

MINE MODIFICATION #5

FOR

MINE PERMIT #I-000424

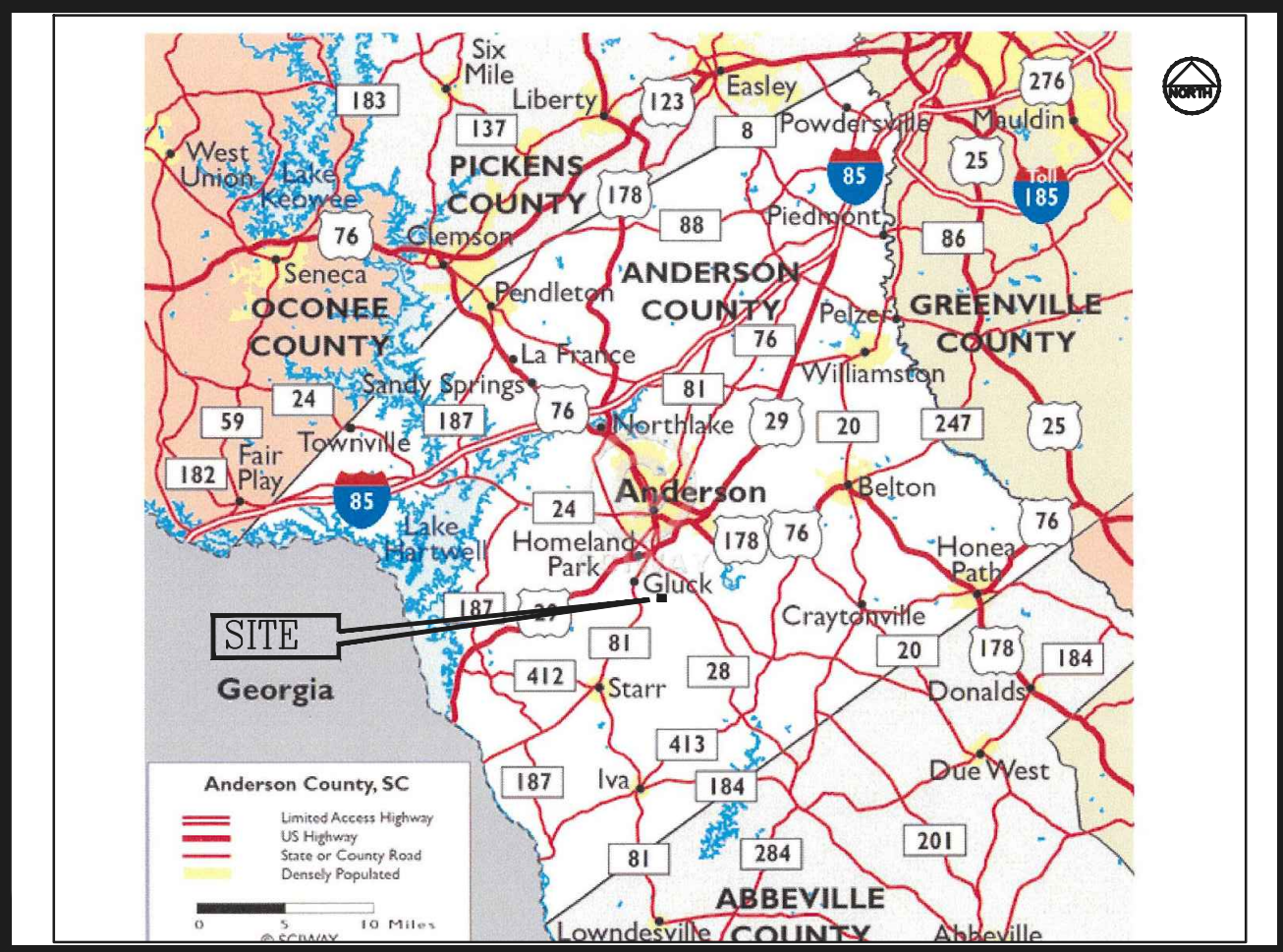
Hanson

Hanson Aggregates Southeast, LLC

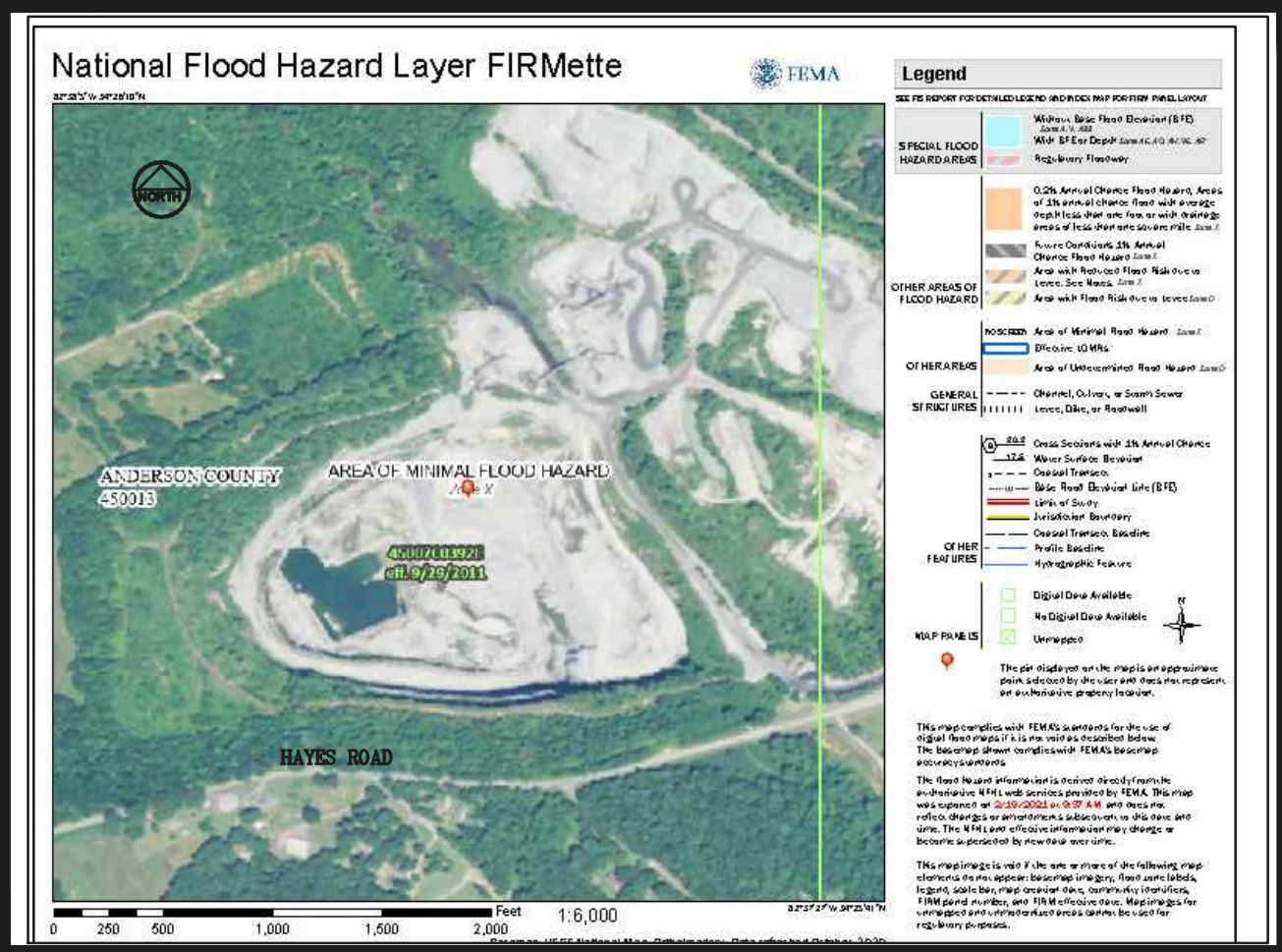
7 West Point Blvd.
Mauldin, S.C, 29662

ANDERSON QUARRY

413 HAYES ROAD
ANDERSON , SOUTH CAROLINA, 29624
ANDERSON COUNTY
Phone 864-296-9242



LOCATION MAP
SCALE: 1" = 5 MILES
LAT: 34.4310 N
LONG: -82.6316 W



FEMA MAP
SCALE 1" = 1000'
ANDERSON COUNTY FLOOD MAP - 45007C0392F

SHEET INDEX	
SHEET No.	DESCRIPTION
1	EXISTING CONDITIONS MAP
2	MASTER PLAN
3	ULTIMATE MINE PLAN
4	RECLAMATION PLAN
5	SEDIMENT BASIN DESIGN
6	CONSTRUCTION DETAILS
7	CONSTRUCTION DETAILS

SITE DATA:
PROPERTY OWNER : HANSON AGGREGATES SOUTHEAST, LLC .
ENVIRONMENTAL 24 HOUR CONTACT
JIM ZADOROZNY - 770-617-7398



Black Rock Consulting, LLC

Seven Dunwoody Park, Suite 115
Atlanta, Georgia 30338

Phone: (770) 395-6111 Fax: (770) 395-6999

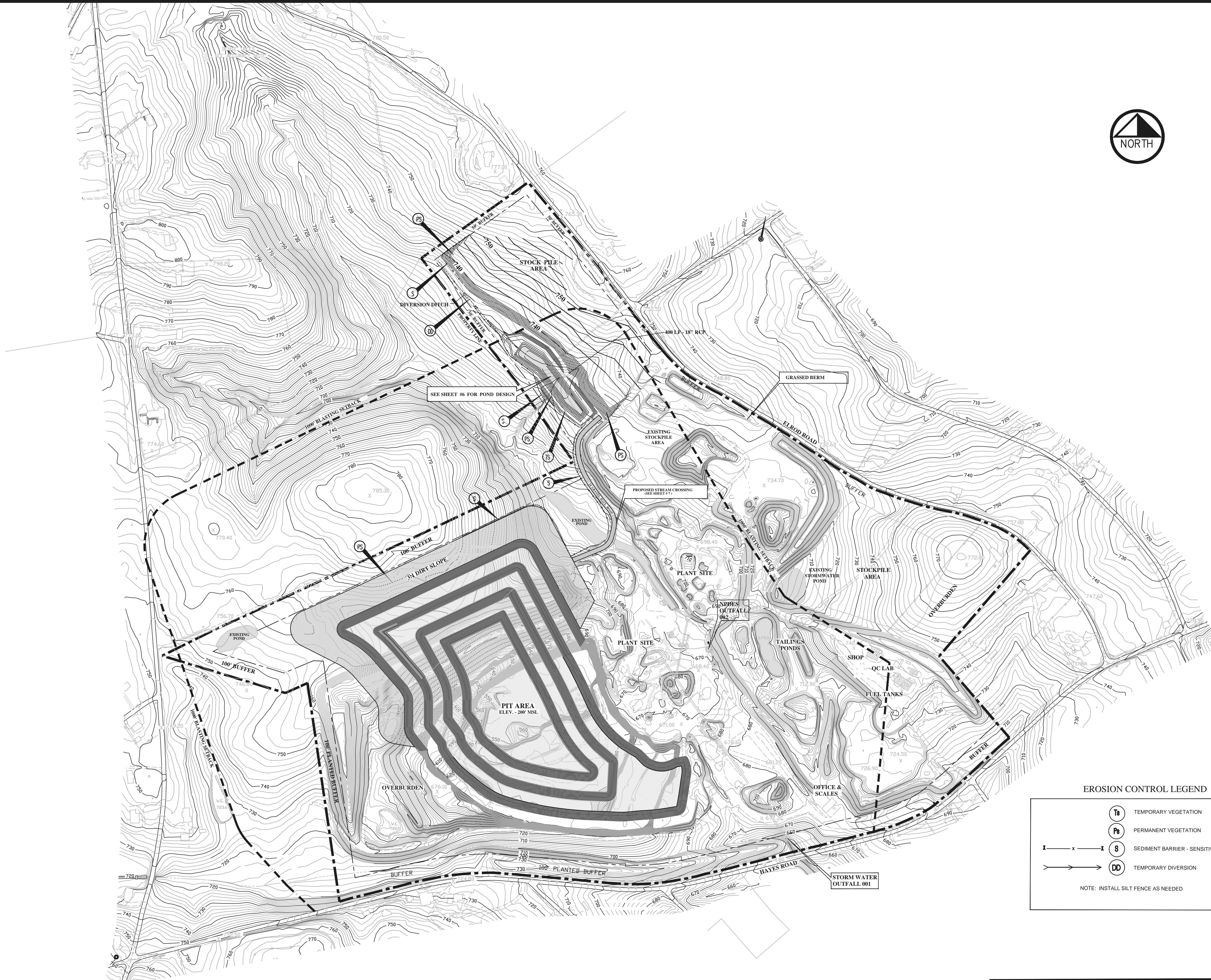
Last Modification: March 1, 2019



HANSON AGGREGATES SOUTHEAST, LLC
EXISTING CONDITIONS MAP
ANDERSON QUARRY

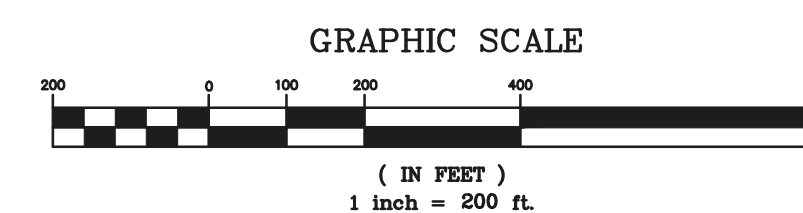
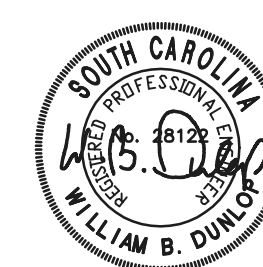

 Seven Dunwoody Park, Suite 115
 Atlanta, Georgia 30338
 Ph: 770-395-6111 Fax: 770-395-6999

Checked By	DB
Scale	1" = 200'
Date	5/15/2021
Drawing Number	1

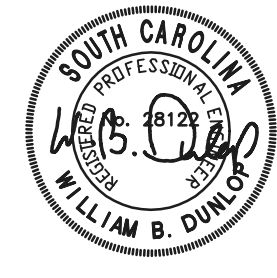
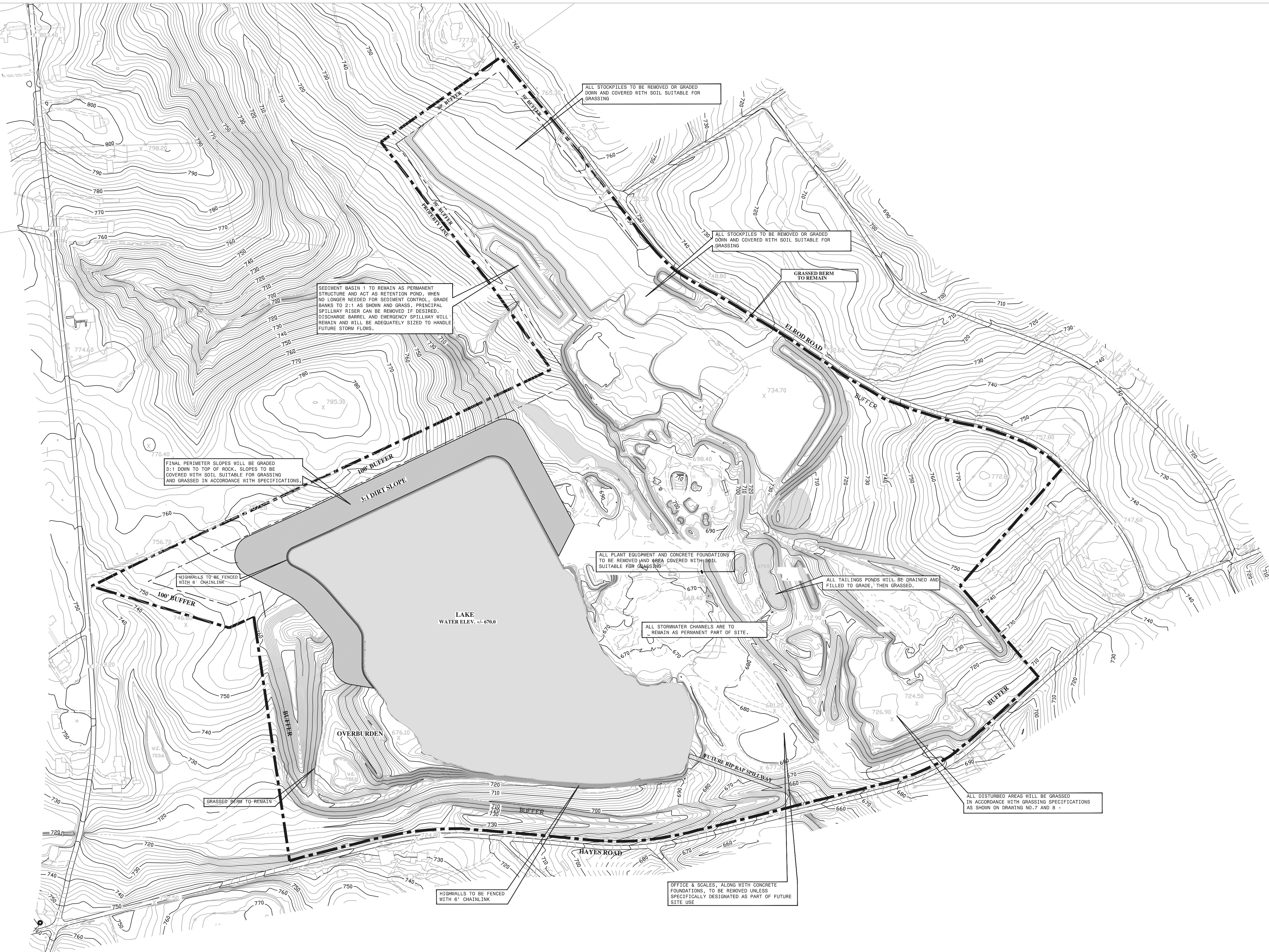


EROSION CONTROL LEGEND

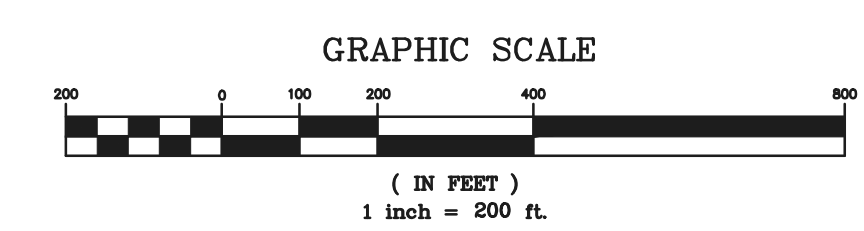
	TEMPORARY VEGETATION
	PERMANENT VEGETATION
	SEDIMENT BARRIER - SENSITIVE
	TEMPORARY DIVERSION
NOTE: INSTALL SILT FENCE AS NEEDED	



<p>ULTIMATE MINE PLAN MODIFICATION #5</p> <p>HANSON AGGREGATES SOUTHEAST, LLC ANDERSON QUARRY</p> <p>ANDERSON COUNTY, SOUTH CAROLINA</p> <p>BRC BLACK ROCK CONSULTING, LLC</p> <p>Seven Dunwoody Park, Suite 115 Atlanta, Georgia 30338 Ph: 770-395-6111 Fax: 770-395-6999</p>	Checked By	DB
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	Date	5/15/2021
	Drawing Number	3

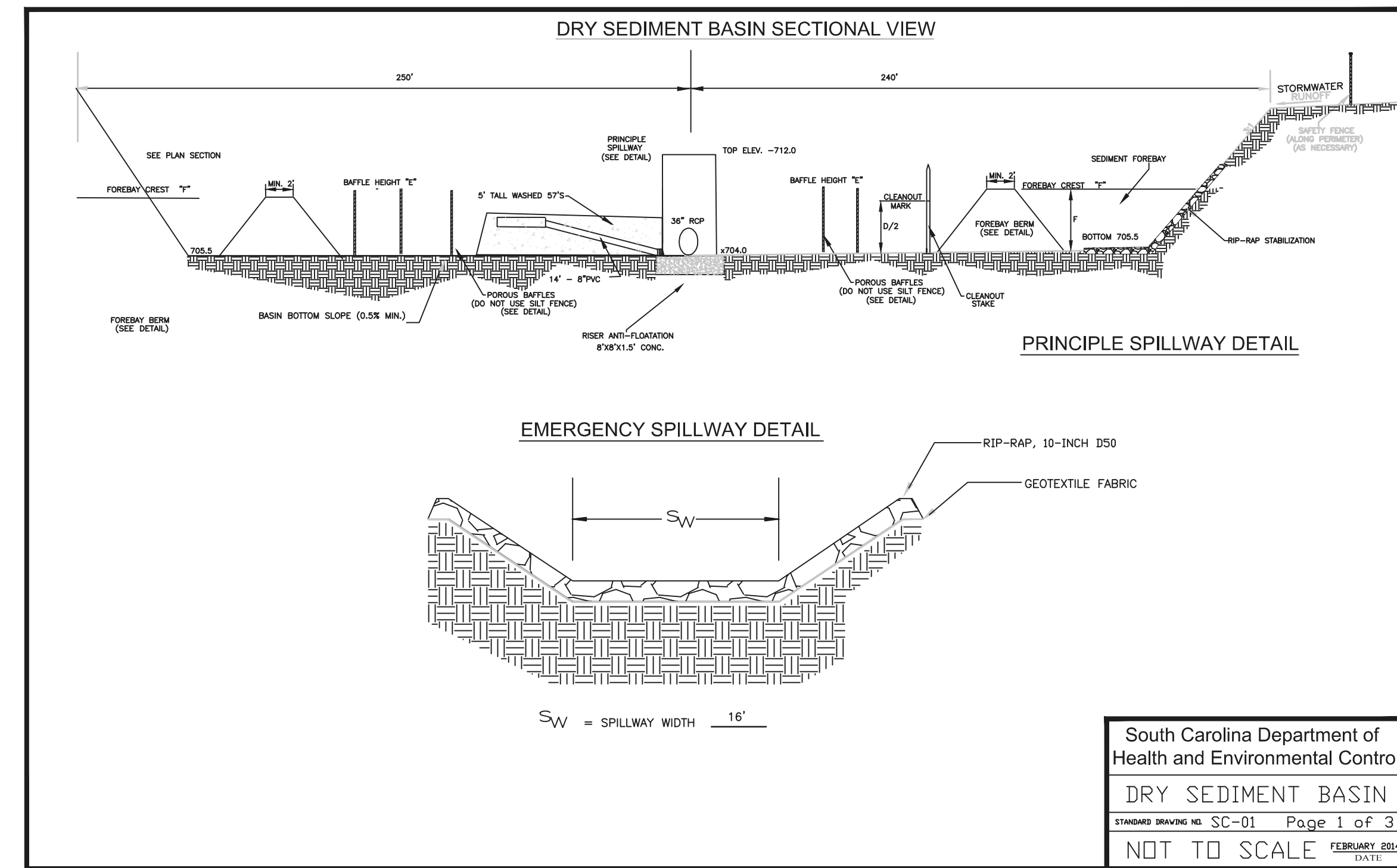
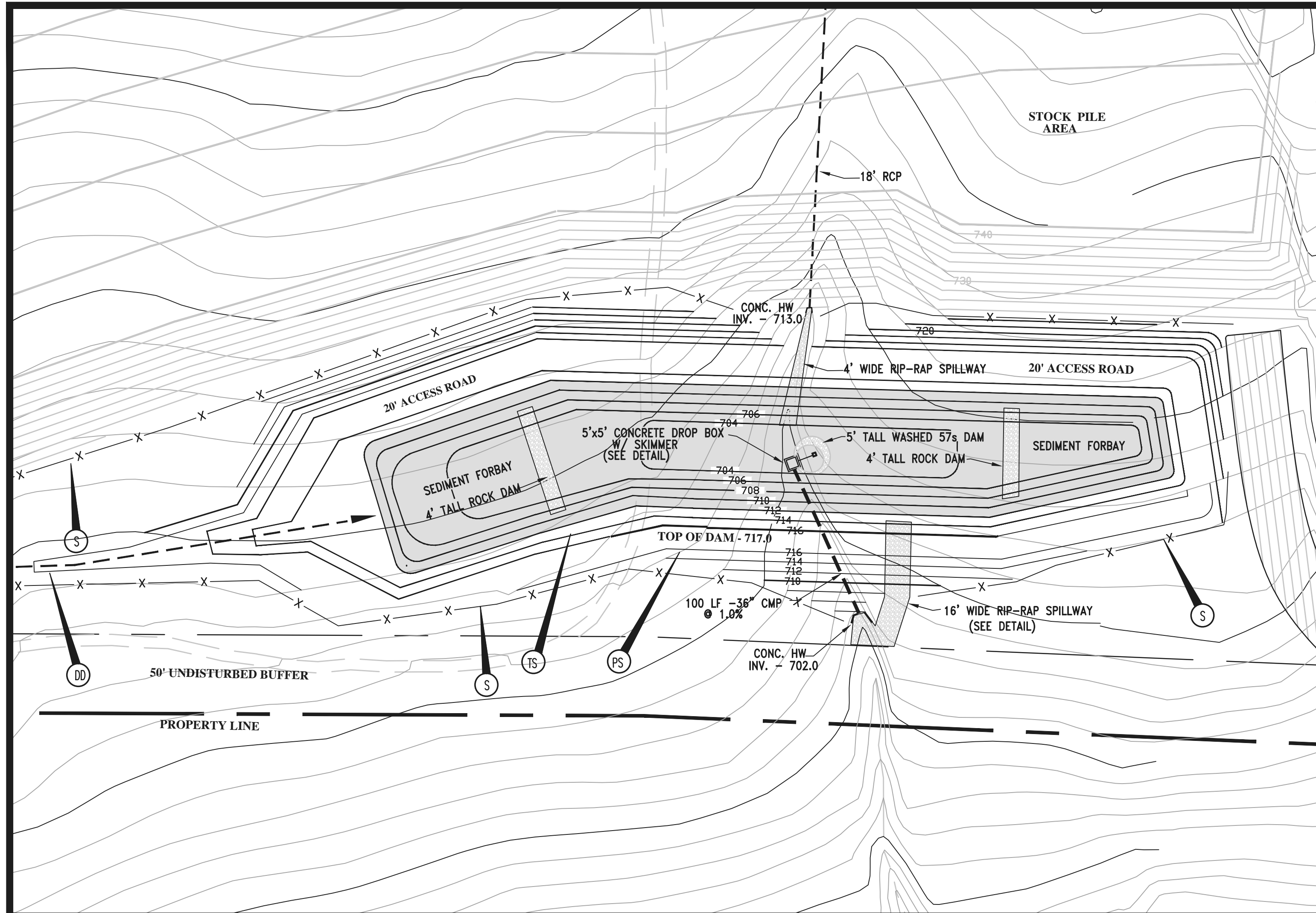


NOTE: ALL DISTURBED AREAS TO BE GRASSED



RECLAMATION PLAN MODIFICATION #5 HANSON AGGREGATES SOUTHEAST, LLC ANDERSON QUARRY ANDERSON COUNTY, SOUTH CAROLINA	Checked By	DB
	Scale	1" = 200'
	Date	4/15/2021
	Drawing Number	4

BRC
 BLACK ROCK CONSULTING, LLC
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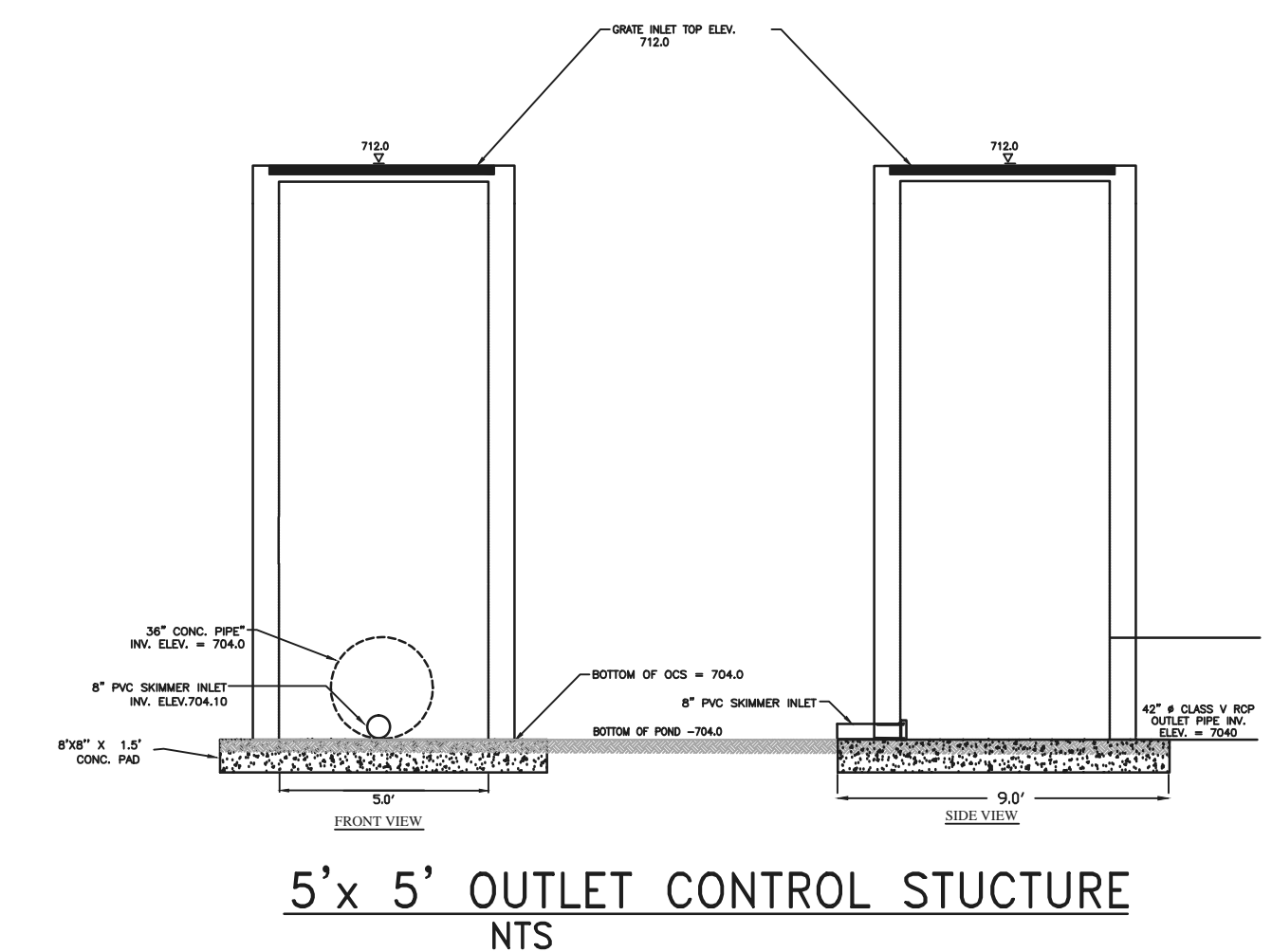
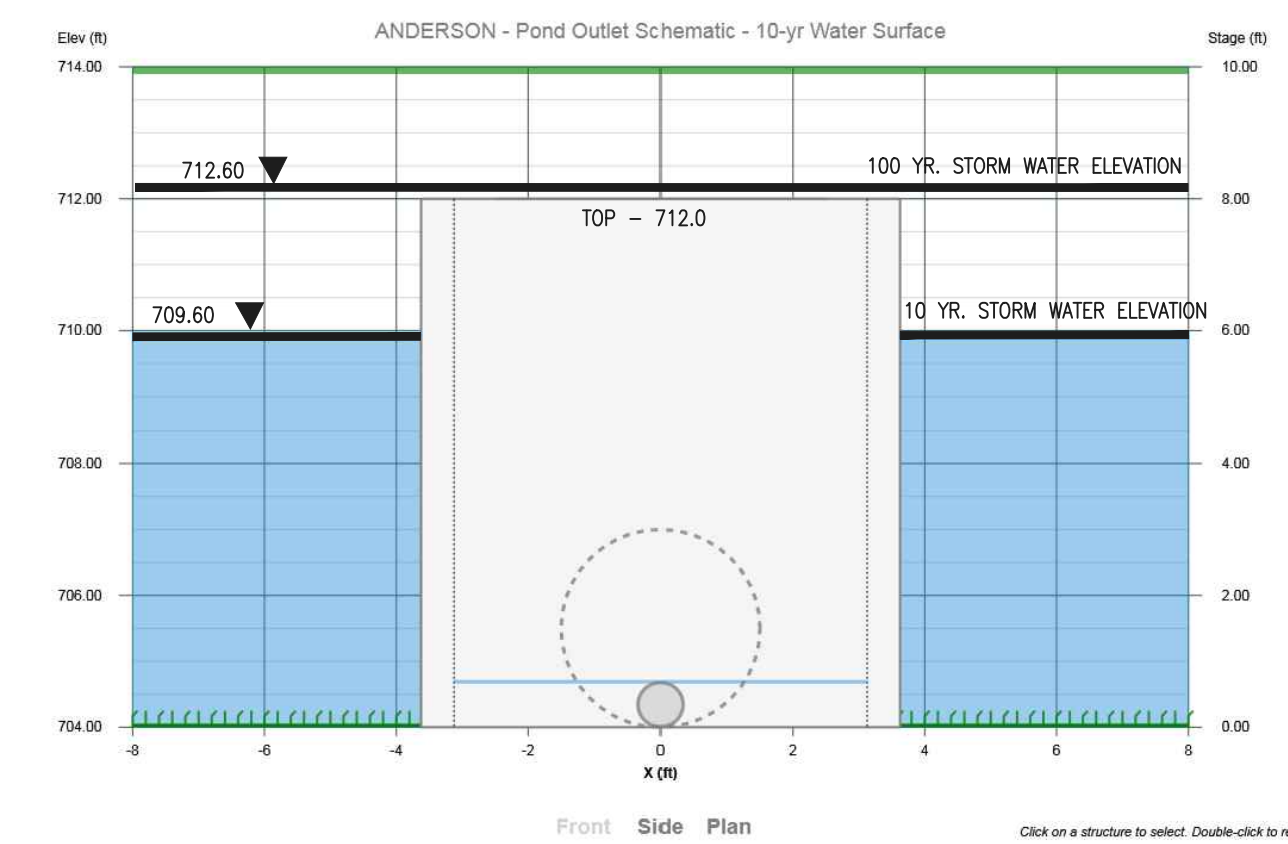
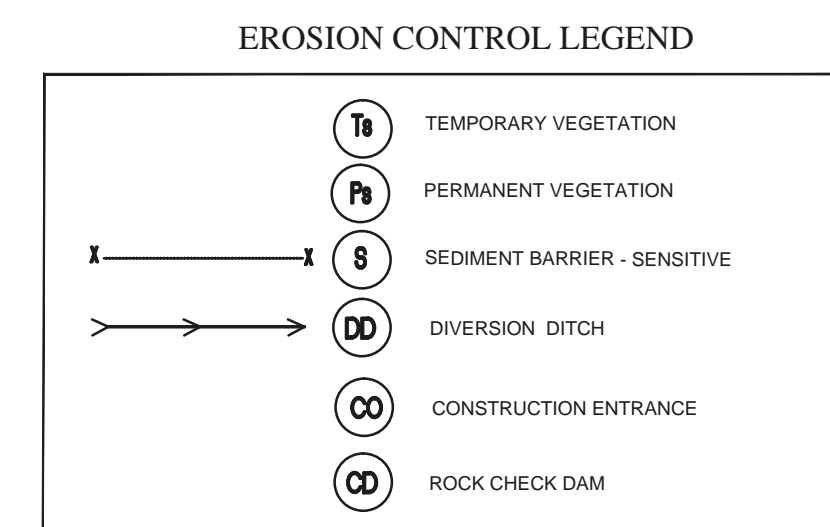
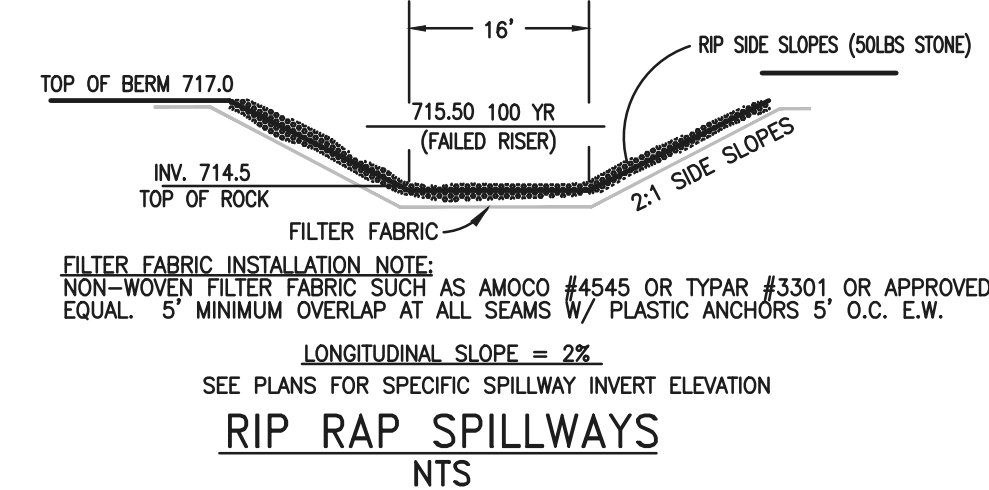


STAGE/STORAGE

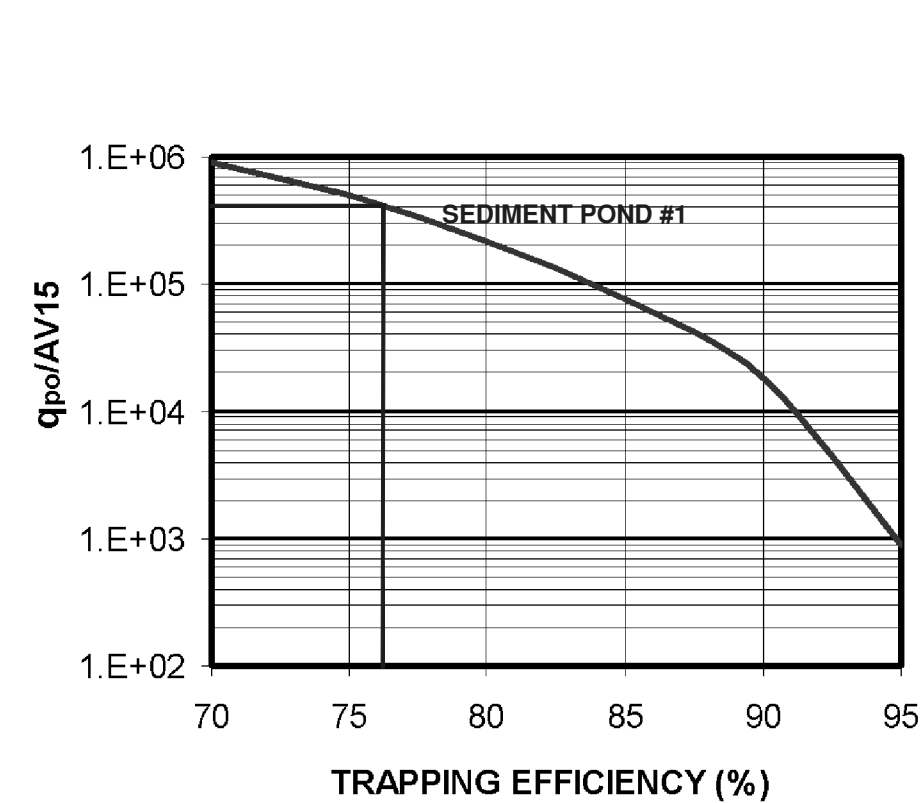
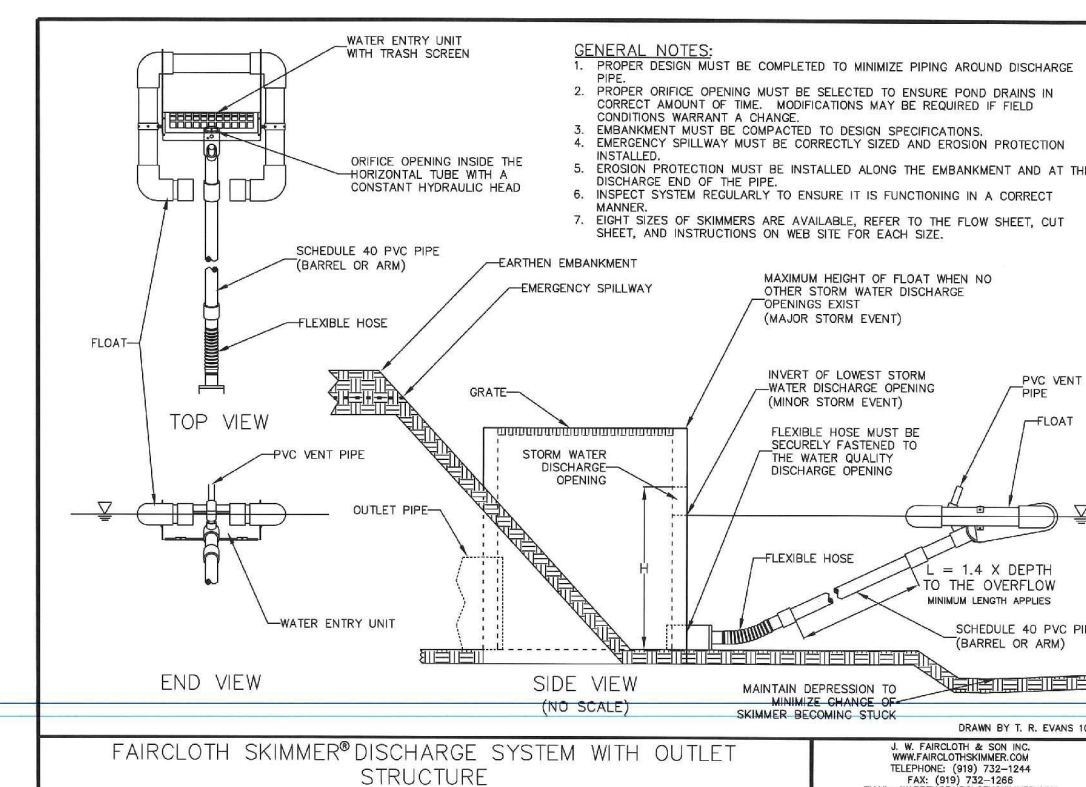
Elevation (ft)	Incremental Depth (ft)	Contour Area (sf)	Average Area (sf)	Incremental Volume (cf)	Cumulative Volume (cf)	Cleanout Elevation (ft)
704		6300	5506	11,011	0	705.5
706	2.00	18,070	9635	19,270	30,281	
708	2.00	27,499	13850	27,700	57,981	
710	2.00	36,900	36600		94046	
712	2.00	47,331				
714	2.00	67,360				

PLAN VIEW PROPOSED SEDIMENT POND #1
 SCALE 1" = 40'

NOTE: FIELD VERIFY ELEVATIONS



POND ROUTING RESULTS



TRAPPING EFFICIENCY CALCULATIONS

DA = 16.1 ACRES
 CN = 86 (RANGE LAND POOR)
 TC = 5.2 MIN.
 SOILS = CECIL
 HYDROLOGIC SOIL GROUP = B
 $D_{10} = 0.0081$
 $Q_{10} = 28.4$ CFS

SETTLING VELOCITY
 $V_{15} = 2.0 \text{ E-4}$ (APPENDIX A-FIG. SV-1)

BASIN RATIO
 $\text{BASIN RATIO} = \frac{Q_{10}}{A \times V_{15}} = \frac{29.4}{0.43600 \times 2.0 \text{ E-4}} = 3.37 \text{ E5}$

TRAPPING EFFICIENCY +/- 77% (SE FIG. SB-1)
 REQUIRED SEDIMENT STORAGE = 1,353 CY
 ACTUAL SEDIMENT STORAGE = 247 CY
 REQUIRED CLEANOUT VOLUME = 178 CY

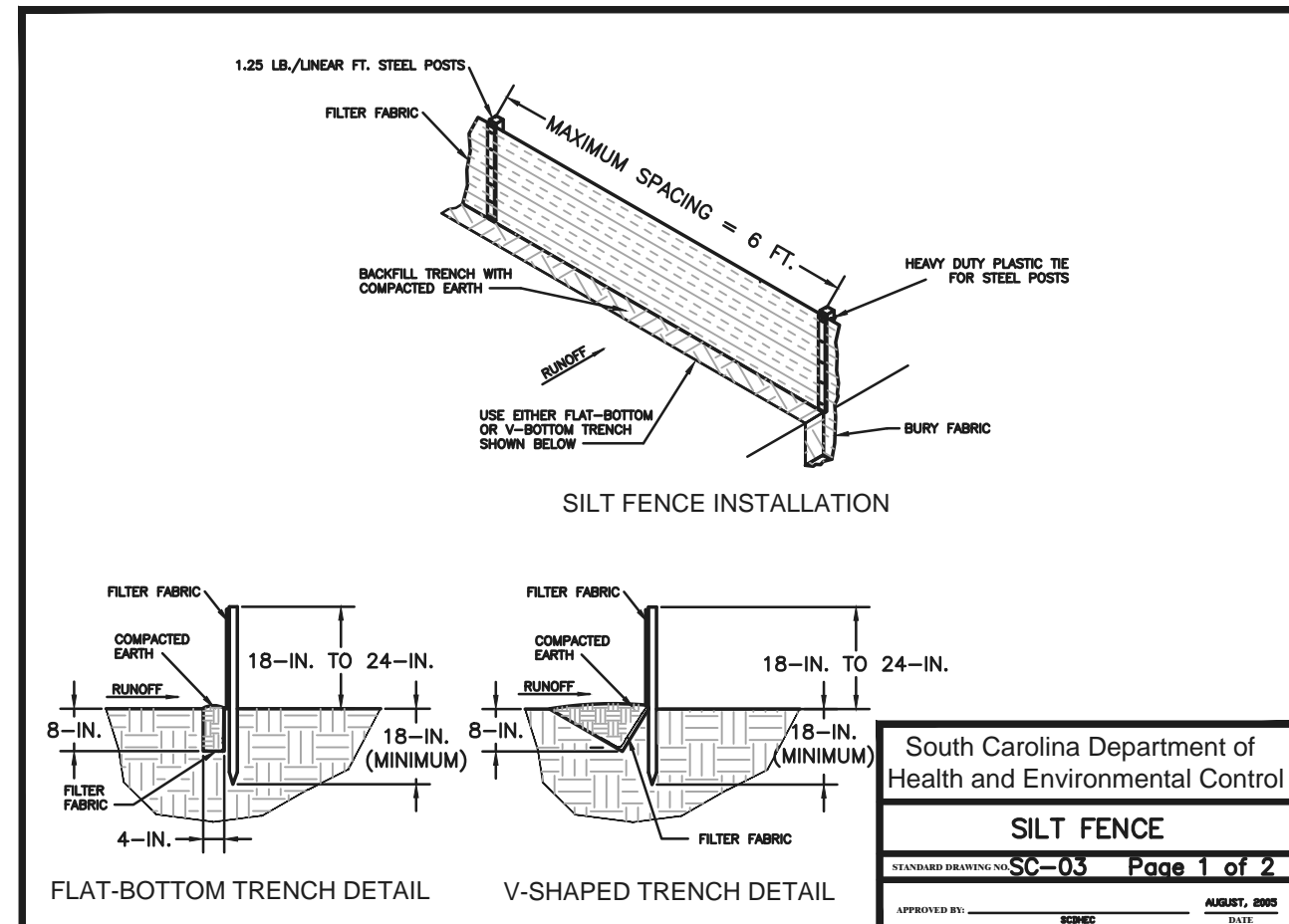


SEDIMENT POND #1 DESIGN MODIFICATION #5
 HANSON AGGREGATES SOUTHEAST, LLC
 ANDERSON QUARRY
 ANDERSON COUNTY, SOUTH CAROLINA

South Carolina Department of Health and Environmental Control
 WILLIAM B. DUMBLE
 PROFESSIONAL ENGINEER
 LICENSE NO. 28124

Drawn By DB
 Checked By
 Scale AS SHOWN
 Date 4/15/2021
 Drawing Number 5

BRC Black Rock Consulting, LLC
 SEVEN DUNWOODY PARK, SUITE 115 - ATLANTA, GA 30338 - 770-395-6111



SILT FENCE DETAIL

Silt fence is applicable in areas:

Where the maximum sheet or overlaid flow path length to the fence is 100-feet, where the maximum slope steepness (normal [perpendicular] to fence line) is 2:1V. That do not receive concentrated flows greater than 0.5 cfs.

place silt fence across channels or use it as a velocity control BMP.

Material:

Steel Posts
 Use 48-inch long steel posts that meet the following minimum physical requirements:
 Composed of high strength steel with minimum yield strength of 50,000 psi.
 Have a standard "T" section with a nominal face width of 1.38-inches and nominal "T" length of 1.48-inches.
 Weigh 1.25 pounds per foot (± 8%).
 Have a soil stabilization plate with a minimum cross section area of 17-square inches attached to the steel post.
 Pointed with a water based leaded enamel point.

Use steel posts with a minimum length of 4-feet, weighing 1.25 pounds per linear foot (± 8%) with projections to aid in fastening the fabric. Except when heavy clay soils are present on site, steel posts will have a metal soil stabilization plate welded near the bottom such that when the post is driven to the proper depth, the plate will be below the ground level for added stability. The soil plates should have the following characteristics:
 Be composed of minimum 15 gauge steel.
 Have a minimum cross section area of 17-square inches.

Geotextile Filter Fabric
 Filter fabric is composed of fibers consisting of long chain synthetic polymers composed of at least 85% by weight of polyethylene, polyesters, or polyamides. Formed into a network such that the filaments or yarns retain dimensional stability relative to each other. Free of any treatment or coating which might adversely alter its physical properties after installation. Free of defects or flaws that significantly affect its physical and/or filtering properties. Cut to a minimum width of 36 inches.

Use only fabric appearing on SCDOT Approval Sheet #34 meeting the requirements of the most current edition of the SCDOT Standard Specifications for Highway Construction.

South Carolina Department of Health and Environmental Control
SILT FENCE
 FORMER SHEET SC-03 Page 2 of 3
 APPROVED BY: [Signature] DATE: [Date]

SILT FENCE DETAIL

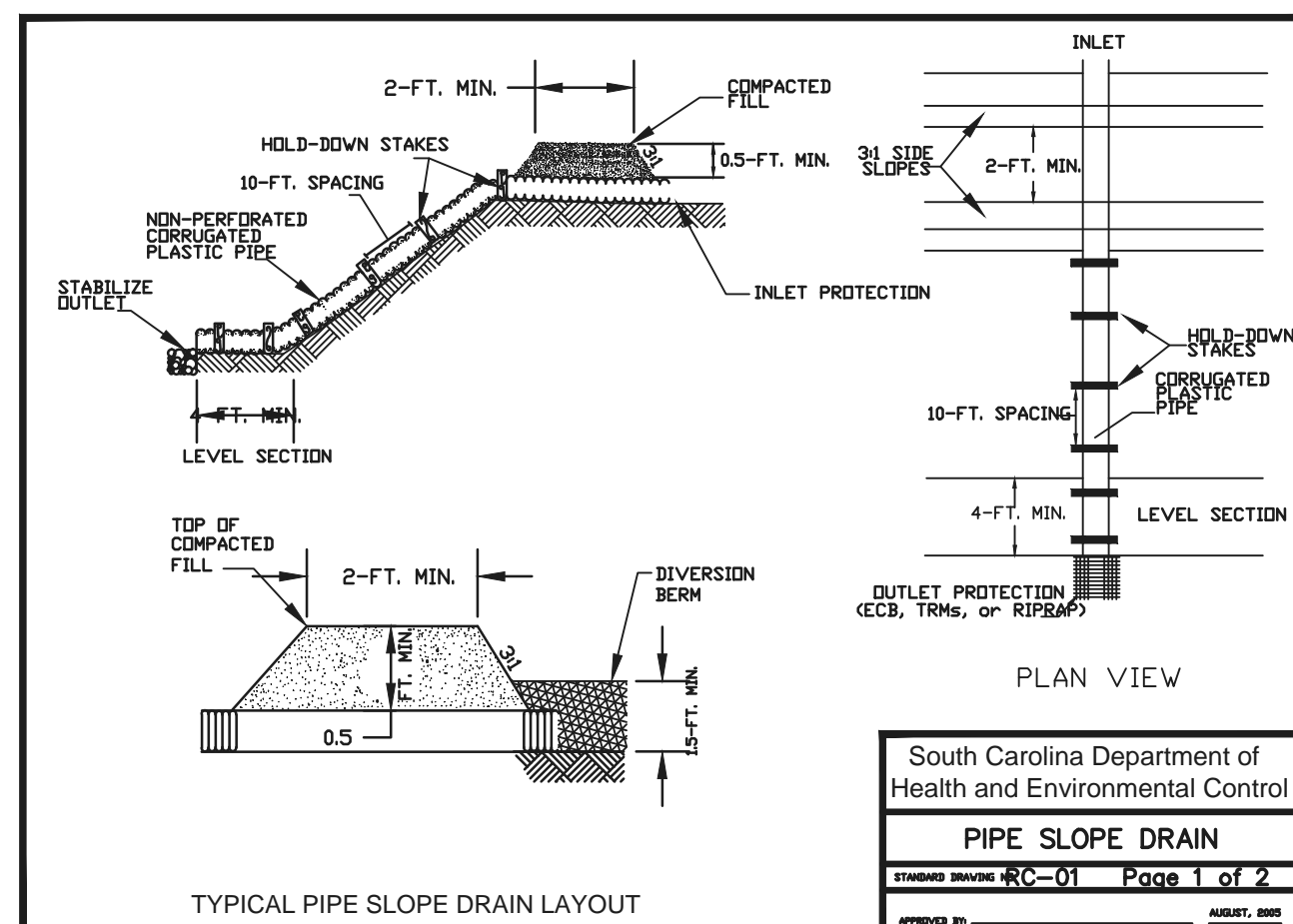
Installation
 Excavate a trench approximately 6-inches wide and 6-inches deep when placing fabric by hand. Place 12-inches of geotextile fabric into the 6-inch deep trench, extending the remaining 6-inches towards the upslope side of the trench. Backfill the trench with soil or gravel and compact/bury 12-inches of fabric into the ground when pneumatically installing silt fence with a sliding method. Purchase fabric in continuous rolls and cut to the length of the barrier to avoid joints. When joints are necessary, wrap the fabric together at a support post with both ends fastened to the post, with a 6-inch minimum overlap. Install posts to a minimum depth of 24-inches. Install posts a minimum of 1- to 2- inches above the fabric, with no more than 3-feet of the post above the ground. Space posts to maximum 6-foot centers. Attach fabric to wood posts using staples made of heavy-duty wire at least 1 1/2-inch long, spaced a maximum of 6-inches apart. Staple a 2-inch wide lathe over the filter fabric to securely fasten it to the upslope side of wooden posts. Attach fabric to the steel posts using heavy-duty plastic ties that are evenly spaced and placed in a manner to prevent sagging or tearing of the fabric. In call cases, ties should be affixed in no less than 4 places. Install the fabric a minimum of 24-inches above the ground. When necessary, the height of the fence above ground may be greater than 24-inches. In tidal areas, extra silt fence height may be required. The post height will be twice the exposed post height. Post spacing will remain the same and extra height fabric will be 4-, 5-, or 6-feet tall. Locate silt fence checks every 100 feet maximum and at low points. Install the fence perpendicular to the direction of flow and place the fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanup.

Inspection and Maintenance
 Inspect every seven calendar days and within 24-hours after each rainfall event that produces 1/4-inch or more of precipitation. Check for sediment buildup and fence integrity. Check where runoff has eroded a channel beneath the fence, or where the fence has sagged or collapsed by fence overtopping. If the fence fabric tears, begins to decompose, or in any way becomes ineffective, replace the section of fence immediately. Remove sediment accumulated along the fence when it reaches 1/3 the height of the fence, especially if heavy rains are expected. Remove trapped sediment from the silt or stabilize it on site. Remove silt fence within 30 days after final stabilization is achieved or after temporary best management practices (BMPs) are no longer needed. Permanently stabilize disturbed areas resulting from fence removal.

South Carolina Department of Health and Environmental Control
SILT FENCE
 FORMER SHEET SC-03 Page 3 of 3
 APPROVED BY: [Signature] DATE: [Date]

Temporary Seeding - Upstate

Species	Lbs./Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Browntop Millet (Alone)	40												
Browntop Millet (Mix)	10												
Rye Grain (Alone)	56												
Rye Grain (Mix)	10												
Rye Grass (Alone)	50												
Rye Grass (Mix)	8												
For Steep Slopes/Cut Slopes													
Weeping Lovegrass (Alone)	4												
Weeping Lovegrass (Mix)	2												



STABILIZED CONSTRUCTION ENTRANCE

Stabilized construction entrances should be used at all points where traffic will be leaving a construction site and moving directly onto a public road.

If washing is used, provisions must be made to intercept the wash water and trap the sediment before it is carried offsite. Washdown facilities shall be required as directed by SCDHEC as needed. Washdown areas in general must be established with crushed gravel and drain into a sediment trap or sediment basin. Construction entrances should be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by vehicles.

Installation
 Remove all vegetation and any objectionable material from the foundation area. Divert all surface runoff and drainage from stones to a sediment trap or basin. Install a non-woven geotextile fabric prior to placing any stone. Install a culvert pipe across the entrance when needed to provide positive drainage. The entrance shall consist of 1-inch to 3-inch D50 stone placed at a minimum depth of 6-inches. Minimum dimensions of the entrance shall be 24-feet wide by 100-feet long, and may be modified as necessary to accommodate site constraints. The edges of the entrance shall be tapered out towards the road to prevent tracking of mud at the edge of the entrance.

South Carolina Department of Health and Environmental Control
STABILIZED CONSTRUCTION ENTRANCE
 FORMER SHEET SC-06 Page 2 of 3
 APPROVED BY: [Signature] DATE: [Date]

STABILIZED CONSTRUCTION ENTRANCE

Inspect construction entrances every seven (7) calendar days and within 24-hours after each rainfall event that produces 1/4-inch or more of precipitation, or after heavy use. Check for mud and sediment buildup and pond integrity. Make daily inspections during periods of wet weather. Maintenance is required more frequently in wet weather conditions. Reshape the stone pad as needed for drainage and runoff control.

Wash or replace stones as needed and as directed by the inspector. The stone in the entrance should be washed or replaced whenever the entrance fails to reduce mud being carried off-site by vehicles. Frequent washing will extend the useful life of stone.

Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin.

Repair any broken pavement immediately.

South Carolina Department of Health and Environmental Control
STABILIZED CONSTRUCTION ENTRANCE
 FORMER SHEET SC-06 Page 3 of 3
 APPROVED BY: [Signature] DATE: [Date]

Permanent Seeding - Upstate

Species	Lbs./Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bahia Grass (Alone)	40												
Bahia Grass (Mix)	30												
Bermuda Grass (hulled) (Alone)	8-12												
Bermuda Grass (hulled) (Mix)	4-6												
Fescue, Tall (KY31) (Alone)	40												
Fescue, Tall (KY31) mix	20												
Sericea Lespedeza (Scarified) (Alone or Mix (inoculate with EL Inoculant	40												
Ladino Clover (mix only)	2												
Inoculate with AB Inoculant	2												
For Steep Slopes/Cut Slopes													
Weeping Lovegrass (Alone)	4												
Weeping Lovegrass (Mix)	2												
Crownvetch (Mix) (Inoculate with Type M Inoculant	8-10												

PIPE SLOPE DRAIN

Pipe slope drains are used when it is necessary for water to flow down a slope without causing erosion, especially before a slope has been stabilized or before permanent drainage structures are installed.

Typical pipe slope drains are made of non-perforated corrugated plastic pipe.

Slope drain sections should be securely fastened together, have gasket watertight fittings, and be securely anchored into the soil.

Diversion berms or dikes should direct runoff to slope drains. The minimum depth of these dikes or berms should be 1.5-feet. The height of the berm around the pipe inlet should be a minimum of 1.5-feet high and at least 0.5-feet higher than the top of the pipe. The berm at the pipe inlet shall be compacted around the pipe. The area around the inlet shall be properly stabilized with ECBs, TRMs, riprap or other applicable stabilization techniques.

The area below the outlet must be properly stabilized with ECBs, TRMs, riprap or other applicable stabilization technique.

If the pipe slope drain is conveying sediment-laden water, direct all flows into the sediment trapping facility.

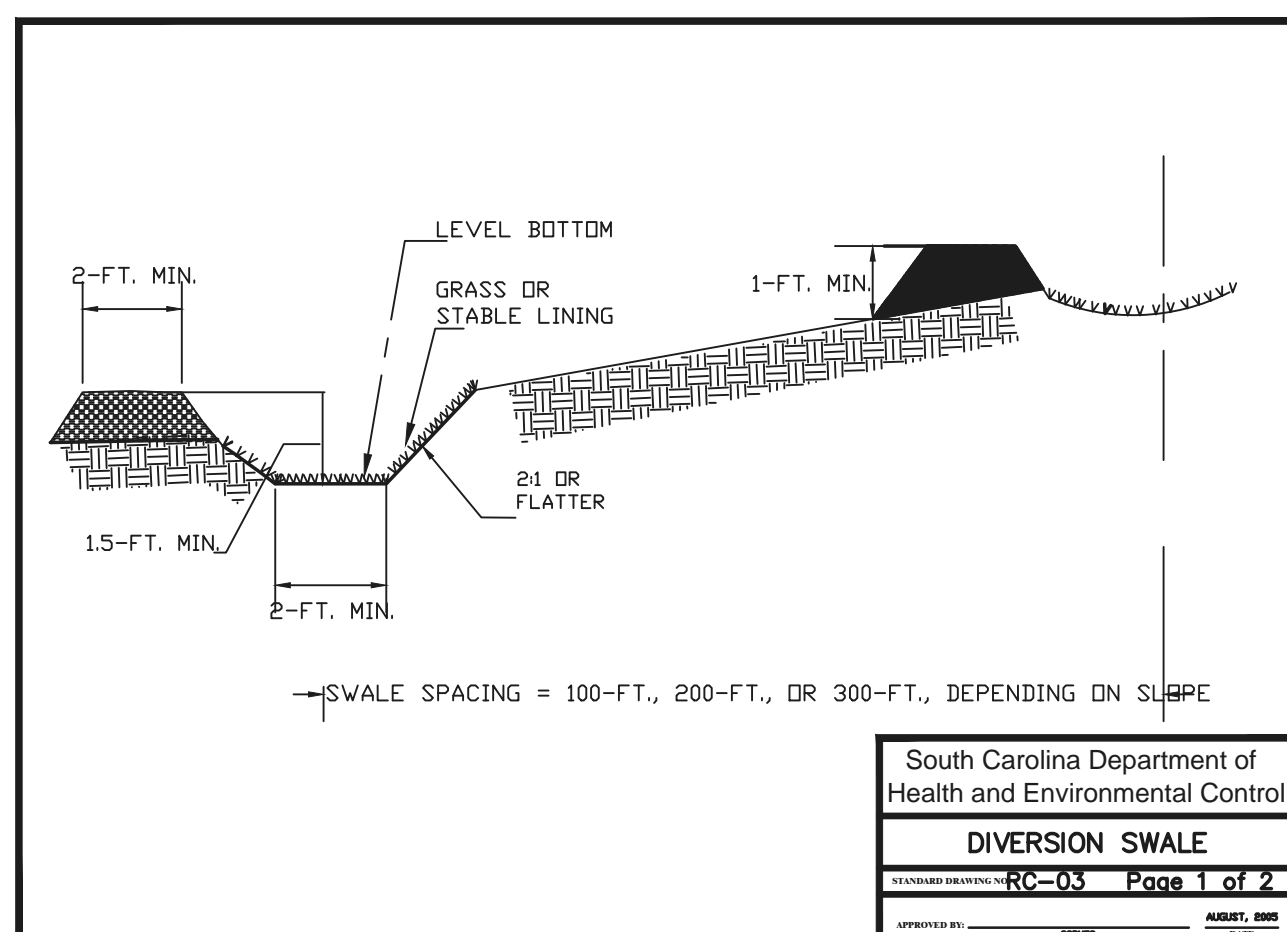
Permanent slope drains should be buried beneath the soil surface a minimum 1.5-feet.

Inspect pipe slope drain inlet and outlet points every seven (7) calendar days and within 24-hours after each rainfall event that produces 1/4-inch or more of precipitation.

The inlet should be free from undercutting, and no water should be going around the point of entry. If there are problems, the headwall should be reinforced with compacted earth or sandbags. The outlet point should be free of erosion and installed with appropriate outlet protection.

All temporary pipe slope drains should be removed within 30 days after final site stabilization is achieved or after the temporary BMP is no longer needed. Disturbed soil areas resulting from removal should be permanently stabilized.

South Carolina Department of Health and Environmental Control
PIPE SLOPE DRAIN
 FORMER SHEET RC-01 Page 2 of 2
 APPROVED BY: [Signature] DATE: [Date]



DIVERSION SWALE

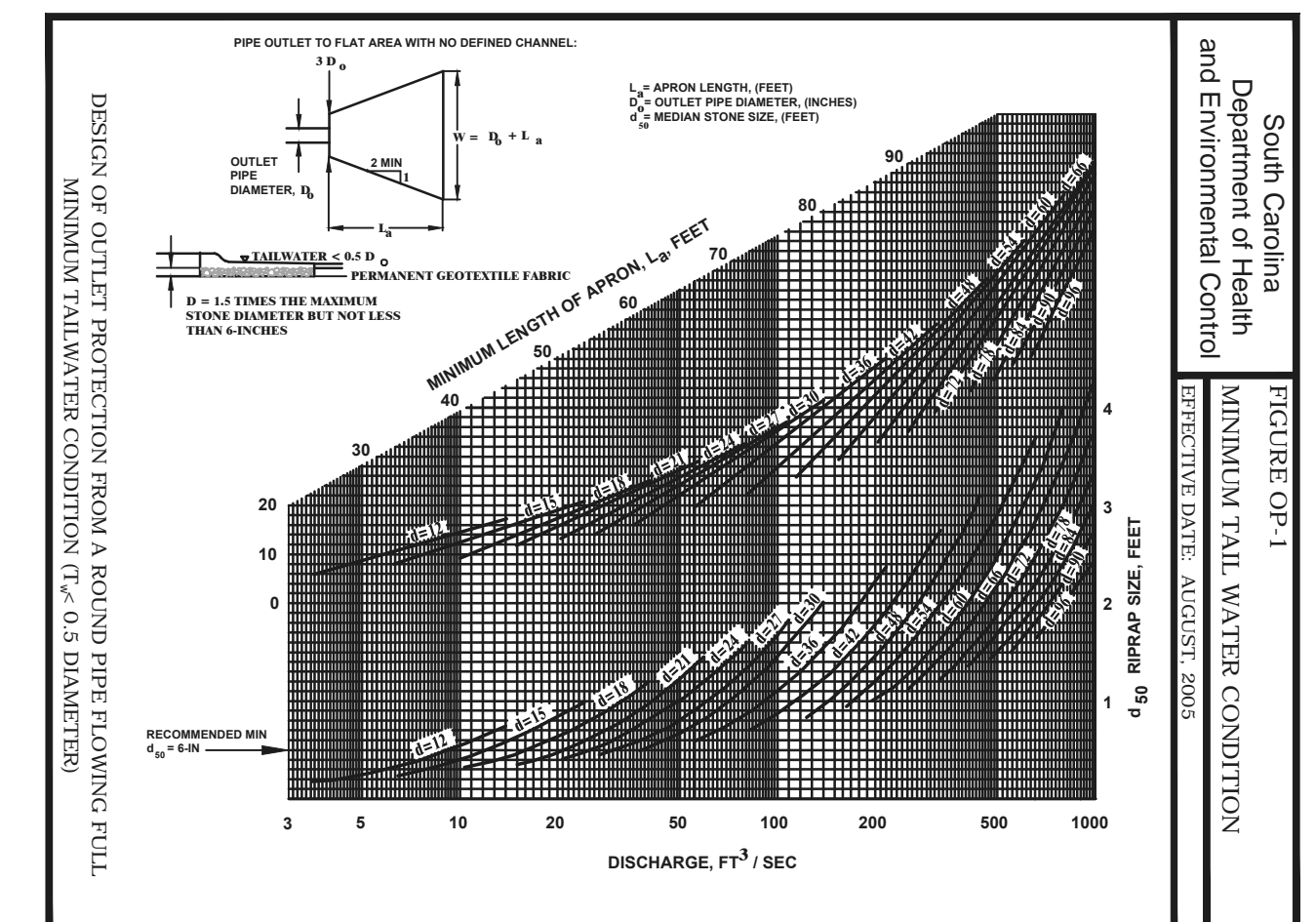
The bottom width should be a minimum of 2-feet, and the bottom should be level. The depth should be a minimum of 1.5-feet and the side slopes should be 2H:1V or flatter. The maximum grade shall be 5%, with positive drainage to a suitable outlet.

Slopes shall be stabilized immediately using vegetation, sod, and erosion control blankets or turf reinforcement mats to prevent erosion. The upslope side of the swale should provide positive drainage so no erosion occurs at the outlet. Provide energy dissipation measures as necessary.

Sediment-laden runoff shall be directed to a sediment trapping facility.

Inspection and Maintenance
 Swales should be inspected, every seven (7) calendar days and within 24-hours after each rainfall event that produces 1/4-inch or more of precipitation and repairs made as necessary. Damage caused by construction traffic or other activity must be repaired before the end of each working day.

South Carolina Department of Health and Environmental Control
DIVERSION SWALE
 FORMER SHEET RC-03 Page 2 of 2
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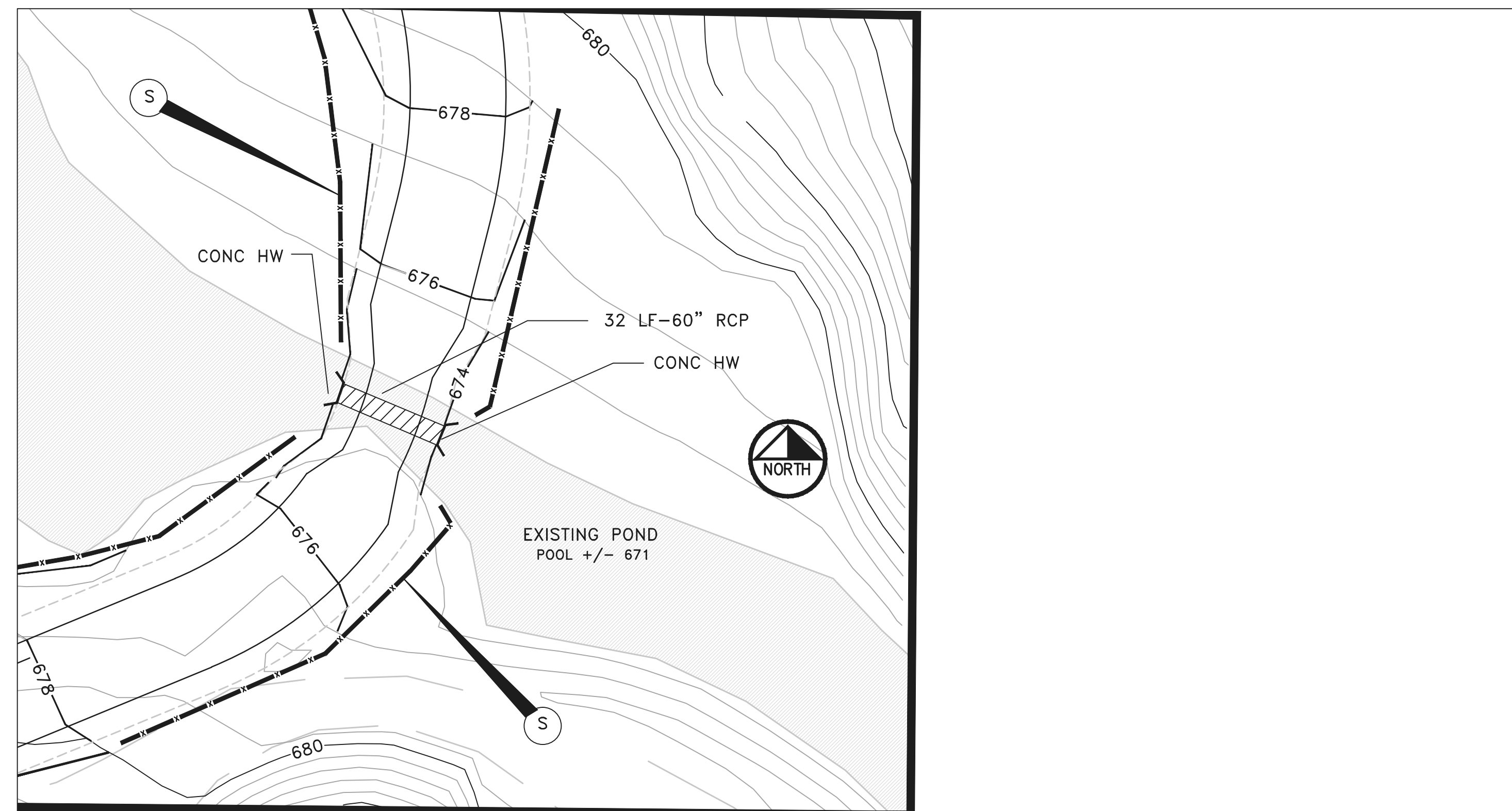
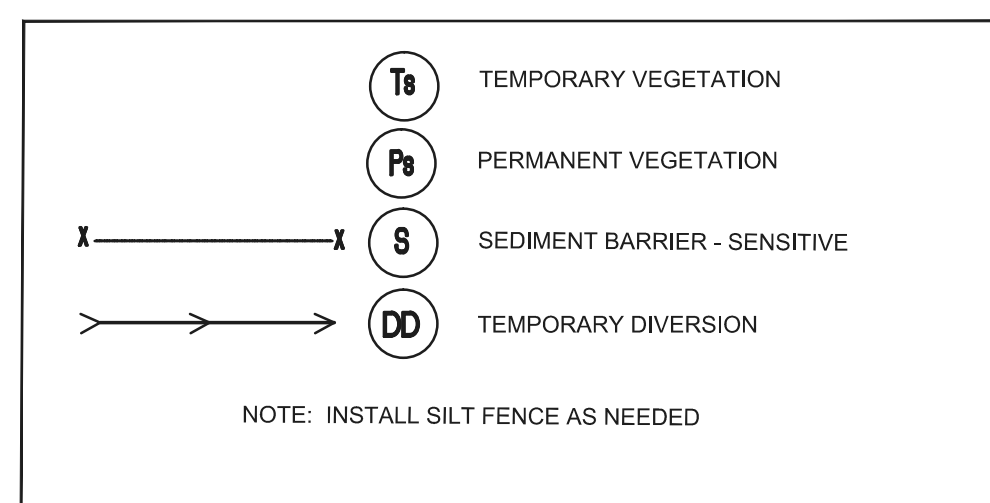
CONSTRUCTION DETAILS

Drawn By: BDJ
 Checked By: DB
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 Date: 5/15/2021
 Drawing Number: 6

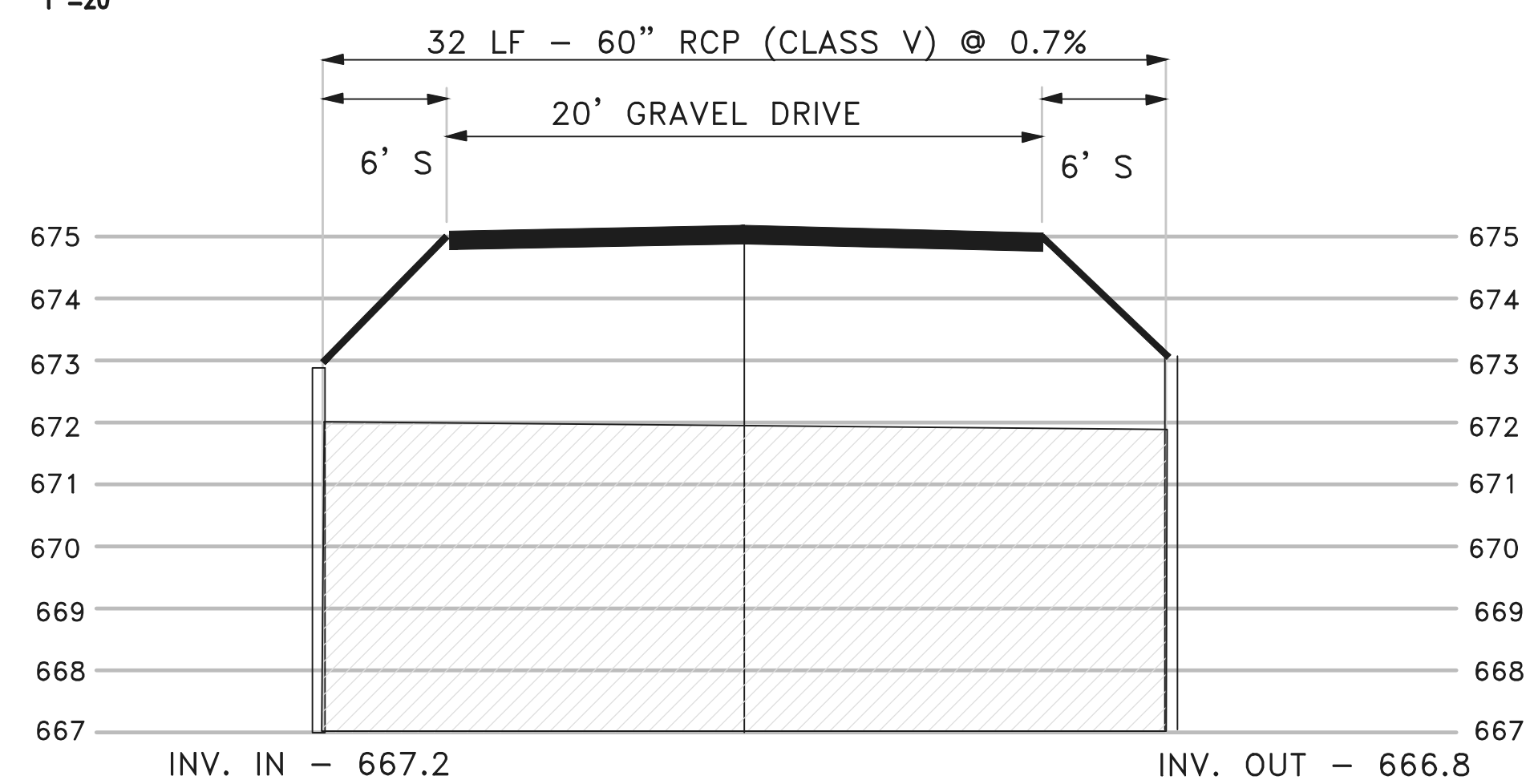
HANSON AGGREGATES SOUTHEAST, LLC
 ANDERSON QUARRY
 ANDERSON COUNTY, SOUTH CAROLINA

BRC Black Rock Consulting, LLC
 SEVEN BIRCHWOOD PARK, SUITE 115 - ATLANTA, GA 30328 - 770-385-6111

EROSION CONTROL LEGEND



CREEK CROSSING
PLAN VIEW
1"=20'



PIPE PROFILE
HORZ. 1"=10'

CONSTRUCTION DETAILS MODIFICATION #5 HANSON AGGREGATES SOUTHEAST, LLC ANDERSON QUARRY ANDERSON COUNTY, SOUTH CAROLINA	Drawn By DB
	Checked By
	Scale AS SHOWN
	Date 5/15/2021
Black Rock Consulting, LLC <small>SEVEN DUNWOODY PARK, SUITE 115 - ATLANTA, GA 30338 - 770-395-6111</small>	Drawing Number 7