BUCKHORN BRANCH STREAM RESTORATION

MONTGOMERY COUNTY
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

OWNER'S/DEVELOPER'S CERTIFICATION

I/We hereby certify that all clearing, grading, construction, and or development will be done pursuant to this plan and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.

Signature — Date: 01/27/2025

WILLIAM WEAVER, PROJECT MANAGER
Printed Name and Title

DESIGN CERTIFICATION

I hereby certify that this plan has been prepared in accordance with the "2011 Maryland Standards and Specification for Soil Erosion and Sediment Control," Montgomery County Department of Permitting Services Executive Regulations 5-90, 7-02AM and 36-90, and Montgomery County Department of Public Works and Transportation "Storm Drain Design Criteria" dated August 1988.

Design Engineer Signature — Date: 01/27/2025

MARY K. TALLEY, PE — Printed Name — Registration Number: 52717

CERTIFICATION OF THE QUANTITIES

I hereby certify that the estimated total amount of excavation and fill as shown on these plans has been computed to 984 cubic yards of excavation, 2,716 cubic yards of fill and the total area to be disturbed as shown on these plans has been determined to be 133,467 square feet.

Signature — Date: 01/27/2025

MARY K. TALLEY, PE — Printed Name and Title — Registration Number: 52717

MISS UTILITY

Call "Miss Utility" at 1-800-257-7777, 48 hours prior to the start of work. The excavator must notify all public utility companies with under ground facilities in the area of proposed excavation and have those facilities located by the utility companies prior to commencing excavation. The excavator is responsible for compliance with requirements of Chapter 36A of the Montgomery County Code.

CERTIFICATIONS ON THIS SHEET ARE REQUIRED ON ANY PLAN INVOLVING STORMWATER MANAGEMENT. THE STRUCTURAL CERTIFICATION IS REQUIRED FOR UNDERGROUND STORMWATER MANAGEMENT STRUCTURES WHERE POURED CONCRETE WALLS ARE TO BE UTILIZED, OR ON ANY OTHER STRUCTURE MCDPS DEEMS APPROPRIATE.

RELATED REQUIRED PERMITS

To be completed by the consultant and placed on the firest sheet of the Sediment Control/Stormwater Management plan set for al projects.

TYPE OF PERMIT	REQD	NOT REQD	PERMIT #	EXPIRATION DATE	WORK RESTRICTION DATES
MCDPS Floodplain District	X				
WATERWAYS/WETLAND(S):					
a. Corp of Engineers	X		NAB-2023-61768	6/30/2025	3/1-5/31
b. MDE	X		202361768/23-NT-3272	1/30/2029	3/1-5/31
c. MDE Water Quality Certification	X				
MDE Dam Saftey		X			
**N.P.D.E.S. NOTICE OF INTENT	X				
FEMA LOMR (Required Post Construction)		X			
OTHERS (Please List):					
MCDPS SEDIMENT CONTROL	X		291126		
DISTRICT	X		406856		
MNCPPC - FOREST CONSERVATION PLAN	X				
MNCPPC - NRI/FSD	X		420240360	Approval Date 2/5/2024	
*MCDPS PUBLIC RIGHT OF WAY PERMIT (Includes Roadside Tree Protection Plan)	X		404351	2/23/2026	
MDDNR ROASIDE TREE PROTECTION PLAN	X		2024-0526	Approval Date 7/12/2024	

*A copy of the approved Roadside Tree Protection Plan must be delivered to the Sediment Control Inpsector at the Preconstruction meeting.

**When a Notice of Intent is required, the sediment control permit may not be issued until confirmation of authorization under the MDE's-20-CP permit has been submitted to DPS.

VICINITY MAP

SCALE: 1" = 1,000'

GENERAL NOTES

1. THE CONTRACTOR WILL IMMEDIATELY INFORM THE COUNTY OF ANY DISCREPANCIES FOUND BETWEEN THE PROJECT PLANS AND CONTRACT SPECIFICATIONS.
2. FOR CONSTRUCTION, ALL HORIZONTAL CONTROL SHALL BE NAD 83/91 AND VERTICAL CONTROL NAVD 88.
3. TYPES OF STORM DRAIN STRUCTURES REFER TO THE 'DESIGN STANDARDS' OF MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION, UNLESS OTHERWISE NOTED.
4. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS OF THE LINES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR SIX (6) INCHES, WHICHEVER IS LESS, THE CONTRACTOR SHALL CONTACT THE COUNTY.
5. REPAIRS TO UTILITIES OR PROPERTY DAMAGED AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE OR METHOD OF OPERATION MUST BE MADE AT THE CONTRACTOR'S EXPENSE BEFORE PROCEEDING WITH CONSTRUCTION.
6. CALL "MISS UTILITY" AT 1-800-257-7777 FOURTY-EIGHT (48) HOURS PRIOR TO BEGINNING EXCAVATION TO DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES.
7. CLEARING TO BE LIMITED TO THE "LIMIT OF DISTURBANCE" AS SHOWN ON THE PLANS.
8. ALL GRADING SHALL BE DONE IN SUCH A MANNER AS TO PROVIDE POSITIVE DRAINAGE.
9. THE CONTRACTOR SHALL OBTAIN A ROADSIDE TREE PERMIT FOR ANY MAINTENANCE, TREATMENT, PLANTING, REMOVAL OR ROOT CUTTING ON TREES WITHIN THE PUBLIC RIGHT-OF-WAY BEFORE STARTING A JOB. PERMIT REQUIREMENTS MAY BE OBTAINED FROM THE DEPARTMENT OF NATURAL RESOURCES - MARYLAND FOREST, PARK AND WILDLIFE SERVICE WHOSE TELEPHONE NUMBER IS (301) 854-6060.
10. CONTACT THE WASHINGTON SUBURBAN SANITARY COMMISSION SYSTEM MAINTENANCE ENGINEER BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING WATER OR SEWER LINES. BACKFILL TO BE DONE UNDER THE SUPERVISION OF W.S.S.C. CALL 301-699-4420.
11. CONTACT WASHINGTON GAS DISPATCH OFFICER AT (703) 750-4831 BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING GAS MAIN AND SERVICE LATERALS.
12. PRIOR TO VEGETATIVE STABILIZATION, ALL DISTURBED AREAS MUST BE TOPSOILED PER THE MONTGOMERY COUNTY "STANDARDS AND SPECIFICATIONS FOR TOPSOIL".
13. FOLLOW TREE AND INFRASTRUCTURE PROTECTION MEASURES SPECIFIED UNDER GENERAL NOTES FOR WORK ON M-NCPPC PROPERTY TO ALL RIGHT-OF-WAY AND PRIVATE PROPERTY AFFECTED.

SHEET LIST TABLE

CLIENT

RES
6958 AVIATION BLVD., SUITE C
GLEN BURNIE, MD 21061
301.850.0448

DATE:	ISSUES / REVISIONS
DD/MM/YYYY	SUBMISSION DESCTRIPTION

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fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE: COVER SHEET

PROJECT NO.: 23006.01 | SCALE: AS SHOWN | BY: SF/NW | CHECK: KT

SEAL: STATE OF MARYLAND · MARY K. TALLEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025

DWG. NO.:

2/7/2025 I:\Projects\23006.01 Buckhorn Branch Stream Restoration\CAD\Plans\cv01bb.dwg

LEGEND

EXISTING

- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- SS — SANITARY SEWER
- SD — STORM DRAIN
- STREAM CENTERLINE
- SOIL TYPE BOUNDARY
- 100YR — EXISTING 100 YEAR FLOODPLAIN
- 25 FB — EXISTING 100 YEAR FLOODPLAIN BUFFER
- WL — WETLAND LIMIT
- WB — 25 FT WETLAND BUFFER
- WUS — WATER OF THE US
- SB — 75 FT STREAM BUFFER
- TREELINE
- STEEP SLOPES (15% - 24.99%)
- STEEP SLOPES (GREATER THAN 25%)
- T–246 — TREE WITH CRITICAL ROOT ZONE
- TRAVERSE POINT
- STORMDRAIN MANHOLE
- SEWER MANHOLE
- UTILITY MANHOLE
- LIGHT POLE
- UTILITY POLE
- GUY WIRE

PROPOSED

- 425 — MAJOR CONTOUR
- 424 — MINOR CONTOUR
- ALIGNMENT
- 100YR — PROPOSED 100 YEAR FLOODPLAIN
- 25 FB — PROPOSED 100 YEAR FLOODPLAIN BUFFER
- LOD — LIMIT OF DISTURBANCE
- FL-12 — FILTER LOG
- BOF — BLAZE ORANGE FENCE
- RP — RP — ROOT PRUNING
- CLAY PLUG
- OUTFALL STABILIZATION
- COBBLE RIFFLE
- BOULDER RIFFLE
- TOE WOOD TREATMENT
- LOG SILL
- LARGE WOODY DEBRIS
- BOULDER TOE PROTECTION
- ROOTWAD
- TREE REMOVAL
- TREE PLANKING
- STAGING AND STOCKPILING AREA
- MULCH ACCESS ROAD
- HEAVY DUTY MAT MULCH ACCESS
- TB — TEMPORARY BRIDGE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- P — PUMP AROUND LOCATION
- FLOW DIVERSION PIPE
- SAND BAG DIKES
- FB — FILTER BAG

SEQUENCE OF CONSTRUCTION

PRECONSTRUCTION PHASE

1. PRIOR TO CLEARING OF TREES, INSTALLING SEDIMENT CONTROL MEASURES, OR GRADING, A PRECONSTRUCTION MEETING MUST BE CONDUCTED ON-SITE WITH THE MONTGOMERYCOUNTY DEPARTMENT OF PERMITTING SERVICES (MCDPS) SEDIMENT CONTROL INESPECTOR (240)777-0311 (48 HOURS NOTICE), THE MNCPPC, PLANNING DEPARTMENT, PLANS ENFORCEMENT INSPECTOR (301)495-4550 (48 HOURS NOTICE), THE OWNERS REPRESENTATIVE, MARYLAND DEPARTMENT OF ENVIRONMENT (MDE), US ARMY CORP OF ENGINEERS (USACE) AND THE SITE ENGINEER. IN ORDER FOR THE MEETING TO OCCUR, THE APPLICANT MUST PROVIDE ONE PAPER SET OF APPROVED SEDIMENT CONTROL PLANS TO THE MCDPS SEDIMENT CONTROL INSPECTOR AT THE PRECONSTRUCTION MEETING. ADDITIONALLY A COPY OF THE APPROVED ROADSIDE TREE PROTECTION PLAN MUST BE PRESENT AT THE PRECONSTRUCTION MEETING. IF NO PLANS ARE PROVIDED THE MEETING SHALL NOT OCCUR AND WILL NEED TO BE RESCHEDULED PRIOR TO THE COMMENCING OF WORK.
2. CONTRACTOR TO STAKE OUT LIMITS OF DISTURBANCE AS SHOWN ON DESIGN DOCUMENT. THIS IS A DESIGNATED USE CLASS IV STREAM AND WORK SHALL NOT BE CONDUCTING DURING CLOSURE PERIOD FROM MARCH 1 THROUGH MAY 31.
3. APPLY ALL TREE PROTECTION MEASURES AS SHOWN ON DESIGN DOCUMENTS.
4. AFTER THE PRE-CONSTRUCTION MEETING THE PERMITTEE MUST OBTAIN WRITTEN APPROVAL FROM THE MNCPPC INSPECTOR, CERTIFYING THAT THAT THE LIMITS OF DISTURBANCE AND TREE PROTECTION MEASURES ARE CORRECTLY MARKED AND INSTALLED PRIOR TO COMMENCING ANY CLEARING.
5. WITH THREE-DAY CLEAR WEATHER FORECAST, CLEAR AND GRUB FOR INSTALLATION OF CONSTRUCTION SAFETY FENCING, SILT FENCE, FILTER LOG, STABILIZED CONSTRUCTION ENTRANCES, AND MULCH ACCESS ROADS LIMITING EXCESSIVE DISTURBANCE. SEDIMENT CONTROL INSPECTOR TO CONFIRM FILTER BAG PLACEMENT IN FIELD.
6. ONCE THE SEDIMENT CONTROL DEVICES ARE INSTALLED, THE PERMITTEE MUST OBTAIN WRITTEN APPROVAL FROM THE MCDPS INSPECTOR BEFORE PROCEEDING WITH ANY ADDITIONAL CLEARING, GRUBBING, OR GRADING.
7. SEDIMENT CONTROL DEVICES TO REMAIN IN PLACE UNTIL ALL CLEARING AND GRUBBING AND GRADING COMPLETED AND WRITTEN APPROVAL RECEIVED FROM MCDPS SEDIMENT CONTROL INSPECTOR.

CONSTRUCTION PHASE

1. NOTIFY "MISS-UTLITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE. IN ADDITION, ENGAGE WSSC UTILITY LOCATOR FOR WORK CONDUCTED IN SEWER EASEMENTS.

INSTREAM CONSTRUCTION

2. CONTRACTOR SHALL COMPLETE STREAM WORK EITHER FROM UPSTREAM TO DOWNSTREAM OR DOWNSTREAM TO UPSTREAM. INSTALL SAND BAGS AND PUMP AROUND PRACTICES FOR ALL PROPOSED INSTREAM WORK. RUN PUMP CONTINUOUSLY DURING WORK HOURS WHEN BASEFLOW IS PRESENT UNTIL THE SITE IS TEMPORARILY STABILIZED. USE FILTER BAGS TO DEWATER THE INSTREAM WORK AREA AS NEEDED DURING CONSTRUCTION.
3. AFTER INSTALLATION OF PUMP-AROUND PRACTICES, CLEAR LIMITS OF DISTURBANCE AS REQUIRED TO BEGIN GRADING ACTIVITIES. PUMP ANY FLOW WITHIN THE CHANNEL AROUND WORK EXTENTS DURING INSTREAM WORK.
4. CONSTRUCT ALL BED AND BANK TREATMENTS AS OUTLINED IN CONSTRUCTION DETAILS AND PROVIDED SPECIFICATIONS.
5. CONTRACTOR SHALL ONLY DISTURB AND BEGIN WORK ON AN AREA WHICH CAN BE COMPLETED BY THE END OF THE DAY. THIS INCLUDES GRADING ADJACENT TO THE CHANNEL. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY WITH SEED AND MULCH OR SEED AND MATTING AS SPECIFIED ON THE PLANS. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH DAY.
6. CONTRACTOR SHALL NOT REMOVE SAND BAGS AND PUMP-AROUND PRACTICES AT THE END OF EACH WORKING DAY UNTIL A STABLE CONVEYANCE CAN BE PROVIDED FOR INSTREAM BASEFLOW.
7. FOLLOWING STREAM RESTORATION CONSTRUCTION AND WITH APPROVAL OF MCDPS SEDIMENT CONTROL INSPECTOR AND ENGINEER, REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES NOT REQUIRED FOR OTHER CONSTRUCTION PHASES. EXERCISE CARE TO REMOVE FROM SITE ALL EXCESS CONSTRUCTION DEBRIS AND TRASH GENERATED FROM CONSTRUCTION ACTIVITIES.

DEMOBILIZATION

8. COMPLETE IN-KIND RESTORATION OF ANY DAMAGE TO EXISTING INFRASTRUCTURE AND GRADE EITHER ON-SITE OR OFF-SITE.
9. COMPLETE FINAL PERMANENT VEGETATIVE STABILIZATION OF SITE. ALL PLANTING WORK REQUIRE SAME DAY STABILIZATION.
10. WITH APPROVAL OF MCDPS SEDIMENT CONTROL INSPECTOR AND ENGINEER REMOVE REMAINING SEDIMENT CONTROLS AND STABILIZE ANY REMAINING DISTURBED AREAS RESTORING EARTH TO EXISTING GRADES WHERE APPLICABLE.
11. PLANT SITE ACCORDING TO PLANTING PLAN IN APPROPRIATE PLANTING SEASON. ALL PLANTING WORK REQUIRES SAME DAY STABILIZATION.

November 7, 2024

Montgomery County
Department of Permitting Services
Land Development Division
2425 Reedie Drive, 7th Floor
Wheaton, MD, 20902

To Whom it May Concern,

I, Donnis Crump, representing Longmead Crossing Community Services Association, hereby authorize HGS LLC (RES) and its subcontractors to access and perform all activities pursuant to the construction of the Buckhorn Branch Stream Restoration Project located on the following parcels:

ADDRESS	LEGAL DESCRIPTION (SUBDIVISION NAME)	SUBDIVISION (SUBDIVISION No.)	LOT	BLOCK	PARCEL	PLAT	LIBER	FOLIO
PARK VISTA DR 0-0000	LONGMEAD	0255		G	0000	16093	00044	09745
BAUGHMAN DR 0-0000	LONGMEAD	0255		G	0000	16092	00044	09745
PLEASANT MEADOW LN 0-0000	LONGMEAD	0255		G	0000	16091	00044	09745
ALPINE MEADOW LN 0-0000	LONGMEAD	0255		G	0000	16090	00044	09745
PARK VISTA DR 0-0000	LONGMEAD	0255		G	0000	16049	00044	09745
1801 PARK VIST DR SILVER SPRING 20906-000	LONGMEAD	0255		G	0000	16048	00044	09745

Please contact Will Weaver at RES at wweaver@res.us if you require any further information.

Sincerely,
Longmead Crossing Community Services Association

Donnis Crump, Board President

CC:
Mr. William Weaver, RES
Mr. Mike Trumbauer, Biohabitats, Inc
Ms. Katie Talley, Biohabitats, Inc
Mr. Nathan Wadley, Biohabitats, Inc

CLIENT

RES
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301.850.0448

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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:

GENERAL NOTES

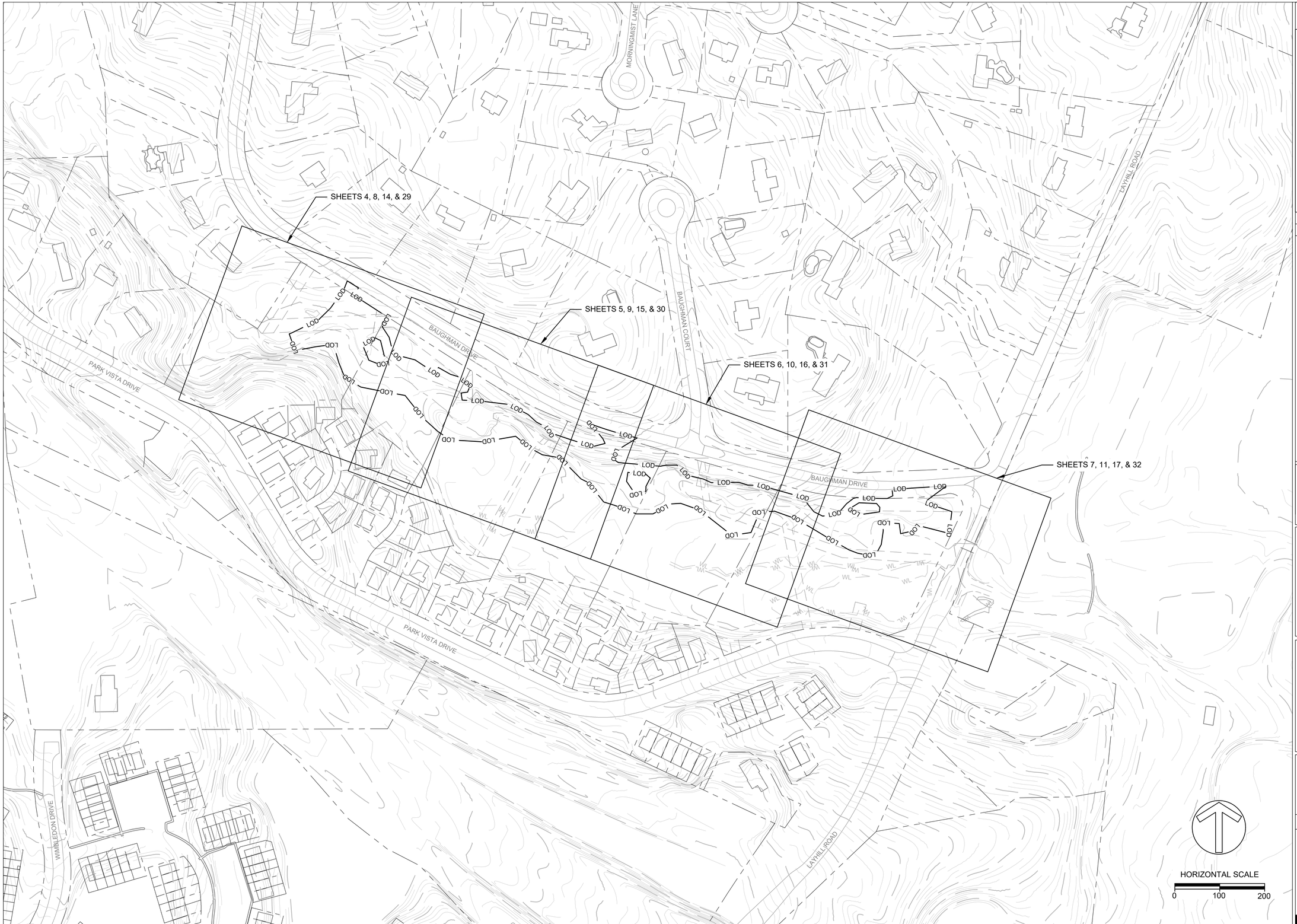
PROJECT NO.: 23006.01 | SCALE: NA | BY: SF/NW | CHECK: KT

SEAL:

STATE OF MARYLAND · MARY K. TALLEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025

DWG. NO.:

2 OF 34



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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

SHEET INDEX

PROJECT NO.: 23006.01
SCALE: 1" = 100'
SEAL:
STATE OF MARYLAND · MARK K. TALEFF · 52717 · PROFESSIONAL ENGINEER
01/27/2025
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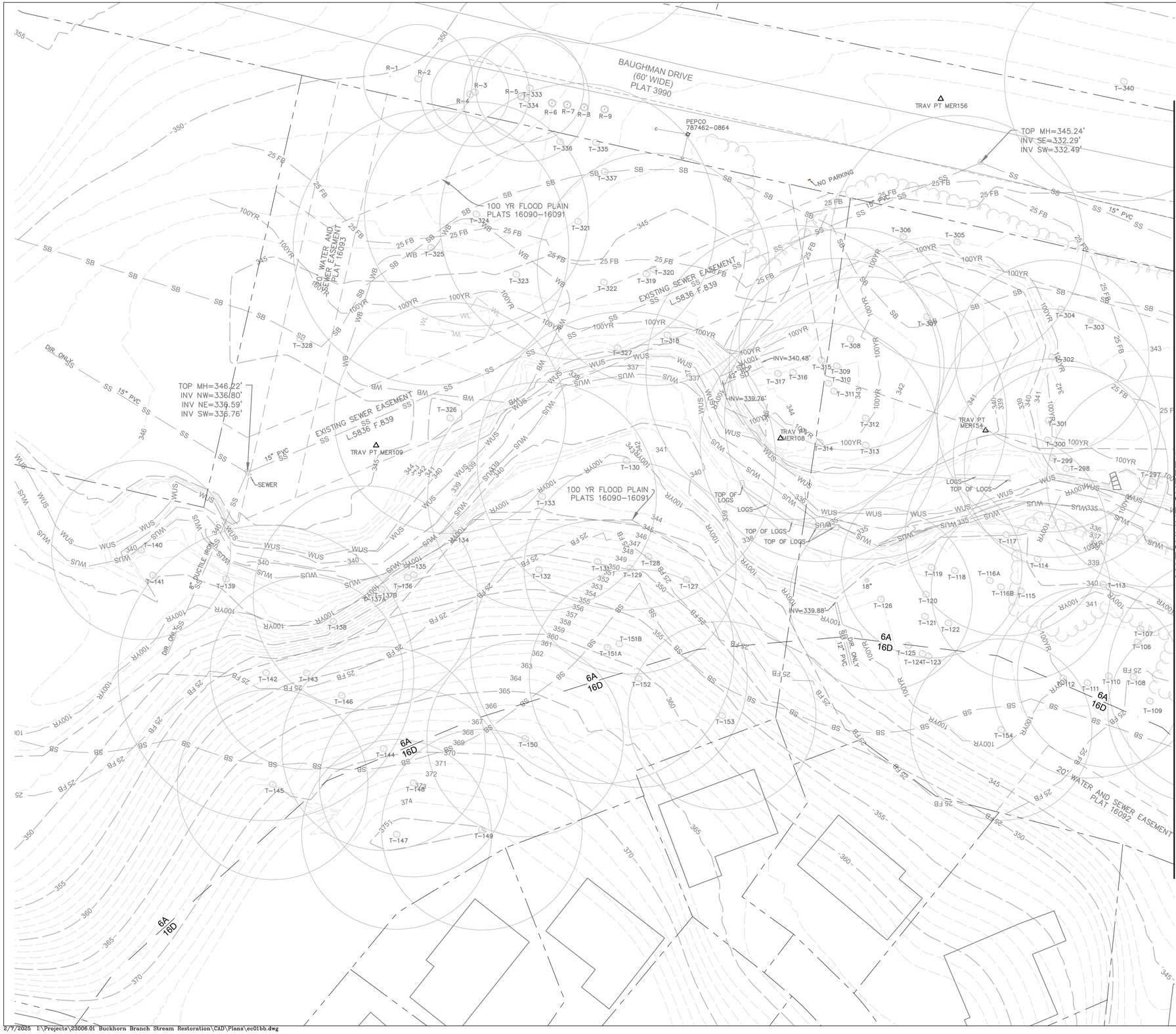

HORIZONTAL SCALE

0 20 40

EXISTING CONDITIONS LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- SS — SANITARY SEWER
- SD — STORM DRAIN
- STREAM CENTERLINE
- SOIL TYPE BOUNDARY
- 100YR — EXISTING 100 YEAR FLOODPLAIN
- 25 FB — EXISTING 100 YEAR FLOODPLAIN BUFFER
- WL — WETLAND LIMIT
- WB — 25 FT WETLAND BUFFER
- WUS — WATER OF THE US
- 25 FB — 25 FT STREAM BUFFER
- TREELINE
- T-246 — TREE WITH CRITICAL ROOT ZONE
- TRAVERSE POINT
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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

EXISTING CONDITIONS

PROJECT NO.: 23006.01
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND · MARK K. TALEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:

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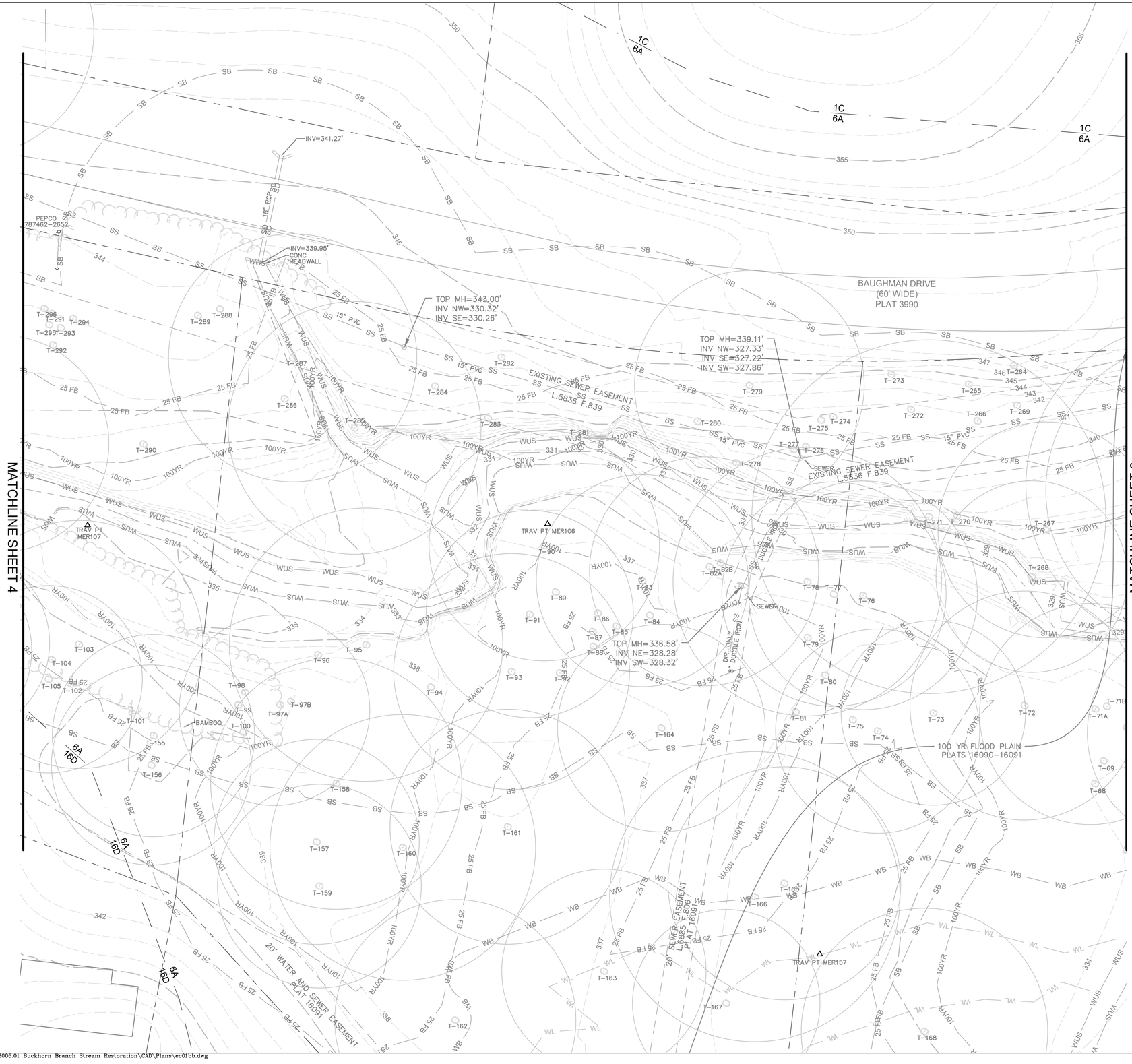

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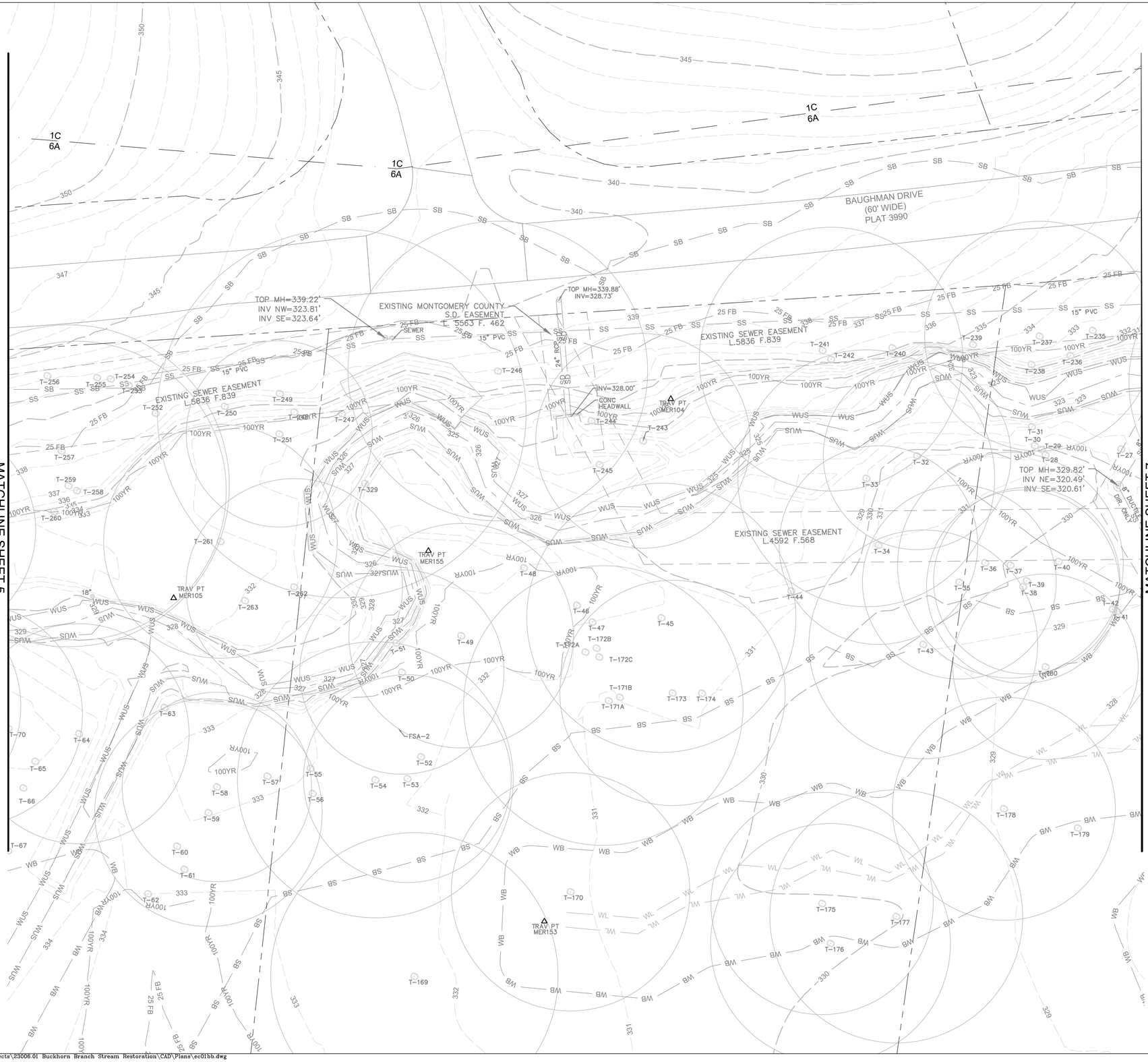
		DWG. NO.:	5 OF 34

STATE OF MARYLAND
MARY K. TALEFF
52717
PROFESSIONAL ENGINEER
01/27/2025



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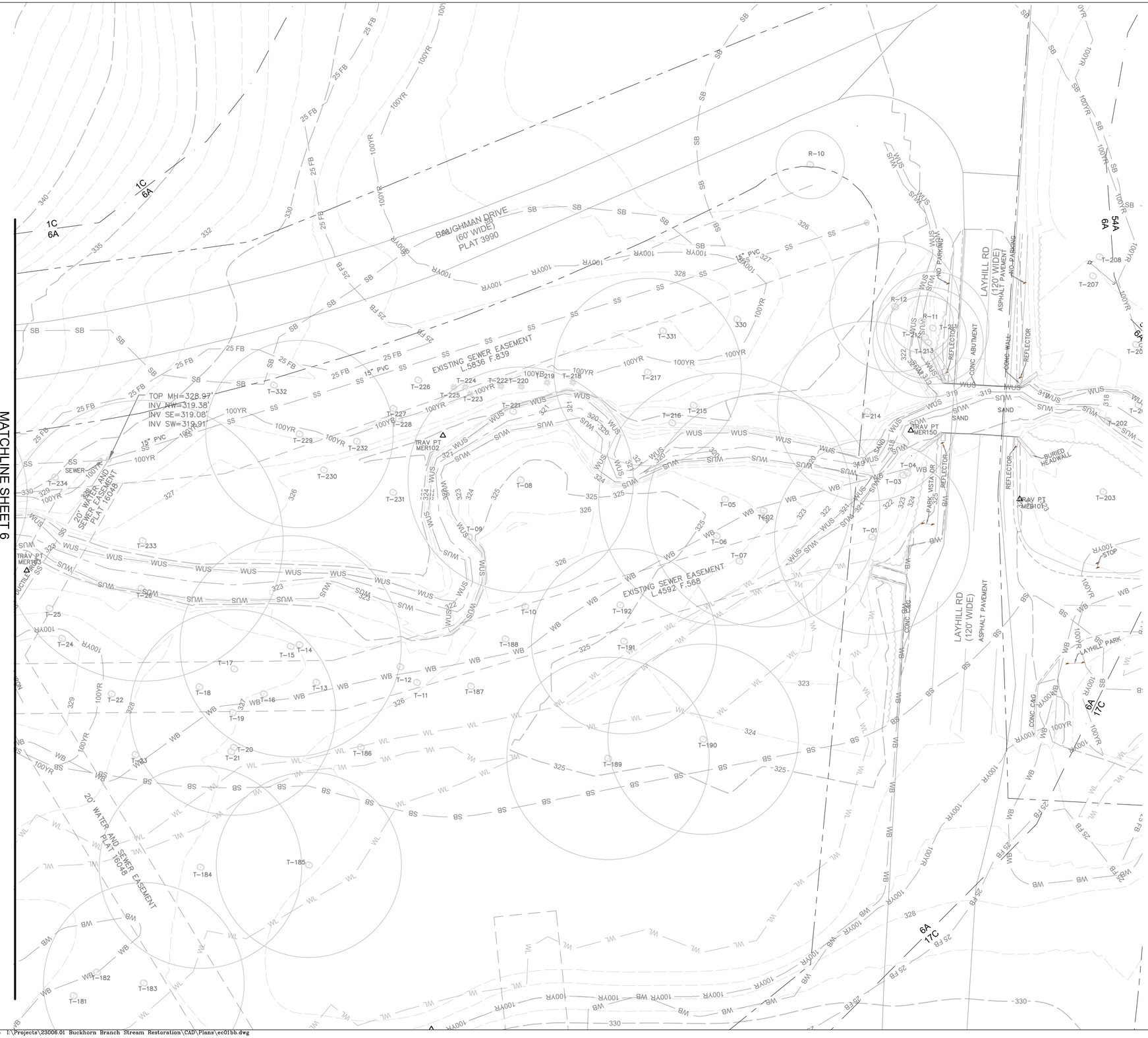

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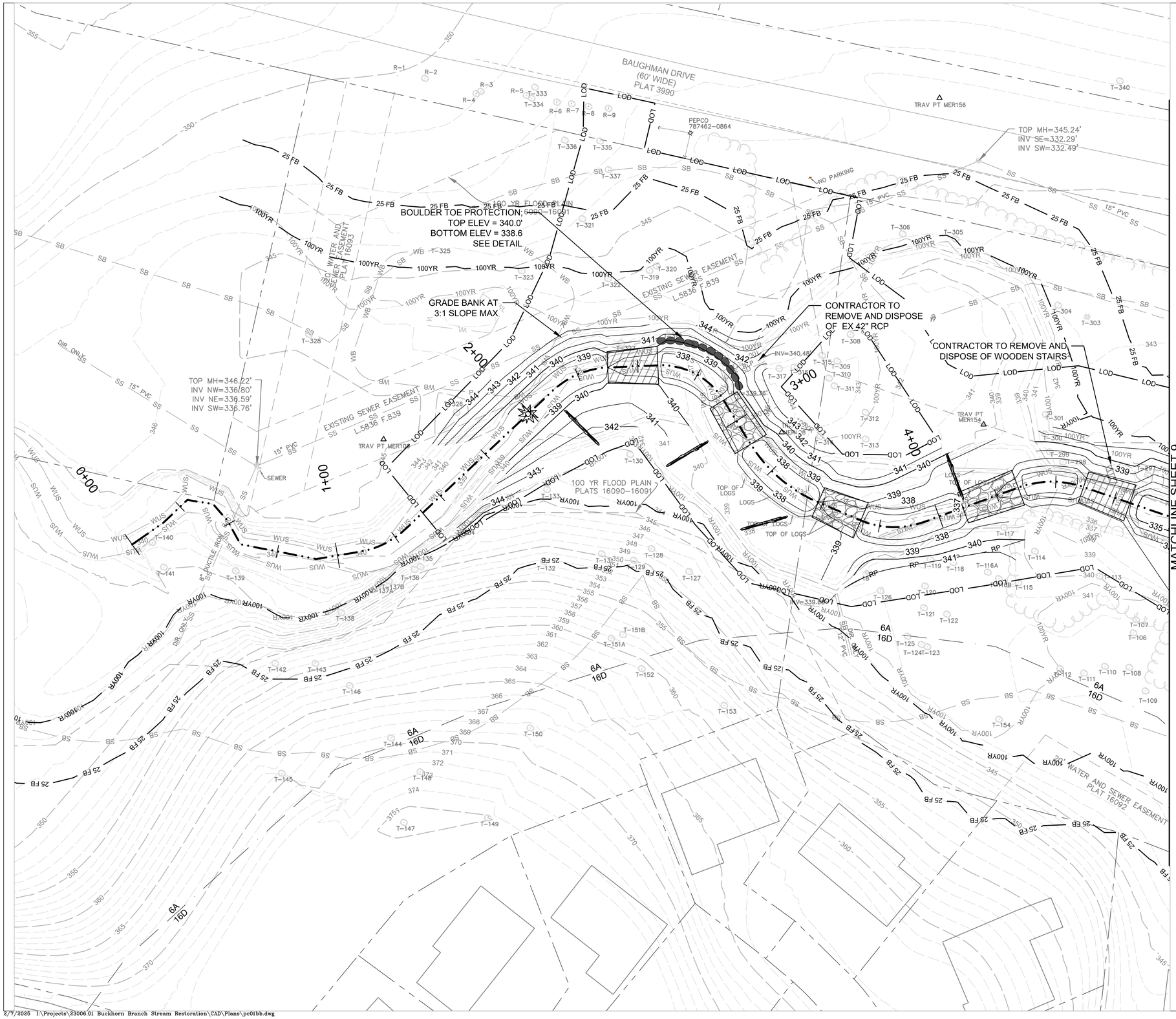
MARK K. TALEY, STATE OF MARYLAND, 52717, PROFESSIONAL ENGINEER, 01/27/2025	DWG. NO.: 7 OF 34



PROPOSED CONDITIONS LEGEND

- 425 — MAJOR CONTOUR
- 424 — MINOR CONTOUR
- ALIGNMENT
- LOD — LIMIT OF DISTURBANCE
- 100YR — EXISITNG 100 YEAR FLOODPLAIN
- 100YR — PROPOSED 100 YEAR FLOODPLAIN
- 25 FB — PROPOSED 100 YEAR FLOODPLAIN BUFFER
- CLAY PLUG
- OUTFALL STABILIZATION
- COBBLE RIFFLE
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DD/MM/YYYY	SUBMISSION DESCTRIPTION

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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PROPOSED CONDITIONS

PROJECT NO.: 23006.01
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND · MARK K. VALLEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:

2/7/2025 I:\Projects\23006.01 Buckhorn Branch Stream Restoration\CAD\Plans\pc01bb.dwg

PROPOSED CONDITIONS LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- ALIGNMENT
- LIMIT OF DISTURBANCE
- EXISITNG 100 YEAR FLOODPLAIN
- PROPOSED 100 YEAR FLOODPLAIN
- PROPOSED 100 YEAR FLOODPLAIN BUFFER
- CLAY PLUG
- OUTFALL STABILIZATION
- COBBLE RIFFLE
- BOULDER RIFFLE
- TOE WOOD TREATMENT
- LOG SILL
- LARGE WOODY DEBRIS
- BOULDER TOE PROTECTION
- ROOTWAD

CLIENT

RES
6958 AVIATION BLVD., SUITE C
GLEN BURNIE, MD 21061
301.850.0448

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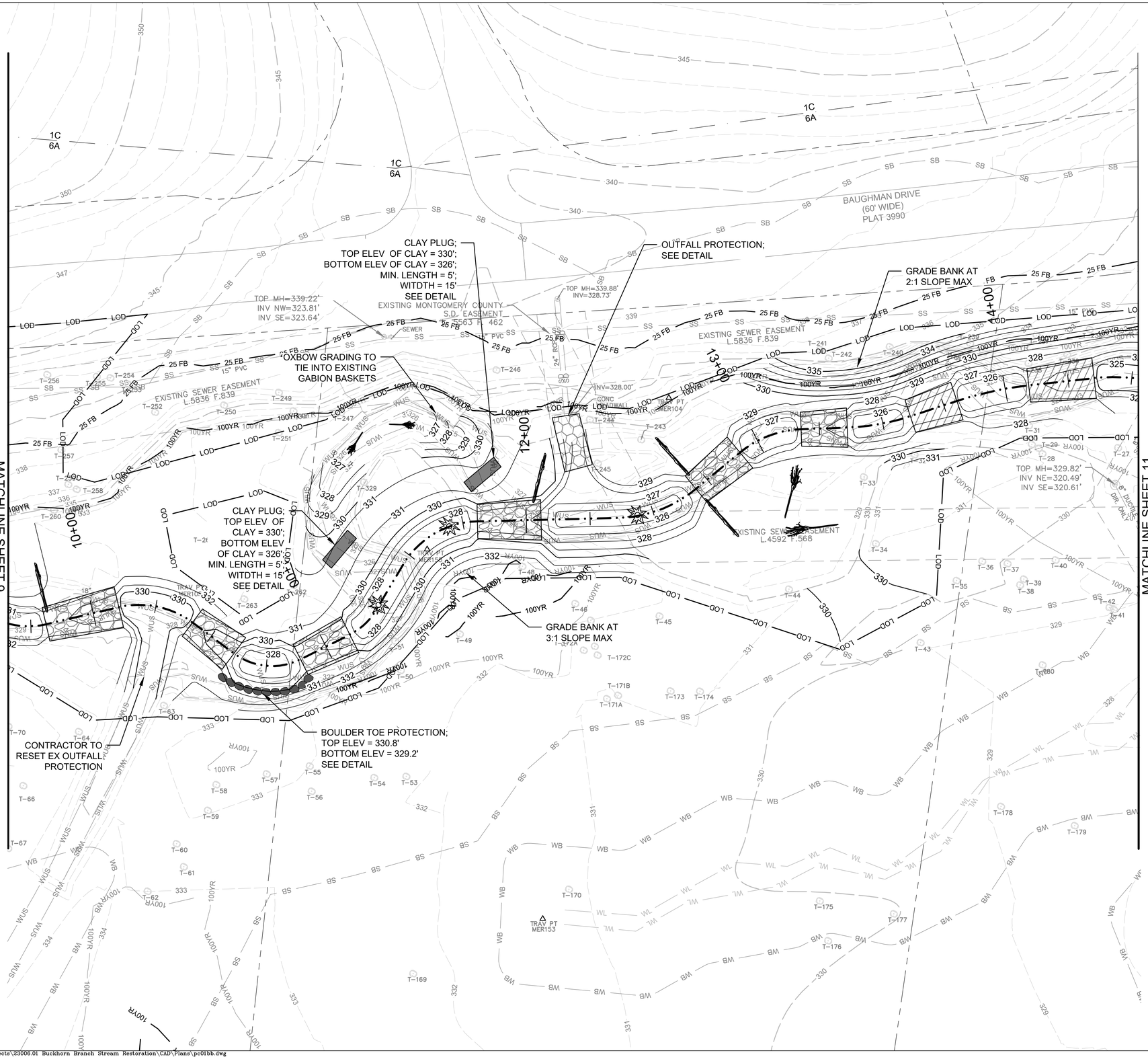
BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PROPOSED CONDITIONS

PROJECT NO.: 23006.01
SCALE: 1" = 20'
BY: SF/NW
CHECK: KT
SEAL: STATE OF MARYLAND · MARY K. TALEFF · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
DWG. NO.:

9 OF 34



PROPOSED CONDITIONS LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- ALIGNMENT
- LIMIT OF DISTURBANCE
- EXISITNG 100 YEAR FLOODPLAIN
- PROPOSED 100 YEAR FLOODPLAIN
- PROPOSED 100 YEAR FLOODPLAIN BUFFER
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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PROPOSED CONDITIONS

PROJECT NO.: 23006.01
SCALE: 1" = 20'
SEAL: MARK K. TALEY, STATE OF MARYLAND, 5277, PROFESSIONAL ENGINEER, 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:

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PROPOSED CONDITIONS LEGEND

- 425 — MAJOR CONTOUR
- 424 — MINOR CONTOUR
- ALIGNMENT
- LOD — LIMIT OF DISTURBANCE
- 100YR — EXISITNG 100 YEAR FLOODPLAIN
- 100YR — PROPOSED 100 YEAR FLOODPLAIN
- 25 FB — PROPOSED 100 YEAR FLOODPLAIN BUFFER
- CLAY PLUG
- OUTFALL STABILIZATION
- COBBLE RIFFLE
- BOULDER RIFFLE
- TOE WOOD TREATMENT
- LOG SILL
- LARGE WOODY DEBRIS
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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PROPOSED CONDITIONS

PROJECT NO.: 23006.01
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND · MARK K. VALLEY · 92717 · PROFESSIONAL ENGINEER · 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:

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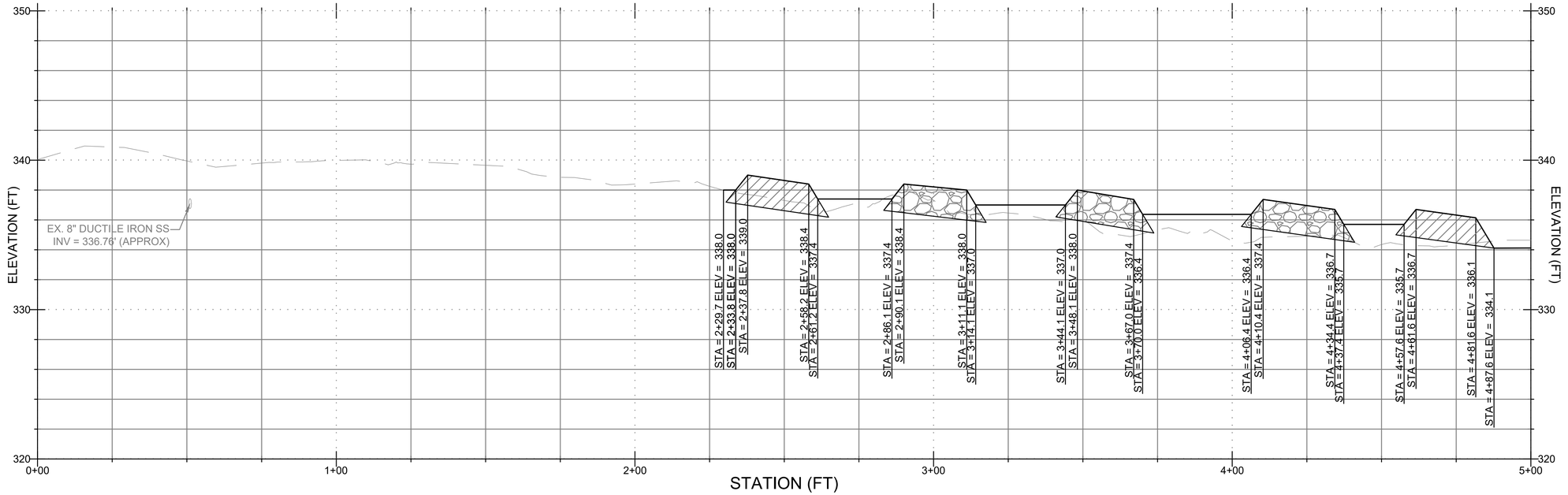
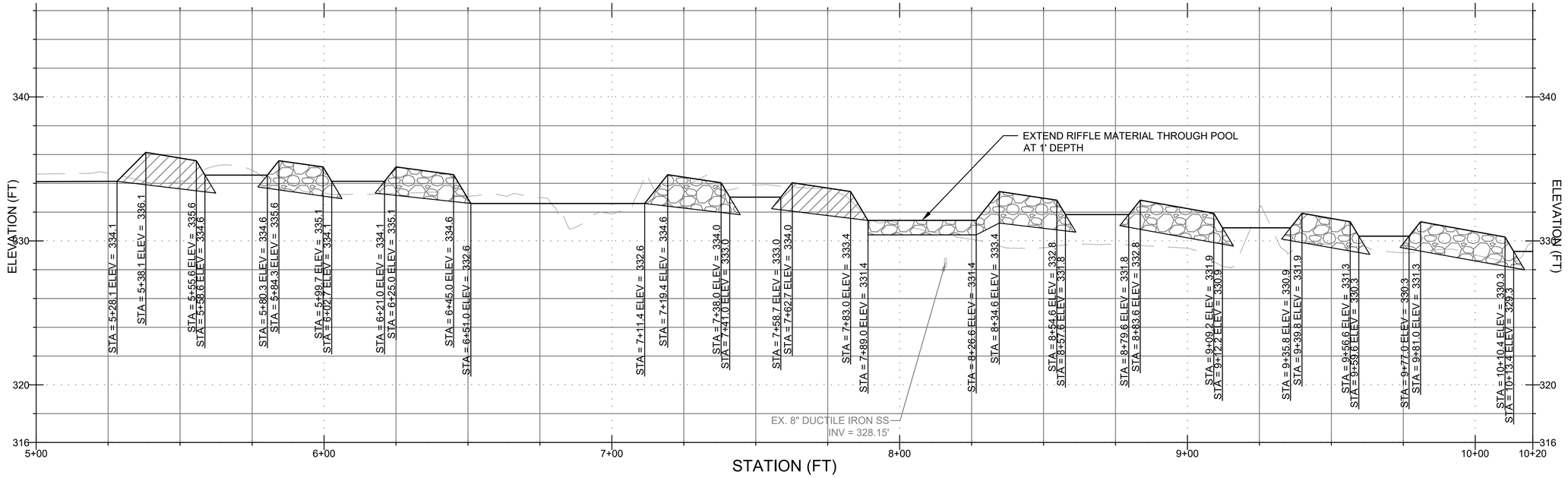
PROFILE VIEW OF BUCKHORN BRANCH



PROFILE VIEW OF BUCKHORN BRANCH



PROFILE LEGEND

EXISTING GROUND

PROPOSED GRADE

COBBLE RIFFLE

BOULDER RIFFLE

HORIZONTAL SCALE
0 20 40

VERTICAL SCALE
0 4 8

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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PROFILES

PROJECT NO. : 23006.01
SCALE: AS SHOWN
SEAL:
BY: SF/NW
CHECK: KT
DWG. NO. :
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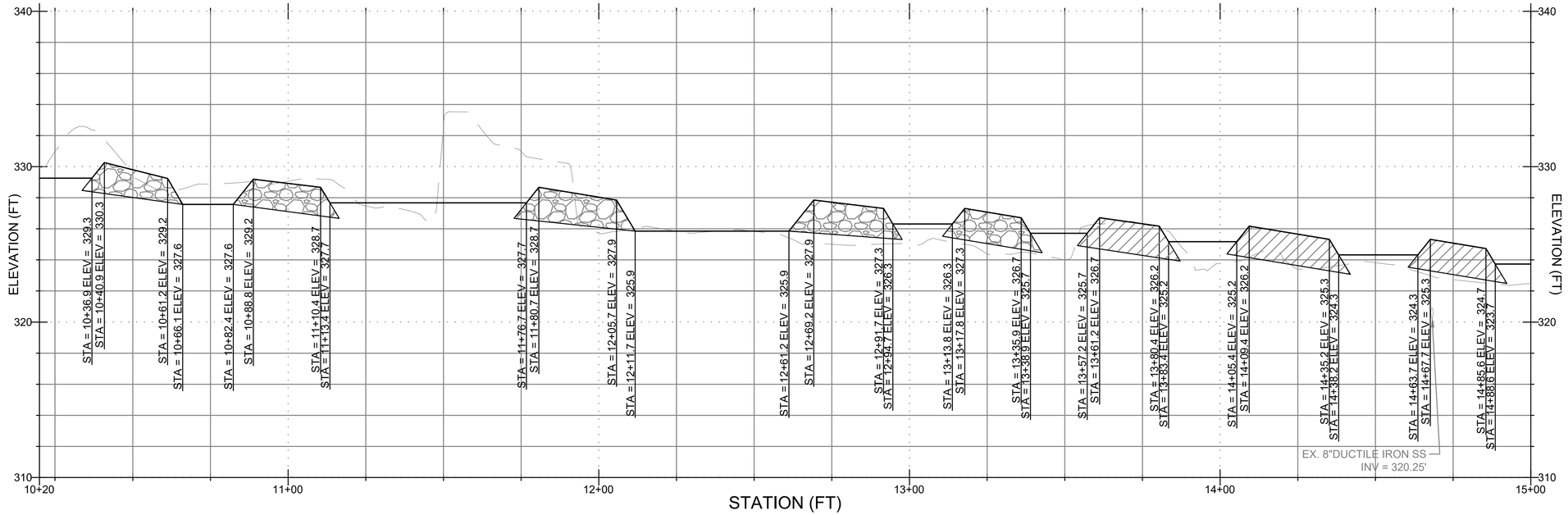
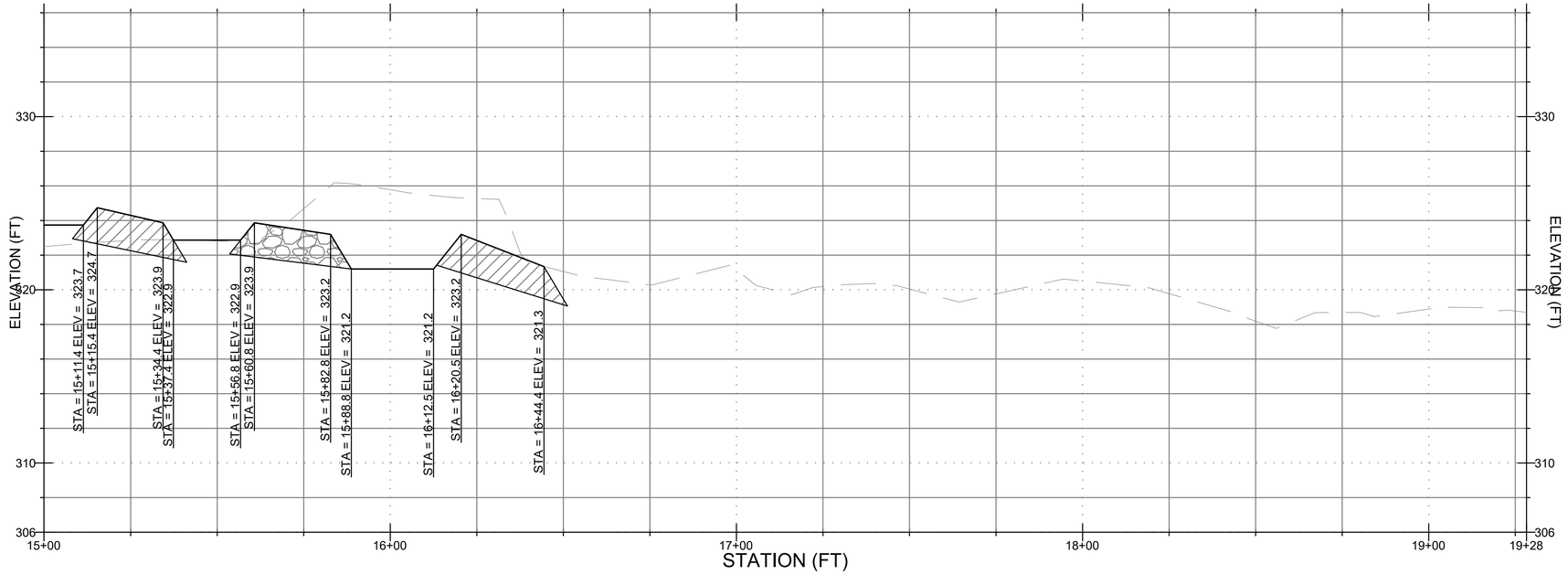
STATE OF MARYLAND · MARK K. TALLEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025

2/7/2025 I:\Projects\23006.01 Buckhorn Branch Stream Restoration\CAD\Plans\pr01bb.dwg

PROFILE VIEW OF BUCKHORN BRANCH



PROFILE VIEW OF BUCKHORN BRANCH



PROFILE LEGEND

EXISTING GROUND

PROPOSED GRADE

COBBLE RIFFLE

BOULDER RIFFLE

HORIZONTAL SCALE
0 20 40

VERTICAL SCALE
0 4 8

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TITLE:

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PROJECT NO. : 23006.01

SCALE: AS SHOWN

SEAL:

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01/27/2025

BY: SF/NW CHECK: KT

DWG. NO. :

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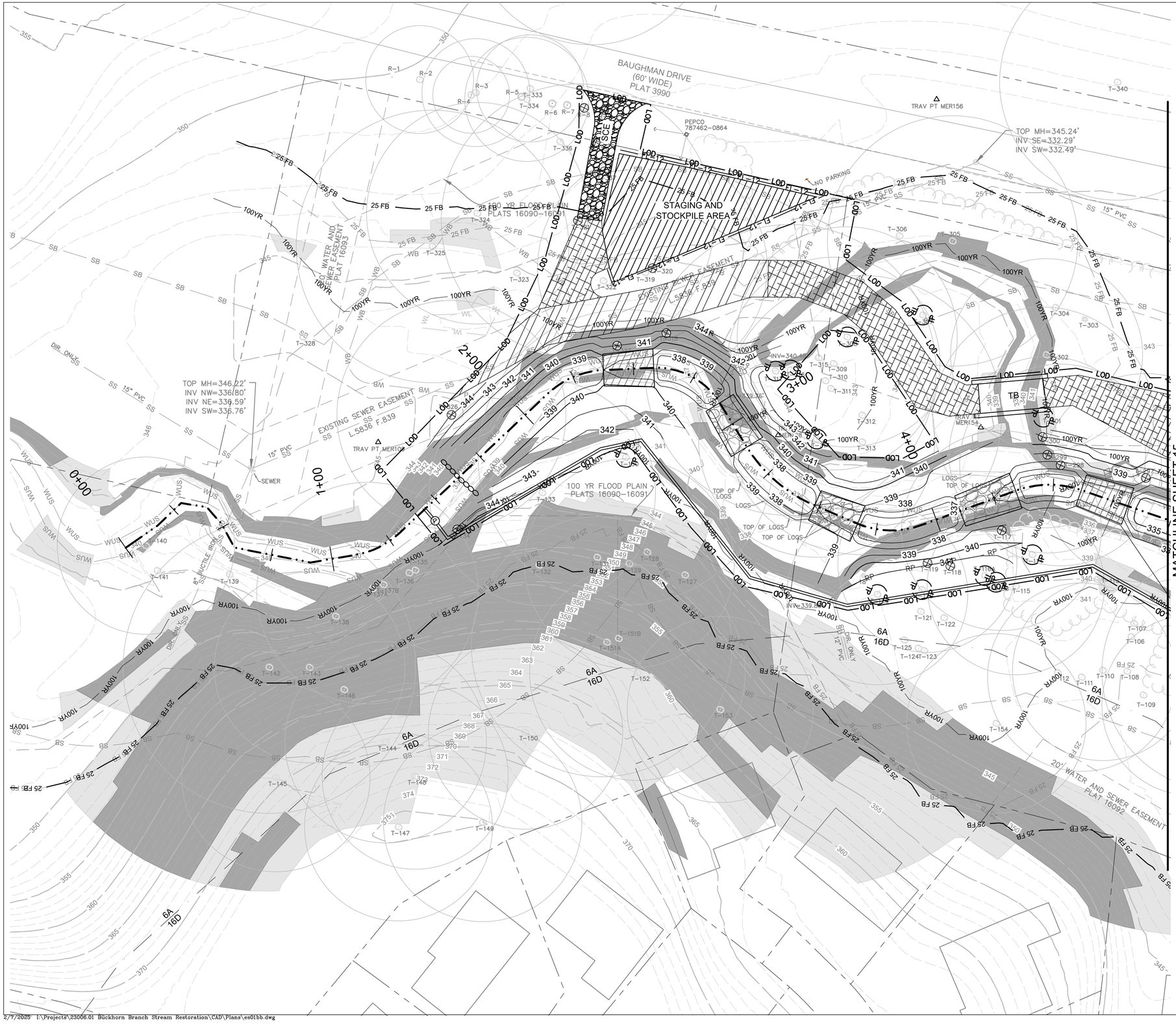

EROSION & SEDIMENT CONTROL LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- 425 — PR. MAJOR CONTOUR
- 424 — PR MINOR CONTOUR
- LOD — LIMIT OF DISTURBANCE
- FL-12 — FILTER LOG
- BOF — BLAZE ORANGE FENCE
- 100YR — 100-YEAR FLOOD PLAIN
- 25 FB — 100-YEAR FLOODPLAIN BUFFER
- WL — WETLAND LIMIT
- WB — 25 FT WETLAND BUFFER
- SS — SANITARY SEWER
- 14" OAK — TREE WITH CRITICAL ROOT ZONE
- TREE REMOVAL
- TP — TREE PLANKING
- STAGING AND STOCKPILING AREA
- MULCH ACCESS ROAD
- HEAVY DUTY MAT MULCH ACCESS
- TB — TEMPORARY BRIDGE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- P — PUMP AROUND LOCATION
- FLOW DIVERSION PIPE
- SAND BAG DIKES
- FB — FILTER BAG
- STEEP SLOPES (15% - 24.99%)
- STEEP SLOPES (GREATER THAN 25%)

HORIZONTAL SCALE
0 20 40

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BUCKHORN BRANCH STREAM RESTORATION

TITLE:
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.: 23006.01
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND · MARK K. TALLEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:
14 OF 34

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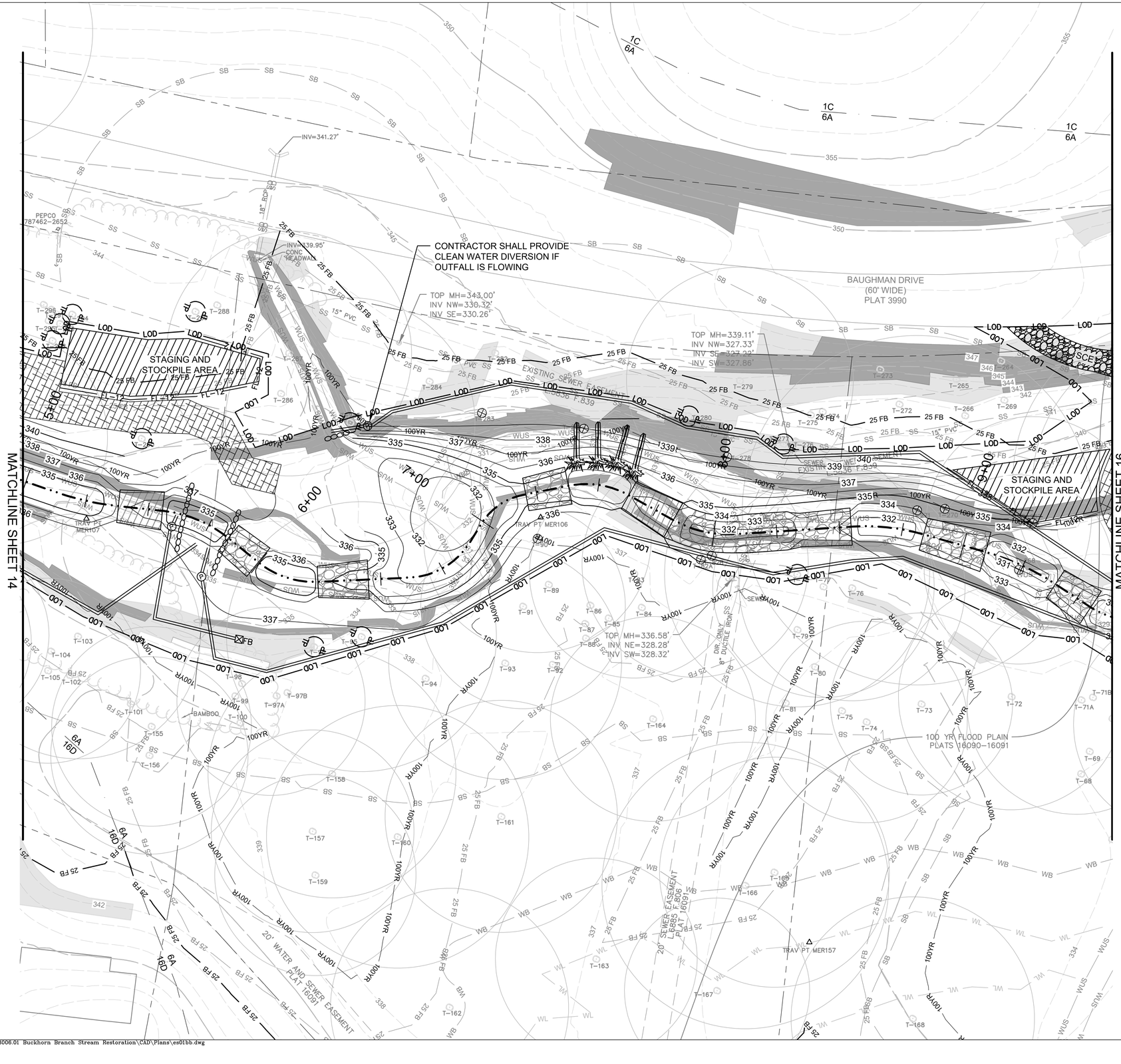

EROSION & SEDIMENT CONTROL LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- 425 — PR. MAJOR CONTOUR
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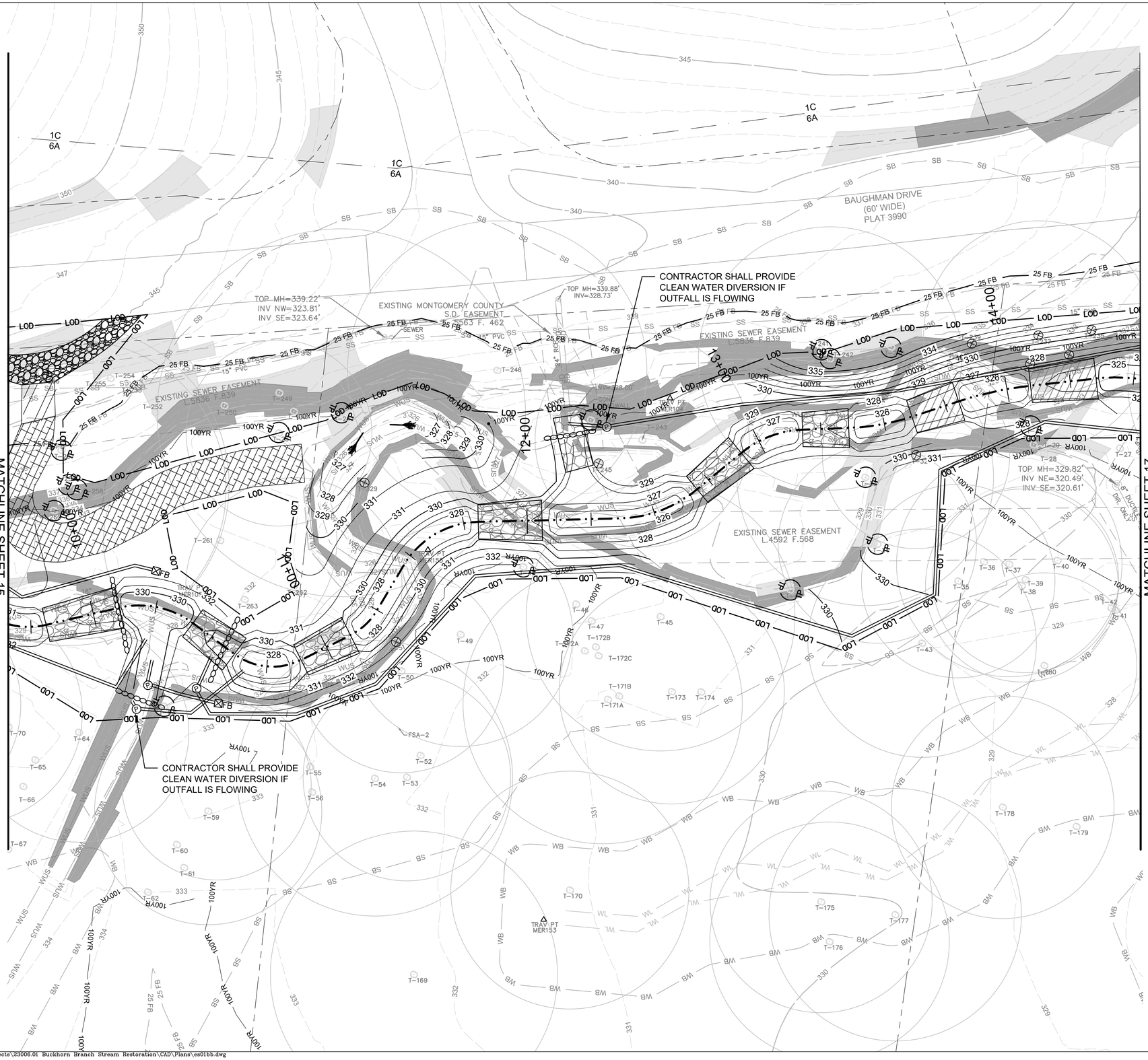
TITLE:
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.:	23006.01	SCALE:	1" = 20'
SEAL:		BY: SF/NW	CHECK: KT
		DWG. NO.:	15 OF 34

STATE OF MARYLAND · MARY K. TALEY · 52717 · PROFESSIONAL ENGINEER
01/27/2025



HORIZONTAL SCALE

0 20 40

EROSION & SEDIMENT CONTROL LEGEND

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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.: 23006.01
SCALE: 1" = 20'
BY: SF/NW
CHECK: KT
SEAL: STATE OF MARYLAND · MARK K. FAILEY · 32717 · PROFESSIONAL ENGINEER · 01/27/2025
DWG. NO.:

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EROSION & SEDIMENT CONTROL LEGEND

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- EX. MINOR CONTOUR
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HORIZONTAL SCALE
0 20 40

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BUCKHORN BRANCH STREAM RESTORATION

TITLE:
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.:	SCALE:
23006.01	1" = 20'
BY: SF/NW	CHECK: KT

SEAL: STATE OF MARYLAND · MARY K. TALLEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025

DWG. NO.:

17 OF 34

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TREE ID	COMMON NAME	SCIENTIFIC NAME	DBH (INCHES)	CONDITION	STATUS
T1	Red Maple	*Acer rubrum*	26	Poor	SAVE
T2	Tulip Tree	*Liriodendron tulipifera*	31	Fair	SAVE
T3	Sycamore	*Platanus occidentalis*	15.5	Good	SAVE
T4	Siberian Elm	*Ulmus pumila*	13.5	Poor	SAVE
T5	Tulip Tree	*Liriodendron tulipifera*	33.7	Excellent	SAVE
T6	Black Cherry	*Prunus serotina*	14.8	Fair	SAVE
T7	Black Cherry	*Prunus serotina*	18	Poor	SAVE
T8	Red Maple	*Acer rubrum*	30.1	Fair	PLANK
T9	Red Maple	*Acer rubrum*	22.6	Poor	REMOVAL
T10	Red Maple	*Acer rubrum*	12.6	Good	SAVE
T11	Red Maple	*Acer rubrum*	16.1	Good	SAVE
T12	Red Maple	*Acer rubrum*	11.8	Fair	SAVE
T13	Red Maple	*Acer rubrum*	20.3	Poor	SAVE
T14	American Elm	*Ulmus americana*	15.1	Fair	PLANK
T15	Sycamore	*Platanus occidentalis*	29.5	Good	PLANK
T16	Red Maple	*Acer rubrum*	12.1	Good	SAVE
T17	Red Maple	*Acer rubrum*	15.8	Good	SAVE
T18	Red Maple	*Acer rubrum*	14.8	Excellent	SAVE
T19	Tulip Tree	*Liriodendron tulipifera*	27.4	Fair	SAVE
T20	Tulip Tree	*Liriodendron tulipifera*	15.7	Fair	SAVE
T21	Tulip Tree	*Liriodendron tulipifera*	16.2	Fair	SAVE
T22	Tulip Tree	*Liriodendron tulipifera*	14.6	Fair	SAVE
T23	Tulip Tree	*Liriodendron tulipifera*	25.8	Dead	SAVE
T24	Red Maple	*Acer rubrum*	15.1	Poor	SAVE
T25	Tulip Tree	*Liriodendron tulipifera*	11.2	Good	SAVE
T26	Red Maple	*Acer rubrum*	16.1	Poor	REMOVAL
T27	Tulip Tree	*Liriodendron tulipifera*	11.8	Good	SAVE
T28	Red Maple	*Acer rubrum*	18.9	Fair	SAVE
T29	Red Maple	*Acer rubrum*	11.7	Poor	SAVE
T30	Tulip Tree	*Liriodendron tulipifera*	23.4	Good	SAVE
T31	American Elm	*Ulmus americana*	16	Fair	PLANK
T32	Tulip Tree	*Liriodendron tulipifera*	24.5	Fair	REMOVAL
T33	Tulip Tree	*Liriodendron tulipifera*	33.5	Good	PLANK
T34	Sycamore	*Platanus occidentalis*	25.9	Excellent	PLANK
T35	Tulip Tree	*Liriodendron tulipifera*	25.3	Fair	SAVE
T36	Tulip Tree	*Liriodendron tulipifera*	17.2	Excellent	SAVE
T37	Tulip Tree	*Liriodendron tulipifera*	29.4	Good	SAVE
T38	Tulip Tree	*Liriodendron tulipifera*	25.2	Good	SAVE
T39	Tulip Tree	*Liriodendron tulipifera*	24.3	Good	SAVE
T40	American Elm	*Ulmus americana*	13.8	Good	SAVE
T41	Tulip Tree	*Liriodendron tulipifera*	23.2	Fair	SAVE
T42	Tulip Tree	*Liriodendron tulipifera*	23.4	Fair	SAVE
T43	Tulip Tree	*Liriodendron tulipifera*	29.8	Excellent	SAVE
T44	Black Walnut	*Juglans nigra*	21	Fair	PLANK
T45	Tulip Tree	*Liriodendron tulipifera*	35.1	Good	SAVE
T46	Tulip Tree	*Liriodendron tulipifera*	23.7	Excellent	SAVE
T47	Tulip Tree	*Liriodendron tulipifera*	22.5	Fair	SAVE
T48	American Elm	*Ulmus americana*	16.4	Good	PLANK
T49	Tulip Tree	*Liriodendron tulipifera*	29.3	Good	SAVE
T50	Tulip Tree	*Liriodendron tulipifera*	26.6	Good	SAVE
T51	Tulip Tree	*Liriodendron tulipifera*	23.4	Fair	REMOVAL
T52	Red Maple	*Acer rubrum*	13.9	Good	SAVE
T53	Tulip Tree	*Liriodendron tulipifera*	27.1	Good	SAVE
T54	Tulip Tree	*Liriodendron tulipifera*	28	Excellent	SAVE
T55	Red Maple	*Acer rubrum*	16	Good	SAVE
T56	Red Maple	*Acer rubrum*	12.5	Good	SAVE
T57	Red Maple	*Acer rubrum*	14.1	Good	SAVE
T58	Tulip Tree	*Liriodendron tulipifera*	24.7	Good	SAVE
T59	Tulip Tree	*Liriodendron tulipifera*	29.7	Excellent	SAVE
T60	Red Maple	*Acer rubrum*	16	Good	SAVE
T61	Red Maple	*Acer rubrum*	11.6	Fair	SAVE
T62	Red Maple	*Acer rubrum*	14.9	Fair	SAVE
T63	Tulip Tree	*Liriodendron tulipifera*	13.8	Excellent	PLANK
T64	Tulip Tree	*Liriodendron tulipifera*	28.7	Fair	SAVE
T65	Tulip Tree	*Liriodendron tulipifera*	20.5	Good	SAVE
T66	Tulip Tree	*Liriodendron tulipifera*	23.9	Good	SAVE
T67	Red Maple	*Acer rubrum*	18	Good	SAVE
T68	Tulip Tree	*Liriodendron tulipifera*	23.3	Excellent	SAVE
T69	Tulip Tree	*Liriodendron tulipifera*	15.1	Excellent	SAVE
T70	Tulip Tree	*Liriodendron tulipifera*	16.4	Excellent	SAVE
T71A	Tulip Tree	*Liriodendron tulipifera*	28.9	Good	SAVE
T71B	Tulip Tree	*Liriodendron tulipifera*	26.4	Good	SAVE
T72	Tulip Tree	*Liriodendron tulipifera*	29.9	Fair	SAVE
T73	Tulip Tree	*Liriodendron tulipifera*	24.1	Excellent	SAVE
T74	Tulip Tree	*Liriodendron tulipifera*	26.6	Excellent	SAVE
T75	Tulip Tree	*Liriodendron tulipifera*	13.9	Fair	SAVE
T76	Tulip Tree	*Liriodendron tulipifera*	29.8	Good	SAVE
T77	Tulip Tree	*Liriodendron tulipifera*	29.3	Fair	SAVE
T78	Tulip Tree	*Liriodendron tulipifera*	35	Fair	PLANK
T79	Red Maple	*Acer rubrum*	13.5	Poor	SAVE
T80	Tulip Tree	*Liriodendron tulipifera*	19.6	Good	SAVE
T81	Tulip Tree	*Liriodendron tulipifera*	18	Fair	SAVE
T82A	Tulip Tree	*Liriodendron tulipifera*	29.9	Fair	REMOVAL
T82B	Tulip Tree	*Liriodendron tulipifera*	13.2	Fair	REMOVAL
T83	Tulip Tree	Liriodendron tulipifera	27.7	Good	SAVE
T84	Tulip Tree	Liriodendron tulipifera	18.9	Excellent	SAVE
T85	Tulip Tree	Liriodendron tulipifera	18	Excellent	SAVE
T86	Tulip Tree	Liriodendron tulipifera	21.2	Good	SAVE
T87	Tulip Tree	Liriodendron tulipifera	17.3	Good	SAVE
T88	Tulip Tree	Liriodendron tulipifera	15.7	Fair	SAVE
T89	Tulip Tree	Liriodendron tulipifera	14.4	Good	SAVE
T90	Tulip Tree	Liriodendron tulipifera	30.1	Fair	REMOVAL
T91	Tulip Tree	*Liriodendron tulipifera*	27	Good	SAVE
T92	Tulip Tree	*Liriodendron tulipifera*	23	Fair	SAVE
T93	Tulip Tree	*Liriodendron tulipifera*	30.8	Good	SAVE
T94	Red Maple	*Acer rubrum*	17.3	Fair	SAVE
T95	Tulip Tree	*Liriodendron tulipifera*	35.7	Fair	PLANK
T96	Red Maple	*Acer rubrum*	16.1	Poor	PLANK
T97A	Tulip Tree	*Liriodendron tulipifera*	24.9	Fair	SAVE
T97B	Tulip Tree	*Liriodendron tulipifera*	20.2	Fair	SAVE
T98	Tulip Tree	*Liriodendron tulipifera*	11.5	Fair	SAVE
T99	Tulip Tree	*Liriodendron tulipifera*	23.1	Fair	SAVE
T100	Tulip Tree	*Liriodendron tulipifera*	23.6	Good	SAVE
T101	Tulip Tree	*Liriodendron tulipifera*	22.8	Fair	SAVE
T102	Tulip Tree	*Liriodendron tulipifera*	17.8	Good	SAVE
T103	Tulip Tree	*Liriodendron tulipifera*	32.4	Poor	SAVE
T104	Tulip Tree	*Liriodendron tulipifera*	16.8	Fair	SAVE
T105	Tulip Tree	*Liriodendron tulipifera*	24.5	Good	SAVE
T106	Tulip Tree	*Liriodendron tulipifera*	12.9	Poor	SAVE
T107	Red Maple	*Acer rubrum*	11.3	Poor	SAVE
T108	Tulip Tree	*Liriodendron tulipifera*	12.9	Good	SAVE
T109	Tulip Tree	*Liriodendron tulipifera*	14.8	Fair	SAVE
T110	Tulip Tree	*Liriodendron tulipifera*	24.5	Good	SAVE
T111	Tulip Tree	*Liriodendron tulipifera*	25.5	Good	SAVE
T112	Tulip Tree	*Liriodendron tulipifera*	20.2	Good	SAVE
T113	Red Maple	*Acer rubrum*	13.2	Poor	SAVE
T114	Tulip Tree	*Liriodendron tulipifera*	20.2	Poor	PLANK
T115	Tulip Tree	*Liriodendron tulipifera*	24	Poor	SAVE
T116A	Tulip Tree	*Liriodendron tulipifera*	19.5	Fair	PLANK
T116B	Tulip Tree	*Liriodendron tulipifera*	19.5	Fair	PLANK
T117	Tulip Tree	*Liriodendron tulipifera*	27	Fair	REMOVAL
T118	Tulip Tree	*Liriodendron tulipifera*	22.5	Fair	REMOVAL
T119	Tulip Tree	*Liriodendron tulipifera*	24.2	Fair	REMOVAL
T120	Tulip Tree	*Liriodendron tulipifera*	16.1	Good	PLANK
T121	Tulip Tree	*Liriodendron tulipifera*	16.5	Fair	SAVE
T122	Tulip Tree	*Liriodendron tulipifera*	16.8	Poor	SAVE
T123	Black Cherry	*Prunus serotina*	14.9	Good	SAVE
T124	Tulip Tree	*Liriodendron tulipifera*	20.9	Good	SAVE
T125	Tulip Tree	*Liriodendron tulipifera*	20.5	Good	SAVE
T126	Tulip Tree	*Liriodendron tulipifera*	24.5	Good	PLANK
T127	Tulip Tree	*Liriodendron tulipifera*	23.9	Good	SAVE
T128	American Beech	*Fagus grandifolia*	14.4	Excellent	SAVE
T129	Pignut Hickory	*Carya glabra*	28.4	Excellent	SAVE
T130	Tulip Tree	*Liriodendron tulipifera*	40	Good	PLANK
T131	Tulip Tree	*Liriodendron tulipifera*	13.4	Good	SAVE
T132	Pignut Hickory	*Carya glabra*	16.5	Fair	SAVE
T133	Tulip Tree	*Liriodendron tulipifera*	30.6	Excellent	SAVE
T134	Red Maple	*Acer rubrum*	21.1	Fair	REMOVAL
T135	Red Maple	*Acer rubrum*	17.7	Fair	SAVE
T136	Pignut Hickory	*Carya glabra*	17.7	Good	SAVE
T137A	Tulip Tree	*Liriodendron tulipifera*	30	Fair	SAVE
T137B	Tulip Tree	*Liriodendron tulipifera*	22.6	Fair	SAVE
T138	Tulip Tree	*Liriodendron tulipifera*	18.6	Poor	SAVE
T139	Tulip Tree	*Liriodendron tulipifera*	15.3	Fair	SAVE
T140	Red Maple	*Acer rubrum*	24	Poor	SAVE
T141	Pignut Hickory	*Carya glabra*	11.9	Good	SAVE
T142	Tulip Tree	*Liriodendron tulipifera*	39.5	Good	SAVE
T143	Tulip Tree	*Liriodendron tulipifera*	25.8	Good	SAVE
T144	Tulip Tree	*Liriodendron tulipifera*	27.3	Good	SAVE
T145	Tulip Tree	*Liriodendron tulipifera*	25.5	Good	SAVE
T146	Tulip Tree	*Liriodendron tulipifera*	26.2	Good	SAVE
T147	Northern Red Oak	*Quercus rubra*	25.4	Good	SAVE
T148	Tulip Tree	*Liriodendron tulipifera*	25.2	Excellent	SAVE
T149	Northern Red Oak	*Quercus rubra*	26.9	Poor	SAVE
T150	Northern Red Oak	*Quercus rubra*	26.3	Excellent	SAVE
T151A	Tulip Tree	*Liriodendron tulipifera*	27.9	Fair	SAVE
T151B	Tulip Tree	*Liriodendron tulipifera*	35.3	Fair	SAVE
T152	Tulip Tree	*Liriodendron tulipifera*	29.2	Good	SAVE
T153	Tulip Tree	*Liriodendron tulipifera*	25.2	Poor	SAVE
T154	Tulip Tree	*Liriodendron tulipifera*	24.3	Fair	SAVE
T155	Tulip Tree	*Liriodendron tulipifera*	26.4	Good	SAVE
T156	Tulip Tree	*Liriodendron tulipifera*	26.1	Fair	SAVE
T157	Tulip Tree	*Liriodendron tulipifera*	26.8	Poor	SAVE
T158	Tulip Tree	*Liriodendron tulipifera*	32.8	Excellent	SAVE
T159	Tulip Tree	*Liriodendron tulipifera*	26.6	Fair	SAVE
T160	Tulip Tree	*Liriodendron tulipifera*	34.7	Poor	SAVE
T161	Tulip Tree	*Liriodendron tulipifera*	30.7	Good	SAVE
T162	Pin Oak	Quercus palustris	31.5	Fair	SAVE
T163	Red Maple	*Acer rubrum*	26.7	Good	SAVE
T164	Tulip Tree	*Liriodendron tulipifera*	27.1	Excellent	SAVE
T165	Red Maple	*Acer rubrum*	30.4	Good	SAVE
T166	Red Maple	*Acer rubrum*	37.9	Good	SAVE
T167	Pin Oak	*Quercus palustris*	24.5	Good	SAVE
T168	Red Maple	*Acer rubrum*	32.2	Good	SAVE
T169	American Sycamore	*Platanus occidentalis*	37.5	Excellent	SAVE
T170	Tulip Tree	*Liriodendron tulipifera*	31.1	Excellent	SAVE
T171A	Tulip Tree	*Liriodendron tulipifera*	36.5	Good	SAVE
T171B	Tulip Tree	*Liriodendron tulipifera*	24.3	Good	SAVE
T172A	Tulip Tree	*Liriodendron tulipifera*	28.4	Good	SAVE
T172B	Tulip Tree	*Liriodendron tulipifera*	12.1	Good	SAVE
T172C	Tulip Tree	*Liriodendron tulipifera*	13.9	Good	SAVE
T173	Tulip Tree	*Liriodendron tulipifera*	29.4	Poor	SAVE
T174	Tulip Tree	*Liriodendron tulipifera*	22.3	Good	SAVE
T175	Tulip Tree	*Liriodendron tulipifera*	29	Excellent	SAVE
T176	Tulip Tree	*Liriodendron tulipifera*	31.3	Excellent	SAVE
T177	Tulip Tree	*Liriodendron tulipifera*	33	Excellent	SAVE
T178	Red Maple	*Acer rubrum*	29.1	Good	SAVE
T179	Pin Oak	*Quercus palustris*	39.3	Fair	SAVE
T180	Tulip Tree	*Liriodendron tulipifera*	24.2	Fair	SAVE
T181	Tulip Tree	*Liriodendron tulipifera*	24.2	Good	SAVE
T182	Tulip Tree	*Liriodendron tulipifera*	27	Poor	SAVE
T183	Pin Oak	*Quercus palustris*	26.8	Fair	SAVE
T184	American Elm	*Ulmus americana*	27	Good	SAVE
T185	Pin Oak	*Quercus palustris*	24.7	Good	SAVE
T186	Red Maple	*Acer rubrum*	13.7	Good	SAVE
T187	Red Maple	*Acer rubrum*	14.1	Good	SAVE
T188	Red Maple	*Acer rubrum*	13.5	Fair	SAVE
T189	Red Maple	*Acer rubrum*	27	Fair	SAVE
T190	Red Maple	*Acer rubrum*	25.4	Good	SAVE
T191	Tulip Tree	*Liriodendron tulipifera*	24.7	Poor	SAVE
T192	Red Maple	*Acer rubrum*	21.3	Fair	SAVE
T200	Sugar Maple	*Acer saccharum*	32.5	Fair	SAVE
T201	River Birch	*Betula nigra*	11	Good	SAVE
T202	Walnut	*Juglans nigra*	9	Poor	SAVE
T203	River Birch	*Betula nigra*	11.5	Good	SAVE
			11.5	Good	SAVE
T204	Walnut	*Juglans nigra*	13	Dead	SAVE
T205	Tulip Tree	*Liriodendron tulipifera*	18	Poor	SAVE
T206	Walnut	*Juglans nigra*	12.5	Poor	SAVE
T207	American Elm	*Ulmus americana*	10.5	Fair	SAVE
T208	Sycamore	*Platanus occidentalis*	10.5	Good	SAVE
T209	Black Willow	*Salix nigra*	25.2	Poor	SAVE
T210	Northern Catalpa	*Catalpa speciosa*	23.5	Poor	SAVE
T211	Red Maple	*Acer rubrum*	15	Fair	SAVE
T212	Red Maple	*Acer rubrum*	11	Fair	SAVE
T213	Red Maple	*Acer rubrum*	14.7	Poor	SAVE
T214	Black Walnut	*Juglans nigra*	24	Fair	SAVE
T215	Red Maple	*Acer rubrum*	17.4	Poor	SAVE
T216	Black Walnut	*Juglans nigra*	21	Poor	SAVE
T217	Juniper	*Juniperus communis*	25	Poor	REMOVAL
T218	Juniper	*Juniperus communis*	22.9	Fair	REMOVAL
T219	Juniper	*Juniperus communis*	18.9	Good	REMOVAL
T220	Juniper	*Juniperus communis*	14.2	Good	REMOVAL
T221	Black Walnut	*Juglans nigra*	17	Poor	REMOVAL
T222	Juniper	*Juniperus communis*	12	Fair	REMOVAL
T223	Black Cherry	*Prunus serotina*	20.4	Good	REMOVAL
T224	Juniper	*Juniperus communis*	14.1	Poor	REMOVAL
T225	Juniper	*Juniperus communis*	11.1	Fair	REMOVAL
T226	Sycamore	*Platanus occidentalis*	17.3	Excellent	SAVE
T227	Tulip Tree	*Liriodendron tulipifera*	15.5	Good	SAVE
T228	Tulip Tree	*Liriodendron tulipifera*	15.3	Good	SAVE
T229	Tulip Tree	*Liriodendron tulipifera*	25	Fair	PLANK
T230	Tulip Tree	*Liriodendron tulipifera*	16.3	Poor	REMOVAL
T231	Walnut	*Juglans nigra*	17	Fair	REMOVAL
T232	Tulip Tree	*Liriodendron tulipifera*	11	Good	SAVE
T233	Sycamore	*Platanus occidentalis*	37.5	Good	PLANK
T234	Tulip Tree	*Liriodendron tulipifera*	15.8	Poor	SAVE
T235	Tulip Tree	*Liriodendron tulipifera*	17.7	Good	REMOVAL
T236	Beech	*Fagus grandifolia*	17	Fair	REMOVAL
T237	Red Maple	*Acer rubrum*	30	Poor	REMOVAL
T238	Red Maple	*Acer rubrum*	11.4	Poor	REMOVAL
T239	Black Gum	*Nyssa sylvatica*	18.5	Poor	REMOVAL
T240	Walnut	*Juglans nigra*	12.5	Fair	PLANK
T241	Red Maple	*Acer rubrum*	21.8	Poor	PLANK
			14.6	Poor	PLANK
T242	Tulip Tree	*Liriodendron tulipifera*	34.4	Fair	PLANK
T243	Walnut	*Juglans nigra*	28	Fair	SAVE
T244	Tulip Tree	*Liriodendron tulipifera*	19.1	Good	PLANK
T245	Tulip Tree	*Liriodendron tulipifera*	18.6	Good	REMOVAL
T246	Sycamore	*Platanus occidentalis*	39.1	Fair	SAVE
T247	Tulip Tree	*Liriodendron tulipifera*	48.1	Fair	PLANK
T248	Red Maple	*Acer rubrum*	10	Poor	SAVE
T249	Red Maple	*Acer rubrum*	9	Poor	SAVE
T250	Red Maple	*Acer rubrum*	20.8	Good	SAVE
T251	Sycamore	*Platanus occidentalis*	24.3	Fair	PLANK
T252	White Ash	*Fraxinus americana*	16.8	Poor	SAVE
T253	Tulip Tree	*Liriodendron tulipifera*	19	Good	SAVE
T254	Tulip Tree	*Liriodendron tulipifera*	11.5	Good	SAVE
T255	Tulip Tree	*Liriodendron tulipifera*	19	Good	SAVE
T256	Tulip Tree	*Liriodendron tulipifera*	13.2	Poor	REMOVAL
T257	Hop-Hornbeam	*Ostrya virginiana*	20.3	Fair	PLANK
T258	Sycamore	*Platanus occidentalis*	39	Fair	PLANK
T259	Sycamore	*Platanus occidentalis*	42	Fair	PLANK
T260	American Elm	*Ulmus americana*	13	Fair	PLANK
T261	Sycamore	*Platanus occidentalis*	29.6	Fair	SAVE
			14.1	Fair	SAVE
			21.3	Fair	SAVE
			30.5	Fair	SAVE
			11	Fair	SAVE
T262	Sycamore	*Platanus occidentalis*	28.2	Good	SAVE
			23	Good	SAVE
			22.7	Good	SAVE
T263	Tulip Tree	*Liriodendron tulipifera*	11.8	Fair	SAVE
T264	American Elm	*Ulmus americana*	21.7	Fair	SAVE
T265	American Elm	*Ulmus americana*	23.5	Fair	SAVE
T266	Tulip Tree	*Liriodendron tulipifera*	11.3	Good	SAVE
T267	Red Maple	*Acer rubrum*	28.2	Poor	REMOVAL
T268	Sycamore	*Platanus occidentalis*	25	Poor	REMOVAL
T269	Tulip Tree	*Liriodendron tulipifera*	20.7	Good	SAVE
T270	Red Maple	*Acer rubrum*	15.4	Poor	REMOVAL
T271	Tulip Tree	*Liriodendron tulipifera*	46.2	Poor	REMOVAL
T272	Tulip Tree	*Liriodendron tulipifera*	11.3	Fair	SAVE
T273	Black Walnut	*Juglans nigra*	19.4	Poor	SAVE
T274	Tulip Tree	*Liriodendron tulipifera*	22.5	Fair	SAVE
T275	Tulip Tree	*Liriodendron tulipifera*	14.2	Poor	SAVE
T276	Tulip Tree	*Liriodendron tulipifera*	11.2	Poor	SAVE
T277	Tulip Tree	*Liriodendron tulipifera*	23	Fair	SAVE
T278	Tulip Tree	*Liriodendron tulipifera*	13.3	Fair	REMOVAL
T279	Tulip Tree	*Liriodendron tulipifera*	30	Poor	SAVE
T280	Tulip Tree	*Liriodendron tulipifera*	20.4	Good	SAVE
T281	Tulip Tree	*Liriodendron tulipifera*	15.8	Poor	REMOVAL
			17	Poor	REMOVAL
			13	Poor	REMOVAL
T282	Black Walnut	*Juglans nigra*	16.4	Poor	SAVE
T283	Tulip Tree	*Liriodendron tulipifera*	14.2	Poor	REMOVAL
T284	Tulip Tree	*Liriodendron tulipifera*	11.1	Poor	SAVE
T285	Tulip Tree	*Liriodendron tulipifera*	33	Poor	PLANK
T286	Tulip Tree	*Liriodendron tulipifera*	15.8	Poor	SAVE
T287	Tulip Tree	*Liriodendron tulipifera*	32.4	Poor	SAVE
T288	Black Walnut	*Juglans nigra*	18.2	Poor	SAVE
T289	Tulip Tree	*Liriodendron tulipifera*	20.8	Poor	SAVE
T290	Tulip Tree	*Liriodendron tulipifera*	22.5	Poor	SAVE
T291	Tulip Tree	*Liriodendron tulipifera*	17.7	Fair	SAVE
T292	Tulip Tree	*Liriodendron tulipifera*	12.6	Fair	PLANK
T293	Tulip Tree	*Liriodendron tulipifera*	14.1	Fair	PLANK
			12.9	Fair	PLANK
T294	Tulip Tree	*Liriodendron tulipifera*	17.6	Poor	PLANK
T295	Tulip Tree	*Liriodendron tulipifera*	16.9	Fair	SAVE
T296	Tulip Tree	*Liriodendron tulipifera*	12.1	Fair	SAVE
T297	Tulip Tree	*Liriodendron tulipifera*	28.3	Poor	REMOVAL
T298	Tulip Tree	*Liriodendron tulipifera*	27.3	Poor	REMOVAL
T299	Tulip Tree	*Liriodendron tulipifera*	26.6	Poor	REMOVAL
T300	Tulip Tree	*Liriodendron tulipifera*	18.8	Fair	REMOVAL
T301	Tulip Tree	*Liriodendron tulipifera*	29.9	Fair	PLANK
T302	Tulip Tree	*Liriodendron tulipifera*	26	Poor	SAVE
T303	Eastern Red Cedar	Juniperus virginiana	11.6	Poor	SAVE
			13.8	Poor	SAVE
T304	Black Walnut	*Juglans nigra*	22	Poor	SAVE
T305	Tulip Tree	*Liriodendron tulipifera*	33.9	Poor	SAVE
T306	Tulip Tree	*Liriodendron tulipifera*	23.5	Poor	SAVE
			21	Poor	SAVE
T307	Black Walnut	*Juglans nigra*	17.8	Poor	PLANK
T308	Tulip Tree	*Liriodendron tulipifera*	29.8	Fair	PLANK
T309	Tulip Tree	*Liriodendron tulipifera*	28.8	Good	SAVE
T310	Tulip Tree	*Liriodendron tulipifera*	18.4	Fair	SAVE
T311	Tulip Tree	*Liriodendron tulipifera*	13.6	Fair	SAVE
T312	Tulip Tree	*Liriodendron tulipifera*	37.8	Poor	SAVE
T313	Tulip Tree	*Liriodendron tulipifera*	27.1	Fair	SAVE
T314	Tulip Tree	*Liriodendron tulipifera*	32	Fair	PLANK
T315	Tulip Tree	*Liriodendron tulipifera*	17.1	Fair	SAVE
T316	Tulip Tree	*Liriodendron tulipifera*	39.4	Fair	PLANK
T317	Tulip Tree	*Liriodendron tulipifera*	13.2	Fair	PLANK
T318	Tulip Tree	*Liriodendron tulipifera*	13.2	Poor	REMOVAL
T319	Tulip Tree	*Liriodendron tulipifera*	14	Poor	SAVE
T320	Tulip Tree	*Liriodendron tulipifera*	31.1	Poor	REMOVAL
T321	Tulip Tree	*Liriodendron tulipifera*	37	Fair	REMOVAL
T322	Tulip Tree	*Liriodendron tulipifera*	21.2	Fair	SAVE
T323	Black Walnut	*Juglans nigra*	21.1	Poor	SAVE
T324	Tulip Tree	*Liriodendron tulipifera*	30	Fair	SAVE
			13	Fair	SAVE
			26.3	Fair	SAVE
			23.7	Fair	SAVE
T325	Tulip Tree	*Liriodendron tulipifera*	36.9	Poor	SAVE
T326	Tulip Tree	*Liriodendron tulipifera*	31	Poor	REMOVAL
T327	Tulip Tree	*Liriodendron tulipifera*	15.7	Poor	REMOVAL
T328	Tulip Tree	*Liriodendron tulipifera*	31.8	Poor	SAVE
T329	tulip poplar	*Liriodendron tulipifera*	35.3	Fair	REMOVAL
			15.3		REMOVAL
T330	tulip poplar	*Liriodendron tulipifera*	14	Good	REMOVAL
T331	black locust	*Robinia pseudoacacia*	12.6	Fair	REMOVAL
T332	sycamore	*Platanus occidentalis*	17	Fair	PLANK
T333	tulip poplar	*Liriodendron tulipifera*	14.5	Good	SAVE
T334	tulip poplar	*Liriodendron tulipifera*	16.8	Good	SAVE
T335	tulip poplar	*Liriodendron tulipifera*	13.3	Dead	REMOVAL
T336	black walnut	*Juglans nigra*	13.1	Good	SAVE
T337	black walnut	*Juglans nigra*	11.7	Fair	REMOVAL
T340	pin oak	*Quercus palustris*	32	Good	SAVE
T341	northern catalpa	*Catalpa speciosa*	33	Good	SAVE
R2	Tulip tree	*Liriodendron tulipifera*	14.6	Fair	SAVE
R3	Tulip tree	*Liriodendron tulipifera*	14.6	Fair	SAVE
R4	Tulip tree	*Liriodendron tulipifera*	10.4	Fair	SAVE
R5	Arborvitae	*Thuja occidentalis*	1	Good	SAVE
R6	Arborvitae	*Thuja occidentalis*	1	Good	SAVE
R7	Arborvitae	*Thuja occidentalis*	1	Good	SAVE
R8	Arborvitae	*Thuja occidentalis*	1	Good	REMOVAL
R9	Arborvitae	*Thuja occidentalis*	1	Good	REMOVAL
R10	Redbud	*Cercis canadensis*	9.1	Good	SAVE
R11	Red Maple	*Acer rubrum*	8.4	Fair	SAVE
R12	Sycamore	*Platanus occidentalis*	17.4	Good	SAVE

CLIENT

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DATE:	ISSUES / REVISIONS
DD/MM/YYYY	SUBMISSION DESCTRIPTION

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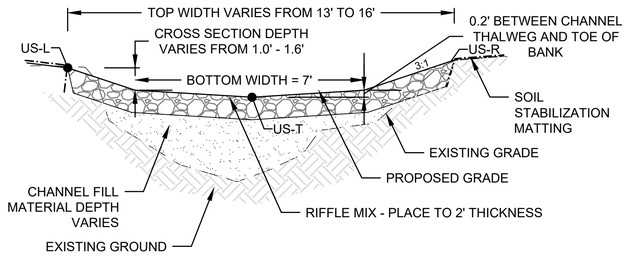
Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:

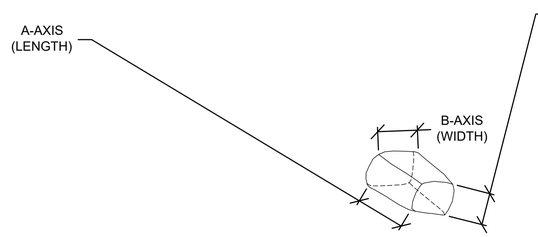
TREE PROTECTION PLAN

PROJECT NO.: 23006.01
SCALE: NTS
SEAL: STATE OF MARYLAND · MARK K. TAYLOR · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:



BOULDER AND COBBLE RIFFLE CREST CROSS SECTION

NOT TO SCALE



NATURAL CHANNEL MATERIAL	
STONE	%
No. 2 STONE	50.0
BANK RUN GRAVEL	50.0

BOULDER DIMENSIONS (FT)			
BOULDER TYPE	A-AXIS	B-AXIS	C-AXIS
RIFFLE/TIE OUT	2 - 3	1.5 - 2	1 - 2
FOOTER	2 - 3	2 - 3	1.5 - 2

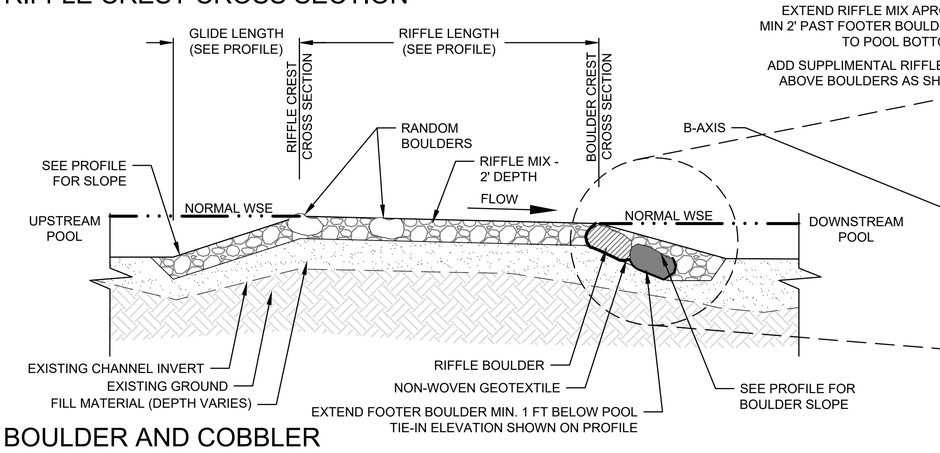
COBBLE RIFFLE GRADATION TABLE	
CUMULATIVE % FINER	SIZE (IN)
100	17.5
50	11.0
10	4.8

BOULDER RIFFLE GRADATION TABLE	
CUMULATIVE % FINER	SIZE (IN)
100	27.5
50	17.2
10	7.5

RIFFLE BOULDER AXIS

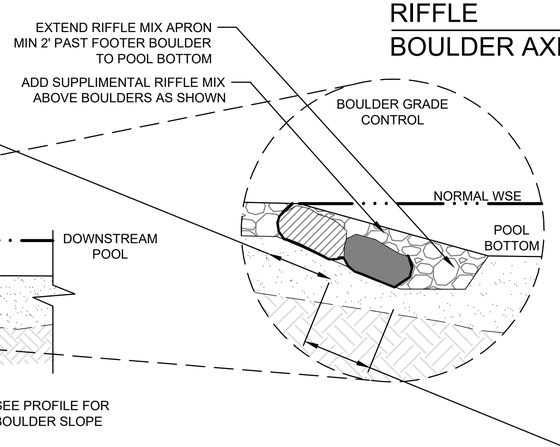
NOTE:
NATURAL CHANNEL MATERIAL SHALL BE INCORPORATED INTO RIFFLE MIX AT AN APPROXIMATE RATIO OF 80% RIFFLE MIX TO 20% GRAVEL.

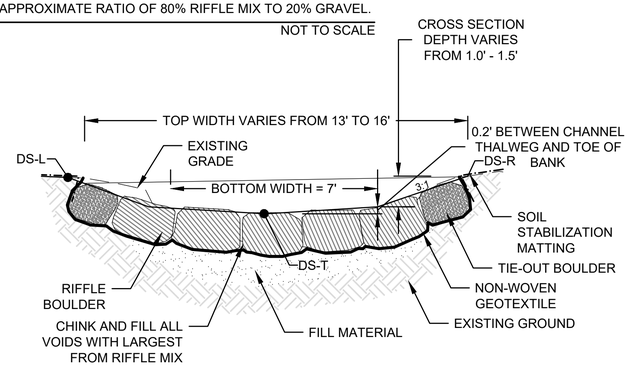
NOT TO SCALE



BOULDER AND COBBLER RIFFLE PROFILE

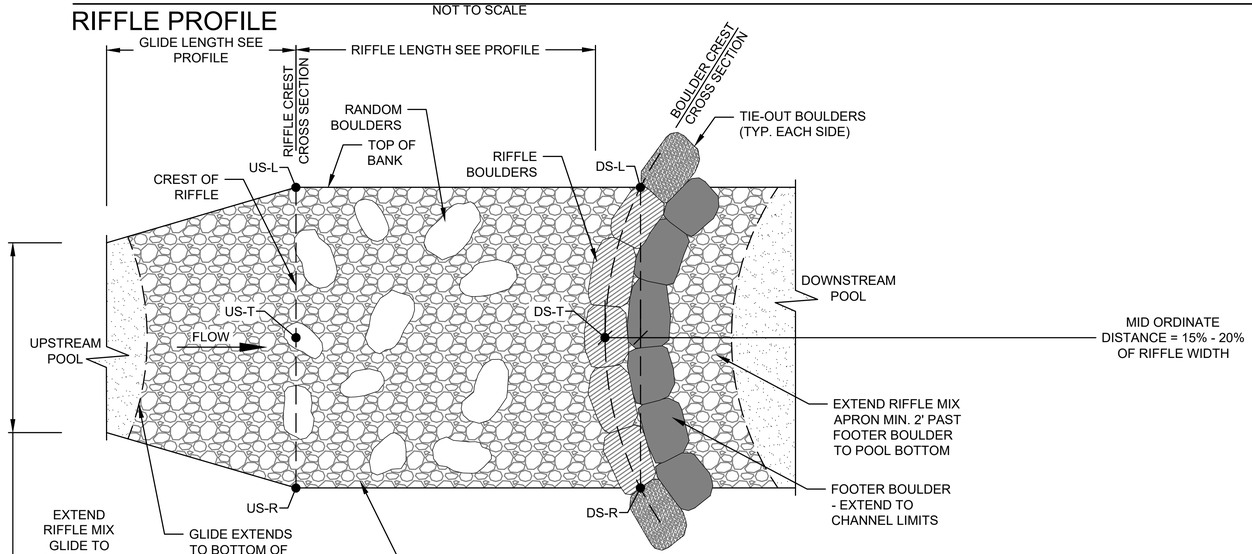
NOT TO SCALE





BOULDER AND COBBLE RIFFLE BOULDER CROSS SECTION

NOT TO SCALE



NOTE:
STRUCTURE TABLE FOR NODE LOCATIONS, ELEVATIONS TO BE PROVIDED AT 90%

BOULDER AND COBBLE RIFFLE PLAN VIEW

NOT TO SCALE

RIFFLE NOTES:

1. STRUCTURE TABLES FOR NODE LOCATIONS AND ELEVATIONS WERE DEVELOPED TO DEFINE THE FOOTPRINT OF THE RIFFLE. SEE SHEET 20. SEE PROFILE FOR UPSTREAM AND DOWNSTREAM EXTENT OF PROTECTION (GLIDE AND RUN).
2. DEPTH AND TOP WIDTH OF CHANNEL CROSS SECTION VARY. THE CROSS SECTION SHALL BE CONSTRUCTED IN A TRAPEZOIDAL SHAPE BETWEEN GIVEN NODES WITH A BOTTOM WIDTH OF 7' AND SIDE SLOPES AT A 3:1.
3. FOR ALL MATERIAL SIZES, REFER TO SPECIFICATIONS AND TABLES PROVIDED ON THIS DETAIL.
4. NATURAL CHANNEL MATERIAL MAY BE HARVESTED ON-SITE PRIOR TO INSTALLATION OF RIFFLE IF IT MEETS THE SPECIFICATIONS.
5. RIFFLE MIX SHALL BE A MINIMUM THICKNESS OF TWICE THE SPECIFIED D50 OF THE MATERIAL OR 2', WHICHEVER IS LARGER.
6. THE NUMBER OF BOULDERS VARIES DEPENDING ON TYPICAL SECTION WIDTH AND BOULDER DIMENSIONS. BOTH BOULDER AND COBBLE BOULDERS ARE CONSTRUCTED WITH FOOTER AND TIE-OUT BOULDERS.
7. IN AREAS OF CUT, CHANNEL FILL MATERIAL UNDER RIFFLE MIX IS NOT NEEDED. IN AREAS OF FILL, EXISTING STREAM CHANNEL TO BE FILLED IN 8" LIFTS WITH CHANNEL FILL MATERIAL TO ELEVATION SPECIFIED ON PROFILE.
8. AS NEEDED, EXCAVATE THE DOWNSTREAM TIE OUT AREA FOR FOOTER BOULDERS AND INSTALL THE BOULDER GRADE CONTROL FOOTERS AND RIFFLE BOULDERS, LAYING A CONTINUOUS SHEET OF GEOTEXTILE UNDER ALL BOULDERS. TOP OF RIFFLE BOULDERS SHALL BE PARABOLIC IN SHAPE AND MEET FINISHED GRADE DEFINED BY STRUCTURE TABLE NODES.
9. THE BOULDERS SHALL BE TILTED DOWNSTREAM AS SHOWN ON THE DETAIL AND NOT STACKED. STAGGER SEAMS OF BOULDERS BETWEEN EACH ROW. INSTALL RIFFLE MIX APRON TO BLEND INTO DOWN STREAM POOL AS SHOWN ON DETAIL.
10. TIE-OUT BOULDER SHALL EXTEND PAST THE CORNER NODES DS-R & DS-L A MIN. OF ONE BOULDER LENGTH (B-AXIS) INTO EXISTING BANK. WHERE THIS CONFLICTS WITH EXISTING TREE ROOTS OR BEDROCK, TIE-OUT BOULDER MAY BE ELIMINATED OR ADJUSTED AT DIRECTION OF ENGINEER.
11. PLACE RIFFLE MIX UPSTREAM OF THE BOULDER GRADE CONTROL TO THE FINISHED GRADES, COMPRESSING MATERIALS TO MAINTAIN TRAPEZOIDAL CROSS SECTION SHAPE.
12. NATURAL CHANNEL MATERIAL SHALL BE REPEATEDLY WORKED INTO FULL DEPTH OF THE RIFFLE MIX TO FILL VOIDS.
13. EXCAVATE UPSTREAM POOL AND INSTALL RIFFLE MIX GLIDE AS SHOWN ON DETAIL.
14. TRIM ALL GEOTEXTILE AT OR BELOW FINISHED GRADE.
15. ONCE RIFFLE IS CONSTRUCTED, STABILIZE ALL DISTURBED TIE-IN LOCATIONS AS SPECIFIED.

OPTIONAL RIFFLE NOTES (DEPENDS ON SITE CONDITIONS/DESIGN):

1. LARGE WOODY DEBRIS SHALL BE INSTALLED IN POOLS PER DETAIL, OR AS DIRECTED BY THE ENGINEER

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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:

DETAILS

PROJECT NO.:	23006.01	SCALE:	NTS
		BY: SF/NW	CHECK: KT

SEAL:

DWG. NO.:

19 OF 34

RIFFLE STRUCTURE TABLE					
ID	Station	Node	Easting	Northing	Elevation
B-1	2+37.8	US-L	1299485.7972'	523278.3456'	340.2
		US-T	1299483.8372'	523272.1343'	339.0
		US-R	1299481.8772'	523265.9230'	340.2
		DS-L	1299505.6516'	523273.3259'	340.0
		DS-T	1299503.3290'	523265.9760'	338.4
		DS-R	1299501.0063'	523258.6261'	340.0
C-1	2+90.1	US-L	1299530.0464'	523244.7156'	339.7
		US-T	1299523.6884'	523243.4078'	338.4
		US-R	1299517.2702'	523242.0875'	339.7
		DS-L	1299535.3207'	523224.3127'	339.5
		DS-T	1299527.9290'	523222.7920'	338.0
		DS-R	1299520.5954'	523221.2833'	339.5
C-2	3+48.1	US-L	1299550.2140'	523195.7896'	339.2
		US-T	1299545.7595'	523191.0190'	338.0
		US-R	1299541.3078'	523186.2471'	339.2
		DS-L	1299564.8876'	523183.8301'	339.0
		DS-T	1299559.5631'	523178.1359'	337.4
		DS-R	1299554.2264'	523172.4288'	339.0
C-3	4+10.4	US-L	1299600.5135'	523175.2414'	338.6
		US-T	1299600.5140'	523168.6901'	337.4
		US-R	1299600.5144'	523162.1387'	338.6
		DS-L	1299624.5164'	523176.3129'	338.3
		DS-T	1299624.5157'	523168.7317'	336.7
		DS-R	1299624.5150'	523161.1501'	338.3
B-2	4+61.6	US-L	1299653.7615'	523164.8728'	337.9
		US-T	1299649.6734'	523159.8234'	336.7
		US-R	1299645.5853'	523154.7740'	337.9
		DS-L	1299670.1013'	523153.2841'	337.7
		DS-T	1299665.2190'	523147.2475'	336.1
		DS-R	1299660.3368'	523141.2108'	337.7
B-3	5+38.1	US-L	1299713.5924'	523119.8960'	337.3
		US-T	1299710.7349'	523114.0463'	336.1
		US-R	1299707.8774'	523108.1965'	337.3
		DS-L	1299729.8473'	523113.1478'	337.1
		DS-T	1299726.5178'	523106.3290'	335.6
		DS-R	1299723.1831'	523099.4995'	337.1
C-4	5+84.3	US-L	1299752.9755'	523090.5978'	336.8
		US-T	1299747.3881'	523087.2274'	335.6
		US-R	1299741.7996'	523083.8563'	336.8
		DS-L	1299761.5282'	523077.9323'	336.6
		DS-T	1299755.2716'	523074.1760'	335.1
		DS-R	1299749.0151'	523070.4198'	336.6
C-5	6+25.0	US-L	1299776.6910'	523064.6986'	336.3
		US-T	1299774.8374'	523058.7551'	335.1
		US-R	1299772.9942'	523052.8450'	336.3
		DS-L	1299796.2440'	523060.2242'	336.2
		DS-T	1299793.9224'	523052.7854'	334.6
		DS-R	1299791.6007'	523045.3466'	336.2
C-6	7+19.4	US-L	1299865.1915'	523069.6386'	335.8
		US-T	1299864.2033'	523063.1573'	334.6
		US-R	1299863.2131'	523056.6629'	335.8
		DS-L	1299882.3558'	523068.0250'	335.6
		DS-T	1299881.2481'	523060.6380'	334.0
		DS-R	1299880.1404'	523053.2509'	335.6
B-4	7+62.7	US-L	1299907.1846'	523052.9333'	335.2
		US-T	1299902.4702'	523048.8896'	334.0
		US-R	1299897.8134'	523044.8077'	335.2
		DS-L	1299921.6733'	523038.7011'	335.0
		DS-T	1299915.7278'	523033.5594'	333.4
		DS-R	1299909.7977'	523028.4095'	335.0
C-7	8+34.6	US-L	1299963.8229'	523018.9261'	334.6
		US-T	1299962.0051'	523012.5276'	333.4
		US-R	1299960.1873'	523006.1292'	334.6
		DS-L	1299983.2011'	523014.0941'	334.3
		DS-T	1299981.1128'	523007.0114'	332.8
		DS-R	1299979.0245'	522999.9286'	334.3
C-8	8+83.6	US-L	1300010.9641'	522999.6442'	334.0
		US-T	1300007.0730'	522994.2606'	332.8
		US-R	1300003.2747'	522989.0053'	334.0
		DS-L	1300032.4951'	522985.9408'	333.6
		DS-T	1300027.7767'	522979.3535'	331.9
		DS-R	1300023.0582'	522972.7661'	333.6
C-9	9+39.8	US-L	1300054.8162'	522961.7976'	331.1
		US-T	1300049.5001'	522957.8471'	331.9
		US-R	1300044.1839'	522953.8966'	331.1
		DS-L	1300065.6439'	522948.9636'	332.8
		DS-T	1300059.4839'	522944.3927'	331.3
		DS-R	1300053.3336'	522939.8257'	332.8
C-10	9+81.0	US-L	1300080.8305'	522939.1754'	332.5
		US-T	1300080.0341'	522932.4805'	331.3
		US-R	1300079.2382'	522925.7891'	332.5
		DS-L	1300110.1809'	522937.2179'	331.9
		DS-T	1300109.2077'	522929.0103'	330.3
		DS-R	1300108.2357'	522920.8134'	331.9
C-11	10+40.9	US-L	1300139.8575'	522917.1087'	331.5
		US-T	1300134.2969'	522913.4542'	330.3
		US-R	1300128.7363'	522909.7997'	331.5
		DS-L	1300151.9652'	522900.7590'	330.8
		DS-T	1300145.4987'	522896.4754'	329.2
		DS-R	1300139.0126'	522892.2112'	330.8

RIFFLE STRUCTURE TABLE					
ID	Station	Node	Easting	Northing	Elevation
C-12	10+88.8	US-L	1300168.5363'	522891.9359'	330.4
		US-T	1300169.2775'	522885.3733'	329.2
		US-R	1300170.0373'	522878.8028'	330.4
		DS-L	1300189.8758'	522895.6577'	330.3
		DS-T	1300190.7543'	522887.8700'	328.7
		DS-R	1300191.6653'	522880.0586'	330.3
C-13	11+80.7	US-L	1300255.1563'	522918.8014'	329.9
		US-T	1300253.0391'	522912.5145'	328.7
		US-R	1300250.9115'	522906.1936'	329.9
		DS-L	1300279.2758'	522912.0885'	329.5
		DS-T	1300276.7445'	522904.5334'	327.9
		DS-R	1300274.2179'	522896.9925'	329.5
C-14	12+69.2	US-L	1300335.8132'	522901.4124'	329.1
		US-T	1300338.0317'	522895.1530'	327.9
		US-R	1300340.2795'	522888.8107'	329.1
		DS-L	1300356.5554'	522910.0904'	328.8
		DS-T	1300359.1836'	522902.6794'	327.3
		DS-R	1300361.8118'	522895.2684'	328.8
C-15	13+17.8	US-L	1300386.9245'	522909.4109'	328.5
		US-T	1300384.8584'	522903.0168'	327.3
		US-R	1300382.8182'	522896.7032'	328.5
		DS-L	1300404.4788'	522904.7686'	328.2
		DS-T	1300402.1104'	522897.4434'	326.7
		DS-R	1300399.7419'	522890.1182'	328.2
B-5	13+61.2	US-L	1300427.1285'	522899.7652'	327.9
		US-T	1300426.9168'	522893.1273'	326.7
		US-R	1300426.7071'	522886.5506'	327.9
		DS-L	1300446.3809'	522900.2799'	327.7
		DS-T	1300446.1331'	522892.5150'	326.2
		DS-R	1300445.8853'	522884.7502'	327.7
B-6	14+09.4	US-L	1300476.3167'	522895.0715'	327.4
		US-T	1300474.7486'	522888.6211'	326.2
		US-R	1300473.1891'	522882.2064'	327.4
		DS-L	1300501.7411'	522890.3910'	326.9
		DS-T	1300499.8331'	522882.5390'	325.3
		DS-R	1300497.9251'	522874.6869'	326.9
B-7	14+67.7	US-L	1300532.8465'	522872.9872'	326.5
		US-T	1300528.5382'	522867.9029'	325.3
		US-R	1300524.2298'	522862.8185'	326.5
		DS-L	1300547.0038'	522862.0272'	326.3
		DS-T	1300542.2044'	522856.3632'	324.7
		DS-R	1300537.4049'	522850.6992'	326.3
B-8	15+15.4	US-L	1300569.1376'	522845.5574'	325.9
		US-T	1300567.0421'	522840.1246'	324.7
		US-R	1300564.9465'	522834.6918'	325.9
		DS-L	1300586.6803'	522839.6330'	325.5
		DS-T	1300584.3691'	522833.4500'	323.9
		DS-R	1300582.0579'	522827.2670'	325.5
C-16	15+60.8	US-L	1300611.4180'	522833.6663'	325.1
		US-T	1300610.4480'	522827.0887'	323.9
		US-R	1300609.4782'	522820.5116'	325.1
		DS-L	1300633.4421'	522832.2309'	324.8
		DS-T	1300632.2076'	522823.8160'	323.2
		DS-R	1300631.0706'	522816.0653'	324.8
B-9	16+20.5	US-L	1300664.2593'	522837.8609'	324.4
		US-T	1300668.1608'	522832.5186'	323.2
		US-R	1300672.0623'	522827.1762'	324.4
		DS-L	1300681.5327'	522853.0664'	323.0
		DS-T	1300686.3662'	522846.4524'	321.3
		DS-R	1300691.1997'	522839.8383'	323.0

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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:

DETAILS

PROJECT NO. : 23006.01
SCALE: NTS
SEAL:
BY: SF/NW
CHECK: KT
DWG. NO. :

STATE OF MARYLAND · MARK K. TAILEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025

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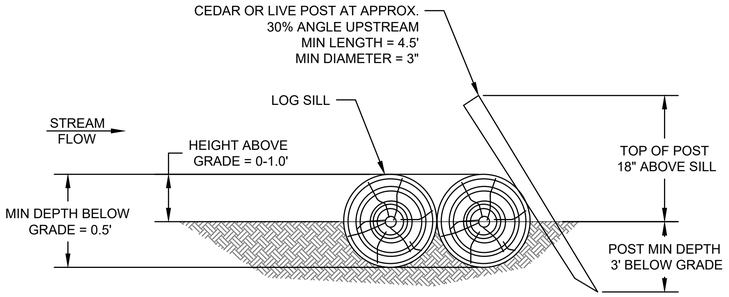
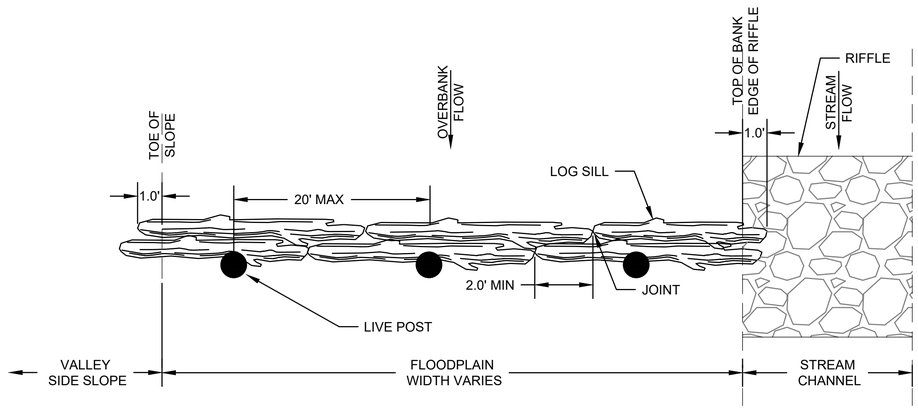


NOTES:
1. SILL SHALL TIE BACK INTO VALLEY SLOPE AND RIFFLE 1' MINIMUM
2. SILLS SHALL BE FIELD LOCATED TO AVOID SIGNIFICANT IMPACTS TO EXISTING ROOT STRUCTURES. A SILL SHALL BE INSTALLED APPROXIMATELY EVERY 4' IN VERTICAL DROP ALONG VALLEY SLOPE, AT DIRECTION OF ENGINEER.
3. INSTALLATION OF SILLS SHALL INCLUDE MINIMAL EXCAVATION, AND SHALL BE PUSHED BELOW GRADE WHERE POSSIBLE
4. JOINTS BETWEEN 2 ABUTTING LOGS SHALL BE STAGGERED SO THAT THEY ARE NO CLOSER THAN 2' FROM JOINTS ON SECOND ROW
5. LOG SILL SHALL SLOPE FROM TOE OF VALLLEY SLOPE TO EDGE OF RIFFLE FOLLOWING SLOPE OF EXISTING GROUND.
6. LIVE POSTS SHALL BE INSTALLED EVERY 20' MAX SPACING, NOT LOCATED AT JOINT BETWEEN 2 LOGS.

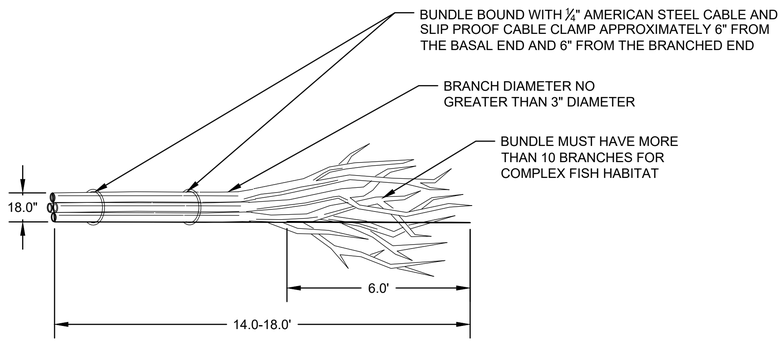
LOG SILL
SECTION VIEW

NOT TO SCALE



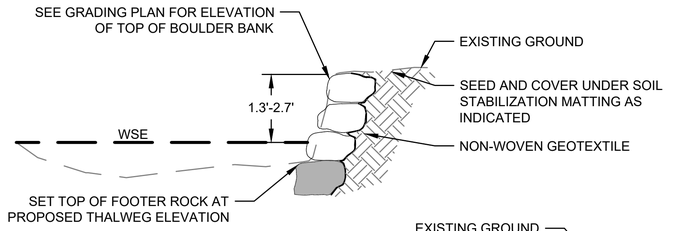
LOG SILL
PLAN VIEW

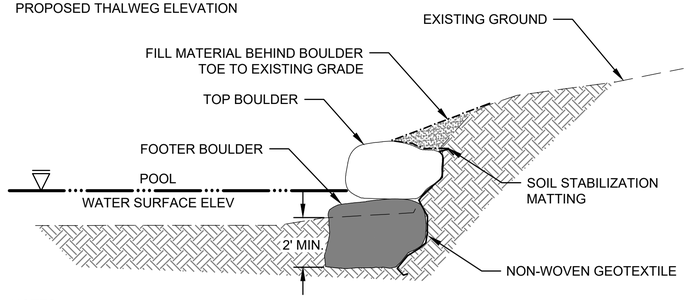
NOT TO SCALE



LARGE WOODY DEBRIS (LWD)

NOT TO SCALE

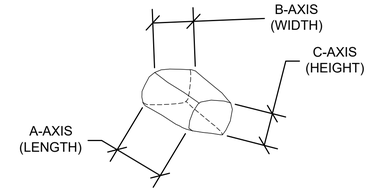




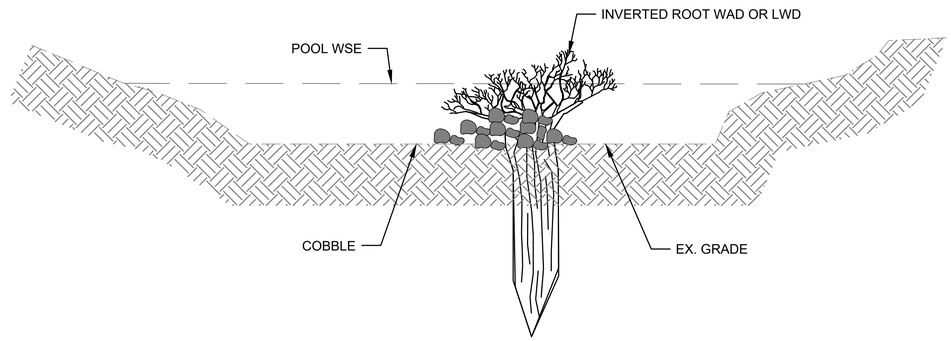
NOTES:
1. TIE BOULDER TOE INTO PROPOSED BANK AS SHOWN ON GRADING PLANS.
2. VERTICAL QUANTITY OF BOULDERS WILL VARY TO MEET ELEVATIONS AND ACHIEVE WALL HEIGHT.

BOULDER TOE
CROSS SECTION

NOT TO SCALE



BOULDER TOE DIMENSIONS (FT)		
A-AXIS	B-AXIS	C-AXIS
2 - 3	1.5 - 2.5	1.5 - 2 .5



STANDING ROOT WAD IN POOL
CROSS SECTION, TYP.

NOT TO SCALE

NOTE:
1. INSTALL IN-STREAM LARGE WOODY DEBRIS OR ROOTWADS AT LOCATIONS SHOWN ON PLAN. PARTIALLY BURY ONSITE LWD OR ROOTWADS INTO THE POOL BOTTOM APPROXIMATELY ⅔ OF TOTAL LENGTH TO SECURE IN PLACE AS DIRECTED BY THE ENGINEER.
2. EMBED ROOTWADS AT APPROXIMATE CENTER OF CHANNEL OR WHERE CHANNEL IS DEEPEST.
3. IF DOWNED LOG IS BEING USED INSTEAD OF LWD, THE ROOTWAD SHALL BE PLACED WHERE BRANCHES ARE INDICATED ON THIS SHEET.

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GLEN BURNIE, MD 21061
301.850.0448

DATE:	ISSUES / REVISIONS
DD/MM/YYYY	SUBMISSION DESCTRIPTION

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Restore the Earth & Inspire Ecological Stewardship

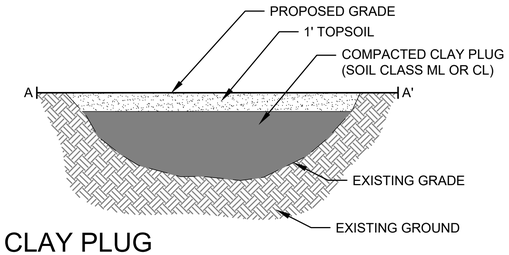
BUCKHORN BRANCH STREAM RESTORATION

TITLE:

DETAILS

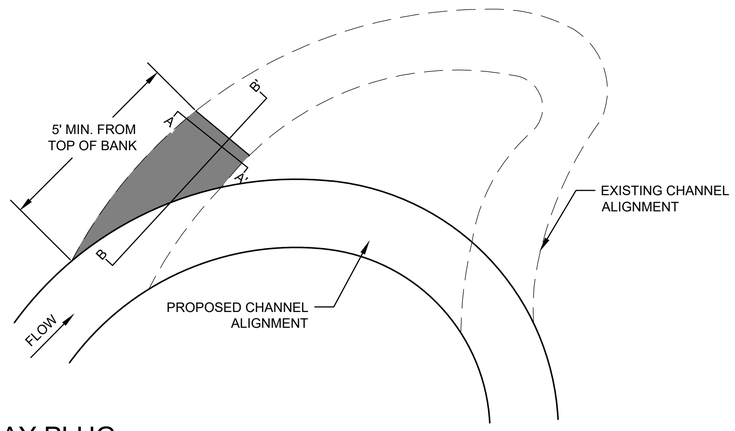
PROJECT NO. : 23006.01
SCALE: NTS
BY: SF/NW
CHECK: KT
SEAL:
STATE OF MARYLAND
MARY K. VALLEY
92717
PROFESSIONAL ENGINEER
01/27/2025
DWG. NO. :

21 OF 34



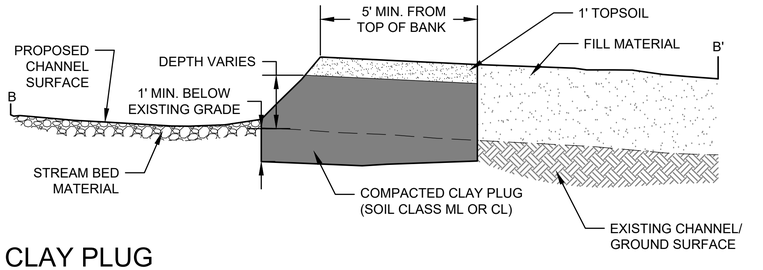
CLAY PLUG
CROSS SECTION A-A'

NOT TO SCALE



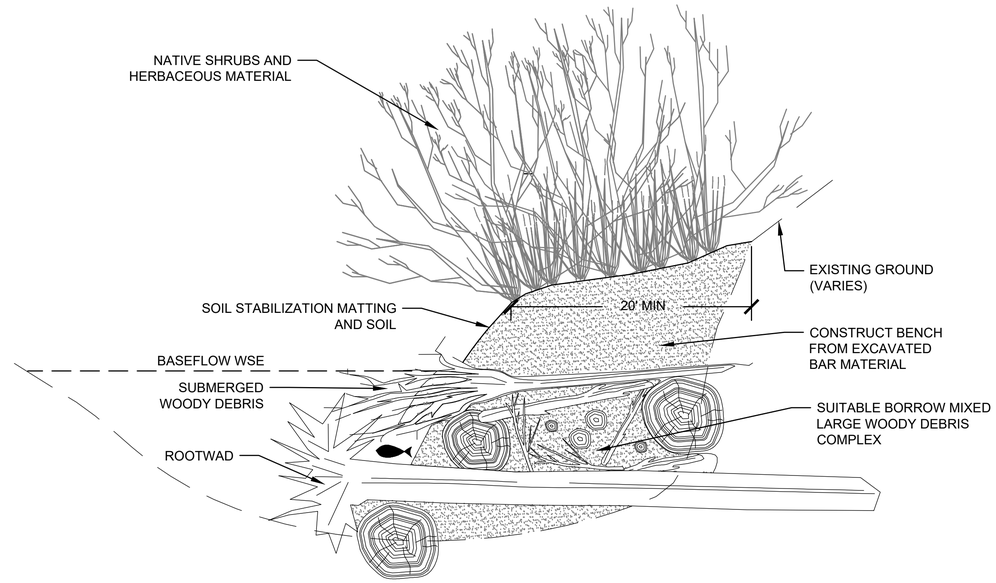
CLAY PLUG
PLAN

NOT TO SCALE



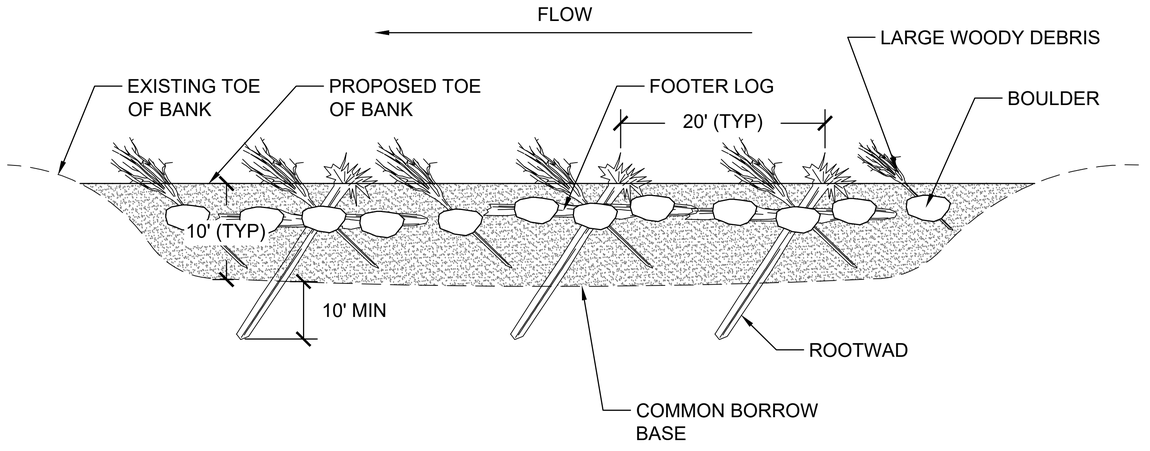
CLAY PLUG
CROSS SECTION B-B'

NOT TO SCALE



TOE WOOD TREATMENT
CROSS SECTION

NOT TO SCALE



TOE WOOD TREATMENT
PLAN VIEW - CUT AWAY

NOT TO SCALE

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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

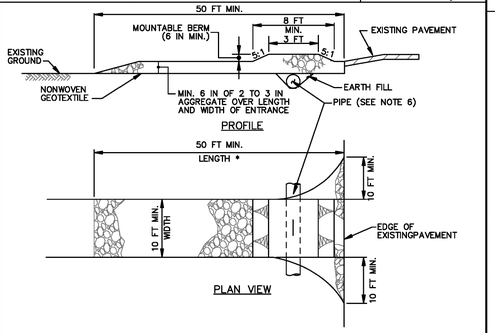
TITLE:

DETAILS

PROJECT NO.: 23006.01
SCALE: AS SHOWN
SEAL:
STATE OF MARYLAND · MARK K. TALIEH · 52717 · PROFESSIONAL ENGINEER
01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:
22 OF 34

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

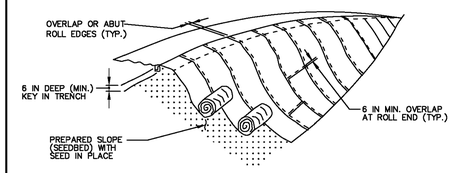
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*)30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL

TSSMS 2.0 lb/ft² (* INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

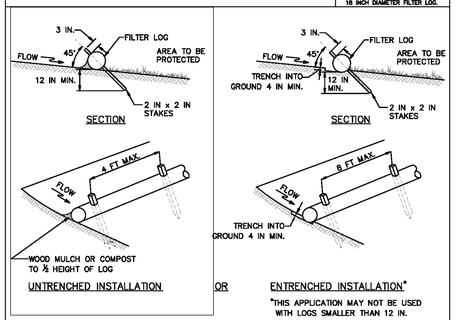
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.15

DETAIL E-6 FILTER LOG

STANDARD SYMBOL: FL-18

DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.15

DETAIL E-6 FILTER LOG

STANDARD SYMBOL: FL-18

DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG

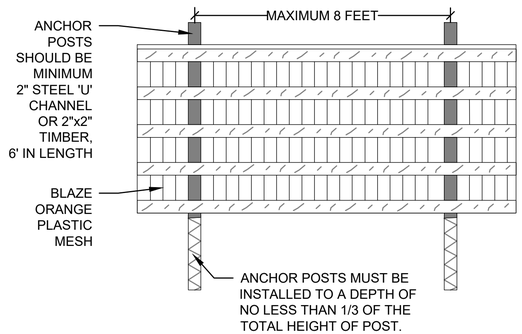
CONSTRUCTION SPECIFICATIONS

1. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
2. FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H-1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
3. INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
4. FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
5. STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
6. USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
7. WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
8. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF ½ THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE FILTER LOG IF TORN. REINSTALL FILTER LOG IF UNDERMINING OR DISLODGING OCCURS. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

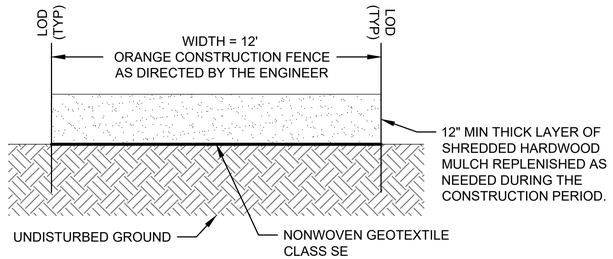
E.16



NOTES:
1. PROTECTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
2. BOUNDARIES OF PROTECTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
3. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

BLAZE ORANGE FENCE

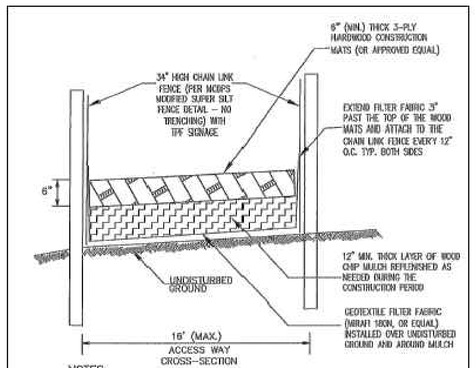
NOT TO SCALE



NOTES:
1. ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT EROSION AND SEDIMENT CONTROL MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
2. CONTRACTOR SHALL MAINTAIN MULCH ACCESS PATH THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF PROJECT, ALL MULCH ACCESS ROADS SHALL BE REMOVED AND RESTORED TO PRE-EXISTING CONDITIONS.
3. SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF ACCESS ROAD, AT THE DIRECTION OF THE ENGINEER.

MULCH ACCESS ROAD

NOT TO SCALE



NOTES:
1. ACCESS ROUTES TO BE FIELD LOCATED WITH M-NCPPC AND MCDPS AT PRE-CONSTRUCTION MEETING.
2. CONTRACTOR SHALL SEQUENCE CONSTRUCTION SUCH THAT NO EQUIPMENT IMPACTS AREA TO BE PROTECTED PRIOR TO MULCH PLACEMENT.
3. FILTER FABRIC SHALL BE A SINGLE PIECE ACROSS WIDTH. OVERLAP FABRIC BY 18" MIN. ALONG LENGTH OF ROUTE.
4. FILTER FABRIC MAY ONLY BE ELIMINATED AT DIRECTION OF M-NCPPC ARBORIST.
5. CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD.
6. MULCH SHALL BE DISPOSED OF OFF-SITE UNLESS OTHERWISE APPROVED BY M-NCPPC. WHERE MULCH IS TO REMAIN, FILTER FABRIC SHALL BE AN APPROVED BIODEGRADABLE TYPE).

HEAVY DUTY MULCH MAT DETAIL

NOT TO SCALE

4

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BUCKHORN BRANCH STREAM RESTORATION

TITLE: EROSION AND SEDIMENT CONTROL DETAILS

PROJECT NO. : 23006.01
SCALE: NTS
SEAL: STATE OF MARYLAND MARK K. TALLEY 32717 PROFESSIONAL ENGINEER 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO. :
23 OF 34

MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.

2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.

3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.

4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.

5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.

6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

MGWC 1.2: PUMP-AROUND PRACTICE

7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.

8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (*See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction*).

9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross- sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.

10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.

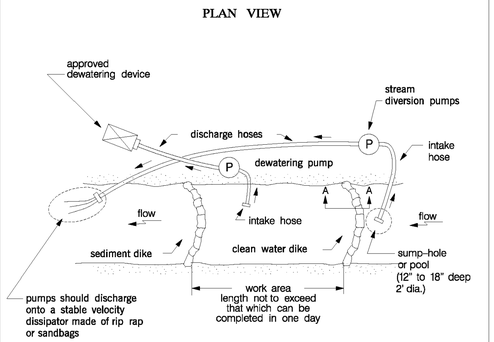
11. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.

12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.

13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.

14. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

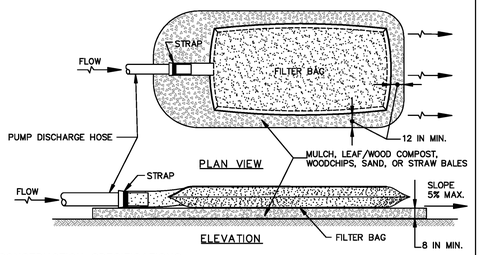
Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP–AROUND PRACTICE



TEMPORARY INSTREAM CONSTRUCTION MEASURES	*REVISED NOVEMBER 2000 PAGE 1.2 – 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: ☒FB



CONSTRUCTION SPECIFICATIONS

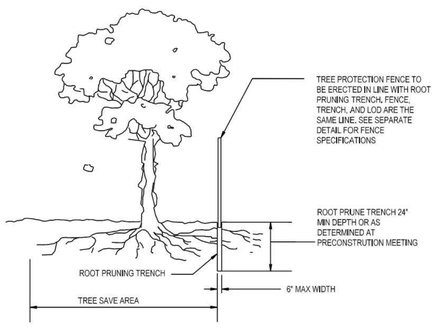
1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15–0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



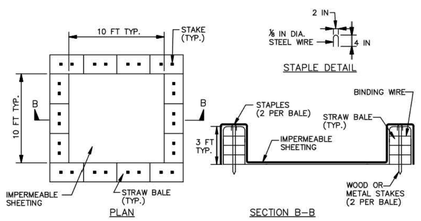
NOTES:
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRECONSTRUCTION MEETING.
2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRECONSTRUCTION MEETING AND FLAGGED PRIOR TO TRENCHING.
3. EXACT LOCATION OF TRENCH SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FOREST CONSERVATION (FC) INPECTOR .
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FC INSPECTOR.
5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.
6. ALL PRUNING MUST BE EXECUTED WITH LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FC INSPECTOR.

ROOT PRUNING DETAIL

NTS

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL: CWS



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET–VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

CLIENT

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301.850.0448

DATE:	ISSUES / REVISIONS
DD/MM/YYYY	SUBMISSION DESCTRIPTION

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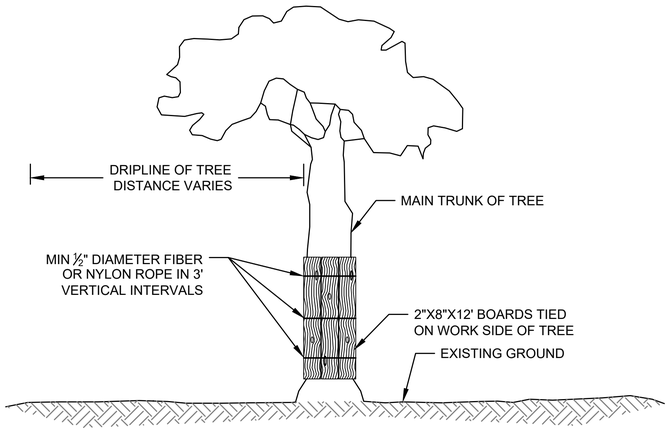
Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:
EROSION AND SEDIMENT CONTROL DETAILS

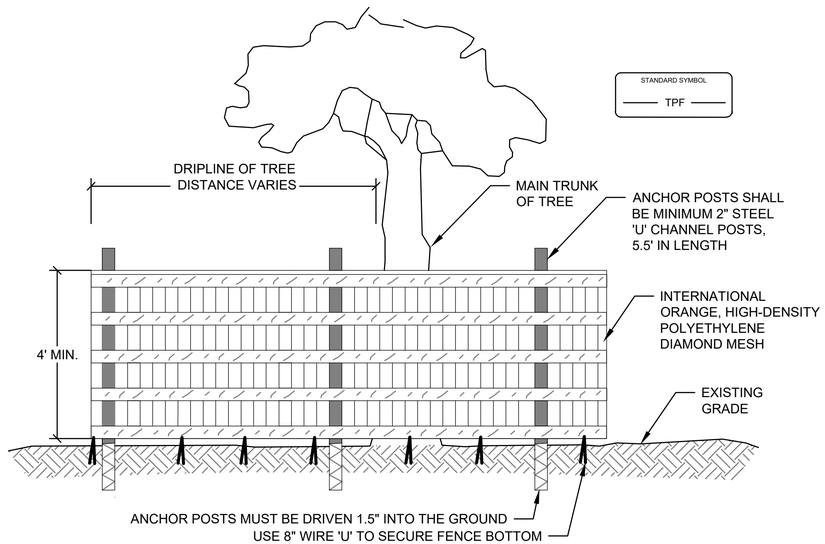
PROJECT NO.: 23006.01	SCALE: NTS	
SEAL: STATE OF MARYLAND · MARK K. TAILEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025	BY: SF/NW	CHECK: KT
	DWG. NO.: 24 OF 34	



NOTES:
1. PROTECTION MEASURES WILL BE SET AS PART OF THE REVIEW PROCESS.
2. TIE SUFFICIENT 2"X8"X12' BOARDS AROUND MAIN TRUNK OF TREE WITH ½" DIAMETER ROPE (FIBER OR NYLON) TO PROTECT ALL AREAS EXPOSED TO CONSTRUCTION.
3. INSTALL WIRE EYE BOLTS WITH MINIMUM INNER DIAMETER OF ⅝" AND MINIMUM LENGTH OF 4" FIRMLY IN EACH PLANK WHERE FIBER OR NYLON ROPES CROSS OVER PLANKS.
4. WHERE SIGNIFICANT TREE BRANCHES EXIST WHICH PREVENT PLANK INSTALLATION, PLANKING SHALL EXTEND TO THE ELEVATION OF THE LOWEST BRANCH.

TREE PLANKING

NOT TO SCALE



OPEN AREA TREE PROTECTION FENCE

N.T.S.

TREE PROTECTION

NOT TO SCALE

TREE PROTECTION/REMOVAL GENERAL NOTES:
1. THE PLANS IDENTIFY THE MINIMUM ANTICIPATED SURVEYED TREE TO BE REMOVED BASED ON DATA COLLECTED DURING ASSESSMENT AND DESIGN. ALL OTHER TREES NOT EXPLICITLY SHOWN FOR REMOVAL WITHIN THE LOD ARE ASSUMED TO BE POTENTIAL TREE SAVES. HOWEVER, SITE CONDITIONS CHANGES AND MODIFICATIONS TO ACCESS ROUTES WARRANT REVIEW AND MODIFICATION OF THIS BEFORE CONSTRUCTION BEGINS.
2. AT THE BEGINNING OF EACH PHASE OF WORK, CONTRACTOR SHALL MARK IN THE FIELD ALL DESIGNED TREE REMOVALS AND ON TREES THAT ARE POSSIBLE REMOVALS NEAR THE VICINITY OF THE LIMITS OF GRADING AND/OR CONSTRUCTION ACCESS USING A NON-PERMANENT METHOD (FLAGGING OR WASHABLE PAINT). ALL OTHER TREES WITHIN THE LOD SHALL NOT BE MARKED IN THE FIELD FOR REMOVAL AND SHALL BE CONSIDERED TREE SAVES.
3. CONTRACTOR SHALL REVIEW ALL TREE REMOVALS WITH MNCPPC AND DESIGNATED SPECIALIST TO OBTAIN CONCURRENCE BASED ON TREE HEALTH, CONDITION, SPECIES, OBSTRUCTION TO CONSTRUCTION ACCESS, CONFLICTS WITH GRADING AND NEED FOR SELECTIVE HARVESTING. FIELD ADJUSTMENTS TO CONSTRUCTION ACCESS AND WORK LIMITS MAY BE MADE AT THIS TIME WITH AGREEMENT BY ALL PARTIES AND REMOVAL MARKINGS ADJUSTED ACCORDINGLY. AT THIS TIME, TREE PROTECTION MEASURES (PLANKING, FENCING, AND/OR ROOT PROTECTION) FOR TREES TO REMAIN SHALL BE DEFINED. GROUPS TREES MAY BE GROUPED AS ONE PROTECTION AREA.
4. CONTRACTOR SHALL INSTALL AGREED UPON TREE PROTECTION MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL TREES, SHRUBS AND VEGETATION AS AGREED TO REMAIN. WHEN POSSIBLE, TREES SHALL BE PROTECTED AT THE DRIP LINE AND NO VEHICLE, MATERIAL OR EQUIPMENT SHALL BE STORED WITHIN THIS AREA UNLESS OTHERWISE NOTED.
5. PRIOR TO TREE REMOVAL, CONTRACTOR SHALL SALVAGE UNDERSTORY VEGETATION WITH THE LIMITS OF GRADING AND/OR CONSTRUCTION ACCESS.
6. ANY LIMB OR ROOT PRUNING NECESSARY TO PROTECTED TREES THAT MAY BE DAMAGED BY CONSTRUCTION ACCESS OR GRADING WILL BE DONE BY A LICENSED ARBORIST.
7. ALL TREE REMOVALS SHALL BE DONE IN A MANNER TO MAXIMIZE THEIR USAGE IN THE STRUCTURES (I.E., MAINTAIN SPECIFIED TRUNK LENGTHS & DIAMETERS, ROOT WADS, ETC.) AND TO MINIMIZE NEGATIVE IMPACTS TO RESIDUAL STANDING TREES, SHRUBS, AND WETLANDS. TREE FELLING TO BE DONE IN ACCORDANCE WITH OSHA LOGGING STANDARD, 29 CFR 1910.266.
8. TREE PROTECTION MEASURES SHALL BE MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.
9. FOLLOWING CONSTRUCTION, ALL TREE PROTECTION MEASURES, FLAGGING AND METAL TREE TAGS SHALL BE REMOVED BY THE CONTRACTOR.

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BUCKHORN BRANCH STREAM RESTORATION

TITLE: EROSION AND SEDIMENT CONTROL DETAILS

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SEAL: STATE OF MARYLAND · MARY K. TALEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025

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B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use
   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

      Notes:
      Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

      Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line
   c. Ideal Times of Seeding for Turf Grass Mixtures

      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
   e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 6b **Seed Mixture** (from Table B.3): 4					**Fertilizer Rate (10-20-20)**			**Lime Rate**
No.	**Species**	**Application Rate (lb/ac)**	**Seeding Dates**	**Seeding Depths**	**N**	**P_2O_5**	**K_20**	
4	DEER-TONGUE	15	3/1 - 5/15 5/16 - 6/15	¼- ½ in	45 pounds per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)
	CREEPING RED FESCUE	20	3/1 - 5/15 8/1 - 10/15	¼- ½ in				
	VIRGINIA WILD RYE	5	3/1 - 5/15 8/1 - 10/15	¼- ½ in				

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation
   1. Temporary Stabilization
      a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
   2. Permanent Stabilization
      a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
         i. Soil pH between 6.0 and 7.0.
         ii. Soluble salts less than 500 parts per million (ppm).
         iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
         iv. Soil contains 1.5 percent minimum organic matter by weight.
         v. Soil contains sufficient pore space to permit adequate root penetration.
      b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
      c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
      d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
      e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling
   1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
   2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
   3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
      a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
      b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
      c. The original soil to be vegetated contains material toxic to plant growth.
      d. The soil is so acidic that treatment with limestone is not feasible.
   4. Areas having slopes steeper than 2:1 require special consideration and design.
   5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
      a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
      b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
      c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
   6. Topsoil Application
      a. Erosion and sediment control practices must be maintained when applying topsoil.
      b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
      c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)
   1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
   3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
   4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
   5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
   1. General Specifications
      a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
      b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
      c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
      d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
      e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
   2. Sod Installation
      a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
      b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
      c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
      d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
   3. Sod Maintenance
      a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
      b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
      c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 6b **Seed Mixture** (from Table B.1): ANNUAL RYE GRASS/FOXTAIL MILLET					**Fertilizer Rate (10-20-20)**	**Lime Rate**
No.	**Species**	**Application Rate (lb/ac)**	**Seeding Dates**	**Seeding Depths**		
	ANNUAL RYEGRASS	40	3/1 - 5/15 8/1 - 10/15	0.5	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	FOXTAIL MILLET	30	5/16 - 7/31	0.5		

NOTE: IF PERMANENT STABILIZATION IS REQUIRED OUTSIDE OF SPECIFIED SEEDING DATES, THE CONTRACTOR SHALL PROVIDE TEMPORARY STABILIZATION MEASURES (SEED AND STRAW) UNTIL THE APPROPRIATE SEEDING DATES FOR THE SPECIFIED SEED MIXES OCCUR. THE CONTRACTOR SHALL PROVIDE PERMANENT STABILIZATION SEEDING WITHIN THE SPECIFIED SEEDING DATES.

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BUCKHORN BRANCH STREAM RESTORATION

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PROJECT NO.: 23006.01
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STATE OF MARYLAND
MARY K. TALEY
PROFESSIONAL ENGINEER
52717
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26 OF 34

2/7/2025 I:\Projects\23006.01 Buckhorn Branch Stream Restoration\CAD\Plans\dt01bb.dwg

Department of Permitting Services
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Wheaton, MD 20902
Phone: 311 in Montgomery County or (240) 777-0311
http://www.montgomerycountymd.gov/permittingservices/

DPS Montgomery County Department of Permitting Services
YOUR PROJECT PARTNER

Standard Erosion and Sediment Control Notes

March 2024

1. The permittee shall notify the Department of Permitting Services (DPS) forty-eight (48) hours before commencing any land disturbing activity and, unless waived by the Department, shall be required to hold a pre-construction meeting between them or their representative, their engineer, and an authorized representative of the Department.

2. The permittee must obtain inspection and approval by DPS at the following points:

   A. At the required pre-construction meeting.

   B. Following installation of sediment control measures and prior to any other land disturbing activity.

   C. During the installation of a sediment basin or stormwater management structure at the required inspection points (see Inspection Checklist on plan). Notification prior to commencing construction is mandatory.

   D. Prior to removal or modification of any sediment control structure(s).

   E. Prior to final acceptance.

3. The permittee shall construct all erosion and sediment control measures per the approved plan and construction sequence, shall have them inspected and approved by the Department prior to beginning any other land disturbances, shall ensure that all runoff from disturbed areas is directed to the sediment control devices, and shall not remove any erosion or sediment control measure without prior permission from the Department.

4. The permittee shall protect all points of construction ingress and egress to prevent the deposition of materials onto traversed public thoroughfare(s). All materials deposited onto public thoroughfare(s) shall be removed immediately.

5. The permittee shall inspect periodically and maintain continuously in effective operating condition, all erosion and sediment control measures until such time as they are removed with prior permission from the Department. The permittee is responsible for immediately repairing or replacing any sediment control measures which have been damaged or removed by the permittee or any other person.

6. * Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within:

   a) Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes and all slopes steeper than 3 horizontal to 1 vertical (3:1); and

   b) Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.

All areas disturbed outside of the perimeter sediment control system must be minimized and stabilized immediately. Maintenance must be performed as necessary to ensure continued stabilization.

7. The permittee shall apply *sod, seed, and anchored straw mulch, or other approved stabilization measures to all disturbed areas within seven (7) calendar days after stripping and grading activities have ceased on that area. Maintenance shall be performed as necessary to ensure continued stabilization. Active construction areas such as borrow or stockpile areas, roadway improvements, and areas within fifty (50) feet of a building under construction may be exempt from this requirement, provided that erosion and sediment control measures are installed and maintained to protect those areas.

8. Prior to removal of sediment control measures, the permittee shall stabilize all contributory disturbed areas with required soil amendments and topsoil, using sod or an approved permanent seed mixture and an approved anchored mulch. Wood fiber mulch may only be used in seeding season when the slope does not exceed 10% and grading has been done to promote sheet flow drainage. Areas brought to finished grade during the seeding season shall be permanently stabilized within seven (7) calendar days of establishment. When property is brought to finished grade during the months of November through February, and permanent stabilization is found to be impractical, an approved temporary seed and straw anchored mulch shall be applied to disturbed areas. The final permanent stabilization of such property shall be completed prior to the following April 15.

9. The site permit, work, materials, approved SC/SM plans, and test reports shall be available at the site for inspection by duly authorized officials of Montgomery County.

10. Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing mechanical devices to lower the water down slope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to it are fully stabilized, at which time they must be removed, and final grading done to promote sheet flow drainage. Mechanical devices must be provided at points of concentrated flow where erosion is likely to occur.

11. Permanent swales or other points of concentrated water flow shall be stabilized within 3 calendar days of establishment with *sod or seed with an approved erosion control matting or by other approved stabilization measures.

12. Sediment control devices shall be removed, with permission of the Department, within thirty (30) calendar days following establishment of permanent stabilization in all contributory drainage areas. Stormwater management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.

13. * No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in lawn maintenance areas or on residential lots. A slope gradient of up to 2:1 will be permitted in non-maintenance areas provided that those areas are indicated on the erosion and sediment control plan with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetative stabilization.

14. The permittee shall install a splashblock at the bottom of each downspout unless the downspout is connected by a drain line to an acceptable outlet.

15. For finished grading, the permittee shall provide adequate gradients so as to prevent water from standing on the surface of lawns more than twenty-four (24) hours after the end of a rainfall, except in designated drainage courses and swale flow areas, which may drain as long as forty-eight (48) hours after the end of a rainfall.

16. Sediment traps or basins are not permitted within 20 feet of a building which is existing or under construction. No building may be constructed within 20 feet of a sediment trap or basin.

17. All inlets in non-sump areas shall have asphalt berms installed at the time of base paving establishment.

18. The sediment control inspector has the option of requiring additional sediment control measures, as deemed necessary.

19. All trap elevations are relative to the outlet elevation, which must be on existing undisturbed ground.

20. *Vegetative stabilization shall be performed in accordance with the Standards and Specifications for Soil Erosion and Sediment Control.

21. Sediment trap(s)/basin(s) shall be cleaned out and restored to the original dimensions when sediment has accumulated to the point of one-half (1/2) the wet storage depth of the trap/basin (1/4 the wet storage depth for ST-III) or when required by the sediment control inspector.

22. Sediment removed from traps/basins shall be placed and stabilized in approved areas, but not within a floodplain.

23. All sediment basins and traps must be surrounded with a welded wire safety fence. The fence must be at least 42 inches high, have posts spaced no farther apart than 8 feet, have mesh openings no greater the two inches in width and four inches in height, with a minimum of 14-gauge wire. Safety fence must be maintained in good condition at all times.

24. No excavation in the areas of existing utilities is permitted unless their location has been determined. Call "Miss Utility" at 1-800-257-7777, 48 hours prior to the start of work.

25. Off-site spoil or borrow areas must have prior approval by DPS.

26. Sediment trap/basin dewatering for cleanout or repair may only be done with the DPS inspector's permission. The inspector must approve the dewatering method for each application. The following methods may be considered:

   A. Pump discharge may be directed to another on-site sediment trap or basin, provided it is of sufficient volume and the pump intake is floated to prevent agitation or suction of deposited sediments; or

   B. the pump intake may utilize a Removable Pumping Station and must discharge into an undisturbed area through a non-erosive outlet; or

   C. the pump intake may be floated and discharge into a Dirt Bag (12 oz. non-woven fabric), or approved equivalent, located in an undisturbed buffer area.

Remember: Dewatering operation and method must have prior approval by the DPS inspector.

27. The permittee must notify the Department of all utility construction activities within the permitted limits of disturbance prior to the commencement of those activities.

28. * Topsoil must be applied to all pervious areas within the limits of disturbance prior to permanent stabilization in accordance with MDE "Standards and Specifications for Soil Preparation, Topsoiling, and Soil Amendments".

* Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and the Sediment Control Inspector.

CLIENT

RES
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301.850.0448

DATE:	ISSUES / REVISIONS
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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE: EROSION AND SEDIMENT CONTROL NOTES

PROJECT NO.: 23006.01
SCALE: AS SHOWN
BY: SF/NW
CHECK: KT
DWG. NO.:

SEAL: STATE OF MARYLAND · MARK K. TALEY · 32717 · PROFESSIONAL ENGINEER · 01/27/2025

27 OF 34

STAGING AND STOCKPILE NOTES

DEFINITION - A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE - TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.
CONDITIONS WHERE PRACTICE APPLIES - STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

CRITERIA:

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE:
THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLADS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLIAN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. **KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS.** THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

   - USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
   - USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
   - USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.

10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

CLIENT

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fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE: EROSION AND SEDIMENT CONTROL NOTES

PROJECT NO. : 23006.01
SCALE: AS SHOWN
SEAL: STATE OF MARYLAND · MARK K. TALIFERRO · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO. :

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PLANTING LEGEND

- PIEDMONT FLOODPLAIN FOREST
- TURFGRASS
- PIEDMONT FLOODPLAIN FOREST UNDERSTORY
- 3 INCH CALIBER PLANTING
- 1 INCH CALIBER PLANTING

DATA	ACRES
TOTAL LOD	0.75
LOD IN ROW	0.01
FOREST CLEARING ONSITE	0.61
FOREST CLEARING OFFSITE (ROW)	0.00
FOREST PLANTED	0.50
FOREST UNDERSTORY PLANTED	0.11

NOTES: ALL 3 INCH CALIBER PLANTINGS TO BE PLANTED 20' APART ON CENTER. DISTANCE TO BE MEASURED IN FIELD.

HORIZONTAL SCALE
0 20 40

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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PLANTING PLAN

PROJECT NO.: 23006.01
SCALE: 1" = 20'
BY: SF/NW
CHECK: KT
SEAL: STATE OF MARYLAND · MARY K. TALEFF · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
DWG. NO.:

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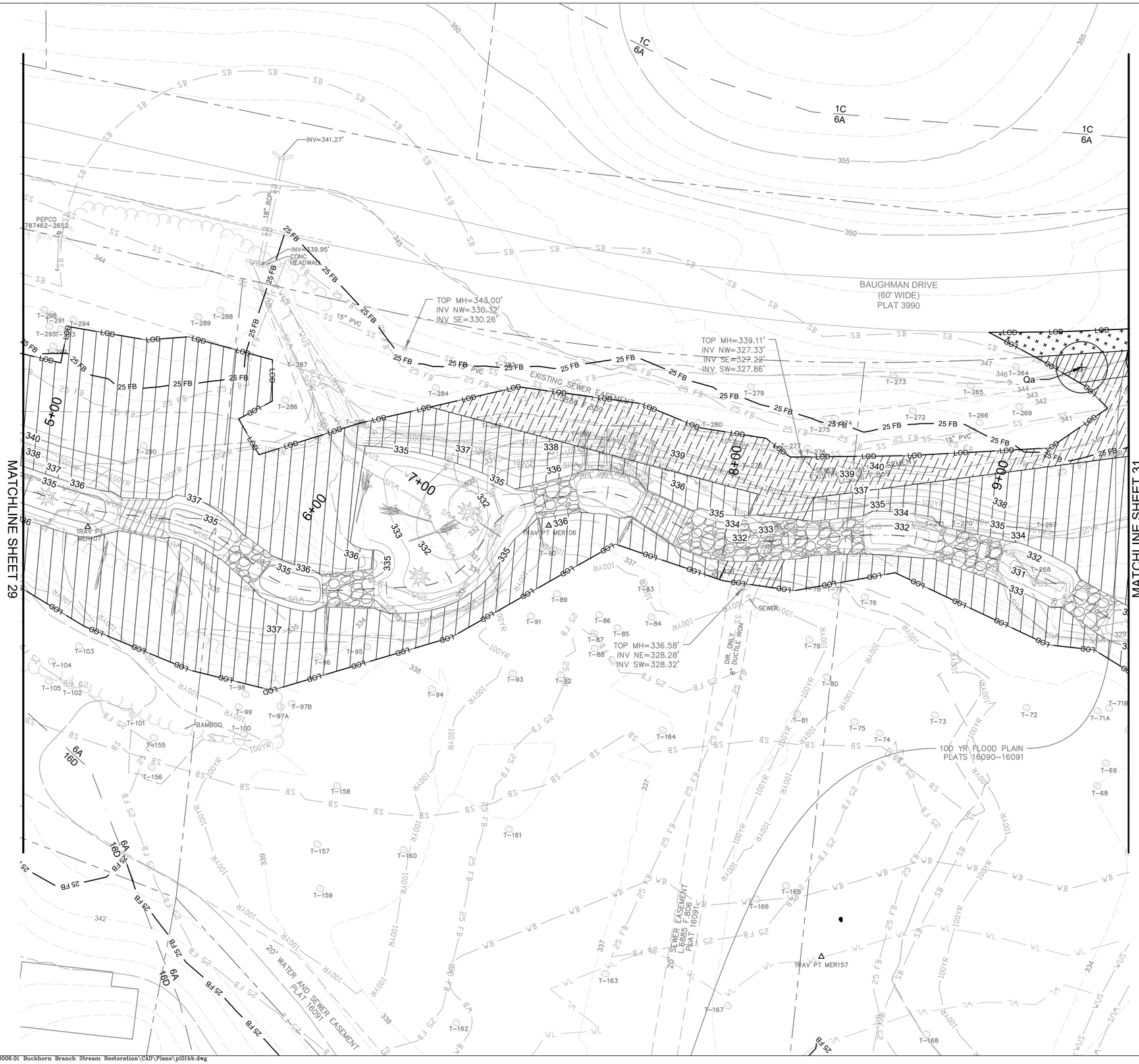
2/7/2025 I:\Projects\23006.01 Buckhorn Branch Stream Restoration\CAD\Plans\pl01bb.dwg



PLANTING LEGEND

- PIEDMONT FLOODPLAIN FOREST
- TURFGRASS
- PIEDMONT FLOODPLAIN FOREST UNDERSTORY
- 3 INCH CALIBER PLANTING
- 1 INCH CALIBER PLANTING

DATA	ACRES
TOTAL LOD	0.83
LOD IN ROW	0.01
FOREST CLEARING ON SITE	0.61
FOREST CLEARING OFF SITE (ROW)	0.00
FOREST PLANTED	0.50
FOREST UNDERSTORY PLANTED	0.11

NOTES: ALL 3 INCH CALIBER PLANTINGS TO BE PLANTED 20' APART ON CENTER. DISTANCE TO BE MEASURED IN FIELD.

HORIZONTAL SCALE
0 20 40

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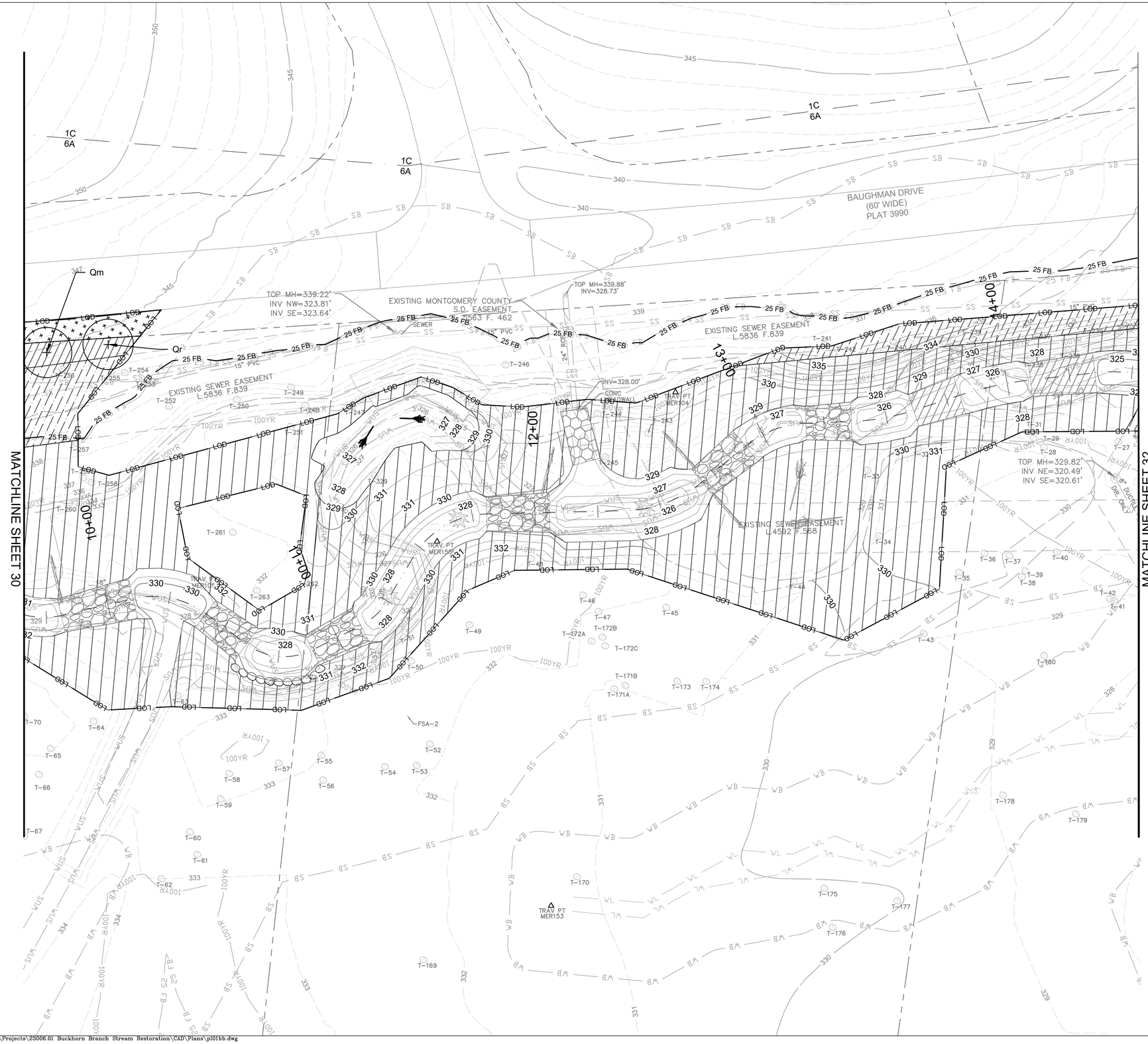
BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PLANTING PLAN

PROJECT NO.: 23006.01
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND MARK K. VALLEY 92717 PROFESSIONAL ENGINEER 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:

30 OF 34



NOTES: NO 3 INCH CALIBER PLANTINGS TO BE PLANTED ON THIS SHEET.

PLANTING LEGEND

- PIEDMONT FLOODPLAIN FOREST
- TURFGRASS
- PIEDMONT FLOODPLAIN FOREST UNDERSTORY
- 3 INCH CALIBER PLANTING
- 1 INCH CALIBER PLANTING

DATA	ACRES
TOTAL LOD	0.93
LOD IN ROW	0.00
FOREST CLEARING ONSITE	0.63
FOREST CLEARING OFFSITE (ROW)	0.00
FOREST PLANTED	0.58
FOREST UNDERSTORY PLANTED	0.05

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BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PLANTING PLAN

PROJECT NO.: 23006.01
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND · MARK K. TALIEH · 52717 · PROFESSIONAL ENGINEER · 01/27/2025
BY: SF/NW
CHECK: KT
DWG. NO.:

31 OF 34

PLANTING LEGEND

- PIEDMONT FLOODPLAIN FOREST
- TURFGRASS
- PIEDMONT FLOODPLAIN FOREST UNDERSTORY
- 3 INCH CALIBER PLANTING
- 1 INCH CALIBER PLANTING

DATA	ACRES
TOTAL LOD	0.59
LOD IN ROW	0.05
FOREST CLEARING ON SITE	0.41
FOREST CLEARING OFF SITE (ROW)	0.00
FOREST PLANTED	0.29
FOREST UNDERSTORY PLANTED	0.12

NOTES: ALL 3 INCH CALIBER PLANTINGS TO BE PLANTED 20' APART ON CENTER. DISTANCE TO BE MEASURED IN FIELD.

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BUCKHORN BRANCH STREAM RESTORATION

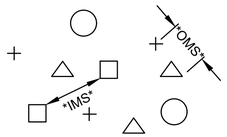
TITLE:

PLANTING PLAN

PROJECT NO.: 23006.01
SCALE: 1" = 20'
BY: SF/NW
CHECK: KT
DWG. NO.:

SEAL: STATE OF MARYLAND · MARK K. TALLEY · 32717 · PROFESSIONAL ENGINEER · 01/27/2025

32 OF 34



OMS - AN OVERALL MINIMUM SPACING DISTANCE *OMS* IS ASSIGNED TO THE PLANTING CONFIGURATION *SEE PLANT SCHEDULE*

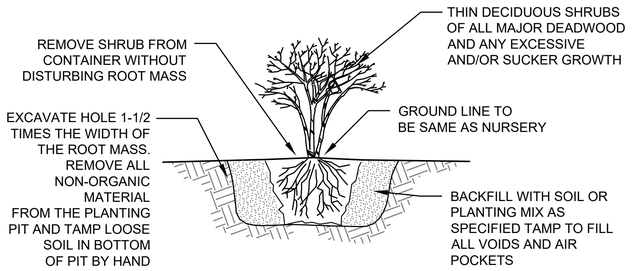
IMS - AN INDIVIDUAL MINIMUM SPACING DISTANCES *IMS* IS ASSIGNED TO EACH INDIVIDUAL SPECIES *SEE PLANT SCHEDULE*

NOTE: EACH SYMBOL INDICATES A DIFFERENT SPECIES

PLANT SPACING - RANDOM

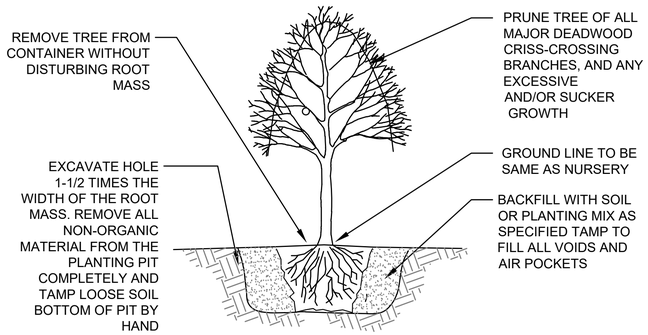
NOT TO SCALE

PLAN VIEW



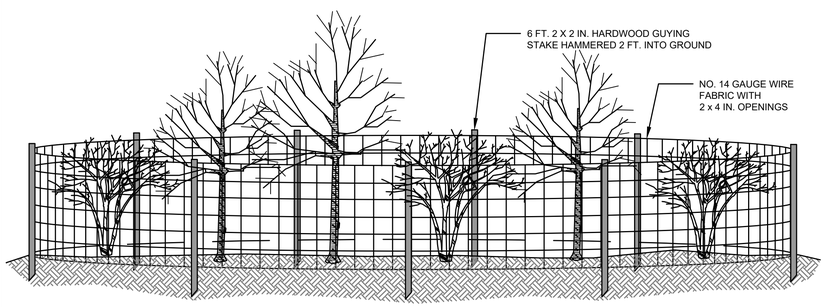
SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE



TREE PLANTING - CONTAINER GROWN

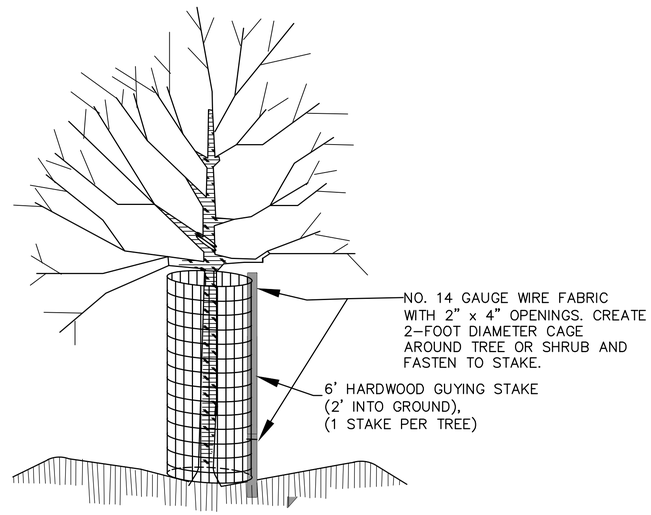
NOT TO SCALE



NOTES:
1. WELDED WIRE HERBIVORY PROTECTION CAGES TO BE INSTALLED AROUND ALL SHRUB CLUSTERS (SEE PLANTING PLAN).
2. HEIGHT OF CAGE SHALL BE 48 INCHES.
3. CAGE SHALL BE FASTENED TO 2 X 2 IN. HARDWOOD GUYING STAKES, EACH WITH TWO (MIN.) 11-INCH RELEASABLE CABLE TIES (ONE AT TOP AND ONE 6 IN. (MIN.) ABOVE THE GROUND.
4. STAKES SHALL BE SPACED EVERY 8 FT. AROUND PERIMETER OF CAGE.
5. DO NOT DAMAGE PLANT MATERIAL DURING INSTALLATION.
6. CANOPY TREES MAY BE INSTALLED WITHIN CAGES.
7. CAGES TO BE REMOVED AT DIRECTION OF THE OWNER.
8. ENSURE CAGE IS SECURE TO GROUND TO PREVENT UPLIFT BY DEER.

WELDED WIRE HERBIVORY PROTECTION CAGE

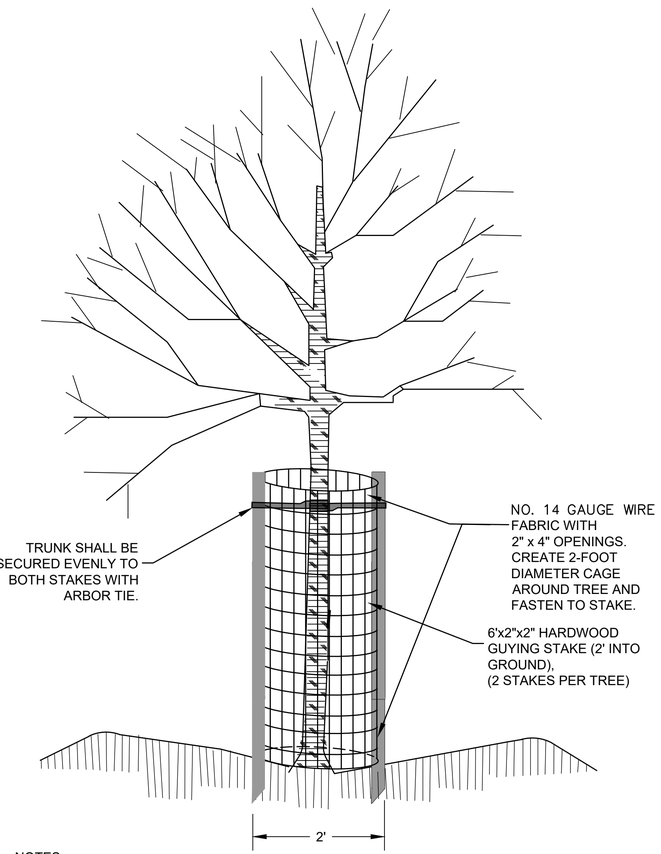
NOT TO SCALE



NOTES:
1. DEER PROTECTION CAGES TO BE INSTALLED AROUND ALL PLANTED TREES.
2. HEIGHT OF CAGE SHALL BE 4-FEET (MIN.)
3. CAGE SHALL BE FASTENED TO STAKE WITH TWO (MIN.) 11-INCH RELEASABLE CABLE TIES (ONE AT TOP AND ONE 6" (MIN.) ABOVE THE GROUND.)
4. DO NOT DAMAGE TREE DURING INSTALLATION.
5. DEER BARK PROTECTORS (ITEM #bg48, BY A.M. LEONARD, OR EQUAL) MAY BE SUBSTITUTED FOR TREES GREATER THAN 3/4" CALIPER. ALL OTHER SUBSTITUTIONS MUST BE APPROVED BY LANDSCAPE ARCHITECT.
6. CAGES TO BE REMOVED AT DIRECTION OF FOREST ECOLOGIST.
7. ENSURE CAGE IS SECURE TO GROUND TO PREVENT UPLIFT BY DEER.

DEER PROTECTION CAGE

NOT TO SCALE



NOTES:
1. ALL TREES SHALL BE STAKED WITH TWO (2) 6'X2"X2" HARDWOOD STAKES AND SECURED WITH ARBOR TIE. DEER PROTECTION CAGES SHALL BE ADDED TO ALL STANDALONE TREES OUTSIDE OF BIORETENTION BOTTOM, SIDESLOPE, AND PERENNIAL MEADOW PLANTING ZONES.
2. HEIGHT OF DEER PROTECTION CAGE SHALL BE 4-FEET (MIN.)
3. CAGE SHALL BE FASTENED TO STAKES WITH TWO (MIN.) 11-INCH RELEASABLE CABLE TIES (ONE AT TOP AND ONE 6" (MIN.) ABOVE THE GROUND.
4. DO NOT DAMAGE TREE DURING INSTALLATION.
5. CAGES, ARBOR TIE AND STAKES TO BE REMOVED AT DIRECTION OF LANDSCAPE ARCHITECT.
6. ENSURE CAGE IS SECURE TO GROUND TO PREVENT UPLIFT.

M-NCPPC TREE IMPACT MITIGATION AND ROW PLANTING STAKING AND DEER PROTECTION

NOT TO SCALE

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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PLANTING DETAILS

PROJECT NO.: 23006.01	SCALE: NTS	
SEAL: STATE OF MARYLAND · MARK K. TALLEY · 52717 · PROFESSIONAL ENGINEER · 01/27/2025	BY: SF/NW	CHECK: KT
	DWG. NO.: 33 OF 34	

PLANT COMPOSITION SCHEDULE

Piedmont Floodplain Forest

Size (acres): 1.89

Overall Average Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Stratum/ Species Name[1]	Common Name	Unit	Spacing Type	Height	Individual Minimum Spacing (ft.)
15	194			**TREES**					
		10	37	*Betula nigra*	River birch	CON (#7)	Random	6-8 ft.	47
		15	55	*Carpinus caroliniana*	American hornbeam	CON (#7)	Random	6-8 ft.	39
		5	18	*Nyssa sylvatica*	Black gum	CON (#7)	Random	6-8 ft.	68
		10	37	*Platanus occidentalis*	American sycamore	CON (#7)	Random	6-8 ft.	47
		20	73	*Quercus alba*	White oak	CON (#7)	Random	6-8 ft.	34
		20	73	*Quecus bicolor*	Swamp white oak	CON (#7)	Random	6-8 ft.	34
		10	37	*Quercus michauxii*	Swamp chestnut oak	CON (#7)	Random	6-8 ft.	47
		10	37	*Quercus phellos*	Willow oak	CON (#7)	Random	6-8 ft.	47
		100	**367**	**= total**					
8	681			**SHRUBS**					
		10	129	*Hamamaelis virginiana*	Witch hazel	CON (#3)	Clusters of 7[2]	18-36 in.	N/A
		15	193	*Hydrangea arborescens*	Smooth hydrangea	CON (#3)	Clusters of 7	18-36 in.	N/A
		15	193	*Ilex verticillata*	Winterberry	CON (#3)	Clusters of 7	18-36 in.	N/A
		15	193	*Itea virginica*	Virginia sweetspire	CON (#3)	Clusters of 7	18-36 in.	N/A
		20	257	*Lindera benzoin*	Spicebush	CON (#3)	Clusters of 7	18-36 in.	N/A
		15	193	*Viburnum dentatum*	Arrowwood	CON (#3)	Clusters of 7	18-36 in.	N/A
		10	129	*Viburnum nudum*	Smooth witherod	CON (#3)	Clusters of 7	18-36 in.	N/A
		100	**1287**	**= total**					
N/A	20			**NATIVE SEED**					
		100	38	*Floodplain Mix - ERNMX - 154*		LBS of P.L.S. 76 %	N/A	N/A	N/A
		100	**38**	**= total**					
N/A	30			**COVER CROP SEED**					
		100	57	*Secale cereale*	Grain rye	LBS of P.L.S. 76 %	N/A	N/A	N/A
		100	**57**	**= total**					

NOTES:
[1]If species or material type (e.g. size, etc.) substitutions are necessary, consult with landscape architect prior to determinations.
[2]Plant species randomly in clusters of seven (7) at a 5-ft. o/c spacing between each individual shrub within clusters; canopy trees may be planted within clusters
CON = container; P.L.S. = pure live seed

PLANT COMPOSITION SCHEDULE

Piedmont Floodplain Forest Understory

Size (acres): 0.39

Overall Average Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Stratum/ Species Name[1]	Common Name	Unit	Spacing Type	Height	Individual Minimum Spacing (ft.)
8	681			**SHRUBS**					
		10	26	*Hamamaelis virginiana*	Witch hazel	CON (#3)	Clusters of 7[2]	18-36 in.	N/A
		15	40	*Hydrangea arborescens*	Smooth hydrangea	CON (#3)	Clusters of 7	18-36 in.	N/A
		15	40	*Ilex verticillata*	Winterberry	CON (#3)	Clusters of 7	18-36 in.	N/A
		15	40	*Itea virginica*	Virginia sweetspire	CON (#3)	Clusters of 7	18-36 in.	N/A
		20	53	*Lindera benzoin*	Spicebush	CON (#3)	Clusters of 7	18-36 in.	N/A
		15	40	*Viburnum dentatum*	Arrowwood	CON (#3)	Clusters of 7	18-36 in.	N/A
		10	26	*Viburnum nudum*	Smooth witherod	CON (#3)	Clusters of 7	18-36 in.	N/A
		100	**265**	**= total**					
N/A	20			**NATIVE SEED**					
		100	8	*Floodplain Mix - ERNMX - 154*		LBS of P.L.S. 76 %	N/A	N/A	N/A
		100	**8**	**= total**					
N/A	30			**COVER CROP SEED**					
		100	12	*Secale cereale*	Grain rye	LBS of P.L.S. 76 %	N/A	N/A	N/A
		100	**12**	**= total**					

NOTES:
[1]If species or material type (e.g. size, etc.) substitutions are necessary, consult with landscape architect prior to determinations.
[2]Plant species randomly in clusters of seven (7) at a 5-ft. o/c spacing between each individual shrub within clusters; canopy trees may be planted within clusters
CON = container; P.L.S. = pure live seed

PLANT COMPOSITION SCHEDULE

M-NCPPC Tree Impact Mitigation Plantings

Quantity	Vegetation Stratum/ Species Name[1]	Common Name	Symbol	Unit	Spacing Type	Height[2]
	TREES					
2	*Quercus alba*	White oak	Qa	3-INCH CAL	See Plan	8-12 ft.
5	*Quecus bicolor*	Swamp white oak	Qb	3-INCH CAL	See Plan	8-12 ft.
3	*Quecus coccinea*	Scarlet oak	Qc	3-INCH CAL	See Plan	8-12 ft.
2	*Quercus michauxii*	Swamp chestnut oak	Qm	3-INCH CAL	See Plan	8-12 ft.
4	*Quercus palustris*	Pin oak	Qpa	3-INCH CAL	See Plan	8-12 ft.
3	*Quercus phellos*	Willow oak	Qph	3-INCH CAL	See Plan	8-12 ft.
2	*Quercus rubra*	Northern read oak	Qr	3-INCH CAL	See Plan	8-12 ft.
21	**= total**					

NOTES:
[1]If species or material type (e.g. size, etc.) substitutions are necessary, consult with landscape architect prior to determinations
[2]Specific heights may vary; range provided as general guideline
[3]All 3-inch CAL trees to be staked and encircled with a welded wire herbivory cage (see detail in plan set)
CAL = caliper

PLANT COMPOSITION SCHEDULE

ROW Plantings

Quantity	Vegetation Stratum/ Species Name[1]	Common Name	Symbol	Unit	Spacing Type	Height[2]
	TREES					
1	*Cercis canadensis*	Eastern redbud	Cc	1-INCH CAL	See Plan	8-10 ft.
1	*Ostrya virginiana*	Ironwood	Ov	1-INCH CAL	See Plan	8-10 ft.
2	**= total**					

NOTES:
[1]If species or material type (e.g. size, etc.) substitutions are necessary, consult with landscape architect prior to determinations
[2]Specific heights may vary; range provided as general guideline
[3]All 1-inch CAL trees to be staked and encircled with a welded wire herbivory cage (see detail in plan set)
CAL = caliper

PLANT COMPOSITION SCHEDULE

Live Stakes

Size (acres)[2]: 0.18

Overall Average Minimum Spacing (ft.)	Quantity per Acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name[1]	Common Name	Unit	Spacing Type	Size (Diameter)
2	10890			**LIVE STAKES**				
		20	390	*Alnus serrulata*	Tag alder	36 in. live stake	Random	0.5" - 1.5"
		20	390	*Cornus amomum*	Silky dogwood	36 in. live stake	Random	0.5" - 1.5"
		20	390	*Cornus sericea*	Red-osier dogwood	36 in. live stake	Random	0.5" - 1.5"
		20	390	*Salix nigra*	Black willow	36 in. live stake	Random	0.5" - 1.5"
		20	390	*Sambucus canadensis*	Elderberry	36 in. live stake	Random	0.5" - 1.5"
		100	**1950**	**= total**				

NOTES:
[1]If species or material type (e.g. size, etc.) substitutions are necessary, consult with landscape architect prior to determinations.
[2]Live Staking area consists of an approximate 4-ft. wide zone beginning at the bottom of the stream bank extending up the banks toward the floodplain on each side of the main stem channel excluding stream banks at riffle features

PLANT COMPOSITION SCHEDULE

Turfgrass

Size (acres): 0.08

Overall Minimum Spacing (ft.)	LBS per acre	Frequency (%)	Seed Quantity (LBS)	Turfgrass Seed Composition
N/A	Per SHA Section 705*	100	Per SHA Section 705*	**Per SHA Section 920.06.07(a)***

*Reference *Maryland Department of Transportation State Highway Administration (SHA) Standard Specification for Construction and Materials* (July 2023 or latest version)
Notes:
1. Use straw mulch in Turfgrass zone
2. Do not apply fertilizer in Turfgrass zone

CLIENT

RES
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GLEN BURNIE, MD 21061
301.850.0448

DATE:	ISSUES / REVISIONS
DD/MM/YYYY	SUBMISSION DESCTRIPTION

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Restore the Earth & Inspire Ecological Stewardship

BUCKHORN BRANCH STREAM RESTORATION

TITLE:

PLANTING SCHEDULES

PROJECT NO.: 23006.01
SCALE: NTS
SEAL:
BY: SF/NW
CHECK: KT
DWG. NO.: