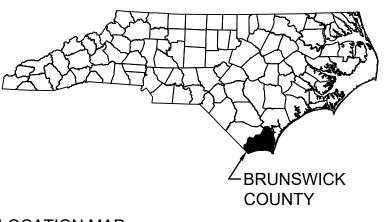
# **ISSUE FOR REVIEW & PERMITTING DRAWINGS** FOR HURRICANE FLORENCE EWP - ENGINEERING ASSISTANCE PREPARED BY LDSI, INC FOR KINSTON OFFICE: 1308 HIGHWAY 25 THE CITY OF BOILING SPRING LAKES



PROPERTY LOCATION LAT: 35° 01' 37.60"N"; LONG: 78° 04' 28.70"W. BRUNSWICK COUNTY, NORTH CAROLINA





LOCATION MAP NTS

# **PROJECT DESCRIPTION:**

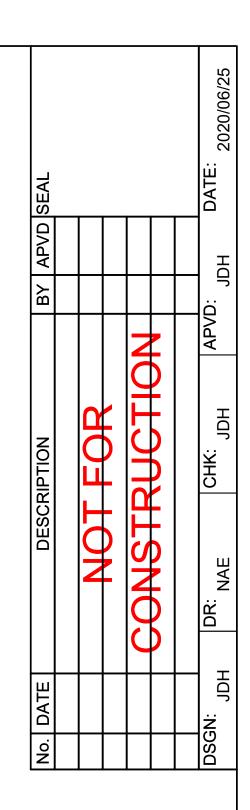
THIS PROJECT IS AN NRCS EMERGENCY WATERSHED PROTECTION PROJECT THAT FALLS UNDER 7 CFR PART 624. THE GOAL OF THIS PROJECT IS TO AVOID AND MINIMIZE ADVERSE EFFECTS TO THE WATERS OF THE UNITED STATES. THIS WILL BE ACHIEVED THROUGH DEBRIS REMOVAL, BANK STABILIZATION, STREAM RESTORATION, DAM REPAIR, AND POND BERM STABILIZATION ACROSS 9 SITES WITHIN BOILING SPRING LAKES. ALL 9 SITES WITHIN THIS PROJECT SHOULD EXPERIENCE POSITIVE ENVIRONMENTAL EFFECTS VIA WATER QUALITY ENHANCEMENTS, REDUCTION IN SEDIMENT TRANSPORT, FLOODPLAIN STABILIZATION, FLOOD ATTENUATION, STORMWATER STORAGE, AND IMPROVEMENTS IN THE HYDRAULIC PERFORMANCE OF CHANNELS AND STREAMS.







Sheet List Table				
SHEET # DESCRIPTION				
1 COVER SHEET				
2	GENERAL NOTES 1			
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4 GENERAL NOTES 3				
5	E&SC DETAILS			
6	080 - DAM ROAD E&SC LAYOUT			
7	081 - CHERRY ROAD E&SC LAYOUT			
8	082 - EAST BOILING SPRING ROAD AT PATRICIA LAKE E&SC LAYOUT			
9	083 - HUNTERS ROAD E&SC LAYOUT			
10	084 - N SHORE DRIVE E&SC LAYOUT			
11	085 - PINE LAKE ROAD E&SC LAYOUT			
12	191 - N SHORE DRIVE AT PATRICIA LAKE E&SC LAYOUT			
13	192 - ALLEN CREEK E&SC LAYOUT			
14	080 - MIDDLE DAM REPAIRS P&P			
15	081 - CHERRY ROAD P&P 0+00.00 - 7+50.00			
16	16 081 - CHERRY ROAD P&P 7+50.00 - 12+76.46			
17	082 - SHORELINE STABILIZATION PLAN VIEW			
18	083 - HUNTERS ROAD P&P 0+00.00 - 8+90.00			
19	083 - HUNTERS ROAD P&P 8+90.00 - 16+03.08			
20	084 - N SHORE DRIVE RISER BOX P&P			
21	085 - PINE LAKE ROAD P&P			
22	190 - RIVER ROAD CLEARING AND SNAGGING			
23	191 - N SHORE DRIVE AT PATRICIA LAKE P&P			
24	192 - ALLEN CREEK UPSTREAM P&P			
25	192 - ALLEN CREEK DOWNSTREAM P&P			
26	LOG V-DROP			
27	LOG SILL			
28	TYPICAL CROSS SECTIONS			
29	FLASHBOARD RISER			
30	SHORELINE STABILIZATION			



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1.	ENERAL PROJECT SPECIFICATION AND NOTES DEFINITIONS: 1.1. CONSTRUCTION DOCUMENTS: THE CONTRACT AND APPLICABLE PLAN SHEET(S), DETAILS, SPECIFICATIONS, PERMIT(S), AND/OR ANY OTHER DOCUMENTS (MEETING MINUTES, PUNCH LISTS, BID TABS, ETC.) FOR COMPLETE INFORMATION ABOUT THE REQUIRED WORK. ANY ONE	24.	THE PROPOSED ELEVATIONS AND GRADE ENCOMPASSES THE EXISTING GROUND S BASED. SLIGHT DISCREPANCIES BETWEEN CONDITIONS CAN RESULT IN VARIATIONS MATERIAL EXCAVATED SHOULD BE COMP MOVEMENT OF MATERIAL ACROSS THE SI
	OF THESE PARTS OF THE MAY NOT CONTAIN ALL OF THE INFORMATION REQUIRED TO COMPLETE THE PROJECT WORK. 1.2. PROJECT OWNER:CITY OF BOILING SPRING LAKES 1.3. ENGINEER: LDSI	25.	THE INTENT OF THE CHANNEL AND FLOOD BE ADJUSTED QUICKLY DURING CONSTRUCTION USING SURVEY GRADE G
2.	THE WORK ON THIS PROJECT SHALL ADHERE TO THE FOLLOWING SPECIFICATIONS, STANDARDS	STRE	AM RESTORATION SPECIFICATIONS AND N
	AND/OR REGULATIONS: 2.1. NC DEQ'S "EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL" (2013) 2.2. NC DOT'S "2018 STANDARD PROVISIONS" 2.3. NC DOT'S "2018 SPECIFICATIONS AND SPECIAL PROVISIONS" 2.4. UNITED STATES ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 27	26.	FIELD CONDITIONS AND PROJECT VARIAB DETAILS PROVIDED IN THE CONSTRUCTION NEEDS. MINOR VARIATION(S) OR ADAPTAT AND/OR DETAILS ARE CONSIDERED INCID
	2.4. UNITED STATES ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 27 2.5. THE CONSTRUCTION DOCUMENTS	27.	WHERE PRACTICABLE, EXISTING TREES A REGENERATION AND SOIL STABILIZATION
3.	NOT ALL EXISTING UTILITIES ARE SHOWN. SOME LOCATIONS MAY BE APPROXIMATE. THE	20	THE CONTRACTOR SHALL STAKE OUT THE
	CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATION AND COORDINATION. ANY UTILITIES SHOWN ON THE CONSTRUCTION DOCUMENTS ARE FOR INFORMATIONAL PURPOSES ONLY AND IN NO WAY RELIEVES THE CONTRACTOR FROM COORDINATING, VERIFYING AND PROTECTING EXISTING UTILITIES. THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF THE 1985 UNDERGROUND DAMAGE PREVENTION ACT, NORTH CAROLINA GENERAL STATUTES 887, CHAPTER 785, SENATE BILL 168, ARTICLE 3. TO ASSIST THE CONTRACTOR AND UTILITY OWNERS IN MEETING THE REQUIREMENTS		SECTIONS USING SURVEY GRADE GPS EC EXCAVATION AND GRADING. DEPENDING ALIGNMENT MAY BE NECESSARY. STAKING SURVEY-GRADE GPS IS USED TO CONSTR
	OF THIS LAW, THERE IS A "ONE-CALL SYSTEM" CALLED "NC ONECALL." MOST MAJOR UTILITIES WITH UNDERGROUND FACILITIES IN THE STATE SUBSCRIBE TO THIS SERVICE.	29.	PRIOR TO CLEARING AND GRUBBING, THE FOR VERIFICATION OF INTENT BY THE ENG BE REQUIRED TO PRESERVE TREES OR M
4.	AND DELIVERY/TRAFFIC SCHEDULING. ALL UTILITIES SHALL BE PROTECTED AND REMAIN ACTIVE	30.	ANY HARVESTING OF TREES FROM ONSIT
	UNLESS OTHERWISE NOTED.	31.	CONTRACTOR SHALL MINIMIZE, TO THE M
5.	THE CONTRACTOR IS RESPONSIBLE FOR THE PROJECT AREA UNTIL COMPLETION AND FINAL ACCEPTANCE BY BC S&WCD. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY AND SHALL BEAR ALL RISK OF LOSS OR DAMAGE. THE CONTRACTOR WILL FURNISH ALL NECESSARY EQUIPMENT, TOOLS, LABOR, TRANSPORTATION, AND SUPERVISION TO COMPLETE THE WORK	32.	CONSTRUCTION EQUIPMENT TRACKS AND CONSTRUCTION TO PREVENT RILL AND G
	ACCORDING TO THESE SPECIFICATIONS AND APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS. THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES, INCLUDING EQUIPMENT STORAGE,	33.	CONTRACTOR SHALL USE AN EXCAVATOR
	TO THE LIMITS OF DISTURBANCE, STAGING AREAS, AND DESIGNATED CONSTRUCTION ACCESS POINTS.	34.	ELEVATIONS OF TRIBUTARIES AT CONFLU CONDITIONS. ADJUSTMENTS SHALL BE MA
6.	PERFORMING THIS WORK IS EXTREMELY IMPORTANT TO THE CITY. THEREFORE, THE CONTRACTOR	35.	PROFILES MAY NEED TO BE ADJUSTED TO MADE IN CONJUNCTION WITH THE ENGINE
	AND THE CONTRACTOR'S REPRESENTATIVES SHALL MANIFEST A SPIRIT OF FRIENDLINESS AND COOPERATION WHEN DEALING WITH PROPERTY OWNERS AND THE GENERAL PUBLIC WHILE PERFORMING WORK UNDER THIS SPECIFICATION.	36.	CHANNEL REALIGNMENT WORK SHALL BE INTO THE NEWLY CONSTRUCTED STREAM FEET OF CHANNEL WITHOUT EROSION CO
7.	EXTREME CARE AND DILIGENCE SHALL BE EXERCISED BY THE CONTRACTOR TO ASSURE THE SAFETY OF PERSONS, ANIMALS, AND PROPERTY. IF AT ANY TIME THE CITY OR ENGINEER DETERMINES THAT		THE CHANNEL REALIGNMENT WORK IS NOT TEMPORARY SYSTEM SHALL BE USED ACT
	THE CONTRACTOR'S METHODS OR EQUIPMENT ARE INADEQUATE FOR SECURING THE SAFETY OF THE CONTRACTOR'S EMPLOYEES OR THE PUBLIC, THE DESIGNATED REPRESENTATIVE MAY DIRECT THE CONTRACTOR TO TAKE SPECIFIC ACTIONS TO ENSURE SAFETY. THE CONTRACTOR SHALL IMPROVE METHODS AS DEEMED APPROPRIATE BY THE DESIGNATED REPRESENTATIVE WITHOUT ADDITIONAL COST TO THE CITY, SO AS TO ASSURE COMPLIANCE WITH SAFETY CONCERNS. FAILURE OF THE	37.	WORK SHALL UTILIZE THE TEMPORARY PU BANKFULL CHANNEL DIMENSIONS WILL BE CROSS-SECTION PLANSHEETS. ELEVATIO DEPTHS MUST FALL WITHIN RANGES SHO
	DESIGNATED REPRESENTATIVE TO MAKE THIS DEMAND SHALL NOT RELIEVE THE CONTRACTOR OF ANY OBLIGATION TO ENSURE THE SAFE CONDUCT OF ITS WORK.	38	SHALL BE WITHIN 0.2' (HORIZONTAL). IF THE EXISTING GROUND IS LESS THAN 0
8.	THE CONTRACTOR SHALL MAINTAIN ALL LIGHTS, GUARDS, SIGNS, TEMPORARY PASSAGES, OR OTHER PRECAUTIONS NECESSARY FOR THE SAFETY OF ALL PERSONS. THE CONTRACTOR SHALL ABIDE BY ALL SAFETY RULES AND CONSTRUCTION CONDITIONS REQUIRED BY GOVERNMENTAL AUTHORITIES	00.	NECESSARY TO EXCAVATE TO THE PROPO DOCUMENTS.
	AND OTHER ENTITIES, INCLUDING RAILROADS, SO THE PUBLIC IS SAFEGUARDED FROM ACCIDENTS AND DELAYS. GUARDS AND FLAGS REQUIRED BY GOVERNMENTAL OR RAILROAD AUTHORITIES SHALL BE PROVIDED AT THE CONTRACTOR'S EXPENSE, UNLESS DIRECTED OTHERWISE BY THE DESIGNATED REPRESENTATIVE. CONTRACTOR SHALL AT NO TIME COMPROMISE EITHER SAFETY OR	39.	IN-STREAM STRUCTURES SHALL BE INSTA STRUCTURES SHALL BE FINISHED TO A SM ELEVATIONS SHOWN IN THE CONSTRUCT ELEVATIONS SHALL BE WITHIN 0.1' (VERTIN
9.	ENVIRONMENTAL REQUIREMENTS. CONTRACTOR SHALL FIELD VERIFY ALL SURVEY CONTROL POINTS WITHIN THREE (3) WEEKS OF	40.	WOOD AND ROCK STRUCTURES MAY BE S
9.	RECEIPT OF THE NOTICE TO PROCEED. CONTRACTOR SHALL CONTACT PROJECT ENGINEER WITHIN FOUR (4) WEEKS OF RECEIPT OF NOTICE TO PROCEED WITH ANY CONTROL POINT DISCREPANCIES, AFTER SUCH TIME HAS PASSED IT WILL BE THE ASSUMPTION THAT ALL CONTROL POINTS AS SHOWN		COIR LOG TOE PROTECTION MAY BE UTIL SUBSTITUTED FOR TOE WOOD REVETMEN
10	ON THE PLANS ARE IN GOOD STANDING AND CONTRACTOR AGREES WITH PUBLISHED COORDINATES.	42.	FILTER FABRIC SHALL BE USED BENEATH STORMWATER STRUCTURES. ALL FILTER OTHERWISE SPECIFIED IN STRUCTURE DE TIGHT TO THE SURFACE OF THE STRUCTU
1	DETAILS.  I. ANY ALTERNATE ACCESS PLANNED BY THE CONTRACTOR SHALL BE APPROVED BY THE CITY AND ENGINEER PRIOR TO USE.	43.	LOG STRUCTURES SHALL BE CONSTRUCT NON-DECOMPOSED CONDITION AND APPE
12	2. NO FILL IN WETLANDS MAY OCCUR. ALL EXCESS SOILS FROM STREAM STABILIZATION AND CHANNEL WORK SHALL BE DISPOSED OF IN OLD STREAM CHANNEL TO OTHER AREAS APPROVED BY THE CITY	44.	AFTER THE STRUCTURE IS COMPLETE AN STRUCTURE OR ADDITIONAL STABILIZATIO
13	AND ENGINEER. 3. SITE SHOULD BE "STORM READY" AT THE END OF EACH WORK DAY AND WORK WEEK.	45.	FUNCTION. THE CONSTRUCTED CHANNEL SHALL BE S
	4. MATERIAL SHALL BE SUITABLE SOIL OBTAINED FROM THE EXCAVATION OF ALL PROJECT		SEEDING, ADDING STRAW MULCH TO BAR OF THE BANKFULL CHANNEL TO 4' BEYON
	COMPONENTS AS SHOWN ON THE CONSTRUCTION DRAWINGS AND/OR BORROW AREA. BORROW AREA SHALL BE APPROVED BY PROJECT ENGINEER PRIOR TO USE, NO ADDITIONAL COMPENSATION WOULD BE GIVEN FOR BORROW AREA. NOR WOULD ANY ADDITIONAL FUNDS BE GIVEN FOR HAULING, BORROWING, REMEDIATION, OR STABILIZING AFOREMENTIONED BORROW AREA.		CONTROL MATTING, PREPARE THE SOIL S TOPSOIL TO THE PROPOSED ELEVATIONS BROADCAST EVENLY OF THE AREA USING CONTROL MATTING. THE MATTING SHALL INSTALL MATTING IN ACCORDANCE WITH REWORKING OF AREAS THAT DO NOT EST
15	<ol> <li>MAINTAIN, RELOCATE OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER AND AT THE CONTRACTORS EXPENSE.</li> </ol>	46.	IN THE MATTING OF AREAS THAT DO NOT EST IN THE MATTING SEPARATES FROM THE S IF THE TIMING OF CONSTRUCTION IS SUCH FALL OR WINTER, THEN THE CONTRACTOR
16	<ol> <li>EXISTING TOPOGRAPHY, STRUCTURES AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED . NEW FINISHED GRADE, STRUCTURES AND SITE FEATURES ARE SHOWN AS HEAVY-LINED.</li> </ol>	47.	UROCHLOA RAMÓSA) AND RETURN THE F
17	7. ELEVATIONS GIVEN ARE TO SETTLED GRADE UNLESS OTHERWISE SHOWN		SEASON, TYPICALLY BETWEEN DECEMBE DAYS PRIOR TO HARVESTING TO REVIEW
18	3. ALL SLOPES SHALL BE 5:1 OR FLATTER UNLESS OTHERWISE SPECIFIED. SLOPE UNIFORMLY BETWEEN	48.	LIVE STAKES SHALL BE INSTALLED ALONG IN RIFFLES WHERE SHOWN ON THE RE-VE
	CONTOURS AND SPOT ELEVATIONS SHOWN.		EROSION CONTROL MATTING TO A DEPTH
	<ol> <li>CONTRACTOR SHALL REMEDIATE ALL; HAUL ROADS, FARM PATHS AND OTHER ON FARM UTILITIES TO PRE-CONSTRUCTION OR BETTER CONDITION PRIOR TO DEMOBILIZATION.</li> </ol>		
20	D. ELECTRONIC SURVEY DATA, BASE DRAWINGS AND SITE DATA WERE CURATED BY LDSI.		
2	<ol> <li>HORIZONTAL DATUM IS NAD83(2011) &amp; VERTICAL DATUM IS NAVD88. ALL COORDINATES ARE BASED ON NAD83(2011) AND ALL ELEVATIONS ARE BASED ON NAVD88.</li> </ol>		
22	<ol> <li>EXISTING GROUND SURFACES ARE ON A SURVEY COMPLETED IN MAY 2019. SOME CHANGES MAY HAVE OCCURRED SINCE THE SURVEY WAS COMPLETED, PARTICULARLY IN AREAS EXPERIENCING CHANNEL DEGRADATION AND BANK EROSION.</li> </ol>		
2:	3. ALL ELEVATION DATA SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THEN COORDINATED WITH THE ENGINEER. THESE PLANS WERE PREPARED WITH THE FIELD INFORMATION AT THE TIME OF PROJECT SURVEY. IT IS POSSIBLE THAT FIELD CONDITIONS AT THE TIME OF CONSTRUCTION VARY FROM THESE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY FIELD CONDITIONS SUCH AS ELEVATIONS, DEPTHS, ETC PRIOR TO PROCEEDING WITH WORK. SURVEY DATA COLLECTION WAS VERY SPARSE DUE TO FIELD CONDITIONS, THEREFORE, ALL ELEVATIONS SHOULD BE CHECKED IN THE FIELD BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL CONTACT PROJECT		

ENGINEER IMMEDIATELY UPON DISCOVERING ELEVATIONS WHICH ARE DIFFERENT THAN THOSE

SHOWN ON THE PLANS.

ES SHOWN HEREIN ARE BASED ON THE LDSI SURVEY THAT URFACE FROM WHICH ALL COMPUTATIONS OF CUT AND FILL ARE EN THE EXITING GROUND AND DIGITAL SURFACE AND FIELD OF TOTAL EXCAVATED QUANTITIES. THUS, QUANTITIES OF ARED TO THOSE SHOWN ON THE PLANSHEETS TO MANAGE THE ITF

DPLAIN GRADING PLAN IS TO MAINTAIN A "LIVE SURFACE" THAT CAN UCTION AND INCORPORATED INTO A 3D SURFACE FOR GPS EQUIPMENT.

### IOTES

BILITY MAY REQUIRE ADAPTATION OF THE PLANSHEETS AND/OR ON DOCUMENTS DEPENDING ON SITE CONDITIONS OR PROJECT TION(S) OF THE PROPOSED WORK SHOWN ON THE PLANSHEETS DENTAL TO THE WORK.

AND VEGETATION SHOULD BE LEFT IN PLACE TO FACILITATE NATURAL

PROPOSED STREAM CENTERLINE IN APPROXIMATELY 500 FT QUIPMENT FOR REVIEW BY THE ENGINEER BEFORE BEGINNING ON ENCOUNTERED CONDITIONS SOME SHIFTING OF THE STREAM NG MAY BE OMITTED FOR PORTIONS OF THE STREAM WHEN RUCT THE CHANNEL.

CONTRACTOR SHALL MARK THE LIMITS OF CLEARING NEAR TREES GINEER. SOME MINOR ADJUSTMENT OF CHANNEL ALIGNMENT MAY INIMIZE IMPACT TO TREES.

TE MUST BE APPROVED BY THE ENGINEER.

AXIMUM EXTENT POSSIBLE, IMPACTS TO THE ADJACENT TREES.

D ACCESS PATHS SHALL BE GRADED AND RE-CONTOURED AFTER ULLY EROSION.

WITH A HYDRAULIC THUMB TO INSTALL IN-STREAM STRUCTURES. JENCES MAY NEED TO BE ADJUSTED TO MEET CONSTRUCTED

ADE IN CONJUNCTION WITH THE ENGINEER.

O AVOID ABRUPT CHANGES IN ELEVATION. ADJUSTMENTS SHALL BE FFR

COMPLETED AND STABILIZED PRIOR TO ALLOWING FLOW TO ENTER I CHANNEL. THE CONTRACTOR SHALL NOT OPEN UP MORE THAN 200 ONTROL MATTING IN PLACE OR BY APPROVAL OF THE ENGINEER. IF OT COMPLETED PRIOR TO ABANDONING THE OLD CHANNEL, A CORDING THE APPROVED E&SC PLAN AND DETAIL. IN-LINE CHANNEL UMP AROUND SYSTEM AT ALL TIMES.

E HELD TO THE DIMENSIONS SHOWN ON THE TYPICAL NS SHALL BE CONSTRUCTED WITHIN 0.1' (VERTICAL). WIDTHS AND WN IN THE PLANSHEETS. CHANNEL CROSS-SECTION DIMENSIONS

).2' HIGHER THAN THE PROPOSED BANKFULL ELEVATION, IT IS NOT OSED ELEVATIONS AND GRADES IN THE CONSTRUCTION

ALLED AS THE CHANNEL IS BEING CONSTRUCTED. IN-STREAM MOOTH SURFACE IN ACCORDANCE WITH THE LINES, GRADES AND FION DOCUMENTS. THE FINISHED STRUCTURE SLOPES AND PROFILE CAL) OF THE CONSTRUCTION DOCUMENTS.

SUBSTITUTED TO FIT FIELD CONDITIONS AND AVAILABLE MATERIALS.

IZED WHERE ADDITIONAL BANK REVETMENT IS NEEDED OR

ALL ROCK ARMORING AND WITH SPECIFIED STREAM AND R FABRIC SHALL BE 80Z. NON-WOVEN GEOTEXTILE UNLESS ETAILS OR SPECIFICATIONS. FILTER FABRIC SHALL BE TRIMMED URE AND SHOULD NOT BE OBSERVED BY VISUAL INSPECTION.

TED FROM LOGS THAT ARE INTACT, WITH BRANCHES TRIMMED AND IN ROVED BY ENGINEER.

ND FLOW IS RESTORED TO THE CHANNEL, SOME ADJUSTMENT TO THE ION MEASURE MAY BE NECESSARY TO ACHIEVE THE DESIRED

STABILIZED AS SOON AS POSSIBLE BY TEMPORARY AND PERMANENT RE SOIL AND INSTALLING EROSION CONTROL MATTING FROM THE TOE ND THE BANKFULL STAGE. PRIOR TO INSTALLING THE EROSION SURFACE BY LOOSENING 3 -6" OF SOIL OR APPLYING 3 - 6" OF AND APPLY SEED AND THEN STRAW MULCH. SEED SHALL BE A BROADCAST SPREADER PRIOR TO COVERING WITH THE EROSION BE ROLLED OUT IN THE DIRECTION OF ANTICIPATED RUNOFF FLOW. I THE DETAIL INCLUDED IN THE CONSTRUCTION DOCUMENTS. TABLISH VEGETATION OR BECOME UNSTABLE SHALL BE NECESSARY SOIL.

CH THAT PERMANENT RIPARIAN SEED CANNOT BE PLACED UNTIL THE OR SHALL SEED WITH TEMPORARY SUMMER COVER (MILLET -FOLLOWING SPRING TO INSTALL THE PERMANENT RIPARIAN SEED.

LIVE STAKES SHALL BE PREFORMED ONLY DURING THE DORMANT ER 1 AND MARCH 1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 7 AND APPROVE ALL HARVESTING SITES AND SPECIES.

G THE TOE OF SLOPE ON OUTSIDE MEANDER BENDS OF POOLS AND EGETATION PLAN. LIVE STAKES SHALL BE INSTALLED THROUGH THE THAT REACHES THE WATER TABLE.

- 53. CONTRACTOR SHALL SPREAD EXCESS SPOIL ACROSS FIELD AREAS AND PROVIDE DRAINAGE TO SWALES ALONG DRIVEWAY
- 54. TOPSOIL SHALL BE REMOVED FROM EXCAVATION AND FILL AREAS PRIOR EXCAVATION AND GRADING AND RE-APPLIED TO AREAS AFTER ROUGH GRADING IS COMPLETE, 2 - 4" OF TOPSOIL SHALL BE PLACED ON DISTURBED AREAS TO THE ELEVATIONS AND GRADES INCLUDED IN THE CONSTRUCTION DOCUMENTS.
- FILL AREAS SHALL BE SEEDED WITH TEMPORARY VEGETATION WITHIN 14 DAYS OF GRADING. THE 55 PLACEMENT OF STRAW MULCH SHALL OCCUR WITHIN 48 HOURS OF SEEDING. MULCH SHALL BE SPREAD TO COVER DISTURBED CHANNEL AND FLOODPLAIN AREAS. MULCH SHALL BE KEPT OUT OF THE CROWNS OF SHRUBS AND GROUND COVER.

QUANTITIES AND MATERIALS SPECIFICATIONS

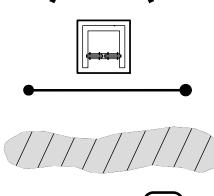
- 56. THE CONTRACTOR SHALL FURNISH ALL MATERIALS NECESSARY TO COMPLETE THE PROPOSED WORK UNLESS OTHER PROVISIONS HAVE BEEN AGREED UPON PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL DELIVER ALL MATERIALS TO THE DESIGNATED ACCESS POINTS AND STAGING AREAS OR TO A LOCATION SPECIFIED BY CONSTRUCTION DOCUMENTS. MATERIAL QUANTITIES, DIMENSIONS AND SIZES SHALL CONFORM TO THE NOTES AND SPECIFICATIONS PROVIDED IN THE CONSTRUCTION DOCUMENTS OR ON THE QUANTITIES AND MATERIALS LIST. THE ENGINEER MAY INSPECT AND APPROVE ALL MATERIALS PRIOR TO CONSTRUCTION. IF MATERIALS DO NOT MEET THE MINIMUM REQUIREMENTS SPECIFIED IN THE CONSTRUCTION DOCUMENTS, THE ENGINEER SHALL REJECT THE MATERIALS.
- 57. COSTS INCURRED DUE TO PROJECT DELAYS RESULTING FROM FAILURE OF THE CONTRACTOR TO MEET THE REQUIREMENTS OF THE GENERAL SPECIFICATIONS, CONSTRUCTION DOCUMENTS, OR CONSTRUCTION SPECIFICATIONS, SHALL BE THE EXPENSE OF THE CONTRACTOR. QUANTITIES LISTED ARE ESTIMATES ONLY AND SHALL BE CONFIRMED BY THE CONTRACTOR.
- 58. THE EROSION CONTROL MEASURES DEPICTED ON THE PLANS ARE TO BE INSTALLED AS NEEDED TO KEEP ALL SEDIMENT ON SITE AND OUT OF STREAMS AND WETLANDS. ADDITIONAL EROSION CONTROL MEASURES (ABOVE THOSE SHOWN ON THE PLANS AND ON THE QUANTITIES AND MATERIALS LIST) MAY BE REQUIRED IN ORDER TO KEEP ALL SEDIMENT ON SITE AND OUT OF STREAMS AND WETLANDS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER AND NC DEQ PRIOR TO INSTALLATION OF ADDITIONAL EROSION CONTROL MEASURES.
- 59. ANY ADDITIONAL GRADING OTHER THAN WHAT IS SHOWN ON THE PLANS SHALL REQUIRE PRIOR APPROVAL FROM THE ENGINEER. ANY ADDITIONAL AREAS OF DISTURBANCE (CHANGES IN ACCESS, GRADING, CLEARING, ETC.) WILL REQUIRE APPROVAL FROM THE ENGINEER AND NC DEQ.
- 60. THE USE OF ANY BRAND NAMES/MANUFACTURERS OR MODELS IS INTENDED SOLELY TO DENOTE THE QUALITY STANDARD OF THE DESIRED PRODUCT. ANY USE OF BRAND NAMES IS NOT INTENDED TO RESTRICT BIDDERS TO A SPECIFIC BRAND, MAKE, MANUFACTURER, OR NAME. THE BRAND NAMES / MANUFACTURERS OF MODELS ARE INTENDED TO CONVEY THE GENERAL STYLE, TYPE, CHARACTER. AND QUALITY OF PRODUCT. EQUIVALENT PRODUCTS WILL BE ACCEPTABLE IF THE PROJECT OWNER OR ENGINEER HAS GIVEN APPROVAL OF THE SPECIFIC PRODUCT IN WRITING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROVIDING STORAGE AREAS FOR 61. CONSTRUCTION MATERIALS AND EQUIPMENT. THE MATERIAL AND EQUIPMENT STORAGE SHALL COMPLY WITH THE CONSTRUCTION DOCUMENTS AND ALL LOCAL, STATE AND FEDERAL REGULATIONS THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL RESTORE THE STORAGE AREA TO ITS ORIGINAL (OR BETTER) CONDITION UPON COMPLETION OF THE PROJECT OR UPON SUCH TIME AS DIRECTED BY THE CITY OR ENGINEER. SUCH RESTORATION SHALL BE AT NO ADDITIONAL COST TO THE CITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEGUARDING OF MATERIALS AND EQUIPMENT AGAINST FIRE, THEFT AND VANDALISM AND SHALL NOT HOLD THE CITY RESPONSIBLE IN ANY WAY FOR THE OCCURRENCES OF SAME. FOR MATERIALS AND EQUIPMENT STORAGE AREAS THE CONTRACTOR SHALL FURNISH AND ERECT, AT NO ADDITIONAL COST, WHATEVER WORKS MAY BE NECESSARY FOR THE PROTECTION OF THE PUBLIC, INCLUDING BUT NOT LIMITED TO BARRICADES, FENCES, ETC. PRIOR TO FINAL PAYMENT BEING MADE, THE CONTRACTOR SHALL OBTAIN A RELEASE FROM THE PROPERTY OWNER OF THE STORAGE AREA UTILIZED FOR THE PROJECT.
- 62. THE CONTRACTOR SHALL ESTABLISH, PROVIDE AND MAINTAIN AN EFFECTIVE QUALITY CONTROL PROGRAM THAT DETAILS THE METHODS AND PROCEDURES TO BE TAKEN TO ASSURE THAT ALL MATERIALS AND COMPLETED WORK, REQUIRED FOR THE PROJECT, CONFORM TO THE CONSTRUCTION DOCUMENTS. ALTHOUGH GUIDELINES ARE ESTABLISHED AND CERTAIN MINIMUM REQUIREMENTS ARE SPECIFIED HEREIN AND ELSEWHERE IN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR DEVELOPING AND EXECUTING THEIR OWN QUALITY CONTROL PROGRAM. THE CONTRACTOR SHALL PERFORM INSPECTION, TESTING, AND MEASUREMENT OF ALL ITEMS OF WORK REQUIRED BY THE CONSTRUCTION DOCUMENTS AND TECHNICAL SPECIFICATIONS, INCLUDING THOSE PERFORMED BY SUBCONTRACTORS. REVIEW OF THE MATERIALS AND COMPLETED WORK BY THE CITY OR ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF PERFORMING QUALITY CONTROL INSPECTIONS/REVIEW OF THE CONTRACTOR'S AND/OR SUBCONTRACTOR'S WORK.
- 63. THE CONTRACTOR SHALL WARRANTY ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OF BY THE TOWN AND SHALL REPLACE ANY PORTIONS THAT FAIL DUE TO FAULTY MATERIALS OR WORKMANSHIP, AT NO ADDITIONAL COST TO THE THE CITY. A SIX (6) MONTH AND ELEVEN (11) MONTH INSPECTION WILL BE PERFORMED DURING THE WARRANTY PERIOD. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ALL ITEMS DETERMINED BY THE PROJECT OWNER OR AUTHORIZED REPRESENTATIVE TO BE DEFECTIVE UPON NOTIFICATION. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE FAILED ITEMS UPON NOTIFICATION BY DEQ/DWR. SEASONALLY INSTALLED ITEMS SHALL BE REPAIRED OR REPLACED DURING THE NEXT AVAILABLE INSTALLATION PERIOD. ITEMS REPAIRED OR REPLACED UNDER THIS PROVISION SHALL HAVE AN ADDITIONAL ONE (1) YEAR WARRANTY PERIOD FROM THE NEW DATE OF ACCEPTANCE. AREAS AND/OR OTHER WORK DISTURBED WHILE ACCESSING AND/OR REPAIRING/REPLACING WARRANTY COVERED ITEMS SHALL BE STABILIZED.

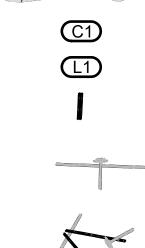


5:1 SLOPE — - WRP - — — - WRE - — \_\_\_\_ 

EXISTING

ELEVATION







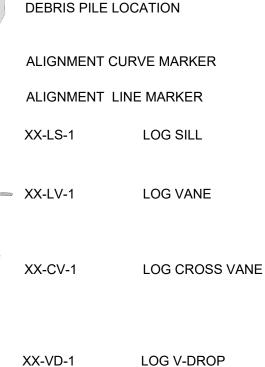
LE	G	END
	12.8	PROPOSED ELEVATION
	0+	00 STATION
		PROFILE PROPOSED FILL GRADE

SPOT ELEVATION PROPOSED CONTOUR LINE 250 EXISTING CONTOUR LINE STRUCTURE, BUILDING OR FACILITY LOCATION POINT-N 1000.00 COORDINATES E 1000.00 BENCHMARK SOIL BORING TEST HOLE LOCATION EMBANKMENT AND SLOPE **BRUSH/TREE LINE** TREE PROTECTION FENCING ---- DRAINAGEWAY OR DITCH DRAINAGE OR DITCH FLOW DIRECTION WETLAND RESERVE PROGRAM

LOD — LOD — LIMITS OF DISTURBANCE SF ----- SF ----- SILT FENCE OHE — OHE — OVERHEAD ELECTRICAL LINE

LINEAR LOW - DENSITY POLYETHYLENE TURBIDITY CURTAIN

WATER CONTROL STRUCTURE WATER TRANSFER STRUCTURE



SPOIL AND WOODY

CONSERVATION EASEMENT LIMITS

CENTER LINE, BUILDING, ROAD, ETC.

WETLAND RESERVE EASEMENT LIMITS



ROOT WAD

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> SCALE AS SHOWN VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

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**ISSUED FOR: REVIEW & PERMITTING** 

# **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.

	quired Ground	Stahili	VALION LIMPITAMES
Site Area Description	Stabilize within many calendar after ceasing la disturbance	this days	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7		None
(b) High Quality Water (HQW) Zones	7		None
(c) 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
(d) Slopes 3:1 to 4:1	14		<ul> <li>-7 days for slopes greater than 50' in length and with slopes steeper than 4:1</li> <li>-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones</li> <li>-10 days for Falls Lake Watershed</li> </ul>
(e) Areas with slopes flatter than 4:1	14		-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zone -10 days for Falls Lake Watershed unless there is zero slope
racticable but in no case locativity. Temporary ground urface stable against accel	onger than 90 ca stabilization sha lerated erosion u PECIFICATION	alenda all be until p	
racticable but in no case locativity. Temporary ground urface stable against accel	onger than 90 ca stabilization sha lerated erosion of <b>PECIFICATION</b> ently so that rain	alenda all be until p	r days after the last land disturbing maintained in a manner to render the
racticable but in no case lo ctivity. Temporary ground urface stable against accel <b>ROUND STABILIZATION S</b> tabilize the ground sufficie	onger than 90 ca stabilization sha lerated erosion of <b>PECIFICATION</b> ently so that rain ow: <b>ilization</b> covered with and tackifiers s with or without straw or other	alenda all be <u>until p</u> n will r • P of • G re • H • S v • U sr • S re	or days after the last land disturbing maintained in a manner to render the permanent ground stabilization is achieved

- 1. Create designated hazardous waste collection areas on-site.
- 2. Place hazardous waste containers under cover or in secondary containment.
- 3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

EOL	JIPMENT AND VEHICLE MAINTENANCE	CONCRETE WASHOUTS	]
1. 2. 3. 4. 5. 6. <b>LITTE</b> 1.	as hazardous waste (recycle when possible). Remove leaking vehicles and construction equipment from service until the problem has been corrected. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials. <b>R, BUILDING MATERIAL AND LAND CLEARING WASTE</b> Never bury or burn waste. Place litter and debris in approved waste containers.	<ol> <li>CONCRETE WASHOUTS         <ol> <li>Do not discharge concrete or cement slurry from the site.</li> <li>Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.</li> <li>Manage washout from mortar mixers in accordance with the above item an addition place the mixer and associated materials on impervious barrier and lot perimeter silt fence.</li> <li>Install temporary concrete washouts per local requirements, where applica an alternate method or product is to be used, contact your approval author review and approval. If local standard details are not available, use one of the types of temporary concrete washouts provided on this detail.</li> <li>Do not use concrete washouts for dewatering or storing defective curb or si sections. Stormwater accumulated within the washout may not be pumped discharged to the storm drain system or receiving surface waters. Liquid was be pumped out and removed from project.</li> </ol> </li> </ol>	nd in d within able. If rity for the two idewalk d into or aste must
2. 3. 4. 5. 6.	Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers. Anchor all lightweight items in waste containers during times of high winds.	<ol> <li>Locate washouts at least 50 feet from storm drain inlets and surface waters it can be shown that no other alternatives are reasonably available. At a min install protection of storm drain inlet(s) closest to the washout which could spills or overflow.</li> <li>Locate washouts in an easily accessible area, on level ground and install a st entrance pad in front of the washout. Additional controls may be required to approving authority.</li> <li>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.</li> </ol>	nimum, receive tone by the
7. 8. 9.	Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow. Dispose waste off-site at an approved disposal facility. On business days, clean up and dispose of waste in designated waste containers.	<ol> <li>Remove leavings from the washout when at approximately 75% capacity to overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or propr products, follow manufacturer's instructions.</li> <li>At the completion of the concrete work, remove remaining leavings and dis of in an approved disposal facility. Fill pit, if applicable, and stabilize any</li> </ol>	rietary
<u>FAII</u>   1.	Do not dump paint and other liquid waste into storm drains, streams or wetlands.	disturbance caused by removal of washout.	
2. 3. 4. 5.	Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available. Contain liquid wastes in a controlled area. Containment must be labeled, sized and placed appropriately for the needs of site. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.	ABBREVIATIONS / ACRONYMSSTA =STATIONBM =STATIONBM =BENCHMARKTBM =TEMPORARY BENCHMARKIP =IRON PIN (FOUND OR SET)ELEV/EL=ELEVATIONINV =INVERT ELEVATIONH =HEIGHTHDPE =HIGH-DENSITY POLYETHYLENESL =SLOUGH	RUCTURE
	TABLE TOILETS	LF=LINEAR FOOTPC=POINT OF CURVATUREMAX=MAXIMUMPT=POINT OF TANGENT	<u>:</u>
1.	Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.	MIN=MINIMUMPVI=POINT OF VERTICAL INNo. /#=NUMBERPVE=POINT OF VERTICAL INTOB=TOP OF BANKR 20=RADIUS OF 20.0'TOS=TOE OF SLOPETYP.=TYPICALDBT=DITCH BOTTOMESMT=EASEMENT	
2.	Provide staking or anchoring of portable toilets during periods of high winds or in	RCP =REINFORCED CONCRETE PIPEI.D. =INSIDE DIMENSIONCMP =CORRUGATED METAL PIPETH =SOIL BORING TEST HOI	ILE
3.	high foot traffic areas. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.	GALV =`GALVANIZEDMS=MAIN STEMSF=SILT FENCELS=LOG SILLLOD=LIMITS OF DISTURBANCECL=COVER LOGWRP=WETLAND RESERVE PROGRAMLV=LOG VANEWRE=WETLAND RESERVE FASEMENTCV=LOG CROSS VANE	
		CONC = CONCRETE ROOT WAD	
1.	<b>THEN STOCKPILE MANAGEMENT</b> Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.	W/=WITHHB=HABITAT STRUCTUREWo/=WITHOUTBMA=BRUSH MATTRESSNCDOT =NORTH CAROLINA DEPARTMENT OF TRANSPORTATIONLJ=LOG 'J' VANERI=RESOURCE INSTITUTELR=LOG ROLLJE=JENNINGS ENVIRONMENTALLP=LEAF PACKUSDA =UNITED STATESRP=RIFFLE PLANTINGS	
2. 3.	Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile. Provide stable stone access point when feasible. Stabilize stockpile within the timeframes provided on this sheet and in accordance	LDSILDSI INC.BLDR=BOULDERS&WCD =SOIL AND WATER CONSERVATION DISCTRICTLLDPE =LINEAR LOW-DENSITY IPVC=POLYVINYL CHLORIDETC=TURBIDITY CURTAIN	

- 4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

# HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with 1. label restrictions.
- 2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is 3. possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite. 4.

LION FOR DESCRIPTION RUC NOT CONS No. ENGINEERING  $\sim$ OTES I FLORENCE EWP ASSISTANCE Ž GENERAL HURRICANE SCALE AS SHOWN VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING . DATE: 7/9/2020 PROJ: 4519049

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PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING		PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING		SEL	
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.			approved E&SC plan must be kept up	ny approved deviation shall be kept on the site. The o-to-date throughout the coverage under this permit. e E&SC plan shall be documented in the manner	SECTION C: REPORTING 1. Occurrences that must Permittees shall report (a) Visible sediment of (b) Oil spills if: · They are 25 gallor
			Item to Document	Documentation Requirements	· They are less that
Inspect (1) Rain gauge maintained in good working order	Frequency (during normal business hours Daily	Inspection records must include Daily rainfall amounts. 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 un-attended days (and this will determine of a site inspection is	(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 requires upon the initial installation of the E&SC Measures or if the E&SC Measures are modified after initial installation	<ul> <li>They cause sheen</li> <li>They are within 1</li> <li>(a) Releases of hazar</li> <li>of the Clean Wate</li> <li>(Ref: 40 CFR 302.4)</li> </ul>
(2) E&SC	At least once per 7	needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division. 1. Identification of measures inspected,	(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.	(b) Anticipated bypas
Measures	calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	<ul><li>2. Date and time of the inspection,</li><li>3. Name of the person performing the inspection,</li></ul>	(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.	<ul> <li>(c) Noncompliance w the environment.</li> <li>2. Reporting Timeframe</li> </ul>
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	<ol> <li>Description, evidence, and date of corrective actions taken</li> <li>Identification of the discharge outfalls inspected,</li> <li>Date and time of the inspection,</li> <li>Name of the person performing the inspection,</li> <li>Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration,</li> <li>Indication of visible sediment leaving the site,</li> <li>Description, evidence, and date of corrective actions taken</li> </ol>	<ul> <li>(d) The maintenance and repair requirements for all E&amp;SC Measures have been performed.</li> <li>(e) Corrective actions have been taken to E&amp;SC Measures.</li> </ul>	Complete, date and sign an inspection report. 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	After a permittee bec the appropriate Divisi other requirements li reported to the Divisi 858-0368 or (919) 733
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left	2. Additional Documentation In addition to the E&SC Plan documents above, the following items shall be kept on the site and available for agency inspectors at all times during normal business hours		Occurrence       (a) Visible sediment       deposition in a stream or       wetland
	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	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: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.			(b) Oil spills and release of hazardous substances per item 1(b)-(c) above
(6) Ground stabilization measures	After each phase of grading	<ol> <li>The phase of grading (installation of perimeter E&amp;SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover).</li> <li>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>	<ul> <li>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.</li> <li>(c) All data used to complete the Notice of Intent and older inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]</li> </ul>		(c) Anticipated bypasses [40 CFR 122.41(m)(3)] (d) Unanticipated bypasses [40CFR 122.41(m)(3)] (e) Noncompliance with the conditions of this
NOTE: The ra	in inspection resets	the required 7 calendar day inspection requirement.			permit that may endanger health or the environment [40 CER 122 41(I)(7)]

# PART III

# SELF-INSPECTION, RECORDKEEPING AND REPORTING

# ١G

nust be reported

port the following occurrences:

nt deposition in a stream or wetland.

llons or more,

han 25 gallons but cannot be cleaned up within 24 hours,

- een on surface waters (regardless of volume), or
- n 100 feet of surface waters (regardless of volume).

ardous substances in excess of reportable quantities under Section 311 ater Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA 2.4) or G.S. 143-215.85.

passes and unanticipated bypasses.

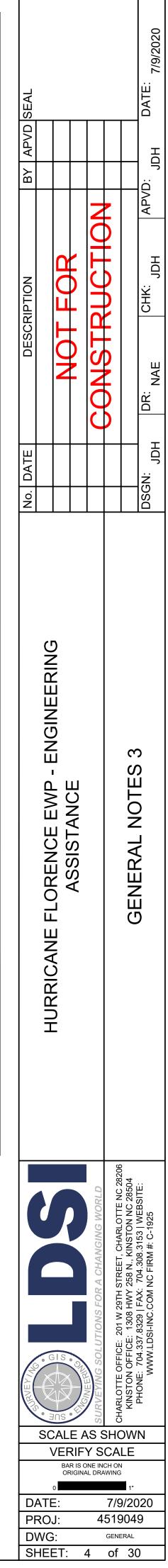
e with the conditions of this permit that may endanger health or nt.

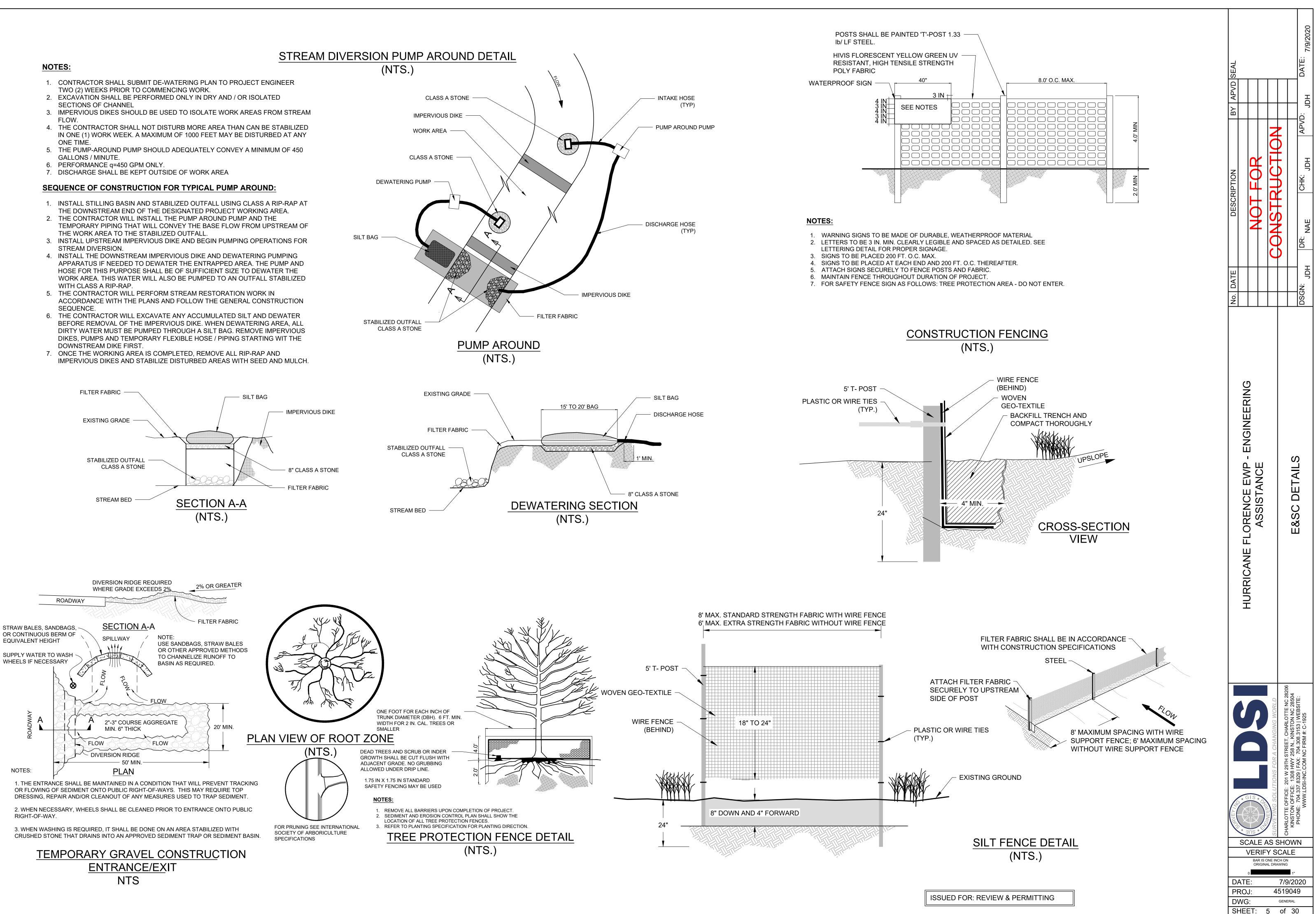
# mes and Other Requirements

[40 CFR 122.41(I)(7)]

becomes aware of an occurrence that must be reported, he shall contact vision regional office within the timeframes and in accordance with the s listed below. Occurrences outside normal business hours may also be vision's Emergency Response personnel at (800) 662-7956, (800) 733-3300.

	Reporting Timeframes (After Discovery) and Other Requirements
	<ul> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, 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 <u>NC 303(d) list</u> as impaired for sediment related causes, the permitee may be required to perform 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>
of ∋r	• <i>Within 24 hours</i> , an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
	• A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
	<ul> <li>Within 24 hours, an oral or electronic notification</li> <li>Within 7 calendar days, a report that includes an evaluation of the quality and efect of the bypass.</li> </ul>
	Within 24 hours, an oral or electronic notification.







2			
	LAND OWNER	CITY OF BOILING SPRING LAKES	
The Party of	PROPERTY ADDRESS	100 W SOUTH SHORE ROAD	
1200	COORDINATES	LAT: 34.024311	LONG: -78.066062
1	PROPERTY SIZE (ACRES)	0.75	5
11 12	LOD (ACRES)	0.75	
	CUT/FILL (YRD^3)	APPR	ох
641	PROJECT DESCRIPTION	THIS PROJECT WILL INCLUDE THE REPAIR OF THE DA LOCATED ON DAM ROAD (NORTH EAST). THIS REPAIR INCLUDE BACKFILLING THE DAMAGED PORTIONS OF DAM, REGRADING THE DAM TO A STABLE SLOPE, STABIL THE DAM WITH A PLANTING PLAN, AND ENSURING THA PROPER OUTLET CONFIGURATION IS IN PLACE.	

EROSION AND SEDIMENTATION CONTROL MEASURES

DURING PROJECT IMPLEMENTATION, BMPS/CONSERVATION MEASURES WILL BE IMPLEMENTED TO REDUCE SEDIMENTATION THROUGHOUT BOILING SPRING LAKES. EFFORTS WILL BE MADE TO LIMIT AND EXPEDITE EQUIPMENT TIME IN STREAM CHANNELS. WHEN POSSIBLE, WORK WILL OCCUR FROM THE STREAMBANKS. THE DESIGNS ATTEMPT TO MINIMIZE SEDIMENTATION AND OTHER POTENTIALLY NEGATIVE IMPACTS THROUGH THE FOLLOWING PRACTICES:

- 1. EXCAVATION AND GRADING ON THE SITES ARE BALANCE. NO EARTH SHOULD BE REMOVED FROM THE LOD.
- 2. THE CONTRACTOR WILL BE REQUIRED TO STAGE AND STORE EQUIPMENT AND MATERIALS AT LEAST 25 FEET FROM TOPS OF BANKS.
- 3. EQUIPMENT WILL BE WELL-MAINTAINED, CLEANED PRIOR TO MOBILIZATION, AND CHECKED DAILY FOR LEAKS OF PETROLEUM PRODUCTS.
- 4. FUELING WILL BE PERFORMED IN A CONTAINED AREA AWAY FROM SURFACE WATER.
- 5. THE CONTRACTOR WILL BE REQUIRED TO STAGE WORK SUCH THAT DISTURBED AREAS WILL BE STABILIZED IN PHASES WITH SEEDING, MULCH AND BIODEGRADABLE (COIR) EROSION CONTROL MATTING (WHERE APPROPRIATE).
- 6. ALL TREES, UTILITIES AND OTHER SITE FEATURES WILL BE PROTECTED UNLESS MARKED FOR REMOVAL OR RELOCATION.
- 7. ALL WORK ADJACENT TO STREAM WATERS WILL BE CONDUCTED IN A DRY WORK AREA TO THE EXTENT POSSIBLE.
- 8. TO THE EXTENT POSSIBLE, CONSTRUCTION WILL BE TIMED TO OCCUR DURING TIMES OF LOW FLOW.
- 9. CONSTRUCTION ACTIVITIES SHALL NOT OCCUR IN THE CHANNEL DURING WET WEATHER OR STORMFLOWS.
- 10. CONSTRUCTION SCHEDULING AND STAGING WILL BE TIMED TO MINIMIZE THE AMOUNT OF TIME SPENT WORKING IN THE STREAM CHANNELS.
- 11. APPROPRIATELY SIZED EQUIPMENT WILL BE UTILIZED TO PREVENT EXCESSIVE COMPACTING AND MINIMIZE CLEARING.

### SITE ACCESS AND STAGING

PRIMARY SITE ACCESS WILL OCCUR THROUGH N SHORE DRIVE. ACCESS WITHIN THE PROJECT WILL UTILIZE A DESIGNATED ACCESS PATH FROM THE ACCESS POINT UP THROUGH THE PROJECT AREA. SILT FENCE WILL BE PLACED ON THE SIDE OF THE ACCESS PATH WITH ACTIVE STREAM FLOW.

### <u>SILT FENCE</u>

PRIOR TO ANY SOIL DISTURBANCE AND HAULING, APPROXIMATELY 250 FEET SILT FENCE WILL BE INSTALLED ON THE SITE AS INDICATED IN THE CONSTRUCTION DOCUMENTS. SILT FENCE WILL BE LOCATED ALONG THE DOWNSTREAM SIDE OF THE ACCESS AND STAGING AREAS. AT THE END OF THE PROJECT, WHEN ALL DISTURBED AREAS HAVE BEEN STABILIZED, ALL SILT FENCE WILL BE REMOVED. MATERIAL SPECIFICATIONS, INSTALLATION PROCEDURES, AND MAINTENANCE SHALL CONFORM TO SECTION 6.62 OF THE NORTH CAROLINA SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, INCLUDING THE CONSTRUCTION DETAIL BELOW.

STREAMBANK MATTING

12-INCH AND 24-INCH WOODEN STAKES WILL BE USED TO SECURE THE MATTING IN PLACE.BELOW DUST CONTROL

EXPOSED SOILS ON LEVEL SURFACES WILL BE KEPT MOIST DURING DRY CONDITIONS TO MINIMIZE THE POTENTIAL FOR WIND EROSION AND DUST ACCUMULATION.

STORMWATER

THE PROJECTS THROUGHOUT BOILING SPRING LAKES WILL NOT CREATE ADDITIONAL POINT SOURCES OF STORMWATER. THE INTENT OF THE PROJECTS IS TO RESTORE THE SITES TO PRE-HURRICANE CONDITIONS BY STABILIZING ERODING STREAMBANKS, REPAIRING SHORELINES, PROVIDING FLOODPLAIN STORAGE, AND PROMOTING APPROPRIATE RIPARIAN VEGETATION.

NCG 010000. SPECIFICALLY:

- LAND-DISTURBING ACTIVITY.

### SOLID WASTE

IT IS NOT ANTICIPATED THAT EXCAVATION FOR THIS PROJECT WILL UNEARTH ANY SOLID WASTE. IN THE CASE THAT ANY SOLID WASTE IS INADVERTENTLY EXCAVATED, THE FOLLOWING PROCEDURES WILL BE FOLLOWED:

- 1. STOCKPILE SOLID WASTE OUTSIDE OF BUFFER.
- AND SOLID WASTE REGULATIONS.
- 4. BRUNSWICK COUNTY SOLID WASTE DEPARTMENT: PHONE
- 5. NC DEQ SOLID WASTE SECTION: 910-253-2520
- 6. REMOVE SILT FENCE AND GRADE ALL AREAS TO FINAL DESIGN.

700 GRAM COIR FIBER MATTING WILL BE USED ALONG NEWLY GRADED STREAM BANK SECTIONS. MATTING WILL NOT CONTAIN SYNTHETIC (PLASTIC) MATERIALS. MATTING WILL BE INSTALLED BEGINNING AT THE TOE OF STREAMBANK TO 4 FT BEYOND THE BANKFULL STAGE. A COMBINATION OF

ALL CONSTRUCTION ACTIVITIES WILL CONFORM TO NORTH CAROLINA GENERAL STORMWATER PERMIT

1. SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE: I) ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3: 1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST

2. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

2. INSTALL SEDIMENT FENCE AROUND TEMPORARY STOCKPILE AS NEEDED TO PREVENT SEDIMENT FROM WASHING OFF OF WASTE AND ENTERING SURROUNDING AREAS.

3. ARRANGE FOR WASTE DISPOSAL WITHIN 14 CALENDAR DAYS IN ACCORDANCE WITH LOCAL

### CONSTRUCTION SCHEDULE

- 1. OBTAIN EROSION AND SEDIMENTATION CONTROL PLAN APPROVAL AND ALL OTHER APPLICABLE PERMITS
- 2. NOTIFY INSPECTOR FROM DEQ OFFICE PRIOR TO DISTURBANCE.
- 3. POST CERTIFICATE OF APPROVAL FOR LAND DISTURBANCE AT SITE.
- 4. INSTALL RAIN GAUGE AND PREPARE INSPECTION FORMS AS DESCRIBED ABOVE.
- 5. FLAG THE WORK LIMITS AND STAKE OUT THE EXTENTS AND ELEVATIONS OF THE PROJECT.
- 6. LOCATE ALL UNDERGROUND UTILITIES WITHIN THE WORKSITE.
- 7. HOLD PRE-CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
- 8. INSTALL CONSTRUCTION ENTRANCES, ACCESS ROADS AND SILT FENCE PER THE ATTACHED PLAN SHEETS AND DETAILS.
- 9. INSPECT EROSION AND SEDIMENTATION CONTROL PRACTICES DAILY AND AFTER SIGNIFICANT RAINFALL EVENTS. MAKE NEEDED REPAIRS IMMEDIATELY.
- 10. STOCKPILE MATERIALS FOR STREAM WORK (E.G., BOULDERS, LOGS, WOODY DEBRIS) AT LEAST 25 FEET FROM THE TOP OF BANK.
- 11. INSTALL TEMPORARY STREAM CROSSING AS SHOWN ON PLAN SHEETS. STABILIZE ALL DISTURBED AREA IN VICINITY OF CROSSING WITH GROUND COVER AND EROSION CONTROL MATTING TO PREVENT SEDIMENTATION DOWNSTREAM.
- 12. TO THE EXTENT PRACTICABLE, WORK ITERATIVELY FROM UPSTREAM TO DOWNSTREAM THROUGHOUT THE PROJECT REACHES. CONTRACTOR SHALL LIMIT STREAMBANK DISTURBANCE TO AREAS THAT CAN BE COMPLETED AND STABILIZED DURING ONE DAY OF WORK. DURING EACH ZONE OF DISTURBANCE, FOLLOW THE FOLLOWING STEPS:
- 12.1. AS NEEDED TO IMPLEMENT BANK GRADING, REMOVE VEGETATION. DO NOT REMOVE HEALTHY, NATIVE VEGETATION FROM AREAS WHERE NO GRADING OR STRUCTURE INSTALLATION WILL OCCUR. STOCKPILE VEGETATION FOR REPLANTING, AS APPROPRIATE.
- 12.2. AS SHOWN ON PLANS, REALIGN CHANNEL. ENSURE CONSTRUCTED SLOPES ARE GRADED AT A 3:1 SLOPE OR FLATTER, UNLESS DIRECTED OTHERWISE BY THE FIELD ENGINEER. WHEN POSSIBLE, PERFORM WORK FROM STREAMBANKS IN ORDER TO MINIMIZE TIME SPENT WORKING IN THE CHANNEL.
- 12.3. INSTALL IN-STREAM STRUCTURES, BEDFORM FEATURES, AND STREAMBANK PROTECTION PER THE PLANS. WHEN POSSIBLE, PERFORM WORK FROM STREAMBANKS IN ORDER TO MINIMIZE TIME SPENT WORKING IN THE CHANNEL.
- 12.4. INSTALL COIR STREAMBANK MATTING AND TEMPORARY SEEDING ON ALL DISTURBED SURFACES ON THE STREAMBANK UP TO THE TOP OF BANK.
- 13. ANY AREA DISTURBED WITHIN 25 FEET FROM THE TOP OF THE STREAM BANK SHALL BE PROVIDED WITH TEMPORARY GROUND COVER SPECIFIED IN THE VEGETATION PLAN WITHIN CALENDAR DAYS, UNLESS SUPERSEDED BY THE CONDITIONS OF GENERAL STORMWATER PERMIT NCG 010000. 10
- 14. ONCE SITE IS STABILIZED, REMOVE AND DISPOSE OF ALL NON-BIODEGRADABLE EROSION CONTROL DEVICES.
- 15. NOTIFY INSPECTOR FROM DEQ OFFICE AFTER STABILIZATION.
- 16. WHEN APPROPRIATE, INSTALL PERMANENT VEGETATION PER PLANTING PLANS.

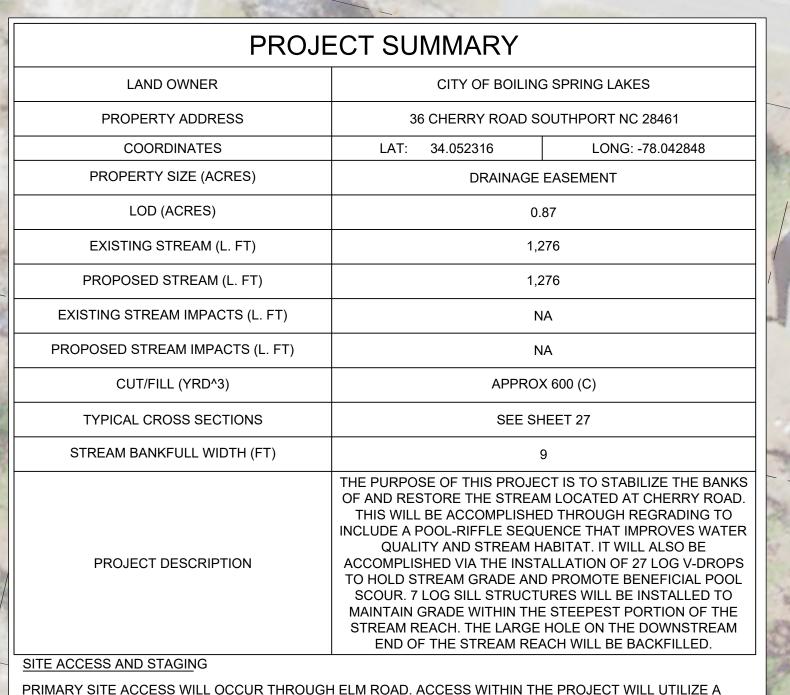
MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES

ALL EROSION CONTROL AND SEDIMENTATION MEASURES WILL BE INSPECTED DAILY AND AFTER SIGNIFICANT RAIN EVENTS BY THE ON SITE ENGINEER AND THE CONTRACTOR. THE CONTRACTOR WILL ASSURE THAT ALL INSTALLATIONS ARE FUNCTIONING PROPERLY AT THE END OF EACH WORK DAY INSPECTION REQUIREMENTS, AS DETAILED IN THE STORMWATER SECTION, WILL BE FOLLOWED.

ONCE THE SITE IS STABILIZED, ALL NON-BIODEGRADABLE EROSION CONTROL MEASURES WILL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

NGINEI ЧС ш ш ШГ OAD S<sup>-</sup>C ORENG Ř AM Ш Õ URRICANE 080 Ī SCALE AS SHOWN VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING DATE: 7/9/2020 PROJ: 4519049 DWG: 080 - DAM ROAD

SHEET: 6 of 30

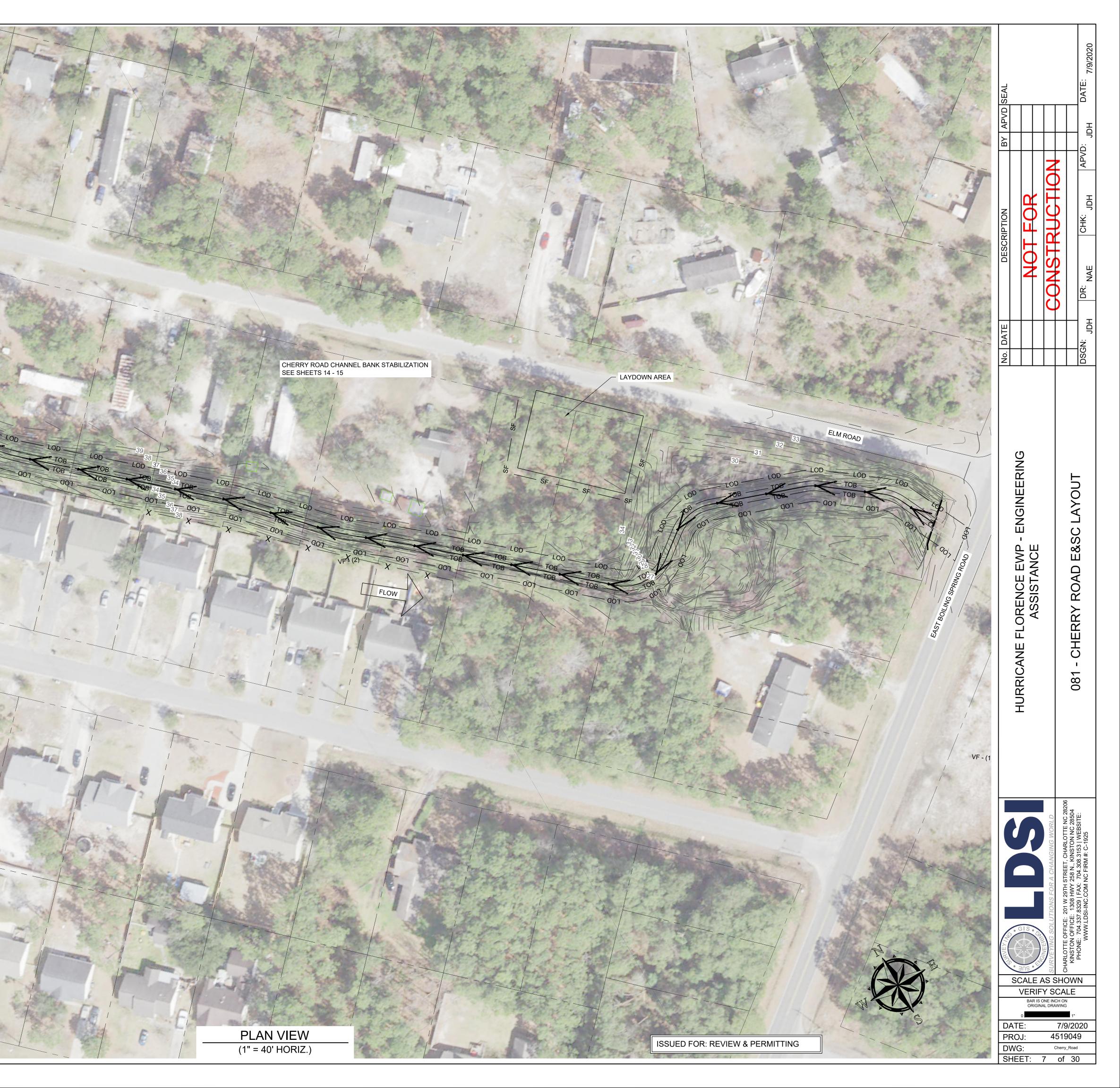


CHERRY ROAD

PRIMARY SITE ACCESS WILL OCCUR THROUGH ELM ROAD. ACCESS WITHIN THE PROJECT WILL UTILIZE A DESIGNATED ACCESS PATH FROM THE ACCESS POINT UP THROUGH THE PROJECT AREA. SILT FENCE WILL BE PLACED ON THE SIDE OF THE ACCESS PATH WITH ACTIVE STREAM FLOW.

### <u>SILT FENC</u>E

PRIOR TO ANY SOIL DISTURBANCE AND HAULING, APPROXIMATELY 250 FEET SILT FENCE WILL BE INSTALLED ON THE SITE AS INDICATED IN THE CONSTRUCTION DOCUMENTS. SILT FENCE WILL BE LOCATED ALONG THE DOWNSTREAM SIDE OF THE ACCESS AND STAGING AREAS. AT THE END OF THE PROJECT, WHEN ALL DISTURBED AREAS HAVE BEEN STABILIZED, ALL SILT FENCE WILL BE REMOVED. MATERIAL SPECIFICATIONS, INSTALLATION PROCEDURES, AND MAINTENANCE SHALL CONFORM TO SECTION 6.62 OF THE NORTH CAROLINA SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, INCLUDING THE CONSTRUCTION DETAIL BELOW.



# PROJECT SUMMARY

	LAND OWNER	CITY OF BOILING SPRING LAKES		
	PROPERTY ADDRESS	987 NORTH SHORE DRIVE		
	COORDINATES	LAT: 34.041408	LONG: -78.052959	
PROPERTY SIZE (ACRES) 0.17		7		
LOD (ACRES)		0.17		
	CUT/FILL (YRD^3)	APPROX 2500 (F)		
	PROJECT DESCRIPTION	THE PURPOSE OF THE PROJECT IS TO REPAIR THE BANK LOCATED AT EAST BOILING SPRING ROAD. THIS WILL BE ACCOMPLISHED BY REGRADING THE BANK AND STABILIZING IT WITH TURF REINFORCEMENT MATTING, SEEDING, AND PLANTING. ADDITIONALLY, A RIPRAP WILL BE USED TO ARMOR PORTIONS OF THE BANK THAT EXPERIENCE HIGH FLOW FROM STORMWATER DRAINAGE AND SHOREJAX WILL BE USED TO STABILIZE AND ARMOR THE BANK NEAR THE RETAINING WALL.		

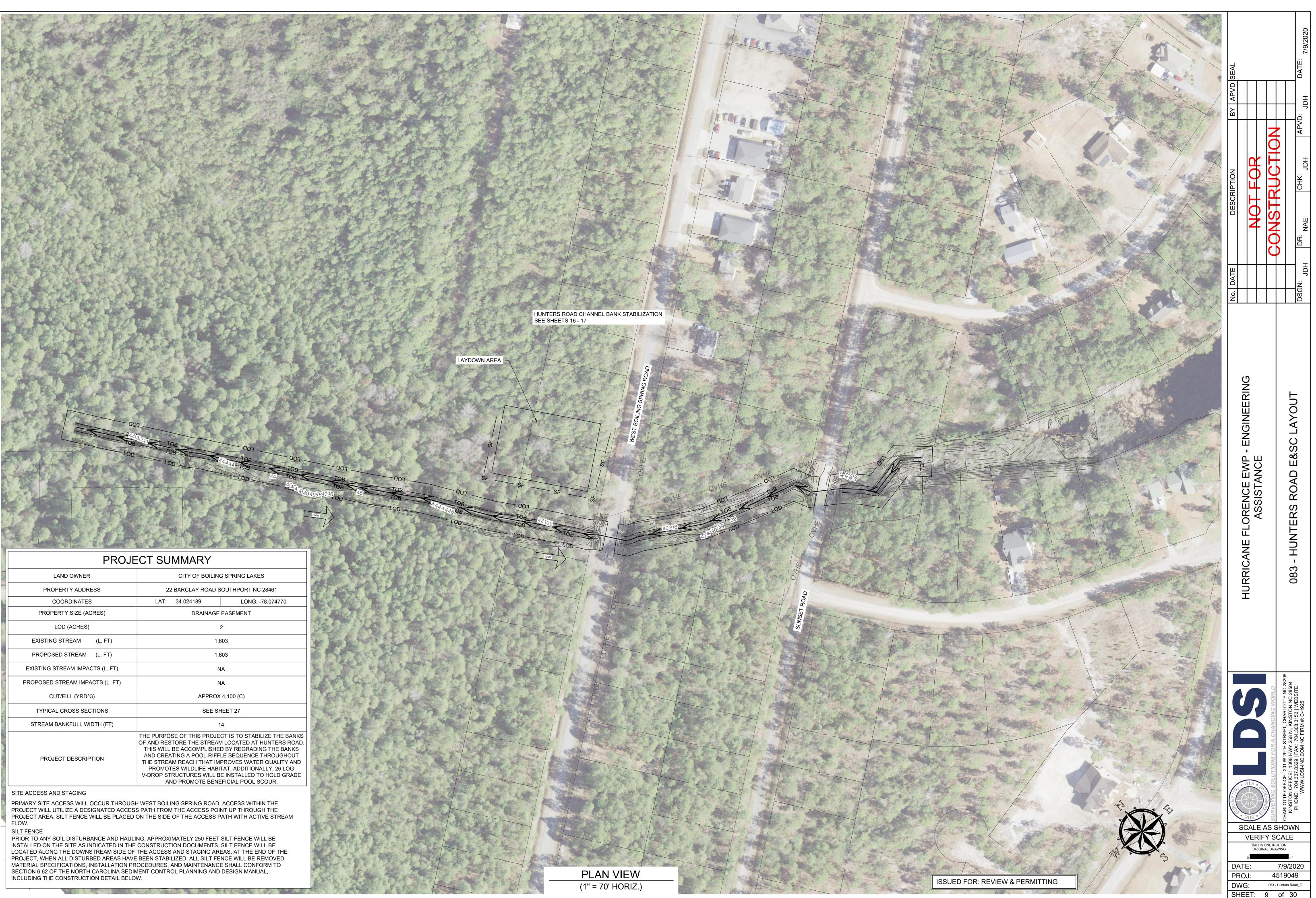
SITE ACCESS AND STAGING

PRIMARY SITE ACCESS WILL OCCUR THROUGH EAST BOILING SPRING ROAD. ACCESS WITHIN THE PROJECT WILL UTILIZE A DESIGNATED ACCESS PATH FROM THE ACCESS POINT UP THROUGH THE PROJECT AREA. SILT FENCE WILL BE PLACED ON THE SIDE OF THE ACCESS PATH WITH ACTIVE STREAM FLOW.

# <u>SILT FENC</u>E

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ALC: N	LAND OWNER CITY OF BOILING SPRING LAKES		SPRING LAKES	
-	PROPERTY ADDRESS	22 BARCLAY ROAD SOUTHPORT NC 28461		
-	COORDINATES	LAT: 34.024189	LONG: -78.074770	
	PROPERTY SIZE (ACRES)	DRAINAGE EASEMENT		
1 N	LOD (ACRES)	2		
いた	EXISTING STREAM (L. FT)	1,603		
No. of Lot	PROPOSED STREAM (L. FT)	1,603		
N. A.L.C.	EXISTING STREAM IMPACTS (L. FT)	NA		
Ser. C.	PROPOSED STREAM IMPACTS (L. FT)	NA		
いたい	CUT/FILL (YRD^3)	APPROX 4,100 (C)		
A STAND	TYPICAL CROSS SECTIONS	SEE SHEET 27		
Sec. No.	STREAM BANKFULL WIDTH (FT)	14		
のないというないのである	PROJECT DESCRIPTION	THE PURPOSE OF THIS PROJEC OF AND RESTORE THE STREAM THIS WILL BE ACCOMPLISHED AND CREATING A POOL-RIFFL THE STREAM REACH THAT IMP PROMOTES WILDLIFE HABIT, V-DROP STRUCTURES WILL BE AND PROMOTE BENEF	LOCATED AT HUNTERS ROAD. BY REGRADING THE BANKS E SEQUENCE THROUGHOUT ROVES WATER QUALITY AND AT. ADDITIONALLY, 26 LOG INSTALLED TO HOLD GRADE	

LAND OWNER	CITY OF BOILING SPRING LAKES	
PROPERTY ADDRESS	147 FOREST LANE SOUTHPORT NC 28461	
COORDINATES	LAT: 34.047758	LONG: -78.042902
PROPERTY SIZE (ACRES)	0.6	
LOD (ACRES)	0.6	
CUT/FILL (YRD^3)	APPROX 300 (F)	
PROJECT DESCRIPTION	THE PURPOSE OF THIS PROJECT IS TO REPAIR AND ENHAU THE BERM SEPARATING A SMALL POND FROM PATRICIA L/ AND TO RESTORE THE WATER LEVEL OF THE POND. THI WILL BE ACCOMPLISHED BY BACKFILLING THE WASHED C SECTION OF THE BERM, REGRADING AND PLANTING TH BERM TO ENHANCE STABILITY, ADDING AN ARMORED EMERGENCY SPILLWAY FOR HIGH-FLOW EVENTS, AND ADDING A RISER STRUCTURE TO REGULATE THE WATEL LEVEL OF THE POND.	





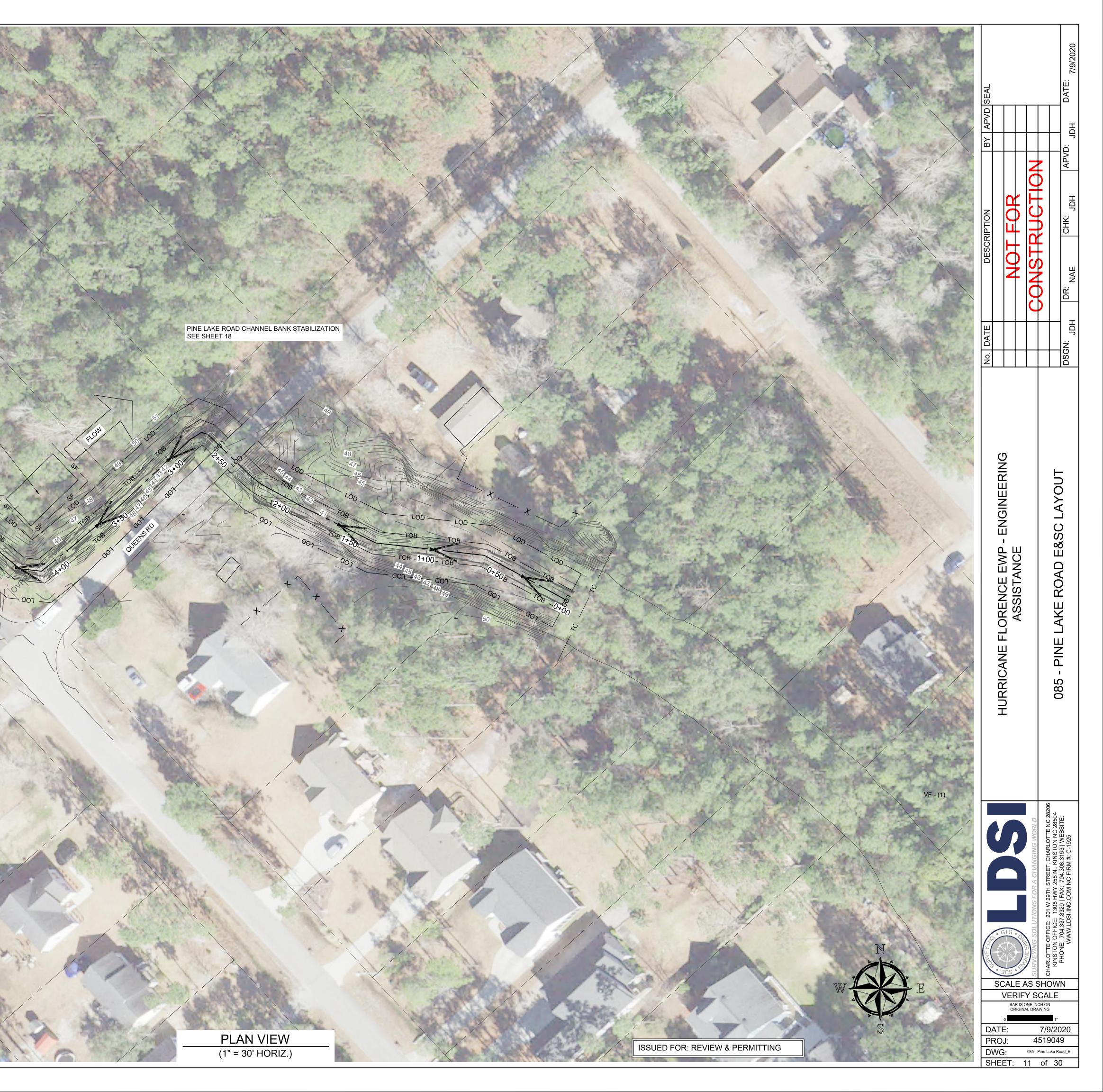
PROJE	ECT SUMMARY		
LAND OWNER	CITY OF BOILING SPRING LAKES		
PROPERTY ADDRESS	370 PINE LAKE ROAD SOUTHPORT NC 28461		
COORDINATES	LAT: 34.040290 LONG: -78.068214		
PROPERTY SIZE (ACRES)	DRAINAGE EASEMENT		
LOD (ACRES)	0.48		
EXISTING STREAM (L. FT)	564		
PROPOSED STREAM (L. FT)	564		
EXISTING STREAM IMPACTS (L. FT)	NA		
PROPOSED STREAM IMPACTS (L. FT)	NA		
CUT/FILL (YRD^3)	APPROX 1,300 (C)		
TYPICAL CROSS SECTIONS	SEE SHEET 27		
STREAM BANKFULL WIDTH (FT)	11		
PROJECT DESCRIPTION	THE PURPOSE OF THIS PROJECT IS TO STABILIZE THE BANKS OF AND RESTORE THE STREAM LOCATED AT PINE LAKE ROAD. THIS WILL BE ACCOMPLISHED BY REGRADING THE BANKS AND CREATING A POOL-RIFFLE SEQUENCE THAT ENHANCES WATER QUALITY AND PROMOTES WILDLIFE HABITAT. ADDITIONALLY, 6 LOG V-DROP STRUCTURES WILL BE INSTALLED WITHIN THE STREAM REACH TO HOLD GRADE AND PROMOTE BENEFICIAL POOL SCOUR.		

SITE ACCESS AND STAGING

PRIMARY SITE ACCESS WILL OCCUR THROUGH PINE LAKE ROAD. ACCESS WITHIN THE PROJECT WILL UTILIZE A DESIGNATED ACCESS PATH FROM THE ACCESS POINT UP THROUGH THE PROJECT AREA. SILT FENCE WILL BE PLACED ON THE SIDE OF THE ACCESS PATH WITH ACTIVE STREAM FLOW.

### <u>SILT FENCE</u>

PRIOR TO ANY SOIL DISTURBANCE AND HAULING, APPROXIMATELY 250 FEET SILT FENCE WILL BE INSTALLED ON THE SITE AS INDICATED IN THE CONSTRUCTION DOCUMENTS. SILT FENCE WILL BE LOCATED ALONG THE DOWNSTREAM SIDE OF THE ACCESS AND STAGING AREAS. AT THE END OF THE PROJECT, WHEN ALL DISTURBED AREAS HAVE BEEN STABILIZED, ALL SILT FENCE WILL BE REMOVED. MATERIAL SPECIFICATIONS, INSTALLATION PROCEDURES, AND MAINTENANCE SHALL CONFORM TO SECTION 6.62 OF THE NORTH CAROLINA SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, INCLUDING THE CONSTRUCTION DETAIL BELOW.



# PROJECT SUMMARY

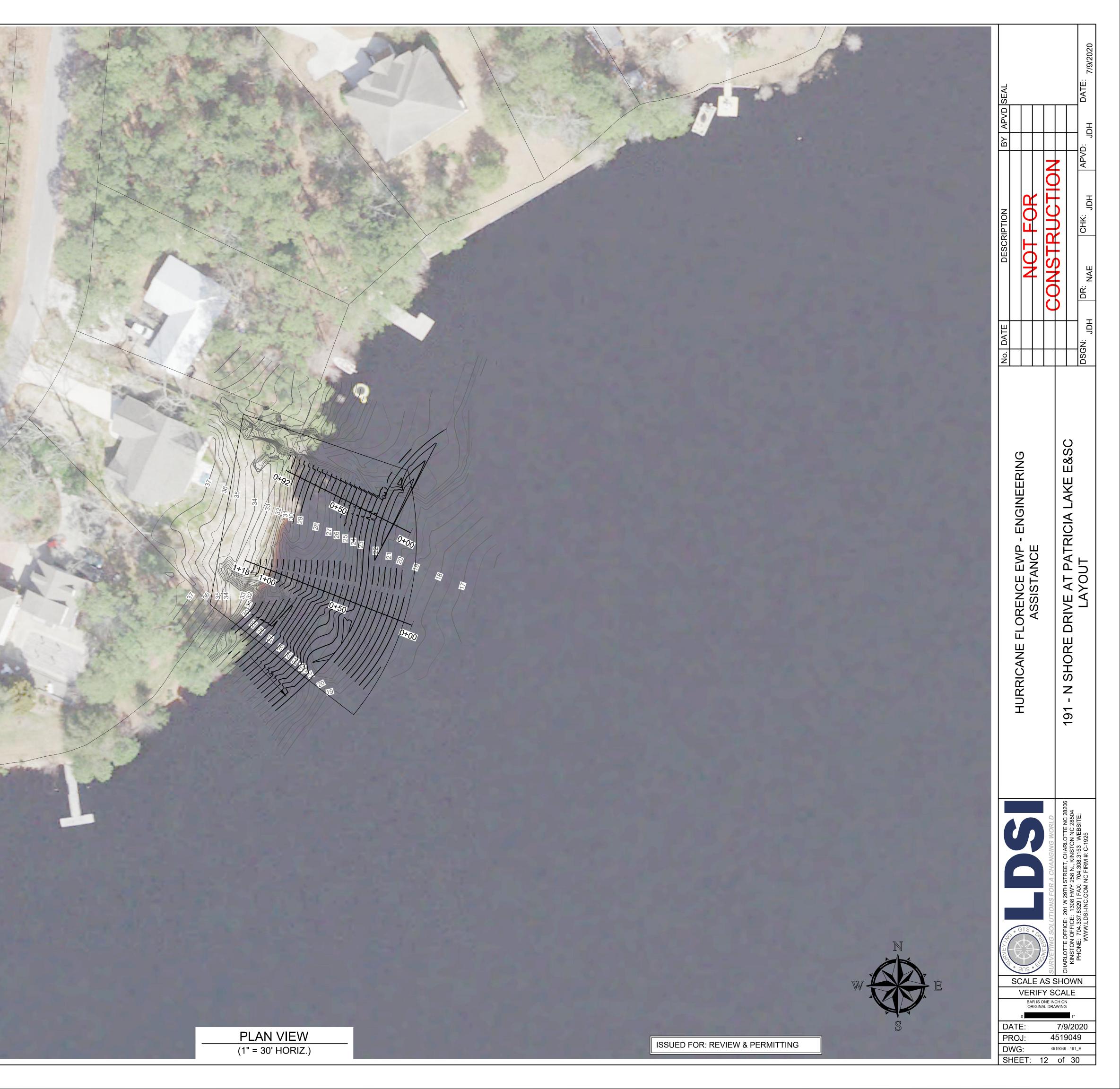
LAND OWNER	CITY OF BOILING SPRING LAKES	
PROPERTY ADDRESS	1460 N SHORE DRIVE SOUTHPORT NC 28461	
COORDINATES	LAT: 34.046473 LONG: -78.041	
PROPERTY SIZE (ACRES)	1	
LOD (ACRES)	1	
CUT/FILL (YRD^3)	APPROX 2000 (F)	
PROJECT DESCRIPTION	THE PURPOSE OF THIS PROJECT IS TO STABILIZE THE BAN LOCATED AT NORTH SHORE DRIVE. THIS WILL BE ACCOMPLISHED BY ESTABLISHING A TOE OF SLOPE AND GRADING BACK TO DAYLIGHT IN THE DAMAGED YARD. TH SLOPE WILL THEN BE STABILIZED VIA PLANTING UNTIL TH WATER LEVEL OF PATRICIA LAKE IS RE-ESTABLISHED.	

SITE ACCESS AND STAGING

PRIMARY SITE ACCESS WILL OCCUR THROUGH N SHORE DRIVE. ACCESS WITHIN THE PROJECT WILL UTILIZE A DESIGNATED ACCESS PATH FROM THE ACCESS POINT UP THROUGH THE PROJECT AREA. SILT FENCE WILL BE PLACED ON THE SIDE OF THE ACCESS PATH WITH ACTIVE STREAM FLOW.

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	State C. Sugar	20
5	LAYDOWN AREA	/

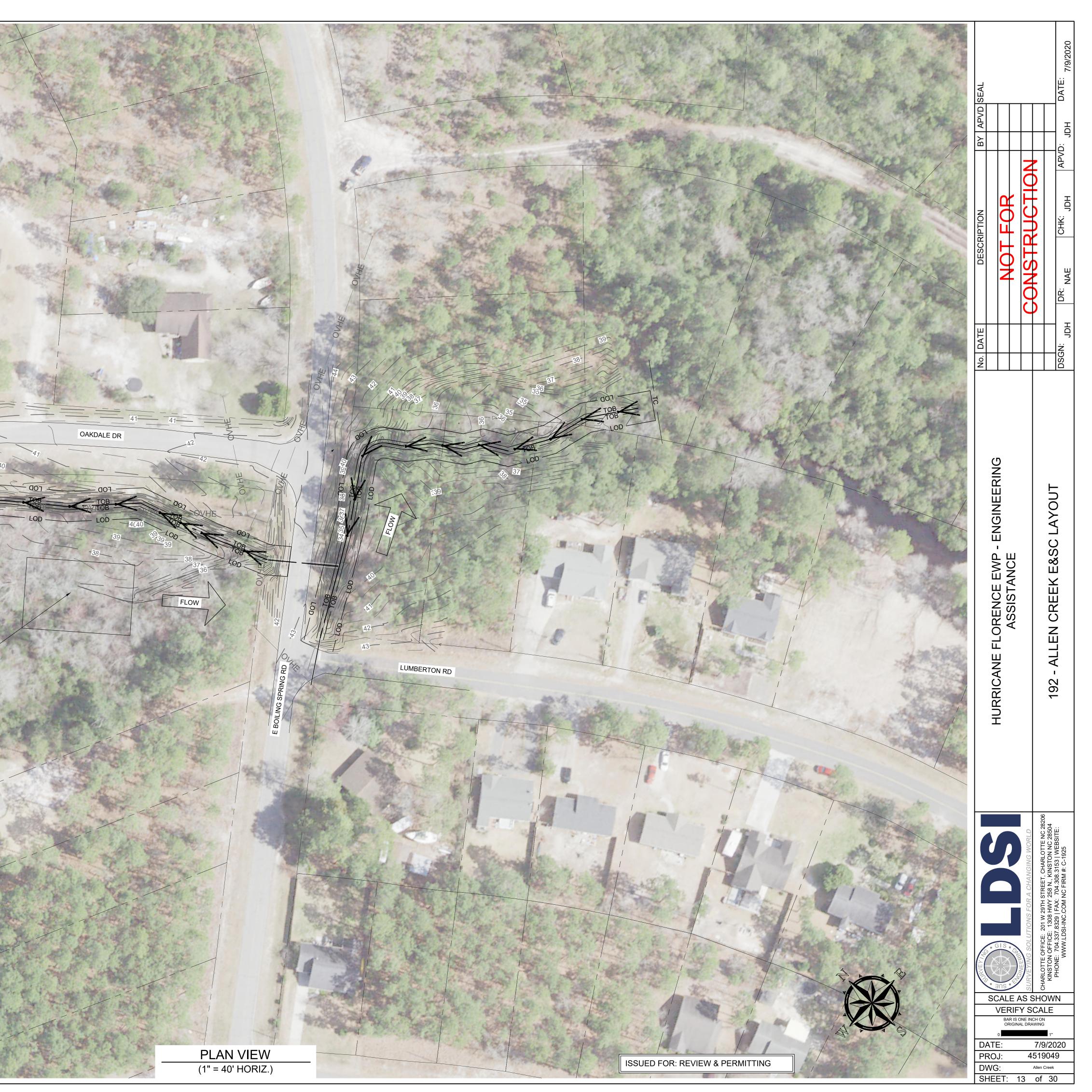
PROJ	ECT SUMMARY		
LAND OWNER	CITY OF BOILING SPRING LAKES		
PROPERTY ADDRESS	22 BARCLAY ROAD SOUTHPORT NC 28461		
COORDINATES	LAT: 34.024189	LONG: -78.074770	
PROPERTY SIZE (ACRES)	DRAINAGE EASEMENT		
LOD (ACRES)	SR1: 0.26	SR2: 0.26	
EXISTING STREAM (L. FT)	SR1: 461	SR2: 455	
PROPOSED STREAM (L. FT)	SR1: 461	SR2: 455	
EXISTING STREAM IMPACTS (L. FT)	N	A	
PROPOSED STREAM IMPACTS (L. FT)	NA		
CUT/FILL (YRD^3)	APPROX 500 (C)	APPROX 500 (C)	
TYPICAL CROSS SECTIONS	SEE SH	IEET 27	
STREAM BANKFULL WIDTH (FT)	SR1: 5	SR2: 6	
PROJECT DESCRIPTION	SR1: 5SR2: 6THE PURPOSE OF THIS PROJECT IS TO STABILIZE THE BAN OF AND RESTORE THE STREAM LOCATED AT EAST BOILIN SPRING ROAD. THIS WILL BE ACCOMPLISHED BY REGRAD THE STREAM AND CREATING A POOL-RIFFLE SEQUENCY THAT ENHANCES WATER QUALITY AND PROMOTES WILDL HABITAT. ADDITIONALLY, 21 LOG V-DROPS WILL BE INSTAL THROUGHOUT BOTH THE UPPER AND LOWER REACHES OF THE STREAM TO HOLD GRADE AND PROMOTE BENEFICIAN POOL SCOUR. A SERIES OF 7 LOG SILLS WILL BE INSTALL AT THE START OF THE DOWNSTREAM REACH TO HOLD GRADE AS FLOW ENTERS FROM THE CULVERT THAT RUN UNDERNEATH LUMBERTON ROAD.		
SITE ACCESS AND STAGING			

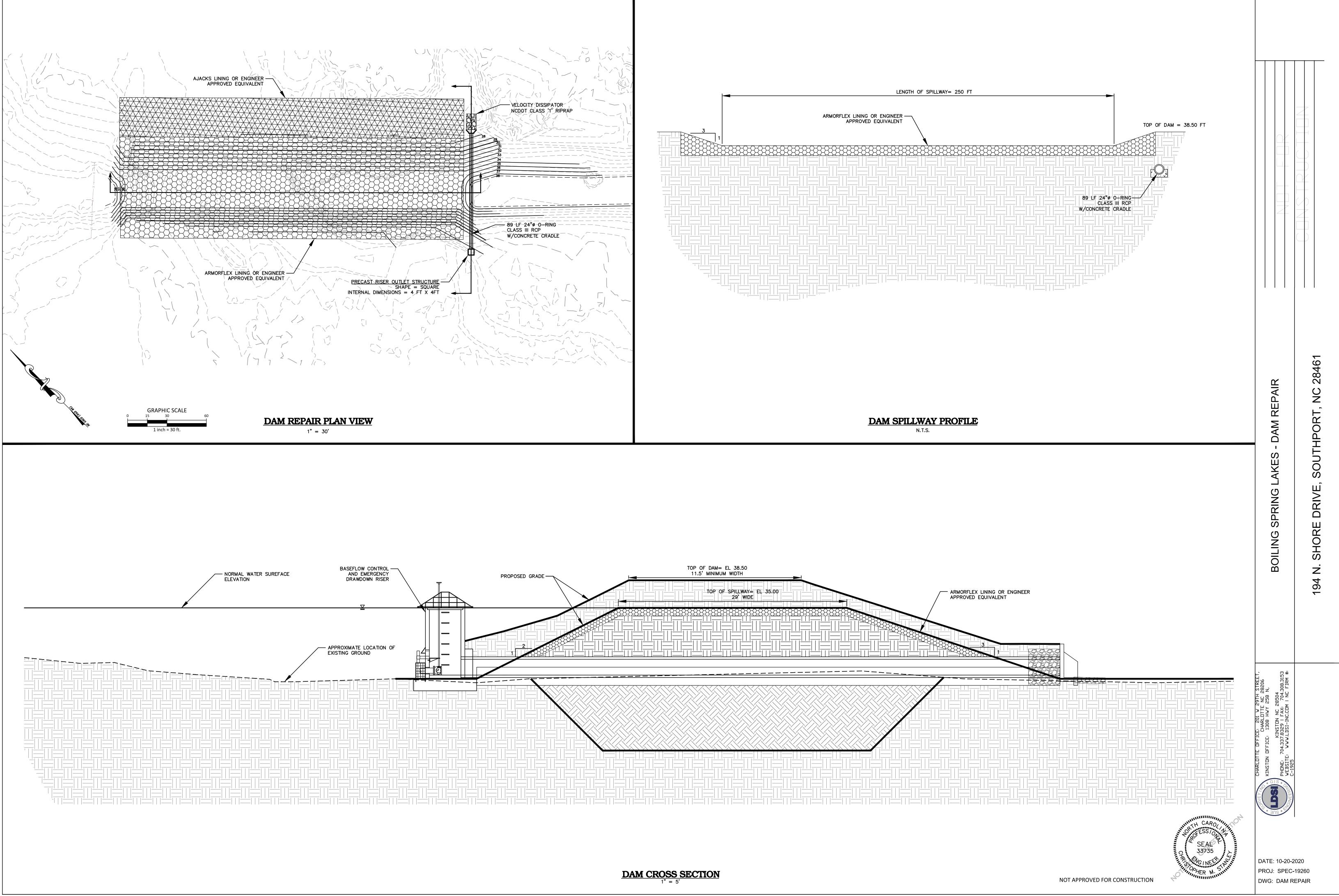
SITE ACCESS AND STAGING

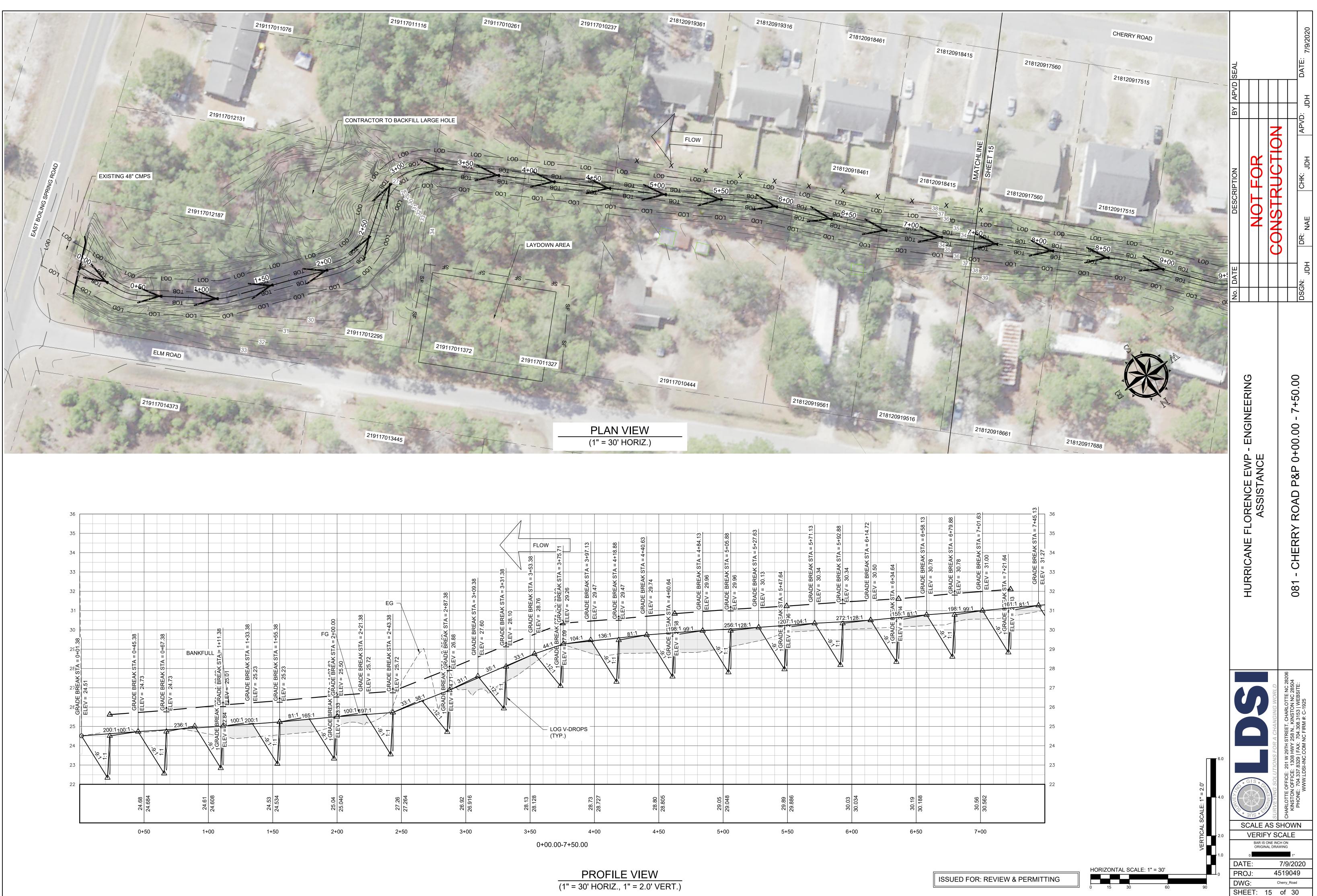
PRIMARY SITE ACCESS WILL OCCUR THROUGH OAKDALE DRIVE. ACCESS WITHIN THE PROJECT WILL UTILIZE A DESIGNATED ACCESS PATH FROM THE ACCESS POINT UP THROUGH THE PROJECT AREA. SILT FENCE WILL BE PLACED ON THE SIDE OF THE ACCESS PATH WITH ACTIVE STREAM FLOW.

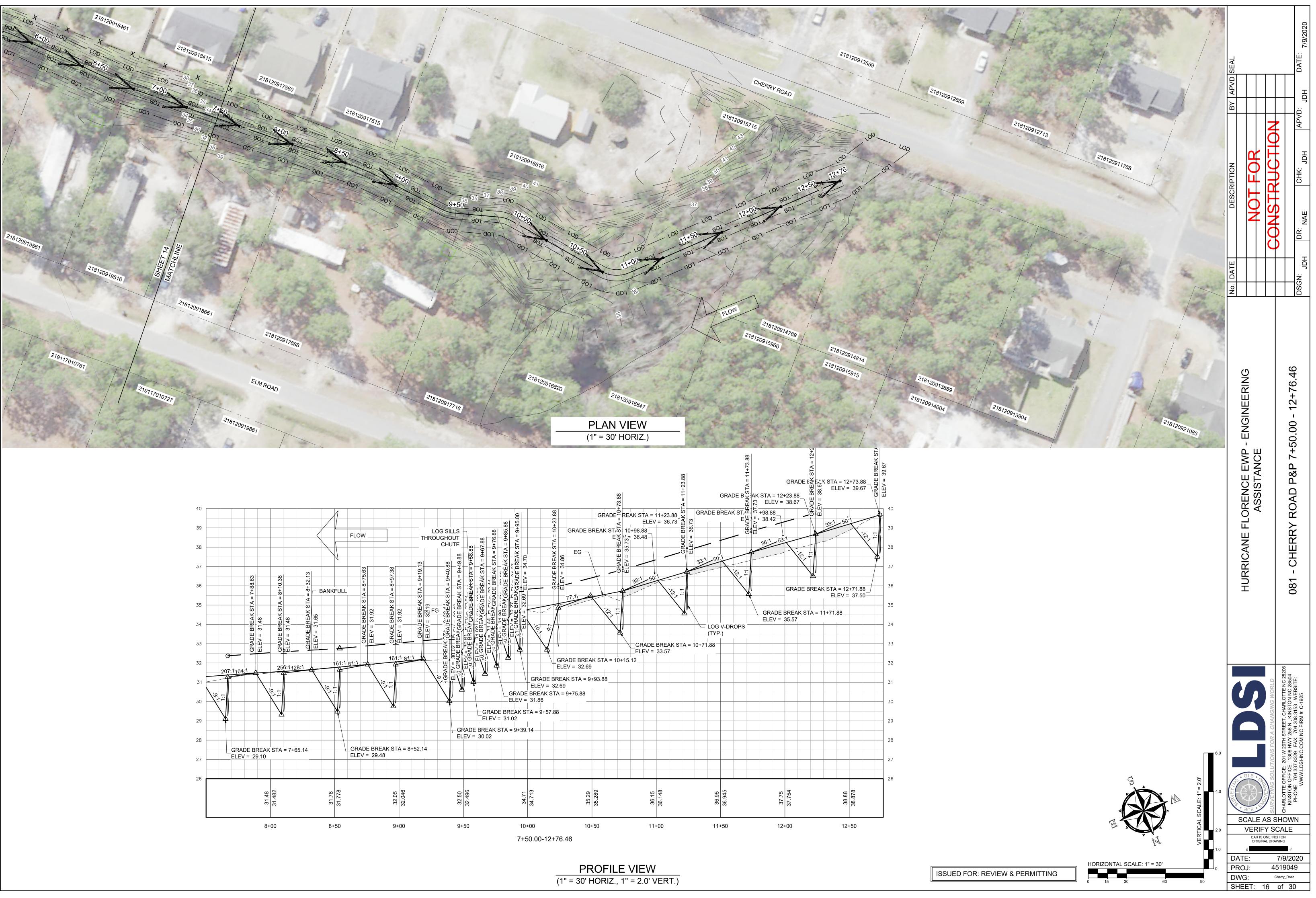
### <u>SILT FENCE</u>

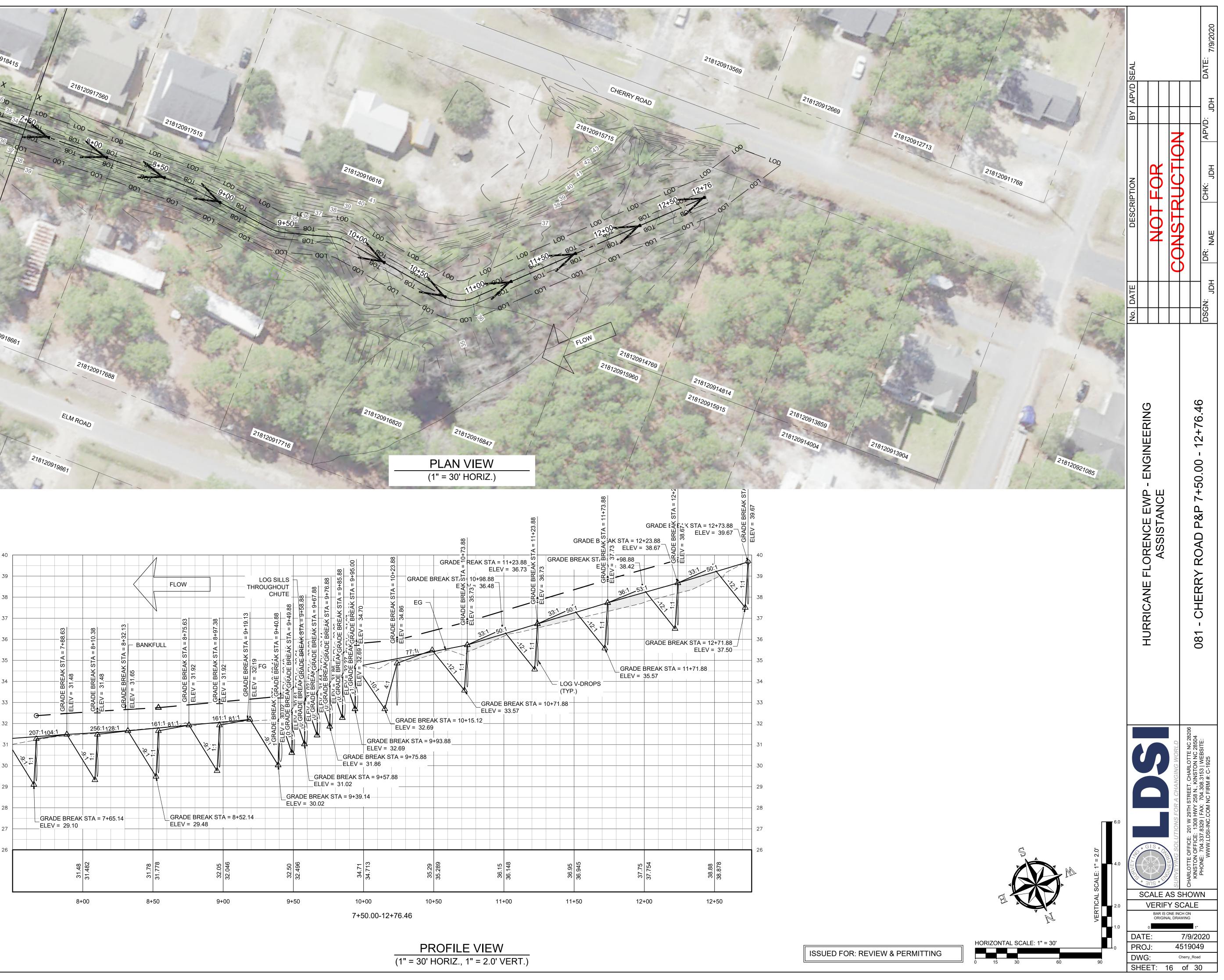
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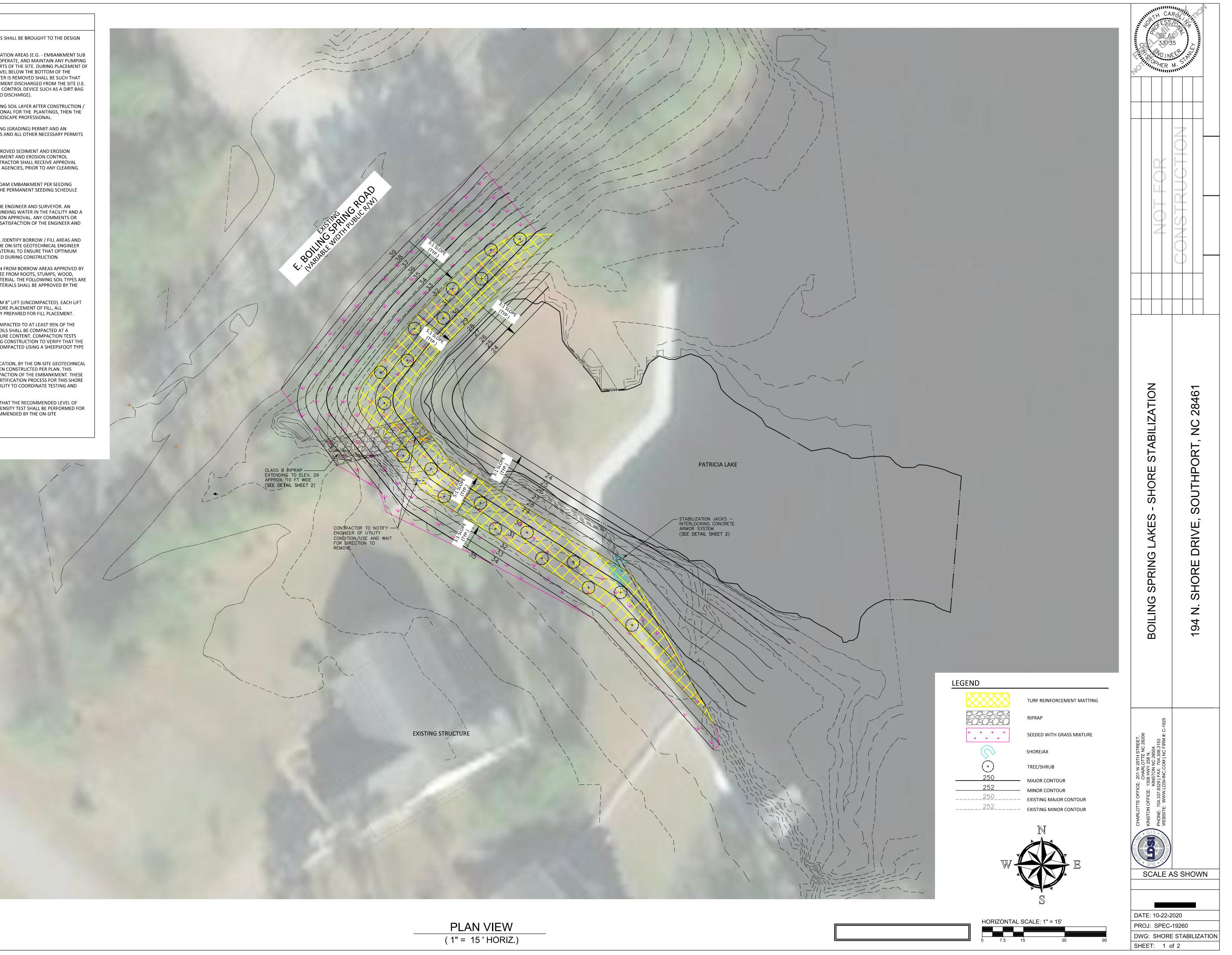


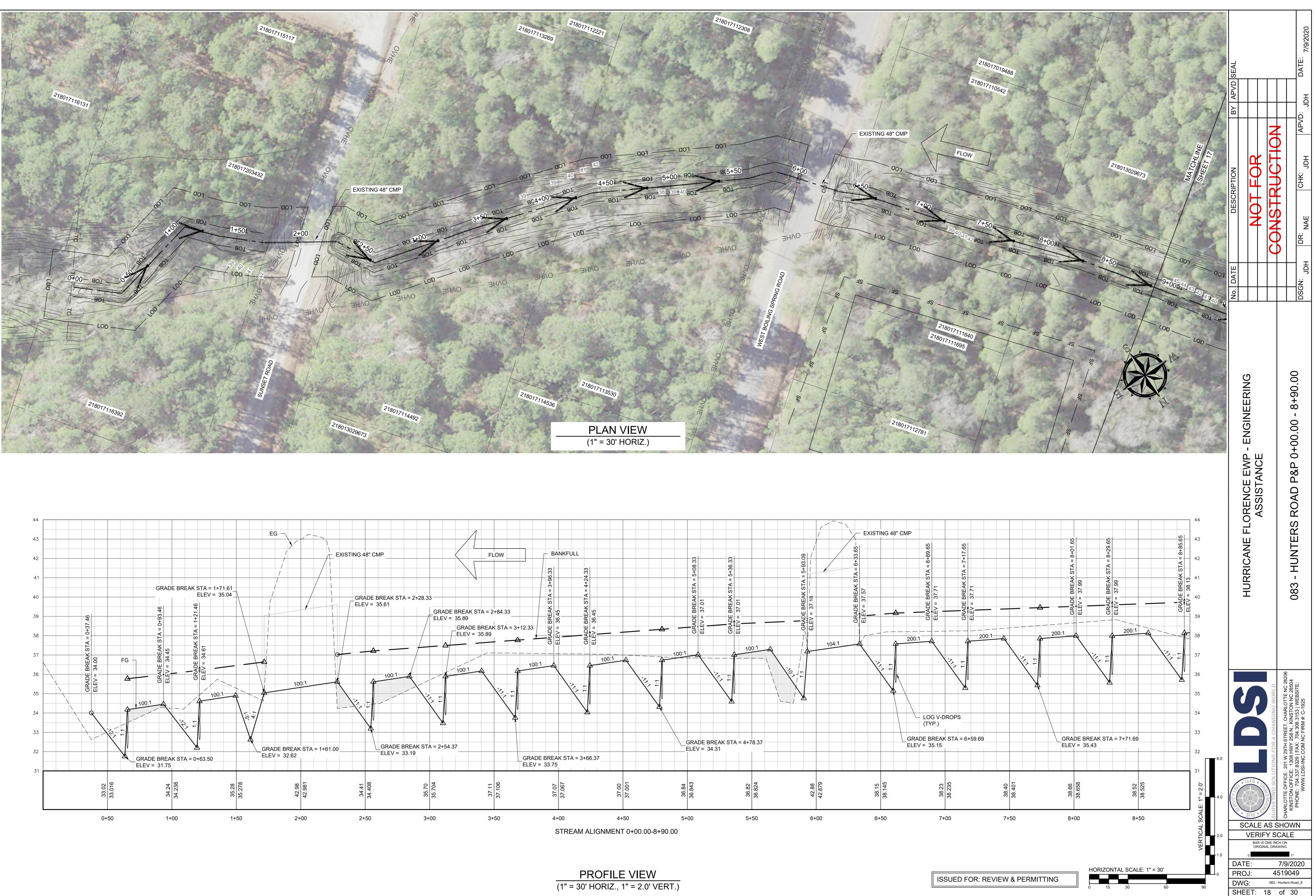


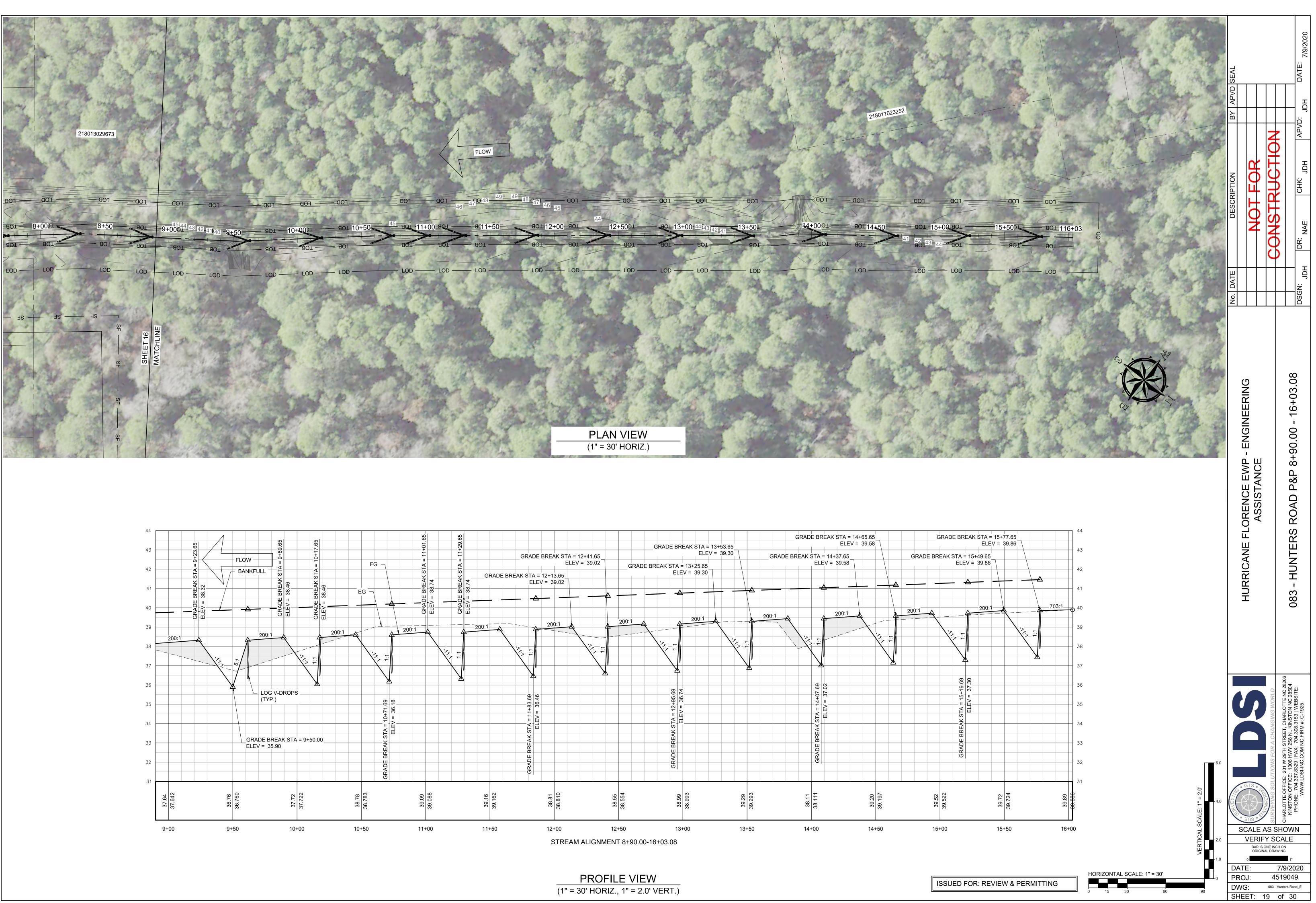


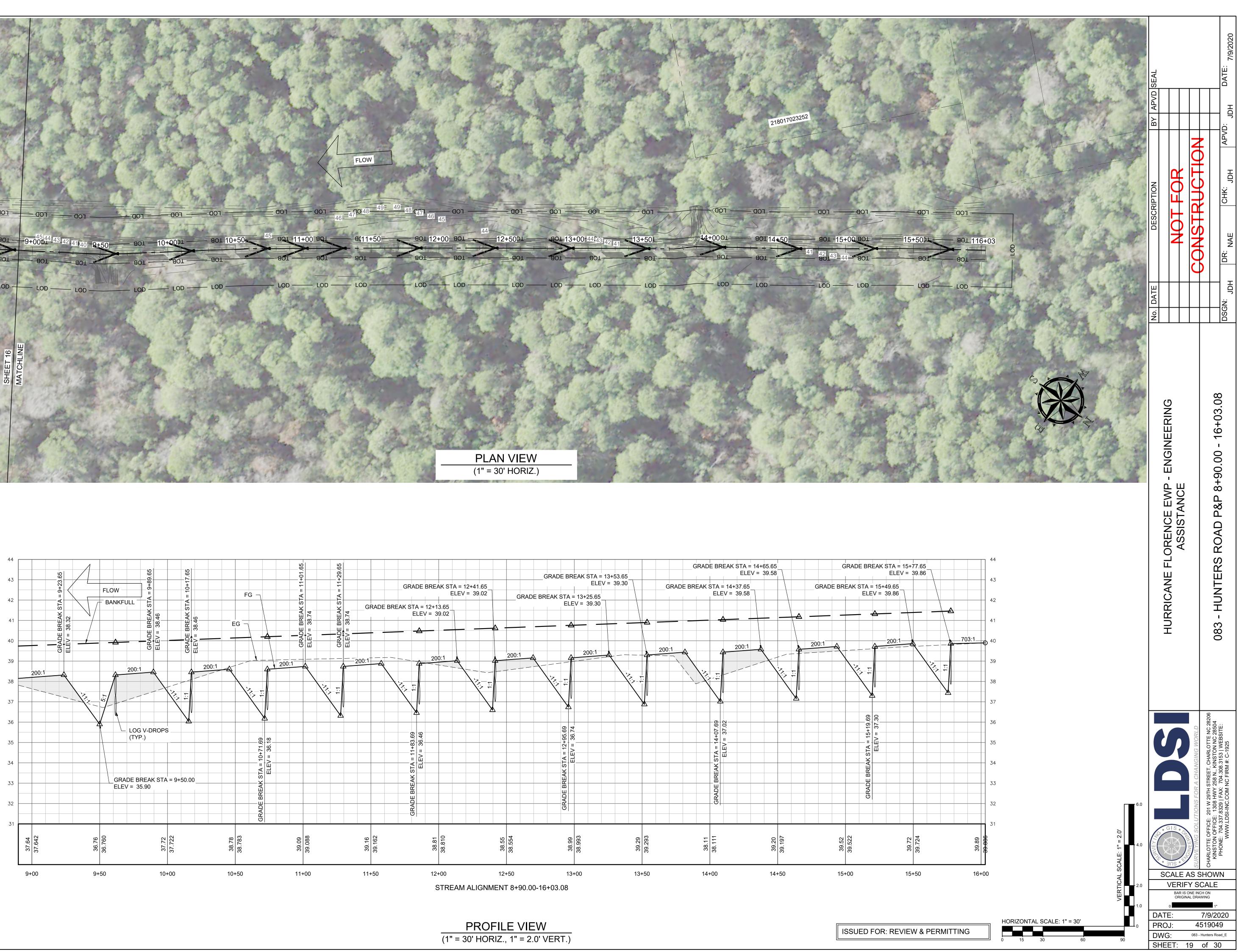
# **GENERAL NOTES**

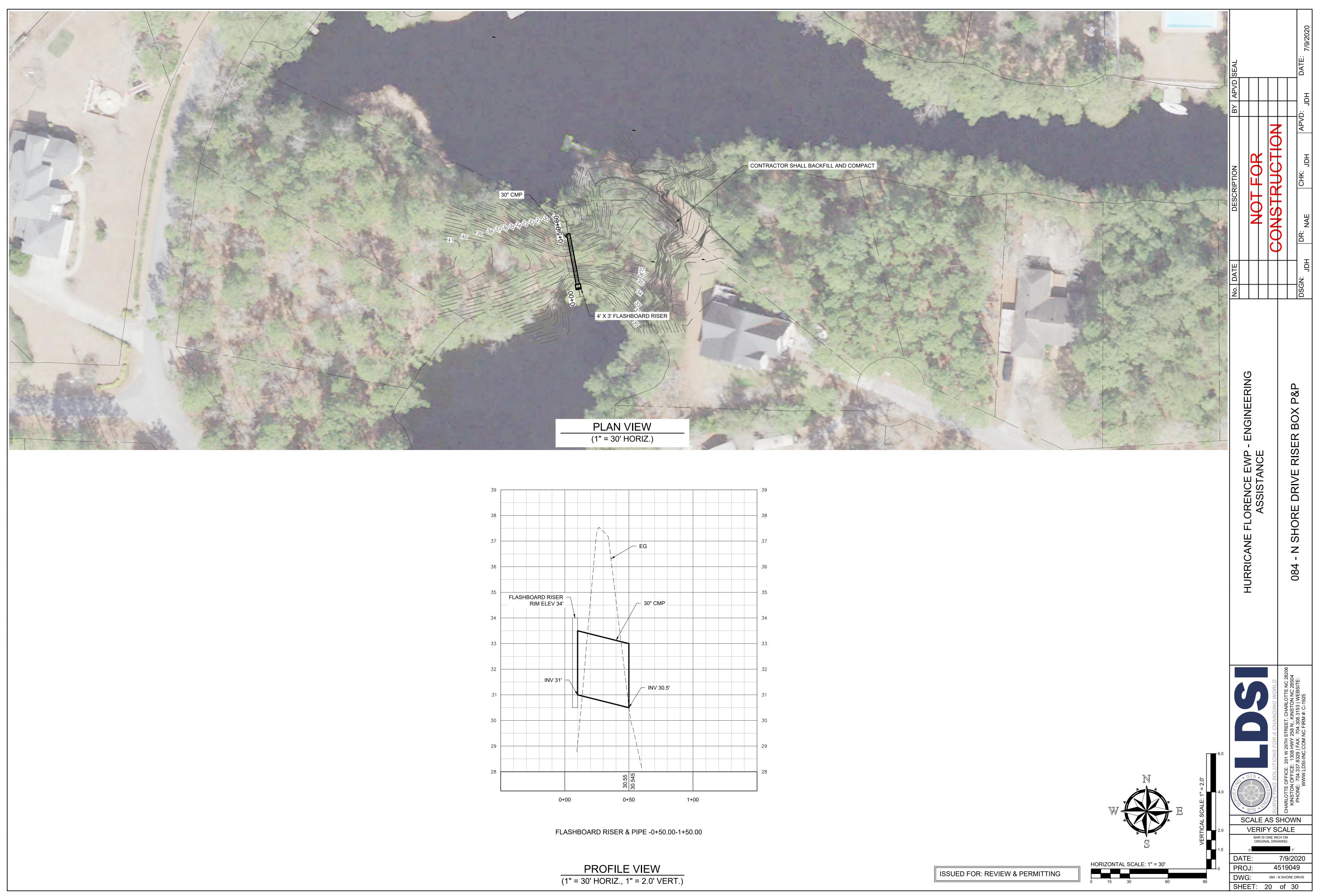
- PRIOR TO CONSTRUCTION, ANY DISCREPANCIES IN THE PLANS AND NOTES SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION IMMEDIATELY.
- . IT IS ANTICIPATED THAT DEWATERING MAY BE NECESSARY IN THE EXCAVATION AREAS (E.G. EMBANKMENT SUB GRADE, ETC.). THEREFORE, THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ANY PUMPING EQUIPMENT, ETC. NEEDED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE SITE. DURING PLACEMENT OF FILL WITHIN THESE AREAS, THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION / CONSTRUCTION AREAS. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES ARE STABLE, WITH NO SEDIMENT DISCHARGED FROM THE SITE (I.E. PUMPED WATER MAY NEED TO BE DIRECTED TO AN APPROVED EROSION CONTROL DEVICE SUCH AS A DIRT BAG (ACF ENVIRONMENTAL), OR ENGINEER APPROVED EQUIVALENT, PRIOR TO DISCHARGE).
- THE GRADES SHOWN ON THIS PLAN ARE FINISHED GRADES. IF THE EXISTING SOIL LAYER AFTER CONSTRUCTION / COMPACTION IS NOT DETERMINED SUITABLE BY A LANDSCAPE PROFESSIONAL FOR THE PLANTINGS, THEN THE CONTRACTOR SHALL AMEND THE PLANTING AREA AS DIRECTED BY A LANDSCAPE PROFESSIONAL.
- PRIOR TO CONSTRUCTION, THE OWNER SHALL OBTAIN A LAND DISTURBING (GRADING) PERMIT AND AN "APPROVAL TO CONSTRUCT" FROM THE TOWN OF BOILING SPRING LAKES AND ALL OTHER NECESSARY PERMITS FROM APPLICABLE AGENCIES (E.G. 404 / 401 PERMITS).
- INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT THE ENTIRE PROJECT, AS REQUIRED. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE EROSION CONTROL INSPECTOR, AS REQUIRED BY GOVERNING AGENCIES, PRIOR TO ANY CLEARING.
- 5. UPON COMPLETION OF EMBANKMENT, PROMPTLY STABILIZE AND SEED DAM EMBANKMENT PER SEEDING SCHEDULE. PERMANENT GROUND COVER SHALL BE ESTABLISHED PER THE PERMANENT SEEDING SCHEDULE FOUND ON SHEET 2.
- SCHEDULE A FINAL AS-BUILT INSPECTION AND AS-BUILT SURVEY WITH THE ENGINEER AND SURVEYOR. AN AS-BUILT INSPECTION AND SURVEY SHALL BE SCHEDULED BEFORE IMPOUNDING WATER IN THE FACILITY AND A MINIMUM OF 60 DAYS PRIOR TO THE ANTICIPATED DATE OF CERTIFICATION APPROVAL. ANY COMMENTS OR DEFICIENCIES IN THE SCM CONSTRUCTION MUST BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND OWNER BEFORE CERTIFICATION SHALL BE GRANTED.
- 8. PRIOR TO CONSTRUCTION, THE ON-SITE GEOTECHNICAL ENGINEER SHALL IDENTIFY BORROW / FILL AREAS AND VERIFY THEIR SUITABILITY FOR USE WITHIN THE EMBANKMENT. ALSO, THE ON-SITE GEOTECHNICAL ENGINEER SHALL PERFORM STANDARD PROCTORS ON THE PROPOSED BORROW MATERIAL TO ENSURE THAT OPTIMUM MOISTURE CONTENT AND COMPACTION CAN BE ACHIEVED / CONTROLLED DURING CONSTRUCTION.
- ALL FILL MATERIALS TO BE USED FOR THE EMBANKMENT SHALL BE TAKEN FROM BORROW AREAS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE FILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, WOOD, STONES GREATER THAN 6", AND FROZEN OR OTHER OBJECTIONABLE MATERIAL. THE FOLLOWING SOIL TYPES ARE SUITABLE FOR USE AS FILL WITHIN THE EMBANKMENT: TBD. ALL FILL MATERIALS SHALL BE APPROVED BY THE ONSITE GEOTECHNICAL ENGINEER FOR THE INTENDED USE.
- 10. FILL PLACEMENT FOR THE EMBANKMENT SHALL NOT EXCEED A MAXIMUM 8" LIFT (UNCOMPACTED). EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF EMBANKMENT. BEFORE PLACEMENT OF FILL, ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND THE SURFACE PROPERLY PREPARED FOR FILL PLACEMENT.
- 11. ALL FILL SOILS USED IN THE EMBANKMENT CONSTRUCTION SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698). THE FILL SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN -1 TO +3 PERCENT OF ITS OPTIMUM MOISTURE CONTENT. COMPACTION TESTS SHALL BE PERFORMED BY THE ON-SITE GEOTECHNICAL ENGINEER DURING CONSTRUCTION TO VERIFY THAT THE PROPER COMPACTION LEVEL HAS BEEN REACHED. THE FILL SHOULD BE COMPACTED USING A SHEEPSFOOT TYPE COMPACTOR.
- 12. THE DESIGN ENGINEER SHALL BE PROVIDED WITH REPORTS AND CERTIFICATION, BY THE ON-SITE GEOTECHNICAL ENGINEER, THAT THE GEOTECHNICAL ASPECTS OF THE FACILITY HAVE BEEN CONSTRUCTED PER PLAN. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE EMBANKMENT. THESE REPORTS AND CERTIFICATION WILL BE NEEDED DURING THE AS-BUILT CERTIFICATION PROCESS FOR THIS SHORE STABILIZATION. THEREFORE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE TESTING AND OBSERVATION WITH THE ON-SITE GEOTECHNICAL ENGINEER.
- 13. TESTING OF THE NEW FILL MATERIALS SHALL BE PERFORMED TO VERIFY THAT THE RECOMMENDED LEVEL OF COMPACTION IS ACHIEVED DURING CONSTRUCTION. THEREFORE, ONE DENSITY TEST SHALL BE PERFORMED FOR EVERY 2,500 SQUARE FEET OF AREA FOR EVERY LIFT OF FILL OR AS RECOMMENDED BY THE ON-SITE GEOTECHNICAL ENGINEER.

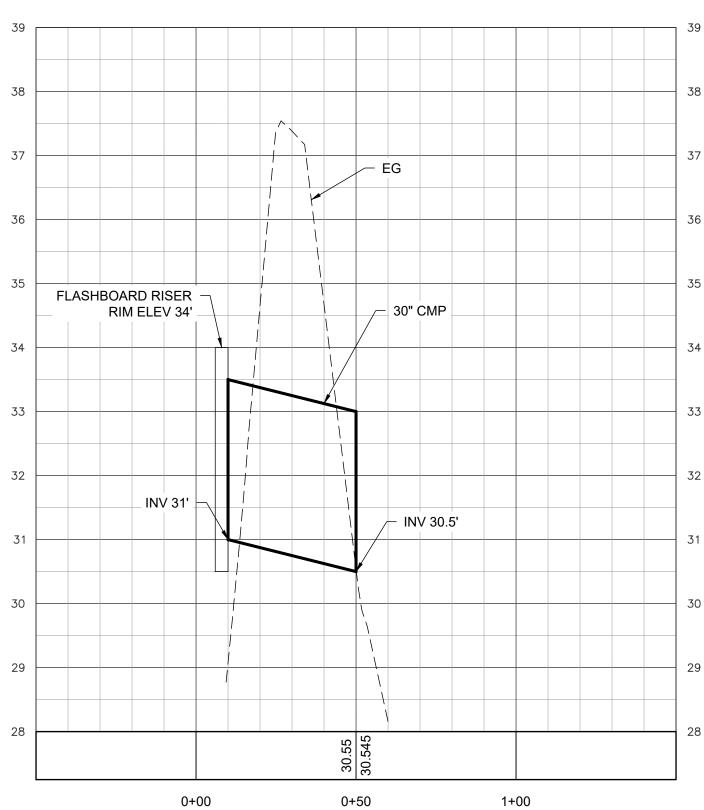


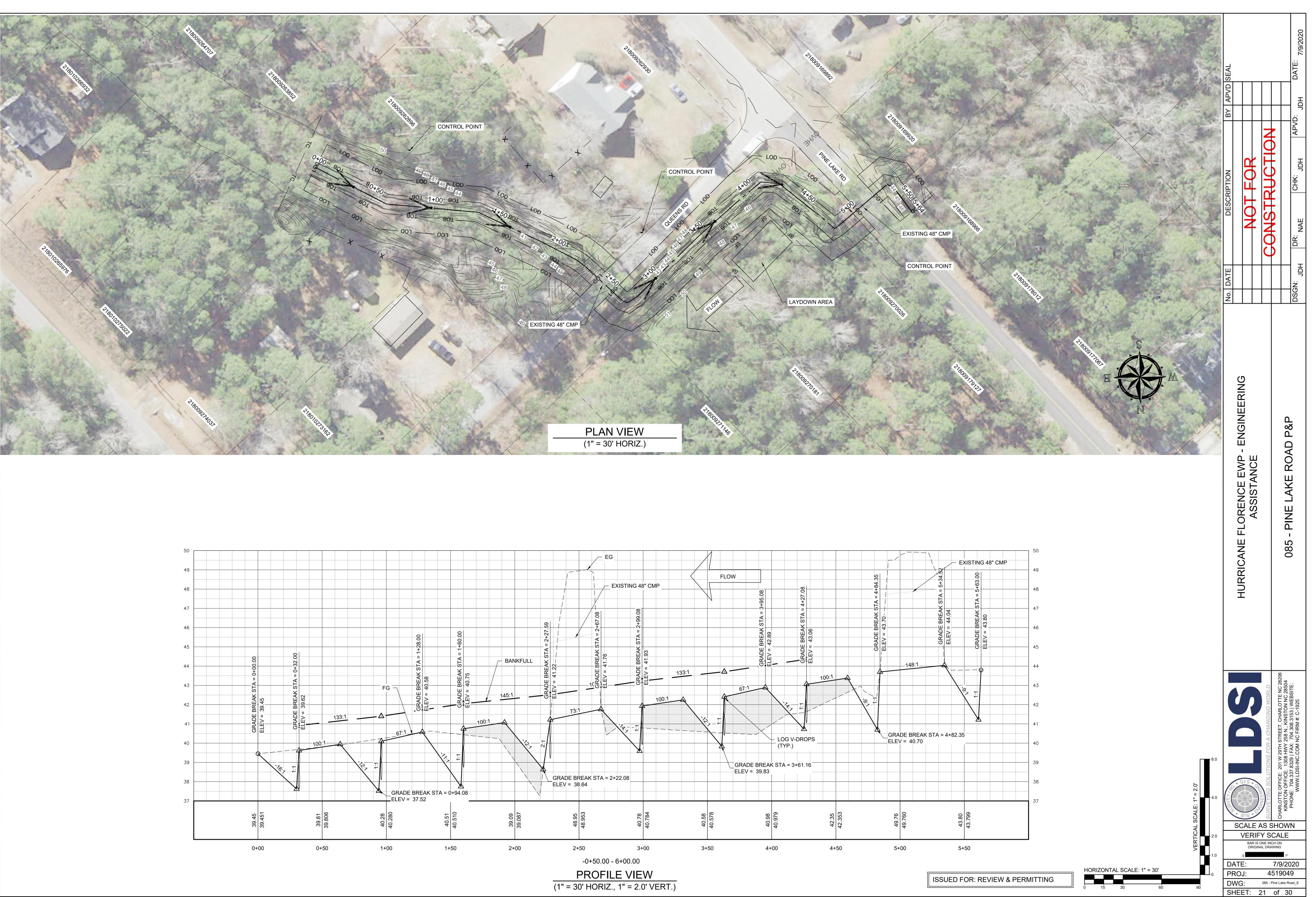


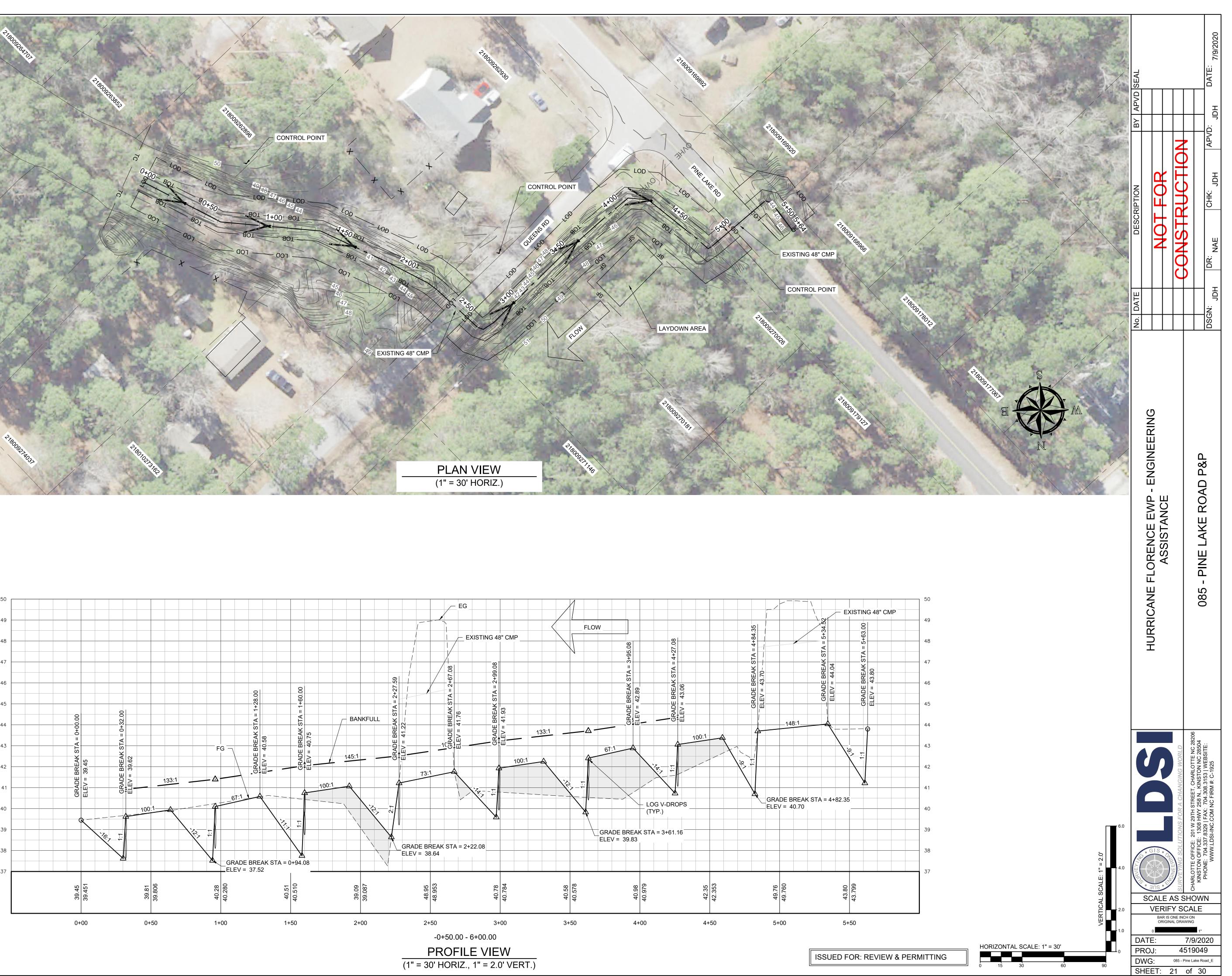


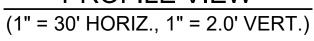




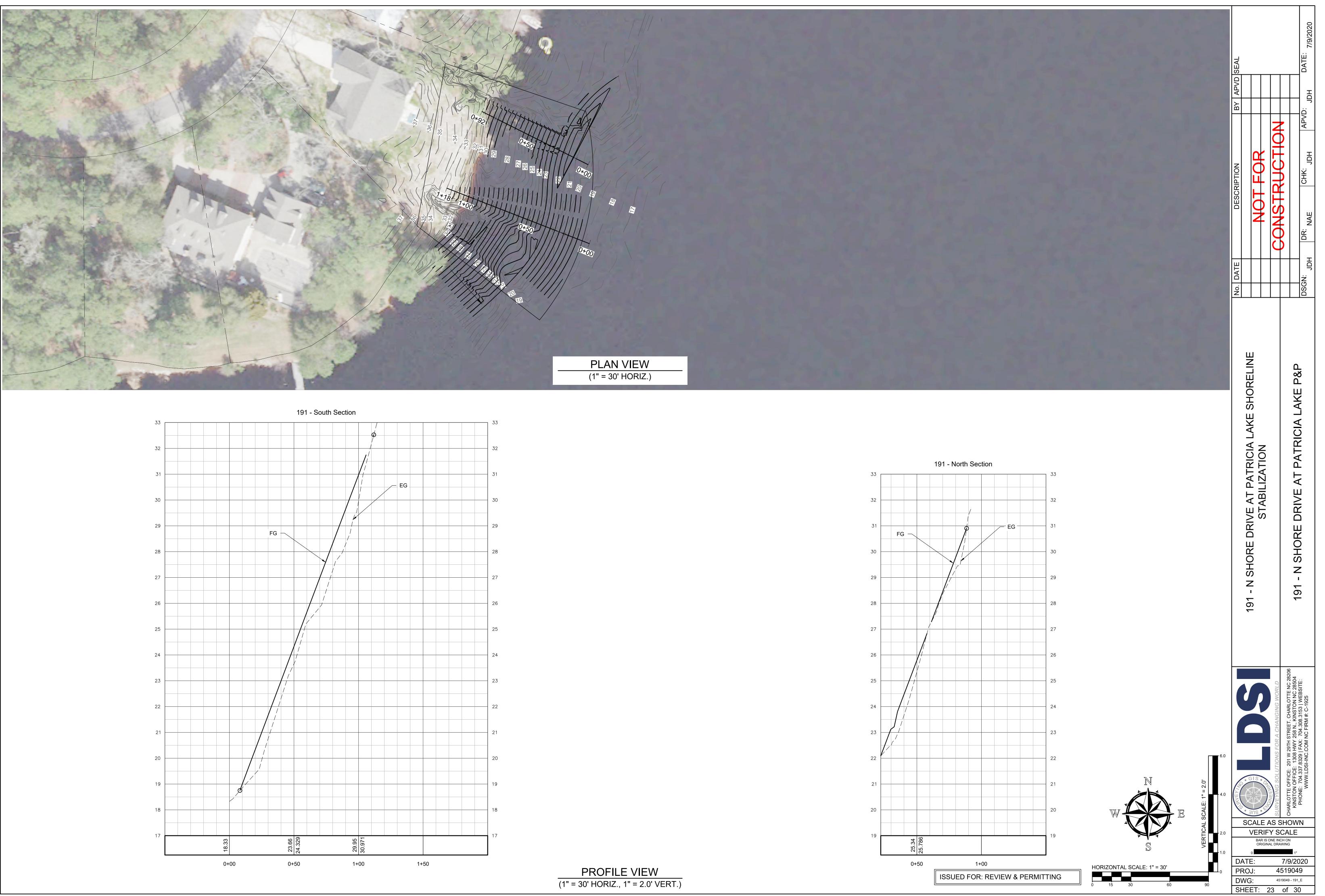


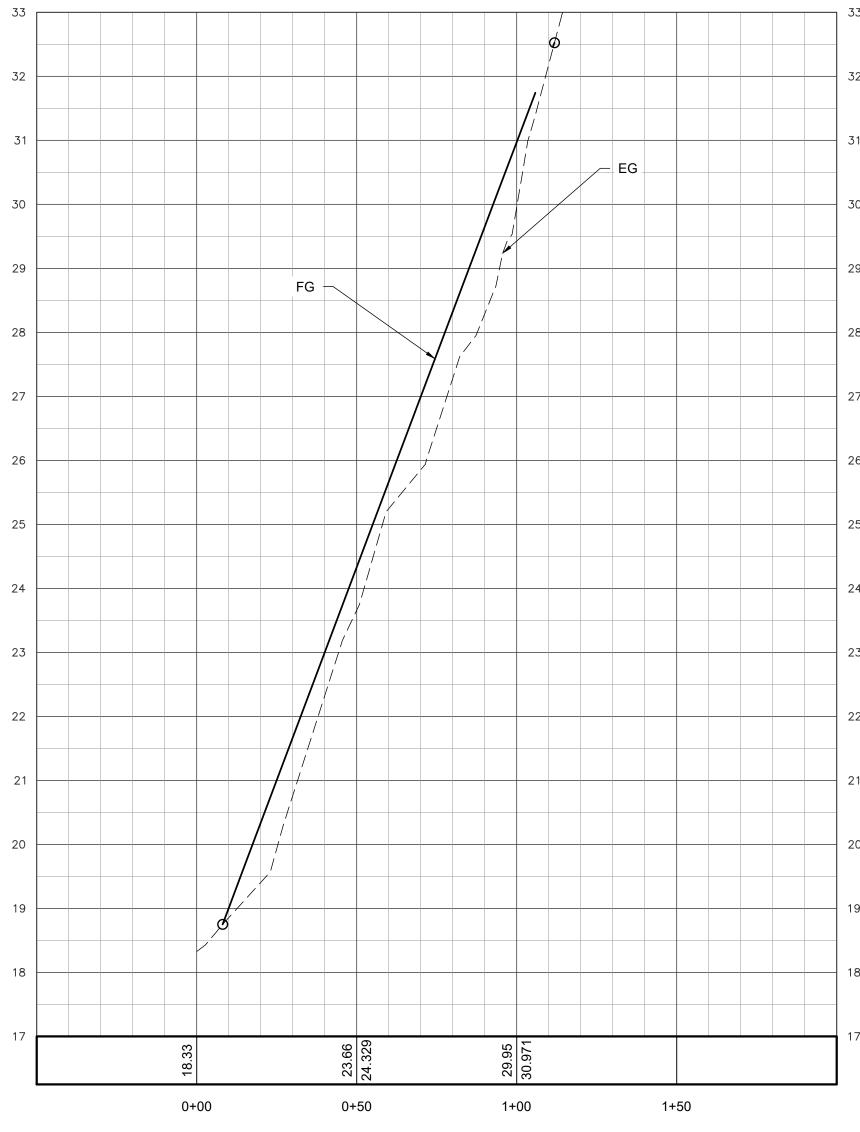


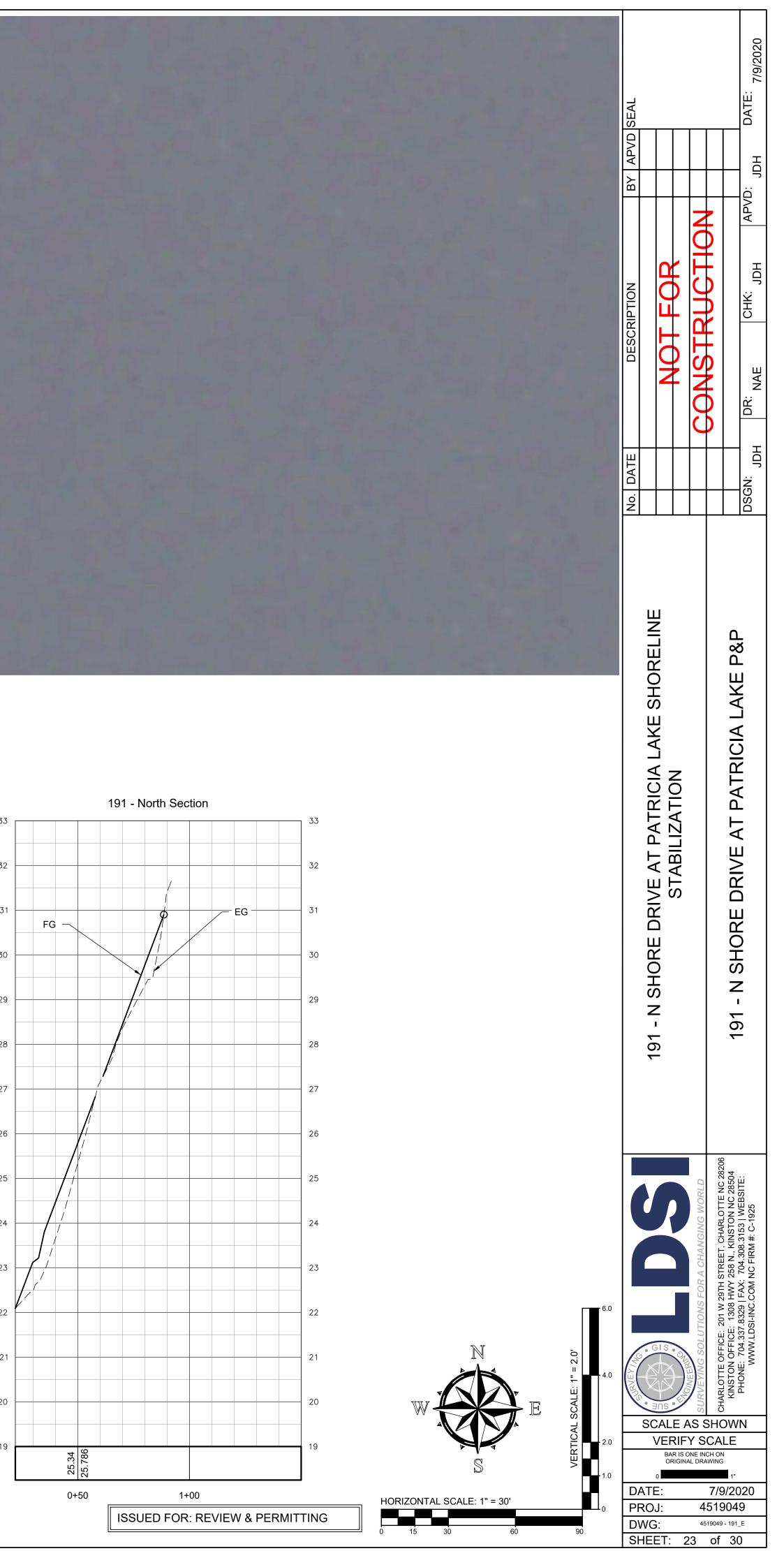




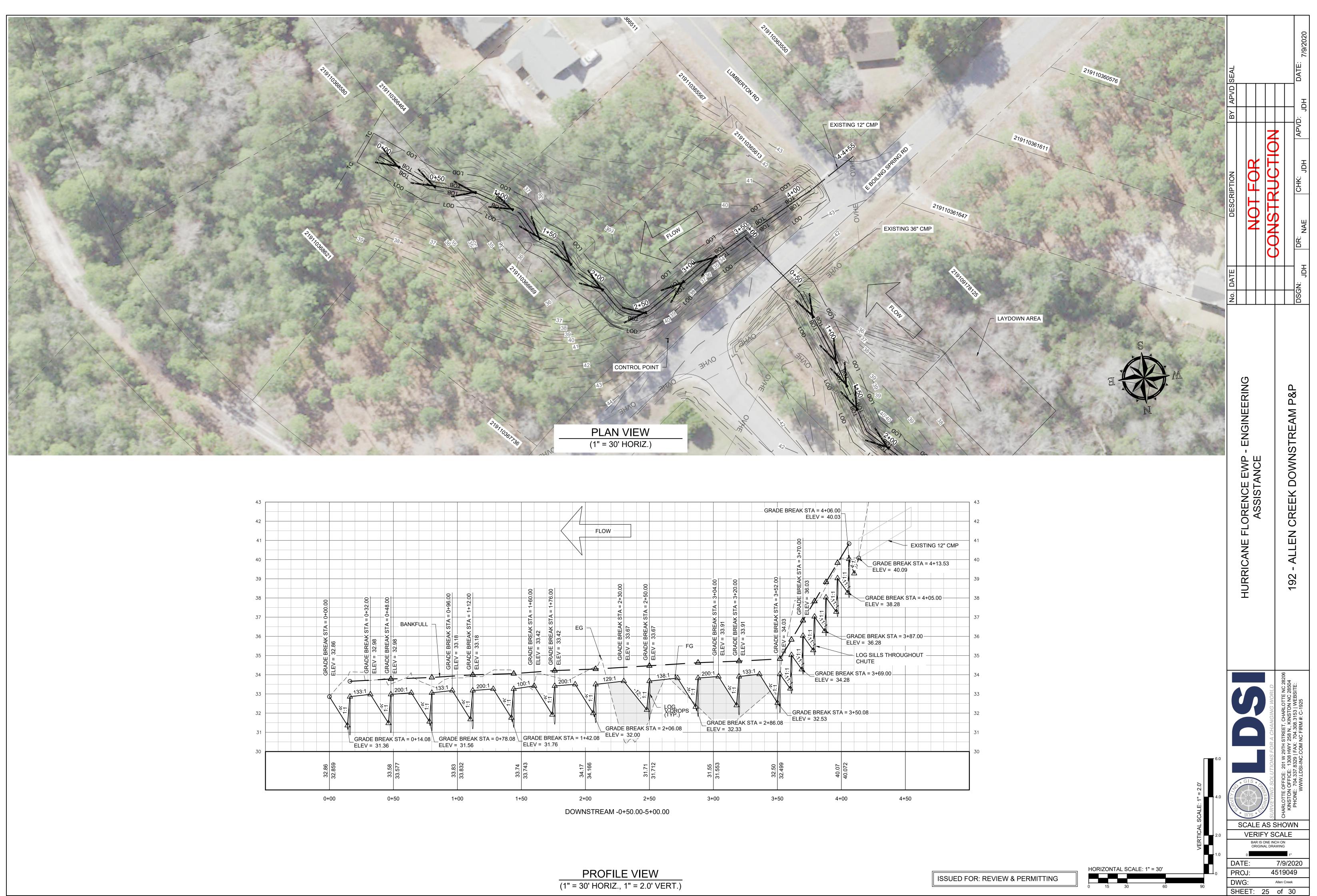


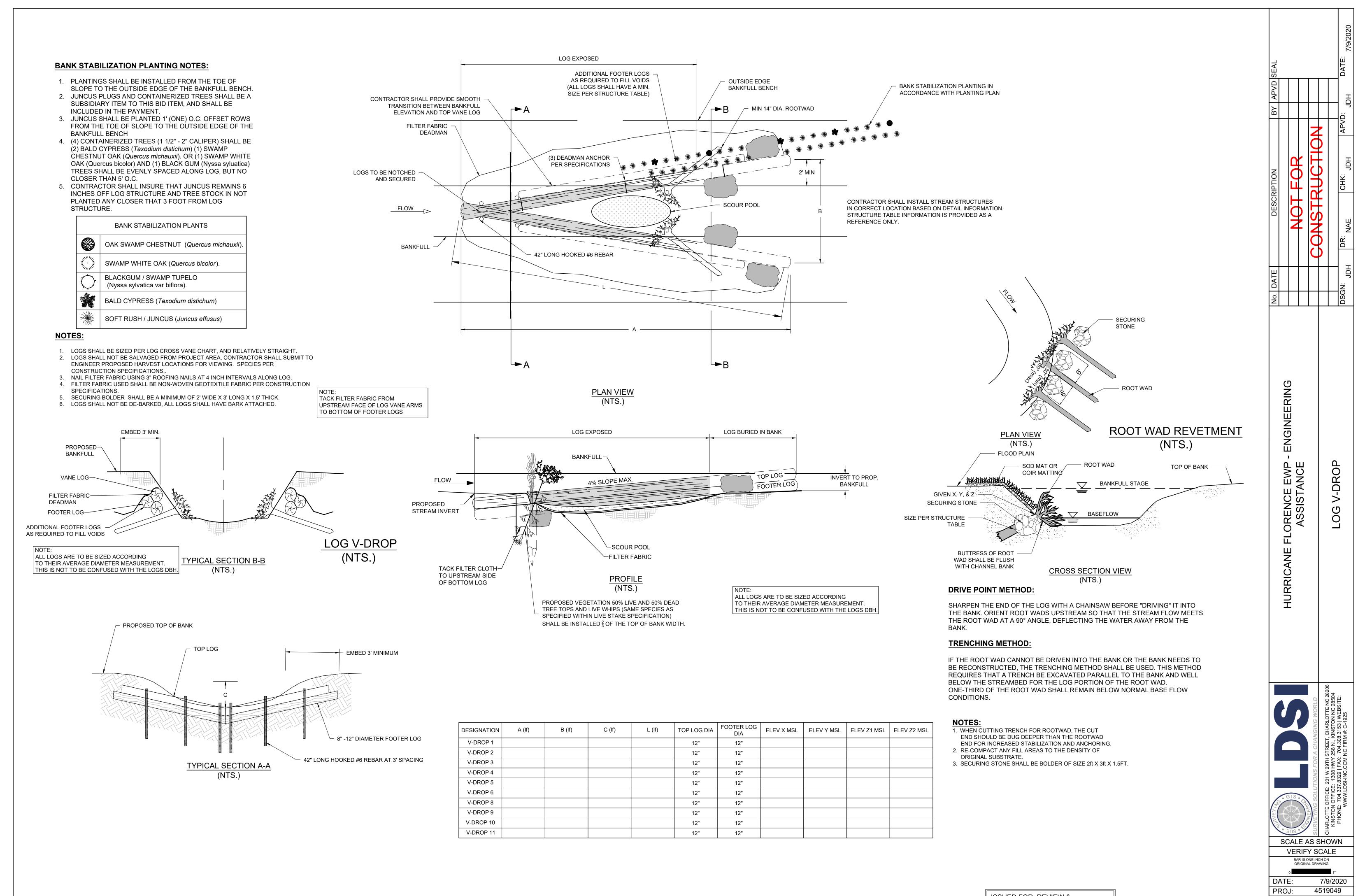












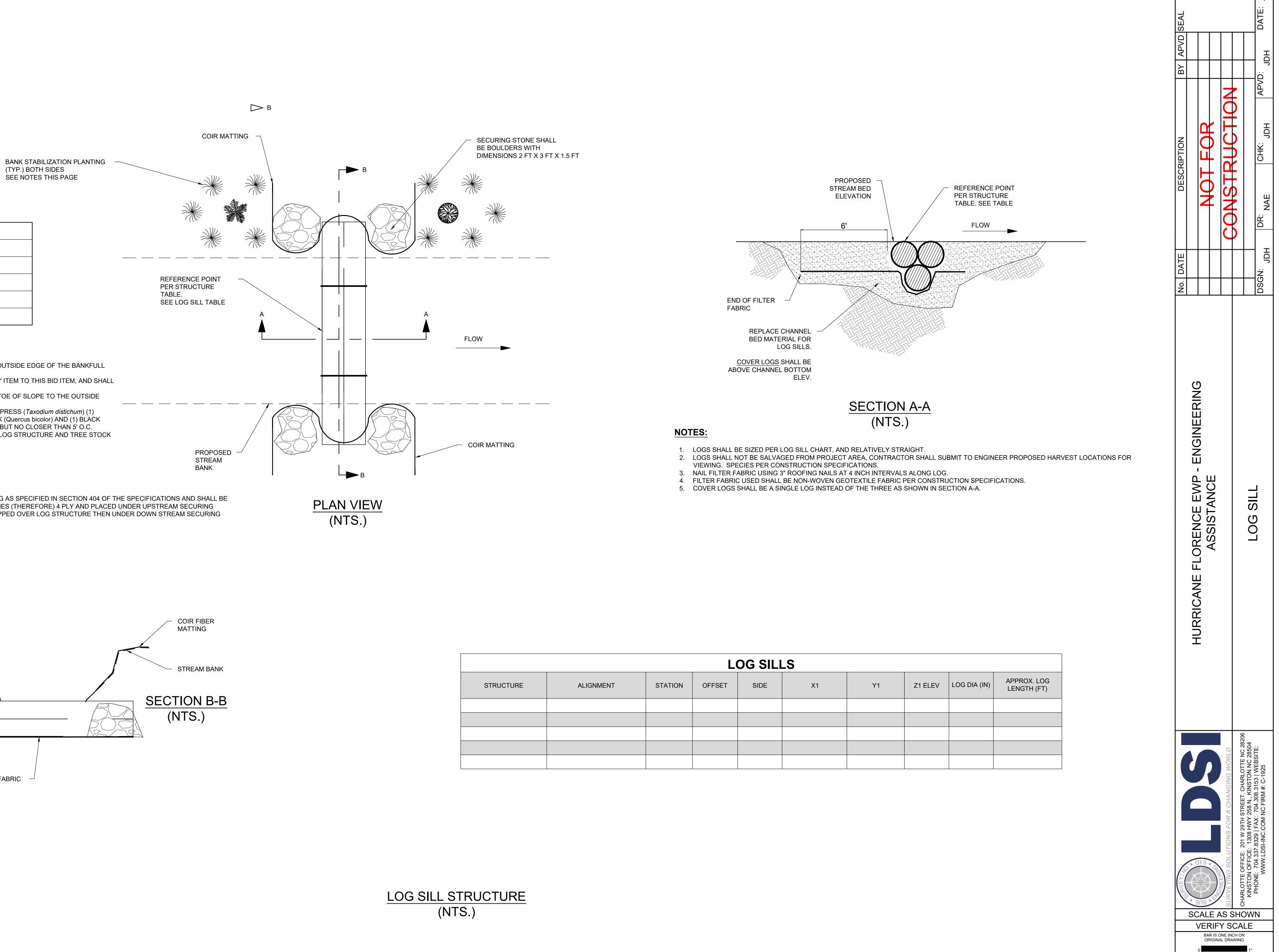
DESIGNATION	A (lf)	B (lf)	C (If)	L (If)	TOP LOG DIA	FOOTER LOG DIA	ELEV X MSL	ELEV Y MSL	ELEV Z1 MSL	ELEV Z2 MSL
V-DROP 1					12"	12"				
V-DROP 2					12"	12"				
V-DROP 3					12"	12"				
V-DROP 4					12"	12"				
V-DROP 5					12"	12"				
V-DROP 6					12"	12"				
V-DROP 8					12"	12"				
V-DROP 9					12"	12"				
V-DROP 10					12"	12"				
V-DROP 11					12"	12"				

**ISSUED FOR: REVIEW &** 

DWG:

LOG V-DROP

SHEET: 26 of 30



**BANK STABILIZATION PLANTING NOTES:** 

BLACKGUM / SWAMP TUPELO (Nyssa sylvatica var biflora).

BANK STABILIZATION PLANTS

SWAMP WHITE OAK (Quercus bicolor).

×

BALD CYPRESS (Taxodium distichum)

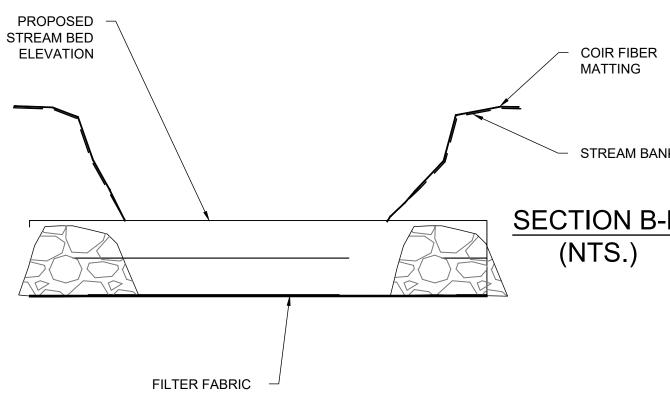
SOFT RUSH / JUNCUS (*Juncus effusus*)

OAK SWAMP CHESTNUT (Quercus michauxii).

- 1. PLANTINGS SHALL BE INSTALLED FROM THE TOE OF SLOPE TO THE OUTSIDE EDGE OF THE BANKFULL
- BENCH. 2. JUNCUS PLUGS AND CONTAINERIZED TREES SHALL BE A SUBSIDIARY ITEM TO THIS BID ITEM, AND SHALL
- BE INCLUDED IN THE PAYMENT. 3. JUNCUS SHALL BE PLANTED 1' (ONE) O.C. OFFSET ROWS FROM THE TOE OF SLOPE TO THE OUTSIDE
- EDGE OF THE BANKFULL BENCH 4. (4) CONTAINERIZED TREES (1 1/2" - 2" CALIPER) SHALL BE (2) BALD CYPRESS (Taxodium distichum) (1) SWAMP CHESTNUT OAK (Quercus michauxii). OR (1) SWAMP WHITE OAK (Quercus bicolor) AND (1) BLACK GUM (Nyssa syluatica) TREES SHALL BE EVENLY SPACED ALONG LOG, BUT NO CLOSER THAN 5' O.C.
- 5. CONTRACTOR SHALL INSURE THAT JUNCUS REMAINS 6 INCHES OFF LOG STRUCTURE AND TREE STOCK IN NOT PLANTED ANY CLOSER THAT 3 FOOT FROM LOG STRUCTURE.

# NOTES:

COIR MATTING AS SPECIFIED IN SECTION 404 OF THE SPECIFICATIONS AND SHALL BE FOLDED 3 TIMES (THEREFORE) 4 PLY AND PLACED UNDER UPSTREAM SECURING STONE, WRAPPED OVER LOG STRUCTURE THEN UNDER DOWN STREAM SECURING STONES.



				L	OG SILI	_S
ST	RUCTURE	ALIGNMENT	STATION	OFFSET	SIDE	

DATE:

PROJ:

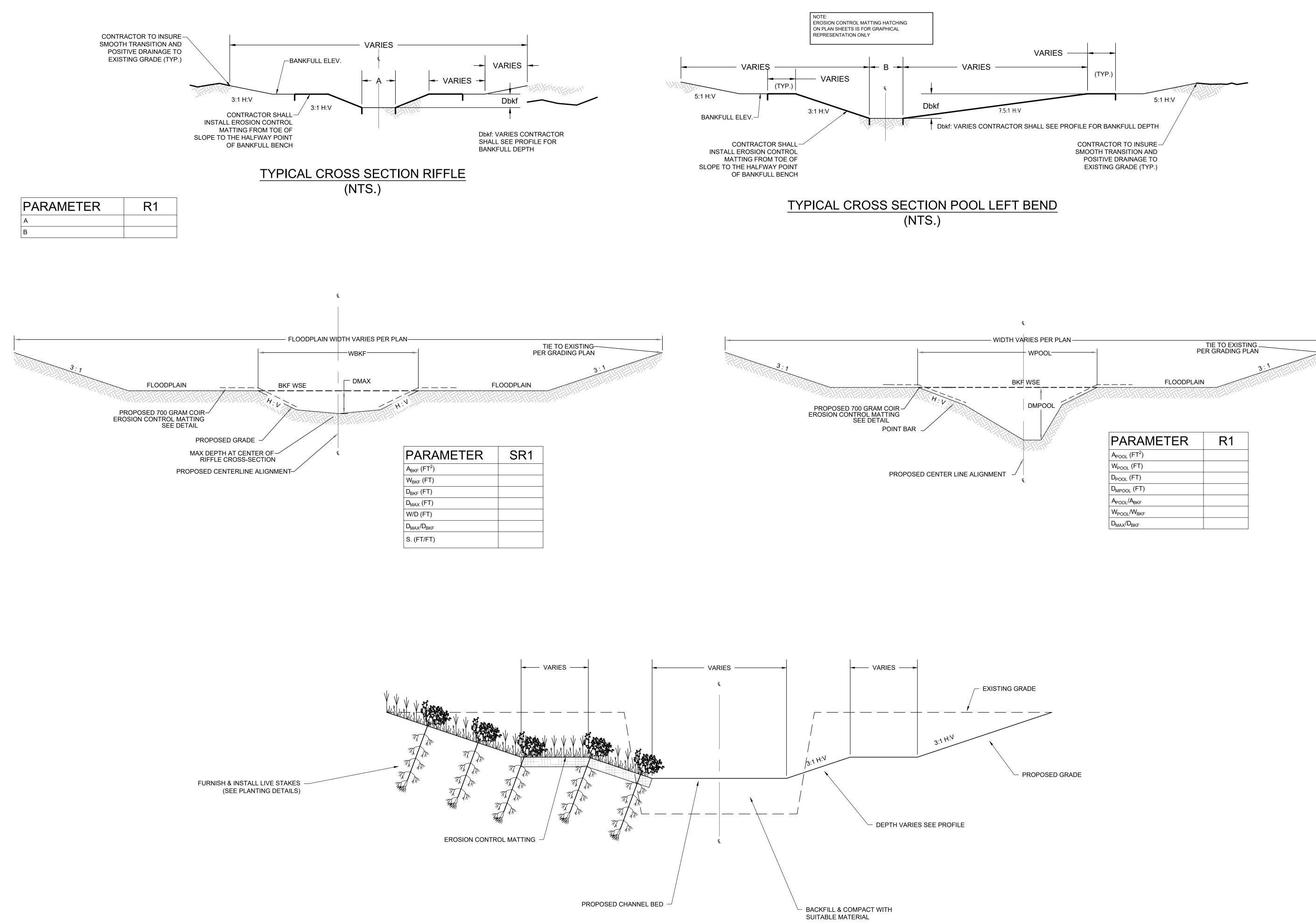
DWG:

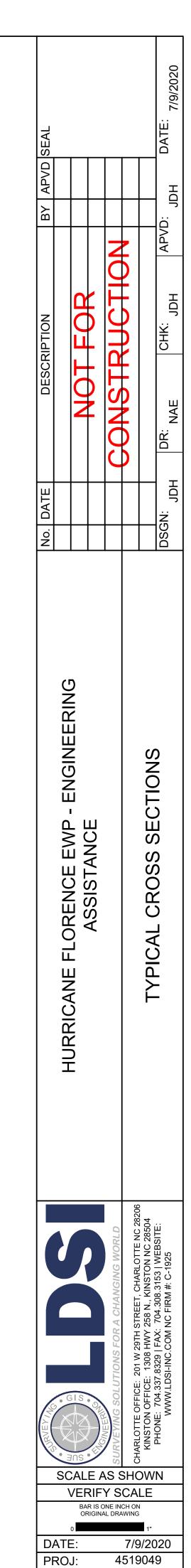
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LOG SILL

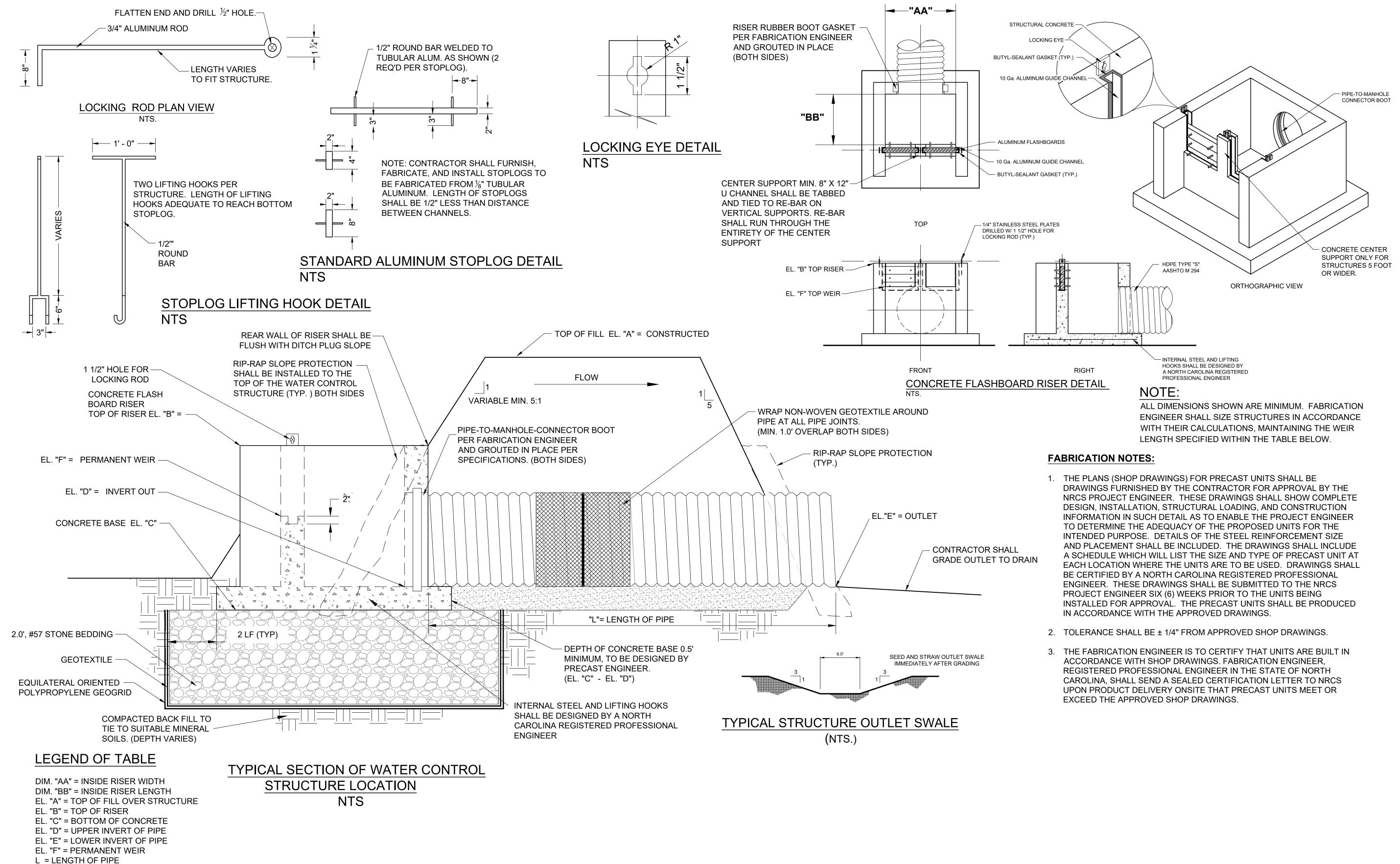
SHEET: 27 of 30

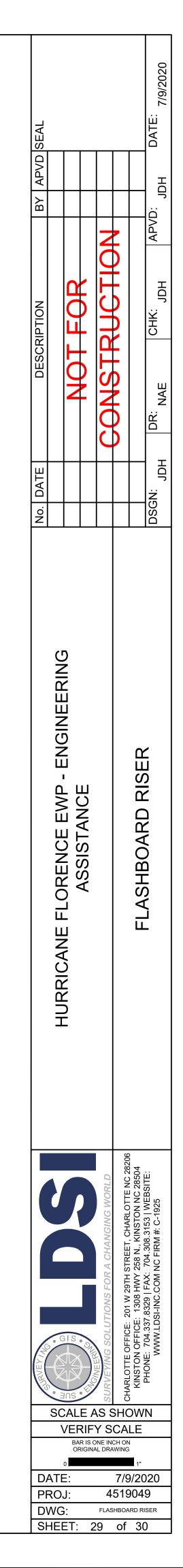




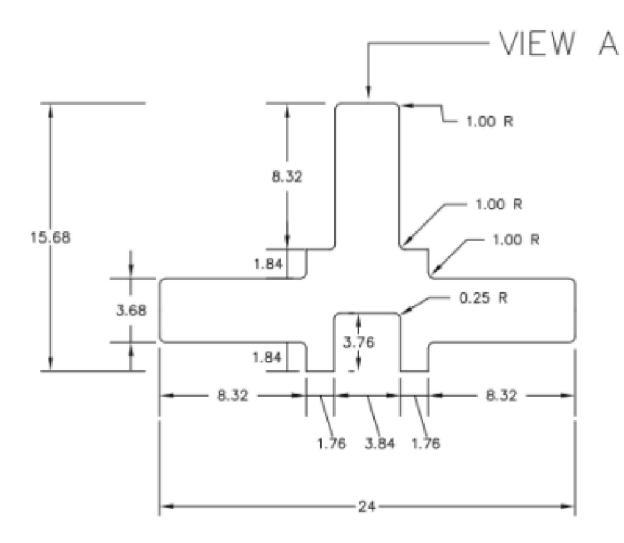
DWG: TYPICAL CROSS SECTIONS

SHEET: 28 of 30

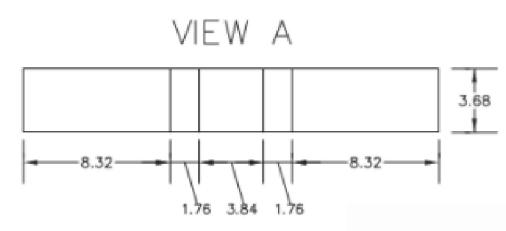




**ISSUED FOR: REVIEW &** 



ALL DIMENSIONS IN INCHES



# PRODUCT SPECIFICATIONS

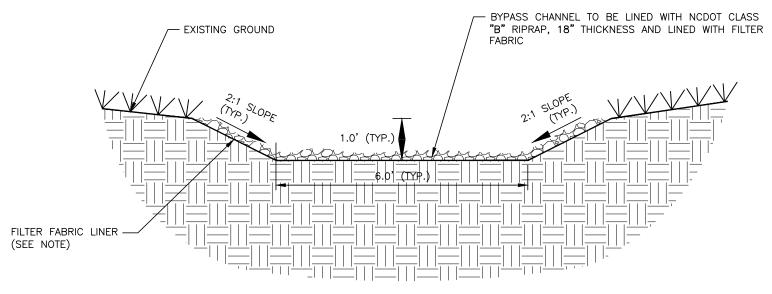
UNIT	LENGTH (in)	VOLUME (ft <sup>3</sup> )	WEIGHT (lbs)	LIN COVERA
SJ-24	24	0.56	78	1
SJ-48	48	4.49	630	2
SJ-72	72	15.14	2120	3
*Assumed cor	acrete density 140 lbs/ft	)		

"Assumed concrete density 140 lbs/ft"

### STABILIZATION JACKS DETAILS N.T.S.

NOTES: 1. CHANNEL DIMENSION (1.0' DEEP, 6'.0 BOTTOM WIDTH) ARE TO TOP OF RIP-RAP IN CHANNEL. ACTUAL CHANNEL EXCAVATION MUST CONSIDER THICKNESS OF THE RIPRAP AND FILTER FABRIC LINER. BYPASS CHANNEL TO STOP AT TOP OF BANK.

- 2. A FILTER BLANKET IS TO BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION. THE FILTER BLANKET WILL CONSIST OF A MINIMUM 4" THICK LAYER OF STONE (NCDOT #57) UNDERLAIN WITH MIRAFI FILTER WEAVE 700 OR
- ENGINEER-APPROVED EQUIVALENT.
- 3. RIPRAP TO EXTEND TO TOP OF CHANNEL WITH 2:1 SIDE SLOPES THROUGHOUT THE EXTENT OF CHANNEL.



**RIPRAP CHANNEL DETAIL** 

### NOTES:

- AND BUTTONBUSH (CEPHALANTHUS OCCIDENTALIS).
- ONE LIVE STAKE SPECIES PER LIVE STAKE AREA. STAKES SHOULD BE PLACED EVERY 10 FT, ALTERNATING SPECIES AND ELEVATION.
- 3. ALL LIVE STAKES SHALL BE DORMANT AT TIME OF ACQUISITION AND PLANTING.

- 7. LIVE STAKES SHALL BE TAMPED AT AN ANGLE INTO THE GROUND SURFACE WITH A DEAD BLOW HAMMER, WITH BUDS REPLACED.

NORMAL POOL ELEV = 30 TURE REINFORCEMENT MATTI ELEV. 29 TO 32 (SEE DETAIL SHEET 1



- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3-4 INCHES DEEP OVER ADVERSE SOIL CONDITIONS. TOPSOIL SHO INCORPORATED INTO THE FINAL GRADING OF THE BASIN SIDE SLOPES AND AQUATIC SHELF. CONTRACTOR SHOULD TOP 3-4 INCHES OF THE COMPACTED FILL TO PROMOTE BONDING WITH TOPSOIL.
- 2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- 3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNI
- 4. PER ONE TIME ONLY, APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH S
- 5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES
- 6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER.
- 7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- 8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF PO
- AFTER PERMANENT COVER IS ESTABLISHED.
- 9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT.

### TEMPORARY SEEDING SCHEDULE

SEEDING DATE	SEEDING MIXTURE	APPLICATION RATE
JAN 1 - MAY 1	RYE (GRAIN)	120 LBS/AC
	KOBE LESPEDEZA	50 LBS/AC
MAY 1 - AUG 15	GERMAN MILLET	40 LBS/AC
AUG 15 - DEC 30	RYE (GRAIN)	120 LBS/AC
AUG 15 - DEC 30	RYE (GRAIN)	120 LBS/AC

SOIL AMENDMENTS

FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 750 LB/AC FERTILIZER (FROM AUG 15 - DEC 30, INCREASE 10-10-10 FERTILIZER TO 1000 LB/AC).

APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DI BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE JAN 1 - AUG 15: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE, AND MULCH IMMEDIATEL EROSION OR OTHER DAMAGE.

AUG 15 - DEC 30: REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOP DRESS WITH 50 LB/AC OF NITROGEN IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/AC KOBE LATE FEBRUARY OR EARLY MARCH.

NOTE: USE THE TEMPORARY SEEDING SCHEDULE ONLY WHEN DATE IS NOT CORRECT TO USE THE PERMANENT SEEDING

## PERMANENT SEEDING SCHEDULE (DAM EMBANKMENTS)

EEDING DATE	SEEDING MIXTURE OPTIONS (CHOOSE ONE)	APPLICATION RATE
BD	ТВО	TBD

SOIL AMENDMENTS FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 1000 LB/A FERTILIZER.

APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DI BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR A LB/AC 10-10-10 FERTILIZER. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

NOTE: PERMANENT SEEDING SCHEDULE IS FOR SLOPES OF THE BASIN AND TOP OF BERM.

1. AREAS NOTED AS LIVE STAKES WITHIN THE PLANTING ZONE SHALL BE PLANTED WITH RIVER BIRCH (BETULA NIGRA)

4. LIVE STAKES SHALL BE 1/2-2" IN DIAMETER. LIVE STAKES SHALL ALSO BE 2 - 4 FEET IN LENGTH.

5. DURING PREPARATION, THE BASAL ENDS OF THE LIVE STAKES SHALL BE CLEANLY CUT AT AN ANGLE TO FACILITATE EASY INSERTION INTO THE SOIL, WHILE THE TOPS SHALL BE CUT SQUARE OR BLUNT FOR TAMPING. ALL LIMBS SHALL BE REMOVED FROM THE SIDES OF THE LIVE CUTTING PRIOR TO INSTALLATION.

CUTTINGS FOR LIVE STAKES SHALL BE HARVESTED IN A MANNER SUCH THAT THEY ARE CUT, IMMEDIATELY PUT INTO WATER TO BE SOAKED FOR 10 DAYS, AND THEN PLANTED IMMEDIATELY AFTER THE 10 DAYS ARE COMPLETED. CUTTINGS SHALL REMAIN WET UNTIL THEY ARE PLANTED. OUTSIDE STORAGE LOCATIONS SHOULD BE CONTINUALLY SHADED AND PROTECTED FROM WIND AND DIRECT SUNLIGHT.

ORIENTED IN AN UPWARD DIRECTION. STAKES SHOULD BE TAMPED UNTIL APPROXIMATELY 3/4 OF THE STAKE LENGTH IS WITHIN THE GROUND. ANY STAKES THAT ARE SPLIT OR DAMAGED DURING INSTALLATION SHALL BE REMOVED AND

8. THE AREA AROUND EACH LIVE STAKE SHALL BE COMPACTED BY FOOT AFTER THE LIVE STAKE HAS BEEN INSTALLED. ONE TO TWO INCHES SHALL BE CUT CLEANLY OFF OF THE TOP OF EACH LIVE STAKE (WITH LOPPERS) AT AN ANGLE OF APPROXIMATELY 15 DEGREES FOLLOWING INSTALLATION.

> LIVE STAKE —— (SEE DETAIL NOTES)

LIVE STAKE DETAIL N.T.S.

PLANTING	INSTRUCTIONS
,	

	PLANTING INSTRUCTIONS
	PLANTING TECHNIQUES
OULD BE SCARIFY THE	A. INSURE THAT ROOTS, ONCE REMOVED FROM POT, ARE STRAIGHTENED AND FACE DOWNWARD.
	<ul> <li>B. CREATE PLANTING AREA FOR EACH PLANT AND EXCAVATE PIT.</li> <li>C. PLACE PLANTS IN PIT INSURING ROOTS ARE FACING COMPLETELY DOWNWARD.</li> </ul>
	D. HEEL IN SOIL AROUND PLANT AND PROCEED TO NEXT PLANTING LOCATION.
	E. NEWLY PLANTED PLANTS NEED TO BE FASTENED TO THE SUBSTRATE FOR THE ESTABLISHMENT OF NEW ROOTS.
IIFORM.	F. ROOTS SHALL BE SPREAD IN THEIR NORMAL POSITION. ALL BROKEN OR FRAYED ROOTS HALL BE CUT
SOIL.	OFF CLEANLY. G. THE DIAMETER OF THE PITS FOR ALL VEGETATIVE STOCK SHALL BE AT LEAST THREE TIMES THE
S DEEP.	DIAMETER OF THE ROOT MASS. PLANT PIT WALL SHALL BE SCARIFIED PRIOR TO PLANT INSTALLATION.
	H. SET THE PLANTS UPRIGHT, IN THE CENTER OF THE PIT. THE BOTTOM OF THE ROOT MASS SHOULD BE
	RESTING ON UNDISTURBED SOIL. I. PLACE THE BACKFILL AROUND THE BASE AND SIDES OF THE ROOT MASS, AND WORK EACH LAYER TO
	SETTLE BACKFILL AND TO ELIMINATE VOIDS AND AIR POCKETS. WHEN PIT IS APPROXIMATELY 2/3 FULL
OSSIBLE.	WATER THOROUGHLY BEFORE PLACING REMAINDER OF THE BACKFILL. WATER AGAIN AFTER PLACING FINAL LAYER OF BACKFILL.
USSIDLE.	J. BROKEN OR DAMAGED PARTS WILL BE CUT BACK TO UNDAMAGED TISSUE, LEAVING AS MUCH GREEN
	BASAL TISSUE AS POSSIBLE ABOVE THE ROOTS. IF MORE THAN FIFTY PERCENT (50%) OF THE PLANT IS DAMAGED THEN CONTRACTOR SHALL REPLACE THE PLANT.
	CONTAINER STOCK / BARE ROOT A. STOCK SHALL HAVE BEEN GROWN IN A CONTAINER LONG ENOUGH FOR THE ROOT SYSTEM TO HAVE
	DEVELOPED SUFFICIENTLY TO HOLD ITS SOIL TOGETHER ONCE REMOVED FROM THE CONTAINER.
	B. CONTAINER PLANTS WILL NEED TO BE WATERED REGULARLY AND PLACED IN SHADY CONDITIONS
	UNTIL PLANTING OCCURS. C. BARE ROOT PLANTS ARE FOR IMMEDIATE PLANTING, OTHERWISE SEE D) BELOW.
	D. IF BARE ROOTS SPECIMENS ARE NOT TO BE PLANTED WITHIN FOUR (4) DAYS, TEMPORARY HOLDING
	OF BARE ROOT SPECIMENS ARE TO BE COVERED ENTIRELY BY A SUITABLE MEDIUM (ETC. SOIL, SAWDUST, MULCH OR THE LIKE) AND WATERED REGULARLY SO AS TO NOT DRY OUT.
	SAWDOST, MOLET OK THE LIKEJ AND WATERED REGULARET SO AS TO NOT DRI OUT.
	PLANT LOCATIONS A. NEW PLANTINGS SHALL BE LOCATED WHERE SHOWN ON PLAN EXCEPT WHERE CHANGES HAVE BEEN
C 10-10-10	A. New Plan ings shall be located where shown on plan except where changes have been MADE IN PROPOSED CONSTRUCTION.
	B. NECESSARY ADJUSTMENTS SHALL BE MADE ONLY AFTER APPROVAL BY THE OWNER OR THE OWNER'S
	REPRESENTATIVE.
DISK WITH	WATER SHALL BE POTABLE AND SHALL NOT CONTAIN ELEMENTS TOXIC TO PLANT LIFE.
	PLANTING SCHEDULE
LY FOLLOWING	1. ONCE THE GRADING IS COMPLETE, THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND
	AN AS-BUILT SURVEY PRIOR TO INSTALLATION OF THE STORMWATER MANAGEMENT FACILITY PLANTS
EN IN MARCH. IF	IF THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR TO AN AS-BUILT SURVEY (AND
BE LESPEDEZA IN	SUBSEQUENT APPROVAL), ANY CHANGES TO THE GRADING / RE-PLANTING OF PLANTS WILL BE AT THE CONTRACTOR'S EXPENSE.
SCHEDULE.	<ol> <li>ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER MANAGEMENT FACILITY PLANTS SHOWN ON THE LANDSCAPE PLAN FOR</li> </ol>
	THE FACILITY. AFTER COMPLETION OF THE PLANTING, THE LANDSCAPE CONTRACTOR SHALL PROVIDE
	A LETTER TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED STORMWATER MANAGEMENT FACILITY PLANTING PLAN.
	3. OPTIMAL PLANTING PERIODS RANGE APPROXIMATELY FROM APRIL 15TH THRU JUNE 30TH AND SEPTEMBER 1ST THRU OCTOBER 31ST. FOR FINAL DETERMINATION OF THE SITE'S PLANTING PERIOD,
	THE CONTRACTOR SHALL COORDINATE WITH A LANDSCAPE PROFESSIONAL REGARDING SCHEDULING
	FOR PLANT INSTALLATION.
	4. IT IS RECOMMENDED THAT THE CONTRACTOR TAKE MEASURES TO PREVENT WILDLIFE FROM
AC 10-10-10	DAMAGING OR CONSUMING WETLAND PLANTINGS.
ISK WITH	
APPLY 150	

Ъ ABILIZATION 9 284(  $\mathbf{O}$ Ž RT ST Ō ш Δ HOR Ξ S Ο . S S ш LAKI RIV  $\square$ PRING Ш R Ο Ī S S BOILING Ζ 94  $\overline{}$ SCALE AS SHOWN VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING 0 DATE: 10-22-2020 PROJ: SPEC-19260 DWG: SHORE STABILIZATION

SHEET: 2 of 2