IVY RIVER BANK STABILIZATION

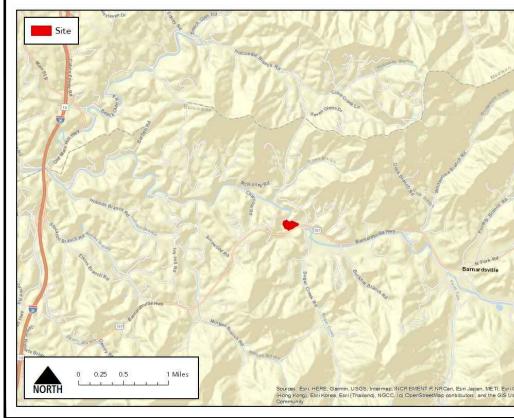
BUNCOMBE COUNTY - NORTH CAROLINA

ATTACHEMENT B - DESIGN PLANS FOR PROJECT

USACE ACTION ID#: TBD

PROJECT DIRECTORY		
SPONSOR BUNCOMBE COUNTY S&WCD		
BUCOMBE COURTS	Anthony Dowdle Soil Conservationist (828) 250-4786 anthony.dowdle@buncombecounty.org	
LANDOWNER GERALD L ANDERSON LIVING TRUST		
	1096 Barnardsville Highway Weaverville, NC 28787	
ENGINEER	JENNINGS ENVIRONMENTAL PLLC	
Jennings Environmental	Greg Jennings, PhD, PE President (919) 600-4790 greg@jenningsenv.com	

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JANUARY 13, 2021 PRELIMINARY DRAWING NOT RELEASED FOR CONSTRUCTION

Jennings Environmental	JENNINGS ENVIRONMENTAL PLLC 7 SAMUEL ASHE DRVE, NC 28805 (919) 600-7490 NC COA#: P-1932	
IVY RIVER BANK STABILIZATION	COVER SHEET	
DATE: 01/13/2020 PLOT SIZE: 11" x 17" AS NOTED H.D.: NAD83 V.D.: NAVD88 JE PID: 8202		
1.1		



GENERAL PROJECT SPECIFICATION AND NOTES

1. DEFINITIONS:

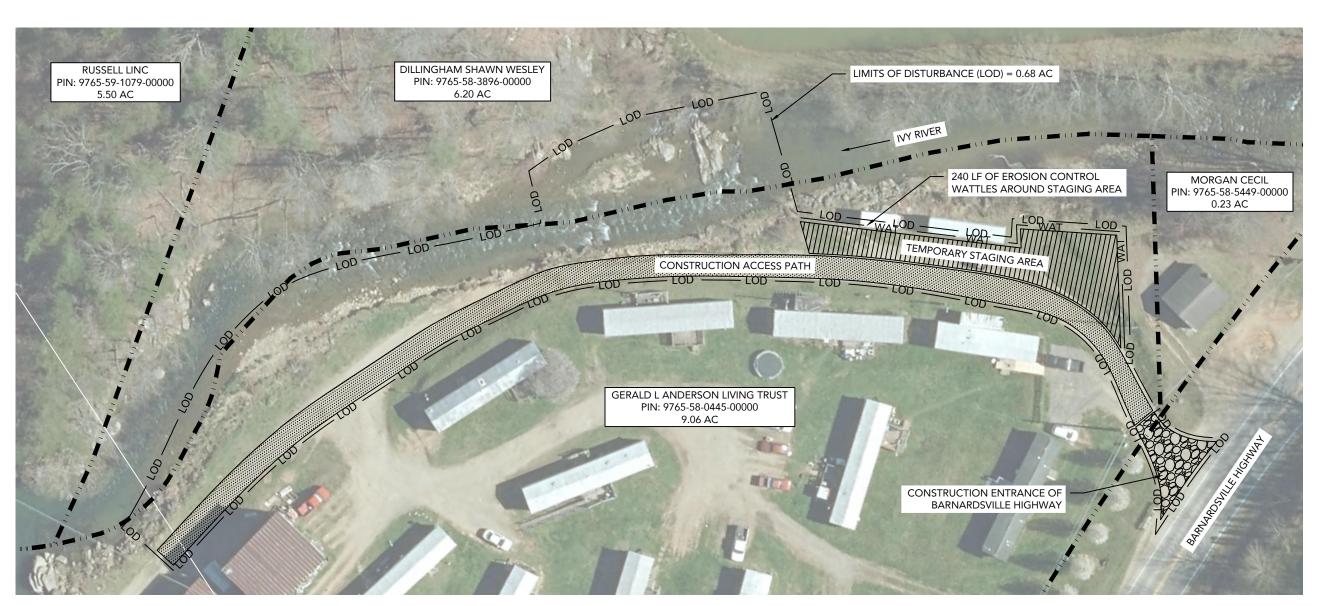
- 1.1. CONSTRUCTION DOCUMENTS: THE CONTRACT AND APPLICABLE DRAWINGS, DETAILS, SPECIFICATIONS, PERMIT(S), AND/OR ANY OTHER DOCUMENTS (MEETING MINUTES, PUNCH LISTS, BID TABS, ETC.) FOR COMPLETE INFORMATION ABOUT THE REQUIRED WORK. ANY ONE OF THESE PARTS OF THE MAY NOT CONTAIN <u>ALL</u> OF THE INFORMATION REQUIRED TO COMPLETE THE PROJECT WORK.
- 1.2. PROJECT SPONSOR: BUNCOMBE COUNTY S&WCD
- 1.3. LANDOWNER: GERALD L. ANDERSON LIVING TRUST
- 1.4. ENGINEER: JENNINGS ENVIRONMENTAL
- 2. THE WORK ON THIS PROJECT SHALL ADHERE TO THE FOLLOWING SPECIFICATIONS, STANDARDS 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. GENERAL AND SPECIAL CONDITIONS OF USACE'S 404 NATIONWIDE PERMIT NUMBER 27
- 2.5. GENERAL AND SPECIAL CONDITIONS OF NCDEQ'S 401 WATER QUALITY CERTIFICATION
- 2.6. THE CONSTRUCTION DOCUMENTS
- 3. NOT ALL EXISTING UTILITIES ARE SHOWN. SOME LOCATIONS MAY BE APPROXIMATE. 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.
- 4. ALL UTILITIES SHALL BE PROTECTED AND REMAIN ACTIVE UNLESS OTHERWISE NOTED.
- 5. THE CONTRACTOR IS RESPONSIBLE FOR THE PROJECT AREA UNTIL COMPLETION AND FINAL ACCEPTANCE BY THE ENGINEER AND PROJECT OWNER. THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES, INCLUDING EQUIPMENT STORAGE, TO THE LIMITS OF DISTURBANCE, STAGING AREAS, AND DESIGNATED CONSTRUCTION ACCESS POINTS.
- 6. THE MANNER IN WHICH THE CONTRACTOR DEALS WITH PEOPLE AND THEIR PROPERTIES WHILE PERFORMING THIS WORK IS EXTREMELY IMPORTANT. THEREFORE, THE CONTRACTOR 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 ON THE SITE.
- 7. EXTREME CARE AND DILIGENCE SHALL BE EXERCISED BY THE CONTRACTOR TO ASSURE THE SAFETY OF PERSONS, ANIMALS, AND PROPERTY. IF AT ANY TIME PG DETERMINES THAT 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 PROJECT OWNER, SO AS TO ASSURE COMPLIANCE WITH SAFETY CONCERNS. FAILURE OF THE DESIGNATED REPRESENTATIVE TO MAKE THIS DEMAND SHALL NOT RELIEVE THE CONTRACTOR OF ANY OBLIGATION TO ENSURE THE SAFE CONDUCT OF ITS WORK.
- 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 AND OTHER ENTITIES, INCLUDING RAILROADS, SO THE PUBLIC IS SAFEGUARDED FROM ACCIDENTS AND DELAYS. GUARDS AND FLAGS REQUIRED BY GOVERNMENTAL OR RAILROADA 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 ENVIRONMENTAL REQUIREMENTS.
- 9. THE CONTRACTOR SHALL ONLY USE ACCESS PATHS AND STAGING AREAS SHOWN ON THE DRAWINGS. ANY ALTERNATE ACCESS PLANNED BY THE CONTRACTOR SHALL BE APPROVED BY THE ENGINEER AND PROJECT OWNER PRIOR TO USE.
- 10. NO NON-PERMITTED FILL IN WETLANDS MAY OCCUR. ALL EXCESS SOILS FROM EMBANKMENT EXCAVATION AND CHANNEL WORK SHALL BE PLACED IN DESIGNATED AREAS ON THE SITE.
- 11. SITE SHOULD BE "STORM READY" AT THE END OF EACH WORK DAY AND WORK WEEK.

QUANTITIES AND MATERIALS SPECIFICATIONS

- 12. 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.
- 13. THE EROSION CONTROL MEASURES SHOWN IN THE DRAWINGS 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 DRAWINGS AND ON THE QUANTITIES AND MATERIALS LIST) MAY BE REQUIRED IN ORDER TO KEEP ALL SEDIMENT ON SITE AND OUT OF STREAMS AND WETLANDS.
- 14. 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.
- 15. THE CONTRACTOR SHALL WARRANTY ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OF BY THE PROJECT OWNER AND SHALL REPLACE ANY PORTIONS THAT FAIL DUE TO FAULTY MATERIALS OR WORKMANSHIP, AT NO ADDITIONAL COST TO THE PROJECT OWNER. 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 THE PROJECT OWNER. SEASONALLY INSTALLED ITEMS SHALL BE REPAIRED OR REPLACED DURING THE NEXT AVAILABLE INSTALLATION PERIOD. ITEMS REPAIRED OR REPLACED DURING THE NEXT AVAILABLE 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.

	8202 IVY RIVER BANK STABILIZATION - LIST OF MATER	RIALS		
ITEM #	DESCRIPTION	ΟΤΥ	UNIT	
EROSIO	EROSION AND SEDIMENTATION CONTROL			
2	STANDARD CONSTRUCTION ENTRANCE	1	EA	
3	EROSION CONTROL WATTLES	240	LF	
BANK S	TABILIZATION			
4	BOULDER TOE PROTECTION WILL SOIL LIFTS	147	LF	
5	RIVER COBBLE TOE PROTECTION	118	LF	
6	BANK GRADING / SHAPING	165	SY	
7	BEDROCK OUTCROP REMOVAL	1	LS	
8	EROSION CONTROL MATTING	260	SY	
RE-VEG	ETATION			
9	TEMPORARY SEED, MULCH AND SOIL PREP	0.26	AC	
10	PERMANENT SEEDING - ZONE 1 AND ZONE 2	0.18	AC	
11	PERMANENT SEEDING - ZONE 3	0.06	AC	
12	LIVE STAKES AND BAREROOT PLANTINGS	540	EA	
FINISH,	REPAIR AND REPLACE			
13	ACCESS PATH GRAVEL REPAIRS	30	TN	

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PRELIMINARY DRAWING		
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Feel SCALE: 1" = 50'

EROSION AND SEDIMENTATION CONTROL (E&SC) PLAN LEGEND

WAT - EROSION CONTROL WATTLES

CF

TEMPORARY STAGING AREA

ACCESS ROUTE

CONSTRUCTION ENTRANCE

PARCEL BOUNDARY

CONSTRUCTION SEQUENCE

- 1. OBTAIN AND REVIEW THE FISHER RIVER BANK STABILIZATION PROJECT EROSION AND SEDIMENTATION CONTROL PLAN AND ALL OTHER APPLICABLE PERMITS.
- 2. FLAG THE WORK LIMITS AND STAKE OUT THE LIMITS OF DISTURBANCE (LOD) OF THE PROJECT. THE TOTAL PROJECT LOD IS 0.68 AC.
- 3. LOCATE ALL UNDERGROUND UTILITIES WITHIN THE WORK AREA.
- 4. INSTALL RAIN GAUGE AND PREPARE INSPECTION FORMS.
- 5. HOLD PRE-CONSTRUCTION MEETING WITH THE PROJECT SPONSOR, ENGINEER AND CONTRACTOR PRIOR TO STARTING ANY LAND DISTURBING ACTIVITIES.
- 6. INSTALL CONSTRUCTION ENTRANCE OFF BARNARDSVILLE HIGHWAY AS

SHOWN ON THIS SHEET. ESTABLISH TEMPORARY STAGING AREA WITH EROSION CONTROL WATTLES AROUND THE PERIMETER. UTILIZE DESIGNATED ACCESS PATHS FOR ALL CONSTRUCTION ACTIVITIES.

- 7. INSPECT EROSION PREVENTION AND SEDIMENT CONTROL BMPS DAILY AND AFTER SIGNIFICANT RAINFALL EVENTS. MAKE NEEDED REPAIRS IMMEDIATELY. KEEP ALL LOGS AND RECORDS UP-TO-DATE.
- 8. ACQUIRE AND STORE MATERIALS FOR SITE (E.G. ROCK, LOGS, EROSION CONTROL MATTING AND FILTER FABRICS) IN THE TEMPORARY STAGING AREAS.
- 9. CLEAR EXISTING VEGETATION REQUIRED TO COMPLETE THE WORK TAKING CARE NOT TO DISTURB DESIRABLE VEGETATION TO REMAIN INTACT.
- 10. GRADE THE RIVER BANKS AND INSTALL BANK STABILIZATION STRUCTURES PER THE PLANS AND DETAILS. WHEN POSSIBLE, PERFORM WORK FROM THE RIVER BANKS TO MINIMIZE TIME SPENT WORKING IN THE CHANNEL.
- 11. INSTALL TEMPORARY SEEDING, PERMANENT SEEDING AND EROSION CONTROL MATTING ON ALL DISTURBED RIVER BANKS AND GRADED SLOPES AS SHOWN ON SHEETS 4.4 AND 5.1 - 5.3.
- 12.INSTALL TEMPORARY AND PERMANENT SEEDING AND MULCH TO ALL AREAS DISTURBED FOR CONSTRUCTION ACCESS AS SHOWN ON SHEET 5.1.
- 13. ONCE THE WORK AREA IS STABILIZED AND CONSTRUCTION ACTIVITIES ARE COMPLETED, REMOVE AND DISPOSE OF ALL NON-BIODEGRADABLE EROSION AND SEDIMENTATION CONTROL BMPS.
- 14.NOTIFY THE PROJECT SPONSOR AND THE ENGINEER FOR A FINAL INSPECTION AND WALK THROUGH TO VERIFY FINAL STABILIZATION OF THE SITE.
- 15. WHEN SEASONALLY APPROPRIATE, INSTALL PERMANENT PLANTINGS ON RIVER

EROSION AND SEDIMENTATION CONTROL NOTES AND SPECIFICATIONS

- AQUATIC ORGANISMS AND HABITATS.
- UNLESS MARKED FOR REMOVAL OR RELOCATION.
- SURFACE WATER.
- MATTING (WHERE APPROPRIATE) WITHIN THREE (3) DAYS.
- CONSTRUCTION SHALLE BE TIMED TO OCCUR DURING TIMES OF LOW FLOW.
- THE AMOUNT OF TIME SPENT WORKING IN THE RIVER CHANNEL.

BANKS AND WITHIN THE RIPARIAN ZONE AS SHOWN ON SHEETS 5.1 - 5.3.

1. CONSTRUCTION ACTIVITIES SHALL OCCUR IN THE WET WITHOUT THE USE OF A TEMPORARY PUMP AROUND SYSTEM TO PREVENT DRYING OUT SENSITIVE

2. ALL TREES, UTILITIES AND OTHER SITE FEATURES SHALLE BE PROTECTED

3. EQUIPMENT WILL BE WELL-MAINTAINED, CLEANED PRIOR TO MOBILIZATION, AND CHECKED DAILY FOR LEAKS OF PETROLEUM PRODUCTS. FUELING OPERATIONS SHALL BE PERFORMED IN A CONTAINED AREA AWAY FROM

4. THE CONTRACTOR SHALL STAGE WORK SUCH THAT DISTURBED AREAS WILL BE STABILIZED IN PHASES WITH SEEDING, MULCH AND EROSION CONTROL

5. WHEN WORKING IN WET CONDITIONS IT THE CHANNEL, THE CONTRACTOR SHALL SHALL USE GRAVEL AND COBBLE TO CREATE A BERM THAT DIVERTS FLOW AROUND THE THE WORK AREA SUCH THAT INSTREAM FLOWS DO NOT INTERACT WITH DISTURBED EARTH AND CONSTRUCTION MATERIALS.

6. CONSTRUCTION SCHEDULING AND STAGING SHALL BE TIMED TO MINIMIZE

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

mplementing 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.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes			
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 (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	 -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 HQW 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 HQW Zones -10 days for Falls 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 Stabilization	Permanent Stabilization
 Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	 Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- 1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants.
- 2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures. Apply flocculants at the concentrations specified in the NC DWR List of Approved 3. PAMS/Flocculants and in accordance with the manufacturer's instructions.
- 4. Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover 5. or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- 1. Maintain vehicles and equipment to prevent discharge of fluids.
- 2. Provide drip pans under any stored equipment.
- 3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- 4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem 5. has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products 6. to a recycling or disposal center that handles these materials.

LITTER. BUILDING MATERIAL AND LAND CLEARING WASTE

- 1. Never bury or burn waste. Place litter and debris in approved waste containers.
- 2. 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.
- 7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow
- 8 Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers. 9.

PAINT AND OTHER LIQUID WASTE

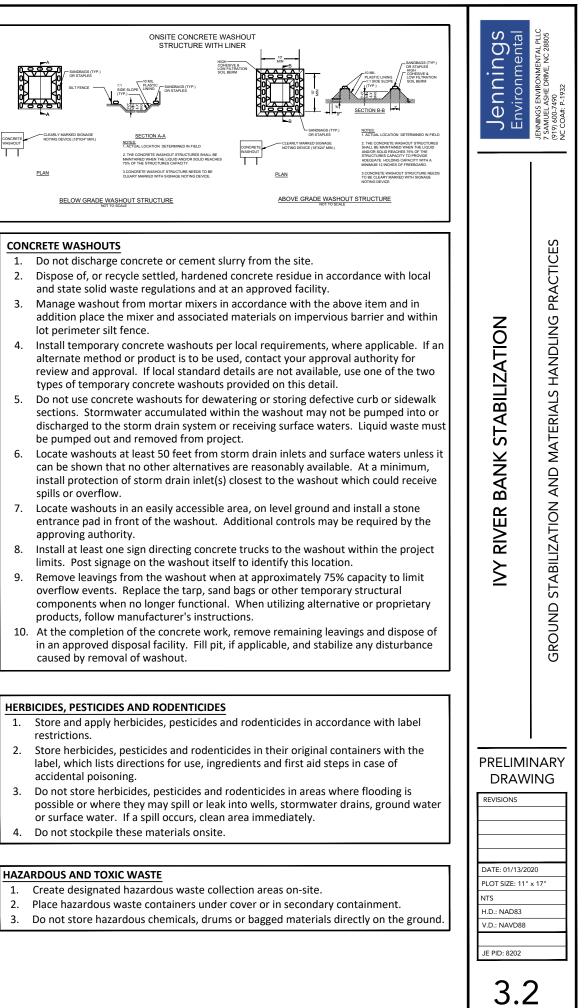
- 1. Do not dump paint and other liquid waste into storm drains, streams or wetlands. 2. Locate paint washouts at least 50 feet away from storm drain inlets and surface
- waters unless no other alternatives are reasonably available. 3. Contain liquid wastes in a controlled area.
- 4. Containment must be labeled, sized and placed appropriately for the needs of site. 5.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- 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.
- 2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- 3. 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.

EARTHEN STOCKPILE MANAGEMENT

- 1. 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.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of 2. five feet from the toe of stockpile.
- Provide stable stone access point when feasible. 3.
- 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.



PART III SELF-INSPECTION, RECORDKEEPING 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	Daily rainfall amounts. If no daily rain gauge observations are made during weekend o holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un attended 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.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	 Identification of the measures inspected, Date and time of the inspection, Name of the person performing the inspection, Indication of whether the measures were operating properly, Description of maintenance needs for the measure, Description, evidence, and date of corrective actions taken.
(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	 beschptant, enderter, and date of concerter action struct. I dentification of the discharge outfalls inspected, Date and time of the inspection, Name of the person performing the inspection, Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, Indication of visible sediment leaving the site, Description, evidence, and date of corrective actions taken.
(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: Actions taken to clean up or stabilize the sediment that has left the site limits, Description, evidence, and date of corrective actions taken, and An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	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: Description, evidence and date of corrective actions taken, and Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit of this permit.
(6) Ground stabilization measures	After each phase of grading	 The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 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.

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 documented in the manner described:

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. 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, 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 30 days. 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.
- All data used to complete the Notice of Intent and older inspection records shall be (c) maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

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 cause sheen on surface waters (regardless of volume), or
- (Ref: 40 CFR 302.4) or G.S. 143-215.85.
- (b) Anticipated bypasses and unanticipated bypasses.
- environment.

2. Reporting Timeframes 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 timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timefra
(a) Visible sediment	Within 24 hours
deposition in a	Within 7 calend
stream or wetland	sediment and a
	Division staff ma
	case-by-case ba
	 If the stream is
	related causes,
	monitoring, insp
	determine that
	with the federal
(b) Oil spills and	Within 24 hours
release of	shall include inf
hazardous	location of the s
substances per Item	
1(b)-(c) above	
(c) Anticipated	• A report at leas
bypasses [40 CFR	The report shall
122.41(m)(3)]	effect of the by
(d) Unanticipated	Within 24 hours
bypasses [40 CFR	 Within 7 calend
122.41(m)(3)]	quality and effe
(e) Noncompliance	Within 24 hours
with the conditions	Within 7 calend
of this permit that	noncompliance,
may endanger	including exact
health or the	been corrected,
environment[40	continue; and st
CFR 122.41(I)(7)]	prevent reoccur
	 Division staff ma
	case-by-case ba

• They are less than 25 gallons but cannot be cleaned up within 24 hours,

• They are within 100 feet of surface waters (regardless of volume).

(a) 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

(c) Noncompliance with the conditions of this permit that may endanger health or the

ames (After Discovery) and Other Requirements s, an oral or electronic notification.

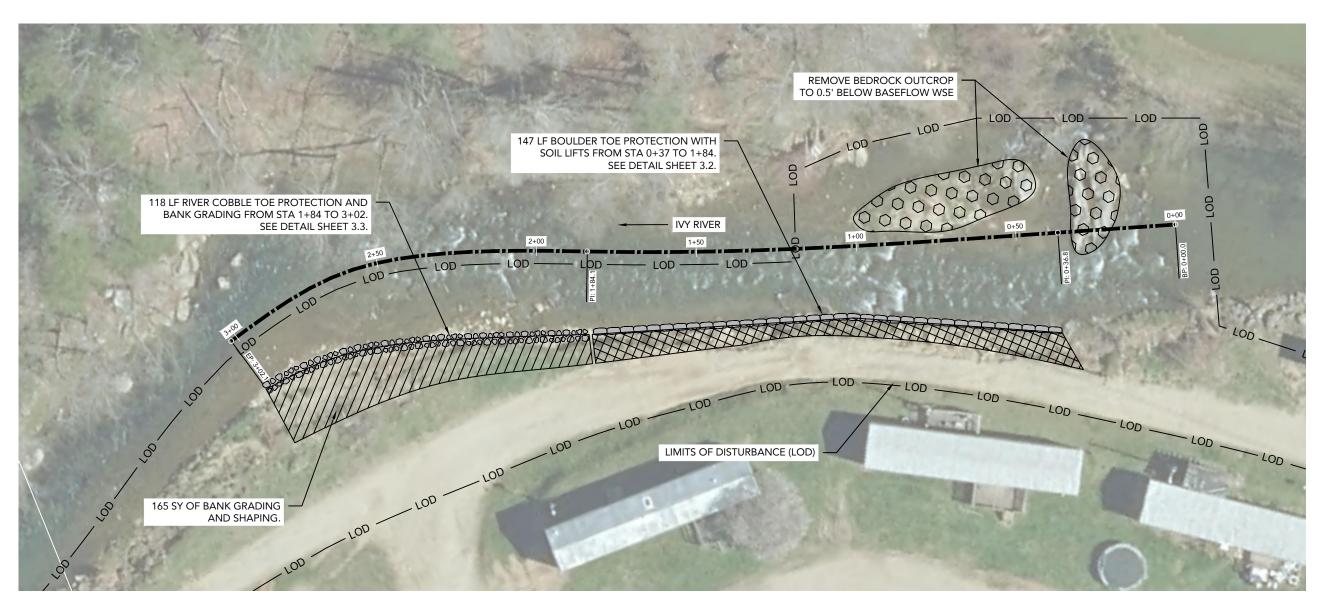
- dar days, a report that contains a description of the actions taken to address the cause of the deposition. nay waive the requirement for a written report on a asis.
- named on the NC 303(d) list as impaired for sedimentthe permittee may be required to perform additional spections or apply more stringent practices if staff additional requirements are needed to assure compliance al or state impaired-waters conditions.
- rs, an oral or electronic notification. The notification formation about the date, time, nature, volume and spill or release.

st ten days before the date of the bypass, if possible. l include an evaluation of the anticipated quality and pass.

- rs, an oral or electronic notification.
- dar days, a report that includes an evaluation of the ect of the bypass.
- rs, an oral or electronic notification.

dar days, a report that contains a description of the , and its causes; the period of noncompliance, dates and times, and if the noncompliance has not l, the anticipated time noncompliance is expected to steps taken or planned to reduce, eliminate, and rrence of the noncompliance. [40 CFR 122.41(I)(6). nay waive the requirement for a written report on a asis.

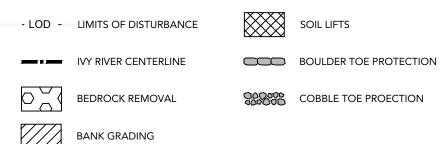
	Jennings Environmental	JENNINGS ENVRONMENTAL PLLC 7 SAMUEL ASHE DRIVE, NC 28805 (919) 600-7490 NC COA#: P-1932
	IVY RIVER BANK STABILIZATION	SELF INSPECTION AND REPORTING
	PRELIM DRAV REVISIONS	VING
F N H	JE PID: 8202	





Feel SCALE: 1" = 30

BANK STABILIZATION PLAN LEGEND



BANK STABILIZATION NOTES AND SPECIFICATIONS

- 1. FIELD CONDITIONS MAY REQUIRE ADAPTATION OF THE DESIGN AND/OR DETAILS PROVIDED IN THE DRAWINGS DEPENDING. MINOR VARIATION(S) OR ADAPTATION(S) OF THE PROPOSED WORK SHOWN IN THE DRAWINGS AND DETAILS ARE CONSIDERED INCIDENTAL TO THE WORK. THE ENGINEER WILL WORK WITH THE CONTRACTOR TO ADDRESS ANY FIELD CHANGES.
- 2. THE CONTRACTOR SHALL MARK THE LOCATIONS OF BANK STABILIZATION STRUCTURES USING SURVEY GRADE GPS EQUIPMENT FOR REVIEW BY THE

ENGINEER BEFORE BEGINNING EXCAVATION AND GRADING.

- 3. CONTRACTOR SHALL MINIMIZE, TO THE MAXIMUM EXTENT POSSIBLE, IMPACTS TO THE ADJACENT WETLANDS AND SIGNIFICANT TREES.
- 4. CONTRACTOR SHALL USE AN EXCAVATOR WITH A HYDRAULIC THUMB TO INSTALL BANK STABILIZATION STRUCTURES.
- 5. DESIGN ELEVATIONS SHALL BE CONSTRUCTED WITHIN 0.1' (VERTICAL). WIDTHS AND DEPTHS MUST FALL WITHIN RANGES SHOWN IN THE DRAWINGS AND DETAILS.
- 6. IF THE EXISTING GROUND IS LESS THAN 0.2' HIGHER THAN THE PROPOSED BANKFULL ELEVATION, IT IS NOT NECESSARY TO EXCAVATE TO THE PROPOSED ELEVATIONS AND GRADES IN THE CONSTRUCTION DOCUMENTS.
- 7. BANK STABILIZATION STRUCTURES SHALL BE INSTALLED AS SHOWN IN THE DRAWINGS AND DETAILS. ALL STRUCTURES SHALL BE FINISHED TO A SMOOTH SURFACE IN ACCORDANCE WITH THE LINES, GRADES AND ELEVATIONS SHOWN IN THE DRAWINGS AND DETAILS. THE FINISHED STRUCTURE SLOPES AND GRADES SHALL BE WITHIN 0.1' OF DESIGN ELEVATIONS.
- 8. FILTER FABRIC SHALL BE USED WITH ALL ROCK AND WOOD STRUCTURES. ALL FILTER FABRIC SHALL BE 80Z. NON-WOVEN GEOTEXTILE UNLESS OTHERWISE SPECIFIED IN STRUCTURE DETAILS OR SPECIFICATIONS. FILTER FABRIC SHALL BE TRIMMED TIGHT TO THE SURFACE OF THE STRUCTURE AND SHOULD NOT BE OBSERVED BY VISUAL INSPECTION.
- 9. AFTER THE STRUCTURE IS COMPLETE AND NORMAL FLOW IS RESTORED TO THE CHANNEL, SOME ADJUSTMENT TO THE STRUCTURE OR ADDITIONAL

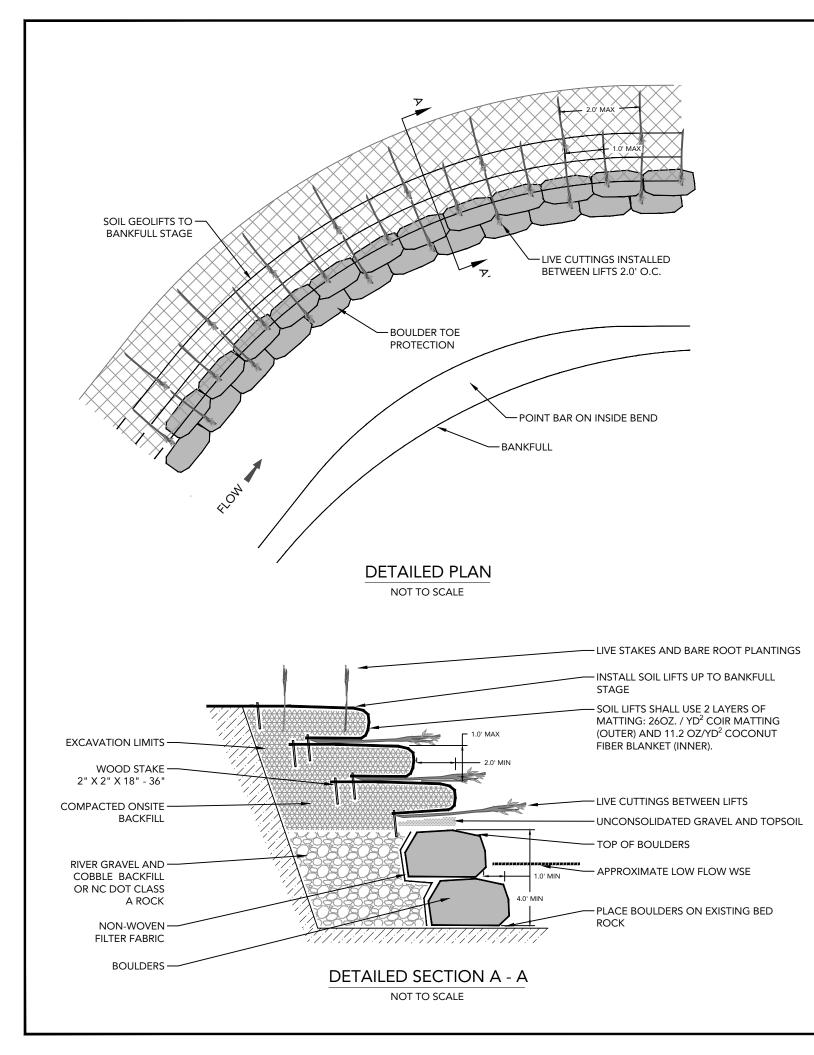
STABILIZATION MEASURE MAY BE NECESSARY TO ACHIEVE THE DESIRED FUNCTION.

SEPARATES FROM THE SOIL.

10. THE GRADED RIVER BANKS SHALL BE STABILIZED AS SOON AS POSSIBLE BY TEMPORARY AND PERMANENT SEEDING, ADDING STRAW MULCH TO BARE SOIL AND INSTALLING EROSION CONTROL MATTING AS SHOWN IN THE DRAWINGS AND DETAILS. PRIOR TO INSTALLING THE EROSION CONTROL MATTING, PREPARE THE SOIL SURFACE BY LOOSENING 3 - 6" OF SOIL OR APPLYING 3 - 6" OF TOPSOIL TO THE DESIGN ELEVATIONS AND APPLY TEMPORARY AND PERMANENT SEED AND THEN STRAW MULCH. SEED SHALL BE BROADCAST EVENLY OVER THE AREA USING A BROADCAST SPREADER PRIOR TO COVERING WITH THE EROSION CONTROL MATTING. THE MATTING SHALL BE ROLLED OUT IN THE DIRECTION OF ANTICIPATED RUNOFF. INSTALL MATTING IN ACCORDANCE WITH THE DETAIL INCLUDED IN THE DRAWINGS. MATTING USED FOR STREAMBANK STABILIZATION MUST BE CERTIFIED WEED-FREE STRAW OR OTHER NATURAL WEED-FREE / NON-PROPAGATING VEGETATIVE MATERIALS. REWORKING OF AREAS THAT DO NOT ESTABLISH VEGETATION OR BECOME UNSTABLE SHALL BE NECESSARY IN THE MATTING



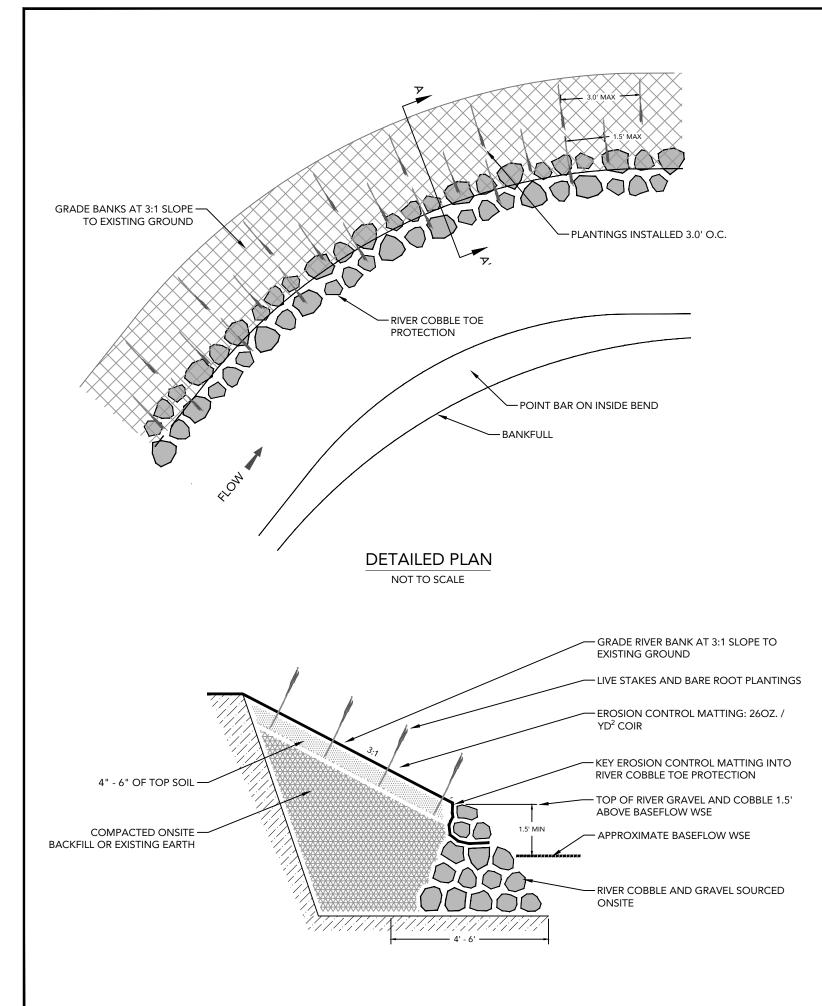
BOULDER TOE NOTES



- 1. ALL BOULDERS SHALL BE STRUCTURAL STONE, CUBICAL OR RECTANGULAR IN SHAPE. BOULDERS AVAILABLE ONSITE MAY BE USED IF APPROVED BY THE ENGINEER. BOULDERS SHALL BE 3.0' X 5.0' X 2.5' (W X L X H) +/- 0.5'. THE MINIMUM ACCEPTABLE BOULDER THICKNESS (H) IS 2.0'. BOULDERS LONGER (L) THAN 5.5' WILL BE ACCEPTED.
- 2. A BEDDING COURSE CONSISTING OF 70% NCDOT CLASS B AND 30% NCDOT CLASS A SHALL BE INSTALLED BELOW THE FIRST ROW OF BOULDERS. IF BEDROCK IS ENCOUNTERED ONSITE, THE FIRST LIFT OF BOULDERS SHALL BE PLACED DIRECTLY ON THE BEDROCK. ALL BOULDERS SHALL FIT TIGHTLY TOGETHER. INSTALL EACH LIFT OF BOULDERS WITH A 0.5' SETBACK FROM THE FRONT EDGE OF THE PREVIOUS LIFT OF BOULDERS.
- UNCONSOLIDATED GRAVEL AND TOPSOIL SHALL BE INSTALLED AS A LEVELING COURSE THE ABOVE BOULDERS 3. BEFORE THE LIVE CUTTINGS AND SOIL LIFTS ARE INSTALLED.
- 4. PLACE LAYER OF LIVE CUTTINGS (MIN. 4' LENGTH) A 1.0' O.C. ON THE GRAVEL AND TOPSOIL SUCH THAT APPROXIMATELY 6 INCHES TO 1 FOOT OF EACH LIVE BRANCH WILL BE EXPOSED AND THE REMAINDER (2' TO 4') OF EACH LIVE BRANCH WILL BE COVERED BY THE SOIL LIFT. LIVE BRANCHES SHALL BE OF THE SPECIES SPECIFIED FOR LIVE STAKES OR APPROVED BY THE ENGINEER.
- INSTALL SOIL LIFTS FROM THE LIVE CUTTINGS UP TO THE BANKFULL STAGE. LIFTS SHALL NOT EXCEED 1.0' 5. THICKNESS. LIFTS SHALL INCLUDE ALL SOIL PREPARATION, TEMPORARY AND PERMANENT SEEDING AND MULCH. SOIL LIFTS SHALL USE 2 LAYERS OF MATTING: 26OZ. / YD² COIR MATTING (OUTER) AND 11.2 OZ/YD² COCONUT FIBER BLANKET (INNER). EROSION CONTROL MATTING USED FOR SOIL LIFTS SHALL BE MADE OF 100% NATURAL FIBERS AND MATERIALS AND BE BIODEGRADABLE UNDER NORMAL CLIMATE CONDITIONS. EROSION CONTROL MATTING CONTAINING PLASTICS OR PLASTIC BASED MATERIALS SHALL NOT BE USED.
- PLACE SOIL BACKFILL UP TO THE LIFT HEIGHT SPECIFIED OF NO GREATER THAN 1.0 FT BEING CAREFUL NOT TO 6. PUSH/PULL OR TEAR THE FABRIC PREVIOUSLY PLACED.
- 7. REPEAT STEPS #4, #5 AND #6 AS NEEDED TO INSTALL SOIL LIFTS UP TO THE BANKFULL STAGE.
- 8. THE SURFACE OF THIS STRUCTURE SHALL BE FINISHED TO A SMOOTH AND COMPACT SURFACE IN ACCORDANCE WITH THE LINES, GRADES, AND CROSS-SECTIONS OR ELEVATIONS SHOWN ON THE DRAWINGS. THE DEGREE OF FINISH FOR ELEVATIONS SHALL BE WITHIN 0.1 FT OF THE GRADES AND ELEVATIONS INDICATED OR APPROVED BY THE ENGINEER.
- 9. RE-DRESSING OF CHANNEL AND BANKFULL BENCH/FLOODPLAIN WILL LIKELY BE REQUIRED FOLLOWING INSTALLATION OF IN-STREAM STRUCTURES AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

Jennings Environmenta	JENNINGS ENVIRONMENTAL PLL 7 SAMUEL ASHE DRIVE, NC 28806 (919) 600-7490 NC COA#: P-1932
IVY RIVER BANK STABILIZATION	DETAIL: BOULDER TOE PROTECTION
PRELIMI DRAW REVISIONS	
DATE: 01/13/20 PLOT SIZE: 11" NTS H.D.: NAD83 V.D.: NAVD88	

RIVER COBBLE TOE NOTES

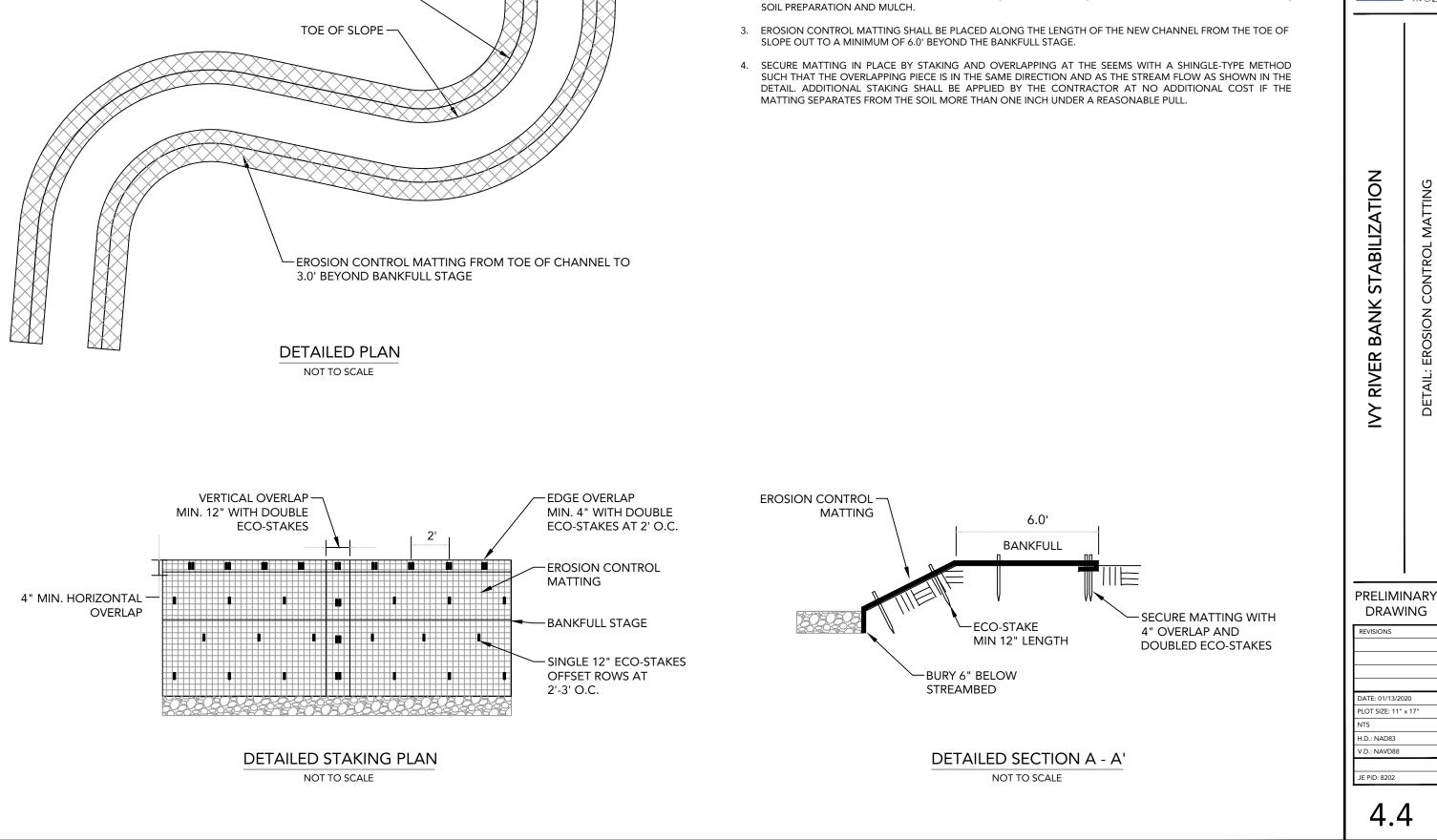


- 1. ROCK USED IN THE RIVER COBBLE TOE SHALL CONSIST OF RIVER GRAVELS AND COBBLES HARVESTED FROM THE RIVER. LARGE VOIDS SHALL BE FILLED WITH GRAVEL. ALL MATERIALS ARE TO BE APPROVED BY THE ENGINEER. GRAVEL AND COBBLES SHALL BE INSTALLED IN 1.0' LIFTS. EACH LIFT SHALL BE COMPACTED WITH THE EXCAVATOR BUCKET AND COVERED WITH A LAYER OF ALLUVIUM OR MIXED SOIL AND GRAVEL TO FORM A DENSE LAYER OF ROCK MATERIAL AND SOIL TO LINES, ELEVATIONS AND GRADES IN THE DRAWINGS.
- 2. GRADE RIVER BANK AT 3:1 SLOPE TO EXISTING GROUND. INSTALL 4" 6" OF TOPSOIL, SOIL PREPARATION, TEMPORARY AND PERMANENT SEEDING AND MULCH. INSTALL 260Z. / YD² COIR EROSION CONTROL MATTING ON ALL GRADED RIVER BANKS. EROSION CONTROL MATTING SHALL BE MADE OF 100% NATURAL FIBERS AND MATERIALS AND BE BIODEGRADABLE UNDER NORMAL CLIMATE CONDITIONS. EROSION CONTROL MATTING CONTAINING PLASTICS OR PLASTIC BASED MATERIALS SHALL NOT BE USED.
- 3. THE SURFACE OF THIS STRUCTURE SHALL BE FINISHED TO A SMOOTH AND COMPACT SURFACE IN ACCORDANCE WITH THE LINES, GRADES, AND CROSS-SECTIONS OR ELEVATIONS SHOWN ON THE DRAWINGS. THE DEGREE OF FINISH FOR ELEVATIONS SHALL BE WITHIN 0.1 FT OF THE GRADES AND ELEVATIONS INDICATED OR APPROVED BY THE ENGINEER.
- RE-DRESSING OF CHANNEL AND BANKFULL BENCH/FLOODPLAIN WILL LIKELY BE REQUIRED FOLLOWING 4. INSTALLATION OF IN-STREAM STRUCTURES AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

Jennings Environmental	JENNINGS ENVIRONMENTAL PLLC 7 SAMUEL ASHE DRIVE, NC 28805 (919) 660-7490 NC COA#: P-1932
IVY RIVER BANK STABILIZATION	DETAIL: BOULDER TOE PROTECTION
PRELIMI DRAW REVISIONS	
DATE: 01/13/20 PLOT SIZE: 11" NTS H.D.: NAD83 V.D.: NAVD88 JE PID: 8202	
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EROSION CONTROL MATTING NOTES

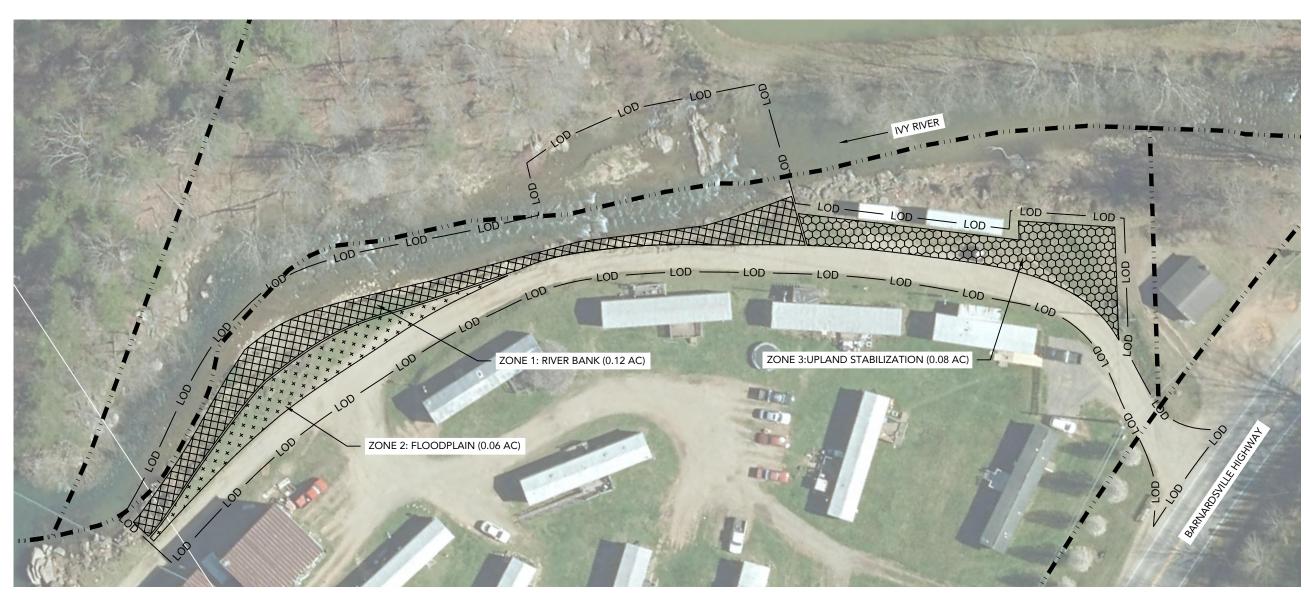
- 1. EROSION CONTROL MATTING IS USED TO PROTECT RECENTLY CONSTRUCTED STREAMBANKS FROM EROSION. THE MATTING WILL REMAIN INTACT WHILE THE BANK AND RIPARIAN VEGETATION MATURES, PROVIDING CRITICAL BANK PROTECTION.
- 2. BEFORE INSTALLING EROSION CONTROL MATTING, RAKE SOIL LEVEL, ADD TEMPORARY AND PERMANENT SEED, SOIL PREPARATION AND MULCH.



▲Α'

BANKFULL-

4 4	JE PID: 8202	NTS H.D.: NAD83 V.D.: NAVD88	DATE: 01/13/20 PLOT SIZE: 11"	 REVISIONS	PRELIMI DRAW	IVY RIVER BANK STABILIZATION	Jennings Environmental
1						DETAIL: EROSION CONTROL MATTING	JENNINGS ENVIRONMENTAL PLLC 7 SAMUEL ASHE DRIVE, NC 28805 919 600-1490 NC COA#: P-1932

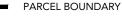




SCALE: 1" = 50'

RE-VEGETATION PLAN LEGEND





ZONE 3: UPLAND

ZONE 2: FLOODPLAIN



ZONE 1: RIVER BANK

LIVE STAKES, BAREROOTS AND CONTAINER PLANTING

1. SEE SHEET 5.2 FOR DETAILED PLANTING NOTES AND INSTRUCTIONS. ZONE 1 AND ZONE 2 PLANTINGS SHALL BE INSTALLED AS LIVE STAKES OR BAREROOT STOCK DEPENDING AVAILABILITY. SPECIES LIST MAY BE ADJUSTED BY THE ENGINEER DEPENDING ON SPECIES AVAILABILITY. SEE SHEET 5.3 FOR DETAIL VEGETATION SCHEDULES.

TEMPORARY SEEDING AND MULCHING

2. ALL SEED AND SEED VARIETIES MUST BE FREE OF STATE AND FEDERALLY LISTED

NOXIOUS WEED SEED AND INVASIVE SPECIES.

- 3. ALL DISTURBED AREAS WILL BE SEEDED WITH TEMPORARY SEED AND MULCHED WITH WHEAT STRAW. SEEDING WILL BE PERFORMED USING A BROADCAST SPREADER. OTHER METHODS MAY BE USED BUT MUST BE APPROVED BY ENGINEER IN ADVANCE OF INSTALLATION.
- 4. MAINTENANCE OF SEEDED AREAS SHALL CONSIST OF WATERING, WEED AND PEST CONTROL, FERTILIZATION, EROSION REPAIR, RESEEDING, AND INCIDENTAL OPERATIONS AS NECESSARY TO ESTABLISH A HEALTHY, VIGOROUS, WEED FREE AND DISEASE FEE UNIFORM STAND OF GRASS. ALL AREAS WHICH FAIL TO SHOW A UNIFORM STAND OF GRASS FOR ANY REASON SHALL BE TREATED REPEATEDLY UNTIL A UNIFORM STAND OF AT LEAST 90% COVERAGE IS ATTAINED WITH NO BARE AREA GREATER THAN FIVE SQUARE FEET.

PERMANENT SEEDING

- 5. PERMANENT SEEDING SHALL OCCUR IN CONJUNCTION WITH TEMPORARY SEEDING WHERE APPLICABLE. IDEALLY, PERMANENT SEEDING SHALL OCCUR DURING THE PLANTING SEASON FOR EACH SEED TYPE. AREAS FERTILIZED FOR TEMPORARY SEEDING SHALL BE SUFFICIENTLY FERTILIZED FOR PERMANENT SEEDING; ADDITIONAL FERTILIZER IS NOT REQUIRED FOR PERMANENT SEEDING.
- 6. ALL SEED AND SEED VARIETIES MUST BE FREE OF STATE AND FEDERALLY LISTED

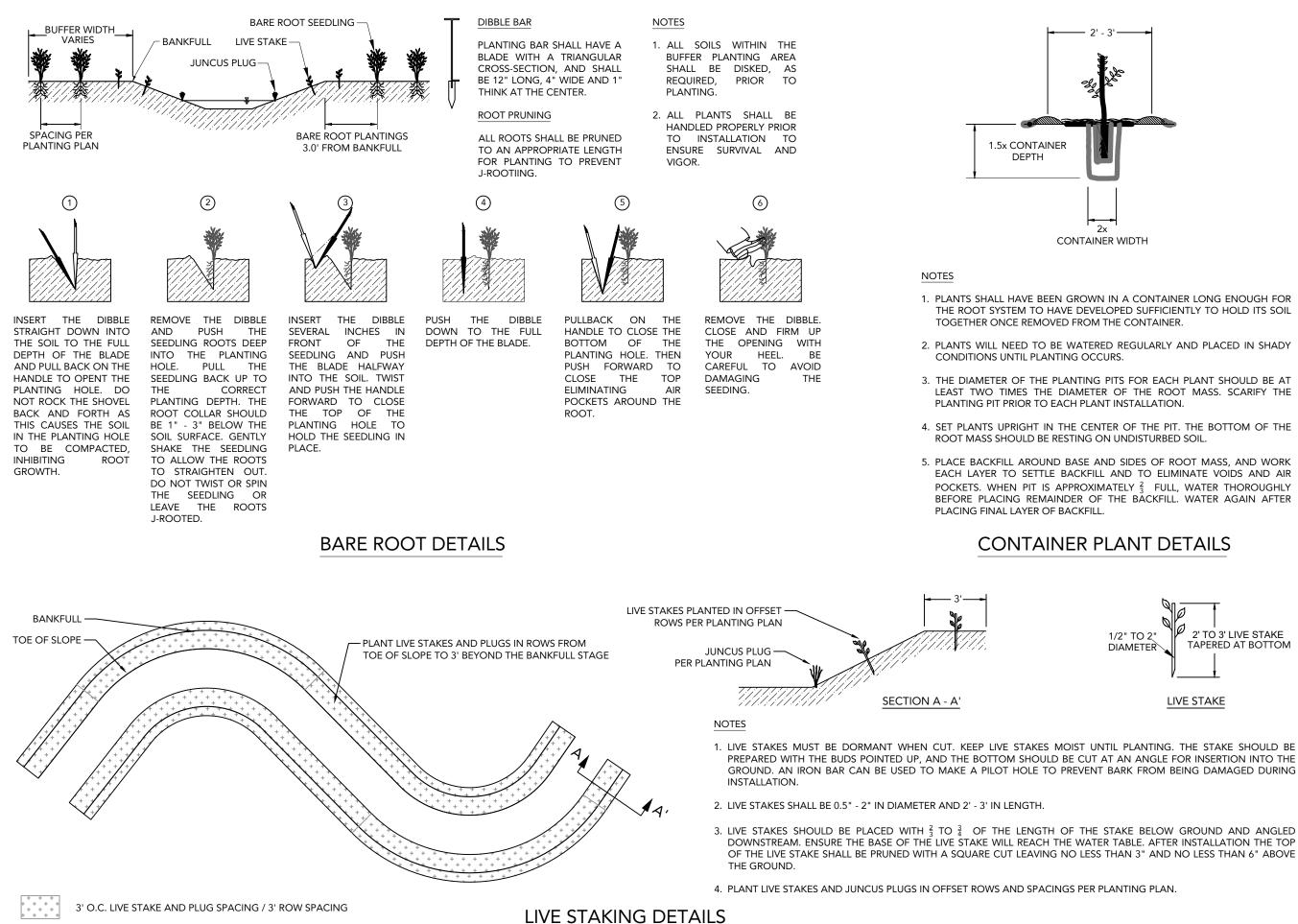
NOXIOUS WEED SEED AND INVASIVE SPECIES.

- FINE GRADING AND BEFORE PLANTING.
- ON STREAM BANKS SHALL BE PROTECTED WITH COIR FIBER MATTING.

7. THE CONTRACTOR SHALL LOOSEN THE SOIL TO A MINIMUM DEPTH OF 4-INCHES AND GRADE TO A SMOOTH, EVEN SURFACE WITH A LOOSE, UNIFORMLY FINE TEXTURE. THE AREAS TO BE SEEDED ARE THEN TO BE ROLLED AND RAKED TO REMOVE RIDGES AND FILL DEPRESSIONS TO MEET FINISH GRADES. THE CONTRACTOR IS TO LIMIT SUB GRADE AND FINISH GRADE PREPARATION TO AREAS THAT WILL BE PLANTED IMMEDIATELY. PREPARED AREAS ARE TO BE RESTORED IF ERODED OR OTHERWISE DISTURBED AFTER

8. SEED SHALL BE SOWN WITH A SPREADER OR A SEEDING MACHINE. SEED IS NOT TO BE BROADCAST OR DROPPED WHEN WIND VELOCITY EXCEEDS 5 MPH. SEED SHALL BE EVENLY DISTRIBUTED BY SOWING IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER. WET SEED OR SEED THAT IS MOLDY OR OTHERWISE DAMAGED IN TRANSIT OR STORAGE IS NOT TO BE USED. AFTER BEGIN SOWN, THE SEED SHALL BE RAKED INTO THE TOP 1/4 INCH OF THE TOPSOIL, LIGHTLY ROLLED, AND WATERED WITH FINE SPRAY. SEEDED AREAS





Jennings Environmental	JENNINGS ENVIRONMENTAL PLLC SAMUEL ASHE DRIVE, NC 28805 (119) 600-7496 NC COA#: P-1932
IVY RIVER BANK STABILIZATION	STABILIZATION AND RE-VEGETATION DETAILS
PRELIMI DRAW REVISIONS	
DATE: 01/13/20 PLOT SIZE: 11" NTS H.D.: NAD83 V.D.: NAVD88 JE PID: 8202	
JE PID: 8202	 >

-	TEMPORARY SEEDING - 0.26 AC	
DATE	ТҮРЕ	APPLICATION RATE (LBS/AC)
	RYE GRAIN	120
JAN 1 - MAY 1	GROUND AGRICULTURAL LIMESTONE	2,000
JAN I - MAT I	10-10-10 FERTILIZER	750
	STRAW MULCH	4,000
	GERMAN MILLET	50
MAY 1 - AUG 15	GROUND AGRICULTURAL LIMESTONE	2,000
MATT-AUGTS	10-10-10 FERTILIZER	750
	STRAW MULCH	4,000
	RYE GRAIN	120
AUG 15 - DEC 30	GROUND AGRICULTURAL LIMESTONE	2,000
AUG 15 - DEC 30	10-10-10 FERTILIZER	750
	STRAW MULCH	4,000

ZONE 1 AND ZON	E 2 PERMANENT SEEDING - 0.18 AC @ 2	5 LBS / AC
SPECIES	COMMON NAME	PERCENT
Agrostis perennans	AUTUMN BENTGRASS	15
Dichanthelium clandestinum	DEER-TOUNGE WITCHGRASS	10
Schizachyrium scoparium	LITTLE BLUESTEM	5
Vernonia noveboracensis	NEW YORK IRONWEED	10
Elymus virginicus	VIRGINIA WILDRYE	20
Juncus effusus	SOFT RUSH	5
Panicum virgatum	SWITCHGRASS	15
Rudbeckia hirta	BLACKEYED SUSAN	10
Sorghastrum nutans	INDIAN GRASS	5
Tripsacum dactyloides	EASTERN GAMAGRASS	5

ZONE 3 PERM	MANENT SEEDING - 0.08 AC @ 30 LBS /	AC
SPECIES	COMMON NAME	PERCENT
Tridens flavus	TALL REDTOP	50
Panicum virgatum	SWITCHGRASS	50

ZONE 1 STR	EAMBANK PLANTINGS - 0.12 AC @ 3' C	0.C.
SPECIES	COMMON NAME	STEMS
Cornus amomum	SILKY DOGWOOD	150
Salix sericea	SILKY WILLOW	150
Physocarpus opulifolius	NINEBARK	150
Sambucus nigra	ELDERBERRY	150

ZONE 2 FLC	OODPLAIN PLANTINGS - 0.06 AC @ 8' O	.C.
SPECIES	COMMON NAME	STEMS
Betula nigra	RIVER BIRCH	10
Platanus occidentalis	SYCAMORE	10
Alnus serrulata	TAG ALDER	10
Liriodendron tulipifera	TULIP POPLAR	10

5	JE PID: 8202	NTS H.D.: NAD83 V.D.: NAVD88	DATE: 01/13/20 PLOT SIZE: 11"	REVISIONS	PRELIMI DRAW	 IVY RIVER BANK STABILIZATION	Jennings Environmental
3						RE-VEGETATION SCHEDULE	JENNINGS ENVIRONMENTAL PLLC 7 SAMUEL ASHE DRIVE, NC 28805 (919) 600-7490 NC COA#: P-1932