



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

November 5, 2021

CONTRACT: DB00525
TIP NUMBER: R-5968BA
WBS ELEMENT: 48797.3.2
COUNTY: CARTERET
ROUTE: NC 24
DESCRIPTION: RECONSTRUCT/RESTORE STORMWATER WETLANDS
IN CAPE CARTERET, CARTERET COUNTY

ADDENDUM 1

TO: PROSPECTIVE BIDDERS

Please note the following revisions to the proposal.

- SP-12 Page 31 revision of Spreading Rush plant from Juncus Patens to Spartina Patens.
- SP-12 Page 31 removal of peat pots reference.
- SP-12 Page 32 modified to Stocking Rate – Plugs shall be planted on a 1 FT by 1 FT grid uniformly yielding 43,560 plugs per acre.
- Revision of Plan pages L-1 and L-2 Planting Table of Spreading Rush plant from Juncus Patens to Spartina Patens.
- Revision of Plan page L-2 Materials Note to remove the peat pots reference.
- A revised electronic file has been uploaded to bid express named DB00525.001.

Please make sure to sign the addendum page in the proposal to acknowledge this addendum.

Sincerely,

DocuSigned by:
Mary Voelker Moore
714C11DCCEBC4C6...

Mary Voelker Moore, PE
Division Contract Engineer

cc: Ryan Mullins, PE
Brad McMannen, PE
Heather Lane, PE
Cadmus Capehart, PE
Mr. Jeff Cabaniss, PE

R-5968BA
Special Provisions
Cape Carteret Wetland BMP Repair
For Construction

Three (3) weeks prior to installation of transplants, contractor shall submit a proposed harvesting and construction schedule, including source of supply of transplants, to project engineer for review and approval. No work shall be performed until project engineer approves the source and schedule. Harvesting, transporting, and installation shall take place between April 15th through June 30th or September 1st through November 15th.

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Materials

Plant materials shall be grown from seedlings or seed sources that originated within plant hardiness zones 7 or 8 east of the Mississippi River. Plant material shall be delivered in 2" cell packs of approximately 50 plants per tray. Plant trays shall be labeled with scientific and common names for inspection. Plant material shall consist of 3 to 5 stems per plant and shall be rooted through the sides and bottom of the pot.

Species:

COMMON NAME	SCIENTIFIC NAME
Sweetflag	<i>Acorus americanus</i>
Swamp milkweed	<i>Asclepias incarnata</i>
Frindge Sedge	<i>Carex crinita</i>
Shallow Sedge	<i>Carex lurida</i>
Soft Rush	<i>Juncus effusus</i>
Blue flag Iris	<i>Iris versicolor</i>
Saltmarsh cordgrass ¹	<i>Spartina alterniflora</i>
Saltmeadow Hay ¹	<i>Spartina patens</i>
Black needle rush ¹	<i>Juncus roemerianus</i>

1 – Per North Carolina law saltmarsh cordgrass and black needle rush are not allowed to be harvested and transplanted, they must be container grown and transplanted.

Method

The Contractor shall be responsible for taking sufficient soil samples for testing by the North Carolina Department of Agriculture and Consumer Services, Agronomic Division, Soil Testing Section, to determine the soil pH and nutrient content. Samples shall be taken in the presence of the Engineer. Results shall be received by the Engineer directly from the North Carolina Department of Agriculture and Consumer Services. The Contractor shall be responsible for the addition of fertilizer and/or other soil amendments as needed to ensure livability of the wetland plugs.

The plugs shall be planted upright, not at an angle. Planting holes shall be dug large enough and deep enough to accommodate the entire root mass. The plugs shall be planted without twisted, balled, j or u roots. The plant plugs shall be planted with no roots exposed above the ground line. Soil shall be packed firmly around the entire root mass.

The Contractor shall supply and install a slow release, coated fertilizer (19-6-12) at the rate of one ounce per plant hole and shall be placed in the transplant hole prior to placing the plug. Another fertilizer analysis may be substituted, upon written approval of the Engineer. Contractor shall submit to engineer fertilizer specifications four (4) weeks prior to planting.

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Special Provisions
Cape Carteret Wetland BMP Repair
For Construction

Seasonal limitations: Transplants shall be completed between April 15th through June 30th or September 1st through November 15th. No planting shall be done when the temperature is below 32 degrees F, when the soil to be excavated for the planting hole is frozen, or when the bottoms of the plant holes are frozen.



- a. Stocking Rate – Plugs shall be planted on a 1 FT by 1 FT grid uniformly yielding 43,560 plugs per acre. Plugs shall be planted in zones in accordance with construction drawings. Plugs shall be placed in groups/clusters of 15 – 25 plugs in adjoining location, contractor shall not plant any groups/clusters with more than 25 plugs in any one location (5 FT x 5 FT) plot. Contractor shall not plant an adjoining plot with a grouping or cluster of the same species, i.e. no 5 FT x 10 FT plot will have the same cluster species grouped together.
- b. Submittal – Contractor shall submit to the engineer in writing the nursery location from which the plugs will be shipped from. The contractor shall also provide the engineer with 5 specimens of each species for quality assurance purposes four (4) weeks prior to installing the plugs.
- c. Inspection - Inspection of plug quality by the shall be performed under this contract prior to or at the beginning of the planting of the plugs. Engineer shall be given at least one (1) week notice of the anticipated arrival of plugs and planting crew to each site to facilitate the completion of this inspection requirement. Inspection of the planting by the engineer shall be performed under this contract by measuring sample plots. In the event a sample plot fails to meet contract requirements, the Contractor will be required to re-work the representative area prior to re-inspection. The re-inspection sample plot shall not be the original sample plot.
- d. Irrigation – Contractor shall be responsible for irrigation of plugs for establishment purposes for no less than one month after planting. Contractor shall submit to engineer an irrigation plan, and schedule two weeks prior to planting. Contractor shall also be responsible for removing flood waters from the plugs.

Measurement and Payment

Vegetation Transplanting will be measured and paid for as the actual number of acres of land, measured along of the surface of ground, which has been acceptably planted with transplants in accordance with these specifications.

Payment will be made under:

Pay Item	Pay Unit
Wetland Plugs	EA

SP-13 HIGH QUALITY WATERS

Description

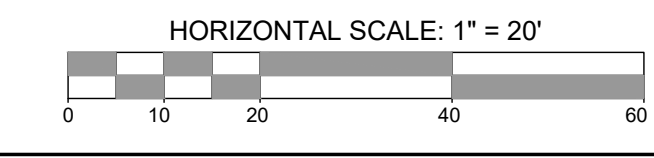
Deer Creek has been identified as high quality waters. This designation requires special procedures to be used for clearing and grubbing, temporary stream crossings, and grading operations within the High Quality Water Zone and as designated by the Engineer. The High

**PLANTING
PLAN VIEW**
(1" = 20' HORIZ.)



CHARLOTTE OFFICE: 201 W 29TH STREET, CHARLOTTE NC 28206
KINSTON OFFICE: 1308 HWY 258 N, KINSTON NC 28504
PHONE: 704.337.8329 | FAX: 704.308.3153 | WEBSITE:
WWW.LDSI-NC.COM NC FIRM #: F-0441

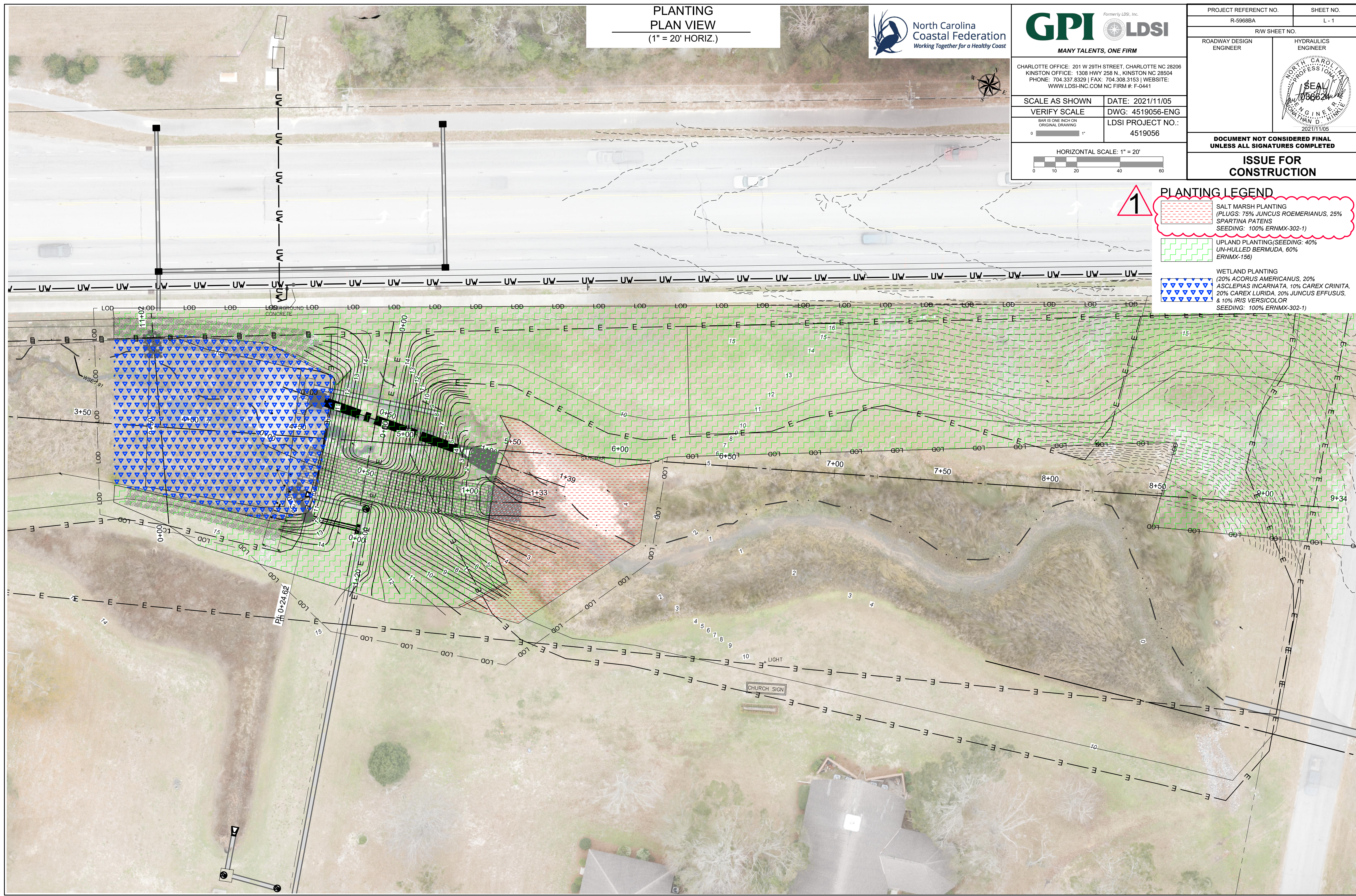
SCALE AS SHOWN DATE: 2021/11/05
VERIFY SCALE DWG: 4519056-ENG
LDSI PROJECT NO.: 4519056



PROJECT REFERENCE NO. R-59688A	SHEET NO. L-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>ISSUE FOR CONSTRUCTION</p>	

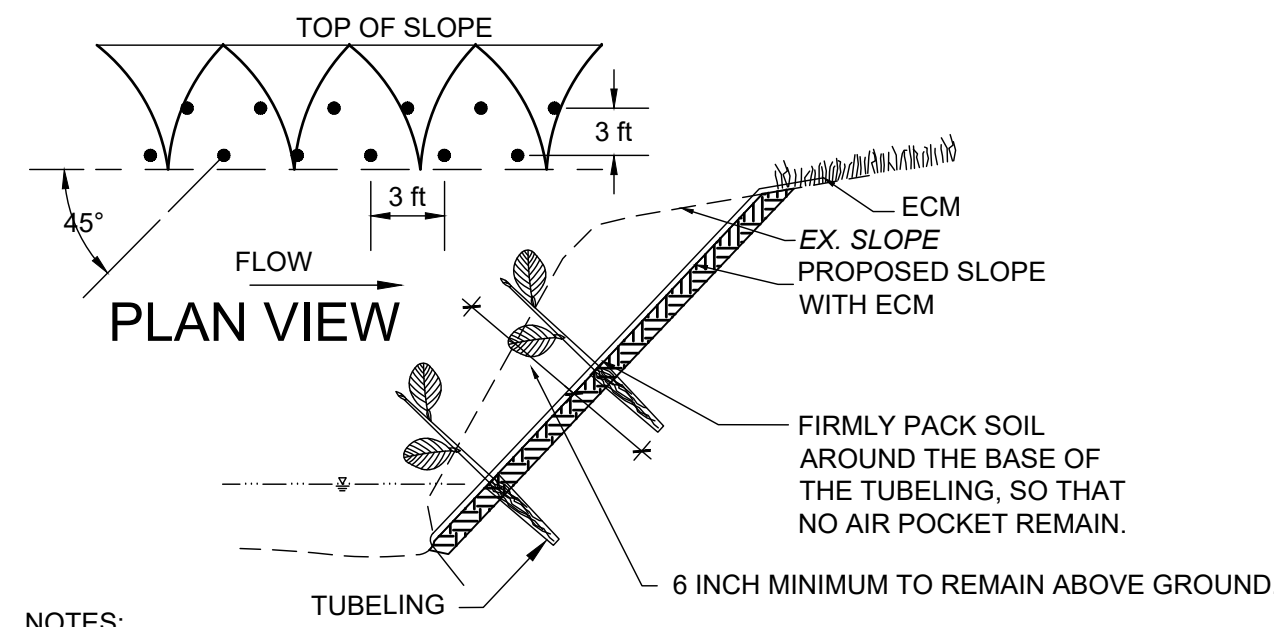
1 PLANTING LEGEND

- SALT MARSH PLANTING
(PLUGS: 75% JUNCUS ROEMERIANUS, 25% SPARTINA PATENS
SEEDING: 100% ERNMX-302-1)
- UPLAND PLANTING (SEEDING: 40% UN-HULLED BERMUDA, 60% ERNMX-156)
- WETLAND PLANTING
(20% ACORUS AMERICANUS, 20% ASCLEPIAS INCARNATA, 10% CAREX CRINITA, 20% CAREX LURIDA, 20% JUNCUS EFFUSUS, & 10% IRIS VERSICOLOR
SEEDING: 100% ERNMX-302-1)



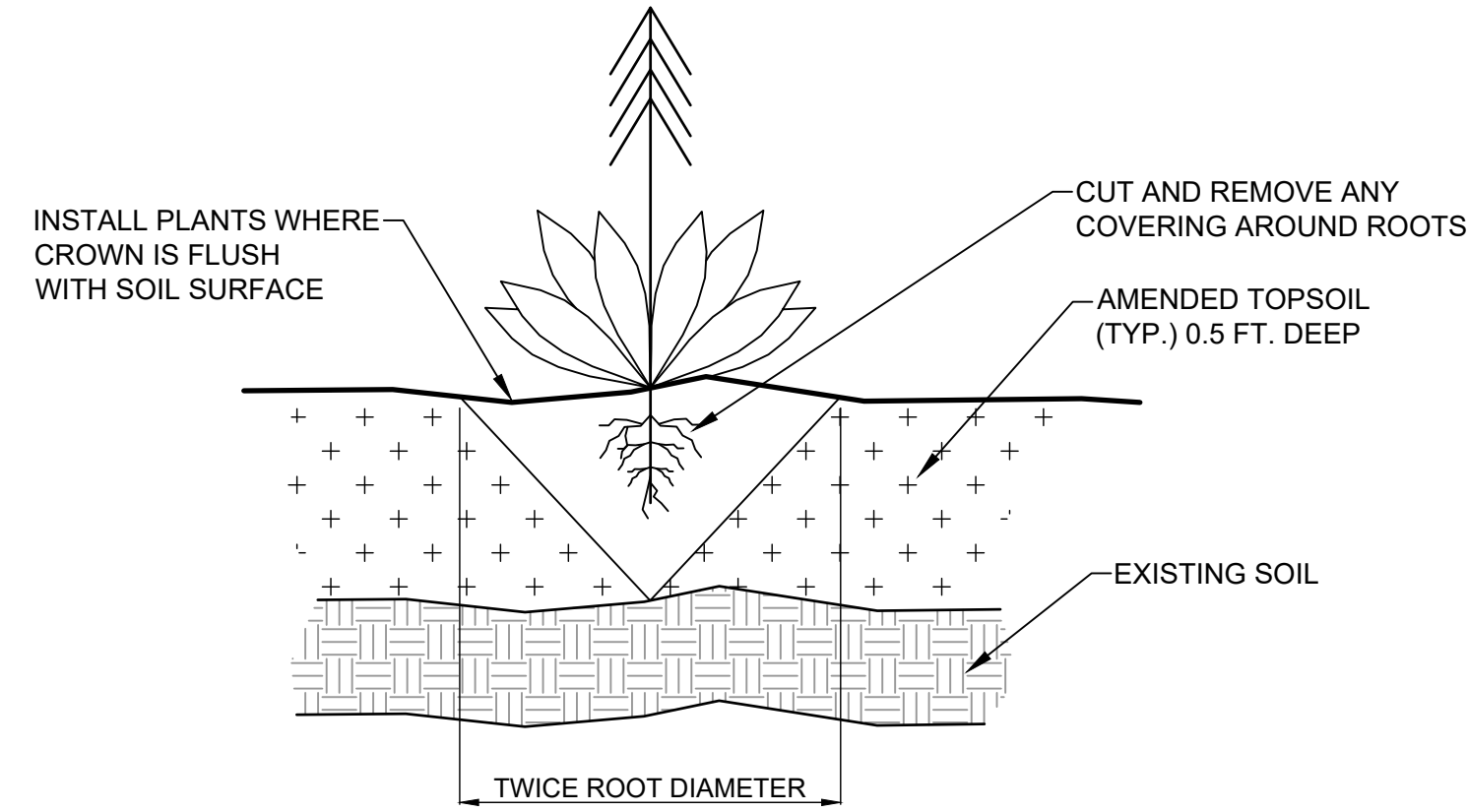
C:\2021\4519056-ENG\Construction Drawings\04 - Working Drawings\4519056-ENG.dwg, 11/05/2021 2:18:51 PM, AutoCAD 2021 (Internal Document)

PLANTING DETAILS



- NOTES:
1. SEE PLANTING SCHEDULE FOR DESIRABLE SPECIES AND SIZE.
 2. SPACE AT 3.0' O.C. (TRIANGULAR SPACING).
 3. ALL TUBELINGS SHALL COMPLY WITH THE RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK."
 4. CUT AND FOLD BACK SLOT IN MAT TO INSTALL TUBELING. SEAL SLOT WITH COMPOST AND STAPLE. ALLOW 6" DIAMETER AROUND TUBELING WITH NO ECM.
 5. PLANT THE ROOT BALL SLIGHTLY DEEPER THAN IT WAS IN THE TUB.

TUBELING DETAILS (NTS)



GENERAL PLANTING NOTES:

1. DO NOT COMPACT TOPSOIL, TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
2. PLANTS OF THE SAME SPECIES SHOULD BE PLANTED IN CLUSTERS. THESE CLUSTERS SHOULD CONTAIN (5) FIVE PLANTS OF THAT SPECIES. NO MORE THAN ONE (1) CLUSTER OR FIVE (5) PLUGS OF THE SAME SPECIES WITHIN A 10 FT BY 10 FT GRID.
3. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.

TYPICAL PLANTING DETAIL (NTS.)

GENERAL PLANTING NOTES:

SEEDING TEMPORARY & PERMANENT

- PERMANENT SEED MIX SHALL BE ERNST SEED NORTH CAROLINA MOUNTAIN RIPARIAN MIX OR EQUIVALENT
- SEEDING SHALL BE IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 006 - SEEDING, SPRIGGING, AND MULCHING.
- DELIVERY TICKETS SHOWING QUALITY AND QUANTITY OF MATERIALS SHALL BE FURNISHED TO THE ENGINEER (1) WEEK PRIOR TO USING MATERIALS FOR APPROVAL.
- AREAS TO BE SEEDED SHALL BE DRESSED TO A SMOOTH, FIRM SURFACE. ON SITES WHERE EQUIPMENT CAN OPERATE ON SLOPES SAFELY, THE SEEDBED SHALL BE ADEQUATELY LOOSENEED (4 TO 6 INCHES DEEP) AND SMOOTHED. DEPENDING ON SOIL AND MOISTURE CONDITIONS, DISKING OR CULTIPACKING, OR BOTH, MAY BE NECESSARY TO PROPERLY PREPARE A SEEDBED. WHERE EQUIPMENT CANNOT OPERATE SAFELY, THE SEEDBED SHALL BE PREPARED BY HAND METHODS BY SCARIFYING TO PROVIDE A ROUGHENED SOIL SURFACE SO THAT BROADCAST SEED WILL REMAIN IN PLACE.
- FERTILIZER, LIME, AND OTHER SOIL AMENDMENTS SHALL BE APPLIED AS SPECIFIED IN SPECIFICATIONS. THE FERTILIZER AND SOIL AMENDMENTS SHALL BE THOROUGHLY INCORPORATED INTO THE SOIL IMMEDIATELY FOLLOWING SURFACE APPLICATION.
- ALL DISTURBED AREAS SHALL BE SEEDED WHEN THEY ARE EXPECTED TO BE BARE OF GROUND OVER FOR MORE THAN 15 CALENDAR DAYS; WHERE ACTIVE CONSTRUCTION IS NOT BEING UNDERTAKEN, OR AS DIRECTED BY THE ENGINEER/INSPECTOR. THESE AREAS SHALL BE SEEDED (TEMPORARY SEED MIX) AT THE END OF EACH DAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER/INSPECTOR.
- SEEDING (PERMANENT SEED MIX) SHALL BE ACCOMPLISHED WITHIN TWO (2) DAYS AFTER FINAL GRADING IS COMPLETED AND APPROVED BY THE ENGINEER.
- FERTILIZER SHALL BE APPLIED AT THE RATE OF 1,000 LBS. PER ACRE. THE FERTILIZER SHALL BE 10-10-10, OR EQUIVALENT. LIME SHALL BE APPLIED AT THE RATE OF TWO (2) TONS PER ACRE. MULCH SHALL BE APPLIED AT A RATE OF TWO (2) TONS PER ACRE. ALL SOIL AMENDMENTS SHALL BE THOROUGHLY INCORPORATED, AS SPECIFIED IN SECTION 5 OF THIS CONSTRUCTION SPECIFICATION. THE AREA SHOULD THEN BE SMOOTHED AND ANY DEBRIS LARGER THAN 3 INCHES IN DIAMETER OR WHICH WOULD INTERFERE WITH MOWING SHALL BE REMOVED FROM THE SURFACE. A CYCLONE SEEDER, DRILL OR CULTIPACKER SEEDER SHALL BE USED TO APPLY THE SPECIFIED SEED EVENLY ON THE FRESHLY PREPARED SEEDBED. WHEN SEED IS BROADCAST, A CULTIPACKER OR OTHER APPROPRIATE EQUIPMENT SHALL BE USED IMMEDIATELY FOLLOWING SEEDING TO INCORPORATE THE SEED.

TRANSPLANTS

- THE WORK CONSISTS OF HARVESTING, TRANSPORTING, INSTALLING, AND MAINTAINING TRANSPLANT (HERBACEOUS PLUGS) MATERIALS: INSTALLED IN THE WETLAND AREAS AS SHOW ON THE CONSTRUCTION DRAWINGS. TRANSPLANTS MAY ALSO BE PURCHASED AT THE DISCRETION OF THE CONTRACTOR, WITH PRIOR APPROVAL FROM THE PROJECT ENGINEER.
 - THREE (3) WEEKS PRIOR TO INSTALLATION OF TRANSPLANTS, CONTRACTOR SHALL SUBMIT A PROPOSED HARVESTING AND CONSTRUCTION SCHEDULE, INCLUDING SOURCE OF SUPPLY OF TRANSPLANTS, TO PROJECT ENGINEER FOR REVIEW AND APPROVAL. NO WORK SHALL BE PERFORMED UNTIL PROJECT ENGINEER APPROVES THE SOURCE AND SCHEDULE. HARVESTING, TRANSPORTING, AND INSTALLATION SHALL TAKE PLACE WHEN PLANTS ARE DORMANT (DECEMBER 1 THROUGH APRIL 1).
- MATERIALS:
- PLANT MATERIALS SHALL BE GROWN FROM SEEDLINGS OR SEED SOURCES THAT ORIGINATED WITHIN PLANT HARDINESS ZONES 7 OR 8 EAST OF THE MISSISSIPPI RIVER. PLANT MATERIAL SHALL BE DELIVERED IN 2" CELL PACKS OF APPROXIMATELY 50 PLANTS PER TRAY. PLANT TRAYS SHALL BE LABELED WITH SCIENTIFIC AND COMMON NAMES FOR INSPECTION. PLANT MATERIAL SHALL CONSIST OF 3 TO 5 STEMS PER PLANT AND SHALL BE ROOTED THROUGH THE SIDES AND BOTTOM OF THE POT.
- METHODS:
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING SUFFICIENT SOIL SAMPLES FOR TESTING BY THE NORTH CAROLINA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, AGRONOMIC DIVISION, SOIL TESTING SECTION, TO DETERMINE THE SOIL PH AND NUTRIENT CONTENT. SAMPLES SHALL BE TAKEN IN THE PRESENCE OF THE ENGINEER. RESULTS SHALL BE RECEIVED BY THE ENGINEER DIRECTLY FROM THE NORTH CAROLINA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADDITION OF FERTILIZER AND/OR OTHER SOIL AMENDMENTS AS NEEDED TO ENSURE LIVABILITY OF THE WETLAND PLUGS.
 - THE PLUGS SHALL BE PLANTED UPRIGHT, NOT AT AN ANGLE. PLANTING HOLES SHALL BE DUG LARGE ENOUGH AND DEEP ENOUGH TO ACCOMMODATE THE ENTIRE ROOT MASS. THE PLUGS SHALL BE PLANTED WITHOUT TWISTED, BALLED, J OR U ROOTS. THE PLANT PLUGS SHALL BE PLANTED WITH NO ROOTS EXPOSED ABOVE THE GROUND LINE. SOIL SHALL BE PACKED FIRMLY AROUND THE ENTIRE ROOT MASS.
 - THE CONTRACTOR SHALL SUPPLY AND INSTALL A SLOW RELEASE, COATED FERTILIZER (19-6-12) AT THE RATE OF ONE OUNCE PER PLANT HOLE AND SHALL BE PLACED IN THE TRANSPLANT HOLE PRIOR TO PLACING THE PLUG. ANOTHER FERTILIZER ANALYSIS MAY BE SUBSTITUTED, UPON WRITTEN APPROVAL OF THE ENGINEER. CONTRACTOR SHALL SUBMIT TO ENGINEER FERTILIZER SPECIFICATIONS FOUR (4) WEEKS PRIOR TO PLANTING.

- SEASONAL LIMITATIONS: TRANSPLANTS SHALL BE COMPLETED BETWEEN APRIL 15TH THROUGH JUNE 30TH OR SEPTEMBER 1ST THROUGH NOVEMBER 15TH. NO PLANTING SHALL BE DONE WHEN THE TEMPERATURE IS BELOW 32 DEGREES F, WHEN THE SOIL TO BE EXCAVATED FOR THE PLANTING HOLE IS FROZEN, OR WHEN THE BOTTOMS OF THE PLANT HOLES ARE FROZEN.
- STOCKING RATE - PLUGS SHALL BE PLANTED ON A 1 FT BY 1 FT GRID UNIFORMLY YIELDING 43,560 PLUGS PER ACRE. PLUGS SHALL BE PLANTED IN ZONES IN ACCORDANCE WITH CONSTRUCTION DRAWINGS. PLUGS SHALL BE PLACED IN GROUPS/CLUSTERS OF 15 - 25 PLUGS IN ADJOINING LOCATION. CONTRACTOR SHALL NOT PLANT ANY GROUPS/CLUSTERS WITH MORE THAN 25 PLUGS IN ANY ONE LOCATION (5 FT X 5 FT) PLOT UNLESS ONLY 1 SPECIES IS INDICATED FOR PLANTING AREA. CONTRACTOR SHALL NOT PLANT AN ADJOINING PLOT WITH A GROUPING OR CLUSTER OF THE SAME SPECIES, I.E. NO 5 FT X 10 FT PLOT WILL HAVE THE SAME CLUSTER SPECIES GROUPED TOGETHER.
- SUBMITTAL - CONTRACTOR SHALL SUBMIT TO THE ENGINEER IN WRITING THE NURSERY LOCATION FROM WHICH THE PLUGS WILL BE SHIPPED FROM. THE CONTRACTOR SHALL ALSO PROVIDE THE ENGINEER WITH 5 SPECIMENS OF EACH SPECIES FOR QUALITY ASSURANCE PURPOSES FOUR (4) WEEKS PRIOR TO INSTALLING THE PLUGS.
- INSPECTION - INSPECTION OF PLUG QUALITY BY THE SHALL BE PERFORMED UNDER THIS CONTRACT PRIOR TO OR AT THE BEGINNING OF THE PLANTING OF THE PLUGS. ENGINEER SHALL BE GIVEN AT LEAST ONE (1) WEEK NOTICE OF THE ANTICIPATED ARRIVAL OF PLUGS AND PLANTING CREW TO EACH SITE TO FACILITATE THE COMPLETION OF THIS INSPECTION REQUIREMENT. INSPECTION OF THE PLANTING BY THE ENGINEER SHALL BE PERFORMED UNDER THIS CONTRACT BY MEASURING SAMPLE PLOTS. IN THE EVENT A SAMPLE PLOT FAILS TO MEET CONTRACT REQUIREMENTS, THE CONTRACTOR WILL BE REQUIRED TO RE-WORK THE REPRESENTATIVE AREA PRIOR TO RE-INSPECTION. THE RE-INSPECTION SAMPLE PLOT SHALL NOT BE THE ORIGINAL SAMPLE PLOT.
- IRRIGATION - CONTRACTOR SHALL BE RESPONSIBLE FOR IRRIGATION OF PLUGS FOR ESTABLISHMENT PURPOSES FOR NO LESS THAN ONE MONTH AFTER PLANTING. CONTRACTOR SHALL SUBMIT TO ENGINEER AN IRRIGATION PLAN, AND SCHEDULE TWO WEEKS PRIOR TO PLANTING. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVING FLOOD WATERS FROM THE PLUGS.

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PLANTING TABLE					
PLUGS					
	SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	PERCENT MIX	ESTIMATED # OF PLANTS	PLANTING AREA (ACRES)
SALT MARSH	BLACK NEEDLE RUSH	JUNCAS ROEMERIANUS	75%	3600	0.11
	SALTMEADOW HAY	SPARTINA PATENS	25%	1200	
WETLAND PLANTINGS	AMERICAN SWEET FLAG	ACORUS AMERICANUS	20%	1480	0.17
	SWAMP MILKWEED	ASCLEPIAS INCARNATA	20%	1480	
	FRINGED SEDGE	CAREX CRINITA	10%	740	
	SALLOW SEDGE	CAREX LURIDA	20%	1480	
	SOFT RUSH	JUNCUS EFFUSUS	20%	1480	
	BLUE FLAG	IRIS VERSICOLOR	10%	740	
SEEDING					
	PLANTING MIX/ SEED	PERCENT MIX	APPLICATION RATE (LBS/ACRE)	PLANTING AREA (ACRES)	
UPLAND PLANTING	UN-HULLED BERMUDA	40%	20	1.10	
	ERNMIX 156 (LOW-GROWING WILDFLOWER AND GRASS MIX)	60%	30		
SALT MARSH	ERNMIX 302-1 (NC COASTAL PLAIN DETENTION BASIN MIX)	100%	20	0.11	
WETLAND PLANTINGS	ERNMIX 302-1 (NC COASTAL PLAIN DETENTION BASIN MIX)	100%	20	0.17	