



**DEPARTMENT OF THE ARMY**  
**U.S. ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT**  
**4751 BEST ROAD, SUITE 140**  
**COLLEGE PARK, GEORGIA 30337**

August 10, 2022

Regulatory Division  
SAS-2020-00393

Mr. Don Sherrill  
City of Brookhaven  
4362 Peachtree Road, NE  
Brookhaven, Georgia 30319

Dear Mr. Sherrill:

I refer to the Pre-Construction Notification, submitted on your behalf by Edwards-Pitman Environmental, Inc., requesting verification for use of Nationwide Permit 27 (NWP 27) for proposed stream restoration activities along an approximately 2,000 linear foot reach of North Fork Nancy Creek (NFNC). The project corridor is located immediately south of Interstate 285 (I-285), and north of Murphey Candler Lake, within Murphy Candler Park, east of Long Branch Court, NE, and west of the terminus of Brawley Drive, NE, and East Nancy Creek Drive, NE, in the City of Brookhaven, DeKalb County, Georgia (centered at approximately: latitude: 33.9190, longitude: -84.3278). This project has retained the previously assigned number SAS-2020-00393, and it is important to reference this number in all communication concerning this matter.

The purpose of the proposed project is to restore approximately 2,000 linear feet of NFNC, as funded by an EPA 319(h) grant with the objective to remedy the ongoing erosion that has resulted in downstream sedimentation within Nancy Creek and to prevent future such degradation/aggradation. The project would utilize natural channel design and streambank bioengineering methods. The proposed improvements are intended to meet watershed-scale sediment reduction load goals in relation to the biota impairment listing and improve water quality within the project reach of NFNC. The 2,000-foot reach of NFNC was identified due to existing channel degradation and streambank entrenchment within the reach. The activities would include installation of in-stream structures, associated grading, and planting of native vegetation. The structural measures would include: log sills, construction of riffles and pools, toe wood, grading the banks to stable slopes, soil layer lifts, reestablishment of floodplain benches, stabilization of existing sanitary sewer crossings, and enhancement of aquatic habitat for benthic macro-invertebrates. The project would result in permanent impacts to 2,015 linear feet (1.59-acres) of NFNC, with temporary impacts to 26 linear feet (0.001-acre) of NFNC, 71 linear feet (0.012-acre) of intermittent streams, and 0.491-acre of wetlands, as detailed in the impact summary table, below. The project proposes three post-construction monitoring events of the restored area including preventative maintenance checks and inspection of all post-construction features, hydrology and

sediment supply, and biological assessments including benthic surveys. The post-construction monitoring would be conducted annually following project completion and results would be reported to the Corps. The details of the proposed project are depicted on the thirty-three (33) enclosed exhibits, collectively entitled, “City of Brookhaven, North Fork Nancy Creek Stream Restoration, From I-285 to Murphey Candler Lake, Draft – 100% Design Drawings”, as prepared by Freese and Nichols, Inc., dated February 2022. The enclosed drawings are consecutively numbered 1-33.

<b>North Fork Nancy Creek Stream Restoration USACE Impact Summary Table</b>				
Resource	Permanent Impacts		Temporary Impacts	
	Linear Feet	Acreage	Linear Feet	Acreage
Perennial Stream (PS) 1	2,000	1.59	overlap with permanent	
Wetland (WL) 2	N/A	0.001	N/A	0.41
WL 3	N/A	0	N/A	0.04
PS 4	15	0.002	13	0.005
Intermittent Stream (IS) 5	32	0.005	0	0
IS 6	39	0.007	0	0
PS 7	0	0	13	0.005
WL 8	N/A	0	N/A	0.04
Total Perennial Stream Impacts	2,015	1.592	26	0.01
Total Intermittent Stream Impacts	71	0.012	0	0
Total Wetland Impacts	N/A	0.001	N/A	0.49

The enclosed exhibit entitled, “Figure 4: Waters and Soils Map (Aerial), Murphey Candler Streambank Restoration Project, City of Brookhaven, DeKalb County”, as prepared by Edwards-Pitman Environmental, Inc., received June 10, 2022, identifies the delineation limits of all aquatic resources within the project area. The wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual. Please note, should this delineation require re-verification, it is subject to change based on site conditions at the time of re-evaluation.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or

anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

We have completed coordination with other federal and state agencies as described in Part C (32)(d) of our NWP Program, published in the January 13, 2021, Federal Register, Vol. 86, No. 8, Pages 2744-2877 (86 FR) and/or the December 27, 2021, Federal Register, Vol. 86, No. 245, Pages 73522-73583 (86 FR). The NWPs and Savannah District's Regional Conditions for NWPs can be found on our website at <http://www.sas.usace.army.mil/Missions/Regulatory/Permitting/GeneralPermits/NationwidePermits.aspx>. During our coordination procedure, no adverse comments regarding the proposed work were received.

As a result of our evaluation of your project, we have determined that the proposed activity is authorized as described in Part B of the NWP Program. Your use of this NWP is valid only if:

- a. The activity is conducted in accordance with the information submitted and meets the conditions applicable to the NWP, as described at Part C of the NWP Program and the Savannah District's Regional Conditions for NWPs.
- b. You shall notify the Corps, in writing, at least 10 days in advance of commencement of work authorized by this permit.
- c. You fill out and sign the enclosed certification and return it to our office in conjunction with the project as-built survey. Post-construction photographs must be attached and returned with the compliance certification form.
- d. Should the attached plans be modified, a final design and grading plan for the stream restoration project shall be submitted to this office for review and approval. The final design plan should include a point of contact, their contact information for maintaining compliance with the terms and conditions of this NWP verification, and a narrative of the maintenance. If modifications to the attached plans are necessary, any failure to submit the modified final design and grading plan prior to construction of the stream restoration project will invalidate this verification.
- e. Within 90-days of completion of construction activities, a complete as-built survey of the stream restoration shall be submitted to this office for review and approval. The as-built survey report shall include longitudinal profiles for the entire length of the constructed reach. The as-built report shall include a minimum of two riffle and two pool cross-sections, that are representative of this restoration reach. The survey of the longitudinal profiles and cross-sections shall follow the methodologies outlined in the

U.S. Forest Service's: "Stream Channel Reference Sites: An Illustrated Guide to Field Technique" (Haralson et al., 1994). The as-built survey report shall also include the following information:

1. Locations of all in-stream structures;
2. Final grading elevations within the flood prone area of this reach;
3. Locations of all riparian and streamside vegetation planted (to include caliper of woody stems, broadcast rates (in lbs./acre) for herbaceous seeding, and the name of the species associated with each planting/planting zone); and
4. Any areas of stockpiled soil onsite.

The as-built survey should include a completed Table 1 (attached) for the restored reach, and a discussion of any deviations from the final design that occurred during construction.

f. To ensure that a functional lift is achieved, the constructed reach shall be monitored annually for three (3) consecutive years following the submittal of the as-built survey. The data, for the first year of monitoring, shall not be collected any earlier than eleven (11) months from the submittal of the as-built survey, and data collected for the subsequent monitoring years shall not occur earlier than eleven (11) months from the previous annual monitoring data collection. Annual monitoring reports shall be submitted on an annual basis and must be submitted within two (2) months of the completion of data collection. Failure to provide monitoring reports on an annual basis may result in additional annual monitoring of the project. Project monitoring shall include the collection of cross-sections, at the same locations that were collected as part of the as-built survey report.

g. The annual analysis of geomorphic performance shall be based on a percent deviation from the mean values for each of the geomorphic variables (dimension, pattern, and profile variables) for this project reach, as outlined in the enclosed Table 1, entitled, "North Fork Nancy Creek Geomorphic Parameters for Annual Geomorphic Monitoring with Comparison to Regional Values", (Edwards-Pittman Environmental, Inc., 2022). The restoration reach will be determined to have achieved a functional lift if it has achieved values within ten-percent of the mean design value for each of the geomorphic variables. If a value of a geomorphic variable is outside the performance threshold established above for a given annual monitoring year, the Corps will evaluate whether the restoration reach requires adaptive management to achieve the required functional lift, or if the documented variance is acceptable.

h. If any of the monitoring locations are determined by the Corps not to be representative of the restoration reach, additional monitoring stations and/or monitoring events may be required to determine project performance.

i. If adaptive management cannot be performed to confirm a functional lift is achieved for each of the restoration reach, alternative measures will be required to compensate for any functional losses that are determined by the Corps. Alternative measures may include the purchase of stream credits from a mitigation bank or in-lieu fee program for any functional losses, as calculated by the Savannah District's 2021 Mitigation Standard Operating Procedure, or superseding guidance.

This proposal was reviewed in accordance with Section 7 of the Endangered Species Act. Based on the information we have available; we have determined that the project would have no effect on any threatened or endangered species nor any critical habitat for such species. Authorization of an activity by a NWP does not authorize the "take" of threatened or endangered species. In the absence of separate authorization, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. See Part (C) of 86 FR for more information.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to expire on March 14, 2026. It is incumbent upon you to remain informed of changes to the NWPs. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

This authorization should not be construed to mean that any future projects requiring Department of the Army authorization would necessarily be authorized. Any new proposal, whether associated with this project or not, would be evaluated on a case-by-case basis. Any prior approvals would not be a determining factor in deciding on any future request.

Revisions to your proposal may invalidate this authorization. In the event changes to this project are contemplated, I recommend that you coordinate with us prior to proceeding with the work.

This communication does not relieve you of any obligation or responsibility for complying with the provisions of any other laws or regulations of other federal, state, or local authorities. It does not affect your liability for any damages or claims that may arise as a result of the work. It does not convey any property rights, either in real estate or material, or any exclusive privileges. It also does not affect your liability for any interference with existing or proposed federal projects. If the information you have submitted and on which the Corps bases its determination/decision of authorization under the NWP is later found to be in error, this determination may be subject to modification, suspension, or revocation.

An electronic copy of this letter is being provided to the following party: Edards-Pitman Environmental, Inc., Mr. Collin Lane, via email at: [clane@edwards-pitman.com](mailto:clane@edwards-pitman.com); and Freese and Nichols, Inc.; Mr. John Schneider, via email at: [John.Schneider@freese.com](mailto:John.Schneider@freese.com); and City of Brookhaven, Mr. Tom Roberts, via email at: [tom.roberts@brookhavenga.gov](mailto:tom.roberts@brookhavenga.gov).

Thank you in advance for completing our on-line Customer Survey Form located at <https://regulatory.ops.usace.army.mil/customer-service-survey/>. We value your comments and appreciate you taking the time to complete a survey each time you interact with our office.

If you have any questions, please contact me at (678) 422-6572 or [jade.r.bilyeu@usace.army.mil](mailto:jade.r.bilyeu@usace.army.mil).

Sincerely,

Jade R. Bilyeu  
Regulatory Specialist, Piedmont Branch

Enclosures

Regulatory Division

CERTIFICATION OF COMPLIANCE  
WITH DEPARTMENT OF THE ARMY  
NATIONWIDE PERMIT (27)

PERMIT FILE NUMBER: SAS-2020-00393

PERMITTEE/ADDRESS: City of Brookhaven, Mr. Don Sherrill, 4362 Peachtree Road, NE, Brookhaven, Georgia 30319.

LOCATION OF WORK: The project corridor is located immediately south of Interstate 285 (I-285), and north of Murphey Candler Lake, within Murphy Candler Park, east of Long Branch Court, NE, and west of the terminus of Brawley Drive, NE, and East Nancy Creek Drive, NE, in the City of Brookhaven, DeKalb County, Georgia (centered at approximately: latitude: 33.9190, longitude: -84.3278).

PROJECT DESCRIPTION: The purpose of the proposed project is to restore approximately 2,000 linear feet of NFNC, as funded by an EPA 319(h) grant with the objective to remedy the ongoing erosion that has resulted in downstream sedimentation within Nancy Creek and to prevent future such degradation/aggradation. The project would utilize natural channel design and streambank bioengineering methods. The proposed improvements are intended to meet watershed-scale sediment reduction load goals in relation to the biota impairment listing and improve water quality within the project reach of NFNC. The 2,000-foot reach of NFNC was identified due to existing channel degradation and streambank entrenchment within the reach. The activities would include installation of in-stream structures, associated grading, and planting of native vegetation. The structural measures would include: log sills, construction of riffles and pools, toe wood, grading the banks to stable slopes, soil layer lifts, reestablishment of floodplain benches, stabilization of existing sanitary sewer crossings, and enhancement of aquatic habitat for benthic macro-invertebrates. The project would result in permanent impacts to 2,015 linear feet (1.59-acres) of NFNC, with temporary impacts to 26 linear feet (0.001-acre) of NFNC, 71 linear feet (0.012-acre) of intermittent streams, and 0.491-acre of wetlands, as detailed in the impact summary table, below. The project proposes three post-construction monitoring events of the restored area including preventative maintenance checks and inspection of all post-construction features, hydrology and sediment supply, and biological assessments including benthic surveys. The post-construction monitoring would be conducted annually following project completion and results would be reported to the Corps.

WATERS OF THE UNITED STATES IMPACTED: 2,000 linear feet (1.59-acres), with temporary impacts to 26 linear feet (0.001-acre) of NFNC, 71 linear feet (0.012-acre) of impacts to intermittent streams, and 0.491-acre of temporary impacts to wetlands

DATE WORK IN WATERS OF UNITED STATES COMPLETED: \_\_\_\_\_

COMPENSATORY MITIGATION REQUIRED: N/A

I understand that the permitted activity is subject to a U.S. Army Corps of Engineers' Compliance Inspection. If I fail to comply with the permit conditions at Part C of the Nationwide Permit Program, published in the January 13, 2021, Federal Register, Vol. 86, No. 8, Pages 2744-2877 (86 FR) and/or the December 27, 2021, Federal Register, Vol. 86, No. 245, Pages 73522-73583 (86 FR), it may be subject to suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit as well as any required mitigation (if applicable) has been completed in accordance with the terms and conditions of the said permit.

\_\_\_\_\_  
Signature of Permittee

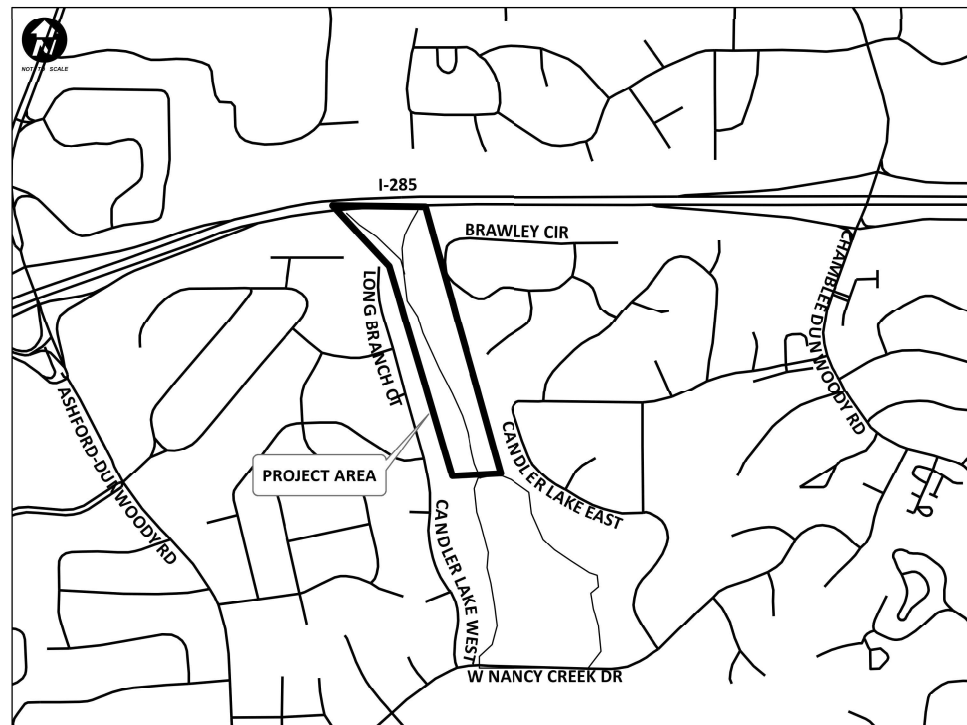
\_\_\_\_\_  
Date

# CITY OF BROOKHAVEN

## NORTH FORK NANCY CREEK STREAM RESTORATION

### FROM I-285 TO MURPHEY CANDLER LAKE

#### DRAFT - 100% DESIGN DRAWINGS



**VICINITY MAP**  
NOT TO SCALE



**LOCATION MAP**  
NOT TO SCALE

THIS PROJECT WAS PREPARED USING THE HORIZONTAL COORDINATE SYSTEM ON GEORGIA WEST ZONE (NAD83), AND NORTH AMERICAN VERTICAL DATUM (NAVD 1988).

DISTURBED AREA: 4.3 ACRES

**FEBRUARY 2022**



Georgia Registered Engineering Firm PED-004433  
Expires 06/30/2022

360 Interstate North Parkway, Suite 250  
Atlanta, GA 30339  
Phone - (404) 334-4310  
Web - www.freese.com



24 HOUR CONTACT:  
CITY OF BROOKHAVEN  
PUBLIC WORKS DEPARTMENT  
TOM ROBERTS  
TOM.ROBERTS@BROOKHAVENGA.GOV  
404-637-0500



4251 LONG BRANCH CT  
BROOKHAVEN, DEKALB COUNTY GA  
LOT(S) 0331, 0346

PRIMARY PERMITTEE  
CITY OF BROOKHAVEN  
4362 PEACHTREE ROAD  
BROOKHAVEN, GA 30019  
(404)637-0500

SECONDARY PERMITTEE  
N/A

**100% SUBMITTAL  
NOT FOR CONSTRUCTION**



GENERAL NOTES

- THE PROJECT BEGINS ADJACENT TO I-285 AT 4251 LONG BRANCH CT, AND EXTENDS DOWNSTREAM TO MURPHEY CANDLER LAKE WITHIN THE CITY OF BROOKHAVEN IN LAND LOT(S) 0331 & 0346 IN THE 18TH DISTRICT, DEKALB COUNTY, GEORGIA.
- THE PROJECT IS FOR THE RESTORATION/STABILIZATION OF NORTH FORK NANCY CREEK. CONSTRUCTION ACTIVITY WILL INCLUDE INSTALLATION OF IN-STREAM STRUCTURES, ACCOMPANYING SITE GRADING, BANK STABILIZATION, AND PLANTING OF NATIVE VEGETATION.
- HORIZONTAL CONTROL IS BASED UPON GEORGIA STATE PLANE COORDINATE SYSTEM, (GA WEST ZONE, NAD83). VERTICAL DATUM IS NAVD88.
- THIS PROPERTY LIES WITHIN SPECIAL FLOOD HAZARD ZONE 'AE', FIRM MAP NUMBER 13089C0012K OF THE DEKALB COUNTY FLOOD INSURANCE STUDY, EFFECTIVE DATE: AUGUST 15, 2019.
- THE STORMWATER RUNOFF FLOWS DIRECTLY INTO NORTH FORK NANCY CREEK. NORTH FORK NANCY CREEK IS A PART OF THE NANCY CREEK WATERSHED IN DEKALB COUNTY.
- EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL ALSO NOTIFY UTILITIES OF PROPOSED CONSTRUCTION AT LEAST (2), BUT NOT MORE THAN TEN (10) WORKING DAYS IN ADVANCE. FOR UTILITY LOCATES/NOTIFICATIONS CONTACT:  
DEKALB COUNTY PUBLIC WORKS: 404-371-2000  
UTILITY PROTECTION CENTER: 811 OR 1-800-282-7411
- ALL CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY OF BROOKHAVEN, DEKALB COUNTY, AND STATE OF GEORGIA STANDARDS AND SPECIFICATIONS.
- TO REPORT PUBLIC WORKS EMERGENCIES, CONTACT THE CITY OF BROOKHAVEN PUBLIC WORKS DEPARTMENT 24 HOURS-A-DAY NUMBER: 404-637-0540.
- PLACE MATERIAL FROM EXCAVATION AWAY FROM DRAINAGE FEATURES TO PREVENT OBSTRUCTION OF STORM DRAINAGE FLOW.
- THE SITE GRADE WILL BE RETURNED TO NATURALIZED CONTOURS TYPICAL OF A RIPARIAN ENVIRONMENT. ALL DISTURBED PAVEMENT, CURB, SIDEWALK, AND LANDSCAPING WILL BE REPLACED IN KIND.
- CONTRACTOR TO COORDINATE WITH PROJECT ENGINEER NECESSARY BYPASS PUMPING AND/OR TEMPORARY PIPING TO MAINTAIN CREEK FLOWS WITHOUT IMPACT TO THE ENVIRONMENT.
- CONSTRUCTION LAYOUT AND STAKING SHALL BE PROVIDED BY THE CONTRACTOR.
- CONTRACTOR TO ESTABLISH TEMPORARY SUPPORT FOR EXISTING UTILITIES AND MAINTAIN IT THROUGHOUT CONSTRUCTION, IF REQUIRED.
- DURING NON-WORKING HOURS OR DAYS, ALL EXCAVATED AREAS ARE TO BE BACKFILLED OR SECURED AND PROTECTED USING APPROVED SAFETY DEVICES AND MATERIALS.
- IF ANY CONFLICTS OR DISCREPANCIES ARE DISCOVERED, EITHER IN THE CONSTRUCTION DOCUMENTS OR THE FIELD CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT COMMENCE OPERATION UNTIL THE CONFLICTS OR DISCREPANCIES ARE RESOLVED.
- THE CONTRACTOR SHALL VERIFY ALL INFORMATION BEFORE PROCEEDING AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL NOT MOVE OR DRIVE CONSTRUCTION MACHINERY OR HEAVY EQUIPMENT OVER THE PEDESTRIAN BRIDGE. SEE SHEET C-3 OR ES-4 FOR LOCATION.
- SHOULD PARK TRAILS BE DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPAIR OR REPLACE TO MATCH PRE-PROJECT CONDITIONS.
- FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED TO BE EFFECTIVE AND IN COMPLIANCE WITH STATE AND LOCAL REQUIREMENTS.
- THE SANITARY SEWER AERIAL CROSSING AT APPROXIMATE LOCATION OF STA 14+08 TO BE STABILIZED, AS NECESSARY DURING CONSTRUCTION TO ELIMINATE/MINIMIZE ADVERSE EFFECTS. SEE SHEET C-2 FOR LOCATION.
- THE PREPARATION OF THESE DRAWINGS WAS FINANCED IN PART THROUGH A GRANT FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY UNDER THE PROVISIONS OF SECTION 319(h) OF THE FEDERAL WATER POLLUTION CONTROL ACT, AS AMENDED, IN PARTNERSHIP WITH THE ENVIRONMENTAL PROTECTION DIVISION OF THE GEORGIA DEPARTMENT OF NATURAL RESOURCES.

STRUCTURE DATA TABLE			
PNT	ELEVATION	DESCRIPTION	STATION
1	892.61	START ROCK N ROLLER	10+30
2	892.61	END ROCK N ROLLER	10+41
3	AT GRADE	2 - BOULDER CLUSTER	10+79
4	AT GRADE	2 - BOULDER CLUSTER	11+00
5	AT GRADE	2 - BOULDER CLUSTER	11+29
6	890.73	LOG VANE	11+49
7	890.43	LOG VANE	12+29
8	AT GRADE	3 - BOULDER CLUSTER	13+32
9	AT GRADE	3 - BOULDER CLUSTER	13+88
10	886.13	LOG VANE	15+57
11	AT GRADE	2 - BOULDER CLUSTER	16+31
12	AT GRADE	2 - BOULDER CLUSTER	16+71
13	AT GRADE	2 - BOULDER CLUSTER	17+10
14	AT GRADE	3 - BOULDER CLUSTER	17+79
15	886.05	LOG VANE	18+67
16	886.20	LOG VANE	19+45
17	AT GRADE	3 - BOULDER CLUSTER	20+05
18	AT GRADE	3 - BOULDER CLUSTER	20+44
19	886.14	LOG VANE	21+01
20	885.99	LOG VANE	21+70
21	AT GRADE	2 - BOULDER CLUSTER	22+29
22	AT GRADE	2 - BOULDER CLUSTER	22+56

STRUCTURE DATA TABLE			
PNT	ELEVATION	DESCRIPTION	STATION
23	885.98	LOG VANE	22+79
24	AT GRADE	2 - BOULDER CLUSTER	23+32
25	AT GRADE	2 - BOULDER CLUSTER	23+61
26	AT GRADE	2 - BOULDER CLUSTER	23+82
27	AT GRADE	3 - BOULDER CLUSTER	24+50
28	887.34	START ROCK N ROLLER	24+93
29	887.34	SECOND ARM ROCK N ROLLER	25+05
30	887.32	END ROCK N ROLLER	25+23
31	AT GRADE	3 - BOULDER CLUSTER	25+59
32	AT GRADE	3 - BOULDER CLUSTER	26+14
33	AT GRADE	3 - BOULDER CLUSTER	26+64
34	AT GRADE	3 - BOULDER CLUSTER	27+09
35	AT GRADE	2 - BOULDER CLUSTER	27+77
36	AT GRADE	2 - BOULDER CLUSTER	28+18
37	885.34	LOG VANE	28+39
38	AT GRADE	3 - BOULDER CLUSTER	28+88
39	AT GRADE	3 - BOULDER CLUSTER	29+65

SHEET LIST TABLE		
SEQUENCE NO.	SHEET NUMBER	SHEET DESCRIPTION
1	T-1	TITLE COVER
2	G-1	GENERAL NOTES
3	G-2	OVERVIEW MAP
4	C-1	START TO STA 14+00
5	C-2	STA 14+00 TO STA 18+00
6	C-3	STA 18+00 TO STA 22+00
7	C-4	STA 22+00 TO STA 26+00
8	C-5	STA 26+00 TO END
9	CS-1	CROSS SECTION VIEWS
10	CS-2	CROSS SECTION VIEWS
11	CS-3	CROSS SECTION VIEWS
12	CS-4	CROSS SECTION VIEWS
13	CS-5	CROSS SECTION VIEWS
14	CS-6	CROSS SECTION VIEWS
15	DT-1	DETAILS
16	DT-2	DETAILS
17	DT-3	DETAILS
18	DT-4	DETAILS
19	DT-5	DETAILS
20	DT-6	DETAILS
21	ES-1	EROSION CONTROL NOTES I
22	ES-2	EROSION CONTROL NOTES II
23	ES-3	START TO STA 14+00 - PHASE I & II
24	ES-4	STA 14+00 TO STA 22+00 - PHASE I & II
25	ES-5	STA 22+00 TO END - PHASE I & II
26	ES-6	DS STAGE & STOCK PILE AREA - PHASE I & II
27	ES-7	START TO STA 14+00 - PHASE III
28	ES-8	STA 14+00 TO STA 22+00 - PHASE III
29	ES-9	STA 22+00 TO END - PHASE III
30	ES-10	DS STAGE & STOCKPILE AREA - PHASE III
31	ES-11	ESC DETAILS
32	ES-12	ESC DETAILS
33	ES-13	ESC DETAILS

IDENTIFIED TREES - SEE ES-3 THRU ES-5		
FIELD ID	DBH (IN) [FIELD]	COMMON NAME
L1	14	BLACKGUM
L2	24	RED MAPLE
L3	20	SYCAMORE
L4	10	DOGWOOD
L5	13	N RED OAK
L6	28	RED MAPLE
L7	26	RIVER BIRCH
L8	48	SYCAMORE
L9	12	BLACK CHERRY
L10	12	BOXELDER
L11	15	BOXELDER
L12	11	MAGNOLIA
L13	10	SOURWOOD
L14	36	SYCAMORE
L15	11	BOXELDER
R1	17	BOXELDER
R2	13	BOXELDER
R3	30	N RED OAK
M4	14	MUZZLEBARK
R5	49	SYCAMORE
R6	13	BOXELDER
R7	10	BOXELDER
R8	14	BOXELDER
R9	11	RED MAPLE
R10	14	N RED OAK
R11	11	RIVER BIRCH
R12	19	BOXELDER
R14	34	TULIP POPLAR
R16	15	RED MAPLE
R17	29	TULIP POPLAR
R19	26	TULIP POPLAR
R20	34	TULIP POPLAR
R21	30	TULIP POPLAR
R22	13	BOXELDER
R23	10	BOXELDER
R24	13	BOXELDER
R25	34	TULIP POPLAR
R26	10	SYCAMORE
R27	12	SYCAMORE
R28	29	RIVER BIRCH
R29	15	BOXELDER
R30	26	TULIP POPLAR
R31	12	BOXELDER
R32	10	BOXELDER
R33	13	BOXELDER
R34	30	TULIP POPLAR
L16	15	BOXELDER
L17	49	TULIP POPLAR
L18	13	SYCAMORE
L19	10	BOXELDER
L20	38	TULIP POPLAR
L21	13	BOXELDER

24 HOUR CONTACT:  
CITY OF BROOKHAVEN  
PUBLIC WORKS DEPARTMENT  
TOM ROBERTS  
TOM.ROBERTS@BROOKHAVENGA.GOV  
404-637-0500



Freese and Nichols, Inc.  
Georgia Registered Engineering Firm PEF-004433  
Since 1979



CITY OF BROOKHAVEN  
N. FORK NANCY CREEK STREAMBANK RESTORATION  
FROM I-285 TO MURPHEY CANDLER LAKE

GENERAL

GENERAL NOTES

NO.	ISSUE	BY	DATE	FRN JOB NO.	BGA20127	DATE	02/19/2021	DESIGNED	JU	DRAWN	JPS	REVISD		CHECKED	JU	FILE NAME	GN-NOTES.dwg
0	VERIFY SCALE																

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET G-1  
SEQ. 2

100% SUBMITTAL  
NOT FOR CONSTRUCTION



Know what's below.  
Call before you dig.

Freese and Nichols, Inc.  
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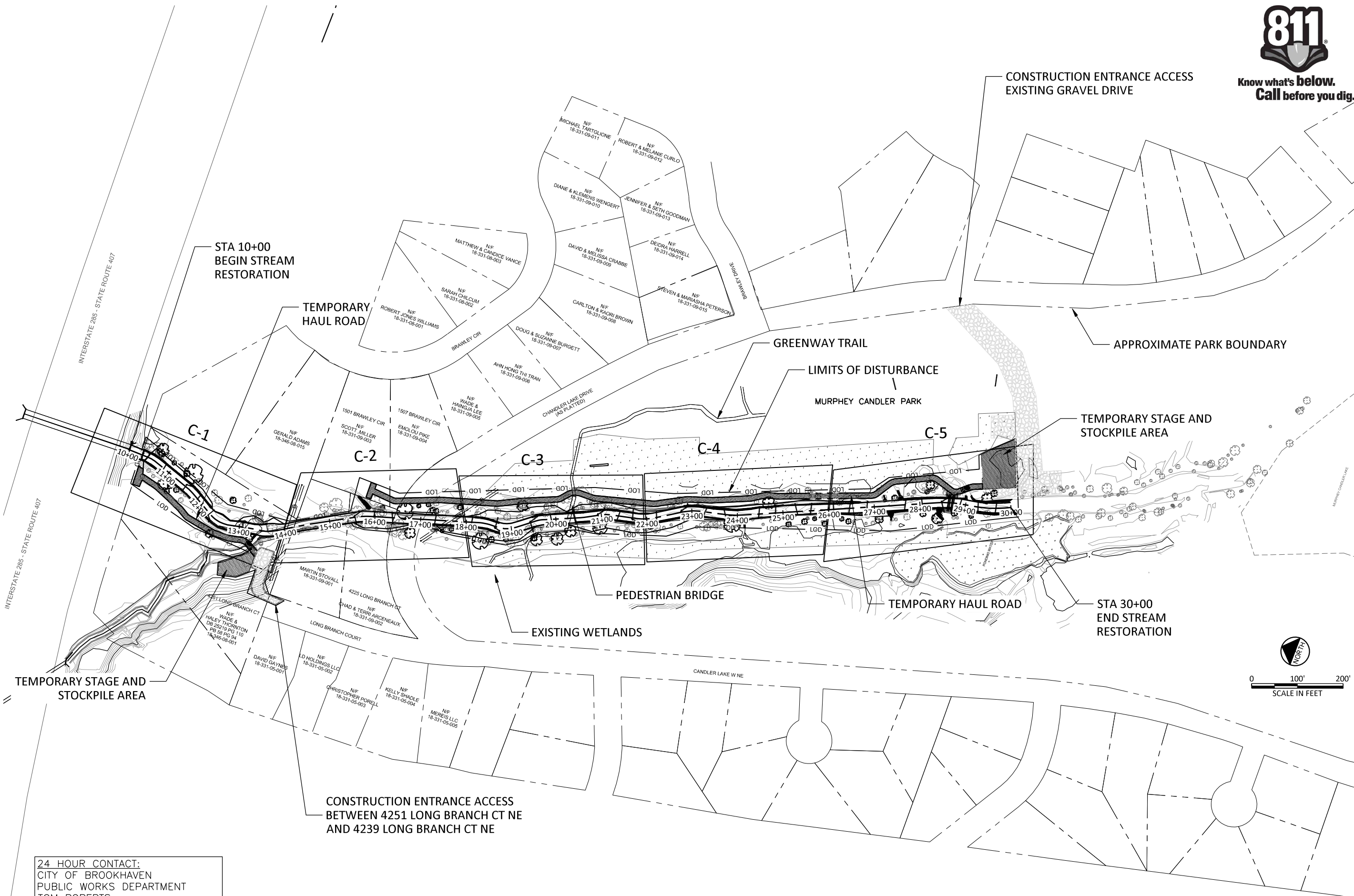
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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
FROM I-285 TO MURPHEY CANDLER LAKE**

GENERAL

**OVERVIEW MAP**

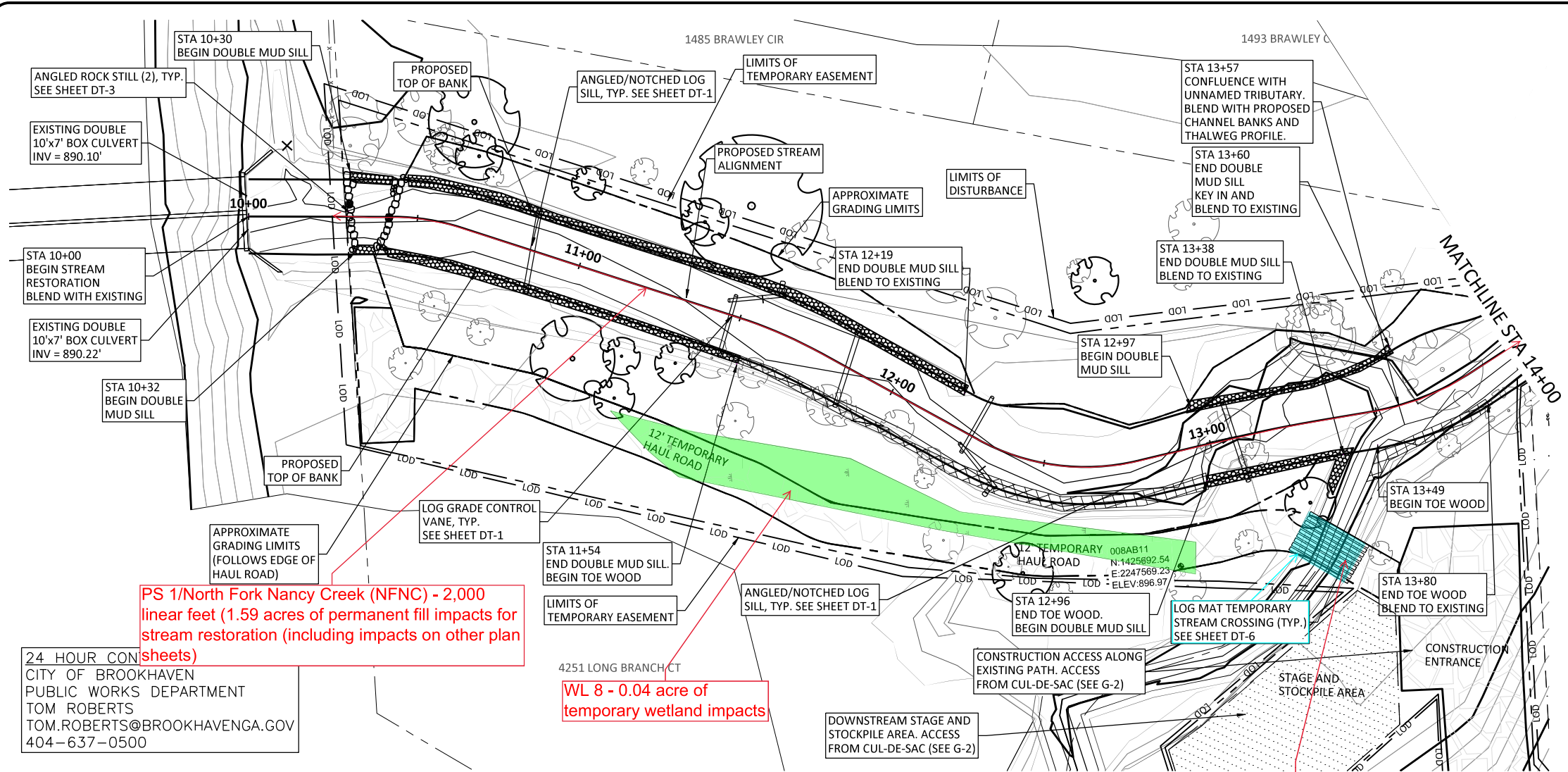
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DATE	02/19/2021
DESIGNED	JUL
DRAWN	JPS
REVISIONS	
CHECKED	JUL
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VERIFY SCALE	1" = 100'
Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.	
SHEET	G-2
SEQ.	3



**24 HOUR CONTACT:**  
CITY OF BROOKHAVEN  
PUBLIC WORKS DEPARTMENT  
TOM ROBERTS  
TOM.ROBERTS@BROOKHAVENGA.GOV  
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- NOTES:
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
  - WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
  - ALL TEMPORARY STREAM CROSSINGS REQUIRE PLANS FOR CONSTRUCTION, REMOVAL AND RESTORATION PER DT-6.
  - THE CONTRACTOR SHALL LINE THE LOD WITH TREE PROTECTION FENCE TO PREVENT THE UNNECESSARY REMOVAL OF VEGETATION.

**LEGEND**

- LOG GRADE CONTROL VANE
- ROCK 'N' ROLLER
- STEP PLUNGE POOL
- ANGLED/NOTCHED LOG SILL
- SPECIMEN TREES (DO NOT REMOVE WITHOUT ENGINEER APPROVAL)
- TOE WOOD
- DOUBLE MUD SILL
- EXISTING WETLANDS
- PROPOSED GRADING LIMITS
- PROPOSED STREAM ALIGNMENT
- PROPOSED TOP OF BANK
- HAUL ROAD
- LIMITS OF DISTURBANCE
- TEMPORARY EASEMENT
- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- PROPERTY BOUNDARY
- STAGE AND STOCKPILE AREA

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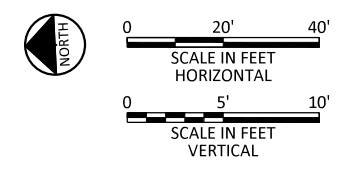
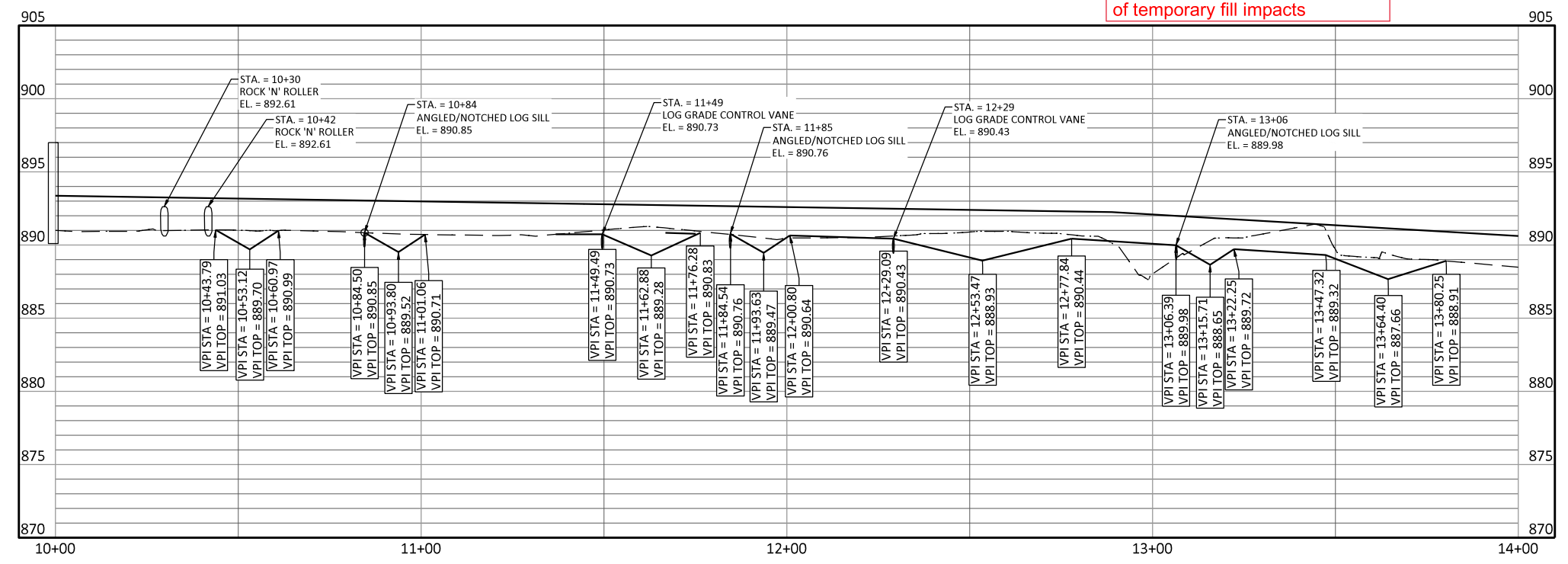
**N. FORK NANCY CREEK STREAMBANK RESTORATION FROM I-285 TO MURPHEY CANDLER LAKE**  
 CIVIL  
**NORTH FORK NANCY CREEK START TO STA 14+00**

REVISED	CM	JPS	BMD
CHECKED	ECM	JPS	BMD
DESIGNED	ECM	JPS	BMD
DATE	02/19/2021	DATE	02/19/2021
BY		BY	
FILE NAME	CV-PP-SHTS1.dwg	FILE NAME	CV-PP-SHTS1.dwg
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SHEET	C-1	SHEET	C-1
SEQ.	4	SEQ.	4

PS 1/North Fork Nancy Creek (NFNC) - 2,000 linear feet (1.59 acres of permanent fill impacts for stream restoration (including impacts on other plan sheets))

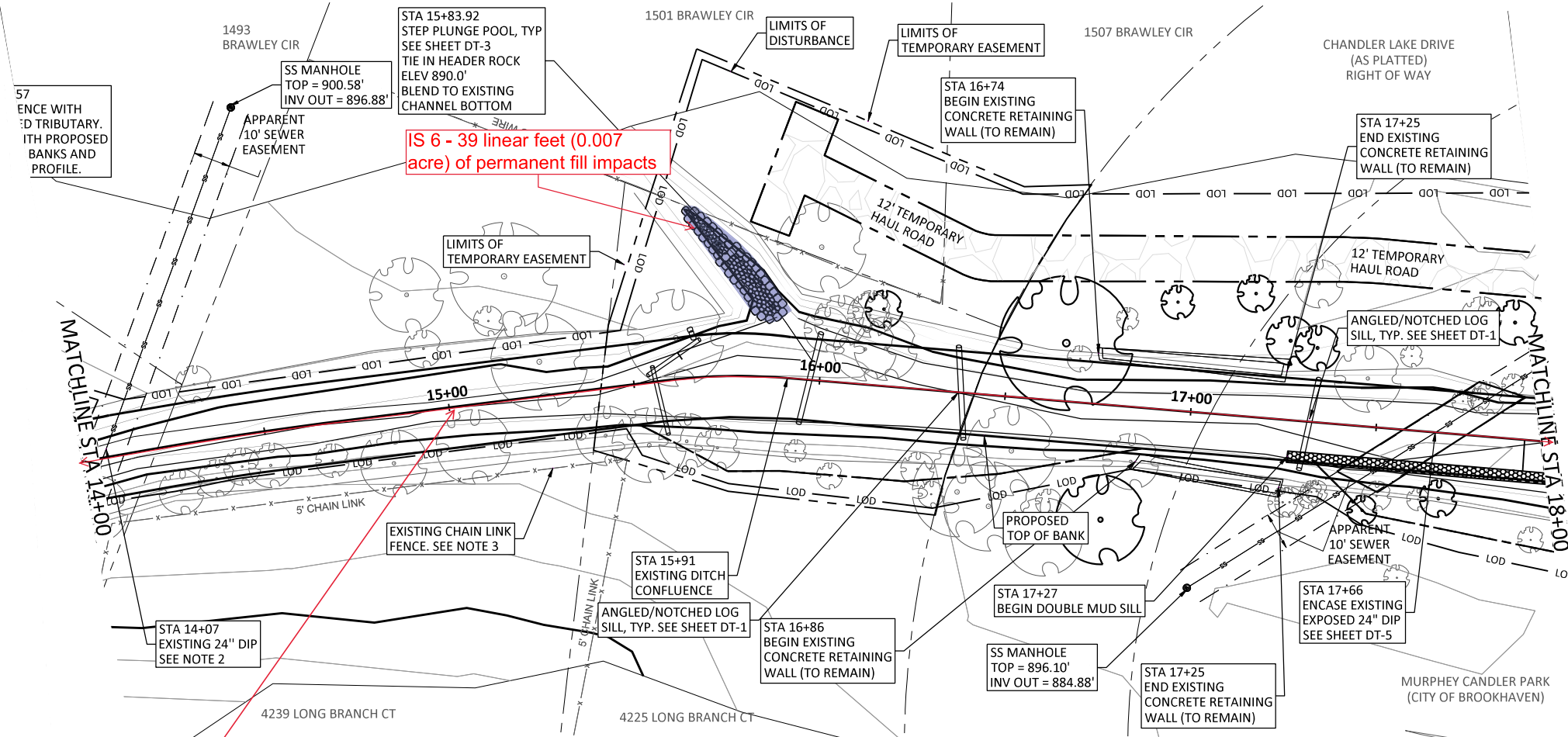
WL 8 - 0.04 acre of temporary wetland impacts

PS 7 - 13 linear feet (0.005 acre) of temporary fill impacts

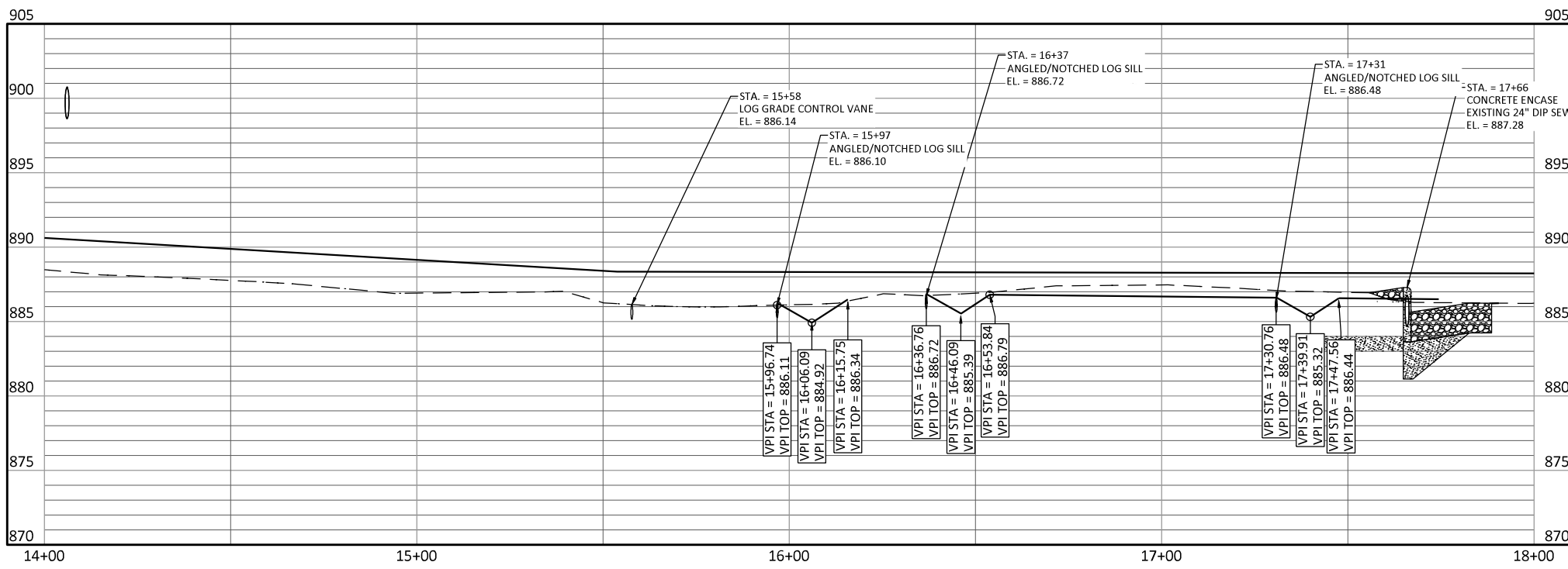


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PS 1/NFNC- proposed 2,000 linear feet (1.59 acres) of permanent fill impacts for stream restoration(continues on other plan sheets)

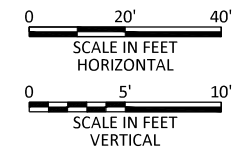


NOTES:

- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
- NO CONSTRUCTION ACTIVITIES WILL OCCUR WITHIN 10' ON EITHER SIDE OF THE AERIAL SEWER CROSSING. IF DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPAIR AND REPLACE THE SEWER LINE TO EXISTING CONDITIONS.
- THE EXISTING CHAIN LINK FENCE TO REMAIN. IF DAMAGED, THE CONTRACTOR TO REPAIR AND REPLACE TO EXISTING CONDITIONS.
- WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
- ALL TEMPORARY STREAM CROSSINGS REQUIRE PLANS FOR CONSTRUCTION, REMOVAL AND RESTORATION PER DT-6.
- THE CONTRACTOR SHALL LINE THE LOD WITH TREE PROTECTION FENCE TO PREVENT THE UNNECESSARY REMOVAL OF VEGETATION.

LEGEND

- LOG GRADE CONTROL VANE
- ROCK 'N' ROLLER
- STEP PLUNGE POOL
- ANGLED/NOTCHED LOG SILL
- SPECIMEN TREES (DO NOT REMOVE WITHOUT ENGINEER APPROVAL)
- TOE WOOD
- DOUBLE MUD SILL
- EXISTING WETLANDS
- PROPOSED GRADING LIMITS
- PROPOSED STREAM ALIGNMENT
- PROPOSED TOP OF BANK
- HAUL ROAD
- LOD LIMITS OF DISTURBANCE
- TEMPORARY EASEMENT
- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- PROPERTY BOUNDARY
- STAGE AND STOCKPILE AREA



24 HOUR CONTACT:  
CITY OF BROOKHAVEN  
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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
FROM I-285 TO MURPHEY CANDLER LAKE**  
CIVIL  
**NORTH FORK NANCY CREEK  
STA 14+00 TO STA 18+00**

REV. NO.	DATE	BY	ISSUE
01	02/19/2021		DESIGNED
02			DRAWN
03			REVISION
04			CHECKED
05			BMD

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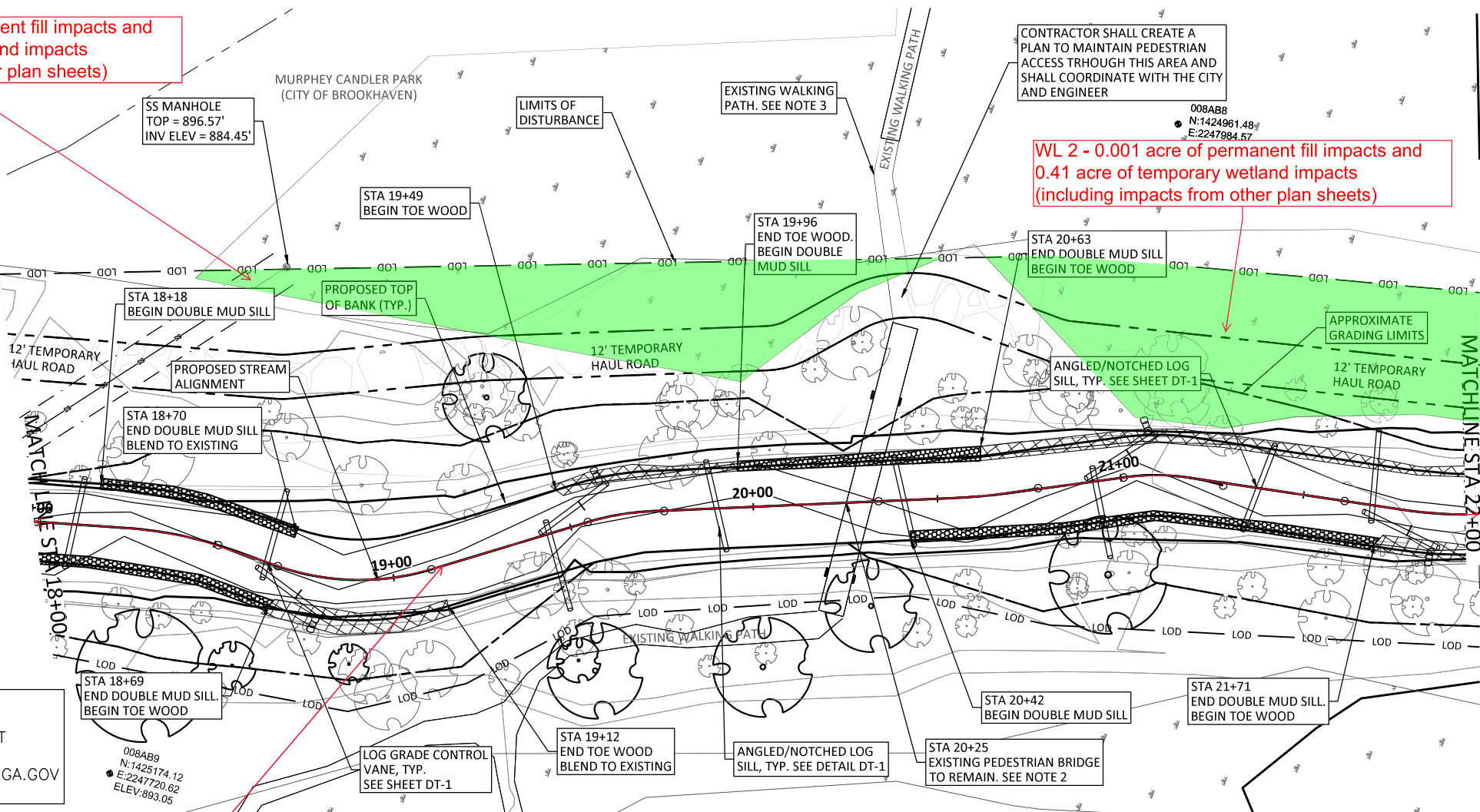
SHEET **C-2**  
SEQ. 5

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WL 2 - 0.001 acre of permanent fill impacts and 0.41 acre of temporary wetland impacts (including impacts from other plan sheets)

WL 2 - 0.001 acre of permanent fill impacts and 0.41 acre of temporary wetland impacts (including impacts from other plan sheets)



24 HOUR CONTACT:  
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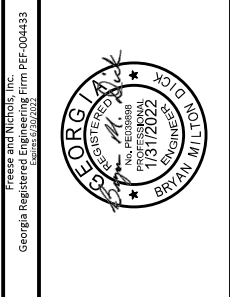
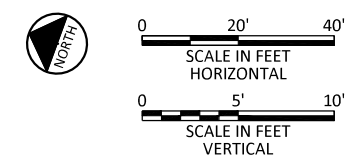
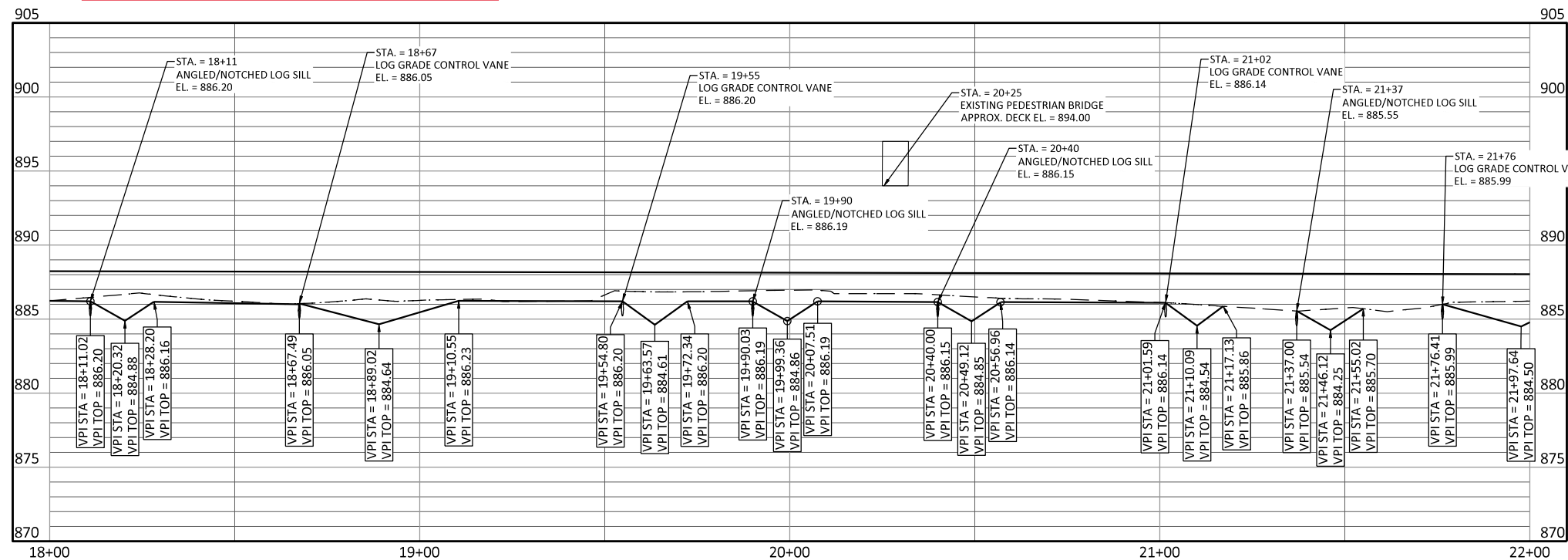
PS 1/NFNC - 2,000 linear feet (1.59 acres) of permanent fill impacts for stream restoration (including impacts on other plan sheets)

NOTES:

- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
- CONTRACTOR SHALL NOT MOVE OR DRIVE HEAVY MACHINERY ACROSS PEDESTRIAN BRIDGE. IF PEDESTRIAN BRIDGE IS DAMAGED DURING CONSTRUCTION, CONTRACTOR TO RESTORE TO EXISTING CONDITION AT NO ADDITIONAL COST TO OWNER.
- WALKING PATH TO BE RESTORED TO EXISTING CONDITION UPON PROJECT COMPLETION.
- WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
- ALL TEMPORARY STREAM CROSSINGS REQUIRE PLANS FOR CONSTRUCTION, REMOVAL AND RESTORATION PER DT-6.
- THE CONTRACTOR SHALL LINE THE LOD WITH TREE PROTECTION FENCE TO PREVENT THE UNNECESSARY REMOVAL OF VEGETATION.

LEGEND

- LOG GRADE CONTROL VANE
- ROCK 'N' ROLLER
- STEP PLUNGE POOL
- ANGLED/NOTCHED LOG SILL
- SPECIMEN TREES (DO NOT REMOVE WITHOUT ENGINEER APPROVAL)
- TOE WOOD
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- TEMPORARY EASEMENT
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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION FROM I-285 TO MURPHEY CANDLER LAKE**  
CIVIL  
**NORTH FORK NANCY CREEK STA 18+00 TO STA 22+00**

REV. NO.	DATE	BY	ISSUE
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REV. NO.	DATE	DESIGNED	ECM	DRAWN	JPS	REVISION	###	CHECKED	BMD
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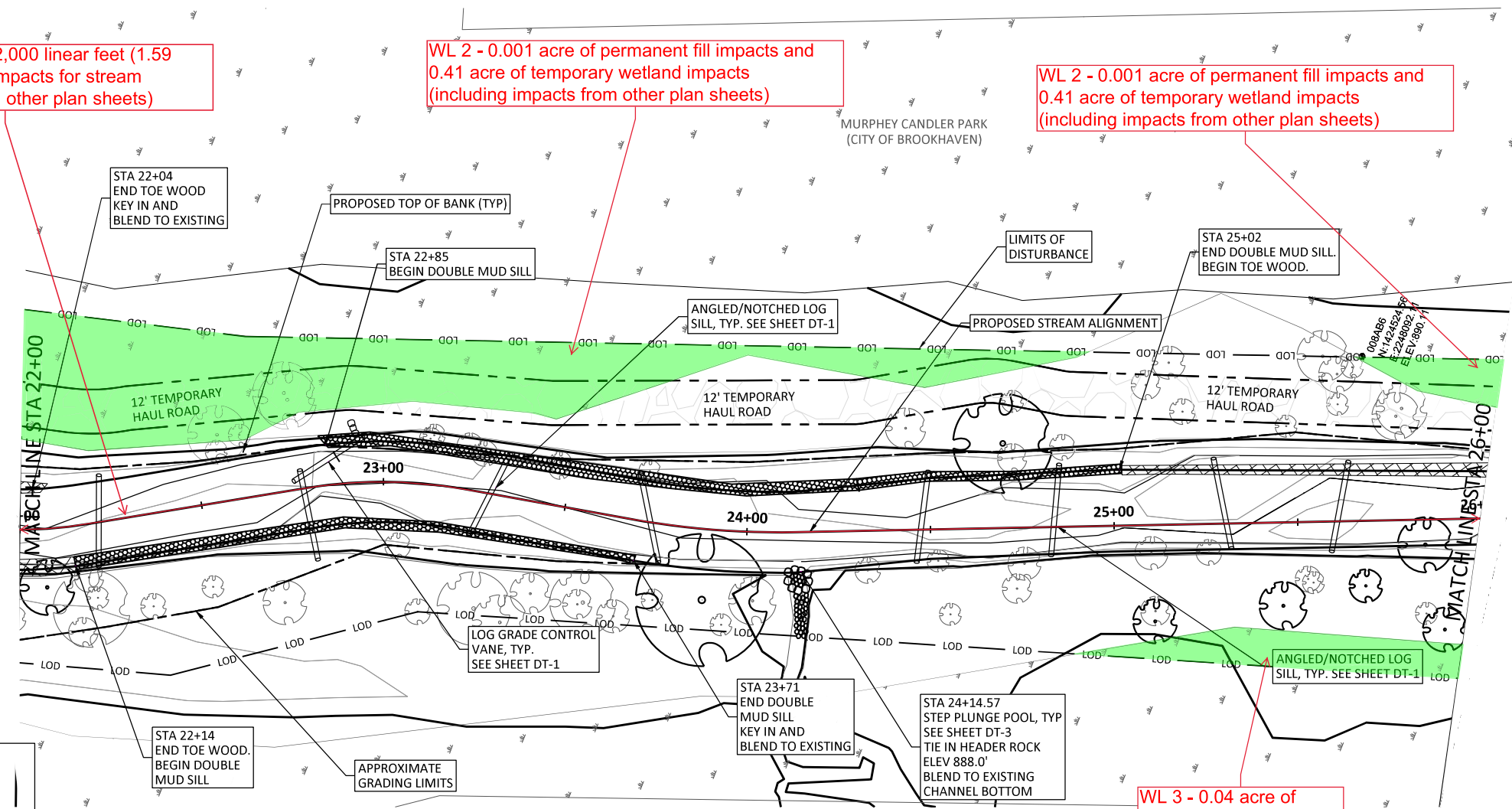
PS 1/NFNC - proposed 2,000 linear feet (1.59 acres) of permanent fill impacts for stream restoration (continues on other plan sheets)

WL 2 - 0.001 acre of permanent fill impacts and 0.41 acre of temporary wetland impacts (including impacts from other plan sheets)

WL 2 - 0.001 acre of permanent fill impacts and 0.41 acre of temporary wetland impacts (including impacts from other plan sheets)

WL 3 - 0.04 acre of temporary wetland impacts (including impacts from Sheet C-5)

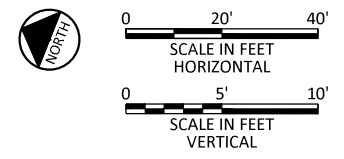
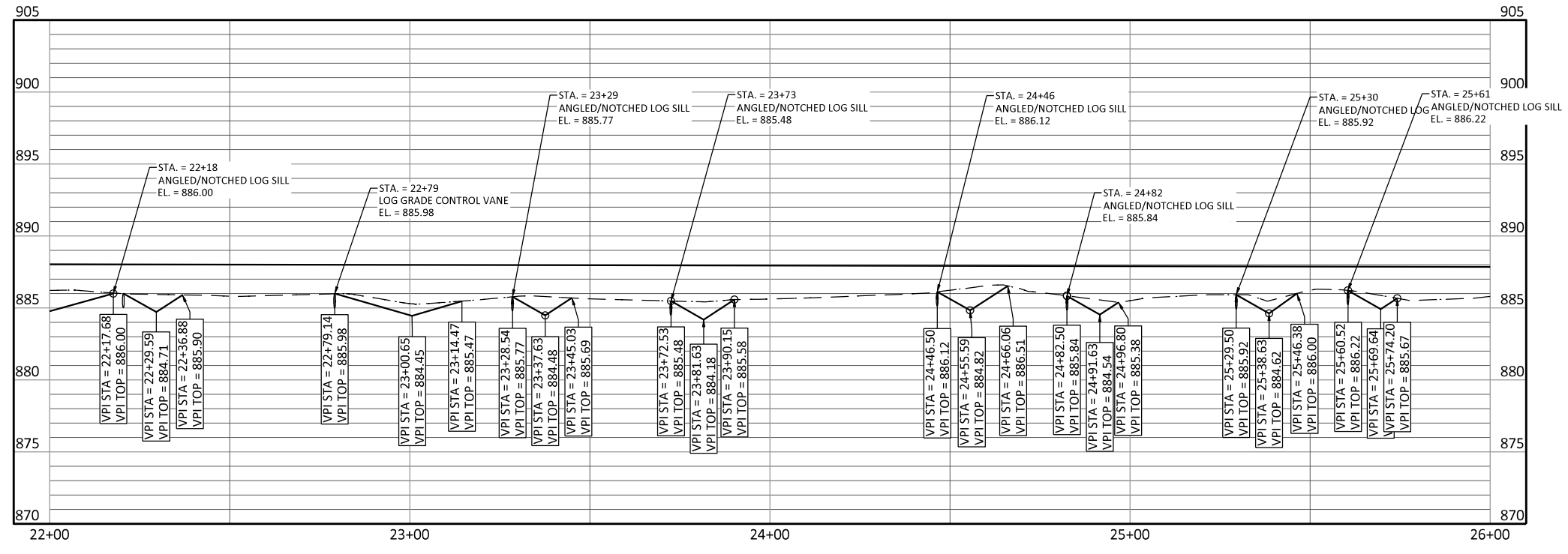
24 HOUR CONTACT:  
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PUBLIC WORKS DEPARTMENT  
TOM ROBERTS  
TOM.ROBERTS@BROOKHAVENGA.GOV  
404-637-0500



- NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION
  2. WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
  3. ALL TEMPORARY STREAM CROSSINGS REQUIRE PLANS FOR CONSTRUCTION, REMOVAL AND RESTORATION PER DT-6.
  4. THE CONTRACTOR SHALL LINE THE LOD WITH TREE PROTECTION FENCE TO PREVENT THE UNNECESSARY REMOVAL OF VEGETATION.

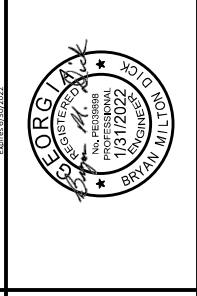
LEGEND

- LOG GRADE CONTROL VANE
- ROCK 'N' ROLLER
- STEP PLUNGE POOL
- ANGLED/NOTCHED LOG SILL
- SPECIMEN TREES (DO NOT REMOVE WITHOUT ENGINEER APPROVAL)
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- STAGE AND STOCKPILE AREA



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**N. FORK NANCY CREEK STREAMBANK RESTORATION  
FROM I-285 TO MURPHEY CANDLER LAKE**  
CIVIL  
**NORTH FORK NANCY CREEK  
STA 22+00 TO STA 26+00**

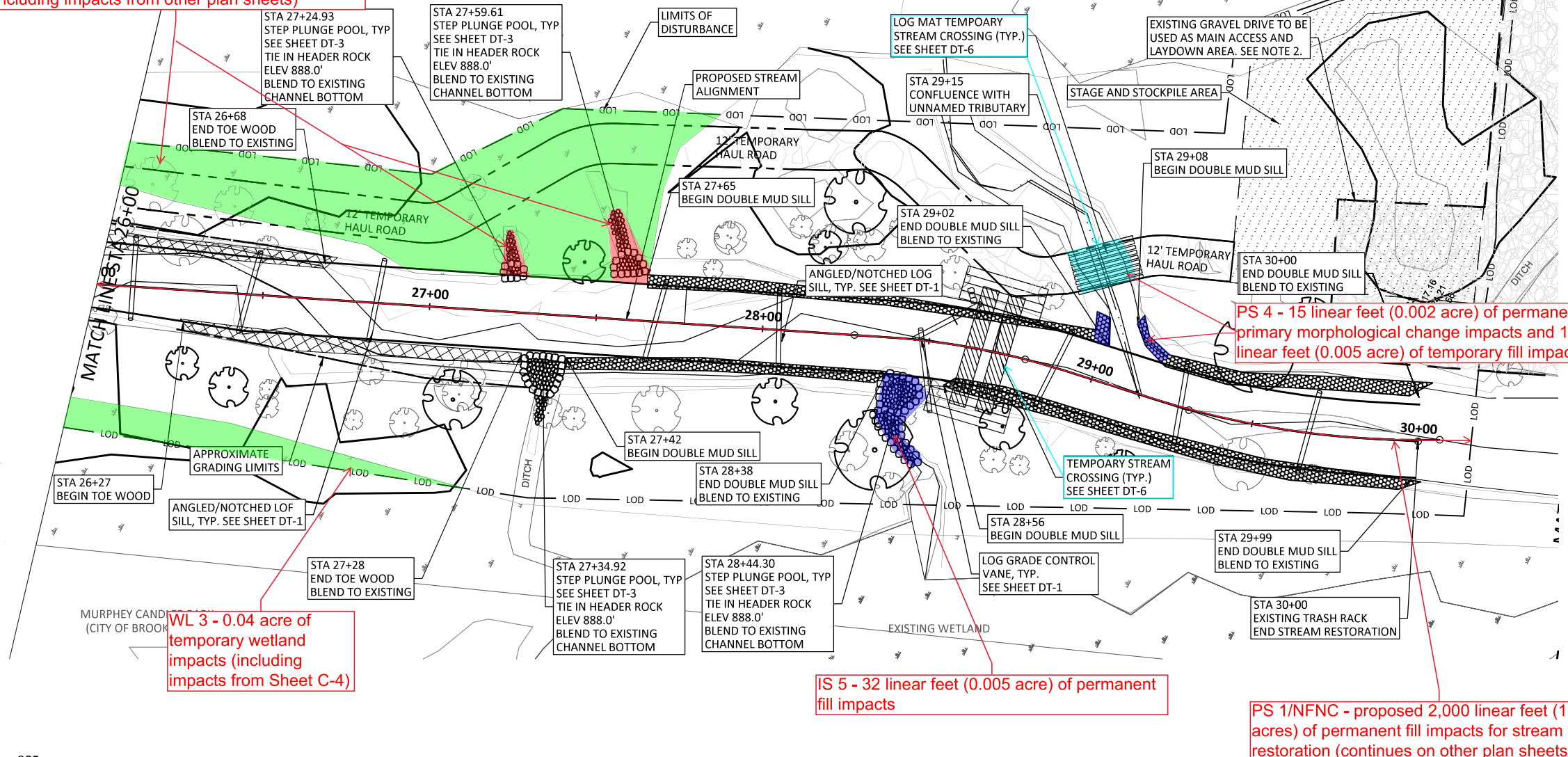
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DESIGNED	ECM	DESIGNED	ECM
DRAWN	JPS	DRAWN	JPS
REVISIONS	###	CHECKED	BMD

**WL 2 - 0.001 acre of permanent fill impacts and 0.41 acre of temporary wetland impacts (including impacts from other plan sheets)**

- NOTES:**
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
  - GRAVEL DRIVE SHALL BE RESTORED TO PRE-PROJECT CONDITIONS FOLLOWING PROJECT COMPLETION.
  - WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
  - ALL TEMPORARY STREAM CROSSINGS REQUIRE PLANS FOR CONSTRUCTION, REMOVAL AND RESTORATION PER DT-6.
  - THE CONTRACTOR SHALL LINE THE LOD WITH TREE PROTECTION FENCE TO PREVENT THE UNNECESSARY REMOVAL OF VEGETATION.

Freese and Nichols, Inc.  
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1/31/2022



**PS 4 - 15 linear feet (0.002 acre) of permanent primary morphological change impacts and 13 linear feet (0.005 acre) of temporary fill impacts**

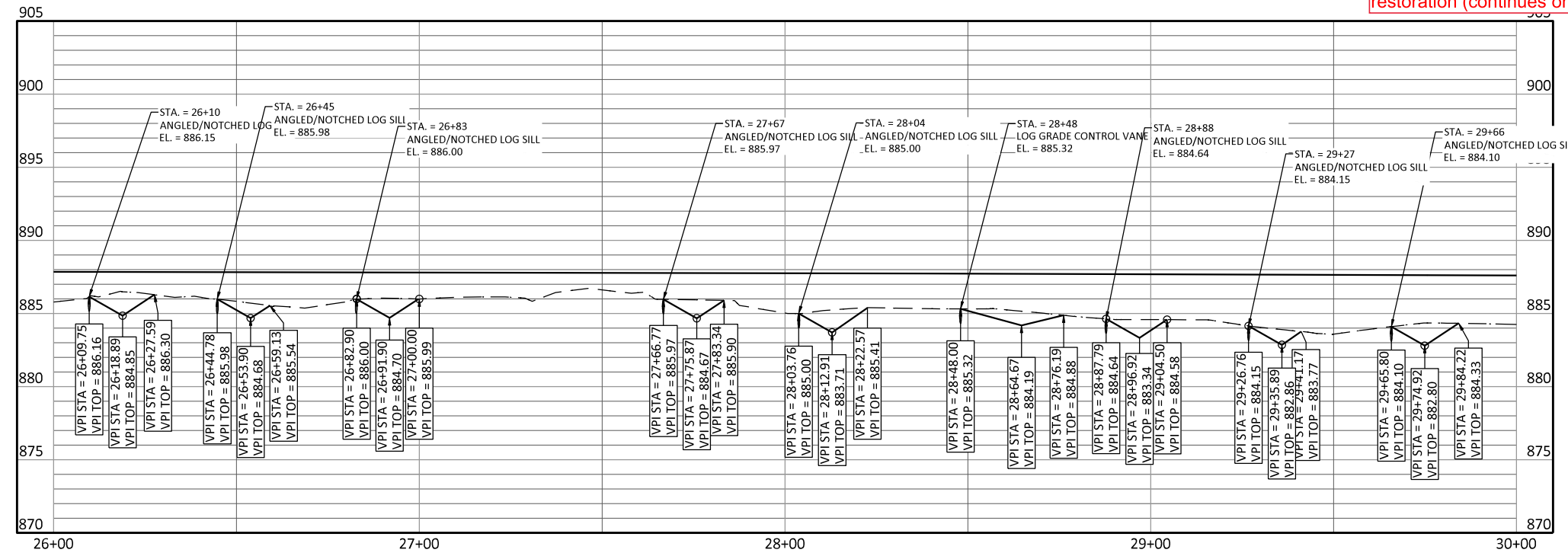
**WL 3 - 0.04 acre of temporary wetland impacts (including impacts from Sheet C-4)**

**IS 5 - 32 linear feet (0.005 acre) of permanent fill impacts**

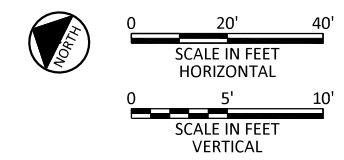
**PS 1/NFNC - proposed 2,000 linear feet (1.59 acres) of permanent fill impacts for stream restoration (continues on other plan sheets)**

**LEGEND**

- LOG GRADE CONTROL VANE
- ROCK 'N' ROLLER
- STEP PLUNGE POOL
- ANGLED/NOTCHED LOG SILL
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**24 HOUR CONTACT:**  
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404-637-0500



**N. FORK NANCY CREEK STREAMBANK RESTORATION FROM I-285 TO MURPHEY CANDLER LAKE**  
CITY OF BROOKHAVEN  
CIVIL  
**NORTH FORK NANCY CREEK STA 26+00 TO END**

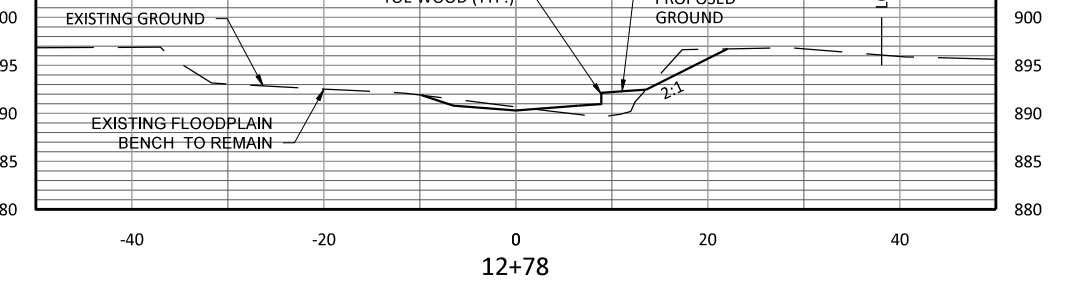
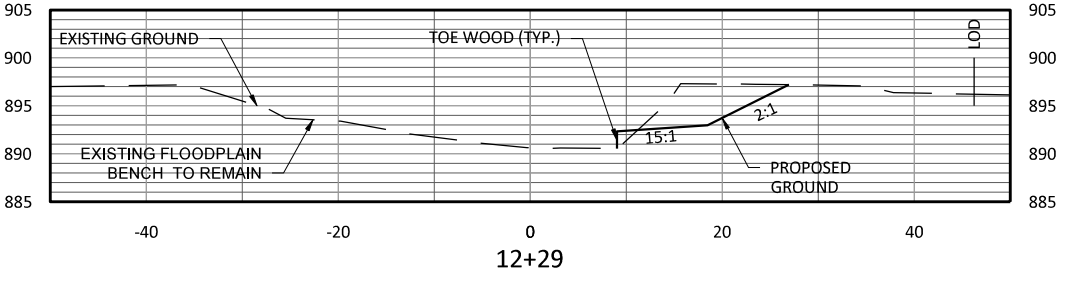
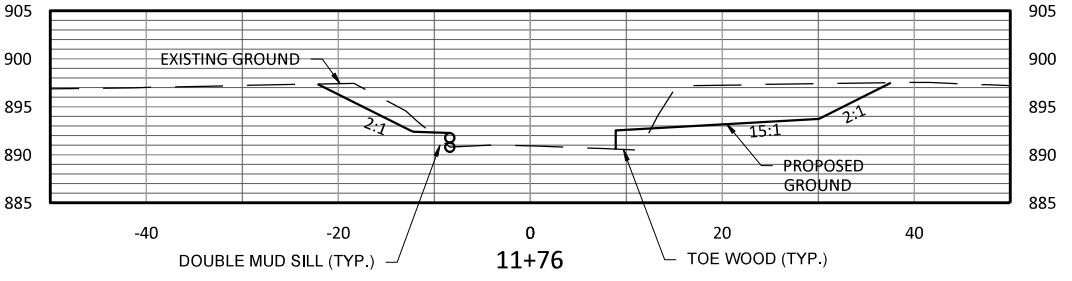
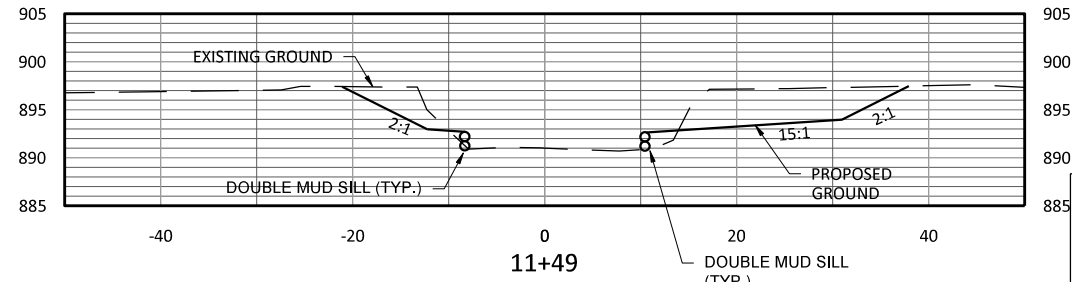
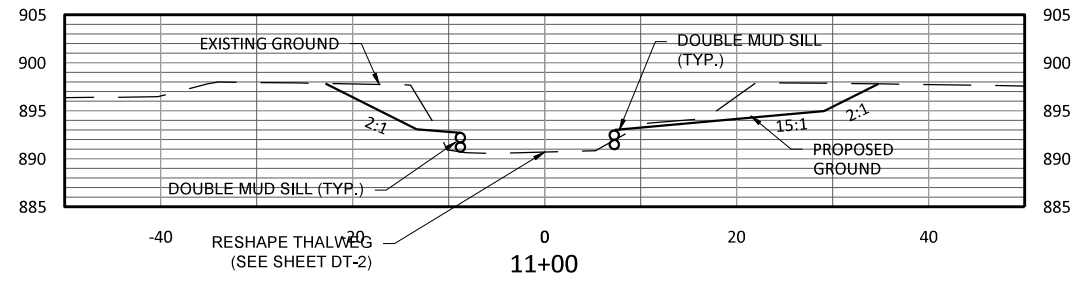
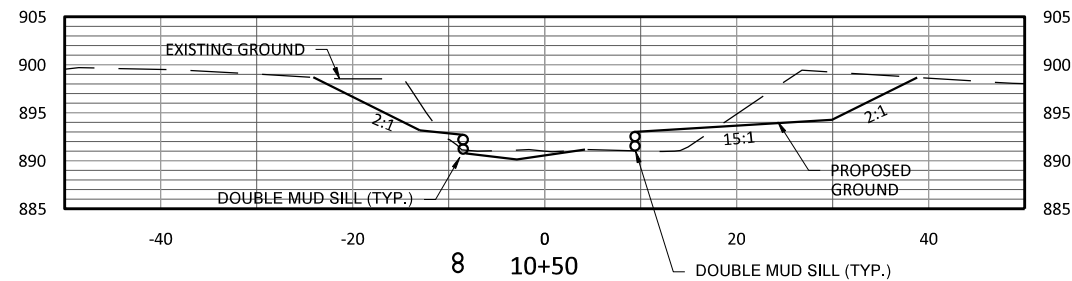
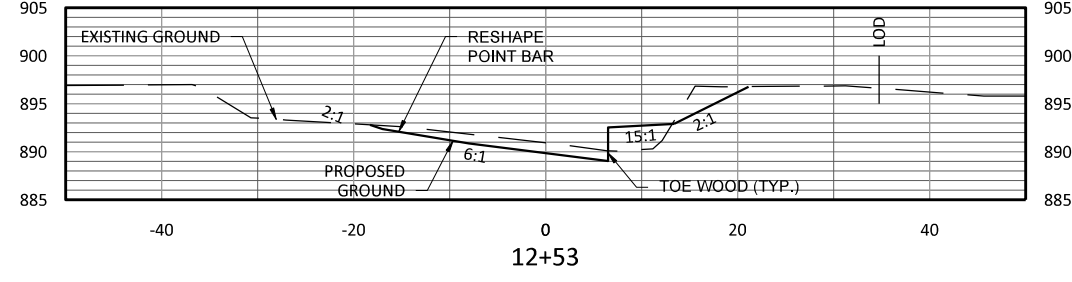
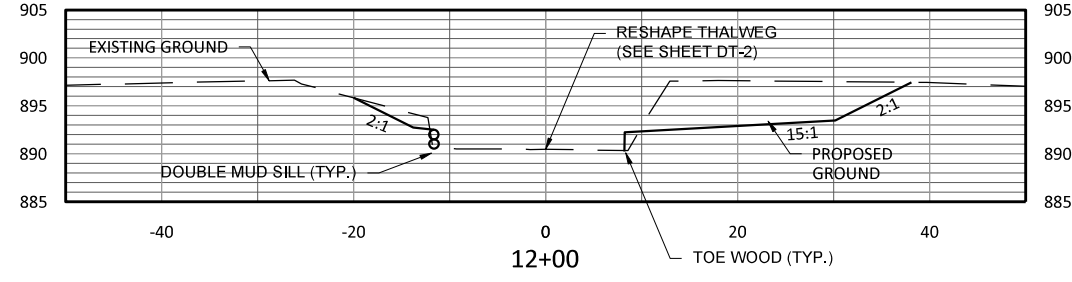
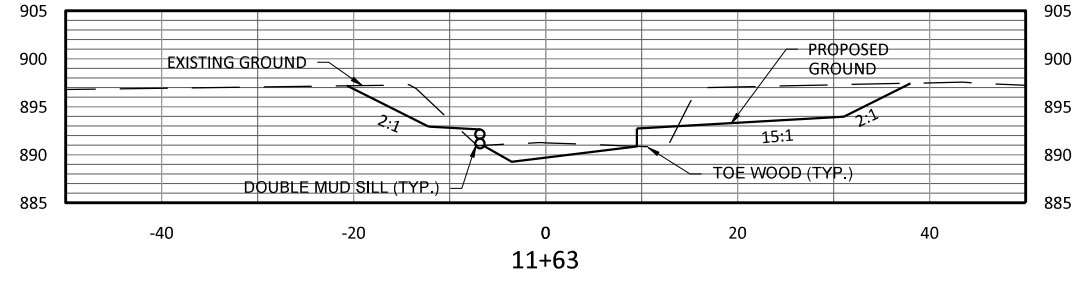
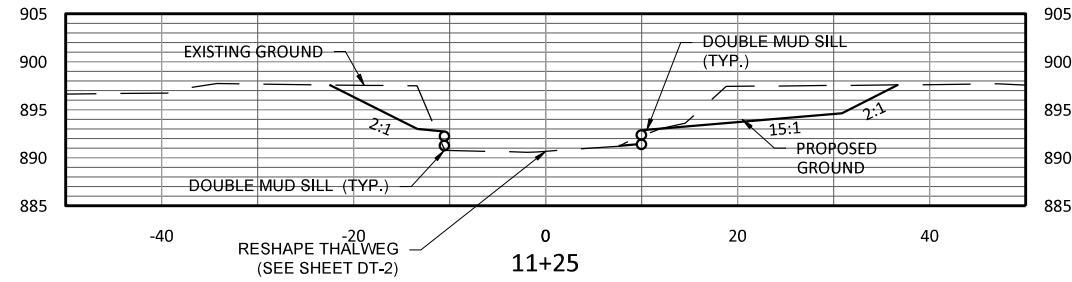
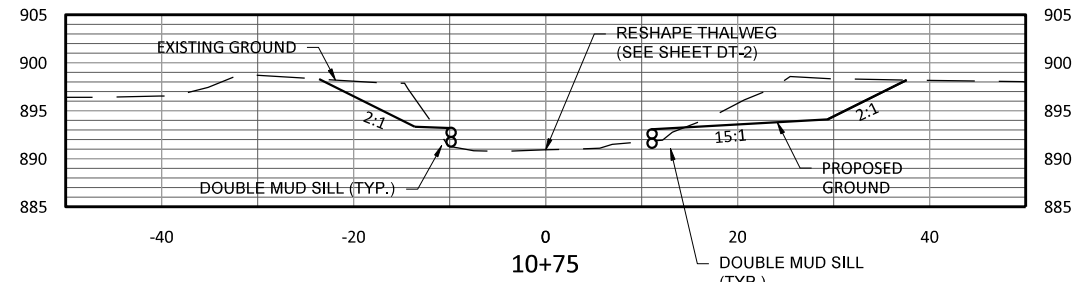
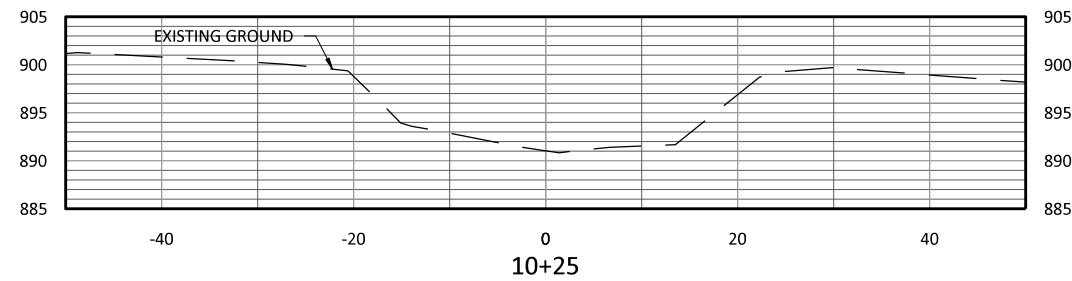
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SHEET **C-5** SEQ. 8

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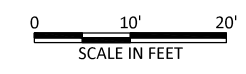


- NOTES:
1. ALL GRADED SLOPES SHALL BE LINED WITH COIR MATTING PER THE DETAIL (SEE SHEET DT-1).
  2. ALL TOE PROTECTION WILL BE BLENDED TO EXISTING GROUND AT THE TOP OF LOG TO LIMIT EROSION ALONG THE TOP OF DOUBLE MUD SILL.
  3. SEE PLAN VIEW SHEET FOR PROPOSED BENCH WIDTHS AND BLENDING.

**LEGEND**

--- EXISTING GROUND PROFILE  
 --- ALONG ALIGNMENT  
 — PROPOSED GROUND

24 HOUR CONTACT:  
 CITY OF BROOKHAVEN  
 PUBLIC WORKS DEPARTMENT  
 TOM ROBERTS  
 TOM.ROBERTS@BROOKHAVENGA.GOV  
 404-637-0500



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Freese and Nichols, Inc. Georgia Registered Professional Engineering Firm PE-004833



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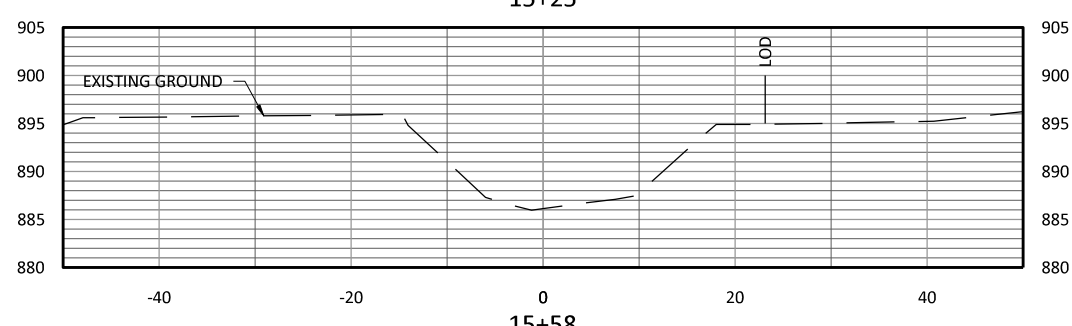
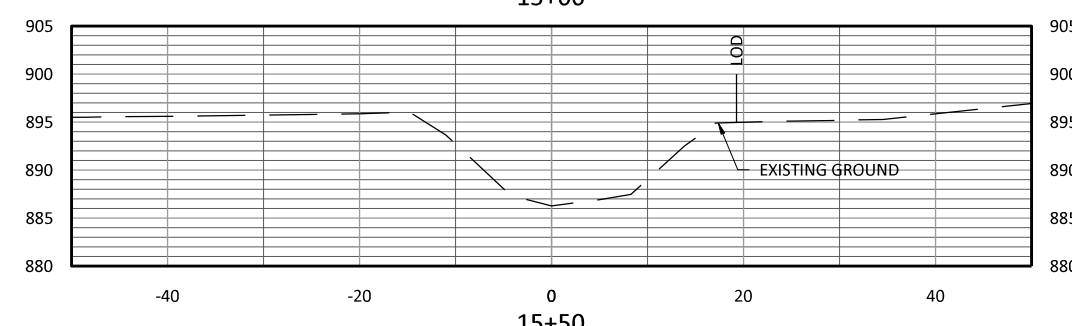
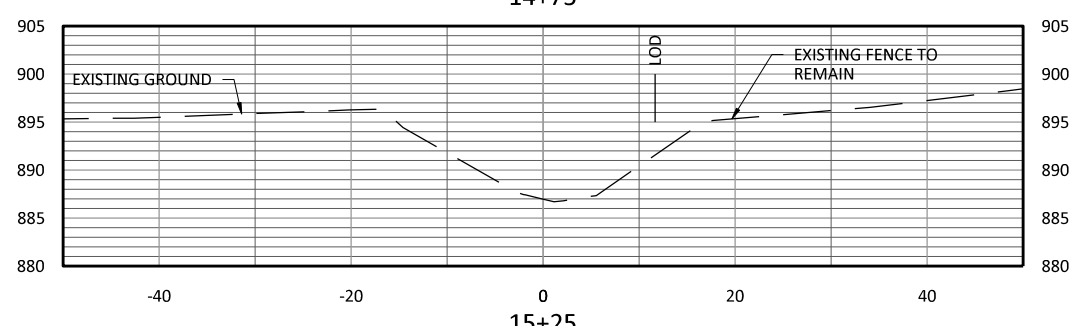
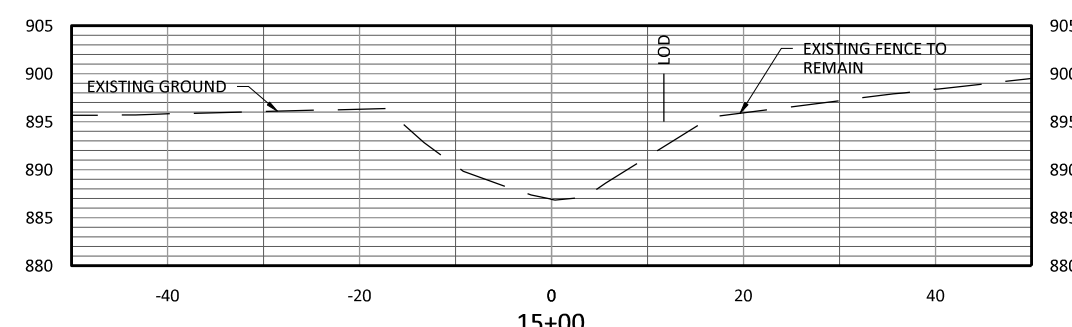
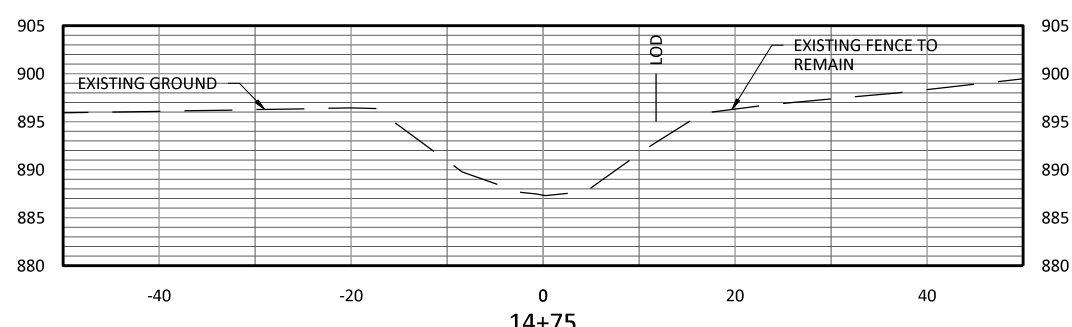
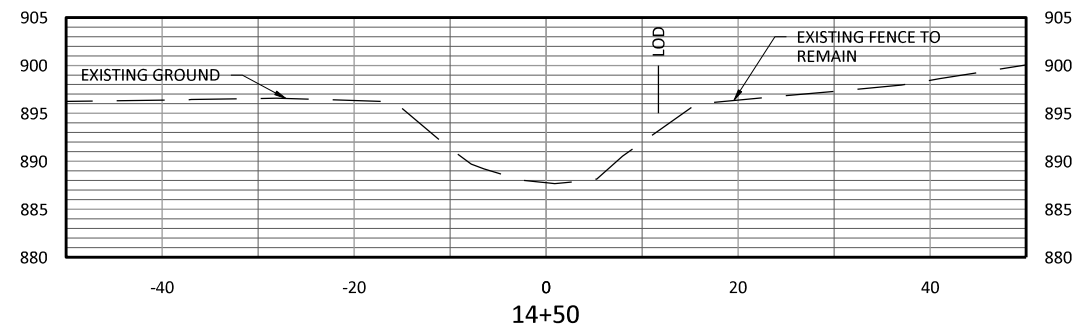
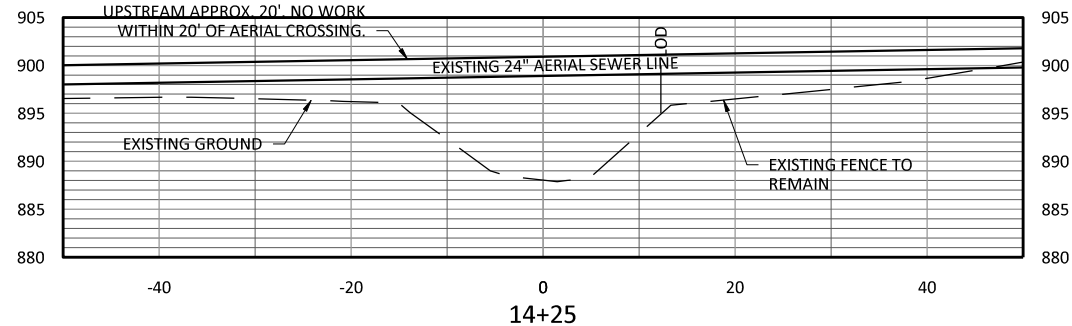
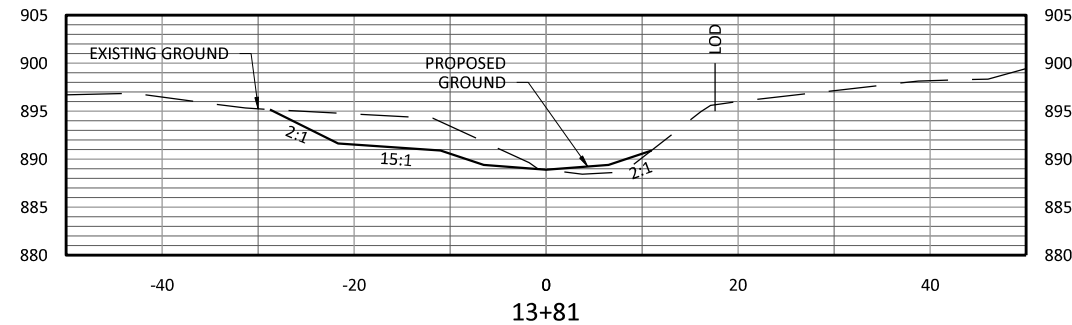
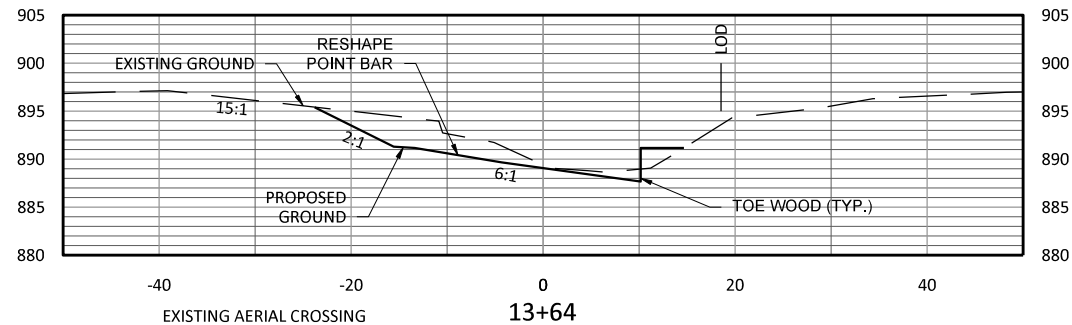
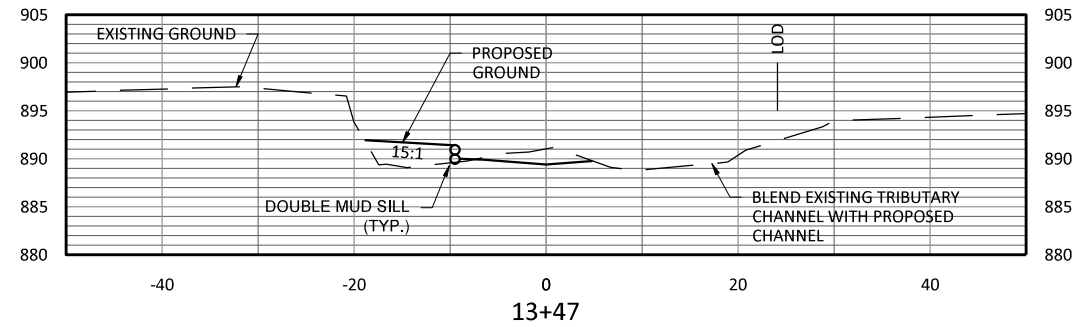
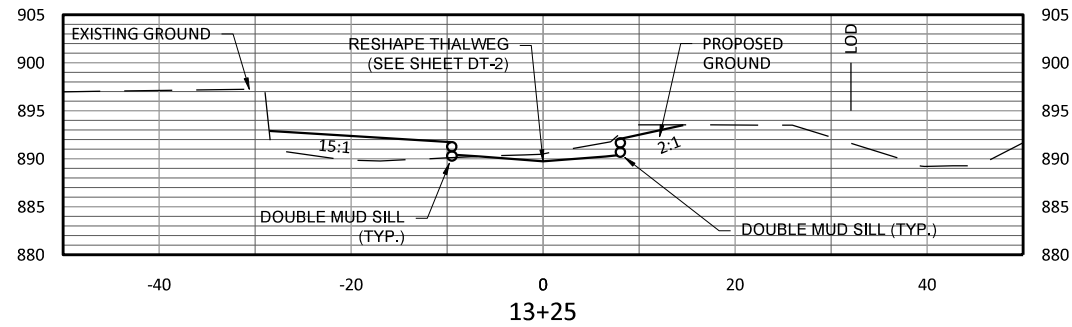
CITY OF BROOKHAVEN  
 N.FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE  
 CROSS SECTION VIEWS  
 CROSS SECTION VIEWS

NO.	ISSUE	DATE	BY	FILE NAME
				CV-SECTION-VIEW.dwg

SHEET  
 CS-1  
 SEQ. 9

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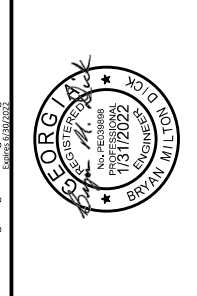
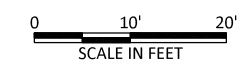


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  3. SEE PLAN VIEW SHEET FOR PROPOSED BENCH WIDTHS AND BLENDING.

**LEGEND**

--- EXISTING GROUND PROFILE  
 --- ALONG ALIGNMENT  
 — PROPOSED GROUND

24 HOUR CONTACT:  
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 PUBLIC WORKS DEPARTMENT  
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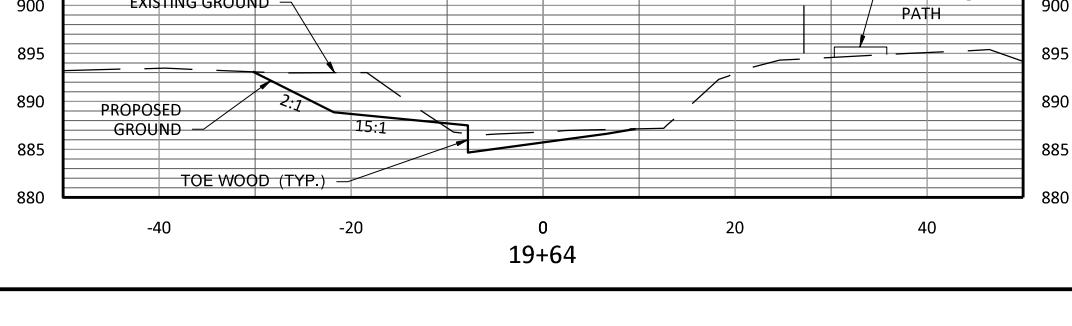
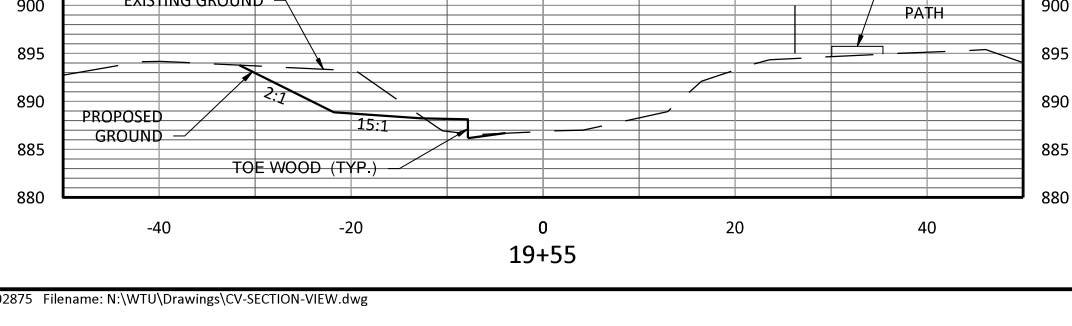
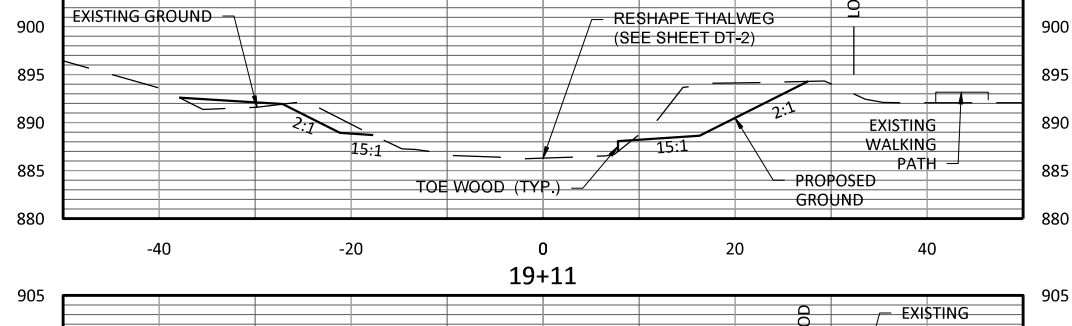
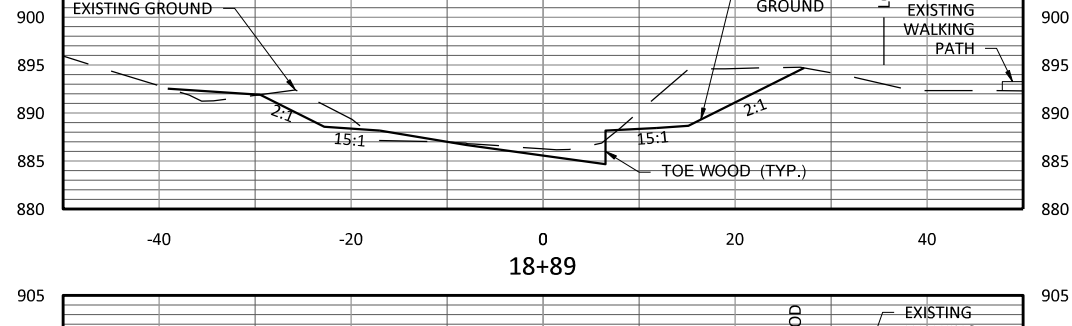
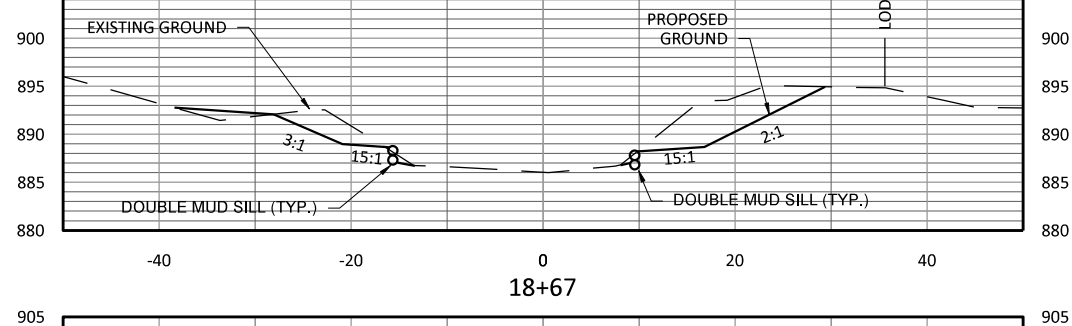
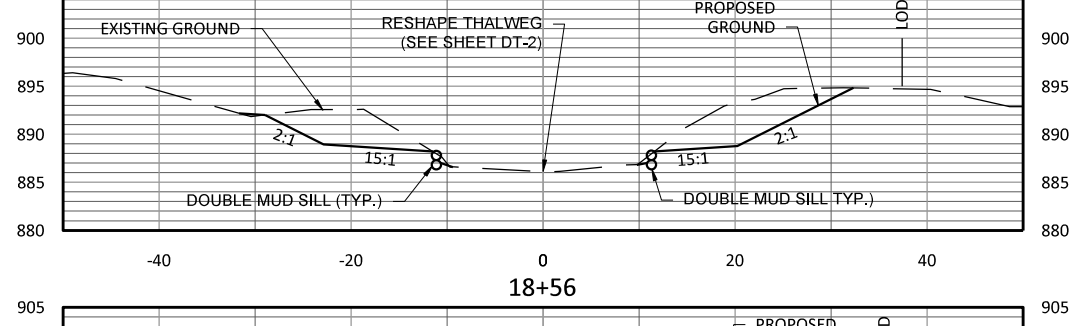
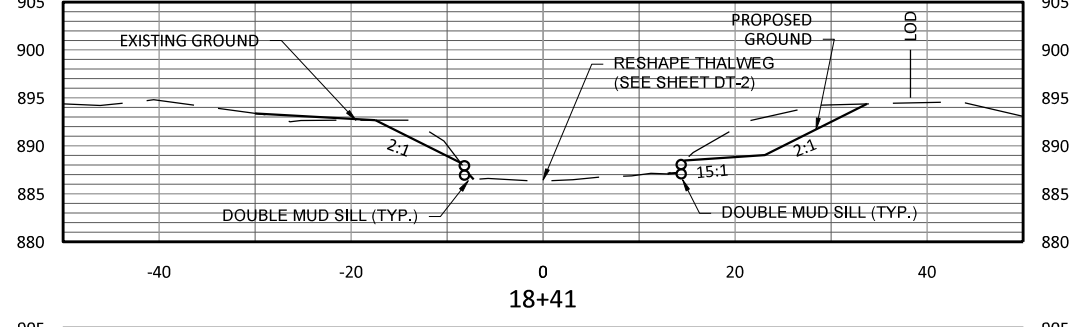
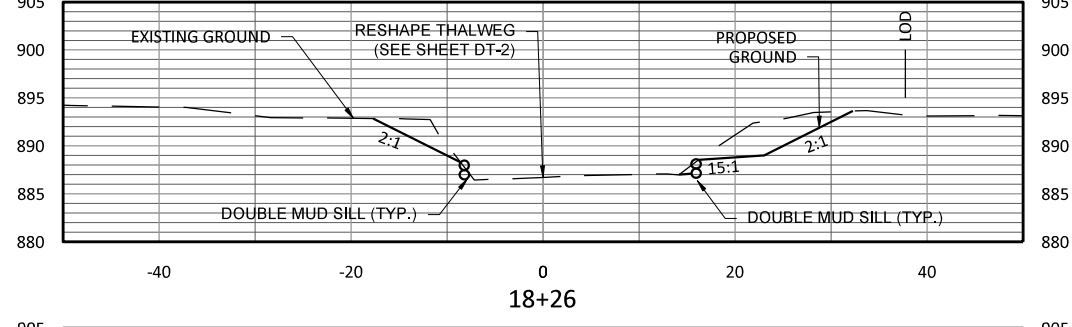
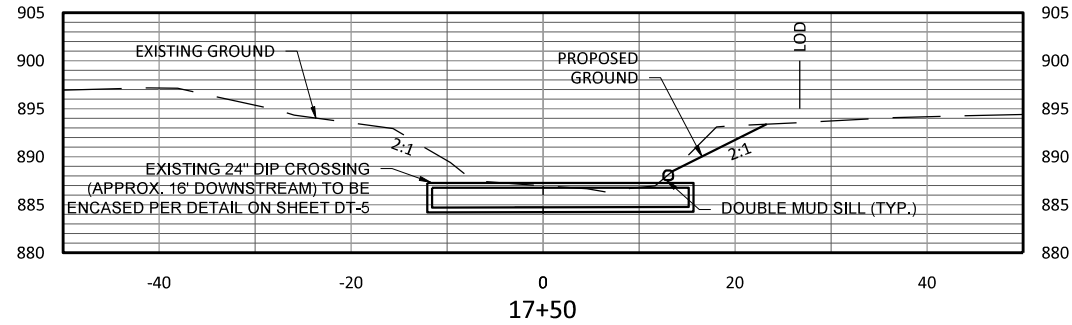
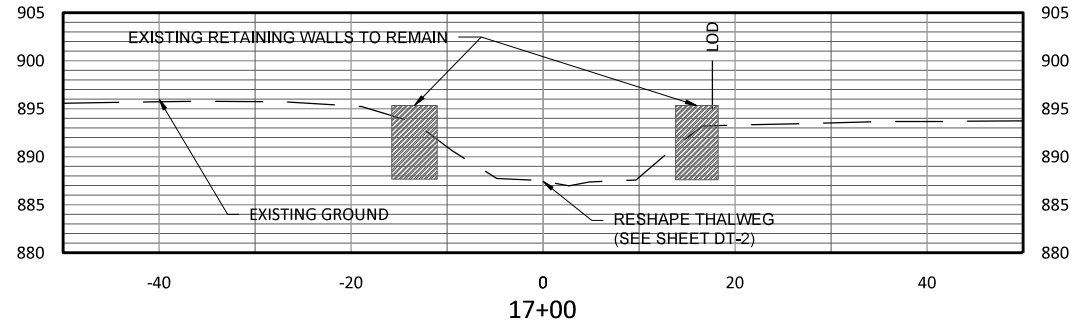
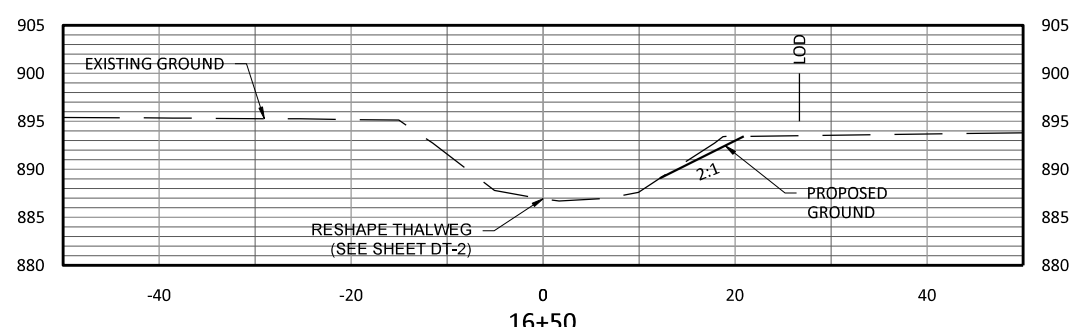
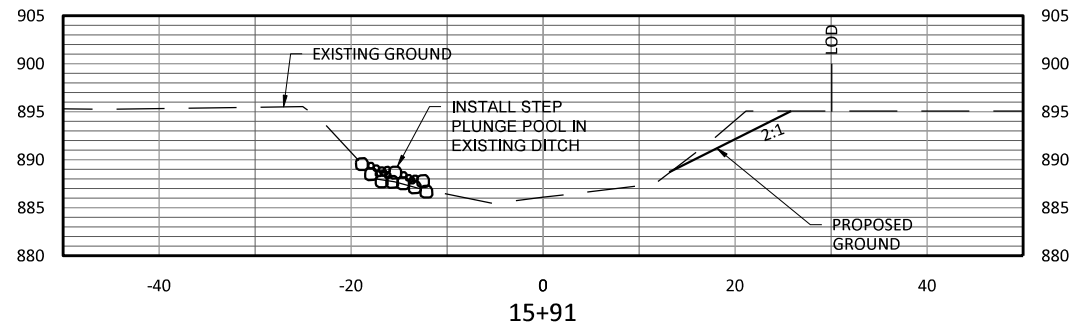
CITY OF BROOKHAVEN  
**N.FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE**  
 CROSS SECTION VIEWS  
**CROSS SECTION VIEWS**

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SHEET  
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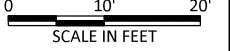
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**LEGEND**

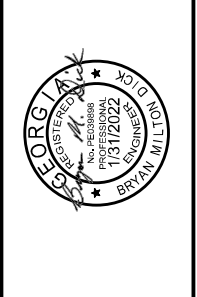
--- EXISTING GROUND PROFILE  
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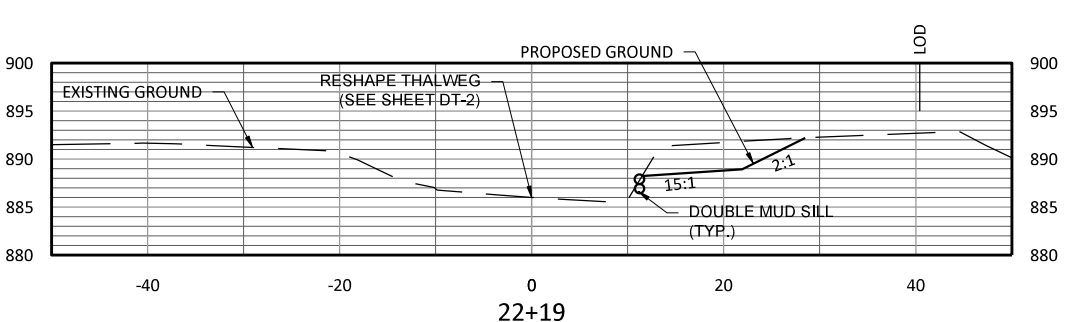
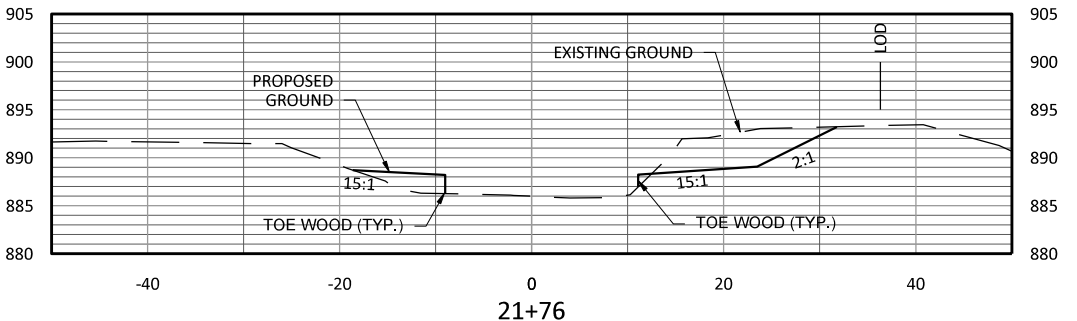
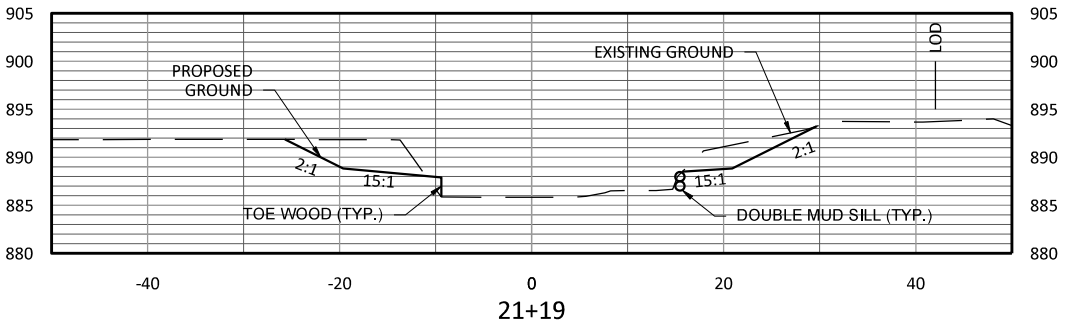
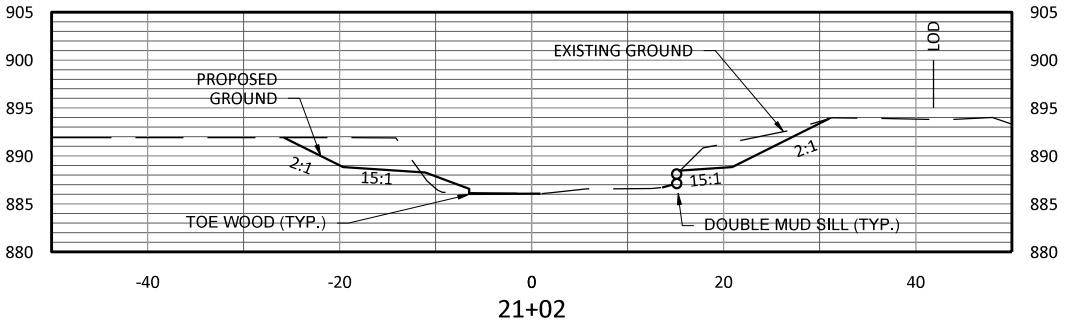
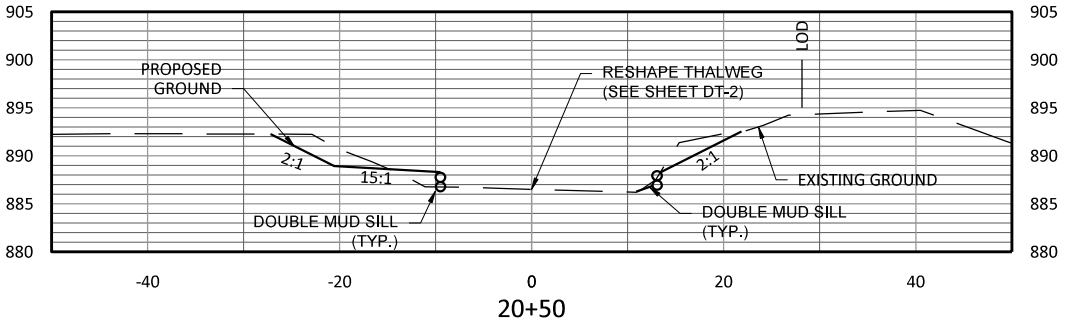
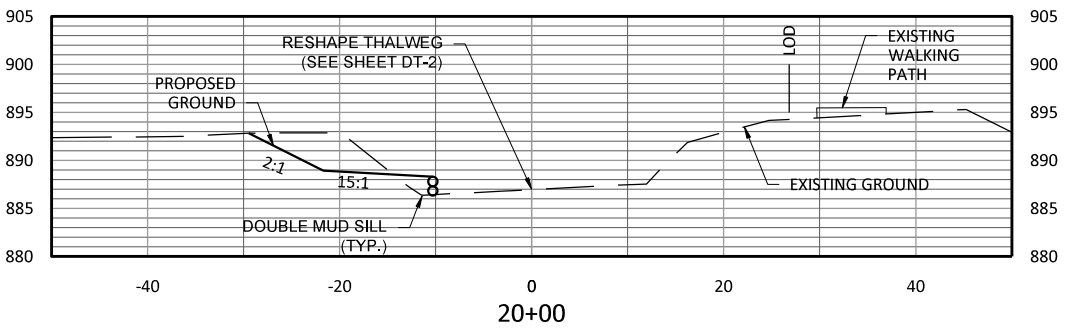
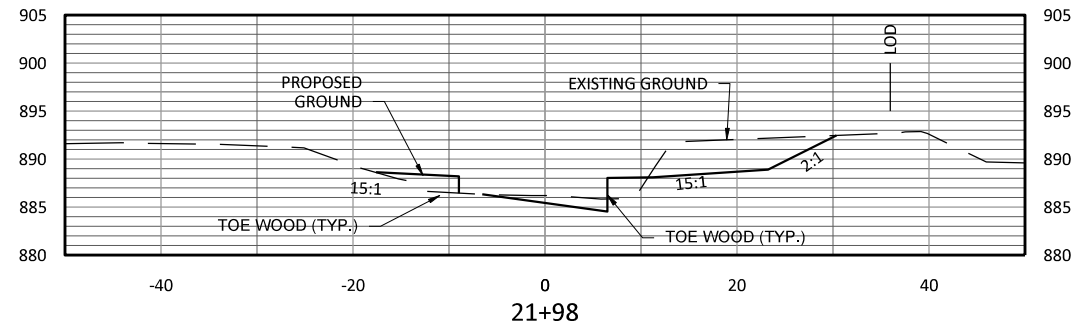
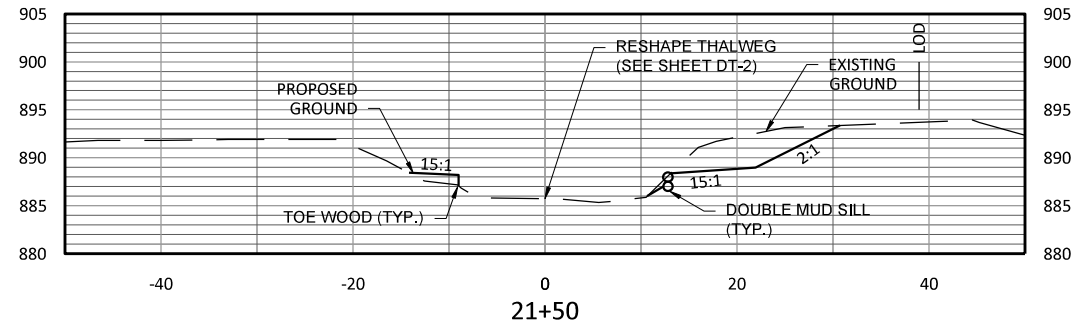
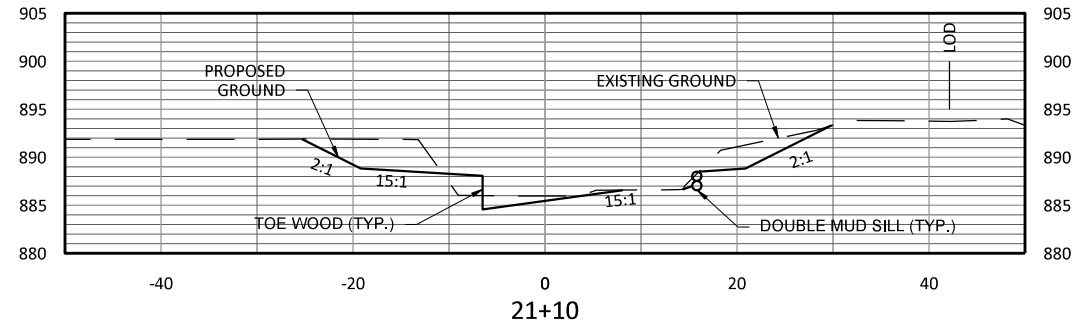
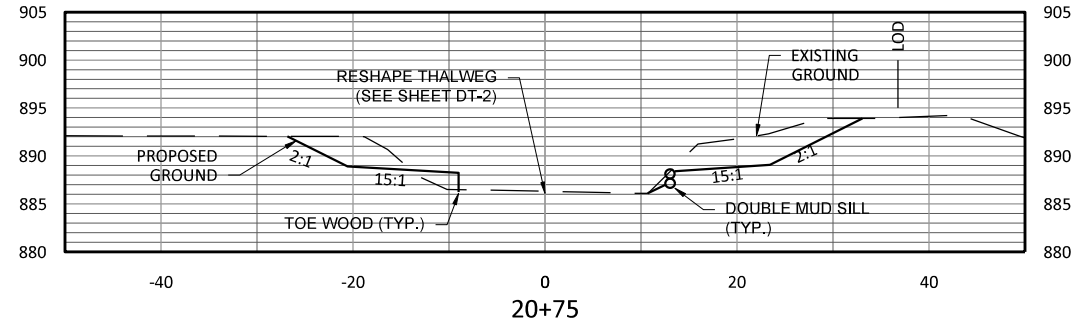
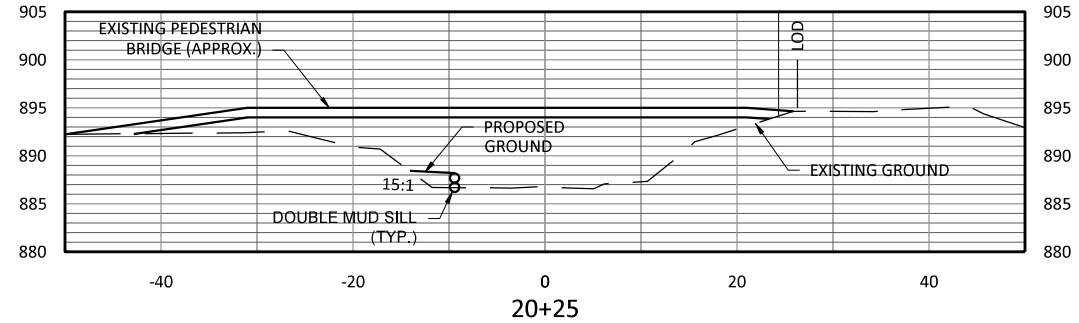
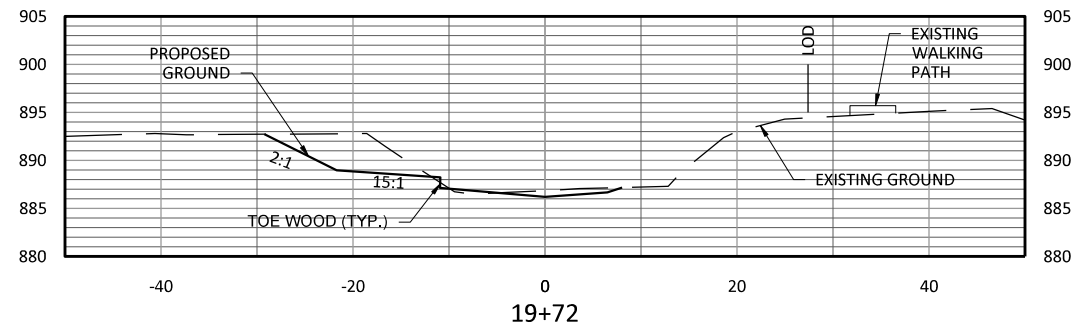
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CITY OF BROOKHAVEN  
**N.FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE**  
 CROSS SECTION VIEWS  
**CROSS SECTION VIEWS**

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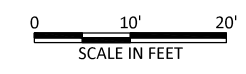
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**LEGEND**

--- EXISTING GROUND PROFILE  
 --- ALONG ALIGNMENT

— PROPOSED GROUND

24 HOUR CONTACT:  
 CITY OF BROOKHAVEN  
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 TOM ROBERTS  
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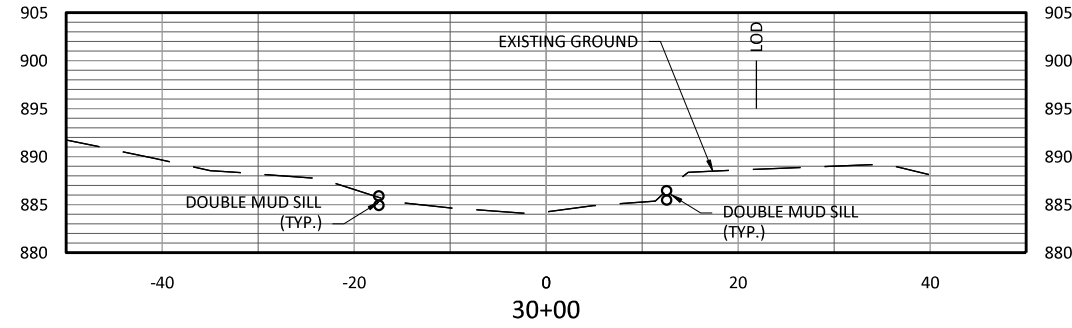
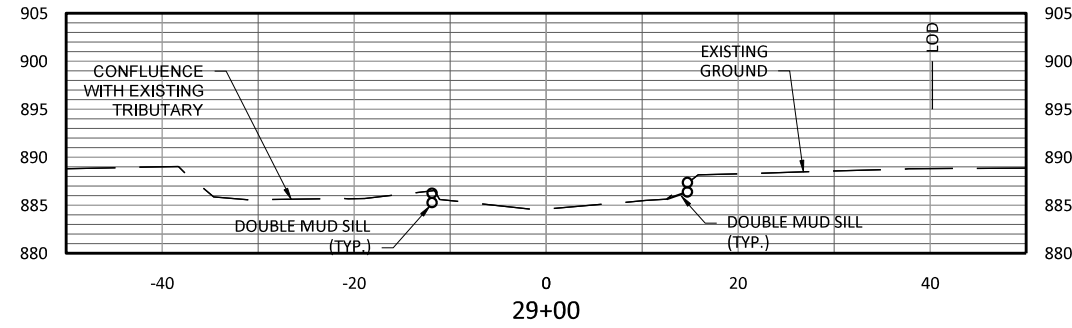
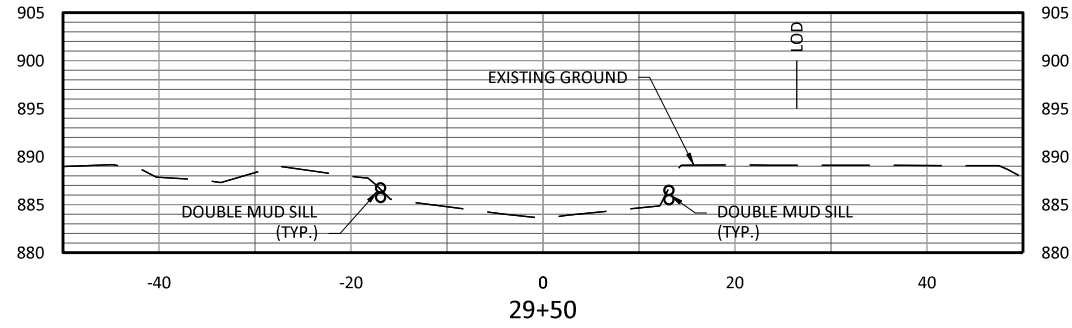
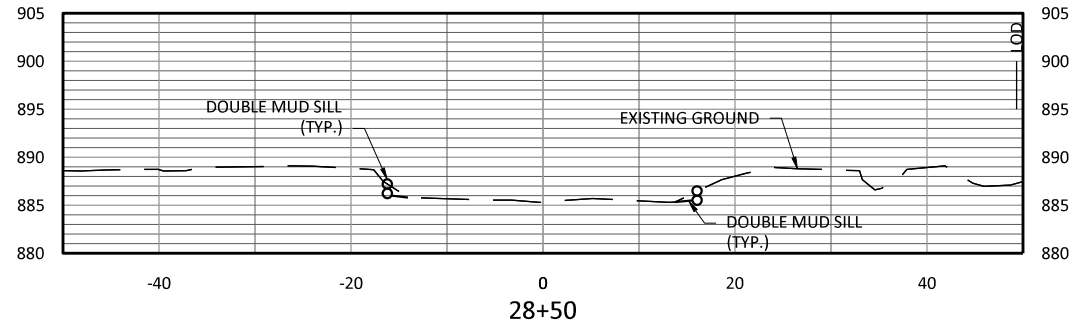
CITY OF BROOKHAVEN  
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SHEET **CS-4**  
 SEQ. 12

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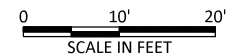
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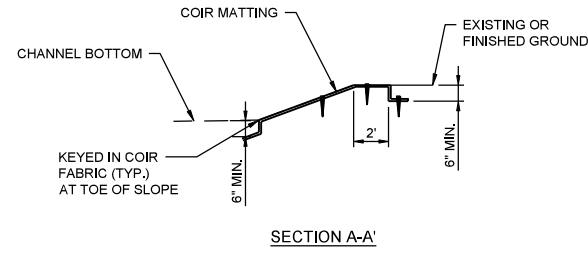
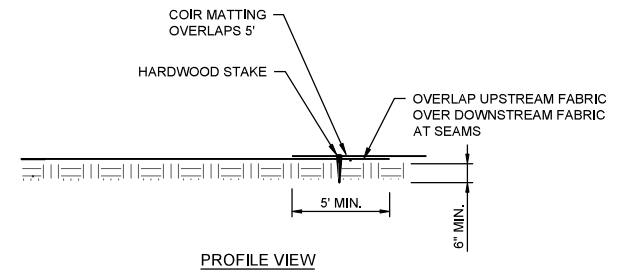
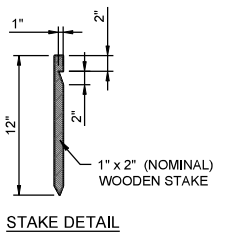
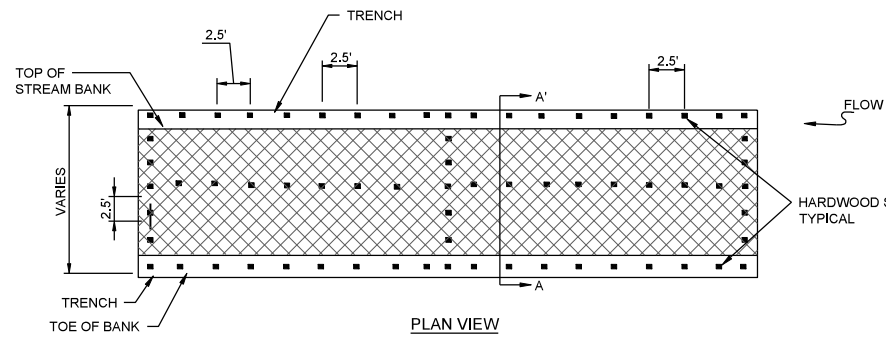


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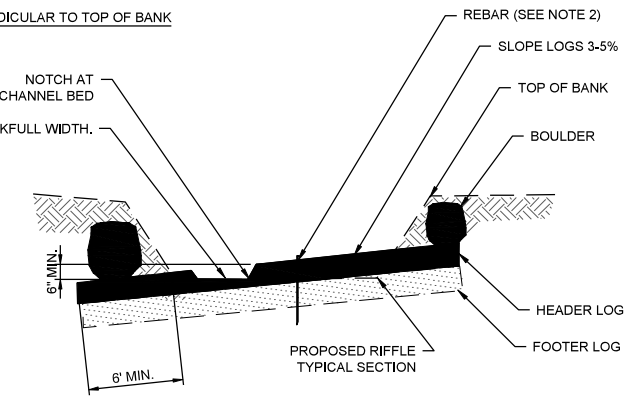
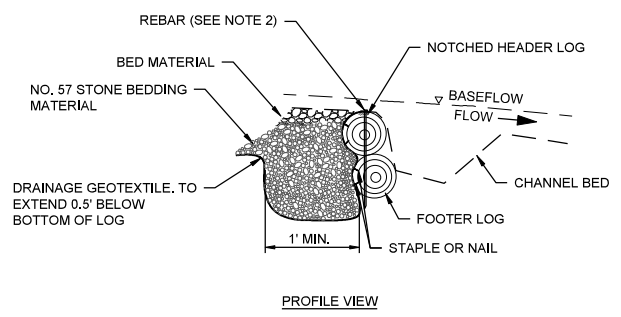
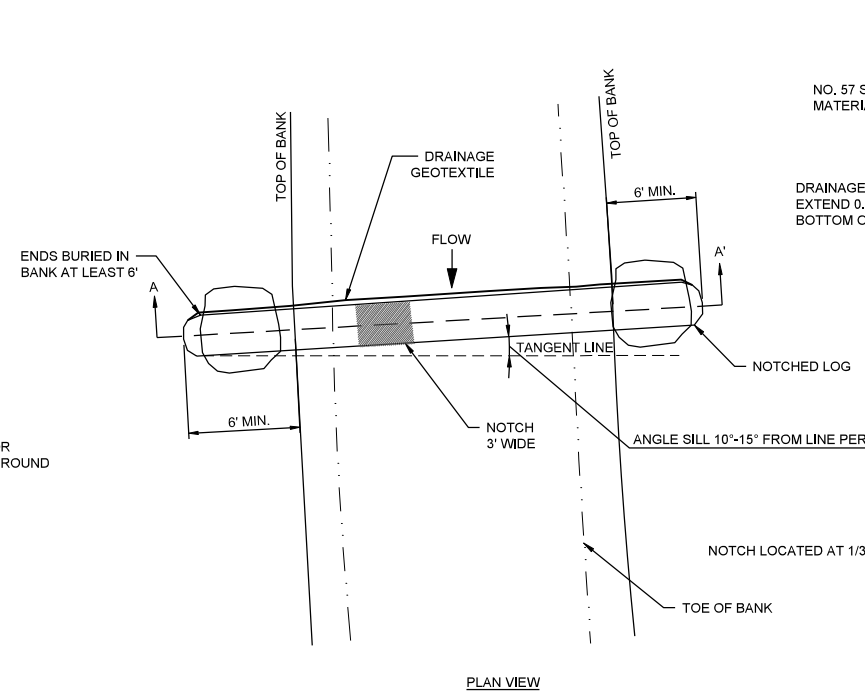
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			02/19/2021						

SHEET  
**CS-6**  
 SEQ. 14



- NOTES:**
1. MAXIMUM SINGLE LENGTH OF MATTING/MESH IS 100'.
  2. TOP AND BOTTOM EDGES OF MATTING/MESH SHALL BE KEYED IN.
  3. COIR MATTING DETAIL SHOWN IS FOR PERMANENT INSTALLATION. TEMPORARY INSTALLATION FOR EROSION CONTROL PROTECTION AS STIPULATED SHALL BE TO THE EXTENT THAT THE PROJECT SITE NEEDS TO BE PROTECTED FOR EROSION AND SEDIMENT CONTROL DURING NON-WORKING HOURS.
  4. SEE SPECIFICATION FOR MATERIAL REQUIREMENTS.

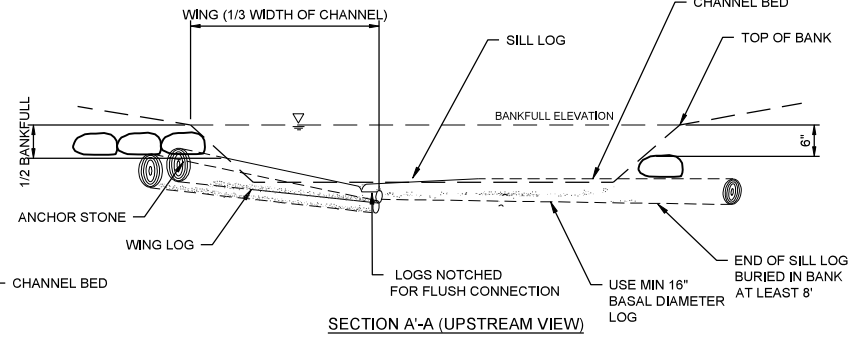
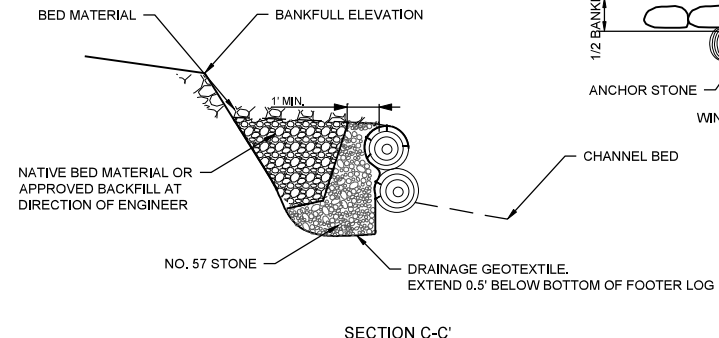
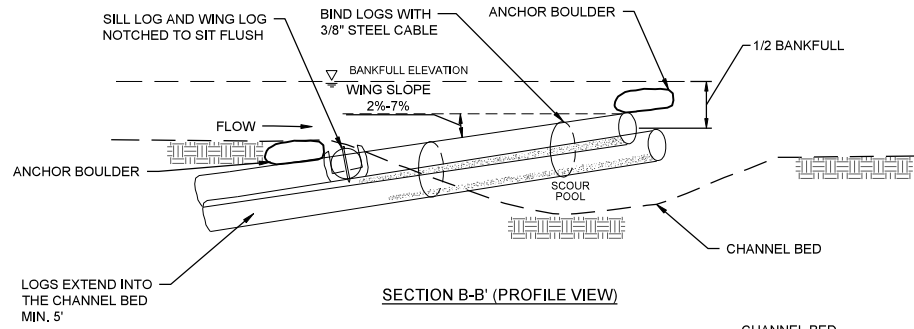
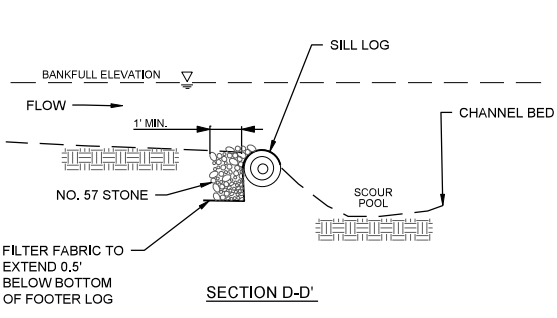
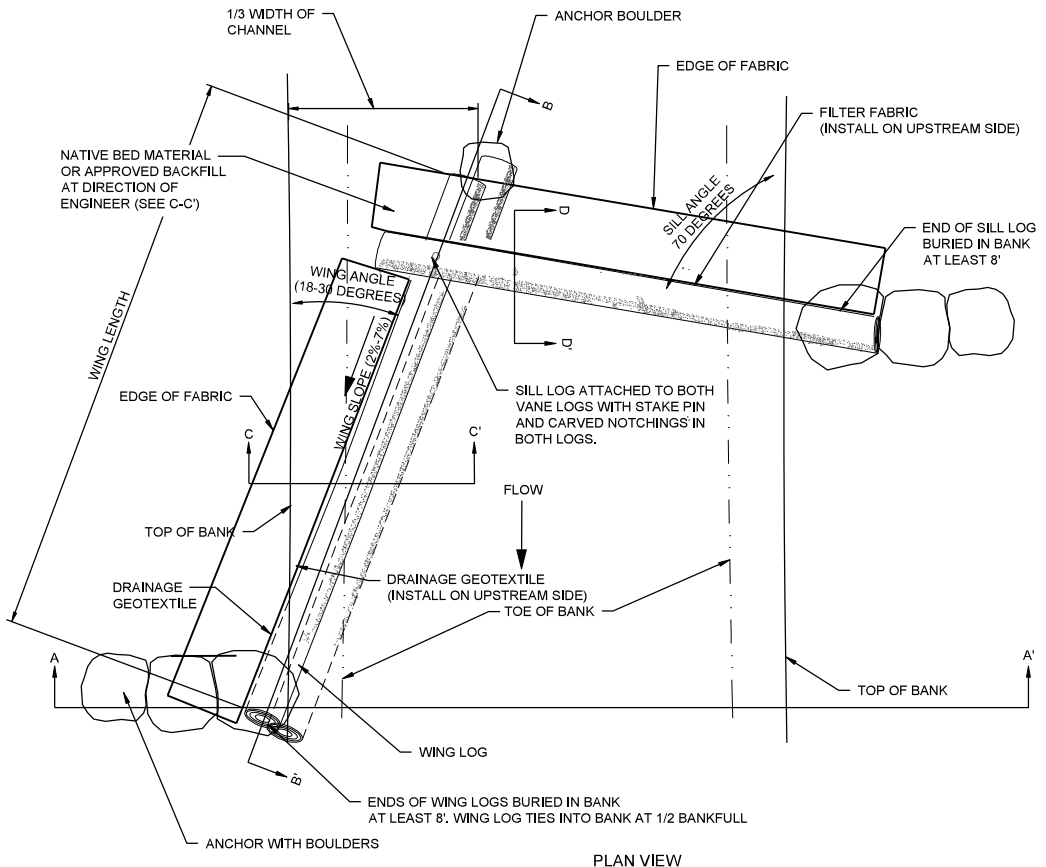
**COIR FIBER MATTING**  
SCALE: NTS



- NOTE:**
1. ALTERNATE SILL DIRECTION AND SLOPE IN ACCORDANCE WITH PLANS.
  2. DRILL 1-1/8" DIAMETER HOLE IN LOGS AND DRIVE #8 REBAR THROUGH. BEND AT TOP.
  3. NOTCH LOCATED AT 1/3 BANKFULL, ALTERNATING IN RIFFLE, OR LOCATED AT MIDDLE AT THE HEAD OF POOL.
  4. LOG SHALL BE EMBEDDED IN BANK A MINIMUM OF 6'.

**ANGLED NOTCHED LOG SILL**  
SCALE: NTS

24 HOUR CONTACT:  
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- NOTES:**
1. VANE ARMS BACKFILLED WITH NATIVE BED MATERIAL OR APPROVED BACKFILL AT DIRECTION OF ENGINEER.
  2. BANKFULL CHANNEL WIDTH INDICATES THE WIDTH OF THE PROPOSED CHANNEL AT THE SPECIFIC STRUCTURE LOCATION. THIS WIDTH MAY NOT NECESSARILY BE THE SAME AT ALL LOCATIONS.

**LOG GRADE CONTROL VANE**  
SCALE: NTS



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**N. FORK NANCY CREEK STREAMBANK RESTORATION**  
FROM I-285 TO MURPHEY CANDLER LAKE

CIVIL - DETAILS

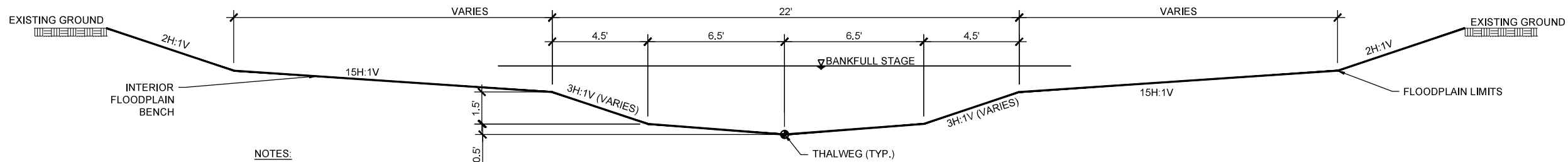
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SHEET **DT-1**

SEQ. 15

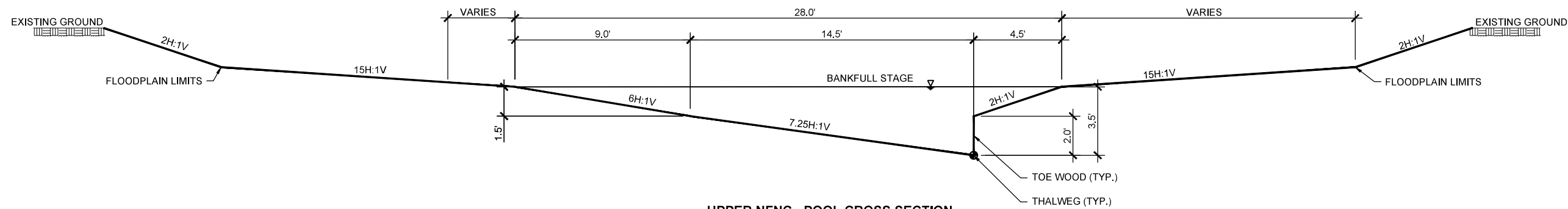
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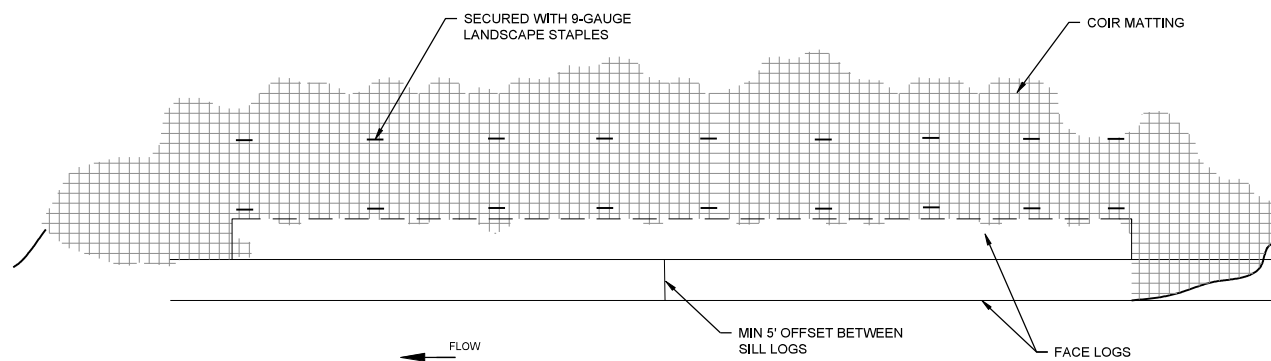
**UPPER NFNC - RIFFLE CROSS SECTION**  
SCALE: NTS

**NOTES:**

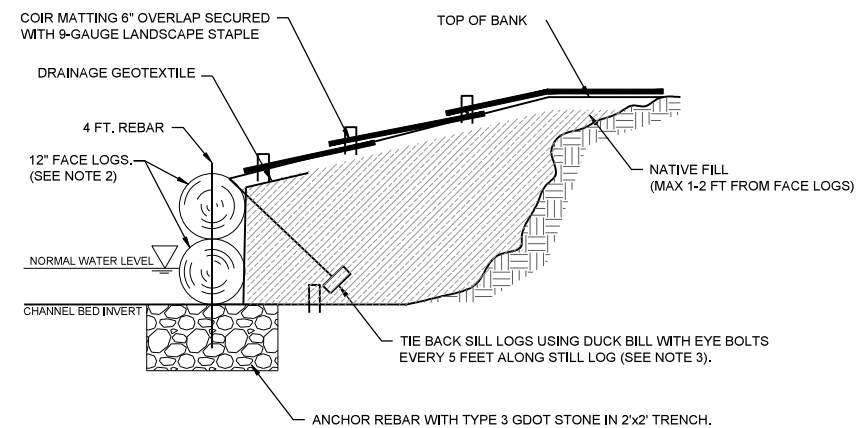
1. RIFFLE CROSS-SECTION TYPICALLY OCCURS AT MID-RIFFLE AND POOL CROSS-SECTION AT THE MID-POOL. CHANNEL DEPTH AND SIDE SLOPES WILL VARY ALONG TRANSITION FROM POOL CROSS-SECTION TO RIFFLE CROSS-SECTION.



**UPPER NFNC - POOL CROSS SECTION**  
SCALE: NTS



DOUBLE MUD SILL - PLAN VIEW



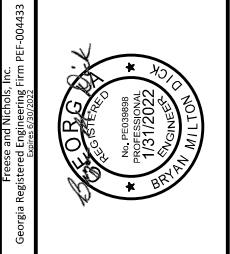
DOUBLE MUD SILL WITH COIR MATTING - SECTION VIEW

**NOTES:**

1. SILL LOGS SHOULD BE PLACED EVERY 15 FT.
2. COIR TO BE WRAPPED IN BETWEEN SILL LOGS BEFORE TRANSITION TO BANK.
3. TIEBACKS TO BE TRENCHED IN AND NOT OVER-EXCAVATED (I.E. 2-4 FT) INTO THE BANK.

**DOUBLE MUD SILL**  
SCALE: NTS

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**DETAILS**

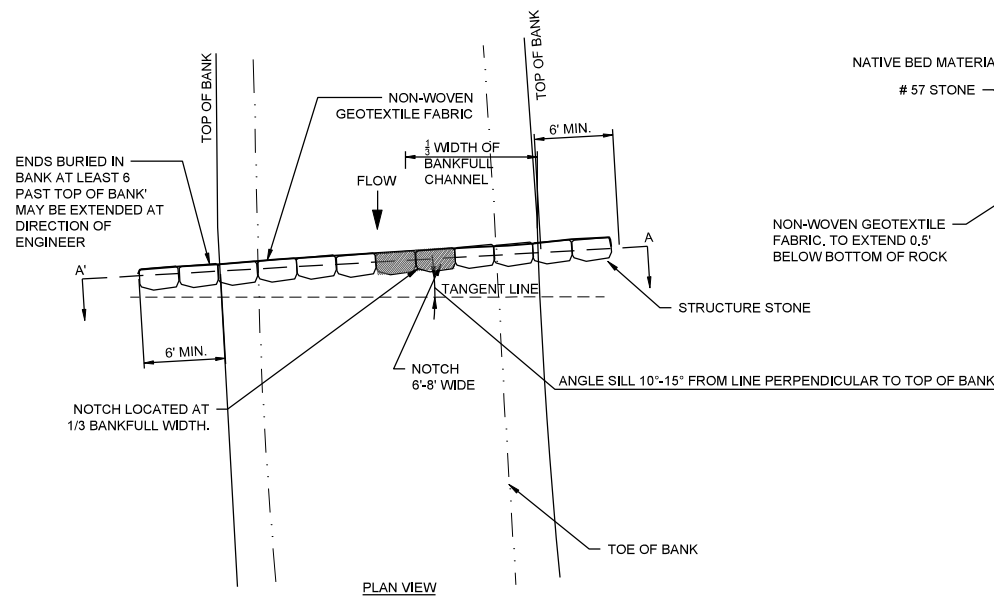
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SHEET **DT-2**  
SEQ. 16

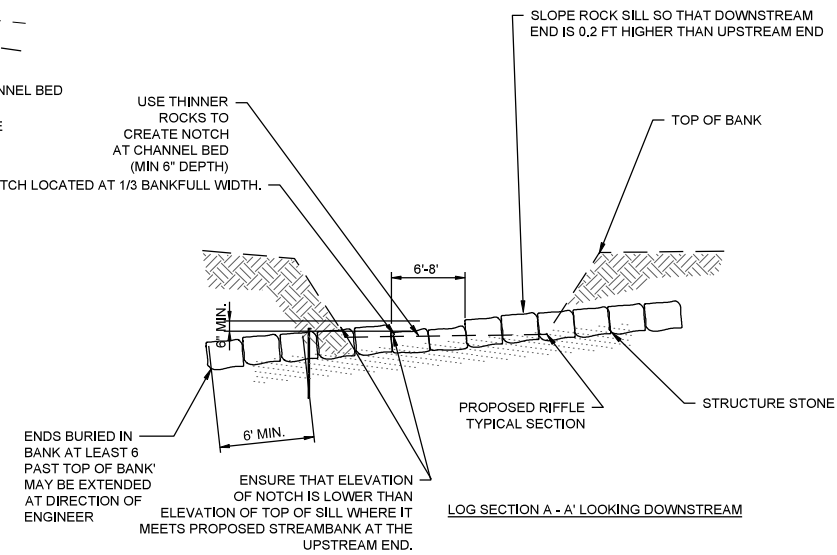
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**NOTE:**

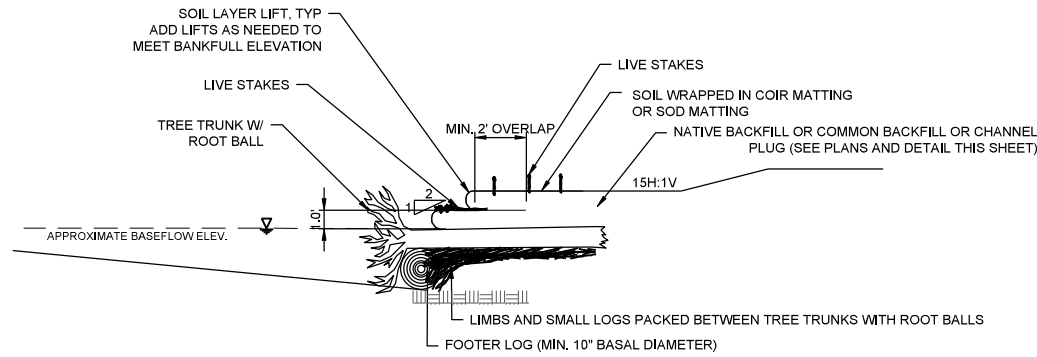
1. ALTERNATE SILL DIRECTION AND SLOPE IN ACCORDANCE WITH PLANS.
2. SILL ROCKS TO BE STRUCTURE STONE.
3. CREATE LOW-FLOW NOTCH OF AT LEAST 6" DEPTH USING THINNER ROCK, LOCATE AT 1/3 BANKFULL, ALTERNATING IN RIFFLE, OR LOCATED AT MIDDLE AT THE HEAD OF POOL.
4. ENDS OF SILL SHALL BE EMBEDDED INTO BANK AT LEAST 6' PAST TOP OF BANK, MAY BE EXTENDED AT DIRECTION OF ENGINEER.
5. IN STEP-POOL AREAS, ANGLED ROCKS SILLS TO BE ALTERNATED IN DIRECTION IN SAME MANNER SHOWN IN THE ANGLED LOG STEP POOL DETAIL (SEE DETAIL THIS SHEET).
6. ENSURE THAT ELEVATION OF BOTTOM OF NOTCH IS LOWER THAN ELEVATION OF TOP OF SILL WHERE IT MEETS THE PROPOSED BANK AT THE UPSTREAM END.



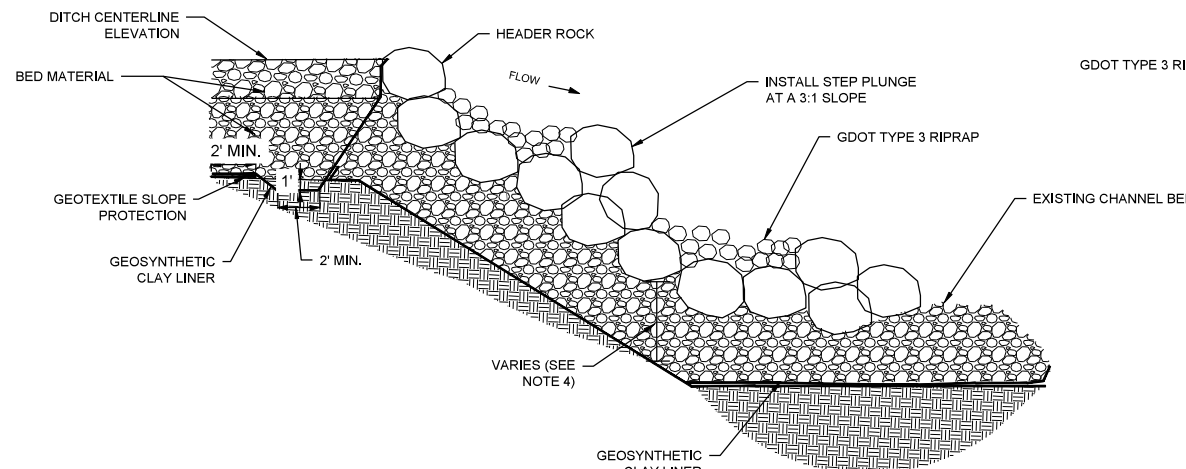
**ANGLED ROCK SILL**  
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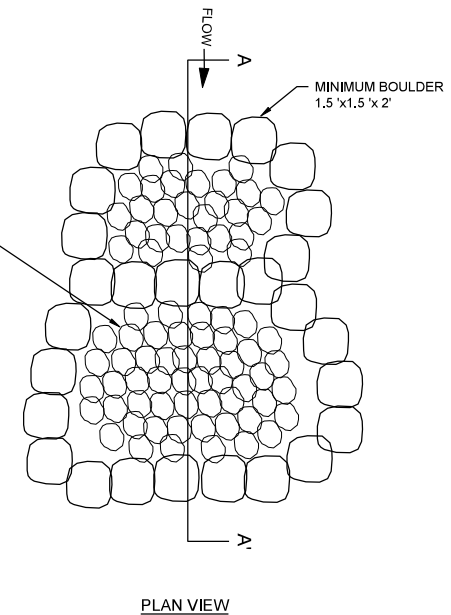
**STEP PLUNGE POOL**  
SCALE: NTS



**TOE WOOD**  
SCALE: NTS



**TYPICAL SECTION - A TO A' (PROFILE VIEW - ALONG CENTERLINE)**



**PLAN VIEW**

**NOTES:**

1. HEADER AND FOOTER ROCKS SHALL BE ABLE TO BE STACKED.
2. SEE PROFILE FOR THALWEG SLOPES.
3. STEP PLUNGE POOL SHALL EXTEND ALONG THE BANK AND KEY INTO TOE OF SLOPE.
4. BASE OF FOOTER ROCKS SHALL BE ATOP BED MATERIAL. REFER TO TYPICAL SECTION FOR CHANNEL WIDTH AND DEPTH DIMENSIONS.
5. ROCKS SHALL BE INSTALLED TIGHTLY AGAINST EACH OTHER; GAPS ARE NOT ACCEPTABLE.

**NOTES:**

1. THE CONTRACTOR SHALL USE LOGS, TRUNKS WITH ROOTS, AND BRANCHES TO FORM THE "TOE WOOD" STREAMBANK TOE PROTECTION.
2. THE STREAMBANKS ABOVE THE TOE WOOD SHALL BE FORMED FROM SOIL LIFTS WRAPPED IN COIR MATTING.
3. TOP OF LOG FOR ROOT WAD SET AT NORMAL BASE FLOW ELEVATION OF CHANNEL.

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**FROM I-285 TO MURPHEY CANDLER LAKE**

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**DETAILS**

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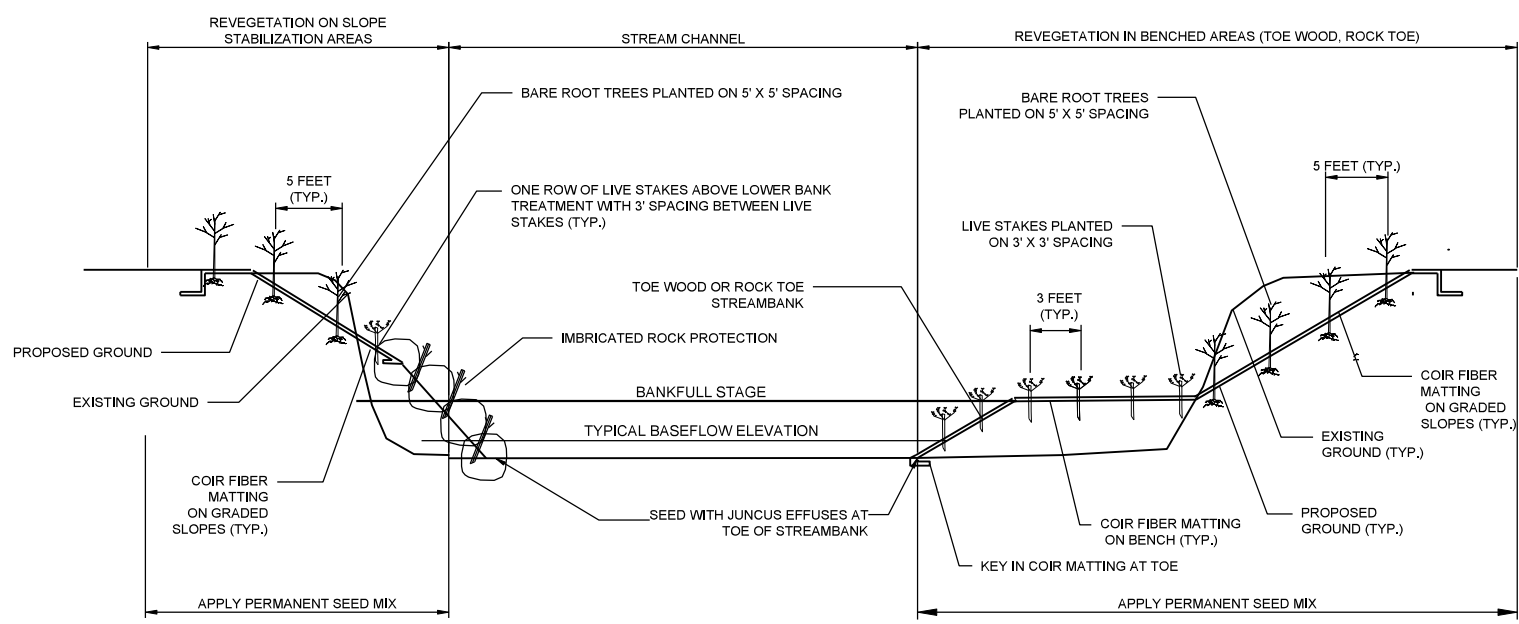
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**FROM I-285 TO MURPHEY CANDLER LAKE**  
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**DETAILS**



**NOTES:**

1. THE LEFT SIDE OF THIS SECTION SHOWS PLANTING APPROACH TO BE APPLIED FOR STREAMBANKS WHERE ROCK TOE PROTECTION OR STACKED ROCK WALL ARE TO BE USED ON THE LOWER BANK WITH GRADING OR GEOBAG WALL ON THE UPPER BANK.
2. THE RIGHT SIDE OF THIS SECTION SHOWS PLANTING APPROACH TO BE APPLIED WHERE TOE WOOD IS USED TO CREATE A BENCH WITH GRADING OR GEOBAG WALL ON THE UPPER BANK.
3. IF CROSS-SECTIONS SHOW NO GRADING OR OTHER TREATMENT ON PARTS OF THE EXISTING STREAMBANKS (UPPER BANK, LOWER BANK OR BOTH) THEN EXISTING VEGETATION IS TO REMAIN UNDISTURBED.
4. SEE PLANT LIST FOR SPECIES AND SIZE.

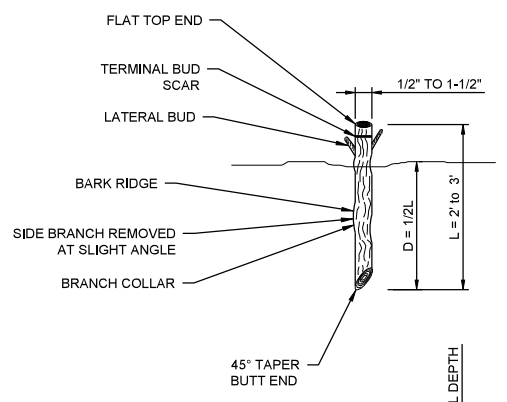
**REVEGETATION TYPICAL SECTION**  
 SCALE: NTS

	Scientific Name	Common Name	Quantity	Remarks
BARE ROOT TREES	<i>Acer rubrum</i>	Red maple	109	Bare root 1/0 seedlings placed on 5-ft centers, alternating plants between rows and species randomly distributed.
	<i>Platanus occidentalis</i>	American sycamore	210	
	<i>Quercus pagoda</i>	Cherry Bark oak	109	
	<i>Liriodendron tulipifera</i>	Yellow poplar	109	
	<i>Fagus grandifolia</i>	American beech	109	
	<i>Betula nigra</i>	River birch	73	
BARE ROOT SHRUBS	<i>Hamamelis virginiana</i>	Witch hazel	363	
	<i>Lindera benzoin</i>	Spice bush	363	
LIVE STAKES	<i>Alnus serrulata</i>	Tag alder	242	Stakes placed on 3' centers, alternating stakes between rows and with species randomly distributed. One row of live stakes planted above staked rock wall and rock toe protection, with stakes spaced 3' apart.
	<i>Salix sericea</i>	Silky willow	242	
	<i>Cornus amomum</i>	Silky dogwood	242	
PERMANENT SEEDING	Mellow Marsh Farms Piedmont Shade Mix or Equivalent			Apply at 25 lbs/acre
	Manually apply seed of Juncus effuses at toe of streambed in areas of bank treatment			
TEMPORARY SEEDING	Summer: Brown-top millet			Apply at 50 lbs/acre to all disturbed areas
	Winter: Wrens-abuzzi winter rye or Winter Wheat			

**PLANT LIST**

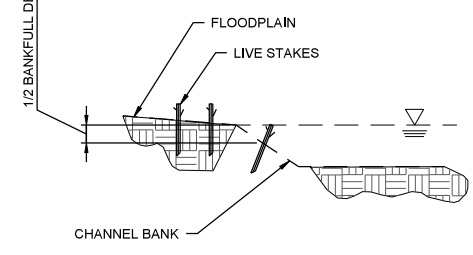
**NOTES:**

1. UTILIZE JUNCUS EFFUSES MORE HEAVILY IN AREAS AROUND PEDESTRIAN BRIDGE.



**NOTES:**

1. ALL LATERAL BRANCHES SHALL BE TRIMMED TO AVOID DAMAGE TO THE BARK RIDGE AND BRANCH COLLAR.
2. A MINIMUM OF TWO BUDS (ONE LATERAL PLUS ONE TERMINAL OR TWO TERMINAL) SHALL BE ABOVE THE PLANTING DEPTH.



**LIVE STAKE**  
 SCALE: NTS

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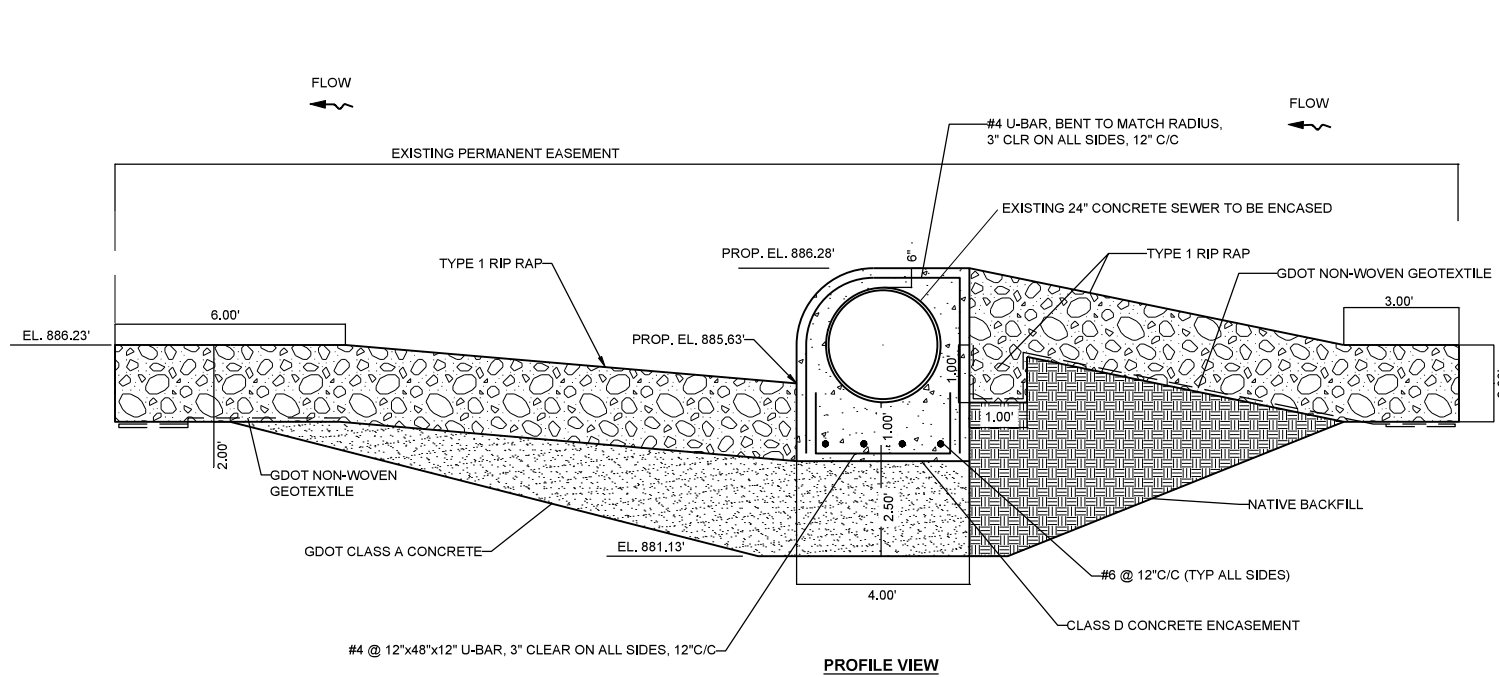
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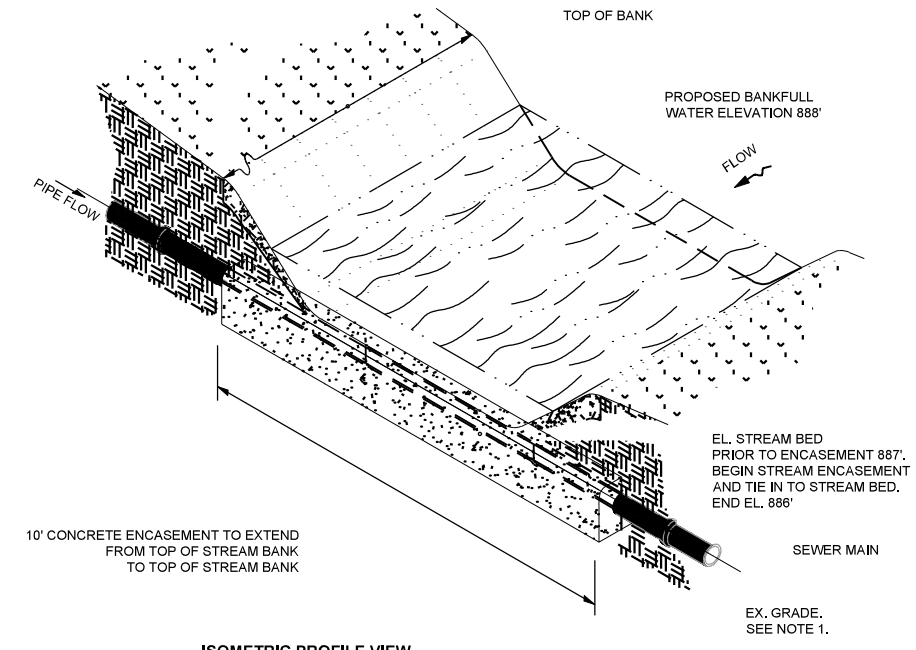
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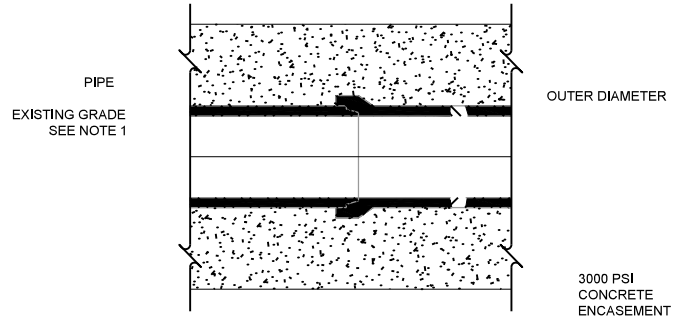
PROFILE VIEW



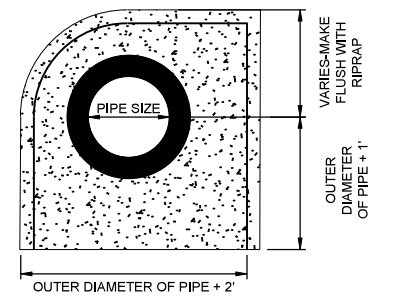
ISOMETRIC PROFILE VIEW

NOTES:

1. UPPER HALF OF EXISTING PIPE CURRENTLY ABOVE GRADE. PIPE MUST BE ENCASED BY CONCRETE FULLY.
2. FINAL PROPOSED BED ELEVATION 886'.
3. CONCRETE TO BE 3000 PSI.
4. ENCASEMENT TO BE USED ONLY WHERE SPECIFIED ON PLANS.



LONGITUDINAL SECTION VIEW



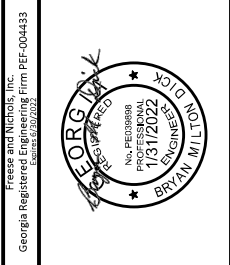
TRANSVERSE SECTION VIEW

CONCRETE SEWER ENCASEMENT  
SCALE: NTS

ROCK PLACEMENT NOTES:

1. PLACE ROCK MATERIAL IN SUCH MANNER AS TO PRODUCE A REASONABLY WELL-GRADED MASS OF ROCK WITH THE MINIMUM PRACTICABLE PERCENTAGE OF VOIDS.
2. A TOLERANCE OF PLUS 6 OR MINUS 0 INCHES FROM THE SLOPE LINES AND GRADES SHOWN ON THE PLANS SHALL BE ALLOWED IN THE FINISHED SURFACE OF THE ROCK.
3. PLACE ROCK MATERIAL TO ITS FULL COURSE THICKNESS AT ONE OPERATION.
4. DISTRIBUTE THE LARGER STONES EVENLY AND CONFORM THE ENTIRE MASS OF STONES IN THEIR FINAL POSITION TO THE SPECIFIED GRADATION.
5. FINISHED ROCK MATERIAL SHALL BE FREE FROM OBJECTIONABLE POCKETS OF SMALL STONES AND CLUSTERS OF LARGER STONES.
6. PLACING ROCK MATERIAL IN LAYERS SHALL NOT BE PERMITTED.
7. PLACING MATERIAL BY DUMPING FROM TOP OF SLOPE, DUMPING INTO CHUTES, OR BY SIMILAR METHODS LIKELY TO CAUSE SEGREGATION OF THE VARIOUS SIZES SHALL NOT BE PERMITTED.
8. THE DESIRED DISTRIBUTION OF THE VARIOUS SIZES OF STONES THROUGHOUT THE MASS SHALL BE OBTAINED BY METHODS OF PLACEMENT WHICH PRODUCES THE SPECIFIED RESULTS.
9. REARRANGE INDIVIDUAL STONES BY MECHANICAL EQUIPMENT OR BY HAND TO THE EXTENT NECESSARY TO OBTAIN A REASONABLY WELL GRADED DISTRIBUTION OF STONE SIZES.
10. MAINTAIN THE MATERIAL PROTECTION UNTIL ACCEPTED AND REPLACE ANY MATERIAL DISPLACED DURING CONSTRUCTION.
11. NON-WOVEN GEOTEXTILE AND CONCRETE ITEMS SHALL MEET GDOT SPECIFICATIONS

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FROM I-285 TO MURPHEY CANDLER LAKE**  
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**DETAILS**

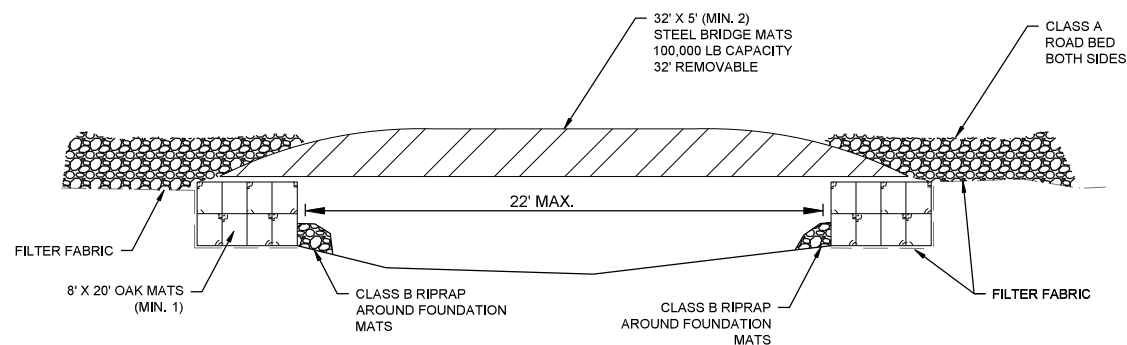
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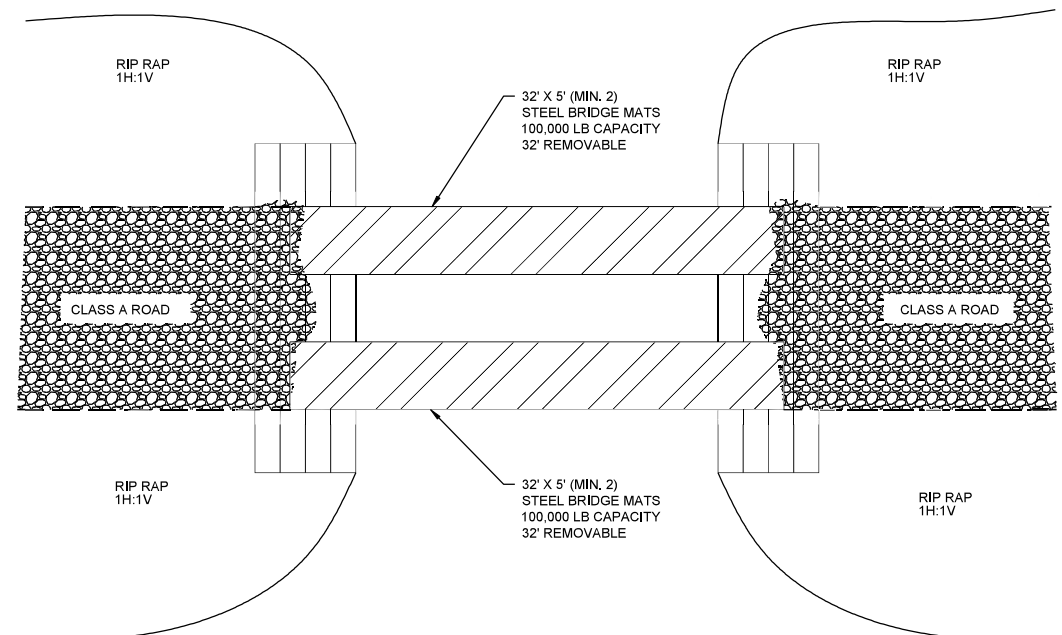
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**NOTES:**

1. EXACT LOCATION TO BE DETERMINED BY ENGINEER IN FIELD. ONLY ONE CROSSING LOCATION TO BE INSTALLED AT A TIME.
2. SPANS TO BE REMOVED PRIOR TO HIGH WATER FLOWS OR INCLEMENT WEATHER.



STREAM CROSSING - PROFILE VIEW  
NTS

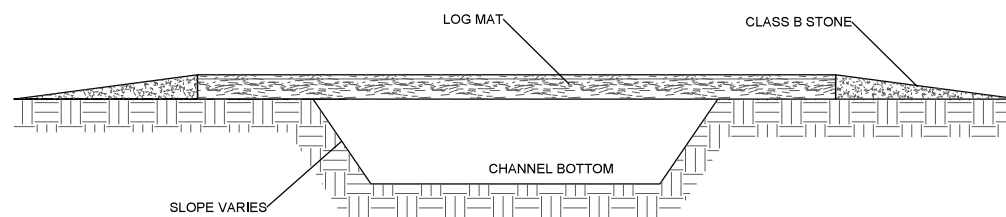


STREAM CROSSING - PLAN VIEW  
NTS

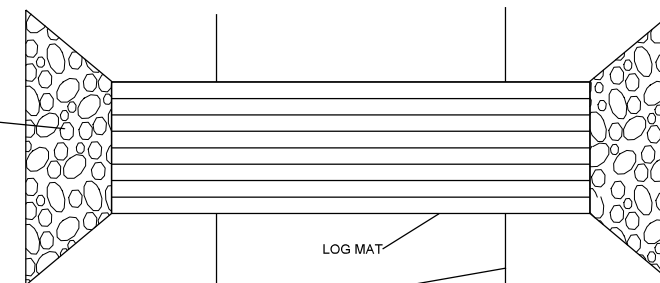
**NOTES:**

1. CONSTRUCT STREAM CROSSING WHEN FLOW IS LOW.
2. HAVE ALL NECESSARY MATERIALS AND EQUIPMENT ON-SITE BEFORE WORK BEGINS.
3. MINIMIZE CLEARING AND EXCAVATION OF STREAMBANKS. DO NOT EXCAVATE CHANNEL BOTTOM.
4. LINE STREAMBANK AND ACCESS RAMP AREA WITH NON-WOVEN FILTER FABRIC.
5. INSTALL STREAM CROSSING AT RIGHT ANGLE TO THE FLOW. THE CROSSING SHALL ALLOW FLOW TO ENTER THE CHANNEL UNIMPEDED.
6. MAINTAIN CROSSING SO THAT RUNOFF IN THE CONSTRUCTION ROAD DOES NOT ENTER EXISTING CHANNEL BY INSTALLING SILT FENCE ON ALL FOUR CORNERS ADJACENT TO THE STREAM. SEE SILT FENCE DETAIL.
7. STABILIZE AN ACCESS RAMP OF CLASS B STONE TO THE EDGE OF THE MUD MAT.
8. THE LOG MAT SHALL BE OF SUFFICIENT SIZE AND WIDTH TO SUPPORT THE LARGEST VEHICLE CROSSING THE CHANNEL.
9. CONTRACTOR SHALL DETERMINE AN APPROPRIATE RAMP ANGLE ACCORDING TO EQUIPMENT UTILIZED, RECOMMENDED AT A 5:1 SLOPE.
10. FOR REMOVAL OF TEMPORARY IMPACTS, THE FOLLOWING SEQUENCING SHOULD BE OBSERVED:
  - IN ALL FORESTED WETLANDS, CLEARING WILL BE DONE BY HAND & GRUBBING WILL OCCUR AS NEEDED TO INSTALL TEMPORARY HAUL ROADS.
  - IMPACTS AT STREAM CROSSING LOCATIONS WILL BE MINIMIZED BY USE OF APPROPRIATE EROSION CONTROL & FLOW DIVERSION MEASURES DURING CONSTRUCTION.
  - DIRECT IMPACTS FROM CONSTRUCTION TO THESE FEATURES WILL BE TEMPORARY, & ANY IMPACTED AREAS WILL BE RESTORED TO ORIGINAL GRADE & STABILIZED FOLLOWING CONSTRUCTION. THE CONTRACTOR SHALL LINE THE LOD WITH TREE PROTECTION FENCE TO PREVENT THE UNNECESSARY REMOVAL OF VEGETATION.
  - PRIOR TO EXCAVATING IN JURISDICTIONAL STREAMS, RIP-RAP COFFERDAMS WILL BE INSTALLED UPSTREAM & DOWNSTREAM OF THE EXCAVATION AREA TO ISOLATE THE DISTURBED AREA AND CONTAIN SEDIMENT. STREAM FLOW ON THE UPSTREAM SIDE OF THE EXCAVATION WILL BE POOLED ABOVE THE COFFERDAM AND PUMPED AROUND THE EXCAVATION AREA. THE PUMPED WATER WILL BE DISCHARGED ON THE DOWNSTREAM SIDE OF THE EXCAVATION BELOW THE LOWER COFFERDAM THROUGH SEDIMENT BAGS TO FILTER THE DISCHARGE WATER OF SEDIMENT BEFORE ALLOWING THE WATER TO BE RETURNED TO THE STREAM CHANNEL. A COFFERDAM (I.E. IMPERVIOUS DIKE) AND BYPASS PUMP DETAIL IS ATTACHED IN THE DESIGN PLANS ON SHEET ES-13.
  - ALL MATERIAL TEMPORARILY SIDE CAST INTO WETLAND AREAS WILL BE PLACED ON FILTER FABRIC.
  - HAUL ROADS AND OTHER TEMPORARY WORK AREAS WILL BE BACKFILLED AND PROPERLY COMPACTED TO THE ORIGINAL (PRE-CONSTRUCTION) GROUND ELEVATION, AND THE RE-ESTABLISHED GRADE WILL BE STABILIZED WITH A SEED MIX MADE UP OF NATIVE SPECIES APPROPRIATE FOR RESTORATION & STABILIZATION OF WETLAND & UPLAND SOILS.
  - TEMPORARY EROSION SEED MIXES WILL ALSO BE USED TO STABILIZE DISTURBED AREAS WITHIN THE REQUIRED STABILIZATION TIME FRAMES. SPECIFICS ABOUT THIS SEED MIX IS INCLUDED IN SPECIFICATION SECTION 6.01 "PERMANENT AND TEMPORARY SEEDING".

**TEMPORARY STREAM CROSSING**  
SCALE: NTS



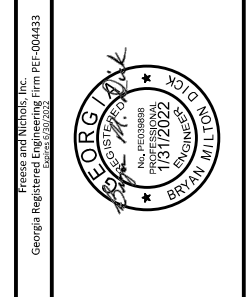
LOG MAT CROSS SECTION



LOG MAT PLAN VIEW

**LOG MAT - TEMPORARY STREAM CROSSING**  
SCALE: NTS

24 HOUR CONTACT:  
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CITY OF BROOKHAVEN  
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**FROM I-285 TO MURPHEY CANDLER LAKE**  
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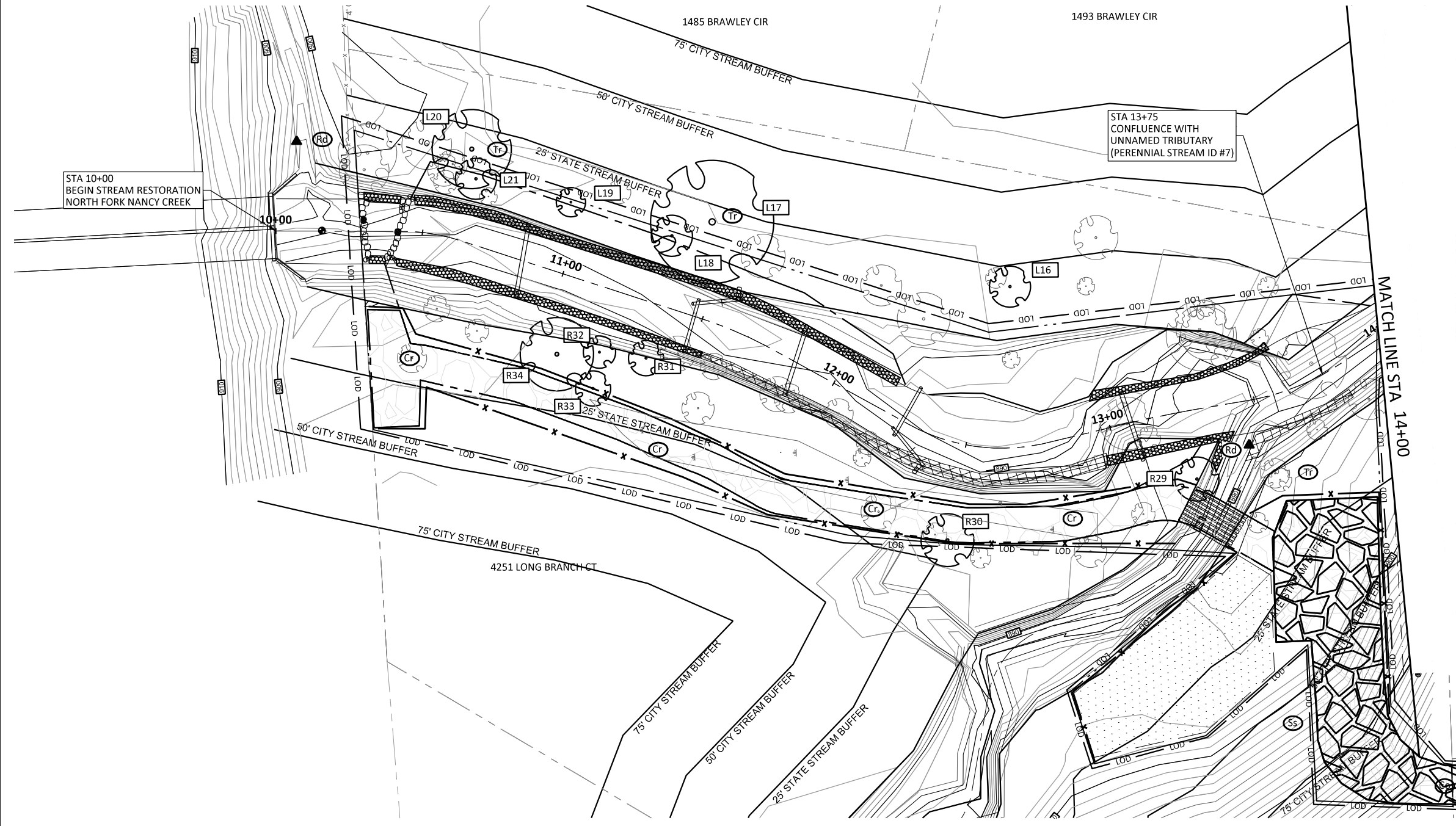
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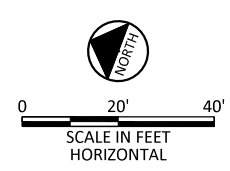


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- NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
  2. ALL TREES ON THE SITE GREATER THAN 6" SHALL BE PROTECTED USING TREE PROTECTION FENCING.
  3. INSTALL EROSION CONTROL MATS ON ALL SLOPES STEEPER THAN 2.5:1 OR GREATER THAN 10 FEET IN HEIGHT IN AREAS OF CONCENTRATED FLOW.
  4. MATERIAL STORAGE OR CONSTRUCTION LAYOUT CAN TAKE PLACE IN THE LOCATION OF THE EXISTING SANITARY SEWER EASEMENT. MATERIAL PILES SHALL BE SURROUNDED BY SILT FENCING AND COVERED AT END OF DAY AND WHEN ACCESS IS NOT ACTIVELY NEEDED.
  5. A TURBIDITY CURTAIN SHALL BE USED DOWNSTREAM OF ACTIVE CHANNEL DISTURBING ACTIVITY, PER GDOT DETAIL D-51. IT CAN BE MOVED AS CONSTRUCTION SEQUENCING WARRANTS.
  6. WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
  7. HAUL RD SHALL BE CONSTRUCTED PER THE GSWCC REQUIREMENTS FOR CONSTRUCTION ROAD STABILIZATION.

- EXISTING WETLAND
- SPECIMEN TREES (DO NOT REMOVE WITHOUT ENGINEER APPROVAL)
- LIMITS OF DISTURBANCE
- DISTURBED AREA - MULCH
- EROSION CONTROL MATS (SEE NOTE 3)
- SILT FENCE - TYPE S
- CONSTRUCTION SAFETY FENCE
- ROCK FILTER DAM
- TREE PROTECTION (SEE NOTE 2)
- CONSTRUCTION EXIT
- TURBIDITY CURTAIN (SEE NOTE 5)



24 HOUR CONTACT:  
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 TOM.ROBERTS@BROOKHAVENGA.GOV  
 EMAIL



**GSWCC**  
 RYAN C. ELLENA  
 Level II Certified Design Professional  
 CERTIFICATION NUMBER: 0000081592  
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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE**  
 E&SC  
**START TO STA 14+00 - PHASE I & II**

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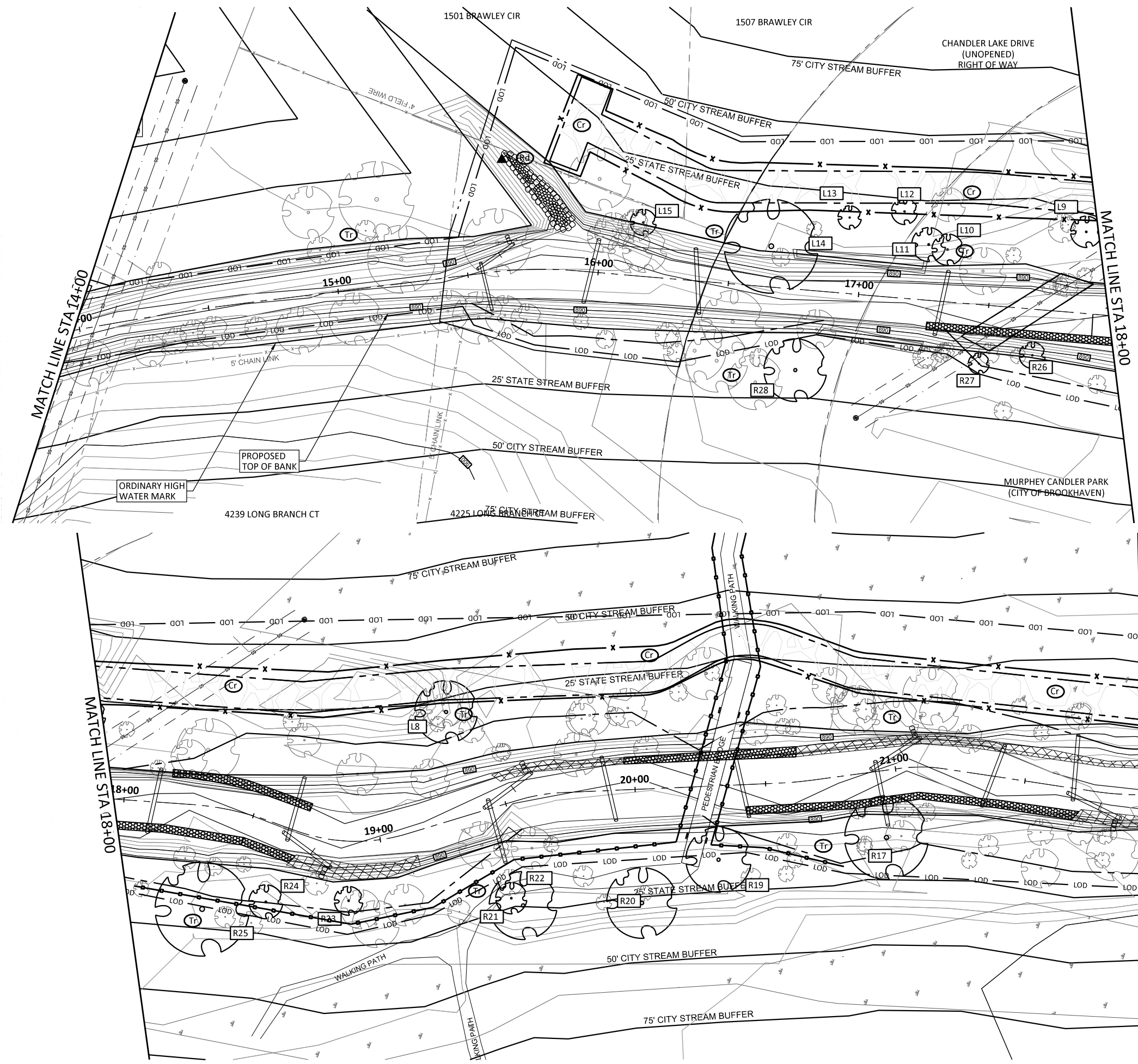
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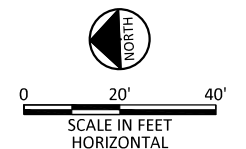
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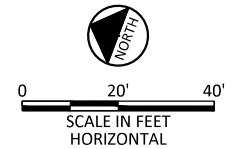


NOTES:

- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
- ALL TREES ON THE SITE GREATER THAN 6" SHALL BE PROTECTED USING TREE PROTECTION FENCING.
- INSTALL EROSION CONTROL MATS ON ALL SLOPES STEEPER THAN 2.5:1 OR GREATER THAN 10 FEET IN HEIGHT IN AREAS OF CONCENTRATED FLOW.
- MATERIAL STORAGE OR CONSTRUCTION LAYOUT CAN TAKE PLACE IN THE LOCATION OF THE EXISTING SANITARY SEWER EASEMENT. MATERIAL PILES SHALL BE SURROUNDED BY SILT FENCING AND COVERED AT END OF DAY AND WHEN ACCESS IS NOT ACTIVELY NEEDED.
- A TURBIDITY CURTAIN SHALL BE USED DOWNSTREAM OF ACTIVE CHANNEL DISTURBING ACTIVITY, PER GDOT DETAIL D-51. IT CAN BE MOVED AS CONSTRUCTION SEQUENCING WARRANTS.
- CONTRACTOR SHALL HAVE A PLAN TO MAINTAIN PEDESTRIAN ACCESS THROUGH THE EXISTING WALKING PATH AND SHALL COORDINATE WITH THE CITY AND ENGINEER.
- WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
- HAUL RD SHALL BE CONSTRUCTED PER THE GSWCC REQUIREMENTS FOR CONSTRUCTION ROAD STABILIZATION.



- LOD LIMITS OF DISTURBANCE
- Ds1 DISTURBED AREA - MULCH
- ES EROSION CONTROL MATS (SEE NOTE 3)
- SILT FENCE - TYPE S
- CONSTRUCTION SAFETY FENCE
- Rd ROCK FILTER DAM
- Tr TREE PROTECTION (SEE NOTE 2)
- Co CONSTRUCTION EXIT
- Tc TURBIDITY CURTAIN (SEE NOTE 5)
- Specimen Trees (DO NOT REMOVE WITHOUT ENGINEER APPROVAL)
- EXISTING WETLAND



24 HOUR CONTACT:  
 TOM ROBERTS  
 NAME  
 404-637-0500  
 PHONE  
 TOM.ROBERTS@BROOKHAVENGA.GOV  
 EMAIL



GSWCC  
 RYAN C. ELLENA  
 Level II Certified Design Professional  
 Certification Number: 0000081592  
 Issued: 10/01/2020 Expires: 10/01/2023

100% SUBMITTAL  
 NOT FOR CONSTRUCTION

Freese & Nichols, Inc.  
 Georgia Registered Engineering Firm PEF-004433  
 License No. 27029  
 RYAN C. ELLENA  
 PROFESSIONAL ENGINEER  
 License No. 12120  
 2/11/2012

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 360 Interstate North Parkway,  
 Atlanta, GA 30339  
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 Web: www.freese.com

CITY OF BROOKHAVEN  
 N. FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE  
 STA 14+00 TO STA 22+00 - PHASE I & II  
 E&S

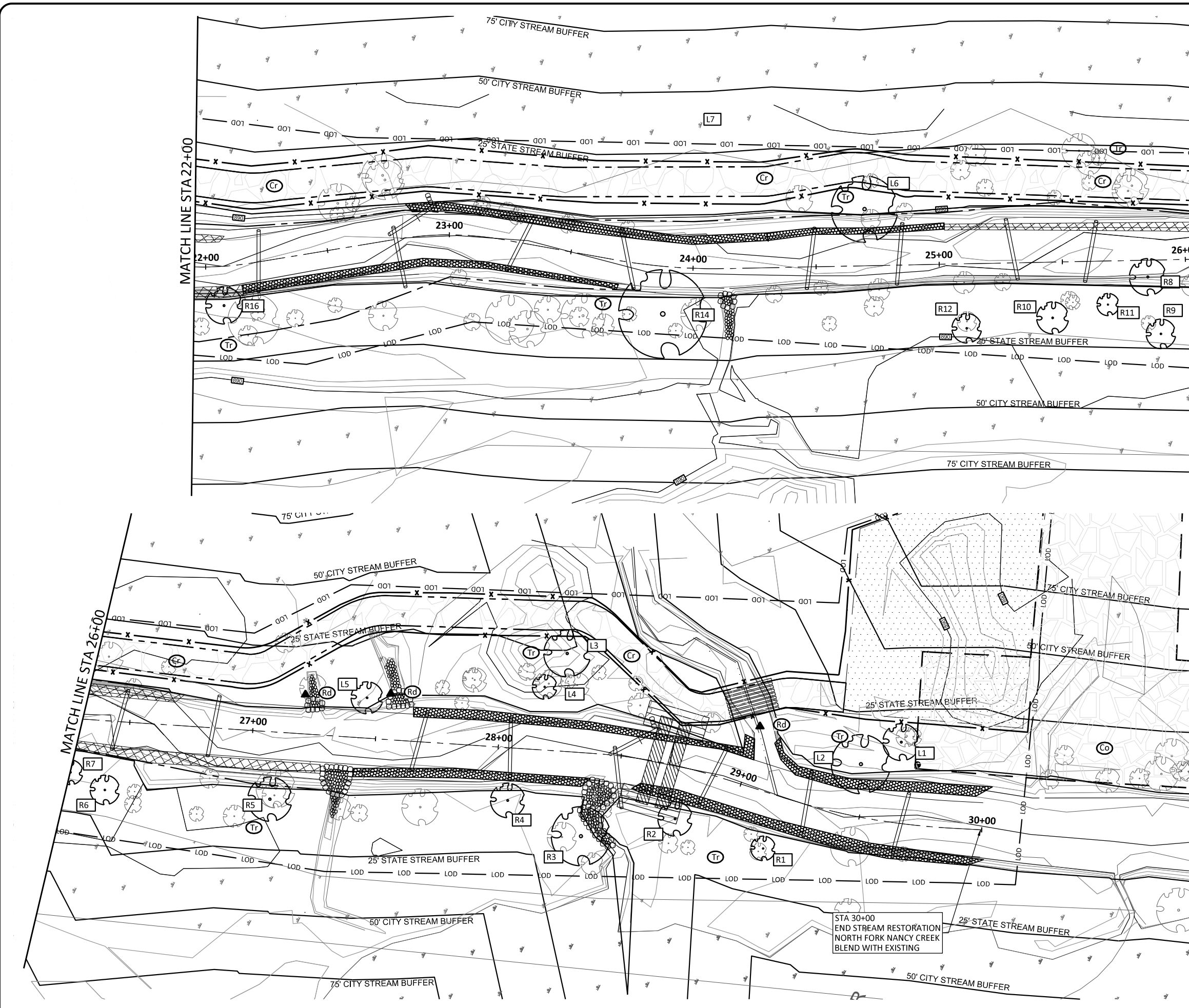
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SHEET ES-4

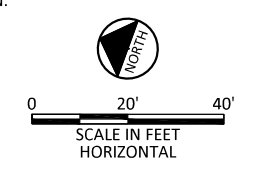
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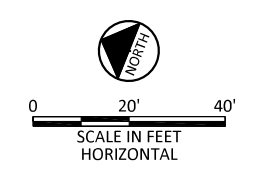


**NOTES:**

1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
2. ALL TREES ON THE SITE GREATER THAN 6" SHALL BE PROTECTED USING TREE PROTECTION FENCING.
3. INSTALL EROSION CONTROL MATS ON ALL SLOPES STEEPER THAN 2.5:1 OR GREATER THAN 10 FEET IN HEIGHT IN AREAS OF CONCENTRATED FLOW.
4. MATERIAL STORAGE OR CONSTRUCTION LAYOUT CAN TAKE PLACE IN THE LOCATION OF THE EXISTING SANITARY SEWER EASEMENT. MATERIAL PILES SHALL BE SURROUNDED BY SILT FENCING AND COVERED WHEN ACCESS IS NOT ACTIVELY NEEDED. AND OVERNIGHT.
5. A TURBIDITY CURTAIN SHALL BE USED DOWNSTREAM OF ACTIVE CHANNEL DISTURBING ACTIVITY, PER GDOT DETAIL D-51. IT CAN BE MOVED AS CONSTRUCTION SEQUENCING WARRANTS.
6. WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
7. HAUL RD SHALL BE CONSTRUCTED PER THE GSWCC REQUIREMENTS FOR CONSTRUCTION ROAD STABILIZATION.



- LOD — LIMITS OF DISTURBANCE
- Ds1 DISTURBED AREA - MULCH
- SS EROSION CONTROL MATS (SEE NOTE 3)
- · — SILT FENCE - TYPE S
- CONSTRUCTION SAFETY FENCE
- Rd ROCK FILTER DAM
- Tr TREE PROTECTION (SEE NOTE 2)
- Co CONSTRUCTION EXIT
- Tc TURBIDITY CURTAIN (SEE NOTE 5)
- SPECIMEN TREES (DO NOT REMOVE WITHOUT ENGINEER APPROVAL)
- EXISTING WETLAND



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**GSWCC**  
 RYAN C. ELLENA  
 Level II Certified Design Professional  
 CERTIFICATION NUMBER 0000081592  
 ISSUED 10/01/2020 EXPIRES 10/01/2023



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 State of Georgia  
 2/11/2012

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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE**  
 E&SC  
**STA 22+00 TO END - PHASE I & II**

REV. NO.	DATE	BY	ISSUE	DESCRIPTION
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2		JPS	JPS	DRAWN
3		RCE	RCE	CHECKED
4				REVISED

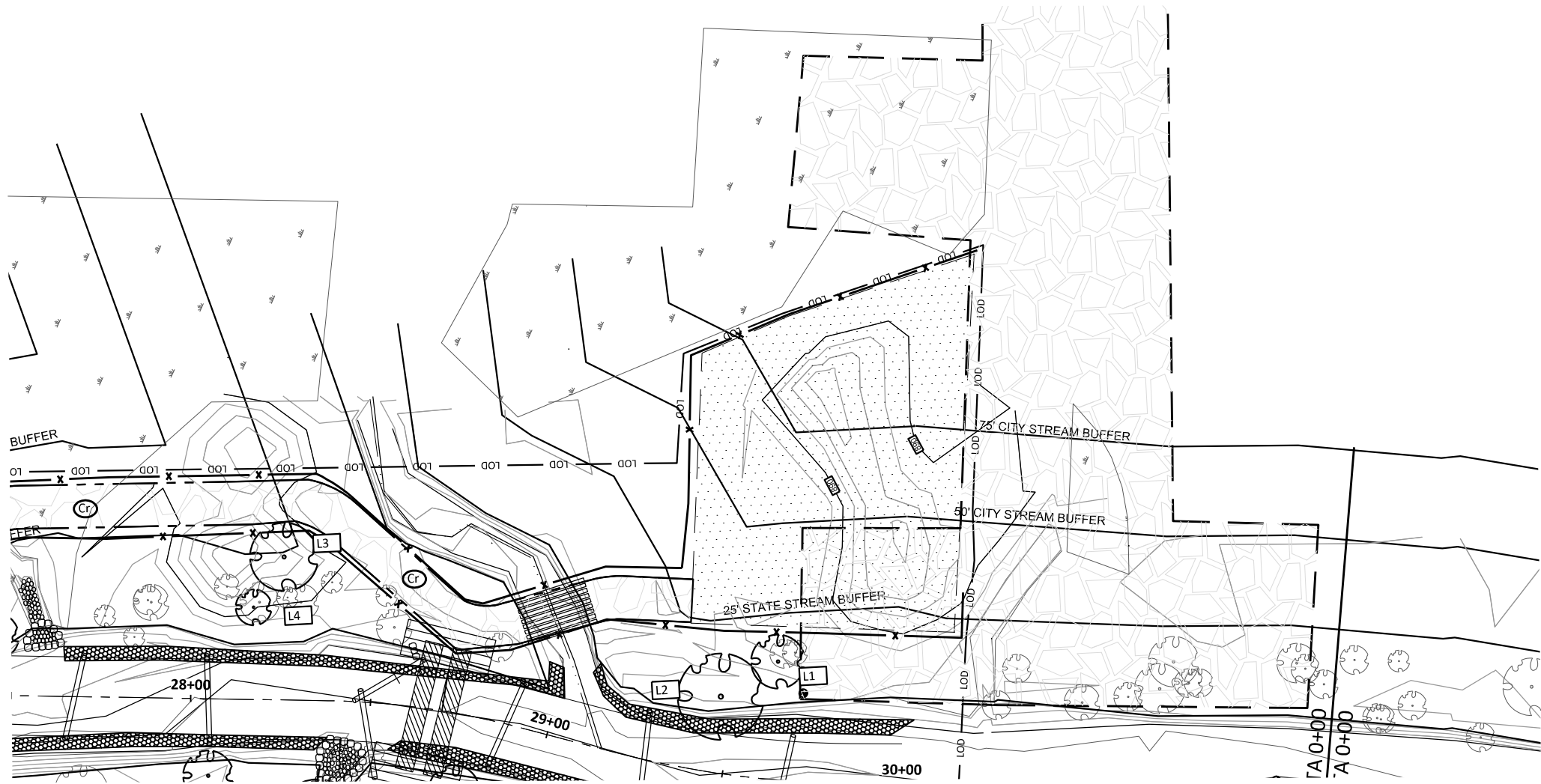
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SHEET **ES-5**  
 SEQ. 25

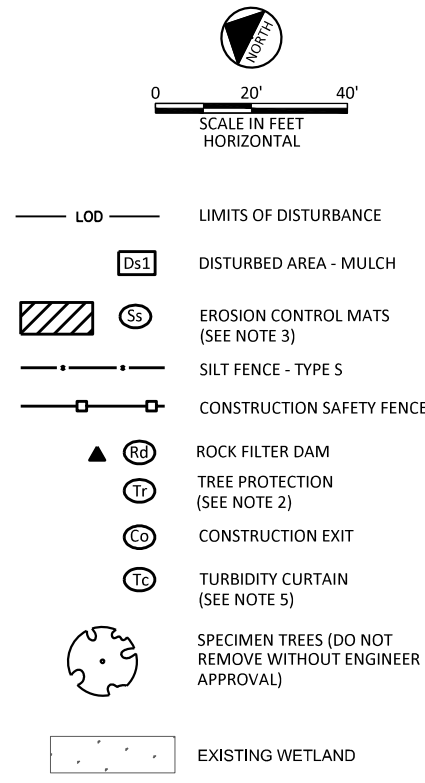


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Plot Date: 1/31/2022 1:09 PM Plot By: 02875 Filename: N:\WTU\Drawings\ESC-P-SHTS1.dwg



- NOTES:
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
  2. ALL TREES ON THE SITE GREATER THAN 6" SHALL BE PROTECTED USING TREE PROTECTION FENCING.
  3. INSTALL EROSION CONTROL MATS ON ALL SLOPES STEEPER THAN 2.5:1 OR GREATER THAN 10 FEET IN HEIGHT IN AREAS OF CONCENTRATED FLOW.
  4. MATERIAL STORAGE OR CONSTRUCTION LAYOUT CAN TAKE PLACE IN THE LOCATION OF THE EXISTING SANITARY SEWER EASEMENT. MATERIAL PILES SHALL BE SURROUNDED BY SILT FENCING AND COVERED WHEN ACCESS IS NOT ACTIVELY NEEDED, AND OVERNIGHT.
  5. A TURBIDITY CURTAIN SHALL BE USED DOWNSTREAM OF ACTIVE CHANNEL DISTURBING ACTIVITY, PER GDOT DETAIL D-51. IT CAN BE MOVED AS CONSTRUCTION SEQUENCING WARRANTS.
  6. WETLANDS TO BE RESTORED WITH NATIVE PLANTINGS AND ANY TEMPORARY FILLS REMOVED TO RE-ESTABLISH WETLAND ELEVATIONS TO PRE-CONSTRUCTION CONTOURS, SEE PLANTING PLAN FOR MORE DETAILS.
  7. HAUL RD SHALL BE CONSTRUCTED PER THE GSWCC REQUIREMENTS FOR CONSTRUCTION ROAD STABILIZATION.



24 HOUR CONTACT:  
 TOM ROBERTS  
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 404-637-0500  
 PHONE  
 TOM.ROBERTS@BROOKHAVENGA.GOV  
 EMAIL



**GSWCC**  
 RYAN C. ELLENA  
 Level II Certified Design Professional  
 Certification Number: 0000081592  
 Issued: 10/01/2020 Expires: 10/01/2023

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 Since 1979

2/1/2012

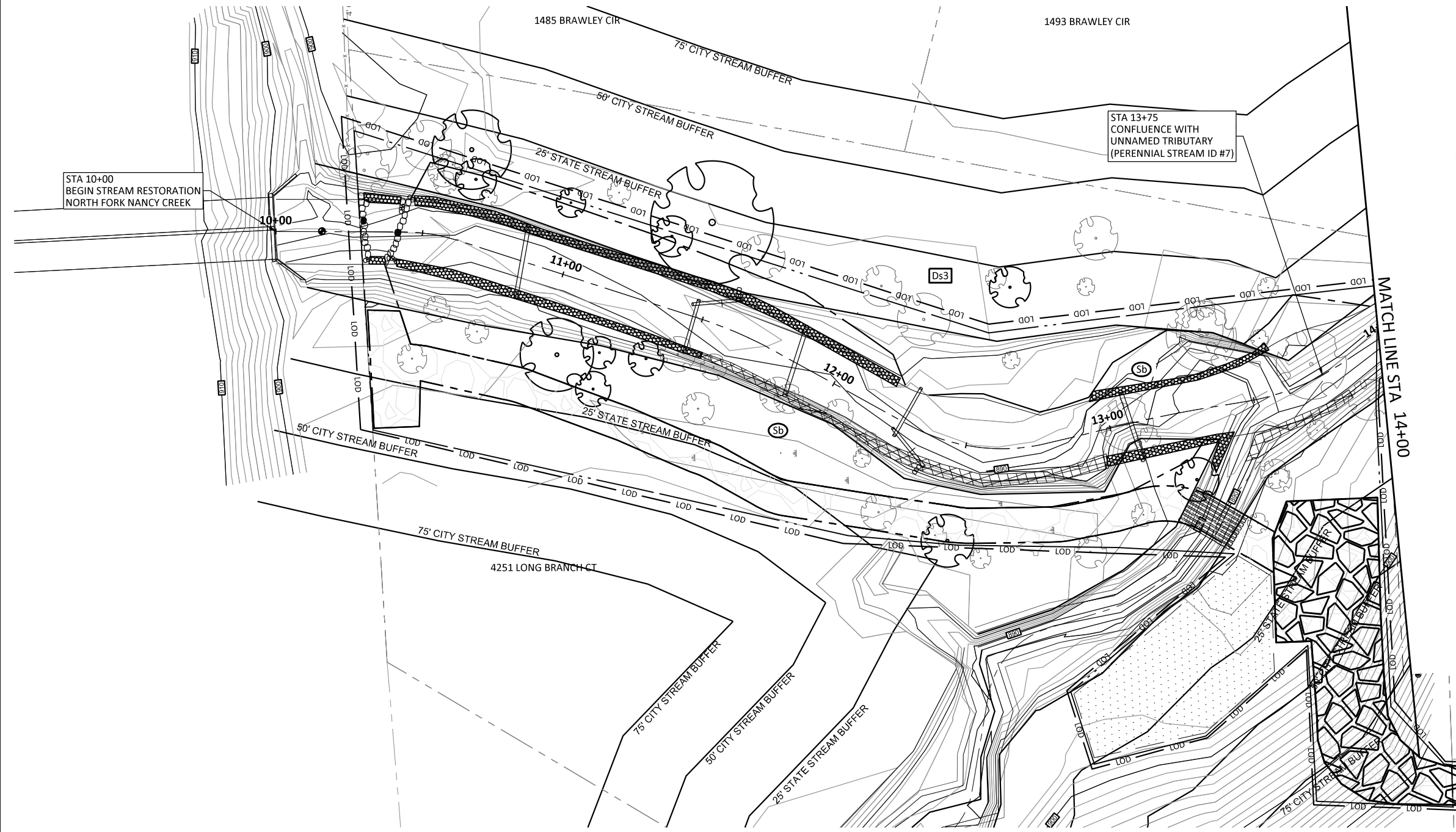
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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE**  
 E&S  
**DS STAGE & STOCK PILE AREA - PHASE I & II**

REV. NO.	DATE	BY	ISSUE
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VERIFY SCALE	Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.		
SHEET	ES-6		
SEQ.	##		

PER. JOB NO.	BGA20127
DATE	06/17/2021
DESIGNED	JLU
DRAWN	JPS
REVISION	###
CHECKED	RCE
FILE NAME	ESC-P-SHTS1.dwg

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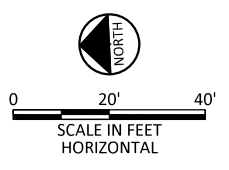


STA 13+75  
 CONFLUENCE WITH  
 UNNAMED TRIBUTARY  
 (PERENNIAL STREAM ID #7)

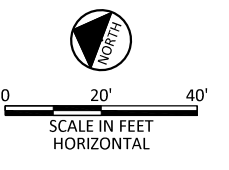
STA 10+00  
 BEGIN STREAM RESTORATION  
 NORTH FORK NANCY CREEK

**NOTES:**

- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.



- LOD — LIMITS OF DISTURBANCE
- [Ds3] DISTURBED AREA - PERM SEED  
\*SEE PLANTING MIX DETAILS
- [Sb] STREAMBANK STABILIZATION (PERM VEGETATION)  
\*SEE PLANTING DETAILS
- [Ds4] DISTURBED AREA - PERM SOD



24 HOUR CONTACT:  
 TOM ROBERTS  
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 404-637-0500  
 PHONE  
 TOM.ROBERTS@BROOKHAVENGA.GOV  
 EMAIL



Know what's below.  
 Call before you dig.

**GSWCC**  
 RYAN C. ELLENA  
 Level II Certified Design Professional  
 CERTIFICATION NUMBER 0000081592  
 ISSUED 10/01/2020 EXPIRES 10/01/2023

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 NOT FOR CONSTRUCTION

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 Since 1979

2/11/2012

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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHY CANDLER LAKE**  
 E&S  
**START TO STA 14+00 - PHASE III**

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2		RCE	CHECKED
3			REVISED

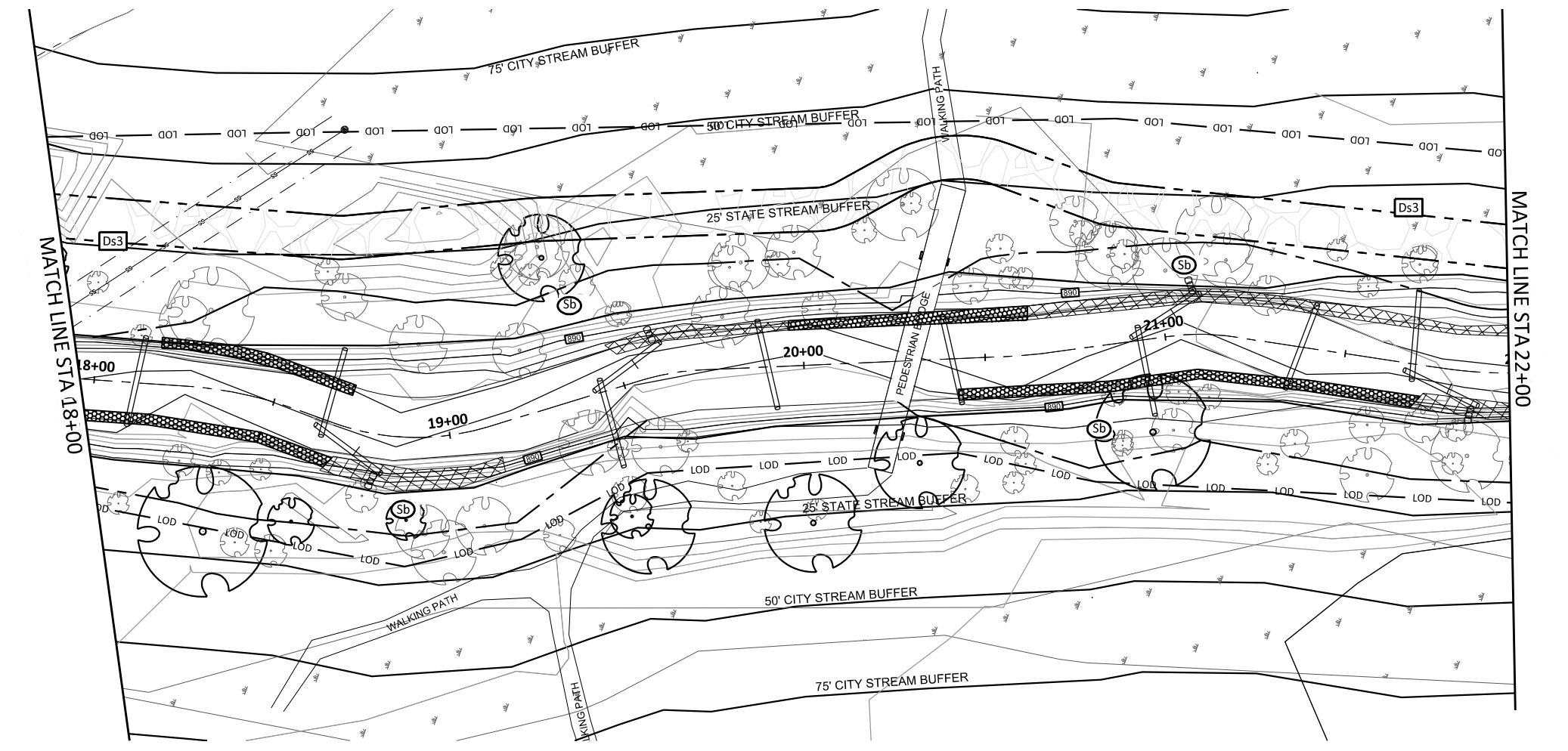
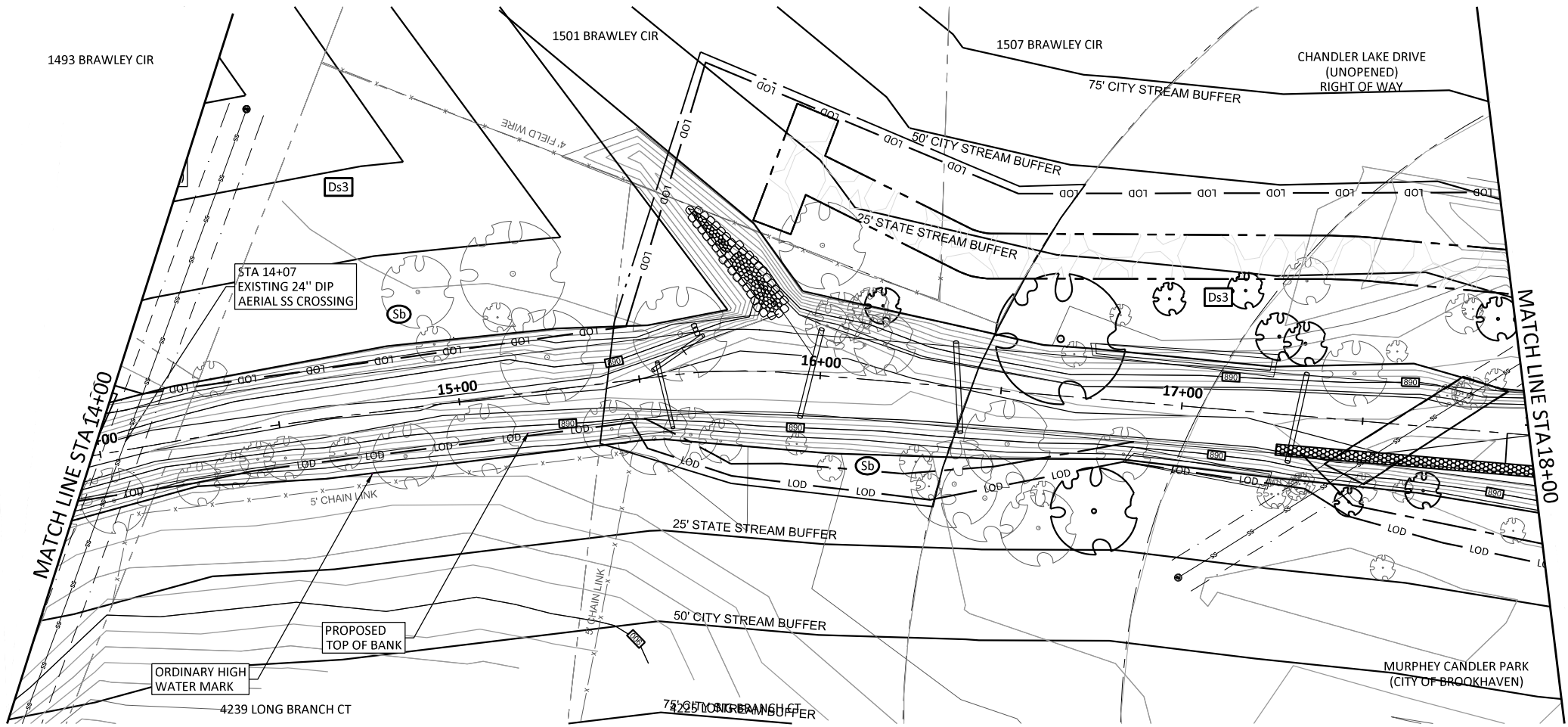
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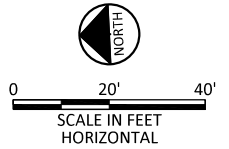
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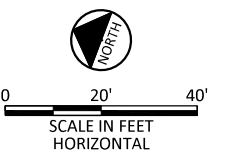
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SHEET	ES-8								
SEQ.	##								



NOTES:  
1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.



- LOD — LIMITS OF DISTURBANCE
- [Ds3] DISTURBED AREA - PERM SEED  
\*SEE PLANTING MIX DETAILS
- [Sb] STREAMBANK STABILIZATION (PERM VEGETATION)  
\*SEE PLANTING DETAILS
- [Ds4] DISTURBED AREA - PERM SOD



24 HOUR CONTACT:  
TOM ROBERTS  
NAME  
404-637-0500  
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TOM.ROBERTS@BROOKHAVENGA.GOV  
EMAIL

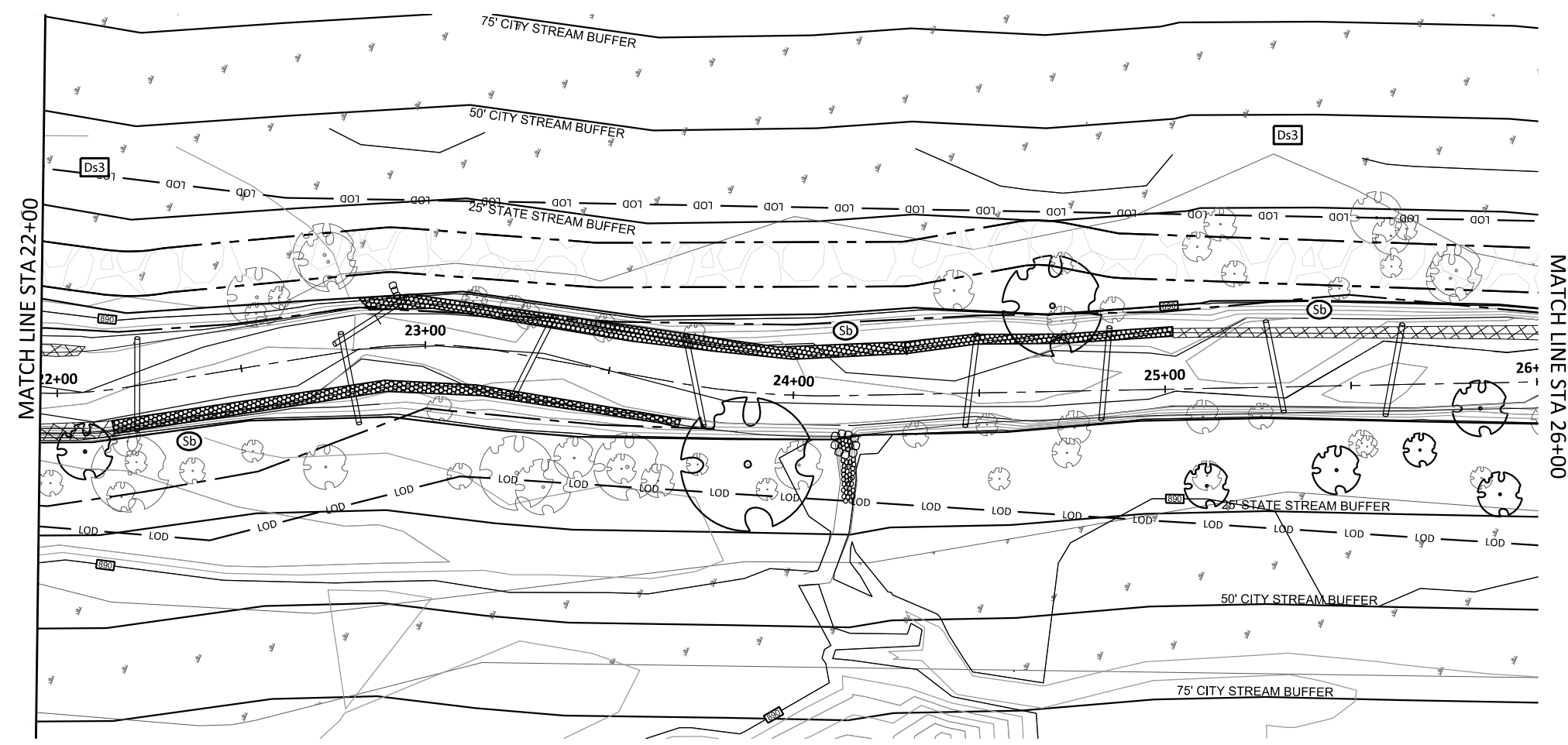


**GSWCC**  
RYAN C. ELLENA  
Level II Certified Design Professional  
CERTIFICATION NUMBER 0000081592  
ISSUED 10/01/2020 EXPIRES 10/01/2023

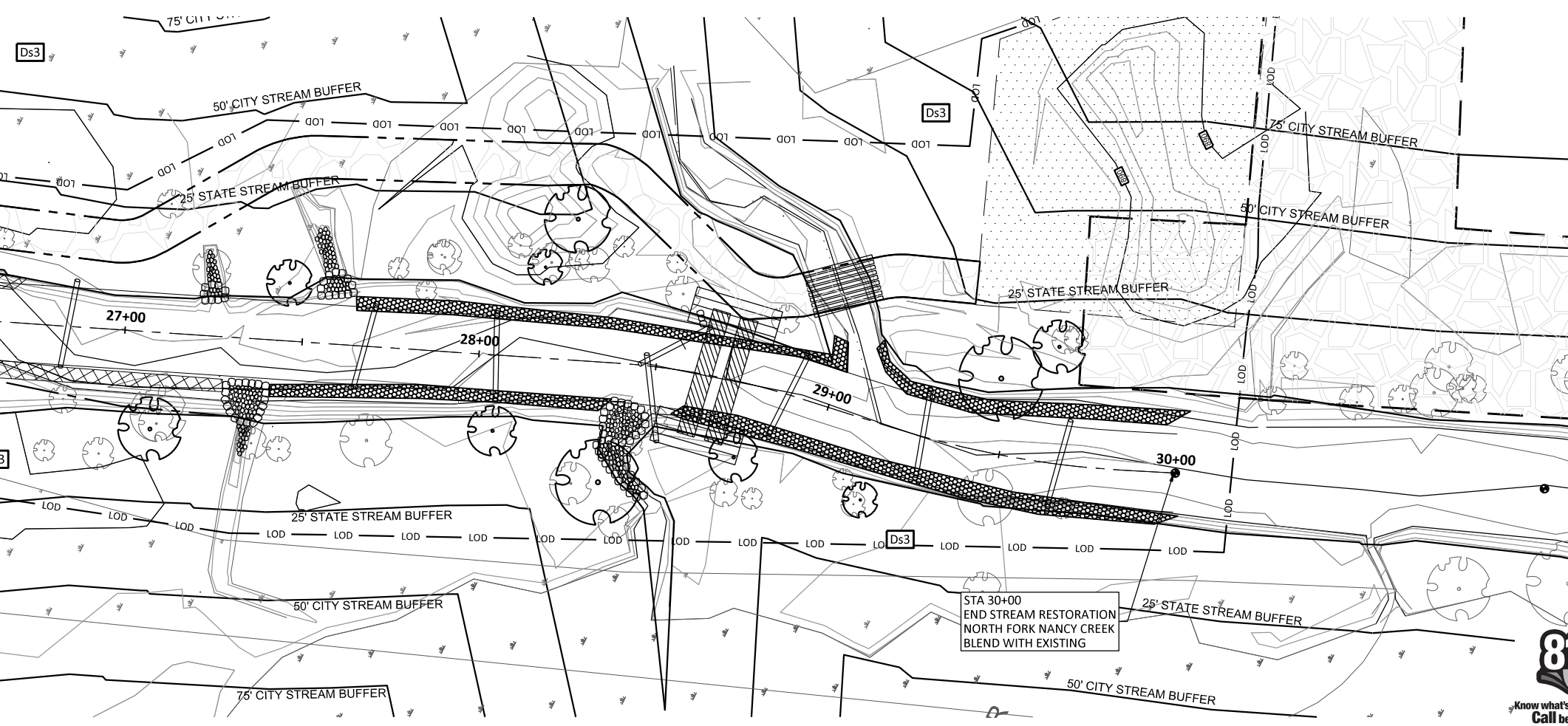
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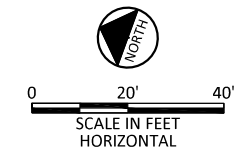


MATCH LINE STA 26+00

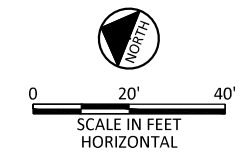


MATCH LINE STA 26+00

- NOTES:**
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.



- LOD — LIMITS OF DISTURBANCE
- Ds3 DISTURBED AREA - PERM SEED  
\*SEE PLANTING MIX DETAILS
- Sb STREAMBANK STABILIZATION (PERM VEGETATION)  
\*SEE PLANTING DETAILS
- Ds4 DISTURBED AREA - PERM SOD



24 HOUR CONTACT:  
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 EMAIL

**GSWCC**  
 RYAN C. ELLENA  
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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE**  
 E&S  
**STA 22+00 TO END - PHASE III**

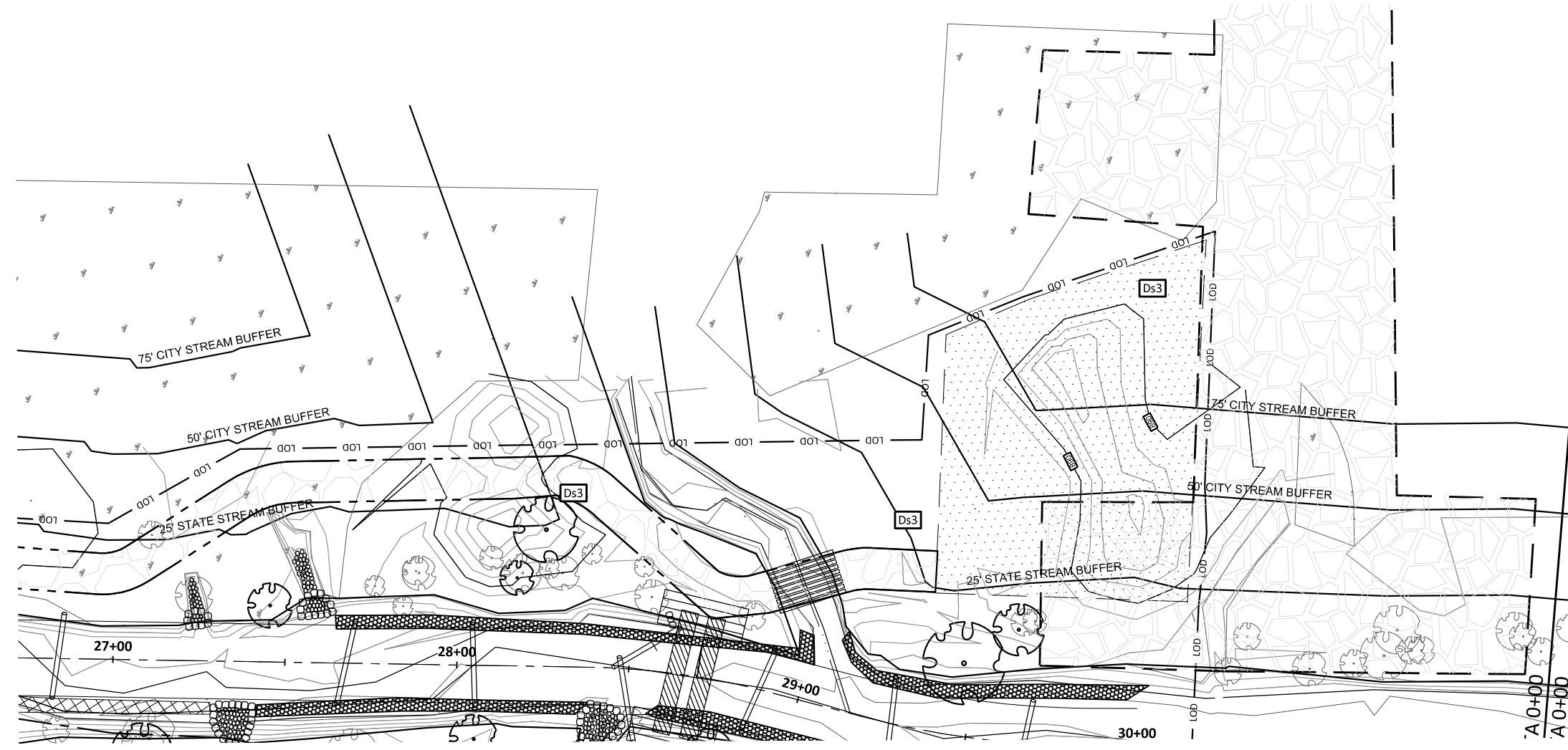
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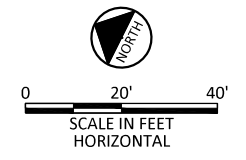
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SEQ. 29

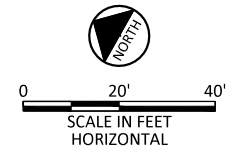
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NOTES:  
 1. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.



- LOD — LIMITS OF DISTURBANCE
- Ds3 DISTURBED AREA - PERM SEED  
\*SEE PLANTING MIX DETAILS
- Sb STREAMBANK STABILIZATION (PERM VEGETATION)  
\*SEE PLANTING DETAILS
- Ds4 DISTURBED AREA - PERM SOD



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 2/11/2012

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CITY OF BROOKHAVEN  
**N. FORK NANCY CREEK STREAMBANK RESTORATION  
 FROM I-285 TO MURPHEY CANDLER LAKE**  
 E&SC  
**DS STAGE & STOCKPILE AREA - PHASE III**

NO.	ISSUE	DATE	BY	FILE NAME
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		VERIFIED ###		

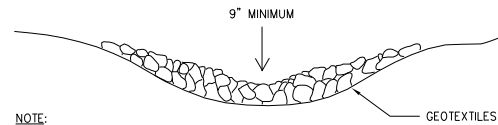
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VERIFY SCALE 1

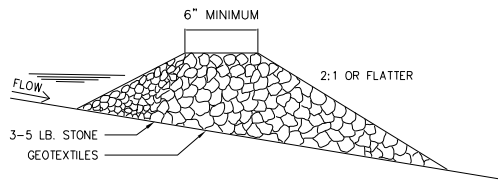
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**"Rd" ROCK FILTER DAM**



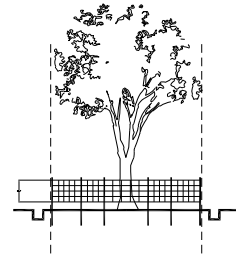
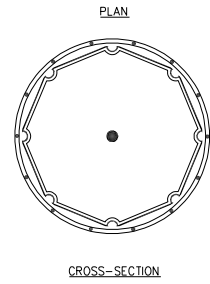
NOTE:  
ROCK FILTER DAM IS TO BE CLEANED  
OUT WHEN VOLUME BECOMES HALF FULL.



NOTE:  
ROCK SIZE DETERMINED ACCORDING TO  
SPECIFICATIONS SET FORTH IN APPENDIX C.

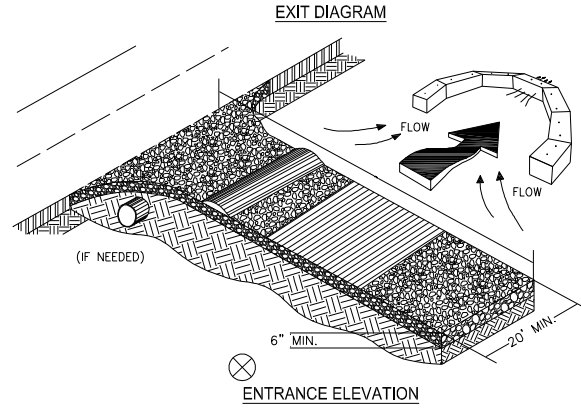
**"Tr" TREE PROTECTION**

**"SNOW" FENCE**



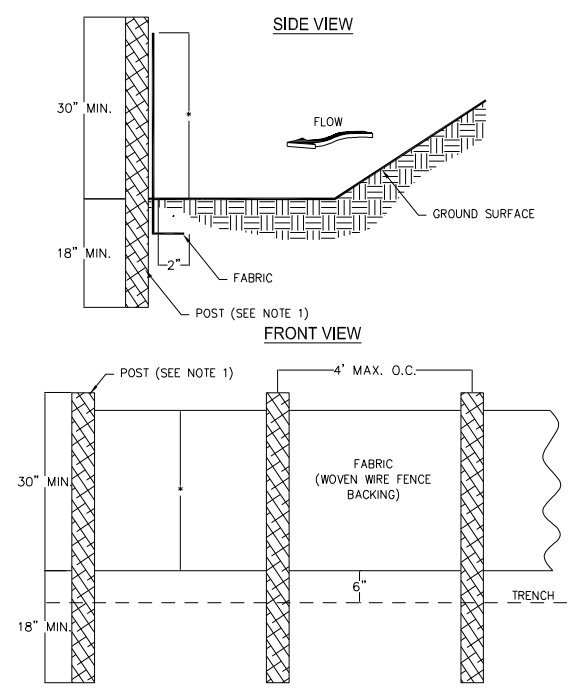
- NOTES:
1. USE TRENCHER (I.E. DITCH WHICH) TO CUT A 4"-5" W X 18" D TRENCH ALONG DRIP LINE (LIMIT OF CLEARING) AND BACKFILL WITH SAND AND LIGHTLY COMPACT.
  2. SPACE STAKES AT INTERVALS SUFFICIENT TO MAINTAIN ALL FENCING OUT OF DRIP LINE OR AS SHOWN BY ENGINEER (SET STAKES NO GREATER THAN 6 FEET ON CENTER-REBAR IS NOT TO BE USED FOR STAKES).
  3. MAINTAIN FENCE BY REPAIRING AND/OR REPLACING DAMAGED FENCE. DO NOT REMOVE FENCING PRIOR TO LANDSCAPING OPERATIONS.
  4. DO NOT STORE OR STACK MATERIALS, EQUIPMENT, OR VEHICLES WITHIN FENCED AREA.
  5. FENCE SHALL BE ORANGE VINYL "SNOW FENCE" 4' HIGH MINIMUM.

**CRUSHED STONE CONSTRUCTION EXIT**



- NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
  2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
  3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
  4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6"
  5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
  6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
  7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
  8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
  9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
  10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

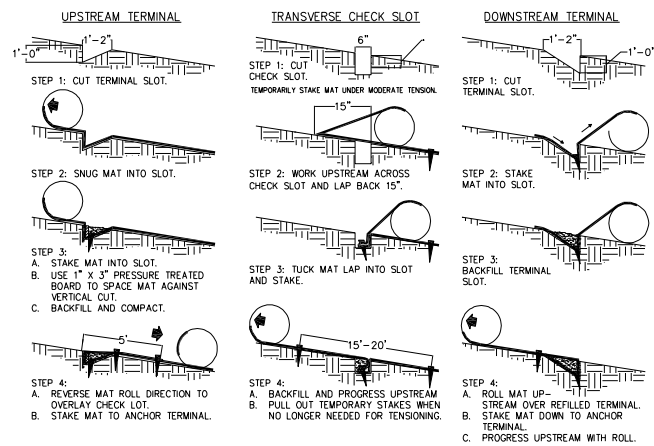
**SILT FENCE - TYPE S**



- NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
  2. HEIGHT (\*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

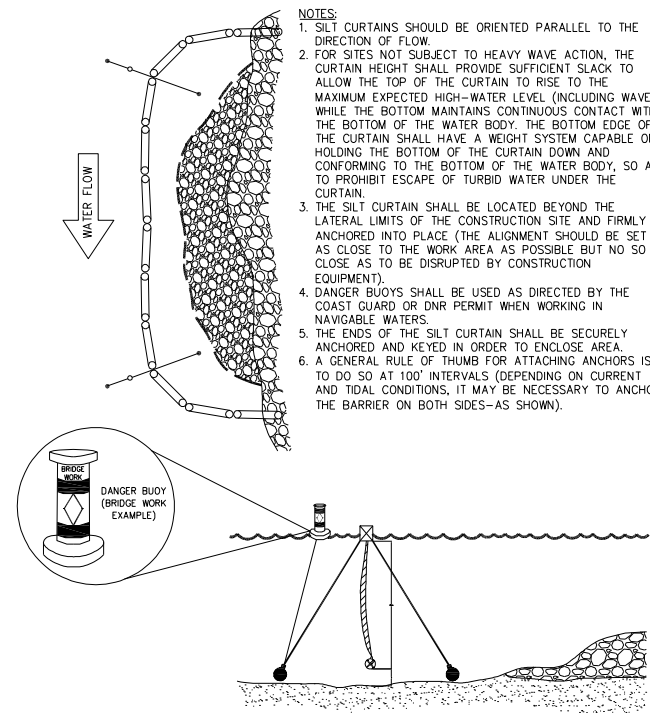
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**BLANKET AND MATTING CROSS-SECTIONS**

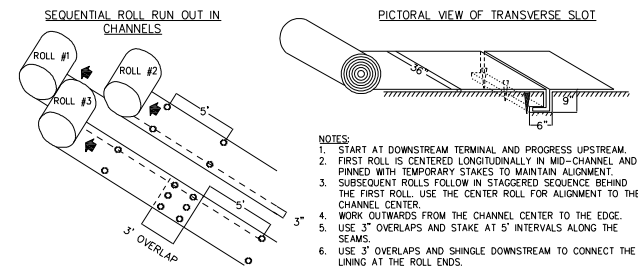


**"Tc" TURBIDITY CURTAIN SYSTEM**

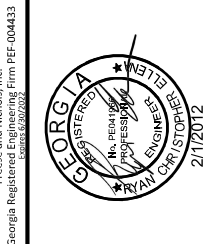
**ANCHOR SYSTEM AND LAYOUT DETAILS**



- NOTES:
1. SILT CURTAINS SHOULD BE ORIENTED PARALLEL TO THE DIRECTION OF FLOW.
  2. FOR SITES NOT SUBJECT TO HEAVY WAVE ACTION, THE CURTAIN HEIGHT SHALL PROVIDE SUFFICIENT SLACK TO ALLOW THE TOP OF THE CURTAIN TO RISE TO THE MAXIMUM EXPECTED HIGH-WATER LEVEL (INCLUDING WAVES) WHILE THE BOTTOM MAINTAINS CONTINUOUS CONTACT WITH THE BOTTOM OF THE WATER BODY. THE BOTTOM EDGE OF THE CURTAIN SHALL HAVE A WEIGHT SYSTEM CAPABLE OF HOLDING THE BOTTOM OF THE CURTAIN DOWN AND CONFORMING TO THE BOTTOM OF THE WATER BODY, SO AS TO PROHIBIT ESCAPE OF TURBID WATER UNDER THE CURTAIN.
  3. THE SILT CURTAIN SHALL BE LOCATED BEYOND THE LATERAL LIMITS OF THE CONSTRUCTION SITE AND FIRMLY ANCHORED INTO PLACE (THE ALIGNMENT SHOULD BE SET AS CLOSE TO THE WORK AREA AS POSSIBLE BUT NO SO CLOSE AS TO BE DISRUPTED BY CONSTRUCTION EQUIPMENT).
  4. DANGER BUOYS SHALL BE USED AS DIRECTED BY THE COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERS.
  5. THE ENDS OF THE SILT CURTAIN SHALL BE SECURELY ANCHORED AND KEYED IN ORDER TO ENCLOSE AREA.
  6. A GENERAL RULE OF THUMB FOR ATTACHING ANCHORS IS TO DO SO AT 100' INTERVALS (DEPENDING ON CURRENT AND TIDAL CONDITIONS, IT MAY BE NECESSARY TO ANCHOR THE BARRIER ON BOTH SIDES-AS SHOWN).



- NOTES:
1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
  2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID-CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
  3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND THE FIRST ROLL. USE THE CENTER ROLL FOR ALIGNMENT TO THE CHANNEL CENTER.
  4. WORK OUTWARDS FROM THE CHANNEL CENTER TO THE EDGE.
  5. USE 3" OVERLAPS AND STAKE AT 5' INTERVALS ALONG THE SEAMS.
  6. USE 3" OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT THE LINING AT THE ROLL ENDS.



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CITY OF BROOKHAVEN  
**N.FORK NANCY CREEK STREAMBANK RESTORATION**  
**FROM I-285 TO MURPHEY CANDLER LAKE**  
E&SC  
ESC DETAILS



24 HOUR CONTACT:  
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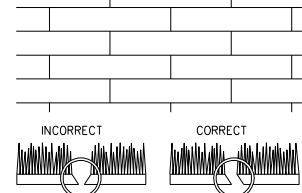
**GSWCC** Georgia Soil and Water Conservation Commission  
**RYAN C. ELENA**  
Level II Certified Design Professional  
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"Ds4" SOD MAINTENANCE AND INSTALLATION

SOD LAYOUT AND PREPARATION



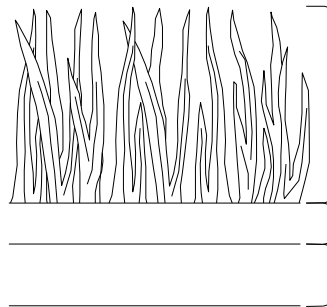
LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING: ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

DIRECTIONS FOR INITIAL MAINTENANCE

- Step 1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.
- Step 2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.
- Step 3. MOW WHEN THE SOD IS ESTABLISHED -- IN 2-3 WEEKS. SET THE MOWER HIGH (2"-3").

APPEARANCE OF GOOD SOD



SHOOTS OR GRASS BLADES: GRASS SHOULD BE GREEN AND HEALTHY, MOWED AT A 2"-3" CUTTING HEIGHT.  
THATCH: GRASS CLIPPINGS AND DEAD LEAVES (UP TO 1/2" THICK).  
ROOT ZONE: SOIL AND ROOTS. SHOULD BE 1/2"-3/4" THICK WITH DENSE ROOT MAT FOR STRENGTH.

FERTILIZER REQUIREMENTS FOR SOD

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. COOL SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 10-10-10	1500 LBS/AC 1000 LBS/AC 400 LBS/AC	50-100 LBS/AC 1/2/ - 30
2. COOL SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500 LBS/AC 1000 LBS/AC 400 LBS/AC	0-50 LBS/AC 1/ -
3. GROUND COVERS	FIRST SECOND MAINTENANCE	10-10-10 10-10-10 10-10-10	1300 LBS/AC 1300 LBS/AC 1100 LBS/AC	- - -
4. PINE SEEDLINGS	FIRST	20-10-5	ONE 21-GRAM PELLETT PER SEEDLING PLACED IN THE CLOSING HOLE	-
5. SHRUBS LESPEDEZA	FIRST MAINTENANCE	0-10-10 0-10-10	700 LBS/AC 700 LBS/AC	-
6. TEMPORARY COVER CROPS SEEDS ALONE	FIRST	10-10-10	500 LBS/AC	30 LBS/AC 5/
7. WARM SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 LBS/AC 800 LBS/AC 400 LBS/AC	50-100 LBS/AC 2/6/ 50-100 LBS/AC 2/ 30 LBS/AC
8. WARM SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500 LBS/AC 1000 LBS/AC 400 LBS/AC	50 LBS/AC 6/

"Ds3" - DISTURBED AREA STABILIZATION (WITH PERMANENT SEEDING)

- SCARIFY, PIT OR RENCH SEALED OR CRUSTED SOIL.
- APPLY TALL FESCUE SEED AT A RATE OF 1.1 LBS PER 1000 SQ.FT WHEN PLANTED ON ITS OWN. APPLY AT A RATE OF 30 LBS PER 1000 SQ. FT. WHEN PLANTED WITH OTHER PERENNIALS.
- FIRST PLANTING YEAR FERTILIZER APPLICATION FOR TALL FESCUE SHOULD BE USING 6-12-12 (N-P-K) AT A RATE OF 1500 LBS/ACRE. N TOP DRESSING RATE SHOULD BE 50-100 LBS/ACRE. CONTRACTOR MAY ALTERNATIVELY FERTILIZE BASED ON SOIL TEST RESULTS.
- APPLY AGRICULTURAL LIME AS PRESCRIBED BY SOIL TESTS OR AT A RATE OF 1 TO 2 TONS PER ACRE. APPLY SEED BY HAND, CYCLONE SEEDER, DRILL OR HYDRO-SEEDER. SEED PLANTED WITH A DRILL SHOULD BE PLANTED 1/4" - 1/2" DEEP.
- STRAW OR HAY MULCH SHALL BE APPLIED AT A RATE OF 2 OR 2.5 TONS PER ACRE.
- IRRIGATION SHOULD BE USED TO SUPPLEMENT RAINFALL, BUT NOT TO THE EXTENT TO CAUSE EROSION.

"Ds1" - DISTURBED AREA STABILIZATION (WITH MULCH ONLY)

DEFINITION

APPLYING PLANT RESIDUES OR OTHER SUITABLE MATERIALS PRODUCED ON THE SITE IF POSSIBLE, TO THE SOIL SURFACE.

CONDITIONS

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTURBANCE. MULCH CAN BE USED AS A SINGULAR EROSION CONTROL DEVICE FOR UP TO SIX MONTHS, BUT IT SHALL BE APPLIED AT THE APPROPRIATE DEPTH, DEPENDING ON THE MATERIAL USED, ANCHORED, AND HAVE A CONTINUOUS 90% COVER OR GREATER OF THE SOIL SURFACE. MAINTENANCE SHALL BE REQUIRED TO MAINTAIN APPROPRIATE DEPTH AND 90% COVER. TEMPORARY VEGETATION MAY BE EMPLOYED INSTEAD OF MULCH IF THE AREA WILL REMAIN UNDISTURBED FOR LESS THAN SIX MONTHS. IF AN AREA WILL REMAIN UNDISTURBED FOR GREATER THAN SIX MONTHS, PERMANENT VEGETATIVE TECHNIQUES SHALL BE EMPLOYED.

SPECIFICATIONS

MULCHING WITHOUT SEEDING

THIS STANDARD APPLIES TO GRADES OR CLEARED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDANT COVER, BUT CAN BE STABILIZED WITH A MULCH COVER.

SITE PREPARATION:

- GRADE TO PERMIT THE USE OF EQUIPMENT FOR APPLYING AND ANCHORING MULCH.
- INSTALL NEEDED EROSION CONTROL MEASURES AS REQUIRED SUCH AS DIKES, DIVERSIONS, BERMS, TERRACES AND SEDIMENT BARRIERS.
- LOOSEN COMPACT SOIL TO A MINIMUM DEPTH OF 3 INCHES.

MULCHING MATERIALS

SELECT ONE OF THE FOLLOWING MATERIALS AND APPLY AT THE DEPTH INDICATED

- DRY STRAW OR HAY SHALL BE APPLIED AT A DEPTH OF 2 TO 4 INCHES PROVIDING COMPLETE SOIL COVERAGE. ONE ADVANTAGE OF THIS MATERIAL IS EASY APPLICATION.
- WOOD WASTE (CHIPS, SAWDUST OR BARK) SHALL BE APPLIED AT A DEPTH OF 2 TO 3 INCHES. ORGANIC MATERIAL FROM THE CLEARING STAGE OF DEVELOPMENT SHOULD REMAIN ON SITE, BE CHIPPED, AND APPLIED AS MULCH. THIS METHOD OF MULCHING CAN GREATLY REDUCE EROSION CONTROL COSTS.

- CUTBACK ASPHALT (SLOW CURING) SHALL BE APPLIED AT 1200 GALLONS PER ACRE (OR 1/2 GALLON PER SQ. YD.).
- POLYETHYLENE FILM SHALL BE SECURED OVER BANKS OR STOCKPILED SOIL MATERIAL FOR TEMPORARY PROTECTION. THIS MATERIAL CAN BE SALVAGED AND REUSED.

APPLYING MULCH

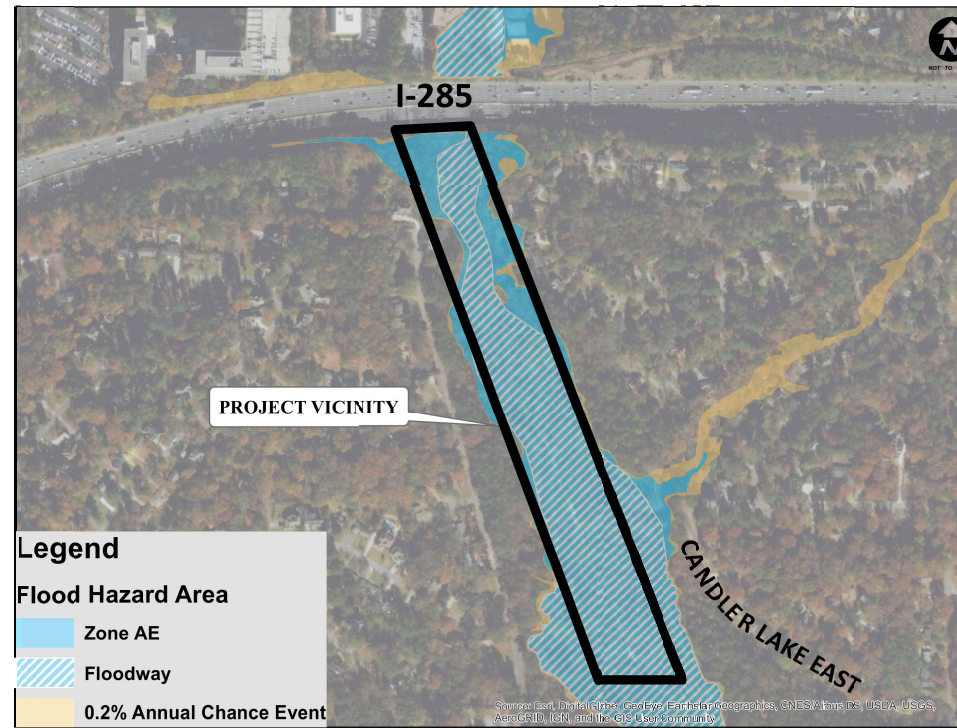
WHEN MULCH IS USED WITHOUT SEEDING, MULCH SHALL BE APPLIED TO PROVIDE FULL COVERAGE OF THE EXPOSED AREA.

- DRY STRAW OR HAY MULCH AND WOOD CHIPS SHALL BE APPLIED UNIFORMLY BY HAND OR BY MECHANICAL EQUIPMENT.
- IF THE AREA WILL EVENTUALLY BE COVERED WITH PERENNIAL VEGETATION, 20-30 POUNDS OF NITROGEN PER ACRE IN ADDITION TO THE NORMAL AMOUNT SHALL BE APPLIED TO OFFSET THE UPTAKE OF NITROGEN CAUSED BY THE DECOMPOSITION OF THE ORGANIC MULCHES.
- CUTBACK ASPHALT SHALL BE APPLIED UNIFORMLY. CARE SHOULD BE TAKEN IN AREAS OF PEDESTRIAN TRAFFIC DUE TO PROBLEMS OF "TRACKING IN" OR DAMAGE TO SHOES, CLOSING, ETC.
- APPLY POLYETHYLENE FILM ON EXPOSED AREAS.

ANCHORING MULCH:

- STRAW OR HAY MULCH CAN BE PRESSED INTO THE SOIL WITH A DISK HARROW WITH THE DISK SET STRAIGHT OR WITH A SPECIAL "PACKER DISK." DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISK SHOULD BE DULL ENOUGH NOT TO CUT THE MULCH BUT TO PRESS IT INTO THE SOIL LEAVING MUCH OF IT IN AN ERECT POSITION. STRAW OR HAY MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION. STRAW OR HAY MULCH SPREAD WITH SPECIAL BLOWER-TYPE EQUIPMENT MAY BE ANCHORED WITH EMULSIFIED ASPHALT (GRADE AE-5 OR SS-1). THE ASPHALT EMULSION SHALL BE SPRAYED ONTO THE MULCH AS IT IS EJECTED FROM THE MACHINE. USE 100 GALLONS OF EMULSIFIED ASPHALT AND 100 GALLONS OF WATER PER TON OF MULCH. TACKIFIERS AND BINDERS CAN BE SUBSTITUTED FOR EMULSIFIED ASPHALT. PLEASE REFER TO SPECIFICATION TB -TACKIFIERS AND BINDERS. PLASTIC MESH OR NETTING WITH MESH NO LARGER THAN ONE INCH BY ONE INCH SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
- NETTING OF THE APPROPRIATE SIZE SHALL BE USED TO ANCHOR WOOD WASTE. OPENINGS OF THE NETTING SHALL NOT BE LARGER THAN THE AVERAGE SIZE OF THE WOOD WASTE CHIPS.
- POLYETHYLENE FILM SHALL BE ANCHOR TRENCHED AT THE TOP AS WELL AS INCREMENTALLY AS NECESSARY.

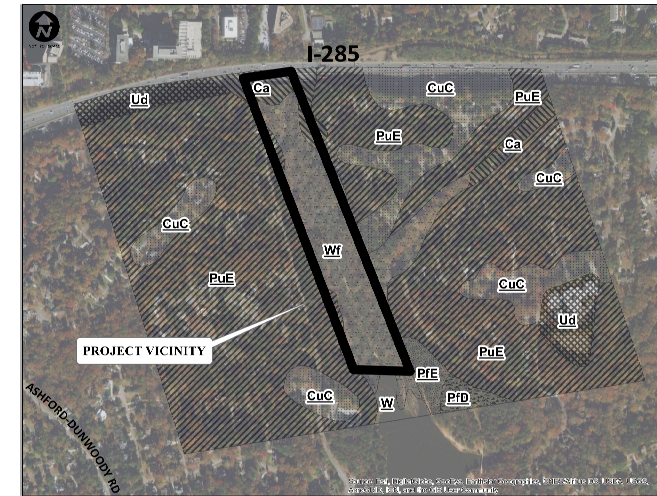
FLOOD HAZARD MAP



Legend  
Flood Hazard Area  
Zone AE  
Floodway  
0.2% Annual Chance Event

FIRM PANEL 13089C0012K  
EFFECTIVE DATE AUGUST 15, 2019

SOILS MAP EXHIBIT "Z"



NOT TO SCALE  
SOILS TABLE "Z"

Map Unit Symbol	Map Unit Name	Rating
Ca	Cartecay silt loam, frequently flooded	A/D
CuC	Cecil-Urban land complex, 2 to 10 percent slopes	B
PfD	Pacolet sandy loam, 10 to 15 percent slopes	B
PfE	Pacolet sandy loam, 15 to 30 percent slopes	B
PuE	Pacolet - Urban Land complex, 15 to 25 percent slopes	B
Wf	Wehadkee silt loam, frequently flooded	B/D
W	Water	-
Ud	Urban Land	-



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CITY OF BROOKHAVEN  
N.FORK NANCY CREEK STREAMBANK RESTORATION  
FROM I-285 TO MURPHEY CANDLER LAKE  
E&SC  
ESC DETAILS

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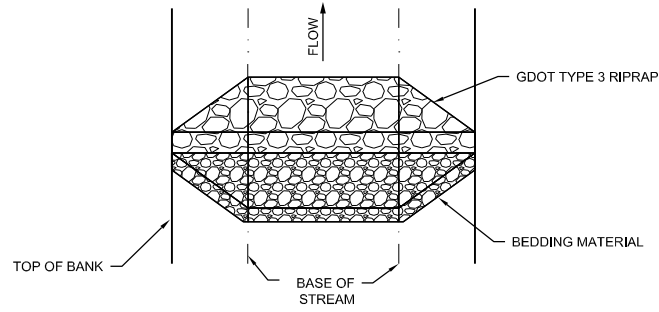
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ISSUED: 10/01/2020 EXPIRES: 10/01/2023

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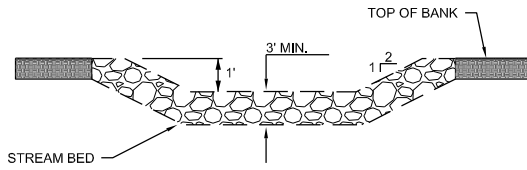
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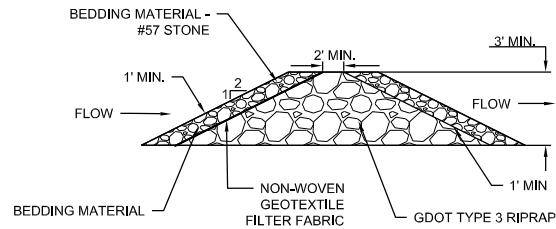
- NOTE:**
1. THE STRUCTURE SHALL BE USED FOR DIVERTING AND PUMPING ONLY. THE STRUCTURE SHALL BE RELOCATED OR REMOVED ONCE PUMPING/DIVERTING IS COMPLETE.
  2. EITHER TYPE OF IMPERVIOUS DIKE (SANDBAG OR STONE) MAY BE USED.



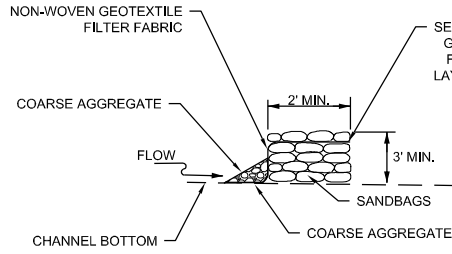
**STONE IMPERVIOUS DIKE  
PLAN VIEW**



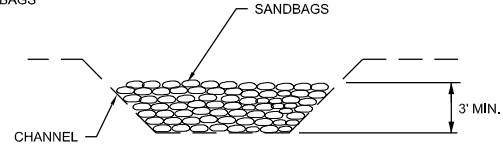
**STONE IMPERVIOUS DIKE  
CROSS SECTION**



**STONE IMPERVIOUS DIKE  
PROFILE**

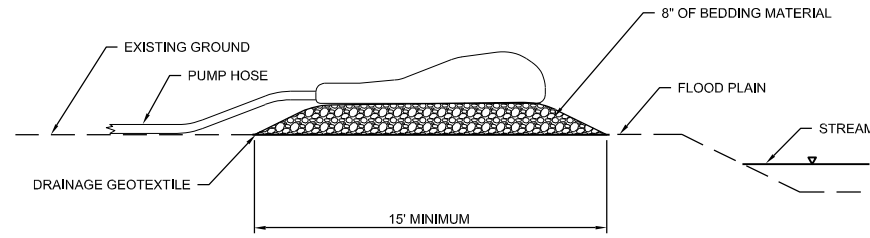


**SANDBAG IMPERVIOUS  
DIKE PROFILE**

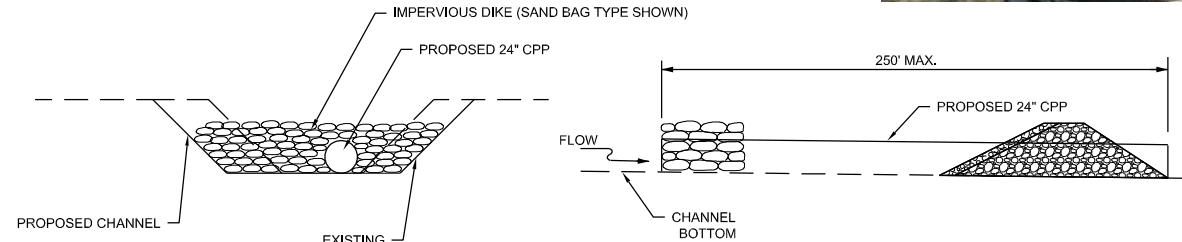


**SANDBAG IMPERVIOUS DIKE  
CROSS SECTION**

**IMPERVIOUS DIKE  
SCALE: NTS**



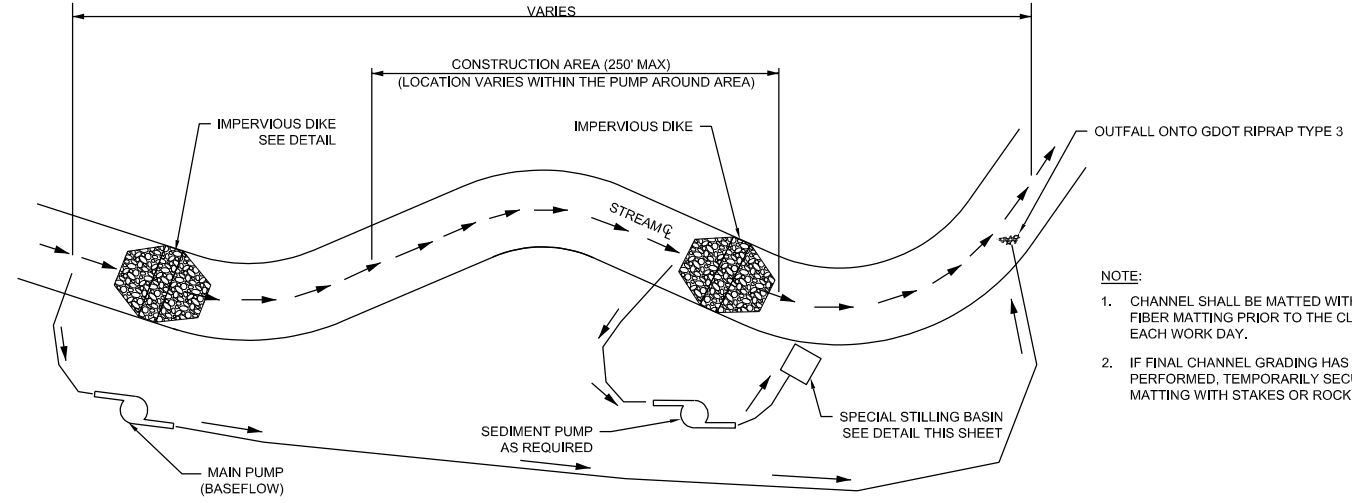
**SPECIAL STILLING BASIN  
SCALE: NTS**



**PIPE DIVERSION CROSS SECTION**

**PIPE DIVERSION PROFILE**

- NOTE:**
1. PIPE MUST HAVE POSITIVE DRAINAGE WHEN USING DIVERSION (0.3% TO 2.0% PIPE SLOPE IS RECOMMENDED)



**PUMP-AROUND DIVERSION PLANVIEW**

- NOTE:**
1. CHANNEL SHALL BE MATTED WITH COIR FIBER MATTING PRIOR TO THE CLOSE OF EACH WORK DAY.
  2. IF FINAL CHANNEL GRADING HAS NOT BEEN PERFORMED, TEMPORARILY SECURE COIR MATTING WITH STAKES OR ROCK

**PUMP-AROUND/PIPE DIVERSION  
SCALE: NTS**

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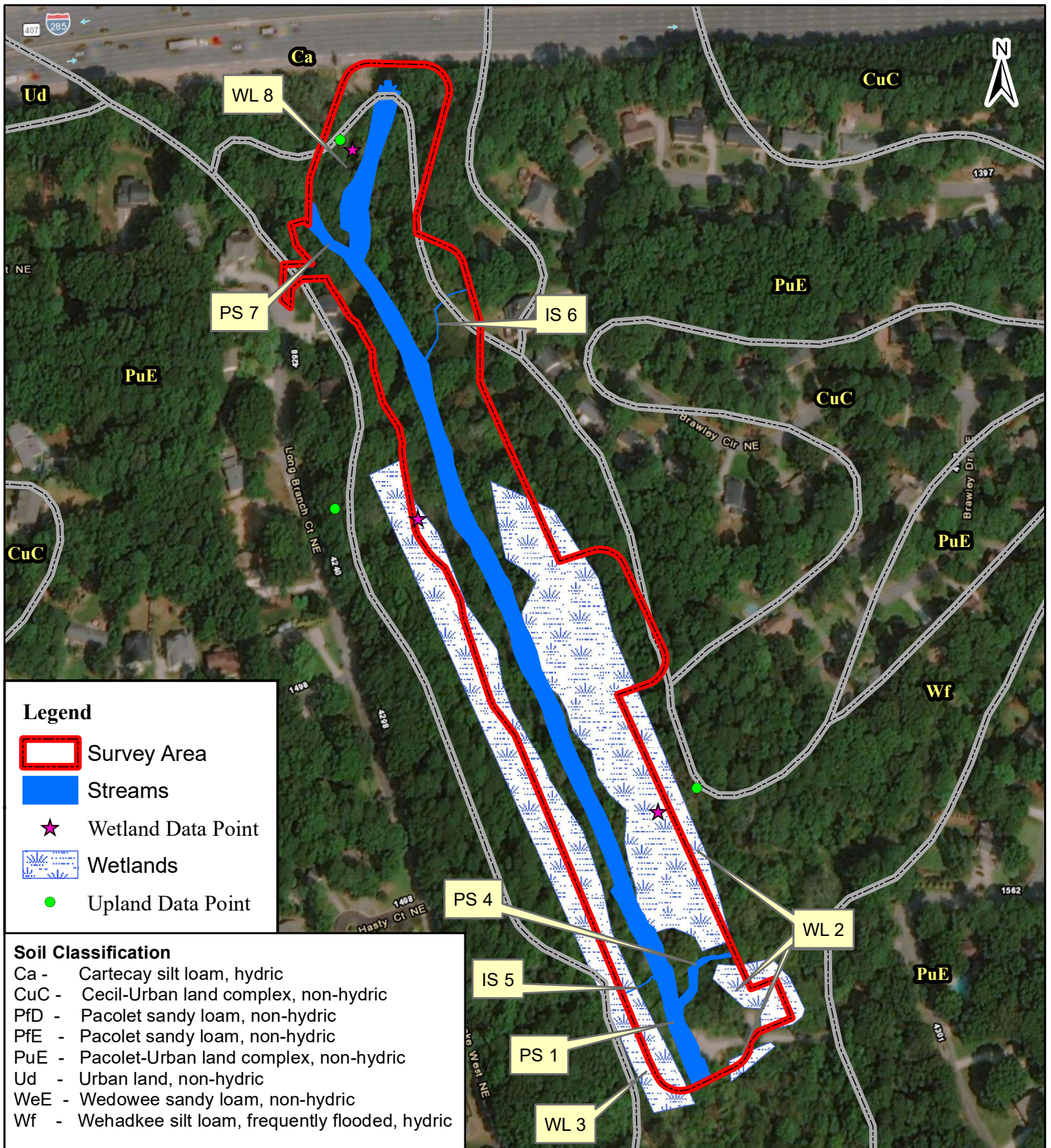
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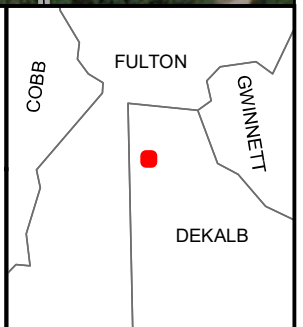
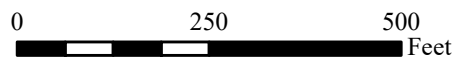
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**Figure 4 - Waters and Soils Map (Aerial)**

Murphey Candler Streambank Restoration Project  
 City of Brookhaven  
 DeKalb County



Source: ESRI Aerial Imagery (2020) with DeKalb County Soils GIS Data

**Table 1.** North Fork Nancy Creek Geomorphic Parameters for Annual Geomorphic Monitoring with Comparison to Regional Values.

Parameter	Existing	Designed <sup>1</sup>	Rosgen Classification (B Stream Type)	Piedmont Physiographic Region <sup>2</sup>	South Carolina Piedmont, Ecoregion 45 <sup>3</sup> Big Dutchman Creek (B5c)	North Carolina Piedmont Urban Streams <sup>4</sup>	North Carolina Piedmont Kentwood Park Stream (Bc) <sup>4</sup>	As-Built
A <sub>bkf</sub> (ft <sup>2</sup> )	50 - 60	29.5	N/A	18.6 - 21.7	116.40	25.66	58.00	
d <sub>bkf</sub> (ft)	1.8-2.2	1.34	N/A	0.2 - 2.4	3.30	3.26	2.10	
W <sub>bkf</sub> (ft)	20 - 30	22	N/A	14.8 - 16.9	35.70	32.74	27.00	
Width/Depth Ratio	11.7 - 16.1	16.4	>12	7.0 - 66.2	11.0	10.0	12.9	
Entrenchment Ratio	1.1 - 1.2	1.15 - 1.84	1.4 - 2.2	N/A	1.4	N/A	N/A	

1 Design values for these parameters are based upon sediment transport analysis to ensure movement of sediment over time without channel aggradation or degradation, resulting in site specific values that may vary from reference curve values.

2 Bieger, K., Rathjens, H., Allen, P.M. and Arnold, J.G., 2015. Development and evaluation of bankfull hydraulic geometry relationships for the physiographic regions of the United States. JAWRA Journal of the American Water Resources Association, 51(3), pp.842-858.

3 <https://www.dnr.sc.gov/environmental/docs/piedmontsummarymay2020.pdf>