

LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

SITE PLAN #16-0092

CITY OF NORFOLK, VIRGINIA



UTILITY AND GOVERNING AGENCIES CONTACT LIST

WATER COMPANY
CITY OF NORFOLK
DEPARTMENT OF UTILITIES
NORFOLK, VA 23501
TEL: 757-664-6768
CONTACT:

CABLE COMPANY
COX COMMUNICATIONS
225 CLEARFIELD AVE.
VIRGINIA BEACH, VA 23462
TEL: 757-369-4519
CONTACT:

PUBLIC TRANSPORTAION
HAMPTON ROADS TRANSIT
1500 MONTICELLO AVE.
NORFOLK, VA 23510
TEL: 757-222-6000
CONTACT:

SANITARY SEWER COMPANY
HAMPTON ROADS SANITATION DISTRICT
1436 AIR RAIL AVE.
VIRGINIA BEACH, VA 23455
TEL: 757-460-2661
CONTACT:

POWER COMPANY
DOMINION ENERGY
1601 HAMILTON AVE.
PORTSMOUTH, VA 23707
TEL: 757-393-3834
CONTACT:

NORFOLK SMART TRAFFIC CENTER
CITY OF NORFOLK
TRANSPORTATION CENTER
810 UNION ST., ROOM 220
NORFOLK, VA 23510
TEL: 757-664-7304
CONTACT:

LOCAL ENGINEERING OFFICE
CITY OF NORFOLK PUBLIC WORKS
810 UNION ST., ROOM 700
NORFOLK, VA 23510
TEL: 757-664-4655
CONTACT:

GAS COMPANY
VIRGINIA NATURAL GAS
5100 E. VIRGINIA BEACH BLVD.
NORFOLK, VA 23502
TEL: 757-616-7529
CONTACT:

TELEPHONE COMPANY
VERIZON
5701 CLEVELAND ST.
VIRGINIA BEACH, VA 23462
TEL: 757-667-5819
CONTACT:

DEPARTMENT OF HEALTH
COMMONWEALTH OF VIRGINIA
DIVISION OF WASTEWATER ENGINEERING
SOUTHEAST AREA
5700 THURSTON AVE., SUITE 203
VIRGINIA BEACH, VA 23455
TEL: 757-363-3881
CONTACT:

OWNER:

CITY OF NORFOLK
DEPARTMENT OF ENVIRONMENTAL
STORMWATER MANAGEMENT
2233 MCKANN AVE.
NORFOLK, VA 23509
TEL: 757-823-4006
CONTACT: C.W. GASKILL, JR., PE

ENGINEER:

BROWN AND CALDWELL
301 BENDIX RD., SUITE 400
VIRGINIA BEACH, VA 23452-1385
TEL: 757-518-2400
CONTACT: BEN NASH, PLA
CRYSTAL BLOOM, PE

SURVEYOR:

COBB SURVEY MAPGPING
10131 FORTSVILLE RD.
CAPRON, VA 23829
TEL: 804-516-5799
CONTACT: JOEY COBB, LS

SITE DATA:

THIS PROJECT COVERS A CITY PARK PROPERTY, UNDEVELOPED CITY PROPERTY, AN ELEMENTARY SCHOOL, AND INTERSECTS FOUR PRIVATE PARCELS WHICH ARE OWNED BY THE SAME OWNER. TEMPORARY CONSTRUCTION EASEMENTS OR RIGHT-OF-ENTRY WAS OBTAINED FOR THESE PRIVATE PARCELS.

PROPERTY OWNER:

MULTIPLE

PROPERTY ADDRESSES:

1136 VISTA STREET
2553 TIDEWATER DRIVE

GPIN 1438625644
GPIN 1438536491
GPIN 1438537420
GPIN 1438536472
GPIN 1438536453
GPIN 1438535352
GPIN 1438533278
GPIN 1438532545

EXISTING LAND USE
ZONING
RIVER BASIN
FLOOD ZONE

RESIDENTIAL, INSTITUTIONAL, AND OPEN SPACE
RESIDENTIAL, INSTITUTIONAL, AND OPEN SPACE
LAFAYETTE RIVER
ZONE AE - 1% ANNUAL CHANCE (BFE = 8')
MAP# 5101040057H MAP DATE: FEBRUARY 17, 2017

RESTORED SHORELINE
CREATED TIDAL WETLANDS
CREATED OYSTER REEF

2.522 LINEAR FEET
1.68 ACRES
0.00 ACRES

THIS PROPERTY IS LOCATED WITHIN A CITY OF NORFOLK CBPA DESIGNATED INTENSELY DEVELOPED AREA (IDA).

LAND DISTURBANCE:

TOTAL AREA OF DISTURBANCE 5.04 ACRES
TOTAL AREA OF DISTURBANCE ABOVE UPPER LIMITS OF TIDAL WETLANDS (ELEV. +3.0') 2.49 ACRES

WATER QUALITY INFORMATION:

OWNERSHIP OF IMPROVEMENT CITY OF NORFOLK
TYPE OF IMPROVEMENT SHORELINE RESTORATION
EXISTING IMPERVIOUS COVER 0 ACRES
PROPOSED IMPERVIOUS COVER 0 ACRES

NOTES:

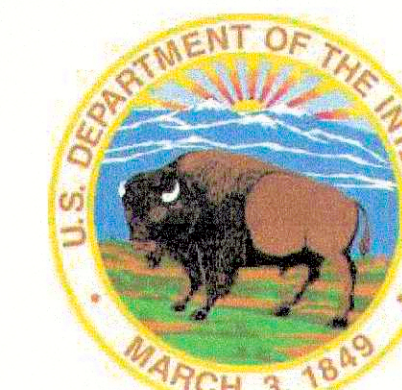
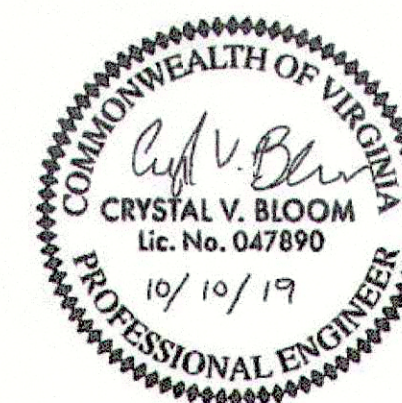
- THIS SITE REQUIRES A VSMP GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. THE CONTRACTOR IS REQUIRED TO SECURE PERMIT COVERAGE FROM THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE REQUIRED BY THE PROJECT BY SUBMITTING A COMPLETE REGISTRATION STATEMENT AND PAYING THE APPROPRIATE FEE TO THE CITY OF NORFOLK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING PERMIT COMPLIANCE DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO INSPECTIONS, SWPPP UPDATES, ETC. CONTACT NORFOLK ENVIRONMENTAL SERVICES AT (757) 664-4368 FOR FURTHER INFORMATION.
- THE CONTRACTOR SHALL CONTACT THE CITY OF NORFOLK, BUREAU OF ENVIRONMENTAL SERVICES AT (757) 664-4368 AT LEAST 48 HOURS PRIOR TO ANY LAND DISTURBANCE ACTIVITY SO THAT A LAND DISTURBING PERMIT CAN BE ISSUED AND A PRECONSTRUCTION CONFERENCE SCHEDULED.
- THE CONSTRUCTION IS NOT LOCATED IN THE FLOODWAY AND WILL NOT CAUSE AN INCREASE IN THE 100-YEAR FLOOD WATER LEVEL.

OCTOBER 10, 2019

VOLUME 1 OF 1

Brown and Caldwell

ENVIRONMENTAL ENGINEERING AND CONSULTING
CERTIFICATION OF AUTHORIZATION NO. 00002602
301 BENDIX ROAD, SUITE 400
VIRGINIA BEACH, VA 23452-1385



PRIOR TO CONSTRUCTION
CONTRACTOR SHALL CALL
"MISS UTILITY" OF VIRGINIA
DIAL - 811
FOR LOCATION OF
UNDERGROUND UTILITIES

RESPONSIBLE LAND DISTURBER (RLD) DESIGNATION

THE FOLLOWING PERSON _____ (SIGN), IS IDENTIFIED AS THE RESPONSIBLE LAND DISTURBER WHO WILL BE IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT THE LAND DISTURBING ACTIVITY. THIS PERSON MEETS THE APPLICABLE REQUIREMENTS OF VIRGINIA CODE SECTION 10.1-563 AND 10.1-566 BY VIRTUE OF THE FOLLOWING (CHECK THE CATEGORY THAT APPLIES):

- _____ RESPONSIBLE LAND DISTURBER CERTIFICATE
_____ DCR CERTIFICATION FOR COMBINED ADMINISTRATOR, ADMINISTRATOR, PLAN REVIEWER, INSPECTOR, OR CONTRACTOR
_____ VA PROFESSIONAL ENGINEER, LAND SURVEYOR, LANDSCAPE ARCHITECT, ARCHITECT

RLD CONTACT INFORMATION

NAME: _____
CERTIFICATION/REGISTRATION NUMBER: _____
COMPANY: _____
MAILING ADDRESS: _____
TELEPHONE: _____ FAX: _____
EMAIL: _____

THIS DESIGNATION MAY ONLY BE CHANGED BY A PLAN COVER SHEET REVISION THAT MUST BE SUBMITTED TO THE CITY FOR VERIFICATION AND APPROVAL.

UPON AWARD OF THE CONTRACT AND BEFORE ANY LAND DISTURBING ACTIVITY CAN BEGIN, THE CONTRACTOR SHALL EXECUTE AND SUBMIT A RESPONSIBLE LAND DISTURBER NOTIFICATION FORM TO THE DEPARTMENT OF PLANNING, ENVIRONMENTAL SERVICES, ROOM 508 CITY HALL BUILDING, 810 UNION STREET, NORFOLK VA 23510 TEL: 757-664-4368. AWARD OF THE CONTRACT WILL RELIEVE THE ABOVE SIGNER OF ALL RESPONSIBILITY.

| APPROVAL | | |
|--|---------------------------------|------------------|
| APPROVED DEPARTMENT OF PLANNING & COMMUNITY DEVELOPMENT | SIGNATURE <i>[Signature]</i> | DATE 10.22.19 |
| APPROVED ENGINEERING MANAGER | SIGNATURE | DATE |

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CITY OF NORFOLK STANDARD NOTES

- 1. CONTRACTOR IS ENCOURAGED TO VISIT SITE PRIOR TO SUBMITTING BID.
2. ELEVATIONS ARE BASED ON NAVD-88 (NORTH AMERICAN VERTICAL DATUM). BENCHMARKS ARE SHOWN ON SHEETS C-102 AND C-103.
3. FIELD ENGINEERING INFORMATION: ALL REQUESTS FOR INSPECTIONS, AND FIELD CONSTRUCTION INFORMATION SHOULD BE DIRECTED TO: CITY OF NORFOLK CHIEF OF CONSTRUCTION AT (757) 823-1013.
4. PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, THE CONTRACTOR SHALL SUBMIT A PRELIMINARY DETAILED TRAFFIC CONTROL PLAN FOR REVIEW BY THE DIVISION OF TRAFFIC ENGINEERING, DEPARTMENT OF PUBLIC WORKS. THE TRAFFIC CONTROL PLAN AS WELL AS ALL TRAFFIC CONTROL DEVICES UTILIZED ON THE PROJECT MUST COMPLY WITH THE "FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR STREETS AND HIGHWAYS. FOLLOWING APPROVAL OF THE PLAN, A REPRODUCIBLE DRAWING SHALL BE SUBMITTED TO THE FIELD ENGINEERING OFFICE FOR USE AND DISTRIBUTION.
5. SUBMITTALS ON MATERIALS FOR THIS PROJECT SHALL BE APPROVED BY THE FIELD ENGINEERING OFFICE PRIOR TO BEGINNING CONSTRUCTION.
6. A CONSTRUCTION SCHEDULE SHALL BE SUBMITTED TO THE FIELD ENGINEERING OFFICE, AT THE TIME OF THE PRE-CONSTRUCTION CONFERENCE.
7. ALL WORK WITHIN THE RIGHT-OF-WAY SHALL COMPLY WITH THE CITY OF NORFOLK RIGHT-OF-WAY EXCAVATION & RESTORATION MANUAL (ORDINANCE NO. 40.778), DEPT. OF PUBLIC WORKS, DIVISION OF TRANSPORTATION. THE DOCUMENT MAY BE DOWNLOADED AT HTTP://WWW.NORFOLK.GOV/PUBLICWORKS/
8. THERE MAY BE A C.B.D. TRAFFIC CONTROL SYSTEM IN THIS AREA. FOR PROTECTION OF THIS SYSTEM, PHONE THE PUBLIC WORKS DEPARTMENT BEFORE STARTING WORK: (757) 664-7300
9. CONTRACTOR SHALL CONFORM TO THE "OVERHEAD HIGH VOLTAGE ACT" (EFFECTIVE JULY 1, 1989) AND SHALL CONTACT THE NECESSARY AUTHORITIES PRIOR TO START OF CONSTRUCTION
10. THE DEPARTMENT OF PUBLIC WORKS WILL OBTAIN ALL NECESSARY TREE PERMITS. THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF THE "CITY OF NORFOLK TREE ORDINANCE" (EFFECTIVE FEBRUARY 15, 2005). CONTACT CITY FORESTER, MICHAEL NENTWICH (757) 823-4024, TO ACQUIRE PERMIT FOR REMOVAL OF TREES. CONTRACTOR SHALL MAINTAIN TREE PERMIT ON-SITE AND CONDUCT AN ON-SITE MEETING WITH CITY FORESTER PRIOR TO TREE DEMOLITION.
11. STATE LAW MANDATES THE NOTIFICATION OF UTILITY OWNERS 48 HOURS IN ADVANCE OF EXCAVATION. FOR LOCATION OF UTILITIES, CALL "MISS UTILITY" AT 1-800-552-7001 FOR: WATER & SEWER, H.R.S.D., VERIZON TELEPHONE, DOMINION VA. RIGHT-OF-WAY SHALL BE ERADICATED AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE CITY'S ROW EXCAVATION AND RESTORATION MANUAL.
12. THE CONTRACTOR SHALL BE REQUIRED AND AGREES TO COMPLY WITH ALL THE PROVISIONS OF THE "VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT" (SECTION 56-265.14 et seq., CODE OF VIRGINIA, 1950, AS AMENDED) AND HEREBY AGREES TO HOLD THE CITY OF NORFOLK HARMLESS AGAINST ANY LOSS, DAMAGES, OR CLAIMS OF ANY NATURE WHATSOEVER ARISING OUT OF THE CONTRACTOR'S FAILURE TO SO COMPLY WITH THE REQUIREMENTS OF SAID ACT.
13. CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE DONE TO THE UTILITIES SHALL BE IMMEDIATELY REPAIRED AT CONTRACTOR'S EXPENSE.
14. EXISTING UTILITIES SHOWN ARE BASED ON AVAILABLE RECORDS AND FIELD SURVEYS, AND ARE NOT GUARANTEED TO BE EXACT OR COMPLETE. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN ADVANCE OF CONSTRUCTION.
15. CONTRACTOR SHALL HAVE A SET OF PROJECT PLANS AND SPECIFICATIONS ON SITE AT ALL TIMES. IN ADDITION THE CONTRACTOR SHALL HAVE IN HIS POSSESSION THE CURRENT EDITION OF THE HRPDC SPECIFICATIONS.
16. FOR WORK IN THE CITY OF NORFOLK RIGHT-OF-WAY, CONTACT 48 HOURS IN ADVANCE.
RIGHT OF WAY DIVISION (PERMITS) (757) 664-7306
DIVISION OF TRANSPORTATION (757) 664-7300
DIVISION OF ENVIRONMENTAL STORM WATER (757) 823 4000
DEPARTMENT OF PARKS AND URBAN FORESTRY (757) 823-4023
CONSTRUCTION PERMITS (757) 664-6565
17. THE CONTRACTOR SHALL REPLACE ALL DAMAGED OR REMOVED SIDEWALKS DAILY. ANY TEMPORARY SIDEWALK SHALL BE A MINIMUM OF 1" COLD MIX OVER COMPACTED SUBGRADE AND SLOPED TO PROVIDE POSITIVE DRAINAGE. THE PERMANENT SIDEWALK REPLACEMENT SHALL BE IN ACCORDANCE WITH CURRENT CITY STANDARDS AND SHALL BE REPLACED TO THE NEAREST JOINT.
18. THE CONTRACTOR SHALL NOTE THAT THERE MAY BE OTHER CONSTRUCTION IN THIS AREA. THE CONTRACTOR SHALL COOPERATE WITH THE CITY AND ANY OTHER CONTRACTOR OR UTILITY OWNER TO PREVENT DELAYS TO EITHER PROJECT.

CITY OF NORFOLK RIGHT-OF-WAY DIVISION STANDARD SITE PLAN NOTES

EXCAVATION AND RESTORATION IN THE RIGHT-OF-WAY:

- 1. ALL WORK WITHIN THE RIGHT-OF-WAY SHALL COMPLY WITH THE CITY OF NORFOLK RIGHT OF WAY EXCAVATION & RESTORATION MANUAL (ORDINANCE NO. 40.778), DEPARTMENT OF PUBLIC WORKS RIGHT-OF-WAY DIVISION. DOWNLOAD AT HTTP://WWW.NORFOLK.GOV/DOCUMENTCENTER/VIEW/779. IT IS IMPORTANT THAT CONTRACTORS FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OUTLINED IN THE MANUAL. FAILURE TO DO SO MAY IMPACT PROJECT COSTS. ALSO SEE "OTHER" IN THIS SECTION. EXCEPTIONS MAY BE PERMITTED. A REVIEW MEETING WITH RIGHT-OF-WAY IS REQUIRED. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE.
2. ALL WORK WITHIN THE RIGHT OF WAY SHALL COMPLY WITH THE CITY OF NORFOLK DESIGN STANDARDS: DOWNLOAD AT HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=819. EXCEPTIONS MAY BE PERMITTED. A REVIEW MEETING WITH RIGHT-OF-WAY IS REQUIRED. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE.
3. FLOWABLE FILL IS NOT AN APPROVED MATERIAL FOR USE IN THE CITY OF NORFOLK FOR BACKFILL WITHOUT PRIOR APPROVAL. THE SELECT MATERIAL AND 21A STONE WILL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS. FOR BACKFILL AROUND THE PIPE USE SELECT MATERIAL (SECTION 207) -TYPE 1 AND 20 CBR COMPACTION. FOR THE SUB BASE MATERIAL USE 6" MIN. VDOT 21A STONE IN ACCORDANCE TO SECTION 208.
4. NEW DEVELOPMENTS, CONSTRUCTION, AND ADDITIONS REQUIRE NEW SIDEWALK,

- CURB, GUTTER, AND DRIVEWAYS. EXCEPTIONS MAY BE PERMITTED. A REVIEW MEETING WITH RIGHT-OF-WAY IS REQUIRED. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE.
5. IF APPROVED BY RIGHT-OF-WAY, WHEN THE CONTRACTORS WORK REQUIRES THE SAWCUTTING AND/OR PARTIAL DEMOLITION AND/OR REMOVAL OF ANY SECTION OF AN EXISTING APRON OR SIDEWALK. THE CONTRACTOR WILL BE REQUIRED TO REMOVE SAID EXISTING APRON OR SIDEWALK AND REPLACE IT WITH A NEW MONOLITHIC APRON OR SIDEWALK. SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT. ALL CONCRETE IS TO BE SAW CUT. NO PATCHING WILL BE ALLOWED. COMMERCIAL APRONS SHALL BE REPLACED WITH AN APPROVED COMMERCIAL APRON. RESIDENTIAL APRONS SHALL BE REPLACED WITH AN APPROVED RESIDENTIAL APRON (HS-207). SIDEWALKS SHALL BE REPLACED WITH AN APPROVED SIDEWALK DETAIL. CONTACT THE DIVISION OF RIGHT-OF-WAY FOR APPROVAL AT PWROW@NORFOLK.GOV (ORDINANCE NO: 40.778).
6. UTILITY POLES MUST BE RELOCATED AT YOUR PROJECT'S COST. A COPY OF THE WORK ORDER FOR POLE RELOCATIONS MUST ACCOMPANY RIGHT-OF-WAY PERMITS.

PERMITS:

- 1. A PERMIT AND INSPECTION IS REQUIRED TO PERFORM EXCAVATION AND INSTALLATION WORK OF ANY KIND IN THE RIGHT-OF-WAY. APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362
2. A PERMIT AND INSPECTION IS REQUIRED TO SLOW, CLOSE, REDIRECT, DETOUR OR ALTER VEHICULAR AND PEDESTRIAN TRAFFIC FOR ANY DURATION. APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362
3. A PERMIT AND INSPECTION IS REQUIRED FOR LANE OR SIDEWALK CLOSURES FOR WORK WASHING, GRADING, OR INSTALLING ANY ITEM ABOVE OR UNDERGROUND. APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362
4. A PERMIT AND INSPECTION IS REQUIRED TO PLACE ANY OBJECT IN THE CITY RIGHT-OF-WAY. APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362.
5. A PERMIT IS REQUIRED TO HAUL OVERSIZED, OVERWEIGHT, OR OVER HEIGHT LOADS. APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362
6. A PERMIT AND INSPECTION ARE REQUIRED WHEN A NEW APRON AND/OR SIDEWALK IS INSTALLED, ALL NEW OR EXISTING UTILITY STRUCTURES SHALL BE INSTALLED AND/OR RELOCATED OUTSIDE THE AREA OF THE NEW APRON AND/OR SIDEWALK. APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362
7. A PERMIT AND INSPECTION IS REQUIRED FOR TEMPORARY BULK WASTE CONTAINERS PLACED IN THE RIGHT-OF-WAY. IF THE CONTAINER IS PLACED ON PRIVATE PROPERTY A PERMIT FROM THE HEALTH DEPARTMENT IS REQUIRED.

FEES:

- 1. CURRENT RIGHT OF WAY PERMIT FEES: HTTP://WWW.NORFOLK.GOV/DOCUMENTCENTER/VIEW/789
2. EXEMPTION: CONTRACTORS PERFORMING WORK UNDER CONTRACT WITH THE CITY OF NORFOLK ARE EXEMPT FROM PERMIT FEES THROUGH JULY 1, 2014. EFFECTIVE JULY 1, 2014, CONTRACTORS PERFORMING WORK UNDER CONTRACT WITH THE CITY OF NORFOLK MUST PAY STREET, LANE, AND SIDEWALK CLOSURE FEES.
3. EXEMPTION: CONTRACTORS PERFORMING WORK UNDER CONTRACT WITH VDOT ARE EXEMPT FROM ALL PERMIT FEES.

TRAFFIC CONTROL:

- 1. ALL TRAFFIC CONTROL SHALL COMPLY WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)", THE "VIRGINIA WORK AREA PROTECTION MANUAL" AND THE "CITY OF NORFOLK RIGHT OF WAY EXCAVATION AND RESTORATION MANUAL" WHETHER IN EFFECT OR NOT AT THE TIME OF THE BID. ADDITIONAL CHARGES APPLY IF OFF-DUTY OFFICERS ARE REQUIRED. A LIST OF PERMIT FEES IS LOCATED AT WWW.NORFOLK.GOV/INDEX.ASPX?NID=362
2. FOR CONSTRUCTION IN OR ADJACENT TO ANY ARTERIAL AND/OR COLLECTOR STREETS REQUIRING TEMPORARY LANE OR STREET CLOSURE, THE CONTRACTOR MUST SCHEDULE A MEETING WITH THE CITY'S TRAFFIC MITIGATION TEAM. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE.
3. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED TRAFFIC CONTROL PLAN (MOT) WITH THE CONTRACTOR'S PERMIT APPLICATION TO WORK IN THE RIGHT-OF-WAY AT LEAST 14 DAYS IN ADVANCE OF THE START DATE. THE MOT SHALL BE A DRAWING OR AERIAL PHOTO WITH SITE SPECIFIC DETAILS. THESE SHALL INCLUDE BUT ARE NOT LIMITED TO: TRAFFIC SIGNS, DIRECTIONAL SIGNS, DESTINATION SIGNAGE, CHANNELIZING DEVICES, WATER-FILLED BARRIERS, PORTABLE MESSAGE BOARDS WITH MESSAGES TO BE DISPLAYED AND TIMES AND DURATIONS OF DISPLAYED MESSAGES. ADDITIONALLY THE MOT SHALL DISPLAY THE EXACT LOCATION OF ALL SIGNS AND/OR DEVICES INCLUDING SPACING FOR EACH SIGN AND/OR DEVICE. (MOT) PLANS SHALL CONFORM TO THE CURRENT ISSUE OF "THE VIRGINIA WORK AREA PROTECTION MANUAL" COPIES OR REPRODUCTIONS OF STANDARD VWAPM TTC PLANS MAY NOT BE SUFFICIENT. CONTRACTORS SHOULD CONSIDER THESE ITEMS WHEN BIDDING FOR CONSTRUCTION AS IT MAY AFFECT COSTS.
4. NORFOLK POLICE REQUIRES OFF-DUTY OFFICERS FOR TRAFFIC CONTROL IN ANY SIGNALIZED INTERSECTION AND AS REQUIRED BY PERMIT. OFF-DUTY OFFICERS ARE INDEPENDENT CONTRACTORS. THE COST FOR OFF-DUTY OFFICERS IS A CONTRACTOR/OWNER RESPONSIBILITY

BONDS:

- 1. THE CONTRACTOR, OWNER, OR DEVELOPER WILL BE REQUIRED TO POST A CASH, CHECK, OR SURETY BOND OR LETTER OF CREDIT TO EXCAVATE IN THE RIGHT-OF-WAY. DOWNLOAD THE FORM: HTTP://WWW.NORFOLK.GOV/DOCUMENTCENTER/VIEW/1406
2. BOND AMOUNT MUST INCLUDE 100% TOTAL COST OF ROW INSTALLATION INCLUDING STREETLIGHTS, WATER, SEWER, STORM, BMPS, ROADWAY, SIDEWALK, CURB, GUTTER. AN ADDITIONAL AMOUNT MAY BE SET AT THE DISCRETION OF THE DIRECTOR OF PUBLIC WORKS AND/OR ROW MANAGER.
3. BOND WILL BE REDUCED DOWN TO 10% FROM THE DATE OF FINAL INSPECTION FOR A 2 YEAR WARRANTY TERM. A SEPARATE WARRANTY BOND IS ACCEPTABLE IN LIEU OF A BOND REDUCTION. A LETTER REQUESTING RELEASE OR REDUCTION MUST BE SENT TO THE RIGHT OF WAY PERMITS OFFICE VIA E-MAIL AT PWROW@NORFOLK.GOV
4. ALL CITY PROJECTS CANNOT BE BID UNTIL UTILITIES ARE RELOCATED OR ARRANGEMENTS HAVE BEEN COORDINATED BY THE CITY'S PROJECT MANAGER, A/E, AND RIGHT-OF-WAY DIVISION. PLEASE PROVIDE A LIST AND DRAWINGS OF ALL UTILITIES NEEDING RELOCATION TO RIGHT-OF-WAY DIVISION AT OR BEFORE 30% SUBMITTAL.
5. PROJECT DESIGNERS MUST INCLUDE A DETAILED TRAFFIC CONTROL PLAN FOR UTILITY WORK WITHIN THE RIGHT-OF-WAY IN THE PLANS. FOR CONSTRUCTION IN OR ADJACENT TO ANY ARTERIAL AND/OR COLLECTOR STREETS AS DEFINED IN THE VIRGINIA WORK AREA PROTECTION MANUAL REQUIRING TEMPORARY LANE OR STREET CLOSURE, THE CONTRACTOR MUST SCHEDULE A MEETING WITH THE CITY'S TRAFFIC MITIGATION TEAM. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE.

OTHER:

- 1. DETAILED STAMPED DRAWINGS FOR SHORING AND SCAFFOLDING WILL BE REQUIRED AS PART OF THE RIGHT-OF-WAY PERMIT PROCESS.
2. ANY EXCAVATION IN THE ROADWAY MUST BE PATCHED WITH ASPHALT. STONE IS NOT ACCEPTABLE.
3. FULL CURB TO CURB RESURFACING WILL BE REQUIRED IF ROADWAY PORTION IS CUT WITHIN THE FIRST 5 YEARS AFTER RESURFACING. AN ADMINISTRATIVE FEE OF \$500 WILL BE ASSESSED IN ACCORDANCE WITH CITY CODE.
4. AS PART OF THE CONTRACTOR'S PERMIT APPLICATION TO WORK IN THE RIGHT OF WAY, THE CONTRACTOR MUST SUBMIT A MAP IDENTIFYING THE PROJECTS STORAGE AND LAY DOWN AREA. THE CITY DOES NOT ALLOW STORAGE, STAGING OR LAY DOWN AREAS WITHIN THE RIGHT OF WAY. CONTRACTORS ARE ENCOURAGED TO MAKE ARRANGEMENTS TO STORE MATERIALS AND LAY DOWN ON PRIVATE PROPERTY OR THEY MUST BE STORED WITHIN CONSTRUCTION SITE.
5. ALL MISS UTILITY MARKINGS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE ERADICATED AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE CITY'S ROW EXCAVATION & RESTORATION MANUAL LOCATED AT WWW.NORFOLK.GOV/INDEX.ASPX?NID=362
6. DESIGNERS ARE RESPONSIBLE TO CHECK IN-FIELD GRADES AND TO CONSULT WITH THE PROPER CITY OF NORFOLK STAFF IF THERE ARE QUESTIONS OR CONCERNS. DESIGNERS MUST SUBMIT A NOTICE VIA EMAIL TO THE RIGHT-OF-WAY DIVISION AT PWROW@NORFOLK.GOV VERIFYING THAT GRADES HAVE BEEN CHECKED AND ARE CORRECT.
7. A CONSTRUCTION FENCE MAY BE REQUIRED FOR YOUR SITE. IN DOWNTOWN, CONCRETE BARRIERS AND WOOD PANEL ARE REQUIRED IN MOST CASES IN SOME CASES, CHAIN LINK FENCE IS ACCEPTABLE. A REVIEW BY RIGHT OF WAY IS REQUIRED TO DETERMINE THE TYPE OF FENCE. PLEASE CONTACT PUBLIC WORKS AT PWRPW@NORFOLK.GOV

NOTIFICATIONS:

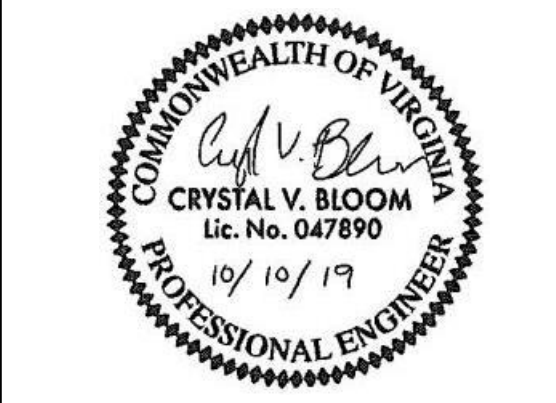
- 1. NOTIFICATION MUST BE APPROACHED FROM 3 LEVELS OR TIERS FOCUSING ON THOSE AFFECTED BY THE CONSTRUCTION. CONTRACTORS AND/OR PROJECT SPONSOR WILL BE REQUIRED TO NOTIFY RESIDENTS AND BUSINESSES IN THE IMMEDIATE AREA THAT WILL BE AFFECTED BY THE CONSTRUCTION. DOOR HANGERS MUST BE PLACED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION AND MUST INCLUDE A 24 HOUR CONTACT PHONE NUMBER FOR EMERGENCIES. UPDATES MUST BE PROVIDED TO RESIDENTS AND BUSINESSES ON A BI-WEEKLY OR MONTHLY BASIS DEPENDING ON THE FOLLOWING:
A. IMMEDIATE IMPACT - BUSINESS OR RESIDENTS WITHIN THE CONSTRUCTION ZONE WHO WILL BE AFFECTED BY ACCESS RESTRICTIONS, NOISE, DIRT AND DUST, USE OF PROPERTY DIRECTLY ADJACENT TO THEM, ETC.
B. AREA IMPACT - THOSE WHO TRAVEL THROUGH OR WILL BE DETOURED AROUND LOCAL OR COLLECTOR STREETS, AFFECTED BY CONSTRUCTION INCLUDING CIVIC LEAGUES, BUSINESS ASSOCIATIONS AND PROPERTY OWNERS.
C. CITYWIDE IMPACT - THOSE WHO ARE AFFECTED BY VEHICULAR OR PEDESTRIAN ACCESS ON ARTERIAL STREETS OR IN BUSINESS OR OTHER PUBLIC ACTIVITY AREAS (SCHOOL, UNIVERSITIES, GOVERNMENT FACILITIES, ETC.)

EXISTING LEGEND:

- PROPERTY LINE
ROCK WALL
GUARDRAIL
MAJOR CONTOUR
MINOR CONTOUR
EXTENT OF WETLANDS
CONCRETE DEBRIS
MEAN LOW WATER (MLW)
MEAN HIGH WATER (MHW)
OVERHEAD ELECTRIC
CHAIN LINK FENCE
WOOD FENCE
EDGE OF ASPHALT
STORM DRAIN
BRUSHLINE /TREELINE
TREE
BENCH MARK
SPOT ELEVATION
POWER POLE
STORM MANHOLE
LIGHT POLE
WATER METER
SATELLITE DISH
SIGN
FIRE HYDRANT
GUY WIRE

PROPOSED LEGEND:

- LIMITS OF DISTURBANCE
TURBIDITY CURTAIN
SILT FENCE
TREE PROTECTION
PROPOSED GRADE
RIP-RAP
SELECTIVE PRUNING
SAND FILL
COIR LOG
UPPER LIMITS OF MARSH
MEAN HIGH WATER (MHW)
TREE REMOVAL
MAINTAINED TURF
RIPARIAN BUFFER
HIGH MARSH
LOW MARSH



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

Table with 3 columns: REV, DATE, DESCRIPTION. Contains revision history.

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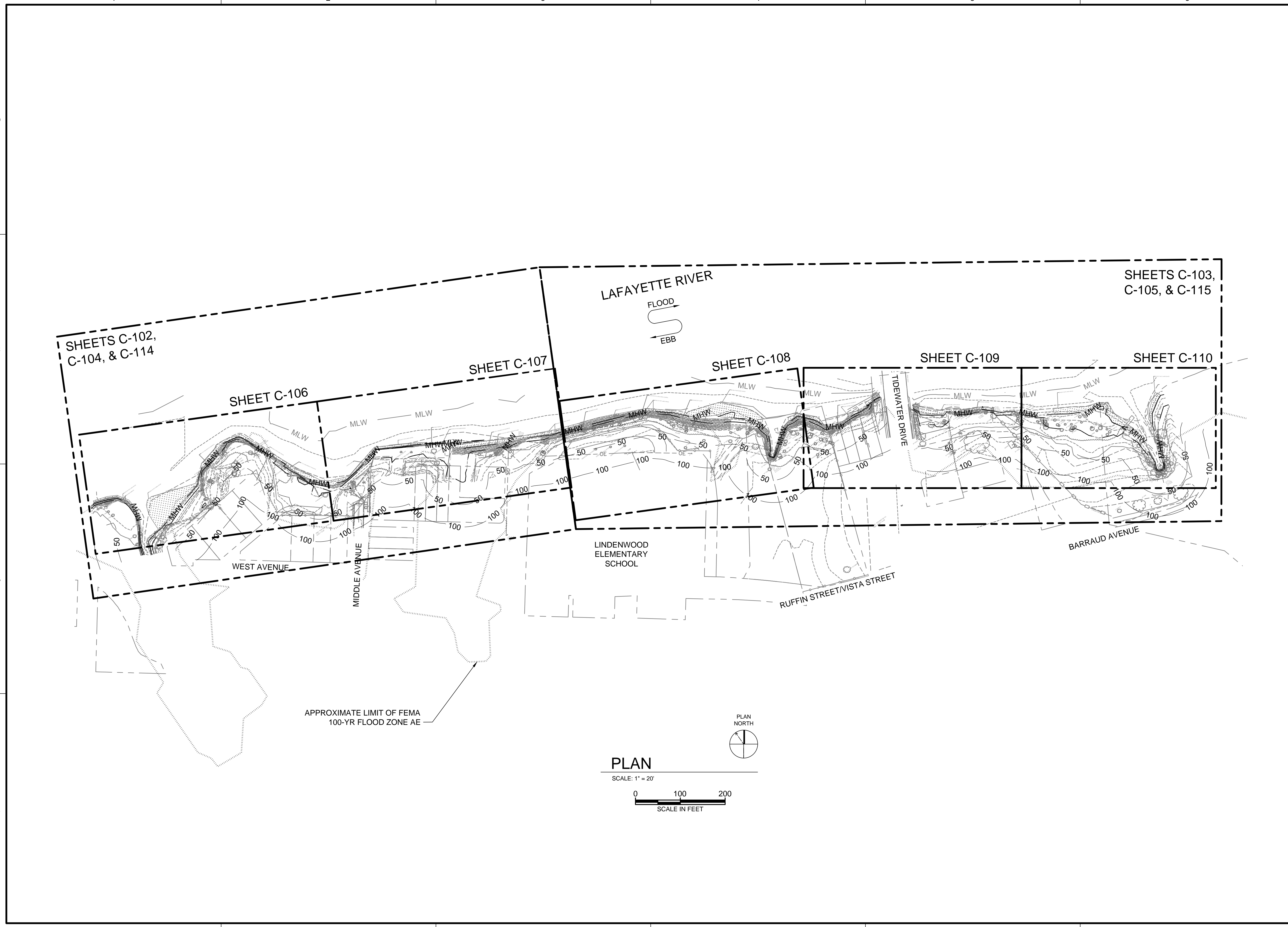
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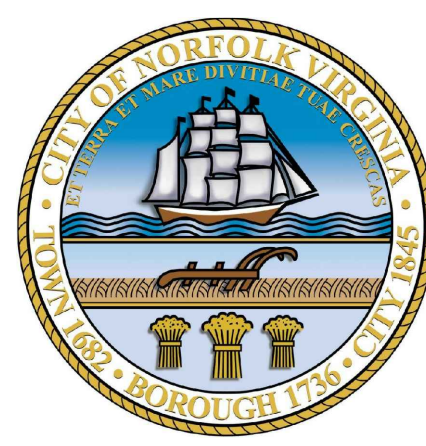
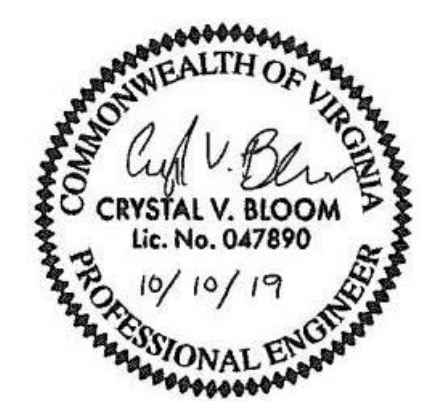
GENERAL GENERAL NOTES AND LEGEND

Table with 2 columns: Field, Value. Includes: DRAWING NUMBER G-001, SHEET NUMBER 2 OF 21

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ENVIRONMENTAL ENGINEERING AND CONSULTING
 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

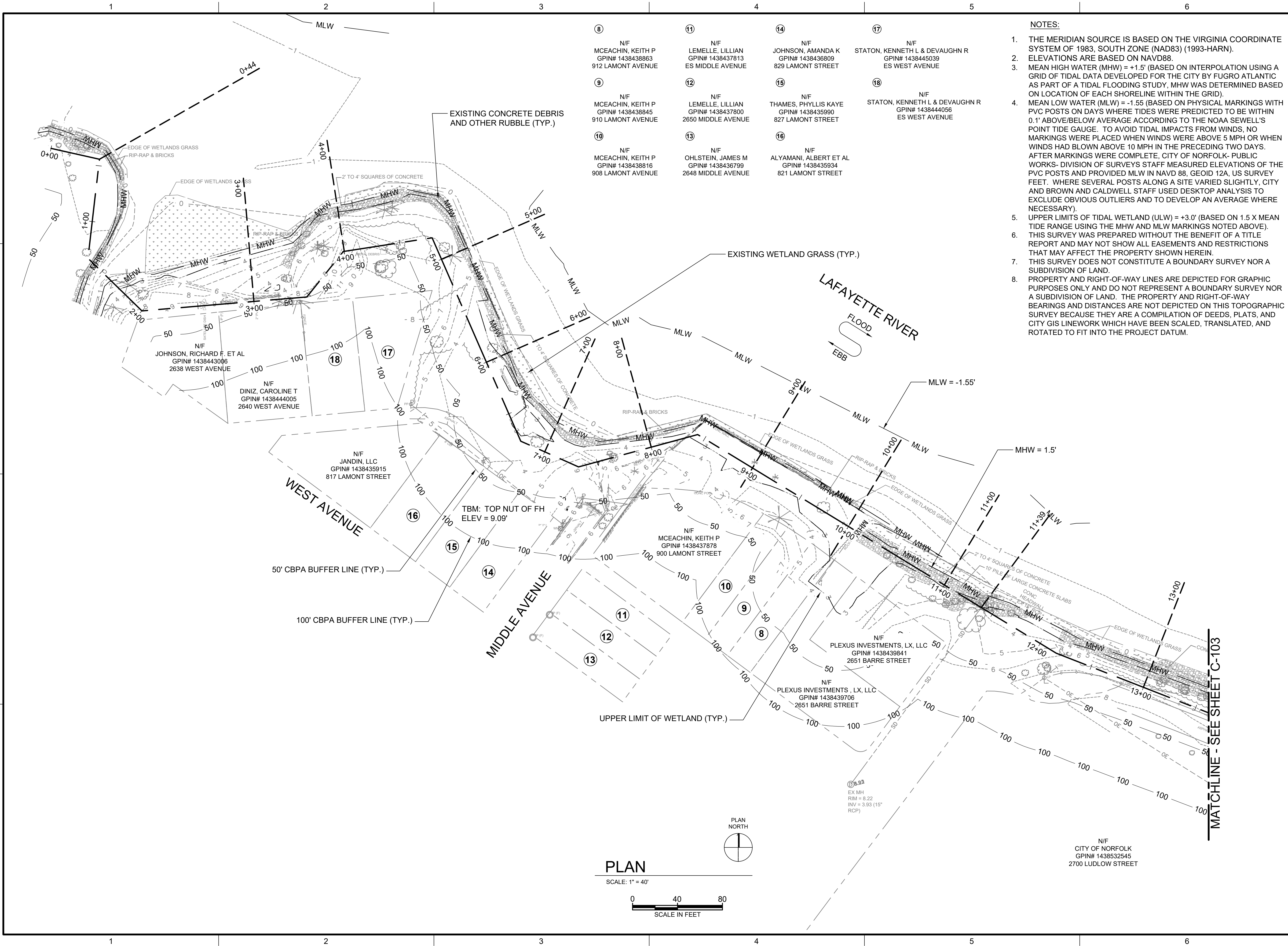
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 BC PROJECT NUMBER: 149124.200.010
 CLIENT PROJECT NUMBER

CIVIL
SITE INDEX PLAN

DRAWING NUMBER
C-101
 SHEET NUMBER
 3 OF 21

FILENAME: C-102.DWG PLOT DATE: 10/3/2019 1:59 PM CAD USER: BRIANNA KWAGGS
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|----|---|----|--|----|--|----|---|
| 8 | N/F MCEACHIN, KEITH P GPIN# 1438438863 912 LAMONT AVENUE | 11 | N/F LEMELLE, LILLIAN GPIN# 1438437813 ES MIDDLE AVENUE | 14 | N/F JOHNSON, AMANDA K GPIN# 1438436809 829 LAMONT STREET | 17 | N/F STATON, KENNETH L & DEVAUGHN R GPIN# 1438445039 ES WEST AVENUE |
| 9 | N/F MCEACHIN, KEITH P GPIN# 1438438845 910 LAMONT AVENUE | 12 | N/F LEMELLE, LILLIAN GPIN# 1438437800 2650 MIDDLE AVENUE | 15 | N/F THAMES, PHYLLIS KAYE GPIN# 1438435990 827 LAMONT STREET | 18 | N/F STATON, KENNETH L & DEVAUGHN R GPIN# 1438444056 ES WEST AVENUE |
| 10 | N/F MCEACHIN, KEITH P GPIN# 1438438816 908 LAMONT AVENUE | 13 | N/F OHLSTEIN, JAMES M GPIN# 1438436799 2648 MIDDLE AVENUE | 16 | N/F ALYAMANI, ALBERT ET AL GPIN# 1438435934 821 LAMONT STREET | | |

- NOTES:**
- THE MERIDIAN SOURCE IS BASED ON THE VIRGINIA COORDINATE SYSTEM OF 1983, SOUTH ZONE (NAD83) (1993-HARN).
 - ELEVATIONS ARE BASED ON NAVD88.
 - MEAN HIGH WATER (MHW) = +1.5' (BASED ON INTERPOLATION USING A GRID OF TIDAL DATA DEVELOPED FOR THE CITY BY FUGRO ATLANTIC AS PART OF A TIDAL FLOODING STUDY, MHW WAS DETERMINED BASED ON LOCATION OF EACH SHORELINE WITHIN THE GRID).
 - MEAN LOW WATER (MLW) = -1.55 (BASED ON PHYSICAL MARKINGS WITH PVC POSTS ON DAYS WHERE TIDES WERE PREDICTED TO BE WITHIN 0.1' ABOVE/BELOW AVERAGE ACCORDING TO THE NOAA SEWELL'S POINT TIDE GAUGE. TO AVOID TIDAL IMPACTS FROM WINDS, NO MARKINGS WERE PLACED WHEN WINDS WERE ABOVE 5 MPH OR WHEN WINDS HAD BLOWN ABOVE 10 MPH IN THE PRECEDING TWO DAYS. AFTER MARKINGS WERE COMPLETE, CITY OF NORFOLK- PUBLIC WORKS- DIVISION OF SURVEYS STAFF MEASURED ELEVATIONS OF THE PVC POSTS AND PROVIDED MLW IN NAVD 88, GEOID 12A, US SURVEY FEET. WHERE SEVERAL POSTS ALONG A SITE VARIED SLIGHTLY, CITY AND BROWN AND CALDWELL STAFF USED DESKTOP ANALYSIS TO EXCLUDE OBVIOUS OUTLIERS AND TO DEVELOP AN AVERAGE WHERE NECESSARY).
 - UPPER LIMITS OF TIDAL WETLAND (ULW) = +3.0' (BASED ON 1.5 X MEAN TIDE RANGE USING THE MHW AND MLW MARKINGS NOTED ABOVE).
 - THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND MAY NOT SHOW ALL EASEMENTS AND RESTRICTIONS THAT MAY AFFECT THE PROPERTY SHOWN HEREIN.
 - THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY NOR A SUBDIVISION OF LAND.
 - PROPERTY AND RIGHT-OF-WAY LINES ARE DEPICTED FOR GRAPHIC PURPOSES ONLY AND DO NOT REPRESENT A BOUNDARY SURVEY NOR A SUBDIVISION OF LAND. THE PROPERTY AND RIGHT-OF-WAY BEARINGS AND DISTANCES ARE NOT DEPICTED ON THIS TOPOGRAPHIC SURVEY BECAUSE THEY ARE A COMPILATION OF DEEDS, PLATS, AND CITY GIS LINWORK WHICH HAVE BEEN SCALED, TRANSLATED, AND ROTATED TO FIT INTO THE PROJECT DATUM.



ENVIRONMENTAL ENGINEERING AND CONSULTING
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 VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD
 PARK LIVING SHORELINE
 DESIGN

REVISIONS

| REV | DATE | DESCRIPTION |
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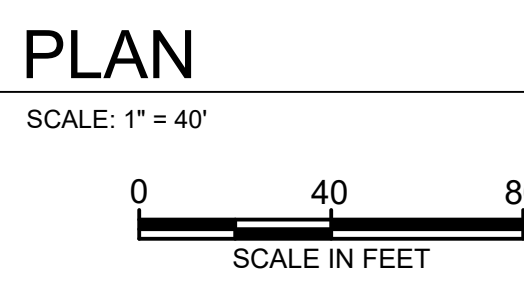
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 CLIENT PROJECT NUMBER

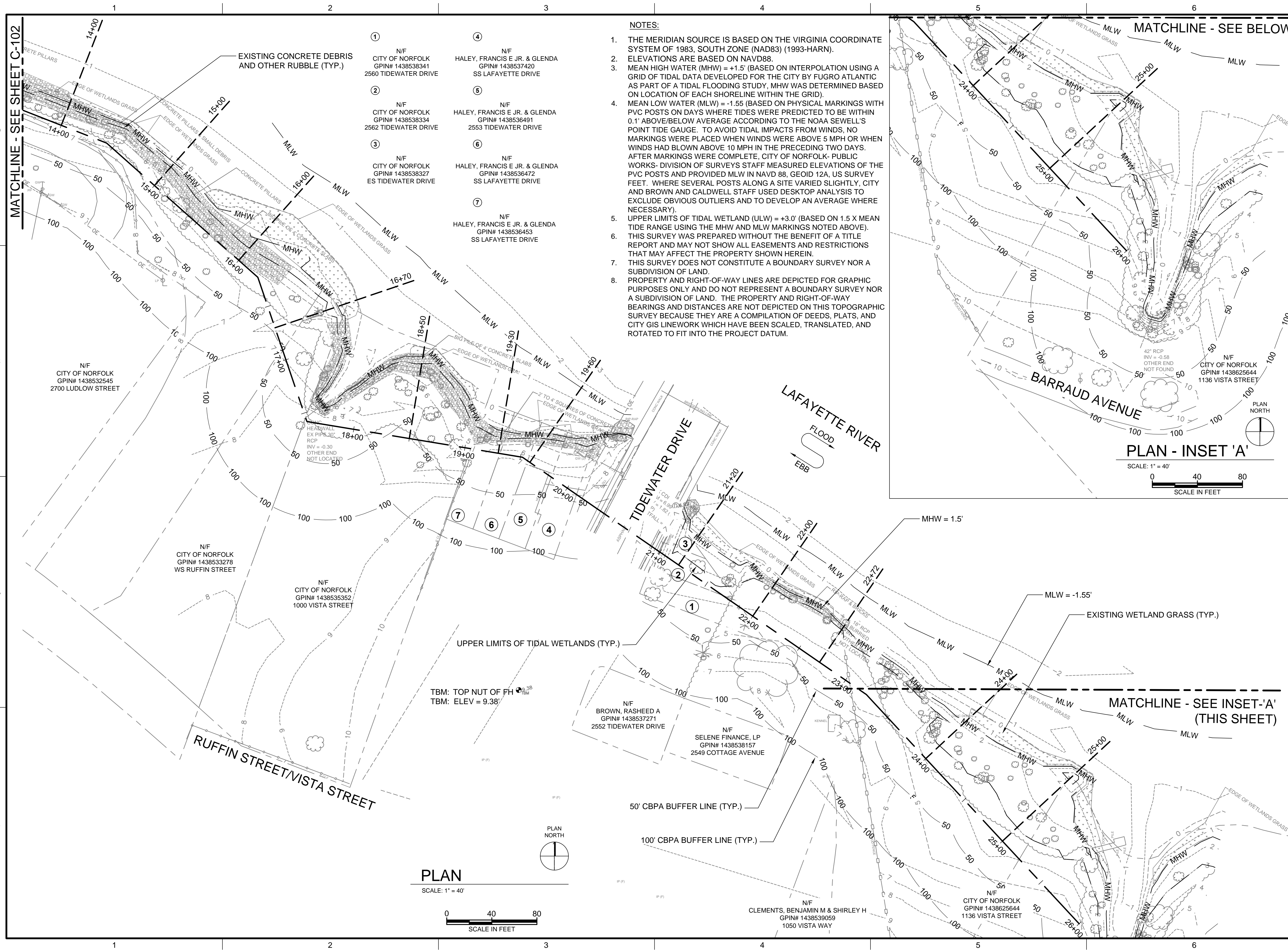
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C-102
 SHEET NUMBER
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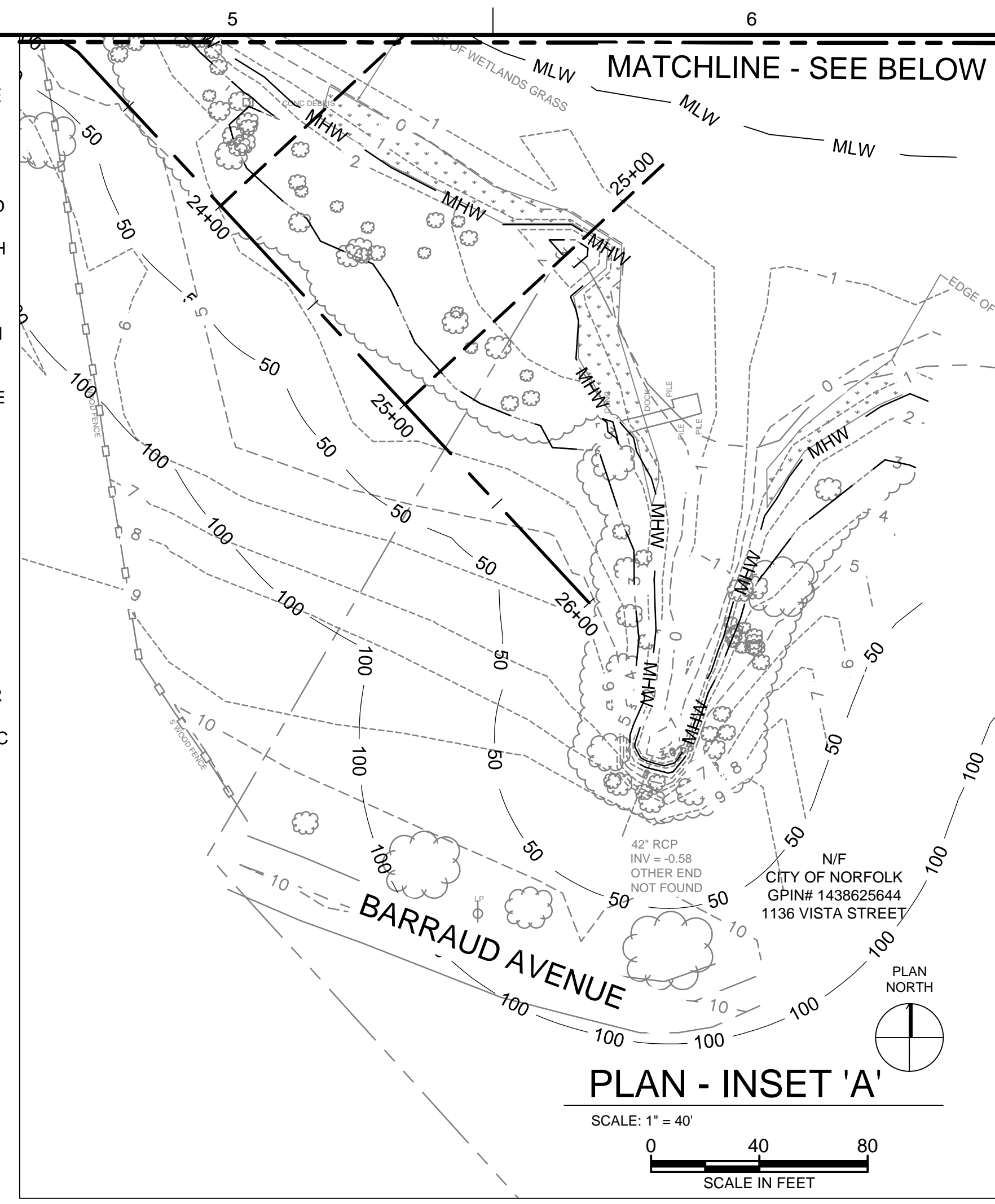


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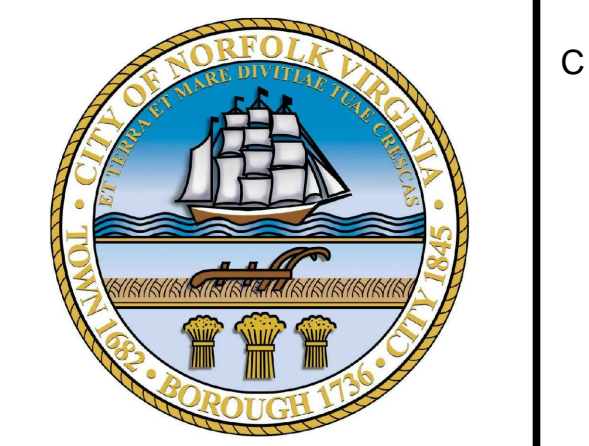
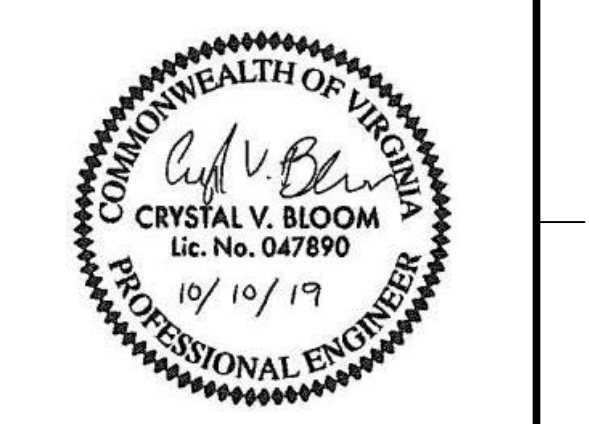
- NOTES:**
1. THE MERIDIAN SOURCE IS BASED ON THE VIRGINIA COORDINATE SYSTEM OF 1983, SOUTH ZONE (NAD83) (1993-HARN).
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| ① | N/F CITY OF NORFOLK GPIN# 1438538341 2560 TIDEWATER DRIVE | ④ | N/F HALEY, FRANCIS E JR. & GLENDA GPIN# 1438537420 SS LAFAYETTE DRIVE |
| ② | N/F CITY OF NORFOLK GPIN# 1438538334 2562 TIDEWATER DRIVE | ⑤ | N/F HALEY, FRANCIS E JR. & GLENDA GPIN# 1438536491 2553 TIDEWATER DRIVE |
| ③ | N/F CITY OF NORFOLK GPIN# 1438538327 ES TIDEWATER DRIVE | ⑥ | N/F HALEY, FRANCIS E JR. & GLENDA GPIN# 1438536472 SS LAFAYETTE DRIVE |
| | | ⑦ | N/F HALEY, FRANCIS E JR. & GLENDA GPIN# 1438536453 SS LAFAYETTE DRIVE |

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LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

REVISIONS

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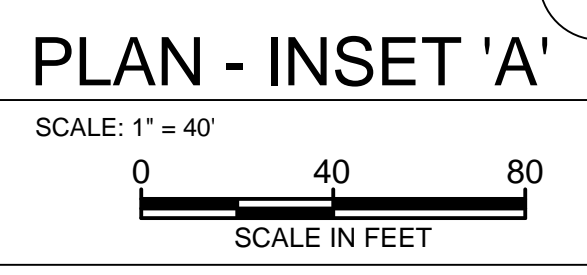
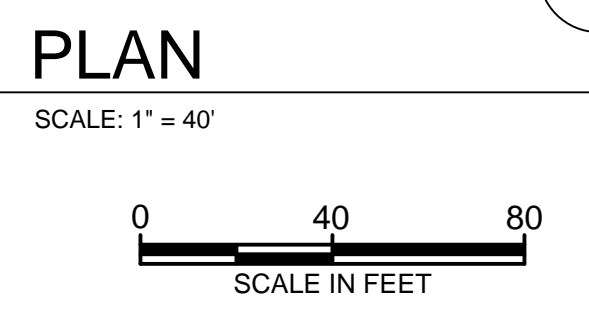
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 CLIENT PROJECT NUMBER

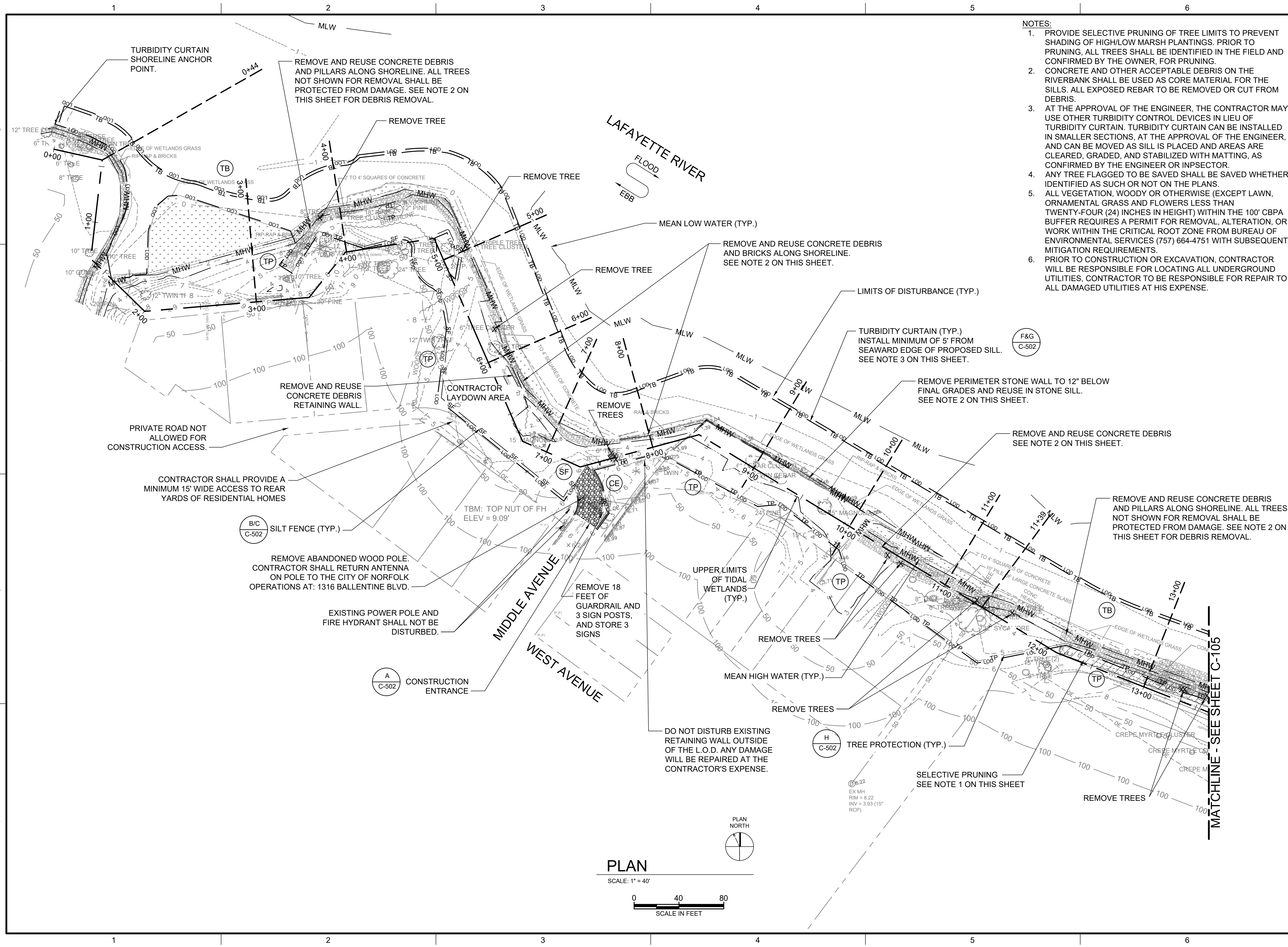
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C-103
 SHEET NUMBER
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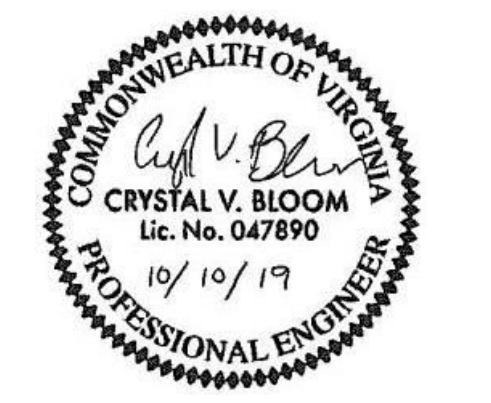


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- NOTES:**
1. PROVIDE SELECTIVE PRUNING OF TREE LIMITS TO PREVENT SHADING OF HIGH/LOW MARSH PLANTINGS. PRIOR TO PRUNING, ALL TREES SHALL BE IDENTIFIED IN THE FIELD AND CONFIRMED BY THE OWNER, FOR PRUNING.
 2. CONCRETE AND OTHER ACCEPTABLE DEBRIS ON THE RIVERBANK SHALL BE USED AS CORE MATERIAL FOR THE SILLS. ALL EXPOSED REBAR TO BE REMOVED OR CUT FROM DEBRIS.
 3. AT THE APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY USE OTHER TURBIDITY CONTROL DEVICES IN LIEU OF TURBIDITY CURTAIN. TURBIDITY CURTAIN CAN BE INSTALLED IN SMALLER SECTIONS. AT THE APPROVAL OF THE ENGINEER, AND CAN BE MOVED AS SILL IS PLACED AND AREAS ARE CLEARED, GRADED, AND STABILIZED WITH MATTING, AS CONFIRMED BY THE ENGINEER OR INSPECTOR.
 4. ANY TREE FLAGGED TO BE SAVED SHALL BE SAVED WHETHER IDENTIFIED AS SUCH OR NOT ON THE PLANS.
 5. ALL VEGETATION, WOODY OR OTHERWISE (EXCEPT LAWN, ORNAMENTAL GRASS AND FLOWERS LESS THAN TWENTY-FOUR (24) INCHES IN HEIGHT) WITHIN THE 100' CBPA BUFFER REQUIRES A PERMIT FOR REMOVAL, ALTERATION, OR WORK WITHIN THE CRITICAL ROOT ZONE FROM BUREAU OF ENVIRONMENTAL SERVICES (757) 664-4751 WITH SUBSEQUENT MITIGATION REQUIREMENTS.
 6. PRIOR TO CONSTRUCTION OR EXCAVATION, CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, CONTRACTOR TO BE RESPONSIBLE FOR REPAIR TO ALL DAMAGED UTILITIES AT HIS EXPENSE.

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LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

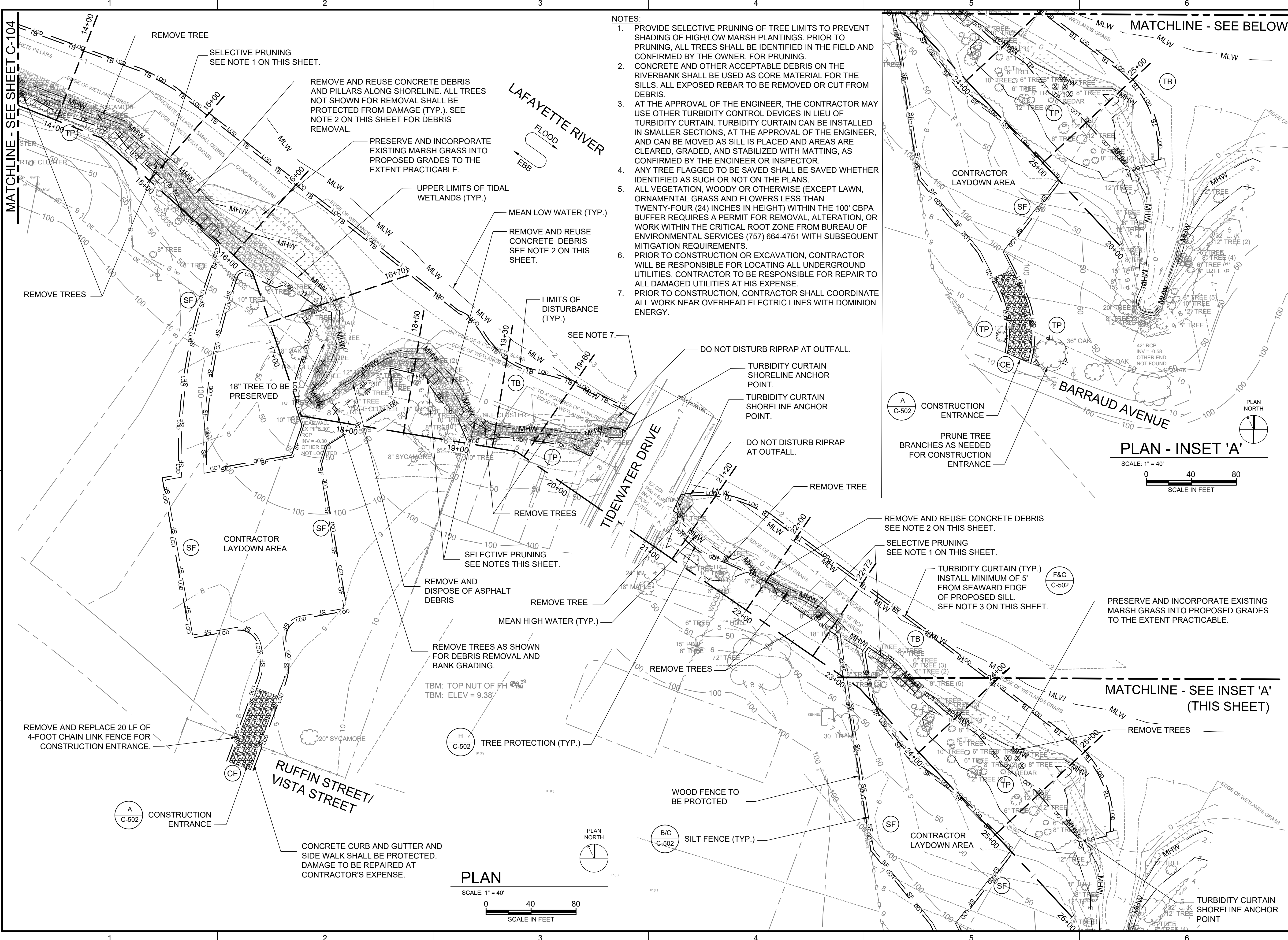
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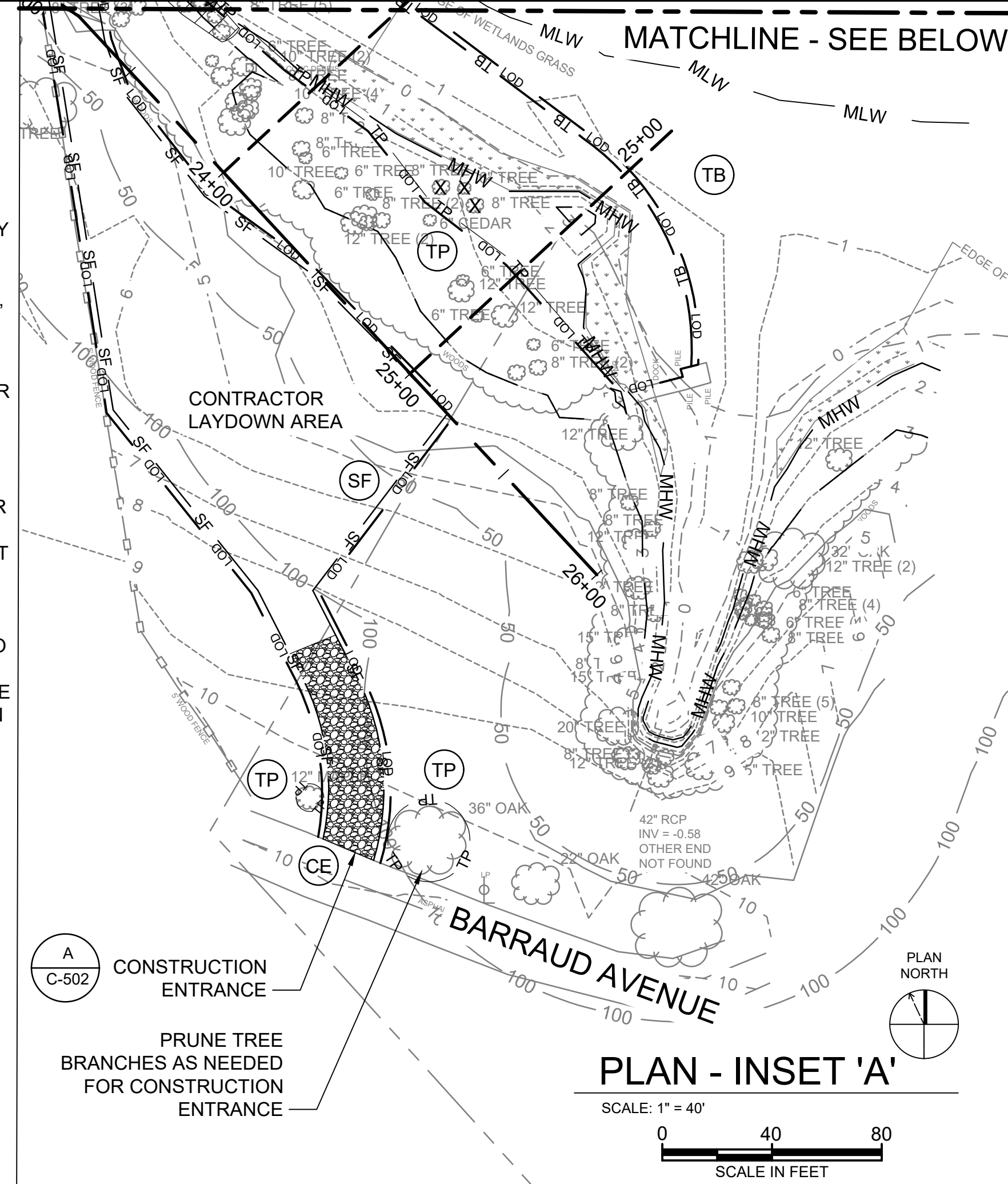
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DEMOLITION AND EROSION AND SEDIMENT CONTROL PLAN
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C-104
 SHEET NUMBER
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MATCHLINE - SEE SHEET C-105

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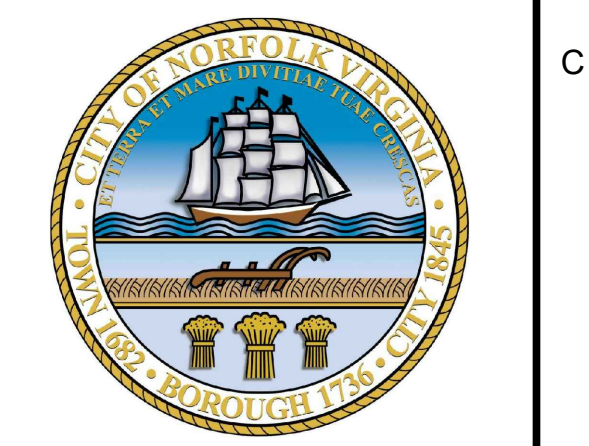
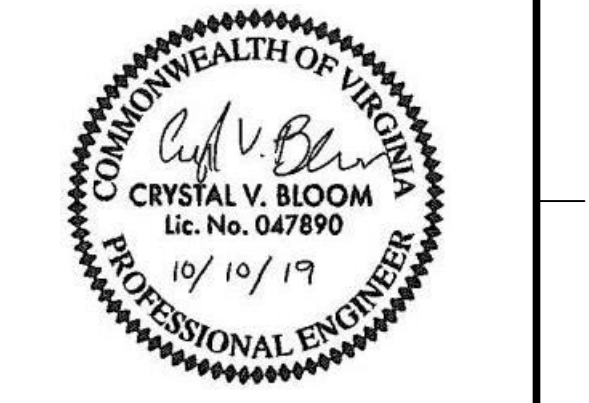


- NOTES:**
1. PROVIDE SELECTIVE PRUNING OF TREE LIMITS TO PREVENT SHADING OF HIGH/LOW MARSH PLANTINGS. PRIOR TO PRUNING, ALL TREES SHALL BE IDENTIFIED IN THE FIELD AND CONFIRMED BY THE OWNER, FOR PRUNING.
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 4. ANY TREE FLAGGED TO BE SAVED SHALL BE SAVED WHETHER IDENTIFIED AS SUCH OR NOT ON THE PLANS.
 5. ALL VEGETATION, WOODY OR OTHERWISE (EXCEPT LAWN, ORNAMENTAL GRASS AND FLOWERS LESS THAN TWENTY-FOUR (24) INCHES IN HEIGHT) WITHIN THE 100' CBPA BUFFER REQUIRES A PERMIT FOR REMOVAL, ALTERATION, OR WORK WITHIN THE CRITICAL ROOT ZONE FROM BUREAU OF ENVIRONMENTAL SERVICES (757) 664-4751 WITH SUBSEQUENT MITIGATION REQUIREMENTS.
 6. PRIOR TO CONSTRUCTION OR EXCAVATION, CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES. CONTRACTOR TO BE RESPONSIBLE FOR REPAIR TO ALL DAMAGED UTILITIES AT HIS EXPENSE.
 7. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL COORDINATE ALL WORK NEAR OVERHEAD ELECTRIC LINES WITH DOMINION ENERGY.



PLAN
SCALE: 1" = 40'
SCALE IN FEET

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CERTIFICATION OF AUTHORIZATION NO. 00002602
VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

REVISIONS

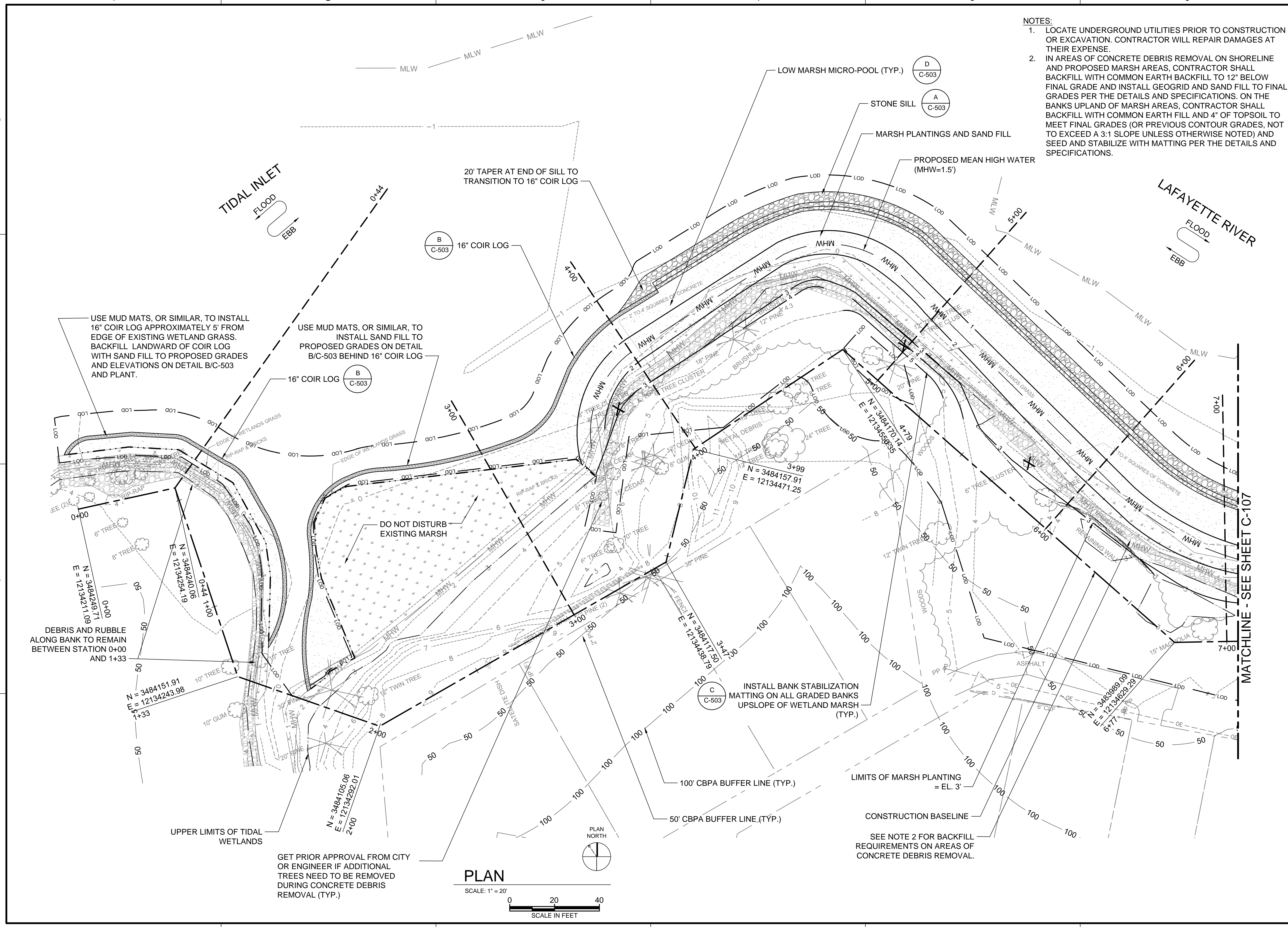
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APPROVED: CB

FILENAME: C-105.DWG
BC PROJECT NUMBER: 149124
CLIENT PROJECT NUMBER:

CIVIL
DEMOLITION AND EROSION AND SEDIMENT CONTROL PLAN
DRAWING NUMBER
C-105
SHEET NUMBER
7 OF 21

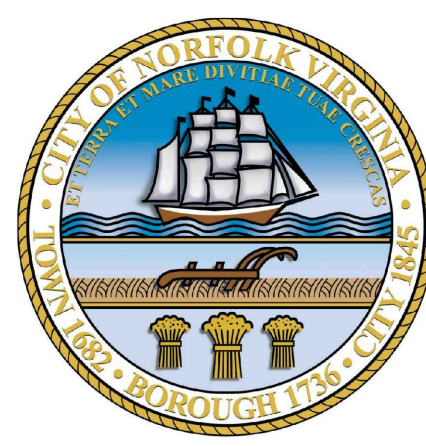
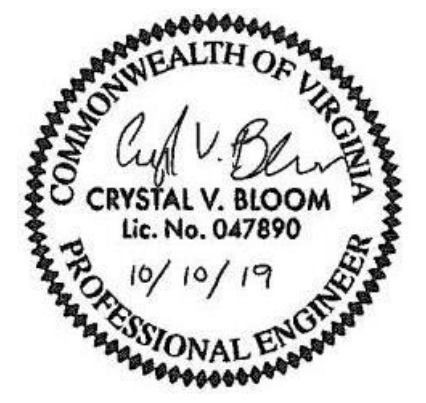
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- NOTES:**
1. LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. CONTRACTOR WILL REPAIR DAMAGES AT THEIR EXPENSE.
 2. IN AREAS OF CONCRETE DEBRIS REMOVAL ON SHORELINE AND PROPOSED MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH BACKFILL TO 12" BELOW FINAL GRADE AND INSTALL GEOGRID AND SAND FILL TO FINAL GRADES PER THE DETAILS AND SPECIFICATIONS. ON THE BANKS UPLAND OF MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH FILL AND 4" OF TOPSOIL TO MEET FINAL GRADES (OR PREVIOUS CONTOUR GRADES, NOT TO EXCEED A 3:1 SLOPE UNLESS OTHERWISE NOTED) AND SEED AND STABILIZE WITH MATTING PER THE DETAILS AND SPECIFICATIONS.



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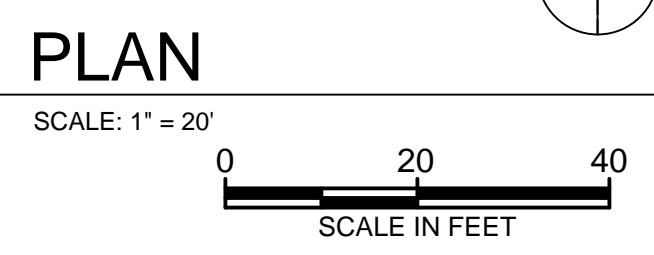
LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

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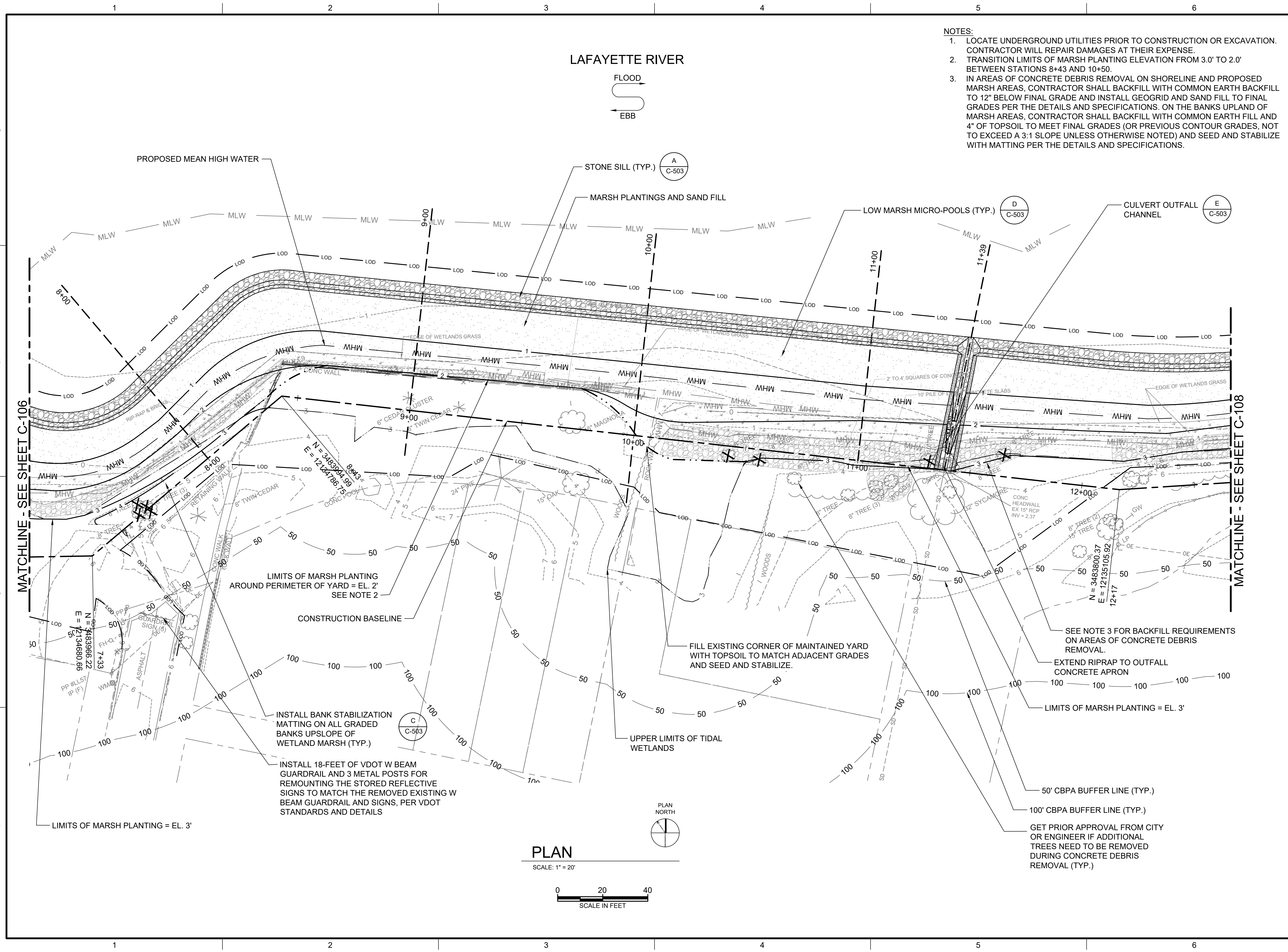
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PROPOSED IMPROVEMENTS
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DRAWING NUMBER
C-106
 SHEET NUMBER
 8 OF 21



MATCHLINE - SEE SHEET C-107

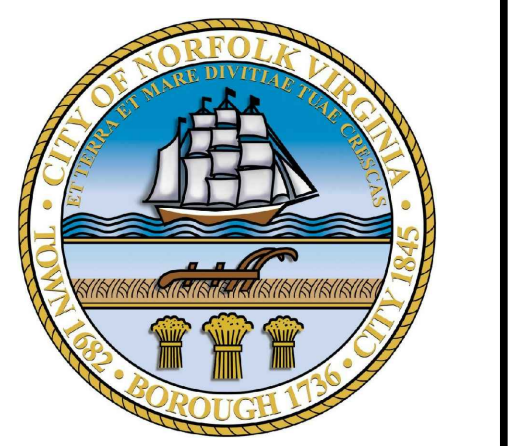
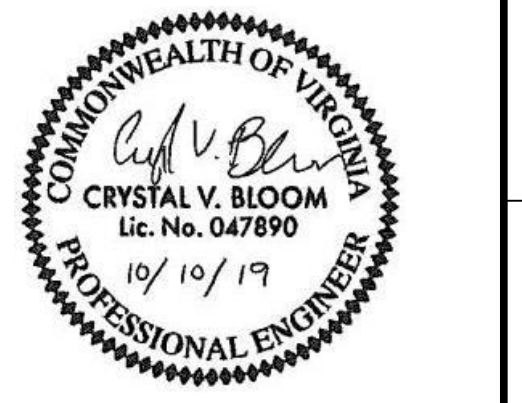
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- NOTES:**
1. LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. CONTRACTOR WILL REPAIR DAMAGES AT THEIR EXPENSE.
 2. TRANSITION LIMITS OF MARSH PLANTING ELEVATION FROM 3.0' TO 2.0' BETWEEN STATIONS 8+43 AND 10+50.
 3. IN AREAS OF CONCRETE DEBRIS REMOVAL ON SHORELINE AND PROPOSED MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH BACKFILL TO 12" BELOW FINAL GRADE AND INSTALL GEOGRID AND SAND FILL TO FINAL GRADES PER THE DETAILS AND SPECIFICATIONS. ON THE BANKS UPLAND OF MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH FILL AND 4" OF TOPSOIL TO MEET FINAL GRADES (OR PREVIOUS CONTOUR GRADES, NOT TO EXCEED A 3:1 SLOPE UNLESS OTHERWISE NOTED) AND SEED AND STABILIZE WITH MATTING PER THE DETAILS AND SPECIFICATIONS.

Brown AND Caldwell

ENVIRONMENTAL ENGINEERING AND CONSULTING
 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

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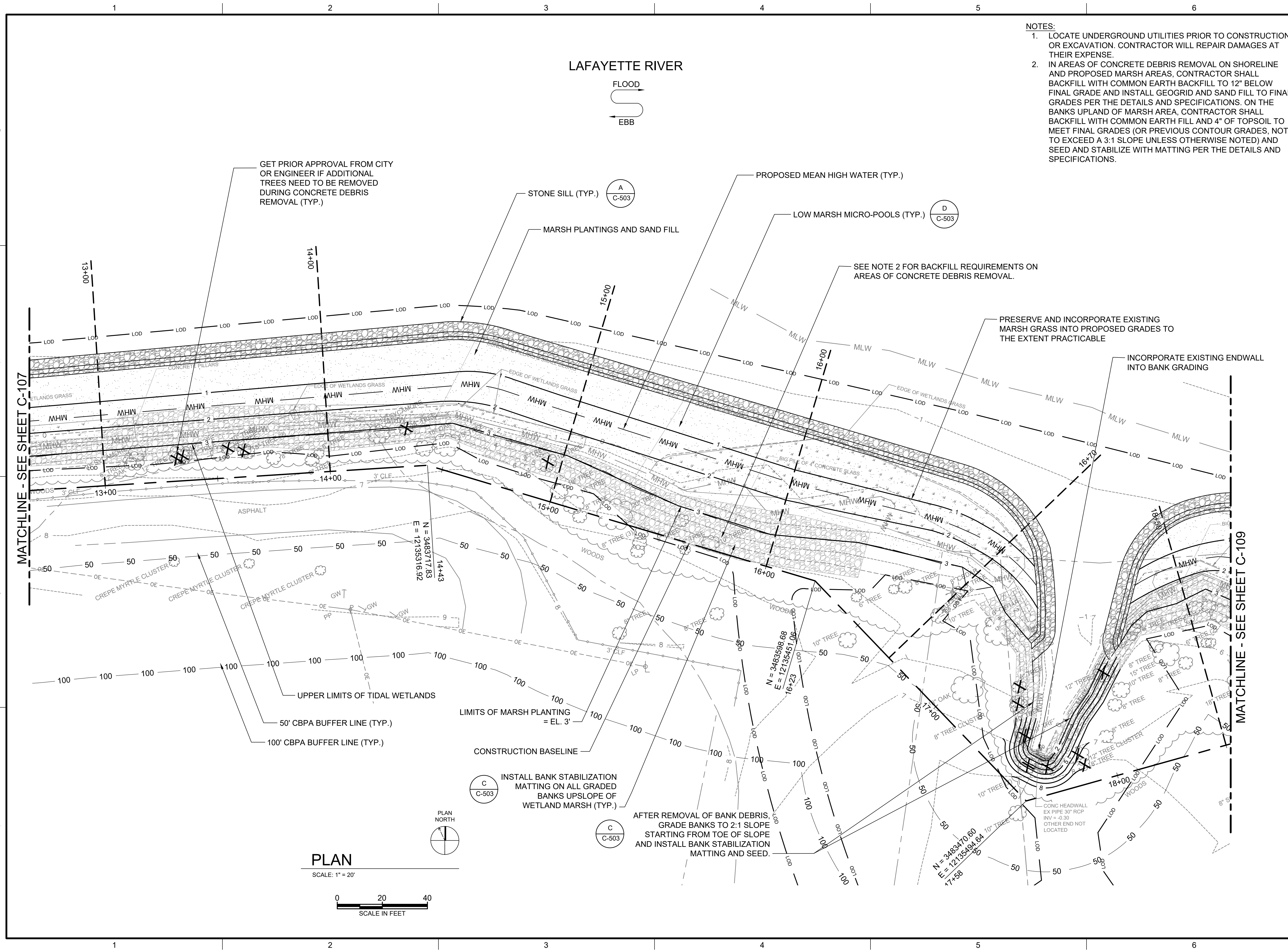
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| APPROVED: CB |
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| BC PROJECT NUMBER: 149124.200.010 |
| CLIENT PROJECT NUMBER |

CIVIL

PROPOSED IMPROVEMENTS STA 7+05 TO 12+66

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| DRAWING NUMBER |
| C-107 |
| SHEET NUMBER |
| 9 OF 21 |

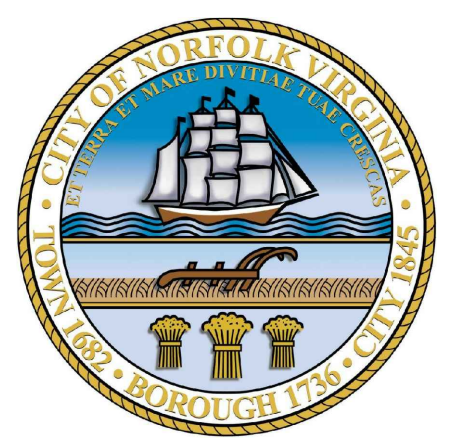
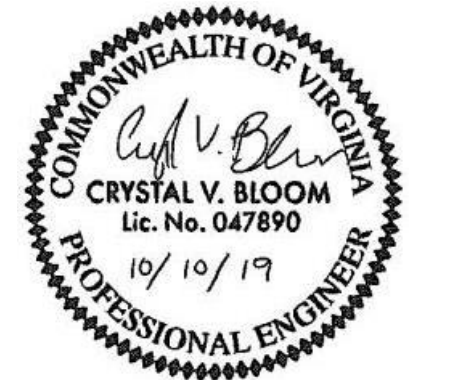
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- NOTES:**
- LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. CONTRACTOR WILL REPAIR DAMAGES AT THEIR EXPENSE.
 - IN AREAS OF CONCRETE DEBRIS REMOVAL ON SHORELINE AND PROPOSED MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH BACKFILL TO 12" BELOW FINAL GRADE AND INSTALL GEOGRID AND SAND FILL TO FINAL GRADES PER THE DETAILS AND SPECIFICATIONS. ON THE BANKS UPLAND OF MARSH AREA, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH FILL AND 4" OF TOPSOIL TO MEET FINAL GRADES (OR PREVIOUS CONTOUR GRADES, NOT TO EXCEED A 3:1 SLOPE UNLESS OTHERWISE NOTED) AND SEED AND STABILIZE WITH MATTING PER THE DETAILS AND SPECIFICATIONS.

Brown AND Caldwell

ENVIRONMENTAL ENGINEERING AND CONSULTING
CERTIFICATION OF AUTHORIZATION NO. 00002602
VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

| REVISIONS | | |
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LINE IS 2 INCHES AT FULL SIZE

DESIGNED: BN
DRAWN: RJ
CHECKED: BN
CHECKED: JO
APPROVED: CB

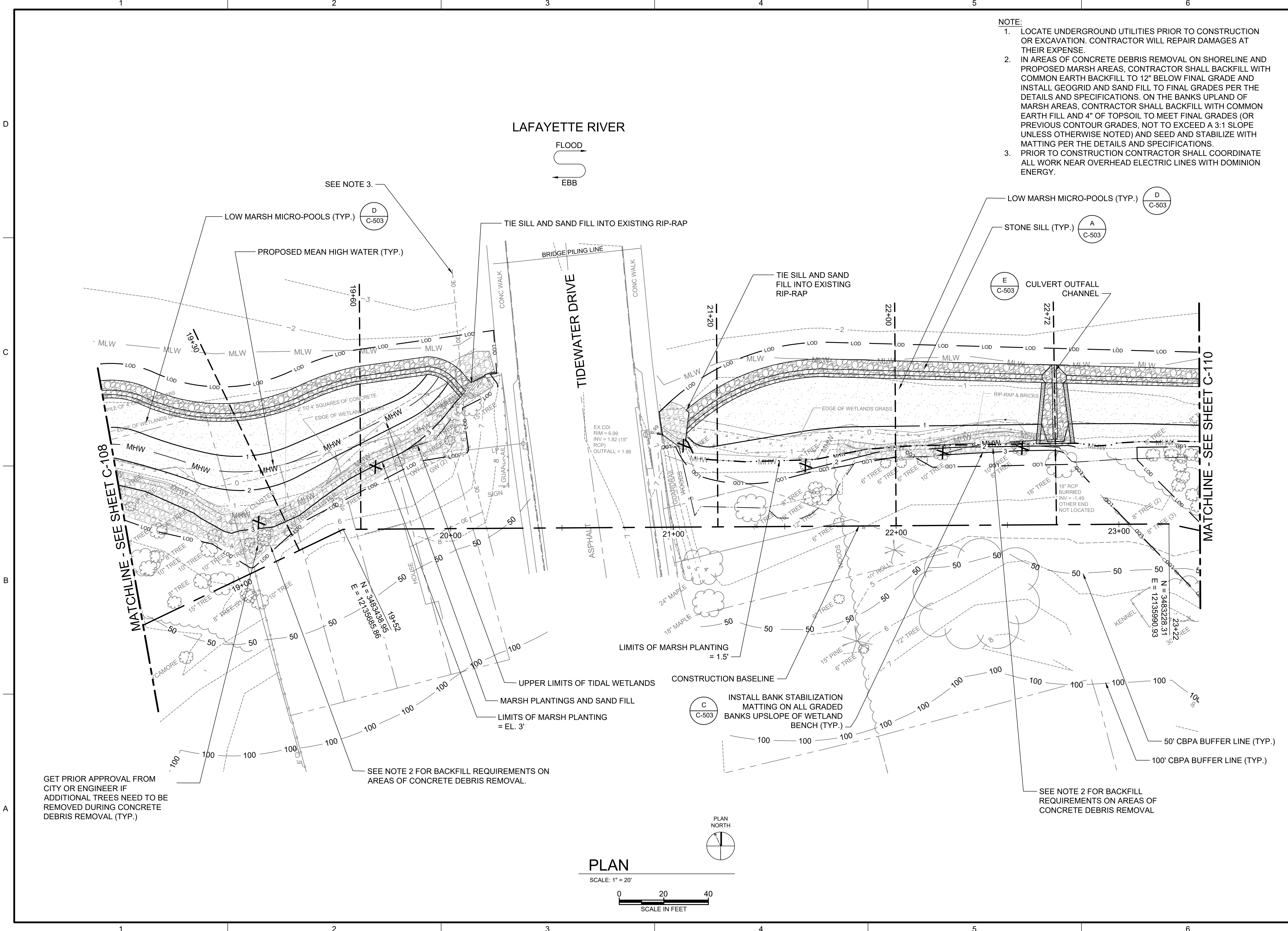
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BC PROJECT NUMBER: 149124.200.010
CLIENT PROJECT NUMBER

CIVIL

PROPOSED IMPROVEMENTS
STA 12+66 TO 18+52

DRAWING NUMBER
C-108
SHEET NUMBER
10 OF 21

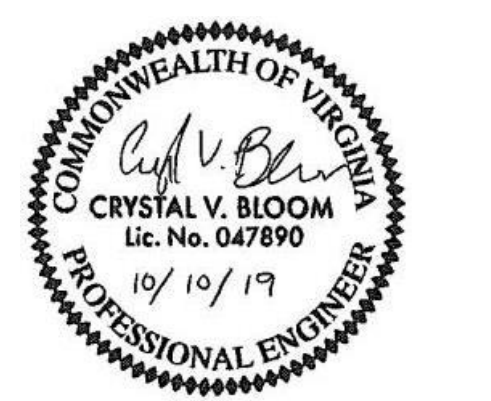
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- NOTE:**
- LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. CONTRACTOR WILL REPAIR DAMAGES AT THEIR EXPENSE.
 - IN AREAS OF CONCRETE DEBRIS REMOVAL ON SHORELINE AND PROPOSED MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH BACKFILL TO 12" BELOW FINAL GRADE AND INSTALL GEOGRID AND SAND FILL TO FINAL GRADES PER THE DETAILS AND SPECIFICATIONS. ON THE BANKS UPLAND OF MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH FILL AND 4" OF TOPSOIL TO MEET FINAL GRADES (OR PREVIOUS CONTOUR GRADES, NOT TO EXCEED A 3:1 SLOPE UNLESS OTHERWISE NOTED) AND SEED AND STABILIZE WITH MATTING PER THE DETAILS AND SPECIFICATIONS.
 - PRIOR TO CONSTRUCTION CONTRACTOR SHALL COORDINATE ALL WORK NEAR OVERHEAD ELECTRIC LINES WITH DOMINION ENERGY.

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LINDEWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

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LINE IS 2 INCHES AT FULL SIZE

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DRAWN: RJ
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APPROVED: CB

FILENAME: C-109.DWG
BC PROJECT NUMBER: 149124.200.010
CLIENT PROJECT NUMBER

CIVIL

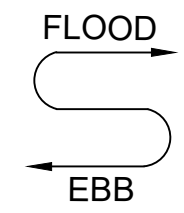
PROPOSED IMPROVEMENTS

STA 18+52 TO 23+36

DRAWING NUMBER
C-109
SHEET NUMBER
11 OF 21

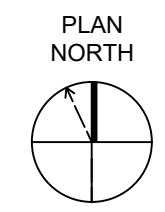
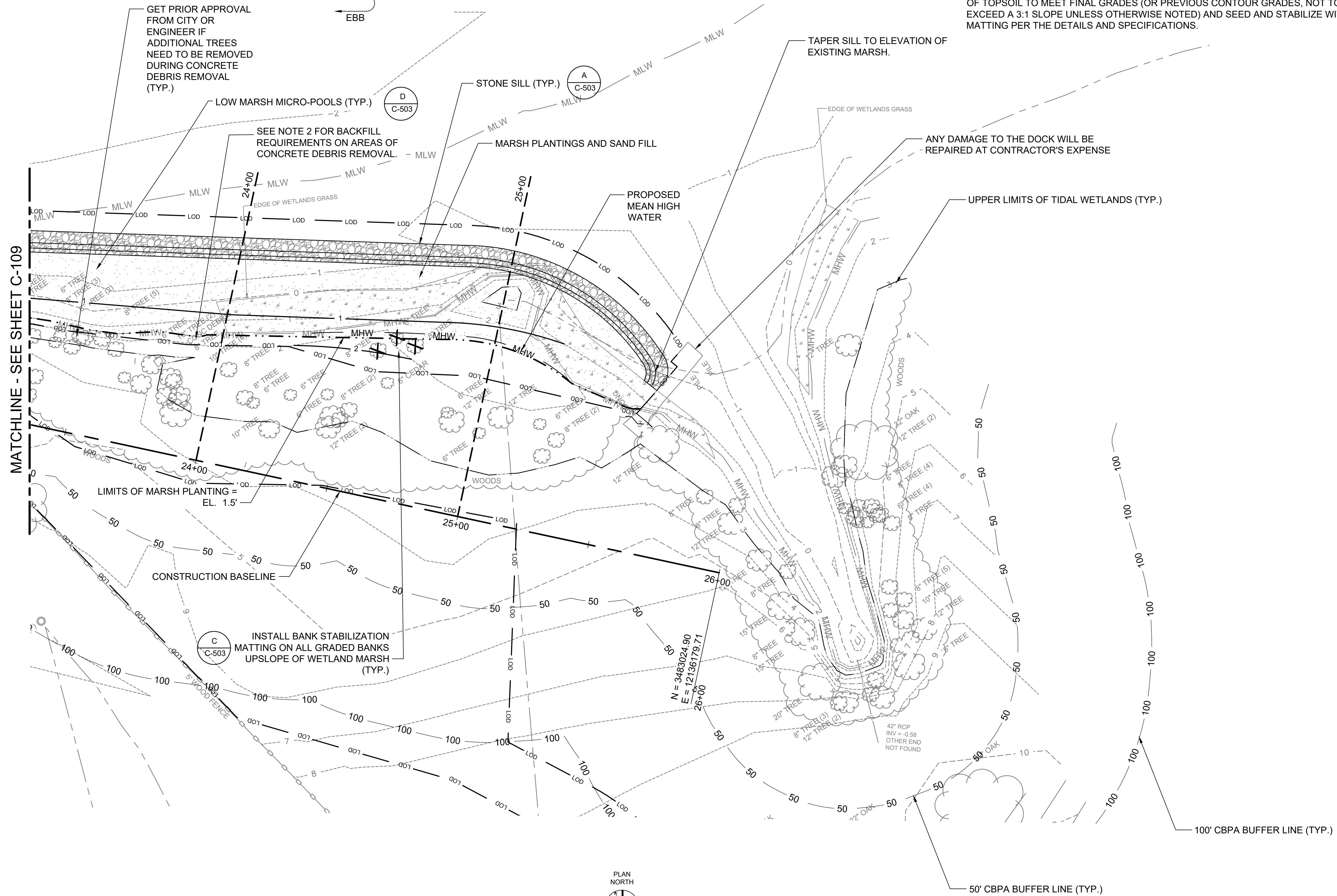
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LAFAYETTE RIVER



NOTE:

- LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. CONTRACTOR WILL REPAIR DAMAGES AT THEIR EXPENSE.
- IN AREAS OF CONCRETE DEBRIS REMOVAL ON SHORELINE AND PROPOSED MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH BACKFILL TO 12" BELOW FINAL GRADE AND INSTALL GEOGRID AND SAND FILL TO FINAL GRADES PER THE DETAILS AND SPECIFICATIONS. ON THE BANKS UPLAND OF MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH FILL AND 4" OF TOPSOIL TO MEET FINAL GRADES (OR PREVIOUS CONTOUR GRADES, NOT TO EXCEED A 3:1 SLOPE UNLESS OTHERWISE NOTED) AND SEED AND STABILIZE WITH MATTING PER THE DETAILS AND SPECIFICATIONS.

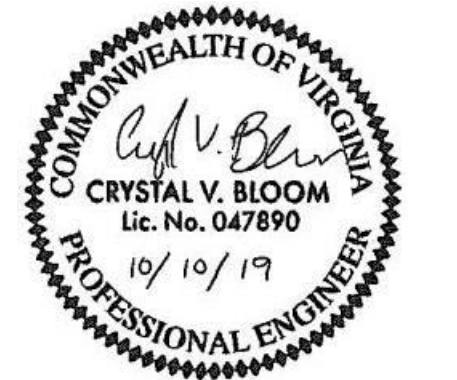


PLAN

SCALE: 1" = 20'



ENVIRONMENTAL ENGINEERING AND CONSULTING
 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD
 PARK LIVING SHORELINE
 DESIGN

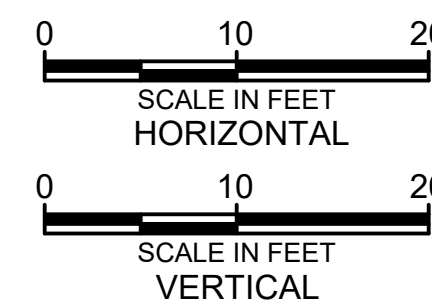
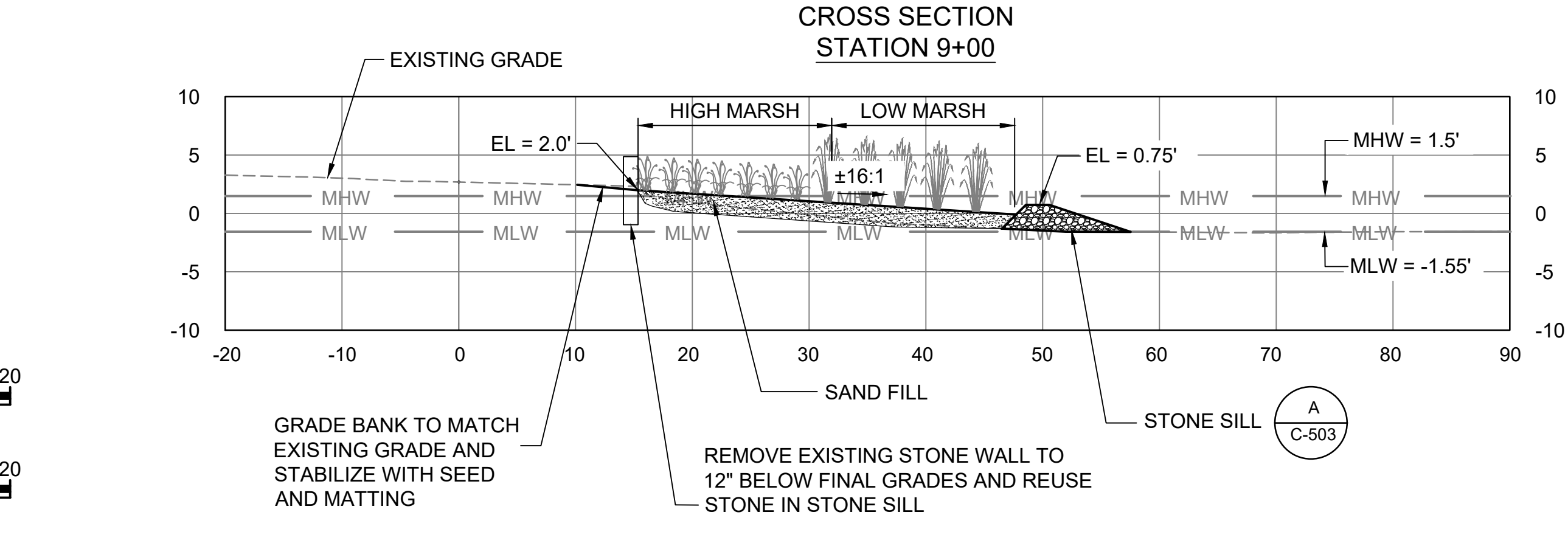
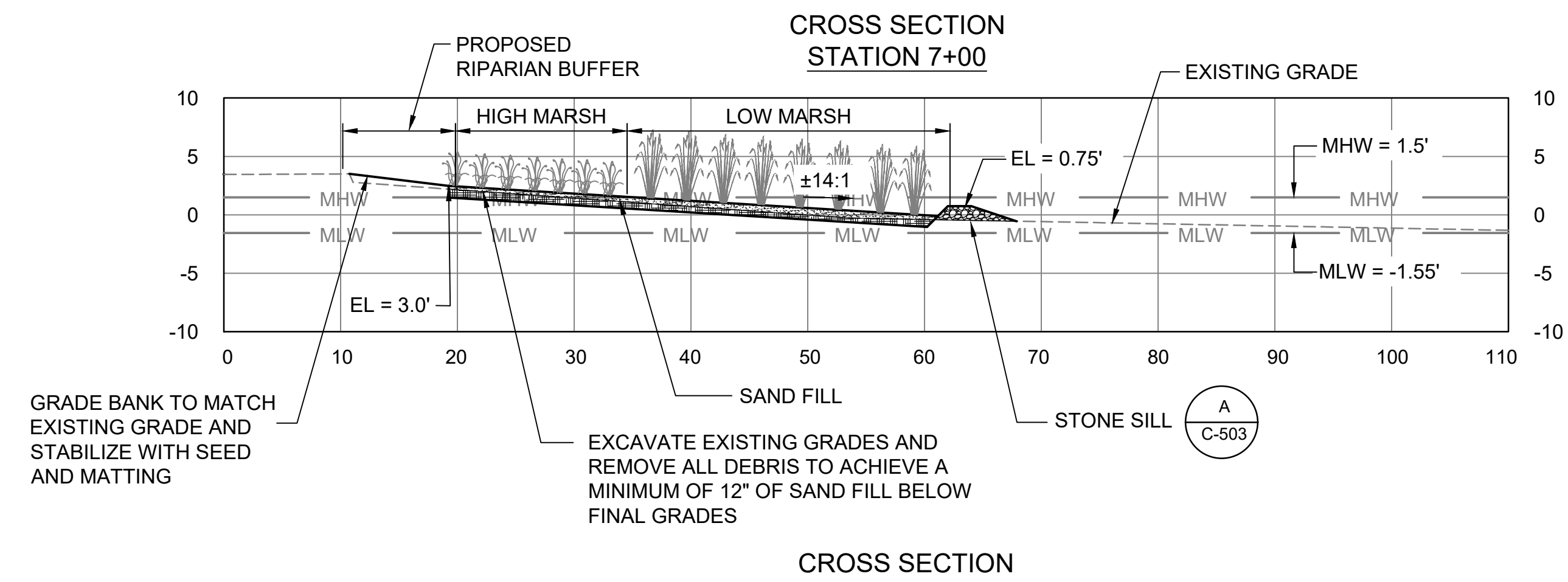
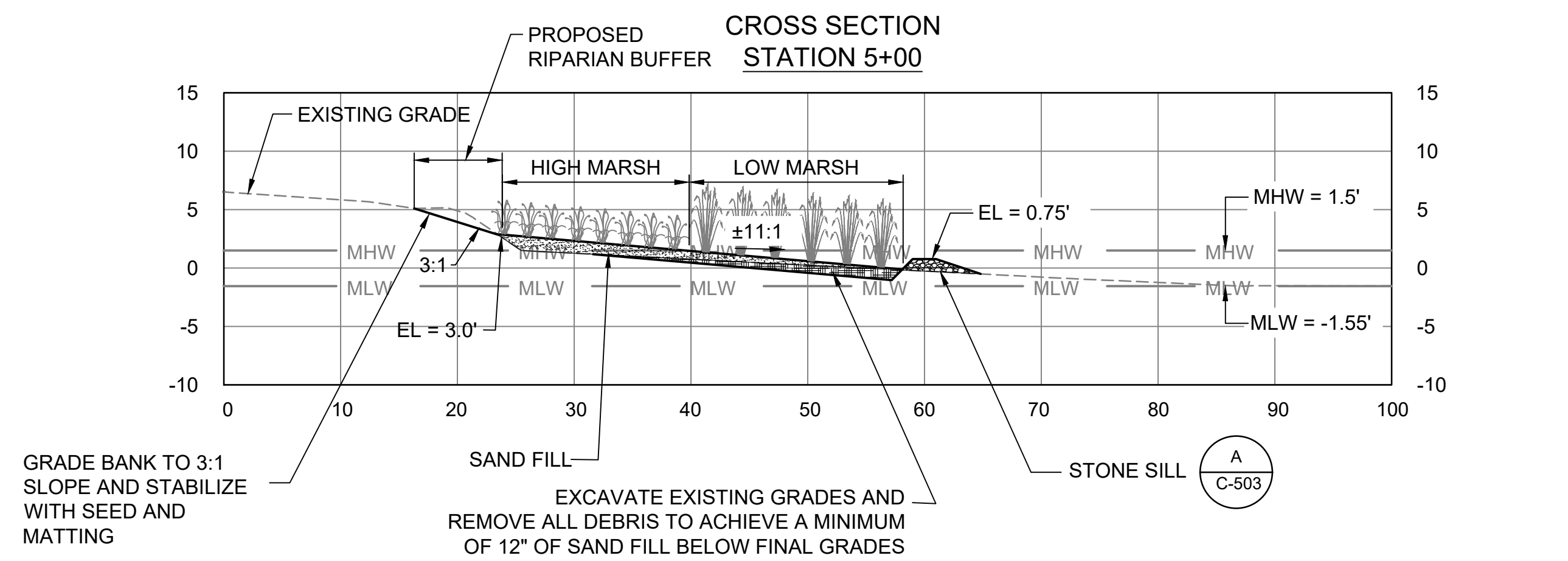
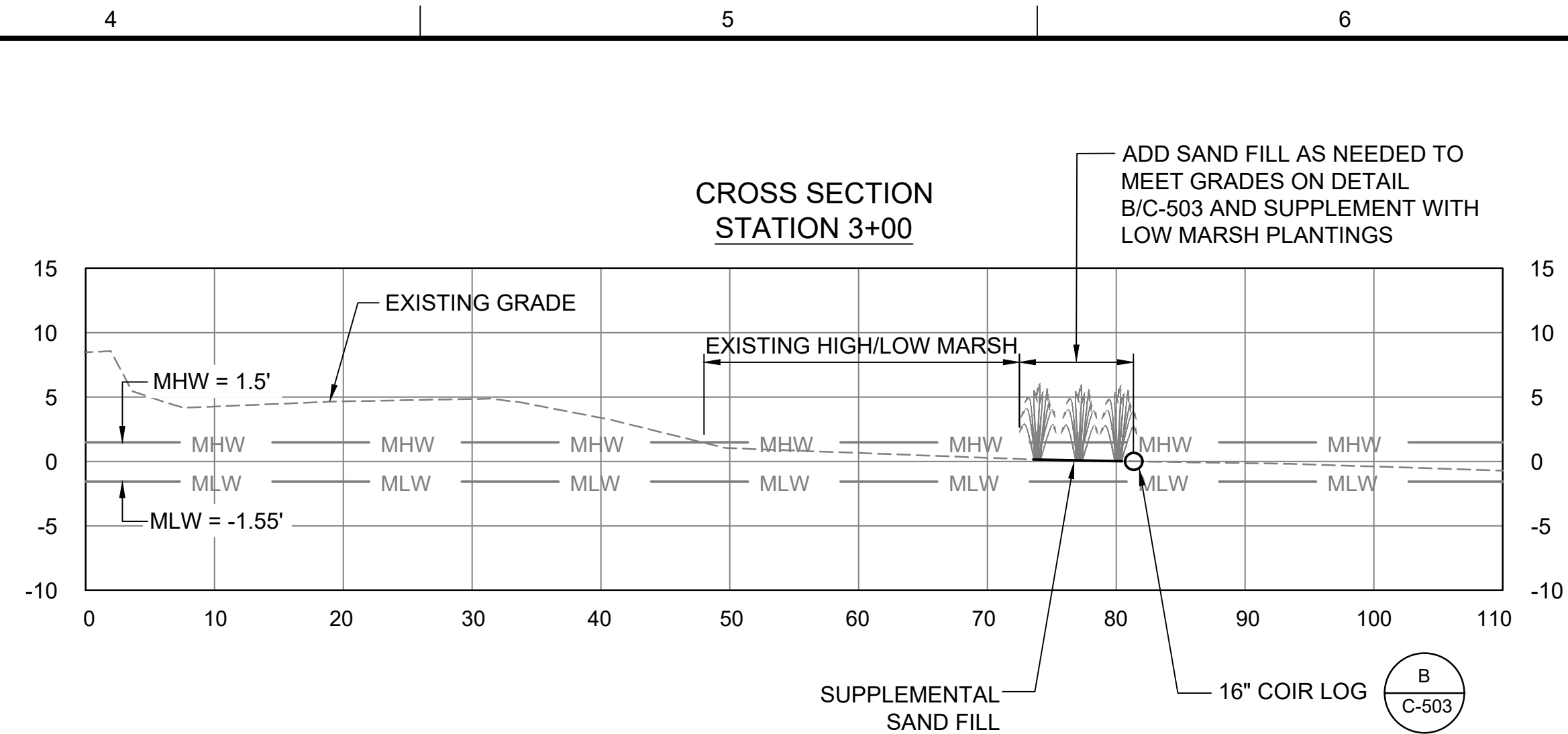
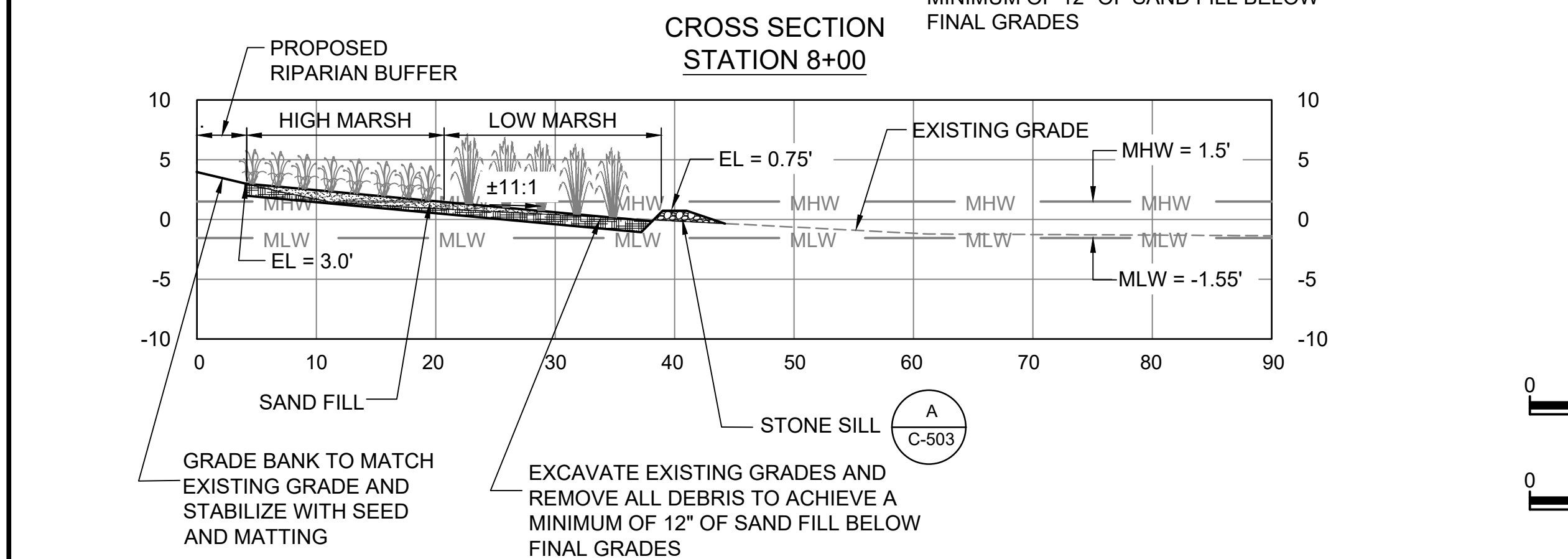
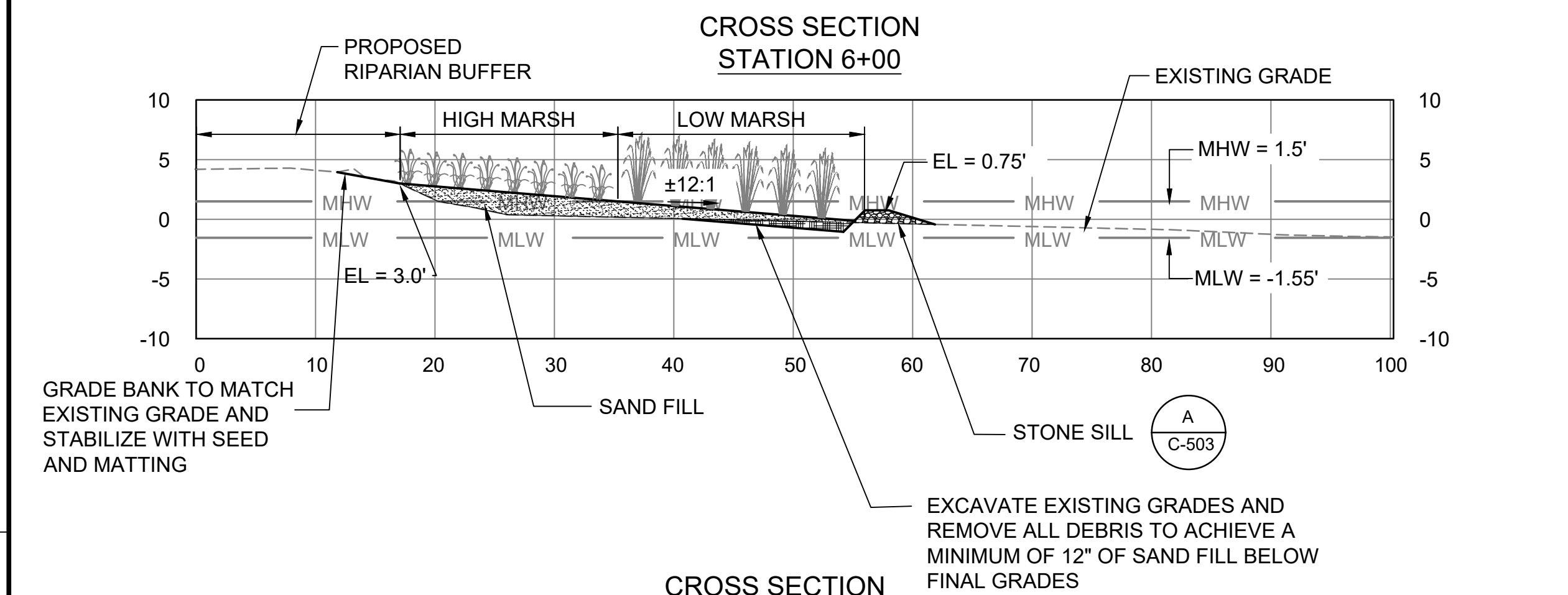
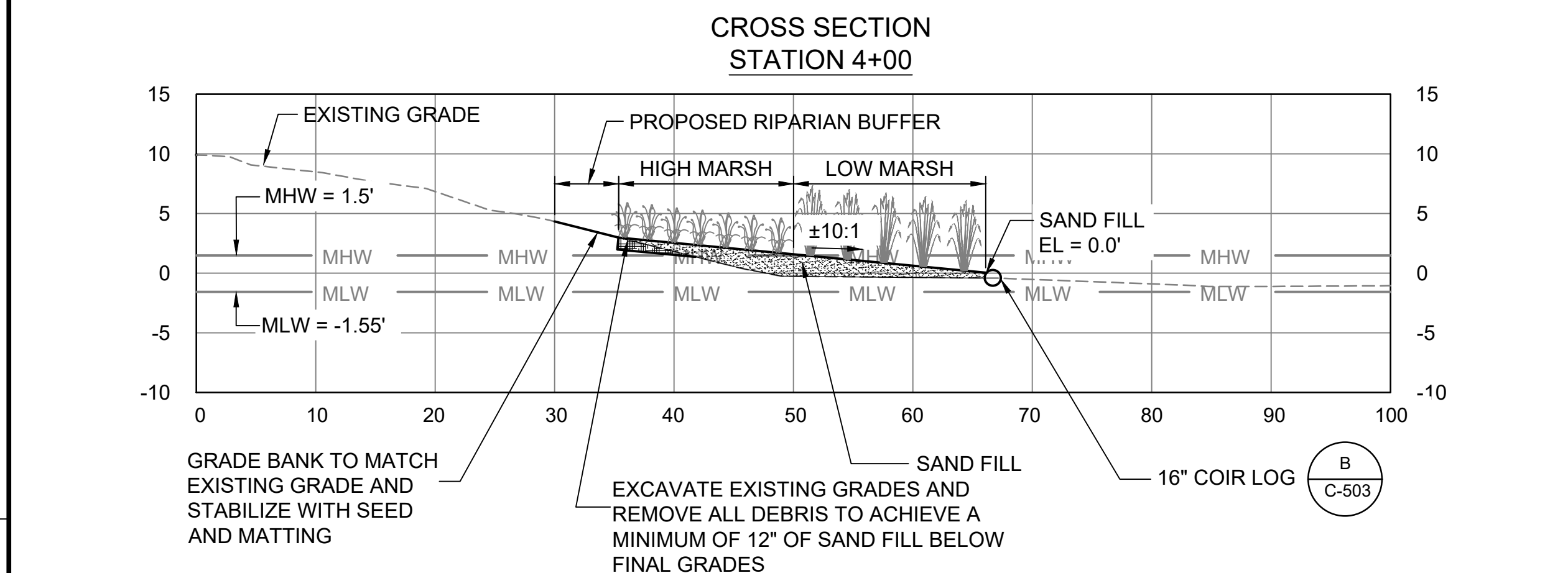
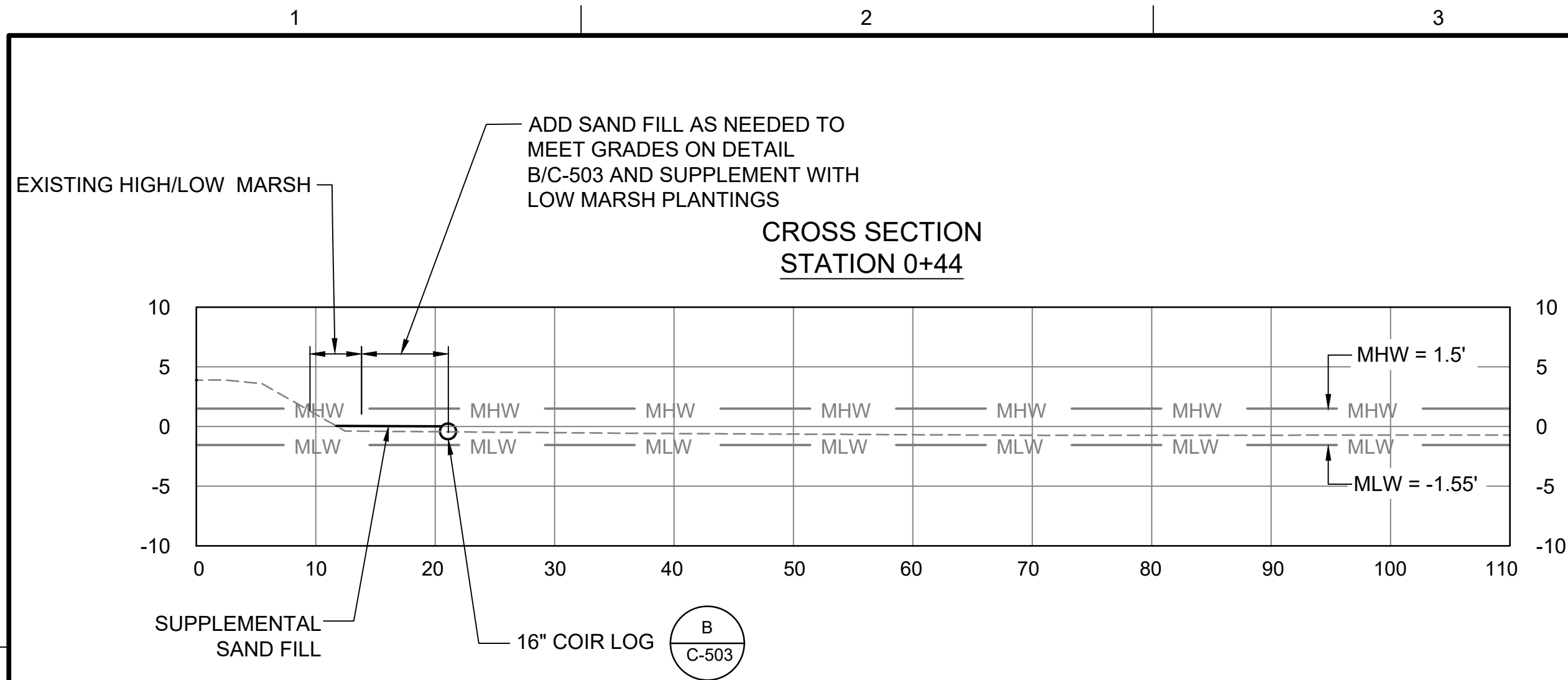
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| DRAWN: | RJ |
| CHECKED: | BN |
| CHECKED: | JO |
| APPROVED: | CB |
| FILENAME: | C-110.DWG |
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| CLIENT PROJECT NUMBER: | |

CIVIL
 PROPOSED
 IMPROVEMENTS
 STA 23+36 TO 26+00

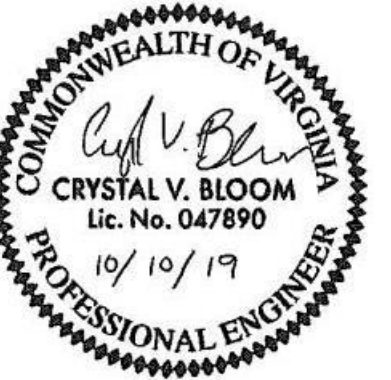
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C-110
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LINDENWOOD/BARRAUD
 PARK LIVING SHORELINE
 DESIGN

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LINE IS 2 INCHES AT FULL SIZE

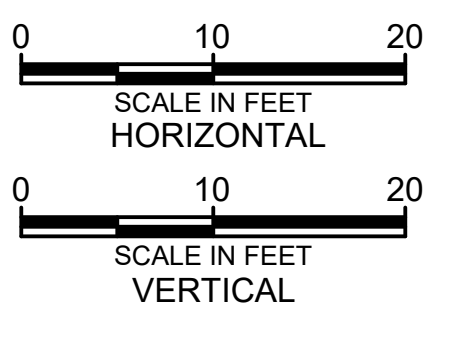
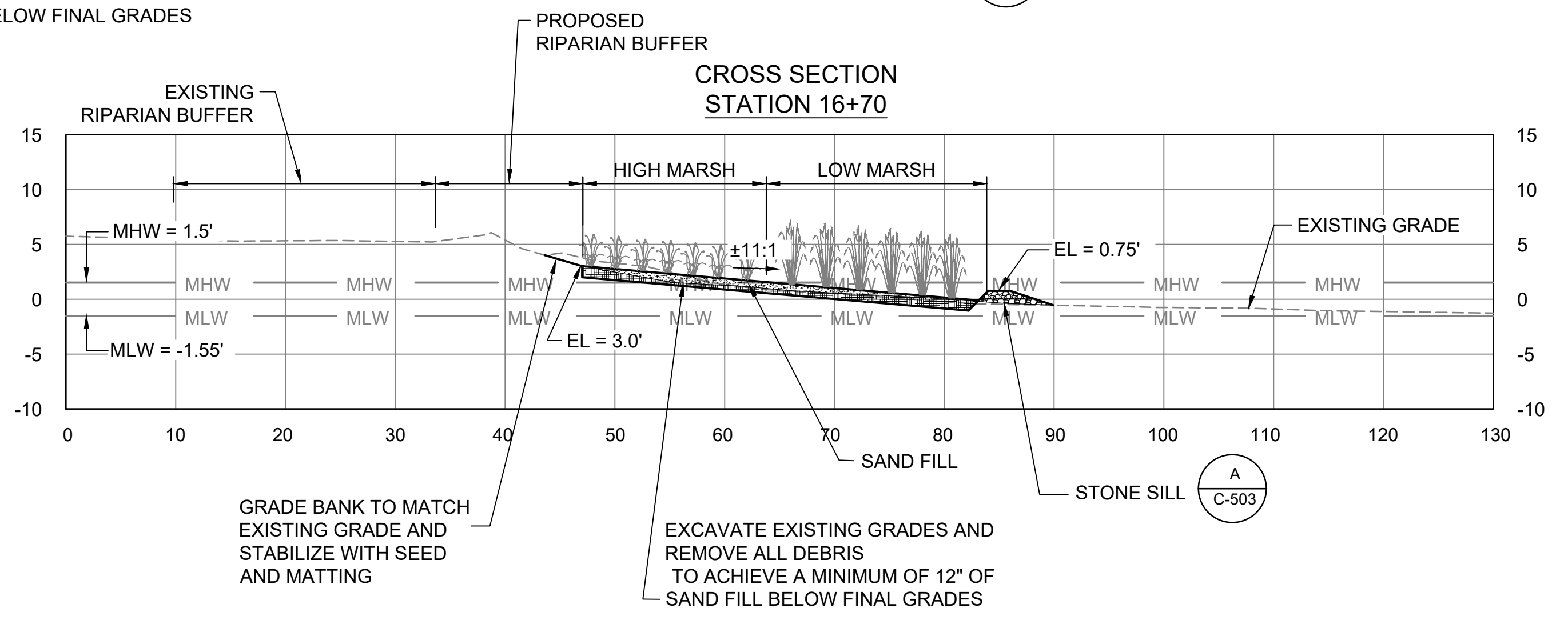
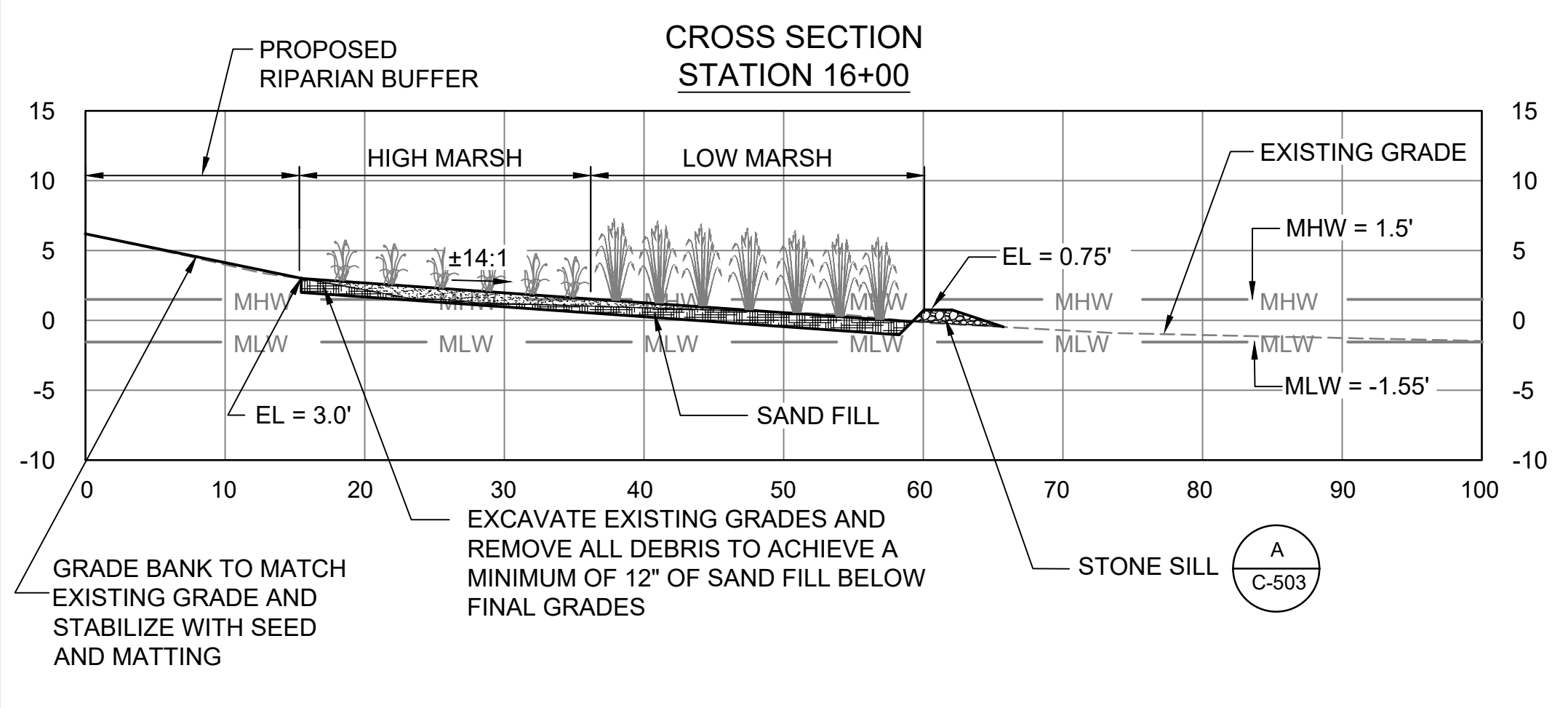
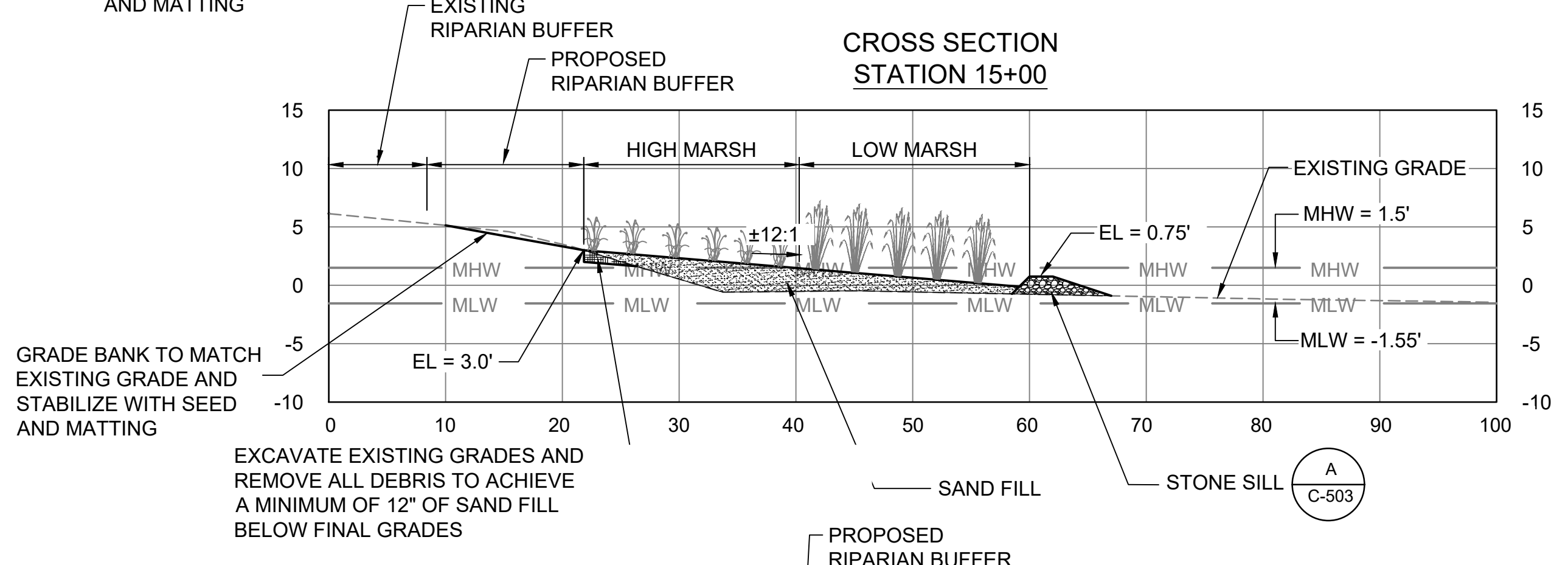
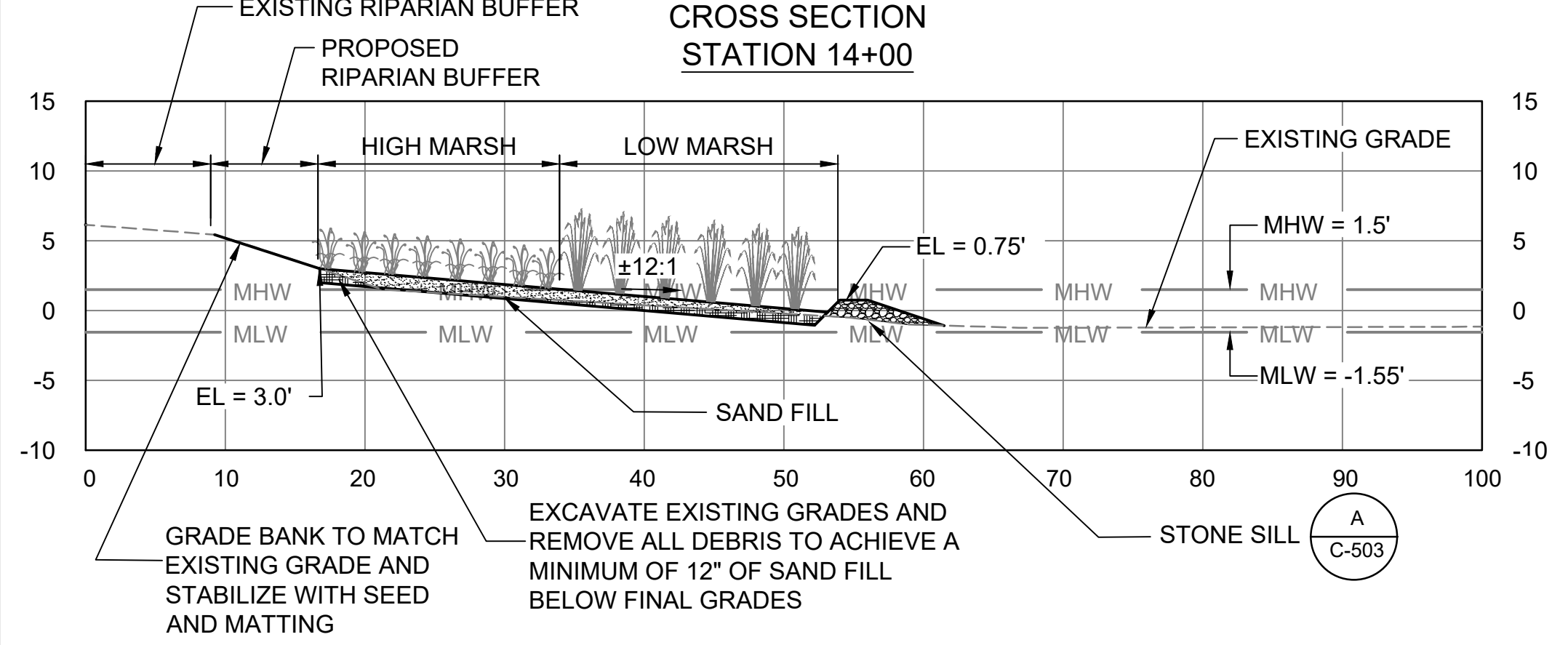
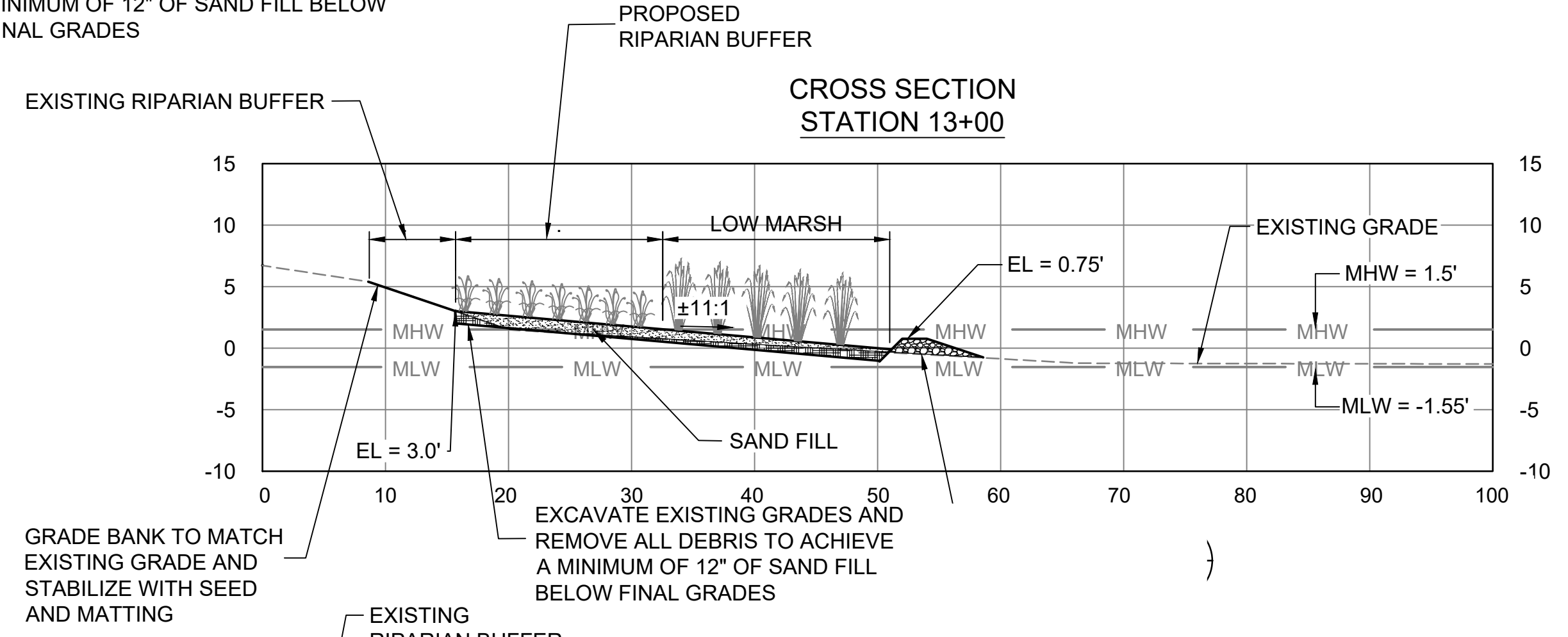
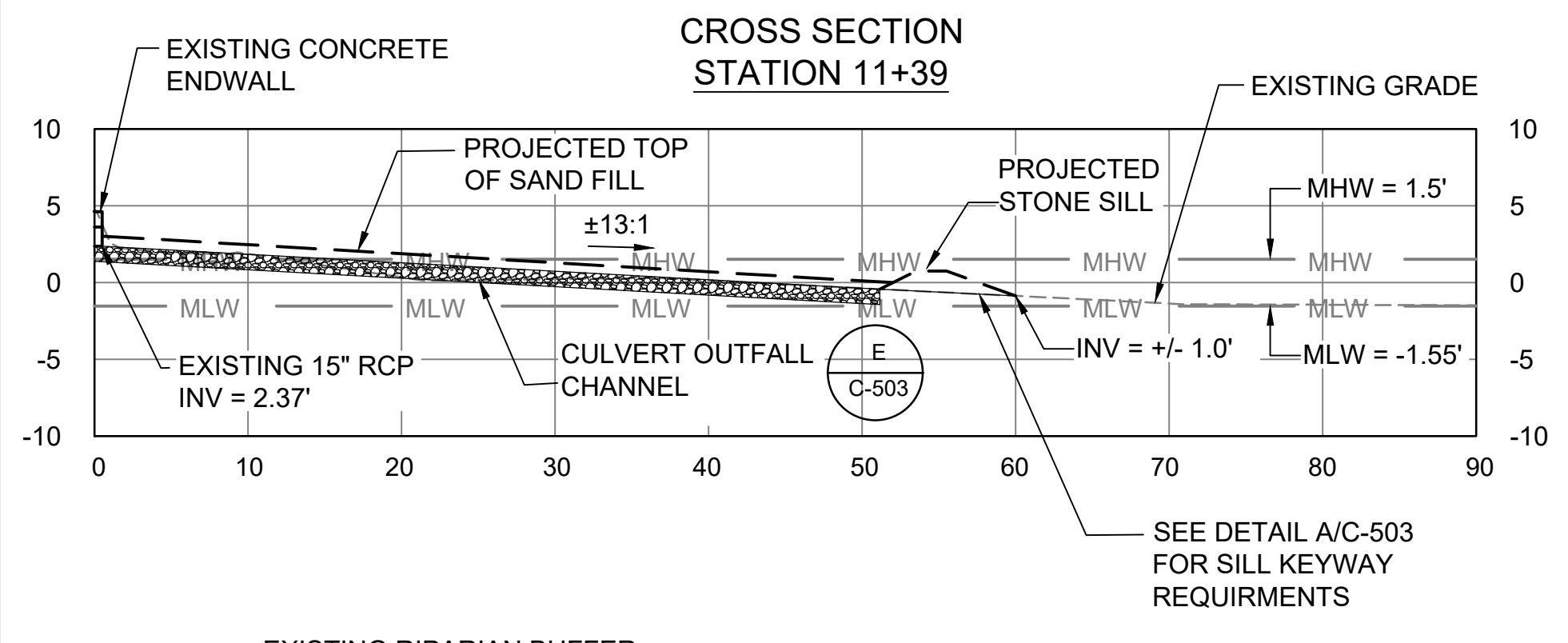
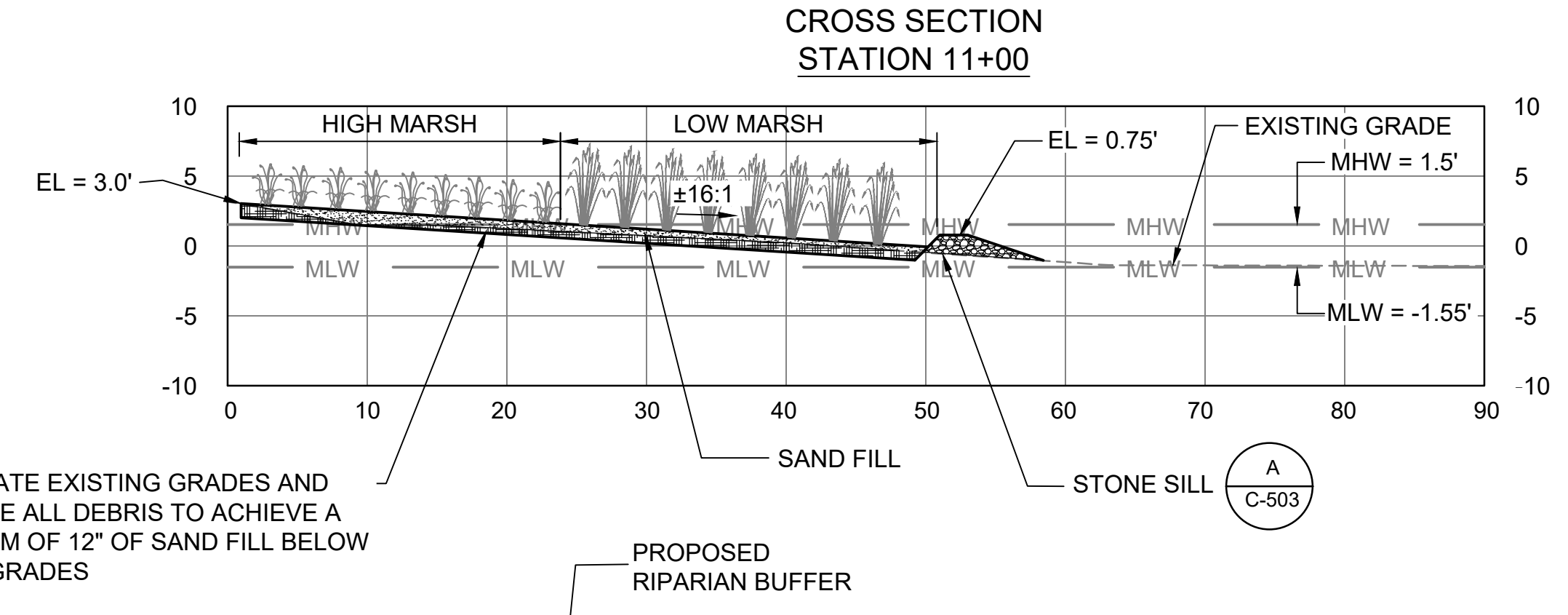
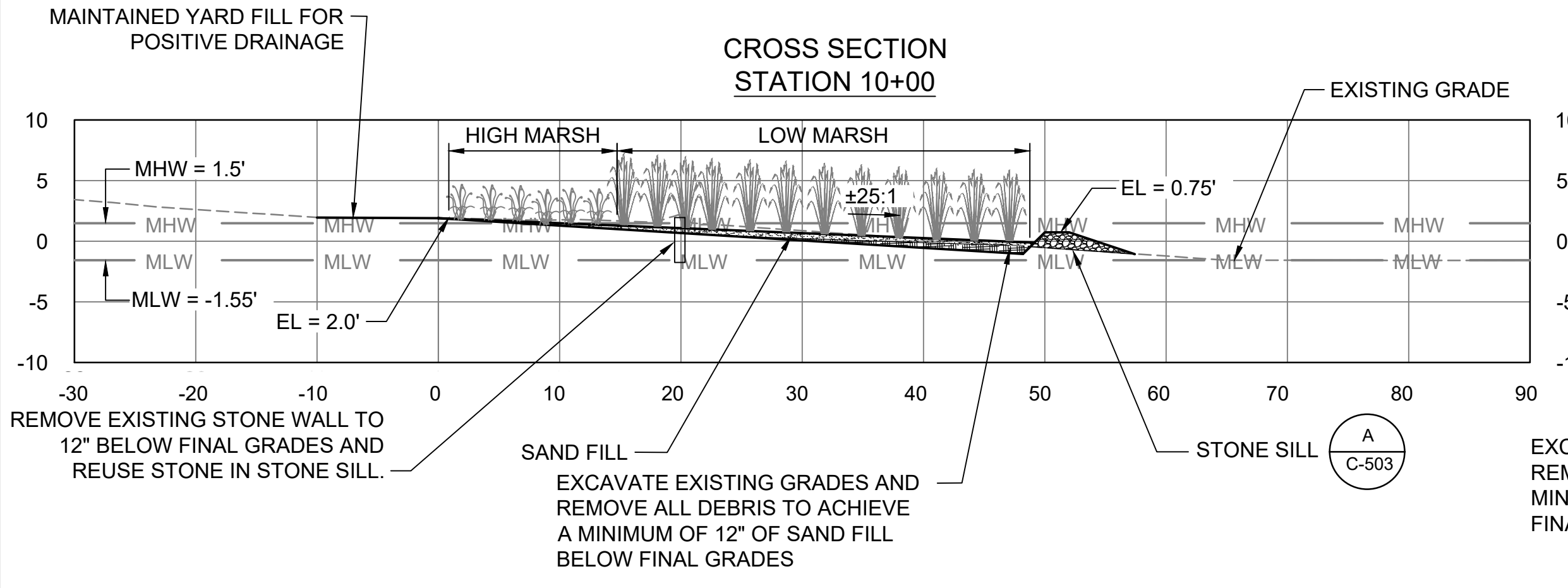
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 BC PROJECT NUMBER: 149124.200.010
 CLIENT PROJECT NUMBER

CIVIL
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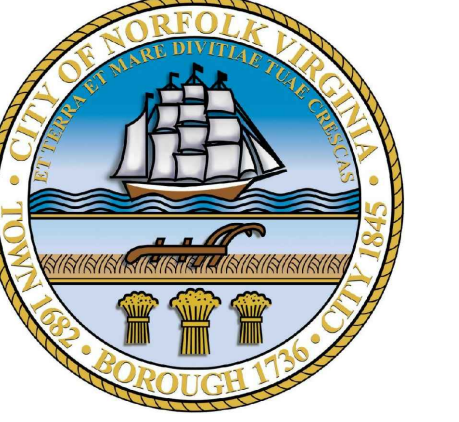
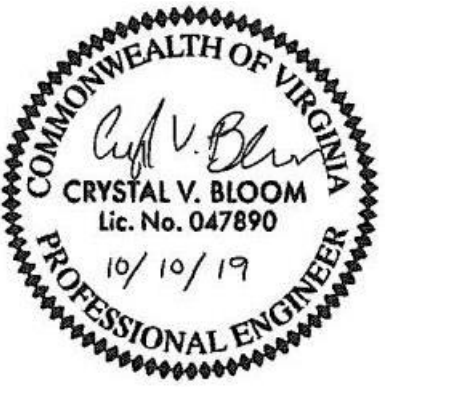
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C-111
 SHEET NUMBER
 13 OF 21

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 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

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LINE IS 2 INCHES AT FULL SIZE

DESIGNED: BN
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 CHECKED: BN
 CHECKED: JO
 APPROVED: CB

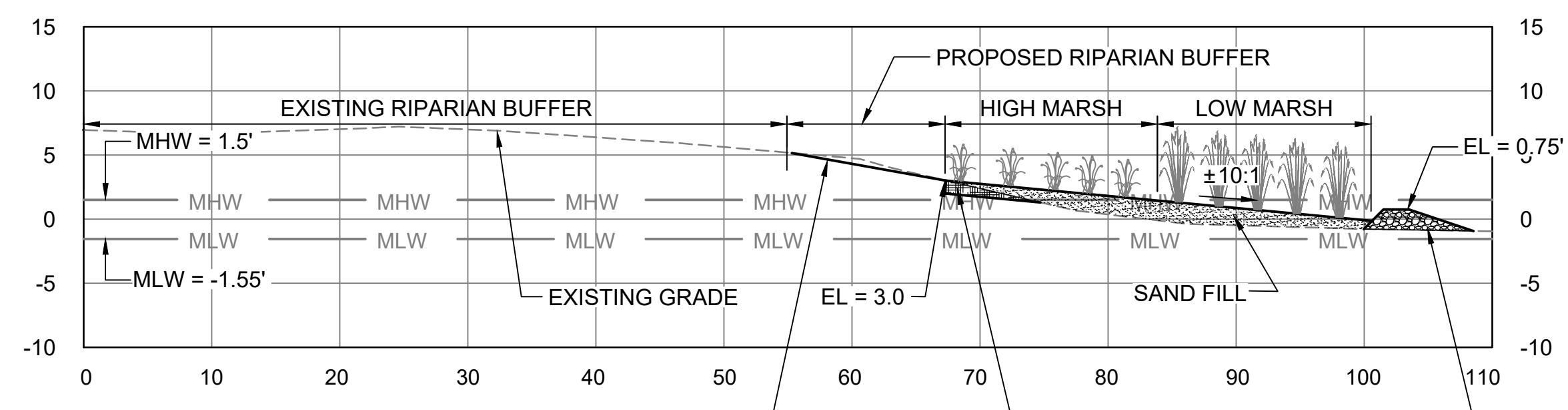
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CIVIL
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DRAWING NUMBER
C-112
 SHEET NUMBER
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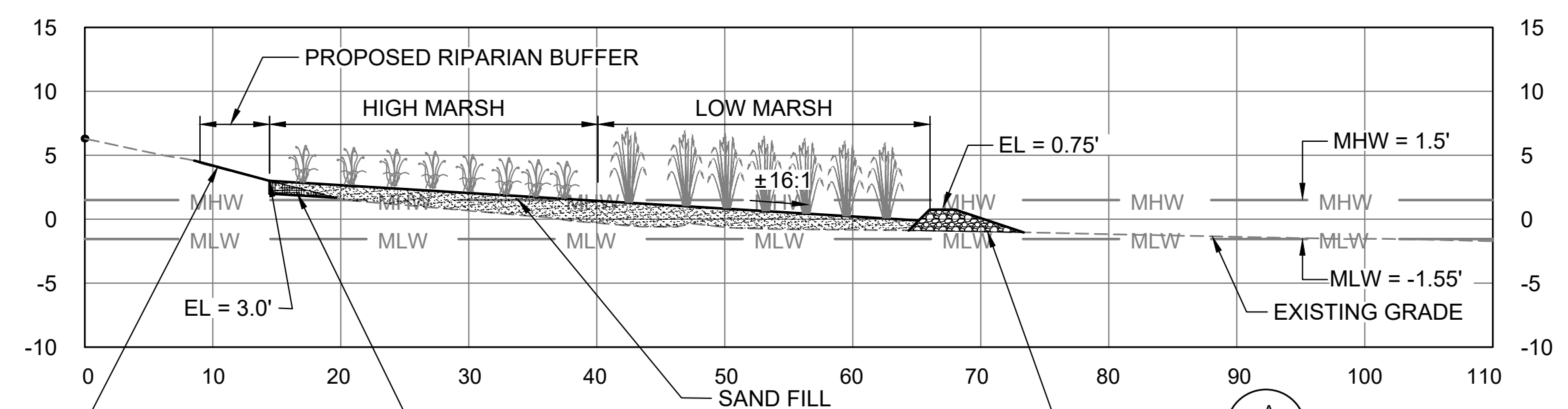
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**CROSS SECTION
STATION 18+50**



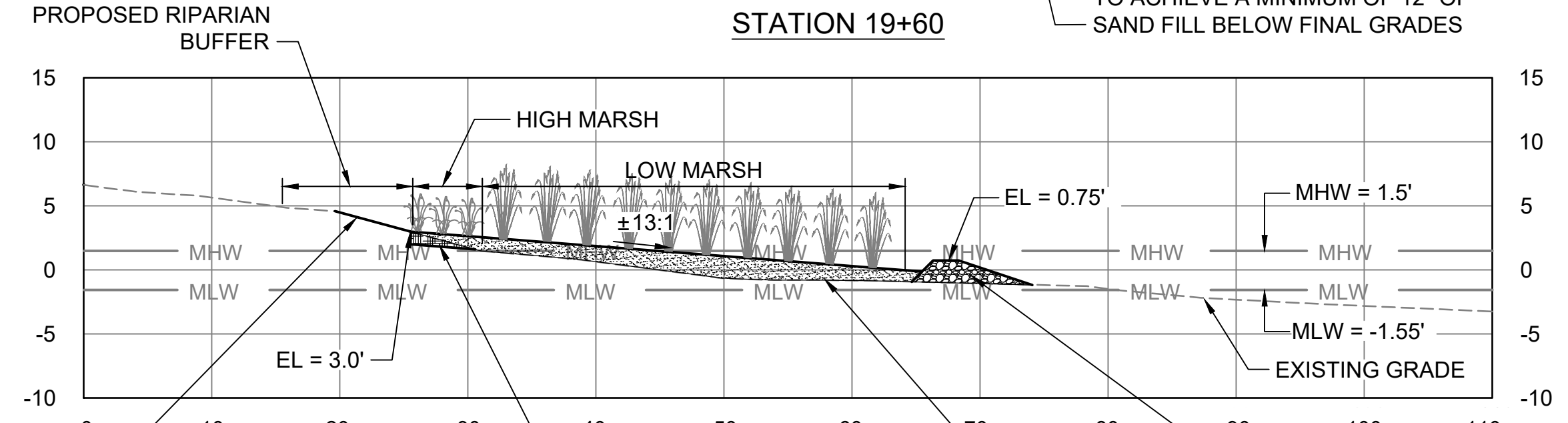
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 PROPOSED RIPARIAN BUFFER
 HIGH MARSH
 LOW MARSH
 EL = 0.75'
 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 EL = 3.0'
 SAND FILL
 STONE SILL (A/C-503)
 EXCAVATE EXISTING GRADES AND REMOVE ALL DEBRIS TO ACHIEVE A MINIMUM OF 12" OF SAND FILL BELOW FINAL GRADES
 GRADE BANK TO MATCH EXISTING GRADE AND STABILIZE WITH SEED AND MATTING

**CROSS SECTION
STATION 19+30**



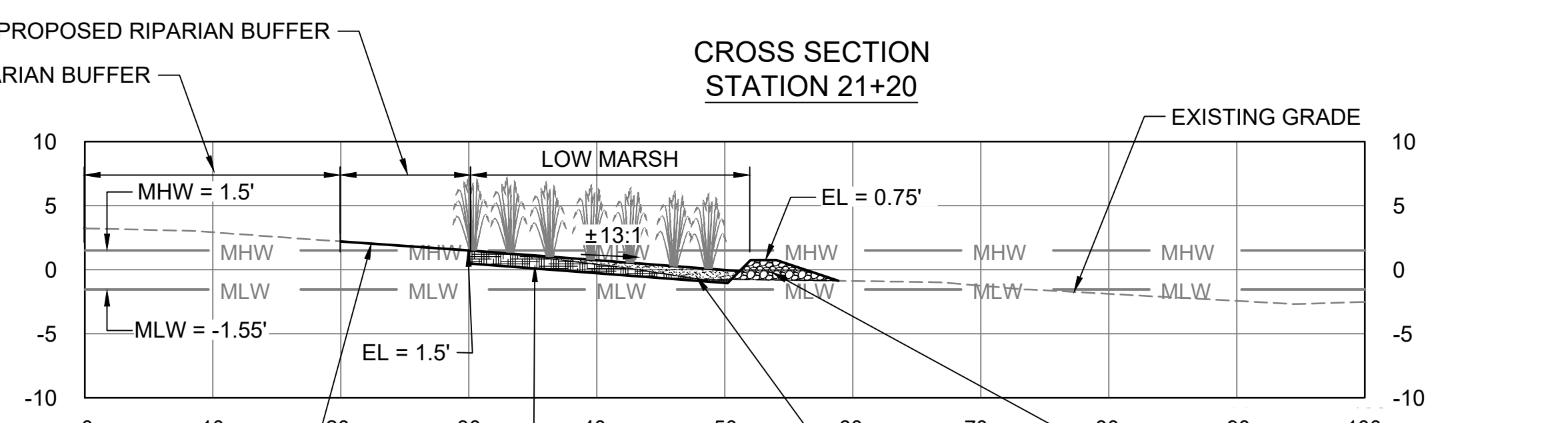
PROPOSED RIPARIAN BUFFER
 EXISTING RIPARIAN BUFFER
 HIGH MARSH
 LOW MARSH
 EL = 0.75'
 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 EL = 3.0'
 SAND FILL
 STONE SILL (A/C-503)
 EXCAVATE EXISTING GRADES AND REMOVE ALL DEBRIS TO ACHIEVE A MINIMUM OF 12" OF SAND FILL BELOW FINAL GRADES
 GRADE BANK TO MATCH EXISTING GRADE AND STABILIZE WITH SEED AND MATTING

**CROSS SECTION
STATION 19+60**



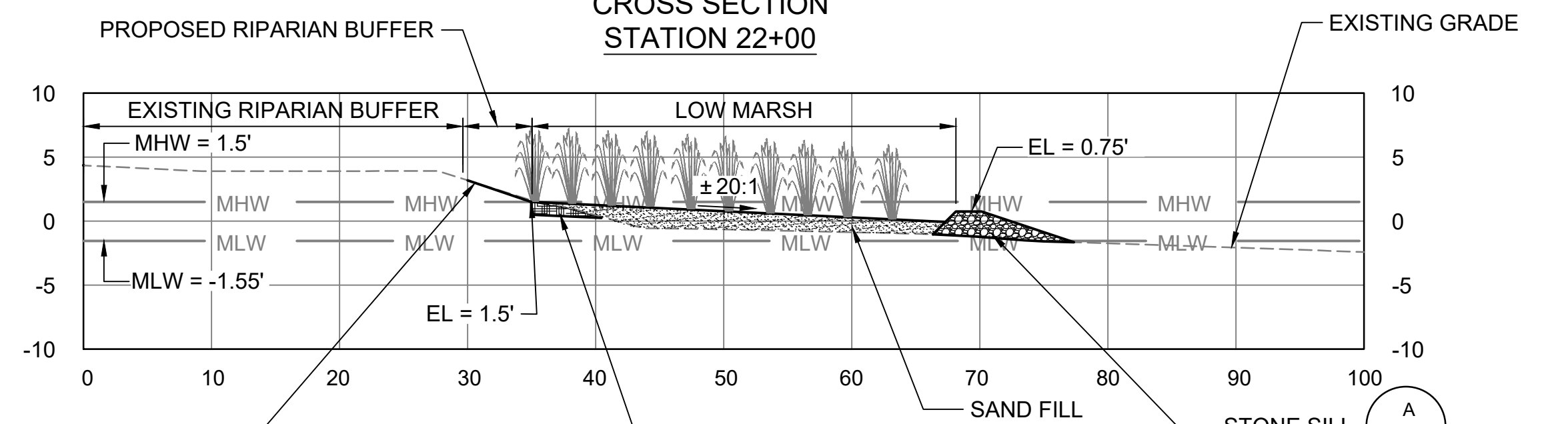
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 EXISTING RIPARIAN BUFFER
 HIGH MARSH
 LOW MARSH
 EL = 0.75'
 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 EL = 3.0'
 SAND FILL
 STONE SILL (A/C-503)
 EXCAVATE EXISTING GRADES AND REMOVE ALL DEBRIS TO ACHIEVE A MINIMUM OF 12" OF SAND FILL BELOW FINAL GRADES
 GRADE BANK TO MATCH EXISTING GRADE AND STABILIZE WITH SEED AND MATTING

**CROSS SECTION
STATION 21+20**



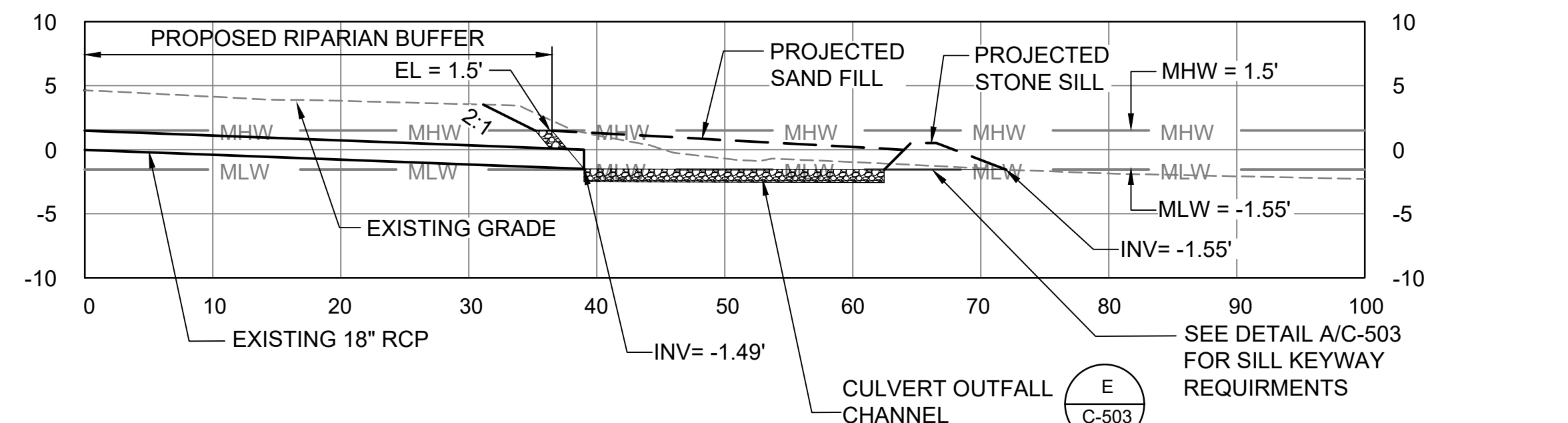
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 EXISTING RIPARIAN BUFFER
 LOW MARSH
 EL = 0.75'
 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 EL = 1.5'
 SAND FILL
 STONE SILL (A/C-503)
 EXCAVATE EXISTING GRADES AND REMOVE ALL DEBRIS TO ACHIEVE A MINIMUM OF 12" OF SAND FILL BELOW FINAL GRADES
 GRADE BANK TO MATCH EXISTING GRADE AND STABILIZE WITH SEED AND MATTING

**CROSS SECTION
STATION 22+00**



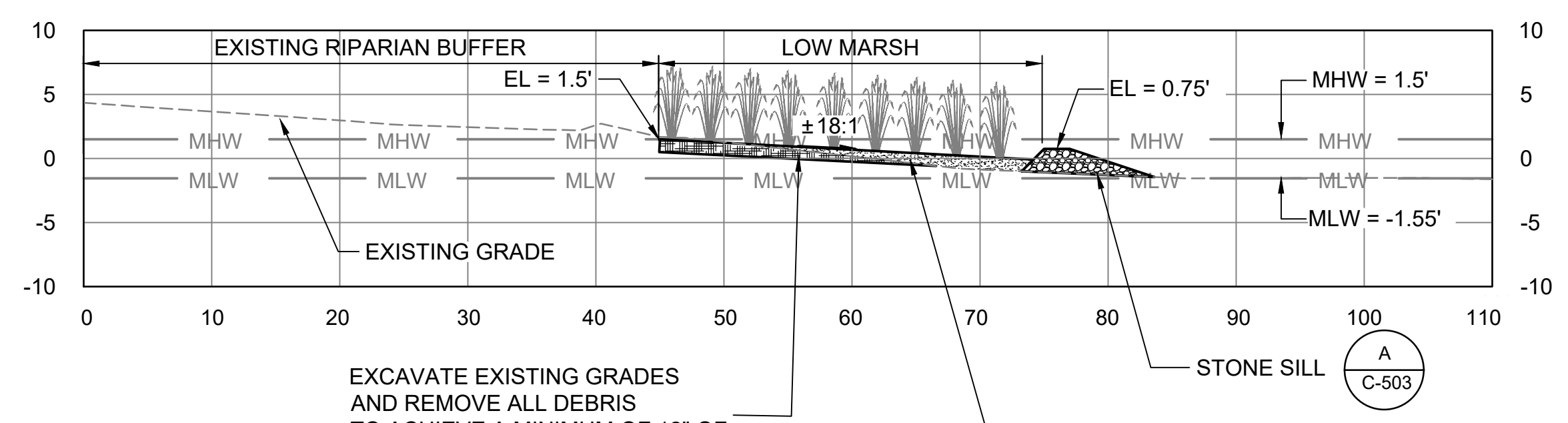
PROPOSED RIPARIAN BUFFER
 EXISTING RIPARIAN BUFFER
 LOW MARSH
 EL = 0.75'
 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 EL = 1.5'
 SAND FILL
 STONE SILL (A/C-503)
 EXCAVATE EXISTING GRADES AND REMOVE ALL DEBRIS TO ACHIEVE A MINIMUM OF 12" OF SAND FILL BELOW FINAL GRADES
 GRADE BANK TO MATCH EXISTING GRADE AND STABILIZE WITH SEED AND MATTING

**CROSS SECTION
STATION 22+72**



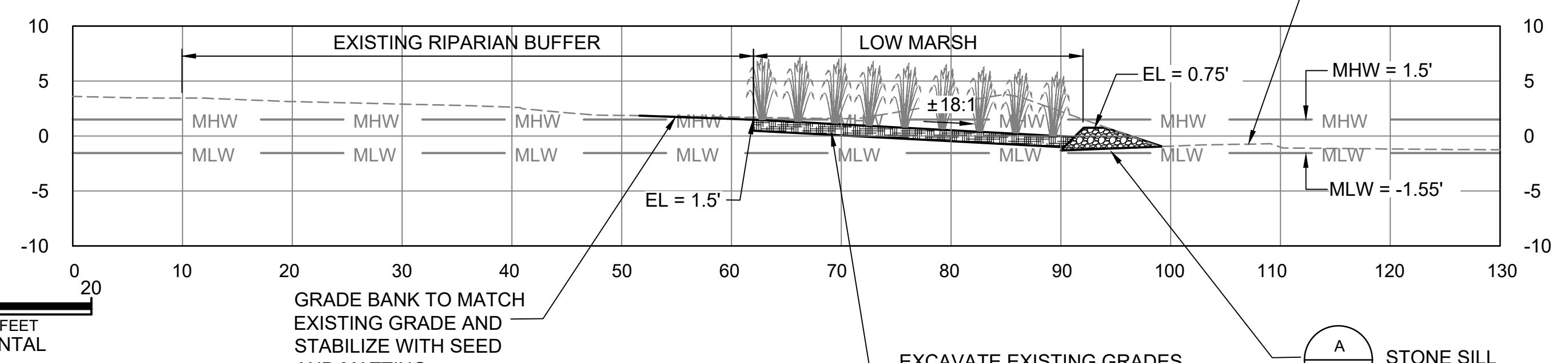
PROPOSED RIPARIAN BUFFER
 EXISTING RIPARIAN BUFFER
 EL = 1.5'
 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 INV = -1.49'
 PROJECTED SAND FILL
 PROJECTED STONE SILL
 CULVERT OUTFALL CHANNEL
 SEE DETAIL A/C-503 FOR SILL KEYWAY REQUIREMENTS
 STONE SILL (E/C-503)

**CROSS SECTION
STATION 24+00**

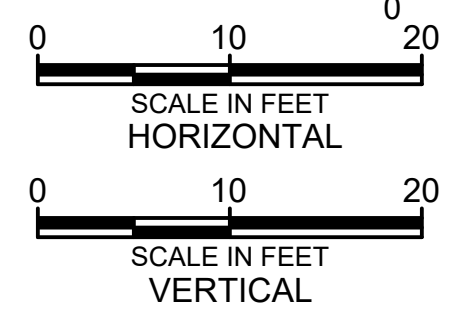


EXISTING RIPARIAN BUFFER
 PROPOSED RIPARIAN BUFFER
 LOW MARSH
 EL = 0.75'
 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 EL = 1.5'
 SAND FILL
 STONE SILL (A/C-503)
 EXCAVATE EXISTING GRADES AND REMOVE ALL DEBRIS TO ACHIEVE A MINIMUM OF 12" OF SAND FILL BELOW FINAL GRADES

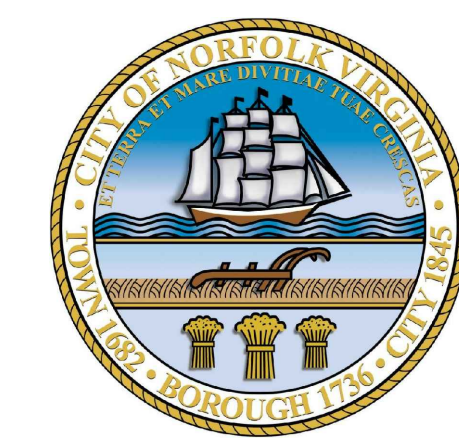
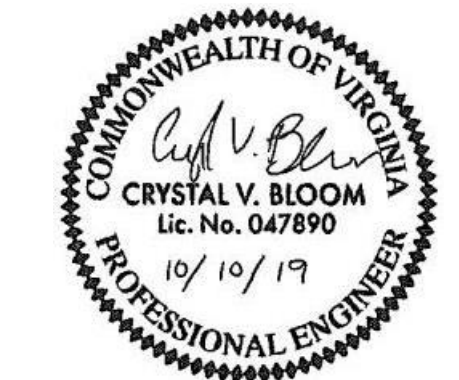
**CROSS SECTION
STATION 25+00**



EXISTING RIPARIAN BUFFER
 PROPOSED RIPARIAN BUFFER
 LOW MARSH
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 MHW = 1.5'
 MLW = -1.55'
 EXISTING GRADE
 EL = 1.5'
 SAND FILL
 STONE SILL (A/C-503)
 EXCAVATE EXISTING GRADES AND REMOVE ALL DEBRIS TO ACHIEVE A MINIMUM OF 12" OF SAND FILL BELOW FINAL GRADES
 GRADE BANK TO MATCH EXISTING GRADE AND STABILIZE WITH SEED AND MATTING



ENVIRONMENTAL ENGINEERING AND CONSULTING
 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385



**LINDENWOOD/BARRAUD
PARK LIVING SHORELINE
DESIGN**

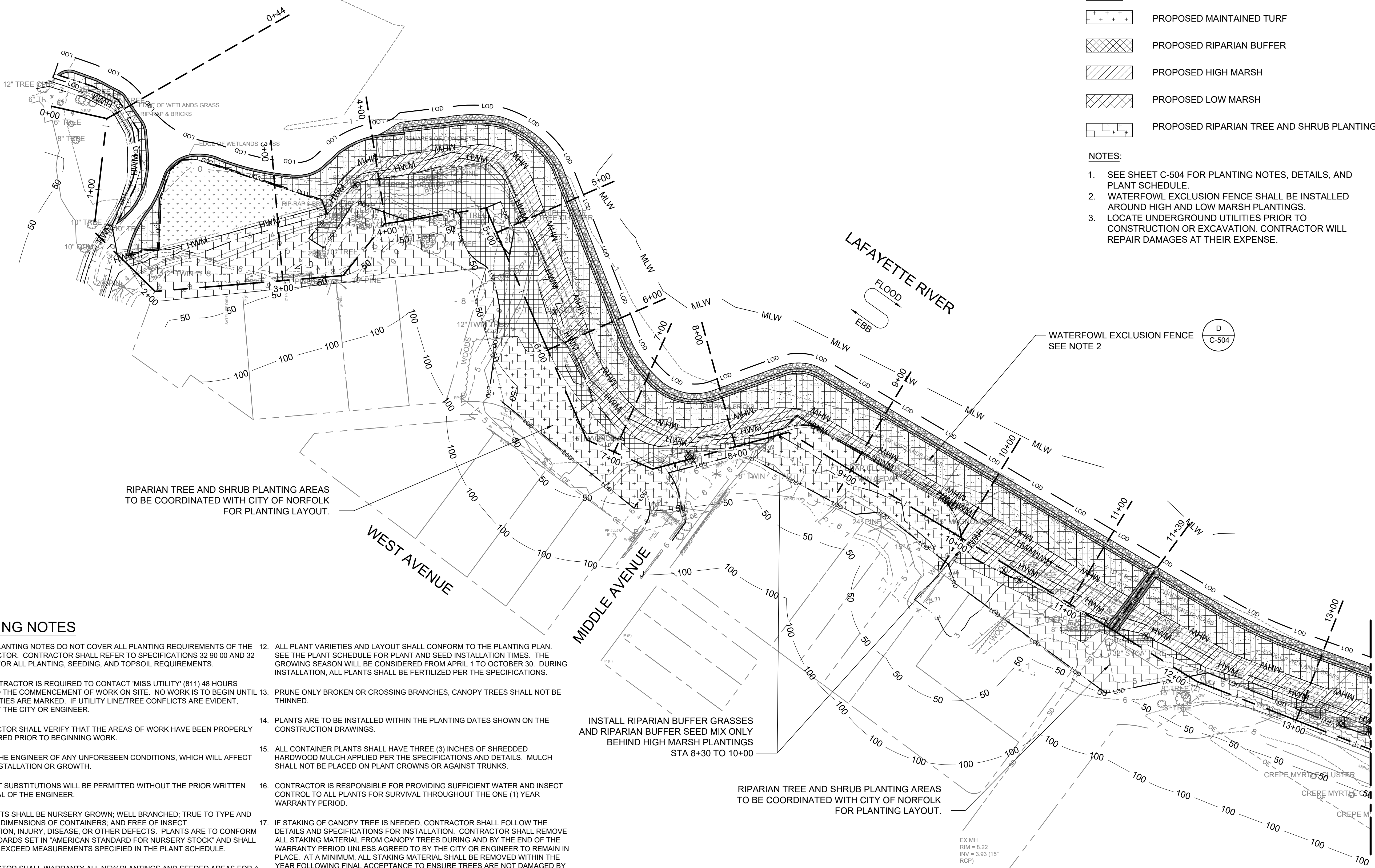
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 BC PROJECT NUMBER: 149124.200.010
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**CIVIL
CROSS SECTIONS**

DRAWING NUMBER:
C-113
 SHEET NUMBER:
 15 OF 21

FILENAME: C-114.DWG PLOT DATE: 10/4/2019 9:58 AM CAD USER: BRIANNA KWAGGS
 CITY OF NORFOLK 149124 NORF TO6 LIVING SHORELINE DESIGN PH 2B CAD2 SHEETS CIVIL LINDENWOOD-BARRAUD PARK
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LEGEND:

- PROPOSED MAINTAINED TURF
- PROPOSED RIPARIAN BUFFER
- PROPOSED HIGH MARSH
- PROPOSED LOW MARSH
- PROPOSED RIPARIAN TREE AND SHRUB PLANTING

NOTES:

- SEE SHEET C-504 FOR PLANTING NOTES, DETAILS, AND PLANT SCHEDULE.
- WATERFOWL EXCLUSION FENCE SHALL BE INSTALLED AROUND HIGH AND LOW MARSH PLANTINGS.
- LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. CONTRACTOR WILL REPAIR DAMAGES AT THEIR EXPENSE.

PLANTING NOTES

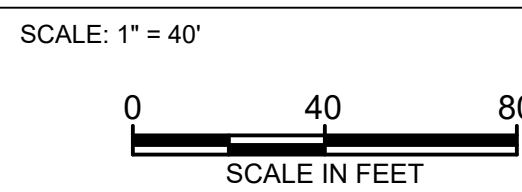
- THESE PLANTING NOTES DO NOT COVER ALL PLANTING REQUIREMENTS OF THE CONTRACTOR. CONTRACTOR SHALL REFER TO SPECIFICATIONS 32.90.00 AND 32.91.19.15 FOR ALL PLANTING, SEEDING, AND TOPSOIL REQUIREMENTS.
- THE CONTRACTOR IS REQUIRED TO CONTACT "MISS UTILITY" (811) 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK ON SITE. NO WORK IS TO BEGIN UNTIL ALL UTILITIES ARE MARKED. IF UTILITY LINE/TREE CONFLICTS ARE EVIDENT, CONTACT THE CITY OR ENGINEER.
- CONTRACTOR SHALL VERIFY THAT THE AREAS OF WORK HAVE BEEN PROPERLY CONTOURED PRIOR TO BEGINNING WORK.
- NOTIFY THE ENGINEER OF ANY UNFORESEEN CONDITIONS, WHICH WILL AFFECT PLANT INSTALLATION OR GROWTH.
- NO PLANT SUBSTITUTIONS WILL BE PERMITTED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
- ALL PLANTS SHALL BE NURSERY GROWN; WELL BRANCHED; TRUE TO TYPE AND MINIMUM DIMENSIONS OF CONTAINERS; AND FREE OF INSECT INFESTATION, INJURY, DISEASE, OR OTHER DEFECTS. PLANTS ARE TO CONFORM TO STANDARDS SET IN "AMERICAN STANDARD FOR NURSERY STOCK" AND SHALL MEET OR EXCEED MEASUREMENTS SPECIFIED IN THE PLANT SCHEDULE.
- CONTRACTOR SHALL WARRANTY ALL NEW PLANTINGS AND SEEDING AREAS FOR A PERIOD OF ONE YEAR. SEE SPECIFICATIONS 32.90.00 AND 32.91.19.15 FOR MORE INFORMATION.
- EXAMINE ALL PROPOSED PLANTING AREAS AND CONDITIONS BEFORE INSTALLATION. PLANTING SHALL NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.
- CONTRACTOR SHALL REPORT ANY CONDITIONS TO THE CITY THAT ARE UNSUITABLE FOR PLANT GROWTH DURING PLANT INSTALLATION AND THROUGH THE WARRANTY PERIOD.
- PROVIDE THE QUANTITIES AND SIZES REQUIRED TO COMPLETE THE PROPOSED PLANTING AS SHOWN ON THE PLANTING PLAN.
- PROVIDE ALL NECESSARY PLANT MATERIALS, LABOR, TOOLS, AND MATERIALS TO COMPLETE THIS PROJECT IN A WORKMANLIKE, PROFESSIONAL MANNER.
- ALL PLANT VARIETIES AND LAYOUT SHALL CONFORM TO THE PLANTING PLAN. SEE THE PLANT SCHEDULE FOR PLANT AND SEED INSTALLATION TIMES. THE GROWING SEASON WILL BE CONSIDERED FROM APRIL 1 TO OCTOBER 30. DURING INSTALLATION, ALL PLANTS SHALL BE FERTILIZED PER THE SPECIFICATIONS.
- PRUNE ONLY BROKEN OR CROSSING BRANCHES. CANOPY TREES SHALL NOT BE THINNED.
- PLANTS ARE TO BE INSTALLED WITHIN THE PLANTING DATES SHOWN ON THE CONSTRUCTION DRAWINGS.
- ALL CONTAINER PLANTS SHALL HAVE THREE (3) INCHES OF SHREDDED HARDWOOD MULCH APPLIED PER THE SPECIFICATIONS AND DETAILS. MULCH SHALL NOT BE PLACED ON PLANT CROWNS OR AGAINST TRUNKS.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT WATER AND INSECT CONTROL TO ALL PLANTS FOR SURVIVAL THROUGHOUT THE ONE (1) YEAR WARRANTY PERIOD.
- IF STAKING OF CANOPY TREE IS NEEDED, CONTRACTOR SHALL FOLLOW THE DETAILS AND SPECIFICATIONS FOR INSTALLATION. CONTRACTOR SHALL REMOVE ALL STAKING MATERIAL FROM CANOPY TREES DURING AND BY THE END OF THE WARRANTY PERIOD UNLESS AGREED TO BY THE CITY OR ENGINEER TO REMAIN IN PLACE. AT A MINIMUM, ALL STAKING MATERIAL SHALL BE REMOVED WITHIN THE YEAR FOLLOWING FINAL ACCEPTANCE TO ENSURE TREES ARE NOT DAMAGED BY THE STAKING WIRE. CONTRACTOR WILL BE RESPONSIBLE FOR REPLACEMENT OF TREES DAMAGED BY WIRES IF NOT REMOVED AS REQUIRED.
- THE WORK AREA IS TO BE KEPT FREE OF TRASH, PAVEMENTS REASONABLY CLEAN, AND WORK AREA IN AN ORDERLY CONDITION AT THE END OF EACH DAY. REMOVE TRASH AND DEBRIS FROM THE SITE NO LESS THAN ONCE A WEEK.
- IF ANY CONFLICT SHOULD ARISE BETWEEN THESE NOTES AND THE CONTRACT SPECIFICATIONS FOR THIS PROJECT, THE CONTRACT SPECIFICATIONS SHALL GOVERN.

INSTALL RIPARIAN BUFFER GRASSES AND RIPARIAN BUFFER SEED MIX ONLY BEHIND HIGH MARSH PLANTINGS STA 8+30 TO 10+00

RIPARIAN TREE AND SHRUB PLANTING AREAS TO BE COORDINATED WITH CITY OF NORFOLK FOR PLANTING LAYOUT.

RIPARIAN TREE AND SHRUB PLANTING AREAS TO BE COORDINATED WITH CITY OF NORFOLK FOR PLANTING LAYOUT.

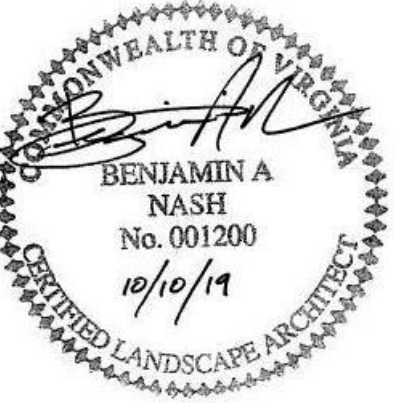
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MATCHLINE - SEE SHEET C-115



ENVIRONMENTAL ENGINEERING AND CONSULTING
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 VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

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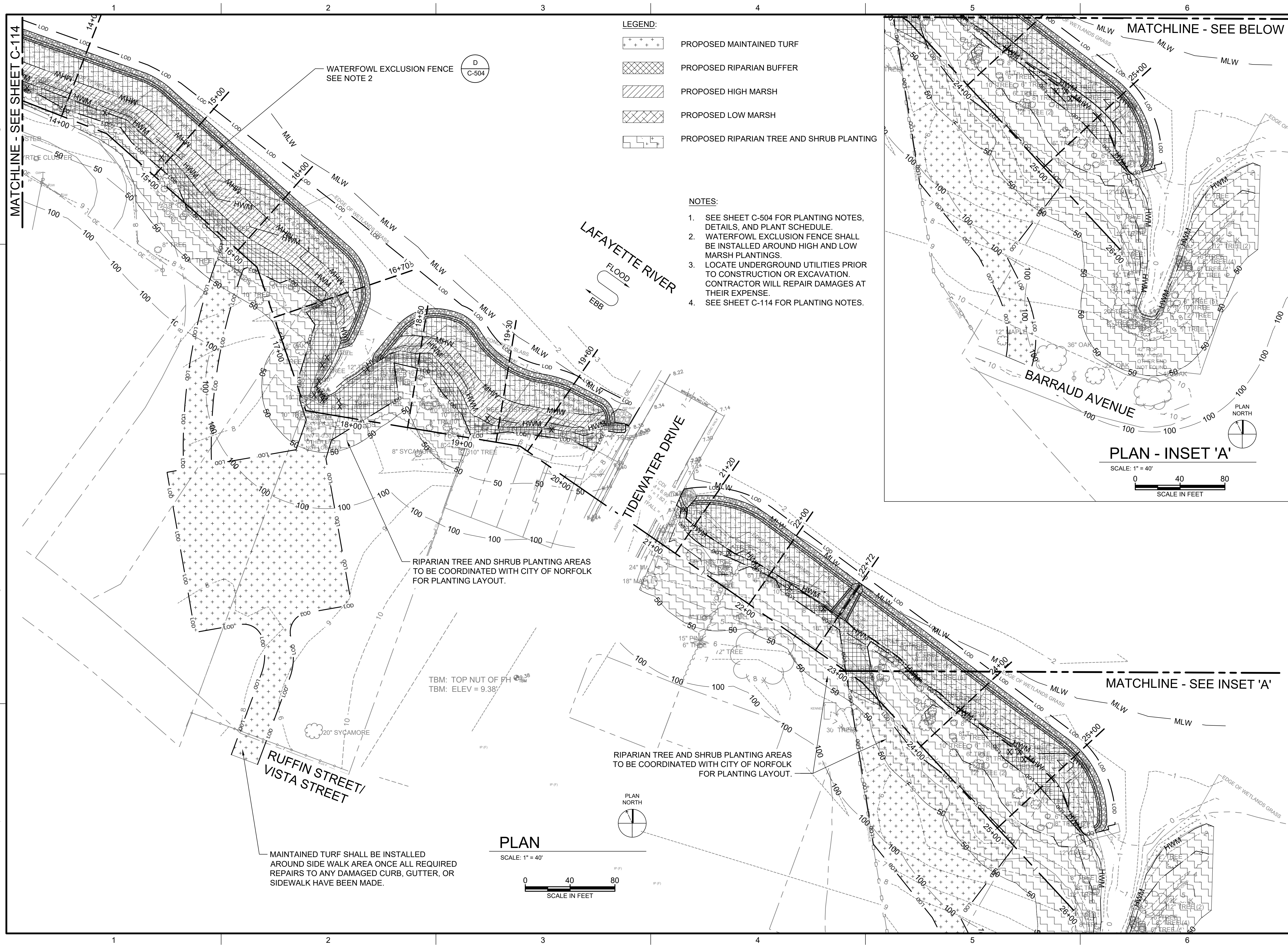
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CIVIL LANSCAPE PLAN

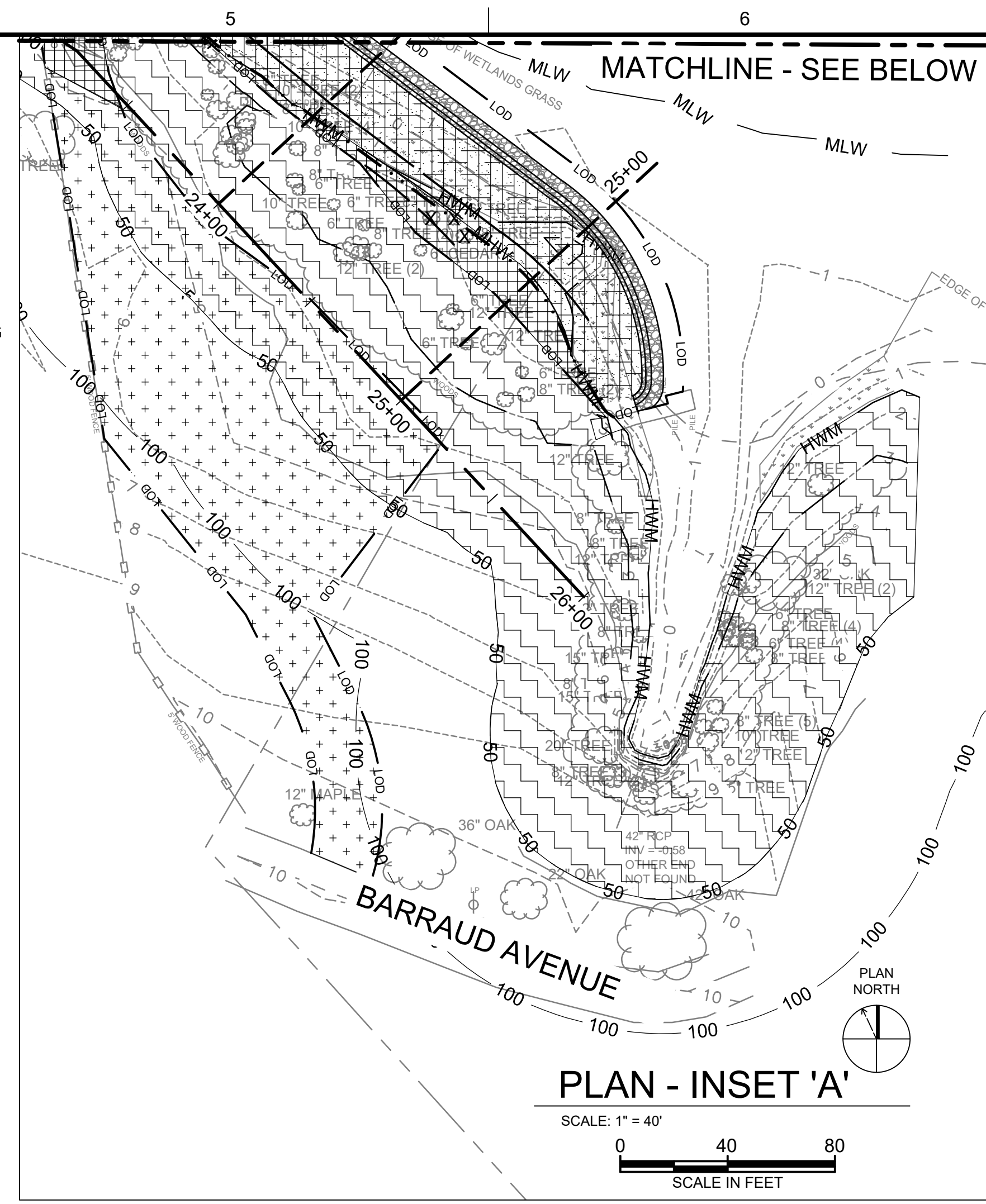
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FILENAME: C-115.DWG PLOT DATE: 10/4/2019 10:02 AM CAD USER: BRIANNA KNAGGS
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- LEGEND:**
- PROPOSED MAINTAINED TURF
 - PROPOSED RIPARIAN BUFFER
 - PROPOSED HIGH MARSH
 - PROPOSED LOW MARSH
 - PROPOSED RIPARIAN TREE AND SHRUB PLANTING

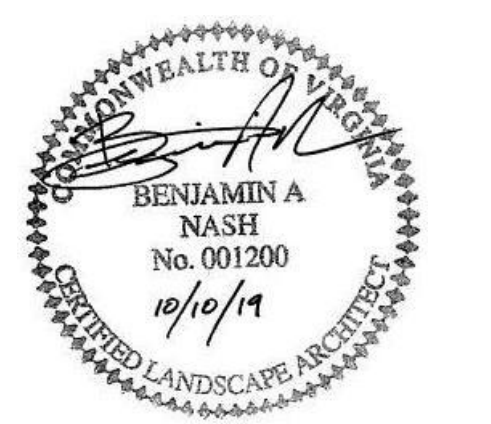
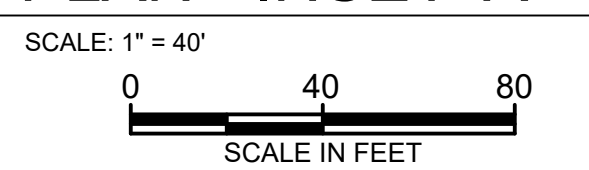
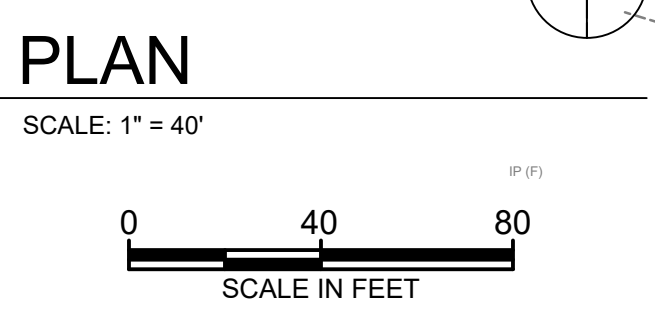
- NOTES:**
- SEE SHEET C-504 FOR PLANTING NOTES, DETAILS, AND PLANT SCHEDULE.
 - WATERFOWL EXCLUSION FENCE SHALL BE INSTALLED AROUND HIGH AND LOW MARSH PLANTINGS.
 - LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. CONTRACTOR WILL REPAIR DAMAGES AT THEIR EXPENSE.
 - SEE SHEET C-114 FOR PLANTING NOTES.



MAINTAINED TURF SHALL BE INSTALLED AROUND SIDE WALK AREA ONCE ALL REQUIRED REPAIRS TO ANY DAMAGED CURB, GUTTER, OR SIDEWALK HAVE BEEN MADE.

RIPARIAN TREE AND SHRUB PLANTING AREAS TO BE COORDINATED WITH CITY OF NORFOLK FOR PLANTING LAYOUT.

RIPARIAN TREE AND SHRUB PLANTING AREAS TO BE COORDINATED WITH CITY OF NORFOLK FOR PLANTING LAYOUT.



LINDEWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

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CIVIL LANDSCAPE PLAN

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| DRAWING NUMBER | C-115 |
| SHEET NUMBER | 17 OF 21 |

EROSION & SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION
 THIS PROJECT INCLUDES RESTORING APPROXIMATELY 2,522 LF OF SHORELINE ALONG THE LAFAYETTE RIVER. SPECIFICALLY, THE PROJECT IS LOCATED EAST OF SUMMIT AVENUE AND VISTA STREET, BISECTED BY THE TIDEWATER DRIVE BRIDGE. THE RESTORATION WILL INCLUDE IMPLEMENTING LIVING SHORELINE RESTORATION MEASURES, SUCH AS COIR LOG, ROCK SILLS, AND TIDAL MARSH LANDWARD OF THE SILLS TO STABILIZE THE EXISTING ERODING SHORELINE ALONG THIS PROJECT REACH. SEVERAL STORMWATER OUTFALLS ARE LOCATED ALONG THE PROJECT AND WILL BE INCORPORATED IN THE RESTORATION DESIGN. THE AREA OF DISTURBANCE IS APPROXIMATELY 5.04 ACRES; THE AREA OF DISTURBANCE ABOVE UPPER LIMITS OF TIDAL WETLANDS IS APPROXIMATELY 2.49 ACRES.

EXISTING SITE CONDITIONS
 THE EXISTING SITE IS BOUND BY RESIDENTIAL HOMES, AN ELEMENTARY SCHOOL, AND A PARK TO THE WEST OF THE SHORELINE. THE SHORELINE IS ERODING TOWARD THESE LAND USES AND IS COMPRISED OF CONCRETE DEBRIS AND POCKETS OF MARSH AND SHORELINE VEGETATION. THE RIPARIAN BUFFER ALONG THE PROJECT LENGTH INCLUDES THIN STRIPS OF WOODY VEGETATION, MAINLY ALONG THE BANK OF THE SHORE AND MAINTAINED TURF LANDWARD OF THE NARROW BANK. UNDERGROUND AND OVERHEAD UTILITIES ARE LOCATED IN THE PROJECT AREA WHICH SERVE THE ADJACENT RESIDENTIAL HOMES.

ADJACENT SITE
 THE PROJECT AREA IS GENERALLY BOUND BY A TIDAL INLET CHANNEL TO THE NORTH, THE LAFAYETTE RIVER TO THE EAST, LINDENWOOD/BARRAUD PARK TO THE SOUTH, AND A MIXTURE OF RESIDENTIAL HOMES, LINDENWOOD ELEMENTARY SCHOOL AND LINDENWOOD/BARRAUD PARK TO THE WEST. PROPER EROSION AND SEDIMENT CONTROL MEASURES WILL BE USED TO MINIMIZE IMPACTS OF CONSTRUCTION ON ADJACENT PROPERTIES AND RECEIVING WATERS.

OFF-SITE AREAS
 THERE WILL BE NO OFF-SITE AREAS DISTURBED AS A RESULT OF THIS PROJECT.

CRITICAL EROSION AREAS
 THERE ARE NO CRITICAL EROSION AREAS ASSOCIATED WITH THIS PROJECT.

EROSION AND SEDIMENT CONTROL AREAS
 EROSION AND SEDIMENT CONTROL MEASURES WILL INCLUDE A COMBINATION OF SILT FENCE, CONSTRUCTION ENTRANCES, TURBIDITY CURTAINS, AND VEGETATIVE STABILIZATION (PERMANENT AND TEMPORARY SEEDING, TOP SOIL, MULCHING). UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992, THE MINIMUM STANDARDS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS, AND THE CITY OF NORFOLK SEDIMENT CONTROL HANDBOOK EROSION AND SEDIMENT CONTROL ORDINANCE. THE CITY OF NORFOLK HAS THE AUTHORITY TO ADD OR DELETE EROSION AND SEDIMENT CONTROLS AS NECESSARY IN THE FIELD AS SITE CONDITIONS CHANGE.

SAFETY FENCE - STD. & SPEC. 3.01 - SAFETY FENCE SHALL BE INSTALLED AT LOCATIONS AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN SHEETS IN ORDER TO PROVIDE A BARRIER TO PREVENT ACCESS INTO THE PROJECT SITE BY THE PUBLIC.

TEMPORARY STONE CONSTRUCTION ENTRANCE - STD. & SPEC. 3.02 - A CONSTRUCTION ENTRANCE SHALL BE EMPLOYED TO REDUCE THE AMOUNT OF MATERIAL TRANSPORTED OFF-SITE BY CONSTRUCTION VEHICLES. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AT THE LOCATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN SHEETS FOR THE DURATION OF THE CONSTRUCTION AND STABILIZATION.

SILT FENCE - STD. & SPEC. 3.05 - SILT FENCE WILL BE INSTALLED AT LOCATIONS AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN SHEETS IN ORDER TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT FROM THE DISTURBED AREAS DURING CONSTRUCTION OPERATIONS AND TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.

TURBIDITY CURTAIN - STD & SPEC 3.27 - TURBIDITY CURTAIN WILL BE INSTALLED AT LOCATIONS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN SHEETS IN ORDER TO PROVIDE SEDIMENTATION PROTECTION FROM UPSLOPE DISTURBANCE FILLING WITHIN THE WATER COURSE.

TOPSOILING - STD & SPEC 3.30 - TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATIONS SHALL BE LOCATED ON-SITE AND ARE TO BE MAINTAINED IN ACCORDANCE WITH VESC STANDARDS.

TEMPORARY SEEDING - STD & SPEC 3.31 - ALL DENUDED AREAS WHICH WILL BE LEFT DORMANT FOR A PERIOD OF FOURTEEN (14) DAYS OR GREATER, SHALL BE SEEDED WITH THE TEMPORARY SEED MIX PROVIDED IN THE PLANS AND SPECIFICATIONS. SEE SPECIFICATION 32 91 19.15 FOR SPECIFIC MAINTENANCE ACTIVITIES.

PERMANENT SEEDING - STD & SPEC 3.32 - PERMANENT SEEDING SHALL BE APPLIED TO DISTURBED AREAS TO STABILIZE THE SITE. SEE SPECIFICATION 32 91 19.15 FOR SPECIFIC MAINTENANCE ACTIVITIES.

MULCHING - STD & SPEC 3.35 - STRAW MULCH SHALL BE USED ON RELATIVELY FLAT AREAS AND UNDER ALL STABILIZATION MATTING IN ACCORDANCE TO SPECIFICATION 32 91 19.15.

SOIL STABILIZATION BLANKETS & MATTING - STD & SPEC 3.36 - SIDE SLOPES IDENTIFIED TO FOR STABILIZATION BLANKETS AND MATTING SHALL BE STABILIZED IN ACCORDANCE TO SPECIFICATION 31 32 19.16.

TREE PRESERVATION & PROTECTION - STD & SPEC 3.38 - EXISTING TREES IDENTIFIED TO REMAIN FOLLOWING CONSTRUCTION SHALL BE PROTECTED TO PREVENT INJURY DURING CONSTRUCTION.

PERMANENT STABILIZATION
 PERMANENT SEEDING SHALL BE APPLIED TO DISTURBED AREAS THROUGHOUT THE PROJECT AS SHOWN ON THE CONSTRUCTION PLANS. THE ACTUAL SEEDING SCHEDULES ARE DEPICTED ON SHEET C-504. CUSTOM SEEDING SCHEDULES HAVE BEEN CREATED FOR A DIFFERENT COMPOSITION FOR PROPOSED SHORELINE BANK AREAS, NATIVE UPLAND AREAS, AND OTHER GENERAL AREAS. NATIVE SPECIES HAVE BEEN APPLIED RATHER THAN THE TYPICAL PERMANENT SEEDING SCHEDULE (THE TYPICAL PERMANENT SEEDING SCHEDULE IS LARGELY COMPRISED OF FESCUE WHICH IS NOT DESIRED FOR THIS PROJECT).

CHESAPEAKE BAY NARRATIVE
 THIS PROJECT IS A SHORELINE RESTORATION PROJECT AND DOES NOT INCLUDE DEVELOPMENT OF NEW IMPERVIOUS SURFACE. ALL DISTURBED AREAS WILL BE REVEGETATED WITH APPROPRIATE NATIVE PLANTS. ONLY THE AREA NECESSARY TO COMPLETE THE PROJECT WILL BE DISTURBED. THIS PROJECT IS A BEST MANAGEMENT PRACTICE AND IS REDUCING THE POLLUTANTS ENTERING THE LAFAYETTE RIVER THROUGH RESTORATION OF THE SHORELINE.

MAINTENANCE SCHEDULE
 IN GENERAL, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY, MAINTAINED CONTINUOUSLY, RELOCATED AS NECESSARY, AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

- SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT AND WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.
- THE TEMPORARY STONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992.

SOILS
 THE FOLLOWING FIVE (5) SOILS ARE PRESENT ON-SITE ACCORDING TO A WEB SOIL SURVEY GENERATED FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) AND NATURAL RESOURCES CONSERVATION SERVICE (NRCS) ONLINE DATABASE. SEE SOIL MAP, THIS SHEET.

SOIL TYPE 1: ALTAVISTA-URBAN LAND COMPLEX, 0 TO 3 PERCENT SLOPES. THE ALTAVISTA-URBAN LAND COMPLEX IS TYPICALLY FOUND IN MARINE TERRACES. THE PARENT MATERIAL CONSISTS OF LOAMY FLUVIOMARINE DEPOSITS. THE NATURAL DRAINAGE CLASS IS MODERATELY WELL DRAINED AND THE SOIL IS IN THE HYDROLOGIC SOIL GROUP C.

SOIL TYPE 6: BOHICKET MUCK, 0 TO 1 PERCENT SLOPES. THE BOHICKET MUCK IS TYPICALLY FOUND IN TIDAL MARSHES. THE PARENT MATERIAL CONSISTS OF LOAMY AND CLAYEY ALLUVIAL SEDIMENTS. THE NATURAL DRAINAGE CLASS IS VERY POORLY DRAINED AND THE SOIL IS IN THE HYDROLOGIC SOIL GROUP D.

SOIL TYPE 12: JOHNSTON SILT LOAM, 0 TO 2 PERCENT SLOPES. THE JOHNSTON SILT LOAM IS TYPICALLY FOUND IN FLOODPLAINS. THE PARENT MATERIAL CONSISTS OF SILTY LOAM DEPOSITS. THE NATURAL DRAINAGE CLASS IS VERY POORLY DRAINED AND THE SOIL IS IN THE HYDROLOGIC SOIL GROUP AD.

SOIL TYPE 24: TOMOTLEY-URBAN LAND COMPLEX, 0 TO 2 PERCENT SLOPES. THE TOMOTLEY-URBAN LAND COMPLEX IS TYPICALLY FOUND IN STREAM TERRACES. THE PARENT MATERIAL CONSISTS OF LOAMY ALLUVIAL SEDIMENTS. THE NATURAL DRAINAGE CLASS IS POORLY DRAINED AND THE SOIL IS IN THE HYDROLOGIC SOIL GROUP B/D.

SOIL TYPE 26: UDORTHENTS-DUMPS COMPLEX. THE UDORTHENTS-DUMPS COMPLEX IS TYPICALLY FOUND AS FILL IN THE COASTAL PLAIN. THE PARENT MATERIAL CONSISTS OF LOAMY CLAYEY VARIABLE DEPOSITS. THE NATURAL DRAINAGE CLASS IS WELL DRAINED TO EXCESSIVELY WELL DRAINED AND THE SOIL IS IN THE HYDROLOGIC SOIL GROUP D.

EROSION & SEDIMENT CONTROL NOTES

CITY OF NORFOLK STANDARD EROSION AND SEDIMENT CONTROL NOTES

- UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (3RD EDITION, 1992) AND THE CITY OF NORFOLK EROSION AND SEDIMENT CONTROL ORDINANCE.
- THE CONTRACTOR SHALL CONTACT THE CITY OF NORFOLK, BUREAU OF ENVIRONMENTAL SERVICES (664-4368) AT LEAST 48-HOURS PRIOR TO ANY LAND DISTURBING ACTIVITY (INCLUDING DEMOLITION) SO THAT A PRECONSTRUCTION CONFERENCE CAN BE SCHEDULED.
- THE CONTRACTOR SHALL APPLY PERMANENT OR TEMPORARY SOIL STABILIZATION TO ALL DENUDED OR DISTURBED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DENUDED OR DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WHICH WILL REMAIN UNDISTURBED FOR LONGER THAN 14 DAYS. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING, AND THE EARLY APPLICATION OF A GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CONSTRUCTION.
- THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND CLEANUP OF SEDIMENTATION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE IMMEDIATELY.
- THE CONTRACTOR SHALL LIMIT SITE ACCESS BY CONSTRUCTION VEHICLES TO ENTRANCES PROTECTED BY A STONE CONSTRUCTION ENTRANCE (VESC STD. & SPEC. 3.02) OR AN APPROVED COMPARABLE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED FROM PAVED AREAS ON A DAILY BASIS.
- STOCK PILES OF SOIL AND OTHER ERODABLE MATERIALS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION FOR STOCKPILES ON SITE AS WELL AS FOR MATERIALS TRANSPORTED FROM THE PROJECT SITE.
- THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST INCLUDING (BUT NOT LIMITED TO) USE OF WATER, MULCH, OR CHEMICAL DUST ADHESIVES AND CONTROL OF CONSTRUCTION SITE TRAFFIC.
- EFFLUENT FROM DE-WATERINING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT ADJACENT PROPERTIES, WETLANDS, WATERWAYS, OR THE STORM DRAINAGE SYSTEM.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ANY ADDITIONAL CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.
- SEPARATE PERIMETER PROTECTION SHALL BE PLACED AROUND ALL SOIL STOCKPILES.

CONSTRUCTION SEQUENCE

THE CONSTRUCTION OF THE LIVING SHORELINE RESTORATION FOR THE PROJECT WILL BE PHASED TO REDUCE THE AMOUNT OF LAND DISTURBANCE AT ANY GIVEN TIME. THE WORK WILL BE SEQUENCED AND PHASED SUCH THAT ALL DISTURBED AREAS ARE SEEDED, STABILIZED, AND MATTED, AS REQUIRED, PRIOR TO PROCEEDING TO THE NEXT PHASE. MULTIPLE PHASES MAY BE PURSUED CONCURRENTLY, WITH THE APPROPRIATE MEASURES IN PLACE, BUT ONLY IF MULTIPLE CONSTRUCTION CREWS ARE AVAILABLE TO PURSUE EACH PHASE INDEPENDENTLY. MULTIPLE PHASES WILL NOT BE UNDERTAKEN WITHOUT THE CONCURRENCE IN ADVANCE OF THE CITY'S INSPECTOR. SUGGESTED PHASES OF WORK BASED ON THE CONSTRUCTION BASELINE STATIONING ARE:

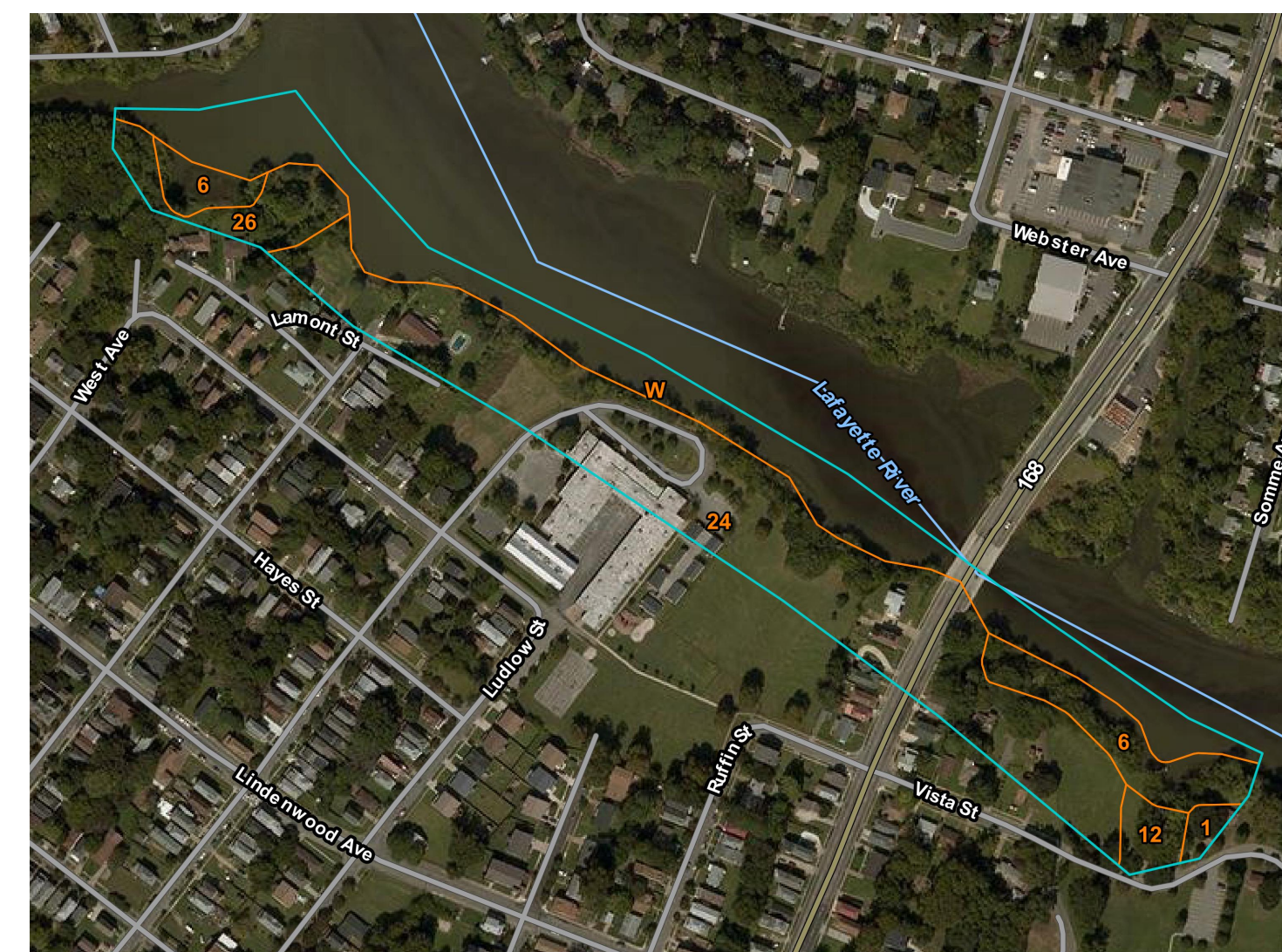
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- STATION 8+43 TO 20+00
- STATION 20+00 TO 26+00

- OBTAIN NECESSARY PERMITS BEFORE THE START OF CONSTRUCTION.
- CONTRACTOR SHALL CONTACT CITY OF NORFOLK, ENVIRONMENTAL STORM WATER MANAGEMENT AT (757) 823-4000 48-HOURS (MINIMUM) PRIOR TO LAND DISTURBANCE TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE AND ESTABLISH INSPECTION REQUIREMENTS FOR EROSION AND SEDIMENT CONTROL MEASURES INSTALLATION IF NECESSARY.
- THE CONTRACTOR SHALL CALL MISS UTILITY 72 HOURS PRIOR TO ANY EXCAVATION WORK.
- AFTER STAKING/FLAGGING OF CLEARING LIMITS, CONTRACTOR, CITY, AND ENGINEER SHALL REVIEW AND MAKE ANY NECESSARY ADJUSTMENTS.
- INSTALL ALL TREE PROTECTION/SAFETY FENCE AND EROSION AND SEDIMENT CONTROL AND TURBIDITY MEASURES IN CURRENT PHASE OF WORK PRIOR TO ANY CONSTRUCTION ACTIVITY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AND APPROVED BY THE CITY INSPECTOR PRIOR TO LAND DISTURBANCE.
- FOR EACH PHASE OF WORK, THE GENERAL CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS:

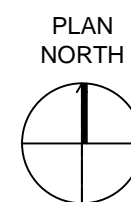
- PERFORM ANY CLEARING, GRUBBING, AND DEMOLITION PER PHASE AS SHOWN ON THE PLANS. CONTRACTOR SHALL LIMIT AMOUNT OF CLEARING TO THE EXTENT PRACTICABLE IN ORDER TO PERFORM NECESSARY ACTIVITIES FOR CONSTRUCTION. THE PROJECT MAY ONLY BE CLEARED ONE PHASE AT A TIME IN THE ORDER OF THE PHASES. ANY ADDITIONAL SITE PREPARATION SHALL BE APPROVED BY THE ENGINEER.
- PROVIDE TEMPORARY STABILIZATION FOR DENUDED AREAS THAT WILL NOT BE PERMANENTLY STABILIZED WITHIN A PERIOD OF FOURTEEN (14) DAYS OR LONGER.

- STAKE IMPROVEMENTS FOR EACH PHASE OF WORK AS NEEDED AND REQUIRED ON THE DRAWINGS AND IN THE SPECIFICATIONS. AFTER STAKING, CONTRACTOR, CITY, AND ENGINEER SHALL REVIEW STAKING AND MAKE ANY NECESSARY ADJUSTMENTS BEFORE COMMENCING EARTHWORKS.
- CONSTRUCT STONE SILL AND COIR LOG
- PERFORM GRADING AND INSTALLATION OF STRUCTURES AS SHOWN IN ACTIVE PHASE LIMITS.
- AS SECTIONS OF DISTURBED AREAS ARE BROUGHT TO FINAL GRADES WITHIN A PHASE, PERMANENTLY STABILIZE THESE AREAS IN ACCORDANCE WITH THE PLANS, DETAILS, AND SPECIFICATIONS.
- PRIOR TO PERMANENTLY STABILIZING MARSH AREAS, SAND FILL SHALL BE ALLOWED TO SETTLE FOR 2 WEEKS PRIOR TO PLANTING LOW AND HIGH MARSH PLANTS. GRADES OF SAND FILL SHALL BE CHECKED PRIOR TO PLANTING.
- PRIOR TO PROCEEDING TO THE NEXT PHASE, AN INTERIM AS-BUILT SURVEY OF THE STONE SILL SHALL BE PROVIDED AFTER A SETTLEMENT PERIOD OF A MINIMUM OF 2 WEEKS TO VERIFY GRADES. SEE SPECIFICATION 01 32 23, SECTION 1.04.E.

- OBTAIN APPROVAL FROM ENGINEER FOR COMPLETED PHASE OF WORK BEFORE PROCEEDING TO THE NEXT PHASE.
- REPAIR ANY DAMAGES TO ITEMS THAT ARE NOT IDENTIFIED AS PART OF THIS CONSTRUCTION AT NO ADDITIONAL COST TO OWNER.
- REMOVE AND PERMANENTLY STABILIZE THE CONSTRUCTION ENTRANCE FOR COMPLETED PHASE.
- BEGIN WORK IN NEXT PHASE, IF APPLICABLE, BY STARTING AT NUMBER 3 OF THE CONSTRUCTION SEQUENCE.
- INSPECT AND MAINTAIN EROSION CONTROL MEASURES IN ALL PHASES FOR THE DURATION OF THE PROJECT.
- REMOVE TREE PROTECTION AND SAFETY FENCE AS ALLOWED BY THE ENGINEER OR CITY INSPECTOR.
- NOTIFY CITY OF NORFOLK TO SCHEDULE A SUBSTANTIAL COMPLETION INSPECTION AT THE CONSTRUCTION SITE. PREPARE A PUNCH LIST OF ITEMS TO BE ADDRESSED AS A RESULT OF THE SUBSTANTIAL COMPLETION INSPECTION.
- REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DISPOSE OF SEDIMENTS IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, ONCE THE CITY INSPECTOR DETERMINES THAT CONSTRUCTION IS SUBSTANTIALLY COMPLETE AND THE WORK AREA IS PERMANENTLY STABILIZED.
- ONCE PUNCH LIST ITEMS ARE ADDRESSED, SCHEDULE A FINAL INSPECTION AT THE SITE.



FOR SOIL TYPE DESCRIPTIONS, SEE EROSION AND SEDIMENT CONTROL NARRATIVE, THIS SHEET.

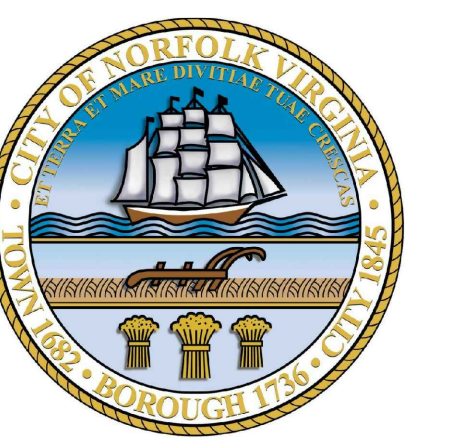
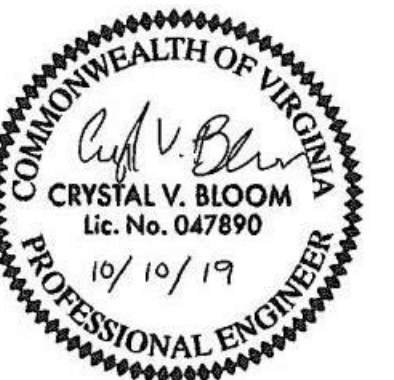


SOIL MAP

SCALE: 1" = 100'



ENVIRONMENTAL ENGINEERING AND CONSULTING
 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

REVISIONS

| REV | DATE | DESCRIPTION |
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LINE IS 2 INCHES AT FULL SIZE

DESIGNED: BN
 DRAWN: RJ
 CHECKED: BN
 CHECKED: JO
 APPROVED: CB

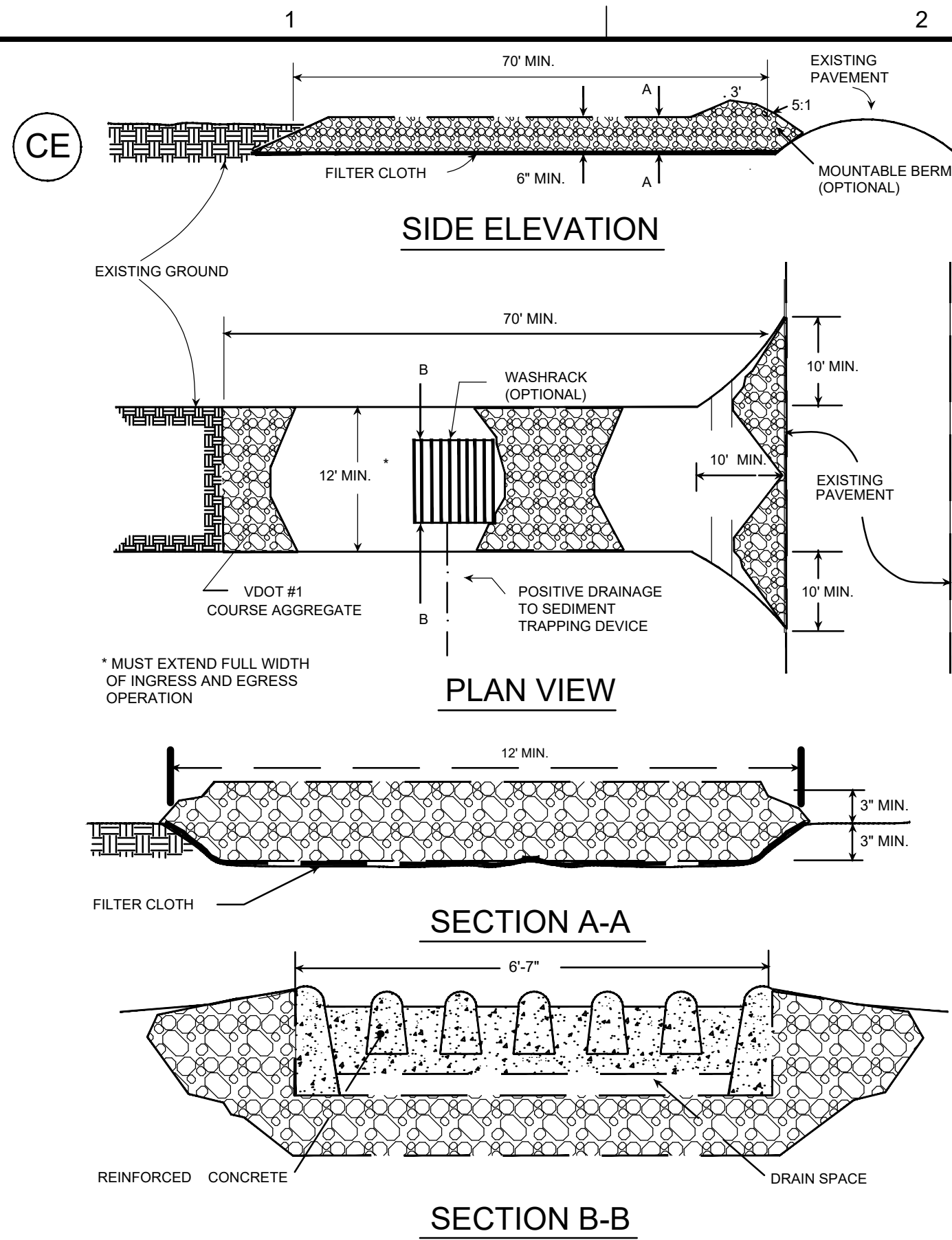
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 BC PROJECT NUMBER: 149124.200.010
 CLIENT PROJECT NUMBER

CIVIL EROSION AND SEDIMENT CONTROL NOTES

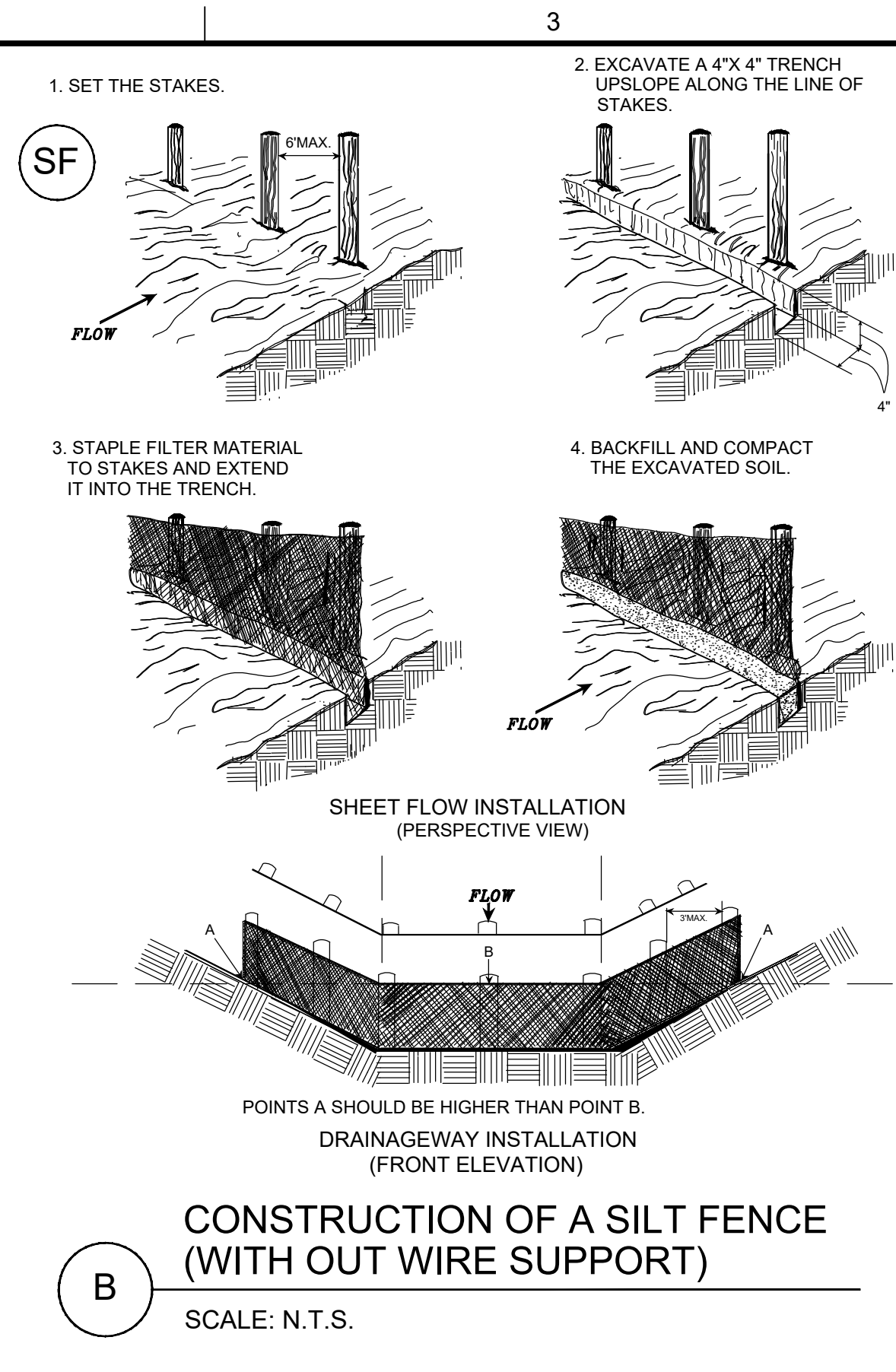
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C-501
 SHEET NUMBER
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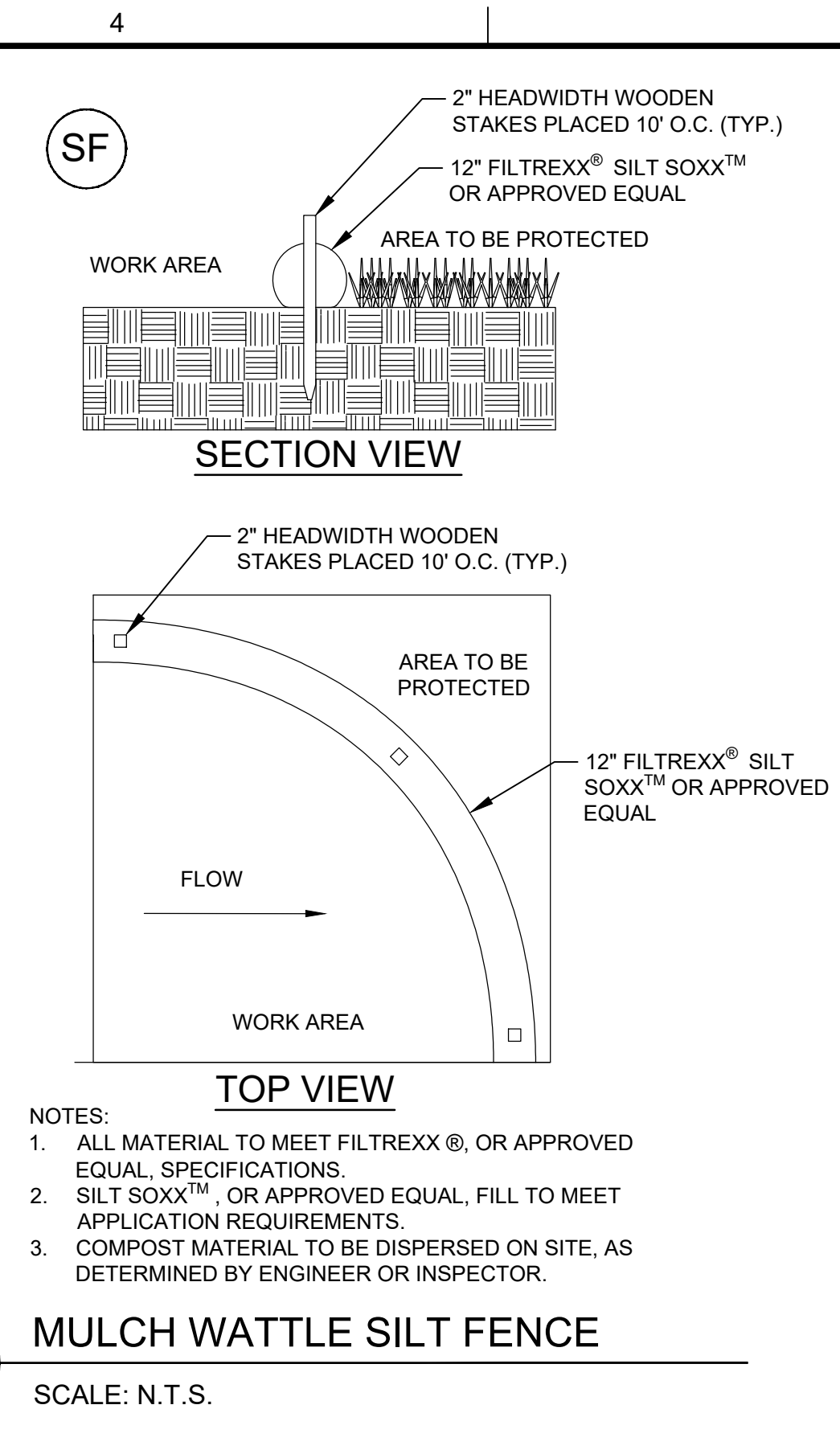
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 Turbidity Curtain_Detail.dwg
 Turbidity Curtain Detail.dwg



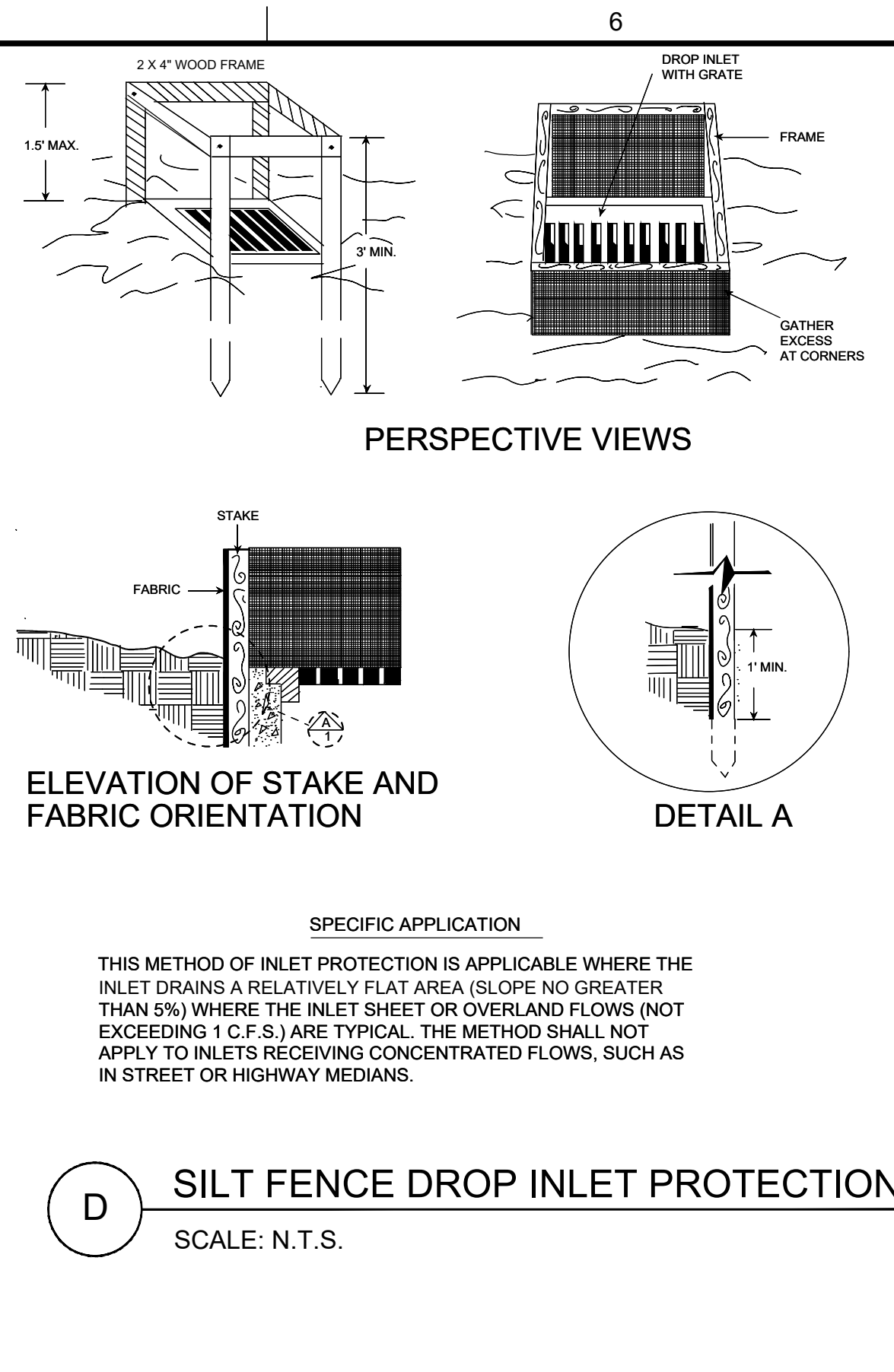
A **STONE CONSTRUCTION ENTRANCE**
SCALE: N.T.S.



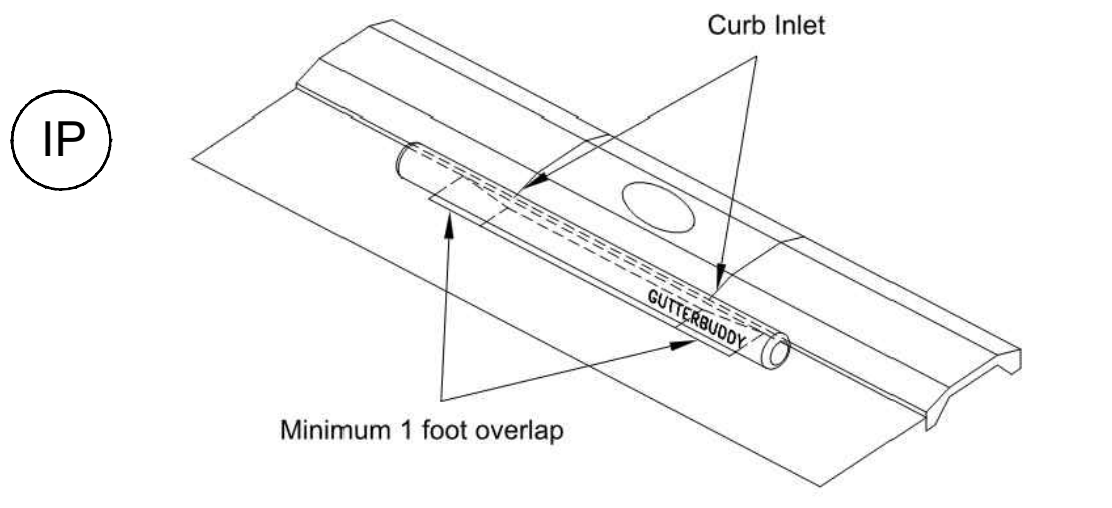
B **CONSTRUCTION OF A SILT FENCE (WITH OUT WIRE SUPPORT)**
SCALE: N.T.S.



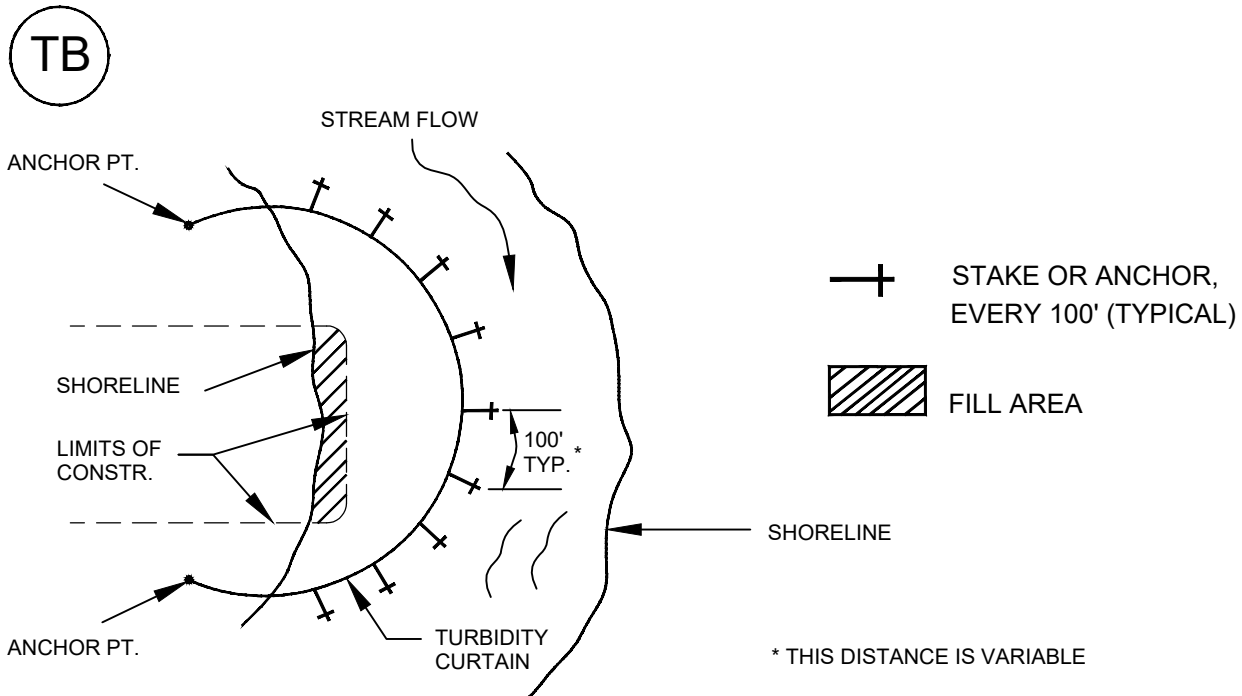
C **MULCH WATTLE SILT FENCE**
SCALE: N.T.S.



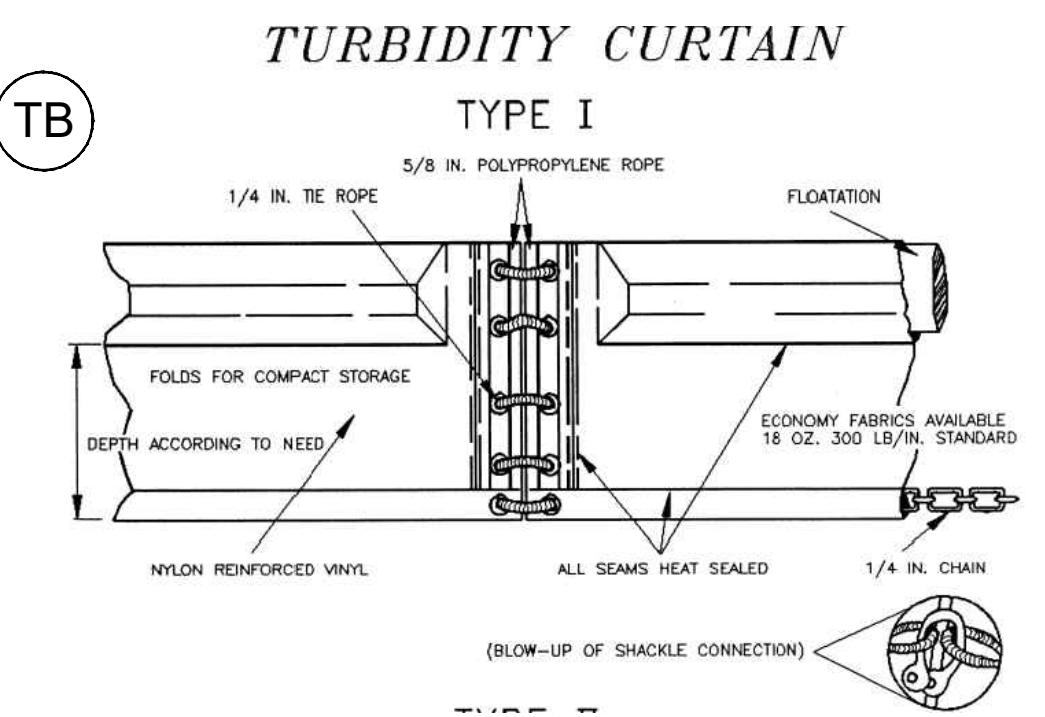
D **SILT FENCE DROP INLET PROTECTION**
SCALE: N.T.S.



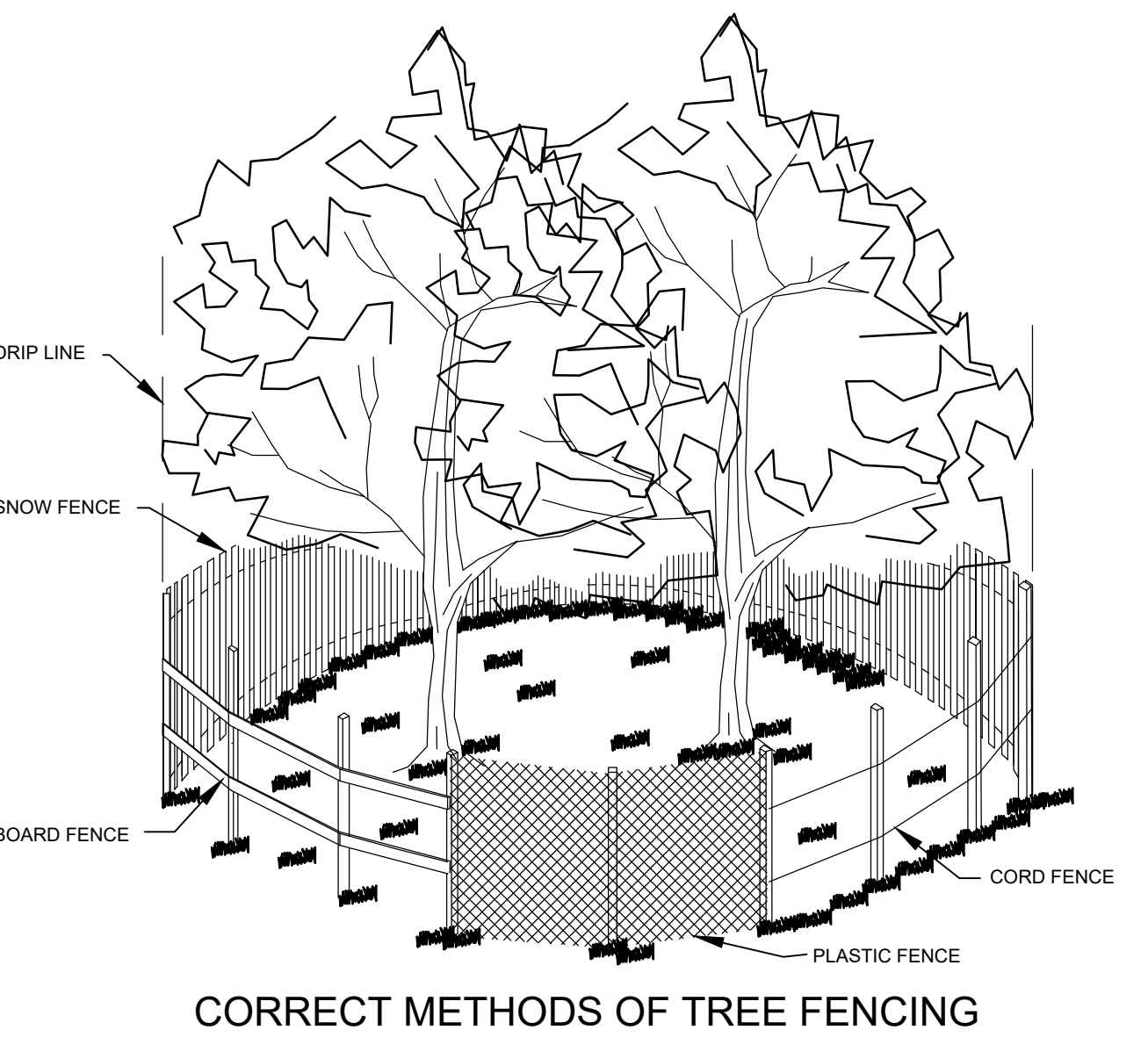
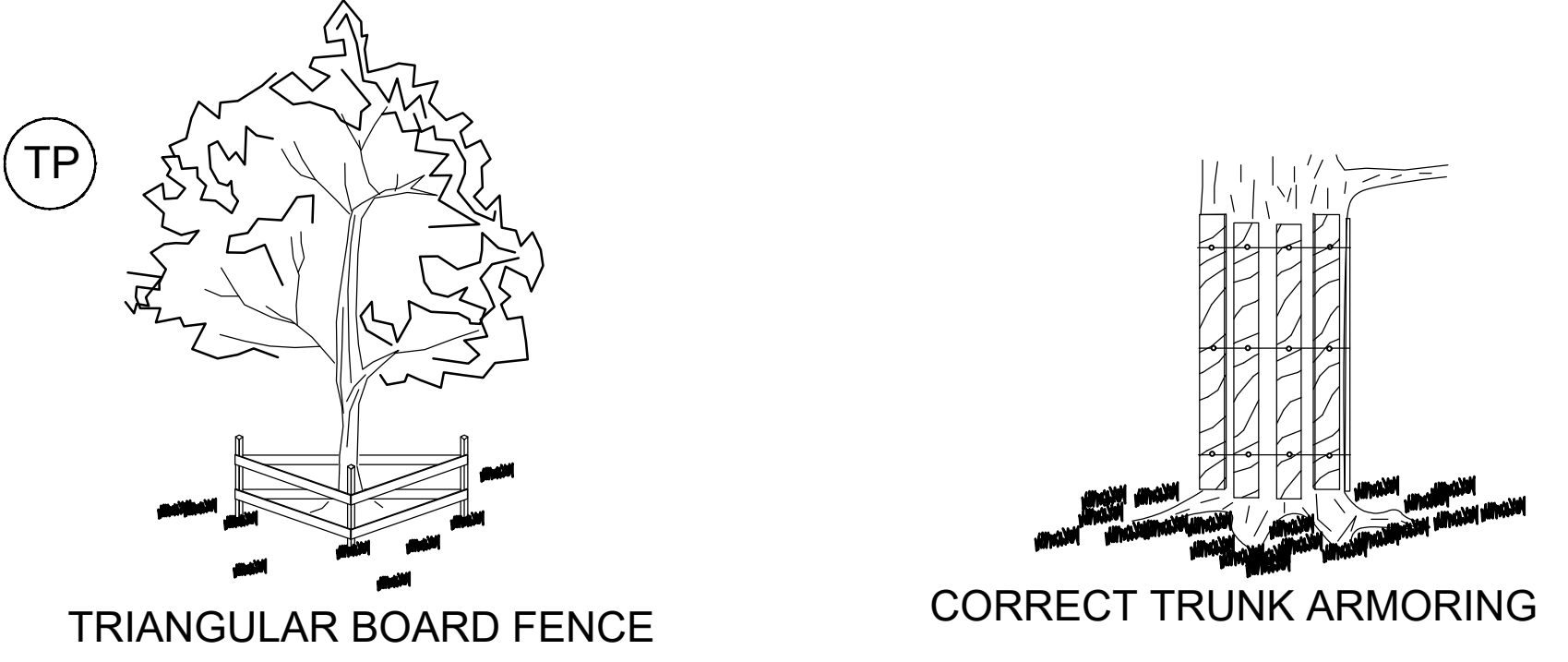
E **CURB INLET DRAIN FILTER**
SCALE: N.T.S.



F **TURBIDITY CURTAIN**
SCALE: N.T.S.



G **TURBIDITY CURTAIN**
SCALE: N.T.S.



H **TREE PROTECTION FENCE**
SCALE: N.T.S.

Brown AND Caldwell

ENVIRONMENTAL ENGINEERING AND CONSULTING
 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385

COMMONWEALTH OF VIRGINIA
 Crystal V. Bloom
 Lic. No. 047890
 10/10/19
 PROFESSIONAL ENGINEER

CITY OF NORFOLK, VIRGINIA

LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

REVISIONS

| REV | DATE | DESCRIPTION |
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LINE IS 2 INCHES AT FULL SIZE

DESIGNED: BN
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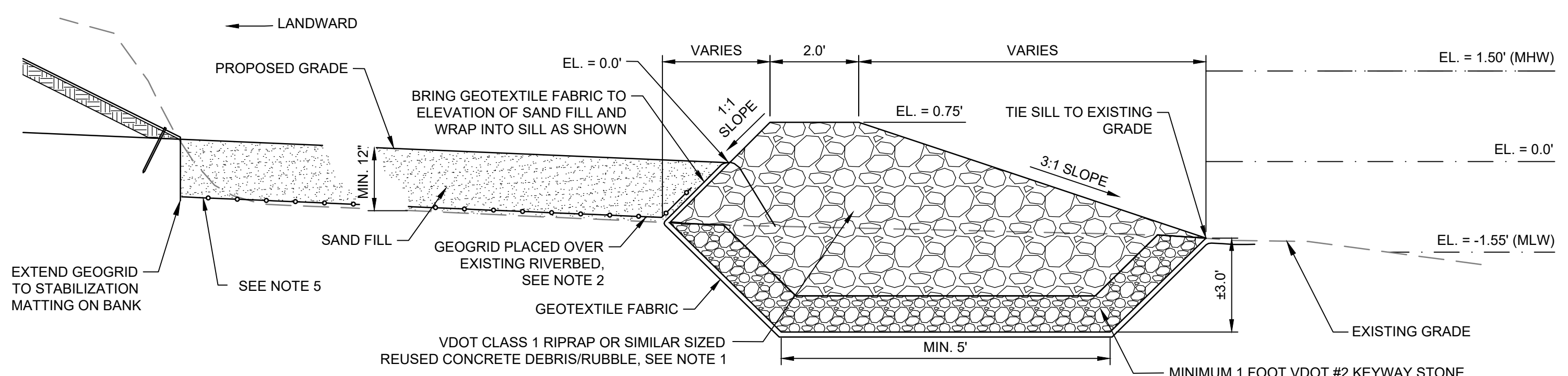
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 CLIENT PROJECT NUMBER

CIVIL

EROSION AND SEDIMENT CONTROL DETAILS

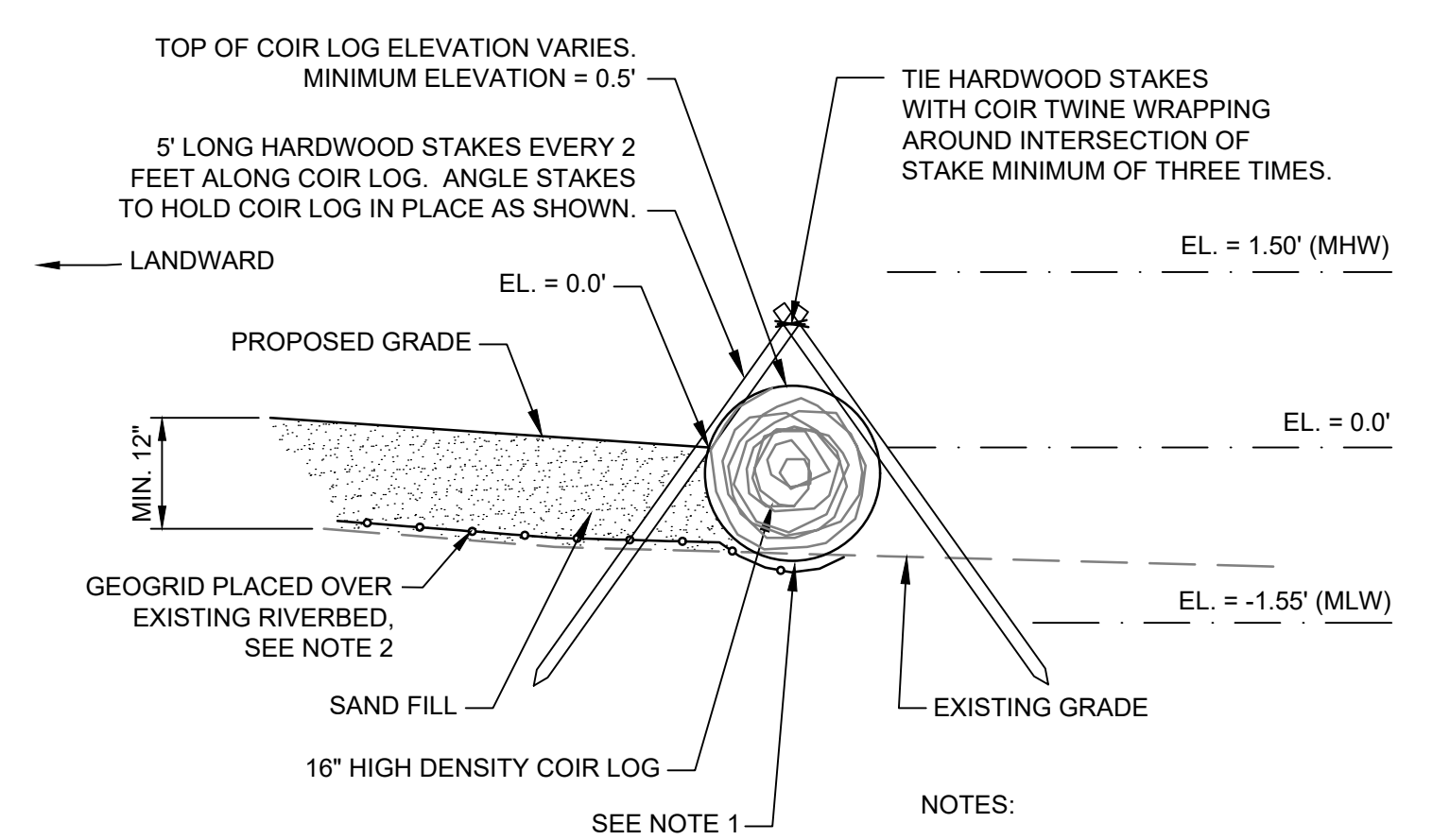
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C-502
 SHEET NUMBER
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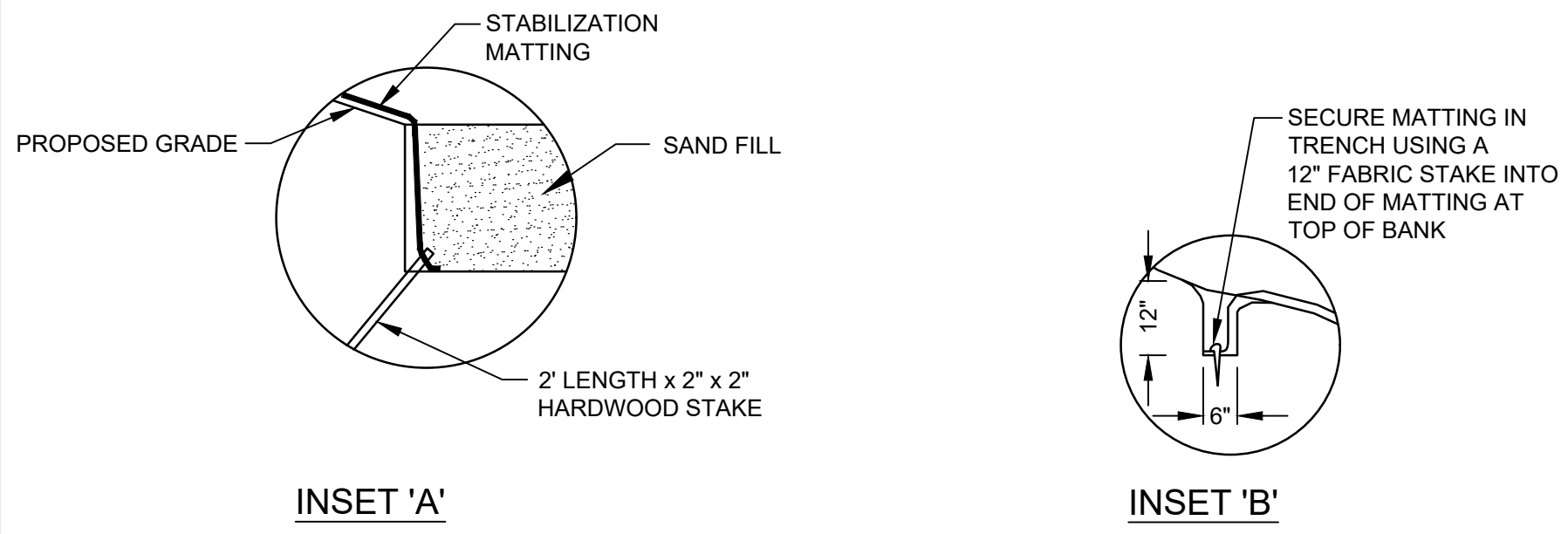
- NOTES:
1. TOP LAYER OF RIPRAP ON SILL (MINIMUM 12") SHALL BE VDOT CLASS 1 RIPRAP AND NOT REUSED CONCRETE DEBRIS/RUBBLE.
 2. EXTEND GEOGRID A MINIMUM OF 6" UP SLOPE OF SILL OVER GEOTEXTILE FABRIC.
 3. THE INTENT OF THIS DETAIL IS TO SHOW THE GENERAL REQUIREMENTS FOR CONSTRUCTING THE SILL. THE OVERALL MATERIAL DEPTH OF SILL MAY VARY DEPENDING ON THE UNDERLYING RIVERBED CONDITIONS. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR BORING INFORMATION.
 4. SEE SPECIFICATION 31 37 00, SECTION 3.03.E.4 FOR SILL ELEVATION TOLERANCE AND SPECIFICATION 31 23 00, SECTION 3.07.A FOR SETTLEMENT REQUIREMENTS.
 5. IN AREAS OF CONCRETE DEBRIS REMOVAL ON MARSH AREAS, CONTRACTOR SHALL BACKFILL WITH COMMON EARTH BACKFILL TO 12" BELOW FINAL GRADE AND INSTALL GEOGRID AND SAND FILL TO ACHIEVE FINAL GRADES.

A STONE SILL
SCALE: N.T.S.



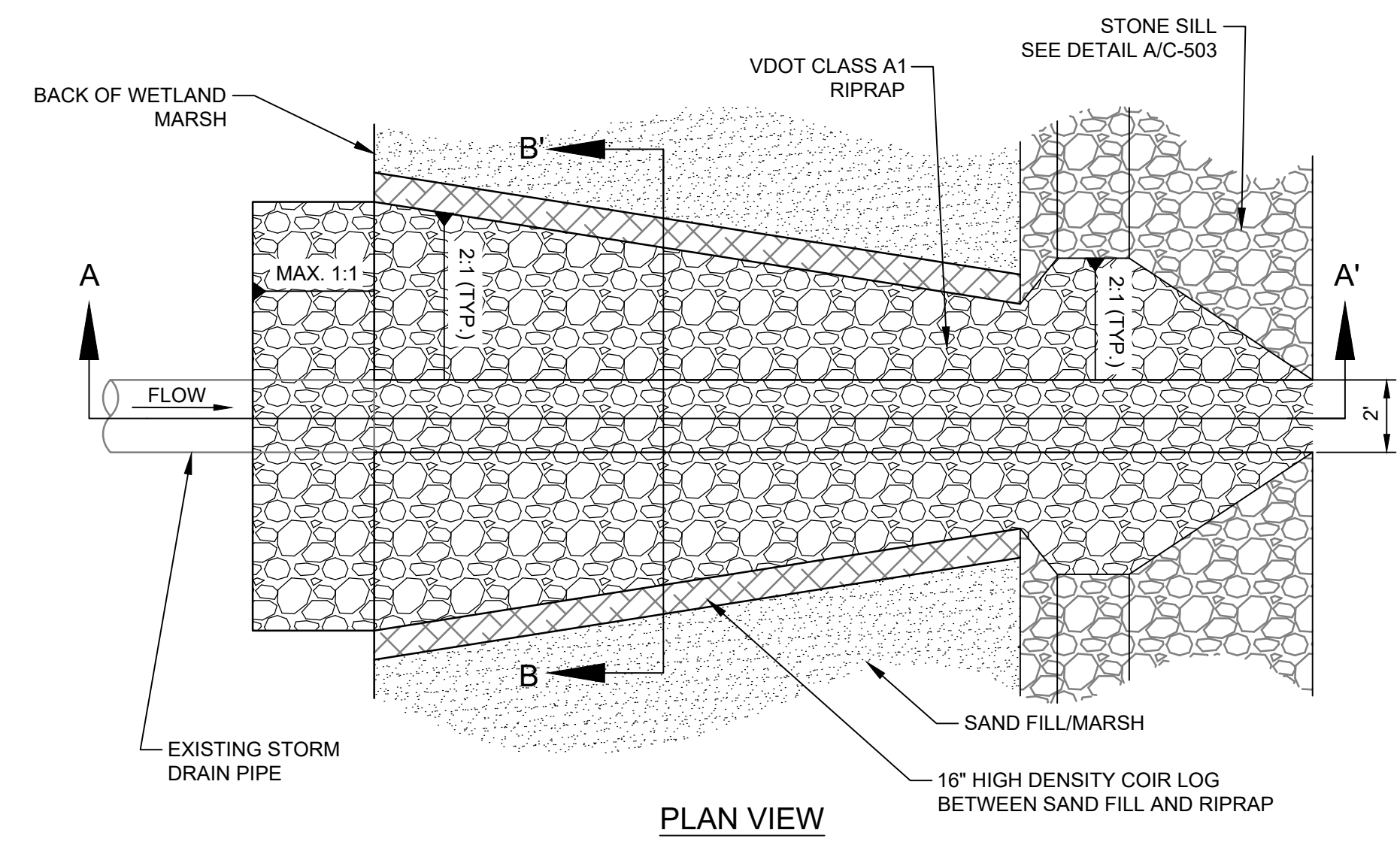
- NOTES:
1. CREATE DEPRESSION ALONG PROPOSED ALIGNMENT OF COIR LOG AND SEAT LOG IN THE DEPRESSION TO REDUCE PIPING OF SAND BENEATH COIR LOG.
 2. EXTEND GEOGRID UNDER COIR LOG.

B COIR LOG DETAIL
SCALE: N.T.S.

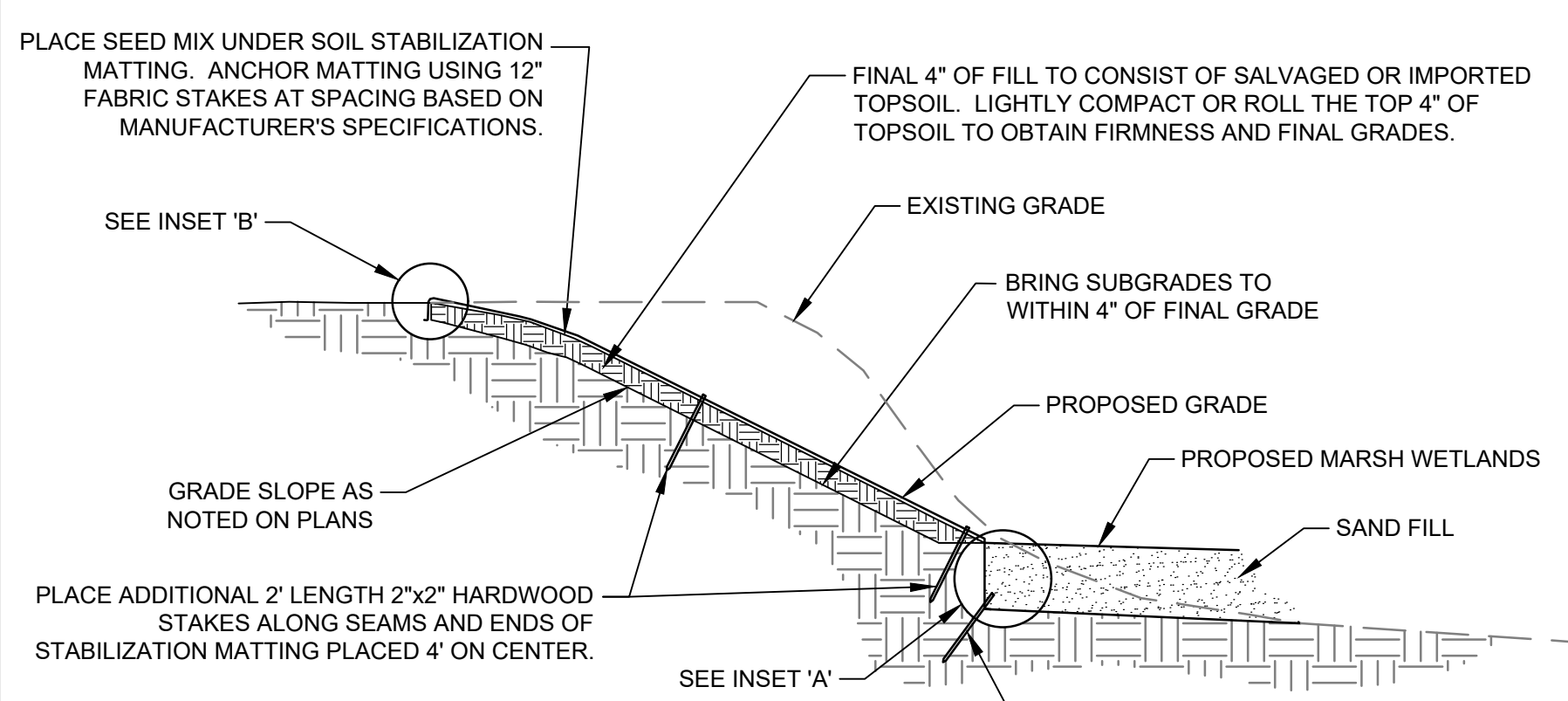


C BANK STABILIZATION MATTING
SCALE: N.T.S.

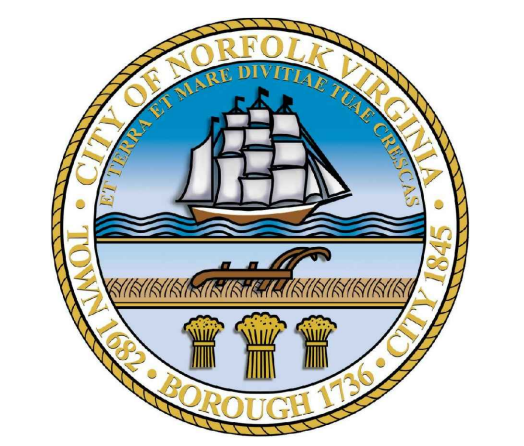
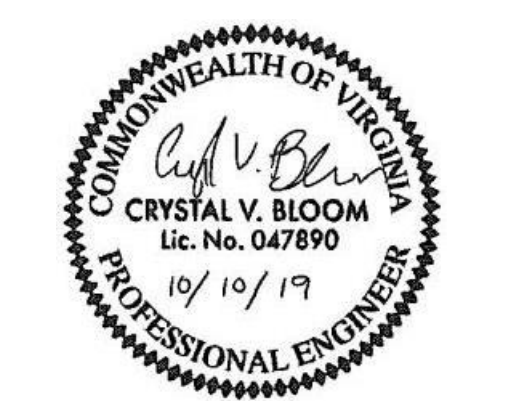
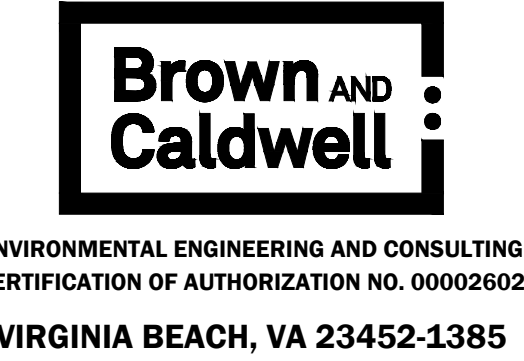
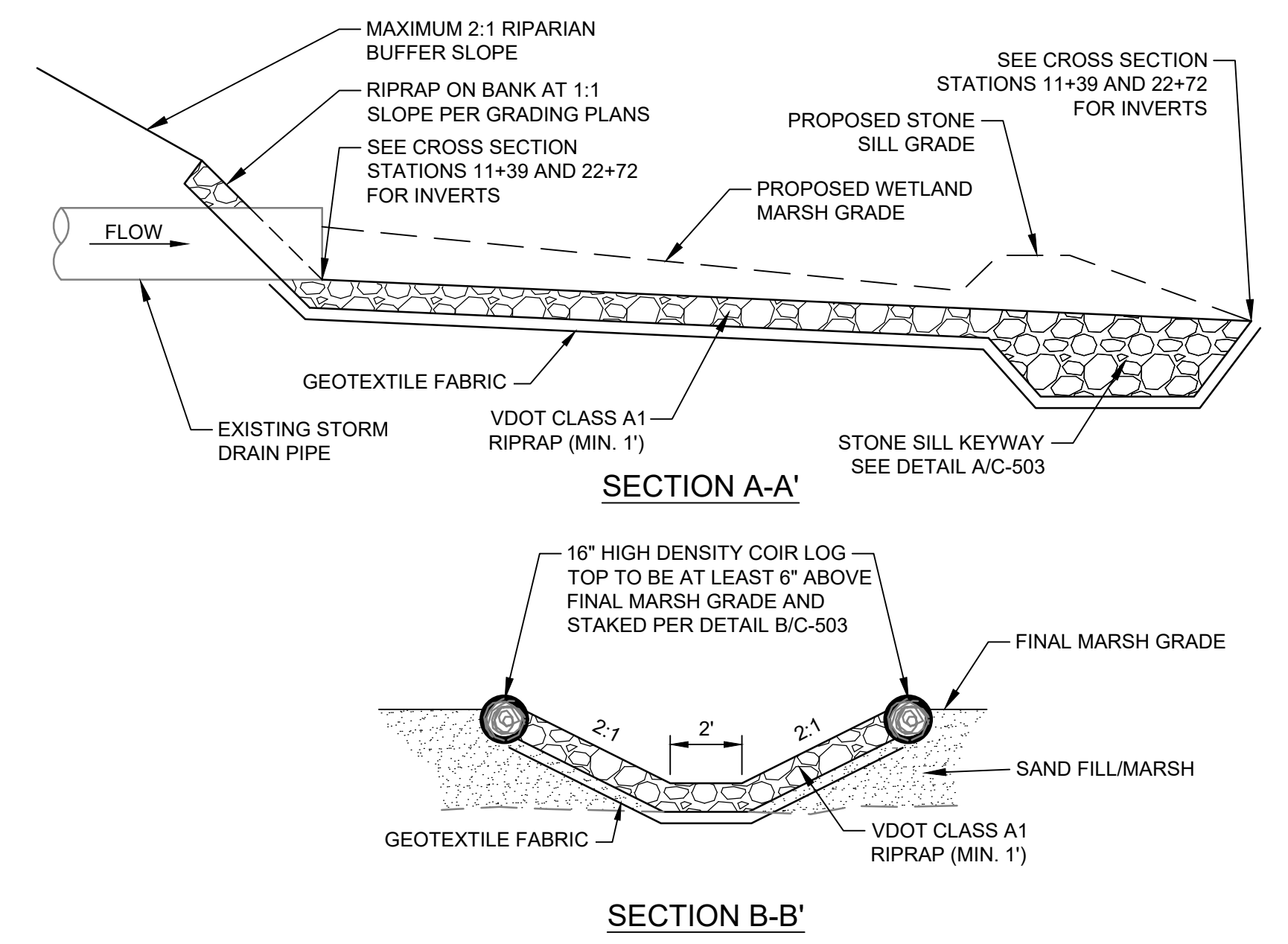
D LOW MARSH MICRO-POOLS
SCALE: N.T.S.



E CULVERT OUTFALL CHANNEL
SCALE: N.T.S.



- NOTES:
1. MICRO-POOLS TO BE CONSTRUCTED DURING INSTALLATION OF SAND FILL BY LEAVING DEPRESSIONS DURING PLACEMENT OF MATERIAL.
 2. MICRO-POOLS SHALL BE +/- 10% OF THE LOW MARSH AREA AND SHALL NOT BE DEEPER THAN 6 INCHES.
 3. LOW MARSH PLANTINGS SHALL BE PLACED PARTIALLY IN THE EDGE OF THE MICRO-POOLS FOR STABILITY AS SHOWN.



LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

| REVISIONS | | |
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LINE IS 2 INCHES AT FULL SIZE

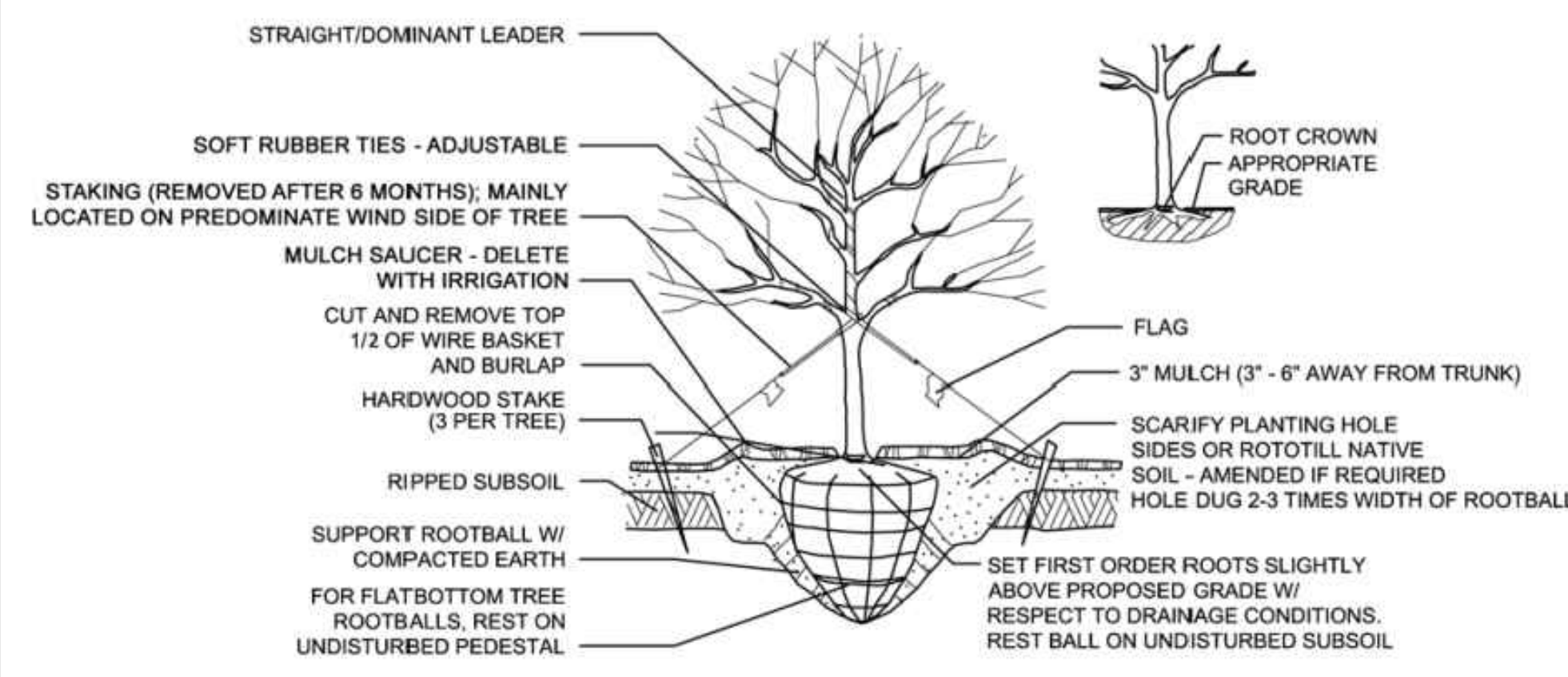
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 APPROVED: CB

FILENAME: C-503.DWG
 BC PROJECT NUMBER: 149124.200.010
 CLIENT PROJECT NUMBER:

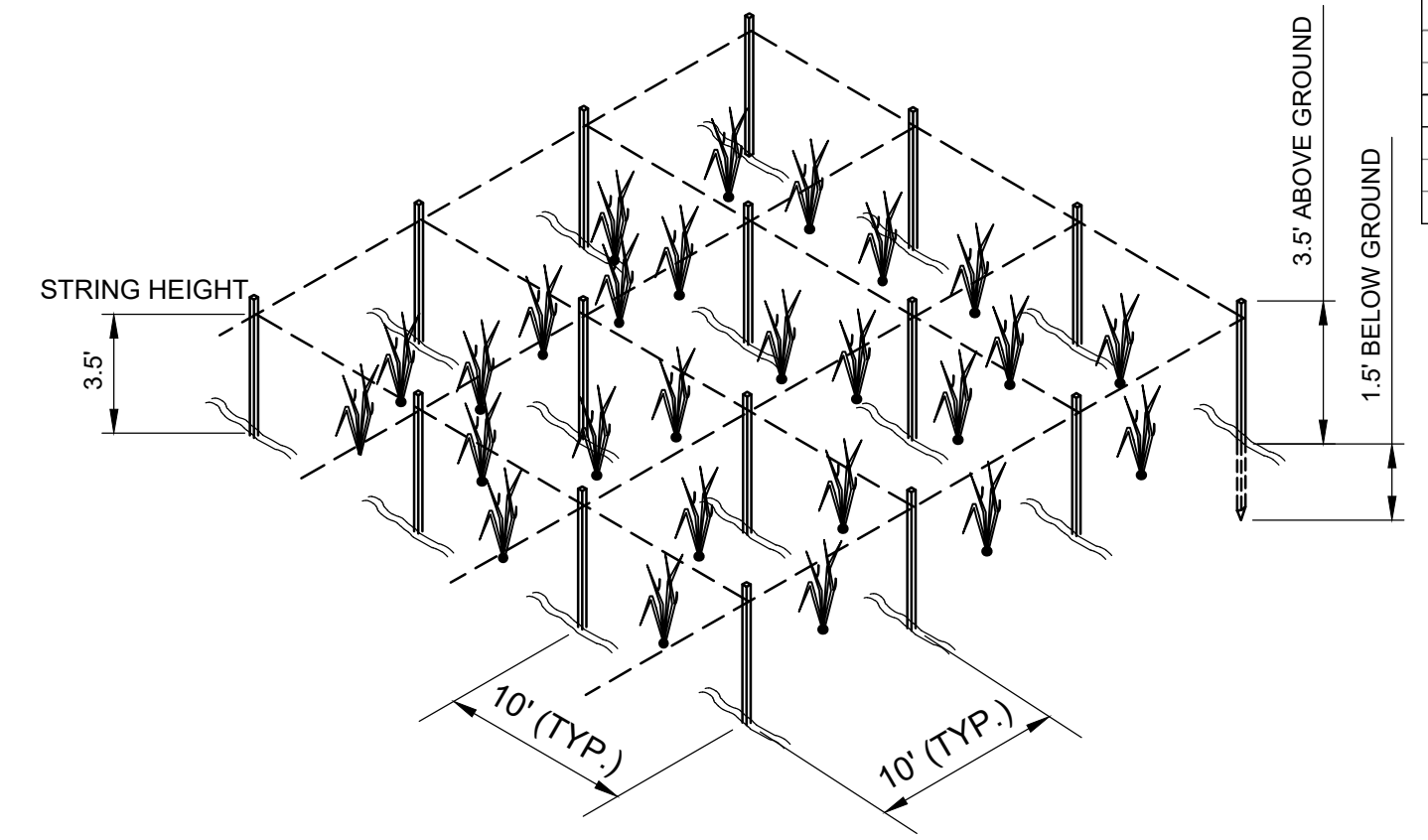
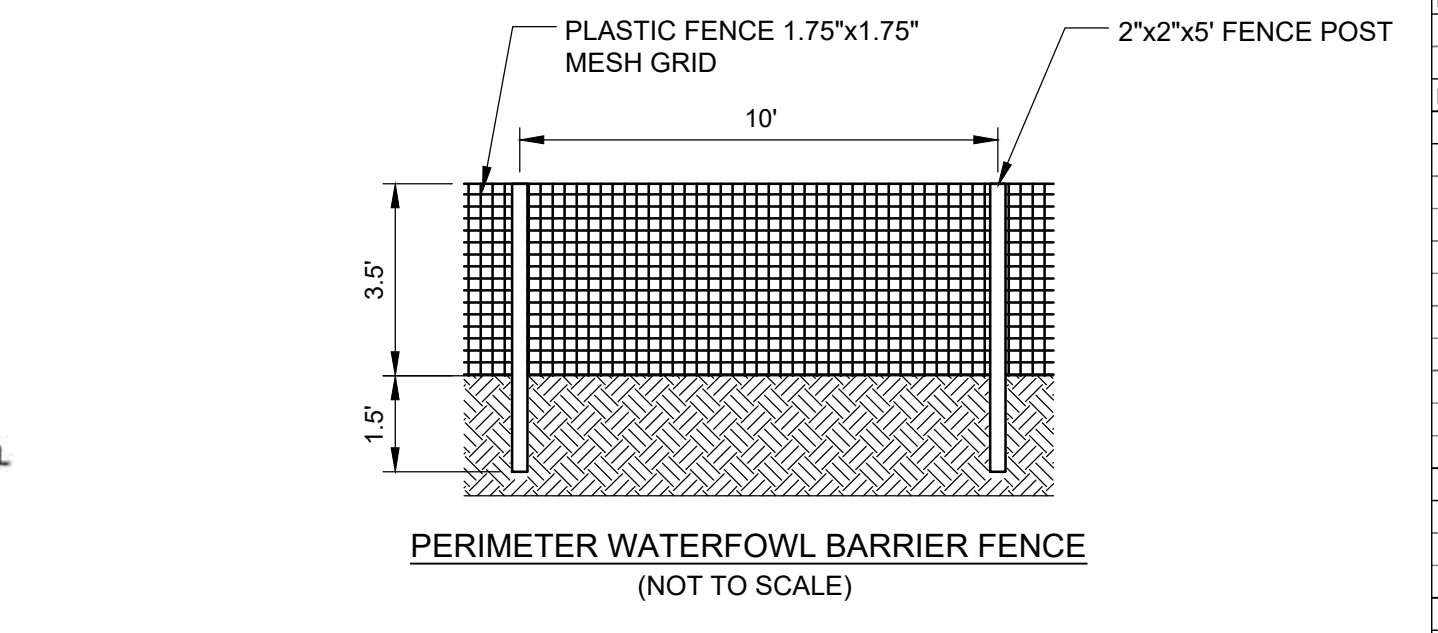
CIVIL CONSTRUCTION DETAILS

DRAWING NUMBER: **C-503**
 SHEET NUMBER: 20 OF 21

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 Norfolk-Shrub-Details.png Norfolk-Tree-Details.png

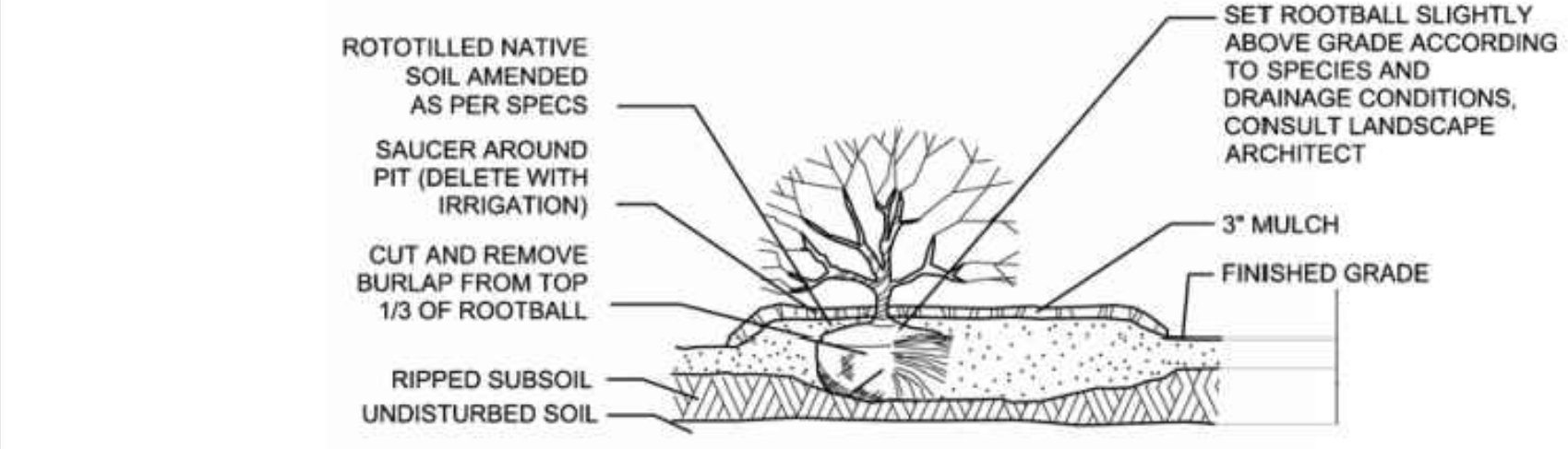


A TYPICAL TREE PLANTING DETAIL
SCALE: N.T.S.

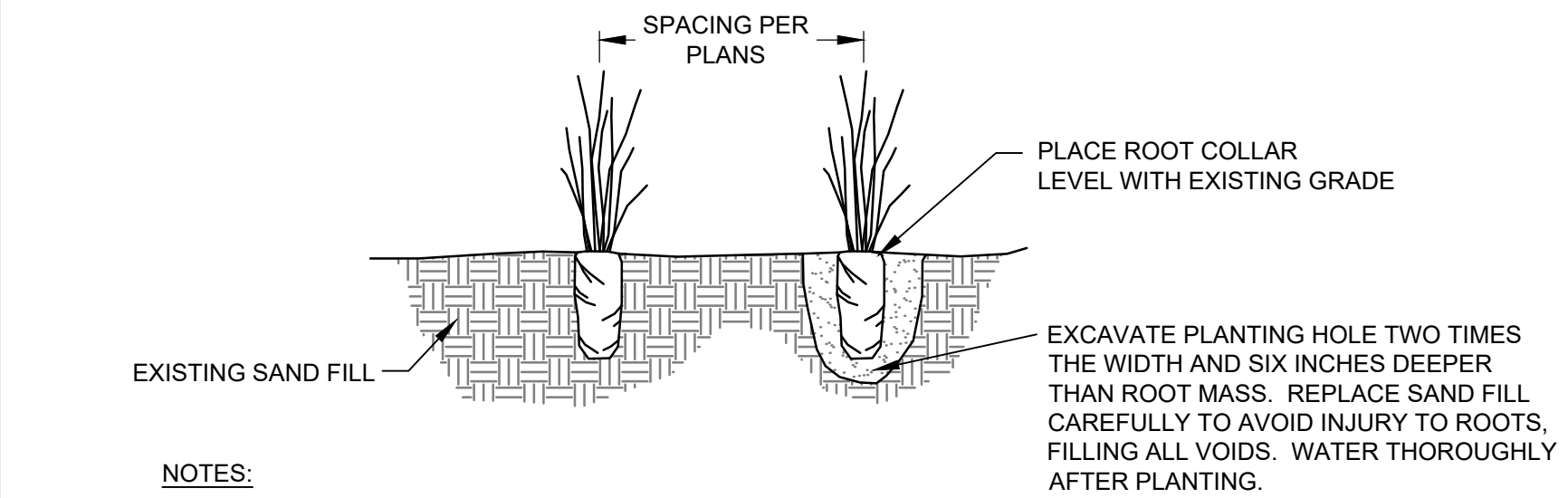


- NOTES:**
- PERIMETER POSTS TO BE PLACED 10' APART. THE PERIMETER OF THE BARRIER CELL IS A 50'x50' SQUARE AS SHOWN IN THE DETAIL.
 - PERIMETER AND INTERNAL POSTS ARE 2"x2"x5' HARDWOOD POSTS. DO **NOT** USE PRESSURE TREATED WOOD.
 - INSTALL 4' HIGH PLASTIC FENCING ALONG PERIMETER POSTS. FENCE SHOULD HAVE A 1.75"x1.75" MESH GRID.
 - MOUNT NYLON STRING ATOP POSTS IN THE PATTERN INDICATED IN THE BARRIER CELL DETAIL.
 - TIE REFLECTIVE MYLAR FLAGGING BETWEEN POSTS.

D WATERFOWL EXCLUSION FENCE
SCALE: N.T.S.

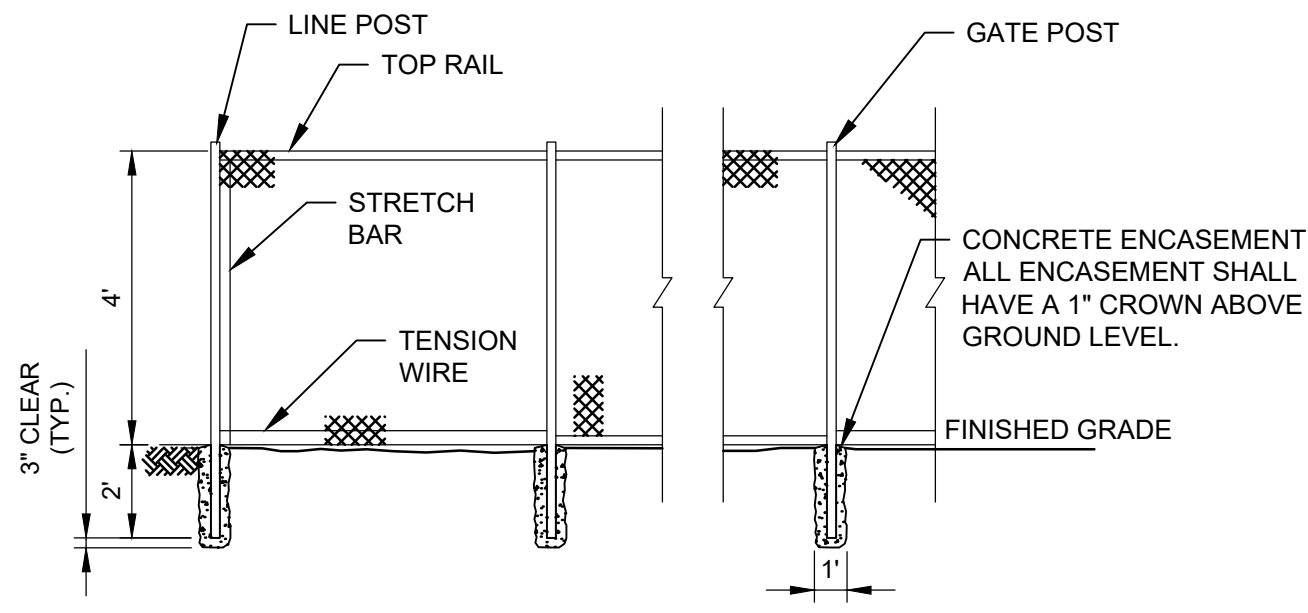


B TYPICAL SHRUB PLANTING DETAIL
SCALE: N.T.S.



- NOTES:**
- BOTTOM OF PLANT SHALL BE AT LEAST 4" BELOW FINISHED GRADE TO EFFECTIVELY ANCHOR THE PLANT.
 - SECURELY PACK SAND FILL AROUND EACH PLUG AND TAMP DOWN TO REMOVE AIR POCKETS.
 - MIX LOW MARSH AND HIGH MARSH SPECIES FOR 3 ROWS WHERE ZONES MEET.
 - ALLOW 2 WEEKS FOR SAND FILL TO SETTLE PRIOR TO PLANTING LOW AND HIGH MARSH PLANTS. GRADES OF SAND FILL SHALL BE CHECKED PRIOR TO PLANTING.

C WETLAND MARSH TUBLING PLANTING
SCALE: N.T.S.



E CHAIN LINK FENCE
SCALE: N.T.S.

| LIVING SHORELINE PLANT LIST | | | | | | | | |
|-----------------------------|------------------------------|-------------------------|---------|------------|---------|---------------|--|---|
| QUANTITY | SCIENTIFIC NAME | COMMON NAME | CALIPER | ROOT | HEIGHT | PLANTING TIME | SPACING (O.C.) | NOTE |
| 20,304 | SPARTINA ALTERNIFLORA | SALT MARSH CORDGRASS | -- | PLUG | -- | APRIL-JUNE | 18" | 72 CELL FLAT |
| 7,416 | SPARTINA PATENS | SALTMEADOW HAY | -- | PLUG | -- | APRIL-JUNE | 24" | 72 CELL FLAT |
| RIPARIAN BUFFER | | | | | | | | |
| LARGE CANOPY TREES | | | | | | | | |
| 5 | CELTIS LAEVIGATA | SUGARBERRY | 1.5" | #10 CONT. | 10'-12' | OCT.-MARCH | SPACING SHALL BE APPROXIMATELY 15' ON CENTER. DISTRIBUTE RANDOMLY BETWEEN SPECIES. | COORDINATE WITH CITY AND/OR ENGINEER ON SPECIFIC AREAS OF INSTALLATION. |
| 5 | MAGNOLIA GRANDIFLORA | SOUTHERN MAGNOLIA | 1.5" | #10 CONT. | 10'-12' | | | |
| 5 | PLATANUS OCCIDENTALIS | SYCAMORE | 1.5" | #10 CONT. | 10'-12' | | | |
| 5 | PRUNUS SEROTINA | BLACK CHERRY | 1.5" | #10 CONT. | 10'-12' | | | |
| 5 | QUERCUS PHELLOS | WILLOW OAK | 1.5" | #10 CONT. | 10'-12' | | | |
| 1 | ILEX OPACA | AMERICAN HOLLY | 1.0" | #7 CONT. | 8'-10' | | | |
| 1 | MAGNOLIA GRANDIFLORA | SOUTHERN MAGNOLIA | 1.0" | #7 CONT. | 8'-10' | | | |
| 2 | NYSSA SYLVATICA | BLACK TUPELO | 1.0" | #7 CONT. | 8'-10' | | | |
| 2 | PRUNUS SEROTINA | BLACK CHERRY | 1.0" | #7 CONT. | 8'-10' | | | |
| 2 | QUERCUS ALBA | WHITE OAK | 1.0" | #7 CONT. | 8'-10' | | | |
| SMALL CANOPY TREES | | | | | | | | |
| 6 | AMELANCHIER ARBOREA | COMMON SERVICEBERRY | -- | #3 CONT. | 3'-5' | OCT.-MARCH | SPACING SHALL BE APPROXIMATELY 15' ON CENTER. DISTRIBUTE RANDOMLY BETWEEN SPECIES. | COORDINATE WITH CITY AND/OR ENGINEER ON SPECIFIC AREAS OF INSTALLATION. |
| 6 | ILEX VOMITORIA | YALPON HOLLY | -- | #3 CONT. | 3'-5' | | | |
| 6 | MAGNOLIA VIRGINIANA | SWEETBAY MAGNOLIA | -- | #3 CONT. | 3'-5' | | | |
| SMALL SHRUBS | | | | | | | | |
| 50 | ARONIA ARBUTIFOLIA | RED CHOKEBERRY | -- | #3 CONT. | 18"-24" | OCT.-MARCH | SPACING SHALL BE APPROXIMATELY 5' ON CENTER. DISTRIBUTE RANDOMLY BETWEEN SPECIES. | COORDINATE WITH CITY AND/OR ENGINEER ON SPECIFIC AREAS OF INSTALLATION. |
| 50 | BACCHARIS HALMIFOLIA | SALT BUSH | -- | #3 CONT. | 18"-24" | | | |
| 40 | CLETHRA ALNIFOLIA | SWEET PEPPERBUSH | -- | #3 CONT. | 18"-24" | | | |
| 40 | IVA FRUTESCENS | MARSH ELDER | -- | #3 CONT. | 18"-24" | | | |
| 26 | MORELLA CERIFERA | WAX MYRTLE | -- | #3 CONT. | 18"-30" | | | |
| | | | | | | | | |
| GRASSES | | | | | | | | |
| 694 | MUHLENBERGIA CAPILLARIS | PINK MUHLY GRASS | -- | #SP4 CONT. | -- | APRIL-JUNE | STAGGERED BETWEEN ROWS AT 2' ON CENTER | PLANT 2 ROWS AT 2' APART STARTING AT TOE OF BANK |
| 694 | PANICUM VIRGATUM 'HIGH TIDE' | SWITCH GRASS | -- | #SP4 CONT. | -- | | | |
| 694 | SCHIZACHYRIUM LITTORALE | COASTAL LITTLE BLUESTEM | -- | #SP4 CONT. | -- | | | |

| TEMPORARY SEED MIX | | | |
|--------------------|----------------|------------------|-------------------------------------|
| SCIENTIFIC NAME | COMMON NAME | RATE | NOTES |
| SETARIA ITALICA | FOXTAIL MILLET | 60 LBS/AC OF PLS | SEED BETWEEN APRIL 1 & AUGUST 31 |
| SECALE CEREALE | RYE GRAIN | 60 LBS/AC OF PLS | SEED BETWEEN SEPTEMBER 1 & MARCH 30 |

| MAINTAINED TURF | | | |
|--------------------------------|---------------|------------------|--|
| SCIENTIFIC NAME | COMMON NAME | RATE | NOTES |
| CYNODON DACTYLON 'CELEBRATION' | BERMUDA GRASS | 40 LBS/AC OF PLS | MAY-OCTOBER USE HULLED SEED NOVEMBER-JUNE USE UNHULLED SEED |

| RIPARIAN BUFFER SEED MIX | | | |
|--------------------------|------------------------------|------------------|------------------|
| QUANTITY | SCIENTIFIC NAME | COMMON NAME | RATE |
| 10% | ASCLEPIAS TUBEROSA | BUTTERFLYWEED | 20 LBS/AC OF PLS |
| 15% | ANDROPOGON VIRGINICUS | BROOMSEDGE | |
| 20% | LUPINUS PERENNIS | LUPINE | |
| 20% | PANICUM VIRGATUM 'HIGH TIDE' | SWITCHGRASS | |
| 10% | RUBRICKIA HIRTA | BLACK-EYED SUSAN | |
| 25% | SCHIZACHYRIUM SCOPARIUM | LITTLE BLUE STEM | |

| WETLANDS CONVERSIONS | | |
|---|----------------------------|---------|
| CONVERSION TYPE | AREA | RESULT |
| NON-VEGETATED WETLANDS CONVERTED TO SILL | 21,226 SF / 0.49 AC | NEUTRAL |
| NON-VEGETATED WETLANDS CONVERTED TO VEGETATED | 45,554 SF / 1.04 AC | GAIN |
| VEGETATED WETLANDS CONVERTED TO NON-VEGETATED | 388 SF / 0.009 AC | LOSS |
| VEGETATED WETLANDS CONVERTED TO ANOTHER VEGETATED WETLAND | 15,037 SF / 0.34 AC | GAIN |
| UPLAND TO VEGETATED WETLANDS | 0 SF / 0.0 AC | -- |
| UPLAND TO NON-VEGETATED WETLANDS | 0 SF / 0.0 AC | -- |
| NET GAIN = | 60,203 SF / 1.38 AC | |

| CHESAPEAKE BAY PRESERVATION AREA REFORESTATION CALCULATION | | | |
|---|---------|--|---------------------------|
| ENCROACHMENT | | SHRUB REPLACEMENT SUBSTITUTION | |
| AREA OF FORESTED BUFFER ENCROACHMENT = 4,595 SF | | **1 LARGE CANOPY TREE = 10 SHRUBS ***1 SMALL CANOPY TREE = 5 SHRUBS | |
| * 1 PLANTING UNIT = 1 LARGE CANOPY TREE 2 SMALL CANOPY TREES 3 SMALL SHRUBS | | | |
| MITIGATION (*1 PLANTING UNIT/400 SF OF ENCROACHMENT) | | | |
| 4,595 SF / 400 SF = 12 PLANTING UNITS | | | |
| UNITS | x | PLANT UNIT | TOTAL NUMBER OF PLANTS |
| 12 | | 1 LARGE CANOPY TREE | 12 LARGE CANOPY TREE(S)** |
| 12 | | 2 SMALL CANOPY TREES | 24 SMALL CANOPY TREES*** |
| 12 | | 3 SMALL SHRUBS | 36 SMALL SHRUBS |
| TREE REMOVAL | | MITIGATION | |
| TREES 4" - 12" DBH | REMOVED | x | REPLACEMENT |
| | 35 | | 1 |
| TREES 13" - 24" DBH | 0 | | 2 |
| TREES 25" - 35" DBH | 0 | | 3 |
| | | TOTAL NUMBER OF TREES | PROPOSED NUMBER OF TREES |
| | | 35 | 25 1.5" CALIPER TREES** |
| | | 0 | 0 1.5" CALIPER TREES |
| | | 0 | 0 1.5" CALIPER TREES |

Brown AND Caldwell

ENVIRONMENTAL ENGINEERING AND CONSULTING
 CERTIFICATION OF AUTHORIZATION NO. 00002602
 VIRGINIA BEACH, VA 23452-1385

BENJAMIN A. NASH
No. 001200
10/10/19
CERTIFIED LANDSCAPE ARCHITECT

CITY OF NORFOLK

LINDENWOOD/BARRAUD PARK LIVING SHORELINE DESIGN

| REVISIONS | | |
|-----------|------|-------------|
| REV | DATE | DESCRIPTION |
| | | |
| | | |
| | | |

DESIGNED: BN
 DRAWN: RJ
 CHECKED: BN
 CHECKED: JO
 APPROVED: BN

FILENAME: C-504.DWG
 BC PROJECT NUMBER: 149124.200.010
 CLIENT PROJECT NUMBER:

CIVIL

LANDSCAPE NOTES AND DETAILS

DRAWING NUMBER: **C-504**
 SHEET NUMBER: 21 OF 21