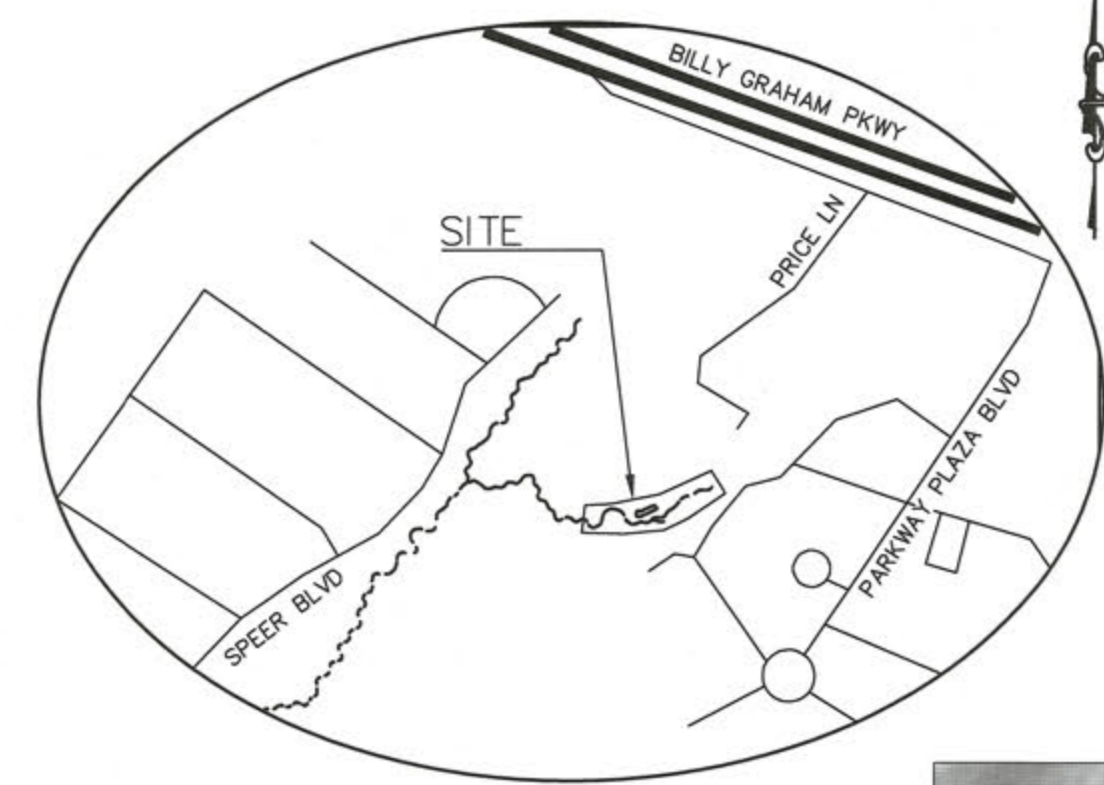


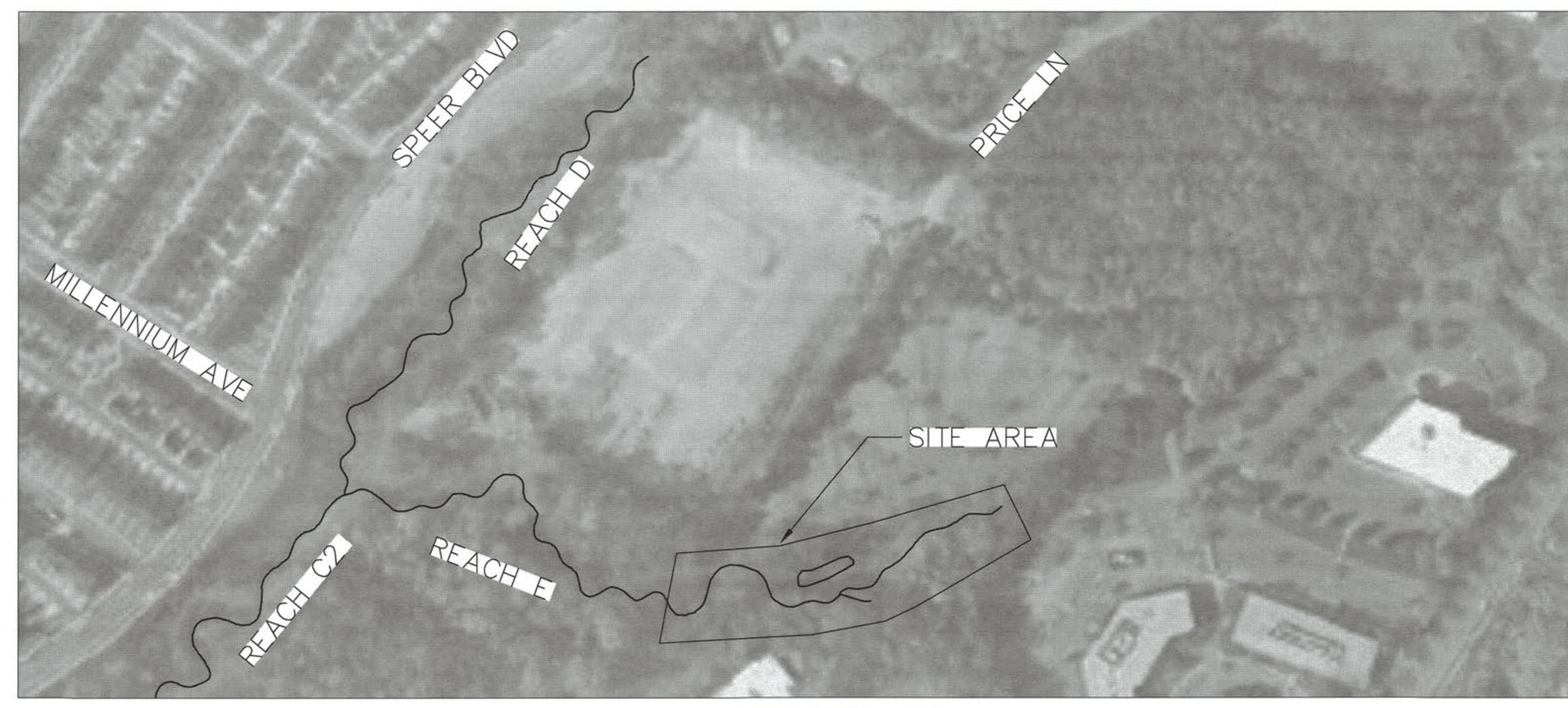
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General Notes.....	2
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Erosion Control Plan.....	6-7
Civil Details.....	8-10
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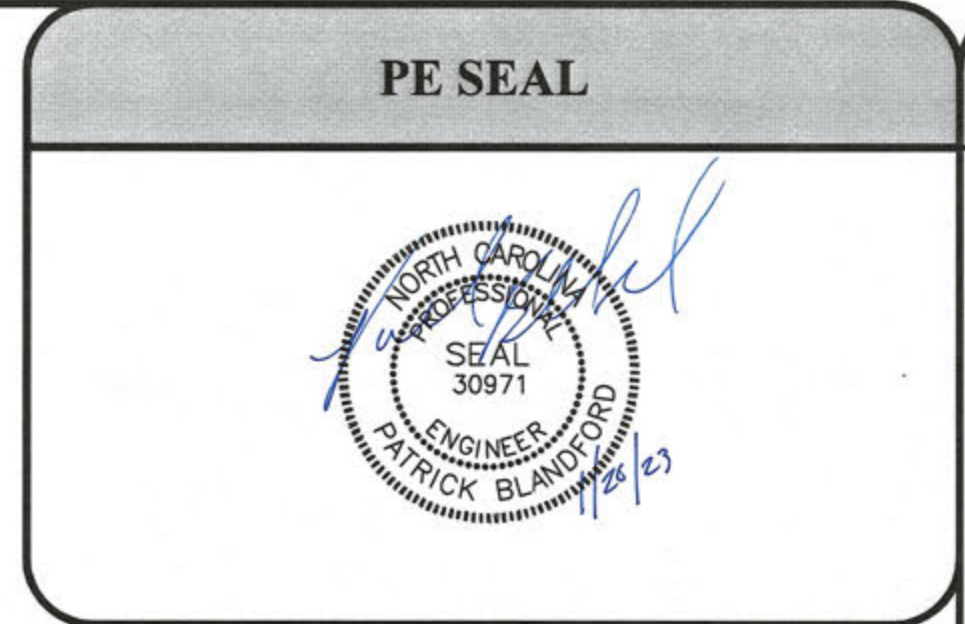
**Coliseum Creek
Stream Repair
Project No. 672-10-005
HDR Project No. 10334659**



VICINITY MAP
NTS



LOCATION MAP
NTS



Record Drawings

CONVENTIONAL SIGNS	
Property Line	_____
Existing Property Line	_____
Conservation Easement Line	— CE — CE — CE —
Existing Structures	_____
Railroad Tracks	_____
Proposed Edge of Pavement	_____
Fence	_____
Slope Stake Line	— C — F —
Temporary Construction Easement	— e — e —
Sidewalk Utility Easement	— SUE — SUE —
Storm Drainage Easement	— SDE — SDE —
Permanent Storm Drainage Easement	— PSDE — PSDE —
Public Drainage Easement	— E — E —
Existing Gas Line	— G — G —
Existing Water Line	— W — W —
Existing Sanitary Sewer	— SS — SS —
Existing Underground Telecommunications	— UT — UT —
Existing Underground Electric	— UE — UE —
Existing Storm Drainage	_____
Proposed Storm Drainage	_____
Existing Tree	_____
Existing Log Structure	_____
Existing Boulder Structure	_____
Existing Gas Valve	_____
Existing Sanitary Sewer Manhole	_____
Proposed Sanitary Sewer Manhole	_____
Existing Storm Drain Manhole	_____
Proposed Storm Drain Manhole	_____
Existing Telephone Manhole	_____
Proposed Telephone Manhole	_____
Existing Electric Manhole	_____
Proposed Electric Manhole	_____
Existing Catch Basin	_____
Proposed Catch Basin	_____
Existing Light Pole	_____
Proposed Light Pole	_____
Existing Utility Pole	_____
Proposed Utility Pole	_____
Guy Wire	_____
Iron Pin	_____
Existing Fire Hydrant	_____
Proposed Fire Hydrant	_____
Existing Drop Inlet.....	_____
Proposed Drop Inlet.....	_____
Accessible Ramp	_____
Foundation Protection	_____
Tree Protection	_____
Proposed Guardrail	_____
Silt Fence	_____
Proposed Curb & Gutter, Conc. Drive, Sidewalk	_____
Proposed Asphalt Pavement	_____
Proposed Rip Rap Ditch	_____
Proposed Gravel	_____
Proposed Pavement Removal	_____
Proposed Sidewalk Bridging Tree Roots	_____
Sidewalk Cross Slope Transition	_____
Asphalt Milling	_____

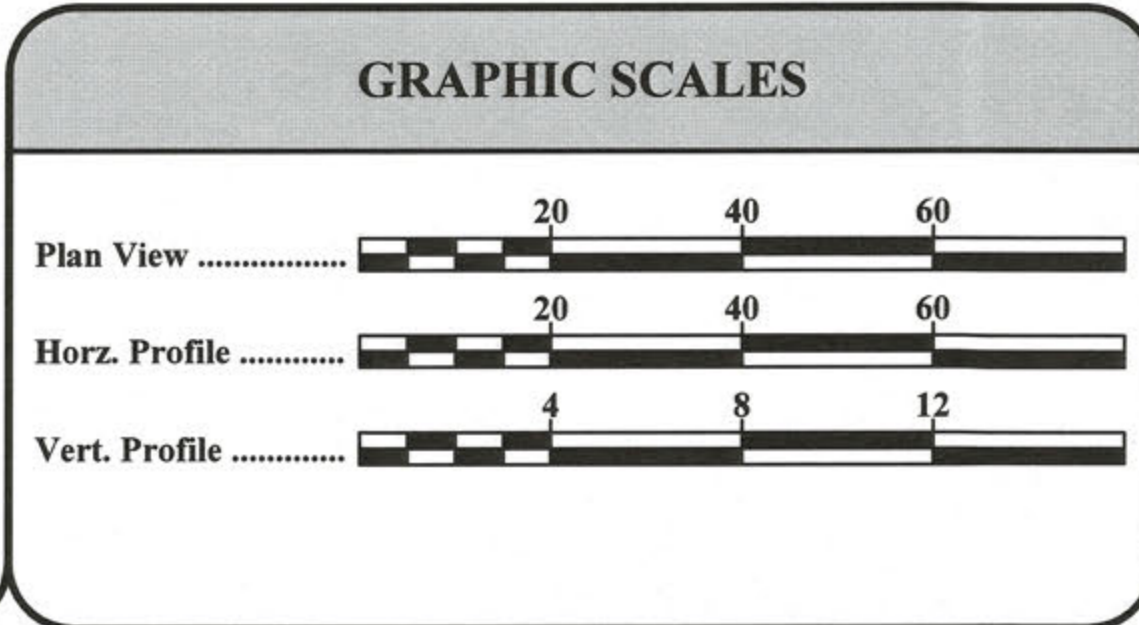


PLANS PREPARED BY:

HDR Engineering Inc. of the Carolinas
N.C.B.E.L.S. License Number F-0116
6440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
Phone: 704-338-6700



2018 STANDARD SPECIFICATIONS



RECOMMENDED FOR CONSTRUCTION	
Storm Water Construction	Francis Boab
Landscape Management	Craig Moore
Storm Water - Water Quality	Evin Shanaberger
Storm Water Project Manager	Shawn McDonald

**Bid Set No.
H31-33**

APPROVED *Robert Jazymosky* 03/08/2023
STORM WATER SERVICES DATE

Project Name: Coliseum Creek Stream Repair Project Number: 672-10-005

GENERAL NOTES

PROPOSED CURB ELEVATIONS:

THE CONTRACTOR SHALL SET AND ADJUST PROPOSED CURB ELEVATIONS AS NECESSARY TO ENSURE PROPER LONGITUDINAL GRADE FOR DRAINAGE. THE CONTRACTOR SHALL RETAIN EXISTING PAVEMENT, UNLESS OTHERWISE NOTED.

DRIVEWAYS AND SIDEWALKS:

PROPOSED DRIVEWAY ENTRANCE DIMENSIONS ARE FROM EXPANSION JOINT TO EXPANSION JOINT. MATCH REPLACEMENT MATERIALS TO THE EXISTING SURFACE ACCORDINGLY:

- CONCRETE – SIX INCH PORTLAND CEMENT CONCRETE (3600 PSI).
• ASPHALT – (COMMERCIAL) TWO INCH SF9.5B COURSE AND FOUR INCH I19.0B INTERMEDIATE COURSE.
(RESIDENTIAL) TWO INCH SF9.5B COURSE AND FOUR INCH AGGREGATE BASE (ABC) COURSE.
• GRAVEL – SIX INCH INCIDENTAL STONE (UNLESS OTHERWISE NOTED ON THE PLANS).

SIDEWALK SHALL BE FOUR INCHES THICK, AND SIX INCHES THICK AT DRIVEWAY CROSSINGS, PER CITY STD. NO. 10.22.

CROSS SLOPES ON SIDEWALKS SHALL NOT EXCEED 2.0%.

RUNNING SLOPES ALONG SIDEWALKS SHALL NOT EXCEED 5.0%, OR THE ADJACENT ROADWAY SLOPE AS MEASURED AT THE GUTTER PAN, WHICHEVER IS GREATER.

A TURNING SPACE (LANDING) SHALL BE PROVIDED AT ALL LOCATIONS WHERE A PEDESTRIAN MIGHT TURN TO CHANGE DIRECTION OF TRAVEL. THE LANDING SHALL BE A MINIMUM OF 4 FEET BY 4 FEET, UNLESS NOTED BY THE ENGINEER.

DRAINAGE STRUCTURES:

GRADES, ELEVATIONS AND LOCATIONS SHOWN ARE APPROXIMATE. AS DIRECTED BY THE ENGINEER, THEY MAY BE ADJUSTED TO ACCOMMODATE UNFORESEEN CONDITIONS. STATIONS, OFFSETS AND ELEVATIONS REFER TO THE CENTER OF DROP INLETS, MANHOLES AND JUNCTION BOXES, AND THE MIDPOINT OF THE LIP FOR CATCH BASINS.

UTILITIES:

UTILITIES ARE ILLUSTRATED FOR INFORMATION PURPOSES ONLY. THE CITY WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF UTILITY LOCATIONS, SIZES, DEPTHS, OR FOR COMPLETENESS OF UTILITY INFORMATION. PRIOR TO CONSTRUCTION AND VIA THE CITY UTILITY COORDINATOR AND CITY INSPECTOR, THE CONTRACTOR SHALL NOTIFY AND MEET WITH ALL UTILITIES AFFECTED TO DETERMINE UTILITY LOCATIONS.

- FOR UTILITY LOCATES CALL NORTH CAROLINA ONE–CALL @ 1–800–632–4949.
• WARNING: OVERHEAD UTILITIES. UNLESS OTHERWISE NOTED FOR RELOCATION, THE CONTRACTOR IS TO WORK UNDER ALL EXISTING OVERHEAD UTILITIES.

THE CONTRACTOR SHALL ADJUST ALL WATER VALVES, WATER METER BOXES AND WATER VAULTS TO FINISHED GRADE. WATER METERS LOCATED IN SIDEWALKS OR CONCRETE DRIVEWAYS SHALL BE INSTALLED WITHIN CONCRETE BOXES.

GAS LINES WILL BE ADJUSTED/RELOCATED AS NEEDED BY PIEDMONT NATURAL GAS. VIA THE CITY UTILITY COORDINATOR AND CITY INSPECTOR, THE CONTRACTOR SHALL CONTACT PIEDMONT NATURAL GAS AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION.

EXISTING SANITARY SEWER AND WATER LINE:

THE CONTRACTOR SHALL USE CARE WHEN WORKING AROUND SANITARY SEWERS AND WATER LINES. SHOULD THE CONTRACTOR DAMAGE EXISTING SEWER OR WATER LINES, HE SHALL IMMEDIATELY REPLACE THE LINE AT HIS EXPENSE WITH DUCTILE IRON PIPE.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR MAY MAKE HIS OWN INVESTIGATION TO DETERMINE SUBSURFACE CONDITIONS.

MAIL BOXES:

THE CONTRACTOR SHALL RELOCATE ALL MAIL BOXES AS REQUIRED BY SECTION 107–11 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. COORDINATE THIS WORK WITH THE U.S. POSTAL SERVICE.

FENCES:

THE CONTRACTOR SHALL REMOVE AND RESET FENCES AS NOTED ON THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

GENERAL NOTES

TREES, SHRUBS, AND HEDGES:

THE CONTRACTOR SHALL REMOVE TREES, SHRUBS, AND HEDGES WITHIN THE LIMITS OF DISTURBANCE UNLESS SHOWN ON THE PLANS TO BE PROTECTED AND THOSE THAT FALL WITHIN THE TREE PROTECTION BARRIERS. WHEN ROOT PRUNING IS NECESSARY, CUT ROOTS CLEANLY USING A DISC TRENCHER OR OTHER APPROVED METHOD IN ACCORDANCE WITH SECTION 01000 OF THE CITY OF CHARLOTTE LANDSCAPE CONSTRUCTION STANDARDS.

CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY PRIOR TO REMOVING ANY TREES. IN ADDITION, ALL TREES LOCATED WITHIN THE LIMITS OF DISTURBANCE THAT ARE TO REMAIN AFTER CONSTRUCTION SHALL BE INSPECTED BY THE CITY TO VERIFY THEY ARE SUITABLE TO REMAIN.

FOLLOWING CONSTRUCTION STAKING THE PROJECT TEAM (CONTRACTOR, CITY INSPECTOR, CITY ARBORIST AND CONSULTANT, IF APPLICABLE) WILL HOLD AN ON–SITE MEETING TO ENSURE THE LIMITS OF DISTURBANCE AND THAT TREES PROPOSED FOR PROTECTION ARE CLEARLY IDENTIFIED. THE TEAM WILL WALK THE PROJECT AREA AND AGREE ON THE TREES TO BE PROTECTED AND THOSE TO REMOVE, DISCUSS PROPOSED CONSTRUCTION ACTIVITIES, AND IDENTIFY ANY ADDITIONAL TREES TO PROTECT THAT WERE NOT ORIGINALLY MARKED AS SUCH.

THERE WILL BE NO ADDITIONAL PAYMENT FOR TREE PROTECTION INSTALLED AROUND ADDITIONAL TREES IDENTIFIED FOR PROTECTION. THE CONTRACTOR ASSUMES RESPONSIBILITY FOR "IN–KIND" REPLACEMENT OF TREES DAMAGED THAT HAVE BEEN MARKED FOR PROTECTION OR NOT MARKED FOR REMOVAL.

TOLERANCE:

STRUCTURES INCLUDING STORM DRAIN PIPE, STORM STRUCTURES, SEWER PIPE, AND RETAINING WALLS SHALL HAVE A TOLERANCE OF ±0.10 FEET. STRUCTURES INCLUDING RISERS, WEIRS, AND ORIFICES, SHALL HAVE A TOLERANCE OF ±0.05 FEET.

STREAM IMPROVEMENT STRUCTURES SHALL HAVE A VERTICAL TOLERANCE OF ±0.10 FEET, AND A PLANIMETRIC TOLERANCE OF ±0.50 FEET.

SIDE SLOPES:

LIMITS OF PROPOSED SLOPES ARE INDICATED IN THE PLANS, DETAILS AND STANDARD DRAWINGS. THE MAXIMUM SLOPE SHALL NOT EXCEED A 3:1 (HORIZONTAL TO VERTICAL) UNLESS DESIGNATED BY THE ENGINEER. A CUT SLOPE OF 2:1 MAXIMUM WILL BE USED ONLY AS DIRECTED BY THE ENGINEER.

ACCESSIBLE RAMPS AND DEPRESSED CURB:

THE CONTRACTOR SHALL CONSTRUCT 6–INCH THICK CONCRETE ACCESSIBLE CURB RAMPS AT INTERSECTIONS IN ACCORDANCE WITH THE LATEST REVISIONS FOR ACCESSIBLE CURB RAMPS DETAILS, "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT–OF–WAY" (PROWAG), CONSTRUCTION PLANS & NCDOT STANDARD DRAWINGS.

RUNNING SLOPES ALONG CURB RAMPS SHALL NOT EXCEED 8.3%, BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

FLARES SHALL BE 10.0% MAXIMUM SLOPE (WHERE APPLICABLE), UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

RAMP CROSS SLOPE SHALL NOT EXCEED 2.0%, OR THE ADJACENT ROADWAY SLOPE AS MEASURED AT THE GUTTER PAN, WHICHEVER IS GREATER.

A TURNING SPACE (LANDING) SHALL BE PROVIDED AT ALL LOCATIONS WHERE A PEDESTRIAN MIGHT TURN TO CHANGE DIRECTION OF TRAVEL. THE LANDING SHALL BE A MINIMUM OF 4 FEET BY 4 FEET, UNLESS NOTED BY THE ENGINEER.

SAWCUTS:

THE CONTRACTOR SHALL SAWCUT EXISTING ASPHALT AND/OR CONCRETE SURFACES PRIOR TO REMOVAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SAW CUT WIDTH SHALL BE 1 FOOT MINIMUM FROM THE EXISTING EDGE OF PAVEMENT.

TRAFFIC CONTROL:

TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE "WORK AREA TRAFFIC CONTROL HANDBOOK" (WATCH).

ENVIRONMENTAL PERMITTING:

401/404 JURISDICTIONAL AREA(S) HAVE BEEN PERMITTED UNDER CHARLOTTE STORM WATER SERVICES RGP #163/GC #4100, OR APPLICABLE PERMIT DOCUMENT. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE PERMIT REQUIREMENTS.

BY CITY ORDINANCE, THE DISCHARGE OF STORMWATER POLLUTANTS TO THE STORM WATER SYSTEM OR WATER BODIES IS PROHIBITED.

GENERAL NOTES

STREAM CHANNEL WORK:

THE CONTRACTOR IS TO PUMP ALL STREAM FLOW AROUND THE PROPOSED WORK AS SHOWN IN THE DETAILS. USE ONE OR MORE PUMPS, SIZED TO PUMP THE VOLUME OF WATER DICTATED BY STREAM CONDITIONS AND REFERENCED IN THE DETAILS. THE PUMP(S) ARE TO BE PLACED IN A POOL UP STREAM OF THE WORK.

CONTRACTOR SHALL HAVE AT LEAST ONE TRACKHOE WITH A HYDRAULIC "THUMB" ATTACHMENT FOR INSTALLATION OF STREAM STRUCTURES. SIZE OF EQUIPMENT SHALL BE SUITABLE TO HANDLE ROCK AND TIMBER STRUCTURES WITHOUT DAMAGING PROJECT AREA.

GRADE SPECIFICATIONS FOR EACH IN–STREAM STRUCTURE SHALL BE CHECKED DURING STRUCTURE PLACEMENT. THE MAXIMUM DEVIATION FROM SPECIFIED VERTICAL GRADE SHALL BE +/- 0.10 FEET. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SURVEY EQUIPMENT/CREW TO DOCUMENT REQUIRED ELEVATIONS.

IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY. THE ELEVATION OF THE ROCK SHALL BE DETERMINED BY THE CONTRACTOR AND REPORTED TO THE ENGINEER. GRADING IN THIS AREA SHALL CEASE UNTIL THE SITUATION IS ASSESSED AND CHANGES, IF ANY, ARE DETERMINED.

ROCK STEP POOLS, AND OTHER ROCK STRUCTURES SHALL BE CONSTRUCTED OF NATURAL ANGULAR, FLAT OR CUBED ROCK OBTAINED FROM A SOURCE IDENTIFIED BY THE CONTRACTOR. DETAILS FOR THE CONSTRUCTION OF THESE STRUCTURES ARE SHOWN ON DETAIL SHEETS. CUT OR SPLIT ROCKS WITH AN UNNATURAL APPEARANCE ARE NOT ACCEPTABLE.

ROCK TOE PROTECTION SHALL BE PROHIBITED UNLESS APPROVED BY ENGINEER AND OWNER, AND UNLESS SHOWN ON THE PLANS.

CHANNEL RESTORATION:

DUE TO THE NATURE OF THE WORK INVOLVED WITHIN THE EXISTING CHANNEL, THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE CLOSELY WITH THE PROJECT INSPECTOR, SPECIALLY IN THE FOLLOWING AREAS:

- PRIOR TO CLEARING AND GRUBBING – OBTAIN THE WRITTEN APPROVAL BY INSPECTOR.
PRIOR TO/DURING PLACEMENT OF IN–STREAM STRUCTURES – OBTAIN APPROVAL BY INSPECTOR.
PRIOR TO OVERBANK GRADING – IDENTIFY TREE PROTECTION ZONES AND APPROVAL BY INSPECTOR

STANDARDS

THE STANDARDS CONTAINED ON THE PLANS AND SPECIFICATIONS AND THE LATEST VERSIONS THERETO ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE ARE CONSIDERED A PART OF THESE PLANS. NCDOT ROADWAY STANDARDS AND THE LATEST CHARLOTTE LAND DEVELOPMENT STANDARDS SHALL BE USED.

BASE DATA

EXISTING CONDITIONS TAKEN FROM A GROUND SURVEY BY JAMES MAUNEY & ASSOCIATES DATED NOVEMBER 2021. ALL COORDINATES BASED ON NAD 83 AND NAVD 88.

ABBREVIATIONS

Table with 2 columns: Abbreviation and Full Name. Includes terms like ABANDONED, ASPHALT, APPROXIMATELY, BACK OF CURB, BITUMINOUS, BENCH MARK, BEARING, CATCH BASIN, CURB AND GUTTER, CLEARANCE, CHAIN LINK FENCE, CORRUGATED MTL PIPE, CONCRETE, CONSTRUCTION, DEED BOOK, DOUBLE CB, DROP INLET, DIAMETER, DRIVEWAY, DIMENSION, EAST/EASTING/ESMT, EACH, ELEVATION, EDGE OF PAVEMENT, EASEMENT, EXISTING, FACE OF CURB, FLARED END SECTION, FIRE HYDRANT, FIBER OPTIC CABLE, FOUNDATION PROTECTION, GAS VALVE, HORIZONTAL, INTERSECTION, INVERT, IRON PIN SET, LENGTH, LINEAR FOOTAGE, LEFT, POUND, LIGHT POLE, MAXIMUM, MINIMUM, MONOLITHIC, MILES PER HOUR, METAL, NORTH/NORTHING, NOT TO SCALE, OVER HEAD, ON CENTER, PAVEMENT, PERM DRAINAGE ESMT, POINT OF CURVATURE, PERMANENT, PAGE, POINT OF INT, PK NAIL SET, POWER POLE, PROPOSED, PERM SW ESMT, POINT OF TANGENCY, POINT OF VERT INT, PERM UTILITY ESMT, RADIUS, RIGHT, REINFORCED CONC PIPE, RELOCATE, RIGHT OF WAY, SOUTH, STORM DRAIN, STORM DRAIN ESMT, SQUARE FOOT, S/R FENCE, SPLIT RAIL FENCE, SANITARY SEWER, STATION, STANDARD, SIDEWALK, TANGENT, TEMP CONST ESMT, TEMPORARY, TRAVERSE POINT, TEST WIRE, TYPICAL, UNDER GROUND, VERTICAL CURVE, VERTICAL, WEST, WITH, WATER METER, WATER VAULT, WATER VALVE, SIXTY PENNY NAIL SET, FOOT, INCH.

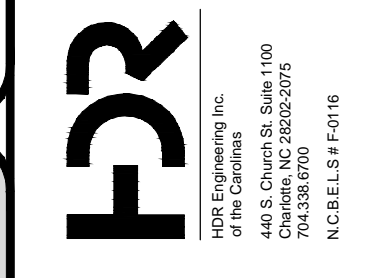
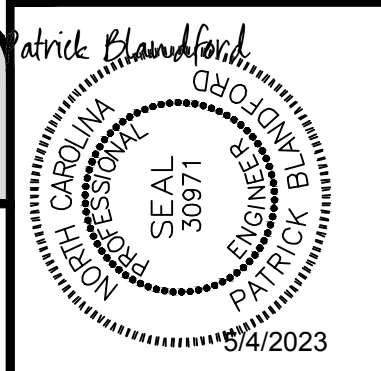
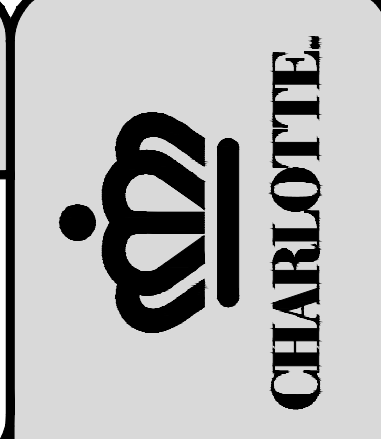


Table with 4 columns: NO., DATE, BY, DESCRIPTION. All cells are empty.



Table with 2 columns: PB, DATE. PB: CHECKED BY. DATE: 05/27/2022.

Table with 2 columns: AL, KY. AL: PREPARED BY. KY: APPROVED BY.

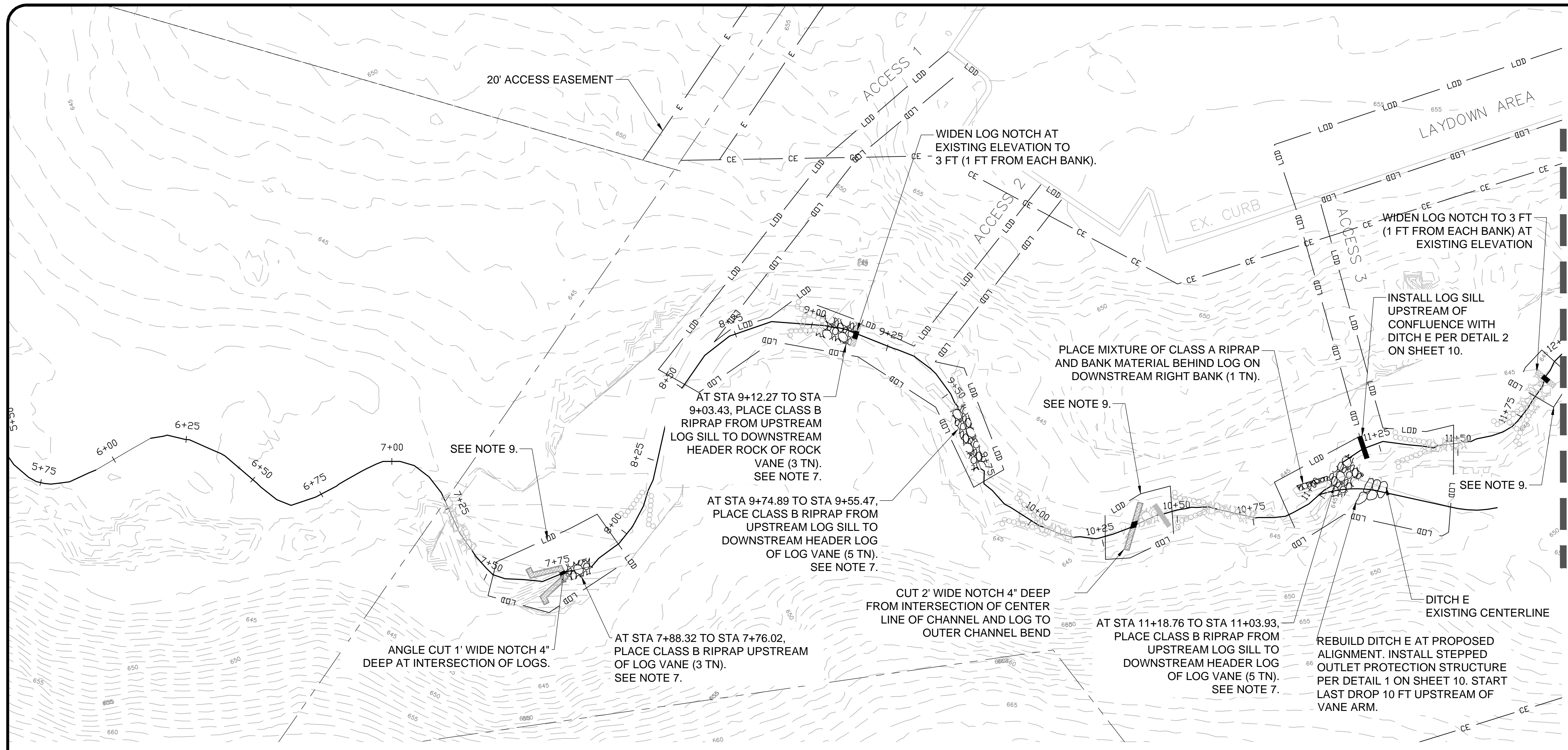
Table with 2 columns: Coliseum Creek Stream Repair, General Notes. SHEET 2 OF 10.



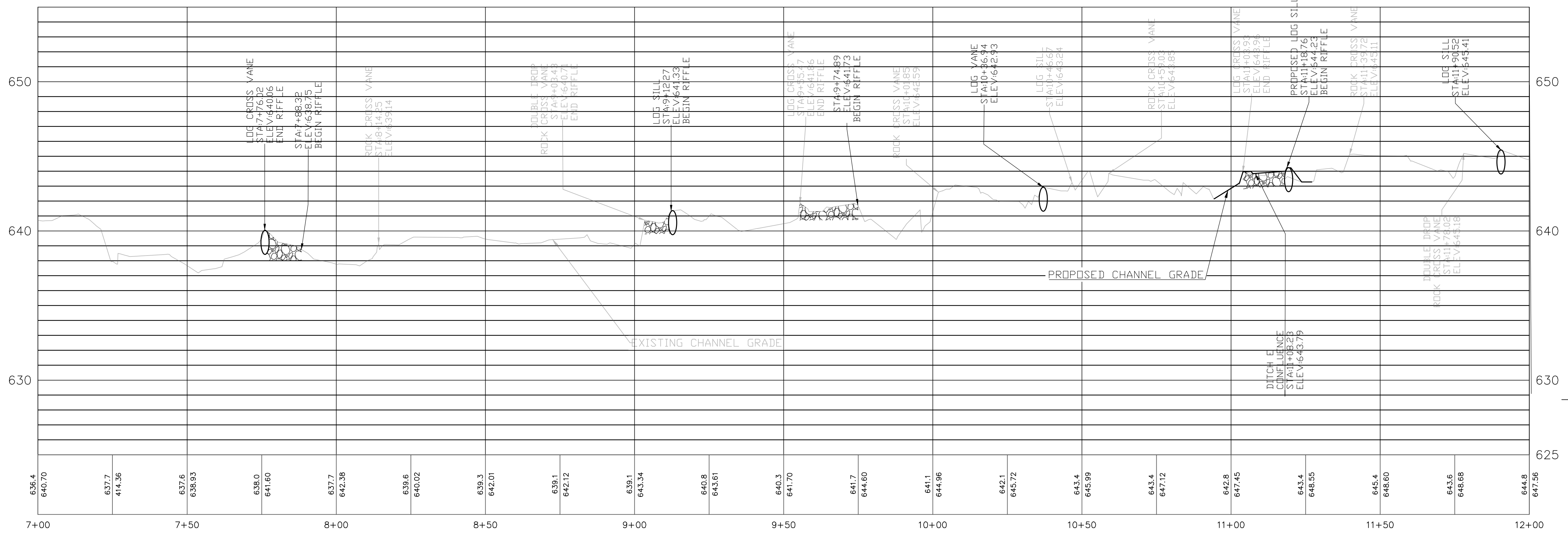
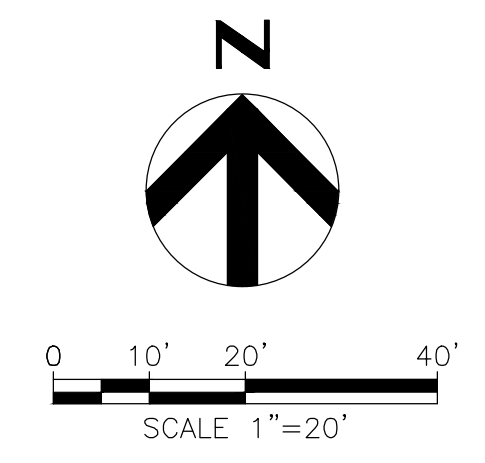
Know what's below. Call before you dig.

Table with 3 columns: Site Area Description, Stabilize within this many calendar days after ceasing land disturbance, Timeframe variations. Includes rows for perimeter dikes, High Quality Water (H2W) Zones, Slopes steeper than 3:1, Slopes 3:1 to 4:1, and Areas with slopes flatter than 4:1.

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity.



- NOTES:**
- STOCKPILE LOGS FROM REMOVED STRUCTURES TO BE REUSED IN NEW LOG STRUCTURES. LOGS TO BE INSPECTED BY THE ENGINEER BEFORE REUSE.
 - LIVE STAKE ALL DISTURBED STREAM BANKS NOT OTHERWISE NOTED FOR PLANTING. SEE DETAIL 1 ON SHEET 8.
 - CONTRACTOR TO MARK LOG CUTS FOR FIELD REVIEW BY ENGINEER.
 - CONTRACTOR TO STAKE OUT LIMITS OF DISTURBANCE FOR FIELD REVIEW BY ENGINEER AND CITY INSPECTOR. TREES WILL BE MARKED AT FIELD REVIEW FOR REMOVAL BY CONTRACTOR. ADJUSTMENTS BY ENGINEER AND CITY INSPECTOR ONLY.
 - CONTRACTOR TO PROTECT AND MAINTAIN PARKING LOT AND CURB FREE FROM DAMAGE. CONTRACTOR RESPONSIBLE FOR PARKING AND CURB REPAIRS AT OWN EXPENSE.
 - CONTRACTOR TO STAKE OUT PROPOSED ALIGNMENT FOR DITCH E AND LOCATION OF LAST DROP PRIOR TO REACH E FOR FIELD REVIEW BY ENGINEER.
 - CONTRACTOR TO ADAPT DETAIL 2, SHEET 9 FOR THE PURPOSES OF REPLENISHING AND RESHAPING CONSTRUCTED RIFFLES.
 - LOG NOTCHING TO BE PAID UNDER SPSRW-02.
 - ACCESS CORRIDORS SHOWN ON PLAN ARE INTENDED FOR INGRESS AND EGRESS OF HEAVY EQUIPMENT AND TRANSPORT OF MATERIALS. LIMITS OF DISTURBANCE NOT SHOWN WITH AN ACCESS CORRIDOR SHOULD BE ACCESSED BY NON-MECHANICAL MEANS.



LEGEND

- CONSTRUCTED RIFFLE WITH PROPOSED REPAIRS (DETAIL 2, SHEET 9)
- PROPOSED LOG SILL (DETAIL 2, SHEET 10)
- EXISTING LOG SILL WITH PROPOSED REPAIRS
- LOG CROSS VANE WITH PROPOSED REPAIRS
- ANGLED LOG VANE WITH PROPOSED REPAIRS
- PROPOSED ANGLED LOG RIFFLE (DETAIL 3, SHEET 10)
- PROPOSED STEPPED OUTLET PROTECTION (DETAIL 1, SHEET 10)
- EXISTING ROCK STEP POOL
- EXISTING LOG SILL
- EXISTING LOG CROSS VANE
- EXISTING ROCK CROSS VANE
- EXISTING ROCK 'A' VANE
- EXISTING CONSTRUCTED RIFFLE
- LDD LIMITS OF DISTURBANCE

4' VERTICAL SCALE 1"=4'

0 10' 20' 40' HORIZONTAL SCALE 1"=20'

CHARLOTTE.

Professional Engineer
No. 30971
6/4/2023

FDR
FDR Engineering, Inc.
485 S. Church St., Suite 100
Charlotte, NC 28202-9795
N.C. REG. L.S.P.# 0116

NO.	DATE	BY	DESCRIPTION

Charlotte-Mecklenburg **STORM WATER Services**

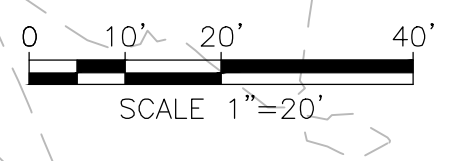
672-10-005	AL	PB	05/27/2022
JOB NO.	PREPARED BY	CHECKED BY	DATE
	KV		
	APPROVED BY		

Coliseum Creek Stream Repair
Reach E Plan and Profile
STA 7+00 to 12+00
Proposed Repairs

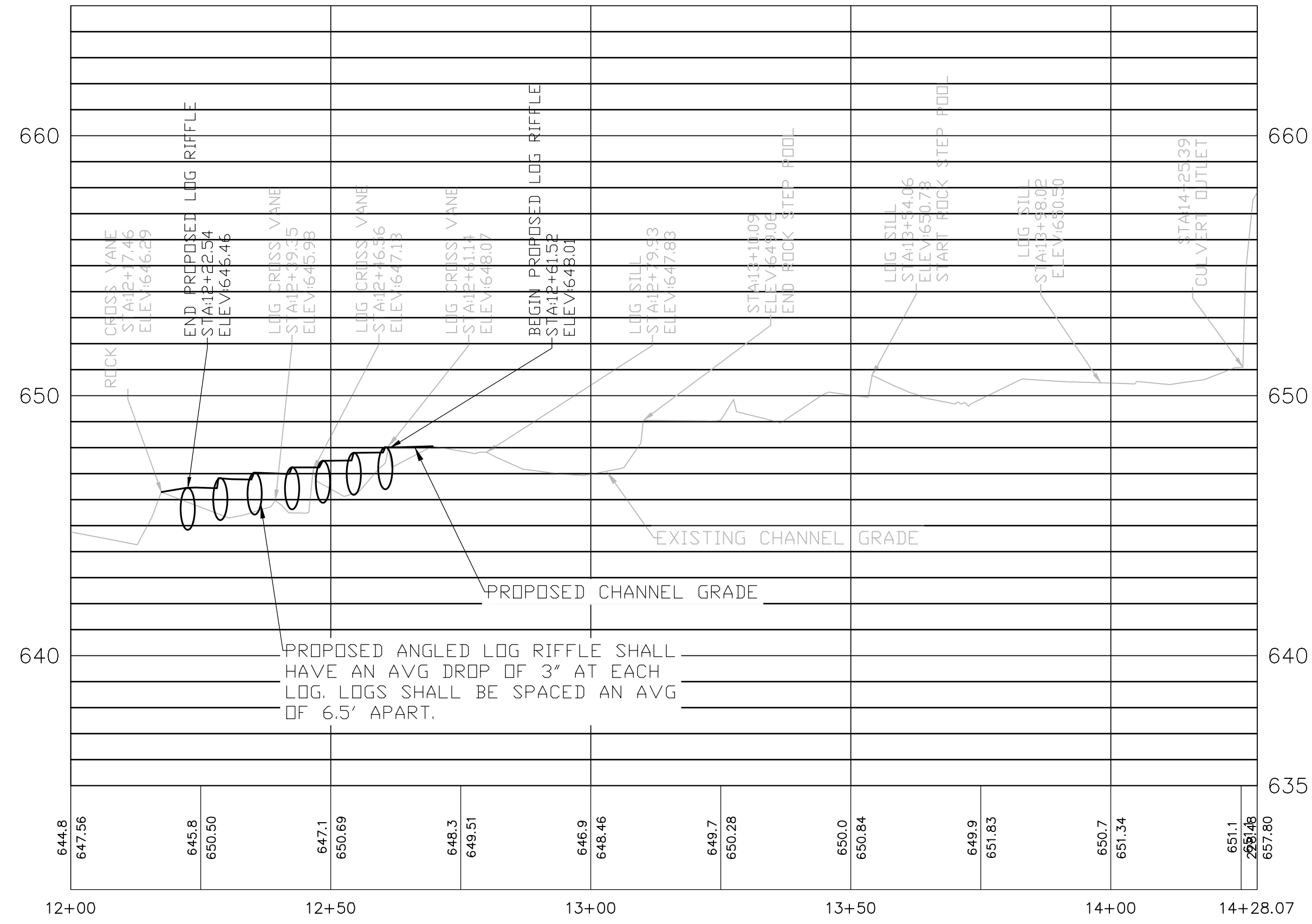
SHEET 3 OF 10



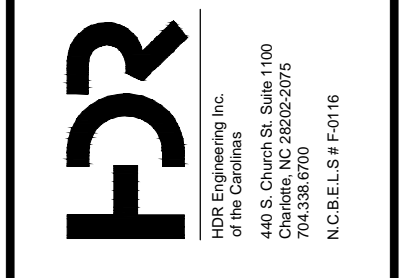
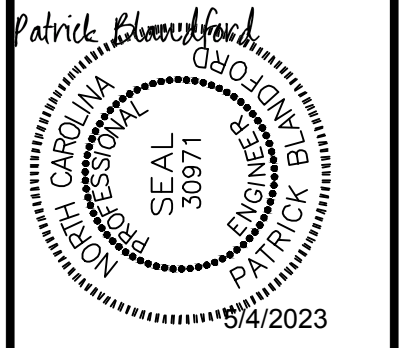
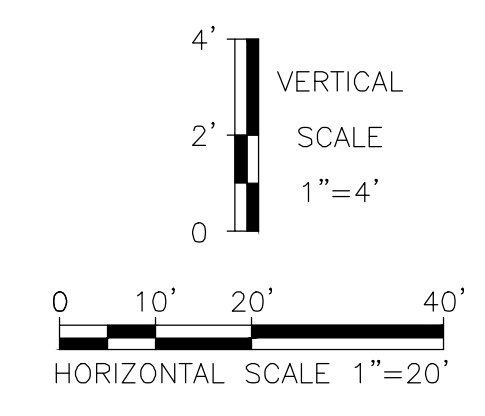
REMOVE EXISTING LOG VANES AND REPLACE WITH ANGLED LOG RIFFLE SEQUENCE AT STA 12+61.52 TO STA 12+22.54 PER DETAIL 3 ON SHEET 10. LOGS SHALL BE MIN. 18" DIA. AND MIN. 10' LENGTH.



LEGEND	
	CONSTRUCTED RIFFLE WITH PROPOSED REPAIRS (DETAIL 2, SHEET 9)
	PROPOSED LOG SILL (DETAIL 2, SHEET 10)
	EXISTING LOG SILL WITH PROPOSED REPAIRS
	LOG CROSS VANE WITH PROPOSED REPAIRS
	ANGLED LOG VANE WITH PROPOSED REPAIRS
	PROPOSED STEPPED OUTLET PROTECTION (DETAIL 1, SHEET 10)
	EXISTING ROCK STEP POOL
	EXISTING LOG SILL
	EXISTING LOG CROSS VANE
	EXISTING ROCK CROSS VANE
	EXISTING ROCK 'A' VANE
	EXISTING CONSTRUCTED RIFFLE
	LIMITS OF DISTURBANCE



- NOTES:**
- STOCKPILE LOGS FROM REMOVED STRUCTURES TO BE REUSED IN NEW LOG STRUCTURES. LOGS TO BE INSPECTED BY THE ENGINEER BEFORE REUSE.
 - LIVE STAKE ALL DISTURBED STREAM BANKS NOT OTHERWISE NOTED FOR PLANTING. SEE DETAIL 1 ON SHEET 8.
 - CONTRACTOR TO MARK LOG CUTS FOR FIELD REVIEW BY ENGINEER.
 - CONTRACTOR TO STAKE OUT LIMITS OF DISTURBANCE FOR FIELD REVIEW BY ENGINEER AND CITY INSPECTOR. TREES WILL BE MARKED AT FIELD REVIEW FOR REMOVAL BY CONTRACTOR. ADJUSTMENTS BY ENGINEER AND CITY INSPECTOR ONLY.
 - CONTRACTOR TO PROTECT AND MAINTAIN PARKING LOT AND CURB FREE FROM DAMAGE. CONTRACTOR RESPONSIBLE FOR PARKING AND CURB REPAIRS AT OWN EXPENSE.



NO.	DATE	BY	DESCRIPTION



672-10-005	JOB NO.	AL	PREPARED BY	KV	APPROVED BY	PB	CHECKED BY	05/27/2022	DATE
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Coliseum Creek Stream Repair
Reach E Plan and Profile
STA 12+00 to 14+28
Proposed Repairs

SHEET **4** OF **10**

EROSION CONTROL NOTES

EROSION CONTROL:

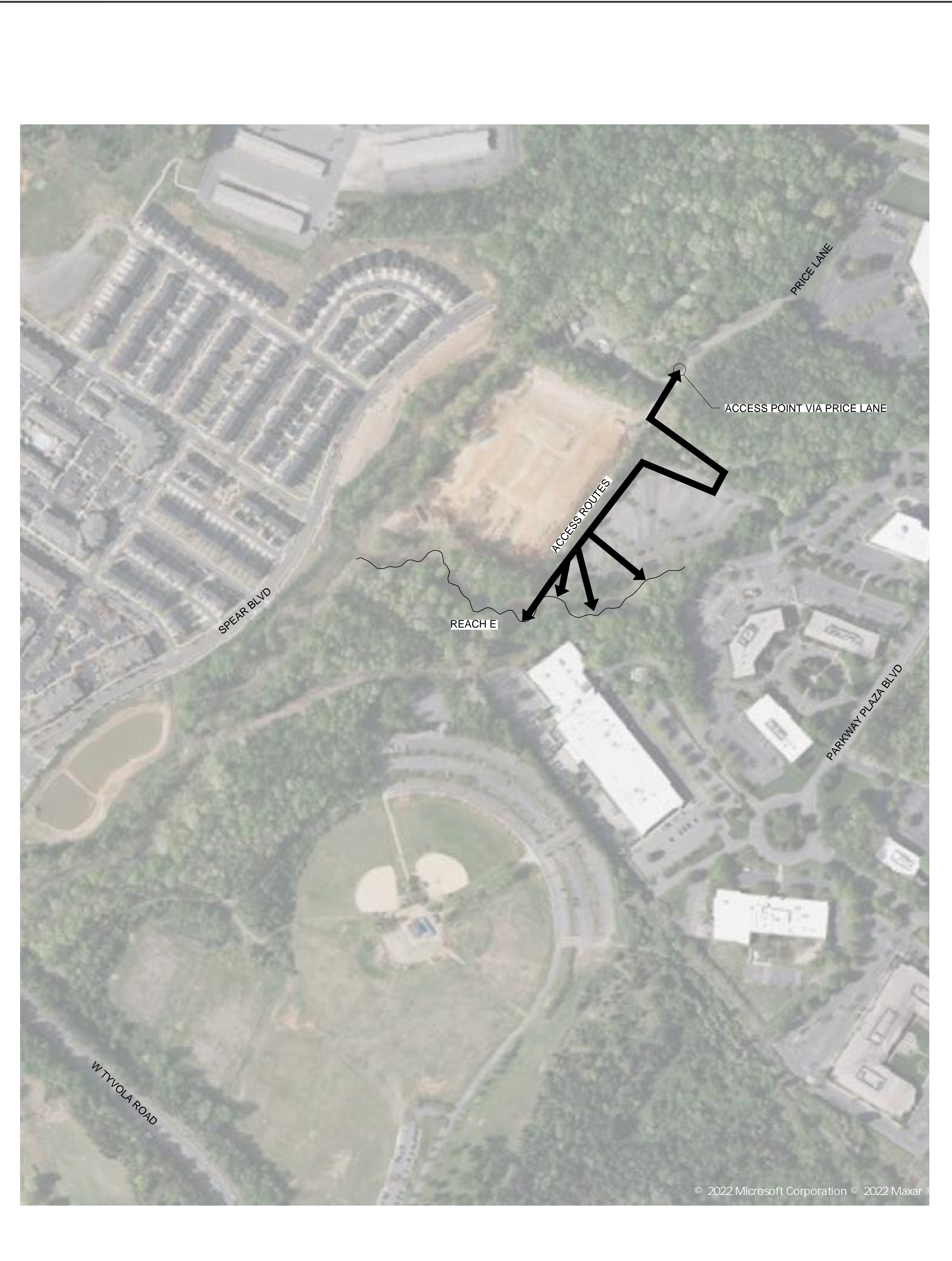
1. THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES AND DEVICES NECESSARY TO COMPLY WITH THE STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES AND APPLICABLE STATE AND LOCAL LAWS AND ORDINANCES, AND PREVENT STANDING WATER WITHIN PROJECT LIMITS, UNLESS OTHERWISE DIRECTED.
2. THE CONSTRUCTION OF THE SITE WILL COMMENCE WITH INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UPSTREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION.
3. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, FENCING, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
4. A COPY OF THE APPROVED LAND DISTURBANCE PLAN SHALL BE PRESENT ON THE SITE WHENEVER LAND DISTURBANCE ACTIVITY IS IN PROGRESS.
5. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED TO CITY OF CHARLOTTE STANDARDS, NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS, OR THE MORE PROTECTIVE OF THE TWO.
6. INSTALL CONSTRUCTION ENTRANCES AND ACCESS ROADS IN LOCATIONS SHOWN, IN ACCORDANCE WITH STATE AND LOCAL STANDARDS AND PLAN DETAILS AND WITH MINIMAL DISTURBANCE TO SURROUNDING VEGETATION AND TREES. CONTRACTOR SHALL RECEIVE PRIOR APPROVAL FROM ENGINEER BEFORE TREE REMOVAL FOR ACCESS ROAD CONSTRUCTION. WITHIN 30 DAYS AFTER CONSTRUCTION IS COMPLETED FOR WHICH ACCESS ROAD IS USED, AND UNLESS OTHERWISE APPROVED, CONTRACTOR SHALL REMOVE ALL REMNANTS OF THE ACCESS ROADS AND RETURN AREA TO AS GOOD AS OR BETTER CONDITION. ADDITIONAL EROSION CONTROL MEASURES MAY BE NECESSARY BASED ON SITE CONDITIONS AND CONTRACTOR'S PRACTICES, AS DIRECTED BY THE ENGINEER.
7. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE OR SITE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED.
8. WHEN ANY CONSTRUCTION BORDERS A DRAINAGE COURSE:
 - A. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ANY OTHER EXCAVATION SPOIL DIRT, CONSTRUCTION TRASH OR DEBRIS, ETC. FROM THE DRAINAGE AREAS SHOWN HEREON IN AN EXPEDITIOUS MANNER AS CONSTRUCTION PROGRESSES.
 - B. THE CONTRACTOR HEREBY AGREES TO STOP ALL WORK AND RESTORE THESE AREAS IMMEDIATELY UPON NOTIFICATION BY THE CITY OF CHARLOTTE INSPECTOR AND/OR THE ENGINEER.
9. ALL DITCH LINES DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED BY THE CONTRACTOR. ON ALL NEW OR UNDISTURBED, UNPAVED DITCHES WITH A GRADE GREATER THAN 4%, INSTALL A TEMPORARY DITCH LINER OF FIBERGLASS ROVING ON THE DITCH BOTTOM AND SIDE SLOPES.
10. PROVIDE WATTLES ADJACENT TO DITCHES AND AT THE TOE OF FILL SLOPES. ALSO, PROVIDE ADEQUATE MEASURES IN AREAS WHERE NATURAL VEGETATION DOES NOT PROVIDE A SUFFICIENT BUFFER AND AS DIRECTED BY THE ENGINEER. WHERE SILT FENCE AND TREE PROTECTION CONFLICT, STOP SILT FENCE AT TREE PROTECTION.
11. PROVIDE INLET SEDIMENT FILTER AT ALL NEW STORM INLETS. INLET PROTECTION MAY BE REQUIRED AT EXISTING INLETS IN THE EVENT SEDIMENT WILL RUN DOWNSTREAM TO AN EXISTING INLET.
12. PROVIDE TEMPORARY ROCK SILT CHECK DAMS AT EACH STORM OUTFALL DITCH, AS SHOWN ON THE PLANS, AND AS DIRECTED BY THE ENGINEER.
13. ACCUMULATED SEDIMENT IS TO BE CLEANED FROM THE UPSTREAM SIDE OF IN STREAM CHECK DAMS AT THE END OF EACH WORK DAY. SPOIL/WASTE MATERIAL MAY BE MIXED WITH OTHER ON-SITE SOILS TO BE PLACED IN FILL AREAS, MAINTAINING COMPACTION REQUIREMENTS.
14. ALL FILL SLOPES SHALL HAVE SILT FENCE OR WATTLES AT THE TOE OF THE SLOPE.
15. THE CONTRACTOR IS NOT TO UNCOVER MORE STREAM BANK THAN THEY HAVE THE ABILITY TO STABILIZE AT THE END OF THE DAY. STREAM BANKS ARE TO BE STABILIZED AT THE END OF EACH WORK DAY.
16. ALL STREAM BANK WORK IS TO BE CONDUCTED DURING PREDICTED PERIODS OF DRY WEATHER.
17. ON-SITE STOCKPILING OF SOIL IS ALLOWED WITHIN THE LIMITS OF DISTURBANCE SUBJECT TO PLACING APPROPRIATE EROSION CONTROL DEVICES TO PREVENT SOIL LOSS DURING RAIN EVENTS. LOCATIONS SHALL BE PRE-APPROVED BY THE INSPECTOR.
18. ROCKS LARGER THAN 5 INCHES ARE PROHIBITED WITHIN 3 FEET OF FINISHED GRADE WITHIN FILL SECTIONS.
19. GRUBBING SHALL BE PERFORMED DURING PREDICTED PERIODS OF DRY WEATHER.
20. ALL PERIMETER EROSION CONTROL DEVICES AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION AND WITHIN 24 HOURS OF GRUBBING. THIS MAY REQUIRE GRUBBING IN STAGES TO ENSURE EROSION CONTROL MEASURES ARE PUT IN PLACE PRIOR TO RAIN EVENT. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER.
21. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY A REPRESENTATIVE OF THE CITY ENGINEERING DEPARTMENT AND WILL BE EMPLOYED WHERE DETERMINED NECESSARY BY ACTUAL SITE CONDITIONS.
22. GROUND STABILIZATION SHALL BE ACHIEVED CONSISTENT WITH NC DEQ GENERAL PERMIT NCG01000 EFFECTIVE AS OF AUGUST 2, 2011. WHERE LAND DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, ALL DISTURBED AREAS SHALL BE PROVIDED WITH TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER WITHIN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY EXCEPT FOR ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1 (H:V), WHICH SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER WITHIN 7 CALENDAR DAYS FROM THE LAST DISTURBING ACTIVITY. THE CONTRACTOR SHALL REFER TO GENERAL PERMIT NCG01000 FOR SPECIFIC CONDITIONS, EXEMPTIONS, AND DEFINITIONS FOR MEETING THESE STABILIZATION REQUIREMENTS.
23. COMPLY WITH THE FOLLOWING CONSTRUCTION SEQUENCE FOR THE LENGTH OF THE PROJECT.

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE:

- EROSION CONTROL CONSTRUCTION SEQUENCE:
- STEP 1 INITIAL EROSION CONTROL MEASURES.
- A. FLAG LIMIT OF DISTURBANCE FOR APPROVAL OF TREE PROTECTION AND TREE REMOVAL.
 - B. INSTALL ALL NEW STORMWATER MANAGEMENT, EROSION CONTROL DEVICES, AND TREE PROTECTION, AND MAKE ALL NEW AND EXISTING DRAINAGE FACILITIES OPERATIONAL PRIOR TO CONSTRUCTION ACTIVITIES. INSPECTOR MAKES FINAL DECISION ON REQUIREMENT FOR AND PLACEMENT OF SILT FENCE AND OTHER EROSION CONTROL DEVICES. AT ALL TIMES MEASURES WILL BE INSTALLED SUFFICIENT TO RESTRAIN EROSION.
- STEP 2 ONGOING MAINTENANCE OF EROSION CONTROL MEASURES
- A. PERIODICALLY INSPECT AND REPAIR ALL EXISTING AND REQUIRED EROSION AND SEDIMENT CONTROL DEVICES. PERIODIC INSPECTION SHALL BE DEFINED AS AFTER EACH RAINFALL EVENT OR WEEKLY, WHICHEVER IS MOST FREQUENT.
 - B. PERFORM ALL NECESSARY MAINTENANCE ON EROSION AND SEDIMENT CONTROL DEVICES UNTIL A VEGETATIVE COVER IS ESTABLISHED. SEDIMENT SHALL BE REMOVED FROM THE EROSION CONTROL STRUCTURES WHEN IT HAS ACCUMULATED TO HALF THE DESIGN VOLUME. REPAIR AND REPLACE ALL DETERIORATED MATERIALS FROM ROADWAY AND DRAINAGE DITCHES.
 - C. IMPERVIOUS EARTHEN/ROCK CHECK DAMS SHALL BE INSTALLED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE WORK AREA, AND STREAM FLOW SHALL BE PUMPED AROUND THE WORK AREA. WATER FROM THE WORK AREA SHALL BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A DEWATERING BASIN, SEDIMENT BAG, OR OTHER APPROVED SOURCE. THE MEASURE SHALL BE LOCATED SUCH THAT THE WATER DRAINS BACK INTO THE CHANNEL BELOW THE DOWNSTREAM CHECK DAM. SEE PUMP AROUND DETAILS.
 - D. PERFORM DAILY WORK FROM DOWNSTREAM TO UPSTREAM, AND IN ACCORDANCE WITH THE PLANS.
 - E. PROVIDE GROUND STABILIZATION AS REQUIRED IN NOTE 19 FROM EROSION CONTROL FOR DISTURBED AREAS. SEE SHEET 8 FOR SEEDING SCHEDULE.
 - F. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED AND MULCHED AS NECESSARY ACCORDING TO SPECIFICATIONS TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
 - G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER REMOVAL AND DISPOSAL OF ANY UNSUITABLE MATERIAL TO A LOCATION OFFSITE. THE CONTRACTOR SHALL OBTAIN ANY AND ALL STATE OR LOCAL APPROVALS AND SUBMIT COPIES TO THE CITY FOR RECORD.
- STEP 3 FINAL RESTORATION MEASURES
- A. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AND MEASURES UPON ESTABLISHMENT OF VEGETATIVE COVER AND COMPLETION OF PROJECT. SILT FENCE MAY BE REMOVED UPON APPROVAL OF INSPECTOR.
 - B. PERMANENT GROUND COVER FOR ALL DISTURBED AREAS UNLESS OTHERWISE INDICATED, SHALL BE INSTALLED WITHIN 14 CALENDAR DAYS FOLLOWING COMPLETION OF WORK AREA. IN ACCORDANCE WITH THE PLAN DETAILS AND SPECIFICATIONS. SEE SHEET 8 FOR SEEDING SCHEDULE.
 - C. FINAL RESTORATION OF ALL ACCESS ROUTES FOR THE PROJECT SHALL BE MADE PER DIRECTION OF THE INSPECTOR.
- SEEDING SPECIFICATIONS:
- | TEMPORARY SEEDING SCHEDULE | | |
|----------------------------|--------------------|---------------|
| DATE | SEEDING | PLANTING RATE |
| AUG. 15 – APR 15 | WINTER RYE (GRAIN) | 40 LB./AC |
| APR. 15 – AUG 15 | BROWNTOP MILLET | 10 LB./AC |
1. TEMPORARY SEEDING ALONE DOES NOT CONSTITUTE STABILIZED GROUND COVER AS NURSE CROPS MAY TAKE LONGER THAN 7 CALENDAR DAYS TO ESTABLISH.
 2. APPLY GROUND LIMESTONE AT THE RATE OF 75 LB./1000 SF. ONLY IF SOIL TEST SHOWS THAT SOIL NEEDS LIME.
 3. APPLY 20-20-5 (N-P-K) COMMERCIAL FERTILIZER AT THE RATE OF 20 LB./1000 SF. EXCEPT IN RIPARIAN AREAS WHERE 20-10-5 SHOULD BE USED AT THE RATE OF 2 LB./1000 SF.
 4. MULCH WITH STRAW APPLIED AT THE RATE OF 75-100 LB./1000 SF.
 5. MANUFACTURED MULCH SHALL BE UTILIZED UNLESS OTHER WISE SPECIFICALLY APPROVED BY THE ENGINEER. MULCH IS APPLIED TO CREATE A MINIMUM OF 80% COVERAGE.
 6. APPLY PERMANENT RIPARIAN SEED MIX TO THE LIMITS OF DISTURBANCE.
- | PERMANENT SEEDING SCHEDULE | | |
|----------------------------|-------------|---------------|
| DATE | SEEDING | PLANTING RATE |
| YEAR ROUND | TALL FESCUE | 100 LB./AC |
7. APPLY GROUND LIMESTONE AT THE RATE OF 75 LB./1000 SF. OR AS REQUIRED BY SOIL TEST AS SPECIFIED IN SPECIAL PROVISIONS.
 8. APPLY 20-10-5 (N-P-K) COMMERCIAL FERTILIZER AT THE RATE OF 20 LB./1000SF. OR AS REQUIRED BY SOIL TEST AS SPECIFIED IN SPECIAL PROVISIONS.
 9. MULCH WITH STRAW APPLIED AT THE RATE OF 75-100 LB./1000 SF.
 10. HEAVILY MULCHED DURING JANUARY – MARCH PERIOD.

ACCESS POINT MAP









NO.	DATE	BY	DESCRIPTION



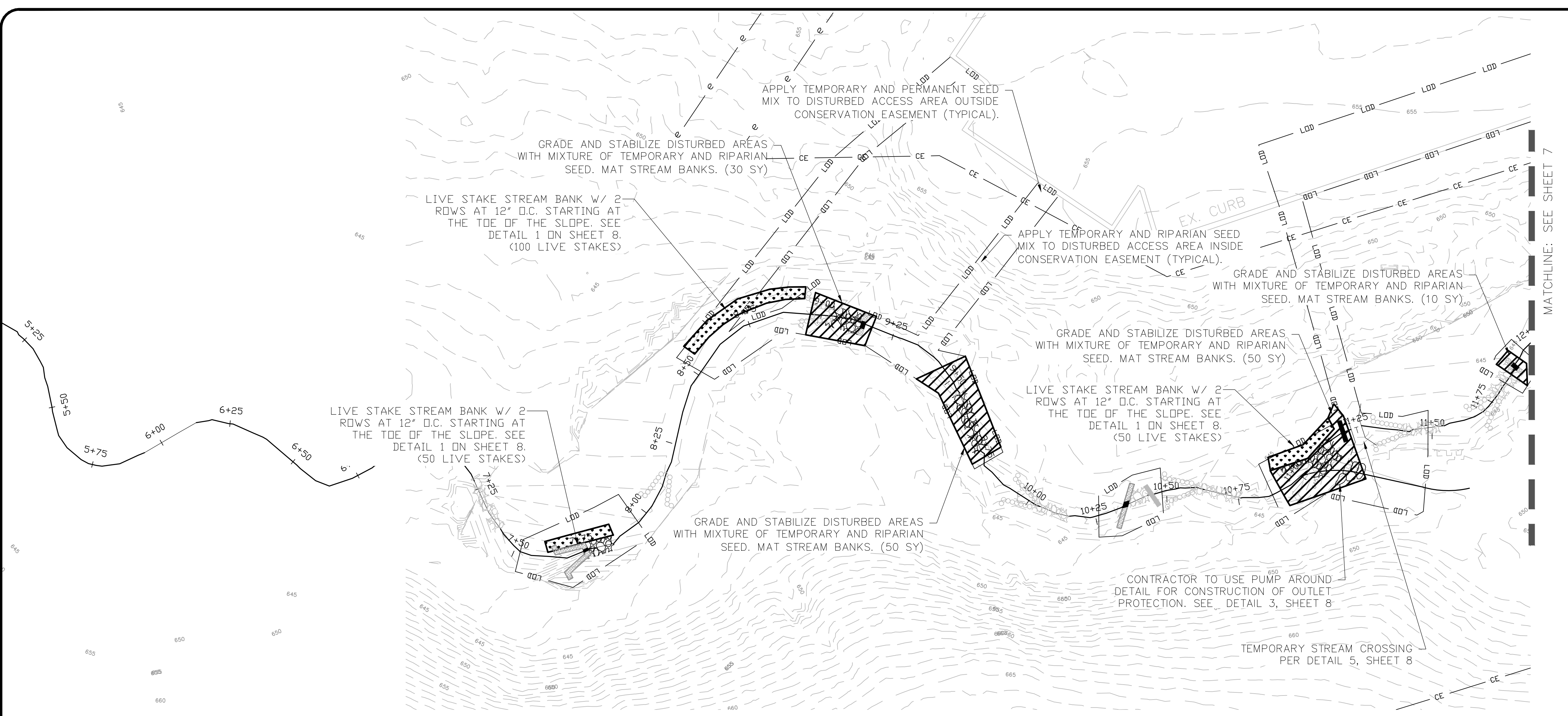
672-10-005 JOB NO.	AL PREPARED BY	KV APPROVED BY	PB CHECKED BY	05/27/2022 DATE
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Coliseum Creek Stream Repair

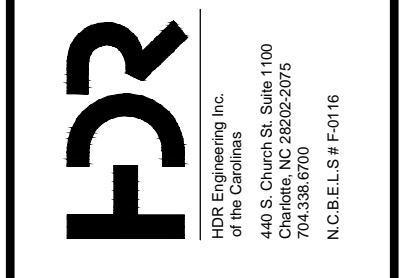
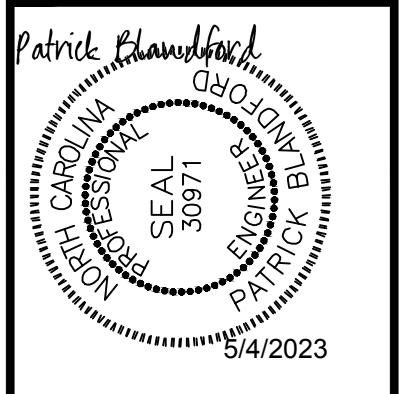
Erosion Control Notes

SHEET **5**

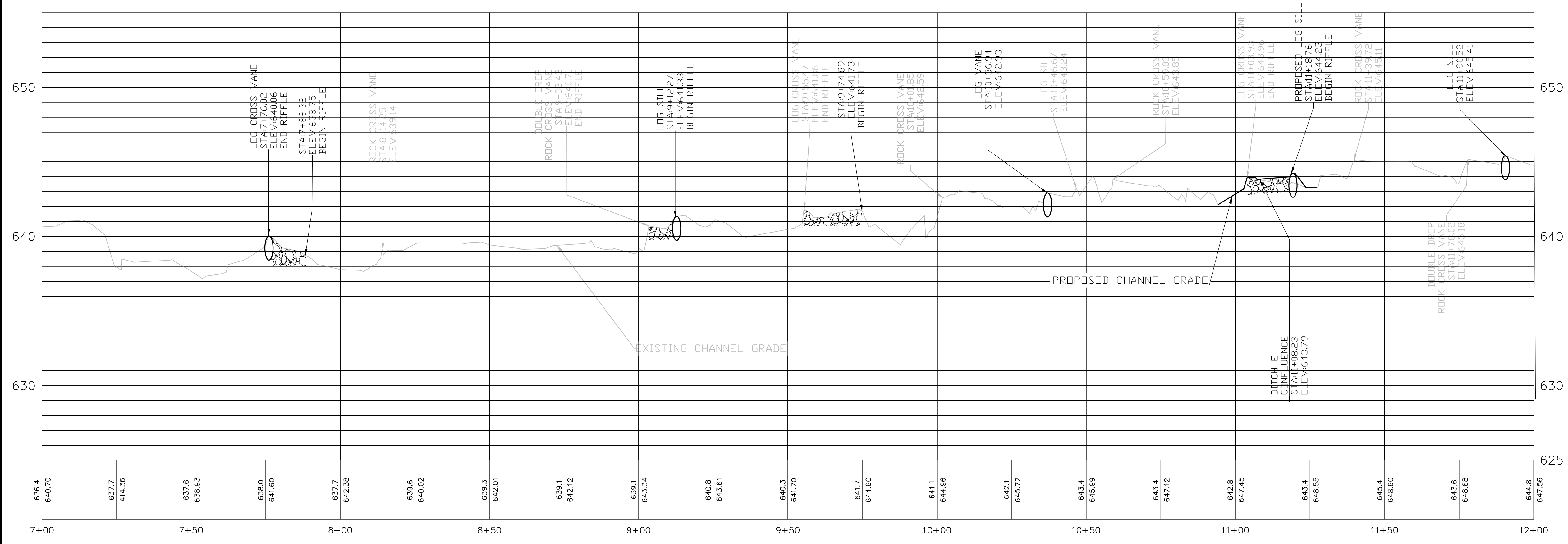
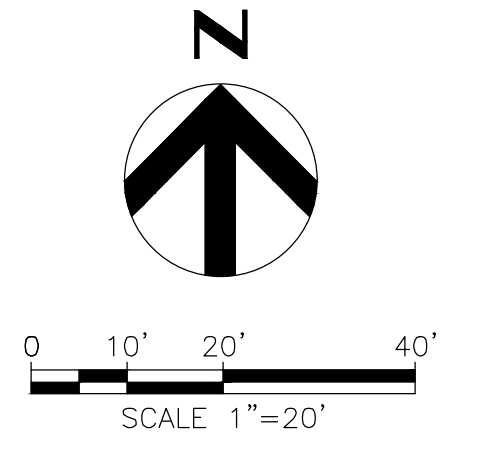
OF **10**



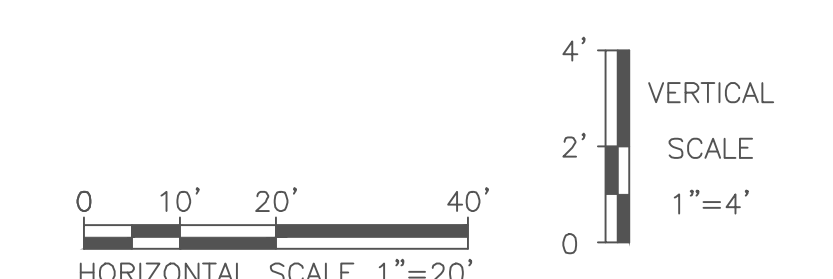
- NOTES:**
- STOCKPILE LOGS FROM REMOVED STRUCTURES TO BE REUSED IN NEW LOG STRUCTURES. LOGS TO BE INSPECTED BY AN ENGINEER BEFORE REUSE.
 - SEE TEMPORARY AND PERMANENT SEEDING SCHEDULES ON SHEET 5 AND RIPARIAN SEEDING AND LIVE STAKING SCHEDULES ON SHEET 8 FOR VEGETATION AND SEEDING REQUIREMENTS.



NO.	DATE	BY	DESCRIPTION



672-10-005	JOB NO.	AL	PREPARED BY	KV	APPROVED BY	DATE
						05/27/2022



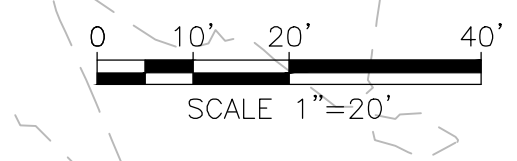
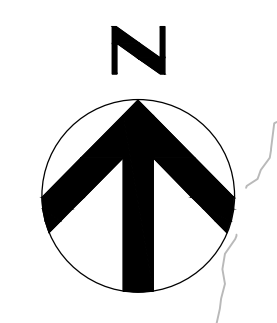
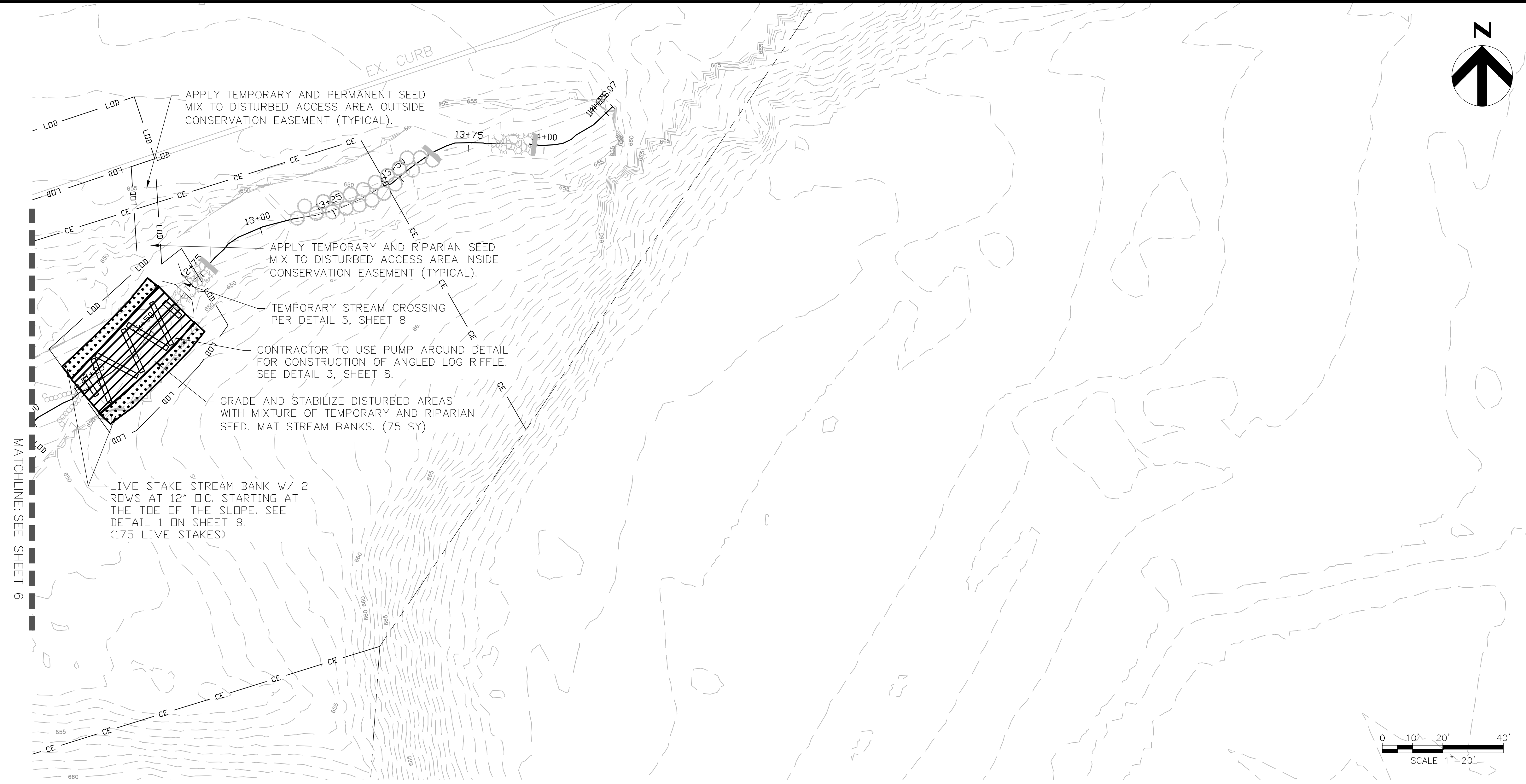
Coliseum Creek Stream Repair

Reach E Plan and Profile

STA 7+00 to 12+00

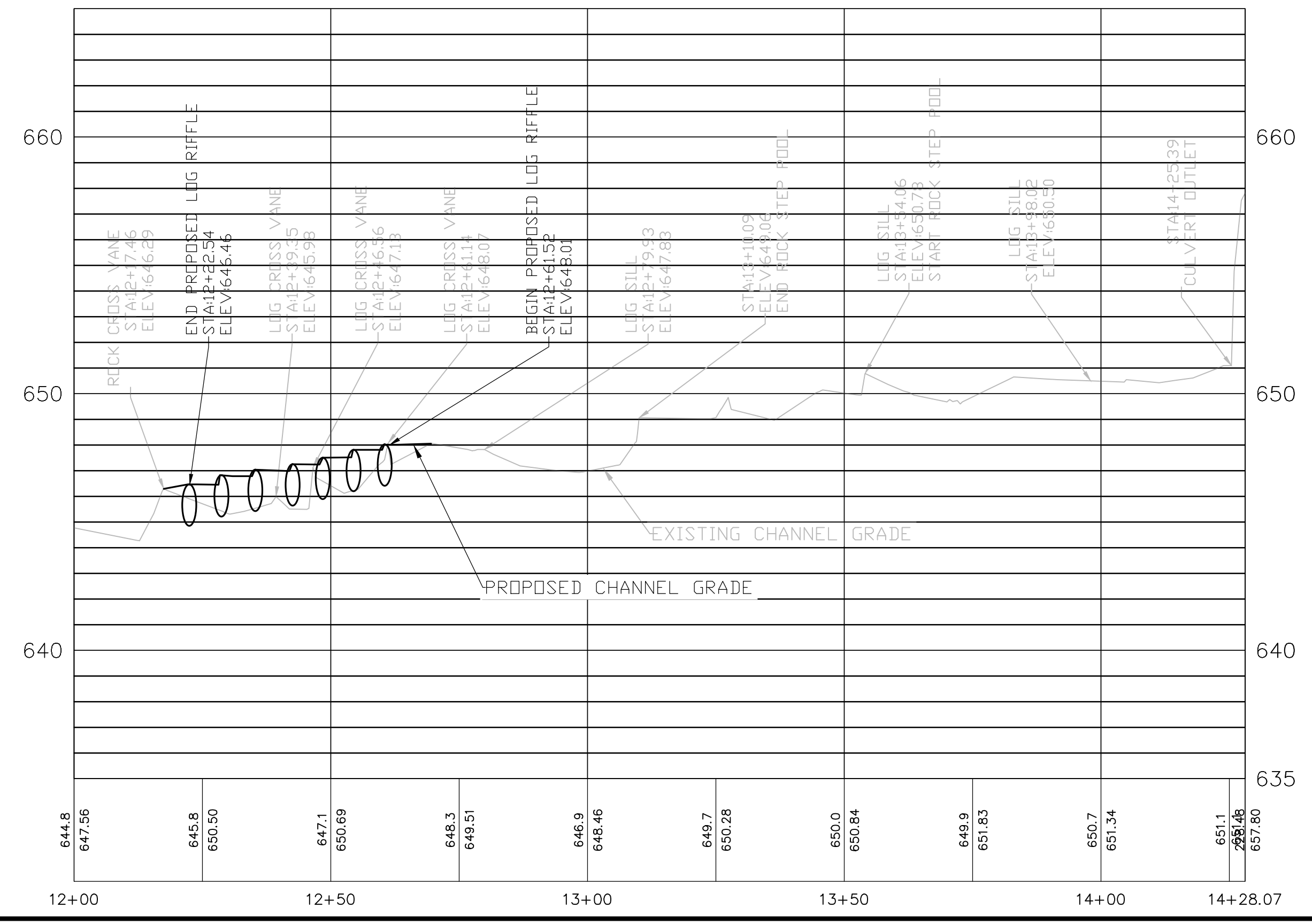
Erosion Control

SHEET **6** OF **10**

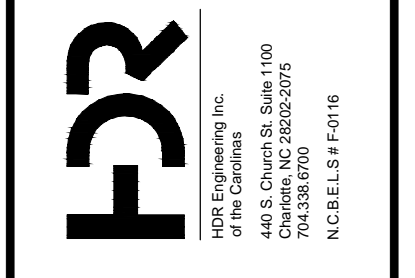
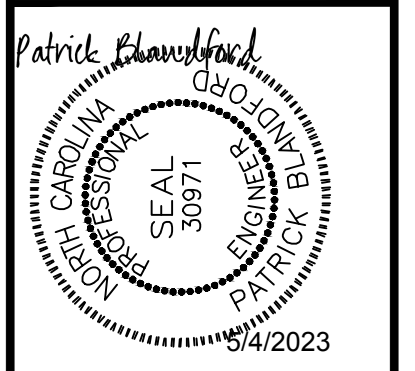
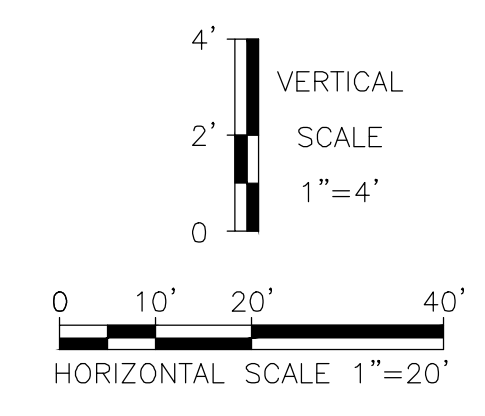


LEGEND

	CONSTRUCTED RIFFLE WITH PROPOSED REPAIRS (DETAIL 2, SHEET 9)
	PROPOSED LOG SILL (DETAIL 2, SHEET 10)
	EXISTING LOG SILL WITH PROPOSED REPAIRS
	LOG CROSS VANE WITH PROPOSED REPAIRS
	ANGLED LOG VANE WITH PROPOSED REPAIRS
	PROPOSED ANGLED LOG RIFFLE (DETAIL 3, SHEET 10)
	PROPOSED STEPPED OUTLET PROTECTION (DETAIL 1, SHEET 10)
	EXISTING ROCK STEP POOL
	EXISTING LOG SILL
	EXISTING LOG CROSS VANE
	EXISTING ROCK CROSS VANE
	EXISTING ROCK 'A' VANE
	EXISTING CONSTRUCTED RIFFLE
	LIMITS OF DISTURBANCE



- NOTES:**
1. STOCKPILE LOGS FROM REMOVED STRUCTURES TO BE REUSED IN NEW LOG STRUCTURES. LOGS TO BE INSPECTED BY AN ENGINEER BEFORE REUSE.
 2. SEE TEMPORARY AND PERMANENT SEEDING SCHEDULES ON SHEET 5 AND RIPARIAN SEEDING AND LIVE STAKING SCHEDULES ON SHEET 8 FOR VEGETATION AND SEEDING REQUIREMENTS.



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672-10-005	JOB NO.	AL	PREPARED BY	PB	CHECKED BY	05/27/2022	DATE
		KV	APPROVED BY				

Coliseum Creek Stream Repair
Reach E Plan and Profile
STA 12+00 to 14+28
Erosion Control

SHEET **7** OF **10**

PLANTING LISTS:

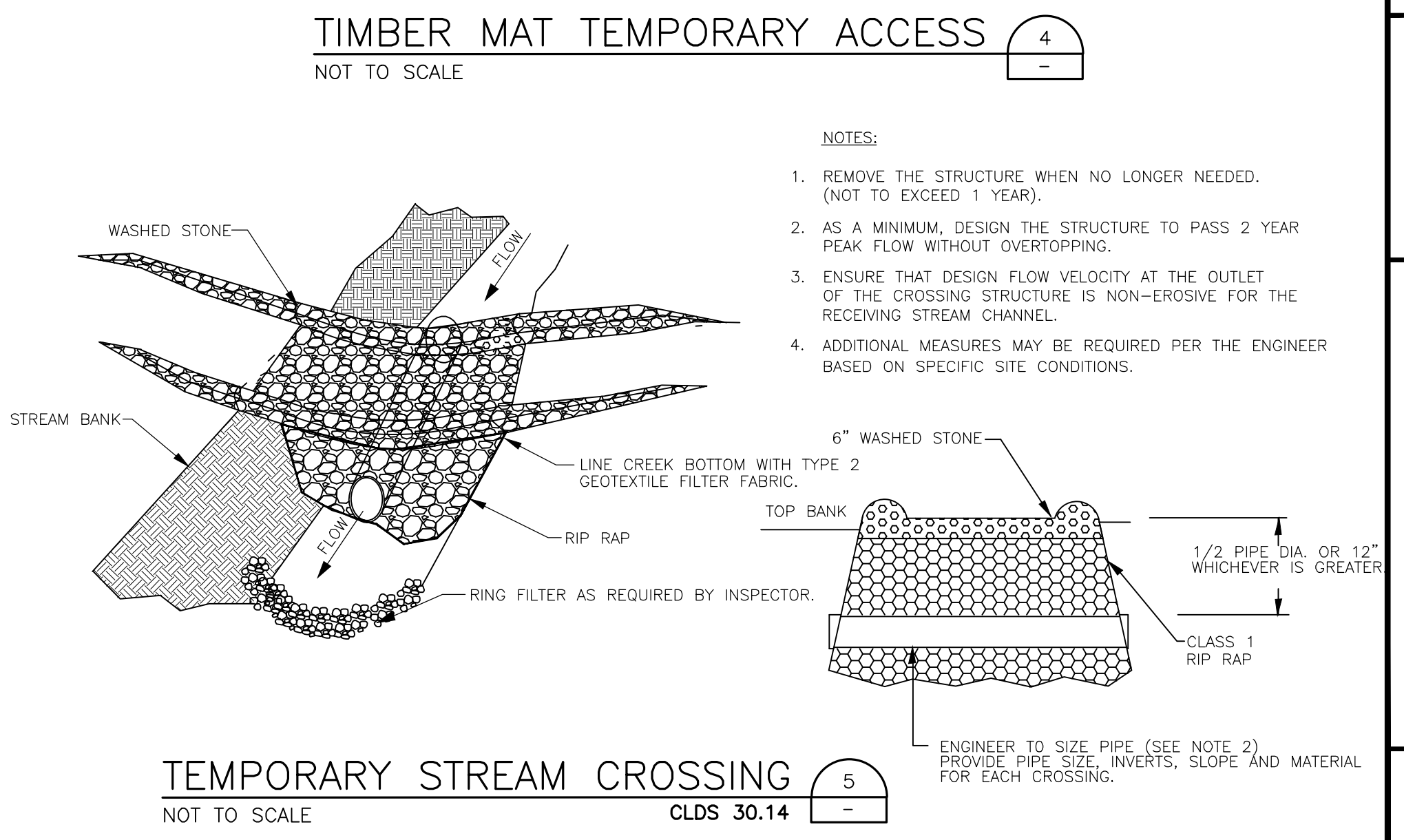
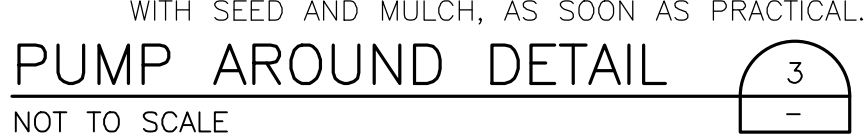
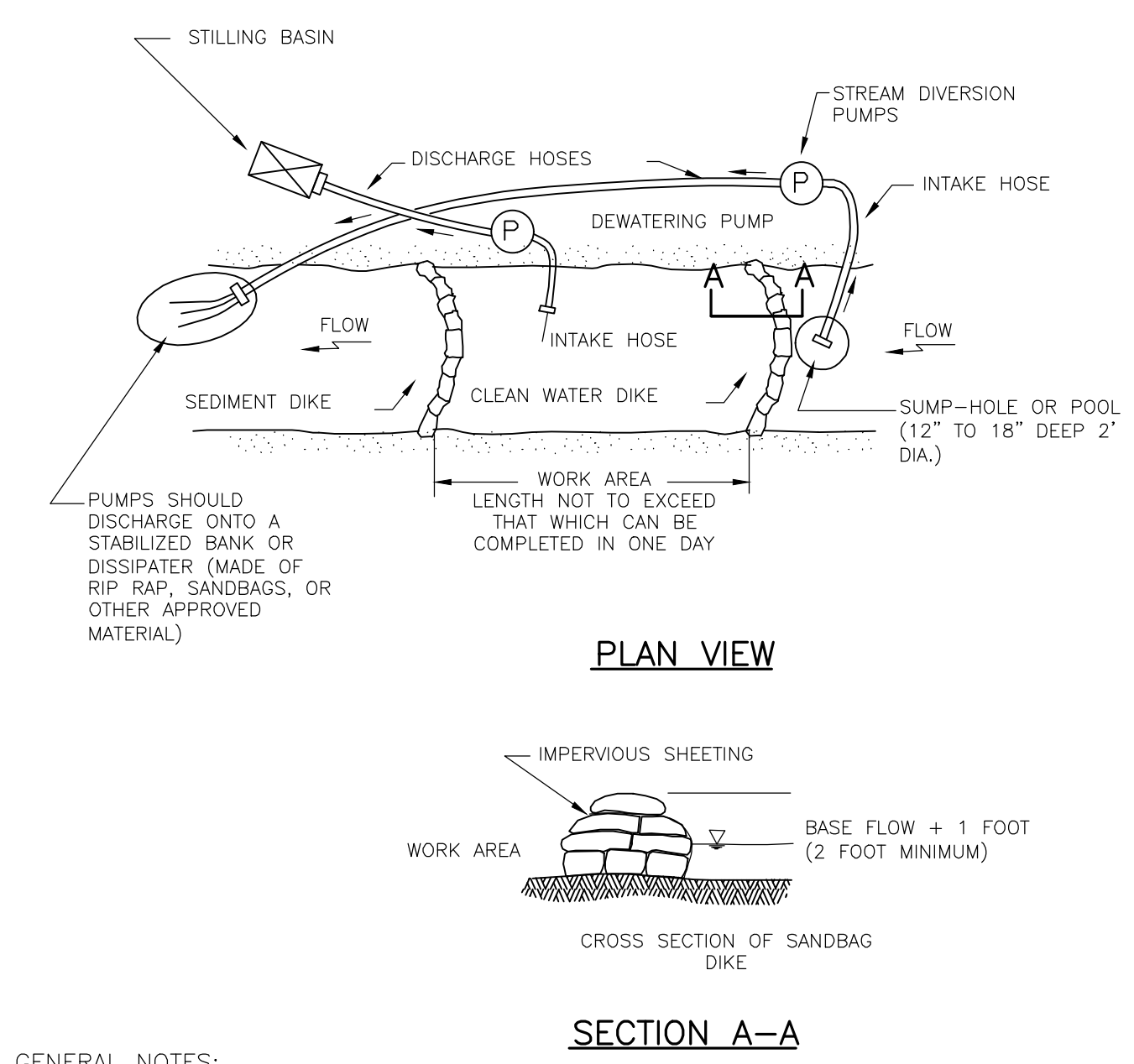
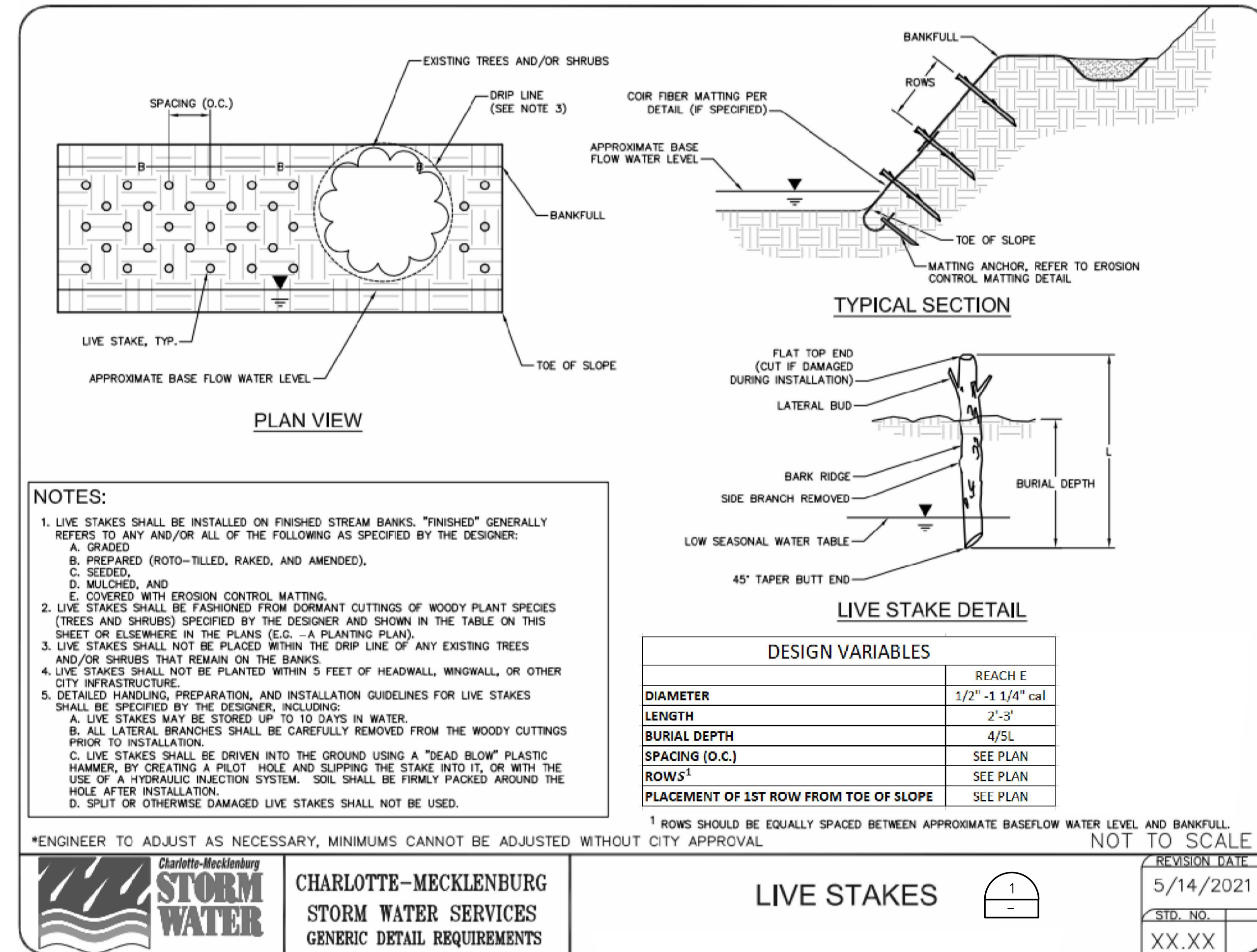
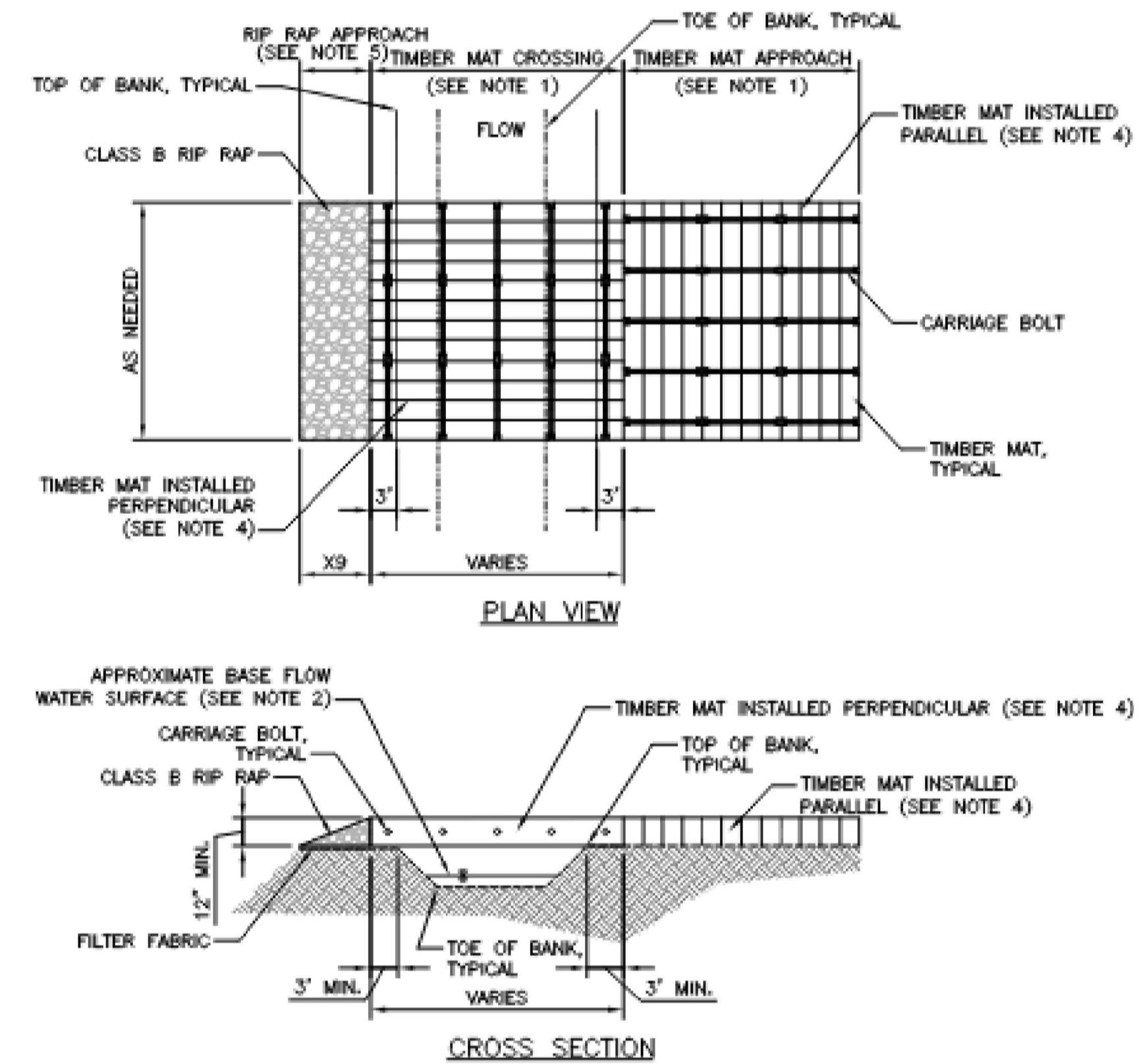
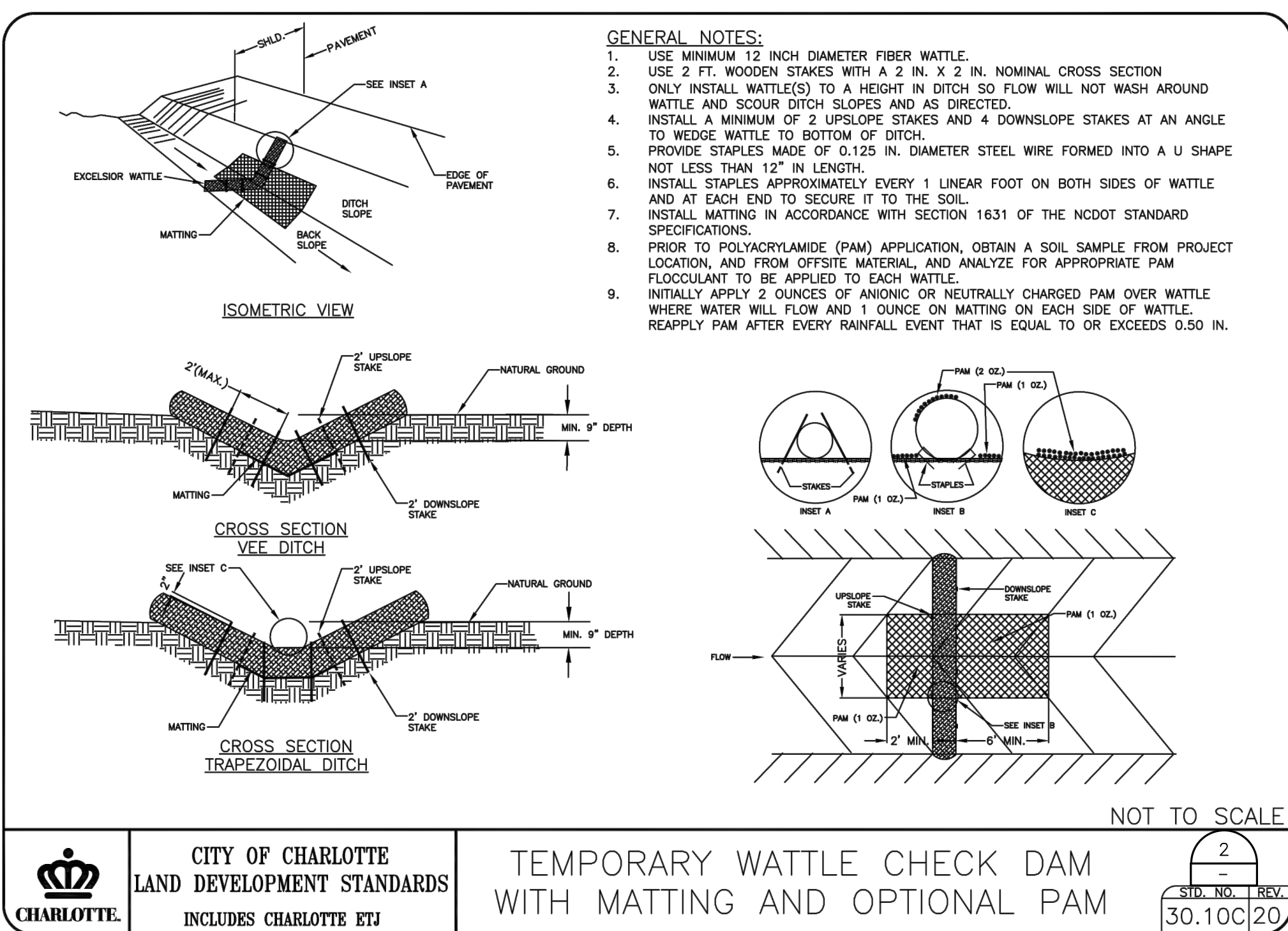
Botanical Name	Common Name	Stratum	Form	Size	Spacing	Quantity	Total
Live Stakes							
<i>Cornus amomum</i>	Silky Dogwood	Shrub	live stake	1/2" - 1 1/4" cal	See plan	150	375
<i>Salix sericea</i>	Silky Willow	Shrub	live stake	1/2" - 1 1/4" cal	See plan	75	
<i>Sambucus canadensis</i>	Elderberry	Shrub	live stake	1/2" - 1 1/4" cal	See plan	150	

Permanent Riparian Seed Mix (20 lbs./acre)

Botanical Name	Common Name	% of Mix	Seed (lbs./acre)
<i>Agrostis hyemalis</i>	Winter Bentgrass	2	0.4
<i>Bidens aristosa</i>	Beggartick	2	0.4
<i>Chasmanthium latifolium</i>	River Oats	20	4
<i>Juncus coriaceus</i>	Leathery Rush	2	0.4
<i>Elymus virginicus</i>	Virginia Wild Rye	18	3.6
<i>Panicum anceps</i>	Beaked Panicgrass	21	4.2
<i>Panicum rigidulum</i>	Red-top Panicgrass	21	4.2
<i>Rudbeckia hirta</i>	Black-eyed Susan	2	0.4
<i>Sorghastrum nutans</i>	Indiangrass	10	2
<i>Chamaecrista fasciculata</i>	Partridge Pea	2	0.4

NOTES:

- NC PIEDMONT RIPARIAN SEED MIX MAY VARY IN SPECIES AND PERCENT MIX. CONTRACTOR TO PROVIDE ENGINEER ALTERNATIVE SEED MIX FOR APPROVAL.



CHARLOTTE

Patrick Blankenship
Professional Engineer
No. 30971
State of North Carolina
04/2023

FOR

Charlotte-Mecklenburg Storm Water Services

NO.	DATE	BY	DESCRIPTION

672-10-005
JOB NO.

AL
PREPARED BY

KV
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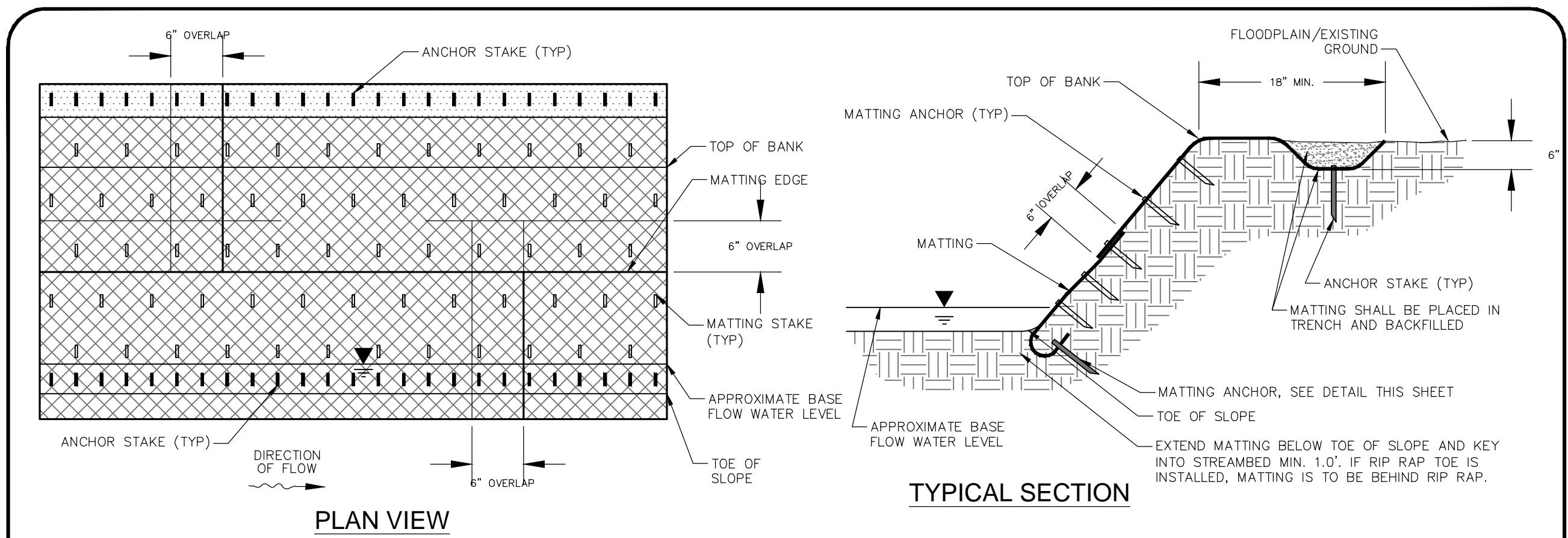
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05/27/2022
DATE

Coliseum Creek Stream Repair

Civil Details

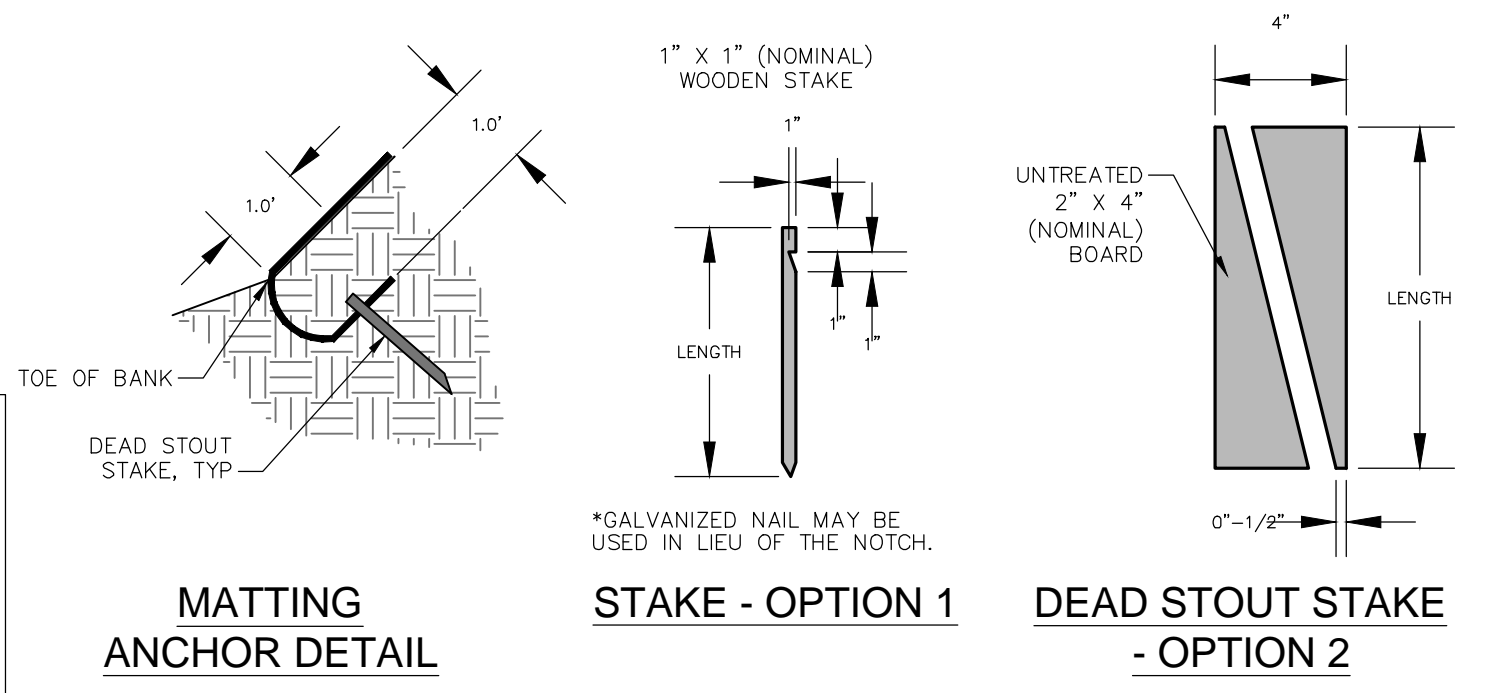
SHEET 8 OF 10



DESIGN VARIABLES	
	REACH E
MATTING HEIGHT	5'
MATTING STAKE SPACING ¹	3'
ANCHOR STAKE SPACING ²	1'
MATTING STAKE LENGTH	1'
ANCHOR STAKE LENGTH	2'
DEAD STOUT STAKE LENGTH	2'

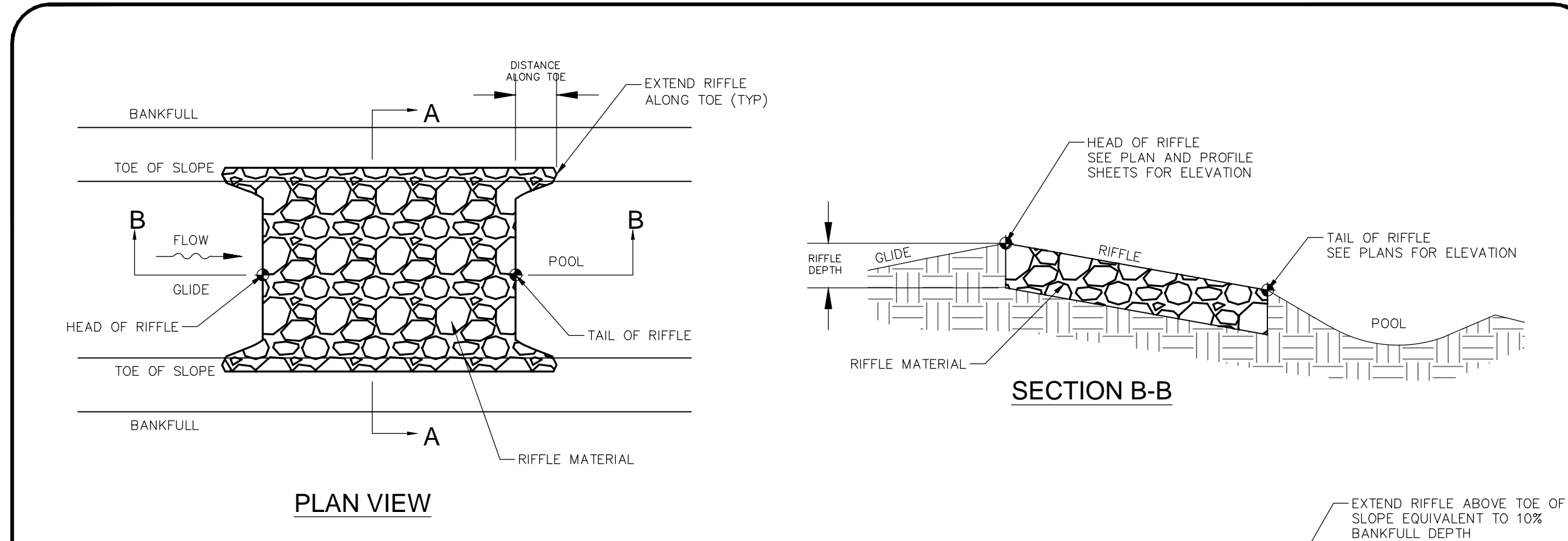
¹ MATTING STAKE SPACING ≤ 3' ON CENTER
² ANCHOR STAKE SPACING ≤ 1' ON CENTER

- NOTES:**
1. THE SLOPE AND/OR STREAM BANK SHALL BE PREPARED (GRADED, TILLED, SMOOTHED, ETC.) AND SEEDED AND MULCHED AS SPECIFIED BY THE DESIGNER PRIOR TO THE PLACEMENT OF THE MATTING.
 2. THE MATTING SHALL BE INSTALLED SO AS TO NOT BE IN TENSION, BUT BE PLACED NEATLY, FLUSH AGAINST THE SOIL, AND WITH NO GAPS OR WRINKLES.
 3. MATTING SHALL BE NEATLY SECURED AROUND ANY PROJECT STRUCTURES, STRUCTURE ARMS, AND/OR SILLS TO PREVENT ANY LOOSE OR FRAYED EDGES.
 4. THERE SHALL BE NO LOOSE ENDS OR UNSECURED MATTING ON THE COMPLETED WORK.



*ENGINEER TO ADJUST AS NECESSARY, MINIMUMS CANNOT BE ADJUSTED WITHOUT CITY APPROVAL

	CHARLOTTE-MECKLENBURG STORM WATER SERVICES GENERIC DETAIL REQUIREMENTS	COIR MATTING BANK STABILIZATION		REVISION DATE 8/30/2021
		NOT TO SCALE	STD. NO. REV. XX.XX	

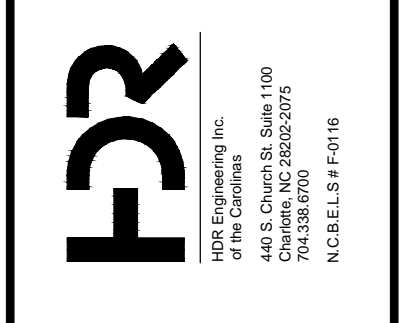
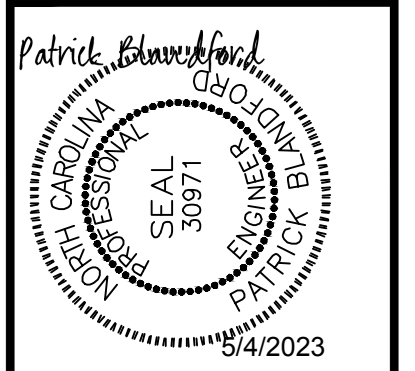


DESIGN VARIABLES	
	REACH E
RIFFLE MATERIAL	SEE PLAN
RIFFLE DEPTH	SEE PLAN
RIFFLE BOTTOM WIDTH	6"
DISTANCE ALONG TOE	SEE PLAN

- NOTES:**
1. THE PLACEMENT OF BACKFILL AND/OR RIFFLE MATERIAL SHALL BE DONE IN A MANNER TO CREATE A SMOOTH PROFILE, WITH NO ABRUPT JUMP (TRANSITION) BETWEEN THE UPSTREAM POOL-GUIDE AND THE RIFFLE, AND LIKEWISE NO ABRUPT DROP (TRANSITION) BETWEEN THE RIFFLE AND THE DOWNSTREAM RUN-POOL. ALSO A THALWEG SHALL BE FASHIONED WITHIN THE RIFFLE WIDTH SO THAT THE FINISHED CROSS SECTION OF THE RIFFLE MATERIAL MATCHES THE SHAPE AND DIMENSIONS SHOWN ON THE RIFFLE TYPICAL SECTION (INCLUDED ELSEWHERE IN THE PLANS).
 2. THE BEGINNING AND END OF RIFFLE CONTROL POINTS MAY TIE IN TO A DRAINAGE STRUCTURE OR OTHER IN-STREAM STRUCTURE (E.G. J-HOOK VANE, CROSS VANE, LOG SILL, ETC.).
 3. THE CONSTRUCTED RIFFLE SHALL BE KEYPED IN TO THE STREAM BANKS AND/OR BED AS SHOWN IN DETAIL. THE "KEY" SHALL EXTEND BEYOND THE TOP OF BANK AT THE BEGINNING (CREST) OF THE RIFFLE.

*ENGINEER TO ADJUST AS NECESSARY, MINIMUMS CANNOT BE ADJUSTED WITHOUT CITY APPROVAL

	CHARLOTTE-MECKLENBURG STORM WATER SERVICES GENERIC DETAIL REQUIREMENTS	CONSTRUCTED RIFFLE		REVISION DATE 8/30/2021
		NOT TO SCALE	STD. NO. REV. XX.XX	



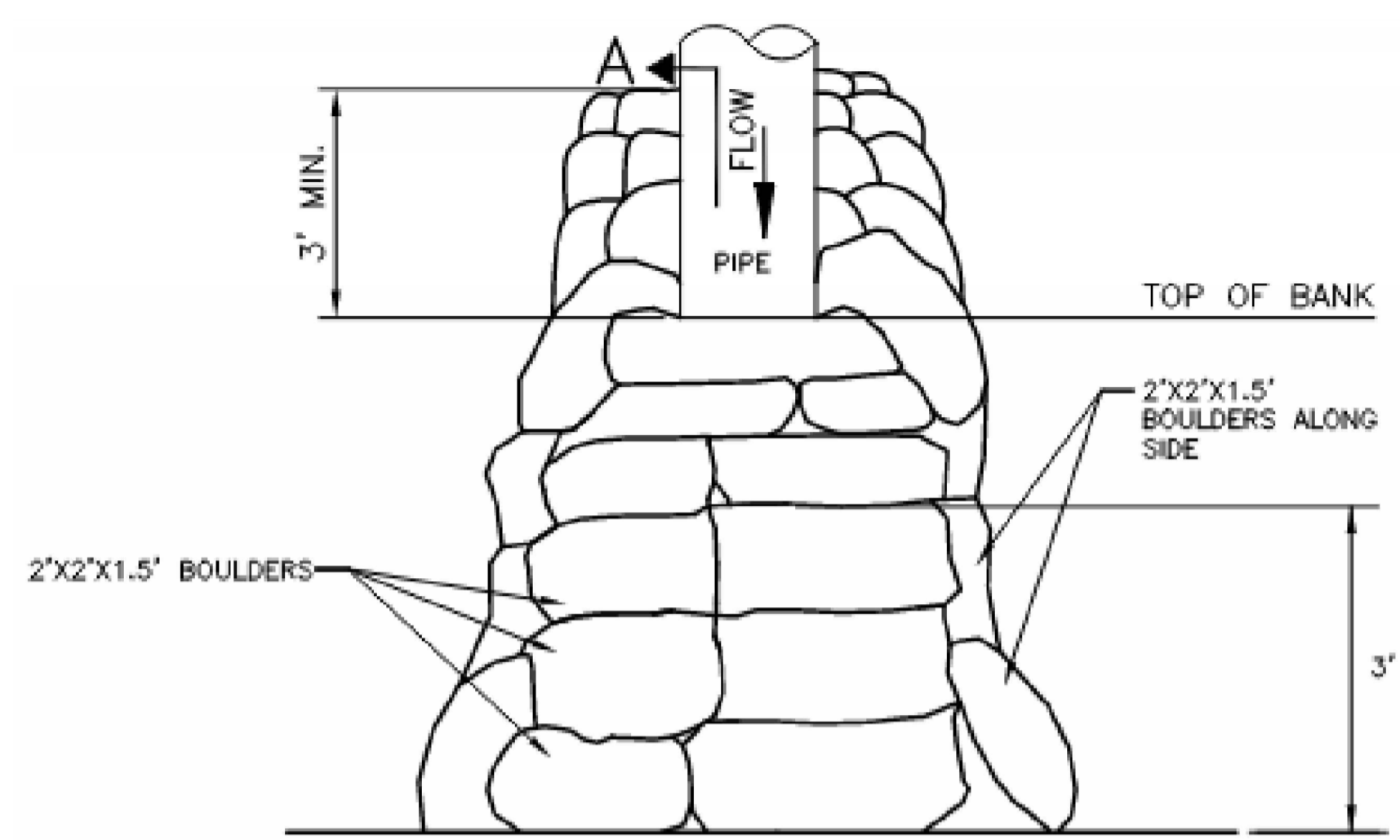
NO.	DATE	BY	DESCRIPTION



672-10-005	AL	PB
JOB NO.	PREPARED BY	CHECKED BY
	KV	05/27/2022
	APPROVED BY	DATE

Coliseum Creek Stream Repair
Civil Details

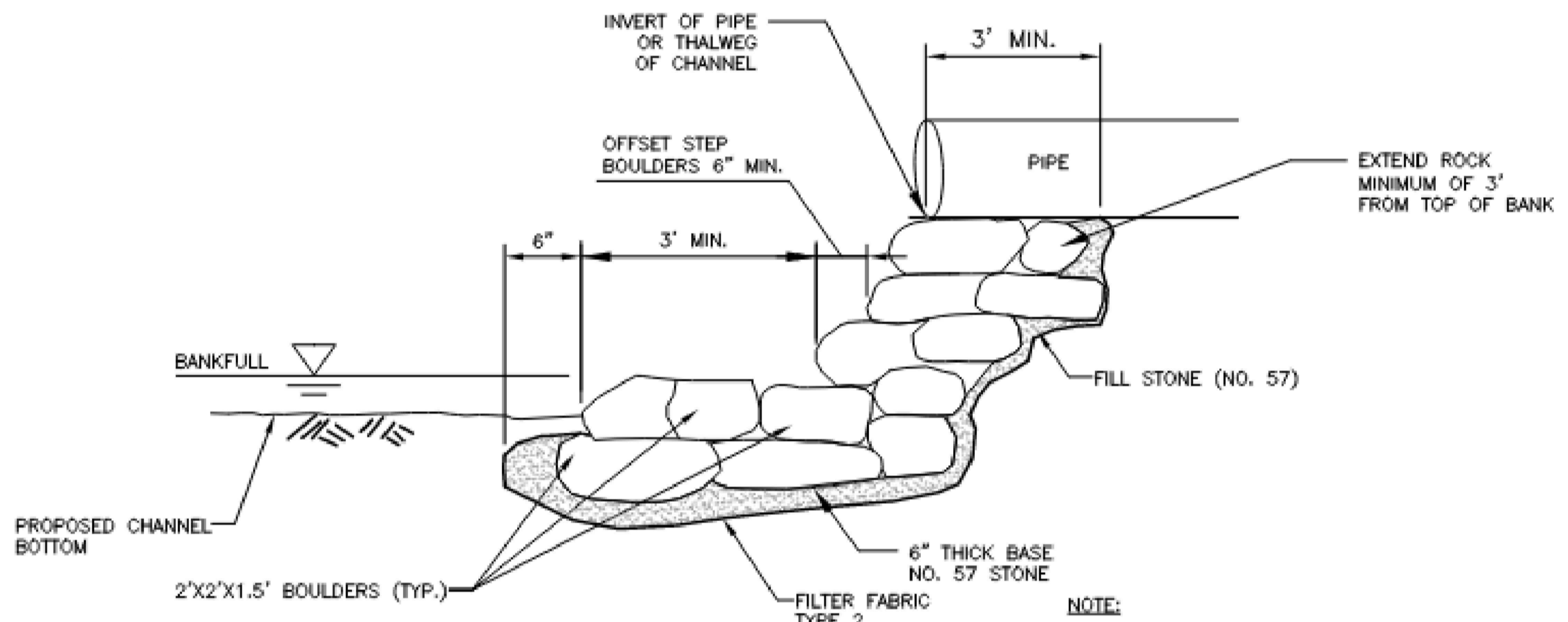
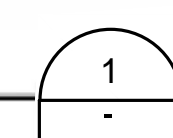
SHEET	9	OF	10
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PLAN VIEW

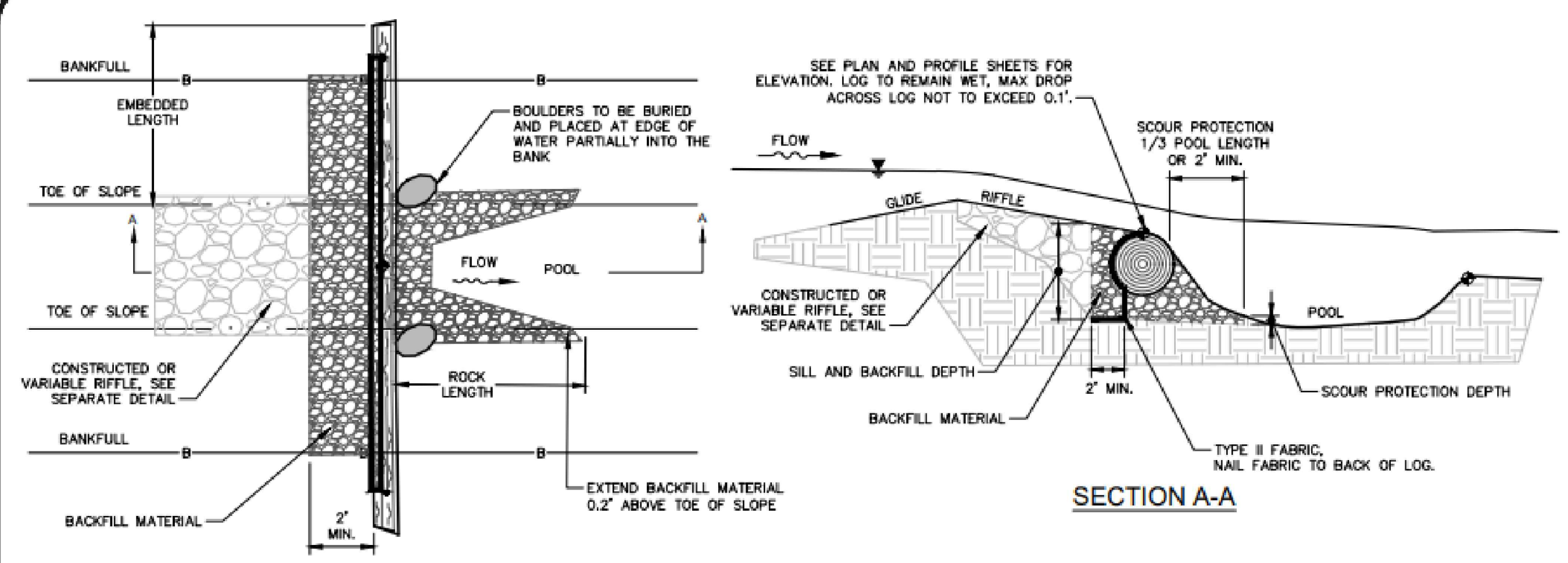
STEPPED OUTLET PROTECTION

NOT TO SCALE



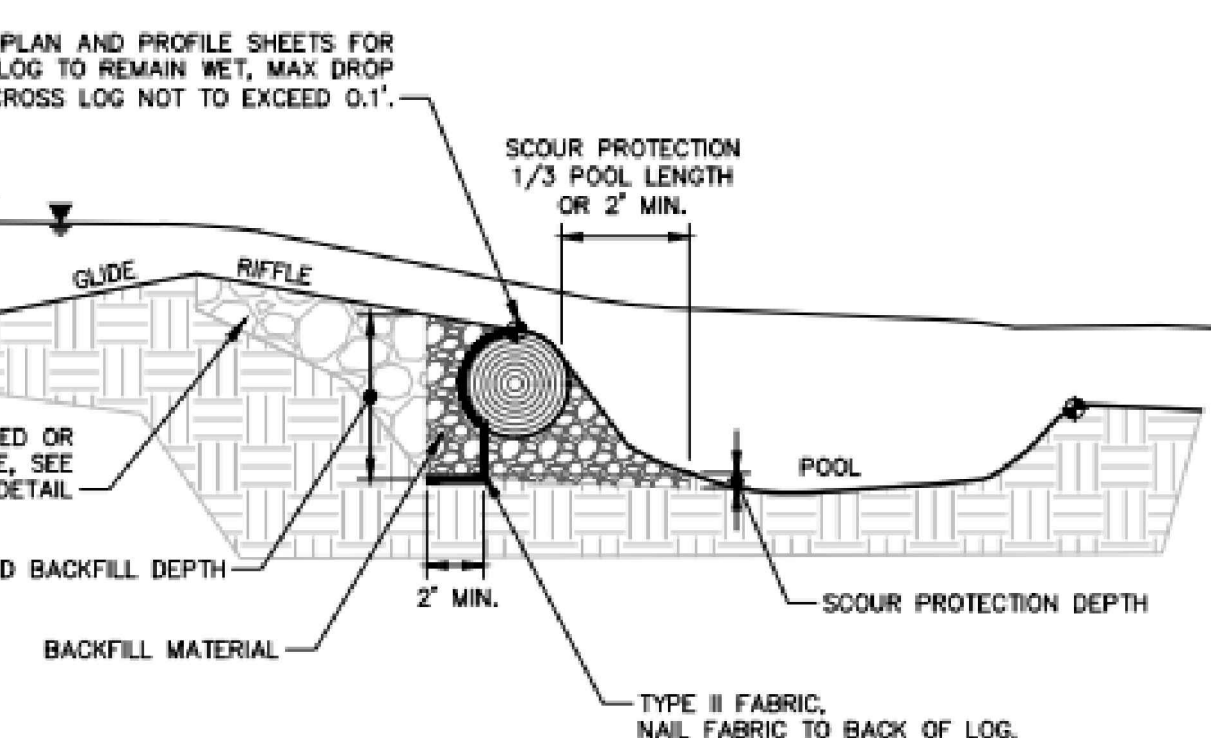
SECTION A-A

NOTE:
MAY USE ONSITE EXCAVATED ROCK THAT MEETS SPECIFICATIONS SET FORTH ON SHEET 2.



PLAN VIEW

SECTION A-A



DESIGN VARIABLES	
ROCK LENGTH	2'
BACKFILL MATERIAL ¹	A, B, 57, E, W
SILL AND BACKFILL DEPTH	18" MIN
SCOUR PROTECTION DEPTH	6" MIN
EMBEDDED LENGTH INTO BANK	2'
BOULDER DIMENSIONS	24X24X18

- NOTES:
1. A LOG SILL MAY BE USED ALONE OR IN COMBINATION WITH A CONSTRUCTED OR VARIABLE RIFFLE.
 2. LOG TO REMAIN WET, MAX DROP ACROSS LOG NOT TO EXCEED 0.1'.
 3. THE USE OF LOGS IN THE STREAM BED SHALL BE LIMITED TO PERENNIAL WATERBODIES ONLY.
 4. NO PART OF THE SILL SHALL BE PLACED ABOVE THE ELEVATION OF THE UPSTREAM AND/OR ADJACENT STREAM BED.
 5. A HEADER/FOOTER LOG COMBINATION MAY BE USED IN LIEU OF A SINGLE LOG. IF A HEADER/FOOTER LOG IS USED, LOG USED NEED TO BE CONNECTED/PINNED TOGETHER USING #3 REBAR OR SIMILAR.
 6. POOL DEPTH SHOULD BE PER THE PROFILE.
 7. LOGS SHOULD BE 8"-12" DIAMETER.

¹WELL MIXED GRADATION (APPROXIMATELY 70% STONE, 20% EARTH, AND 10% WOOD/MULCH). STONE MIX TO BE COMPRISED OF THE SPECIFIED MATERIALS: A = CLASS A RIP-RAP, B = CLASS B RIP-RAP, 57 = #57 STONE, #57 STONE NOT TO EXCEED 10% OF THE STONE MIX. THE REMAINDER OF THE MIX SHALL BE EQUAL PARTS CLASS A AND CLASS B RIP-RAP IF BOTH ARE SPECIFIED OR AS DIRECTED BY THE ENGINEER.

*ENGINEER TO ADJUST AS NECESSARY, MINIMUMS CANNOT BE ADJUSTED WITHOUT CITY APPROVAL

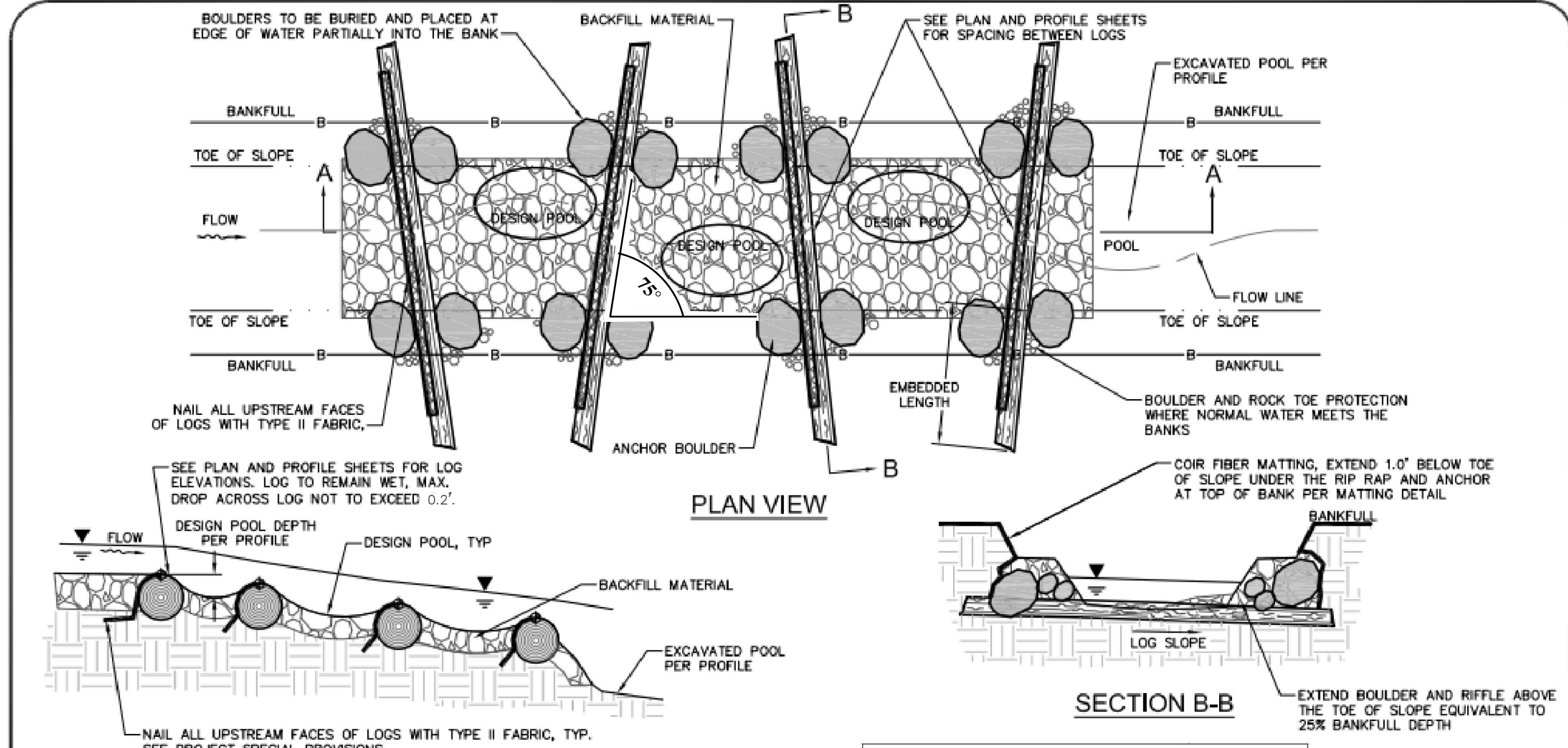
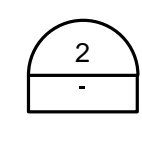
NOT TO SCALE



CHARLOTTE-MECKLENBURG
STORM WATER SERVICES
GENERIC DETAIL REQUIREMENTS

LOG SILL

REVISION DATE
1/28/2022
STD. NO. REV.
XX.XX



PLAN VIEW

SECTION A-A

- NOTES:
1. PLACE FABRIC ON THE UPSTREAM SIDE OF THE MOST UPSTREAM LOG SILL IN THE CONSTRUCTED RIFFLE.
 2. BOULDERS SHALL BE USED TO ANCHOR LOGS IF NEEDED.
 3. THE LOG SILL SHALL ALL BE DESIGNED TO BE SUBMERGED OR COVERED AT LOW FLOWS.
 4. LOGS SHOULD BE 18"-24" DIAMETER.

DESIGN VARIABLES	
BOULDER DIMENSION	24X24X18
EMBEDDED LENGTH INTO SOIL	2'
LOG ANGLE WITH STREAM BANK	75°
LOG SLOPE	5%
BACKFILL MATERIAL ¹	A, B, 57, E, W
BACKFILL DEPTH	9" MIN
BANKFULL WIDTH	6'

¹WELL MIXED GRADATION (APPROXIMATELY 70% STONE, 20% EARTH, AND 10% WOOD/MULCH). STONE MIX TO BE COMPRISED OF THE SPECIFIED MATERIALS: A = CLASS A RIP-RAP, B = CLASS B RIP-RAP, 57 = #57 STONE, #57 STONE NOT TO EXCEED 10% OF THE STONE MIX. THE REMAINDER OF THE MIX SHALL BE EQUAL PARTS CLASS A AND CLASS B RIP-RAP IF BOTH ARE SPECIFIED OR AS DIRECTED BY THE ENGINEER.

*ENGINEER TO ADJUST AS NECESSARY, MINIMUMS CANNOT BE ADJUSTED WITHOUT CITY APPROVAL

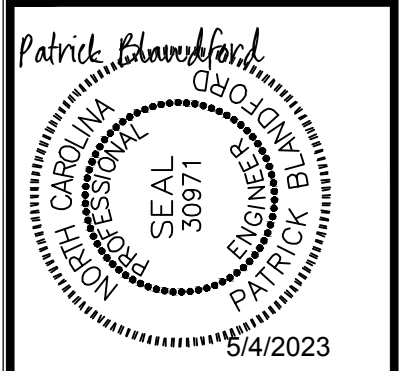
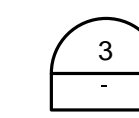
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CHARLOTTE-MECKLENBURG
STORM WATER SERVICES
GENERIC DETAIL REQUIREMENTS

ANGLED LOG RIFFLE

REVISION DATE
1/28/2022
STD. NO. REV.
XX.XX



NO.	DATE	BY	DESCRIPTION



672-10-005	JOB NO.	AL	PREPARED BY	PB	CHECKED BY	05/27/2022	DATE
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Coliseum Creek
Stream Repair
Civil Details

SHEET	10	OF	10
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