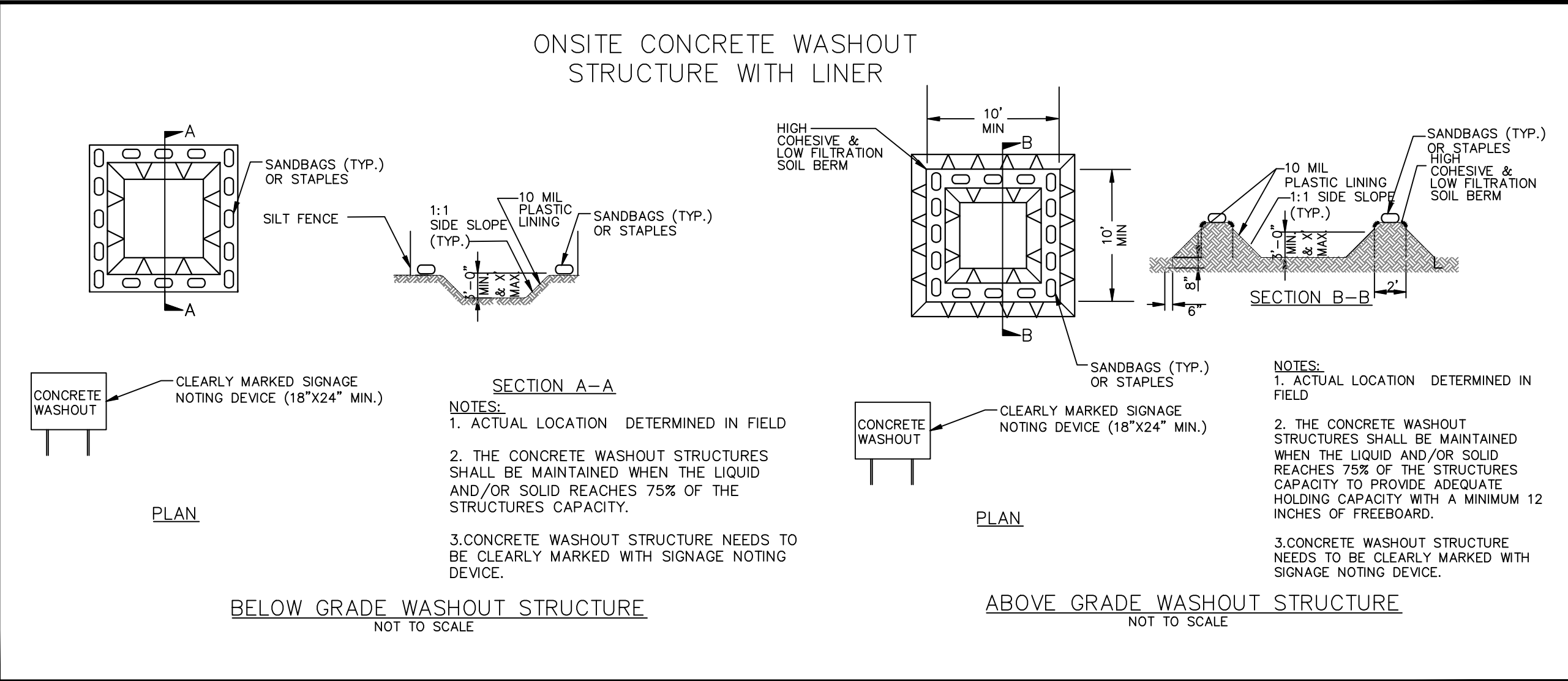
## GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

TEMPORARY SEEDING	PERMANENT STABILIZATION
TEMPORARY GRASS SEED COVERED WITH STRAW OR OTHER MULCHES AND TACKIFIERS	PERMANENT GRASS SEED COVERED WITH STRAW OR OTHER MULCHES AND TACKIFIERS
HYDROSEEDING	GEOTEXTILE FABRICS SUCH AS PERMANENT SOIL REINFORCEMENT MATTING
ROLLED EROSION CONTROL PRODUCTS WITH OR WITHOUT TEMPORARY GRASS SEED	HYDROSEEDING SHRUBS OR OTHER PERMANENT PLANTINGS COVERED WITH MULCH
APPROPRIATELY APPLIED STRAW OR OTHER MULCH	UNIFORM AND EVENLY DISTRIBUTED GROUND COVER SUFFICIENT TO RESTRAIN EROSION
PLASTIC SHEETING	STRUCTURAL METHODS SUCH AS CONCRETE, ASPHALT OR RETAINING WALLS
	ROLLED EROSION CONTROL PRODUCTS WITH GRASS SEED

## CONCRETE WASHOUTS

1. DO NOT DISCHARGE CONCRETE OR CEMENT SLURRY FROM THE SITE.
2. DISPOSE OF, OR RECYCLE SETTLED, HARDENED CONCRETE RESIDUE IN ACCORDANCE WITH LOCAL AND STATE SOLID WASTE REGULATIONS AND AT AN APPROVED FACILITY.
3. MANAGE WASHOUT FROM MORTAR MIXERS IN ACCORDANCE WITH THE ABOVE ITEM AND IN ADDITION PLACE THE MIXER AND ASSOCIATED MATERIALS ON IMPERVIOUS BARRIER AND WITHIN LOT PERIMETER SILT FENCE.
4. INSTALL TEMPORARY CONCRETE WASHOUTS PER LOCAL REQUIREMENTS, WHERE APPLICABLE. IF AN ALTERNATE METHOD OR PRODUCT IS TO BE USED, CONTACT YOUR APPROVAL AUTHORITY FOR REVIEW AND APPROVAL. IF LOCAL STANDARD DETAILS ARE NOT AVAILABLE, USE ONE OF THE TWO TYPES OF TEMPORARY CONCRETE WASHOUTS PROVIDED ON THIS DETAIL.
5. DO NOT USE CONCRETE WASHOUTS FOR DEWATERING OR STORING DEFECTIVE CURB OR SIDEWALK SECTIONS. STORMWATER ACCUMULATED WITHIN THE WASHOUT MAY NOT BE PUMPED INTO OR DISCHARGED TO THE STORM DRAIN SYSTEM OR RECEIVING SURFACE WATERS. LIQUID WASTE MUST BE PUMPED OUT AND REMOVED FROM PROJECT.
6. LOCATE WASHOUTS AT LEAST 50 FEET FROM STORM DRAIN INLETS AND SURFACE WATERS UNLESS IT CAN BE SHOWN THAT NO OTHER ALTERNATIVES ARE REASONABLY AVAILABLE. AT A MINIMUM, INSTALL PROTECTION OF STORM DRAIN INLET(S) CLOSEST TO THE WASHOUT WHICH COULD RECEIVE SPILLS OR OVERFLOW.
7. LOCATE WASHOUTS IN AN EASILY ACCESSIBLE AREA, ON LEVEL GROUND AND INSTALL A STONE ENTRANCE PAD IN FRONT OF THE WASHOUT. ADDITIONAL CONTROLS MAY BE REQUIRED BY THE APPROVING AUTHORITY.
8. INSTALL AT LEAST ONE SIGN DIRECTING CONCRETE TRUCKS TO THE WASHOUT WITHIN THE PROJECT LIMITS. POST SIGNAGE ON THE WASHOUT ITSELF TO IDENTIFY THIS LOCATION.
9. REMOVE LEAVINGS FROM THE WASHOUT WHEN AT APPROXIMATELY 75% CAPACITY TO LIMIT OVERFLOW EVENTS. REPLACE THE TARP, SAND BAGS OR OTHER TEMPORARY STRUCTURAL COMPONENTS WHEN NO LONGER FUNCTIONAL. WHEN UTILIZING ALTERNATIVE OR PROPRIETARY PRODUCTS, FOLLOW MANUFACTURER'S INSTRUCTIONS.
10. AT THE COMPLETION OF THE CONCRETE WORK, REMOVE REMAINING LEAVINGS AND DISPOSE OF IN AN APPROVED DISPOSAL FACILITY. FILL PIT, IF APPLICABLE, AND STABILIZE ANY DISTURBANCE CAUSED BY REMOVAL OF WASHOUT.
11. LOCATION SHALL BE COORDINATED WITH THE CLIENT.



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NC Firm License # F-0591



NOTES - 2  
RTF CULVERT REPLACEMENT  
DURHAM, NC

## REVISIONS

DESIGNED BY: IUS  
DRAWN BY: CWH  
CHECKED BY: CTC  
SCALE: NOT TO SCALE  
DATE: 2025-05-07  
PROJECT NUMBER: 5028585

## C2.1



TEMPORARY SEEDING SCHEDULE FOR LATE WINTER AND EARLY SPRING		
DATES	SPECIES	RATE (LB/ACRE)
JAN 1 - MAY 1	LOLIUM PERENNE SEED (PERENNIAL RYEGRASS)	120
DATES	SPECIES	RATE (LB/ACRE)
AUG 15 - DEC 30	LOLIUM MULTIFLORUM SEED (ANNUAL RYEGRASS)	120
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 4000 LB/ACRE SMALL GRAIN STRAW AND TACK WITH ASPHALT.		
MAINTENANCE		
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.		

TEMPORARY SEEDING SCHEDULE FOR FALL		
DATES	SPECIES	RATE (LB/ACRE)
AUG 15 - DEC 30	LOLIUM PERENNE SEED (PERENNIAL RYEGRASS)	120
DATES	SPECIES	RATE (LB/ACRE)
AUG 15 - DEC 30	LOLIUM MULTIFLORUM SEED (ANNUAL RYEGRASS)	120
SOIL AMENDMENTS		
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1000 LB/ACRE 10-10-10 FERTILIZER.		
MULCH		
APPLY 4000 LB/ACRE SMALL GRAIN STRAW AND TACK WITH ASPHALT.		
MAINTENANCE		
REPAIR AND REFERTILIZE AND RESEED 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 LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.		
SPECIES NOTE		
CONTRACTOR TO USE THE SPECIES ABOVE OR ALTERNATES AS APPROVED BY DURHAM COUNTY.		

TEMPORARY SEEDING SCHEDULE FOR SUMMER		
DATES	SPECIES	RATE (LB/ACRE)
MAY 1 - APR 15	SETARIA ITALICA SEED (GERMAN MILLET)	40
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 4000 LB/ACRE SMALL GRAIN STRAW AND TACK WITH ASPHALT.		
MAINTENANCE		
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.		

PERMANENT SEEDING SCHEDULE FOR GRASS-LINED CHANNELS		
DATES	SPECIES	RATE (LB/ACRE)
AUG 31 - OCT 31	PANICUM VIRGATUM SEED (SWITCHGRASS)	10
AUG 15 - OCT 31	CYNODON DACTYLON SEED (HULLED COMMON BERMUDA)	50
NURSE PLANTS		
PRIOR TO MAY 1 OR AFTER AUG 15, ADD 40 LB/ACRE RYE (GRAIN).		
SOIL AMENDMENTS		
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1000 LB/ACRE 10-10-10 FERTILIZER. OPERATE TILLAGE EQUIPMENT ACROSS THE WATERWAY.		
MULCH		
USE A ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF CHANNELS AND DITCHES AND STAPLE SECURELY. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW.		
MAINTENANCE		
INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR. FOLLOW RECOMMENDATIONS OF SOIL TESTS OR USE 150 LB/ACRE OF 10-10-10. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.		
SPECIES NOTE		
CONTRACTOR TO USE THE SPECIES ABOVE OR ALTERNATES AS APPROVED BY DURHAM COUNTY.		

PERMANENT SEEDING SCHEDULE FOR AREAS OTHER THAN CHANNELS		
SPECIES	RATE (LB/ACRE)	
PANICUM VIRGATUM SEED (SWITCHGRASS)	3:1 AND STEEPER SLOPES 10	SLOPES FLATTER THAN 3:1 10
CYNODON DACTYLON SEED 40 (HULLED COMMON BERMUDA)		40
NURSE PLANTS		
PRIOR TO MAY 1 OR AFTER AUG 15, ADD 40 LB/ACRE RYE (GRAIN).		
SEEDING DATES		
BEST	POSSIBLE	
AUG 25 - SEP 15	AUG 20 - OCT 25	
FEB 15 - MAR 21	FEB 1 - APR 15	
SWITCHGRASS ADAPTS TO A WIDE RANGE OF SOILS AND WEATHER CONDITIONS. IT GROWS WITHIN A FEW WEEKS. BERMUDA GRASS IS COMMONLY USED FOR LANDSCAPING. BERMUDA GRASS SEED CAN BE PLANTED IN COOLER MONTHS. HULLED BERMUDA GRASS IS GOOD FOR REPAIRING DAMAGED AREA		
SOIL AMENDMENTS		
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1000 LB/ACRE 10-10-10 FERTILIZER.		
MULCH		
APPLY 4,000-5,000 LB/ACRE GRAIN STRAW. ANCHOR BY TACKING WITH ASPHALT. ON SLOPE 3:1 OR STEEPER ANCHOR STRAW WITH NETTING.		
MAINTENANCE		
REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. REFERTILIZE, RESEED AND MULCH DAMAGED AREAS IMMEDIATELY.		
SPECIES NOTE		
CONTRACTOR TO USE THE SPECIES ABOVE OR ALTERNATES AS APPROVED BY DURHAM COUNTY.		

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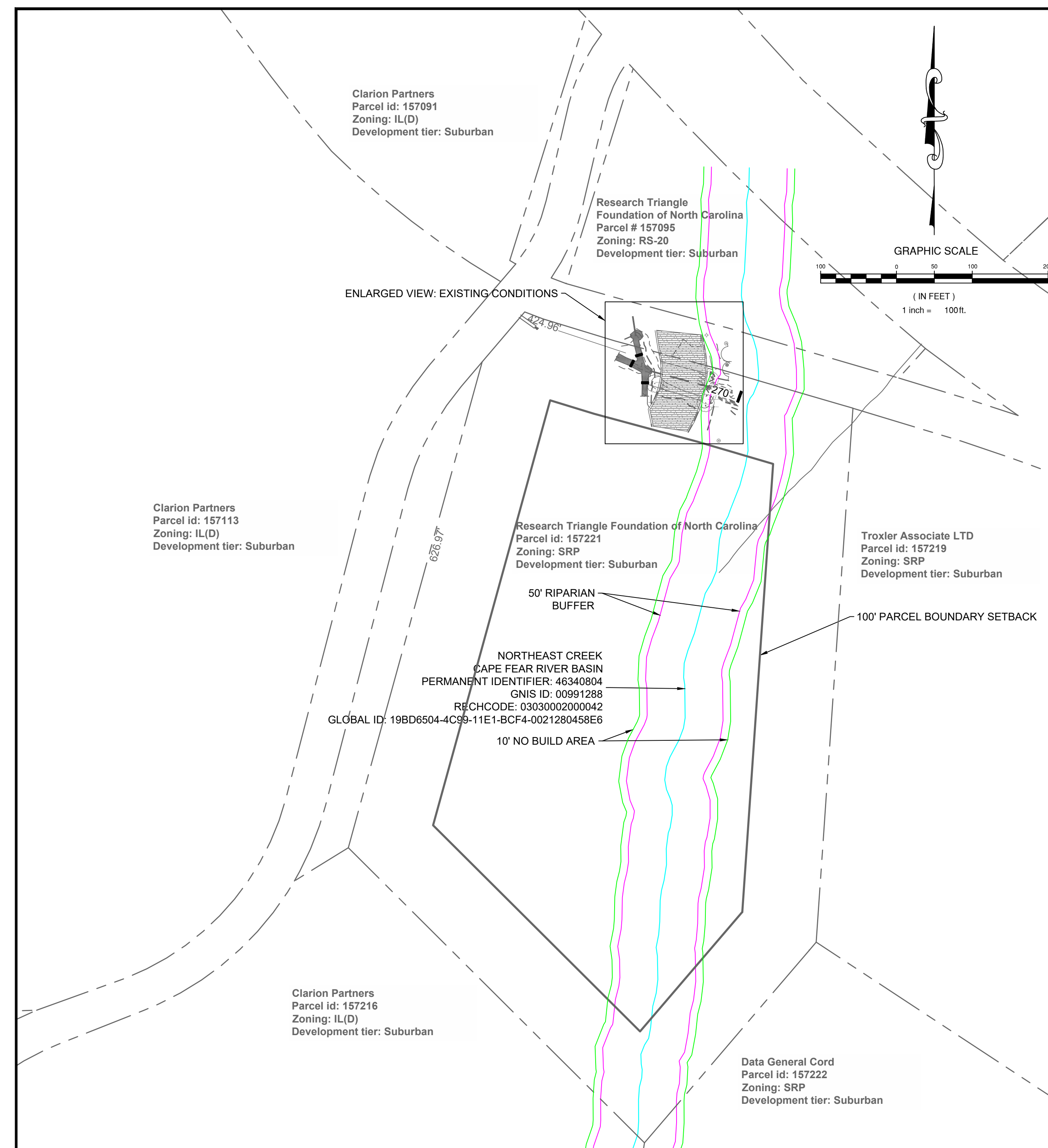
LANDSCAPE NOTES  
RTF CULVERT REPLACEMENT  
DURHAM, NC

REVISIONS

DESIGNED BY:	IJS
DRAWN BY:	CWH
CHECKED BY:	CTC
SCALE:	NOT TO SCALE
DATE:	2025-05-07
PROJECT NUMBER:	5028585

C2.2





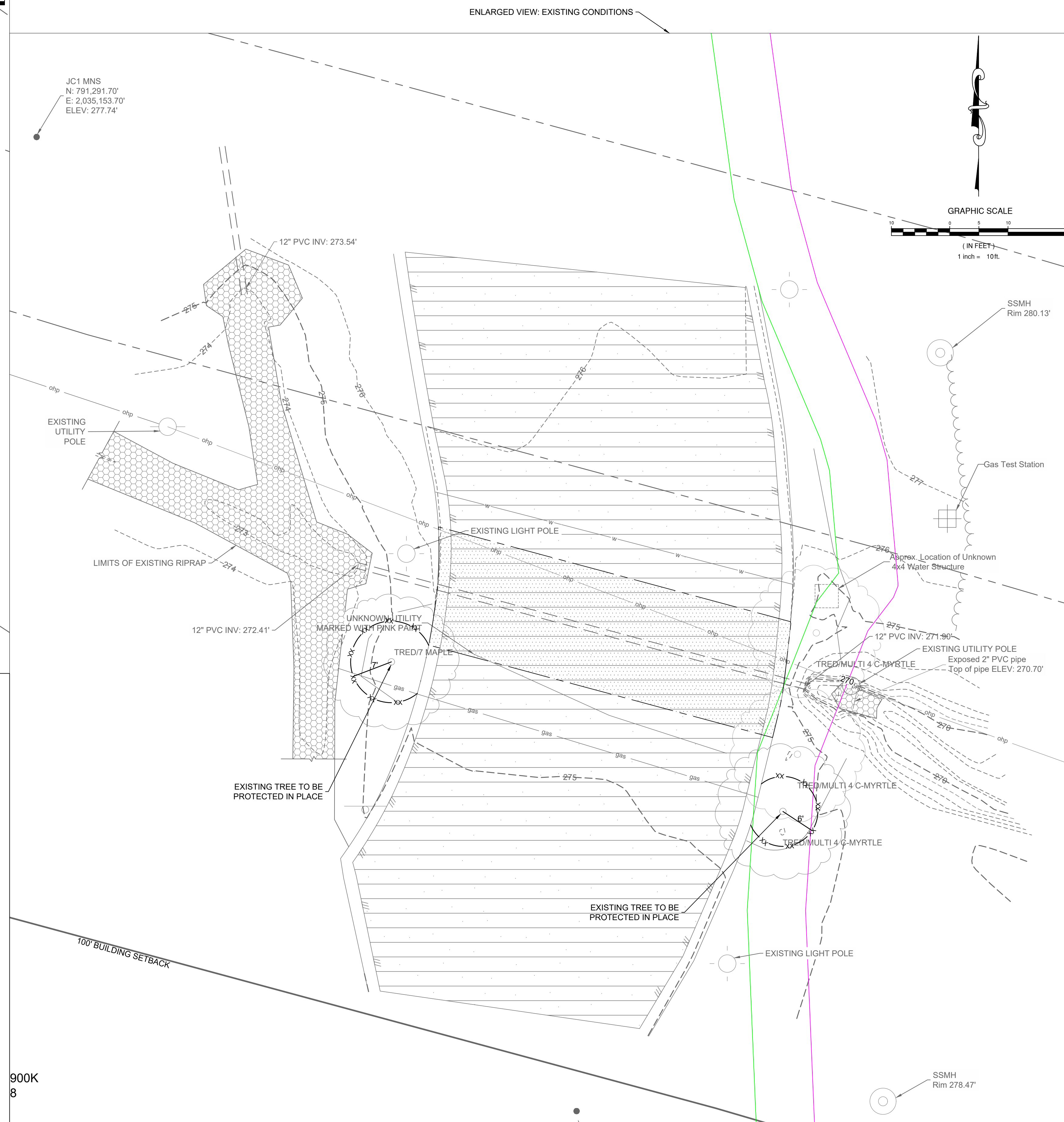
### LEGEND

EXISTING CONTOURS  
EXISTING PIPE  
ASPHALT PAVEMENT  
EXISTING RIPRAP  
OVERHEAD POWER  
GAS PIPING  
UNKNOWN UTILITY  
WATER LINE  
PROPERTY LINE  
TREE PROTECTION

SITE SIZE:  
SETBACKS/BUILD-TO LINES:

FLOOD HAZARD AREA:  
BFE:  
FIRM PANEL NO.:  
FIRM PANEL DATE:  
OVERLAY ZONING:

9,309 sq. ft.  
100' PARCEL BOUNDARY  
50' BUFFER  
10' NO BUILD BUFFER  
AE  
278.5  
37200073900K  
10/19/2018  
NONE AT SITE OR ADJACENT  
PARCELS



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EXISTING CONDITION  
RTF CULVERT REPLACEMENT  
DURHAM, NC

## REVISIONS

DESIGNED BY:	IUS
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PROJECT NUMBER:	5028585

C3.0

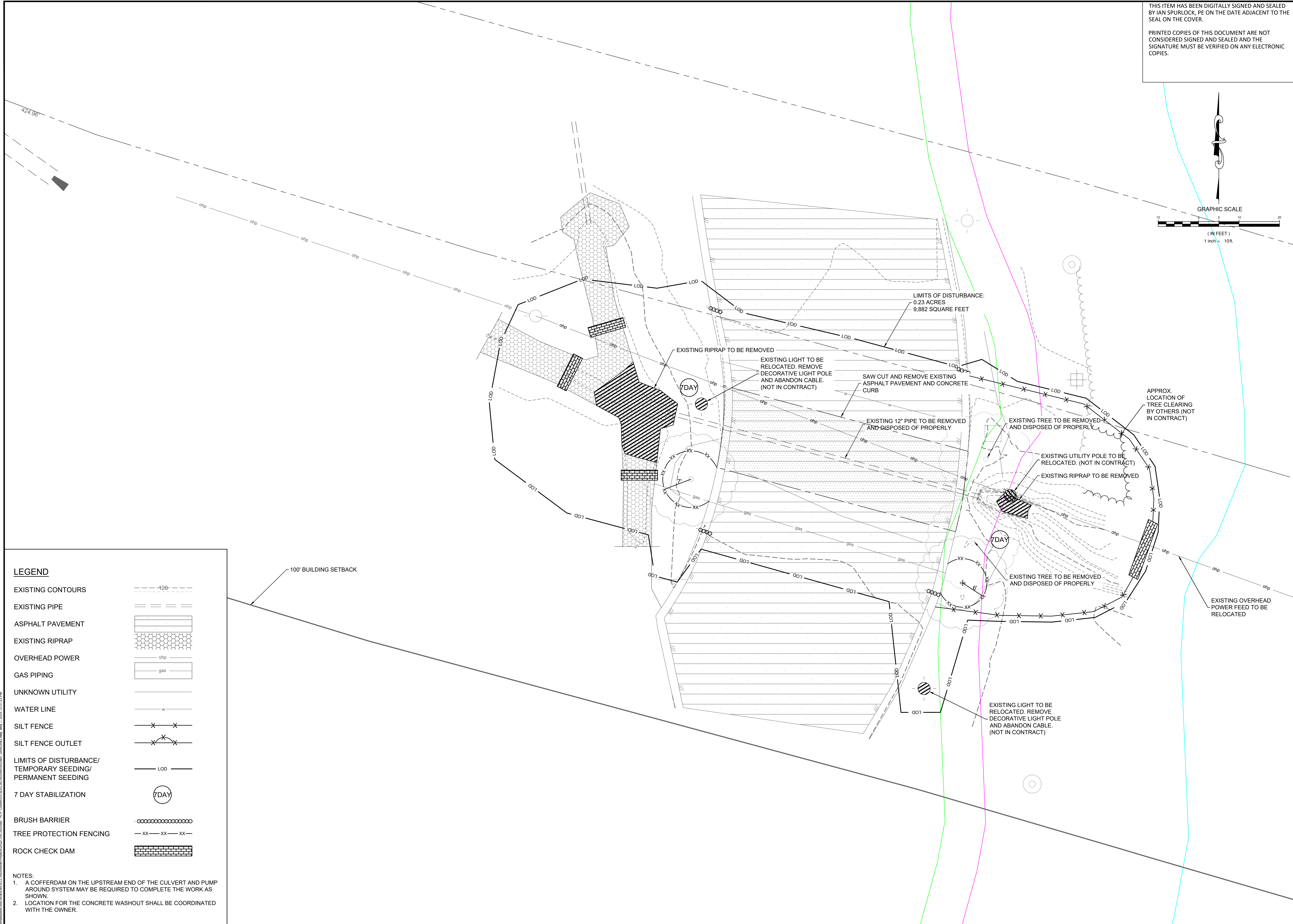


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LEGEND

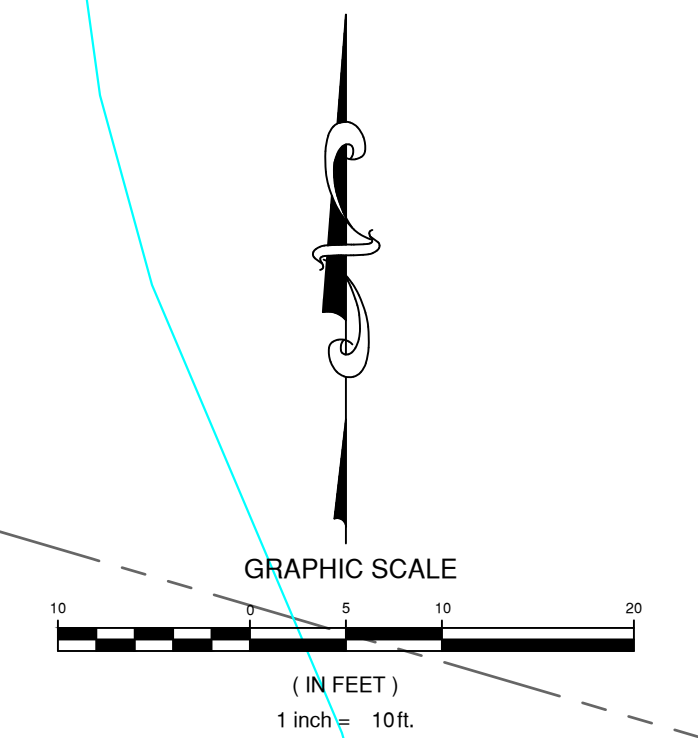
EXISTING CONTOURS	
EXISTING PIPE	
ASPHALT PAVEMENT	
EXISTING RIPRAP	
OVERHEAD POWER	
GAS PIPING	
UNKNOWN UTILITY	
WATER LINE	
SILT FENCE	
SILT FENCE OUTLET	
LIMITS OF DISTURBANCE/ TEMPORARY SEEDING/ PERMANENT SEEDING	
7 DAY STABILIZATION	
BRUSH BARRIER	
TREE PROTECTION FENCING	
ROCK CHECK DAM	

- NOTES:
1. A COFFERDAM ON THE UPSTREAM END OF THE CULVERT AND PUMP AROUND SYSTEM MAY BE REQUIRED TO COMPLETE THE WORK AS SHOWN.
  2. LOCATION FOR THE CONCRETE WASHOUT SHALL BE COORDINATED WITH THE OWNER.



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EROSION CONTROL & DEMOLITION PLAN  
RTF CULVERT REPLACEMENT  
DURHAM, NC

REVISIONS

DESIGNED BY:	IUS
DRAWN BY:	CWH
CHECKED BY:	CTC
SCALE:	1" = 10'
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C4.0





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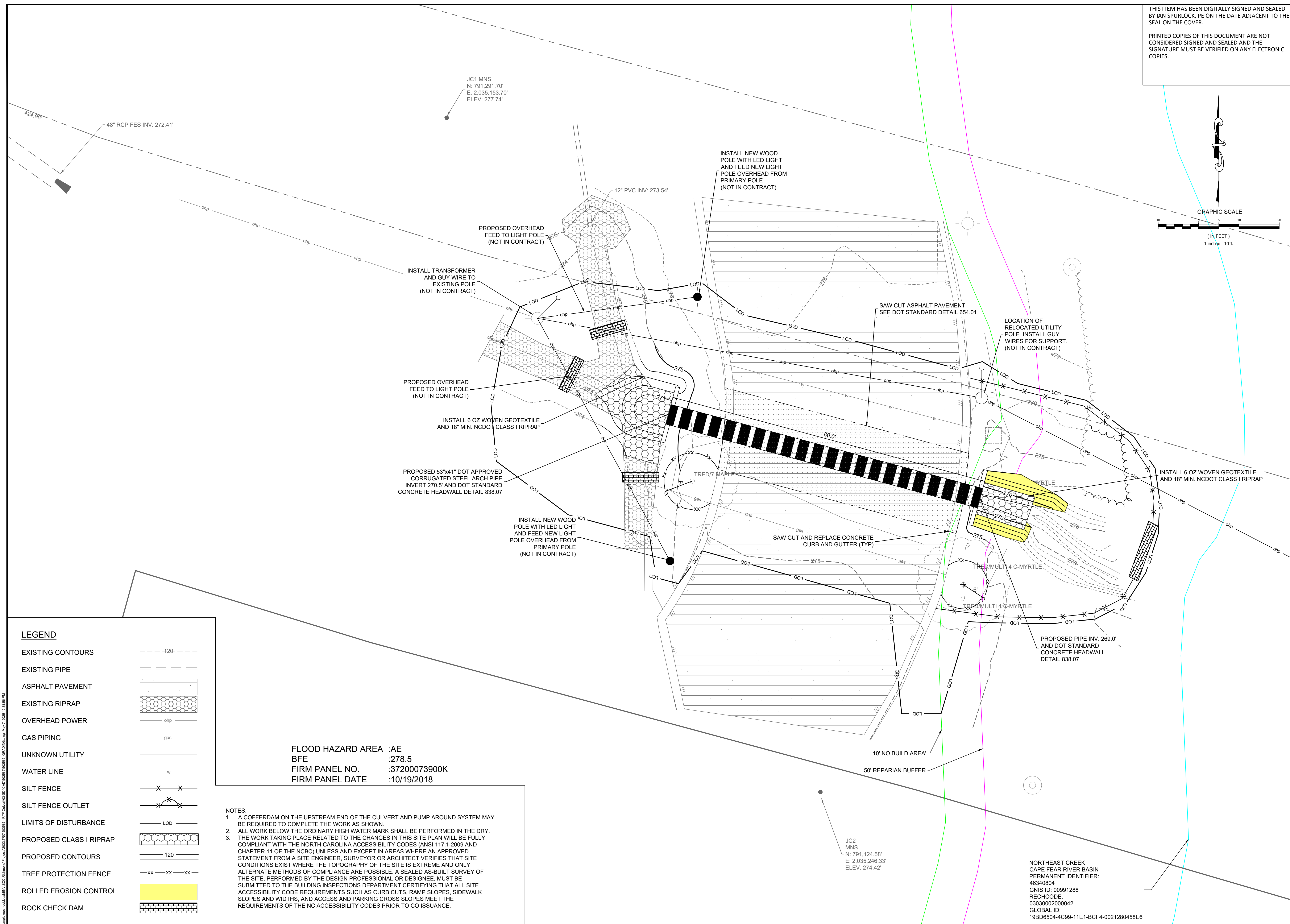


GRADING & DRAINAGE PLAN  
RTF CULVERT REPLACEMENT  
DURHAM, NC

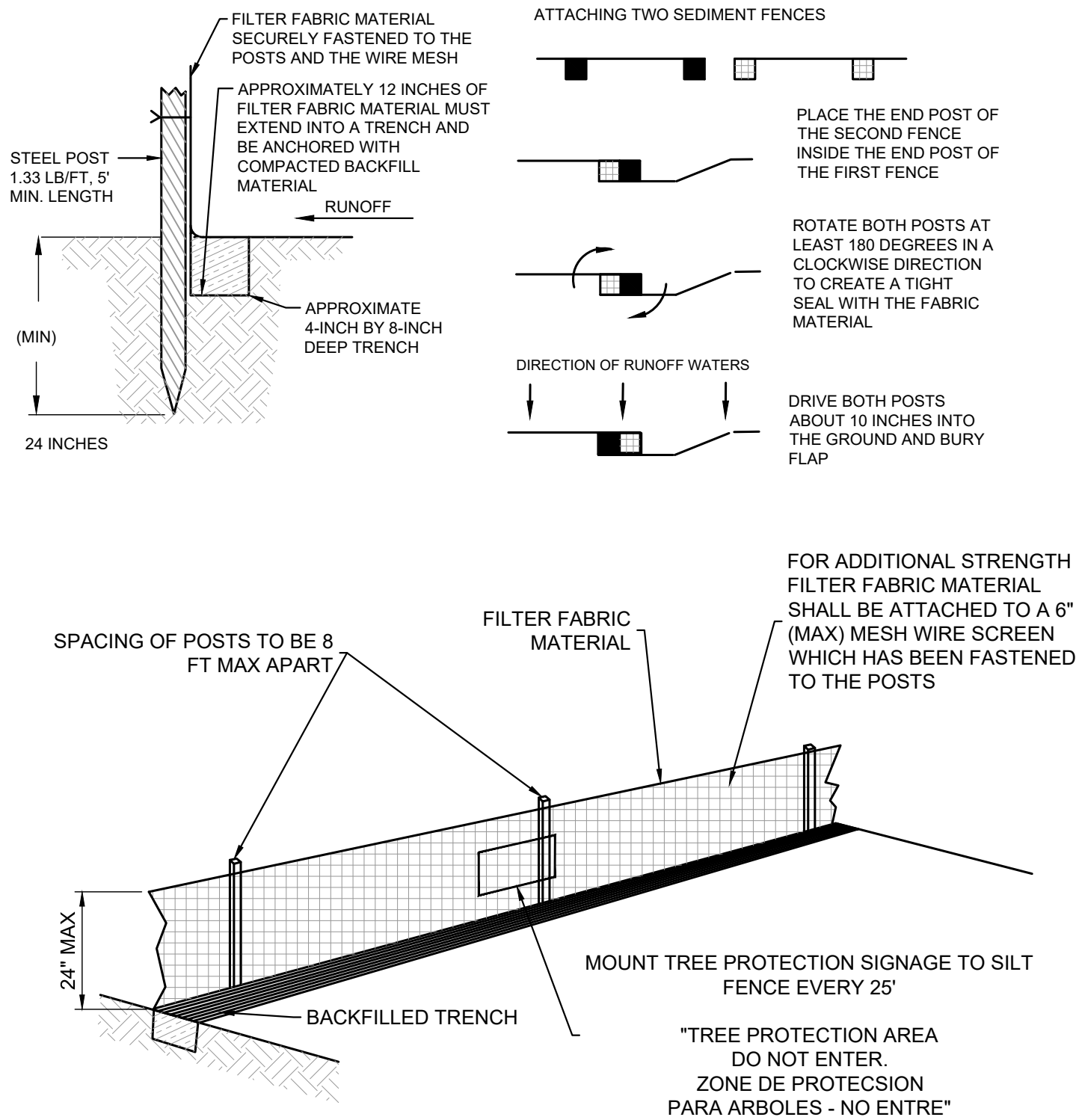
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**C5.0**







#### MATERIALS

- USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461, WHICH IS SHOWN IN PART IN TABLE 6.62B. SYNTHETIC FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120° F.
- ENSURE THAT POSTS FOR SEDIMENT FENCES ARE 1.33 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 5 FEET. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.
- FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6 INCHES.

#### CONSTRUCTION

- CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
- ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.)
- CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH A 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
- SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
- WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
- EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
- EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER (FIGURE 6.62A).
- PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
- BACKFILL THE TRENCH WITH COMPACTED SOIL PLACED OVER THE FILTER FABRIC. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
- DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

#### SEDIMENT FENCE INSTALLATION USING THE SLICING METHOD

INSTEAD OF EXCAVATING A TRENCH, PLACING FABRIC AND THEN BACKFILLING TRENCH, SEDIMENT FENCE MAY BE INSTALLED USING SPECIALLY DESIGNED EQUIPMENT THAT INSERTS THE FABRIC INTO A CUT SLICED IN THE GROUND WITH A DISC.

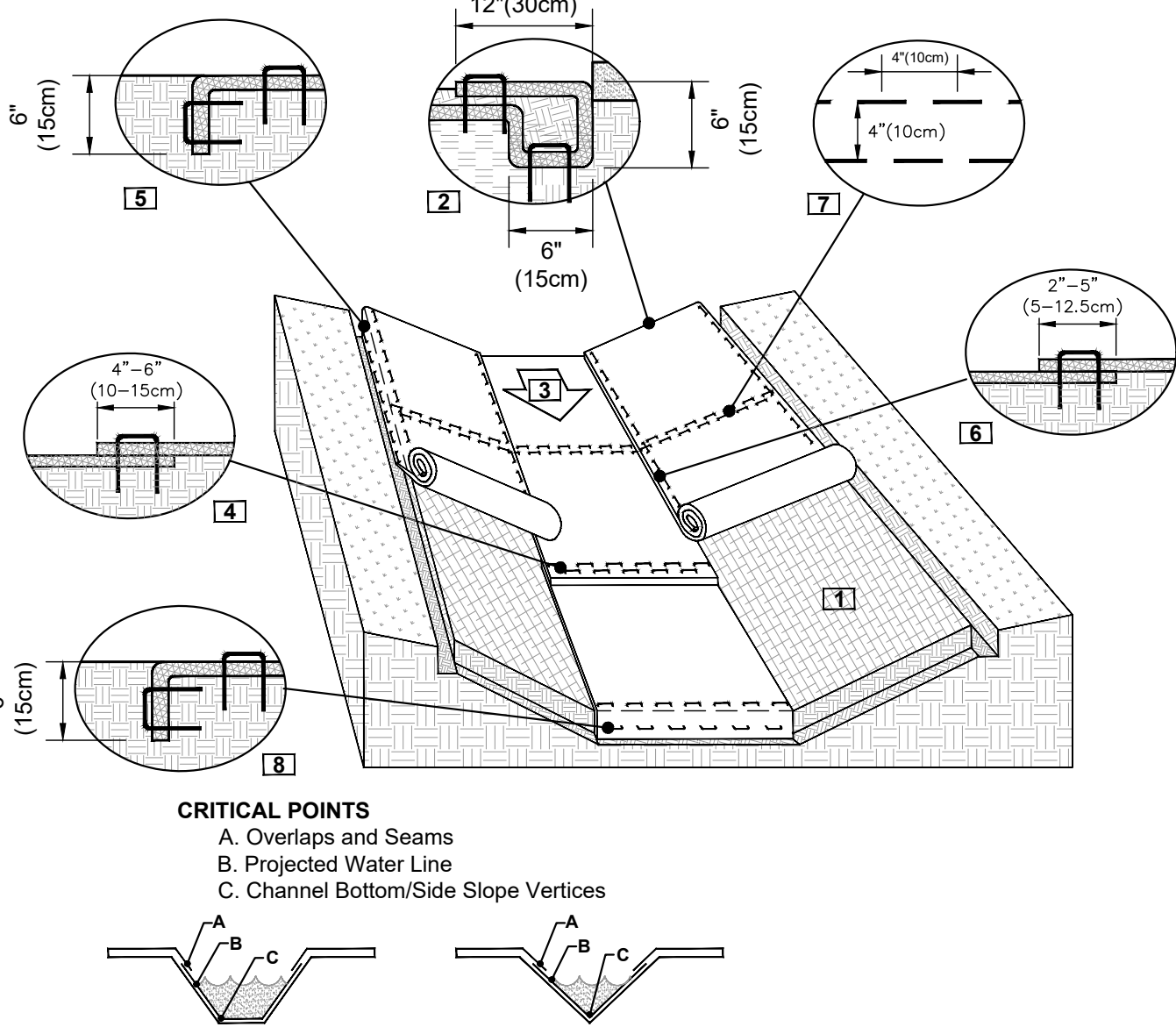
#### INSTALLATION SPECIFICATIONS

- THE BASE OF BOTH END POSTS SHOULD BE AT LEAST ONE FOOT HIGHER THAN THE MIDDLE OF THE FENCE. CHECK WITH A LEVEL IF NECESSARY.
- INSTALL POSTS 4 FEET APART IN CRITICAL AREAS AND 6 FEET APART ON STANDARD APPLICATIONS.
- INSTALL POSTS 2 FEET DEEP ON THE DOWNSTREAM SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC, ENABLING POSTS TO SUPPORT THE FABRIC FROM UPSTREAM WATER PRESSURE.
- INSTALL POSTS WITH THE NIPPLES FACING AWAY FROM THE SILT FABRIC.
- ATTACH THE FABRIC TO EACH POST WITH THREE TIES, ALL SPACED WITHIN THE TOP 8 INCHES OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1 INCH VERTICALLY APART. ALSO, EACH TIE SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENED TO PREVENT SAGGING.
- WRAP APPROXIMATELY 6 INCHES OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
- NO MORE THAN 24 INCHES OF A 30 INCH FABRIC IS ALLOWED ABOVE GROUND LEVEL.
- THE INSTALLATION SHOULD BE CHECKED FOR ANY DEVIATIONS BEFORE COMPACTION.
- COMPACTION IS VITALLY IMPORTANT FOR EFFECTIVE RESULTS. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEAST 60 POUNDS PER SQUARE INCH. COMPACT THE UPSLOPE SIDE FIRST, AND THEN EACH SIDE TWICE FOR A TOTAL OF 4 TRIPS.

#### MAINTENANCE

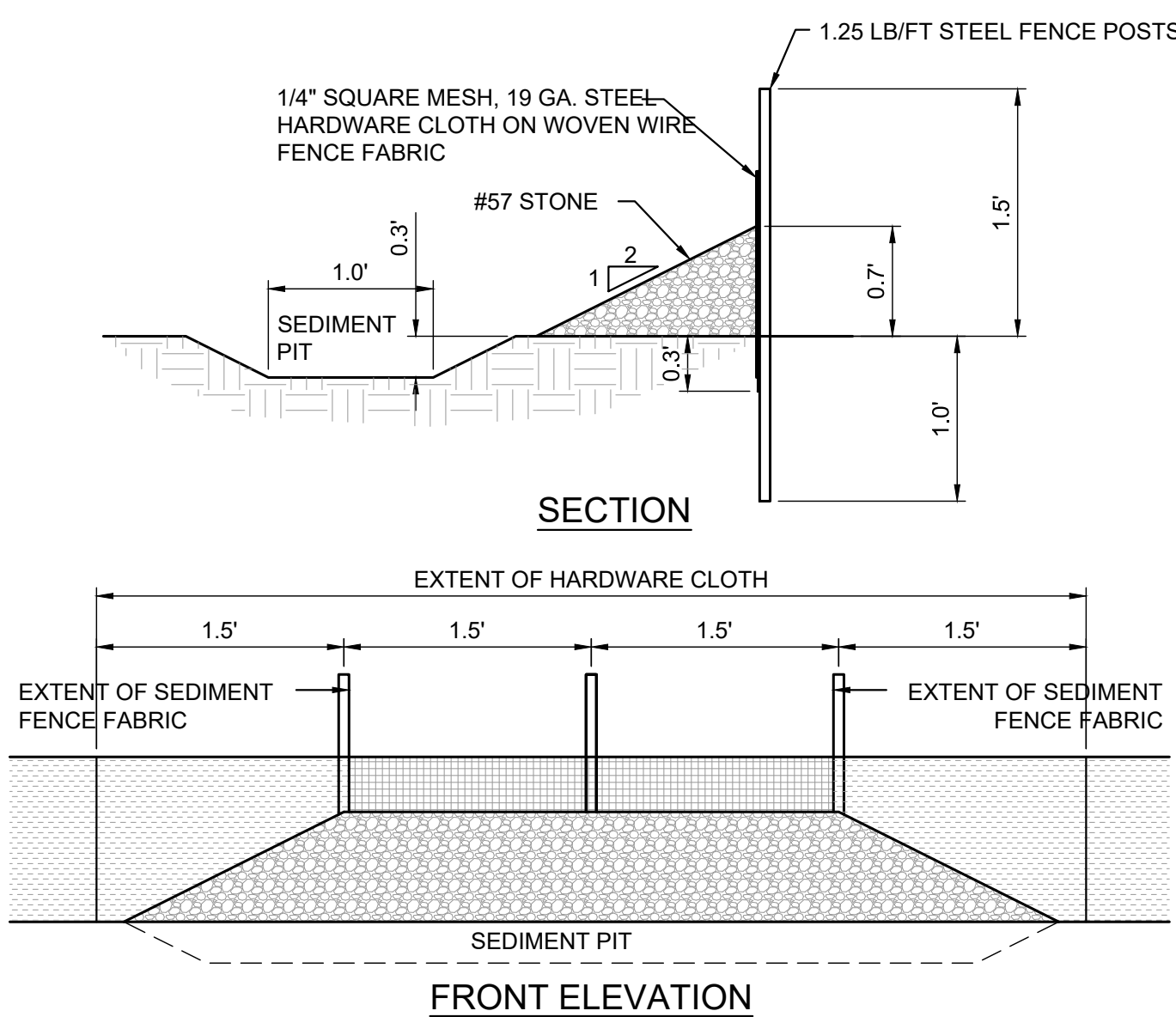
- INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
- SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
- REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE 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.

6.62 SEDIMENT FENCE  
C4.0 C6.0 NOT TO SCALE



NOTES:  
\*Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.  
\*\*In loose soil conditions, the use of staple or stake lengths greater than 6\"/>

6.81 ROLLED EROSION CONTROL PRODUCTS  
C5.0 C6.0 NOT TO SCALE



#### SPECIFICATIONS

- REFER TO THE APPROVED EROSION CONTROL PLAN FOR LOCATION OF THE OUTLET BEFORE COMPLETING INSTALLATION OF THE SILT FENCE.

#### MAINTENANCE

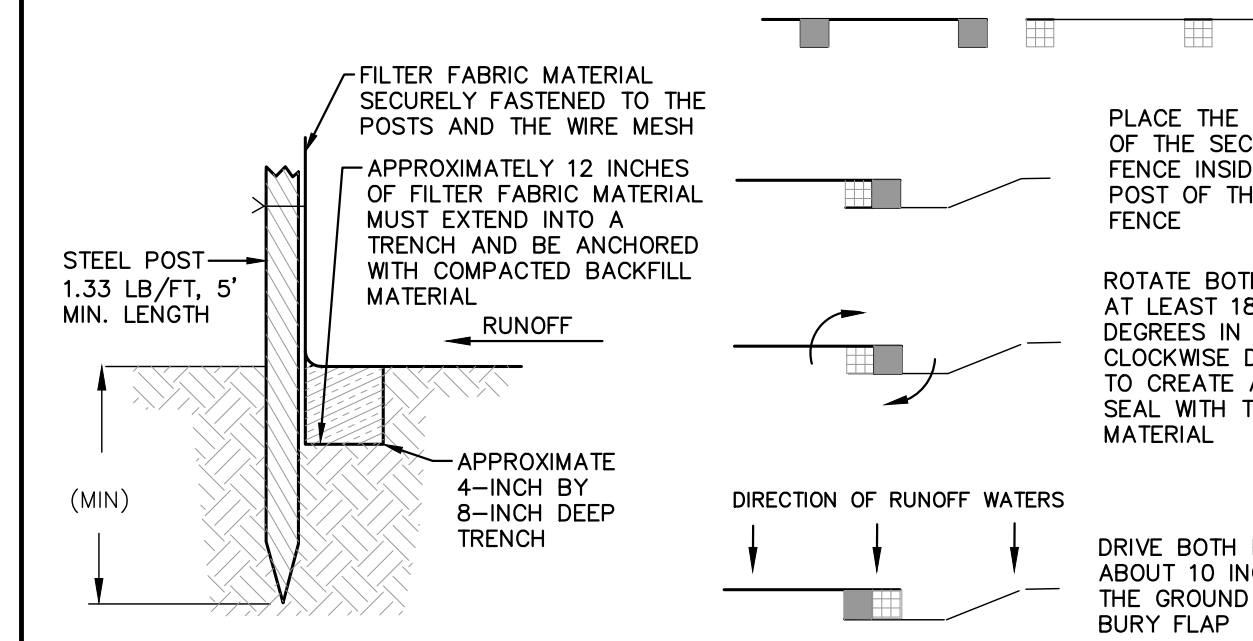
- INSPECT THE SEDIMENT FENCE OUTLET AFTER EACH SIGNIFICANT RAINFALL EVENT. REPAIR ANY EROSION AND PIPING HOLES IMMEDIATELY.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH; A STAKE SET AT THE CLEANOUT LEVEL IS HELPFUL.
- CLEAN OR REPLACE STONE IF CLOGGED. REPLACE ANY STONE DISLODGED.
- AFTER ALL SEDIMENT PRODUCING AREAS HAVE BEEN STABILIZED, INSPECTED, AND APPROVED, REMOVE THE STRUCTURE AND ALL UNSTABLE SEDIMENT. SMOOTH SITE TO BLEND WITH ADJOINING AREAS AND STABILIZE.

6.88 SEDIMENT FENCE OUTLET  
C4.0 C6.0 NOT TO SCALE

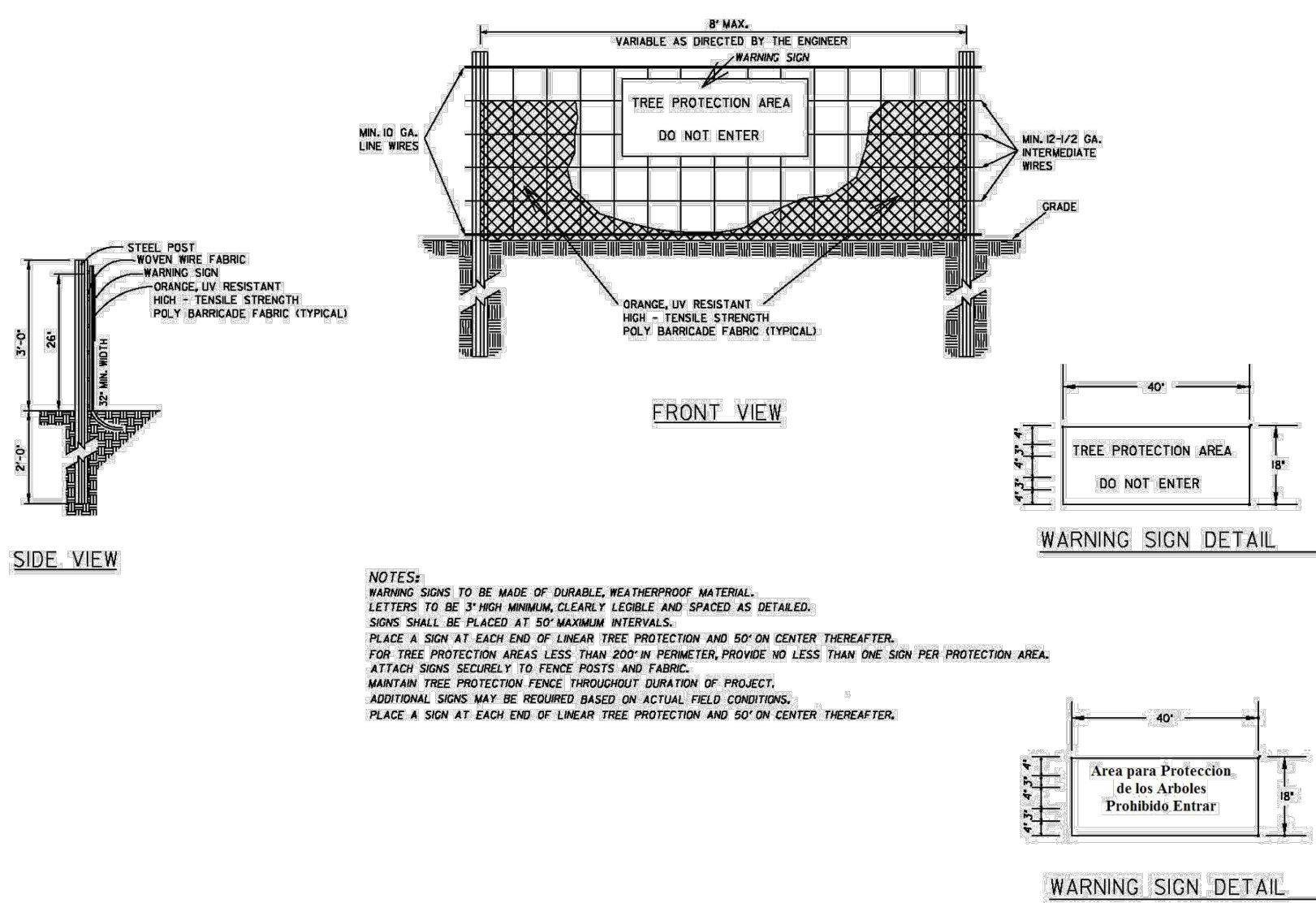
- NOTES:
- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
  - BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECPs IN A 6\"/>
  - ROLL CENTER RECPs IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECPs WILL 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.
  - PLACE CONSECUTIVE RECPs END-OVER-END (SHINGLE STYLE) WITH A 4\"/>
  - FIELD LENGTH EDGE OF RECPs AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12\"/>
  - ADJACENT RECPs MUST BE OVERLAPPED APPROXIMATELY 2\"/>
  - IN HIGH FLOW CHANNEL APPLICATIONS A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 -12M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4\"/>
  - THE TERMINAL END OF THE RECPs MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12\"/>

#### MAINTENANCE

- INSPECT ROLLED EROSION CONTROL PRODUCTS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL 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.



6.64 ATTACHING TWO SEDIMENT FENCES  
C4.0 C6.0 NOT TO SCALE



NOTES:  
WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3\"/>



EROSION CONTROL DETAIL  
DURHAM COUNTY, NC  
ENGINEERING DEPARTMENT

TREE PROTECTION DETAIL

DATE 02-09 ID TP-1



TRC ENGINEERS, INC.  
11-6501 North Hills Road, Suite 200  
Durham, NC 27711 919-927-9864  
NC Firm License # F-0591



EROSION CONTROL DETAILS  
RTF CULVERT REPLACEMENT  
DURHAM, NC

#### REVISIONS

DESIGNED BY: IUS  
DRAWN BY: CWH  
CHECKED BY: CTC  
SCALE: NOT TO SCALE  
DATE: 2025-05-07  
PROJECT NUMBER: 5028585

C6.0



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

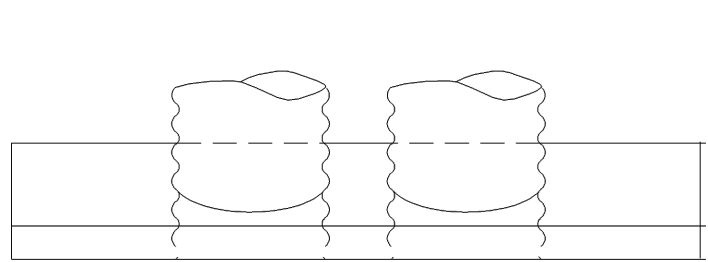
7-06

ENGLISH STANDARD DRAWING FOR  
CONCRETE ENDWALL FOR SINGLE  
AND DOUBLE PIPE CULVERTS

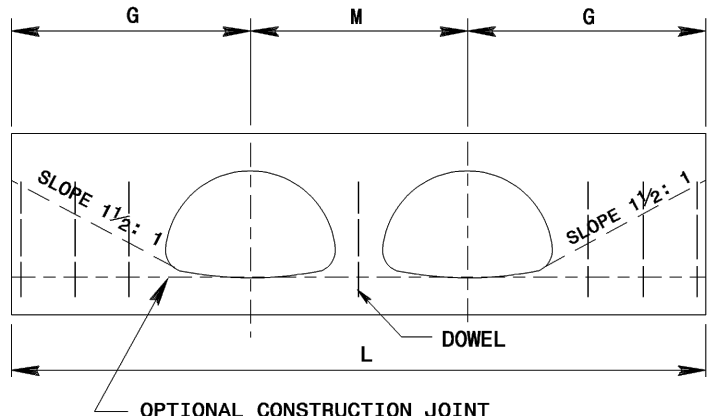
40" X 31" THRU 66" X 51" PIPE ARCH 3" X 1" CORRUGATIONS - 90° SKEW

SHEET 1 OF 1

838.07



PLAN



ELEVATION

		DOWELS IN ENDWALL							
LOG.	PIPE SPAN	SINGLE PIPE				DOUBLE PIPE			
		40"	46"	53"	60"	40"	46"	53"	60"
BARS	"X"	"X"	"X"	"X"	"X"	"X"	"X"	"X"	"X"
G QTY.	4	4	4	5	5	4	4	4	5
M QTY.	-	-	-	-	-	1	2	2	2
W QTY.	4	4	4	5	5	4	5	5	5
TOT. LBS.	19	19	19	23	23	21	23	23	28

DIMENSIONS AND CONCRETE QUANTITIES											
COMMON DIMENSIONS USING C.S. PIPE ARCH											
SPAN	RISE	THICK.	H	B	G	M	SINGLE PIPE		DOUBLE PIPE		
							L	YD <sup>3</sup>	L	YD <sup>3</sup>	
40"	31"	0.079	4'-3"	2'-2"	8'-6"	4'-5"	11'-0"	2.179	15'-5"	2.648	
46"	36"	0.109	4'-8"	2'-4"	8'-3"	5'-1"	12'-6"	2.834	17'-7"	3.692	
53"	41"	0.109	5'-1"	2'-7"	7'-1"	5'-10"	14'-2"	3.742	20'-0"	4.668	
60"	46"	0.109	5'-6"	2'-9"	7'-11"	6'-10"	15'-10"	4.717	22'-8"	6.234	
66"	51"	0.109	5'-11"	3'-0"	8'-9"	7'-4"	17'-6"	5.968	24'-10"	7.759	

GENERAL NOTES:  
-CHAMFER ALL CORNERS 1". USE CLASS "B" CONCRETE.  
-PLACE 2 #6 "X" BARS IN THE TOP OF ALL ENDWALL FOR PIPE CULVERTS 42" AND OVER WITH A MINIMUM OF 3" COVER AND A LENGTH OF 6" LESS THAN ENDWALL LENGTH.  
-CONSTRUCT BOTTOM SLAB WITH FORMS.  
-WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE, PLACE BAR "X" DOWELS IN THE BASE AS SHOWN ON PLANS. SPACE BARS APPROXIMATELY ON 12" CENTERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
-WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE AND POUR THE BASE SEPARATELY LEAVE THE POUR ROUGH.  
-DO NOT INTERPRET WALL THICKNESS (T) SHOWN FOR THE THICKNESS ACCEPTABLE, BUT IS USED IN COMPUTING ENDWALL QUANTITIES.

FOOTING  
(IF CONST. JOINT IS USED)

END ELEVATION

DOWEL  
BAR - "X"

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

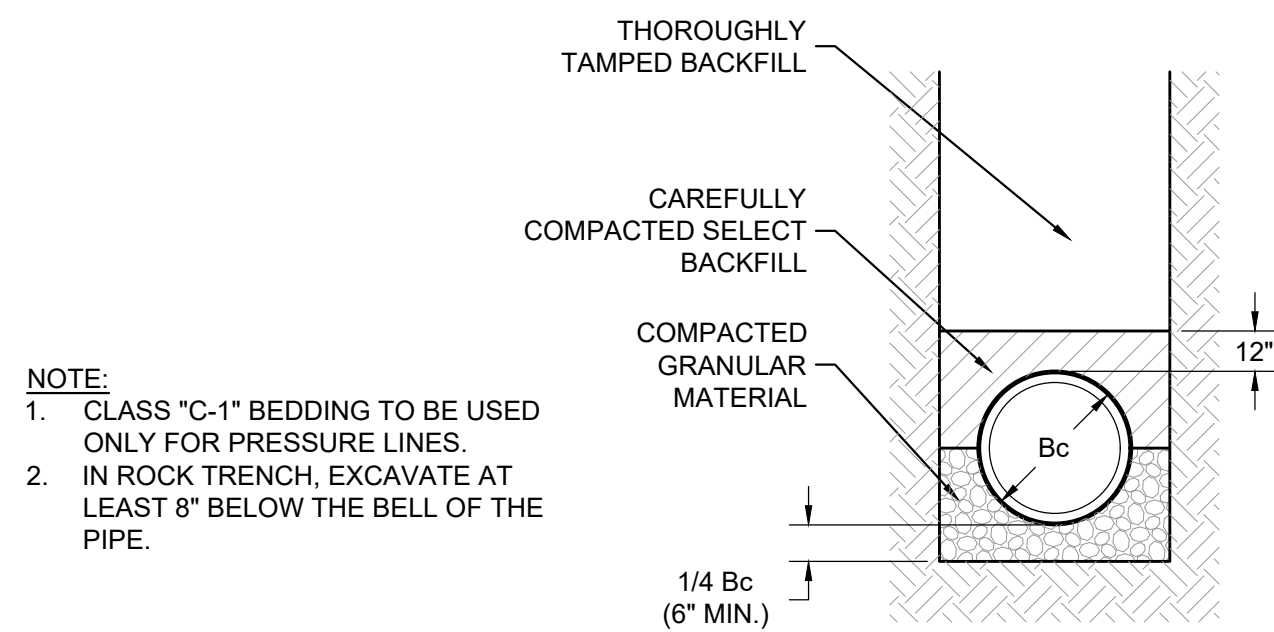
7-06

ENGLISH STANDARD DRAWING FOR  
CONCRETE ENDWALL FOR SINGLE  
AND DOUBLE PIPE CULVERTS

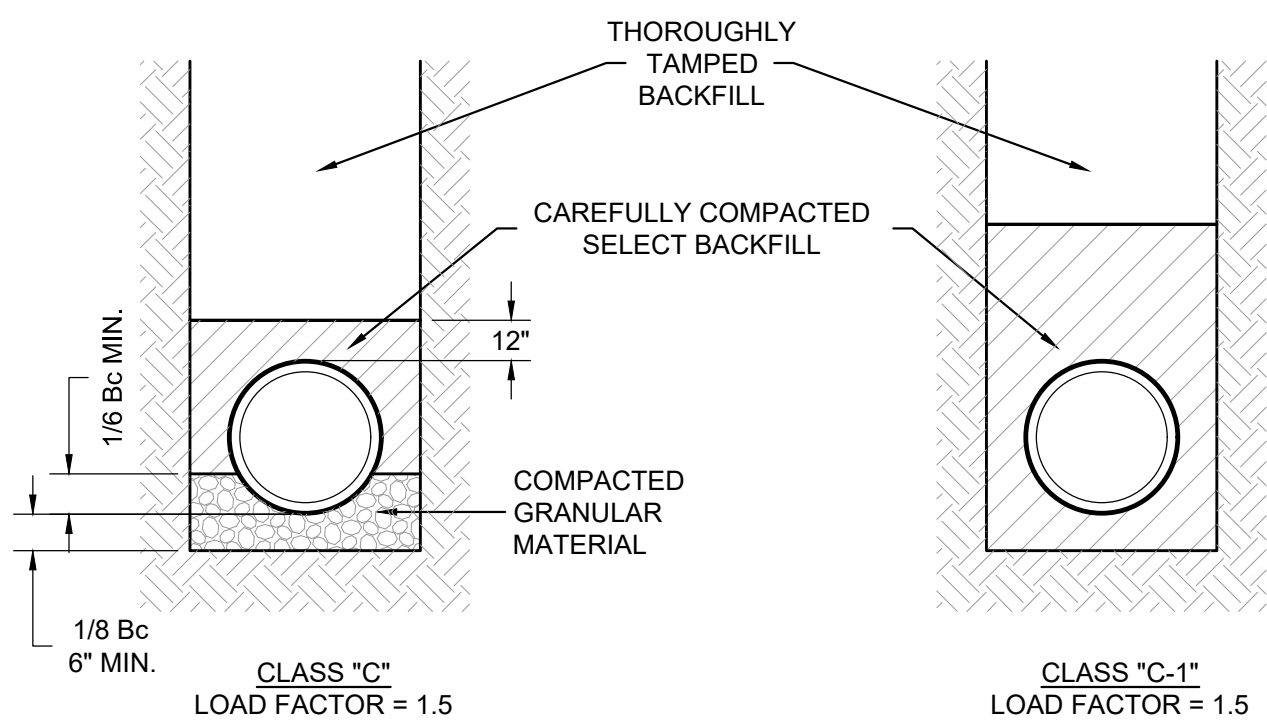
40" X 31" THRU 66" X 51" PIPE ARCH 3" X 1" CORRUGATIONS - 90° SKEW

SHEET 1 OF 1

838.07

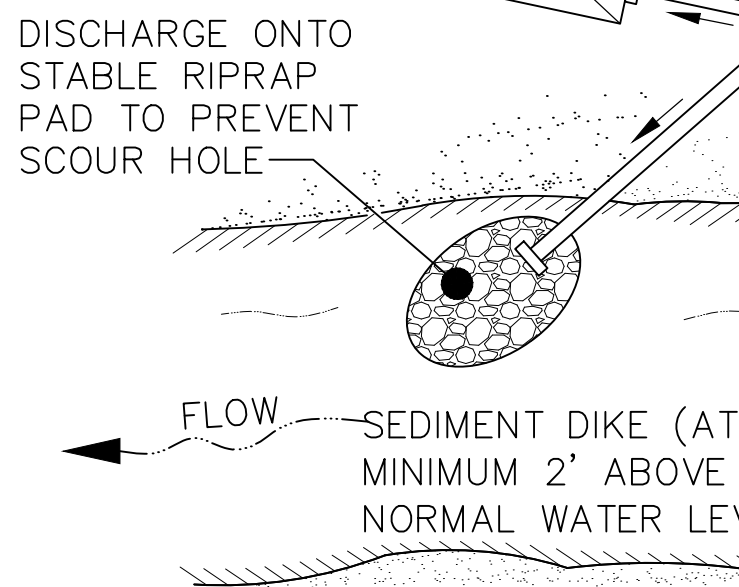


NOTE:  
1. CLASS "C-1" BEDDING TO BE USED ONLY FOR PRESSURE LINES.  
2. IN ROCK TRENCH, EXCAVATE AT LEAST 8" BELOW THE BELL OF THE PIPE.



4  
C5.0 C7.0  
PIPE BEDDING  
NOT TO SCALE

APPROVED SEDIMENT FILTERING DEVICE (SEDIMENT FILTER BAG). PROVIDE POSITIVE DRAINAGE FROM SEDIMENT FILTER BAG TO STREAM.



#### TEMPORARY PUMP AROUND SEQUENCE

1. SET UP PUMP WITH SUCTION AND DISCHARGE HOSE.
2. INSTALL UP-STREAM SANDBAG DAM.
3. INSTALL DOWN-STREAM SANDBAG DAM.
4. THE PUMP MUST RUN CONTINUOUSLY WHILE WORKING IN THE STREAM.
5. STREAMBANKS MUST BE STABILIZED AT THE END OF EACH DAY.

#### NOTES:

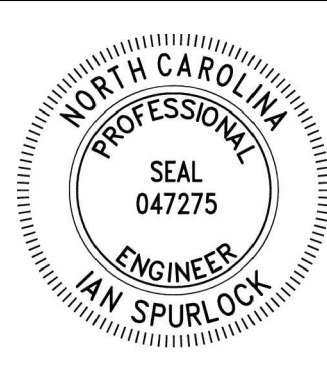
1. SANDBAG DIKES SHALL BE SITUATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE WORK AREA, AND STREAM FLOW SHALL BE PUMPED AROUND THE WORK AREA. THE PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATER CONSTRUCTED OF RIPRAP OR SANDBAGS.
2. WATER FROM THE WORK AREA SHALL BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A SEDIMENT BAG OR OTHER APPROVED DEVICE. THE MEASURE SHALL BE LOCATED SUCH THAT THE WATER DRAINS BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE WITHOUT CAUSING FURTHER EROSION BETWEEN THE SEDIMENT FILTER BAG AND THE STREAMBANK.

#### TEMPORARY PUMP AROUND

NOT TO SCALE

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY IAN SPURLOCK, PE ON THE DATE ADJACENT TO THE SEAL ON THE COVER.

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DURHAM, NC 27711 919.927.0864  
NC Firm License # F-0591



SITE DETAILS  
RTF CULVERT REPLACEMENT  
DURHAM, NC

REVISIONS

DESIGNED BY: IUS  
DRAWN BY: CWH  
CHECKED BY: CTC  
SCALE: NOT TO SCALE  
DATE: 2025-05-07  
PROJECT NUMBER: 5028585

C7.0