CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
APRIL 2022

SCHENKS BRANCH TRIBUTARY PROJECT INFORMATION

PROJECT TYPE: WATERSHED IMPROVEMENT VIA STREAM RESTORATION
PROJECT ADDRESS: 950 MELBOURNE RD, CHARLOTTESVILLE, VA 22902
SITE ZONING: R-1
PARCEL IDS: 450001000, 460001200, 460002000
NEIGHBORHOOD: GREENBRIER
CONSTRUCTION ENTRANCE (WGS84): 38.0502966, -78.471797
PROJECT AREA: 2.55 AC
DISTURBED AREA: 2.55 AC
VMRC FILE #: 22-0847

REQUIRED PERMITS FOR CONSTRUCTION

CITY OF CHARLOTTESVILLE LAND DISTURBANCE PERMIT
USACE NWP27 ACTION ID: NAO-2021-02291
VADEQ GENERAL CONSTRUCTION PERMIT

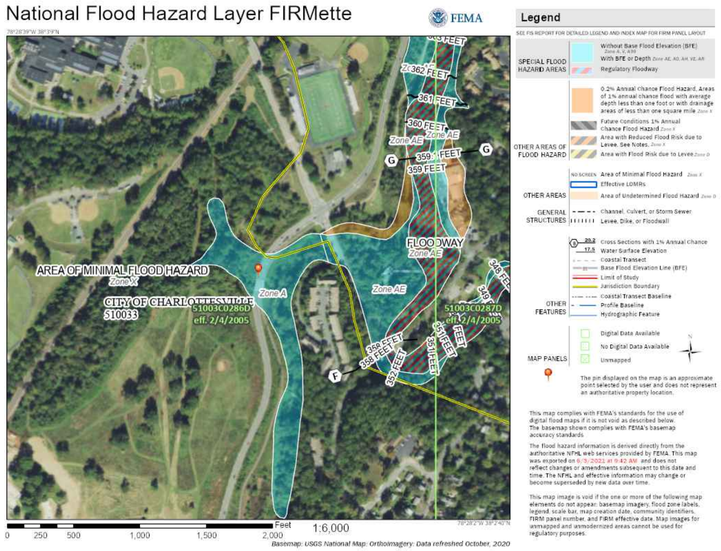
PROJECT CONTACT INFORMATION

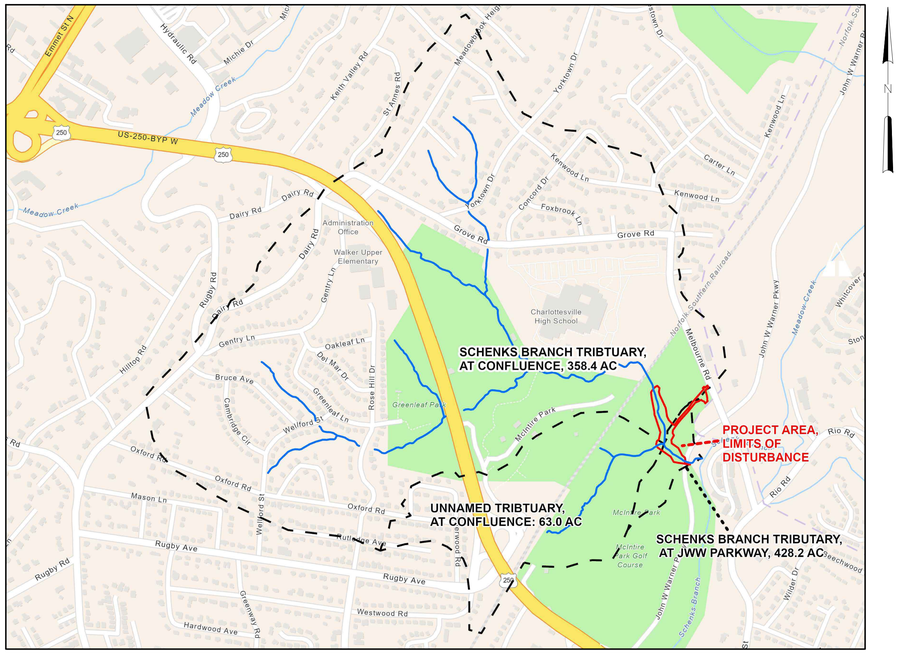
OWNER, PROJECT MANAGER
DAN FRISBEE
CITY OF CHARLOTTESVILLE
DEPARTMENT OF PUBLIC WORKS
305 4TH STREET NW
CHARLOTTESVILLE, VA 22903
FRISBEE@CHARLOTTESVILLE.GOV
434-970-3997

OWNER, EMERGENCY CONTACT
ROY NESTER, P.E.
CITY OF CHARLOTTESVILLE
DEPARTMENT OF UTILTIES
305 4TH STREET NW
CHARLOTTESVILLE, VA 22903
NESTERR@CHARLOTTESVILLE.GOV
434-970-3908
434-970-3800 (UTILITIES DISPATCH)

ENGINEER
TY SMITH, P.E.
HAZEN & SAWYER
TSMITH@HAZENANDSAWYER.COM
470-427-7186

National Flood Hazard Layer FIRMette





VICINITY MAP
NTS

DRAWING INDEX	
DRAWING NUMBER	DRAWING TITLE
GENERAL	
G1	COVER SHEET AND DRAWING INDEX
G2	ABBREVIATION, CIVIL LEGEND, GENERAL NOTES
G3	EROSION AND SEDIMENT CONTROL NOTES
CIVIL	
C1	SCHENKS BRANCH TRIBUTARY SITE KEY MAP
C2	EXISTING CONDITIONS SURVEY AND DEMOLITION PLANS - 1 OF 3
C3	EXISTING CONDITIONS SURVEY AND DEMOLITION PLANS - 2 OF 3
C4	EXISTING CONDITIONS SURVEY AND DEMOLITION PLANS - 3 OF 3
C5	TREE REMOVAL TABLES
C6	STREAM CENTERLINE STAKE-OUT PLAN & TABLE
C7	SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PLAN AND PROFILE - 1 OF 2
C8	SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PLAN AND PROFILE - 2 OF 2
C9	UNNAMED TRIBUTARY STREAM RESTORATION PLAN AND PROFILE
C10	STREAM PROFILE AND STRUCTURE TABLE
C11	CROSS SECTION INDEX
C12	SCHENKS BRANCH TRIBUTARY STREAM RESTORATION CROSS SECTIONS
C13	UNNAMED TRIBUTARY STREAM RESTORATION CROSS SECTIONS
C14	INITIAL PHASE, EROSION AND SEDIMENT CONTROL PLANS
C15	FINAL PHASE, EROSION AND SEDIMENT CONTROL PLANS
C16	LANDSCAPING PLAN - 1 OF 2
C17	LANDSCAPING PLAN - 2 OF 2
DETAILS	
CD1	TYPICAL STREAM CROSS SECTIONS
CD2	ROCK SIZING TABLE
CD3	RIFFLE GRADE CONTROL STRUCTURE
CD4	CROSS VANE
CD5	J-HOOK VANE
CD6	TOE WOOD
CD7	SOIL LIFT
CD8	ROCK CASCADE
CD9	EROSION AND SEDIMENT CONTROL DETAILS - 1 OF 3
CD10	EROSION AND SEDIMENT CONTROL DETAILS - 2 OF 3
CD11	EROSION AND SEDIMENT CONTROL DETAILS - 3 OF 3
CD12	POLLUTION PREVENTION PLAN
CD13	LANDSCAPING DETAILS
CD14	LANDSCAPING NOTES AND PERMANENT SEED MIX
CD15	LANDSCAPING SCHEDULE

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

COMMONWEALTH OF VIRGINIA
CHRISTOPHER W. TABOR
Lic. No. 033020
2022.05.01 12:40:21-04'00'
PROFESSIONAL ENGINEER

100% DESIGN - ISSUED FOR CONSTRUCTION

2022.05.02 09:33:13-04'00'

SYMBOLOGY LEGEND

EXISTING

- 100YR — 100-YR FLOODPLAIN
- 100 — CONTOUR
- GIS CONTOUR
- PROPERTY LINE
- EASEMENT
- SS — SANITARY SEWER
- SD — STORM PIPE
- STREAM CL
- X — FENCE
- OHE — OVERHEAD ELECTRIC
- GAS — GAS PIPE
- ROAD
- TREE LINE
- BENCHMARK
- G — GAS MARKER
- GATE POST
- GUY WIRE
- LIGHT POLE
- UTILITY POLE
- PK — TELEPHONE CABINET
- TREE
- S — SANITARY SEWER MANHOLE
- SOIL BORING
- D — STORM MANHOLE
- ASPHALT PATH
- GRAVEL PATH
- RIPRAP
- WETLAND

PROPOSED

- 100YR — 100-YR FLOODPLAIN
- 250 — CONTOUR MAJOR
- 251 — CONTOUR MINOR
- LOD — LOD — LOD — LIMITS OF DISTURBANCE
- LOD/TPF — LIMITS OF DISTURBANCE / TREE PROTECTION FENCE
- 0+00 — STREAM CL
- CROSS VANE
- BURIED STONES, TYP
- J-HOOK LOG VANE WITH ROOT WAD
- RIFFLE GRADE CONTROL
- ROCK CASCADE
- SOIL LIFT
- TOE WOOD

ABBREVIATIONS

ABD	ABANDONED
B	BORING
BI	BID ITEM
BKF	BANKFULL
BP	BEGINNING POINT
C	CASCADE
CI	CURB INLET
CW	CROSS WEIR
DBH	DIAMETER AT BREAST HEIGHT
EP	END POINT
ESC	EROSION & SEDIMENT CONTROL
EW	ENDWALL
EX	EXISTING
FB	FILTER BAG
FES	FLARED END SECTION
H&S	HAZEN AND SAWYER
HW	HEADWALL
INV	INVERT
IRW	IMBRICATED ROCK WALL
JH	J-HOOK VANE
LOD	LIMIT OF DISTURBANCE
MA	MANHOLE ARMORING
MH	MANHOLE
P	POOL, PUMP
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PL	PLUNGE POOL
PRC	POINT OF REVERSE CURVE
PROP	PROPOSED
PT	POINT OF TANGENT
RGC	RIFFLE GRADE CONTROL
RCP	REINFORCED CONCRETE PIPE
ROE	RIGHT-OF-ENTRY
ROP	ROCK OUTLET PROTECTION
ROW	RIGHT-OF-WAY
RP	ROCK PACK
SAN	SANITARY
SBM	STREAM BED MATERIAL
SCE	STABILIZED CONSTRUCTION ENTRANCE
SDMH	STORM MANHOLE
SF	SILT FENCE
SP	STEP POOL
SPSC	STEP POOL STORM CONVEYANCE
SSF	SUPER SILT FENCE
TPA	TEMPORARY PUMP AROUND
TPF	TREE PROTECTION FENCE
TW	TOE WOOD
Wbkf	MEASURE BANKFULL WIDTH
WC	WETLAND CELL
YR	YEAR

DEMOLITION

- TREE TO BE REMOVED
- DIRT TRAIL TO BE REMOVED

EROSION AND SEDIMENT CONTROL

- FILTER BAG
- CIP — INLET PROTECTION
- SA — STAGING AREA
- PA — PUMP
- ROP — OP — ROCK OUTLET PROTECTION
- SB — SAND BAG DIVERSION
- SF — SF — SILT FENCE
- TPA — PA — TEMPORARY PUMP AROUND
- TPF — TR — TREE PROTECTION FENCE
- CE — STABILIZED CONSTRUCTION ENTRANCE
- B/M — COIR MAT BIOD 70
- CRS — ACCESS PATH
- STRAW AND SEED
- MU — MULCH
- TS — TEMPORARY SEED
- PS — PERMANENT SEED
- TO — TOPSOILING

REVEGETATION / PLANTING ZONES AND STABILIZATION

- ZONE 1 - STREAM TOE TO BACK OF BANKFULL BENCH
- ZONE 2 - BACK OF BANKFULL BENCH TO EDGE OF GRADING
- ZONE 3 - EDGE OF GRADING TO EDGE OF DISTURBANCE
- ZONE 4 - SANITARY SEWER EASEMENT AND TEMPORARY CONSTRUCTION ROADWAY

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AND DIMENSIONS WHERE NEW WORK WILL MATCH EXISTING. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE COMMENCEMENT OF WORK.
2. CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS FROM THE APPROPRIATE AUTHORITIES, DEPARTMENTS, AND/OR AGENCIES HAVING JURISDICTION PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL TAKE CARE TO AVOID DAMAGE TO EXISTING PAVEMENT, TREES, VEGETATION, STRUCTURES, AND UTILITIES THAT ARE NOT INDICATED TO BE DEMOLISHED OR REMOVED. ANY DAMAGE TO EXISTING PAVEMENT, TREES, VEGETATION, STRUCTURES, AND UTILITIES NOT INDICATED TO BE DEMOLISHED OR REMOVED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
4. UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEY INFORMATION AND RECORD DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND TO AVOID DAMAGE TO THEM. THE CONTRACTOR SHALL CONTACT VIRGINIA 811 AT PHONE NUMBER 811 OR 1-800-552-7001 TO REQUEST UNDERGROUND UTILITY LOCATION MARK-OUT AT LEAST THREE (3) WORKING DAYS BUT NO MORE THAN TEN (10) WORKING DAYS PRIOR TO BEGINNING EXCAVATION, INCLUDING SOIL DRILLING. THE CONTRACTOR SHALL ALSO CONTACT AND REQUEST UTILITY LOCATION MARK-OUT FROM BURIED UTILITY OWNERS WITH UTILITIES ON THE PROJECT SITE THAT ARE NOT PARTICIPANTS OF VIRGINIA 811.
5. WHERE PROPOSED WORK IS IN THE VICINITY OF UTILITY POLES, SUCH THAT SUPPORT OF THE POLE(S) WILL BE REQUIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE UTILITY OF THE WORK. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE UTILITY FOR SUPPORT OF THE POLE.
6. WHERE OVERHEAD POWER LINES ARE PRESENT, CONTRACTOR MUST CONTACT THE UTILITY PRIOR TO CONSTRUCTION ACTIVITIES TO DETERMINE THE MINIMUM REQUIRED EQUIPMENT CLEARANCE (MEC) DISTANCE BASED UPON LINE STRENGTH.
7. DURING EXCAVATION AND PLACEMENT OF UTILITIES THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS AND SHALL SUBMIT TO THE ENGINEER FOR APPROVAL SHEET PILING, SHORING AND/OR BRACING DESIGNS PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF VIRGINIA AS MAY BE NECESSARY TO COMPLY WITH THESE REGULATIONS.
8. ALL MATERIALS, CONSTRUCTION METHODS, AND WORKMANSHIP SHALL CONFORM WITH THE LATEST VERSION OF THE FOLLOWING STANDARDS: CITY OF CHARLOTTESVILLE STANDARDS AND DESIGN MANUAL (LATEST EDITION).
9. GROUNDWATER FROM ALL DE-WATERING OPERATIONS SHALL BE DISCHARGED THROUGH A SEDIMENT FILTERING DEVICE TO AN ENVIRONMENTALLY ACCEPTABLE LOCATION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER.
10. ALL TEMPORARY FACILITIES ARE SUBJECT TO THE SAME HEALTH AND SAFETY REQUIREMENTS AS PERMANENT FACILITIES, AS SPECIFIED IN THE CONTRACT DOCUMENTS AND HEALTH SAFETY PLAN (HASP), IF PRESENT.
11. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEBRIS GENERATED DURING THE PROJECT OFF SITE AT A PROPERLY PERMITTED DISPOSAL FACILITY.
12. CONTRACTOR SHALL MAKE EVERY EFFORT TO SAVE AND MAINTAIN ALL PROPERTY IRONS, MONUMENTS, OTHER PERMANENT POINTS AND LINES OF REFERENCE AND CONSTRUCTION STAKES. A STATE OF VIRGINIA REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE SHALL REPLACE PROPERTY IRONS, MONUMENTS, AND OTHER PERMANENT POINTS OF REFERENCE DESTROYED BY THE CONTRACTOR.
13. CONTRACTOR SHALL ABIDE BY ALL APPLICABLE OSHA REGULATIONS.

CONTRACTOR REQUIREMENTS:

1. WORK REQUIRED UNDER THIS CONTRACT INCLUDES FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED FOR THE CONSTRUCTION OF THE SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT. THE PURPOSE OF THIS PROJECT IS TO STABILIZE STREAM BANKS AND IMPROVE WATER QUALITY. WORK SHALL INCLUDE GRADING, IN-STREAM STRUCTURES, PLANTING, APPLICABLE PERMITS, AND EROSION CONTROL MEASURES.
2. GENERAL CONTRACTORS BIDDING AND WORKING ON THIS PROJECT MUST BE VIRGINIA LICENSED CONTRACTORS.
3. THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF THE EXISTING SUBSURFACE CONDITIONS. ANY SUBSURFACE INVESTIGATION REPORTS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. EXISTING SOIL CONDITIONS ON THE PROJECT SITE MAY INCLUDE AREAS OF SATURATED SOILS. CONTRACTOR SHALL INCLUDE PROVISIONS FOR WORKING WITH WET SOILS IN HIS BID.
4. CONTRACTOR SHALL VERIFY WORK IN THE FIELD AND SHALL SATISFY HIMSELF AS TO THE ACCURACY BETWEEN WORK SET FORTH ON THESE PLANS AND THE WORK REQUIRED IN FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE IN WRITING AT LEAST SEVEN DAYS PRIOR TO THE START OF CONSTRUCTION.
5. CONTRACTOR SHALL HAVE AN APPROVED SET OF PLANS, SHOP DRAWINGS, AND SPECIFICATIONS ON THE JOBSITE AT ALL TIMES. SURVEY EQUIPMENT MUST BE KEPT ON SITE AT ALL TIMES

SURVEY INFORMATION:

1. THE BASE SURVEY INFORMATION FOR THIS SITE WAS PERFORMED BY DRAPER ADEN ASSOCIATES FROM CHARLOTTESVILLE, VIRGINIA (434-295-0700) UNDER THE SUPERVISION OF C.A. STOCKTON (PLS LIC NO. 02425) IN JULY 2021. SURVEY HORIZONTAL AND VERTICAL CONTROLS ARE BASED ON VIRGINIA STATE PLANE SOUTH NAD83 AND NAVD88. SITE CONDITIONS MAY HAVE CHANGED FROM THOSE SHOWN IN THESE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING.
2. TOPOGRAPHIC DATA SHOWN ON THESE PLANS IS FOR THE INFORMATION OF THE CONTRACTOR. THE CONTRACTOR SHALL MAKE SUCH ADDITIONAL INVESTIGATIONS AS REQUIRED TO ACQUAINT HIMSELF ADEQUATELY WITH THE SITE'S TOPOGRAPHY AND SUBSURFACE CONDITIONS FOR THE PREPARATION OF HIS BID AND FOR THE SUCCESSFUL EXECUTION OF HIS WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SURVEY REQUIREMENTS OF THIS PROJECT AND SHALL USE A VIRGINIA LICENSED LAND SURVEYOR.
4. THE BASE SURVEY INFORMATION FOR THIS SITE WAS PERFORMED BY DRAPER ADEN ASSOCIATES FROM CHARLOTTESVILLE, VA (434-295-0700) BETWEEN JUNE 2021 AND SEPTEMBER 2021. SITE CONDITIONS MAY HAVE CHANGED FROM THOSE SHOWN IN THESE DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING.
5. SURVEY HORIZONTAL AND VERTICAL CONTROL BASED ON VIRGINIA STATE PLANE SOUTH NAD83 AND NAVD 88. ALL STATIONING AND DISTANCES INDICATED ON THE DRAWINGS ARE BASED ON HORIZONTAL MEASUREMENTS.
6. SURVEY MONUMENTS DISTURBED BY THE CONTRACTOR SHALL BE RESET BY A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF VIRGINIA. PRIOR TO DISTURBANCE, CONTACT MONUMENT OWNER TO VERIFY LOCATION OF EXISTING MONUMENT.
7. GIS CONTOURS BEYOND FIELD SURVEY ARE FROM 2018 AND WERE PROVIDED BY THE CITY OF CHARLOTTESVILLE. CONTOURS BEYOND FIELD SURVEY ARE PROVIDED FOR REFERENCE ONLY.
8. CONTRACTOR SHALL NOT DISTURB AREA WITHIN THE NORFOLK SOUTHERN RIGHT OF WAY.

PERMITTING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING CITY LAND DISTURBANCE PERMIT, AND ADHERING TO ALL CITY, STATE, AND FEDERAL PERMIT REQUIREMENTS, AND SHALL MAKE ALL NOTIFICATIONS AS REQUIRED.CONTRACTOR SHALL COORDINATE WITH OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
2. THE STREAM THAT IS BEING IMPROVED AS PART OF THIS PROJECT IS LIKELY JURISDICTIONAL WATERS OF THE UNITED STATES. THE EXTENTS OF THE JURISDICTIONAL WATERS ARE SHOWN ON THE OVERALL SITE PLAN. A NATIONWIDE PERMIT FROM THE US ARMY CORPS OF ENGINEERS IS REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR SHALL OBTAIN AND PROVIDE PROOF OF COVERAGE UNDER THE STATE CONSTRUCTION GENERAL PERMIT. A DRAFT SWPPP IS PROVIDED AS PART OF THE CONTRACT DOCUMENTS WHICH SHALL BE UPDATED BY THE CONTRACTOR FOR SUBMISSION AND USE.

STORMWATER NOTES:

1. FLOODPLAIN AND REGULATORY FLOODWAY EXISTS AS SHOWN ON FIRM PANEL 51003C0286D, EFFECTIVE FEBRUARY 4, 2005.
2. IT WAS DETERMINED BY THE ENGINEER THAT THERE ARE WETLANDS LOCATED ON THE PROJECT SITE.
3. WETLAND CERTIFICATION: THE DESIGN PROFESSIONAL, WHOSE SEAL APPEARS HEREON, CERTIFIES THE FOLLOWING: 1) THE NATIONAL WETLAND INVENTORY MAPS HAVE BEEN CONSULTED; AND, 2) THE APPROPRIATE PLAN DRAWING DOES INDICATE AREAS OF UNITED STATES ARMY CORPS OF ENGINEERS JURISDICTIONAL WETLANDS AS SHOWN ON THE MAPS; AND, 3) IF WETLANDS ARE INDICATED, THE LAND OWNER OR DEVELOPER HAS BEEN ADVISED THAT LAND DISTURBANCE OF PROTECTED WETLANDS SHALL NOT OCCUR UNLESS THE APPROPRIATE FEDERAL WETLANDS ALTERATION (SECTION 404) PERMIT HAS BEEN OBTAINED.
4. MAXIMUM SLOPE FOR CUT OR FILL IS 2H:1V UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
5. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL BY THE CITY OF CHARLOTTESVILLE OF ANY LAND DISTURBING ACTIVITIES WITHIN WETLAND AREAS. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER TO CONTACT THE APPROPRIATE REGULATORY AGENCY FOR APPROVAL OF ANY WETLAND AREA DISTURBANCE.

UTILITY NOTES:

1. THE EXISTING UTILITIES SHOWN AND INDICATED ON THE DRAWINGS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING UNDERGROUND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR DISRUPTION OF UTILITY SERVICE DURING CONSTRUCTION. THE CONTRACTOR SHALL CONTACT MISS UTILITY OR VIRGINIA 811 AND/OR OWNERS OF THE UTILITIES TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. CONTRACTOR IS TO MAINTAIN CONTINUOUS UTILITY SERVICES TO ALL LOCATIONS IN THE PROJECT AREA.
3. THE CONTRACTOR SHALL PROVIDE ACCESS TO UTILITY COMPANIES FOR MAINTENANCE AND WORK ON THEIR UTILITIES DURING THE COURSE OF CONSTRUCTION.
4. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES WHOSE LINES ARE WITHIN THE PROJECT AREA, PRIOR TO CONSTRUCTION, AND SHALL COORDINATE ANY RELOCATION OF THE EXISTING UTILITIES. UNLESS OTHERWISE SPECIFIED ON THE PLANS, ANY CONFLICTS WITH THE EXISTING UTILITIES WHICH ARE NOT NOTED ON THE PLANS SHALL BE RESOLVED BETWEEN THE CONTRACTOR AND THE RESPECTIVE UTILITY COMPANY AT NO COST TO THE OWNER. ALL SUCH RELOCATIONS SHALL BE NOTED ON THE AS-BUILT DRAWINGS.
5. BEFORE BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL UTILITIES FROM DAMAGE CAUSED BY CONTRACTOR'S OPERATIONS AND/OR RELATED WORK OF THE CONTRACTOR OR HIS AGENT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS TO DAMAGED UTILITIES AT HIS OWN EXPENSE. CONTRACTOR SHALL HOLD HARMLESS THE ENGINEER AND THE OWNER FOR ANY INCONVENIENCE OR DELAY CAUSED BY THE OPERATIONS OF OTHERS IN PERFORMING THE ABOVE WORK.THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHERS TO PROVIDE SATISFACTORY PROGRESS IN THE PROJECT AREA.
6. UTILITY LATERALS ARE SPECIFICALLY EXCLUDED FROM THESE DRAWINGS. THESE UTILITY LATERALS INCLUDE BURIED WATER, SEWER, GAS, ELECTRIC, TELEVISION AND TELEPHONE SERVICES, STREET LIGHTING, AND TRAFFIC LOOP DETECTORS. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL SUCH FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL SUCH FACILITIES THAT ARE DAMAGED DURING CONSTRUCTION. PAYMENT FOR LOCATING, PROTECTING, COORDINATING, AND REPAIRING EXISTING FACILITIES WILL BE INCLUDED IN OTHER ITEMS OF WORK AND NO ADDITIONAL COMPENSATION WILL BE MADE THEREFORE ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH STANDARDS AND REQUIREMENTS OF THE UTILITY OWNER. UTILITY SUPPORT METHODS SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION FOR APPROVAL.

VEGETATION DISTURBANCE:

1. TREES SHALL NOT BE DAMAGED OR REMOVED UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR APPROVED IN WRITING BY OWNER'S REPRESENTATIVE. LANDSCAPING NOT DESIGNATED FOR REMOVAL THAT IS DAMAGED DURING CONSTRUCTION SHALL BE RESTORED WITH THE SAME VARIETIES AND AGE OF EXISTING LANDSCAPE VEGETATION AND PLANTS. THE CONTRACTOR SHALL NOT DISTURB AND SHALL PROTECT ALL TREES AND SHRUBS OUTSIDE OF CONSTRUCTION LIMITS, IN ADDITION TO THOSE THAT RECEIVE ORANGE BARRIER FENCE INSIDE PROJECT LIMITS.
2. THE CONTRACTOR SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO PREVENT INJURY TO EXISTING VEGETATION THAT IS TO REMAIN GROWING. IF ANY INJURIES TO VEGETATION OCCUR, BROKEN BRANCHES SHALL BE REMOVED AND ROUGH EDGES AND SCARRED LIMBS SHALL BE SHAPED, MADE SMOOTH, AND OTHERWISE REPAIRED. ANY VEGETATION THAT IS DAMAGED TO SUCH AN EXTENT AS TO DESTROY THEIR VALUE FOR LANDSCAPE PURPOSES SHALL BE REMOVED, DISPOSED OF, AND REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE. GRASS OR GROUND COVER THAT IS DAMAGED SHALL BE SEEDED AND MULCHED AND/OR SODDED TO MATCH EXISTING AGE AND SPECIES BY THE CONTRACTOR AT HIS OWN EXPENSE.
3. CONSTRUCTION DEBRIS AND TREES THAT HAVE BEEN DAMAGED OR FELLED SHALL BE REMOVED OFF SITE BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED FOR USE ON-SITE.
4. ALL WASTE, SEDIMENT, DEBRIS, BRUSH, DISCARDED MATERIALS, AND RUBBISH SHALL BE HAULED OFF THE PROJECT SITE NO LESS THAN ONCE PER WEEK. EXISTING SITE MAY CONTAIN RUBBISH THAT SHALL BE REMOVED PRIOR TO SITE GRADING. ANY MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN A LAWFUL MANNER AT STATE OR CITY APPROVED AND PERMITTED DISPOSAL SITE(S).
5. NON-VEGETATIVE MATERIAL IS TO BE REMOVED MANUALLY.
6. A COMMERCIAL APPLICATOR LICENSE AND A PESTICIDE CONTRACTOR LICENSE ARE REQUIRED BY THE CONTRACTOR IF THE USE OF HERBICIDES ARE NECESSARY FOR NOXIOUS PLANT MATERIAL REMOVAL.

JOB SITE CONDITIONS:

1. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS AT THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK.THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS.
2. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE WORK SITE AGAINST TRESPASSING, VANDALISM, DUMPING, AND THEFT.
3. CONTRACTOR SHALL MAINTAIN STORM DRAINAGE DURING CONSTRUCTION. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE TO AND THROUGH EXISTING DRAINAGE FACILITIES FROM ALL DISTURBED AREAS BOTH DURING AND AT THE COMPLETION OF THE PROJECT.

EASEMENT NOTES:

1. ALL EASEMENTS THAT LIE WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THE DRAWINGS HAVE BEEN SECURED FOR THIS PROJECT. THE CONTRACTOR'S ACTIVITIES SHALL OCCUR ONLY WITHIN THE CONSTRUCTION LIMITS.
2. THE CONTRACTOR SHALL NOT ACCESS THE WORK FOR THIS PROJECT EXCEPT OVER PUBLIC RIGHT-OF-WAYS OR OVER ROUTES AT SPECIFIC ACCESS POINTS THAT ARE AGREED UPON IN WRITING BETWEEN THE CONTRACTOR AND PROPERTY OWNERS.

CONSTRUCTION METHODS:

1. CONTRACTOR SHALL EXECUTE THE WORK DURING WEEKDAYS, MONDAY THROUGH FRIDAY, BETWEEN THE HOURS OF 8:00 A.M. AND 6:00 P.M. WITH THE EXCEPTION OF BYPASS PUMPING AND DEWATERING UNLESS OTHERWISE NOTED OR AS DETERMINED BY THE OWNER'S REPRESENTATIVE.
2. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ALL ACTIVITIES THAT SIGNIFICANTLY AFFECT NOISE LEVELS OR TRAFFIC IN THE AREA.
3. PRIOR TO STREAM RESTORATION CONSTRUCTION, CONTRACTOR SHALL PROVIDE STAKEOUT OF CHANNEL CENTERLINE AND STRUCTURES, BY A VIRGINIA LICENSED LAND SURVEYOR FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE AS REQUIRED PER THE SPECIFICATIONS. OWNER'S REPRESENTATIVE TO PROVIDE ELECTRONIC FILES FOR CONTRACTOR'S USE IN ESTABLISHING STAKING.
4. ALL WORK ACTIVITIES SHOULD ALLOW FOR THE REMOVAL OF EQUIPMENT AND BARRIERS THAT MAY RESTRICT STREAM FLOW FROM THE EXISTING CHANNEL AND/OR ANY PART OF THE PROPOSED CHANNEL WHICH HAS BEEN "ACTIVATED" DURING "NON-WORKING" HOURS, WEEKENDS, AND STORM EVENTS.
5. THE CONTRACTOR SHALL DISPOSE OF WASTE SOIL OFF SITE, AT AN APPROVED SITE THAT MEETS ALL STATE AND LOCAL PERMITTING REQUIREMENTS. THE CONTRACTOR SHALL STOCKPILE EXCAVATION MATERIAL INACCORDANCE WITH VDOT STANDARD SPECIFICATIONS.
6. CONTRACTOR SHALL ACCESS THE WORK AREA VIA THE ACCESS ENTRANCE SHOWN ON DRAWINGS.
7. TREE REMOVAL FOR STAGING AREAS AND ACCESS TO STREAM WILL NOT BE PERMITTED UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS, OR APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL STAKE OUT CONSTRUCTION LIMITS AND STAGING AREAS FOR APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO CLEARING.
8. CONTRACTOR SHALL PROTECT EXISTING UTILITIES WHEN CROSSING FOR ACCESS. SANITARY SEWER UTILITY EASEMENTS MAY ONLY BE CROSSED AT DESIGNATED LOCATIONS AS SHOWN ON DRAWINGS.
9. CONTRACTOR SHALL REPAIR ANY DAMAGE TO CURB, SIDEWALK, AND/OR ASPHALT THAT OCCURS AS A RESULT OF CONSTRUCTION ACTIVITIES. ALL DAMAGED ASSETS SHALL BE REMOVED, DISPOSED OF, AND REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE. UNLESS OTHERWISE SPECIFIED IN THE BID SCHEDULE.
10. GRADES, ELEVATIONS, AND LOCATIONS SHOWN ON THE PLANS FOR DRAINAGE STRUCTURES MAY BE MINIMALLY ADJUSTED DURING CONSTRUCTION AT CONTRACTOR'S EXPENSE AS DIRECTED BY THE OWNER'S REPRESENTATIVE TO ACCOMMODATE UNFORESEEN EXISTING CONDITIONS.
11. ALL FINAL GRADES SHALL SLOPE TOWARD THE STREAM CHANNEL, LEAVING NO DEPRESSIONS THAT WILL POND WATER UNLESS SPECIFICALLY INDICATED ON THE GRADING PLANS.
12. ALL CONSTRUCTION ACTIVITIES SHALL COMPLY WITH THE CITY OF CHARLOTTESVILLE STANDARDS.
13. CONTRACTOR SHALL NOTIFY THE CITY OF CHARLOTTESVILLE INSPECTIONS 24 HOURS BEFORE BEGINNING EVERY PHASE OF CONSTRUCTION, 434-970-3091.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0 — 1/2" — 1")

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA — TYLER W. SMITH — Lic No. 63968 — PROFESSIONAL ENGINEER

2022.05.02 09:34:57-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

GENERAL
ABBREVIATION, CIVIL LEGEND, GENERAL NOTES

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	G2

File: O:\32571-003\32571-003\CAD_DWG\GENERAL\G2.dwg Saved by SKANE Save date: 4/29/2022 1:58 PM
PLOT DATE: 4/29/2022 2:01 PM BY: SKANE

2022.05.02 09:33:14-04'00'

EROSION AND SEDIMENT CONTROL NOTES:

1. DUE TO THE NATURE OF THE WORK REQUIRED BY THIS CONTRACT, IT IS ANTICIPATED THE LOCATION AND NATURE OF EROSION AND SEDIMENT CONTROL MEASURES WILL BE ADJUSTED AS CONSTRUCTION PROGRESSES TO REFLECT THE CURRENT PHASE OF WORK. THE CONSTRUCTION SCHEDULE ADOPTED BY THE CONTRACTOR WILL IMPACT THE PLACEMENT AND NEED FOR SPECIFIC DEVICES REQUIRED FOR THE CONTROL OF EROSION. THE LOCATION AND EXTENT OF EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REVISED AT EACH PHASE OF CONSTRUCTION RESULTING IN A CHANGE OF EITHER THE QUANTITY OR DIRECTION OF SURFACE RUNOFF FROM THE CONSTRUCTION AREAS. EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE AT THE CONCLUSION OF THE PROJECT.
2. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE ENGINEER, OWNER, AND REGULATORY AGENCIES FOR DEVIATIONS FROM THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. NO LAND DISTURBANCE, DEMOLITION OR CONSTRUCTION ACTIVITIES SHALL BEGIN UNTIL ALL PERIMETER EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING, BUT NOT LIMITED TO, SILT FENCING, INLET PROTECTION, TEMPORARY DIVERSIONS, AND CONSTRUCTION ENTRANCE HAVE BEEN INSTALLED AS SHOWN ON THE CONTRACT DRAWINGS. IF CLEARING IS REQUIRED FOR INSTALLATION OF A PARTICULAR MEASURE, ALL MEASURES NOT REQUIRING CLEARING SHALL BE INSTALLED FIRST. CLEARING OF THE NECESSARY LAND FOR INSTALLATION OF THE PARTICULAR MEASURE MAY THEN PROCEED.
4. CLEARING SHALL BE LIMITED AS MUCH AS POSSIBLE TO AREAS REQUIRED FOR CURRENT CONSTRUCTION ACTIVITIES. MASS CLEARING AND GRADING SHALL BE AVOIDED.
5. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WITHIN 24 HOURS FOLLOWING EVERY RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY SEVEN CALENDAR DAYS.
6. CONTRACTOR SHALL MONITOR FILTER BAGS WHILE IN USE
7. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED OR REPLACED IMMEDIATELY AS REQUIRED TO MAINTAIN PERFORMANCE OF MEASURE. MEASURES SHALL BE CLEANED WHEN SEDIMENT VOLUME REACHES ½ OF TOTAL VOLUME OF MEASURE. REMOVED SEDIMENT SHALL BE DISPOSED OF IN SUCH A MANNER AND LOCATION AS TO INSURE FURTHER SEDIMENT TRANSPORT DOES NOT OCCUR.
8. CONTRACTOR SHALL INITIATE STABILIZATION MEASURES AS SOON AS PRACTICABLE ON STOCKPILES AND IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. THIS REQUIREMENT DOES NOT APPLY IN THE FOLLOWING INSTANCES:

   A) WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 7TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE;

   B) WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN FOURTEEN (14) DAYS, TEMPORARY STABILIZATION MEASURES NEED NOT BE INITIATED ON THAT PORTION OF THE SITE.

9. ALL DISTURBED AREAS SHALL DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBANCE ACTIVITIES AND UNTIL FINAL STABILIZATION IS ACHIEVED. SEDIMENT-LADEN GROUNDWATER ENCOUNTERED DURING TRENCHING, BORING, OR OTHER ACTIVITIES SHALL BE PUMPED INTO A SEDIMENT TRAPPING DEVICE PRIOR TO BEING DISCHARGED INTO A STREAM, POND, SWALE, OR CATCH BASIN.
10. SOIL STOCKPILE AND LAYDOWN AREAS SHALL HAVE PERIMETER SEDIMENT CONTROL MEASURES AND TEMPORARY OR PERMANENT STABILIZATION MEASURES INSTALLED AS SOON AS POSSIBLE AND AT COMPLETION OF STOCKPILING AND LAYDOWN ACTIVITIES. STOCKPILE SIDE SLOPES SHALL NOT EXCEED 3H ; 1V UNLESS APPROVED BY ENGINEER. TOP OF STOCKPILE SHALL BE GRADED WITH A MINIMUM 5% SLOPE TO INSURE PROPER DRAINAGE.
11. ALL DISTURBED AREAS, EXCEPT FOR CONCRETE AND PAVED AREAS, SHALL BE FERTILIZED, SEEDED AND MULCHED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE SEEDING SCHEDULE, AND RE-SEEDED AS NECESSARY, TO ESTABLISH AND MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
12. ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED OFFSITE ROADWAYS. IF MATERIAL IS TRACKED ONTO OFFSITE ROADWAYS, IT SHALL BE REMOVED IMMEDIATELY. DO NOT UTILIZE A WATER HOSE TO CLEAN ROADS UNLESS THE RUNOFF IS DIRECTED TO A PROPERLY DESIGNED AND FUNCTIONING SEDIMENT CONTROL DEVICE. PROPER PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT MATERIALS DEPOSITED ONTO OFFSITE ROADWAYS ARE REMOVED SO THAT THEY DO NOT ENTER YARD INLETS, CATCH BASINS, SEWERS, WETLANDS, SURFACE WATER BODIES, OR ROADSIDE SWALES.
13. WHERE CONCRETE EQUIPMENT WASHING IS REQUIRED, THIS MUST BE DONE IN AN APPROVED "CONCRETE CONTAINMENT AREA". CONTRACTOR SHALL NOT DISCHARGE ANY CONCRETE WASHOUT WATER INTO SEWERS, SURFACE WATER BODIES OR ONTO THE GROUND. ALL WASHOUT WATER MUST BE REMOVED FROM THE SITE(S) DAILY.
14. EARTHEN-MATERIAL STOCKPILES MUST BE LOCATED A MINIMUM OF 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES ARE AVAILABLE. STOCKPILES SHALL BE LOCATED OUTSIDE OF CONTRACT DOCUMENT DEFINED FLOOD ZONES.
15. ALL EARTHEN STOCKPILES AND SURCHARGE MOUNDS GREATER THAN 10' IN HEIGHT OR HAVING SIDE SLOPES GREATER THAN 3:1 MUST BE ENCAPSULATED BY A CHAIN-LINK-BACKED SILT FENCE OR APPROVED ALTERNATIVE. THE FIRST ROW OF SILT FENCE SHALL BE SPACED NO GREATER THAN 10' FROM THE TOE OF THE MOUND,. THE SECOND ROW OF SILT FENCE SHALL BE SPACED 5' FROM THE FIRST ROW. IN THE EVENT THE SITE DOES NOT HAVE PERIMETER EROSION AND SEDIMENT CONTROLS INSTALLED, THEN DOUBLE ROW SILT FENCING IS REQUIRED REGARDLESS OF THE STOCKPILE OR SURCHARGE HEIGHT.
16. DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION, AND OTHER WASTES MUST BE LOCATED A MINIMUM OF 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES ARE AVAILABLE.
17. PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES. WATER SHALL NOT BE USED TO CLEAN ROADS UNLESS THE RUNOFF IS DIRECTED TO A PROPERLY DESIGNED AND FUNCTIONING SEDIMENT CONTROL DEVICE. WATER PUMPED OUT OF THE EXCAVATED AREAS CONTAINS SEDIMENTS THAT MUST BE REMOVED PRIOR TO DISCHARGING TO RECEIVING BODIES OF WATER USING REMOVABLE PUMPING STATIONS, SUMP PITS, PORTABLE SEDIMENTATION TANKS AND/OR SILT CONTROL BAGS.
18. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE, PERMANENT VEGETATION IS ESTABLISHED ON ALL DISTURBED AREAS, AND LOCAL AUTHORITIES HAVE GIVEN PERMISSION FOR REMOVAL.
19. MATERIALS REUSED ON-SITE DURING CONSTRUCTION SHALL BE STORED BEYOND FLOOD PRONE AREAS UNTIL INSTALLED AND ACCEPTED IN PLACE.

SEQUENCE OF CONSTRUCTION:

PHASE 1: MOBILIZATION AND SITE PREPARATION (30 DAYS)

1. THE LIMITS OF WETLANDS MUST BE FLAGGED IN THE FIELD (SURVEY LOCATED) WITH OPTIC ORANGE SAFETY FENCE PRIOR TO ISSUANCE OF A LAND DISTURBANCE PERMIT.
2. PROVIDE THE CITY INSPECTOR 48 HOURS NOTIFICATION TO SCHEDULE AN ON-SITE PRE-CONSTRUCTION MEETING FOR THE ISSUANCE OF THE LAND DISTURBANCE PERMIT. THE PRE-CONSTRUCTION MEETING MUST INCLUDE THE CONTRACTOR'S CERTIFIED RESPONSIBLE LAND DISTURBER (CRLD), OWNER, ENGINEER, VSMP CONSTRUCTION ACTIVITY OPERATOR, AND ENVIRONMENTAL INSPECTOR (OR AUTHORIZED REPRESENTATIVE).
3. PRIOR TO THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR IS TO HAVE ALL LIMITS OF DISTURBANCE (LOD), ACCESS ROADS, TREES EARMARKED FOR STREAM STRUCTURES AND SEDIMENT AND EROSION CONTROL DEVICE LOCATIONS STAKED OUT IN THE FIELD FOR REVIEW AND APPROVAL BY THE CITY INSPECTOR AND ENGINEER.
4. AT THE TIME OF THE PRE-CONSTRUCTION MEETING, TWO STANDARD SIGNS MUST BE INSTALLED ON EACH SIDE OF THE CONSTRUCTION ACCESS. THESE SIGNS SHOULD STATE EITHER "CONSTRUCTION ENTRANCE AHEAD" OR "TRUCKS ENTERING HIGHWAY"
5. THE CONTRACTOR SHALL CONTACT VIRGINIA 811 AT PHONE NUMBER 811 OR 1-800-552-7001 TO REQUEST UNDERGROUND UTILITY LOCATION MARK-OUT AT LEAST THREE (3) WORKING DAYS BUT NO MORE THAN TEN (10) WORKING DAYS PRIOR TO BEGINNING EXCAVATION. THE CONTRACTOR SHALL ALSO CONTACT AND REQUEST UTILITY LOCATION MARK-OUT FROM BURIED UTILITY OWNERS WITH UTILITIES ON THE PROJECT SITE THAT ARE NOT PARTICIPANTS OF VIRGINIA 811.
6. INSTALL THE TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON THE DRAWINGS.
7. INSTALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH).
8. INSTALL FOREST CONSERVATION MEASURES INCLUDING, BUT NOT LIMITED TO, TREE SAVE FENCING AND TREE PROTECTION PLANKING.
9. THE CITY ENVIRONMENTAL ENGINEERING INSPECTOR MUST APPROVE PHASE 1 PRIOR TO CONTINUING TO THE NEXT PHASE OF CONSTRUCTION.

PHASE 2: CONSTRUCTION (60 DAYS)

10. FELL AND SECTION TREES AT APPROPRIATE LENGTHS THAT ARE EARMARKED FOR RE-USE IN THE J-HOOK VANE AND ROOT WAD STRUCTURES. STORE ON SITE.
11. DEMOLISH EXISTING FEATURES AS SHOWN ON THE DRAWINGS AND COMPLETE SITE PREPARATION.
12. INSTALL PUMP AROUND #1 AND CONSTRUCT STREAMBANK STABILIZATION FROM STATION 99+50 TO 103+28.
13. ONCE WORK FROM PROPOSED STREAM STATION 99+50 TO 103+28 IS STABLE (TEMPORARY SEED COVERAGE OF 75% OR GREATER AND COIR MATTING INSTALLED/ACCEPTED), INSTALL PUMP AROUND #2 AND #3 CONSTRUCT STREAM WORK FROM STATION 103+28 TO 105+78 ALONG THE MAINSTEM AND FROM STATION 200+00 TO 200+62 ALONG THE TRIBUTARY.
14. ONCE WORK FROM PROPOSED STREAM STATION 103+28 TO 105+78 AND 200+00 TO 200+62 IS STABLE (TEMPORARY SEED COVERAGE OF 75% OR GREATER AND COIR MATTING INSTALLED/ACCEPTED), INSTALL PUMP AROUND #4 AND CONSTRUCT STREAM WORK FROM STATION 105+78 TO 107+69.
15. THE CITY INSPECTOR MUST APPROVE EACH PHASE PRIOR TO CONTINUING TO THE NEXT PHASE OF CONSTRUCTION.

PHASE 3: PLANTING, PUNCH LIST AND DEMOBILIZATION (45 DAYS)

16. UPON COMPLETION OF CONSTRUCTION, ALL DISTURBED AREAS SHALL BE FINE GRADED AND PERMANENTLY STABILIZED PER THE VESCH AND PLANTING PLANS, AS APPROPRIATE, PRIOR TO SCHEDULING FINAL INSPECTION.
17. SCHEDULE AND CONDUCT A PRE-PLANTING MEETING; SEE PLANTING PLAN.
18. PLANT AREAS DURING THE SPRING OR FALL GROWING SEASONS PER THE PLANTING PLANS, EXCEPT FOR LIVE STAKES WHICH CAN ONLY BE INSTALLED DURING THEIR DORMANCY (DECEMBER 1 TO MARCH 30). SOME PLANTINGS (E.G. PERMANENT SEEDING) WILL NEED TO OCCUR DURING EARLIER PHASES AS CONSTRUCTION AND STABILIZATION IS COMPLETED IN EACH AREA.
19. SCHEDULE AND CONDUCT AN ON-SITE PUNCHLIST WALK-THROUGH MEETING AND CORRECT ANY OUTSTANDING ITEMS.
20. ESC MEASURES SHALL NOT BE REMOVED UNTIL CONSTRUCTION IS COMPLETE AND APPROVAL IS OBTAINED FROM THE CITY INSPECTOR.
21. ONCE APPROVAL IS OBTAINED, REMOVE SEDIMENT CONTROL DEVICES INCLUDING TREE PROTECTION FENCE, PLANKING AND ANY MULCH USED IN THE ACCESS PATHS DOWN TO 4 INCHES WITHIN FOREST AREA.
22. SCEHDULE AND CONDUCT A FINAL PUNCH LIST WALK.

TOTAL ESTIMATED WORKING DAYS: 135 DAYS

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION:

THE SCHENKS BRANCH TRIBTUARY PROJECT CONSISTS OF A CONSTRUCTION OF A PRIORITY II AND III STREAM RESTORATION TO STABILIZE 818 LF OF EXISTING IMPAIRED STREAM. THE TOTAL LAND DISTURBANCE FOR THIS PROJECT IS APPROXIMATELY 2.55 ACRES.

EXISTING SITE CONDITIONS:

THE SITE IS A PREDOMINANTLY FORESTED AREA THAT INCLUDES WALKING TRAILS, SANITARY SEWER INFRASTRUCTURE, AND A GAS LINE.

ADJACENT AREAS:

THE SITE IS BORDERED BY WOODED AREAS, ROADS, AND A NORFOLK SOUTHERN RAILROAD EMBANKMENT. THE SITE IS HOME TO THE FUTURE BOTANICAL GARDENS OF THE PIEDMONT.

OFF-SITE AREAS:

NO OFF-SITE LAND DISTURBING ACTIVITIES ARE PLANNED. ANY OFF-SITE LAND DISTURBANCE ACTIVITIES WILL REQUIRE A SEPARATE PERMIT BY THE CONTRACTOR.

SOILS:

SOILS WITHIN THE PROJECT AREA ARE CLASSIFIED BY NRCS' WEB SOIL SURVEY AND ARE LISTED BELOW. ADDITIONAL SOIL CHARACTERISTICS FOR EACH TYPE CAN BE FOUND ON NRCS' WEB SOIL SURVEY.

CODORUS SILT LOAM (16)
ELIOAK LOAM (27C)
UDORTHENTS (88)

CRITICAL EROSION AREAS:

ALL DISTURBED AREAS WITHIN THE PROJECT SITE ARE CONSIDERED CRITICAL AREAS WHICH REQUIRE ACCELERATED RESTABILIZATION VIA BIOENGINEERING AND STREAM RESTORATION TECHNIQUES. THE CONSTRUCTION PLANS INCLUDE THESE MEASURES TO MINIMIZE DISTURBANCE OF AND PROVIDE IMMEDIATE EROSION STABILIZATION.

EROSION AND SEDIMENT CONTROL MEASURES:

THE FOLLOWING VESCH CONTROLS TO BE USED INCLUDE:

CONSTRUCTION ENTRANCE PER DWGS C14
SILT FENCE PER DWGS C14
TEMPORARY PUMP AROUND PER DWGS C14
SAND BAG DIKE PER DWGS C14
FILTER BAG PER DWGS C14
COIR MATTING PER DWGS C15
TREE PROTECTION FENCE PER DWGS C14

PERMANENT STABILIZATION:

DISTURBED AREAS OF THE SITE WILL BE SEEDED, MULCHED AND STABILIZED WITH COIR MAT ACCORDING TO THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK REQUIREMENTS AND THE PLANTING PLANS.

STORMWATER RUNOFF CONSIDERATIONS:

STORMWATER RUNOFF WILL NOT BE INCREASED WITH THE COMPLETION OF THIS PROJECT.

EROSION AND SEDIMENT CONTROL MAINTENANCE NOTES:

IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED AFTER EACH RAINFALL OR WEEKLY, WHICHEVER IS MORE FREQUENT, AND SHOULD BE CLEANED AND REPAIRED ACCORDING TO THE FOLLOWING SCHEDULE:

1. EROSION AND SEDIMENT CONTROLS WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION AND BUILDUP OR CLOGGING WITH SEDIMENT. CORRECTIVE ACTION SHALL BE TAKEN IMMEDIATELY.
2. FREQUENT INSPECTIONS AND CLEANING OF MUD AND DEBRIS FOUND OUTSIDE OF THE LIMITS OF DISTURBANCE IS REQUIRED, ALONG WITH ANY OTHER REMEDIES REQUIRED BY THE CITY.
3. ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND OF GRASS IS MAINTAINED. AREAS SHALL BE RESEEDED AS NEEDED. TEMPORARY STABILIZATION WILL BE USED AS REQUIRED BY THE CITY.

TABLE 6-1 (VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK)

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS 9VAC25-840.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

9VAC25-840-40. MINIMUM STANDARDS.

A VESCP MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

a. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.

b. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

a. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.

b. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

c. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.

d. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

e. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.

f. APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.

17. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE VESCP AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:

a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.

b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:

(1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR

(2) (A) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.

(b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND

(c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:

(1) IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, THE BED, OR THE BANKS; OR

(2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;

(3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR

(4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.

d. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.

e. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.

f. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.

g. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.

h. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.

i. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.

j. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

k. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

l. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (II) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (III) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:65 OF THE ACT.

m. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATIONS.

n. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF SUBDIVISION 19 OF THIS SUBSECTION.

STATUTORY AUTHORITY

§ 62.1-44.15:52 OF THE CODE OF VIRGINIA.

HISTORICAL NOTES

FORMER 4VAC50-30-40, DERIVED FROM VR625-02-00 § 4; EFF SEPTEMBER 13, 1990; AMENDED, VIRGINIA REGISTER VOLUME 11, ISSUE 11, EFF. MARCH 22, 1995; VOLUME 29, ISSUE 4, EFF. NOVEMBER 21, 2012; AMENDED AND RENUMBERED, VIRGINIA REGISTER VOLUME 30, ISSUE 2, EFF. OCTOBER 23, 2013.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN -
ISSUED
FOR CONSTRUCTION

TYLER W. SMITH
Lic. No. 63968
2022.05.02 09:35:17-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

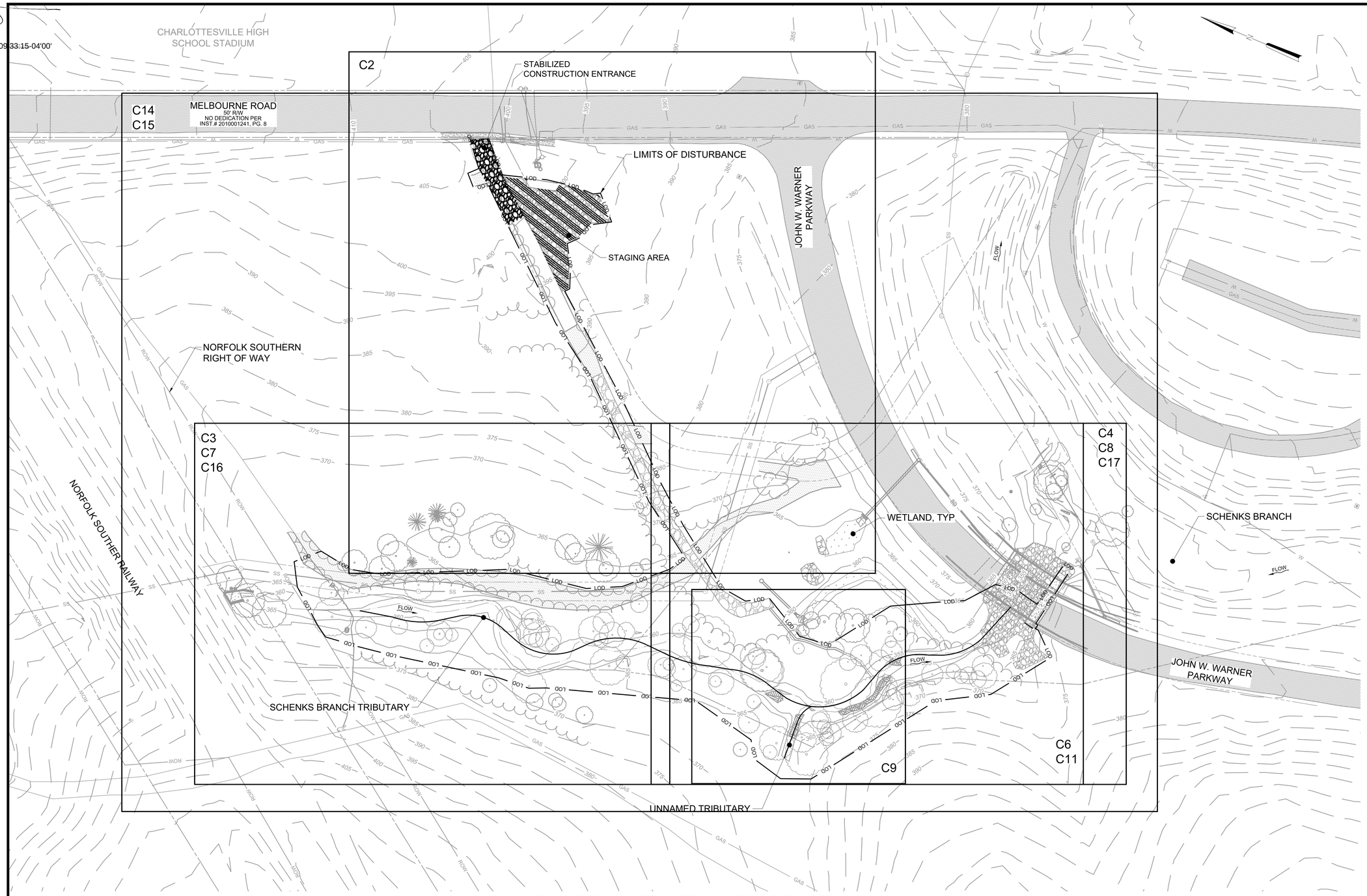
SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

GENERAL
EROSION AND SEDIMENT CONTROL NOTES

DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: G3

File: O:\32571-000\32571-001\CAD_BIM\GENERAL\G3 Saved by SKANE Save date: 4/7/2022 2:33 PM
PLOT DATE: 4/29/2022 2:01 PM BY: SKANE

2022.05.02 09:33:15-04'00'



KEY MAP FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 50'

1" = 50' 50 25 0 50'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
2022.05.02 09:35:34-04'00'
PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
SCHENKS BRANCH TRIBUTARY SITE KEY MAP

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C1

File: O:\32571-003\32571-003\CAD_BIM\CIVIL\C1 Saved by SKANE Save date: 4/6/2022 12:01 PM
PLOT DATE: 4/06/2022 2:51 PM BY: SKANE

2022.05.02 09:33:16-04'00'

NOTES:

1. TREE IMPACT TABLES LOCATED ON DWG C5.

PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 30'

1" = 30' 30 15 0 30'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN -
ISSUED
FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
2022.05.02
09:35:46-04'00'
PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

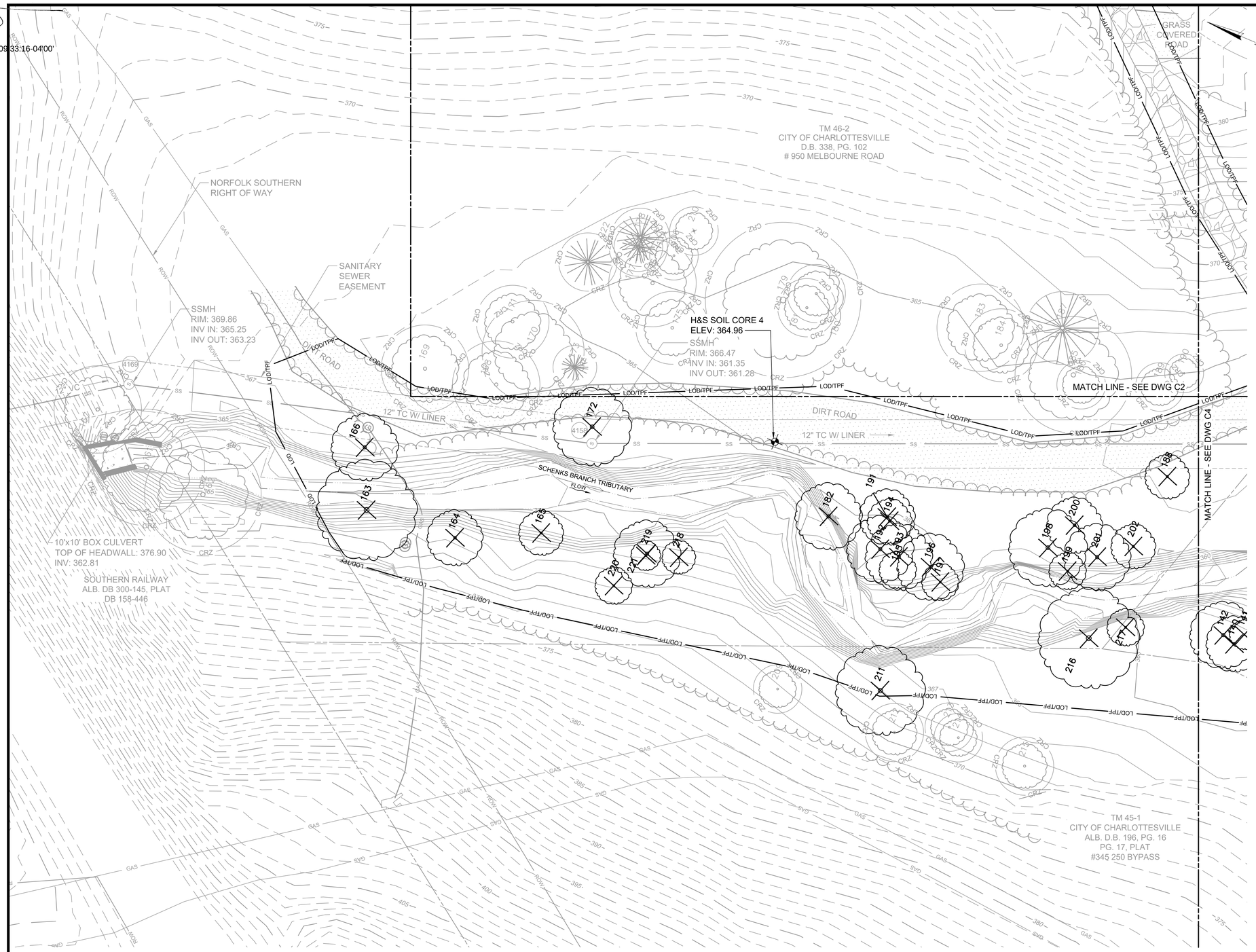
SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

CIVIL
EXISTING CONDITIONS SURVEY AND
DEMOLITION PLANS - 1 OF 3

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C2

File: O:\32571-003\03171-001\CAD_DRAWING\C2 Saved by SKANE Save date: 3/5/2022 10:07 AM
PLOT DATE: 4/28/2022 2:03 PM BY: SKANE

2022.05.02 09:33:16-04'00'



PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 20'

1" = 20' 20 10 0 20'

NOTES:

1. TREE IMPACT TABLES LOCATED ON DWG C5.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:36:00-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

CIVIL
EXISTING CONDITIONS SURVEY AND
DEMOLITION PLANS - 2 OF 3

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C3

File: O:\32571-003\02571-001\CADD_BIM\CIVIL\C3 Saved by SKANE Save date: 3/5/2022 10:10 AM
PLOT DATE: 4/20/2022 2:02 PM BY: SKANE

2022.05.02 09:33:17-04'00'

PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 20'

1" = 20' 20 10 0 20'

NOTES:

1. TREE IMPACT TABLES LOCATED ON DWG C5.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. C. SMITH
Lic. No. 63968
2022.05.02 09:26:13-04'00'
PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
EXISTING CONDITIONS SURVEY AND DEMOLITION PLANS - 3 OF 3

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C4

File: O:\32571-003\32571-001\CAD_BM\CIVIL\C4.Saved by SKANE Save date: 4/11/2022 9:54 AM
PLOT DATE: 4/26/2022 2:07 PM BY: SKANE

2022.05.02 09:33:18-04'00'

SCHENKS BRANCH TRIBTUARY TREE REMOVAL TABLE

TREE ID	DBH	SPECIES	HEALTH	NORTHING	EASTING	REASON FOR REMOVAL	REUSE ACTION
110	15	RED MAPLE	GOOD	3905284.0750'	11490762.1400'	STREAM GRADING	TOE WOOD
111	8	TULIP POPLAR	GOOD	3905291.2450'	11490780.0600'	STREAM GRADING	TOE WOOD
112	18	CHESTNUT	GOOD	3905278.7760'	11490753.0100'	STREAM GRADING	TOE WOOD
113	12	CHESTNUT	GOOD	3905283.7290'	11490746.8500'	STREAM GRADING	TOE WOOD
114	12	CHESTNUT	GOOD	3905294.5040'	11490746.6800'	STREAM GRADING	TOE WOOD
115	10	CHESTNUT	GOOD	3905301.0570'	11490742.6400'	STREAM GRADING	TOE WOOD
116	10	CHESTNUT	GOOD	3905311.3660'	11490744.7600'	STREAM GRADING	TOE WOOD
117	15	BLACK POPLAR	GOOD	3905330.7420'	11490732.7200'	STREAM GRADING	TOE WOOD
118	18	DOUBLE TULIP	GOOD	3905345.5330'	11490704.4800'	STREAM GRADING	TOE WOOD
119	15	BOXELDER	GOOD	3905358.9520'	11490691.2900'	STREAM GRADING	TOE WOOD
120	15	TREE	DEAD	3905371.3230'	11490702.4600'	STREAM GRADING	TOE WOOD
121	36	DOUBLE TULIP	GOOD	3905375.0690'	11490682.0200'	STREAM GRADING	J-HOOK LOG VANE
122	18	TULIP POPLAR	GOOD	3905387.9120'	11490655.7700'	STREAM GRADING	TOE WOOD
123	10	BLACK WALNUT	LEANING	3905408.2050'	11490625.0300'	STREAM GRADING	TOE WOOD
124	15	MOCKERNUT HICKORY	GOOD	3905406.7360'	11490632.4600'	STREAM GRADING	TOE WOOD
125	8	MOCKERNUT HICKORY	GOOD	3905409.7470'	11490630.7700'	STREAM GRADING	TOE WOOD
126	24	MOCKERNUT HICKORY	GOOD	3905428.5190'	11490636.4800'	STREAM GRADING	J-HOOK LOG VANE
127	12	RED MAPLE	GOOD	3905422.3480'	11490639.9700'	STREAM GRADING	TOE WOOD
128	21	RED MAPLE	GOOD	3905433.3550'	11490615.6500'	STREAM GRADING	J-HOOK LOG VANE
129	15	MOCKERNUT HICKORY	GOOD	3905421.6110'	11490600.9400'	STREAM GRADING	TOE WOOD
130	24	QUADRUPLE RED	GOOD	3905455.9570'	11490599.3400'	STREAM GRADING	J-HOOK LOG VANE
131	10	BLACK CHERRY	GOOD	3905458.4780'	11490587.7300'	STREAM GRADING	TOE WOOD
133	15	TREE	DEAD	3905491.7530'	11490608.2800'	CONSTRUCTION ACCESS	TOE WOOD
134	30	TULIP POPLAR	GOOD	3905501.2120'	11490664.9600'	STREAM GRADING	J-HOOK LOG VANE
135	10	BLACK CHERRY	GOOD	3905495.5780'	11490631.0000'	STREAM GRADING	TOE WOOD
136	18	RED MAPLE	GOOD	3905536.2520'	11490636.8300'	STREAM GRADING	TOE WOOD
137	8	BLACK WALNUT	GOOD	3905542.0400'	11490634.8900'	STREAM GRADING	TOE WOOD
138	10	TULIP POPLAR	GOOD	3905578.8840'	11490614.2100'	STREAM GRADING	TOE WOOD
139	18	SHAGBARK HICKORY	GOOD	3905578.7740'	11490633.6800'	STREAM GRADING	TOE WOOD
140	15	TREE	DEAD	3905597.7090'	11490626.7800'	STREAM GRADING	TOE WOOD
141	8	TREE	DEAD	3905595.3330'	11490631.9600'	STREAM GRADING	TOE WOOD
142	18	TREE	DEAD	3905603.2430'	11490628.4100'	STREAM GRADING	TOE WOOD
143	12	BLACK WALNUT	GOOD	3905512.0040'	11490677.0300'	STREAM GRADING	TOE WOOD
144	21	RED MAPLE	GOOD	3905497.5400'	11490670.5100'	STREAM GRADING	J-HOOK LOG VANE
145	18	RED MAPLE	GOOD	3905515.4210'	11490675.5300'	STREAM GRADING	TOE WOOD
146	8	TULIP POPLAR	GOOD	3905482.5060'	11490714.5300'	CONSTRUCTION ACCESS	TOE WOOD
150	12	RED MAPLE	GOOD	3905436.4140'	11490716.3600'	CONSTRUCTION ACCESS	TOE WOOD
152	10	RED MAPLE	GOOD	3905415.5300'	11490635.2500'	STREAM GRADING	TOE WOOD
153	12	RED MAPLE	GOOD	3905419.3370'	11490709.5200'	STREAM GRADING	TOE WOOD

SCHENKS BRANCH TRIBTUARY TREE REMOVAL TABLE

TREE ID	DBH	SPECIES	HEALTH	NORTHING	EASTING	REASON FOR REMOVAL	REUSE ACTION
154	36	TULIP POPLAR	GOOD	3905412.0790'	11490686.7600'	STREAM GRADING	J-HOOK LOG VANE
155	15	RED MAPLE	GOOD	3905408.9590'	11490721.6500'	STREAM GRADING	TOE WOOD
156	15	TULIP POPLAR	LEANING	3905388.2220'	11490724.3500'	STREAM GRADING	TOE WOOD
157	15	TULIP POPLAR	GOOD	3905380.2340'	11490738.1400'	STREAM GRADING	TOE WOOD
158	8	RED MAPLE	GOOD	3905385.3830'	11490747.5300'	STREAM GRADING	TOE WOOD
159	36	TULIP POPLAR	GOOD	3905390.9810'	11490756.0100'	STREAM GRADING	J-HOOK LOG VANE
160	10	RED MAPLE	GOOD	3905379.4510'	11490758.9100'	STREAM GRADING	TOE WOOD
163	27	TULIP POPLAR	GOOD	3905948.0690'	11490538.3000'	STREAM GRADING	J-HOOK LOG VANE
164	15	BLACK WALNUT	GOOD	3905910.1020'	11490541.9800'	STREAM GRADING	TOE WOOD
165	12	BLACK LOCUST	FALLEN	3905878.1980'	11490557.6300'	STREAM GRADING	TOE WOOD
166	18	BLACK WALNUT	GOOD	3905958.8420'	11490561.8000'	STREAM GRADING	TOE WOOD
172	21	AMERICAN SYCAMORE	GOOD	3905875.8990'	11490606.0300'	SANITARY SEWER EASEMENT	J-HOOK LOG VANE
182	18	TULIP POPLAR	GOOD	3905771.9260'	11490610.0700'	STREAM GRADING	TOE WOOD
188	12	SHAGBARK HICKORY	GOOD	3905649.8800'	11490679.4800'	CONSTRUCTION ACCESS	TOE WOOD
191	15	TULIP POPLAR	GOOD	3905749.5840'	11490619.2200'	STREAM GRADING	TOE WOOD
192	18	BLACK WALNUT	GOOD	3905747.0550'	11490605.9200'	STREAM GRADING	TOE WOOD
193	18	BLACK WALNUT	GOOD	3905738.7770'	11490605.9700'	STREAM GRADING	TOE WOOD
194	12	TULIP POPLAR	GOOD	3905748.0060'	11490618.0500'	STREAM GRADING	TOE WOOD
195	10	BLACK WALNUT	DEAD	3905737.1060'	11490600.8700'	STREAM GRADING	TOE WOOD
196	18	BLACK WALNUT	GOOD	3905725.1090'	11490607.2500'	STREAM GRADING	TOE WOOD
197	10	EASTERN COTTONWOOD	GOOD	3905719.0210'	11490603.1200'	STREAM GRADING	TOE WOOD
198	21	BLACK WALNUT	GOOD	3905683.7210'	11490633.4100'	STREAM GRADING	J-HOOK LOG VANE
199	10	TULIP POPLAR	GOOD	3905672.5310'	11490627.6700'	STREAM GRADING	TOE WOOD
200	15	TULIP POPLAR	GOOD	3905677.2320'	11490646.2000'	STREAM GRADING	TOE WOOD
201	18	BLACK WALNUT	GOOD	3905663.5480'	11490637.7200'	STREAM GRADING	TOE WOOD
202	12	GREEN ASH	DEAD	3905651.5560'	11490647.5600'	STREAM GRADING	TOE WOOD
203	10	TULIP POPLAR	GOOD	3905599.4090'	11490670.2800'	STREAM GRADING	TOE WOOD
204	12	TREE	DEAD	3905590.2460'	11490680.7600'	STREAM GRADING	TOE WOOD
205	36	TULIP POPLAR	GOOD	3905564.9730'	11490671.6300'	STREAM GRADING	J-HOOK LOG VANE
207	30	BLACK WALNUT	GOOD	3905500.0040'	11490665.4300'	STREAM GRADING	J-HOOK LOG VANE
208	8	AMERICAN SYCAMORE	GOOD	3905473.6390'	11490702.3900'	CONSTRUCTION ACCESS	TOE WOOD
211	24	TULIP POPLAR	GOOD	3905724.3220'	11490552.3200'	STREAM GRADING	J-HOOK LOG VANE
216	27	BLACK CHERRY	GOOD	3905653.7270'	11490605.6200'	STREAM GRADING	J-HOOK LOG VANE
217	10	BLACK WALNUT	GOOD	3905641.5060'	11490615.6600'	STREAM GRADING	TOE WOOD
218	9	RED MULBERRY	GOOD	3905822.1290'	11490570.5200'	STREAM GRADING	TOE WOOD
219	18	BLACK LOCUST	GOOD	3905834.7170'	11490566.7500'	STREAM GRADING	TOE WOOD
220	10	RED MAPLE	GOOD	3905842.2430'	11490549.3100'	STREAM GRADING	TOE WOOD
221	8	TREE	DEAD	3905834.8950'	11490565.8100'	STREAM GRADING	TOE WOOD

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0 1/2" 1")

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:36:29-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

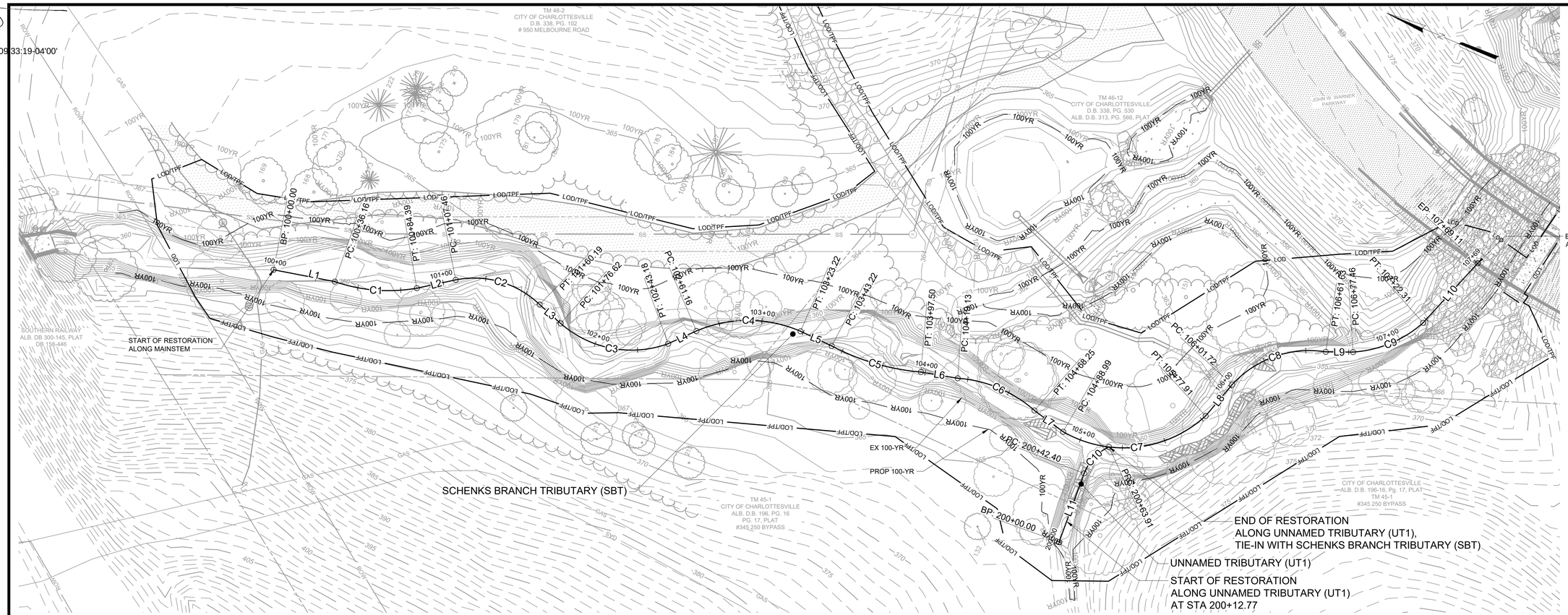
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
TREE REMOVAL TABLES

DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: C5

File: O:\32571-003\32571-003\CAD_DWGS\C\C5 Saved by SKANE Save date: 4/5/2022 11:53 AM
PLOT DATE: 4/29/2022 2:03 PM BY: SKANE

2022.05.02 09:33:19-04'00'

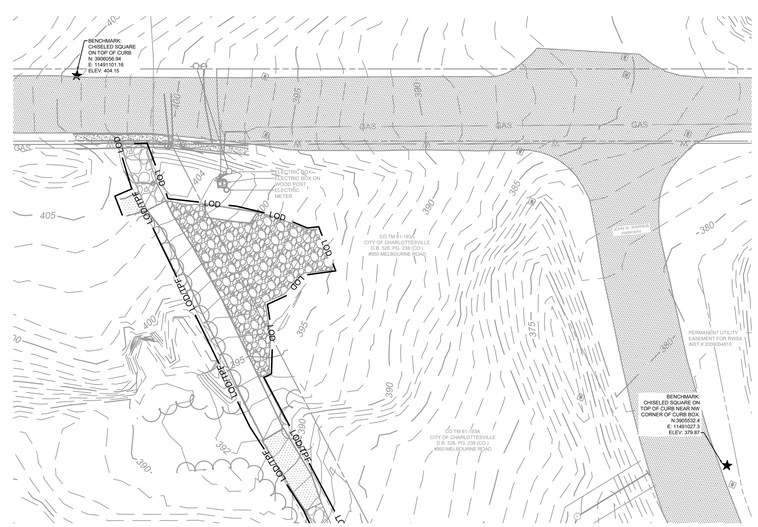


PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 30'

BASELINE OF CONSTRUCTION (SCHENKS BRANCH TRIBUTARY)					
DESC.	STA.	RADIUS	LENGTH	BEARING	STATE PLANE (E, N)
L1	100+00.00'	--	36.16'	S11° 58' 24.30"E	11490556.0630', 3905923.0120'
C1	100+36.16'	95.03'	48.23'	S18° 22' 51.31"E	11490563.5652', 3905887.6364'
L2	100+84.39'	--	23.07'	S35° 01' 06.12"E	11490578.6110', 3905842.3567'
C2	101+07.46'	54.57'	52.73'	S06° 32' 57.60"E	11490591.8484', 3905823.4646'
L3	101+60.19'	--	16.43'	S18° 58' 21.95"W	11490597.6317', 3905773.0908'
C3	101+76.62'	62.23'	66.56'	S12° 16' 51.81"E	11490592.2914', 3905757.5575'
L4	102+43.18'	--	17.98'	S47° 11' 00.49"E	11490605.7848', 3905695.5727'
C4	102+61.16'	76.24'	62.06'	S22° 46' 51.33"E	11490618.9714', 3905683.3547'
L5	103+23.22'	--	20.00'	S02° 18' 26.70"W	11490642.3438', 3905627.7021'
C5	103+43.22'	135.78'	54.28'	S06° 38' 30.43"E	11490641.5386', 3905607.7183'
L6	103+97.50'	--	21.63'	S13° 19' 27.12"E	11490647.7751', 3905554.1600'
C6	104+19.13'	75.15'	49.12'	S00° 10' 34.98"E	11490652.7600', 3905533.1120'
L7	104+68.25'	--	20.74'	S13° 38' 00.10"W	11490652.9085', 3905484.8666'
C7	104+88.99'	70.36'	88.92'	S29° 17' 54.49"E	11490648.0191', 3905464.7076'
L8	105+77.91'	--	23.81'	S72° 39' 33.76"E	11490688.6962', 3905392.2173'
C8	106+01.72'	60.74'	59.91'	S42° 15' 11.62"E	11490711.4182', 3905385.1225'
L9	106+61.63'	--	15.83'	S22° 30' 18.04"E	11490750.0907', 3905342.5523'
C9	106+77.46'	67.70'	44.85'	S45° 37' 21.85"E	11490756.1498', 3905327.9277'
L10	107+22.31'	--	46.81'	S70° 26' 52.39"E	11490787.6211', 3905297.1332'
END	107+69.11'	--	--	--	11490787.6211', 3905297.1332'

BASELINE OF CONSTRUCTION (UNNAMED TRIBUTARY)					
DESC.	STA.	RADIUS	LENGTH	BEARING	STATE PLANE (E, N)
L11	200+00.00'	--	42.40'	N87° 04' 37.95"E	11490588.1985', 3905441.9183'
C10	200+42.40'	28.13'	21.51'	S69° 46' 56.99"E	11490630.5396', 3905444.0801'
END	200+63.91'	--	--	--	11490650.2426', 3905436.8240'



PLAN VIEW - BENCHMARKS

SCALE: 1" = 50'

BENCHMARK			
DESC	STATE PLANE (E,N)	ELEV	NOTES
B1	11491101.2, 3906056.9	404.15	CHISELED SQUARE ON TOP OF CURB
B2	11491027.29, 3905532.42	379.87	CHISELED SQUARE ON TOP OF CURB NEAR NW CORNER OF CURB BOX

1" = 30' (30 15 0 30')

1" = 50' (50 25 0 50')

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0 1/2" 1")

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:33:43-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

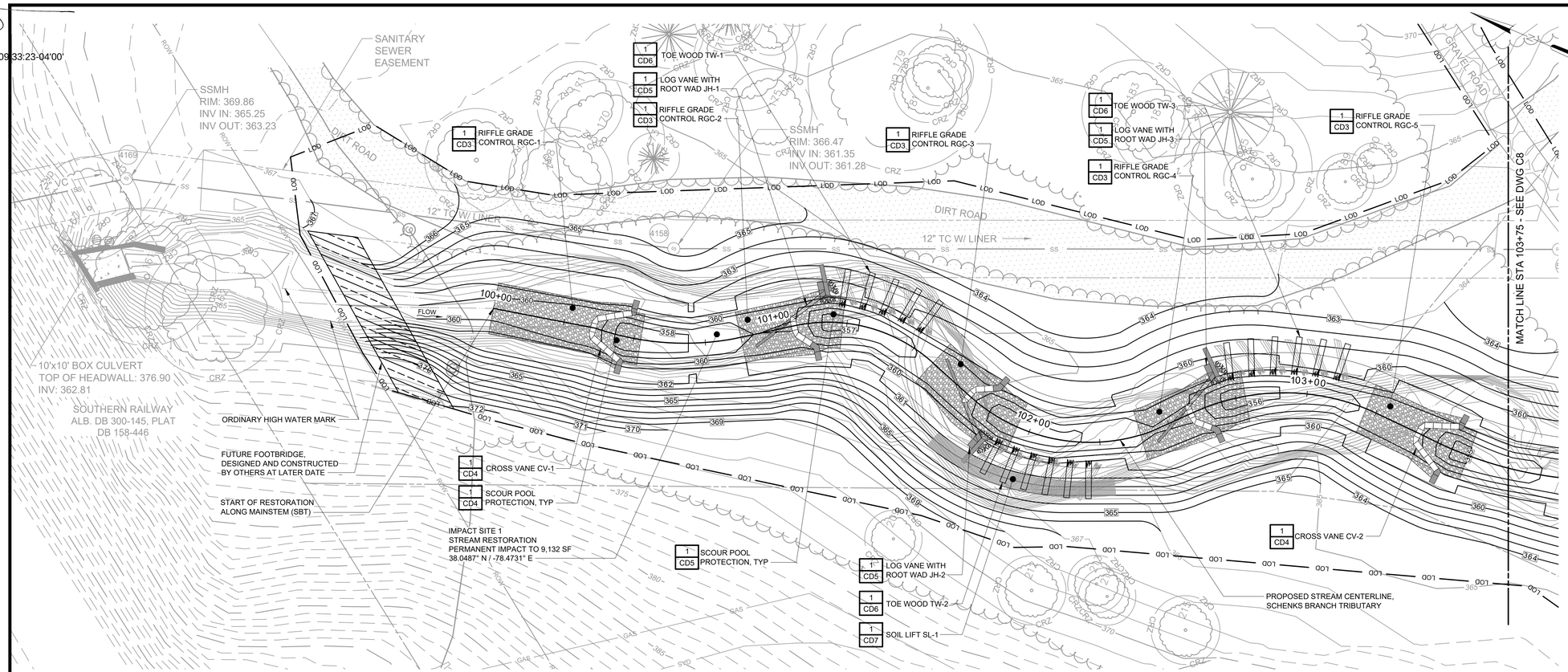
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
STREAM CENTERLINE STAKE-OUT PLAN & TABLE

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C6

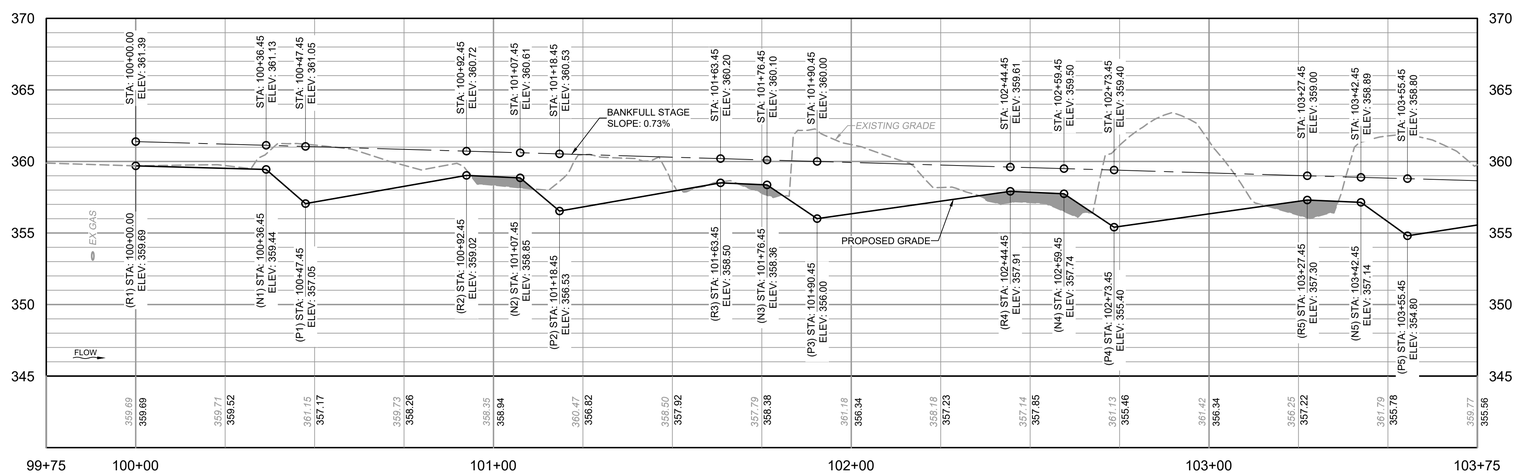
File: O:\32571-003\32571-003\CADD_BIM\CIVIL\C6 Saved by SKANE Save date: 4/7/2022 2:34 PM
PLOT DATE: 4/29/2022 7:02 PM BY: SKANE

2022.05.02 09:33:23-04'00'



PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 20'



PROFILE

H: 1" = 20' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 20

20 10 0 20'

5 0 5'

VERTICAL SCALE: 1" = 5'

NOTES:

1. SEE STREAM PROFILE AND STRUCTURES TABLE ON C10 FOR PROPOSED STREAM STRUCTURES, ALIGNMENT, AND PROFILE.
2. R = RIFFLE STATION, N = RUN STATION, P = POOL STATION.
3. SIZE STRUCTURES AS SPECIFIED IN CD SERIES.
4. CHANNEL GRADING DEFINED PER TYPICAL STREAM CHANNEL CROSS SECTIONS IN CD SERIES.
5. BOULDER DIMENSIONS SHOWN ARE APPROXIMATE. REFER TO CD SERIES FOR MINIMUM BOULDER DIMENSIONS.
6. SEE CD SERIES FOR IN-STREAM STRUCTURE FOOT EXCAVATION ELEVATIONS.
7. FIELD RUN TOPOGRAPHIC SURVEY WAS SUPPLEMENTED WITH CITY-PROVIDED GIS CONTOURS. MINOR GRADING MODIFICATIONS DURING CONSTRUCTION CAN BE EXPECTED.
8. SCHENKS BRANCH TRIBUTARY WIDTH: EXISTING = 12-15 FEET; PROPOSED = 18-22 FEET.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA TYLER W. SMITH Lic. No. 63968 PROFESSIONAL ENGINEER

2022.05.02 09:36:53-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

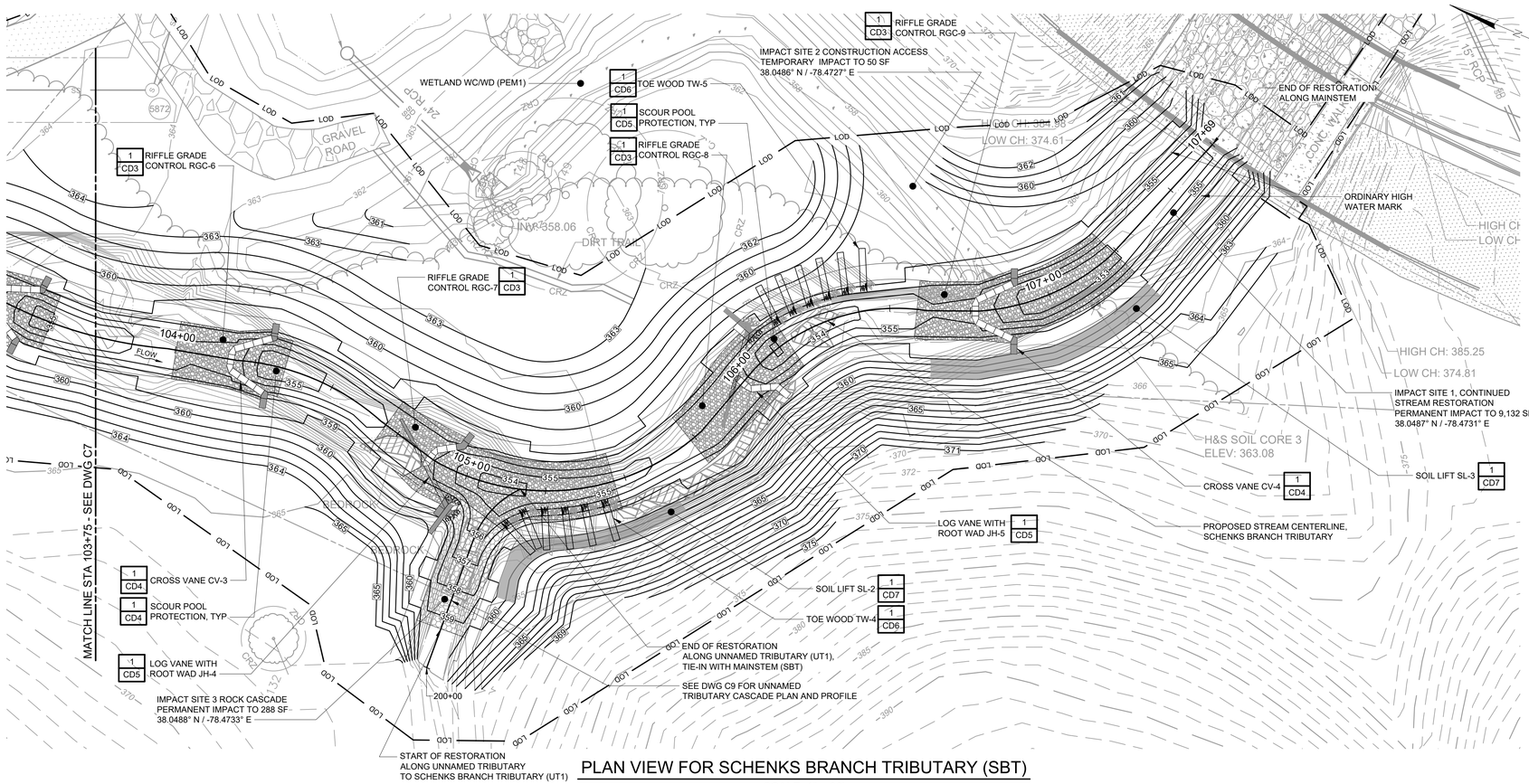
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PLAN AND PROFILE - 1 OF 2

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C7

File: O:\32571-003\32571-003\CADD_BIM\CIVIL\C7 Saved by SKANE Save date: 4/8/2022 8:52 AM
PLOT DATE: 4/29/2022 7:03 PM BY: SKANE

2022.05.02 09:33:23-04'00'

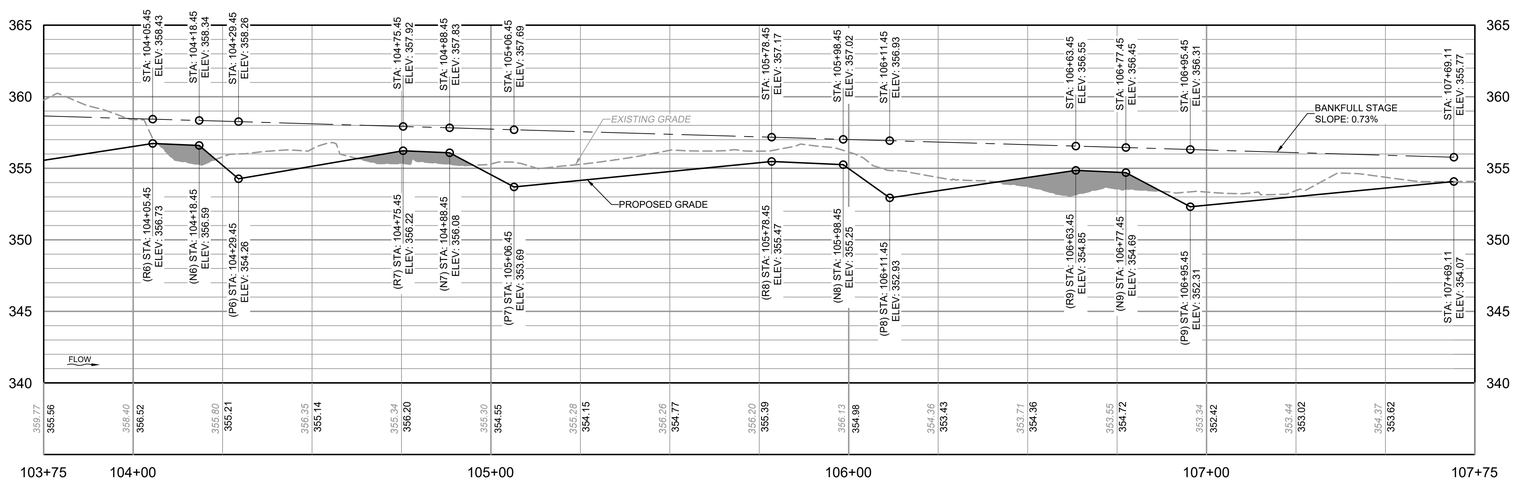


PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 20'

NOTES:

1. SEE STREAM PROFILE AND STRUCTURES TABLE ON C10 FOR PROPOSED STREAM STRUCTURES, ALIGNMENT, AND PROFILE.
2. R = RIFFLE STATION, N = RUN STATION, P = POOL STATION.
3. SIZE STRUCTURES AS SPECIFIED IN CD SERIES.
4. CHANNEL GRADING DEFINED PER TYPICAL STREAM CHANNEL CROSS SECTIONS IN CD SERIES.
5. BOULDER DIMENSIONS SHOWN ARE APPROXIMATE. REFER TO CD SERIES FOR MINIMUM BOULDER DIMENSIONS.
6. SEE CD SERIES FOR IN-STREAM STRUCTURE FOOT EXCAVATION ELEVATIONS.
7. FIELD RUN TOPOGRAPHIC SURVEY WAS SUPPLEMENTED WITH CITY-PROVIDED GIS CONTOURS. MINOR GRADING MODIFICATIONS DURING CONSTRUCTION CAN BE EXPECTED.
8. SCHENKS BRANCH TRIBUTARY WIDTH: EXISTING = 12-15 FEET; PROPOSED = 18-22 FEET.
9. UNNAMED TRIBUTARY TO SCHENKS BRANCH TRIBUTARY (UT1) WIDTH: EXISTING = 15 FEET; PROPOSED = 16-20 FEET.



PROFILE

H: 1" = 20' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 20'

20 10 0 20'

5 0 5'

VERTICAL SCALE: 1" = 5'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA TYLER W. SMITH Lic. No. 63968 2022.05.02 09:37:11-04'00' PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

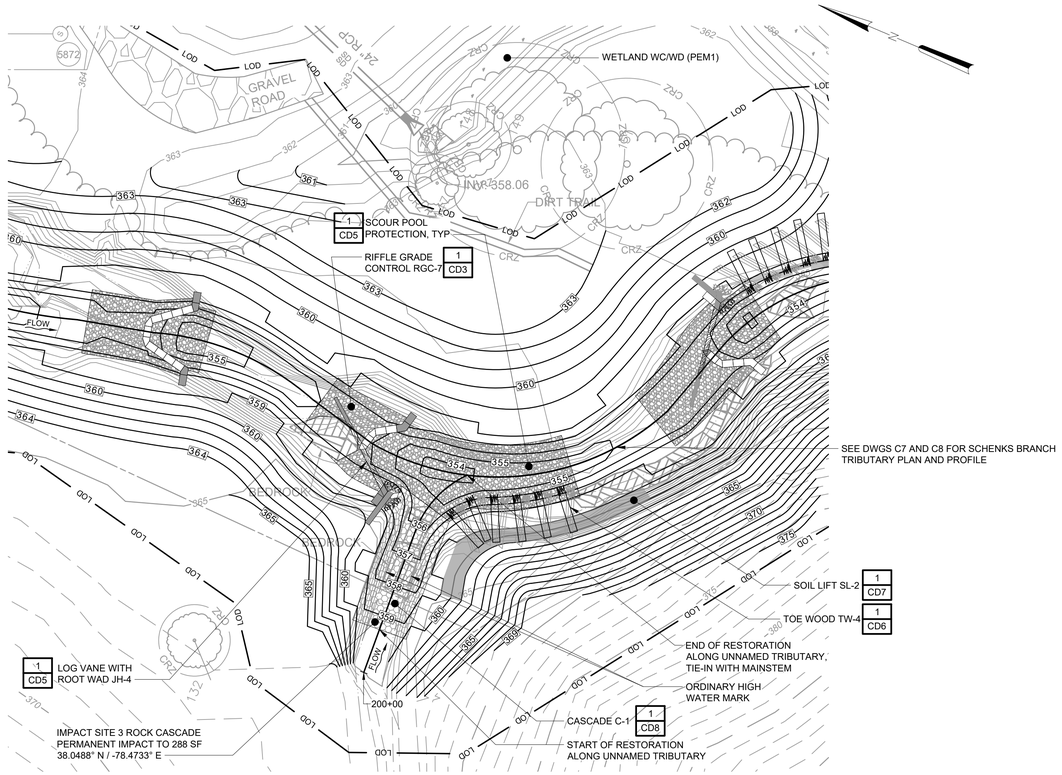
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PLAN AND PROFILE - 2 OF 2

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C8

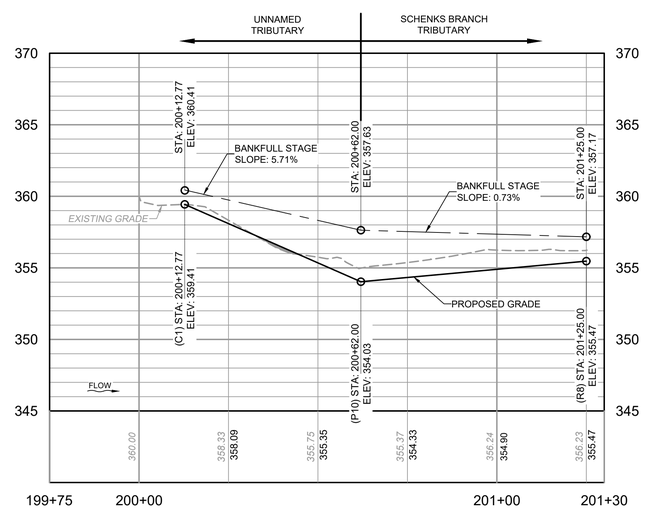
File: O:\32571-003\32571-003\CAD_DWGS\LCD Saved by SKANE Save date: 4/8/2022 8:53 AM
PLOT DATE: 4/29/2022 2:19 PM BY: SKANE

2022.05.02 09:33:24-04'00'



PLAN VIEW FOR UNNAMED TRIBUTARY (UT1)

SCALE: 1" = 20'



PROFILE

H: 1" = 20' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 20'

20 10 0 20'

5 0 5'

VERTICAL SCALE: 1" = 5'

NOTES:

1. SEE STREAM PROFILE AND STRUCTURES TABLE ON C10 FOR PROPOSED STREAM STRUCTURES, ALIGNMENT, AND PROFILE.
2. R = RIFFLE STATION, N = RUN STATION, P = POOL STATION.
3. SIZE STRUCTURES AS SPECIFIED IN CD SERIES.
4. CHANNEL GRADING DEFINED PER TYPICAL STREAM CHANNEL CROSS SECTIONS IN CD SERIES.
5. BOULDER DIMENSIONS SHOWN ARE APPROXIMATE. REFER TO CD SERIES FOR MINIMUM BOULDER DIMENSIONS.
6. SEE CD SERIES FOR IN-STREAM STRUCTURE FOOT EXCAVATION ELEVATIONS.
7. FIELD RUN TOPOGRAPHIC SURVEY WAS SUPPLEMENTED WITH CITY-PROVIDED GIS CONTOURS. MINOR GRADING MODIFICATIONS DURING CONSTRUCTION CAN BE EXPECTED.
8. UNNAMED TRIBUTARY TO SCHENKS BRANCH TRIBUTARY (UT1) WIDTH: EXISTING = 15 FEET; PROPOSED = 16-20 FEET.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA TYLER W. SMITH Lic. No. 63968 PROFESSIONAL ENGINEER

2022.05.02 09:37:39 04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
UNNAMED TRIBUTARY STREAM RESTORATION
PLAN AND PROFILE

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C9

File: P:\32571-003\32571-003\CAD_BIM\Civil\C9 Saved by SKANE Save date: 4/6/2022 8:26 AM
PLOT DATE: 4/26/2022 2:03 PM BY: SKANE

2022.05.02 09:33:28-04'00'

SCHENKS BRANCH TRIBUTARY PROFILE & STRUCTURE TABLE								
REACH	STATION	PROFILE FEATURE	THALWEG ELEVATION	BANKFULL ELEVATION	CROSS SECTION TYPE	STRUCTURE NAME	STRUCTURE TYPE	STRUCTURE DETAIL DRAWING
SCHENKS BRANCH TRIBUTARY	100+00.00	R1	359.69	361.39	RIFFLE	RGC-1	RIFFLE GRADE CONTROL	CD3
	100+36.45	N1	359.44	361.13	RUN	CV-1	CROSS VANE	CD4
	100+47.45	P1	357.05	361.05	CENTER POOL			
	100+92.45	R2	359.02	360.72	RIFFLE	RGC-2	RIFFLE GRADE CONTROL	CD3
	101+07.45	N2	358.85	360.61	RUN	JH-1	J-HOOK VANE	CD5
	101+18.45	P2	356.53	360.53	LEFT SKEWED POOL			
	101+63.45	R3	358.50	360.20	RIFFLE	RGC-3	RIFFLE GRADE CONTROL	CD3
	101+76.45	N3	358.36	360.10	RUN	JH-2	J-HOOK VANE	CD5
	101+90.45	P3	356.00	360.00	RIGHT SKEWED POOL			
	102+44.45	R4	357.91	359.61	RIFFLE	RGC-4	RIFFLE GRADE CONTROL	CD3
	102+59.45	N4	357.74	359.50	RUN	JH-3	J-HOOK VANE	CD5
	102+73.45	P4	355.40	359.40	LEFT SKEWED POOL			
	103+27.45	R5	357.30	359.00	RIFFLE	RGC-5	RIFFLE GRADE CONTROL	CD3
	103+42.45	N5	357.14	358.89	RUN	CV-2	CROSS VANE	CD4
	103+55.45	P5	354.80	358.80	CENTER POOL			
	104+05.45	R6	356.73	358.43	RIFFLE	RGC-6	RIFFLE GRADE CONTROL	CD3
	104+18.45	N6	356.59	358.34	RUN	CV-3	CROSS VANE	CD4
	104+29.45	P6	354.26	358.26	CENTER POOL			
	104+75.45	R7	356.22	357.92	RIFFLE	RGC-7	RIFFLE GRADE CONTROL	CD3
	104+88.45	N7	356.08	357.83	RUN	JH-4	J-HOOK VANE	CD5
	105+06.45	P7	353.69	357.69	RIGHT SKEWED POOL			
	105+78.45	R8	355.47	357.17	RIFFLE	RGC-8	RIFFLE GRADE CONTROL	CD3
	105+98.45	N8	355.25	357.02	RUN	JH-5	J-HOOK VANE	CD5
	106+11.45	P8	352.93	356.93	LEFT SKEWED POOL			
	106+63.45	R9	354.85	356.55	RIFFLE	RGC-9	RIFFLE GRADE CONTROL	CD3
	106+77.45	N9	354.69	356.45	RUN	CV-4	CROSS VANE	CD4
	106+95.45	P9	352.31	356.31	CENTER POOL			
	107+69.11	R10	354.07	355.77	RIFFLE			

1 SCHENKS BRANCH TRIBUTARY (SBT) PROFILE AND STRUCTURE TABLE

UNNAMED TRIBUTARY PROFILE & STRUCTURE TABLE								
REACH	STATION	PROFILE FEATURE	THALWEG ELEVATION	BANKFULL ELEVATION	CROSS SECTION TYPE	STRUCTURE NAME	STRUCTURE TYPE	STRUCTURE DETAIL DRAWING
UNNAMED TRIBUTARY	200+12.77	C1	359.41	360.41	RUN	C-1	ROCK CASCADE	CD8
	200+62.00	P10	354.03	357.63	CENTER POOL			

2 UNNAMED TRIBUTARY (UT1) PROFILE AND STRUCTURE TABLE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:33:28-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

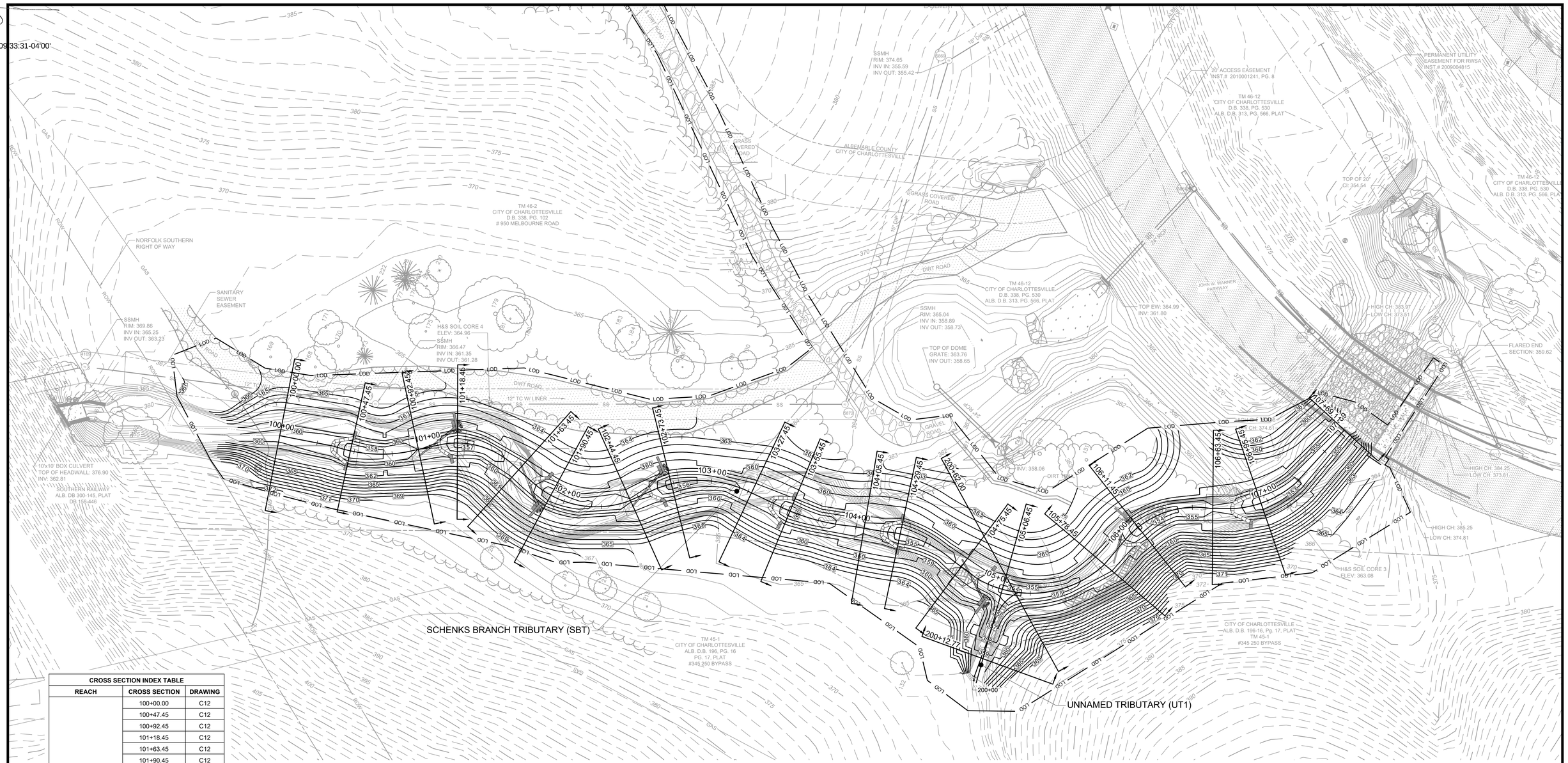
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
STREAM PROFILE AND STRUCTURE TABLE

DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: C10

File: O:\32571-003\32571-003\CAD_BIM\CIVIL\C10 Saved by SKANE Save date: 4/6/2022 12:55 PM
PLOT DATE: 4/20/2022 2:03 PM BY: SKANE

2022.05.02 09:33:31-04'00'



PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY (SBT)

SCALE: 1" = 30'

CROSS SECTION INDEX TABLE		
REACH	CROSS SECTION	DRAWING
SCHENKS BRANCH TRIBTUARY	100+00.00	C12
	100+47.45	C12
	100+92.45	C12
	101+18.45	C12
	101+63.45	C12
	101+90.45	C12
	102+44.45	C12
	102+73.45	C12
	103+27.45	C12
	103+55.45	C12
	104+05.45	C12
	104+29.45	C12
	104+75.45	C12
	105+06.45	C12
	105+78.45	C12
	106+11.45	C12
	106+63.45	C12
	106+95.45	C12
	107+69.11	C12
UNNAMED TRIBTUARY	200+12.77	C13
	200+62.00	C13

1" = 30' 30 15 0 30'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
2022.05.02 09:38:18-04'00'
PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

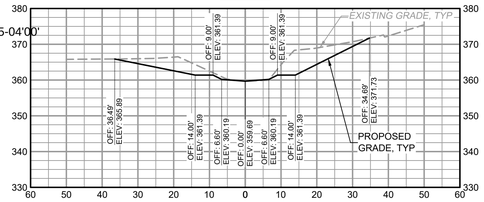
CIVIL
CROSS SECTION INDEX

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C11

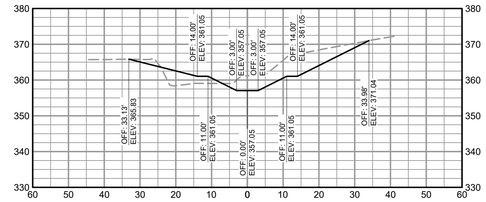
File: O:\32571-003\32571-001\CAD_BIM\CIVIL\C11 Saved by SKANE Save date: 4/11/2022 10:02 AM
PLOT DATE: 05/02/2022 2:03 PM BY: SKANE

2022.05.02 09:33:35-04'00'

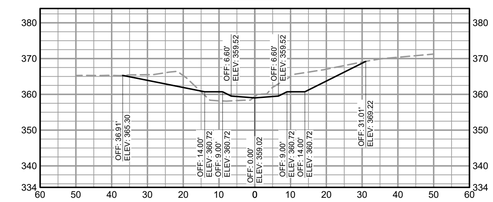
100+00.00



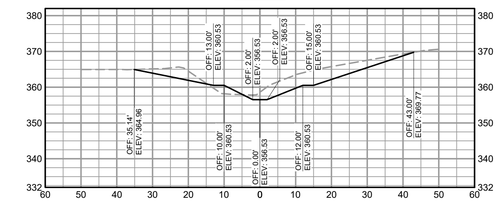
100+47.45



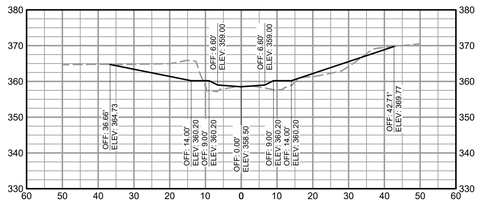
100+92.45



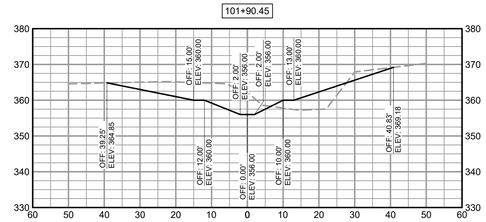
101+18.45



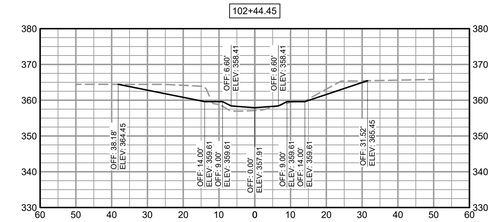
101+63.45



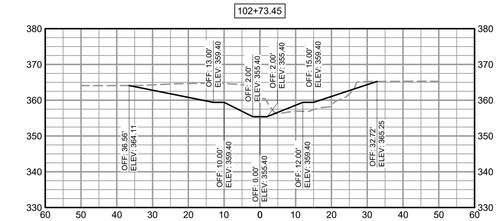
101+90.45



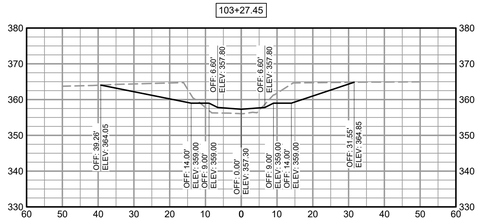
102+44.45



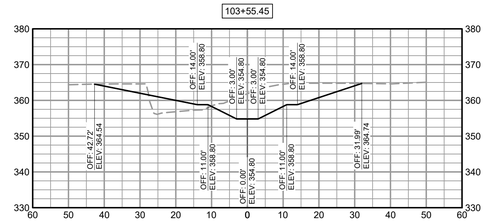
102+73.45



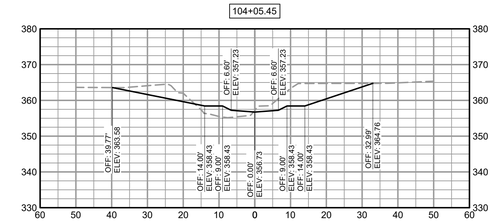
103+27.45



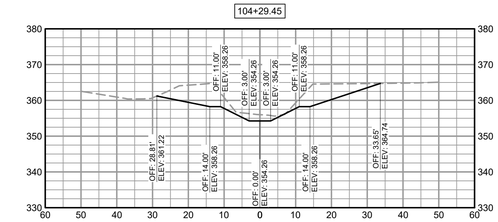
103+55.45



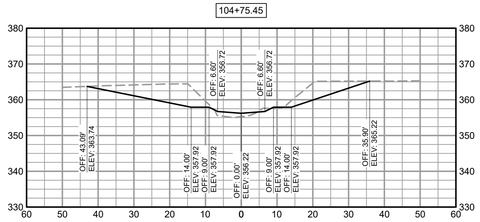
104+05.45



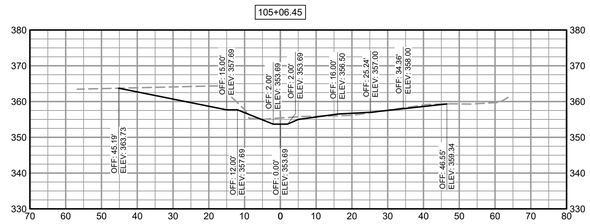
104+29.45



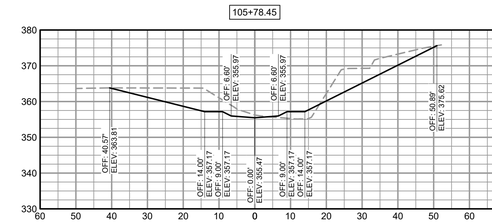
104+75.45



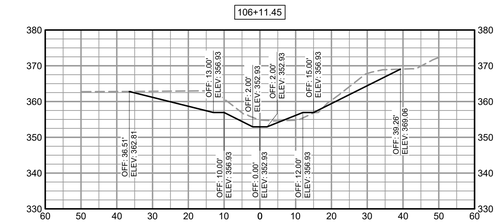
105+06.45



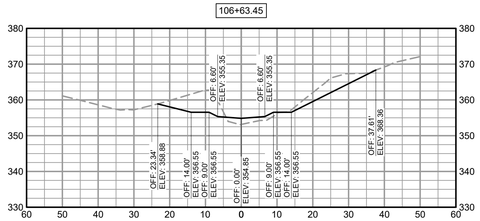
105+78.45



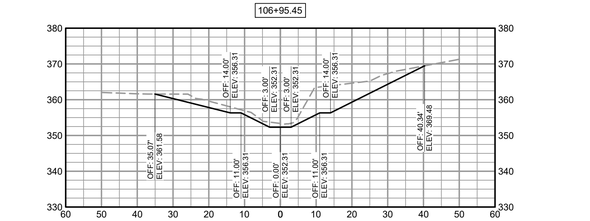
106+11.45



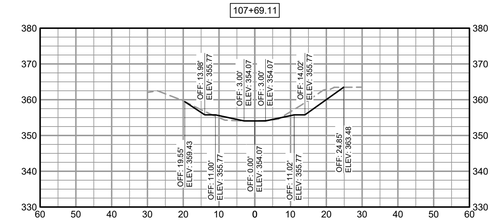
106+63.45



106+95.45



107+69.11



NOTES:

1. CROSS SECTION VIEWS ARE ORIENTED AS IF LOOKING DOWNSTREAM.

CROSS SECTION

H: 1" = 20' - V: 1" = 1'

HORIZONTAL SCALE: 1" = 20'

20 10 0 20'

1 0 1'

VERTICAL SCALE: 1" = 1'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:33:36-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION
CROSS SECTIONS

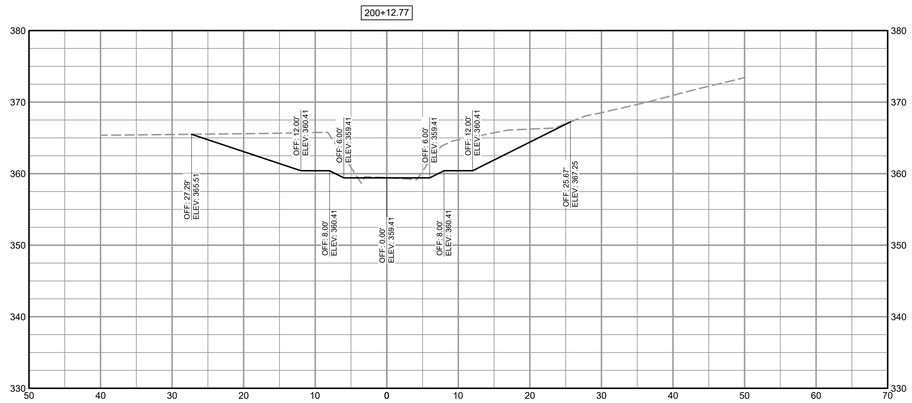
DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C12

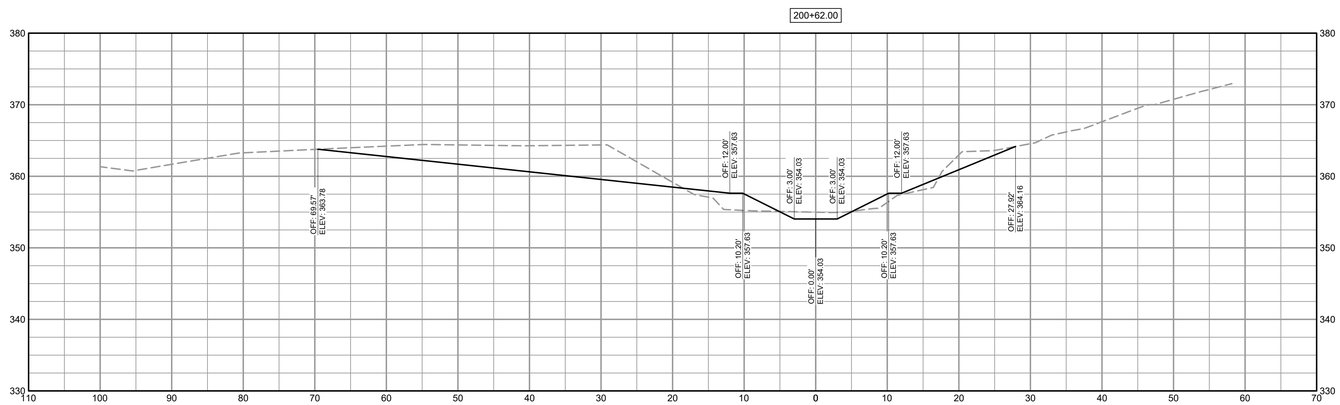
File: O:\32571-003\32571-003\CAD_BM\CIVIL\C12 Saved by SKANE Save date: 4/6/2022 2:54 PM
PLOT DATE: 4/26/2022 2:54 PM BY: SKANE

2022.05.02 09:33:36-04'00'

NOTES:

1. CROSS SECTION VIEWS ARE ORIENTED AS IF LOOKING DOWNSTREAM.





CROSS SECTION

H: 1" = 10' - V: 1" = 10'

HORIZONTAL SCALE: 1" = 10'

10 5 0 10'

10 5 0 10'

VERTICAL SCALE: 1" = 10'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:38:50-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

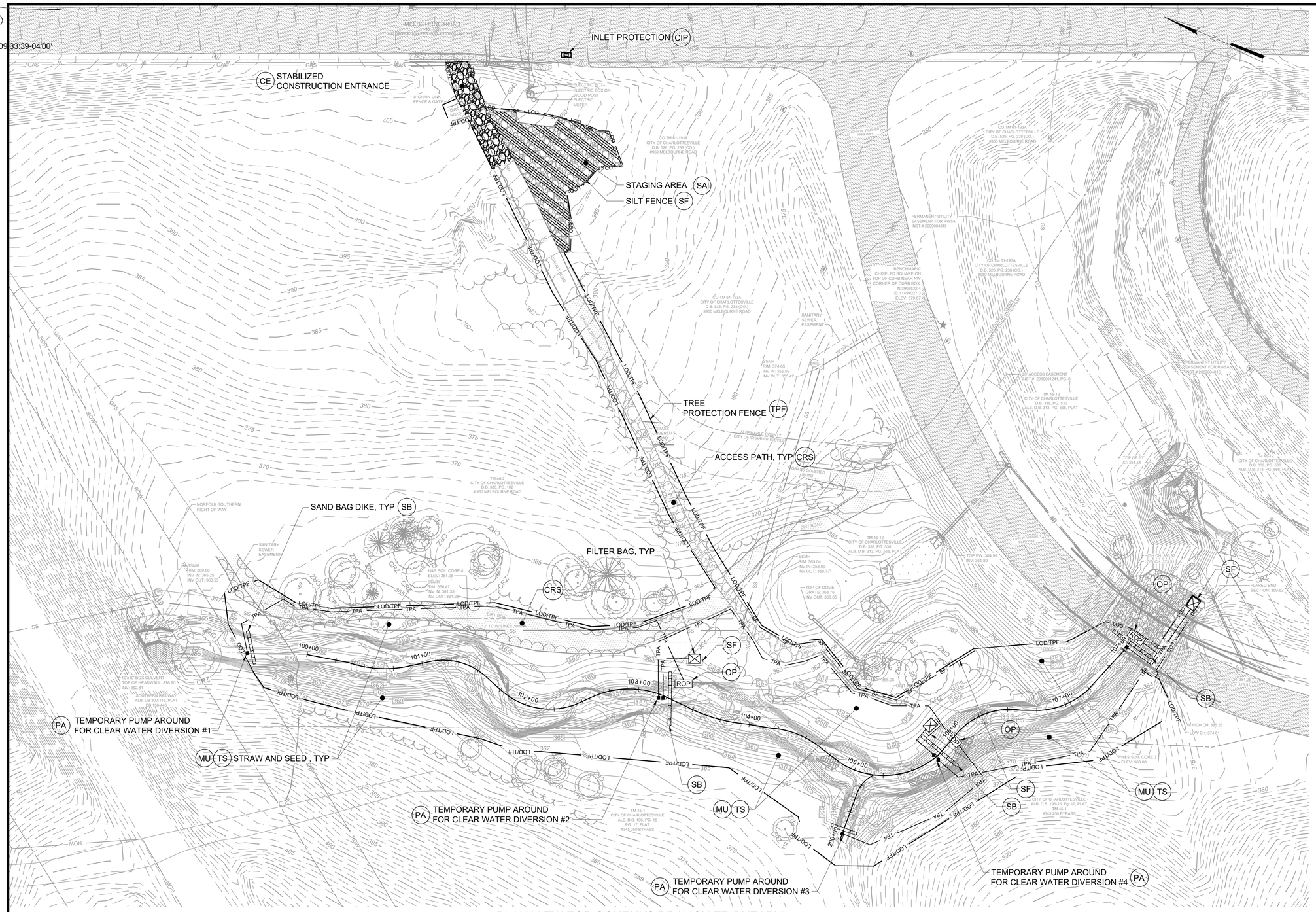
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
UNNAMED TRIBUTARY STREAM RESTORATION
CROSS SECTIONS

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C13

File: O:\32571-003\32571-003\CAD_BIM\CIVIL\C13 Saved by SKANE Save date: 4/6/2022 2:36 PM
PLOT DATE: 4/06/2022 2:44 PM BY: SKANE

2022.05.02 09:33:39-04'00'



PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY

SCALE: 1" = 40'

1" = 40' 40 20 0 40'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
2022.05.02 09:39:09-04'00'
PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

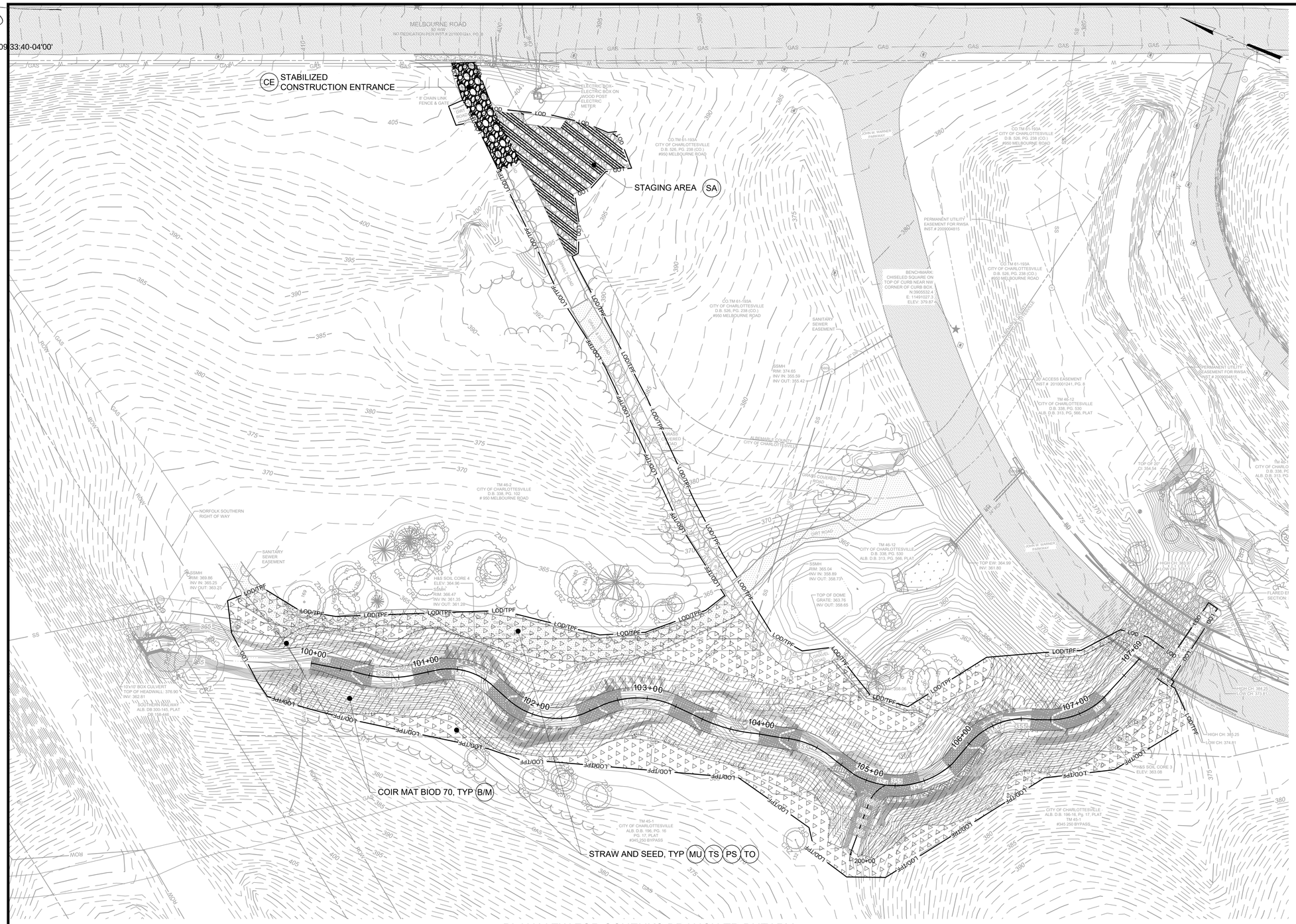
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
INITIAL PHASE, EROSION AND SEDIMENT CONTROL PLANS

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C14

File: O:\32571-003\32571-001\CAD_BIM\CIVIL\C14 Saved by SKANE Save date: 4/7/2022 2:47 PM
PLOT DATE: 4/26/2022 1:04 PM BY: SKANE

2022.05.02 09:33:40-04'00'



PLAN VIEW FOR SCHENKS BRANCH TRIBUTARY

SCALE: 1" = 40'

NOTES:

1. SEE DWGS C16 AND C17 FOR LANDSCAPING PLAN WHICH DICTATES PERMANENT VEGETATION TYPES AND LOCATIONS WITHIN THE LIMITS OF DISTURBANCE.
2. SEE DWGS CD14 AND CD15 FOR LANDSCAPING NOTES AND SCHEDULES.
3. ALL AREAS THAT HAVE BEEN DISTURBED AND REQUIRE PERMANENT VEGETATIVE STABILIZATION SHALL RECEIVE TOPSOIL AND SOIL AMENDMENTS, PER SPECIFICATIONS.

1" = 40' 40 20 0 40'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:39:22-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

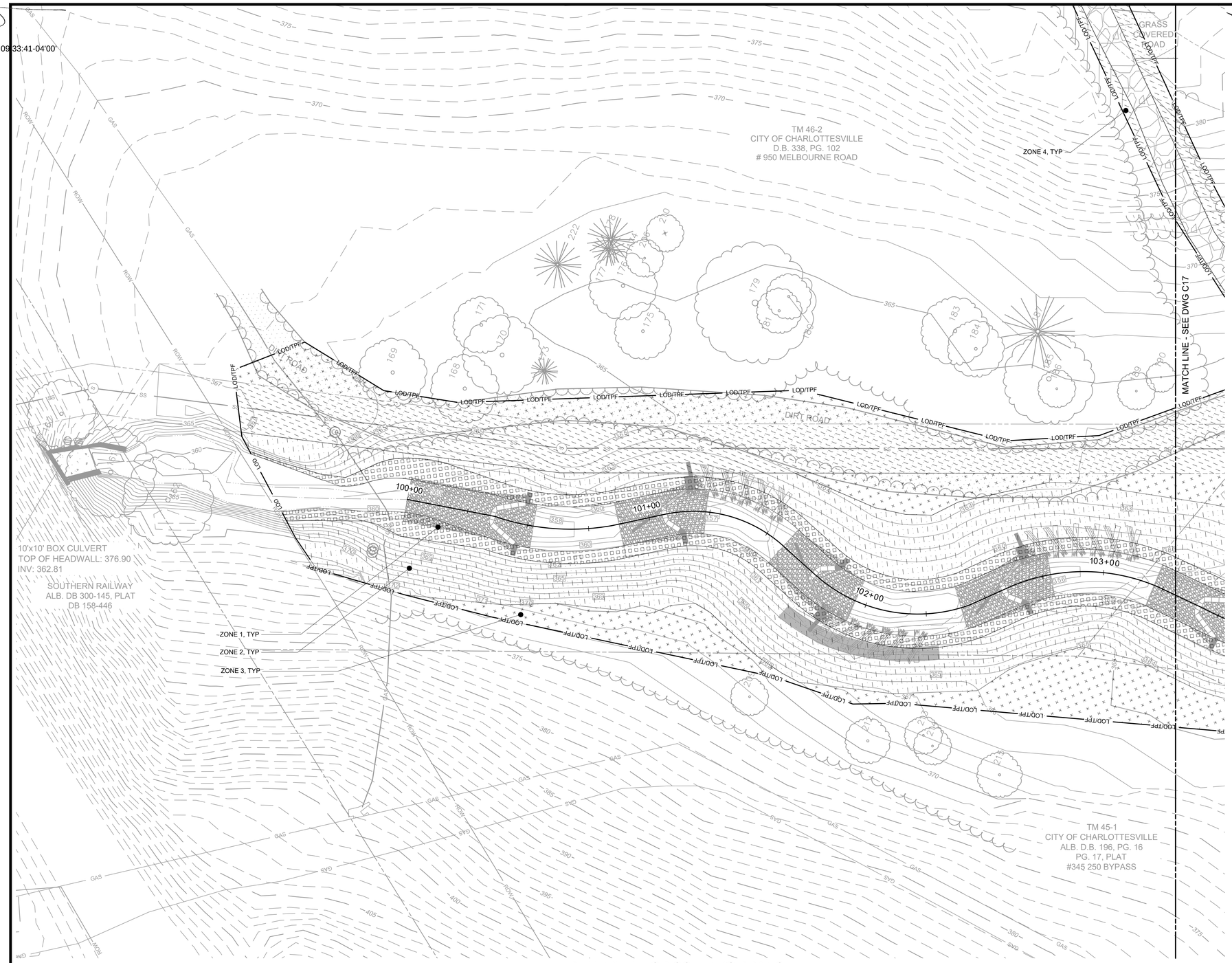
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
FINAL PHASE, EROSION AND SEDIMENT CONTROL PLANS

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C15

File: O:\32571-003\32571-003\CAD_BIM\CIVIL\C15 Saved by SKANE Save date: 4/8/2022 3:55 PM
PLOT DATE: 4/26/2022 2:44 PM BY: SKANE

2022.05.02 09:33:41-04'00'



PLAN VIEW FOR SCHENKS BRANCH

SCALE: 1" = 20'

1" = 20' 20 10 0 20'

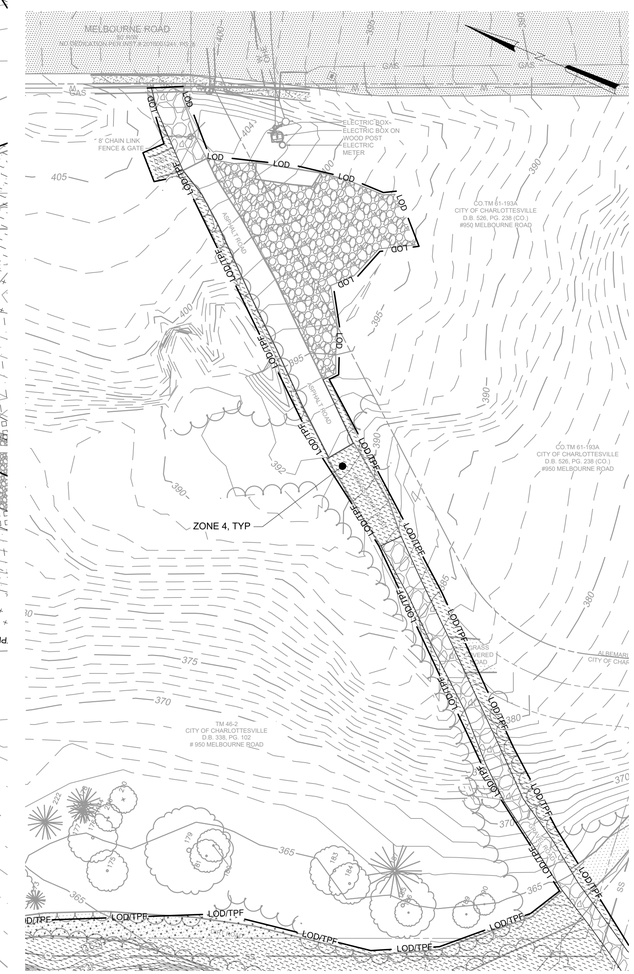
REVEGETATION / PLANTING ZONES AND STABILIZATION

ZONE 1 - STREAM TOE TO BACK OF BANKFULL BENCH (8,758 SF)

ZONE 2 - BACK OF BANKFULL BENCH TO EDGE OF GRADING (35,501 SF)

ZONE 3 - EDGE OF GRADING TO EDGE OF DISTURBANCE (22,427 SF)

ZONE 4 - SANITARY SEWER EASEMENT AND TEMPORARY CONSTRUCTION ROADWAY (14,191 SF)



ACCESS PATH

SCALE: 1" = 20'

1" = 40' 40 20 0 40'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. L. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER

2022.05.02 09:39:41-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

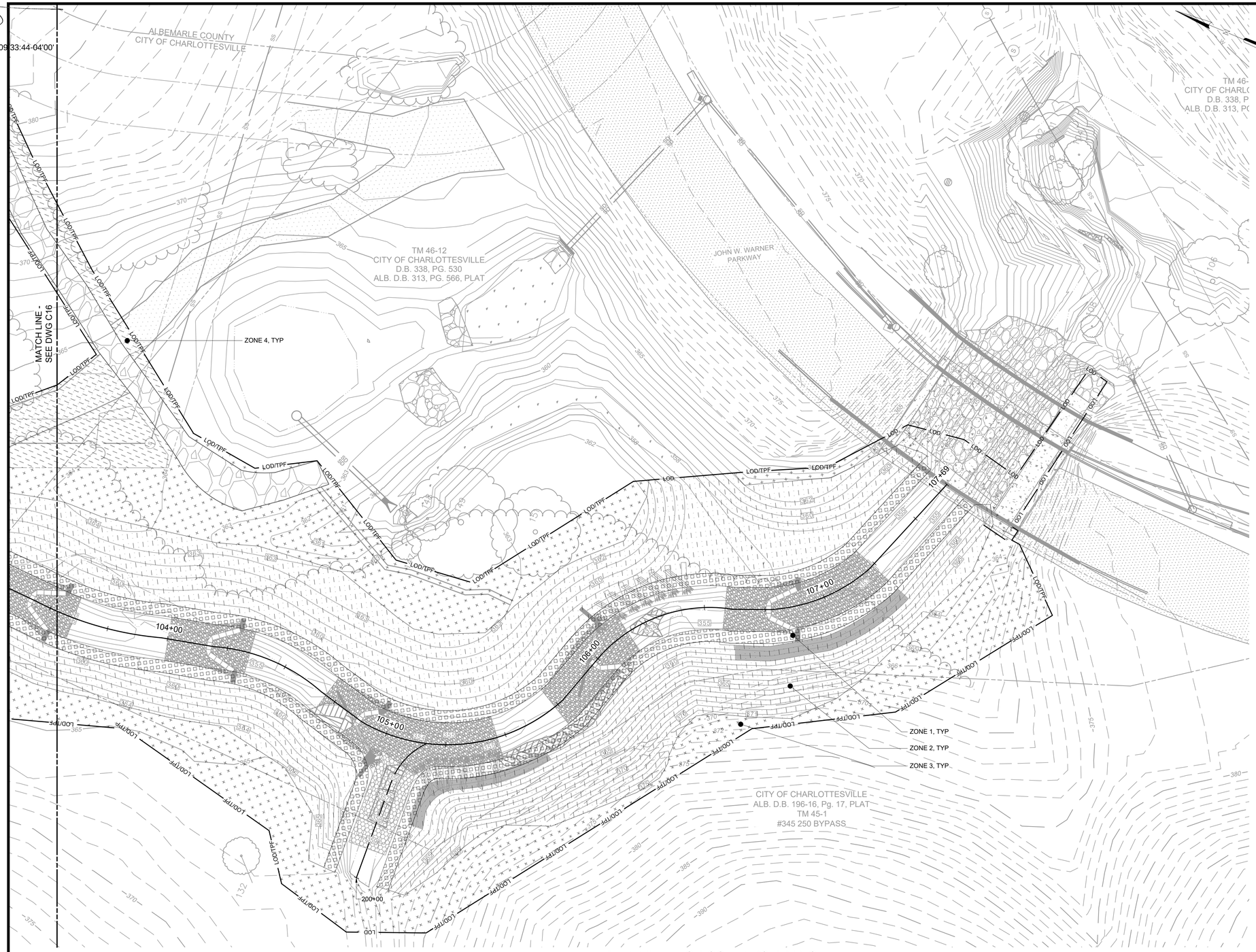
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
LANDSCAPING PLAN - 1 OF 2

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C16

File: O:\32571-003\32571-003\CAD_DRAWING\C16 Saved by SKANE Save date: 4/11/2022 10:44 AM
PLOT DATE: 4/29/2022 2:24 PM BY: SKANE

2022.05.02 09:33:44-04'00'



PLAN VIEW FOR SCHENKS BRANCH

SCALE: 1" = 20'

REVEGETATION / PLANTING ZONES AND STABILIZATION

ZONE 1 - STREAM TOE TO BACK OF BANKFULL BENCH (8,758 SF)

ZONE 2 - BACK OF BANKFULL BENCH TO EDGE OF GRADING (35,501 SF)

ZONE 3 - EDGE OF GRADING TO EDGE OF DISTURBANCE (22,427 SF)

ZONE 4 - SANITARY SEWER EASEMENT AND TEMPORARY CONSTRUCTION ROADWAY (14,191 SF)

1" = 20' 20 10 0 20'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
2022.05.02
PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

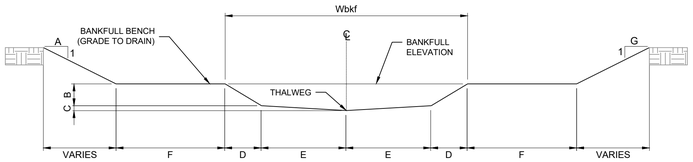
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

CIVIL
LANDSCAPING PLAN - 2 OF 2

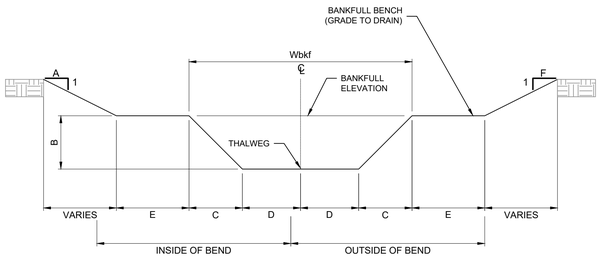
DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	C17

File: O:\32571-003\32571-003\CADD_BIM\CIVIL\C17 Saved by SKANE Save date: 4/11/2022 10:44 AM
PLOT DATE: 4/29/2022 2:04 PM BY: SKANE

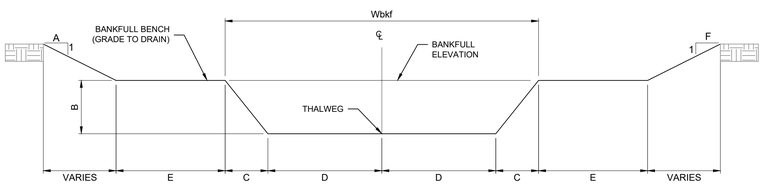
2022.05.02 09:33:45-04'00'



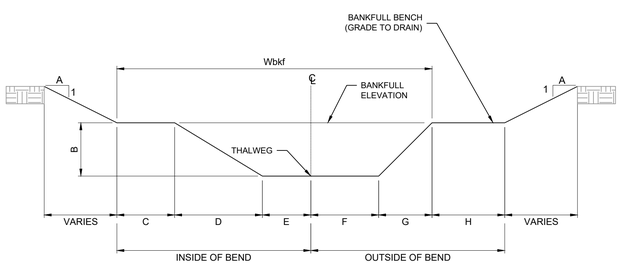
1 TYPICAL RIFFLE CROSS SECTION
NTS



2 TYPICAL RUN CROSS SECTION
NTS



3 TYPICAL CENTER POOL CROSS SECTION
NTS



4 TYPICAL SKEWED POOL CROSS SECTION
NTS (RIGHT SKEW SHOWN. LEFT SKEW ROTATED ABOUT CL)

NOTES:

1. TYPICAL CROSS SECTION VERTICAL CONTROL SHALL BE ABOUT THE THALWEG PER THE STREAM PROFILE.
2. TYPICAL CROSS SECTION VIEWS ARE ORIENTED AS IF LOOKING DOWNSTREAM.
3. TYPICAL RIFFLE SECTIONS SHALL BE LOCATED AT "R" STATIONS, TYPICAL RUN SECTIONS SHALL BE LOCATED AT "N" STATIONS, AND TYPICAL POOL SECTIONS SHALL BE LOCATED AT THE "P" STATIONS AS SHOWN IN THE CONTRACT DRAWINGS.
4. CONTRACTOR SHALL CREATE GRADUAL TRANSITIONS BETWEEN ALL SECTIONS.
5. DIMENSIONS PROVIDED IN THE GEOMETRY TABLE SHALL BE USED ALONGSIDE DETAILED GRADING PLANS, FROM DRAWING C6 THROUGH C13.

REACH	CROSS SECTION	DIMENSIONS IN FEET								
		Wbkf	a	b	c	d	e	f	g	h
SCHENKS BRANCH TRIBUTARY	RIFFLE	18	5	1.2	0.5	2.4	6.6	5	2	--
	RUN	20	5	1.69 to 1.77 *	3.8	6.2	4	2	--	--
	CENTER POOL	22	5	4	8	3	3	2	--	--
	SKEWED POOL	22	5	4	3	10	2	2	8	3
UNNAMED TRIBUTARY	RUN	16	3	1	2	6	4	2	--	--
	CENTER POOL	20.4	3	3.6	7.2	3	1.8	2.5	--	--

NOTE:

* RUN "b" DIMENSION IS VARIABLE BASED UPON PROPOSED STREAM PROFILE. REFER TO STREAM PROFILE AND STRUCTURE TABLES ON DWG C10.

5 TYPICAL STREAM CROSS SECTIONS GEOMETRY TABLE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
2022.05.02 09:40:09-04'00'
PROFESSIONAL ENGINEER

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

DETAILS
TYPICAL STREAM CROSS SECTIONS

DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD1

File: O:\32571-003\02371-001\CAD_SHEETS\CD1 Saved by SKANE Save date: 4/6/2022 12:54 PM
PLOT DATE: 4/20/2022 7:20 PM BY: SKANE

2022.05.02 09:33:46-04'00'

PRACTICE / TYPE OF REVETMENT	SUB-COMPONENT	PURPOSE	MATERIAL	NOMINAL SIZE[1] (INCHES)	VDOT RIPRAP SIZING	NOTES	DETAIL REFERENCE	GRADING TOLERANCE
CROSS VANE (CV) / J-HOOK VANE (JH)	APEX BOULDERS	GRADE CONTROL	RIPRAP	26	DRY RIPRAP CLASS III	FLAT, STACKABLE	CD4 & CD5	0.5 FT +/- HOR; 0.1 FT +/- VERT
	TOP ARM BOULDER	GRADE CONTROL	RIPRAP	26				
	BOTTOM FOOTERS	GRADE CONTROL	RIPRAP	26				
	BASE FLOW DIVERTERS	HYDRAULICS	RIPRAP	11	DRY RIPRAP CLASS AI	--		
	TRANSITION STONE	HYDRAULICS	RIPRAP	11		--		
	POOL STONE	STABILITY	RIPRAP	11		--		
	BEDDING SUPPORT	STABILITY	GRAVEL	0.75	57 STONE	--		
RIFFLE GRADE CONTROL (RGC)	RIFFLE GRADE STABILITY MIX	GRADE CONTROL	RIPRAP	11	DRY RIPRAP CLASS AI	CONTRACTOR TO SUPPLEMENT WITH SALVAGED, EXISTING RIPRAP AT JWW PKWY.	CD3	0.5 FT +/- HOR; 0.1 FT +/- VERT
	CHINKING	STABILITY	STREAM BED MATERIAL	HARVESTED STREAM MATERIAL FROM EXISTING CHANNEL (SAND/SBM)	N/A	HARVESTED IN SITU		
TRIBUTARY ROCK CASCADE (C)	TOP ROCK	GRADE CONTROL	RIPRAP	26	DRY RIPRAP CLASS III	--	CD8	0.5 FT +/- HOR; 0.1 FT +/- VERT
	BOTTOM FOOTER STONE	GRADE CONTROL	RIPRAP	26		--		
	BEDDING SUPPORT	STABILITY	GRAVEL	0.75	57 STONE	--		
TOE WOOD (TW)	TOE WOOD STONE	STREAM BANK PROTECTION	STREAM BED MATERIAL	11	DRY RIPRAP CLASS AI	--	CD6	0.5 FT +/- HOR; 0.1 FT +/- VERT
	CHANNEL BOTTOM	STREAM COMPETENCY	RIPRAP	11	DRY RIPRAP CLASS AI	--		
	BACKFILL	STREAM BANK PROTECTION	STREAM BED MATERIAL	HARVESTED STREAM MATERIAL FROM EXISTING CHANNEL (SAND/SBM)	--	HARVESTED IN SITU		
SOIL LIFT (SL)	EMBEDMENT SILL	SCOUR PROTECTION	RIPRAP	11	DRY RIPRAP CLASS AI	--	CD7	0.5 FT +/- HOR; 0.1 FT +/- VERT
	GRAVEL	BEDDING SUPPORT	GRAVEL	0.75	57 STONE	--		

[1] NOMINAL SIZE REFERS TO AVERAGE DIMENSION = MEDIAN AXIS

1 ROCK SIZING TABLE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02
09:33:46-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

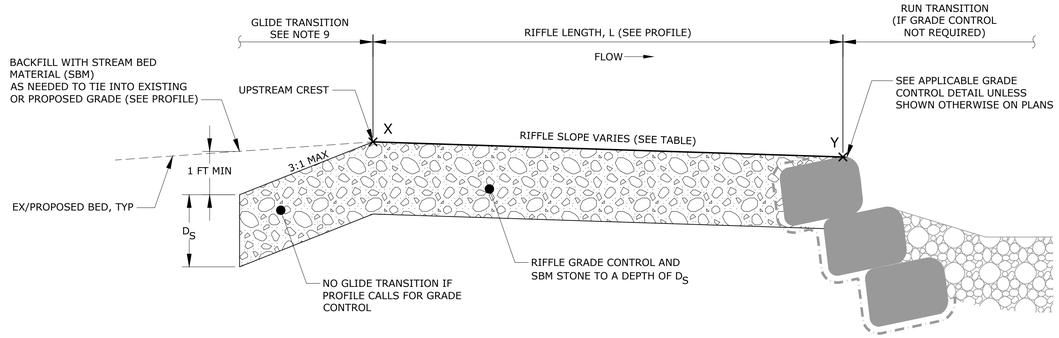
SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

DETAILS
ROCK SIZING TABLE

DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD2

File: O:\32571-003\32571-003\CAD_BM\DETAILS\CD2 Saved by SKANE Save date: 4/11/2022 10:47 AM
PLOT DATE: 4/26/2022 2:16 PM BY: SKANE

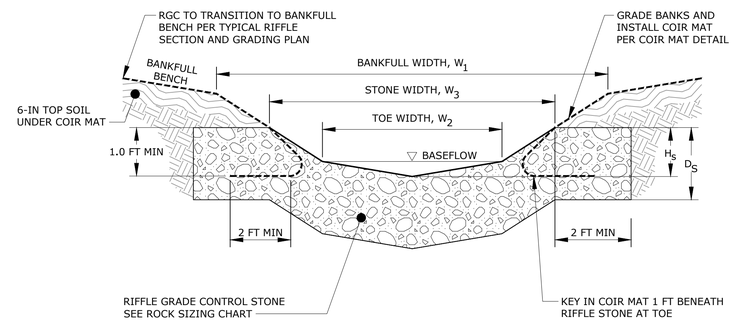
2022.05.02 09:33:49-04'00'



A PROFILE VIEW

NOTES:

1. IF EXISTING OR PROPOSED UTILITY OCCURS WITHIN THE RGC, COMPLETE PIPE INSTALLATION, REHABILITATION, OR REPLACEMENT WORK AND INSTALL PIPE PROTECTION (IF REQUIRED) PER SEPARATE UTILITY AND PIPE PROTECTION DETAILS PRIOR TO COMPLETING RGC WORK.
2. CONSTRUCT UPSTREAM AND DOWNSTREAM GRADE CONTROLS (IF REQUIRED) PER SEPARATE DETAILS PRIOR TO INSTALLING THE RGC.
3. CROSS-SECTIONAL DIMENSIONS AND LONGITUDINAL SPACING OF FEATURES VARY. SEE STRUCTURE TABLES, TYPICAL SECTIONS, DETAILED CROSS SECTIONS, AND PROFILES FOR DIMENSIONS OF EACH INDIVIDUAL STRUCTURE.
4. RIFFLE GRADE CONTROL STONE SHALL BE PLACED SO THAT IT SHINGLES IN A DOWNSTREAM DIRECTION. SMALL AND LARGE STONES SHALL BE MIXED PRIOR TO IN-STREAM PLACEMENT TO MINIMIZE VOID SPACES. STONES MUST BE PLACED IN A MANNER TO PROMOTE INTERLOCKING. DUMPING OF RIPRAP SHALL NOT BE PERMITTED.
5. CHINK ALL RGC VOIDS WITH SBM PER ROCK SIZING TABLE.
6. THERE MAY BE NO GLIDE OR RUN TRANSITION WHERE THE UPSTREAM OR DOWNSTREAM RIFFLE LIMITS ARE SET BY GRADE CONTROLS.
7. THALWEG MAY BE MODIFIED IN FIELD PER THE ENGINEER.
8. SEE TYPICAL RIFFLE FOR RIFFLE CROSS SECTION DIMENSIONS, DWG CD1.
9. CONTRACTOR, TO PROVIDE 5' OF GLIDE TRANSITION, UPSTREAM OF UPSTREAM CREST.



B SECTION VIEW

1 RIFFLE GRADE CONTROL (RGC) DETAIL

NTS

STRUCTURE #	UPSTREAM STA	DOWNSTREAM STA	STREAMBED ELEV X (MSL)	STREAMBED ELEV Y (MSL)	LENGTH L (FT)	RIFFLE SLOPE (%)	BANKFULL WIDTH W1 (FT)	TOE WIDTH W2 (FT)	STONE WIDTH W3 (FT)	STONE HEIGHT HS (FT)	RGC STONE DEPTH DS (FT)
RGC-1	100+00.00	100+36.45	359.69	359.44	36.45	0.7%	18	13.2	17	1.1	2
RGC-2	100+92.45	101+07.45	359.02	358.85	15	1.1%	18	13.2	17	1.1	2
RGC-3	101+63.45	101+76.45	358.5	358.36	13	1.1%	18	13.2	17	1.1	2
RGC-4	102+44.45	102+59.45	357.91	357.74	15	1.1%	18	13.2	17	1.1	2
RGC-5	103+27.45	103+42.45	357.3	357.14	15	1.1%	18	13.2	17	1.1	2
RGC-6	104+05.45	104+18.45	356.73	356.59	13	1.1%	18	13.2	17	1.1	2
RGC-7	104+75.45	104+88.45	356.22	356.08	13	1.1%	18	13.2	17	1.1	2
RGC-8	105+78.45	105+98.45	355.47	355.25	20	1.1%	18	13.2	17	1.1	2
RGC-9	106+63.45	106+77.45	354.85	354.69	14	1.1%	18	13.2	17	1.1	2

2 SCHENKS BRANCH TRIBUTARY PROJECT, RIFFLE GRADE CONTROL (RGC) SCHEDULE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:32:04-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

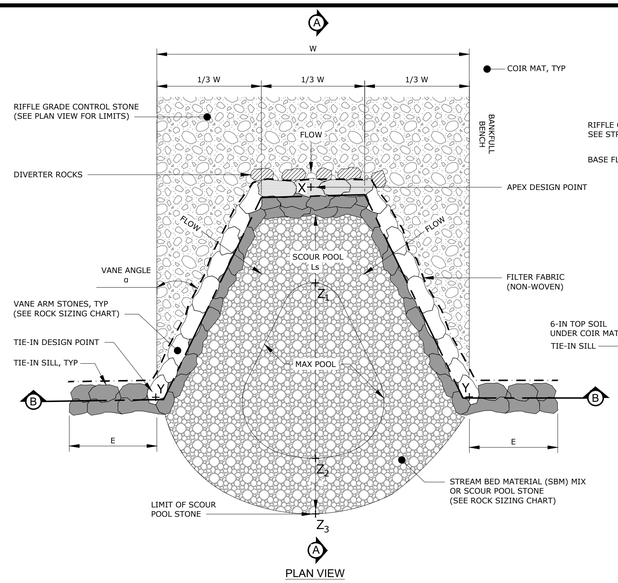
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

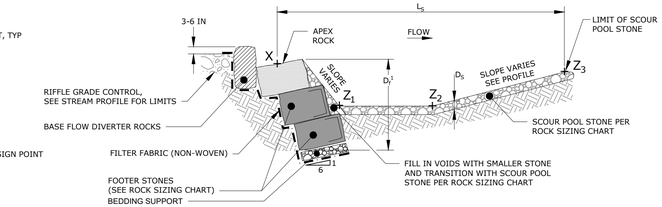
DETAILS
RIFFLE GRADE CONTROL STRUCTURE

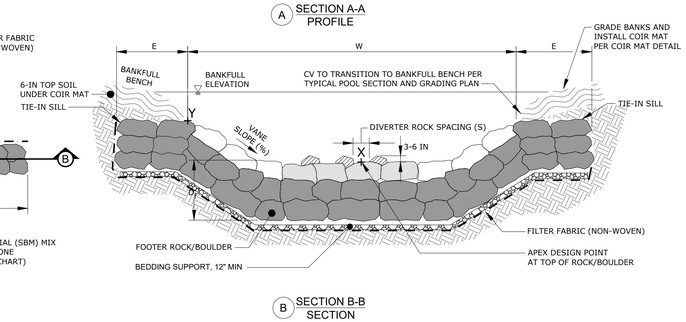
DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD3

File: O:\32571-003\32571-003\CAD_BM\DETAILS\CD3 Saved by SKANE Save date: 4/8/2022 12:32 PM
PLOT DATE: 4/28/2022 2:39 PM BY: SKANE

2022.05.02 09:33:53-04'00'







1 CROSS VANE (CV) DETAIL

NTS

NOTES:

1. NUMBER OF STACKED FOOTER ROCKS REQUIRED TO ACCOMPLISH DESIGN FOOTER DEPTH MAY VARY. SEE DETAIL TABLE AND ROCK SIZING CHART FOR STONE DIMENSIONS AND MIN FOOTER DEPTHS (D_f).
2. ALL DIMENSIONS/ELEVATIONS TO BE FIELD ADJUSTED TO ENSURE STABLE INSTALLATION, FISH PASSAGE, AND TIE-IN TO BANKS.
3. VANE STONES SHALL BE BOULDERS WITH RECTANGULAR BLOCK SHAPE AND MINIMUM D50 DIMENSION OF 18 INCHES IN ANY DIRECTION UNLESS NOTED OTHERWISE (SEE ROCK SIZING CHART).
4. ROCKS/BOULDERS SHALL BE TIGHT FITTING WITH NO VOIDS/GAPS LARGER THAN 1 INCH. VOIDS ALONG APEX AND VANE ARMS SHALL BE CHINKED-IN WITH SMALLER NON-WEATHERING STONE TO ESTABLISH SURFACE FLOW AND INTERCONNECTION OF ROCKS.
5. ROCKS/BOULDERS ALONG APEX AND VANE ARMS SHALL BE FLUSH WITH THE TOP SURFACES OF ADJACENT STONES.
6. TOP ROCKS SHALL BE SUPPORTED BY A FOOTER ROCK AND SHINGLED UPSTREAM.
7. STONE PLACEMENT SHALL BE FIELD ADJUSTED TO ENSURE STONE WILL REMAIN IN PLACE OVER FULL RANGE OF FLOW CONDITIONS.
8. REPLACEMENT OF ROCKS/BOULDERS MAY BE REQUIRED BASED UPON INSPECTION OF COMPLETED INSTALLATION TO MEET DESIGN INTENT AND PERMIT REQUIREMENTS.
9. SPACING BETWEEN DIVERTER ROCKS SHALL BE 1/3 TO 1/2 THE LENGTH OF THE APEX STONE LENGTH UNLESS NOTED OTHERWISE (SEE DETAIL TABLE). DIVERTER STONES SHALL BE PLACED SO THAT THE TOP SURFACE IS 3 TO 6 INCHES ABOVE THE APEX ROCK ELEVATION.
10. TIE-IN SILLS SHALL BE EMBEDDED 4 FT (MIN) INTO STABLE CHANNEL BANK UNLESS NOTED OTHERWISE (SEE DETAIL TABLE).
11. ANGLE OF VANE ARM SHALL BE BETWEEN 20 (MIN) AND 30 (MAX) DEGREES UNLESS NOTED OTHERWISE (SEE DETAIL TABLE).
12. SLOPE OF VANE ARM SHALL BE BETWEEN 2% (MIN) AND 7% (MAX) UNLESS NOTED OTHERWISE (SEE DETAIL TABLE). ARM SLOPE IS MEASURED FROM APEX POINT X TO BANK TIE-IN POINT Y.
13. PLACE FILTER FABRIC (NON-WOVEN) ON UPSTREAM FACE OF ROCKS FOR THE ENTIRE STRUCTURE INCLUDING APEX, VANE AND TIE-IN SILLS. FABRIC SHALL EXTEND BENEATH THE FOOTER ROCKS.
14. WHERE EXISTING BED MATERIAL IN SCOUR POOLS MATCHES SIZE AND MATERIAL OF STREAM BED MATERIAL (SBM) MIX, SCOUR POOL STONE LINING IS NOT REQUIRED UNLESS NOTED OTHERWISE. WHERE SCOUR POOL LIES IN CLAY OR OTHER SUBSTRATE FINER THAN THE SBM MIX, THE CONTRACTOR SHALL OVER EXCAVATE BY 6 INCHES (MIN.) UNLESS NOTED OTHERWISE (SEE DETAIL TABLE) AND PLACE SBM MIX TO PROPOSED GRADE OR AS DIRECTED BY THE ENGINEER.
15. STREAM BED MATERIAL SHALL COME FROM SALVAGED SOURCE FIRST AND THEN FURNISHED AS NECESSARY. OFFSITE STREAMBED MATERIAL SHALL BE USED TO CHOKE BOTTOM LAYERS OF ROCK WITH SALVAGED MATERIAL SAVED FOR TOP.
16. ROCKS (APEX, ARM, AND FOOTERS) ARE PLACED AT 6:1 CAMBER WITH HORIZONTAL.
17. SEE ROCK SIZING CHART FOR STONE SIZES.

STRUCTURE #		APEX X	STONE TIE-IN AT BANK Y		MAX POOL Z1	MAX POOL Z2	SCOUR POOL STONE Z3	VANE SLOPE (%)	VANE ANGLE a (DEGREES)	SILL EMBEDMENT LENGTH E (FT)	SCOUR POOL STONE LENGTH LS (FT)	BANKFULL WIDTH W (FT)	ROCK DIVERTER SPACING S (FT)	FOOTER DEPTH DF (FT)	SCOUR POOL STONE DEPTH DS (FT)
			LEFT	RIGHT											
CV-1	STA	100+36.45	100+48.45	100+48.45	100+47.45	-	100+52.45	(L) 3.7% (R) 3.7%	(L) 25% (R) 25%	(L) 5 (R) 5	16	18	0.2	4.4	1.3
	OFFSET	-	12	12	11	-	-								
	ELEV	359.44	359.884	359.884	357.05	-	357.27								
CV-2	STA	103+42.45	103+54.45	103+54.45	103+55.45	-	103+60.45	(L) 3.7% (R) 3.7%	(L) 25% (R) 25%	(L) 5 (R) 5	18	18	0.2	4.4	1.3
	OFFSET	-	12	12	13	-	-								
	ELEV	357.14	357.584	357.584	354.8	-	354.99								
CV-3	STA	104+18.45	104+30.45	104+30.45	104+29.45	-	104+34.45	(L) 3.7% (R) 3.7%	(L) 25% (R) 25%	(L) 5 (R) 5	16	18	0.2	4.4	1.3
	OFFSET	-	12	12	11	-	-								
	ELEV	356.59	357.034	357.034	354.26	-	354.47								
CV-4	STA	106+77.45	106+89.45	106+89.45	106+95.45	-	107+24.45	(L) 3.7% (R) 3.7%	(L) 25% (R) 25%	(L) 5 (R) 5	47	18	0.2	4.4	1.3
	OFFSET	-	12	12	18	-	-								
	ELEV	354.69	355.134	355.134	352.31	-	352.43								

2 CROSS VANE (CV) SCHEDULE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:40:24-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

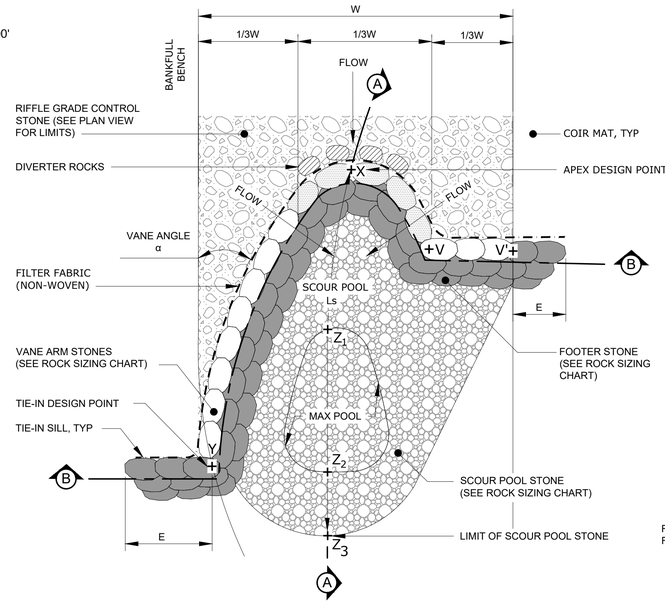
SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

DETAILS
CROSS VANE

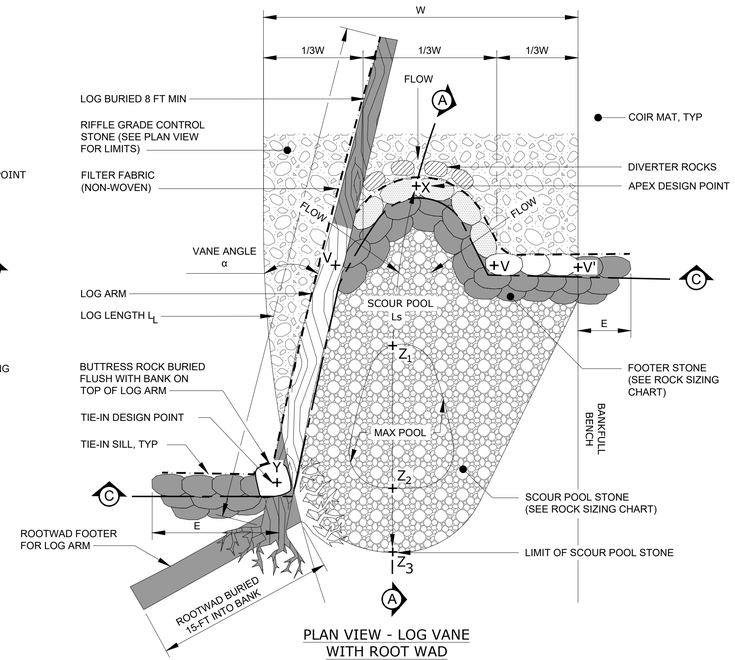
DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD4

File: O:\32571-003\32571-003\CAD_IMA\CRITAL\CD4 Saved by SKANE Save date: 4/8/2022 4:19 PM
PLOT DATE: 4/08/2022 2:05 PM BY: SKANE

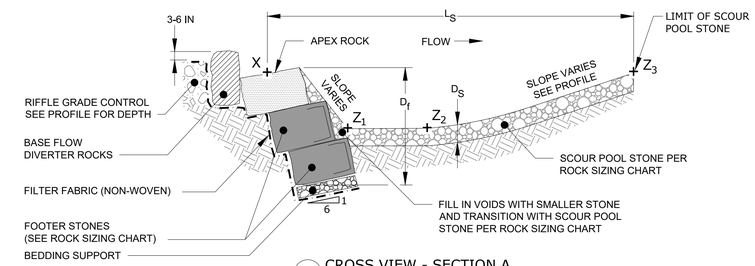
2022.05.02 09:33:56-04'00'



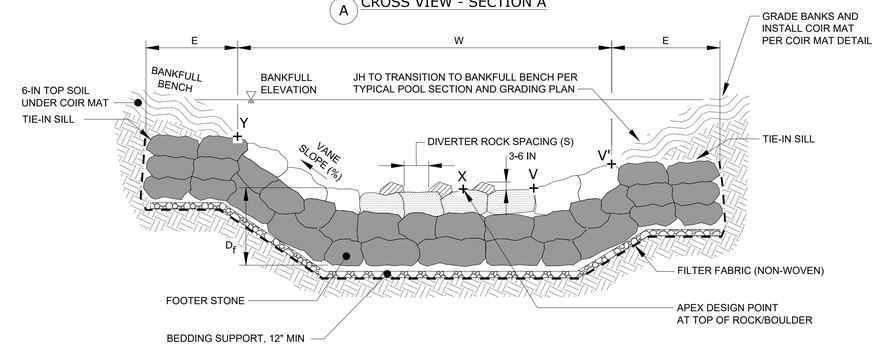
PLAN VIEW - ROCK VANE



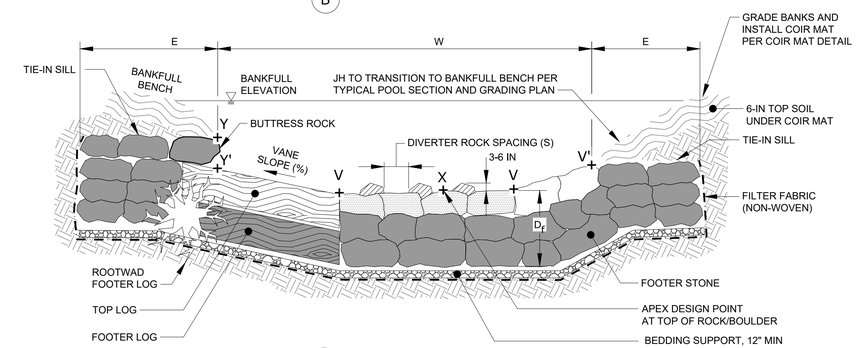
PLAN VIEW - LOG VANE WITH ROOT WAD



A CROSS VIEW - SECTION A



B CROSS VIEW - SECTION B



C CROSS VIEW - SECTION C

J-HOOK VANE NOTES:

1. NUMBER OF STACKED FOOTER ROCKS REQUIRED TO ACCOMPLISH DESIGN FOOTER DEPTH MAY VARY. SEE DETAIL TABLE AND ROCK SIZING CHART FOR STONE DIMENSIONS AND MIN FOOTER DEPTHS (D_f).
2. ALL DIMENSIONS/ELEVATIONS MAY BE FIELD ADJUSTED BY DESIGN ENGINEER TO ENSURE STABLE INSTALLATION, FISH PASSAGE, AND TIE-IN TO BANKS.
3. VANE STONES SHALL BE BLOCK-LIKE BOULDERS WITH TWO ROUGHLY PARALLEL OPPOSITE SIDES SUITABLE FOR STACKING AND MINIMUM DIMENSION AS SPECIFIED IN THE ROCK SIZING TABLE, UNLESS NOTED OTHERWISE.
4. ROCKS/BOULDERS SHALL BE TIGHT FITTING WITH NO VOIDS/GAPS LARGER THAN 1 INCH. VOIDS ALONG APEX AND VANE ARMS SHALL BE CHINKED-IN WITH SMALLER NON-WEATHERING STONE TO ESTABLISH SURFACE FLOW AND INTERCONNECTION OF ROCKS.
5. ROCKS/BOULDERS ALONG APEX AND VANE ARMS SHALL BE FLUSH WITH THE TOP SURFACES OF ADJACENT STONES.
6. TOP ROCKS SHALL BE SUPPORTED BY A FOOTER ROCK AND SHINGLED UPSTREAM.
7. STONE PLACEMENT SHALL BE FIELD ADJUSTED TO ENSURE STONE WILL REMAIN IN PLACE OVER FULL RANGE OF FLOW CONDITIONS.
8. SPACING BETWEEN DIVERTER ROCKS SHALL BE 1/3 TO 1/2 THE LENGTH OF THE APEX STONE LENGTH UNLESS NOTED OTHERWISE (SEE DETAIL SCHEDULE). DIVERTER STONES SHALL BE PLACED SO THAT THE TOP SURFACE IS 3 TO 6 INCHES ABOVE THE APEX ROCK ELEVATION.
9. TIE-IN SILLS SHALL EXTEND 4 FT (MIN) INTO STABLE CHANNEL BANK UNLESS NOTED OTHERWISE (SEE DETAIL SCHEDULE).
10. ANGLE OF VANE ARM SHALL BE BETWEEN 20 (MIN) AND 30 (MAX) DEGREES UNLESS NOTED OTHERWISE (SEE DETAIL SCHEDULE).
11. SLOPE OF VANE ARM SHALL BE BETWEEN 2% (MIN) AND 7% (MAX) UNLESS NOTED OTHERWISE (SEE DETAIL SCHEDULE). ARM SLOPE IS MEASURED FROM APEX POINT X TO BANK TIE-IN POINT Y FOR ROCK VANES. FOR LOG VANES, ARM VANES MEASURED FROM APEX POINT X TO TO BANK TIE-IN POINT Y'.
12. LOG VANES SHALL TIE INTO BANK AT A LOWER ELEV THAN ROCK VANES IN ORDER TO BURY THE ROOTBALL IN THE BANK (SEE DETAIL SCHEDULE).
13. PLACE FILTER FABRIC (NON-WOVEN) ON UPSTREAM FACE OF ENTIRE STRUCTURE, INCLUDING APEX, VANE ROCKS, LOG VANES AND TIE-IN SILLS. FABRIC SHALL EXTEND BENEATH THE FOOTER ROCKS AND FOOTER LOGS.
14. WHERE EXISTING BED MATERIAL IN SCOUR POOLS MATCHES SIZE AND MATERIAL OF SPECIFIED SCOUR POOL STONE, SCOUR POOL STONE LINING IS NOT REQUIRED UNLESS NOTED OTHERWISE. WHERE SCOUR POOL LIES IN CLAY OR OTHER SUBSTRATE FINER THAN THE SPECIFIED SCOUR POOL STONE, THE CONTRACTOR SHALL OVER EXCAVATE BY 6 INCHES (MIN.) UNLESS NOTED OTHERWISE (SEE DETAIL SCHEDULE) AND PLACE STONE TO PROPOSED GRADE OR AS DIRECTED BY THE ENGINEER.
15. SCOUR POOL STONE SHALL COME FROM SALVAGED SOURCE FIRST AND THEN FURNISHED AS NECESSARY. OFFSITE SCOUR POOL STONE SHALL BE USED TO CONSTRUCT BOTTOM LAYERS OF POOL WITH SALVAGED MATERIAL SAVED FOR TOP.
16. ALL ROCKS ARE TO BE PLACED AT 6:1 CAMBER WITH HORIZONTAL.
17. SEE ROCK SIZING CHART FOR STONE SIZES.
18. DUCKBILL ANCHORS SHALL NOT BE INSTALLED.

1 J-HOOK (JH) VANE DETAILS

NTS

STRUCTURE #		TYPE	APEX X	HOOK SILL/LOG V	SILL AT BANK V'	STONE AT BANK Y	LOG AT BANK Y'	MAX POOL Z1	MAX POOL Z2	SCOUR POOL STONE Z3	VANE SLOPE (%)	VANE ANGLE a (DEGREES)	LOG LENGTH LL (FT)	SCOUR POOL STONE LENGTH LS (FT)	BANKFULL WIDTH W (FT)	ROCK DIVERTER SPACING S (FT)	FOOTER DEPTH DF (FT)	SCOUR POOL STONE DEPTH DS (FT)	SILL EMBEDMENT LENGTH E (FT)
JH-1	STA	LOG VANE	101+07.45	101+13.45	101+13.45	101+19.45	101+19.45	101+18.45	-	101+23.45	3.7	25	20	16	18	0.2	4.4	1.3	5
	OFFSET		-	6	6	12	12	11	-	-									
	ELEV		358.85	358.97	358.97	359.29	359.29	356.53	-	356.75									
JH-2	STA	LOG VANE	101+76.45	101+82.45	101+82.45	101+88.45	101+88.45	101+90.45	-	101+95.45	3.7	25	20	19	18	0.2	4.4	1.3	5
	OFFSET		-	6	6	12	12	14	-	-									
	ELEV		358.36	358.48	358.48	358.80	358.80	356.00	-	356.18									
JH-3	STA	LOG VANE	102+59.45	102+65.45	102+65.45	102+71.45	102+71.45	102+73.45	-	102+78.45	3.7	25	20	19	18	0.2	4.4	1.3	5
	OFFSET		-	6	6	12	12	14	-	-									
	ELEV		357.74	357.86	357.86	358.18	358.18	355.40	-	355.58									
JH-4	STA	LOG VANE	104+88.45	104+94.45	104+94.45	105+00.45	105+00.45	105+06.45	-	105+46.45	3.7	25	20	58	18	0.2	4.4	1.3	5
	OFFSET		-	6	6	12	12	18	-	-									
	ELEV		356.08	356.20	356.20	356.52	356.52	353.69	-	354.68									
JH-5	STA	LOG VANE	105+98.45	106+04.45	106+04.45	106+10.45	106+10.45	106+11.45	-	106+16.45	3.7	25	20	18	18	0.2	4.4	1.3	5
	OFFSET		-	6	6	12	12	13	-	-									
	ELEV		355.25	355.37	355.37	355.69	355.69	352.93	-	353.11									

2 J-HOOK (JH) SCHEDULE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA TYLER W. SMITH Lic. No. 63968 PROFESSIONAL ENGINEER 2022.05.02 09:40:55-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

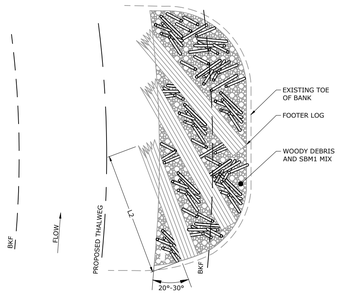
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

DETAILS
J-HOOK VANE

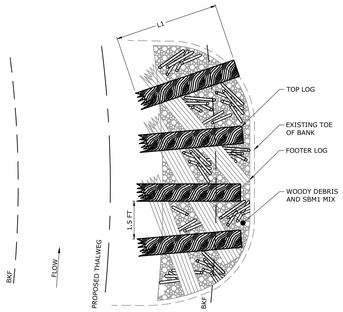
DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD5

File: O:\32571-003\32571-003\CAD_BRANCH\TAILS\CD5 Saved by SKANE Save date: 4/11/2022 10:08 AM
PLOT DATE: 4/29/2022 2:01 PM BY: SKANE

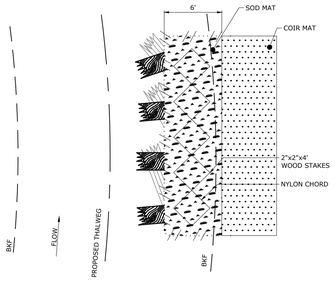
2022.05.02 09:33:59-04'00'



STEP 1 - PLAN VIEW



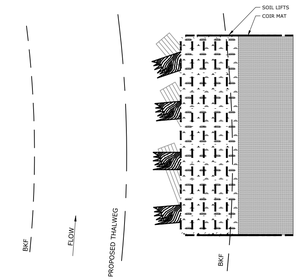
STEP 2 - PLAN VIEW



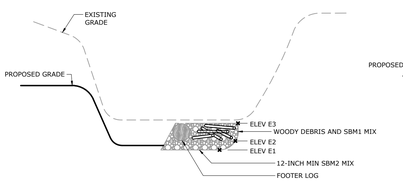
NOTES:

1. IN 'CUT' INSTALLATIONS, ENTIRE STRUCTURE TO BE UNDERLAIN WITH 12 INCHES OF STREAM BED MATERIAL (SBM2) MIX, MINIMUM. IN A 'FILL' INSTALLATION, DEPTH OF UNDERLYING SBM MIX SHALL BE INSTALLED TO THE DEPTH OF EXISTING GRADE (E.G., GREATER THAN 12 INCHES).
2. FOOTER AND TOP LOGS SHALL BE ACCEPTABLE SPECIES AS PER "TOE WOOD" SPECIFICATION AND SHALL MEET THE TENETS OF THAT SPECIFICATION. LOGS SHALL BE NEWLY CUT OR RECENTLY DOWN AND SOUND THROUGHOUT ENTIRE DIAMETER.
3. WOODY DEBRIS SHALL CONSIST OF BRANCHES FROM 2 TO 4 INCHES IN DIAMETER WITH VARIABLE LENGTHS NOT TO EXCEED DIMENSION L1. VOIDS BETWEEN WOODY DEBRIS SHALL BE FILLED WITH SBM1 MIX.
4. FILTER FABRIC MAY BE USED BELOW THE INITIAL 12 INCH SBM2 MIX LAYER IF POOR SOIL CONDITIONS ARE DISCOVERED UPON INSTALLATION. POOR SOIL DISCOVERY TO BE IMMEDIATELY REPORTED TO THE DESIGN ENGINEER.
5. STREAMBED MATERIAL AND SIZE CATEGORIES SHALL MEET REQUIREMENTS PER SPECIFICATION IN PROJECT MANUAL.

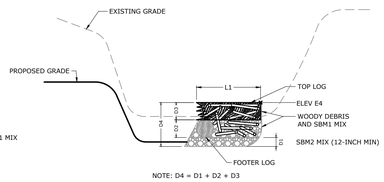
STEP 3.A - PLAN VIEW (TYPE A - TOE WOOD WITH SOD MAT)



STEP 3.B - PLAN VIEW (TYPE B - TOE WOOD WITH SOIL LIFTS)

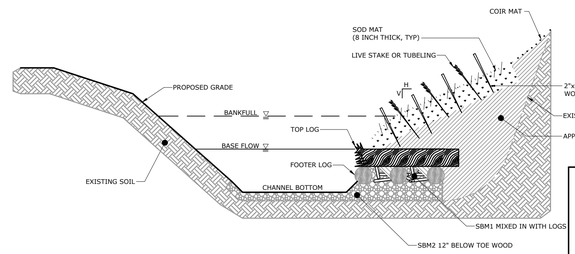


STEP 1 - SECTION VIEW

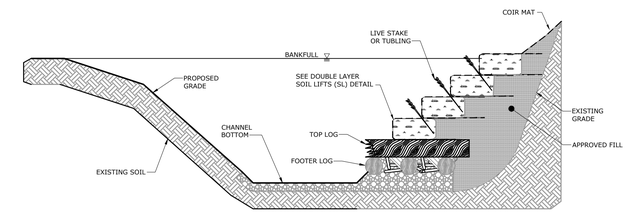


NOTE: D4 = D1 + D2 + D3

STEP 2 - SECTION VIEW



STEP 3.A - SECTION VIEW (TYPE A - TOE WOOD WITH SOD MAT)



STEP 3.B - SECTION VIEW (TYPE B - TOE WOOD WITH SOIL LIFTS)

LEGEND

- BANKFULL (BKF)
- EXISTING GRADE
- PROPOSED GRADE
- STREAM CENTERLINE/THALWEG
- APPROVED FILL
- EXISTING SOIL
- FOOTER LOG
- LIVE STAKE/TUBELING
- SOD MAT
- STREAMBED MATERIAL (SBM) MIX
- TOP LOG
- WOODY DEBRIS
- WOOD STAKE

LEGEND

- SOIL LIFT
- TOP SOIL/COMPOST MIX
- APPROVED FILL

STEP 1 - NOTES:

1. EXCAVATE TO ELEVATION E1 "IN THE DRY" - SEE SEPARATE PUMP AROUND DETAILS FOR PROCEDURE. INSTALL 12-INCH MINIMUM BED OF SBM2 MIX. FOR POOR UNDERLYING SOILS, CONTACT DESIGN ENGINEER IMMEDIATELY - USE OF ADDITIONAL STONE AND/OR FILTER CLOTH MAY BE REQUIRED.
2. INSTALL FOOTER LOGS AT ANGLE WITH THE DESIGN STREAM THALWEG. POSITION FOOTER LOGS TO ACCOMMODATE AT LEAST TWO CANTILEVERED TOP LOGS.
3. PACK VOIDS BETWEEN FOOTER LOGS WITH WOODY DEBRIS MATERIALS AND FILL REMAINING VOIDS WITH SBM1 MIX.

STEP 2 - NOTES:

4. INSTALL TOP LOGS PERPENDICULAR TO DESIGN THALWEG AND POSITION SUCH THAT EACH FOOTER LOG PROVIDES THE FOUNDATION FOR AT LEAST TWO TOP LOGS.
5. PACK VOIDS BETWEEN TOP LOGS WITH WOODY DEBRIS MATERIAL AND FILL REMAINING VOIDS WITH SBM1 MIX.

STEP 3.A - NOTES:

6. INSTALL SOD MAT (8 INCH THICK) AT A 6-FOOT WIDTH. SOD MATS SHALL BE COMPRISED OF DEEP DENSE RHIZOMATOUS GRASS AND GRASS-LIKE SPECIES SUCH AS CAREX SPP. (SEDGES) AND JUNCUS SPP. (RUSHES). AVOID SHALLOW ROOTED BUNCH GRASSES AND ANNUALS.
7. THE SOD MATS SHALL BE STAKED AND SECURED WITH INTERWEAVING, NYLON SHROUD LINE (PARACHUTE CORD). DRIVE 2"x2"x4' HARDWOOD STAKES A MINIMUM OF 3 FEET INTO THE SUBSTRATE AT THE STREAM SIDE EDGE OF SOD MAT. INSTALL A 2ND AND 3RD ROW SPACING 3 FT ON CENTER. NOTCH A GROOVE IN THE HARDWOOD STAKES FOR THE NYLON TO SEAT IN. THE NOTCH SHOULD BE PLACED JUST ABOVE THE SURFACE OF THE SOD MATS. TIGHTLY WRAP THE NYLON CORD AROUND EACH STAKE WEAVING IT IN A FIGURE EIGHT PATTERN.
8. INSTALL LIVE STAKES/TUBLINGS PER SEPARATE LIVE STAKE/TUBLEING DETAILS.
9. INSTALL COIR MAT PER SEPARATE DETAIL.
10. PLANT BENCH AND SLOPE AREAS AS PER LANDSCAPING PLANS.

STEP 3.B - NOTES:

6. INSTALL SOIL LIFTS AS PER SEPARATE DETAIL, INSTALLING LIVE STAKES/TUBLINGS BETWEEN SOIL LIFT LAYERS PER SEPARATE LIVE STAKE/TUBLING DETAILS.
7. PLANT BENCH AND SLOPE AREAS AS PER LANDSCAPING PLANS.

1 TOE WOOD (TW) DETAIL
NTS

STRUCTURE #	BANK	UPSTREAM STATION	DOWNSTREAM STATION	LENGTH (FT)	CHANNEL BOTTOM ELEV E1 (MSL)	FOOTER LOG INV. ELEV E2 (MSL)	TOP LOG INV. ELEV E3 (MSL)	TOP LOG TOP ELEV E4 (MSL)	DESIGN POOL ELEV (MSL)	MIN TOP LOG LENGTH L1 (FT)	MIN FOOTER LOG LENGTH L2 (FT)	NOTES
TW-1	LEFT	101+19.45	101+51.45	32	355.03	356.33	357.33	358.33	356.53	13	14	SEE ROCK SIZING CHART
TW-2	RIGHT	101+88.45	102+23.45	35	354.47	355.77	356.77	357.77	356.00	13	14	SEE ROCK SIZING CHART
TW-3	LEFT	102+71.45	103+11.45	40	353.79	355.09	356.09	357.09	355.40	13	14	SEE ROCK SIZING CHART
TW-4	RIGHT	105+25.45	105+45.45	20	351.92	353.22	354.22	355.22	353.69	13	14	SEE ROCK SIZING CHART
TW-5	LEFT	106+10.45	106+46.45	36	351.31	352.61	353.61	354.61	352.93	13	14	SEE ROCK SIZING CHART

2 TOE WOOD (TW) SCHEDULE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0 1/2" 1")

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:41:14-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

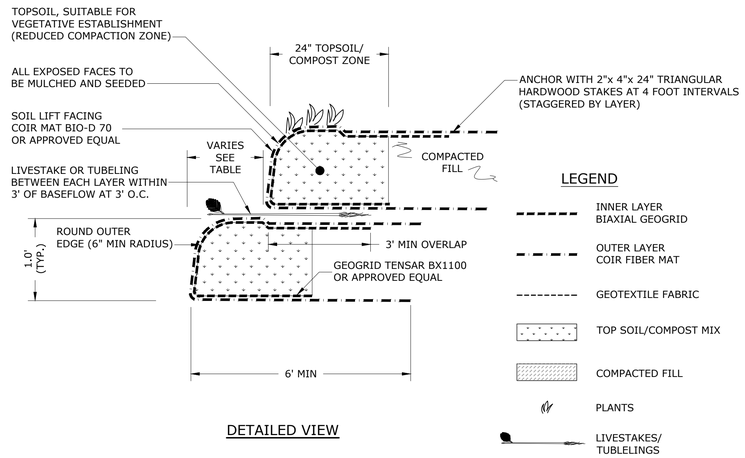
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

DETAILS
TOE WOOD

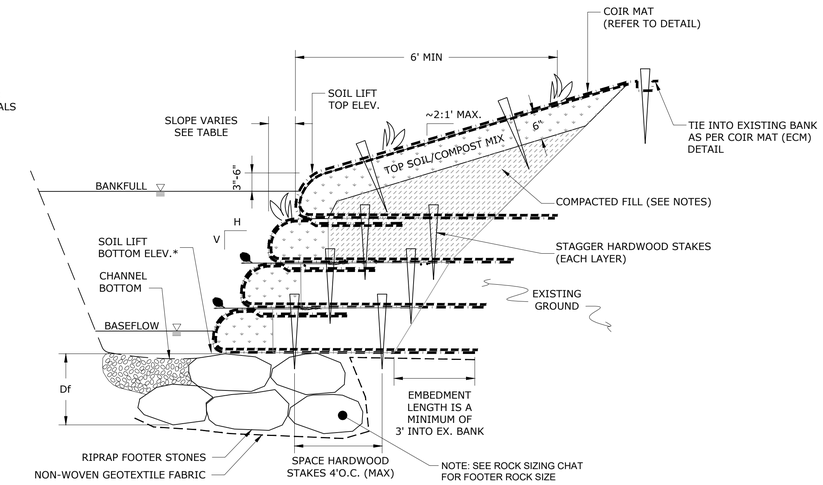
DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD6

File: O:\32571-003\32571-003\CAD_DWG\DETAILS\CD5 Saved by SKANE Save date: 4/5/2022 9:43 AM
PLOT DATE: 4/20/2022 2:05 PM BY: SKANE

2022.05.02 09:34:03-04'00'



DETAILED VIEW



DOUBLE LAYER SOIL LIFT CROSS SECTION

NOTES:

1. DOUBLE SOIL LIFT SHALL CONSIST OF TWO LAYERS OF MATTING OF DIFFERENT MATERIALS. THE INNER MAT LAYER IS TO CONSIST OF A BIAXIAL GEOGRID (TENSAR BX1100 OR APPROVED EQUAL). THE OUTER MAT IS TO CONSIST OF A COCONUT FIBER COIR MAT (ROLANKA BIO-D 70 OR APPROVED EQUAL. ROLANKA BIO-D BLOCK 12-300 IS AN ACCEPTABLE SUBSTITUTE.
2. THE SOIL LIFTS ARE TO BE FILLED WITH TOPSOIL AND SEED MIX.
3. THE SOIL LIFTS ARE TO BE 12-INCHES HIGH, PER LIFT.
4. MATTING TO BE STRETCHED TIGHT AND WRINKLE FREE AROUND LIFT.
5. 6" TOPSOIL/COMPOST MIX SURFACE TO BE FREE OF STICKS, DEBRIS, AND TWIGS TO PREVENT CAVITATION.
6. SATISFACTORY SOIL TYPES INCLUDE ASTM D 2487 SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, SP AND SM OR A COMBINATION OF THESE SOIL GROUPS. SOIL SHALL BE FREE OF ROCK OR GRAVEL LARGER THAN 2 INCHES IN ANY DIMENSION DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION AND OTHER DELETERIOUS MATTER.
7. SOIL LIFTS TO BE SEEDED AND PLANTED AS DESCRIBED ON PLANTING DETAIL PLANS.
8. PLAIN WOODEN STAKES SHALL CONSIST OF ROUGH SAWN HARDWOOD, TRIANGULAR IN SHAPE, 2-INCH BY 4-INCHES IN CROSS SECTION AND 24-INCHES IN LENGTH.
9. ONCE PLACED, SOIL LIFTS SHALL NOT BE DRIVEN OVER WITH HEAVY EQUIPMENT.

1 DOUBLE LAYER SOIL LIFT
NTS

BANK	UPSTREAM STATION	DOWNSTREAM STATION	TYPE	LENGTH	WALL SLOPE	NUMBER OF LIFTS	TOP ELEVATION TIE IN	NOTES
RIGHT	101+63.45	102+23.45	WITH COIR BLOCK	60	3H:1V	2	363	NO TOE ROCK REQUIRED
RIGHT	200+28.00	105+45.45	WITH COIR BLOCK	41	2H:1V	2	361	NO TOE ROCK REQUIRED
RIGHT	106+63.45	107+25.45	WITH COIR BLOCK	62	2H:1V	3	360	NO TOE ROCK REQUIRED

2 SOIL LIFT SCHEDULE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA TYLER W. SMITH Lic. No. 63968 PROFESSIONAL ENGINEER
2022.05.02 09:41:22-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

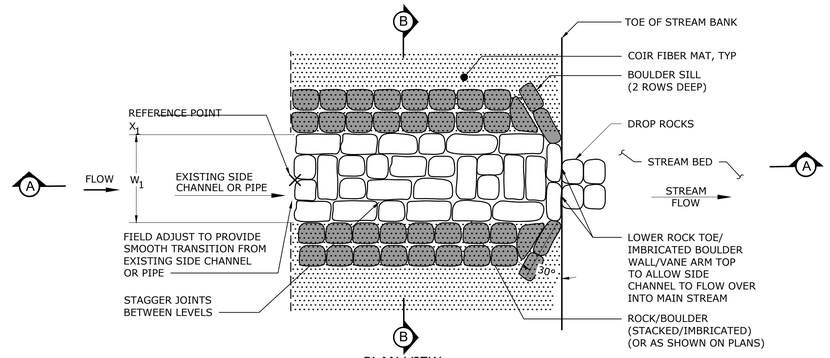
SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

DETAILS
SOIL LIFT

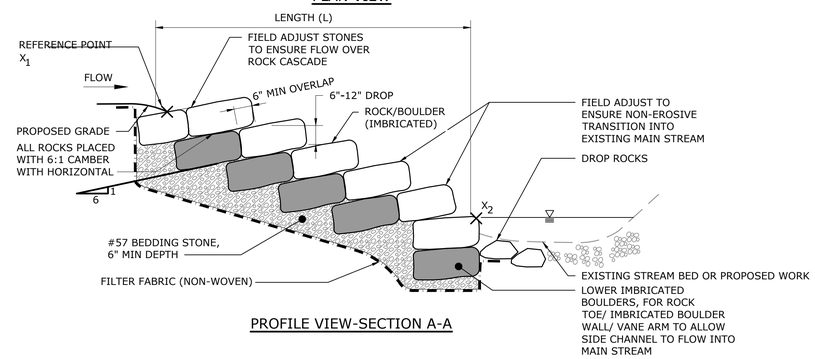
DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	CD7

File: O:\32571-003\32571-003\CAD_BM\ACFT\ALES\CD7 Saved by SKANE Save date: 4/8/2022 9:25 AM
PLOT DATE: 4/28/2022 2:39 PM BY:SKANE

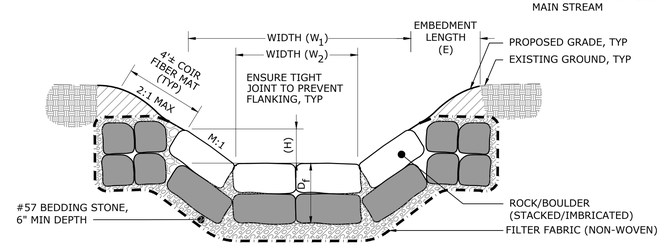
2022.05.02 09:34:06-04'00'



PLAN VIEW



PROFILE VIEW-SECTION A-A



CROSS VIEW-SECTION B-B

1 ROCK CASCADE (C) DETAIL

NTS

STRUCTURE #	UPSTREAM STA.	DOWNSTREAM STA.	ELEV. X1 (MSL)	ELEV. X2 (MSL)	LENGTH L (FT)	BANK HEIGHT H (FT)	BANK WIDTH W1 (FT)	TOE WIDTH W2 (FT)	EMBEDMENT LENGTH E (FT)	FOOTER DEPTH Df (FT)	SLOPE M (H:V)	NOTES
C-1	200+12.77	200+50.00	359.41	355.34	37.23	1	16	12	5	4.4	2	SEE ROCK SIZING CHART

2 ROCK CASCADE (C) SCHEDULE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:41:33-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

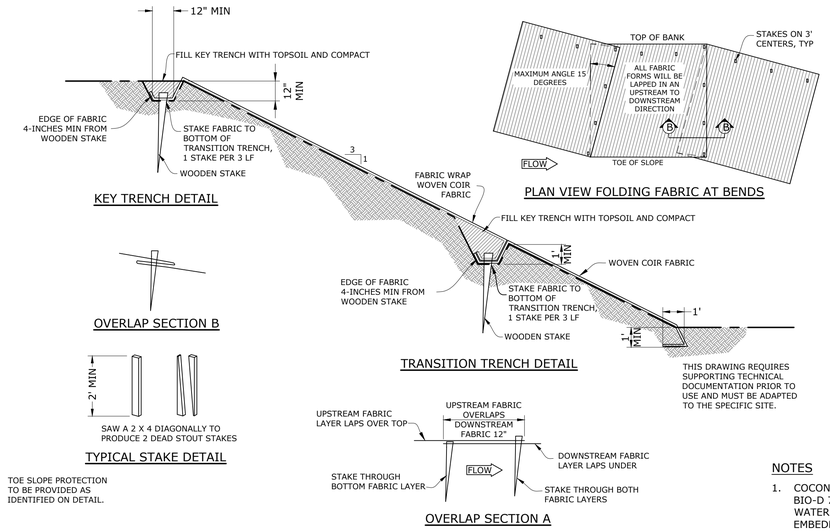
SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

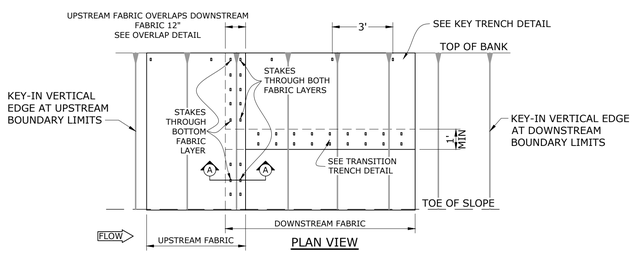
DETAILS
ROCK CASCADE

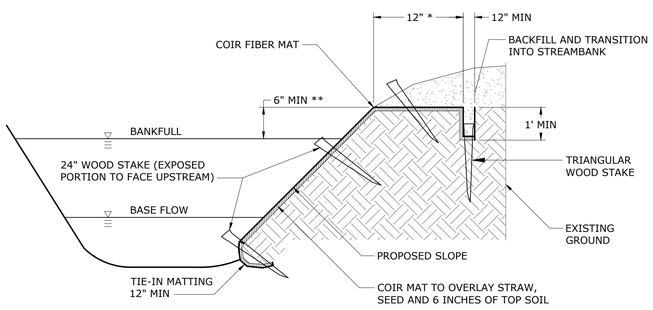
DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD8

File: O:\32571-003\32571-003\CAD_BM\DETAIL\CD8.Dwg Saved by SKANE Save date: 4/8/2022 9:23 AM
PLOT DATE: 4/28/2022 2:15 PM BY: SKANE

2022.05.02 09:34:10-04'00'







B/M COIR FIBER MATTING OVER TOPSOIL

NTS

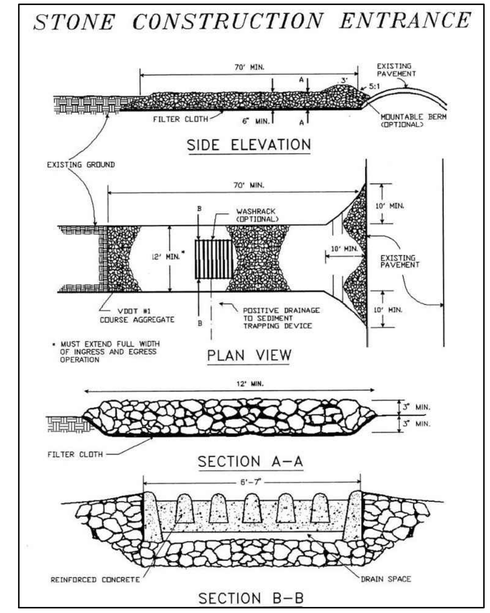
NOTES

1. COCONUT EROSION CONTROL BLANKET SHALL BE 'ROLANKA BIO-D 70' OR APPROVED EQUAL, ABLE TO WITHSTAND 12 FPS WATER VELOCITIES AND 4.5 PSF SHEAR STRESS. FABRIC EMBEDMENT 3.0 FT.
2. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
3. BEGIN AT THE BOTTOM OF THE SLOPE, WORKING FROM DOWNSTREAM UP, AND ANCHOR FIBER MATTING IN A 12" DEEP INITIAL ANCHOR TRENCH. BACKFILL TRENCH AND TAMP EARTH FIRMLY.
4. OVERLAP EDGES OF ADJACENT PARALLEL ROLLS 12" AND ANCHOR AT 12" CENTERS WITH THE UPPER ROLL OVERLAPPING THE TOP OF THE LOWER ROLL.
5. WHEN FIBER MAT MUST BE SPLICED, PLACE END OVER END (SHINGLE STYLE IN DIRECTION OF FLOW) WITH 12" OVERLAP AND ANCHOR USING TWO STAGGERED ROWS OF STAKES AT 6" CENTERS. ADDITIONAL FASTENING MAY BE REQUIRED WHERE MATTING IS CUT TO INSTALL PLANTINGS.
6. LAY FIBER MAT LOOSELY AND ANCHOR SUFFICIENTLY TO MAINTAIN DIRECT CONTACT WITH THE SOIL - DO NOT STRETCH.
7. FOR SLOPES 2:1 AND STEEPER USE A MINIMUM OF (3) 24-INCH WOOD STAKES PER SQUARE YARD AND FOR SLOPES FLATTER THAN 2:1 USE A MINIMUM OF (2) 24-INCH WOOD STAKES PER SQUARE YARD. PROVIDE ADDITIONAL STAKING ALONG CHANNEL BOTTOM WHERE COIR MAT FORMS TOE OF SLOPE.
8. WOOD STAKES SHALL BE ANGLED SUCH THAT EXPOSED PORTION (2"-4") FACES UPSTREAM.
9. ANCHOR, FILL, AND COMPACT END OF FIBER MATTING IN 12"x6" TERMINAL ANCHOR TRENCH (MIRROR IMAGE OF INITIAL TRENCH).

* 10. ANCHORING DIMENSIONS TO BE REDUCED IN AREAS OF NATURAL RESOURCES TO BE PROTECTED.

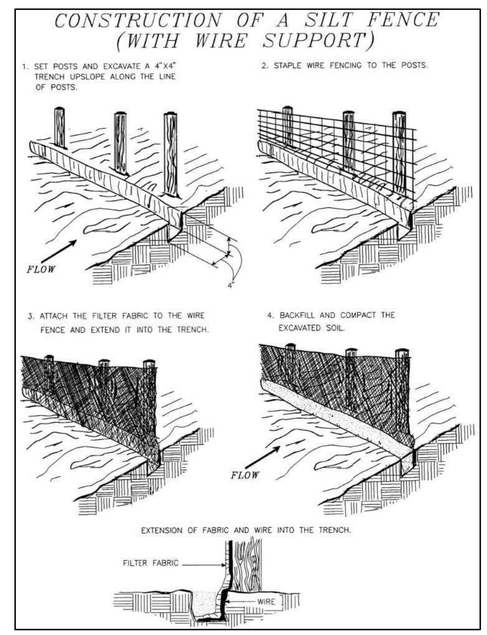
** 11. EROSION CONTROL MATTING MAY BE EXTENDED UP STREAM BANK AS DIRECTED.

12. SEED, STRAW, AND FERTILIZER NOT REQUIRED IN KEY TRENCH.



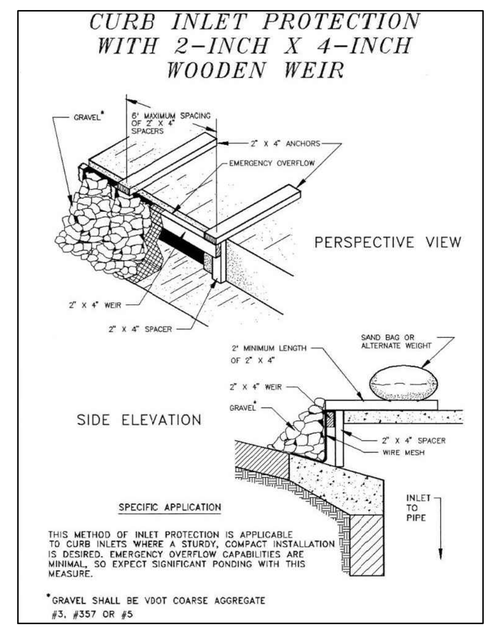
CE STABILIZED CONSTRUCTION ENTRANCE (SCE) DETAIL

NTS



SF SILT FENCE (TYP) DETAILS

NTS



IP CURB INLET PROTECTION (TYP) DETAILS

NTS

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA TYLER W. SMITH Lic. No. 63968 PROFESSIONAL ENGINEER
2022.05.02 09:41:44 04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

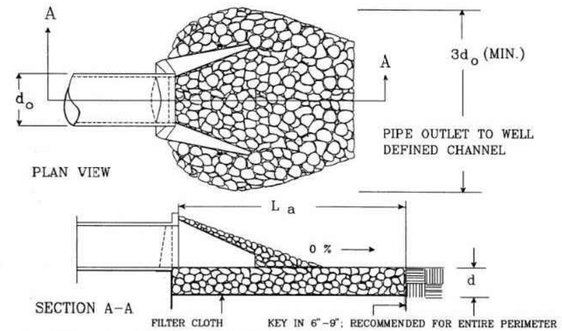
SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

DETAILS
EROSION AND SEDIMENT CONTROL DETAILS - 1 OF 3

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	CD9

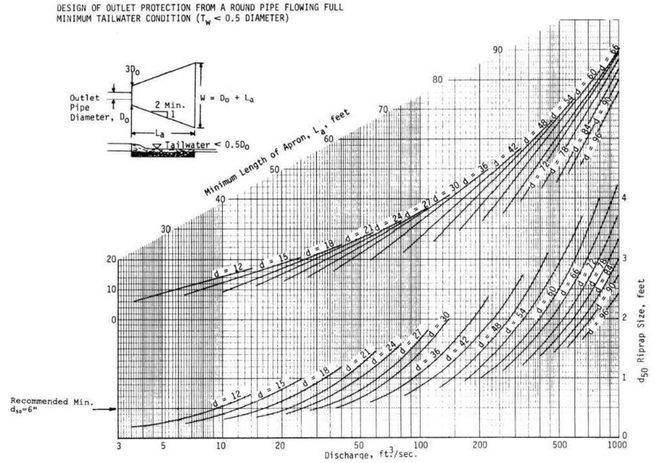
File: O:\32571-003\32571-003\CAD_DRAWIGS\TAL\SCD9 Saved by SKANE Save date: 4/11/2022 10:11 AM
PLOT DATE: 4/20/2022 2:05 PM BY: SKANE

2022.05.02 09:34:13-04'00'

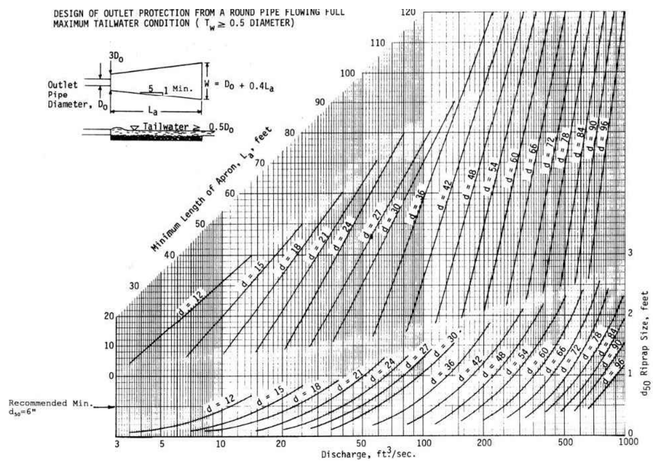


NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18-3 AND 3.18-4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL
MINIMUM TAILWATER CONDITION (T_w < 0.5 DIAMETER)



DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL
MAXIMUM TAILWATER CONDITION ($T_w \geq 0.5$ DIAMETER)



OP OUTLET PROTECTION DETAIL
NTS

TS

TABLE 3.31-C

TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES

SPECIES	SEEDING RATE: Acre	SEEDING RATE: 1000 ft^2	NORTH[a]: 3/1 to 4/30	NORTH[a]: 5/1 to 8/15	NORTH[a]: 8/15 to 11/1	SOUTH[b]: 2/15 to 4/30	SOUTH[b]: 5/1 to 9/1	SOUTH[b]: 9/1 to 11/15	PLANT CHARACTERISTICS
OATS (Avena sativa)	3 bu. (up to 100 lbs., not less than 50 lbs.)	2 lbs.	X	-	-	X	-	-	Use spring varieties (e.g., Noble).
RYE[d] (Secale cereale)	2 bu. (up to 110 lbs., not less than 50 lbs.)	2.5 lbs.	X	-	X	X	-	X	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
GERMAN MILLET (Setaria italica)	50 lbs.	approx. 1 lb.	-	X	-	-	X	-	Warm-season annual. Dies at first frost. May be added to summer mixes.
ANNUAL RYEGRASS[c] (Lolium multiflorum)	60 lbs.	1½ lbs.	X	-	X	X	-	X	May be added in mixes. Will mow out of most stands.
WEEPING LOVEGRASS (Eragrostis curvula)	15 lbs.	5½ ozs.	-	X	-	-	X	-	Warm-season perennial. May bunch. Tolerates hot, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDEZA[c] (Lespedeza stuevei)	35 lbs.	approx. 1½ lbs.	X	X	-	X	X	-	Warm-season annual legume. Tolerates acid soils. May be added to mixes.

* Northern Piedmont and Mountain region. See Plates 3.22-1 and 3.22-2.
[b] Southern Piedmont and Coastal Plain.
[c] May be used as a cover crop with spring seeding.
[d] May be used as a cover crop with fall seeding.
X May be planted between these dates.
\- May not be planted between these dates.

1992

3.31

TS

TABLE 3.32-D
SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	175-200 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
High-Maintenance Lawn	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	100%
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
	150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
~~- Crownvetch **~~	~~20 lbs.~~
	150 lbs.

* Use seasonal nurse crop in accordance with seeding dates as stated below:
February 16th through April ..... Annual Rye
May 1st through August 15th ..... Foxtail Millet
August 16th through October ..... Annual Rye
November through February 15th ..... Winter Rye

~~** Substitute Sericea lespedeza for Crownvetch east of Farmville, Va. (May through September use hulled Sericea, all other periods, use unhulled Sericea).~~ If Flatpea is used in lieu of Crownvetch, increase rate to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.

MU

TABLE 3.35-A

ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES:	RATES: Per Acre	RATES: Per 1000 sq. ft.	NOTES:
Straw or Hay	1½ - 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./1000 sq. ft.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:41:55-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

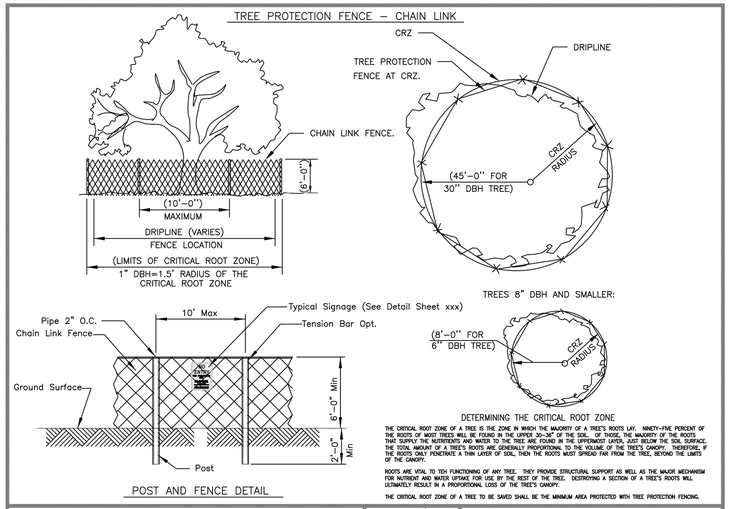
DETAILS
EROSION AND SEDIMENT CONTROL DETAILS - 2 OF 3

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	CD10

File: O:\32571-003\32571-003\CAD_IMAGE\FAL\CD210.Saved by SKANE Save date: 3/9/2022 1:49 PM
PLOT DATE: 4/28/2022 2:15 PM BY: SKANE

2022.05.02 09:34:14-04'00'

TREE PROTECTION FENCE – CHAIN LINK



DETERMINING THE CRITICAL ROOT ZONE

THE CRITICAL ROOT ZONE OF A TREE IS THE ZONE IN WHICH THE MAJORITY OF A TREE'S ROOTS LIV. NINETY-FIVE PERCENT OF THE ROOTS OF MOST TREES WILL BE FOUND IN THE UPPER 30-36" OF THE SOIL. OF THOSE, THE MAJORITY OF THE ROOTS THAT SUPPLY THE NUTRIENTS AND WATER TO THE TREE ARE FOUND IN THE UPPERMOST LAYER, JUST BELOW THE SOIL SURFACE. THE TOTAL AMOUNT OF A TREE'S ROOTS ARE GENERALLY PROPORTIONAL TO THE VOLUME OF THE TREE'S CANOPY. THEREFORE, IF THE ROOTS ONLY PENETRATE A THIN LAYER OF SOIL, THEN THE ROOTS MUST SPREAD FAR FROM THE TREE, BEYOND THE LIMITS OF THE CANOPY.

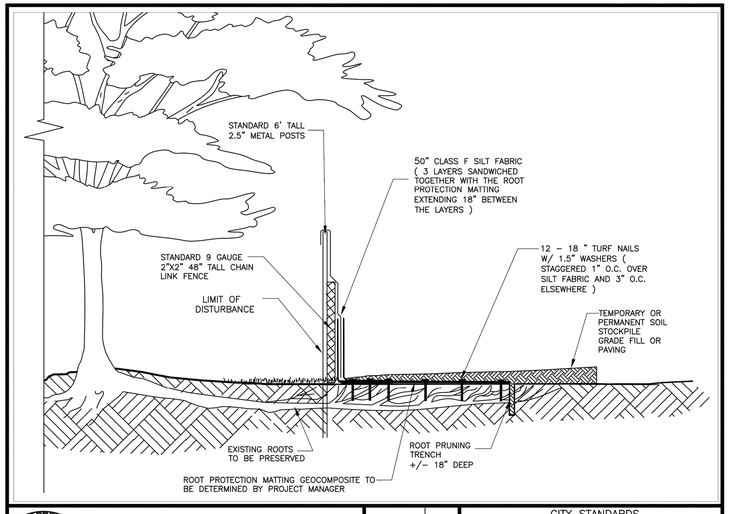
ROOTS ARE VITAL TO TEH FUNCTIONING OF ANY TREE. THEY PROVIDE STRUCTURAL SUPPORT AS WELL AS THE MAJOR MECHANISM FOR NUTRIENT AND WATER UPTAKE FOR USE BY THE REST OF THE TREE. DESTROYING A SECTION OF A TREE'S ROOTS WILL ULTIMATELY RESULT IN A PROPORTIONAL LOSS OF THE TREE'S CANOPY.

THE CRITICAL ROOT ZONE OF A TREE TO BE SAVED SHALL BE THE MINIMUM AREA PROTECTED WITH TREE PROTECTION FENCING.

TP

CITY OF CHARLOTTESVILLE

REVISION	DATE	CITY STANDARDS	
		TREE PROTECTION DETAIL – CHAIN LINK FENCE	
		SCALE: N.T.S.	STANDARD NUMBER: XX–1



SF

CITY OF CHARLOTTESVILLE

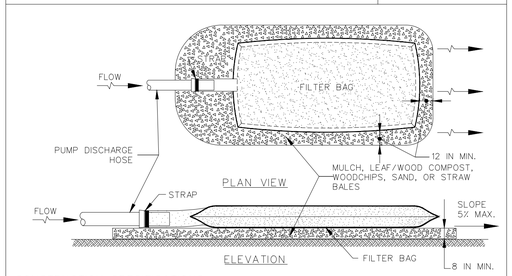
REVISION	DATE	CITY STANDARDS	
		TRENCHLESS SUPER SILT FENCE	
		SCALE: N.T.S.	STANDARD NUMBER: XX–8

CITY OF CHARLOTTESVILLE

REVISION	DATE	CITY STANDARDS	
		TYPICAL SIGNAGE FOR TREE PRESERVATION AREA	
		SCALE: N.T.S.	STANDARD NUMBER: XX–1

FILTER BAG DETAIL

STANDARD SYMBOL ⊠FB

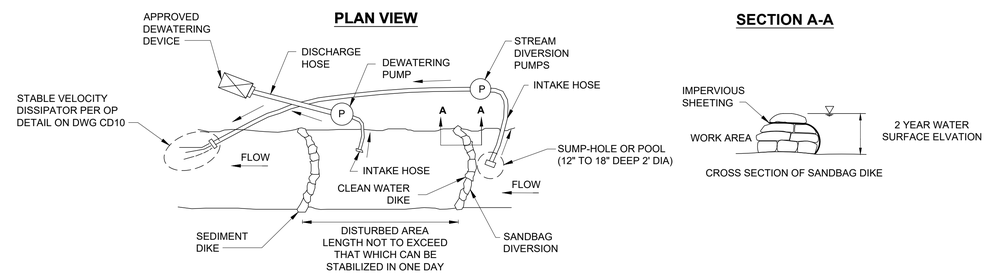


CONSTRUCTION SPECIFICATIONS

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/FT^2	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.



DESCRIPTION:
THE WORK SHOULD CONSIST OF INSTALLING A TEMPORARY PUMP AROUND AND SUPPORTING MEASURES TO DIVERT FLOW AROUND THE WORK AREA AND DEWATER WORK AREA.

NOTES:

1. THE CONTRACTOR SHOULD STAY WITHIN THE LIMITS OF THE DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORK AREA WHENEVER POSSIBLE.
2. THE CONTRACTOR SHOULD ONLY BEGIN WORK IN AN AREA WHICH CAN BE COMPLETED BY THE END OF THE DAY. AT THE END OF EACH WORK DAY, THE WORK AREA MUST BE STABILIZED AND THE PUMP AROUND REMOVED.
3. SANDBAG DIKES SHOULD BE SITUATED AT THE ENDS OF THE WORK AREA AS SHOWN ON THE PLANS, AND CLEAN STREAM FLOW SHOULD BE PUMPED AROUND THE WORK AREA. THE PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATER MADE OF RIPRAP OR SANDBAGS.
4. 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 DOWNSTREAM OF THE WORK AREA.
5. FOR STREAMWORK REPAIR PROJECTS LONGER THAN 4OO LINEAR FEET, MULTIPLE WORK AREAS SHALL BE ESTABLISHED IN SUCCESSION. ONCE AN AREA IS COMPLETED AND STABILIZED, THE CLEAN WATER DIKE SHOULD BE REMOVED. AFTER THE FIRST SEDIMENT FLUSH, A NEW CLEAN WATER DIKE WOULD BE ESTABLISHED FROM THE OLD SEDIMENT DIKE. FINALLY, UPON ESTABLISHMENT OF A NEW SEDIMENT DIKE BELOW THE OLD ONE, THE OLD SEDIMENT DIKE SHOULD BE REMOVED.
6. 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.

PA

TEMPORARY PUMP AROUND (TPA) DETAIL

NTS

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA TYLER W. SMITH Lic. No. 63968 PROFESSIONAL ENGINEER

2022.05.02 09:42:08-04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

DETAILS
EROSION AND SEDIMENT CONTROL DETAILS - 3 OF 3

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	CD11

File: O:\32571-003\07-CD\CAD_DWG\DETAIL\SCD11 Saved by SKANE Save date: 4/8/2022 8:49 AM
PLOT DATE: 4/28/2022 2:16 PM BY: SKANE

2022.05.02 09:36:41 -04'00'

PURPOSE

4VAC50-60-54 of the Virginia Stormwater Management Program (VSMP) Permit Regulations requires that Stormwater Pollution Prevention Plan (SWPPP) be developed for all regulated land disturbing activities. The SWPPP must include, but not be limited to, an approved erosion and sediment control plan, an approved stormwater management plan, and this Pollution Prevention Plan (PPP) for regulated land disturbing activities, and a description of any additional control measures necessary to address a TMDL as applicable.

The plan for implementing pollution prevention measures during construction activities developed on this sheet must be implemented and updated as necessary. Any PPP requirements not included on this sheet must be incorporated into the SWPPP required by 4VAC50-60-54 that must be developed before land disturbance commences. This PPP identifies potential sources of pollutants that may reasonable be expected to affect the quality stormwater discharges from the construction site (both on- and off-site activities) and describes control measures that will be used to minimize pollutants in stormwater discharges from the construction site.

OTHER REFERENCED PLANS

SWPPP requirements may be fulfilled by incorporating, by reference, other plans. All plans incorporated by reference become enforceable under the VSMP Permit Regulations and General Permit VAR10 for Discharges of Stormwater from Construction Activities. If a plan incorporated by reference does not contain all of the required elements of the PPP, the operator must develop the missing elements and include them in the SWPPP.

Independent Plans Incorporated by Reference	Date Approved
Stormwater Management Plans (Regional or Master)	N/A
Spill Prevention, Control, and Countermeasure Plans	N/A
Off-Site Stockpile	N/A
Off-Site Borrow Area	N/A

POTENTIAL POLLUTANT SOURCES

The following sources of potential pollutants must be addressed in the Pollution Prevention Plan. Various controls and/or measures designed to prevent and/or minimize pollutants in stormwater discharges from the project site must be applied to the sources found on the site. Additional information concerning the following controls and/or measures may be found in the SWPPP. Deviations from the location criteria may be approved by the City of Charlottesville Inspector.

LEAKS, SPILLS, AND OTHER RELEASES

- ✓ The operator(s) shall ensure procedures are in place to prevent and respond to all leaks, spills and other releases of pollutants.
- ✓ The operator(s) shall ensure all leaks, spills and other releases of pollutant are contained and cleaned immediately upon discovery. Any contaminated materials are to be disposed in accordance with federal, state, and/or local requirements.
- ✓ The operator(s) shall ensure spill containment kits containing appropriate materials (e.g., absorbent material and pads, brooms, gloves, sand, etc.) are available at appropriate locations, including, but not limited to: designated areas for vehicle and equipment maintenance; vehicle and equipment fueling; storage and disposal of construction materials, products, and waste; and storage and disposal of hazardous and toxic materials; and sanitary waste facilities.
- ✓ The locations of the spill containment kits are identified as described below:

Date	Shown on Plan Sheet #(s)	Location
Approved Plan	C14	STAGING AREA
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location	Operator(s) Initials

- ✓ The operator(s) shall notify the Department of Environmental Quality (DEQ) of leaks, spills, and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 after the discovery. Written notice of the discharge must be sent to DEQ and City of Charlottesville Department of Public Works within five (5) days of the discovery.

Virginia Department of Environmental Quality Valley Regional Office 4411 Early Road Harrisonburg, VA 22801 540-574-7800 (phone) 840-698-4178 (fax) or online	City of Charlottesville Department of Public Works 305 4th St, NW Charlottesville, VA 22903 404-970-3301

DISCHARGES FROM OTHER POTENTIAL POLLUTANT SOURCES

- ✓ Discharges from other pollutant sources (e.g., water line flushing, storm sewer flushing, above ground storage tanks, etc.) not mentioned elsewhere must be addressed.

Other Potential Pollutant Sources	Location(s) of Potential Pollutant Sources

- ✓ Above ground oil storage tanks with a storage capacity exceeding 1,320 gallons and have a reasonable expectation of a discharge into or upon Waters of the United States are required to have a Spill Prevention Control and Countermeasure (SPCC) Plan.
- ✓ The discharge of contaminated flush water and material removed during flushing operations must be collected and disposed of in accordance with appropriate federal, state, and local requirements.

VEHICLE FUELING AND MAINTENANCE

- ✓ Conduct regular maintenance in a ***dedicated area*** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ If fueling is conducted at a ***dedicated area***, the location must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ The ***dedicated areas*** must be designed to eliminate the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities by providing secondary containment (spill berms, decks, spill containment pallets, providing cover where appropriate, and having spill kits readily available).
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***	
Approved Plan	N/A	OFFSITE	
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***	Operator's Initials

- ✓ If mobile fueling will be used, the fueling must be done in an area that located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ Spill kits must be readily available at all mobile fueling locations.
- ✓ On-site storage tanks must have a means of secondary containment (spill berms, decks, spill containment pallets, etc.) and must be covered where appropriate.
- ✓ All vehicles on site must be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

DISCHARGE FROM STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTE

- ✓ Storage of construction products, materials, and waste is to be conducted in ***dedicated areas***.
- ✓ The ***dedicated area*** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- ✓ The ***dedicated areas*** must be designed to minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials and wastes including (i) building products such as asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures; (ii) pesticides, herbicides, insecticides, fertilizers, and landscape materials; and (iii) construction and domestic wastes such as packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, Styrofoam, concrete and other trash or building products.
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage of construction products and materials
Approved Plan	C14	STAGING AREA
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage of construction products and materials	Operator(s) Initials

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for waste from construction products and materials
Approved Plan	N/A	OFFSITE
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for waste from construction products and materials	Operator(s) Initials

- ✓ Follow all federal, state, and local requirements that apply to the use, handling and disposal of pesticides, herbicides, and fertilizers.
- ✓ Keep chemicals on-site in small quantities and in closed, well marked containers.
- ✓ Clean up solid waste, including building materials, garbage, and debris on a daily basis and deposit into covered dumpsters that are periodically emptied.
- ✓ Schedule waste collection to prevent exceeding the capacity of onsite containers. Additional containers may be necessary depending on the phase of construction (e.g., demolition, etc.)
- ✓ Dispose of all solid waste at an authorized disposal site.
- ✓ Ensure that containers have lids or are otherwise protected from exposure to precipitation.

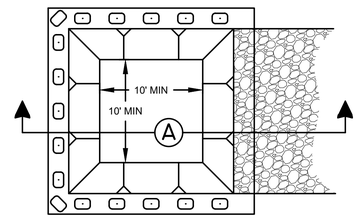
DISCHARGES FROM CONCRETE RELATED WASH ACTIVITIES

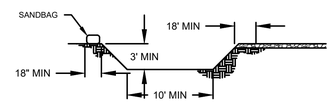
- ✓ Concrete trucks are not allowed to wash out or discharge surplus concrete or drum wash water on site except in a ***dedicated area(s)*** that is located to prevent discharge to storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ Each facility must have a stabilized access to prevent mud tracking into the street.
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***	
Approved Plan	C14	STAGING AREA	
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***	Operator's Initials

- ✓ Facilities must be cleaned, or new facilities constructed, once the washout area is two-thirds (2/3) full.

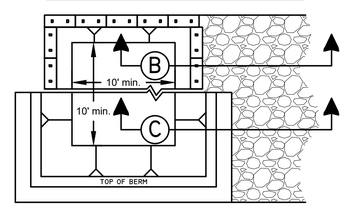
BELOW GRADE CONCRETE WASHOUT AREA

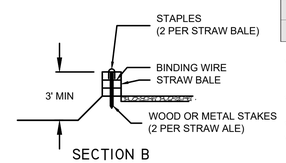




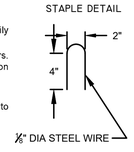
SECTION A

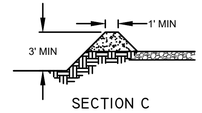
ABOVE GRADE CONCRETE WASHOUT AREA





SECTION B





SECTION C

CONCRETE WASHOUT AREA NOTES

- ✓ The facility must be lined with 10 mil plastic lining that is free from holes, tears, or other defects that might compromise the material's impermeability.
- ✓ The lining must be anchored with staples (2' spacing) or sandbags.
- ✓ Side slopes must be 1:1 (horizontal:vertical) or flatter.
- ✓ Stone access must be provided between the street and the concrete washout area.
- ✓ A "Concrete Washout" sign must be installed within 30 feet of the washout facility. The sign must be no smaller than 2' tall by 4' wide.

DISCHARGES OF SOAPS, DETERGENTS, SOLVENTS, AND WASH WATER FROM CONSTRUCTION ACTIVITIES SUCH AS CLEANUP OF STUCCO, PAINT, FORM RELEASE OILS, AND CURING COMPOUNDS

- ✓ Washing activities associated with construction activities other than vehicle and equipment washing, such as clean up of stucco, paint, form release oils, and curing compounds are to be conducted in a ***dedicated area***.
- ✓ The ***dedicated area*** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- ✓ The ***dedicated areas*** must be designed to prevent the discharge of soaps, detergents, solvents, and wash water.

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)***
Approved Plan	C14	STAGING AREA
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)***	Operator(s) Initials

- ✓ The ***dedicated area*** must be covered (e.g., plastic sheeting, temporary roof, etc.) to prevent contact with stormwater.
- ✓ The contaminated wastewater from the ***dedicated area*** must be collected for disposal by a waste hauler or discharged to the sanitary sewer.
- ✓ In situations where these pollutants are or could be generated at locations other than at the ***designated area*** (e.g., concrete pours, building washing, etc.), cover (e.g., plastic sheeting, temporary roof, etc.) must be provided to prevent contact with stormwater and the contaminated wastewater from the activity must be collected for disposal by a waste hauler or discharged to the sanitary sewer.

DISCHARGES OF HAZARDOUS, TOXIC, AND SANITARY WASTE

- ✓ Storage and disposal of hazardous, toxic and sanitary wastes are to be conducted in ***dedicated areas***.
- ✓ The ***dedicated areas*** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- ✓ The ***dedicated areas*** must be designed to prevent the discharge of hazardous, toxic and sanitary waste by avoiding contact with precipitation
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage and disposal of hazardous and toxic wastes
Approved Plan	N/A	OFFSITE
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage and disposal of hazardous and toxic wastes	Operator(s) Initials

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for portable toilets
Approved Plan	C14	STAGING AREA
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for portable toilets	Operator(s) Initials

- ✓ Consult with local waste management authorities or private firms about the requirements for disposing of hazardous materials and/or soils that may be contaminated with hazardous materials.
- ✓ Never remove the original product label from the container. Follow the manufacturer's recommended method of disposal.
- ✓ Schedule periodic pumping of portable toilets and dispose of waste
- ✓ Dispose of all solid waste at an authorized disposal site.

SWPPP MODIFICATIONS AND REVISIONS

The operator(s) shall ensure the SWPPP is modified and/or revised to reflect:

- ✓ Changes in qualified personnel; delegated authorities or other personnel required as a condition of the General Construction Permit;
- ✓ Changes in site conditions;
- ✓ Changes in the design, construction, operation, or maintenance of the construction site that affect the potential for discharges of pollutants that are not addressed in the normal implementation of the plan; and
- ✓ Ineffective control measures identified during inspections or investigations conducted by the operator's qualified personnel or local, state or federal officials.

Modifications/revisions to the SWPPP shall include additional or modified control measures to address the identified deficiencies.

If the necessary modifications/revisions require approval by the Administrator or DEQ, the modifications/revisions must be implemented no later than seven (7) calendar days following approval.

If the necessary modifications/revisions do not require approval by the Administrator, the modifications/revisions must be implemented prior to the next anticipated storm event or as soon as practicable.

SWPPP UPDATES

The operator(s) shall update the SWPPP to include:

- ✓ A record of dates when 1) major grading activities occur, 2) construction activities temporarily or permanently cease on a portion of the site, and 3) stabilization measures are initiated;
- ✓ Documentation of modifications and revisions to the SWPPP;
- ✓ Areas that have reached final stabilization where no further SWPPP or inspection requirements apply;
- ✓ All properties that are no longer under the legal control of the operator and the dates on which the operator no longer had legal control over each property; and
- ✓ The date, volume, and corrective/preventative actions implemented for any prohibited discharge.

The operator(s) shall update the SWPPP no later than seven (7) days following any of the situations identified above.

OPERATOR INSPECTIONS

The operator(s) identified below shall provide for inspections of the permitted land-disturbing activities by the qualified personnel identified below. The inspections will be conducted (select one the following options):

☐ at least once every four (4) business days; or
☐ at least once every five (5) business days *and* no later than 48 hours following any measurable storm event.

Where areas are in a stabilized condition or runoff is unlikely due to winter conditions, the inspection frequency may be reduced to once every 30 days while these conditions exist. Otherwise, the operator(s) shall resume the regular inspection frequency identified above.

The operator(s) shall provide for inspections of the permitted land-disturbing activity to ensure implementation and continued maintenance of all requirements of the Stormwater Pollution Prevention Plan (Erosion and Sediment Control Plan, Stormwater Management Plan, Pollution Prevention Plan, TMDL requirements, etc.).

Records of the required inspections must be maintained and included in the SWPPP binder. The qualified personnel are encouraged to use the Operator Inspection form provided in the SWPPP binder to document the required inspections. If inspections are conducted once every five (5) business days *and* no later than 48 hours following any measureable storm event, the location of the rain gauge used to determine the amount of rain must be included in the SWPPP and documented in the inspection report.

ACKNOWLEDGEMENTS

I certify under penalty of law that the qualified personnel identified below:

a. has been designated by the Operator to conduct inspections of the permitted site;
b. is knowledgeable in the principles and practices of erosion and sediment control and stormwater management;
c. possesses the skills to assess conditions at the permitted site for the Operator(s) that could impact stormwater quality and quantity;
d. will assess the effectiveness of any erosion and sediment control measures or stormwater management facilities selected to control the stormwater discharges from the permitted site; and
e. will conduct inspections in accordance with the frequency noted above in the OPERATOR INSPECTIONS section of this sheet.

QUALIFIED PERSONNEL	
Name (print)	
Phone	
Additional information is located in Tab 6 of the SWPPP Binder.	

As the Operator(s) or Delegated Authority, I/we understand that prior to initiating land disturbance, the potential pollutant sources, appropriate control measures, and all responsible parties (operator, qualified inspection personnel, contractors, etc.) required as a condition of the General Construction Permit (GCP) and the Stormwater Pollution Prevention Plan (SWPPP) must be identified. I also understand this information must be updated as necessary throughout all phases of construction until the GCP is terminated.

Furthermore,

I/we certify under penalty of law that I/we have read and understand all requirements of the SWPPP (erosion and sediment control plan, stormwater management plan, pollution prevention plan, TMDL provisions, administrative requirements, etc.) and GCP and that the information herein is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

I/we understand that I/we are ultimately responsible for compliance with all conditions and requirements of the SWPPP and GCP and for ensuring all contractors and subcontractors on the permitted site are aware of the conditions and requirements of the SWPPP and GCP.

I/we shall comply with all conditions and requirements of the SWPPP and shall at all times properly operate and maintain all measures and control (and related appurtenances) which are installed or used to achieve compliance with the conditions of the GCP. Proper opration and maintenance also includes adequate funding and adequate staffing.

I/we shall take all reasonable steps to minimize or prevent any discharge in violation of the SWPPP and/or GCP.

I/we understand that if it determined by the Department of Environmental Quality (DEQ) in consultation with the State Water Control Board at any time that stormwater discharges are causing, have reasonable potential to cause, or contribute to and excursion above any applicable water quality standard, the DEQ may, in consultation with the Administrator, take appropriate enforcement action and require:

a. Modification of control measures to adequately address water quality concerns;
b. Submission of valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is attaining water quality standards; or
c. Cessation of discharges of pollutants from construction activity and submit an individual permit application according to 4VAC25-870-410.

OPERATOR(S) / DELEGATED AUTHORITY		
Name (print)	Signature	Date

Additional contact information can be found in the SWPPP Binder.

EQUIPMENT / VEHICLE WASHING

- ✓ Washing must be conducted in a ***dedicated area*** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ All wash water used in vehicle wheel washing must be directed to a sediment basin/trap.
- ✓ All vehicle washing activities other than wheel washing must have secondary containment.
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Activity	Location of ***Dedicated Area(s)***	Shown on Plan Sheet #(s)	Water Source Location
Wheel Wash	N/A - OFFSITE		
Other Wash Areas			
REVISIONS TO LOCATIONS			
Activity	Location of ***Dedicated Area(s)***	Shown on Plan Sheet #(s)	Water Source Location	Operator's Initials

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER
2022.05.02 09:42:23 -04'00'

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

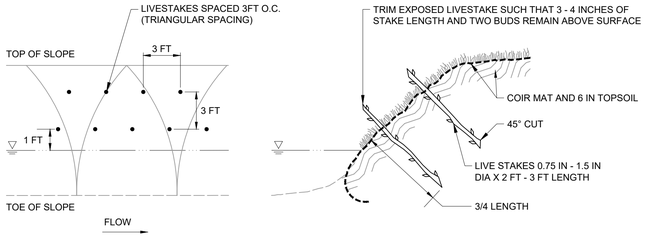
CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

DETAILS
POLLUTION PREVENTION PLAN

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	CD12

2022.05.02 09:34:19-04'00'



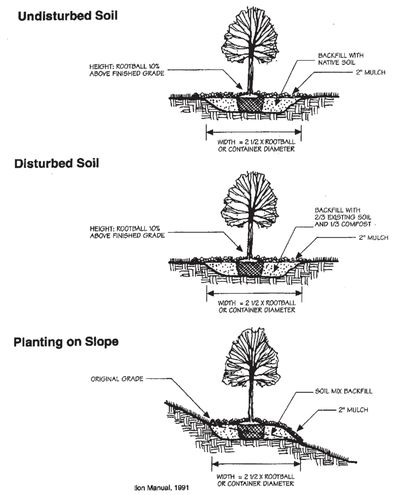
PROFILE VIEW

SECTION

NOTES:

1. ACCEPTABLE SPECIES: CORNUS AMOMUM (SILKY DOGWOOD), CEPHALANTHUS OCCIDENTALIS (BUTTONBUSH), SALIX SERICEA (SILKY WILLOW), SAMBUCUS CANADENSIS (ELDERBERRY) UNLESS SPECIFIED OTHERWISE ON PLANTING PLANS.
2. STAKES TO BE 0.75 - 1.5 INCHES IN DIAMETER AND 2 - 3 FEET LONG.
3. SOAK LIVESTAKES FROM ARRIVAL ONSITE TO IMMEDIATELY BEFORE INSTALLATION AND RECUT BOTTOM ENDS AT 45° ANGLES PRIOR TO INSTALLATION.
4. INSTALL FIRST ROW OF STAKES WITHIN THE FIRST 12 INCHES ABOVE THE BASEFLOW WATER LEVEL. SPACE STAKES AT 3 FEET ON CENTER AND STAGGER SUBSEQUENT ROWS IN A TRIANGULAR PATTERN. REFER TO PLANTING PLAN FOR NUMBER OF LIVESTAKE ROWS AND PLANTING AREA EXTENT.
5. USE A DEAD-BLOW HAMMER AND REBAR OR OTHER METHOD APPROVED BY ENGINEER TO CREATE PILOT HOLES PERPENDICULAR TO THE BANK.
6. INSTALL LIVESTAKES UPRIGHT WITH LEAF BUDS FACING UPWARD AND STAKES PERPENDICULAR TO THE GROUND.
7. HAND PUSH OR GENTLY HAMMER LIVESTAKE 3/4 OF THE ITS LENGTH INTO THE PILOT HOLES KEEPING TWO LEAF BUDS VISIBLE ABOVE THE SURFACE.
8. TRIM ANY LIVESTAKE TIPS DAMAGED BY INSTALLATION SUCH THAT 3 - 4 INCHES OF LENGTH AND TWO LEAF BUDS REMAIN ABOVE THE SURFACE.

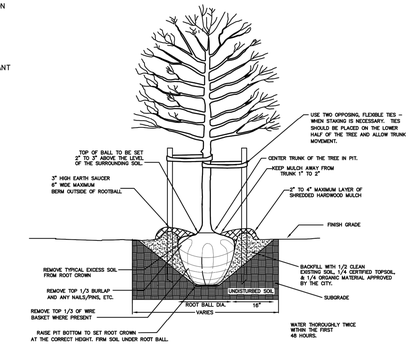
1 LIVESTAKE DETAIL
NTS



3 CONTAINER GROWN AND B&B PLANTING DETAIL
NTS

NOTES:

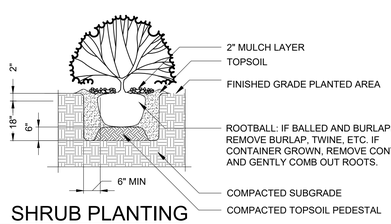
1. REMOVE WIRE AND NYLON TWINE FROM BALL AND CANOPY.
2. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.
3. STAKING IS REQUIRED FOR ALL TREES IN R.O.W. OR UPON REQUEST OF ARBORIST.
4. REMOVE EXCESS SOIL FROM SITE AND DISPOSE OF IN A LEGAL MANNER.
5. RESEED UNMULCHED, DISTURBED AREAS.
6. AT PLANTING PRUNE ONLY CROSSING LIMBS, CO-DOMINANT LEADERS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS.



NOT TO SCALE

5

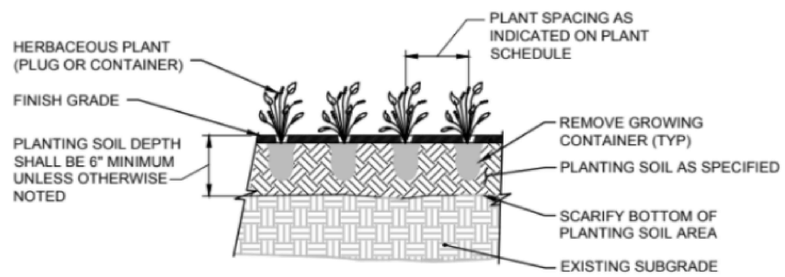
CITY OF CHARLOTTESVILLE	REVISION	DATE	CITY STANDARDS PLANTING TREES IN OPEN AREA OR GRASS STRIP SCALE: N.T.S. STANDARD NUMBER: XX-2



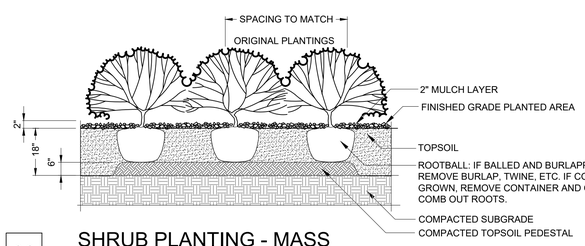
NOTES:

1. REMOVE ALL WIRE, PLASTIC, TAGS OR OTHER SYNTHETIC MATERIAL FROM PLANT PRIOR TO PLANTING.
2. CONTINUOUS BEDS SHALL BE PREPARED W/ TOPSOIL PRIOR TO SHRUB PLANTING.

2.1 SHRUB PLANTING
NTS



4 PLUG PLANTING DEATIL
NTS



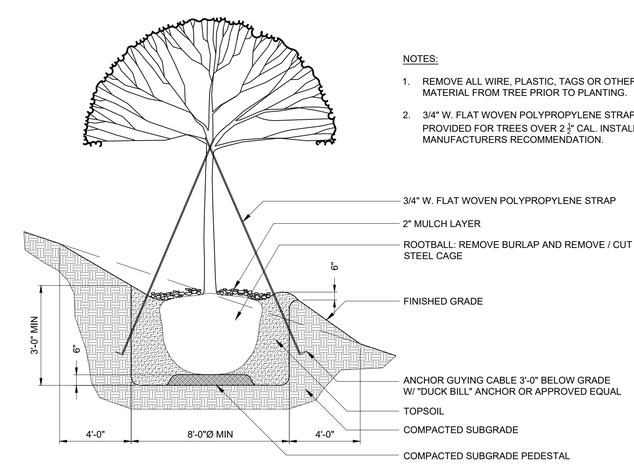
NOTES:

1. REMOVE ALL WIRE, PLASTIC, TAGS OR OTHER SYNTHETIC MATERIAL FROM PLANT PRIOR TO PLANTING.
2. CONTINUOUS BEDS SHALL BE PREPARED W/ TOPSOIL PRIOR TO SHRUB PLANTING.

2.2 SHRUB PLANTING - MASS
NTS

NOTES:

1. REMOVE ALL WIRE, PLASTIC, TAGS OR OTHER SYNTHETIC MATERIAL FROM TREE PRIOR TO PLANTING.
2. 3/4" W. FLAT WOVEN POLYPROPYLENE STRAPS SHALL BE PROVIDED FOR TREES OVER 2 $\frac{1}{2}$" CAL. INSTALL PER MANUFACTURERS RECOMMENDATION.



6 TREE PLANTING ON SLOPE
NTS

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. LUCASMITH
Lic. No. 63968
2022.05.02 09:42:33-04'00'
PROFESSIONAL ENGINEER

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

DETAILS
LANDSCAPING DETAILS

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	CD13

File: Q:\32571-003\32571-001\CAD_BM\DETAILS\CD13 Saved by SKANE Save date: 2/16/2022 4:05 PM
PLOT DATE: 4/26/2022 2:56 PM BY: SKANE

2022.05.02 09:34:22-04'00'

GENERAL PLANTING NOTES:

1. CONTRACTOR SHALL OBTAIN LATEST EDITION OF THE FOLLOWING DOCUMENTS:

   A. RIPARIAN BUFFERS MODIFICATION & MITIGATION GUIDANCE MANUAL, VADEQ (2006) (WWW.DEQ.VIRGINIA.GOV/PORTALS/0/DEQ/WATER/PUBLICATIONS/RIPARIANBUFFERMANUAL.PDF)

   B. VIRGINIA PIEDMONT NATIVE PLANT GUIDE (https://www.plantvirginianatives.org/native-plants-for-northern-piedmont)

   C. "NONNATIVE INVASIVE PANTS OF SOUTHERN FORESTS" (WWW.SRS.FS.USDA.GOV/PUBS/GTR/GTR_SRS062)

   D. VIRGINIA INVASIVE PLANT SPECIES LIST (HTTP://WWW.DCR.VIRGINIA.GOV/NATURAL-HERITAGE/DOCUMENT/NH-INVASIVE-PLANT-LIST-2014.PDF)

   E. ALBEMARLE COUNTY, PIEDMONT NATIVE PLANT DATABASE (http://webapps.albemarle.org/nativePlants/default.aspx)

2. ALL PLANTS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THESE DOCUMENTS.
3. CONTRACTOR SHALL SUBMIT A PLANTING PLAN WITH A RECOMMENDED PLANT LIST TO THE CITY OF CHARLOTTESVILLE FOR REVIEW PRIOR TO COMMENCING PLANTING. PREFERRED PLANTS ARE SHOWN IN THE PLANTING SCHEDULES.CONTRACTOR SHALL REFER TO THE DOCUMENTS AND RESOURCES ABOVE WHEN PREPARING A PLAN. CONTRACTOR MAY SUBSITUTE OTHER SPECIES FOR THOSE LISTED IN THE PLANTING SCHEDULE IN COORDINATION WITH AND SUBJECT TO REVIEW BY THE THE CITY OF CHARLOTTESVILLE.
4. PLANT DENSITIES, QUANTITIES, AND AREAS SHOWN IN PLANTING SCHEDULES ARE FOR CONVENIENCE ONLY AND MAY NOT BE ACCURATE WITH AS-BUILT CONDITIONS. CONTRACTOR SHALL SUBMIT ESTIMATES FOR PLANT DENSITIESAND PLANTING AREAS IN THE PLANTING PLAN.
5. CONTRACTOR SHALL STAKE OUT PLANTING ZONES FOR REVIEW AND APPROVAL BY THE CITY OF CHARLOTTESVILLE PRIOR TO INSTALLING PLANTS.
6. SEED SHALL BE INSTALLED ON SCARIFIED, BARE GROUND. SEED PER ZONE IS SPECIFIED IN THE PLANTING SCHEDULES.
7. THIS PLAN IS FOR PLANTING PURPOSES ONLY, AND ANY OTHER INFORMATION SHOWN IS FOR REFERENCE ONLY. SEE SITE PLAN FOR INFORMATION ABOUT ALL LAYOUT, GRADING AND OTHER SITE IMPROVEMENTS.
8. CALL MISS UTILITY AT 811 OR 1-800-552-7001 TO MARK UTILITIES AT LEAST 48 HOURS BEFORE DIGGING.
9. ALL MATERIALS AND PLANTING PROCEDURES EXCEPT AS OTHERWISE NOTED SHALL CONFORM TO THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" BY THE LANDSCAPE CONTRACTORS ASSOCIATION MD-DC-VA.
10. PLANTS SHALL CONFORM TO THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK. (ANSI Z60.1).
11. PLANT NAMES SHALL BE THOSE GIVEN IN THE LATEST EDITION OF STANDARD PLANT NAMES, AMERICAN COMMITTEE ON HORTICULTURAL NOMENCLATURE.
12. TOPSOIL SHALL MEET SPECIFICATIONS OF THE CONTRACT DOCUMENTS.
13. THE CONTRACTOR SHALL SUBMIT REPRESENTATIVE SOIL SAMPLES FROM BOTH IN-SITU SOILS AND SOILS BROUGHT IN FROM OFF-SITE TO A STATE LICENSED TESTING LABORATORY. THE CONTRACTOR SHALL INCORPORATE OR APPLY SOIL AMENDMENTS AND FERTILIZATION BASED UPON RESULTS OF THE SOIL TESTS AND RECOMMENDATIONS BY THE TEST LAB.
14. OWNER OR OWNER'S REPRESENTATIVE SHALL STAKE OUT ALL PLANTING BEDS AND TREE LOCATIONS FOR APPROVAL BY THE ENGINEER AND CITY REPRESENTATIVE BEFORE DIGGING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND COORDINATE PLANTINGS WITH ALL EXISTING UTILITIES. IF DISCREPANCIES OCCUR BECAUSE OF UTILITY LOCATIONS OR OTHER EXISTING CONDITIONS THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY REPRESENTATIVE IMMEDIATELY TO COORDINATE ANY NECESSARY ADJUSTMENTS.
15. ALL PLANT MATERIAL SHALL BE LABELED BY THE NURSERY AND DELIVERED WITH LABELS IN PLACE FOR INSPECTION. SUBSTITUTIONS IN PLANT SPECIES OR SIZE WILL NOT BE PERMITTED EXCEPT WITH THE APPROVAL OF THE ENGINEER AND CITY REPRESENTATIVE. DO NOT PRUNE UNTIL PLANT MATERIAL HAS BEEN PLANTED BUT AS SOON THEREAFTER AS IS ADVISABLE UNDER STANDARD HORTICULTURAL PRACTICES. FOR TREE PRUNING AND CARE METHODS PLEASE REFER TO ANSI A-300, LATEST EDITION.
16. IT IS OF UTMOST IMPORTANCE THAT ALL PLANT MATERIAL BE SET SLIGHTLY HIGHER IN RELATION TO GRADE THAN IT WAS GROWN IN THE NURSERY BUT NO HIGHER THAN 3 INCHES AND WITH GOOD EARTH TO ROOT CONTACT. ANY MATERIALS OR WORK MAY BE REJECTED BY THE ENGINEER OR CITY REPRESENTATIVE IF IT DOES NOT MEET THIS OR ANY OTHER REQUIREMENT OF THE SPECIFICATIONS. REJECTED MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
17. THE CONTRACTOR SHALL WATER ALL PLANTS WELL ON THE DAY THEY ARE PLANTED.
18. IN CASE OF DISCREPANCIES BETWEEN QUANTITIES ON THE PLANT LIST AND THE PLAN, THE PLAN SHALL GOVERN.
19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEED ALL DISTURBED AREAS AS DIRECTED BY OWNER WHETHER OR NOT THEY ARE SHOWN IN THE PLANTING PLAN.
20. CONTRACTOR IS TO AVOID PLANTING TREES WITHIN THE SANITARY SEWER EASEMENT. THESE AREAS SHOULD BE SEEDED AND PLANTED WITH HERBACEOUS PLANTS ONLY.
21. TO ENSURE ESTABLISHMENT SUCCESS, SPRING PLANTING IS ADVISED FOR THE FOLLOWING GENUS OF PLANTS: JUNCUS, CAREX, SALIX, QUERCUS, CARYA, AND CERCIS.
22. CONTRACTOR TO PROVIDE PLANT ID TAG AND LABEL FOR EVERY TREE AND SHRUB.
23. PERMANENT SEED MIX TO BE INSTALLED PER ZONE ACCORDING TO LANDSCAPING SCHEDULE.
24. OWNER OR OWNER'S REPRESENTATIVE TO FIELD-SPECIFY APPLICATION EXTENTS OF 5311 CONSERVATION MIX WITHIN ZONE 3 DURING CONSTRUCTION.

SEQUENCE OF CONSTRUCTION:

1. APPLY AND TILL IN A 1.5-INCH BLANKET OF SPECIFIED COMPOST AND 1.5-INCH OF TOPSOIL (3 INCHES TOTAL). COMPOST SHALL BE LEAFGRO® OR AN APPROVED EQUAL. THE PAPER WORK, SAMPLE AND U.S. COMPOSTING COUNCIL'S SEAL OF TESTING ASSURANCE PROGRAM (STA) CERTIFICATIONS FOR ALL ALTERNATES SHALL BE SUBMITTED AND APPROVED PRIOR TO PURCHASE. ALTERNATES MUST BE STA COMPOST APPROVED BY THE U.S. COMPOSTING COUNCIL'S SEAL OF TESTING ASSURANCE PROGRAM.
2. APPLY SPECIFIED SEED MIX AT SPECIFIED RATE PER PLANTING SCHEDULE.
3. PLACE CERTIFIED WEED FREE STRAW ALL OVER AREAS THAT DO NOT HAVE COIR MAT.
4. RESEED ALL AREAS WITH LESS THAN 80% GERMINATION.
5. INSTALL A WATER BAG ON ALL TREES FOR THE FIRST FULL GROWING SEASON.
6. WATER ALL PLANTS ON A BIWEEKLY BASIS FOR THE FIRST FULL GROWING SEASON.

VA NORTHERN PIEDMONT, FACW SEED MIX (ENRMX-855)

CONTRACT SCHEDULE	COMMON NAME	BOTANICAL NAME	CLASS	PERCENT	TYPE	QTY
BASE BID	FOX SEDGE	CAREX VULPINOIDEA	SEDGE	27	CAST SEED	-
	VIRGINIA WILDRYE	ELYMUS VIRGINICUS	GRASS	20	CAST SEED	-
	REDTOP PANICGRASS	PANICUM RIGIDULUM	GRASS	13.6	CAST SEED	-
	LURID SEDGE	CAREX LURIDA	SEDGE	10	CAST SEED	-
	HOP SEDGE	CAREX LUPULINA	SEDGE	7	CAST SEED	-
	BLUNT BROOM SEDGE	CAREX SCOPARIA	SEDGE	7	CAST SEED	-
	SWAMP MILKWEED	ASCLEPIAS INCARNATA	PERENNIAL	2	CAST SEED	-
	WILD BROMEGRASS	BROMUS ALTISSIMUS	GRASS	2	CAST SEED	-
	SOFT RUSH	JUNCUS EFFUSUS	RUSH	2	CAST SEED	-
	FRINGED SEDGE	CAREX CRINITA	SEDGE	1	CAST SEED	-
	FRANK'S SEDGE	CAREX FRANKII	SEDGE	1	CAST SEED	-
	AWL SEDGE	CAREX STIPATA	SEDGE	1	CAST SEED	-
	PATH RUSH	JUNCUS TENUIS	RUSH	1	CAST SEED	-
	BONESET	EUPATORIUM PERFOLIATUM	PERENNIAL	0.8	CAST SEED	-
	MISTFLOWER	EUPATORIUM COELESTINUM	PERENNIAL	0.5	CAST SEED	-
	FOWL MANNAGRASS	GLYCERIA STRIATA	GRASS	0.5	CAST SEED	-
	COMMON SNEEZEWEED	HELENIUM AUTUMNALE	PERENNIAL	0.5	CAST SEED	-
	PURPLEHEAD SNEEZEWEED	HELENIUM FLEXUOSUM	PERENNIAL	0.5	CAST SEED	-
	NEW YORK IRONWEED	VERNONIA NOVEBORACENSIS	PERENNIAL	0.5	CAST SEED	-
	PURPLESTEM ASTER	ASTER PUNICEUS	PERENNIAL	0.4	CAST SEED	-
	FLAT TOPPED WHITE ASTER	ASTER UMBELLATUS	PERENNIAL	0.4	CAST SEED	-
	SQUARE STEMMED MONKEYFLOWER	MIMULUS RINGENS	PERENNIAL	0.4	CAST SEED	-
	JOE PYE WEED	EUPATORIUM FISTULOSUM	PERENNIAL	0.3	CAST SEED	-
	WOOLGRASS	SCIRPUS CYPERINUS	GRASS	0.3	CAST SEED	-
	WRINKLELEAF GOLDENROD	SOLIDAGO RUGOSA	PERENNIAL	0.3	CAST SEED	-

MODIFIED - VA NORTHERN PIEDMONT, RIPARIAN PIEDMONT SEED MIX (ENRMX-852)

CONTRACT SCHEDULE	COMMON NAME	BOTANICAL NAME	CLASS	PERCENT	TYPE	QTY
BASE BID	VIRGINIA WILDRYE	ELYMUS VIRGINICUS	GRASS	20	CAST SEED	-
	LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	GRASS	20	CAST SEED	-
	SWITCHGRASS	PANICUM VIRGATUM	GRASS	15	CAST SEED	-
	PURPLE LOVEGRASS	ERAGROSTIS SPECTABILIS	GRASS	10	CAST SEED	
	PRAIRIE DROPSEED	SPOROBOLUS HETEROLEPSIS	GRASS	10	CAST SEED	-
	TUSSOCK SEDGE	CAREX STRICTA	SEDGE	5	CAST SEED	
	REDTOP PANICGRASS	PANICUM RIGIDULUM	GRASS	5	CAST SEED	-
	BLACKEYED SUSAN	RUDBECKIA HIRTA	PERENNIAL	3.4	CAST SEED	-
	PARTRIDGE PEA	CHAMAECRISTA FASCICULATA	ANNUAL	2	CAST SEED	-
	SWAMP MILKWEED	ASCLEPIAS INCARNATA	PERENNIAL	1.6	CAST SEED	-
	SENSITIVE PEA	CHAMAECRISTA NICTITANS	ANNUAL	1	CAST SEED	-
	COMMON SNEEZEWEED	HELENIUM AUTUMNALE	PERENNIAL	1	CAST SEED	-
	PURPLEHEAD SNEEZEWEED	HELENIUM FLEXUOSUM	PERENNIAL	1	CAST SEED	-
	PURPLESTEM ASTER	ASTER PUNICEUS	PERENNIAL	1	CAST SEED	-
	BONESET	EUPATORIUM PERFOLIATUM	PERENNIAL	1	CAST SEED	-
	WRINKLELEAF GOLDENROD	SOLIDAGO RUGOSA	PERENNIAL	1	CAST SEED	-
	NEW YORK IRONWEED	VERNONIA NOVEBORACENSIS	PERENNIAL	1	CAST SEED	-
	JOE PYE WEED	EUPATORIUM FISTULOSUM	PERENNIAL	1	CAST SEED	-

5311 CONSERVATION MIX (ERNMX-114)

CONTRACT SCHEDULE	COMMON NAME	BOTANICAL NAME	CLASS	PERCENT	TYPE	QTY
BASE BID	CREEPING RED FESCUE	FESTUCA RUBRA	GRASS	30	CAST SEED	-
	KENTUCKY BLUEGRASS, 'KELLY'	POA PRATENSIS, 'KELLY'	GRASS	25	CAST SEED	-
	KENTUCKY BLUEGRASS, 'BARON'	POA PRATENSIS, 'BARON'	GRASS	25	CAST SEED	-
	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	GRASS	10	CAST SEED	-
	PERENNIAL RYEGRASS, 'CONFETTI III', TURF TYPE	LOLIUM PERENNE, 'CONFETTI III'	GRASS	10	CAST SEED	-

1 PERMANENT SEED MIX

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	C. TABOR
DESIGNED BY:	T. SMITH
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
2022.05.02 09:42:45-04'00'
PROFESSIONAL ENGINEER

Hazen

HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM RESTORATION PROJECT

DETAILS
LANDSCAPING NOTES AND PERMANENT SEED MIX

DATE:	APRIL 2022
HAZEN NO.:	32571-003
HAZEN CONTRACT NO.:	202827
DRAWING NUMBER:	CD14

File: O:\32571-003\32571-003\CADD_BIM\DETAILS\CD14 Saved by SKANE Save date: 4/11/2022 10:17 AM
PLOT DATE: 4/20/2022 2:00 PM BY: SKANE

2022.05.02 09:34:23-04'00'

ZONE 1 - STREAM TOE TO BACK OF BANKFULL BENCH

PLANTING SCHEDULE	COMMON NAME	BOTANICAL NAME	CLASS	PLANTING RATE	TYPE	QTY
BASE BID	PIEDMONT FACW MIX	ERNMX-855	--	0.5#/1000 SF	SY, CAST SEED	980
	SOFT RUSH	JUNCUS EFFUSUS	SEDGE	4' O.C.	PLUG	349
	LURID SEDGE	CAREX LURIDA	SEDGE	4' O.C.	PLUG	349
	SILKY WILLOW	SALIX SERICEA	SHRUB	4' O.C.	LIVE STAKE	232
	SILKY DOGWOOD	CORNUS AMOMUM	SHRUB	4' O.C.	LIVE STAKE	232
	ELDERBERRY	SAMBUCUS CANADENSIS	SHRUB	4' O.C.	LIVE STAKE	232

ZONE 2 - BACK OF BANKFULL BENCH TO EDGE OF GRADING

PLANTING SCHEDULE	COMMON NAME	BOTANICAL NAME	CLASS	PLANTING RATE	TYPE	QTY
BASE BID	MODIFIED - RIPARIAN PIEDMONT SEED MIX	ERNMX-852	--	0.5#/1000 SF	SY, CAST SEED	3950
	BEAUTYBERRY	CALLICARPA AMERICANA	SHRUB	10' O.C.	1 GALLON	50
	PAWPAW	ASIMINA TRILOBA	SHRUB	10' O.C.	1 GALLON	50
	ELDERBERRY	SAMBUCUS CANADENSIS	SHRUB	10' O.C.	1 GALLON	50
	NORTHERN SPICEBUSH	LINDERA BENZOIN	SHRUB	10' O.C.	1 GALLON	50
	BUTTONBUSH	CEPHALANTHUS OCCIDENTALIS	SHRUB	10' O.C.	1 GALLON	63
	SWAMP AZALEA	RHODO. VISCOSUM	SHRUB	10' O.C.	1 GALLON	63
	HAZEL ALDER	ALNUS SERRULATA	SHRUB	10' O.C.	1 GALLON	63
	RED CHOKEBERRY	ARONIA ARBUTIFOLIA	SHRUB	10' O.C.	1 GALLON	63
	COMMON PERSIMMON	DIOSPYROS VIRGINIANA	CANOPY	25' O.C.	BARE ROOT	15
	TULIP POPLAR	LIRIODENDRON TULIPIFERA	CANOPY	25' O.C.	2" CALIPER	10
	AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	CANOPY	25' O.C.	2" CALIPER	10
	RIVER BIRCH	BETULA NIGRA	CANOPY	25' O.C.	MULTI-STEM, 7' HT	10
	HORNBEAM	CARPINUS CAROLINIANA	CANOPY	25' O.C.	1" CALIPER	12
	WATER TUPELO	NYSSA AQUATICA	CANOPY	25' O.C.	1" CALIPER	12
	WATER OAK	QUERCUS NIGRA	CANOPY	25' O.C.	1" CALIPER	12
	SWAMP WHITE OAK	QUERCUS BICOLOR	CANOPY	35' O.C.	1" CALIPER	12
	BALD CYPRESS	TAXODIUM DISTICHUM	CANOPY	35' O.C.	7' HT.	10
ADD-ALTERNATE	DWARF FOTHERGILLA	FOTHERGILLA GARDENII	SHRUB	FIELD SPECIFIED	1 GALLON	20
	BUTTONBUSH	CEPHALANTHUS OCCIDENTALIS	SHRUB	FIELD SPECIFIED	1 GALLON	7
	SPICEBUSH	LINDERA BENZOIN	SHRUB	FIELD SPECIFIED	1 GALLON	9
	SWAMP AZALEA	RHODO. VISCOSUM	SHRUB	FIELD SPECIFIED	1 GALLON	7
	PINXTERBLOOM AZALEA	RHODO. PERICLYMENOIDES	SHRUB	FIELD SPECIFIED	1 GALLON	8
	POSSUM HAW VIBURNUM	VIBURNUM NUDUM	SHRUB	FIELD SPECIFIED	1 GALLON	5
	ARROWWOOD VIBURNUM	VIBURNUM DENTATUM	SHRUB	FIELD SPECIFIED	1 GALLON	7
	BLACKHAW VIBURNUM	VIBURNUM PRUNIFOLIUM	SHRUB	FIELD SPECIFIED	1 GALLON	5
	ARROWWOOD VIBURNUM	VIBURNUM DENTATUM	SHRUB	FIELD SPECIFIED	3 GALLON	10
	BLACKHAW VIBURNUM	VIBURNUM PRUNIFOLIUM	SHRUB	FIELD SPECIFIED	3 GALLON	10
	HICKORY	CARYA SP.	CANOPY	FIELD SPECIFIED	BARE ROOT	5
	SWAMP WHITE OAK	QUERCUS BICOLOR	CANOPY	FIELD SPECIFIED	3/4" CALIPER	5
	SWAMP CHESTNUT OAK	QUERCUS MICHAUXII	CANOPY	FIELD SPECIFIED	3/4" CALIPER	3
	WATER OAK	QUERCUS NIGRA	CANOPY	FIELD SPECIFIED	3/4" CALIPER	2
	SWEET BIRCH	BETULA LENTA	CANOPY	FIELD SPECIFIED	3/4" CALIPER	3
	DOWNY SERVICEBERRY	AMELANCHIER ARBOREA	CANOPY	FIELD SPECIFIED	3/4" CALIPER	3
	CANADIAN SERVICEBERRY	AMELANCHIER CANADENSIS	CANOPY	FIELD SPECIFIED	3/4" CALIPER	3
	SMOOTH SERVICEBERRY	AMELANCHIER LAEVIS	CANOPY	FIELD SPECIFIED	3/4" CALIPER	3
	WATER TUPELO	NYSSA AQUATICA	CANOPY	FIELD SPECIFIED	3/4" CALIPER	3
	BLACKGUM	NYSSA SYLVATICA	CANOPY	FIELD SPECIFIED	3/4" CALIPER	3
	BALD CYPRESS	TAXODIUM DISTICHUM	CANOPY	FIELD SPECIFIED	5' HT.	11
	RIVER BIRCH	BETULA NIGRA	CANOPY	FIELD SPECIFIED	MULTI-STEM, 7' HT	2

ZONE 3 - EDGE OF GRADING TO EDGE OF DISTURBANCE

PLANTING SCHEDULE	COMMON NAME	BOTANICAL NAME	CLASS	PLANTING RATE	TYPE	QTY
BASE BID	MODIFIED - RIPARIAN PIEDMONT SEED MIX	ERNMX-852	--	0.5#/1000 SF	SY, CAST SEED	2490
	5311 CONSERVATION SEED MIX	ERNMX-114	--	3-5#/1000 SF	SY, CAST SEED	930
	VERNAL WITCHHAZEL	HAMAMELIS VERNALIS	SHRUB	8' O.C.	3 GALLON	15
	WITCHHAZEL	HAMAMELIS VIRGINIANA	SHRUB	8' O.C.	3 GALLON	15
	WINTERBERRY	ILEX VERTICILLATA	SHRUB	8' O.C.	3 GALLON	15
	DWARF FOTHERGILLA	FOTHERGILLA GARDENII	SHRUB	8' O.C.	3 GALLON	15
	ARROWWOOD VIBURNUM	VIBURNUM DENTATUM	SHRUB	8' O.C.	3 GALLON	15
	EASTERN SWEETSHRUB	CALYCANTHUS FLORIDUS	SHRUB	15' O.C.	3 GALLON	15
	SOUTHERN ARROWWOOD	VIBURNUM DENTATUM	SHRUB	15' O.C.	3 GALLON	15
	ELDERBERRY	SAMBUCUS CANADENSIS	SHRUB	15' O.C.	3 GALLON	15
	BITTERNUT HICKORY	CARYA CORDIFORMIS	CANOPY	35' O.C.	BARE ROOT	10
	EASTERN REDBUD	CERCIS CANADENSIS	CANOPY	35' O.C.	1" CALIPER	4
	BLACKGUM	NYSSA SYLVATICA	CANOPY	35' O.C.	1" CALIPER	4
	AMERICAN BEECH	FAGUS GRANDIFOLIA	CANOPY	35' O.C.	1" CALIPER	4
	SWAMP WHITE OAK	QUERCUS BICOLOR	CANOPY	35' O.C.	1" CALIPER	4
	SWAMP CHESTNUT OAK	QUERCUS MICHAUXII	CANOPY	35' O.C.	1" CALIPER	4
	SASSAFRAS	SASSAFRAS ALBIDUM	CANOPY	35' O.C.	1" CALIPER	6
	WHITE OAK	QUERCUS ALBA	CANOPY	35' O.C.	1.5" CALIPER	4
	RED MAPLE	ACER RUBRUM	CANOPY	35' O.C.	2" CALIPER	4
ADD-ALTERNATE	ARROWWOOD VIBURNUM	VIBURNUM DENTATUM	SHRUB	FIELD SPECIFIED	3 GALLON	13
	BLACKHAW VIBURNUM	VIBURNUM PRUNIFOLIUM	SHRUB	FIELD SPECIFIED	3 GALLON	10
	WINTERBERRY	ILEX VERTICILLATA	SHRUB	FIELD SPECIFIED	3 GALLON	10
	POSSUM HAW VIBURNUM	VIBURNUM NUDUM	SHRUB	FIELD SPECIFIED	3 GALLON	3
	HICKORY	CARYA SP.	CANOPY	FIELD SPECIFIED	BARE ROOT	5
	SWAMP WHITE OAK	QUERCUS BICOLOR	CANOPY	FIELD SPECIFIED	1" CALIPER	3
	CHESTNUT OAK	QUERCUS MONTANA	CANOPY	FIELD SPECIFIED	1" CALIPER	2
	WILLOW OAK	QUERCUS PHELLOS	CANOPY	FIELD SPECIFIED	1" CALIPER	2
	DOWNY SERVICEBERRY	AMELANCHIER ARBOREA	CANOPY	FIELD SPECIFIED	1" CALIPER	2
	CANADIAN SERVICEBERRY	AMELANCHIER CANADENSIS	CANOPY	FIELD SPECIFIED	1" CALIPER	3
	SMOOTH SERVICEBERRY	AMELANCHIER LAEVIS	CANOPY	FIELD SPECIFIED	1" CALIPER	3
	BLACKGUM	NYSSA SYLVATICA	CANOPY	FIELD SPECIFIED	1" CALIPER	3
	BALD CYPRESS	TAXODIUM DISTICHUM	CANOPY	FIELD SPECIFIED	5' HT.	3
	RIVER BIRCH	BETULA NIGRA	CANOPY	FIELD SPECIFIED	MULTI-STEM, 7' HT	5

ZONE 4 - SANITARY SEWER EASEMENT AND TEMPORARY CONSTRUCTION ROADWAY

PLANTING SCHEDULE	COMMON NAME	BOTANICAL NAME	CLASS	PLANTING RATE	TYPE	QTY
BASE BID	MODIFIED - RIPARIAN PIEDMONT SEED MIX	ERNMX-852	--	0.5#/1000 SF	SY, CAST SEED	1580
ADD-ALTERNATE	HAZEL ALDER	ALNUS SERRULATA	SHRUB	FIELD SPECIFIED	1 GALLON	7
	HAZELNUT	CORYLUS AMERICANA	SHRUB	FIELD SPECIFIED	1 GALLON	20
	VERNAL WITCHHAZEL	HAMAMELIS VERNALIS	SHRUB	FIELD SPECIFIED	1 GALLON	11
	WITCHHAZEL	HAMAMELIS VIRGINIANA	SHRUB	FIELD SPECIFIED	1 GALLON	7
	RED CHOKEBERRY	ARONIA ARBUTIFOLIA	SHRUB	FIELD SPECIFIED	1 GALLON	21
	CANADIAN SERVICEBERRY	AMELANCHIER CANADENSIS	CANOPY	FIELD SPECIFIED	3/4" CALIPER	1
	SMOOTH SERVICEBERRY	AMELANCHIER LAEVIS	CANOPY	FIELD SPECIFIED	3/4" CALIPER	1
	SOURWOOD	OXYDENDRON ARBOREUM	CANOPY	FIELD SPECIFIED	3/4" CALIPER	4
	SASSAFRAS	SASSAFRAS ALBIDUM	CANOPY	FIELD SPECIFIED	3/4" CALIPER	7

1 LANDSCAPING SCHEDULE

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: C. TABOR
DESIGNED BY: T. SMITH
DRAWN BY: S. KANE
CHECKED BY: T. SCHUELER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% DESIGN - ISSUED FOR CONSTRUCTION

COMMONWEALTH OF VIRGINIA
TYLER W. SMITH
Lic. No. 63968
PROFESSIONAL ENGINEER

2022.05.02 09:42:55-04'00'

Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VA, 23230

CITY OF CHARLOTTESVILLE
CHARLOTTESVILLE, VIRGINIA

SCHENKS BRANCH TRIBUTARY STREAM
RESTORATION PROJECT

DETAILS
LANDSCAPING SCHEDULE

DATE: APRIL 2022
HAZEN NO.: 32571-003
HAZEN CONTRACT NO.: 202827
DRAWING NUMBER: CD15

File: O:\32571-003\32571-003\CAD_BM\ACFA\LEC015 Saved by SKANE Save date: 4/28/2022 5:08 PM
PLOT DATE: 4/28/2022 2:08 PM BY: SKANE