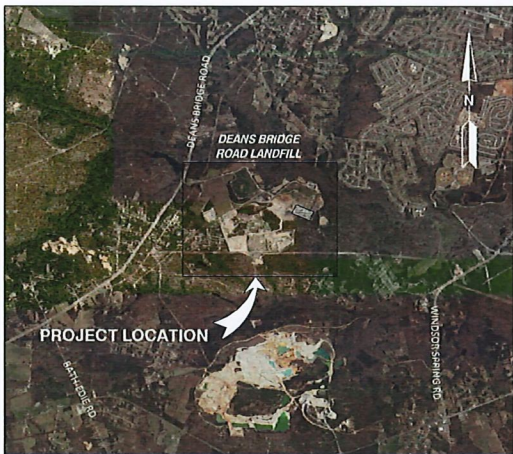


CITY OF AUGUSTA
ENGINEERING & ENVIRONMENTAL SERVICES DEPARTMENT
DEANS BRIDGE ROAD LANDFILL - PHASE III
STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION
BLYTHE, GEORGIA
APRIL 2026



PREPARED FOR:
CITY OF AUGUSTA
ENGINEERING & ENVIRONMENTAL SERVICES
DEPARTMENT
4330 DEANS BRIDGE ROAD
BLYTHE, GEORGIA 30805

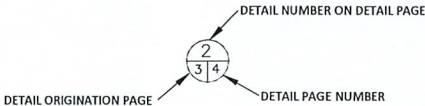


LOCATION MAP

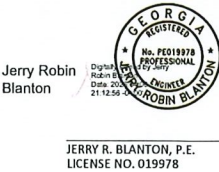
SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
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NOT FOR CONSTRUCTION
4/6/2026



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SITE LIMITATIONS
CITY OF AUGUSTA ENGINEERING &
ENVIRONMENTAL SERVICES DEPARTMENT
PHASE II STAGE II SOUTH PHASE I CELL CONSTRUCTION
PERMIT NUMBER: 121-018D(MSWL)

1. THE AREA CONSIDERED FOR ACCEPTABILITY INCLUDES ONLY THAT AREA LABELED "PROPOSED LANDFILL EXPANSION AREA", WHICH IS ENCLOSED BY THE LINE LABELED "PROPERTY BOUNDARY". THE LINE LABELED "PHASE III BOUNDARY", AND THE "SOUTHERN NATURAL GAS CO. EASEMENT" SHOWN ON JORDAN JONES AND GOULDING, INC'S., FIGURE 2, SITE TOPOGRAPHIC MAP DATED SEPTEMBER 2002.
2. A MINIMUM 500-FOOT BUFFER SHALL BE MAINTAINED BETWEEN THE WASTE DISPOSAL AREA AND ANY ADJACENT RESIDENTIAL STRUCTURES AND/OR WATER SUPPLY WELLS.
3. A MINIMUM 200-FOOT UNDISTURBED BUFFER SHALL BE MAINTAINED BETWEEN THE WASTE DISPOSAL AREA AND THE PROPERTY LINE.
4. NO WASTE SHALL BE PLACED WITHIN 50 FEET OF ANY WETLAND AREAS UNLESS OTHERWISE PERMITTED BY THE U.S. ARMY CORPS OF ENGINEERS.
5. DUE TO THE ERODABILITY OF THE ON-SITE SOILS, WASTE SHALL NOT BE PLACED WITHIN 100 FEET OF ANY STREAMS UNLESS A STREAM BUFFER VARIANCE IS GRANTED BY EPD. IF SUCH A VARIANCE IS GRANTED, ANY STREAM CAPTURING SYSTEMS SHALL INCLUDE DOUBLE LINERS THAT EXTEND AT LEAST 50 FEET FROM THE STREAM IN ALL CAPTURE AREAS.
6. IF, DURING EXCAVATION OF THE SITE, ANY ADDITIONAL SPRINGS OR SEEPS ARE DISCOVERED, EPD SHALL BE NOTIFIED IMMEDIATELY, AND PROTECTIVE DESIGNS SHALL BE INCORPORATED INTO THE FACILITY'S DESIGN AND OPERATIONAL PLANS, SUCH THAT THE SPRING OR SEEP CAN BE CAPTURED, PIPED, AND INCORPORATED INTO THE FACILITY'S GROUNDWATER MONITORING SYSTEM.
7. WASTE SHALL NOT BE PLACED WITHIN THE 100-YEAR FLOODPLAIN OF SPIRIT CREEK.
8. THE BOTTOM OF THE LINER SYSTEM SHALL BE KEPT A MINIMUM OF 5 FEET ABOVE THE SEASONAL HIGH GROUNDWATER ELEVATION. AS THE SEASONAL HIGH GROUNDWATER ELEVATION HAS NOT BEEN DETERMINED FOR THIS SITE, THE BOTTOM OF THE LINER SYSTEM SHALL BE KEPT AT LEAST 15 FEET FROM THE POTENTIOMETRIC CONTOURS. POTENTIOMETRIC MAP (FIGURE. 6) PREPARED BY JORDAN, JONES AND GOULDING, INC., DATED MARCH 2002.
9. AN UNDERDRAIN SYSTEM MUST BE INSTALLED TO ALLEVIATE THE SPRING SEEP OBSERVED NEAR THE AREA LABELED NON-JURISDICTIONAL WATERS ON FIGURE 2. SITE TOPOGRAPHIC MAP. THE UNDERDRAIN SYSTEM MUST BE DESIGNED TO CONTAIN AND TRANSMIT ALL WATERS ASSOCIATED WITH THE SPRING/SEEP. THE OUTFALL OF THE UNDERDRAIN MUST BE SAMPLED AS PART OF THE FACILITY'S GROUNDWATER MONITORING PLAN. IF, DURING CONSTRUCTION OF THE SITE, ANY ADDITIONAL SEEPS, SPRINGS OR OTHER FLOWING WATERS ARE DISCOVERED, EPD MUST BE NOTIFIED IMMEDIATELY AND PROTECTIVE MEASURES MUST BE INCORPORATED IN THE FACILITY'S DESIGN AND OPERATIONAL PLAN, SUCH THAT THE SEEP IS INCORPORATED INTO THE FACILITY'S GROUNDWATER MONITORING SYSTEM.
10. ALL BORINGS/PIEZOMETERS LOCATED IN THE PROPOSED WASTE FOOTPRINT SHALL BE ABANDONED IN ACCORDANCE WITH THE WATER WELL STANDARDS ACT. THE WELL CASING SHALL BE REMOVED, AND THE BORINGS SHALL BE OVERDRILLED AND FILLED WITH A NON-SHRINKING CEMENT/BENTONITE MIXTURE VIA TREMIE PIPE TO WITHIN 10 FEET OF THE MAXIMUM DEPTH OF WASTE. WITHIN 10 FEET OF THE MAXIMUM DEPTH OF WASTE, THE BORING CAN BE FILLED WITH BENTONITE. ANY REMAINING ANNULAR SPACE CAN BE BACKFILLED WITH SOIL CUTTINGS. THE ABANDONMENT OF ALL WELLS SHALL BE SUPERVISED BY A PROFESSIONAL GEOLOGIST (PG) OR PROFESSIONAL ENGINEER (PE) REGISTERED TO PRACTICE IN THE STATE OF GEORGIA. THE SUPERVISING PG/PE SHALL SUBMIT A REPORT OF THE ABANDONMENT TO EPD AND CERTIFY THAT THE BORINGS/PIEZOMETERS WERE ABANDONED IN ACCORDANCE WITH THE WATER WELL STANDARDS ACT.
11. AS THE SITE IS LOCATED WITHIN A SEISMIC IMPACT ZONE, ALL DESIGN ENGINEERING DRAWINGS INCLUDED IN THE DESIGN AND OPERATIONAL PLAN SHALL STIPULATE THAT ALL STRUCTURES ARE ENGINEERED TO WITHSTAND A MAXIMUM HORIZONTAL ACCELERATION OF 0.12g.
12. GROUNDWATER AND METHANE MONITORING SYSTEMS, CONFORMING TO EPD'S RULES OF SOLID WASTE MANAGEMENT AND CURRENT GUIDANCE, SHALL BE INSTALLED AT THE SITE. DEEP WELLS SHALL BE INSTALLED AS PART OF THE GROUNDWATER MONITORING NETWORK. ALSO, THE OUTFLOW OF ANY UNDERDRAINS SHALL BE SAMPLED AS PART OF THE GROUNDWATER MONITORING PLAN. PARTICULAR ATTENTION MUST BE PAID TO THE MONITORING GROUNDWATER IN THE NORTHERN PORTION OF THE PROPOSED SITE, WHICH APPEARS TO BE A SIGNIFICANT GROUNDWATER RECHARGE AREA.
13. ALL EROSION CONTROL MEASURES AND/OR DIVERSION DITCHES SHALL CONFORM TO THE EROSION AND SEDIMENT CONTROL ACT AND BE PROTECTIVE OF SPIRIT CREEK AND ANY ASSOCIATED PERENNIAL OR INTERMITTENT TRIBUTARIES.

GENERAL PROJECT DESCRIPTION:

1. BASIC SITE INFO:
GPS LOCATION OF THE SITE ENTRANCE:
LATITUDE N 33.352658; LONGITUDE W -82.143875. THIS INFORMATION IS ALSO LOCATED ON SHEET 3.
GPS LOCATION OF THE CONSTRUCTION EXIT:
LATITUDE N 33.346344; LONGITUDE W -82.118294. THIS INFORMATION IS ALSO LOCATED ON SHEET 3.
TOTAL SITE ACRES = 1.3142 ACRES
TOTAL DISTURBED ACRES = 11.4 ACRES
PROJECT RECEIVING WATERS = SPIRIT CREEK
2. THERE ARE NO BUFFER ENCROACHMENTS PLANNED FOR THIS PROJECT.
3. SOIL EXCAVATION AND BACKFILL TO ACHIEVE DESIGN BASE GRADES IN CELL 2 PHASE I.
4. RECOVER AND REUSE OF THE EXISTING STORM STRUCTURES AS PART OF THE CONSTRUCTION FOR THE CELL 2 PHASE I.
5. INSTALLATION OF 24 INCHES OF PROTECTIVE COVER AND RAIN TARP.
6. INSTALLATION OF LEACHATE COLLECTION PIPING FOR CELL 2 PHASE I.
7. CONSTRUCTION OF STORMWATER MANAGEMENT CONTROLS INCLUDING CHANNELS, PIPE, OUTLET STRUCTURES ETC.
8. INSTALLATION OF EROSION CONTROL MEASURES INCLUDING: SILT FENCE, CHECK DAMS, TEMPORARY/PERMANENT GRASSING, TEMPORARY/PERMANENT SEDIMENT BASINS, RETROFITS, MATTING, AND BLANKETS.

GENERAL NOTES:

1. JURISDICTIONAL AREAS DELINEATED BY ACC (SURVEYED BY W.R. TOOLE ENGINEERS) FEBRUARY-SEPTEMBER 2002.
2. THE DESIGN AND OPERATION PLAN FOR PHASE III PREPARED BY ACC AND APPROVED IN 2005, WILL SERVE AS THE BASIS FOR THE LAND DISTURBANCE PERMIT FOR THIS PHASE OF CONSTRUCTION.
3. ANY DAMAGE TO EXISTING GAS COLLECTION CONTROL SYSTEM (GCCS) AS A RESULT OF THE CONTRACTOR SHALL BE REPAIRED WITHIN 24 HOURS OF THE DAMAGE BY A QUALIFIED COMPANY APPROVED IN WRITING BY THE OWNER CITY OF AUGUSTA. UPON BID AWARD AND PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE OWNER THE NAME AND COMPANY RESUME OF THE SUBCONTRACTOR PROPOSED FOR REPAIRS TO THE EXISTING GCCS.

4. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION WASTE AND DEBRIS FROM THE PROJECT SITE.
5. THE CONTRACTOR SHALL NOT ENTER BUFFER, RESTORATION, OR RESTRICTED AREAS WITHOUT PRIOR OWNER APPROVAL.
6. LOCATIONS OF UTILITIES AND GAS SYSTEM COMPONENTS ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE UTILITIES AND GAS SYSTEM COMPONENTS PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL PROTECT WETLANDS, BUFFERS, AND WELLS FROM DISTURBANCE. ANY DAMAGE TO MONITORING WELLS OR SYSTEMS RESULTING FROM THE CONTRACTOR'S OPERATION WILL BE REPAIRED OR REPLACED (AT THE OWNER'S DISCRETION) AT THE CONTRACTOR'S EXPENSE.
8. TREE LINES SHOWN ON THE PLAN ARE APPROXIMATE AND MAY NOT REPRESENT ACTUAL CONDITIONS.
9. THE CONTRACTOR SHALL CLEAN ACCUMULATED SEDIMENT FROM ALL AFFECTED EXISTING AND PROPOSED PONDS AT THE DIRECTION OF THE ENGINEER.
10. UNSUITABLE MATERIALS SHALL BE BLENDED INTO COMMON SOILS STOCKPILED AND COORDINATED WITH AUGUSTA SANITATION.
11. CLEARING DEBRIS SHALL BE HAULED TO THE COMPOSTING AREA. STUMPS SHALL BE CLEAN OF DIRT OR THEY SHALL BE PLACED IN THE C&D AREA AND COORDINATED WITH RICHMOND COUNTY SANITATION.
12. IT IS THE CONTRACTORS' RESPONSIBILITY TO VERIFY ALL SOIL PROPERTIES USED FOR STRUCTURAL FILL. SEE SPECIFICATIONS FOR EARTHWORK.
13. ALL STRUCTURAL FILL SHALL BE TAKEN FROM THE SITE BORROW AREA.
14. IT IS THE CONTRACTORS' RESPONSIBILITY TO PROVIDE ANY NPDES SAMPLING. THE COUNTY WILL PROVIDE MONITORING OF EROSION AND SEDIMENT CONTROL DEVICES THROUGH THE COA FIRM WHICH EMPLOYS QUALIFIED E&S INSPECTORS.
15. BOUNDARY INFORMATION FROM THE BOUNDARY SURVEY EXTRACTED FROM THE PHASE III DESIGN AND OPERATION PLAN PREPARED BY ACC, MAKING USE OF THE BOUNDARY SURVEY PREPARED BY W.R. TOOLE ENGINEERS, INC. DATED FEBRUARY 1, 2002, AND REVISED ON SEPTEMBER 3, 2002.
16. TOPOGRAPHIC INFORMATION BASED ON AERIAL PHOTOGRAPHY PROVIDED BY FIRMATEK LLC, DATED JULY 25, 2025.
17. LOCATIONS OF PIEZOMETERS/BORINGS, ROCK OUTCROPS, EXISTING WELLS FROM SHEET 2 OF THE 5-YEAR PERMIT RENEWAL REVISION OF THE DEANS BRIDGE ROAD MSW LANDFILL PHASE III DESIGN & OPERATION PLAN, BY ACC, DATED JULY, 2004.
18. EXCESS MATERIAL SHALL BE PLACED IN THE STOCKPILE AREA INDICATED ON THE DRAWINGS.
19. PROPOSED LANDFILL CELL SLOPES SHALL NOT BE STEEPER THAN 3:1 UNLESS SPECIFIED.
20. SOD SHALL BE USED ON ALL INTERIOR POND SLOPES AND IN ALL GRASSED DITCHES.
21. THE CONTRACTOR SHALL OPERATE STORMWATER PUMPS DURING CONSTRUCTION UNTIL EPD ACCEPTANCE OF CELL CONSTRUCTION.
22. EXISTING GRADES SHOWN REPRESENT THE TOPOGRAPHIC INFORMATION BASED ON AERIAL PHOTOGRAPHY PROVIDED BY FIRMATEK, DATED JULY 25, 2025. PROPOSED GRADES SHOWN WITHIN THE LIMITS OF LINER REPRESENT THE TOP OF THE PRIMARY 60-MIL LINER. PROPOSED GRADES SHOWN OUTSIDE THE LIMITS OF LINER ARE FINISHED GRADES PER THE DETAILS.
23. NECESSARY BARRICADES, SUFFICIENT LIGHTS, SIGNS, AND OTHER TRAFFIC CONTROL METHODS AS MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT. THIS ALSO INCLUDES ANY TRAFFIC CONTROL NECESSARY FROM THE BORROW AREA.
24. PIPING MAY BE DEFLECTED SLIGHTLY AS NECESSARY TO UTILIZE STANDARD FITTINGS, PER MANUFACTURER'S SPECS.
25. NO EQUIPMENT OR MATERIAL STORAGE IS ALLOWED IN GEORGIA POWER EASEMENT, ATLANTA GAS LIGHT EASEMENT, OR SEWER EASEMENT WITHOUT NECESSARY PERMITS.
26. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL LOCATE AND/OR FIELD VERIFY EXISTING MONITORING WELL, BORINGS, PIEZOMETERS, UTILITIES, AND ACCESS ROADS.
27. THIS PROJECT WILL NOT UTILIZE BUILDING MATERIALS AND PRODUCTS. GEOSYNTHETIC MATERIALS ON SITE WILL BE COVERED PER SECTION 3.2 AND 3.4 OF THE TECHNICAL SPECIFICATIONS FOR HDPE POLYETHYLENE GEOMEMBRANE LINER (S02776) AND GEOSYNTHETIC CLAY LINER (S02077), RESPECTIVELY.

GENERAL NOTES FOR BORROW AREA:

1. PROPERTY LINE INFORMATION FROM "DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II CELL 2 PHASE I CONSTRUCTION DRAWINGS", SHEET 3, WAS UPDATED ON SEPTEMBER 3, 2002.
2. NO GRADING SHALL OCCUR WITHIN 25' OF ANY POWER POLES, GUY WIRES, OR ANY OTHER FEATURE ASSOCIATED WITH THE STRUCTURAL SUPPORT OF THE EXISTING POWER LINES. NECESSARY PERMITS ARE REQUIRED.
3. ANY ROCK ENCOUNTERED IN THE BORROW PIT SHALL BE REMOVED BY AN EXCAVATOR OR A DOZER. NO ROCK SHALL BE BLASTED IN THE BORROW PIT AREA. ANY ROCK ENCOUNTERED IN THE BORROW PIT AREA SHALL BE LOCATED AND REPORTED TO THE ENGINEER IMMEDIATELY.

EROSION CONTROL NOTES:

1. CONTRACTOR SHALL NOT BEGIN CLEARING, GRUBBING, OR SEDIMENT PONDS UNTIL AFTER PROPER EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY BE FIELD LOCATED 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 ANY PHASE OF CONSTRUCTION. ANY CHANGES TO THE PROPOSED DRAINAGE PATTERNS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
3. THE LOCATIONS OF EROSION CONTROL DEVICES SHALL BE ADJUSTED AS CONSTRUCTION PROGRESSES IN ORDER TO MAINTAIN A FUNCTIONING EROSION CONTROL SYSTEM.

4. EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES SHALL BE INSTALLED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
5. SEDIMENT AND EROSION CONTROL MEASURES AND PRACTICES SHALL BE INSPECTED AT LEAST WEEKLY, AFTER EACH RAINFALL EVENT, AND REPAIRED AS NECESSARY.
6. EROSION CONTROL DEVICES SHALL BE CLEANED WHEN THEY BECOME HALF FILLED WITH SEDIMENT OR UNLESS SPECIFIED OTHERWISE. SEDIMENT REMOVED SHALL BE MANAGED ON-SITE AND IS THE CONTRACTOR'S RESPONSIBILITY.
7. EROSION CONTROL DEVICES SHALL BE REPAIRED AS NECESSARY TO MAINTAIN A FUNCTIONING EROSION CONTROL SYSTEM AND IS THE CONTRACTOR'S RESPONSIBILITY.
8. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT COVER IS ESTABLISHED AND THEN REMOVED SO THAT DRAINAGE FROM THE SITE IS NOT IMPEDED.
9. STORM WATER DETENTION/SEDIMENT BASIN DEVICES SHALL BE CLEANED, AND STABILIZED AFTER PERMANENT GROUND COVER HAS BEEN ESTABLISHED.
10. ANY DISTURBED AREA TO BE LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING. DISTURBED AREAS IDLE FOR 30 DAYS SHALL BE STABILIZED WITH PERMANENT VEGETATION.
11. ALL DISTURBED AREA WITH SLOPES 3:1 OR FLATTER WHICH ARE NOT STABILIZED BY OTHER MEASURES SHALL BE SEEDED AS SPECIFIED IN THE VEGETATIVE PLAN OR REQUIRED BY ON SITE MANAGEMENT.
12. ALL DISTURBED AREAS TO BE GRASSED AS SOON AS CONSTRUCTION PHASES PERMIT OR REQUIRED BY ON SITE MANAGEMENT TO ENSURE THAT THEIR LOCATION DOES NOT VIOLATE ANY BUFFER REQUIREMENTS.
13. AMENDMENTS/REVISIONS TO THE ES&PC PLANS WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE APPROVED BY THE DESIGN ENGINEER.
14. SEDIMENT PONDS SHALL BE STAKED OUT PRIOR TO ANY CONSTRUCTION ACTIVITY.
15. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITIES.
16. ALL EROSION CONTROL LABELS ARE SHOWN AS TYPICAL.
17. DESIGN GRADES SHOWN WITHIN THE LINER LIMITS ARE TOP OF LINER. ALL OTHER GRADES ARE FINISH GRADES.
18. TRIBUTARY BUFFER OF 25' AND AN ADDITIONAL 50' COUNTY BUFFER IS REQUIRED PER GA EPD.
19. THE COUNTY WILL SUPPLY PONDS, STREAMS, AND OTHER METHODS FOR THE CONTRACTORS USE FOR DUST CONTROL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY 6-INCH PUMPS AND HOSES TO CONNECT TO THE COUNTY'S WATER TOWERS AND WATER LOCATIONS. METERS WILL BE REQUIRED AT ALL LOCATIONS WHERE WATER IS USED. GALLONS OF WATER USED SHALL BE RECORDED AND KEPT ON-SITE FOR THE DURATION OF THE PROJECT FOR REPORTING PURPOSES IF NECESSARY. NO ADDITIONAL METER WILL BE REQUIRED TO BE CONNECTED TO THE COUNTY WATER SYSTEM FOR DUST CONTROL.
20. THE CONTRACTOR SHALL PROTECT WETLANDS, BUFFERS, AND WELLS FROM DISTURBANCE. ANY DAMAGE TO MONITORING WELLS OR SYSTEMS RESULTING FROM THE CONTRACTOR OPERATION WILL BE REPAIRED OR REPLACED (AT THE OWNER'S DISCRETION) AT THE CONTRACTOR'S EXPENSE.
21. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DETERMINED NECESSARY BY ON-SITE INSPECTION.
22. SILT FENCE SHALL MEET THE REQUIREMENTS OF Sd1-S TYPE "C" SILT FENCE AS PER CHAPTER 6 "BMP STANDARDS AND SPECIFICATIONS FOR GENERAL LAND-DISTURBING ACTIVITIES", OF THE EROSION AND SEDIMENT CONTROL MANUAL BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION.
23. NO WASTE WILL BE DISPOSED OF INTO STORM WATER SYSTEM INLETS OR WATERS OF THE STATE WASTE MATERIALS EXCEPT AS AUTHORIZED BY A SECTION 401 PERMIT. ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE WILL BE BURIED ONSITE. ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL. A NOTICE STAKING THESE PRACTICES WILL BE POSTED AT THE JOB SITE AND THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.
24. THE PROJECT CONSTRUCTION ACTIVITY DOES DISCHARGE STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS AN IMPAIRED STREAM SEGMENT. THE SITE DRAINS TO SPIRIT CREEK.
25. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND PUMPING STORMWATER WITHIN LIMITS OF DISTURBANCE DURING THE CONSTRUCTION.

POLLUTION CONTROL AND WASTE DISPOSAL NOTES:

POTENTIAL SOURCES OF POLLUTION THAT MAY AFFECT THE QUALITY OF STORM WATER DISCHARGE FROM THE CONSTRUCTION SITE INCLUDE:
A. OFF-SITE VEHICLE TRACKING OF DIRT, SOILS AND SEDIMENT AND THE GENERATION OF DUST
B. PETROLEUM SPILLS AND LEAKS
PRACTICES TO REDUCE THESE POLLUTANTS DURING CONSTRUCTION INCLUDE THE USE OF A CONSTRUCTION EXIT, TEMPORARY AND PERMANENT VEGETATION. MEASURES THAT WILL BE INSTALLED DURING CONSTRUCTION THAT WILL CONTROL POLLUTANTS IN STORM WATER RUNOFF THAT OCCURS AFTER CONSTRUCTION IS COMPLETE INCLUDE PERMANENT VEGETATION.

PRODUCT SPECIFIC PRACTICES:

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS AN TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AN MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER. NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE SECONDARY CONTAINMENT LINERS TO PREVENT/MINIMIZE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

PAINTS / FINISHES / SOLVENTS - ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING - WASHOUT OF THE CONCRETE TRUCK DRUM ONSITE IS PROHIBITED. WASHOUT OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS, AND THE REAR WHEELS OF VEHICLES SHALL BE HANDLED BY EITHER A PRE-FABRICATED CONCRETE WASHOUT BIN OR A BELOW GRADE SUMP 10'X10' WITH 6" OF FREEBOARD. EITHER BMP SHALL BE LINED WITH 10MIL PLASTIC, OVERLAPPING 4", WITH NO HOLES OR TEARS THAT ALLOW LEAKAGE. A WASHOUT SHOULD BE LOCATED 50' AWAY FROM STORM DRAINS, OPEN DITCHES, OR WATER COURSES. BELOW GRADE WASHOUTS SHALL BE LINED ON THE DOWNSTREAM SIDE WITH HAY BALES.

FERTILIZER / HERBICIDES - THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURERS SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS - NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL CONTAINERS.

HAZARDOUS WASTES - ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL STATE, AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. THE JOB SITE SUPERINTENDENT WHO WILL ALSO BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED, WILL INSTRUCT SITE PERSONNEL IN THESE PRACTICES. MATERIAL SAFETY DATA SHEETS FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. AN MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN THE ESPCP FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS SHEETS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES. THE CONTRACTOR WILL IMPLEMENT THE SPILL PREVENTION CONTROL AND COUNTERMEASURES LISTED WITHIN THIS ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIALS OR HAZARDOUS WASTE WILL BE ALLOWED TO COME IN CONTACT WITH STORMWATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORMWATER DISCHARGE WILL BE CONTAINED ON SITE UNTIL APPROPRIATE MEASURES IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORMWATER. IT SHALL BE THE RESPONSIBILITY OF THE JOB SITE SUPERINTENDENT TO PROPERLY TRAIN ALL PERSONNEL IN THE USE OF THE SPILL PREVENTION CONTROL AND COUNTERMEASURES FOR ALL HAZARDOUS MATERIALS AND WASTE ON THE SITE.

SANITARY WASTES - A MINIMUM OF ONE PORTABLE SANITARY UNIT WILL BE PROVIDED FOR EVERY TEN (10) WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLETE COMPLIANCE WITH LOCAL AND STATE REGULATIONS.

ALL SANITARY SEWER WASTE UNITS WILL BE LOCATED IN ONE AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORM WATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMP'S MUST BE IMPLEMENTED, SUCH AS GRAVEL BAGS OR SPECIALLY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASE TO PREVENT WASTES FROM CONTRIBUTING TO STORM WATER DISCHARGES. THE LOCATION OF SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE EROSION CONTROL PLAN GRADING PHASE SHEET BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED.

SILT FENCE MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBING ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED.

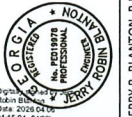
THE ENTIRE SITE IS WITHIN THE SAME ULTIMATE DRAINAGE BASIN. THE DRAINAGE BASIN DOES NOT COME IN CONTACT WITH THE PROPOSED CONSTRUCTION. THE POST CONSTRUCTION DRAINAGE AREA FOR THE SITE FLOWS TO SPIRIT CREEK.

CONSTRUCTION DETAIL GENERAL NOTES:

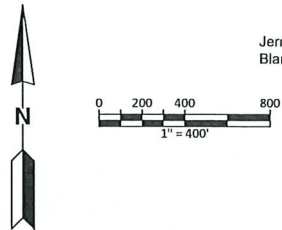
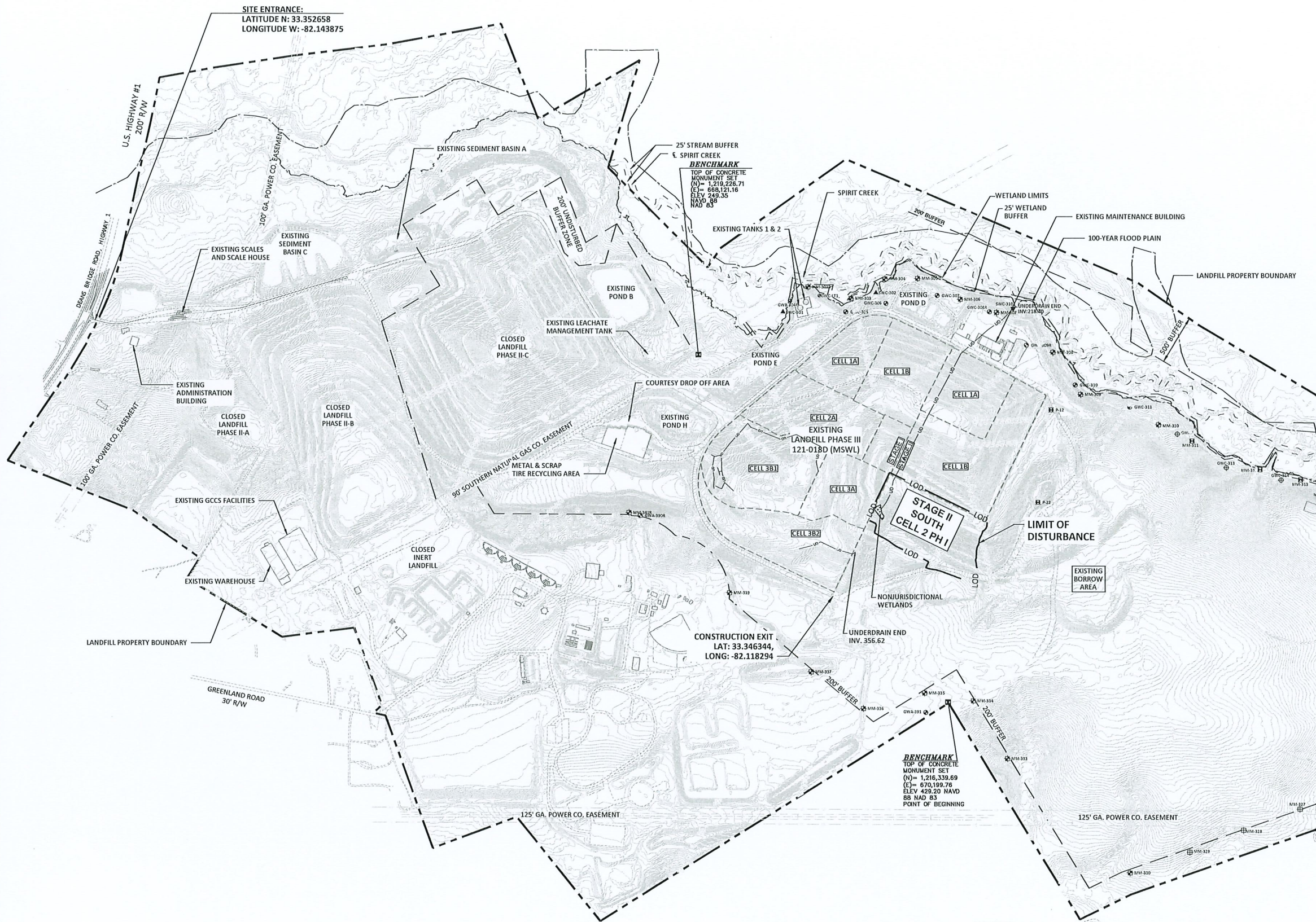
1. HEAVY VEHICULAR TRAFFIC ON THE EXISTING GEOMEMBRANE LINER OR RAIN TARP IS NOT PERMITTED. RUBBER-TIRED ATVS AND TRUCKS ARE PERMITTED IF WHEEL CONTACT IS A MAXIMUM OF 5 PSI.
2. THE PROTECTIVE COVER OR DRAINAGE SAND LAYER SHALL BE PLACED BY LIGHT, WIDE-TRACKED EQUIPMENT HAVING A MAXIMUM CONTACT OF 5 PSI ON A MINIMUM OF 2 FEET OF PROTECTIVE COVER. ONLY NOMINAL COMPACTION SHALL BE APPLIED TO THE DRAINAGE LAYER. OVER COMPACTION DUE TO EQUIPMENT TRAFFIC MUST BE AVOIDED. CARE MUST BE EXERCISED TO ELIMINATE ANY POSSIBILITY OF DAMAGE TO THE GEOSYNTHETICS DURING LINE PROTECTIVE COVER LAYER PLACEMENT. WRINKLES NOTED IN THE GEOSYNTHETICS DURING DRAINAGE LAYER PLACEMENT SHOULD BE RELAXED AND CORRECTED TO THE ENGINEER'S SATISFACTION.
3. ANY DAMAGE TO THE EXISTING GEOSYNTHETICS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
4. CONTRACTOR SHALL NOT PUSH PROTECTIVE COVER SAND/DRAINAGE MATERIAL DOWNHILL DURING CONSTRUCTION.
5. UV-RESISTANT SAND BAGS SHALL BE SPACED AT INTERVALS ON A 50-FOOT BY 50-FOOT GRID AND ON A MINIMUM 10-FOOT SPACING ALONG PANEL OVERLAPS AND PANEL EDGES.
6. NO EQUIPMENT SHALL BE ALLOWED TO OPERATE ON THE RAIN TARP, AND ANY TEARS OR DAMAGE TO THE RAIN TARP SHALL BE REPAIRED PRIOR TO PLACEMENT. THE SURFACE OF THE RAIN TARP SHALL BE KEPT RELATIVELY CLEAN AND FREE OF DEBRIS DURING INSTALLATION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING STORMWATER RUNOFF FROM THE ADJACENT LANDFILL SLOPES THROUGH THE USE OF BERMS, DIKES, SWALES, OR OTHER ACCEPTABLE METHODS TO DIRECT STORMWATER AWAY FROM CONSTRUCTION AREAS TO AREAS WHERE THE CONTRACTOR SHALL REMOVE STORMWATER THROUGH THE USE OF TEMPORARY PUMPS OR OTHER MEANS AND METHODS AS DETERMINED BY THE CONTRACTOR.
8. ANY DAMAGE TO THE EXISTING SITE MONITORING WELLS AND GCCS COMPONENTS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

SURVEY NOTE:
EXISTING CONDITIONS BASED OFF AN AERIAL SURVEY PROVIDED BY SOUTHERN RESOURCES MAPPING LLC, DATED JULY 27 2025. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.

ISSUED FOR BID
NOT FOR CONSTRUCTION
4/6/2026

 Jerry Robin Blanton		CHK BY	JRB						
DESCRIPTION		ISSUED FOR BID							
DATE		04/06/26							
REV		A							
GENERAL NOTES		DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION							
SHEET TITLE		AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805							
CLIENT		SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH: 678 519-8869 PROJ NO: 121050.30 DATE: 04/06/26							
CADD FILE:		02 NOTES							
DATE:		APRIL 2026							
SCALE:		AS SHOWN							
DRAWING NO.									
SHEET		2 of 21							

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Jerry Robin Blanton



LEGEND

- PROPERTY BOUNDARY
- CELL BOUNDARY
- STAGE BOUNDARY
- MAJOR AND MINOR CONTOURS
- SPIRIT CREEK
- 25-FOOT CREEK BUFFER
- 100 YEAR FLOOD PLAIN LINE
- 200-FOOT PROPERTY BUFFER
- ROADS
- GAS
- GAS LINE EASEMENT
- LIMIT OF PROPOSED CELL
- LIMIT OF CONSTRUCTION / LIMIT OF DISTURBANCE
- APPROXIMATE STOCKPILE AREA
- UE
- UTILITY LINE EASEMENT
- UD
- EXISTING UNDERDRAIN (SEE NOTES)
- GWA-330R
- MM-341R
- P-25
- SWC-302
- GROUNDWATER MONITORING WELLS
- METHANE MONITORING WELLS
- PIEZOMETER BORINGS
- SURFACE WATER MONITORING POINT

NOTES:

- AERIAL TOPOGRAPHIC SURVEY BY FIRMATEK LLC, DATED JULY 25, 2025, CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.
- CARE SHALL BE TAKEN TO AVOID DAMAGING EXISTING FEATURES AND STRUCTURES DURING CONSTRUCTION ACTIVITIES, INCLUDING EXISTING GCCS COMPONENTS, TRAFFIC SIGNS, LITTER FENCE, ETC. IF ANY DAMAGE IS MADE DUE TO CONTRACTOR ACTIVITIES, CONTRACTOR SHALL RESTORE THE DAMAGED STRUCTURE TO PRE-CONSTRUCTION CONDITIONS AT NO COST TO THE CLIENT.
- ANY STORMWATER DITCH OR CULVERT SHALL BE RETURNED TO ITS ORIGINAL STATE BY THE CONTRACTOR IF DISTURBED DURING CONSTRUCTION.
- THE EXISTING STAGE II UNDER DRAIN PIPE ALIGNMENT SHOWN WAS OBTAINED FROM AS-BUILT SURVEY DRAWINGS PREPARED BY DESIGN PROJECT SURVEYORS, TITLE 'AREA A AS-BUILT' AND STAGE 2 FINAL AS-BUILT, DATED NOVEMBER 2010.
- EXISTING CELL 3B UNDER DRAIN SHOWN WAS OBTAINED FROM AS-BUILT SURVEY BY JAMES G. SWIFT & ASSOCIATES CONSULTING ENGINEERS, TITLE 'UNDER DRAIN ASBUILT FOR DEANS BRIDGE ROAD LANDFILL AREA 3B', DATED AUGUST 12, 2019.

EXISTING CONDITIONS

DEANS BRIDGE ROAD LANDFILL
PHASE III STAGE II SOUTH CELL 2
PHASE I CONSTRUCTION

AUGUSTA-RICHMOND COUNTY LANDFILL
4330 DEANS BRIDGE RD
BLYTHE, GEORGIA 30805

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3175 SATELLITE BLVD, BLDG 600 SUITE 100
DULUTH, GA 30096
PH: 678 919-8889
FAX: 678 919-8890

CADD FILE: 03 EX-CON

DATE: APRIL 2026

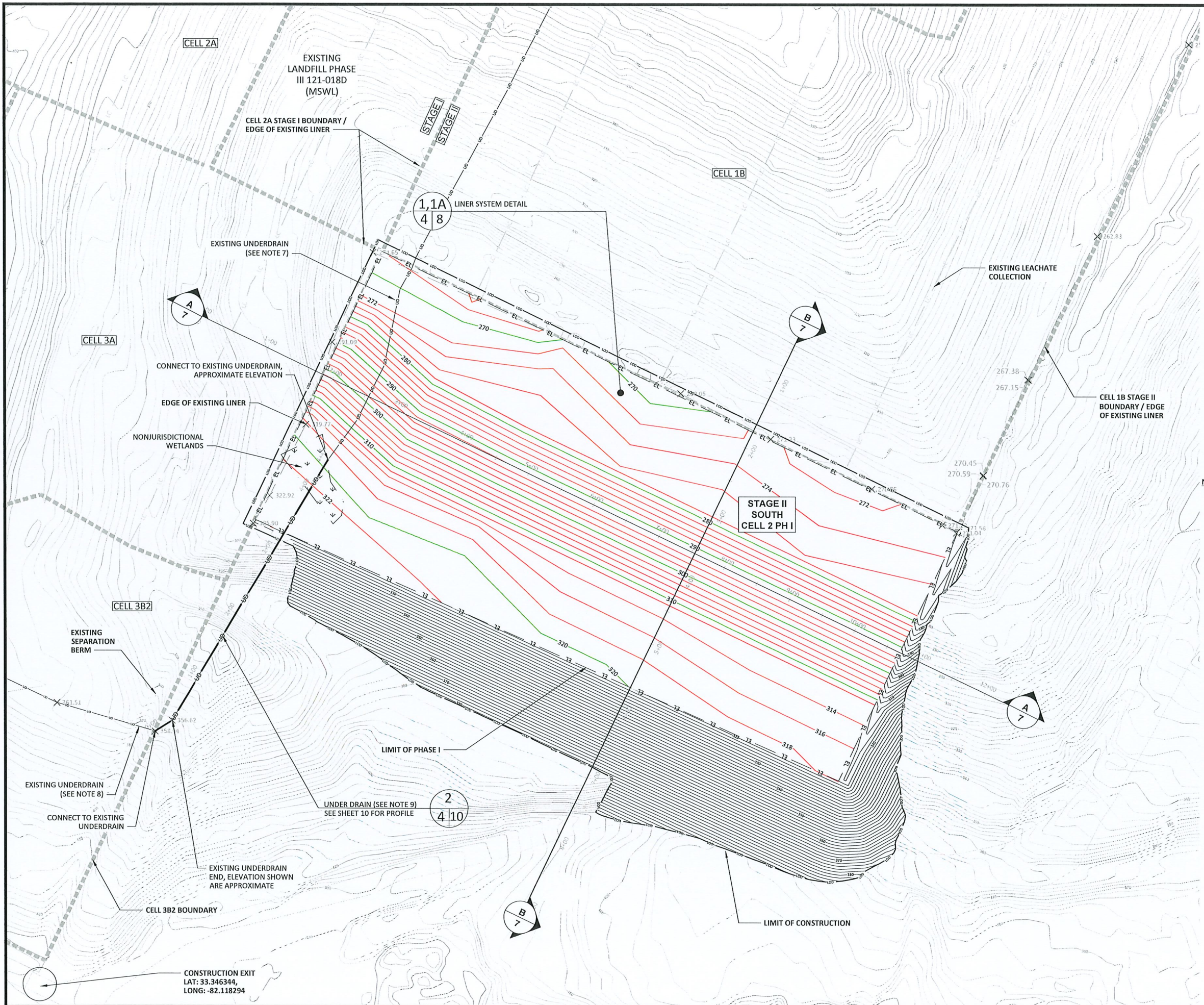
SCALE: AS SHOWN

DRAWING NO.

SHEET 3 of 21

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4/6/2026

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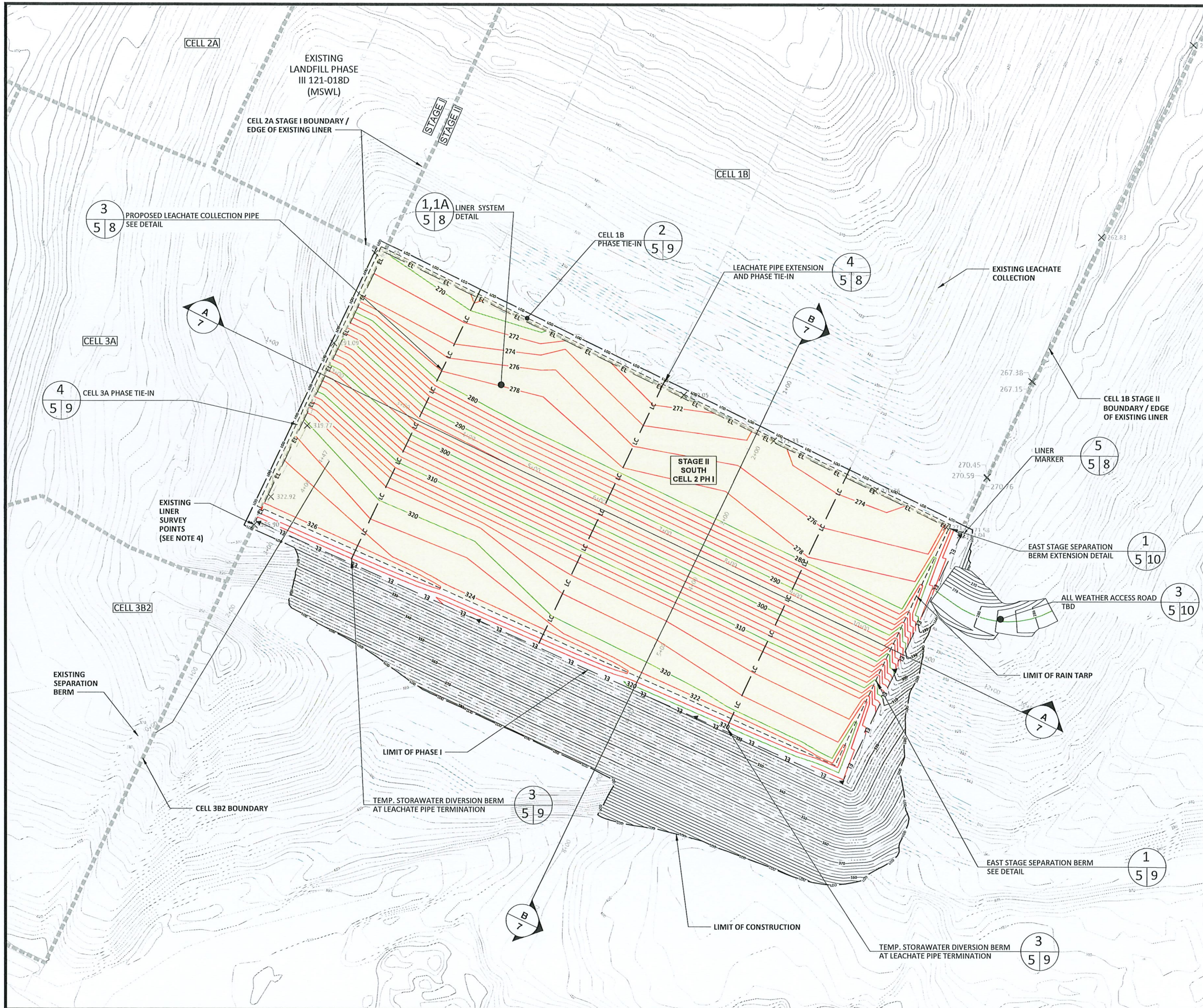
- LEGEND**
- EDGE OF EXISTING LINER
 - LIMITS OF DISTURBANCE
 - CELL BOUNDARY
 - MAJOR AND MINOR CONTOURS
 - ROADS
 - EXISTING LEACHATE COLLECTION
 - EXISTING LFG LINE
 - EXISTING LFG EXTRACTION WELLS
 - EXISTING STORM DRAIN
 - LIMITS OF PHASE I
 - PROPOSED BASE GRADES
 - PROPOSED GRADES
 - PROPOSED UNDER DRAIN

- NOTES:**
- AERIAL TOPOGRAPHIC SURVEY BY FIRMATEK LLC, DATED JULY 25, 2025. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.
 - PROPOSED GRADES ARE TOP OF COMPACTED SOIL (CLAY LINER)
 - CARE SHALL BE TAKEN TO AVOID DAMAGING EXISTING FEATURES AND STRUCTURES DURING CONSTRUCTION ACTIVITIES, INCLUDING EXISTING GCCS COMPONENTS, TRAFFIC SIGNS, LITTER FENCE, ETC. IF ANY DAMAGE IS MADE DUE TO CONTRACTOR ACTIVITIES, CONTRACTOR SHALL RESTORE THE DAMAGED STRUCTURE TO PRE-CONSTRUCTION CONDITIONS AT NO COST TO THE CLIENT.
 - ANY STORMWATER DITCH OR CULVERT SHALL BE RETURNED TO ITS ORIGINAL STATE BY THE CONTRACTOR IF DISTURBED DURING CONSTRUCTION.
 - EXISTING LINER SURVEY POINTS COMPLETED BY MORGAN CORP., DATED AUGUST 8, 2025. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.
 - CELL 3A AS-BUILT SURVEY COMPLETED BY JAMES G. SWIFT & ASSOCIATES CONSULTING ENGINEERS, DATED DECEMBER 19, 2018, AND CELL 1B AS-BUILT SURVEY COMPLETED BY DAVID L. GARRISON DESIGN PROJECTS SURVEYORS, DATED JULY 29, 2010. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.
 - THE EXISTING STAGE II UNDER DRAIN PIPE ALIGNMENT SHOWN WAS OBTAINED FROM AS-BUILT SURVEY DRAWINGS PREPARED BY DESIGN PROJECT SURVEYORS, TITLE "AREA A AS-BUILT" AND STAGE 2 FINAL AS-BUILT, DATED NOVEMBER 2010.
 - EXISTING CELL 3B UNDER DRAIN SHOWN WAS OBTAINED FROM AS-BUILT SURVEY BY JAMES G. SWIFT & ASSOCIATES CONSULTING ENGINEERS, TITLE "UNDER DRAIN AS-BUILT FOR DEANS BRIDGE ROAD LANDFILL AREA 3B", DATED AUGUST 12, 2019.
 - CONTRACTOR TO FIELD LOCATE EXISTING UNDER DRAIN IN STAGE II AND CELL 3B. WHEN LOCATED, INSTALL PROPOSED UNDER DRAIN TO CONNECT UNDER DRAIN IN CELL 3B AND STAGE II.
 - IF, DURING EXCAVATION OF THE SITE, ANY ADDITIONAL SPRINGS OR SEEPS ARE DISCOVERED, EPO SHALL BE NOTIFIED IMMEDIATELY, AND PROTECTIVE DESIGNS SHALL BE INCORPORATED INTO THE FACILITY'S DESIGN AND OPERATIONAL PLANS, SUCH THAT THE SPRING OR SEEP CAN BE CAPTURED, PIPED, AND INCORPORATED INTO THE FACILITY'S GROUNDWATER MONITORING SYSTEM.

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4/6/2026

		CHK BY	JRB
DESCRIPTION		ISSUED FOR BID	
DATE		04/06/26	
REV			
SHEET TITLE		BASE GRADING PLAN	
PROJECT TITLE		DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION	
CLIENT		AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805	
SCS ENGINEERS STEARN, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH: 678 919-9849		DATE	APRIL 2026
CADD FILE: 04 BASE GRADE		SCALE:	AS SHOWN
DRAWING NO.		SHEET	4 of 21

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- NOTES:
- AERIAL TOPOGRAPHIC SURVEY BY FIRMATEK LLC, DATED JULY 25, 2025. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.
 - PROPOSED GRADES ARE TOP OF PROTECTIVE COVER.
 - CARE SHALL BE TAKEN TO AVOID DAMAGING EXISTING FEATURES AND STRUCTURES DURING CONSTRUCTION ACTIVITIES, INCLUDING EXISTING GCS COMPONENTS, TRAFFIC SIGNS, LITTER FENCE, ETC. IF ANY DAMAGE IS MADE DUE TO CONTRACTOR ACTIVITIES, CONTRACTOR SHALL RESTORE THE DAMAGED STRUCTURE TO PRE-CONSTRUCTION CONDITIONS AT NO COST TO THE CLIENT.
 - ANY STORMWATER DITCH OR CULVERT SHALL BE RETURNED TO ITS ORIGINAL STATE BY THE CONTRACTOR IF DISTURBED DURING CONSTRUCTION.
 - EXISTING LINER SURVEY POINTS COMPLETED BY MORGAN CORP., DATED AUGUST 8, 2025. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.
 - CELL 3A AS-BUILT SURVEY COMPLETED BY JAMES G. SWIFT & ASSOCIATES CONSULTING ENGINEERS, DATED DECEMBER 19, 2018, AND CELL 1B AS-BUILT SURVEY COMPLETED BY DAVID L. GARRISON DESIGN PROJECTS SURVEYORS, DATED JULY 29, 2010. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.

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4/6/2026

Jerry Robin Blanton



CHK	BY	DATE	REV
	JRB	04/06/26	1

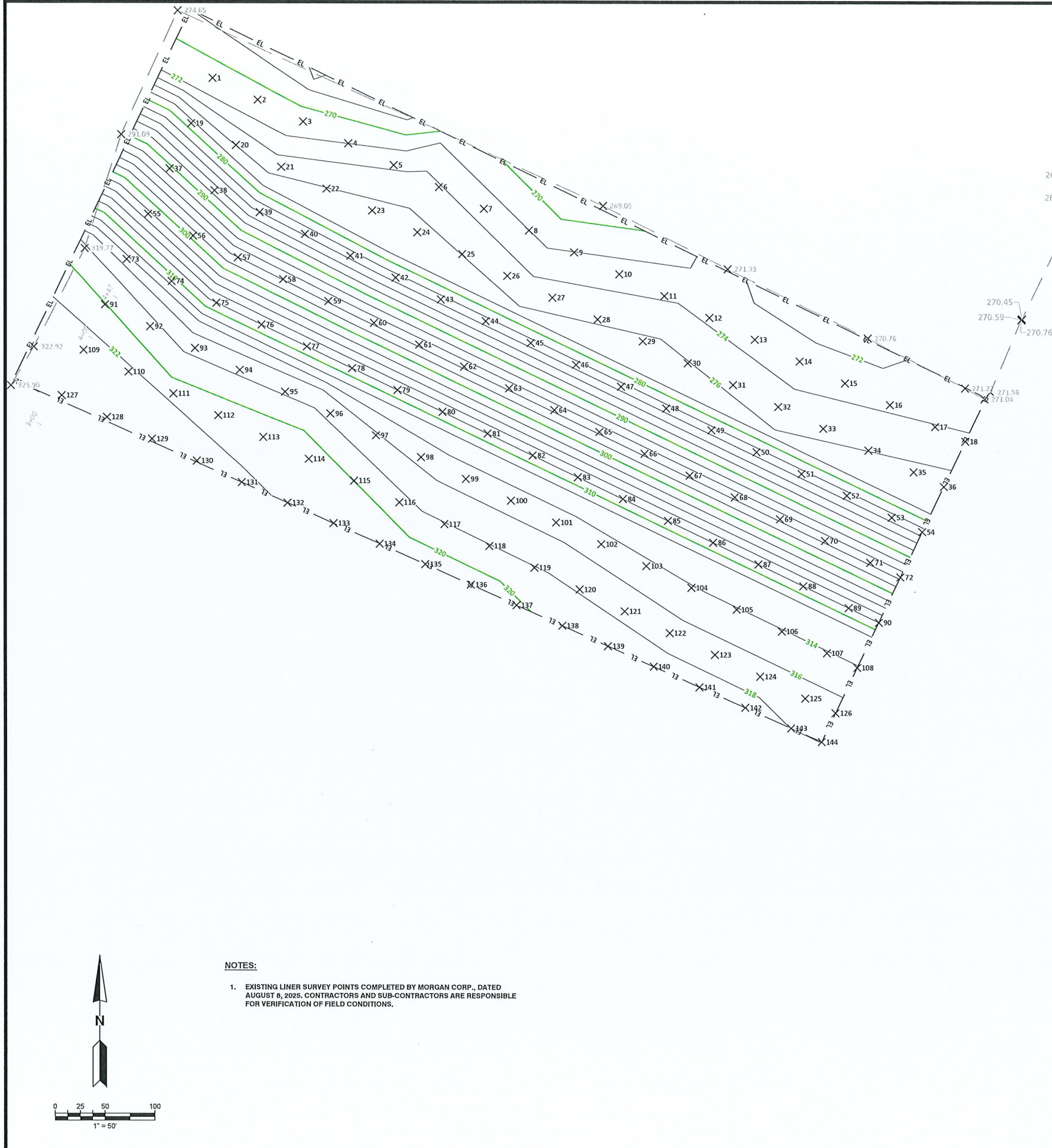
SHEET TITLE	PROJECT TITLE
PROTECTIVE COVER GRADING PLAN	DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION

CLIENT
AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD., BLDG 600 SUITE 100 DULUTH, GA 30096 PH: 678 519-9869 FAX: 678 519-9869

CADD FILE:	DATE:	SCALE:	DRAWING NO.
05 PROTECTIVE COVER	APRIL 2026	AS SHOWN	
SHEET	5	of 21	

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NOTES:
1. EXISTING LINER SURVEY POINTS COMPLETED BY MORGAN CORP., DATED AUGUST 8, 2025. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.

Point Table				Point Table			
Point #	Northing	Eastng	Elevation	Row Description	Point #	Northing	Eastng
1	1218164.4554	669739.0081	271.005	TOP OF CLAY LINER	73	1217984.1001	669652.5676
2	1218142.8453	669784.0969	270.878	TOP OF CLAY LINER	74	1217962.4900	669697.6564
3	1218121.2352	669829.1857	270.909	TOP OF CLAY LINER	75	1217940.8799	669742.7452
4	1218099.6251	669874.2746	271.981	TOP OF CLAY LINER	76	1217919.2697	669787.8340
5	1218078.0149	669919.3634	273.535	TOP OF CLAY LINER	77	1217897.6596	669832.9229
6	1218056.4048	669964.4522	274.147	TOP OF CLAY LINER	78	1217876.0495	669878.0117
7	1218034.7947	670009.5410	273.107	TOP OF CLAY LINER	79	1217854.4394	669923.1005
8	1218013.1845	670054.6299	272.034	TOP OF CLAY LINER	80	1217832.8292	669968.1894
9	1217991.5744	670099.7187	272.035	TOP OF CLAY LINER	81	1217811.2191	670013.2782
10	1217969.9643	670144.8075	272.943	TOP OF CLAY LINER	82	1217789.6090	670058.3670
11	1217948.3542	670189.8963	273.744	TOP OF CLAY LINER	83	1217767.9988	670103.4558
12	1217926.7440	670234.9852	273.749	TOP OF CLAY LINER	84	1217746.3887	670148.5447
13	1217905.1339	670280.0740	273.310	TOP OF CLAY LINER	85	1217724.7786	670193.6335
14	1217883.5238	670325.1628	272.986	TOP OF CLAY LINER	86	1217703.1685	670238.7223
15	1217861.9136	670370.2517	273.221	TOP OF CLAY LINER	87	1217681.5583	670283.8111
16	1217840.3035	670415.3405	273.677	TOP OF CLAY LINER	88	1217659.9482	670328.9000
17	1217818.6934	670460.4293	274.122	TOP OF CLAY LINER	89	1217638.3381	670373.9888
18	1217804.2024	670490.6642	274.458	TOP OF CLAY LINER	90	1217623.8471	670404.2237
19	1218119.3666	669717.3979	278.721	TOP OF CLAY LINER	91	1217599.0113	669630.9574
20	1218097.7565	669762.4868	275.961	TOP OF CLAY LINER	92	1217917.4012	669676.0463
21	1218076.1464	669807.5756	275.132	TOP OF CLAY LINER	93	1217895.7910	669721.1351
22	1218054.5362	669852.6644	276.079	TOP OF CLAY LINER	94	1217874.1809	669766.2239
23	1218032.9261	669897.7533	276.552	TOP OF CLAY LINER	95	1217852.5708	669811.3127
24	1218011.3160	669942.8421	276.597	TOP OF CLAY LINER	96	1217830.9607	669856.4016
25	1217989.7058	669987.9309	275.949	TOP OF CLAY LINER	97	1217809.3505	669901.4904
26	1217968.0957	670033.0197	275.105	TOP OF CLAY LINER	98	1217787.7404	669946.5792
27	1217946.4856	670078.1086	275.048	TOP OF CLAY LINER	99	1217766.1303	669991.6681
28	1217924.8755	670123.1974	275.735	TOP OF CLAY LINER	100	1217744.5201	670036.7569
29	1217903.2653	670168.2862	276.348	TOP OF CLAY LINER	101	1217722.9100	670081.8457
30	1217881.6552	670213.3750	276.126	TOP OF CLAY LINER	102	1217701.2999	670126.9345
31	1217860.0451	670258.4639	275.574	TOP OF CLAY LINER	103	1217679.6898	670172.0234
32	1217838.4349	670303.5527	275.092	TOP OF CLAY LINER	104	1217658.0796	670217.1122
33	1217816.8248	670348.6415	275.447	TOP OF CLAY LINER	105	1217636.4695	670262.2010
34	1217795.2147	670393.7304	275.959	TOP OF CLAY LINER	106	1217614.8594	670307.2898
35	1217773.6046	670438.8192	276.508	TOP OF CLAY LINER	107	1217593.2492	670352.3787
36	1217759.1136	670469.0541	276.753	TOP OF CLAY LINER	108	1217578.7583	670382.6136
37	1218074.2778	669695.7878	290.695	TOP OF CLAY LINER	109	1217893.9225	669609.3473
38	1218052.6677	669740.8766	287.107	TOP OF CLAY LINER	110	1217872.3123	669654.4361
39	1218031.0575	669785.9655	284.069	TOP OF CLAY LINER	111	1217850.7022	669699.5250
40	1218009.4474	669831.0543	283.677	TOP OF CLAY LINER	112	1217829.0921	669744.6138
41	1217987.8373	669876.1431	283.273	TOP OF CLAY LINER	113	1217807.4820	669789.7026
42	1217966.2271	669921.2320	282.996	TOP OF CLAY LINER	114	1217785.8718	669834.7914
43	1217944.6170	669966.3208	282.996	TOP OF CLAY LINER	115	1217764.2617	669879.8803
44	1217923.0069	670011.4096	282.996	TOP OF CLAY LINER	116	1217742.6516	669924.9691
45	1217901.3968	670056.4984	282.996	TOP OF CLAY LINER	117	1217721.0414	669970.0579
46	1217879.7866	670101.5873	282.996	TOP OF CLAY LINER	118	1217699.4313	670015.1467
47	1217858.1765	670146.6761	282.996	TOP OF CLAY LINER	119	1217677.8212	670060.2356
48	1217836.5664	670191.7649	282.996	TOP OF CLAY LINER	120	1217656.2111	670105.3244
49	1217814.9562	670236.8537	282.996	TOP OF CLAY LINER	121	1217634.6009	670150.4132
50	1217793.3461	670281.9426	282.996	TOP OF CLAY LINER	122	1217612.9908	670195.5021
51	1217771.7360	670327.0314	282.996	TOP OF CLAY LINER	123	1217591.3807	670240.5909
52	1217750.1259	670372.1202	282.996	TOP OF CLAY LINER	124	1217569.7705	670285.6797
53	1217728.5157	670417.2091	282.996	TOP OF CLAY LINER	125	1217548.1604	670330.7685
54	1217714.0248	670447.4439	282.996	TOP OF CLAY LINER	126	1217533.6852	670360.9706
55	1218029.1890	669674.1777	302.666	TOP OF CLAY LINER	127	1217848.8336	669587.7372
56	1218007.5788	669719.2665	299.081	TOP OF CLAY LINER	128	1217827.2235	669632.8260
57	1217985.9687	669764.3553	296.074	TOP OF CLAY LINER	129	1217805.6134	669677.9148
58	1217964.3586	669809.4442	295.863	TOP OF CLAY LINER	130	1217784.0033	669723.0037
59	1217942.7484	669854.5330	295.645	TOP OF CLAY LINER	131	1217762.5003	669768.1438
60	1217921.1383	669899.6218	295.496	TOP OF CLAY LINER	132	1217742.1663	669813.8443
61	1217899.5282	669944.7107	295.496	TOP OF CLAY LINER	133	1217721.8322	669859.5447
62	1217877.9181	669989.7995	295.496	TOP OF CLAY LINER	134	1217701.4981	669905.2451
63	1217856.3079	670034.8883	295.496	TOP OF CLAY LINER	135	1217681.1641	669950.9455
64	1217834.6978	670079.9771	295.496	TOP OF CLAY LINER	136	1217660.8300	669996.6460
65	1217813.0877	670125.0660	295.496	TOP OF CLAY LINER	137	1217640.4960	670042.3464
66	1217791.4775	670170.1548	295.496	TOP OF CLAY LINER	138	1217620.1619	670088.0468
67	1217769.8674	670215.2436	295.496	TOP OF CLAY LINER	139	1217599.8279	670133.7472
68	1217748.2573	670260.3324	295.496	TOP OF CLAY LINER	140	1217579.4938	670179.4477
69	1217726.6472	670305.4213	295.496	TOP OF CLAY LINER	141	1217559.1598	670225.1481
70	1217705.0370	670350.5101	295.496	TOP OF CLAY LINER	142	1217538.8257	670270.8485
71	1217683.4269	670395.5989	295.496	TOP OF CLAY LINER	143	1217518.4917	670316.5411
72	1217668.9360	670425.8338	295.496	TOP OF CLAY LINER	144	1217504.8987	670347.0990

Point Table				Point Table			
Point #	Northing	Eastng	Elevation	Row Description	Point #	Northing	Eastng
73	1217984.1001	669652.5676	314.721	TOP OF CLAY LINER	74	1217962.4900	669697.6564
75	1217940.8799	669742.7452	308.071	TOP OF CLAY LINER	76	1217919.2697	669787.8340
77	1217897.6596	669832.9229	308.015	TOP OF CLAY LINER	78	1217876.0495	669878.0117
79	1217854.4394	669923.1005	307.996	TOP OF CLAY LINER	80	1217832.8292	669968.1894
81	1217811.2191	670013.2782	307.996	TOP OF CLAY LINER	82	1217789.6090	670058.3670
83	1217767.9988	670103.4558	307.996	TOP OF CLAY LINER	84	1217746.3887	670148.5447
85	1217724.7786	670193.6335	307.996	TOP OF CLAY LINER	86	1217703.1685	670238.7223
87	1217681.5583	670283.8111	307.996	TOP OF CLAY LINER	88	1217659.9482	670328.9000
89	1217638.3381	670373.9888	307.996	TOP OF CLAY LINER	90	1217623.8471	670404.2237
91	1217599.0113	669630.9574	320.051	TOP OF CLAY LINER	92	1217917.4012	669676.0463
93	1217895.7910	669721.1351	317.254	TOP OF CLAY LINER	94	1217874.1809	669766.2239
95	1217852.5708	669811.3127	317.671	TOP OF CLAY LINER	96	1217830.9607	669856.4016
97	1217809.3505	669901.4904	316.216	TOP OF CLAY LINER	98	1217787.7404	669946.5792
99	1217766.1303	669991.6681	314.996	TOP OF CLAY LINER	100	1217744.5201	670036.7569
101	1217722.9100	670081.8457	314.982	TOP OF CLAY LINER	102	1217701.2999	670126.9345
103	1217679.6898	670172.0234	314.426	TOP OF CLAY LINER	104	1217658.0796	670217.1122
105	1217636.4695	670262.2010	314.119	TOP OF CLAY LINER	106	1217614.8594	670307.2898
107	1217593.2492	670352.3787	314.121	TOP OF CLAY LINER	108	1217578.7583	670382.6136
109	1217893.9225	669609.3473	322.503	TOP OF CLAY LINER	110	1217872.3123	669654.4361
111	1217850.7022	669699.5250	321.127	TOP OF CLAY LINER	112	1217829.0921	669744.6138
113	1217807.4820	669789.7026	320.753	TOP OF CLAY LINER	114	1217785.8718	669834.7914
115	1217764.2617	669879.8803	319.954	TOP OF CLAY LINER	116	1217742.6516	669924.9691
117	1217721.0414	669970.0579	318.123	TOP OF CLAY LINER	118	1217699.4313	670015.1467
119	1217677.8212	670060.2356	318.068	TOP OF CLAY LINER	120	1217656.2111	670105.3244
121	1217634.6009	670150.4132	317.386	TOP OF CLAY LINER	122	1217612.9908	670195.5021
123	1217591.3807	670240.5909	316.948	TOP OF CLAY LINER	124	1217569.7705	670285.6797
125	1217548.1604	670330.7685	316.687	TOP OF CLAY LINER	126	1217533.6852	670360.9706
127	1217848.8336	669587.7372	323.816	TOP OF CLAY LINER	128	1217827.2235	669632.8260
129	1217805.6134	669677.9148	323.701	TOP OF CLAY LINER	130	1217784.0033	669723.0037
131	1217762.5003	669768.1438	323.223	TOP OF CLAY LINER	132	1217742.1663	669813.8443
133	1217721.8322	669859.5447	321.896	TOP OF CLAY LINER	134	1217701.4981	669905.2451
135	1217681.1641	669950.9455	321.628	TOP OF CLAY LINER	136	1217660.8300	669996.6460
137	1217640.4960	670042.3464	321.263	TOP OF CLAY LINER	138	1217620.1619	670088.0468
139	1217599.8279	670133.7472	319.842	TOP OF CLAY LINER	140	1217579.4938	670179.4477
141	1217559.1598	670225.1481	319.523	TOP OF CLAY LINER	142	1217538.8257	670270.8485
143	1217518.4917	670316.5411	319.394	TOP OF CLAY LINER	144	1217504.8987	670347.0990

CHK BY JRB

DESCRIPTION ISSUED FOR BID

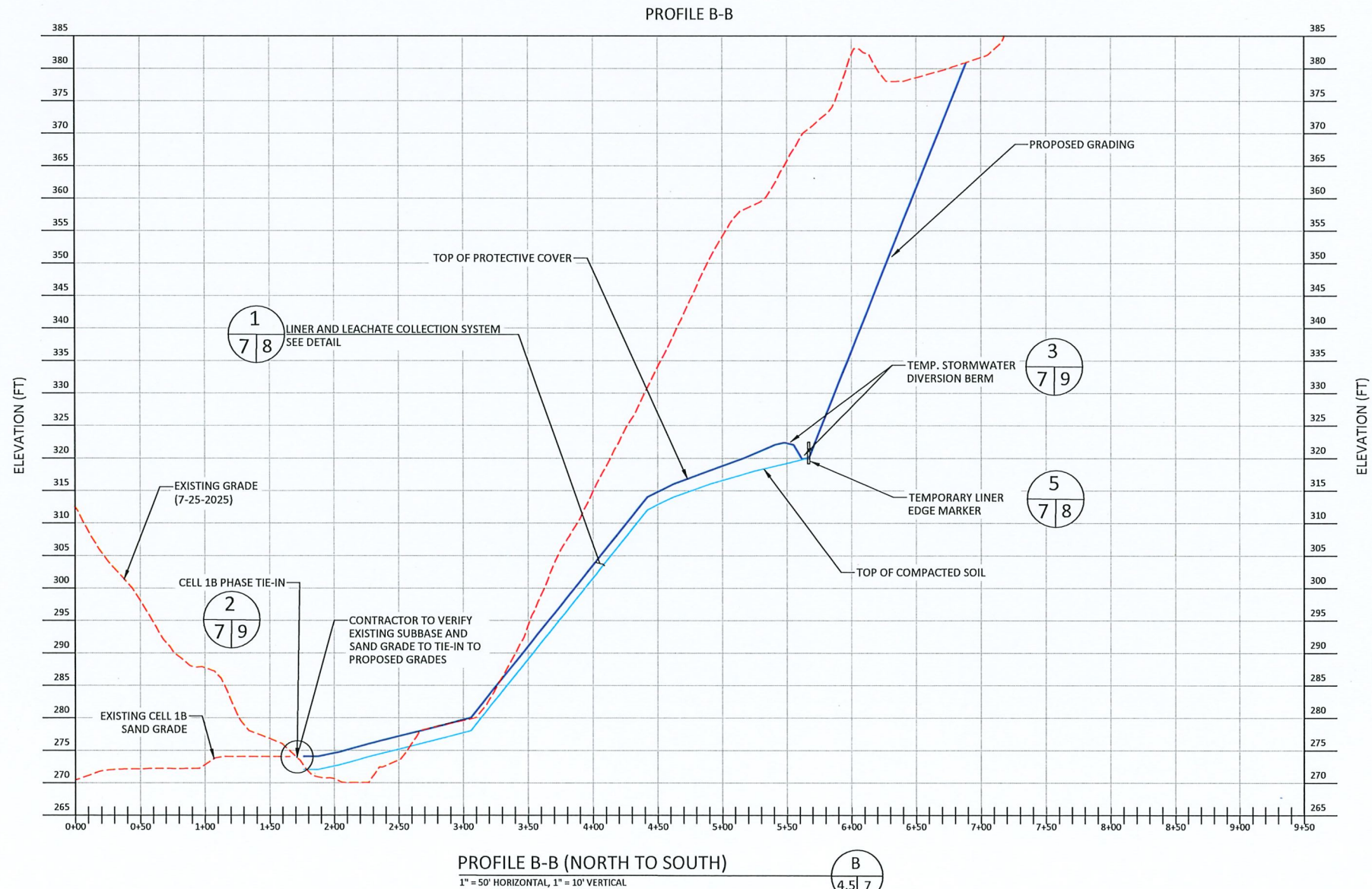
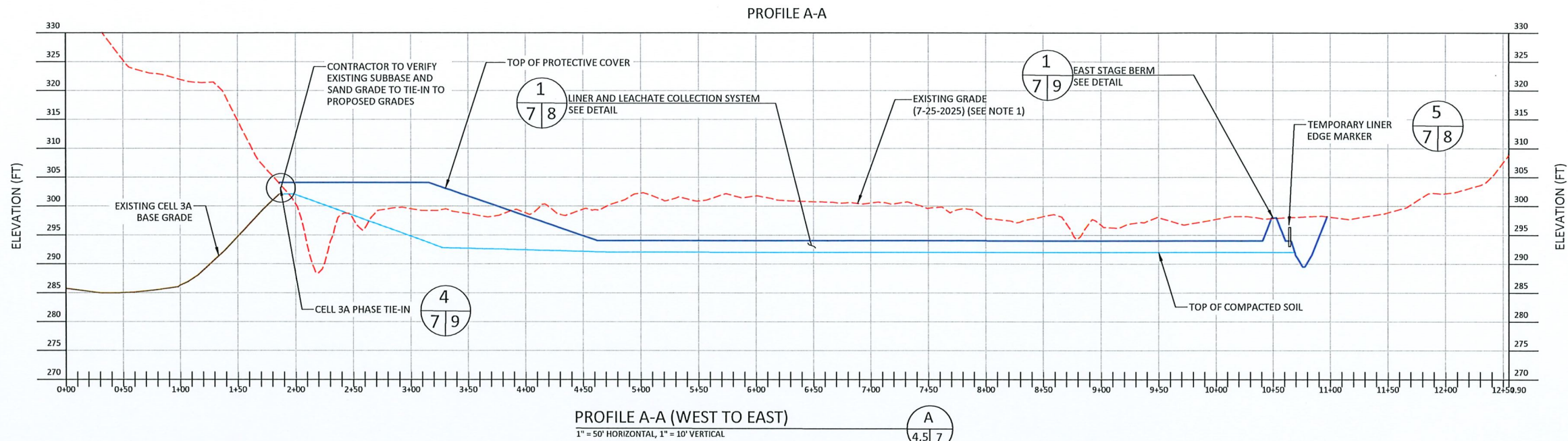
DATE 04/06/26

REV

LINER CERTIFICATION PLAN

DEANS BRIDGE ROAD LANDFILL

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NOTES:

1. AERIAL TOPOGRAPHIC SURVEY BY FIRMATEK LLC, DATED JULY 25, 2025.
2. CELL 3A AS-BUILT SURVEY COMPLETED BY JAMES G. SWIFT & ASSOCIATES CONSULTING ENGINEERS, DATED DECEMBER 19, 2018, AND CELL 1B AS-BUILT SURVEY COMPLETED BY DAVID L. GARRISON DESIGN PROJECTS SURVEYORS, DATED JULY 29, 2010.

Jerry Robin Blanton



CHK BY	DESCRIPTION	DATE	REV
JRB	ISSUED FOR BID	04/06/26	1
			2
			3
			4
			5

SHEET TITLE	PROJECT TITLE
PROFILES	DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION

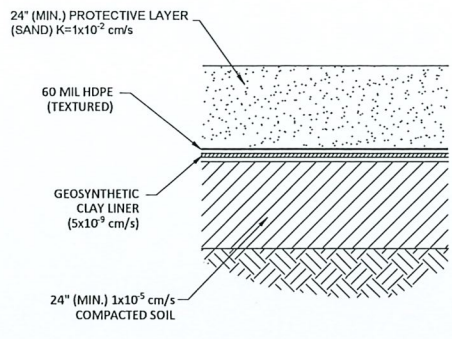
CLIENT
AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805

SCS ENGINEERS	STEARN, CONRAD AND SCHMIDT CONSULTING ENGINEERS
3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH. 678 319-9849	
PROJ. NO. 09221050.30	DRAWN BY: SS/CM
CAL. BY: SS	CHK. BY: JRB
APP. BY: JRB	

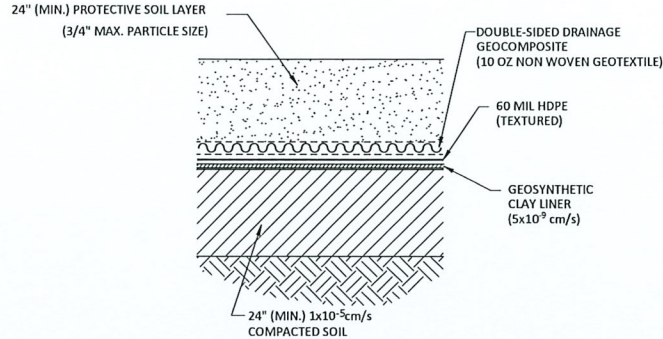
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07 PROFILES	APRIL 2026	AS SHOWN	
SHEET	7	of 21	

ISSUED FOR BID
NOT FOR CONSTRUCTION
4/6/2026

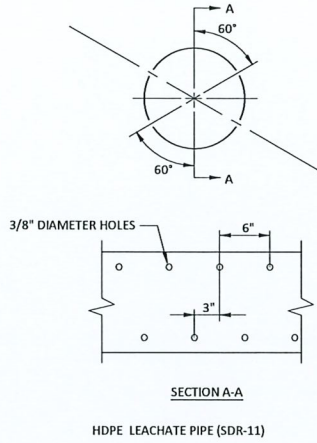
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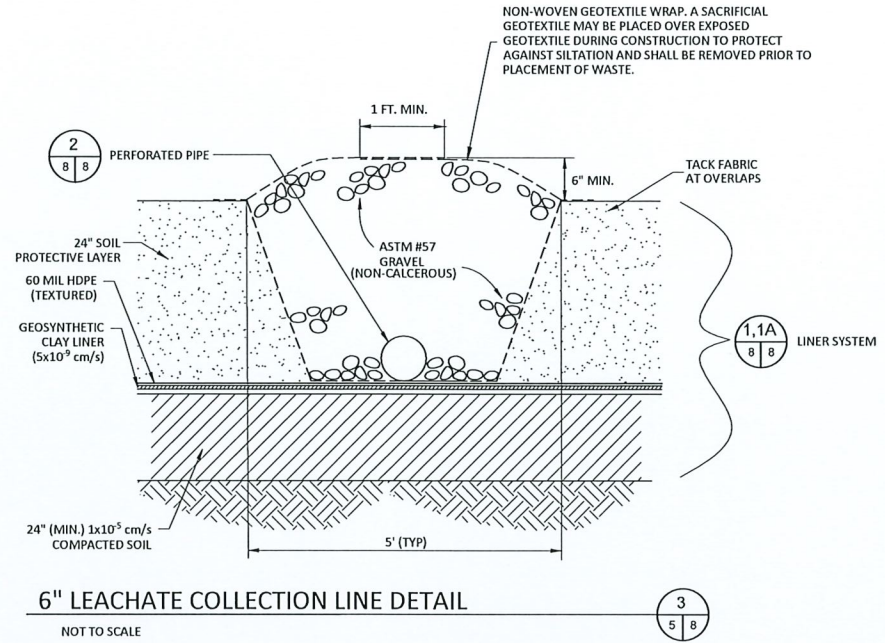
LINER SYSTEM DETAIL 1
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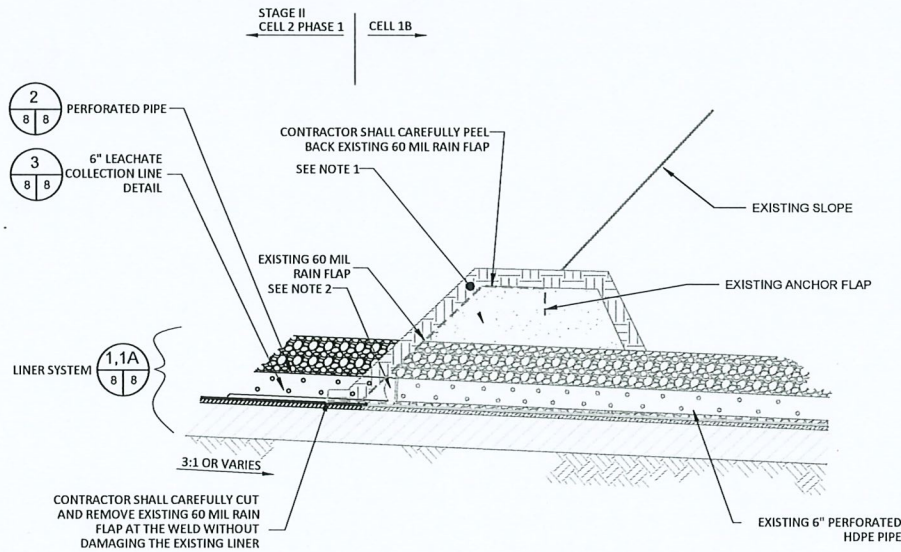
ALTERNATE LINER SYSTEM DETAIL 1A
NOT TO SCALE



PERFORATED PIPE 2
NOT TO SCALE



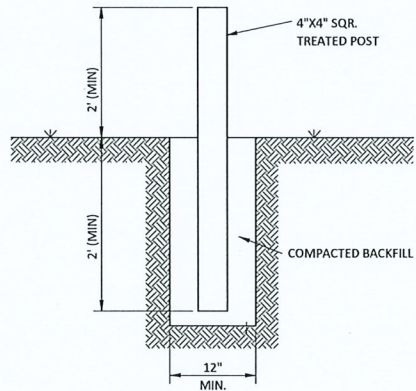
6" LEACHATE COLLECTION LINE DETAIL 3
NOT TO SCALE



NOTES:

1. REMOVE RAIN FLAP AND COMPACTED SOIL ABOVE RAIN FLAP WITH OUT CREATING SLOPE STABILITY ISSUE.
2. CONTRACTOR SHALL REMOVE EXISTING END CAPS FOR LEACHATE PIPE AND FUSE THE 6" LEACHATE COLLECTION LINES FOR PHASE 1 AS PER ABOVE DETAIL.

LEACHATE PIPE EXTENSION AND PHASE TIE-IN 4
NOT TO SCALE



TEMPORARY LINER
EDGE MARKER DETAIL 5
NOT TO SCALE

Jerry R. Blanton
Blanton



CHK. BY	DESCRIPTION	DATE	REV
JRB	ISSUED FOR BID	04/06/26	A

CONSTRUCTION DETAILS - 1

DEANS BRIDGE ROAD LANDFILL
PHASE III STAGE II SOUTH CELL 2
PHASE I CONSTRUCTION

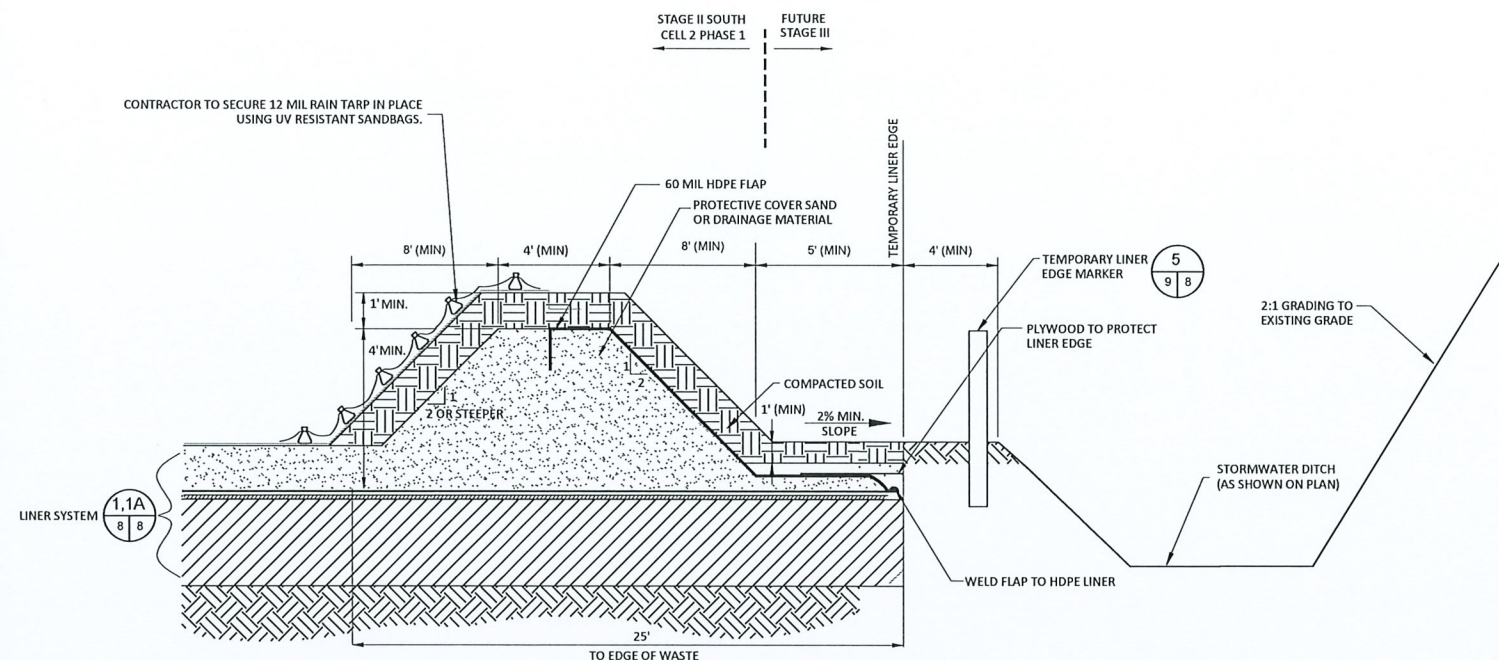
AUGUSTA-RICHMOND COUNTY LANDFILL
4330 DEANS BRIDGE RD
BLYTHE, GEORGIA 30805

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3175 SATELLITE BLVD, BLDG 600 SUITE 100
DULUTH, GA 30096
PH: 678 319-9849

CADD FILE: 08-10 DTLs
DATE: APRIL 2026
SCALE: AS SHOWN
DRAWING NO.

SHEET 8 of 21

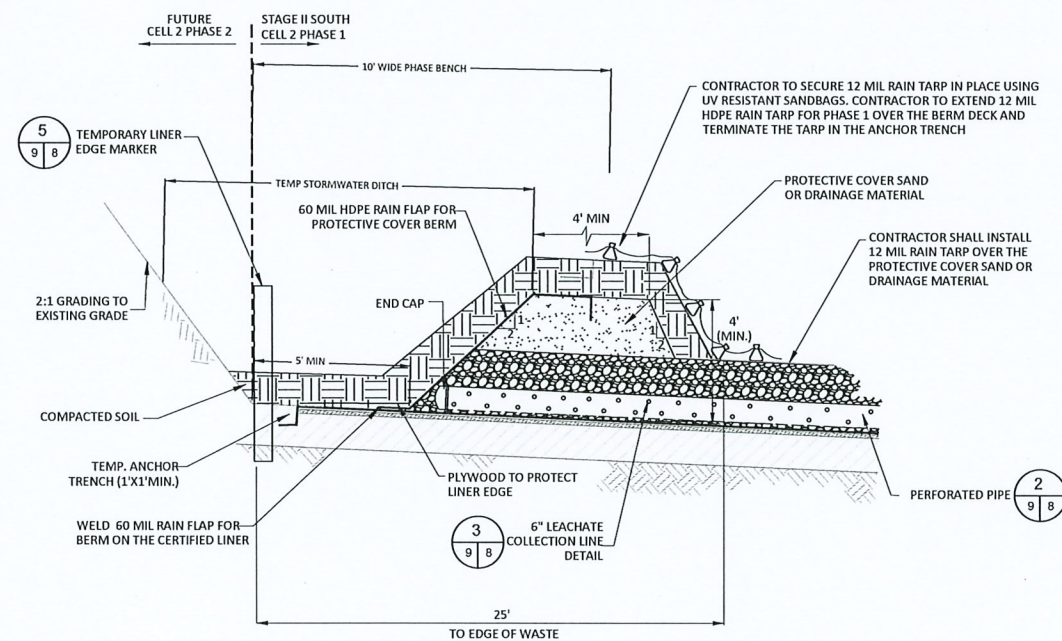
ISSUED FOR BID
NOT FOR CONSTRUCTION
4/6/2026



NOTES:

1. ANY STORMWATER DITCH OR CULVERT SHALL BE RETURNED TO ITS ORIGINAL STATE BY THE CONTRACTOR IF DISTURBED DURING CONSTRUCTION.

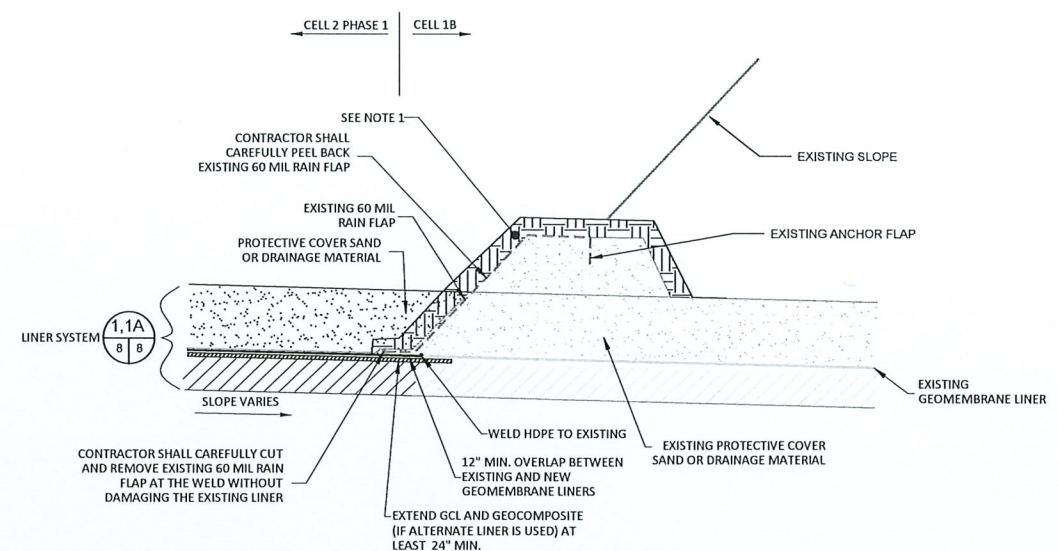
EAST STAGE SEPARATION BERM DETAIL



TEMPORARY STORMWATER DIVERSION BERM AT LEACHATE PIPE TERMINATION

NOT TO SCALE

SECTION SHOWN AT LEACHATE COLLECTION LINE

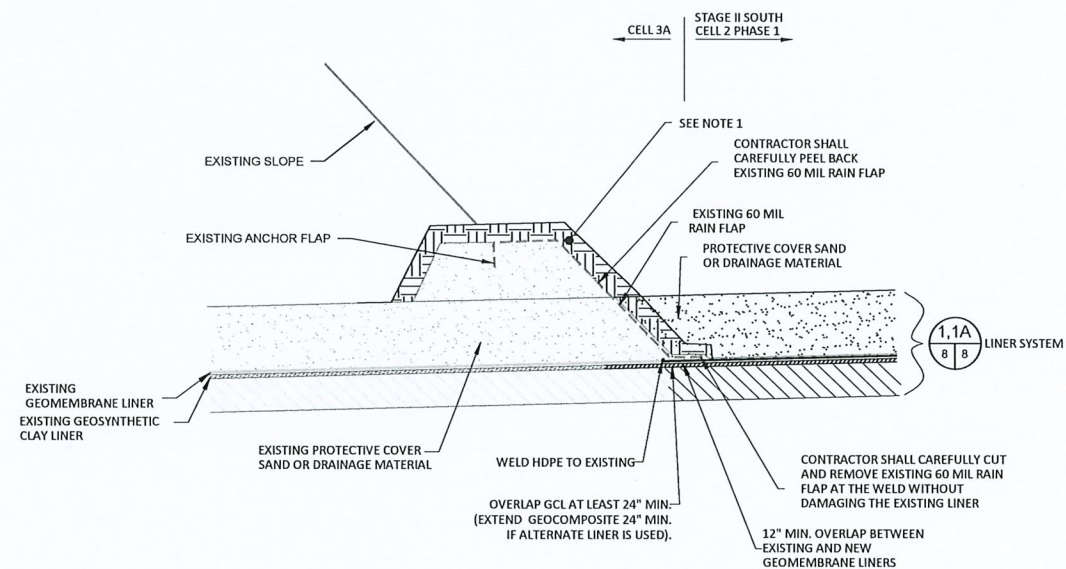


NOTES:

1. REMOVE RAIN FLAP AND COMPACTED SOIL ABOVE RAIN FLAP WITH OUT CREATING SLOPE STABILITY ISSUE.

CELL 1B PHASE TIE-IN

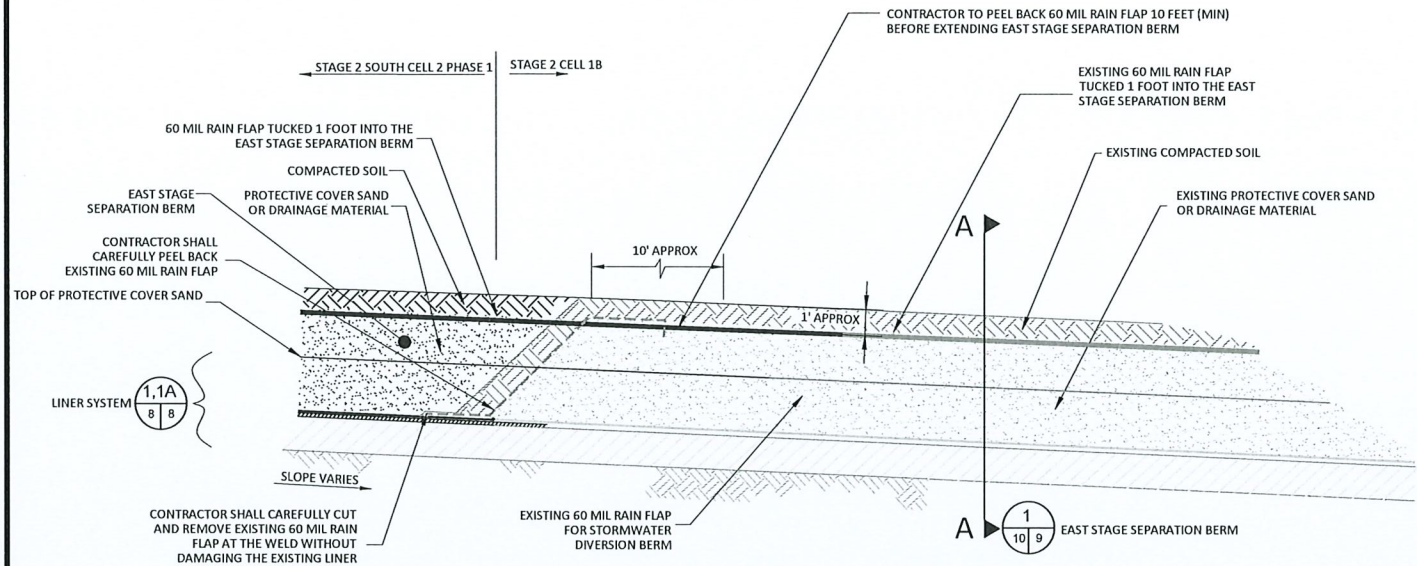
NOT TO SCALE



CELL 3A PHASE TIE-IN

NOT TO SCALE

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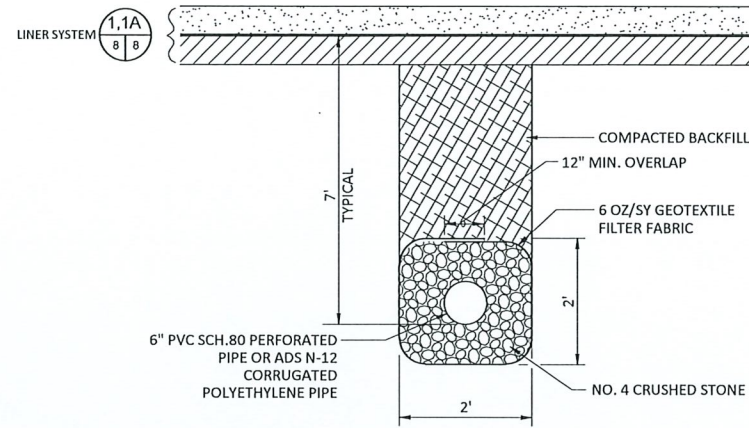


NOTES:

1. ABOVE DETAIL IS REPRESENTATIONAL. FIELD CONDITIONS MAY VARY. CONTRACTOR SHALL REVIEW FIELD CONDITIONS AND NOTIFY THE ENGINEER TO APPROVE ADJUSTMENTS TO FIELD INSTALLATION.
2. CONTRACTOR SHALL CAREFULLY PEEL BACK AND CUT EXISTING 60 MIL RAIN FLAP INSTALLED ON THE PROTECTIVE COVER DIVERSION BERM FOR CELL 1B WITHOUT DAMAGING THE EXISTING GEOMEMBRANE LINER. EXISTING PROTECTIVE COVER GRADES IN CELL 1B SHALL TIE IN TO CONSTRUCTED PROTECTIVE COVER GRADES FOR PHASE 1.

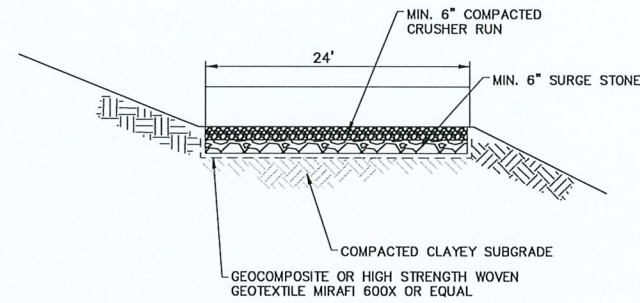
EAST STAGE SEPARATION BERM EXTENSION DETAIL

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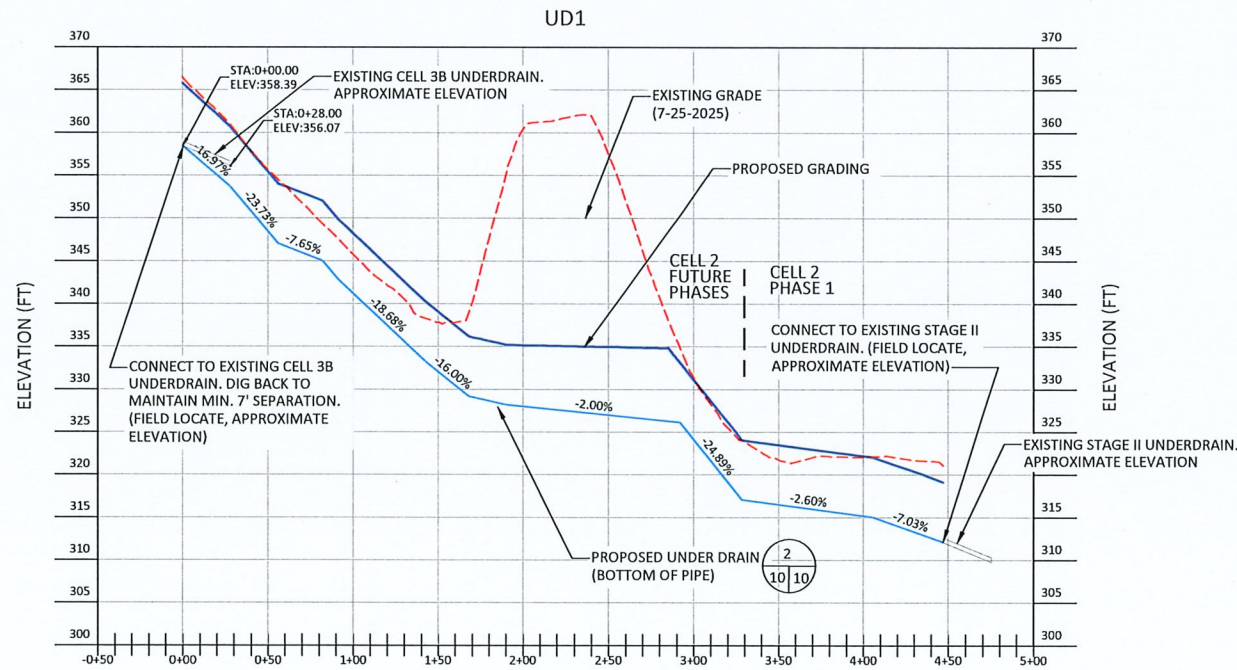
UNDER DRAIN DETAIL

NOT TO SCALE



ALL WEATHER ACCESS ROAD DETAIL

NOT TO SCALE



UNDERDRAIN PROFILE

1" = 50' HORIZONTAL, 1" = 10' VERTICAL



NOTES:

1. AERIAL TOPOGRAPHIC SURVEY BY FIRMATEK LLC, DATED JULY 25, 2025.

JERRY R. BLANTON, P.E. LICENSE NO. 019978		JERRY R. BLANTON, P.E. LICENSE NO. 019978	
CHK. BY	JRB	DATE	04/06/26
DESCRIPTION	ISSUED FOR BID	REV	1
SHEET TITLE		CONSTRUCTION DETAILS - 3	
PROJECT TITLE		DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION	
CLIENT		AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805	
SCS ENGINEERS STEARN, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD., BLDG 600 SUITE 100 DULUTH, GA 30096 PH. 678 519-8849 FAX 678 519-8849		DWN. BY: JRB CHK. BY: JRB APP. BY: JRB	
CADD FILE:		08-10 DTLs	
DATE:		APRIL 2026	
SCALE:		AS SHOWN	
DRAWING NO.		10	
SHEET		10 of 21	

ISSUED FOR BID
NOT FOR CONSTRUCTION
4/6/2026

DEANS BRIDGE ROAD LANDFILL – PHASE III
CONSTRUCTION QUALITY ASSURANCE (COA) PLAN

1.0 PURPOSE AND SCOPE

THIS CONSTRUCTION QUALITY ASSURANCE (COA) PROGRAM IS FOR THE CONSTRUCTION OF THE AUGUSTA-RICHMOND COUNTY – DEANS BRIDGE ROAD – PHASE II MSW LANDFILL IN RICHMOND COUNTY, GEORGIA. THE PURPOSE IS TO SPECIFY THE METHODS, PROCEDURES, AND FREQUENCY OF CONSTRUCTION OBSERVATIONS AND TESTING ACTIVITIES IN ORDER TO DOCUMENT CONSTRUCTION OPERATIONS IN ACCORDANCE WITH THE ENGINEERING DRAWINGS, CONSTRUCTION SPECIFICATION AND PERMIT FOR THE AUGUSTA-RICHMOND COUNTY – DEANS BRIDGE ROAD – PHASE II MSW LANDFILL.

QUALITY ASSURANCE AND QUALITY CONTROL ARE DEFINED AS FOLLOWS:

QUALITY ASSURANCE – A PLANNED AND SYSTEMATIC PATTERN OF ALL MEANS AND ACTIONS DESIGNED TO PROVIDE ADEQUATE CONFIDENCE THAT MATERIALS OR SERVICES MEET CONTRACTUAL AND REGULATORY REQUIREMENTS. THIS IS TYPICALLY PERFORMED TO ASSURE THE PURCHASER, OWNER, AND/OR REGULATORY AGENCIES THAT DELIVERED MATERIALS OR SERVICES ARE OF DESIRED QUALITY.

QUALITY CONTROL – THOSE ACTIONS THAT MEASURE AND REGULATE THE CHARACTERISTICS OF A MATERIAL OR SERVICE TO MEET CONTRACTUAL AND REGULATORY REQUIREMENTS. THIS TYPICALLY IS PERFORMED BY OR FOR THE PROVIDER OF MATERIALS OR SERVICES AS A CONTROL MECHANISM ON THE QUALITY OF THE PROVIDER'S EFFORTS.

THIS DOCUMENT HAS BEEN PREPARED BASED ON THE DRAWING SET ENTITLED "DEANS BRIDGE ROAD MSW LANDFILL PHASE II DESIGN AND OPERATION PLAN" BY JORDAN, JONES AND GOULDING DATED JULY 2005. IT ALSO ADDRESSES EXISTING RULES OF SOLID WASTE MANAGEMENT ESTABLISHED BY THE GEORGIA DEPARTMENT OF NATURAL RESOURCES, ENVIRONMENTAL PROTECTION DIVISION (EPD).

2.0 RESPONSIBILITY AND AUTHORITY

2.1 PARTIES INVOLVED IN COA PROGRAM

THE CONSTRUCTION AT THE DEANS BRIDGE ROAD MSW LANDFILL PHASE II IS DEPENDENT ON THE INTERACTION OF MANY QUALIFIED PARTIES. THESE PARTIES INCLUDE THOSE ASSOCIATED WITH OWNERSHIP, DESIGN AND SPECIFICATION PREPARATION, MANUFACTURE, FABRICATION, TRANSPORTATION, INSTALLATION AND QUALITY ASSURANCE OF THE GEOSYNTHETICS, AND THE CONSTRUCTION AND QUALITY ASSURANCE OF THE EARTHEN MATERIALS.

WITHIN EACH OF THE FOLLOWING PARTY DESCRIPTIONS, REFERENCE IS MADE TO TITLE AND, WHERE APPLICABLE, TO THE INDIVIDUALS WITHIN THAT PARTY RESPONSIBLE FOR CARRYING OUT THE PROVISIONS OF THIS COA PROGRAM.

2.1.1 FACILITY OWNER/OPERATOR

AUGUSTA-RICHMOND COUNTY BOARD OF COMMISSIONERS IS THE CURRENT OWNER AND OPERATOR OF THE LANDFILL FACILITY. THE TERM "PROJECT MANAGER" IS USED THROUGHOUT THIS DOCUMENT TO INDICATE THE OFFICIAL REPRESENTATIVE OF AUGUSTA-RICHMOND COUNTY.

2.1.2 DESIGN ENGINEER

THE DESIGN ENGINEER IS THE COMPANY OR COMPANIES HIRED BY THE OWNER/OPERATOR TO FURNISH THE DESIGN, DRAWINGS, PLANS AND SPECIFICATIONS FOR THE LANDFILL FACILITY. THE TERM "ENGINEER" IS USED THROUGHOUT THIS DOCUMENT TO INDICATE THE OFFICIAL REPRESENTATIVE OF THE DESIGN ENGINEER.

2.1.3 CONTRACTOR

THE OWNER/OPERATOR WILL SELECT THE GENERAL CONTRACTOR TO FURNISH EARTHWORK CONSTRUCTION AND OVERALL CONSTRUCTION RESPONSIBILITY FOR THE COMPLETION OF THE LANDFILL FACILITY. THE TERM "CONTRACTOR" IS USED THROUGHOUT THIS DOCUMENT WHEN REFERENCE IS MADE TO THE TASKS AND RESPONSIBILITIES FOR THIS ROLE.

2.1.4 GEOSYNTHETICS INSTALLER

THE GEOSYNTHETICS INSTALLERS ARE THE COMPANIES HIRED BY THE CONTRACTOR OR OWNER TO INSTALL THE GEOSYNTHETIC COMPONENTS REFERENCED IN THIS MANUAL AND PERFORMS THE NONDESTRUCTIVE SEAM TESTING OF THE GEOMEMBRANES AS REQUIRED BY THIS PROGRAM. THE TERM "INSTALLER" IS USED THROUGHOUT THIS DOCUMENT WHEN REFERENCE IS MADE TO THE TASKS AND RESPONSIBILITIES OF A GEOSYNTHETIC INSTALLER.

2.1.5 GEOSYNTHETIC MANUFACTURERS

THE GEOSYNTHETIC MANUFACTURERS ARE THOSE COMPANIES HIRED TO FURNISH THE GEOSYNTHETIC COMPONENTS REFERENCED IN THIS MANUAL. THE TERM "MANUFACTURER" IS USED THROUGHOUT THIS DOCUMENT TO INDICATE THE SPECIFIC COMPANY SUPPLYING MATERIALS TO THE JOB SITE.

THIS COA PROGRAM INCLUDES SPECIFIC QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS FOR THE GEOSYNTHETIC MANUFACTURERS, IN THEIR RELATIONSHIPS TO RESIN SUPPLIERS (SEE BELOW), IN ADDITION TO THEIR ROLE OF PROVIDING THE QUALITY CONTROL FOR THE GEOSYNTHETIC MATERIALS. IT SHOULD BE NOTED THAT SEVERAL GEOSYNTHETIC MANUFACTURERS, MOST NOTABLY THOSE MANUFACTURING GEOMEMBRANES, MIGHT ALSO PERFORM THE ROLE OF THE GEOSYNTHETIC INSTALLER.

2.1.6 GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT

THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT IS THE INDEPENDENT PARTY HIRED BY THE OWNER/OPERATOR TO OBSERVE AND DOCUMENT ACTIVITIES RELATED TO THE QUALITY ASSURANCE OF THE INSTALLATION OF THE GEOSYNTHETIC COMPONENTS OF THE LANDFILL.

THE TERM "GEOSYNTHETIC QUALITY ASSURANCE MANAGER" IS THE TITLE USED TO DESCRIBE THE OFFICIAL REPRESENTATIVE OF THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT. THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT WILL HAVE A STAFF OF PERSONNEL (MONITORS) ASSIGNED TO THE JOB SITE DURING GEOSYNTHETIC INSTALLATION.

THIS PROGRAM DETAILS RESPONSIBILITIES FOR THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT. IN GENERAL, THESE RESPONSIBILITIES INCLUDE THE OBSERVATION, SAMPLE COLLECTION, TESTING AND DOCUMENTATION OF ACTIVITIES RELATED TO THE INSTALLATION OF THE GEOSYNTHETIC COMPONENTS OF THE LANDFILL FACILITY.

2.1.7 GEOSYNTHETIC TESTING LABORATORY

THE GEOSYNTHETIC TESTING LABORATORY IS THE INDEPENDENT LABORATORY HIRED BY THE OWNER/OPERATOR OR GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT TO PERFORM CONFORMANCE TESTING AND DESTRUCTIVE TESTING ON GEOMEMBRANE SEAMS. THE TERM "GEOSYNTHETIC TESTING LABORATORY" IS USED TO DENOTE THE OFFICIAL REPRESENTATIVE OF THAT LABORATORY THROUGHOUT THIS MANUAL.

2.1.8 RESIN SUPPLIER

THE RESIN SUPPLIER(S) IS (ARE) THE COMPANY(IES) SELECTED BY THE GEOMEMBRANE MANUFACTURER, AND PIPE MANUFACTURER TO FURNISH THE POLYETHYLENE RESIN USED IN FABRICATING THE AFOREMENTIONED COMPONENTS. THE TERM "RESIN SUPPLIER" IS USED IN THIS MANUAL TO DENOTE, INDIVIDUALLY, EACH RESPECTIVE SUPPLIER.

2.1.9 SOILS QUALITY ASSURANCE CONSULTANT

THE SOILS QUALITY ASSURANCE CONSULTANT IS THE INDEPENDENT PARTY HIRED BY THE OWNER/OPERATOR TO OBSERVE, TEST, AND DOCUMENT ACTIVITIES RELATED TO THE QUALITY ASSURANCE OF THE WORK INVOLVING EARTHEN MATERIALS.

THE TERM "SOILS QUALITY ASSURANCE MANAGER" IS THE TITLE USED TO DESCRIBE THE OFFICIAL REPRESENTATIVE OF THE SOILS QUALITY ASSURANCE CONSULTANT. THE SOILS QUALITY ASSURANCE CONSULTANT WILL HAVE A STAFF OF PERSONNEL (MONITORS) ASSIGNED TO THE JOB SITE DURING CONSTRUCTION ACTIVITIES.

THIS PROGRAM DETAILS MANY RESPONSIBILITIES OF THE SOILS QUALITY ASSURANCE MANAGER. IN GENERAL, THESE RESPONSIBILITIES INCLUDE THE OBSERVATION, SAMPLE COLLECTION, TESTING AND DOCUMENTATION OF ACTIVITIES RELATED TO THE USE OF EARTHEN MATERIALS FOR THE LANDFILL CONSTRUCTION.

2.1.10 SOILS TESTING LABORATORY

THE SOILS TESTING LABORATORY IS THE INDEPENDENT LABORATORY HIRED BY THE OWNER/ OPERATOR OR SOILS QUALITY ASSURANCE CONSULTANT TO PERFORM QUALITY ASSURANCE SOILS TESTS. THE TERM "SOILS TESTING LABORATORY" IS USED TO DENOTE THE OFFICIAL REPRESENTATIVE OF THAT LABORATORY THROUGHOUT THIS MANUAL.

2.2 QUALIFICATIONS OF PARTIES

THE FOLLOWING QUALIFICATIONS SHOULD BE REQUIRED OF ALL PARTIES INVOLVED WITH THE DESIGN, MANUFACTURE, FABRICATION, INSTALLATION, TRANSPORTATION AND QUALITY ASSURANCE FOR THE CONSTRUCTION OF THE DEANS BRIDGE ROAD MSW LANDFILL PHASE II.

2.2.1 CERTIFYING ENGINEER

THE CERTIFYING ENGINEER MUST BE A QUALIFIED, PROFESSIONAL ENGINEER LICENSED IN THE STATE OF GEORGIA. THE ENGINEER SHOULD HAVE A HISTORY, WHICH DEMONSTRATES FAMILIARITY WITH LANDFILL COMPONENTS AND CONSTRUCTION TECHNIQUES, INCLUDING SOILS AND GEOSYNTHETICS, AND WITH DETAILED GEOSYNTHETIC DESIGN METHODS AND PROCEDURES.

2.2.2 PROJECT MANAGER

THE SELECTION OF THE PROJECT MANAGER FOR CONSTRUCTION IS THE DIRECT RESPONSIBILITY OF THE OWNER/OPERATOR. QUALIFICATIONS FOR THIS POSITION ARE THEREFORE DETERMINED BY THE OWNER/OPERATOR INDEPENDENTLY OF THIS PROGRAM.

2.2.3 CONTRACTOR

THE CONTRACTOR (MAY BE FULFILLED BY THE OWNER/OPERATOR) WILL BE EXPERIENCED IN LANDFILL CONSTRUCTION, KNOWLEDGEABLE ABOUT COMPACTED LINER BASE CONSTRUCTION TECHNIQUES, AND FAMILIAR WITH GEOSYNTHETIC CONSTRUCTION.

2.2.4 GEOSYNTHETIC INSTALLER

THE INSTALLER WILL BE TRAINED AND QUALIFIED TO INSTALL THE VARIOUS GEOSYNTHETIC COMPONENTS COVERED BY THIS PROGRAM. THE INSTALLER OF THE GEOMEMBRANES WILL BE APPROVED AND/OR LICENSED BY THE MANUFACTURER. A COPY OF THE APPROVAL LETTER OR LICENSE WILL BE SUBMITTED BY THE INSTALLER TO THE GEOSYNTHETIC QUALITY ASSURANCE MANAGER.

ALL PERSONNEL PERFORMING GEOMEMBRANE SEAMING OPERATIONS WILL BE QUALIFIED BY EXPERIENCE OR BY SUCCESSFULLY PASSING SEAMING TESTS FOR THE SEAMING METHODS TO BE USED. AT LEAST ONE SEAMER AT THE SITE WILL HAVE EXPERIENCE SEAMING A MINIMUM OF 10,000,000 FT² OF POLYETHYLENE GEOMEMBRANE USING THE SAME TYPE OF SEAMING APPARATUS IN USE AT THE SITE. THE MOST EXPERIENCED SEAMER, THE "MASTER SEAMER", WILL PROVIDE DIRECT SUPERVISION. AS REQUIRED, OVER LESS EXPERIENCED SEAMERS. NO FIELD SEAMING WILL TAKE PLACE WITHOUT AN EXPERIENCED SEAMER (MEETING THE SEAMING CRITERIA STATED ABOVE) BEING PRESENT.

2.2.5 GEOSYNTHETIC MANUFACTURERS

THE GEOSYNTHETIC MANUFACTURERS WILL BE ABLE TO PROVIDE SUFFICIENT PRODUCTION CAPACITY AND QUALIFIED PERSONNEL TO MEET THE DEMAND OF THE PROJECT. THE GEOSYNTHETIC MANUFACTURERS WILL BE PRE-QUALIFIED AND APPROVED BY THE OWNER/OPERATOR.

2.2.6 GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT

THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT WILL BE AN EXPERIENCED ENGINEERING FIRM DEALING WITH GEOSYNTHETIC INSTALLATION INCLUDING GEOMEMBRANES, GEOTEXTILES, GEOCOMPOSITES AND PIPING. THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT WILL BE EXPERIENCED IN QUALITY ASSURANCE, INCLUDING INSTALLATION QUALITY ASSURANCE OF GEOMEMBRANES, PIPING AND GEOTEXTILES. THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT SHALL BE EXPERIENCED IN THE PREPARATION OF QUALITY ASSURANCE DOCUMENTATION, WHICH WILL INCLUDE QUALITY ASSURANCE FORMS, REPORTS, CERTIFICATIONS AND MANUALS.

THE GEOSYNTHETIC QUALITY ASSURANCE MANAGER WILL BE A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF GEORGIA. THE GEOSYNTHETIC QUALITY ASSURANCE MANAGER WILL BE SPECIFICALLY EXPERIENCED IN THE INSTALLATION OF GEOSYNTHETICS. GEOSYNTHETIC QUALITY ASSURANCE MONITORS WILL BE QUALITY ASSURANCE PERSONNEL WHO HAVE BEEN SPECIFICALLY TRAINED IN QUALITY ASSURANCE OF GEOSYNTHETICS AND WHO WILL REPORT TO THE GEOSYNTHETIC QUALITY ASSURANCE MANAGER.

2.2.7 GEOSYNTHETIC TESTING LABORATORY

THE GEOSYNTHETIC TESTING LABORATORY WILL HAVE EXPERIENCE IN TESTING GEOSYNTHETICS AND WILL BE FAMILIAR WITH TESTING STANDARDS PROMULGATED BY THE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM), NATIONAL SANITATION FOUNDATION (NSF), GEOSYNTHETIC RESEARCH INSTITUTE (GRI) AND OTHER APPLICABLE TEST STANDARDS. THE GEOSYNTHETIC TESTING LABORATORY WILL BE RESPONSIVE TO THE TESTING NEEDS OF THE PROJECT BY PROVIDING TEST RESULTS WITHIN A REASONABLE TIME.

2.2.8 RESIN SUPPLIER

QUALIFICATIONS OF THE RESIN SUPPLIER ARE SPECIFIC TO THE MANUFACTURER'S REQUIREMENTS. THE RESIN SUPPLIER SHOULD HAVE A DEMONSTRATED HISTORY OF PROVIDING CONSISTENT RESIN PROPERTIES.

2.2.9 SOILS QUALITY ASSURANCE CONSULTANT

THE SOILS QUALITY ASSURANCE CONSULTANT WILL BE AN EXPERIENCED ENGINEERING FIRM DEALING WITH GEOTECHNICAL ENGINEERING AND CONSTRUCTION. THE SOILS QUALITY ASSURANCE MANAGER WILL BE A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF GEORGIA WITH EXPERIENCE IN GEOTECHNICAL CONSTRUCTION AND INTERPRETATION OF THE RESULTS OF FIELD AND LABORATORY TESTING.

2.2.10 SOILS TESTING LABORATORY

THE SOILS TESTING LABORATORY WILL HAVE EXPERIENCE IN TESTING SOILS AND WILL BE FAMILIAR WITH ASTM AND OTHER APPLICABLE TEST STANDARDS. THE SOILS TESTING LABORATORY WILL BE RESPONSIVE TO THE TESTING NEEDS OF THE PROJECT BY PROVIDING TEST RESULTS WITHIN A REASONABLE TIME.

3.0 ORGANIZATION AND DOCUMENTATION REQUIREMENTS

3.1 ORGANIZATION OF COA PROGRAM

OVERALL RESPONSIBILITY FOR CARRYING OUT THE PROVISIONS OF THIS COA PROGRAM IS WITH THE COA MANAGERS. THE COA MANAGERS ARE RESPONSIBLE FOR DOCUMENTING, PURSUANT TO THIS COA PROGRAM, THAT THE CONSTRUCTION AT THE DEANS BRIDGE ROAD MSW LANDFILL PHASE II IS CONSISTENT WITH THE PERMIT APPLICATION.

THE SOILS AND GEOSYNTHETIC QUALITY ASSURANCE MANAGERS BOTH REPORT TO THE OWNER/OPERATOR. THIS INCLUDES THE SUBMITTAL OF REPORTS AND OTHER DOCUMENTS DETAILED THROUGHOUT THIS COA PROGRAM, IN ADDITION TO ANY OTHER RESPONSIBILITIES DESCRIBED IN THIS DOCUMENT. THE SOILS AND GEOSYNTHETIC QUALITY ASSURANCE MANAGERS ARE RESPONSIBLE FOR COMPLETING ALL DOCUMENTS AND REPORTS DETAILED THROUGHOUT THIS PROGRAM, AND SUBMITTING THEM TO THE OWNER/OPERATOR ON A TIMELY BASIS.

THE SOILS AND GEOSYNTHETIC TESTING LABORATORIES ARE EACH RESPONSIBLE TO THE SOILS AND GEOSYNTHETIC QUALITY ASSURANCE MANAGERS, RESPECTIVELY. TEST DATA AND REPORTS COMPLETED BY OUTSIDE TESTING LABORATORIES WILL BE SUBMITTED DIRECTLY TO THE RESPECTIVE QUALITY ASSURANCE MANAGER. IT IS THE RESPONSIBILITY OF THE RESPECTIVE QUALITY ASSURANCE MANAGERS TO RESOLVE ANY DISPUTES BETWEEN THE TESTING LABORATORIES AND THE CONTRACTOR, INSTALLERS, OR GEOSYNTHETIC MANUFACTURERS.

THE CONTRACTOR (INCLUDING ANY SUBCONTRACTORS THAT MAY BE BROUGHT TO THE SITE) AND THE INSTALLERS REPORT TO THE OWNER/OPERATOR FOR MATTERS RELATING TO THE COA PROGRAM.

3.2 DAILY CONSTRUCTION REPORTS

THE SOILS AND GEOSYNTHETIC QUALITY ASSURANCE MONITORS WILL COMPLETE A DAILY SUMMARY REPORT OF EACH DAY'S CONSTRUCTION ACTIVITIES. EACH CONSTRUCTION REPORT WILL CONTAIN, AT A MINIMUM, THE FOLLOWING INFORMATION:

- DATE, PROJECT NAME, LOCATION AND REPORT PREPARER'S NAME;
- THE NUMBER AND NAME OF PEOPLE ON-SITE UNDER THE DIRECTION OF THE PREPARER FOR CONDUCTING COA TASKS;
- TIME WORK STARTS AND ENDS EACH CONSTRUCTION WORK DAY. THIS INFORMATION SHOULD ALSO INCLUDE ANY WORK STOPPAGES DUE TO INCLEMENT WEATHER OR INSUFFICIENT EQUIPMENT OR PERSONNEL;
- SUMMARIES OF ANY MEETINGS HELD AND ACTIONS RECOMMENDED OR TAKEN;
- DATA ON WEATHER CONDITIONS INCLUDING TEMPERATURE, WIND DIRECTION AND SPEED, CLOUD COVER, AND ANY PRECIPITATION EVENTS;
- CONTRACTOR'S OR INSTALLER'S WORK FORCE, TYPE OF EQUIPMENT IN USE, WEIGHT OF COMPACTOR, AND MATERIALS DELIVERED TO OR REMOVED FROM THE JOB SITE;
- CHRONOLOGICAL DESCRIPTION OF WORK IN PROGRESS INCLUDING ANY NOTICES TO OR REQUESTS FROM THE CONTRACTOR AND/OR INSTALLER;
- RESULTS OR A CLEAR REFERENCE TO WHERE THE RESULTS CAN BE FOUND, FOR TESTING PERFORMED ON-SITE BY PERSONNEL UNDER THE DIRECTION OF THE PREPARER;
- PROBLEM/DEFICIENCY IDENTIFICATION AND CORRECTIVE ACTION SECTION TO DOCUMENT FIELD PROBLEMS AND NON-CONFORMING MATERIALS OR WORK AS DISCUSSED IN SUBSECTION 3.2.3;
- SAMPLES, WHICH WERE COLLECTED, MARKED, AND SENT TO THE OUTSIDE TESTING LABORATORIES. THESE WILL BE CLEARLY INDICATED IN THE DAILY REPORT BY DIRECT INCLUSION OR BY REFERENCE TO THE DOCUMENT CONTAINING SUCH INFORMATION. LIKEWISE, REFERENCE SHOULD BE INCLUDED FOR ANY TEST DATA SUBMITTED BY ANY OF THE OUTSIDE TESTING LABORATORIES;
- AN ACCURATE RECORD OF COMMUNICATIONS WITH OTHER COA PROGRAM PARTIES, OR ANY OTHER OUTSIDE COMPANIES, REGULATORY AGENCIES, OR CONSULTANTS REGARDING THE DAY'S CONSTRUCTION ACTIVITIES; AND
- AN ACCURATE RECORD OF CALIBRATIONS OR STANDARDIZATIONS PERFORMED ON FIELD TESTING EQUIPMENT, INCLUDING ACTIONS TAKEN AS A RESULT OF RECALIBRATIONS. IN ADDITION, THE RESULTS OF OTHER DATA RECORDING, SUCH AS GEOMEMBRANE BARREL OR WEDGE TEMPERATURES, WILL BE KEPT IN THE DAILY LOG OR WILL BE ADEQUATELY CROSS-REFERENCED FOR EACH LOCATION.

3.2.1 FORMS, CHECKLISTS, AND DATA SHEETS

IT IS THE RESPONSIBILITY OF THE SOILS AND GEOSYNTHETICS QUALITY ASSURANCE CONSULTANTS TO PREPARE IN ADVANCE ANY FORMS, CHECKLISTS, AND/OR DATA SHEETS THAT WILL ALLOW FOR A MORE EXPEDIENT HANDLING OF DATA, COMMUNICATIONS, AND ROUTINE OBSERVATIONS. ANY FORM, CHECKLIST, OR DATA SHEET PREPARED BY THE SOILS AND GEOSYNTHETICS QUALITY ASSURANCE CONSULTANT MUST BE APPROVED BY THE OWNER/OPERATOR PRIOR TO THE START OF ANY CONSTRUCTION WORK. THEREFORE, SUBMITTAL OF THESE DOCUMENTS FOR APPROVAL SHOULD BE MADE PRIOR TO THE PRE-CONSTRUCTION MEETING DISCUSSED IN SUBSECTION 2.3.1 OF THIS PLAN.

3.2.2 PROBLEM/DEFICIENCY IDENTIFICATION AND CORRECTIVE ACTION

PROBLEM AND/OR DEFICIENCY IDENTIFICATION AND CORRECTIVE ACTION WILL BE DOCUMENTED IN THE DAILY CONSTRUCTION REPORTS BY EITHER/OR BOTH THE SOILS AND GEOSYNTHETICS QUALITY ASSURANCE MONITORS WHEN ANY CONSTRUCTION MATERIAL OR ACTIVITY IS OBSERVED OR TESTED THAT DOES NOT MEET THE REQUIREMENTS SET FORTH IN THIS PLAN. THE DOCUMENTATION REPORTS SHOULD BE CROSS-REFERENCED TO THE APPLICABLE FORMS, DATA SHEETS, CHECKLISTS, AND OTHER REPORTS THAT CONTAIN DATA OR OBSERVATIONS LEADING TO THE DETERMINATION OF A PROBLEM OR DEFICIENCY. PROBLEM/DEFICIENCY IDENTIFICATION AND CORRECTIVE ACTION DOCUMENTATION MAY INCLUDE THE FOLLOWING INFORMATION:

- A DESCRIPTION OF THE PROBLEM OR DEFICIENCY, INCLUDING REFERENCE TO ANY SUPPLEMENTAL DATA OR OBSERVATIONS RESPONSIBLE FOR DETERMINING THE PROBLEM OR DEFICIENCY;
- LOCATION OF THE PROBLEM OR DEFICIENCY, INCLUDING HOW AND WHEN THE PROBLEM OR DEFICIENCY WAS DISCOVERED. IN ADDITION, AN ESTIMATE OF HOW LONG THE PROBLEM OR DEFICIENCY HAS EXISTED SHOULD BE INCLUDED;
- AN OPINION AS TO THE PROBABLE CAUSE OF THE PROBLEM OR DEFICIENCY;
- A RECOMMENDED CORRECTIVE ACTION FOR RESOLVING THE PROBLEM OR DEFICIENCY. IF THE CORRECTIVE ACTION HAS ALREADY BEEN IMPLEMENTED, THE OBSERVATIONS AND DOCUMENTATION TO SHOW THAT THE PROBLEM OR DEFICIENCY HAS BEEN RESOLVED SHOULD BE INCLUDED. IF THE PROBLEM OR DEFICIENCY HAS NOT BEEN RESOLVED BY THE END OF THE DAY UPON WHICH IT WAS DISCOVERED, THEN THE REPORT WILL CLEARLY STATE THAT IT IS AN UNRESOLVED PROBLEM OR DEFICIENCY. IF THE PROBLEM OR DEFICIENCY HAS NOT BEEN RESOLVED, THE COA MANAGER, PROJECT MANAGER AND THE MONITOR WILL DISCUSS THE NECESSARY CORRECTIVE ACTIONS TO RESOLVE THE PROBLEM OR DEFICIENCY AS SOON AS POSSIBLE.

THE PROJECT MANAGER, WORKING WITH EITHER THE SOILS AND/OR GEOSYNTHETICS QUALITY ASSURANCE MANAGERS, WILL DETERMINE IF THE PROBLEM OR DEFICIENCY IS AN INDICATION OF A SITUATION THAT MIGHT REQUIRE CHANGES TO THE PLANS AND/OR THE COA PROGRAM. IF THIS SITUATION DEVELOPS, THEN A MEETING WILL BE HELD WITH THE APPROPRIATE PEOPLE, INCLUDING THE ENGINEER, TO DETERMINE IF REVISIONS TO THE PLANS OR COA PROGRAM SHOULD BE MADE. ANY REVISIONS TO THE PLANS OR THE COA PROGRAM MUST BE APPROVED BY THE OWNER/OPERATOR, ENGINEER, AND EITHER THE SOILS OR GEOSYNTHETICS QUALITY ASSURANCE MANAGER BASED UPON WHO HAS RESPONSIBILITY FOR THE PROPOSED REVISIONS.

3.2.3 PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPHS WILL BE TAKEN DURING CONSTRUCTION TO DOCUMENT OBSERVATIONS, PROBLEMS, DEFICIENCIES, AND WORK IN PROGRESS.

3.2.4 CONSTRUCTION DOCUMENTATION REPORTS

A CONSTRUCTION DOCUMENTATION REPORT WILL BE ASSEMBLED BY THE COA MANAGERS. ONE CONSTRUCTION DOCUMENTATION REPORT WILL BE ASSEMBLED FOR THE ENTIRE CONSTRUCTION PROJECT BY COMBINING THE DATA AND REPORTS GENERATED BY THE SOILS AND GEOSYNTHETICS QUALITY ASSURANCE MANAGERS.

AT A MINIMUM, THE CONSTRUCTION DOCUMENTATION REPORT WILL CONTAIN THE FOLLOWING INFORMATION:

1. DOCUMENTATION (AS-BUILT) SET OF DRAWINGS REPRESENTING ACTUAL INSTALLATION OF EACH MATERIAL (EXCAVATED GRADE, TOP OF LINER, AND TOP OF PROTECTIVE COVER) AS IT RELATES TO THE PLAN VIEWS AND INDIVIDUAL DETAILS;
2. DOCUMENTATION (AS-BUILT) SET OF DRAWINGS REPRESENTING ACTUAL INSTALLATION OF LEACHATE COLLECTION LINES, ANCHOR TRENCHES, AND TIE-INS (HORIZONTAL AND VERTICAL LOCATIONS) AS IT RELATES TO THE PLAN VIEWS AND INDIVIDUAL DETAILS;
3. SUMMARY OF FIELD OBSERVATIONS AND TESTS PERFORMED, LABORATORY SAMPLES COLLECTED, AND TEST RESULTS REPORTED BY THE RESPECTIVE OUTSIDE TESTING LABORATORY;
4. SUMMARY OF ANY PROBLEMS AND/OR DEFICIENCIES ENCOUNTERED AND THEIR RESOLUTION DURING THE CONSTRUCTION, INCLUDING ANY RECURRING PROBLEMS OR DEFICIENCIES THAT WERE DISCOVERED;
5. DOCUMENTATION THAT ACCEPTANCE CRITERIA WERE MET, INCLUDING COMPARISON OF PROCEDURE DATA WITH PERMIT PLANS AND REQUIREMENTS SET FORTH IN THIS COA PROGRAM; AND;
6. CERTIFICATION BY THE COA MANAGERS THAT THE CONSTRUCTION MEETS THE REQUIREMENTS OF THE APPROVED PERMIT PLANS AND THIS COA PROGRAM.
7. CONSTRUCTION CERTIFICATION BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF GEORGIA.
8. COPIES OF ALL THE DAILY REPORTS
9. DATA ON THE INSTALLED SYNTHETIC LINER. (E.G. ROLL NUMBERS, REQUIRED DESTRUCTIVE TEST, LOCATION OF REPAIRS, NAMES OF SEAMING CREW, ETC.)

3.2.5 EPD NOTIFICATION

IT IS THE RESPONSIBILITY OF THE PROJECT MANAGER TO NOTIFY EPD REGARDING EACH CONSTRUCTION ACTIVITY THAT REQUIRES CERTIFICATION. EPD SHALL BE NOTIFIED AT THE BEGINNING OF THE CONSTRUCTION ACTIVITY WITH INFORMATION REGARDING THE PLANNED ACTIVITY AND PRELIMINARY SCHEDULE. ALSO, EPD SHALL BE NOTIFIED AT THE COMPLETION OF CONSTRUCTION OF EACH LAYER OF THE BASE LINER OR FINAL COVER SYSTEMS.

4.0 MATERIALS

THE MATERIALS REFERENCED HEREIN ARE DESCRIBED IN THE CONSTRUCTION SPECIFICATIONS AND ENGINEERING DRAWINGS FOR THE DEANS BRIDGE ROAD MSW LANDFILL PHASE II PREPARED BY THE ENGINEER AND MUST BE PREQUALIFIED PRIOR TO CONSTRUCTION TO DOCUMENT CONFORMANCE WITH THE DESIGN STANDARDS INCLUDED IN THE PERMIT APPLICATION.

4.1 SUBGRADE

SUBGRADE MATERIALS ARE THE EXISTING SOILS FOUND AT THE LIMITS OF EXCAVATION FOR EACH CELL.

4.2 STRUCTURAL FILL

STRUCTURAL FILL MATERIALS SHALL CONSIST OF SOILS THAT CAN, WHEN COMPACTED, PROVIDE A FIRM, SOLID FOUNDATION FOR OVERLAYING MATERIALS.

4.3 GEOMEMBRANES

THE DEANS BRIDGE ROAD MSW LANDFILL PHASE II CONSTRUCTION FOR THE MSW FACILITIES WILL INCLUDE 40 MIL, 50 MIL, AND 60 MIL TEXTURED HDPE AS SHOWN ON THE FACILITY DAO PLANS. REQUIRED GEOMEMBRANE PROPERTIES ARE SHOWN IN TABLE 2(A) OF THE LATEST EDITION OF GRI'S GM 13 OR GM 17 (AS APPROPRIATE). HOWEVER, THE CELL BOTTOM GEOMEMBRANE SHALL HAVE A 60 MIL MINIMUM THICKNESS. IN ADDITION TO THE PROPERTIES IN THE TABLES 2(A), FOR THE STRUCTURED GEOMEMBRANE IN THE ALTERNATE II FINAL COVER CROSS SECTION, THE MINIMUM AVERAGE VALUE FOR THE DRAINAGE STUD HEIGHT ACCORDING TO THE ASTM D7466 SHOULD BE 130 MILS.

4.3.1 MANUFACTURING

4.3.1.1 RAW MATERIALS

THE MANUFACTURER WILL PROVIDE THE PROJECT MANAGER OR GEOSYNTHETIC QUALITY ASSURANCE MANAGER WITH THE FOLLOWING INFORMATION:

- A. THE ORIGIN (RESIN SUPPLIER'S NAME, IDENTIFICATION BRAND NAME, NUMBER) AND PRODUCTION DATE OF THE RESIN;
- B. A COPY OF THE QUALITY CONTROL CERTIFICATE ISSUED BY THE RESIN SUPPLIER;
- C. SUMMARY REPORTS OF THE TEST RESULTS, INCLUDING THE TEST FREQUENCY USED BY THE MANUFACTURER TO VERIFY THE QUALITY OF EACH RESIN BATCH USED TO MANUFACTURE GEOMEMBRANE ROLLS ASSIGNED TO THE PROJECT. AT A MINIMUM, ONE SERIES OF TESTS WILL BE CONDUCTED FOR EACH RESIN BATCH.
- D. A STATEMENT THAT NO RECLAIMED POLYMER IS ADDED TO THE RESIN (HOWEVER, THE USE OF POLYMER RECYCLED DURING THE MANUFACTURING PROCESS MAY BE PERMITTED IF DONE WITH APPROPRIATE CLEANLINESS AND APPROVED BY THE GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT).

BASED ON THE DATA SUPPLIED BY THE MANUFACTURER, THE GEOSYNTHETICS QUALITY ASSURANCE MANAGER WILL NOTIFY THE PROJECT MANAGER OF ANY DEVIATION FROM THE PROJECT SPECIFICATIONS.

4.3.1.2 GEOMEMBRANE ROLLS

THE MANUFACTURER WILL PROVIDE THE PROJECT MANAGER OR GEOSYNTHETICS QUALITY ASSURANCE MANAGER WITH A QUALITY CONTROL CERTIFICATE FOR THE GEOMEMBRANE PRODUCED. THE QUALITY CONTROL CERTIFICATE SHOULD BE SIGNED BY A RESPONSIBLE PARTY EMPLOYED BY THE MANUFACTURER. THE QUALITY CONTROL CERTIFICATE SHALL INCLUDE:

- A. ROLL NUMBER AND IDENTIFICATION, AND;
- B. SAMPLING PROCEDURES, FREQUENCY, AND RESULTS OF QUALITY CONTROL TESTS. TESTING SHALL CONFIRM THE GEOMEMBRANE MEETS MINIMUM REQUIREMENTS AS LISTED IN TABLE 2(A) OF LATEST EDITION OF THE GRI'S GM13 OR GM17 (AS APPROPRIATE). HOWEVER, THE CELL BOTTOM GEOMEMBRANE SHALL HAVE A 60 MIL MIN. THICKNESS. THESE TESTS SHOULD BE CONDUCTED USING THE METHODS AND TEST FREQUENCY INDICATED IN TABLE 2.
- C. REVIEW THE QUALITY CONTROL CERTIFICATES, TEST METHODS USED, AND THE MEASURED ROLL PROPERTIES FOR CONFORMANCE TO THE SPECIFICATIONS;
- D. VERIFY THAT THE QUALITY CONTROL CERTIFICATES HAVE BEEN PROVIDED FOR ALL ROLLS; AND,
- E. REVIEW THE CONFORMANCE TEST RESULTS BEFORE DEPLOYMENT OF GEOMEMBRANE.

TABLE 2
REQUIRED QUALITY CONTROL PRE-SHIPMENT
TESTING OF GEOMEMBRANE LINER

PROPERTY	TEST METHOD	FREQUENCY
THICKNESS	ASTM D5994	EACH ROLL
DENSITY	ASTM D1505 OR ASTM D792	ONCE EVERY BATCH OF RESIN
TENSILE PROPERTIES	ASTM D6683	EVERY 50,000 FT ²
TEAR RESISTANCE	ASTM D1004	EVERY 50,000 FT ²
PUNCTURE RESISTANCE	ASTM D4833	EVERY 50,000 FT ²
STRESS CRACK RESISTANCE	ASTM D5397	ONCE EVERY BATCH OF RESIN
CARBON BLACK CONTENT	ASTM D1603	EVERY 50,000 FT ²



CHK. BY	DESCRIPTION	DATE	REV
JRB	ISSUED FOR BID	04/06/26	1
			2
			3
			4
			5

SHEET TITLE
CONSTRUCTION QUALITY
ASSURANCE PLAN - 1

PROJECT TITLE
DEANS BRIDGE ROAD LANDFILL
PHASE III STAGE II SOUTH CELL 2
PHASE I CONSTRUCTION

CLIENT
AUGUSTA-RICHMOND COUNTY LANDFILL
4330 DEANS BRIDGE RD
BLYTHE, GEORGIA 30805

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3175 SATELLITE BLVD, BLDG 600 SUITE 100
DULUTH, GA 30096
PH. 678 319-9849

OWN. BY: JRB
CHK. BY: JRB
DATE: 02/21/05
SCALE: 1"=50'

CADD FILE:
11-14 COA PLAN

DATE:
APRIL 2026

SCALE:
AS SHOWN

DRAWING NO.

SHEET 11 of 21



NO.	DATE	DESCRIPTION OF REVISION
1	04-09-18	EPD COMMENT – GCL MINOR MOD
2	02-23-18	EPD SUBMITTAL – GCL MINOR MOD

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS 3175
SATELLITE BLVD, BLDG 600 SUITE 100
DULUTH, GA 30096
PH. 678 319-9849 FAX 678 319-9851

NO.	DATE	DESCRIPTION OF REVISION	TH/VS/
1	11-30-20	REVISED FOR FIVE YEAR PERMIT REVIEW	BT/CML

AUGUSTA – RICHMOND
COUNTY, GEORGIA



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DEANS BRIDGE ROAD MSW LANDFILL
PHASE III DESIGN & OPERATION PLAN

CONSTRUCTION QUALITY ASSURANCE PLAN

DESIGNED: MAL	CHECKED:	DATE: FEB 2018	36	2
DRAWN: MAL	JOB NO. C003-109A	SCALE:	SHEET	REV

C:\Users\jasin\AppData\Local\Temp\AcPublish_33924\11-14 CQA PLAN.dwg Apr 06, 2026 - 10:48am Layout Name: CQA-2 By: jasin

DEANS BRIDGE ROAD MSWLF – PHASE III
CONSTRUCTION QUALITY ASSURANCE (CQA) PLAN (CONTINUED)

4.3.2 ACCEPTANCE CRITERIA

TABLES 2A OF GM13 AND GM17 AND 2 ABOVE LIST THE TESTS, TEST METHODS AND FREQUENCIES TO BE PERFORMED ON GEOMEMBRANE ROLLS SAMPLED BY THE MANUFACTURER.

RESULTS FOR TEAR RESISTANCE, AND EACH OF THE TENSILE PROPERTY TESTS WILL BE REPORTED FOR BOTH THE MACHINE AND CROSS DIRECTION.

RETESTING OF GEOMEMBRANE ROLLS BECAUSE OF FAILURE TO MEET ANY OF THESE SPECIFICATIONS OF CAN ONLY BE AUTHORIZED BY THE PROJECT MANAGER.

TABLE 2A OF GM13 AND GM17, LATEST EDITION, LISTS THE ACCEPTANCE SPECIFICATIONS FOR THE GEOMEMBRANE TO BE USED FOR THE PROJECT. FOR THOSE TESTS WHERE RESULTS ARE REPORTED FOR BOTH MACHINE AND CROSS DIRECTION, EACH RESULT WILL BE COMPARED TO THE LISTED SPECIFICATION TO DETERMINE ACCEPTANCE. THE FOLLOWING PROCEDURE WILL BE USED FOR INTERPRETING RESULTS:

- IF THE VALUE MEETS THE STATED SPECIFICATION, THEN THE ROLL AND THE LOT WILL BE ACCEPTED FOR USE IN THE LINERS FOR THE JOB SITE.
- IF THE RESULT DOES NOT MEET THE SPECIFICATION, THEN THE ROLL AND ALL OTHER ROLLS BETWEEN OTHER PASSING TESTS SHALL BE REJECTED. THE ROLL OR ROLLS MAY BE RETESTED USING ADDITIONAL SAMPLES, WHICH BOUND THE FAILED TEST. TWO ADDITIONAL TESTS MUST BE PERFORMED FOR THE FAILED TEST PROCEDURE. IF BOTH OF THE RETESTS ARE ACCEPTABLE, THEN THE MATERIAL BETWEEN PREVIOUS AND SUBSEQUENT PASSING TESTS IS UNSUITABLE AND SHALL BE REJECTED.

4.4 COMPACTED LINER BASE

THE COMPACTED LINER BASE IN THE MSW AREA AS SHOWN ON THE DRAWINGS SHALL CONSIST OF A MINIMUM OF 2 FEET OF LOW PERMEABILITY NATURAL OR AMENDED SOL LINER MATERIAL.

PRIOR TO ACCEPTANCE OF ANY MATERIAL FOR USE AS COMPACTED LINER BASE, THE SOILS QUALITY ASSURANCE MANAGER WILL VISIT THE POTENTIAL BORROW AREA(S) TO VISUALLY OBSERVE AND FIELD CLASSIFY THE MATERIAL. UPON PRELIMINARY ACCEPTANCE BY THE SOILS QUALITY ASSURANCE MANAGER, BASED ON FIELD CLASSIFICATION, A SAMPLE OF REPRESENTATIVE MATERIAL FROM EACH BORROW SOURCE WILL BE OBTAINED AND TRANSPORTED TO THE SOILS TESTING LABORATORY FOR PREQUALIFICATION TESTING.

EACH SERIES OF PREQUALIFICATION TESTS WILL CONSIST OF DETERMINATIONS OF NATURAL MOISTURE CONTENT, GRAIN SIZE DISTRIBUTION, ATTERBERG LIMITS, MOISTURE-DENSITY RELATIONSHIP AND HYDRAULIC CONDUCTIVITY. THE COMPACTED LINER BASE MATERIAL SHALL HAVE AN IN-PLACE COMPACTED SATURATED HYDRAULIC CONDUCTIVITY EQUAL TO OR LESS THAN 1×10^{-7} CM/SEC, OR EQUAL TO OR LESS THAN 1×10^{-3} CM/SEC IF USING A GCL THAT HAS A SATURATED HYDRAULIC CONDUCTIVITY EQUAL TO OR LESS THAN 5×10^{-9} CM/SEC, ALL WITHIN THE DENSITY AND MOISTURE CONTENT RANGE SPECIFIED FOR CONSTRUCTION. THE UPPER 6 INCHES OF THE COMPACTED LINER BASE SHALL BE FREE OF PARTICLES GREATER THAN 0.25-INCHES IN ANY DIMENSION. THE LOWER 18 INCHES OF COMPACTED LINER BASE SHALL BE FREE OF STONES OR OTHER PARTICLES GREATER THAN THREE INCHES IN DIAMETER. COMPACTED LINER BASE SHALL BE FREE OF DEBRIS, PLANT MATERIALS, ROOTS OR OTHER FOREIGN MATERIALS.

TABLE 3 PRESENTS THE MINIMUM TESTING FREQUENCY OF PREQUALIFICATION TESTS FOR THE BORROW SOURCE.

ITEM	MATERIAL PROPERTY REQUIREMENTS BORROW SOURCE	
	ASTM	MINIMUM REQUIREMENTS
MOISTURE CONTENT	D2216, D4643 D4944	1 TEST PER 1,000 CU YD AND EACH CHANGE IN MATERIAL TYPE.
ATTERBERG LIMITS	D4318-84	1 TEST PER 5,000 CU YD AND EACH CHANGE IN MATERIAL TYPE.
SEIVE ANALYSIS	D6913	1 TEST PER 1,000 CU YD AND EACH CHANGE IN MATERIAL TYPE.
STANDARD PROCTOR	D698	1 TEST PER 5,000 CU YD AND EACH CHANGE IN MATERIAL TYPE.
RECOMPACTED HYDRAULIC CONDUCTIVITY	D5084	1 TEST PER 10,000 CU YD AND EACH CHANGE IN MATERIAL TYPE.

4.5 LEACHATE COLLECTION LAYER

LEACHATE COLLECTION LAYER: THE LEACHATE COLLECTION LAYER USED AS PART OF THE LEACHATE COLLECTION SYSTEM SHALL CONSIST OF A MINIMUM 2 FOOT LAYER OF MATERIAL WITH A MINIMUM HYDRAULIC CONDUCTIVITY OF 1×10^{-7} CM/SEC. THE MATERIAL SHALL BE SUBSTANTIALLY FREE OF AGGREGATE, ROCKS, DEBRIS, PLANT MATERIAL, OR OTHER SOLID MATERIAL LARGER THAN 1/4-INCH IN DIAMETER. THE LEACHATE COLLECTION MATERIAL CALCIUM CARBONATE CONTENT SHALL BE LESS THAN 5 PERCENT BY WEIGHT. DURING CONSTRUCTION OR STOCKPILING, BULK SAMPLES SHALL BE OBTAINED AND TESTED IN ACCORDANCE WITH THE FOLLOWING TABLE. ADDITIONALLY, ONE SAMPLE WILL BE TESTED FOR CALCIUM CARBONATE CONTENT (ASTM D-3042).

ITEM	ASTM	MINIMUM REQUIREMENTS
SEIVE ANALYSIS	D6913	1,500 CU YD
HYDRAULIC CONDUCTIVITY	D2434	3,000 CU YD
CALCIUM CARBONATE	D3042	1 PER SOURCE

4.6 ALTERNATE LEACHATE COLLECTION LAYER

THE ALTERNATE LEACHATE COLLECTION LAYER THAT MAY BE USED INSTEAD OF THE 1×10^{-7} CM/SEC GRANULAR MATERIAL CONSISTS OF A DOUBLE-SIDED GEOTEXTILE DRAIN (A GEOTEXT HEAT BONDED TO A GEOTEXTILE ON EACH SIDE) OVERLAY BY A MINIMUM OF 2 FEET OF COVER SOIL.

4.6.1 SOL COVER MATERIAL

COVER SOIL SHALL CONSIST OF 24-INCHES OF EITHER ON-SITE OR OFF-SITE MATERIAL WITH A MAXIMUM PARTICLE SIZE OF 3/4-INCH. THE SOIL HAS NO SPECIFIED PERMEABILITY. THE FOLLOWING IS THE MINIMUM TESTING FOR THE SOIL COVER MATERIAL.

ITEM	ASTM	MINIMUM REQUIREMENTS
SEIVE ANALYSIS	D6913	1,500 CU YD

4.6.2 GEOTEXTILE AND GEONET

THE GEOTEXTILE SHALL BE MANUFACTURED BY HEAT BONDING A 6 OZ/SY NON-WOVEN GEOTEXTILE TO BOTH SIDES OF AN HDPE GEONET. THE GEOTEXTILE SHALL MEET THE REQUIREMENTS FOR BOTH FILTER AND CUSHION GEOTEXTILE AS IDENTIFIED IN SECTION 4.8. THE GEONET WILL BE MANUFACTURED TO MEET MINIMUM PHYSICAL, MECHANICAL, AND CHEMICAL PROPERTIES REQUIRED TO PROVIDE LONG-TERM DRAINAGE PERFORMANCE. THE FOLLOWING PROPERTIES, TEST METHODS AND TEST FREQUENCIES SHALL BE USED BY THE MANUFACTURERS AND QUALITY ASSURANCE MANAGER:

GEONET PROPERTY	TEST METHOD	MANUFACTURER QC TEST FREQUENCY	CONFORMANCE QA TEST FREQUENCY	REQUIRED TEST VALUE
DENSITY (MIN. AVE.)	ASTM D792 OR ASTM D1505	1 PER 100,000 SF	1 PER 250,000 SF	0.95 G/CC
COMPRESSIVE STRENGTH (MIN. AVE.)	ASTM D4364	1 PER 100,000 SF	1 PER 250,000 SF	(SEE NOTE 3)
CARBON BLACK CONTENT (RANGE)	ASTM D1603 ⁽¹⁾	2 PER 100,000 SF	2 PER 250,000 SF	2-3%
GEOTEXTILE PROPERTY				
PEEL STRENGTH (MIN. AVE.)	ASTM D7005	1 PER 100,000 SF	1 PER 250,000 SF	0.75 LB/IN
TRANSMISSIVITY ⁽²⁾	ASTM D4716	1 PER 100,000 SF	1 PER 250,000 SF	(SEE NOTE 1)

NOTES:

- TRANSMISSIVITY SHALL BE MEASURED IN A 12-INCH X 12-INCH BOX WITH ADJACENT CONDITIONS MATCHING DETAIL. 100 HOUR DURATION AND 0.1 GRADIENT. THE VALUE SHALL BE AT LEAST 5.35×10^{-5} M²/SEC AT 1,050 PSF, 1.58×10^{-4} M²/SEC AT 3,500 PSF, 2.10×10^{-4} M²/SEC AT 10,500 PSF, 2.95×10^{-4} M²/SEC AT 14,000 PSF, 2.48×10^{-4} M²/SEC AT 24,500 PSF AND 2.40×10^{-4} M²/SEC AT 25,650 PSF.
- OTHER METHODS SUCH AS D4218 (MUFFLE FURNACE) OR MICROWAVE METHODS ARE ACCEPTABLE IF AN APPROPRIATE CORRELATION TO D1603 (TUBE FURNACE) CAN BE ESTABLISHED.
- COMPRESSIVE STRENGTH REQUIRED VARIES BY LOCATION. BASE LINER GEONET WITH MAXIMUM WASTE HEIGHT OF 200 FEET SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 15,000 PSF. BASE LINER GEONET WITH MAXIMUM WASTE HEIGHT BETWEEN 200 FEET AND 350 FEET SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25,000. BASE LINER GEONET WITH MAXIMUM WASTE HEIGHT OF MORE THAN 350 FEET SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 28,000 PSF.

4.6.3 ROCK TOE DRAIN

THE ROCK TOE DRAIN REQUIRED FOR THE ALTERNATE LINER COLLECTION LAYER AT THE TOE OF THE SLOPE AT THE LOW END OF THE STAGE, AS SHOWN ON THE DRAWINGS, SHALL CONSIST OF ASTM #57 STONE. THE STONE SHALL BE LESS THAN 5 PERCENT CALCIUM CARBONATE BY WEIGHT. EACH SOURCE SHALL BE TESTED AT LEAST ONCE FOR GRADATION AND CALCIUM CARBONATE CONTENT.

4.7 HOPE PIPING

THE HOPE PIPING HAS BEEN DESIGNED BASED ON ASTM D3350 CELL CLASSIFICATION 445474C MATERIALS. ANY HOPE PIPING USED FOR THIS FACILITY SHALL MEET OR EXCEED THOSE REQUIREMENTS. LEACHATE COLLECTION PIPING SHALL BE 6" HOPE (PE 4710, SDR 11 OR BETTER) PERFORATED AS SHOWN ON THE DRAWINGS. LEACHATE SUMP AND CLEANOUT PIPE SHALL BE 6", 8" OR 10" HOPE AS SHOWN ON THE DRAWINGS (PE 4710, SDR 17 OR BETTER). DUAL CONTAINED FOREMAN SHALL BE 2" HOPE (SDR 17 OR BETTER) BY 4" HOPE (SDR 17 OR BETTER) OR 3" HOPE (SDR 17 OR BETTER) BY 6" HOPE (SDR 17 OR BETTER) AS SHOWN ON THE DRAWINGS. UNDERDRAIN PIPING SHALL BE 6" HOPE (SDR 11 OR BETTER) PERFORATED AS SHOWN ON THE DRAWINGS. THE STONE ENVELOPE AROUND THE LEACHATE COLLECTION PIPING AND UNDERDRAIN PIPING SHALL MEET REQUIREMENTS OF SECTION 4.9.

LEACHATE GRAVITY COLLECTION PIPING SHALL BE PRESSURE TESTED UPON INSTALLATION IN ACCORDANCE WITH THE CONSTRUCTION PLANS AND SPECIFICATIONS.

4.8 GEOTEXTILES

THE GEOTEXTILES USED IN CONSTRUCTION SHALL MEET THE REQUIREMENTS OF TABLE 4. GEOTEXTILE SHALL BE QUALITY CONTROL TESTED AT A MINIMUM OF EVERY 100,000 SQUARE FEET.

THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL VISUALLY INSPECT THE MATERIAL AS IT ARRIVES AT THE SITE. THE REQUIRED GEOTEXTILE MATERIAL PROPERTIES ARE LISTED BELOW:

GEOTEXTILE PROPERTIES AND TEST METHODS				
APPLICATION/PROPERTY	UNIT	QUALIFIER	TEST METHOD	VALUE
MASS PER UNIT AREA	OZ/YD'	MINIMUM	ASTM D5261	6 8 10 16
APPARENT OPENING SIZE	MM	MAXIMUM	ASTM D4751	0.25 0.25
PERMITTIVITY	/S	MINIMUM	ASTM D4491	0.2 0.2
GRAB STRENGTH	LB	MINIMUM	ASTM D4632	157 200 230 370
PUNCTURE STRENGTH	LB	MINIMUM	ASTM D6241	310 430 700 900
TRAPEZOIDAL TEAR STRENGTH	LB	MINIMUM	ASTM D4533	135 95

4.9 LEACHATE COLLECTION GRAVEL

THE LEACHATE COLLECTION GRAVEL ENVELOPE SURROUNDING THE LEACHATE COLLECTION PIPES SHALL CONSIST OF WASHED GRAVEL AND SHALL BE CLEAN, EITHER CRUSHED OR NATURALLY ROUNDED, SUBSTANTIALLY NON-CARBONATE AGGREGATE, SIZE NO. 4 PER GEORGIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES, TABLE 800.01.H. THE LEACHATE COLLECTION GRAVEL CALCIUM CARBONATE CONTENT SHALL BE LESS THAN 5 PERCENT BY WEIGHT.

THE MATERIAL SUPPLIER SHALL PROVIDE THE QUALITY ASSURANCE MONITOR A REPRESENTATIVE SAMPLE OF MATERIAL FOR QUALITY ASSURANCE TESTING. EACH SOURCE SHALL BE TESTED AT LEAST ONCE FOR GRADATION AND CALCIUM CARBONATE CONTENT.

4.11 FINAL COVER COMPACTED SOIL

FINAL COVER: THE COMPACTED SOIL MATERIAL SHALL BE MINIMUM 18 INCHES OF EITHER ON-SITE OR OFF-SITE MATERIAL WITH A MAXIMUM PARTICLE SIZE OF 3/4-INCH. THE SOIL COVER SHOULD HAVE A MAXIMUM PERMEABILITY OF 1×10^{-3} CM/SEC. THE SOIL SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED BY ASTM D698, STANDARD PROCTOR DURING COMPACTION. THE THICKNESS OF THE COMPACTED LIFTS SHALL NOT EXCEED 6 INCHES.

ALTERNATE 1 FINAL COVER: THE COMPACTED SOIL MATERIAL SHALL BE MINIMUM 18 INCHES OF EITHER ON-SITE OR OFF-SITE MATERIAL WITH A MAXIMUM PARTICLE SIZE OF 3/4-INCH. THE SOIL COVER SHOULD HAVE A MAXIMUM PERMEABILITY OF 1×10^{-3} CM/SEC. THE THICKNESS OF COMPACTED LIFTS SHALL NOT EXCEED 6-INCHES.

ALTERNATE 2 FINAL COVER: THE COMPACTED SOIL MATERIAL SHALL BE MINIMUM 12 INCHES OF EITHER ON-SITE OR OFF-SITE MATERIAL WITH A MAXIMUM PARTICLE SIZE OF 3/4-INCH. THE SOIL COVER HAS NO SPECIFIED PERMEABILITY AND SHALL BE COMPACTED TO 90 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED BY ASTM D698, STANDARD PROCTOR DURING COMPACTION. THE THICKNESS OF COMPACTED LIFTS SHALL NOT EXCEED 6-INCHES.

PRIOR TO ACCEPTANCE OF ANY MATERIAL FOR USE AS COMPACTED CLAYEY SOIL, THE SOILS QUALITY ASSURANCE MANAGER WILL VISIT THE POTENTIAL BORROW AREA(S) TO VISUALLY OBSERVE AND FIELD CLASSIFY THE MATERIAL. UPON PRELIMINARY ACCEPTANCE BY THE SOILS QUALITY ASSURANCE MANAGER, BASED ON FIELD CLASSIFICATION, A SAMPLE OF REPRESENTATIVE MATERIAL FROM EACH BORROW SOURCE WILL BE OBTAINED AND TRANSPORTED TO THE SOILS TESTING LABORATORY FOR TESTING.

4.12 GENERAL FILL – FINAL COVER

THE GENERAL FILL MATERIAL SHALL CONSIST OF EITHER ON-SITE OR OFF-SITE MATERIAL WITH A MAXIMUM PARTICLE SIZE OF 3/4 INCH. THE SOIL COVER HAS NO SPECIFIED PERMEABILITY. THE FOLLOWING IS THE MINIMUM TESTING FOR THE GENERAL FILL MATERIAL.

ITEM	TEST METHOD	MINIMUM REQUIREMENTS
SEIVE ANALYSIS	ASTM D6913	1,500 CU YD.

4.13 TOP SOIL – FINAL COVER

TOP SOIL SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES. TOP SOIL MUST SUSTAIN VEGETATIVE GROWTH, MINIMIZE EROSION, AND PROTECT THE INTEGRITY OF THE UNDERLYING COMPONENTS OF THE FINAL COVER SYSTEM. TOPSOIL SHOULD BE A RICH, FRAGILE LOAM CONTAINING A LARGE AMOUNT OF HUMUS AND SHALL BE ORIGINAL SURFACE SANDY LOAM, TOPSOIL OF GOOD, RICH, UNIFORM QUALITY, SUBSTANTIALLY FREE FROM ANY MATERIAL SUCH AS HARD CLOPS, STIFF CLAY, HARPAN, PARTIALLY DISINTEGRATED STONE, PEBBLES LARGER THAN 1/2-INCH IN DIAMETER, LIME, CEMENT, BRICKS, ASHES, CINDERS, SLAG, CONCRETE, BITUMEN OR ITS RESIDUE, BOARDS, STICKS, CHIPS OR OTHER UNDESIRABLE MATERIAL HARMFUL OR UNNECESSARY TO PLANT GROWTH. THE PH SHALL RANGE FROM 5.5 TO 6.0.

4.14 VEGETATIVE/EROSION LAYER – FINAL COVER

VEGETATIVE/EROSION LAYER SHALL HAVE A MINIMUM THICKNESS OF 18 INCHES. VEGETATIVE/EROSION LAYER MUST SUSTAIN VEGETATIVE GROWTH, MINIMIZE EROSION, AND PROTECT THE INTEGRITY OF THE UNDERLYING COMPONENTS OF THE FINAL COVER SYSTEM. VEGETATIVE/EROSION LAYER SHOULD BE A RICH, FRAGILE LOAM CONTAINING A LARGE AMOUNT OF HUMUS AND SHALL BE ORIGINAL SURFACE SANDY LOAM, TOPSOIL OF GOOD, RICH, UNIFORM QUALITY, SUBSTANTIALLY FREE FROM ANY MATERIAL SUCH AS HARD CLOPS, STIFF CLAY, HARPAN, PARTIALLY DISINTEGRATED STONE, PEBBLES LARGER THAN 1/2-INCH IN DIAMETER, LIME, CEMENT, BRICKS, ASHES, CINDERS, SLAG, CONCRETE, BITUMEN OR ITS RESIDUE, BOARDS, STICKS, CHIPS OR OTHER UNDESIRABLE MATERIAL HARMFUL OR UNNECESSARY TO PLANT GROWTH. THE PH SHALL RANGE FROM 5.5 TO 6.0.

4.15 GEOSYNTHETIC CLAY LINER (GCL)

THE CONSTRUCTION CONTROL OF GCL INCLUDES VISUAL OBSERVATION AND RECORD KEEPING FOR SUBGRADE CONTROL, MATERIAL DEPLOYMENT, SEAM OVERLAP AND AUGMENTATION (IF REQUIRED). THE QUALITY ASSURANCE MONITOR WILL VISUALLY INSPECT THE MATERIAL AS IT ARRIVES AT THE SITE.

THE QUALITY ASSURANCE MONITOR SHALL CONFIRM THE MATERIAL AND INSTALLATION ARE IN ACCORDANCE WITH THE CONSTRUCTION PLANS, SPECIFICATIONS, THE CONSTRUCTION QUALITY ASSURANCE PLAN AND THE MANUFACTURER'S RECOMMENDATIONS.

THE QUALITY ASSURANCE MONITOR SHALL REVIEW AND APPROVE THE QUALIFICATIONS OF THE GCL MANUFACTURER AND GCL INSTALLER.

THE QUALITY ASSURANCE MONITOR WILL REVIEW THE GCL MANUFACTURER'S QUALITY CONTROL CERTIFICATES (MCCS) TO VERIFY THAT THE MCCS HAVE BEEN PROVIDED AT THE SPECIFIED FREQUENCY AND THAT EACH CERTIFICATE IDENTIFIES THE ROLLS RELATED TO IT AND THAT THE CERTIFIED PROPERTIES MEET THE PROJECT SPECIFICATIONS. GCL WILL MEET OR EXCEED THE SPECIFICATION LISTED IN THE LATEST VERSION OF TABLE 1(b) OF GRI-GCL3, "STANDARD SPECIFICATION FOR TEST METHODS, REQUIRED PROPERTIES, AND TESTING FREQUENCIES OF GEOSYNTHETIC CLAY LINERS (GCL)". THE REQUIRED GCL MATERIAL PROPERTIES ARE LISTED BELOW:

GCL PROPERTIES AND TEST METHODS				
APPLICATION/PROPERTY	UNIT	QC TEST FREQUENCY	TEST METHOD	VALUE
BENTONITE MASS/UNIT AREA	LBS/FT ²	1 PER 45,000 FT ²	ASTM D5993	0.75 (1)
PERMEABILITY (MAX.)	CM/SEC	1 PER 100,000 FT ²	ASTM D5887	5×10^{-9} (2)
FLUID LOSS, MAX. (BENTONITE PROPERTY)	ML	1 PER 100,000 LBS	ASTM D5891	18 (3)
PEEL STRENGTH (MIN. AVE.)	(4)	1 PER 45,000 FT ²	ASTM D6468	(4)

- (1)BENTONITE MASS PER UNIT AREA TO BE REPORTED AT 0% MOISTURE CONTENT.
- (2)PERMEABILITY TESTING TO BE PERFORMED WITH WATER @ 10 PSF MAXIMUM EFFECTIVE CONFINING STRESS AND 2 PSF HEAD.
- (3)TYPICAL PEAK VALUE FOR SPECIFEN, HYDRATED 24 HOURS AT 200 PSF AND SHEARED AT 200 PSF NORMAL STRESS.
- (4)REQUIRED VALUE SHALL BE TAKEN FROM MANUFACTURER'S STANDARD MATERIAL SPECIFICATION SHEET FOR THE SELECTED GCL MATERIAL. GCL SELECTION SHALL BE BASED ON THE MATERIAL'S ABILITY TO MEET OR EXCEED THE REQUIREMENTS IDENTIFIED IN THE SITE'S DESIGN.
- (5)GEOTEXTILE COMPONENTS OF GCL SHALL BE QC TESTED IN ACCORDANCE WITH THE MANUFACTURER'S QUALITY CONTROL PROGRAM.

4.16 LINER SYSTEM INTERFACE FRICTION REQUIREMENTS

PRIOR TO STARTING MSW CELL FLOOR OR FINAL COVER CONSTRUCTION PROJECT, THE SELECTED MATERIALS SHALL BE TESTED BY DIRECT SHEAR METHODS. FOR GEOSYNTHETIC INTERFACES, TESTING SHALL BE IN ACCORDANCE WITH ASTM D5321. FOR GCL INTERFACES, TESTING SHALL BE IN ACCORDANCE WITH ASTM D6243. THE COHESIVE SOL LINER MATERIAL SHALL BE REDUCED IN ACCORDANCE WITH THE PERMEABILITY TESTING REQUIREMENTS. THE CONDITIONS FOR THE SOL LINER AND GCL AGAINST THE GEOMEMBRANE AND THE GCL VS THE SOL LINER MATERIAL SHALL BE AS FOLLOWS: CONSOLIDATED AND UNDRAINED FOR 24 HOURS AND SHEAR AT 0.04 IN/MIN WITH AN UNDRAINED CONDITION. THE NORMAL STRESSES USED FOR ALL TESTS SHALL INCLUDE THE FOLLOWING: 5 PSF, 50 PSF AND 180 PSF. THE MINIMUM HORIZONTAL DISPLACEMENT SHOULD BE 3 INCHES. ALL TESTING SHALL BE COMPLETED AND RESULTS APPROVED BY THE ENGINEER PRIOR TO FINAL APPROVAL OF THE PROPOSED CONSTRUCTION MATERIALS. AT MINIMUM, ONE SET OF TESTS SHALL BE PERFORMED PER CONSTRUCTION EVENT (CELL OR FINAL CLOSURE). THE RESULTS SHALL DEMONSTRATE THAT THE MINIMUM PEAK FRICTION ANGLE FOR ANY INTERFACE CONDITION IN THE BASE LINER SYSTEM IS 17.5° OR GREATER. IF THE RESULTS DO NOT MEET THE MINIMUM REQUIREMENTS, THE DESIGN ENGINEER MAY EVALUATE ALTERNATE MATERIALS OR RE-EVALUATE THE SYSTEM STABILITY AND MINIMUM ϕ REQUIREMENTS.

5.0 CONSTRUCTION

5.1 EARTHWORK

5.1.1 SUBGRADE PREPARATION & STRUCTURAL FILL PLACEMENT

THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING THE SUBGRADE FOR CONSTRUCTION OF OVERLYING COMPONENTS ACCORDING TO THE APPROVED GRADES. THE SOILS QUALITY ASSURANCE MANAGER WILL REPRESENT TO THE PROJECT MANAGER THAT:

- A LICENSED GEORGIA PROFESSIONAL ENGINEER OR LAND SURVEYOR HAS DETERMINED THAT LINES AND GRADES ARE IN ACCORDANCE WITH DESIGN PLANS;
- THERE ARE NO AREAS EXCESSIVELY SOFTENED BY HIGH WATER CONTENT; AND,
- THE SUBGRADE AREAS, WHICH WERE UNSTABLE UNDER THE LOADING OF THE COMPACTION EQUIPMENT, HAVE BEEN CORRECTED BY RECOMPACTION OR REMOVAL AND REPLACEMENT WITH STRUCTURAL FILL.

AFTER EXCAVATION TO SUBGRADE ELEVATION, THE CONTRACTOR SHALL PROOF-ROLL THE ENTIRE SUBGRADE WITH LOADED, RUBBER-TIRED SCRAPERS OR EQUIVALENT. UNSTABLE AREAS IDENTIFIED DURING PROOF-ROLLING SHALL BE REMOVED TO PROVIDE A SUBGRADE SUFFICIENTLY STABLE TO SUPPORT THE CONSTRUCTION OF OVERLYING MATERIALS. REMOVED MATERIALS WILL BE REPLACED WITH STRUCTURAL FILL MATERIALS CAPABLE OF SUPPORTING THE COMPACTION OF OVERLYING MATERIALS, AND SHALL BE COMPACTED TO A MAXIMUM 6-INCH THICK COMPACTED LIFT AT A MINIMUM 95% OF MAXIMUM DRY DENSITY DETERMINED FROM ASTM D-698, STANDARD PROCTOR.

IN-PLACE DENSITY TESTS ON THE STRUCTURAL FILL AND SUBGRADE WILL BE PERFORMED BY A SOILS QUALITY ASSURANCE MONITOR WITH A NUCLEAR DENSITY METER OR A DRIVE CYLINDER APPARATUS. THE REQUIRED DEGREE OF COMPACTION IS A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D698, STANDARD PROCTOR. TABLE 5 SUMMARIZES THE MINIMUM TESTING AND FREQUENCY REQUIREMENTS FOR THE COMPACTED STRUCTURAL FILL:

TABLE 5

STRUCTURAL FILL TESTING REQUIREMENTS		
ITEM	MINIMUM REQUIREMENTS	
SOIL CLASSIFICATION	NONE	
NUCLEAR DENSITY/MOISTURE (ASTM D6938)	1 TEST PER 10,000 SQUARE FEET PER LIFT	
DENSITY (ASTM D1555 OR D2937)	EVERY 25TH NUCLEAR DENSITY TEST	
MOISTURE (ASTM D2216 OR D4643)	EVERY 10TH NUCLEAR MOISTURE TEST	
ATTERBERG LIMITS (ASTM D4318-84)	1 TEST PER 10,000 CU. YD. OR WHENEVER SOIL TYPE CHANGES	
SEIVE ANALYSIS (ASTM D6913)	1 TEST PER 10,000 CU. YD.	
STANDARD PROCTOR SOL COMPACTION CURVE (ASTM D698-91)	1 TEST PER 10,000 CU. YD OR WHENEVER SOIL TYPE CHANGES	
SUBGRADE ELEVATIONS	100 FT. GRID INTERVAL	

* TEST FREQUENCIES RELATED TO SUBGRADE AND STRUCTURAL FILL VOLUME SHALL BE BASED ON IN-PLACE CUBIC YARDS.

THE SOILS QUALITY ASSURANCE MONITOR WILL MAINTAIN AN ON-GOING SAMPLING AND TESTING PROGRAM DURING CONSTRUCTION TO DOCUMENT THAT MOISTURE/DENSITY CURVES ARE REPRESENTATIVE OF THE COMPACTED SOIL. MORE FREQUENT DENSITY TESTS MAY BE PERFORMED AT THE DISCRETION OF THE SOILS QUALITY ASSURANCE CONSULTANT TO PROPERLY CONTROL FIELD COMPACTION OPERATIONS.

5.1.2 COMPACTED LINER BASE

THE CONTRACTOR WILL BE RESPONSIBLE FOR CONSTRUCTING THE COMPACTED LINER BASE ACCORDING TO THE FOLLOWING SPECIFICATIONS, AND MAINTAINING THE LINES AND GRADES SHOWN ON THE DRAWINGS.

5.1.2.1 MATERIAL PROPERTIES

THE COMPACTED LINER BASE MATERIALS SHALL MEET THE REQUIREMENTS AS OUTLINED IN SECTION 4.4. DURING CONSTRUCTION OF THE COMPACTED LINER BASE, THE SOILS QUALITY ASSURANCE MONITOR WILL OBTAIN SAMPLES OF ON-SITE LINER MATERIAL JUST BEFORE COMPACTION. SAMPLES WILL BE OBTAINED ON A MORE FREQUENT BASIS WHEN, IN THE JUDGMENT OF THE SOILS QUALITY ASSURANCE MONITOR, THE COMPACTED LINER BASE MATERIAL HAS CHANGED.

THE FOLLOWING TABLE 6 SUMMARIZES THE MINIMUM LABORATORY TESTING REQUIREMENTS FOR THE COMPACTED LINER BASE JUST AFTER COMPACTION:

TABLE 6

COMPACTED LINER BASE CONSTRUCTION TESTING REQUIREMENTS		
PARAMETER	TEST METHOD	MINIMUM TESTING FREQUENCY
PERMEABILITY	ASTM D5084	1 TEST PER 40,000 SF PER LIFT AND 1 TEST PER 800 LF PER LIFT OF SIDEWALL
ATTERBERG LIMITS	ASTM D4318	1 TEST PER 40,000 SF PER LIFT AND 1 TEST PER 800 LF PER LIFT OF SIDEWALL
DRY DENSITY	ASTM D6938	1 TEST PER 40,000 SF PER LIFT AND 1 TEST PER 800 LF PER LIFT OF SIDEWALL
MOISTURE CONTENT	ASTM D2216	1 TEST PER 40,000 SF PER LIFT AND 1 TEST PER 800 LF PER LIFT OF SIDEWALL
CONSTRUCTION OVERSIGHT	OBSERVATION	CONTINUOUS

THE SOILS QUALITY ASSURANCE MONITOR WILL MAINTAIN AN ON-GOING SAMPLING AND TESTING PROGRAM DURING CONSTRUCTION TO MONITOR MOISTURE/DENSITY CURVES SO THAT REPRESENTATIVE SOIL DATA IS BEING USED TO ESTIMATE RELATIVE COMPACTION. MORE FREQUENT COMPACTION CURVES OR ONE-POINT MOISTURE/DENSITY TESTS MAY BE PERFORMED AT THE DISCRETION OF THE SOILS QUALITY ASSURANCE CONSULTANT TO PROPERLY CONTROL FIELD COMPACTION OPERATIONS. THE SOILS QUALITY ASSURANCE CONSULTANT WILL VISUALLY CHECK LINER MATERIALS ENTERING THE SITE FOR COLOR, TEXTURE, ROCKS AND FOREIGN DEBRIS.

5.1.2.2 CONSTRUCTION

THE COMPACTED LINER BASE WILL BE PLACED AND COMPACTED ACCORDING TO THE FOLLOWING REQUIREMENTS:

- THE COMPACTED LINER BASE LIFTS SHALL BE UNIFORM IN THICKNESS AND SHALL NOT EXCEED SIX INCHES IN THICKNESS AFTER COMPACTION. THE COMPACTION EQUIPMENT SHALL BE A SHEEPSFOOT COMPACTOR WITH A PEO LENGTH THAT WILL FULLY PENETRATE THE LOOSE LIFTS.
- ALL LIFTS SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY, AND ABOVE THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698, STANDARD PROCTOR TO ACHIEVE A MAXIMUM HYDRAULIC CONDUCTIVITY OF 1×10^{-7} CM/SEC (OPTION 1), OR 1×10^{-5} CM/SEC (OPTION 2).
- ADJUSTMENTS TO THE MOISTURE CONTENT MAY BE ALLOWED IF IT IS FOUND BY LABORATORY REVOLVED PERMEABILITIES THAT A HIGHER IN-PLACE DENSITY OR CHANGE IN MOISTURE CONTENT IS REQUIRED TO MAINTAIN A MAXIMUM HYDRAULIC CONDUCTIVITY OF 1×10^{-7} CM/SEC (OPTION 1), OR 1×10^{-5} CM/SEC (OPTION 2).
- COMPACTION SHALL BE PERFORMED WITH AN APPROPRIATELY HEAVY, PROPERLY BALLASTED, PENETRATING FOOT COMPACTOR.
- HAND MANIPULATED COMPACTION EQUIPMENT (VIBRATING DRUMS OR MECHANICAL TAMPERS) SHALL BE USED FOR WORKING IN CONFINED AREAS AND ADJACENT TO STRUCTURES.
- THE DAILY WORK AREA SHOULD EXTEND TO SUCH A DISTANCE NECESSARY TO MINIMIZE DESICCATION AND CRUSTING OF THE LIFT SURFACE. THE FINISHED SURFACE SHOULD BE SMOOTH ROLLED AT THE END OF THE DAY TO PROMOTE PRECIPITATION RUNOFF.
- IF DESICCATION, CRUSTING, OR SEALING BY ROLLING OF THE LIFT SURFACE OCCURS PRIOR TO PLACEMENT OF THE NEXT LIFT, THE AREA SHALL BE SCARIFIED TO A MINIMUM DEPTH OF ONE INCH OR UNTIL SUFFICIENTLY MOST MATERIALS ARE ENCOUNTERED, WHICHEVER IS GREATER. ALSO, THE ADDITION OF WATER TO SURFACES PRIOR TO PLACEMENT OF ADDITIONAL CLAY MAY BE UTILIZED WHEN NECESSARY TO MAINTAIN UNIFORMLY MOIST SOIL CONDITIONS.

5.1.2.3 COMPACTION CONTROL

IN ORDER TO CONTROL THE MOISTURE CONTENT AND DENSITY OF THE COMPACTED LINER BASE, THE SOILS QUALITY ASSURANCE MONITOR WILL:

- CONDUCT IN-PLACE DENSITY AND MOISTURE CONTENT TESTS UTILIZING THE NUCLEAR DENSITY GAUGE AND/OR DRIVE CYLINDER METHODS AT A MINIMUM FREQUENCY OF ONE TEST PER 10,000 SQUARE FEET PER 6-INCH LIFT OF SOIL AND ONE TEST PER 200 LINEAR FEET OF PERMANENT SIDEWALL PER 6-INCH LIFT OF SOIL. A GRID PATTERN OF 100-FOOT WILL BE ESTABLISHED THAT INCLUDES SIDE SLOPES TO LOCATE SAMPLES.
- CONDUCT A DIRECT OR MICROWAVE OVEN MOISTURE CONTENT TEST (ASTM D2216 OR ASTM D4643) FOR EVERY TEN (10) NUCLEAR MOISTURE CONTENT TEST (ASTM D6938);
- CONDUCT A DRIVE CYLINDER TEST (ASTM D2937) FOR EVERY TWENTY-FIVE (25) NUCLEAR DENSITY TESTS (ASTM D6938);
- COLLECT UNDISTURBED SAMPLES AT A FREQUENCY OF ONE TEST PER 40,000 SQUARE FEET PER 6-INCH LIFT OF SOIL LINER PLUS ONE TEST PER 800 LINEAR FEET PER 6-INCH LIFT OF SOIL LINER ON PERMANENT SIDEWALL. UNDISTURBED SAMPLES SHALL BE TESTED FOR MOISTURE CONTENT (ASTM D-5084), ATTERBERG LIMITS (ASTM D4318), UNIT WEIGHT (ASTM D6938), HYDRAULIC CONDUCTIVITY (ASTM D5084);
- ALL PENETRATIONS IN THE COMPACTED LINER BASE SHALL BE FILLED WITH BENTONITE PELLETS PRIOR TO PLACEMENT OF NEXT LIFT.

IF SAMPLES FAIL TO MEET THE REQUIREMENTS, THE AREAS OF THE COMPACTED LINER BASE FROM WHICH THE SAMPLES WERE OBTAINED SHALL BE REMOVED AND RETESTED UNTIL PASSING RESULTS ARE OBTAINED OR THE FAILING MATERIAL WILL BE REMOVED FROM THE SITE. THE REPAIRED AREA MUST

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DEANS BRIDGE ROAD LANDFILL – PHASE III
CONSTRUCTION QUALITY ASSURANCE (COA) PLAN (CONTINUED)

5.1.2.4 PROTECTION OF WORK

DURING CONSTRUCTION, THE COMPACTED LINER BASE SHOULD BE PROTECTED FROM DETRIMENTAL CLIMATIC EFFECTS BY INCORPORATING THE FOLLOWING PROCEDURE:

- A. NO FROZEN COMPACTED LINER BASE MATERIAL SHALL BE PLACED.
- B. COMPACTED LINER BASE MATERIAL SHALL NOT BE PLACED ON A PREVIOUS LIFT OF COMPACTED LINER BASE MATERIAL, WHICH IS FROZEN. FROZEN IN-PLACE COMPACTED LINER BASE MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF ADDITIONAL COMPACTED LINER BASE MATERIAL.
- C. COMPACTED LINER BASE MATERIAL WHICH HAS BEEN SUBJECTED TO A FREEZE/THAW CYCLE(S) SHALL BE SCARIFIED AND/OR DISKED PRIOR TO RECOMPACTION AND PRIOR TO PLACEMENT OF SUBSEQUENT LIFTS OF COMPACTED LINER BASE MATERIAL.
- D. EXPOSED FINISHED LIFTS OF COMPACTED LINER BASE MATERIAL SHOULD BE SPRINKLED WITH WATER DAILY TO MINIMIZE DESICCATION, AS NECESSARY.
- E. AT THE END OF EACH DAY'S CONSTRUCTION ACTIVITIES, COMPLETED LIFTS OR SECTIONS OF COMPACTED LINER BASE SHOULD BE SEALED BY ROLLING WITH A RUBBER TIRE OR SMOOTH-DRUM ROLLER OR BY BACK DRAGGING WITH A BULLDOZER, AND SHOULD BE SPRINKLED WITH WATER, AS NEEDED.
- F. PROPER GRADING SHOULD BE PROVIDED AT THE END OF EACH WORKDAY TO ASSURE ADEQUATE RUNOFF IN THE EVENT OF OVERNIGHT RAIN.

5.2 GEOSYNTHETIC CLAY LAYER (GCL) INSTALLATION

THE GCL INSTALLER WILL STORE, HANDLE AND PLACE ALL GCL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE MANUFACTURER'S RECOMMENDATIONS.

ALL GCL WILL BE SEALED OR OVERLAPPED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS ASTM D6102 AND THE MANUFACTURER'S RECOMMENDATIONS OR AS APPROVED BY THE QUALITY ASSURANCE MONITOR.

ANY REPAIRS, HOLES OR TEARS IN THE GCL SHALL BE REPAIRED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS ASTM D6102 AND THE MANUFACTURER'S RECOMMENDATIONS. THE QUALITY ASSURANCE MONITOR WILL OBSERVE AND DOCUMENT GCL REPAIRS.

MATERIALS INSTALLED OVER THE GCL SHALL BE PLACED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS ASTM D6102 AND THE COA PLAN.

5.3 GEOMEMBRANE INSTALLATION

5.3.1 TRANSPORTATION, HANDLING, AND STORAGE

TRANSPORTATION OF THE GEOMEMBRANE IS THE RESPONSIBILITY OF THE MANUFACTURER, THE GEOMEMBRANE INSTALLER, OR OTHER PARTY AS DECIDED AT THE PRE-CONSTRUCTION MEETING. ALL HANDLING ON-SITE AFTER UNLOADING IS THE RESPONSIBILITY OF THE GEOMEMBRANE INSTALLER. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL MONITOR THE HANDLING PROCEDURES WITH REGARD TO:

- A. THE ADEQUACY OF ON-SITE HANDLING OF EQUIPMENT TO MINIMIZE RISK OF DAMAGE TO BOTH THE GEOMEMBRANE AND UNDERLYING COMPACTED LINER BASE; AND,
- B. THE CAREFUL HANDLING OF THE GEOMEMBRANE BY THE INSTALLER'S PERSONNEL.

UPON DELIVERY AT THE SITE, THE GEOMEMBRANE INSTALLER, IN THE PRESENCE OF THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR (ACTING AS AN OBSERVER), WILL OBSERVE EXPOSED ROLL SURFACES FOR DEFECTS AND/OR DAMAGE. VISUAL OBSERVATION SHOULD BE CONDUCTED WITHOUT UNROLLING (UNFOLDING) ROLLS UNLESS DEFECTS OR DAMAGE ARE FOUND ON THE SURFACE OR ARE SUSPECTED. THE ROLLS SHALL BE STORED IN A SECURE AREA AND PROTECTED FROM DAMAGE. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL INDICATE/REPORT TO THE PROJECT MANAGER:

- A. THAT THE ROLLS ARE TAGGED WITH THE PROPER IDENTIFICATION, INCLUDING ROLL NUMBERS;
- B. ROLLS OR PORTIONS THEREOF, WHICH IN THE OPINION OF THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR SHOULD BE REJECTED AND REMOVED FROM THE SITE BECAUSE OF VISUALLY OBVIOUS FLAWS; AND,
- C. ROLLS WHICH INCLUDE FLAWS, WHICH MAY BE REPAIRABLE.

SELECTED SAMPLES OF THE GEOMEMBRANE MATERIAL MAY BE OBTAINED BY THE GEOSYNTHETIC QUALITY ASSURANCE MANAGER FOR PHYSICAL TESTING TO DOCUMENT THAT THE GEOMEMBRANE MATERIAL TESTED SATISFIES THE MINIMUM MATERIAL PROPERTY REQUIREMENTS ESTABLISHED IN SECTION 4.3.

5.3.2 SURFACE PREPARATION

THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING THE SURFACE TO RECEIVE GEOMEMBRANE ACCORDING TO THE SPECIFICATIONS. THE QUALITY ASSURANCE MONITOR WILL DOCUMENT THAT:

- A. A QUALIFIED PROFESSIONAL ENGINEER OR LAND SURVEYOR HAS DETERMINED THAT LINES AND GRADES ARE IN CONFORMANCE WITH DESIGN PLAN;
- B. THE SURFACES TO BE LINED HAVE BEEN ROLLED AND COMPACTED SO AS TO BE FREE OF MAJOR IRREGULARITIES, PROTRUSIONS, LOOSE SOIL, AND ABRUPT CHANGES IN GRADES;
- C. THE SURFACE SHALL BE FREE OF STONES OR OTHER PARTICLES GREATER THAN 0.25-INCHES IN DIAMETER, WHICH MAY BE DAMAGING TO THE GEOMEMBRANE;
- D. THERE ARE NO AREAS EXCESSIVELY SOFTENED BY HIGH WATER CONTENT;
- E. AREAS, WHICH WERE UNSTABLE UNDER THE LOADING OF THE COMPACTION EQUIPMENT, HAVE BEEN CORRECTED BY RECOMPACTION OR REMOVAL AND REPLACEMENT WITH APPROPRIATE MATERIAL; AND
- F. THE MAXIMUM ROLLER INDENTATION OR RUTS WILL BE LIMITED TO 0.25 INCHES.

THE GEOMEMBRANE INSTALLER WILL CERTIFY THAT THE SURFACE ON WHICH EACH GEOMEMBRANE WILL BE INSTALLED IS ACCEPTABLE. THIS WRITTEN SUBGRADE ACCEPTANCE WILL BE GIVEN BY THE GEOMEMBRANE INSTALLER TO THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR PRIOR TO COMMENCEMENT OF GEOMEMBRANE INSTALLATION OVER A GIVEN AREA.

AFTER THE SURFACE HAS BEEN ACCEPTED BY THE GEOMEMBRANE INSTALLER, IT WILL BE THE GEOMEMBRANE INSTALLER'S RESPONSIBILITY TO INDICATE TO THE PROJECT MANAGER OR GEOSYNTHETICS QUALITY ASSURANCE MONITOR ANY CHANGE IN THE COMPACTED LINER BASE SUBGRADE CONDITIONS THAT MAY REQUIRE REPAIR WORK. IF THE QUALITY ASSURANCE MONITOR CONCURS WITH THE GEOMEMBRANE INSTALLER, THEN THE QUALITY ASSURANCE MONITOR WILL IDENTIFY THE NECESSARY REPAIR WORK TO BE PERFORMED BY THE CONTRACTOR.

AT ANY TIME PRIOR TO OR DURING THE GEOMEMBRANE INSTALLATION, THE QUALITY ASSURANCE MONITOR WILL NOTIFY THE PROJECT MANAGER AND CONTRACTOR OF LOCATIONS WHICH, IN THE OPINION OF THE QUALITY ASSURANCE MONITOR, WILL REQUIRE CORRECTIVE ACTION PRIOR TO GEOMEMBRANE INSTALLATION.

5.3.3 ANCHORAGE SYSTEM

THE ANCHOR TRENCHES WILL BE EXCAVATED TO THE LINES AND DEPTH SHOWN ON THE DESIGN DRAWINGS, PRIOR TO GEOMEMBRANE PLACEMENT. THE QUALITY ASSURANCE MONITOR WILL DOCUMENT THE ANCHOR TRENCHING OPERATION.

ROUNDED CORNERS SHALL BE PROVIDED IN THE TRENCHES WHERE THE GEOMEMBRANE ENTERS THE TRENCH TO ALLOW THE GEOMEMBRANE TO BE UNIFORMLY SUPPORTED BY THE SUBGRADE AND TO AVOID SHARP BENDS IN THE GEOMEMBRANE. NO LOOSE SOIL WILL BE ALLOWED TO UNDERLIE THE GEOMEMBRANE IN THE ANCHOR TRENCHES. THE GEOMEMBRANE SHOULD BE SEALED COMPLETELY TO THE ENDS OF ALL PANELS TO MINIMIZE THE POTENTIAL FOR TEAR PROPAGATION ALONG THE SEAM. BACKFILLING OF THE ANCHOR TRENCHES WILL BE CONDUCTED USING THE SAME MATERIALS SPECIFIED FOR THE COMPACTED LINER BASE IN SECTION 4.4. THE MATERIAL SHALL BE PLACED AND COMPACTED USING THE METHODS DESCRIBED IN SECTION 5.1.2.2.E, EXCEPT THAT THE COMPACTION EQUIPMENT SHOULD BE COMPATIBLE WITH THE DIMENSIONS OF THE ANCHOR TRENCH AND SHOULD NOT DAMAGE THE GEOMEMBRANE PLACED IN THE ANCHOR TRENCH.

5.3.4 GEOMEMBRANE PLACEMENT

5.3.4.1 PANEL IDENTIFICATION

A PANEL IS THE UNIT AREA OF GEOMEMBRANE, WHICH IS SEALED IN THE FIELD. THE UNIT AREA CAN CONSIST OF A ROLL OR A PORTION OF A ROLL CUT IN THE FIELD.

PRIOR TO OR DURING THE INITIAL MEETING, THE GEOMEMBRANE INSTALLER WILL PROVIDE THE PROJECT MANAGER AND GEOSYNTHETICS QUALITY ASSURANCE CONSULTANT WITH A DRAWING OF THE CELL, TO BE LINED SHOWING THE ORIENTATION OF THE GEOMEMBRANE PANELS. THE QUALITY ASSURANCE MANAGER WILL REVIEW THE PANEL LAYOUT AND DOCUMENT THAT IT IS CONSISTENT WITH THE ACCEPTED STATE OF PRACTICE.

EACH PANEL WILL BE GIVEN AN "IDENTIFICATION CODE" (NUMBER OR LETTER-NUMBER) CONSISTENT WITH THE LAYOUT PLAN. THIS IDENTIFICATION CODE WILL BE AGREED UPON BY THE GEOMEMBRANE INSTALLER AND THE QUALITY ASSURANCE MONITOR. THIS IDENTIFICATION CODE SHALL BE SIMPLE AND LOGICAL (NOTE THAT ROLL NUMBERS ESTABLISHED IN THE MANUFACTURING PLANT MAY BE CUMBERSOME AND ARE UNRELATED TO LOCATION IN THE FIELD).

THE QUALITY ASSURANCE MONITOR WILL ESTABLISH A TABLE OR CHART SHOWING CORRESPONDENCE BETWEEN ROLL NUMBERS AND PANEL IDENTIFICATION CODES. THE IDENTIFICATION CODES WILL BE USED FOR ALL QUALITY ASSURANCE RECORDS.

5.3.4.2 PANEL PLACEMENT

THE QUALITY ASSURANCE MONITOR WILL DOCUMENT THAT PANEL INSTALLATION IS CONSISTENT WITH REGARD TO LOCATIONS INDICATED IN THE GEOMEMBRANE INSTALLER'S LAYOUT PLAN, AS APPROVED OR MODIFIED AT THE INITIAL MEETING.

INSTALLATION:

- A. ONLY THOSE PANELS WHICH CAN BE EXPECTED TO BE ANCHORED AND SEALED TOGETHER IN ONE DAY ARE TO BE UNROLLED. PANELS MAY BE INSTALLED USING ANY OF THE FOLLOWING SCHEDULES:

1. ALL PANELS PLACED PRIOR TO FIELD SEAMING.
2. PANELS PLACED ONE AT A TIME AND EACH PANEL SEALED IMMEDIATELY AFTER ITS PLACEMENT.
3. ANY COMBINATION OF THE ABOVE, HOWEVER, NO DEPLOYED PANELS WILL BE LEFT UNSEALED AT THE END OF A WORK DAY.

- B. THE QUALITY ASSURANCE MONITOR WILL RECORD ON A DRAWING THE IDENTIFICATION CODE, LOCATION, AND DATE OF INSTALLATION OF EACH GEOMEMBRANE PANEL.

WEATHER CONDITIONS:

- A. GEOMEMBRANE PANEL DEPLOYMENT OR SEAMING SHALL NOT TAKE PLACE DURING ANY PRECIPITATION, IN THE PRESENCE OF EXCESSIVE MOISTURE (E.G. FOG, DEW), IN AN AREA OF POOLED WATER, OR IN THE PRESENCE OF HIGH WINDS.
- B. THE QUALITY ASSURANCE MONITOR WILL INFORM THE PROJECT MANAGER WHEN THE ABOVE CONDITIONS ARE NOT FULFILLED. THE QUALITY ASSURANCE MONITOR WILL INFORM THE PROJECT MANAGER OF OBSERVED COMPACTED LINER BASE DAMAGE CAUSED BY ADVERSE WEATHER CONDITIONS.
- C. THE GEOMEMBRANE INSTALLER WILL INFORM THE PROJECT MANAGER IF THE WEATHER CONDITIONS ARE NOT ACCEPTABLE FOR GEOMEMBRANE DEPLOYMENT OR SEAMING.
- D. THE INSTALLER SHALL PROVIDE SUITABLE WIND PROTECTION AS NECESSARY TO MAINTAIN THE INTEGRITY OF THE INSTALLATION.

THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL:

- A. OBSERVE EQUIPMENT DAMAGE TO THE GEOMEMBRANE AS A RESULT OF HANDLING, TRAFFIC, LEAKAGE OF HYDROCARBONS, OR OTHER MEANS;
- B. OBSERVE DEVIATIONS FROM THE REQUIREMENT THAT NO ONE IS PERMITTED TO SMOKE, WEAR DAMAGING SHOES, OR ENGAGE IN OTHER ACTIVITIES, WHICH COULD DAMAGE THE GEOMEMBRANE;
- C. OBSERVE SCRATCHES, CRUMPS, OR WRINKLES IN THE GEOMEMBRANE AND ANY DAMAGE TO THE COMPACTED LINER BASE; AND,
- D. OBSERVE DAMAGE CAUSED BY LOADING WHICH MAY BE NECESSARY TO PREVENT UPLIFT BY WIND.

THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL INFORM THE PROJECT MANAGER OF THE ABOVE CONDITIONS.

AFTER PLACEMENT, THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL OBSERVE EACH PANEL FOR DAMAGE. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL ADVISE THE GEOMEMBRANE INSTALLER AND PROJECT MANAGER WHEN PANELS, OR PORTIONS OF PANELS, SHOULD BE REJECTED, REPAIRED, OR ACCEPTED. DAMAGED PANELS OR PORTIONS OF DAMAGED PANELS, WHICH HAVE BEEN REJECTED, WILL BE MARKED AND THEIR REMOVAL FROM THE WORK AREA RECORDED BY THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR. REPAIRS SHOULD BE MADE ACCORDING TO PROCEDURES DESCRIBED IN SECTION 5.2.7.

5.3.5 FIELD SEAMING

5.3.5.1 SEAM LAYOUT

- A. THE GEOMEMBRANE INSTALLER WILL PROVIDE THE PROJECT MANAGER AND GEOSYNTHETICS QUALITY ASSURANCE MANAGER WITH DRAWINGS OF THE CELL TO BE LINED SHOWING FIELD SEAMS IN A MANNER WHICH DIFFERENTIATES THE SEAM TYPES, IF ANY: THE GEOSYNTHETICS QUALITY ASSURANCE MANAGER WILL REVIEW THE SEAM LAYOUTS.
- B. SEAMS SHALL BE ORIENTED PARALLEL TO THE LINE OF MAXIMUM SLOPE; I.E., ORIENTED UP AND DOWN, NOT ACROSS, THE SLOPE. IN CORNERS AND OOD-SHAPED GEOMETRIC LOCATIONS, THE NUMBER OF FIELD SEAMS SHALL BE MINIMIZED.
- C. NO HORIZONTAL SEAM SHALL BE WITHIN FIVE FEET FROM THE TOE OF THE SLOPE OR THE CREST OF THE SLOPE.
- D. A SEAM NUMBERING SYSTEM COMPATIBLE WITH THE PANEL NUMBERING SYSTEM SHOULD BE AGREED UPON AT THE INITIAL MEETING.

5.3.5.2 REQUIREMENTS OF PERSONNEL

ALL PERSONNEL PERFORMING SEAMING OPERATIONS MUST BE QUALIFIED BY EXPERIENCE OR BY SUCCESSFULLY PASSING SEAMING TESTS. AT LEAST ONE SEAMER WILL HAVE A MINIMUM OF 10,000,000 FT² OF GEOMEMBRANE SEAMING EXPERIENCE USING THE SAME TYPE OF SEAMING APPARATUS IN USE AT THE SITE. THE PROJECT MANAGER OR QUALITY ASSURANCE MONITOR HAS THE RIGHT TO REJECT A SEAMER IF THEY CANNOT DEMONSTRATE SUITABLE EXPERIENCE AND QUALIFICATIONS.

5.3.5.3 OVERLAPPING

THE QUALITY ASSURANCE MONITOR WILL OBSERVE THAT GEOMEMBRANE PANELS WERE PROPERLY OVERLAPPED (MINIMUM OF 6-INCHES) AND EXTRUSION WELDING (MINIMUM OF 3-INCHES).

5.3.5.4 SEAM PREPARATION

SEAMS MUST BE PREPARED SO THAT:

- A. PRIOR TO SEAMING, THE SEAM AREA WILL BE CLEAN AND FREE OF MOISTURE, DUST, DIRT, DEBRIS OF ANY KIND, AND FOREIGN MATERIAL.
- B. SEAM OVERLAP GRINDING (FOR EXTRUSION WELDING ONLY) WILL BE COMPLETED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND IN A WAY THAT DOES NOT DAMAGE THE GEOMEMBRANE.
- C. SEAMS WILL BE ALIGNED WITH THE FEWEST POSSIBLE NUMBER OF WRINKLES AND "FISHMOUTHS".

5.3.5.5 SEAMING EQUIPMENT

- A. THE APPROVED PROCESSES FOR FIELD SEAMING ARE FUSION AND EXTRUSION WELDING.
- B. THE APPARATUS USED FOR WELDING THE MAJOR SEAMS WILL BE EQUIPPED WITH GAUGES INDICATING THE TEMPERATURE IN THE APPARATUS OR AT THE APPLICATION POINT. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL OBSERVE APPARATUS TEMPERATURES AND AMBIENT TEMPERATURES AT APPROPRIATE INTERVALS.

THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL OBSERVE THAT:

- A. EQUIPMENT USED FOR SEAMING IS NOT LIKELY TO DAMAGE THE GEOMEMBRANE;
- B. THE EXTRUDER IS PURGED PRIOR TO BEGINNING A SEAM UNTIL THE HEAT-DEGRADED EXTRUDATE HAS BEEN REMOVED FROM THE BARREL;
- C. THE ELECTRIC GENERATOR IS PLACED ON A SMOOTH BASE SUCH THAT MINIMAL DAMAGE OCCURS TO THE GEOMEMBRANE;
- D. A SMOOTH INSULATING PLATE OR FABRIC IS PLACED BENEATH THE WELDING APPARATUS AFTER USAGE; AND,
- E. THE GEOMEMBRANE IS PROTECTED FROM DAMAGE IN HEAVILY TRAFFICKED AREAS.

5.3.5.6 WEATHER CONDITIONS FOR SEAMING

THE TYPICAL WEATHER CONDITIONS REQUIRED FOR SEAMING ARE AS FOLLOWS:

- A. NO SEAMING SHALL BE ATTEMPTED ABOVE 104°F AMBIENT AIR TEMPERATURE OR BELOW 41°F AMBIENT AIR TEMPERATURE. AMBIENT TEMPERATURE SHALL BE MEASURED 6 INCHES ABOVE THE LINER.
- B. IN ALL CASES, THE GEOMEMBRANE SHALL BE DRY AND PROTECTED FROM WIND DAMAGE.
- C. THE GEOSYNTHETIC QUALITY ASSURANCE MONITOR REPRESENTATIVE WILL OBSERVE THE SEAMING TECHNIQUES APPROPRIATE FOR THE PREVAILING WEATHER CONDITIONS ARE EMPLOYED AND WILL ADVISE THE PROJECT MANAGER OF DEVIATION. THE FINAL DECISION AS TO WHETHER OR NOT SEAMING MAY BE PERFORMED WILL BE MADE BY THE PROJECT MANAGER.

5.3.5.7 TEST SEAMS

TEST SEAMS WILL BE PREPARED EACH DAY PRIOR TO COMMENCING GEOMEMBRANE FIELD SEAMING. SUCH TEST SEAMS WILL BE MADE AT THE BEGINNING OF EACH SEAMING PERIOD, AT THE DISCRETION OF THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR, AND AT LEAST ONCE EVERY FOUR TO SIX HOURS OF CONTINUOUS WELDING FOR EACH SEAMING APPARATUS USED THAT DAY. THE TEST SEAM SAMPLE WILL BE AT LEAST THREE FEET LONG BY ONE FOOT WIDE WITH THE SEAM CENTERED LENGTHWISE. SIX ADDITIONAL 1.0 INCH WIDE SPECIMENS WILL BE CUT FROM THE SEAM SAMPLE. THREE SPECIMENS WILL BE IMMEDIATELY TESTED WITH A TENSIO METER IN THE FIELD FOR PEEL BY THE GEOMEMBRANE INSTALLER, AND SHOULD NOT FAIL IN THE SEAM. THE THREE REMAINING SPECIMENS SHALL BE FIELD TESTED BY THE GEOMEMBRANE INSTALLER FOR SHEAR. IF ANY OF THE TEST SEAM SPECIMENS FAILS TO MEET THE REQUIREMENTS OF GR1 TEST METHOD GM19, LATEST EDITION, THE ENTIRE OPERATION WILL BE REPEATED. IF THE ADDITIONAL TEST SEAM FAILS, THE SEAMING APPARATUS OR SEAMER WILL NOT BE ACCEPTED AND WILL NOT BE USED FOR SEAMING UNTIL THE DEFICIENCIES ARE CORRECTED AND TWO CONSECUTIVE SUCCESSFUL FULL TEST SEAMS ARE ACHIEVED. TEST SEAM FAILURE IS DEFINED AS FAILURE OF ANY ONE OF THE SPECIMENS TESTED IN SHEAR OR PEEL. THE GEOSYNTHETIC QUALITY ASSURANCE MONITOR WILL OBSERVE ALL TEST SEAM PROCEDURES.

5.3.5.8 GENERAL SEAMING PROCEDURE

UNLESS OTHERWISE SPECIFIED, THE GENERAL SEAMING PROCEDURE USED BY THE GEOMEMBRANE INSTALLER SHALL BE AS FOLLOWS:

- A. IF REQUIRED, A MOVEABLE PROTECTIVE LAYER OF PLASTIC MAY BE PLACED DIRECTLY BELOW EACH OVERLAP OF GEOMEMBRANE THAT IS TO BE SEALED. THE PURPOSE OF THE PROTECTIVE LAYER IS TO PREVENT ANY MOISTURE BUILD-UP BETWEEN THE SHEETS TO BE WELDED. NO PROTECTIVE LAYERS MAY BE LEFT BENEATH THE GEOMEMBRANE.

- B. NO MATERIAL, WHICH MAY PREVENT CONTACT BETWEEN THE GEOMEMBRANE AND COMPACTED LINER BASE, MAY BE LEFT IN PLACE.

- C. SEAMING SHALL EXTEND TO THE OUTSIDE EDGE OF PANELS TO BE PLACED IN ANCHOR TRENCHES.

- D. IF REQUIRED, A FIRM SUBSTRATA SHOULD BE PROVIDED BY USING A FLAT BOARD, A CONVEYER BELT, OR SIMILAR HARD SURFACE DIRECTLY UNDER THE SEAM OVERLAP TO ACHIEVE PROPER SUPPORT.

- E. FISHMOUTHS OR LARGE DIFFERENTIAL WRINKLES AT THE SEAM OVERLAPS SHOULD BE CUT ALONG THE RIDGE OF THE WRINKLE IN ORDER TO ACHIEVE A FLAT OVERLAP. THE CUT FISHMOUTHS OR WRINKLES WILL BE SEALED OVER THE ENTIRE LENGTH AND WILL THEN BE PATCHED WITH AN OVAL OR ROUND PATCH OF THE SAME TYPE OF GEOMEMBRANE EXTENDING A MINIMUM OF SIX INCHES BEYOND THE CUT IN ALL DIRECTIONS.

THE GEOSYNTHETICS QUALITY ASSURANCE MANAGER WILL OBSERVE THAT THE ABOVE SEAMING PROCEDURES (OR ANY OTHER PROCEDURES AGREED UPON) ARE FOLLOWED, AND WILL INFORM THE PROJECT MANAGER IF THEY ARE NOT.

5.3.6 SEAM TESTING

5.3.6.1 NON-DESTRUCTIVE SEAM TESTING

THE GEOMEMBRANE INSTALLER WILL NON-DESTRUCTIVELY TEST ALL FIELD SEAMS OVER THEIR FULL LENGTH FOR CONTINUITY. CONTINUITY TESTING SHALL BE PERFORMED USING SEAM PRESSURE TESTS, VACUUM BOXES, AIR LANCES, OR OTHER PRESCRIBED METHODS, AS APPLICABLE TO THE TYPE AND THICKNESS OF THE GEOMEMBRANE. THE PURPOSE OF THIS TESTING IS TO CHECK THE CONTINUITY OF SEAMS; IT DOES NOT PROVIDE INFORMATION ON SEAM STRENGTH. CONTINUITY TESTING WILL BE DONE AS THE SEAMING WORK PROGRESSES. THE QUALITY ASSURANCE MONITOR WILL:

- A. OBSERVE ALL CONTINUITY TESTING;
- B. RECORD LOCATION, DATE, TEST UNIT NUMBER, NAME OF TESTER, AND OUTCOME OF ALL TESTING; AND,
- C. INFORM THE GEOMEMBRANE INSTALLER AND PROJECT MANAGER OF ANY REQUIRED REPAIRS.

THE GEOMEMBRANE INSTALLER WILL COMPLETE ANY REQUIRED REPAIRS IN ACCORDANCE WITH SECTION 5.3.7. IF REPAIRS ARE REQUIRED, THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL:

- A. OBSERVE THE REPAIR AND THE RETESTING OF THE REPAIR;
- B. MARK ON THE GEOMEMBRANE THAT THE REPAIR HAS BEEN MADE; AND,
- C. DOCUMENT THE REPAIR, LOCATION AND RETESTING RESULTS.

SEAMS MUST BE CONSTRUCTED IN A FASHION THAT ALLOWS THEM TO BE NON-DESTRUCTIVELY TESTED. ANY PATCHES, SEAMS AROUND LINER PENETRATIONS, OR SEAMS NEAR SHARP CORNERS MUST BE CAPPED OR PATCHED WITH GEOMEMBRANE OF SUFFICIENT SIZE TO ALLOW NON-DESTRUCTIVE TESTING OF ALL SEAMS.

THE SEAM NUMBER, DATE OF OBSERVATION, NAME OF TESTER, AND OUTCOME OF THE TEST OR OBSERVATION WILL BE RECORDED BY THE QUALITY ASSURANCE MONITOR.

SEAM PRESSURE TEST PROCEDURE:

- A. THE SEAM PRESSURE TEST IS DESIGNED TO DETECT LEAKS OF DOUBLE-WEDGE THERMALLY WELDED SEAMS WHERE AN AIR CHANNEL EXISTS BETWEEN THE SEAMS. AFTER THE SEAM HAS BEEN FABRICATED FOR A GIVEN LENGTH, BOTH ENDS OF THE AIR CHANNEL ARE SEALED. A NEEDLE ATTACHED TO A PRESSURE GAUGE/AIR VALVE ASSEMBLY IS INSERTED INTO THE AIR CHAMBER AND AIR IS APPLIED TO ACHIEVE A PRESSURE OF AT LEAST 30 PSI FOR 60 MIN. HOPE. THE GAUGE IS MONITORED FOR DROP IN AIR PRESSURE OVER TIME AS AN INDICATOR OF SEAM LEAKS. SEAM PRESSURE AND ALLOWABLE DROP SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- B. THE INITIAL STARTING PRESSURE MAY BE READ AFTER A TWO MINUTE "RELAXING" PERIOD, WHICH WILL ALLOW THE AIR WITHIN THE CHAMBER TO REACH AMBIENT LINER TEMPERATURE. THE FINAL PRESSURE WILL THEN BE READ AFTER FIVE ADDITIONAL MINUTES WITH THE PRESSURE LOSS NOT TO EXCEED 3 PSI.
- C. IF FAILURE OCCURS (I.E., PRESSURE REDUCTION OVER THE SCHEDULED TIME PERIOD IS GREATER THAN THE MAXIMUM ALLOWABLE), THE END SEALS WILL BE CHECKED AND THE SEAM RETESTED. IF FAILURE RECURS, THE EXPOSED FUSION AREA WILL BE VISUALLY OBSERVED AND VACUUM TESTED TO LOCATE LEAKS. IF LEAK AREAS ARE LOCATED, THESE AREAS WILL BE PATCHED AND PRESSURE TESTED ON BOTH SIDES OF THE PATCHED AREA. THE PATCHED AREA WILL ALSO BE VACUUM TESTED.
- D. IF FAILURE OCCURS AND NO APPARENT BREAK IN THE CONTINUITY OF THE SEAM FUSION IS OBSERVED, THE ENTIRE FIELD SEAM LENGTH WILL BE REPAIRED BY MEANS OF A CAP-STRIP OVER THE ENTIRE LENGTH OF THE SEAM. NO TOPPING OF THE EXISTING FUSION WELD WILL BE ALLOWED AS A MEANS OF REPAIR.

VACUUM BOX TEST EQUIPMENT CONSISTS OF:

- A. A VACUUM BOX ASSEMBLY OF A RIGID HOUSING, A TRANSPARENT VIEWING WINDOW, A SOFT NEOPRENE GASKET ATTACHED TO THE BOTTOM, A PORT HOLE OR VALVE ASSEMBLY, AND A VACUUM GAUGE;
- B. A STEEL VACUUM TANK AND PUMP ASSEMBLY EQUIPPED WITH A PRESSURE CONTROLLER AND PIPE CONNECTIONS;
- C. A RUBBER PRESSURE/VACUUM HOSE WITH FITTINGS AND CONNECTIONS; AND,
- D. A SOAPY SOLUTION (MILD DETERGENT).

THE FOLLOWING PROCEDURES SHALL BE PERFORMED FOR VACUUM TESTING:

- E. ENERGIZE THE VACUUM PUMP.
- F. WET A STRIP OF GEOMEMBRANE TO BE TESTED WITH THE SOAPY SOLUTION.
- G. PLACE THE VACUUM BOX OVER THE WETTED AREA.
- H. CLOSE THE BLEED VALVE AND OPEN THE VACUUM VALVE.
- I. MAINTAIN A VACUUM PRESSURE OF AT LEAST 5PSI.
- J. CHECK THAT A LEAK TIGHT SEAL IS CREATED.
- K. FOR A PERIOD OF NOT LESS THAN 30 SECONDS, EXAMINE THE GEOMEMBRANE THROUGH THE VIEWING WINDOW FOR THE PRESENCE OF SOAP BUBBLES.
- L. IF NO BUBBLE(S) APPEARS AFTER 15 SECONDS, CLOSE THE VACUUM VALVE AND OPEN THE BLEED VALVE. MOVE THE BOX OVER THE NEXT ADJOINING AREA WITH A MINIMUM THREE- INCH OVERLAP, AND REPEAT THE PROCESS.
- M. ALL AREAS WHERE SOAP BUBBLES APPEAR WILL BE MARKED AND REPAIRED IN ACCORDANCE WITH SECTION 5.3.7.

5.3.6.2 DESTRUCTIVE SEAM STRENGTH TESTING

LOCATIONS AND FREQUENCY:

- A. THE GEOMEMBRANE INSTALLER SHALL CUT A MINIMUM OF ONE 1.0-INCH SPECIMEN AT THE END OF EACH PRODUCTION SEAM, AND TEST IT IN FEEL TO DOCUMENT CONSISTENCY OF THE WELDING. A FILM TIE BOND IS REQUIRED TO CONTINUE WELDING.
- B. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL SELECT THE LOCATIONS WHERE SEAM SAMPLES ARE TO BE CUT FOR LABORATORY TESTING. THE SAMPLING SHOULD BE ESTABLISHED AS FOLLOWS:
1. A MINIMUM FREQUENCY OF ONE TEST LOCATION PER 500 LINEAR FEET OF FIELD SEAM LENGTH IS REQUIRED. THIS TEST FREQUENCY WILL APPLY TO BOTH FUSION AND EXTRUSION WELDS AND WILL INCLUDE LINEAR FOOTAGE OF EXTRUSION WELDS USED TO PERFORM REPAIRS ON THE LINER SYSTEM.
 2. ADDITIONAL TEST LOCATIONS MAY BE SELECTED DURING SEAMING AT THE DISCRETION OF THE GEOSYNTHETICS QUALITY ASSURANCE MANAGER. SELECTION OF SUCH LOCATIONS MAY BE PROMPTED BY SUSPICION OF EXCESS CRYSTALLINITY, CONTAMINATION, OFFSET WELDS, OR ANY OTHER POTENTIAL CAUSE OF INADEQUATE WELDING.
- C. THE GEOMEMBRANE INSTALLER WILL NOT BE INFORMED IN ADVANCE OF THE LOCATIONS WHERE THE SEAM SAMPLES WILL BE TAKEN.

SAMPLING PROCEDURES:

A. SAMPLES WILL BE CUT BY THE GEOMEMBRANE INSTALLER AS THE SEAMING PROGRESSES IN ORDER TO HAVE LABORATORY TEST RESULTS BEFORE COMPLETION OF LINER INSTALLATION. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL:

1. OBSERVE SAMPLE CUTTING;
2. ASSIGN A NUMBER TO EACH SAMPLE AND MARK IT ACCORDINGLY; AND,
3. OBSERVE FIELD TENSIO METER TESTING PERFORMED BY THE GEOMEMBRANE INSTALLER.

- B. HOLES IN THE GEOMEMBRANE RESULTING FROM DESTRUCTIVE SEAM SAMPLING WILL BE IMMEDIATELY REPAIRED BY THE GEOMEMBRANE INSTALLER IN ACCORDANCE WITH REPAIR PROCEDURES DESCRIBED IN SECTION 5.3.7. THE CONTINUITY OF THE NEW SEAMS IN THE REPAIRED AREA WILL BE TESTED ACCORDING TO SECTION 5.3.6.

SIZE OF SAMPLES:

- A. THE SAMPLES WILL BE A MINIMUM OF 12 INCHES WIDE BY ABOUT 48 INCHES LONG WITH THE SEAM CENTERED LENGTHWISE. TWO 1.0-INCH WIDE STRIPS WILL BE CUT FROM EACH END OF THE SAMPLE AND THESE WILL BE TESTED BY THE INSTALLER IN THE FIELD FOR PEEL AND SHEAR USING THE TENSIO METER, AND SHOULD NOT FAIL IN THE SEAM. THE REMAINING SAMPLE WILL BE CUT INTO THREE PARTS AND DISTRIBUTED AS FOLLOWS:



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SHEET TITLE	PROJECT TITLE
CONSTRUCTION QUALITY ASSURANCE PLAN - 3	DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION

CLIENT
AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805

SCS ENGINEERS	DATE	BY	APP. BY
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH: 678 919-9849	2022.01.14	SS	JRB

CADD FILE: 11-14 COA PLAN
DATE: APRIL 2026
SCALE: AS SHOWN
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SHEET 13 of 21



NO.	DATE	DESCRIPTION OF REVISION
8	02-23-18	EPD SUBMITTAL - GCL MINOR MOD

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS 3175
SATELLITE BLVD, BLDG 600 SUITE 100
DULUTH, GA 30096
PH. 678 319-9849 FAX 678 319-9851

NO.	DATE	DESCRIPTION OF REVISION
2	01-14-22	ADDRESSING 600 6-YEAR PERMIT REVIEW COMMENTS
1	11-30-20	REVISED FOR FIVE YEAR PERMIT REVIEW

AUGUSTA – RICHMOND
COUNTY, GEORGIA



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DEANS BRIDGE ROAD MSW LANDFILL PHASE III DESIGN & OPERATION PLAN			
CONSTRUCTION QUALITY ASSURANCE PLAN			
DESIGNED: MAL	CHECKED:	DATE: FEB 2018	38
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DEANS BRIDGE ROAD LANDFILL – PHASE III
CONSTRUCTION QUALITY ASSURANCE (COA) PLAN (CONTINUED)

1. ONE PORTION TO THE GEOMEMBRANE INSTALLER FOR LABORATORY TESTING, 12 IN. X 18 IN.;

2. ONE PORTION FOR GEOSYNTHETICS QUALITY ASSURANCE CONSULTANT FOR LABORATORY TESTING, 12 IN. X 18 IN.; AND,

3. ONE PORTION TO THE OWNER FOR ARCHIVE STORAGE, 12 IN. X 12 IN.

B. SAMPLES WILL BE CUT BY THE GEOMEMBRANE INSTALLER AT THE LOCATIONS DESIGNATED BY, AND UNDER THE OBSERVATION OF, THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR AS THE SEAMING PROGRESSES IN ORDER TO OBTAIN LABORATORY TEST RESULTS PRIOR TO COMPLETION OF LINER INSTALLATION.

C. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL WITNESS FIELD TESTS AND MARK SAMPLES WITH THEIR NUMBER. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL ALSO LOG THE DATE, NAME OF SEAMER, NUMBER OF SEAMING UNIT, AND PASS OR FAIL DESCRIPTION.

TESTING REQUIREMENTS:

A. LABORATORY TESTING OF SEAMS WILL COMMENCE AS SOON AS POSSIBLE AFTER THE FIELD SEAM SAMPLES (FSS) ARE RECEIVED. A MINIMUM OF FIVE SPECIMENS SHOULD BE TESTED EACH FOR SHEAR AND PEEL (BOTH SIDES FOR FUSION WELDS), FOR A TOTAL OF TEN (15 FOR FUSION WELDS) DESTRUCTIVE TESTS PER FSS. THE SHEAR AND PEEL TESTING OF THE SEAMS SHOULD BE CONDUCTED ACCORDING TO ASTM D6392 OR EQUIVALENT.

B. TESTING REQUIREMENTS ARE AS FOLLOWS: EACH SAMPLE SHALL BE LARGE ENOUGH TO TEST FIVE SPECIMENS IN PEEL AND FIVE SPECIMENS IN SHEAR, EXCEPT THAT FIVE PEEL SPECIMENS ARE REQUIRED FOR EACH TRACK OF A DOUBLE TRACK FUSION SEAM. ASSESSMENT OF THE TEST RESULTS SHALL BE IN ACCORDANCE WITH GRI TEST METHOD GM19.

DEFINITION OF PASS/FAIL CRITERIA FOR FUSION AND EXTRUSION WELDS SHALL BE IN ACCORDANCE WITH GRI TEST METHOD GM19.

PROCEDURES FOR DESTRUCTIVE TEST FAILURE:

A. THE FOLLOWING PROCEDURES WILL APPLY WHENEVER A SAMPLE FAILS THE FIELD DESTRUCTIVE TEST. THE GEOMEMBRANE INSTALLER HAS TWO OPTIONS:

1. THE GEOMEMBRANE INSTALLER CAN CAP-STRIP THE SEAM BETWEEN THE TWO PASSING LABORATORY TEST LOCATIONS ON EITHER SIDE OF THE FAILED LOCATION, OR BETWEEN THE BEGINNING AND END OF THE MACHINE'S SEAMING ON THE PROJECT USING THE PROCEDURES DESCRIBED IN SECTION 5.3.7. CAP-STRIPPING INVOLVES APPLYING A STRIP OF GEOMEMBRANE, A MINIMUM DISTANCE OF SIX INCHES ON ALL SIDES OF THE DEFECTIVE SEAMS, AND SEAMING IT TO THE SHEET MATERIAL.

2. THE GEOMEMBRANE INSTALLER CAN RETRACE THE WELDING PATH TO AN INTERMEDIATE LOCATION ON BOTH SIDES OF THE FAILED TEST LOCATION (10 FT. MINIMUM FROM THE LOCATION OF THE FAILED TEST) AND TAKE A MINIMUM OF TWO 8-IN. X 12 IN. SAMPLES (ONE PER EACH SIDE OF THE FAILING SAMPLE) FOR ADDITIONAL FIELD TESTS (SEE SECTION 5.3.7.2). IF THESE ADDITIONAL SAMPLES PASS THE FIELD TEST, THEN SPECIMENS SHALL BE LABORATORY TESTED FOR CONFIRMATION AND THE SEAM SHOULD BE RECONSTRUCTED BETWEEN THE PASSING LABORATORY TEST LOCATIONS. IF EITHER OF THESE SAMPLES FAIL, THEN THIS PROCEDURE SHOULD BE REPEATED UNTIL A PASSING RETEST SAMPLE ON BOTH SIDES OF THE ORIGINAL FAILURE IS OBTAINED OR UNTIL THE ENTIRE SEAM LENGTH IS RECONSTRUCTED BETWEEN TWO PREVIOUSLY PASSING LABORATORY TEST LOCATIONS.

B. ALL ACCEPTABLE RECONSTRUCTED SEAMS MUST BE BOUNDED BY TWO PASSING LABORATORY TEST LOCATIONS, (I.E., THE ABOVE PROCEDURE SHOULD BE FOLLOWED IN BOTH DIRECTIONS FROM THE ORIGINAL FAILED LOCATION), AND ONE LABORATORY TEST MUST BE TAKEN WITHIN THE RECONSTRUCTED AREA IF THE FAILED LENGTH EXCEEDS 150 FEET.

C. IN THE EVENT THAT A SAMPLE FAILS A LABORATORY DESTRUCTIVE TEST (WHETHER IT IS CONDUCTED BY THE INDEPENDENT LABORATORY OR BY THE GEOMEMBRANE INSTALLER'S LABORATORY), THEN THE ABOVE PROCEDURES SHOULD BE FOLLOWED, CONSIDERING LABORATORY TESTS EXCLUSIVELY. SINCE THE FINAL SEAM MUST BE BOUNDED BY TWO LABORATORY PASSED TEST LOCATIONS (ONE FROM EACH SIDE OF THE FAILURE LOCATION), IT MAY THEN BE NECESSARY TO TAKE ONE OR MORE NEW SAMPLES FOR LABORATORY TESTING IN ADDITION TO THE ONE REQUIRED IN THE RECONSTRUCTED SEAM AREA.

D. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL OBSERVE AND NOTE ACTIONS TAKEN IN CONJUNCTION WITH DESTRUCTIVE TEST FAILURES.

5.3.7 DEFECTS AND REPAIRS

5.3.7.1 IDENTIFICATION

SEAMS AND NON-SEAM AREAS OF THE GEOMEMBRANE WILL BE EVALUATED BY THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR FOR IDENTIFICATION OF DEFECTS, HOLES, BUSTERS, UNDISPERSED RAW MATERIALS, AND SIGNS OF CONTAMINATION BY FOREIGN MATTER.

BECAUSE LIGHT REFLECTED BY THE GEOMEMBRANE AIDS IN THE DETECTION OF DEFECTS, THE SURFACE OF THE GEOMEMBRANE SHALL BE CLEAN AT THE TIME OF VISUAL OBSERVATION. THE GEOMEMBRANE SURFACE SHOULD BE BLOWN OR WASHED IF THE AMOUNT OF DUST OR MUD INHIBITS OBSERVATION AND TESTING. ADDITIONALLY, NO SEAM OR REPAIR WELDING SHOULD TAKE PLACE AFTER DARK.

5.3.7.2 EVALUATION

EACH SUSPECT LOCATION, BOTH IN SEAM AND NON-SEAM AREAS, WILL BE NON-DESTRUCTIVELY TESTED. EACH LOCATION, WHICH FAILS THE NON-DESTRUCTIVE TESTING, WILL BE MARKED BY THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR AND REPAIRED BY THE GEOMEMBRANE INSTALLER.

5.3.7.3 REPAIR PROCEDURES

REPAIR PROCEDURES SHOULD BE AGREED UPON BETWEEN THE PROJECT MANAGER, THE GEOMEMBRANE INSTALLER, AND THE GEOSYNTHETICS QUALITY ASSURANCE MANAGER. UNLESS OTHERWISE AGREED, THE REPAIR PROCEDURES WILL BE AS FOLLOWS:

A. DEFECTIVE SEAMS WILL BE REPAIRED BY CAP-STRIP RECONSTRUCTION.

B. TEARS OR HOLES WILL BE REPAIRED BY PATCHING.

C. PINHOLES WILL BE REPAIRED BY PATCHING.

D. BUSTERS, LARGER HOLES, UNDISPERSED RAW MATERIALS, AND CONTAMINATION BY FOREIGN MATTER WILL BE REPAIRED BY PATCHING.

E. ALL PANEL INTERSECTIONS OF THREE OR MORE PANELS WILL BE COVERED BY A PATCH.

F. PATCHES SHALL BE ROUND OR OVAL IN SHAPE, MADE OF THE SAME MATERIAL AS THE GEOMEMBRANE, AND EXTEND A MINIMUM OF SIX INCHES BEYOND ALL EDGES OF THE DEFECT. PATCHES WILL BE APPLIED USING THE APPROVED METHOD AS REQUIRED IN THE SPECIFICATIONS.

G. ALL SEAMS MADE IN REPAIRING DEFECTS WILL BE SUBJECTED TO THE SAME NON-DESTRUCTIVE TEST PROCEDURES AS OUTLINED FOR ALL OTHER SEAMS. ADDITIONALLY, REPAIR SEAMING IS SUBJECT TO THE SAME DESTRUCTIVE TESTING FREQUENCY AS A PANEL OR PRODUCTION SEAM. THUS ALL EXTRUSION WELDS, PANEL SEAMS OR REPAIR WORK, WILL BE LOGGED AND TESTED AT A MINIMUM FREQUENCY OF ONE TEST LOCATION PER 500 LINEAR FEET OF SEAM LENGTH.

5.3.7.4 SEAM RECONSTRUCTION PROCEDURES

SEAM SECTIONS WHICH NEED REPAIR DUE TO FAILING DESTRUCTIVE TEST RESULTS, OVERHEATING, BURN HOLES, AND UNSEAMED AREAS SHALL BE RECONSTRUCTED BY CAP-STRIPPING WITH THE SAME GEOMEMBRANE MATERIAL. CAP-STRIPPING INVOLVES APPLYING A STRIP OF GEOMEMBRANE, A MINIMUM DISTANCE OF SIX INCHES ON ALL SIDES OF THE DEFECTIVE SEAMS, AND SEAMING IT TO THE SHEET MATERIAL BY EXTRUSION WELDING. NO TOPPING OF EXISTING WELDS WILL BE ALLOWED.

5.3.7.5 DOCUMENTATION OF REPAIRS

EACH REPAIR WILL BE NON-DESTRUCTIVELY TESTED USING THE METHODS DESCRIBED IN SECTION 5.3.6.1, AS APPROPRIATE. REPAIRS, WHICH PASS THE NON-DESTRUCTIVE TEST, WILL BE TAKEN AS AN INDICATION OF AN ADEQUATE REPAIR. REPAIRS, WHICH FAIL, WILL BE REDONE AND RETESTED UNTIL A PASSING TEST IS ACHIEVED. THE GEOSYNTHETICS QUALITY ASSURANCE MONITOR WILL OBSERVE ALL NON-DESTRUCTIVE TESTING OF REPAIRS.

5.3.8 BACKFILLING OF ANCHOR TRENCHES

A. THE ANCHOR TRENCHES WILL BE BACKFILLED AND COMPACTED BY THE CONTRACTOR, TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED BY ASTM D698, STANDARD PROCTOR.

B. CARE SHOULD BE TAKEN WHEN BACKFILLING THE TRENCHES TO PREVENT ANY DAMAGE TO THE GEOMEMBRANE.

5.4 LEACHATE COLLECTION SYSTEM

THE CONTRACTOR WILL BE RESPONSIBLE FOR CONSTRUCTION OF THE LEACHATE COLLECTION SYSTEM IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

5.4.1 GEOTEXTILE

THE GEOTEXTILE SHALL CONSIST OF A NON-WOVEN MATERIAL. THE GEOTEXTILE ROLLS SHALL BE PLACED SO THAT THEIR LONG DIMENSION IS APPROXIMATELY PARALLEL TO THE DIRECTION OF THE SLOPE ON WHICH THEY LIE. THE ROLLS SHALL BE ROLLED DOWN SLOPE AND POSITIONED SO THAT THE OVERLAP IS A MINIMUM OF SIX INCHES. THE GEOTEXTILE IS TO BE CONTINUOUSLY SEWN BETWEEN SUCCESSIVE PANELS OR OVERLAPPED AND HEAT BONDED TO PREVENT WIND DAMAGE.

THE QUALITY ASSURANCE MONITOR WILL:

A. MONITOR DEPLOYMENT AND SEAMING TECHNIQUES TO OBSERVE COMPLIANCE WITH THE SPECIFICATIONS;

B. OBSERVE INSTALLATION OF THE GEOTEXTILE IN THE ANCHOR TRENCH; AND,

C. NOTIFY THE PROJECT MANAGER OF ANY MATERIAL OR INSTALLATION DEFICIENCIES.

5.4.2 LEACHATE COLLECTION LAYER

A. THE LEACHATE COLLECTION MATERIAL SHALL BE A MINIMUM TWO FEET THICK, MEETING THE REQUIREMENTS OF SECTION 4.5.

B. THE LEACHATE COLLECTION LAYER SHALL BE PLACED BY LIGHT, WIDE TRACKED EQUIPMENT HAVING A MAXIMUM OF 5 PSI ON A MINIMUM OF 2 FEET OF PROTECTIVE COVER MATERIAL. ONLY NOMINAL COMPACTION NEED BE APPLIED TO THE DRAINAGE LAYER. OVER COMPACTION DUE TO EQUIPMENT TRAFFIC MUST BE AVOIDED. CARE MUST BE EXERCISED TO ELIMINATE ANY POSSIBILITY OF DAMAGE TO THE GEOSYNTHETICS DURING LINER PROTECTIVE COVER LAYER PLACEMENT. WRINKLES NOTED IN THE GEOSYNTHETICS DURING DRAINAGE LAYER PLACEMENT SHOULD BE RELAXED AND CORRECTED IN ACCORDANCE WITH THE GEOMEMBRANE INSTALLER'S RECOMMENDATIONS. DRAINAGE MATERIAL SHALL NOT BE PLACED DOWN THE SLOPES.

C. THE QUALITY ASSURANCE MONITOR WILL MAKE A VISUAL OBSERVATION OF THE DRAINAGE LAYER MATERIAL PRIOR TO PLACEMENT. DRAINAGE LAYER PLACEMENT SHALL BE MONITORED THROUGHOUT EACH DAY BY THE QUALITY ASSURANCE MONITOR. THICKNESS MEASUREMENTS SHALL BE TAKEN ON A MINIMUM 100 FOOT GRID BY A REGISTERED LAND SURVEYOR IN THE STATE OF GEORGIA.

D. PRIOR TO CONSTRUCTION, BULK SAMPLES SHALL BE OBTAINED FOR EVERY 1,500 CUBIC YARDS OF MATERIAL BEING PLACED FOR A DETERMINATION OF GRAIN SIZE DISTRIBUTION (ASTM D6913) AND EVERY 3,000 CUBIC YARDS FOR A DETERMINATION OF HYDRAULIC CONDUCTIVITY (ASTM D2434), ADDITIONALLY, ONE SAMPLE WILL BE TESTED FOR CALCIUM CARBONATE CONTENT (ASTM D4373).

E. IF THE BORROW SOURCE IS CHANGED, OR A DIFFERENT MATERIAL FROM THE SAME BORROW SOURCE IS CONSIDERED, THESE MATERIALS WILL BE TESTED AT THE SAME FREQUENCY AS DESCRIBED IN (D).

5.4.3 DRAINAGE ENVELOPE AND LEACHATE COLLECTION PIPE

THE DRAINAGE ENVELOPE MATERIAL SHALL CONSIST OF A GRADED STONE PLACED TO THE DIMENSIONS SHOWN ON THE DRAWINGS. THE LEACHATE COLLECTION PIPE WILL CONSIST OF A SIX INCH DIAMETER, PERFORATED HDPE PIPE OR AN APPROVED ALTERNATE.

A. DRAINAGE ENVELOPE

BEDDING MATERIAL SHALL BE PLACED TO PROVIDE UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE. THE CONTRACTOR SHALL PLACE MATERIAL UNDER THE PIPE HAUNCH TO PROVIDE ADEQUATE SIDE SUPPORT TO THE PIPE WHILE AVOIDING BOTH VERTICAL AND LATERAL DISPLACEMENT OF THE PIPE FROM PROPER ALIGNMENT. WHERE COARSE MATERIALS WITH JOBS HAVE BEEN USED FOR BEDDING, THE SAME COARSE MATERIAL AS USED FOR BEDDING SHALL ALSO BE USED FOR HAUNCHING. THE HAUNCHING MATERIAL SHALL BE PLACED UP TO THE PIPE SPRING LINE.

B. LEACHATE COLLECTION PIPE

BEFORE BEING SET IN PLACE, EACH COMPONENT OF PIPING SHALL BE INSPECTED FOR DAMAGE AND CLEANED. DAMAGED COMPONENTS SHALL BE REJECTED OR REPAIRED. PIPE LAYING SHALL COMMENCE AT THE LOWEST ELEVATION AND SHALL TERMINATE ONLY AT MANHOLES, SERVICE BRANCHES, CAPS, OR CLEAN OUTS. WHENEVER PIPE LAYING IS INTERRUPTED, THE END OF THE PIPE SHALL BE TEMPORARILY PLUGGED TO PREVENT THE ENTRANCE OF WATER, MUD, OR FOREIGN MATTER, AND THE PIPE SHALL BE SECURED TO PREVENT ITS BEING DISLOOED.

THE LEACHATE PIPE SHALL BE TESTED BY THE PIPE MANUFACTURER TO SUBSTANTIATE THAT THE PIPE MEETS SPECIFICATIONS. A CERTIFICATION THAT THE MATERIAL PROPERTY VALUES ARE GUARANTEED BY THE MANUFACTURER SHALL BE PROVIDED IN THE MATERIAL PROPERTY SHEET. LEACHATE LINES EXTERNAL TO THE COLLECTION SYSTEM SHALL BE TESTED AND DEMONSTRATED TO BE LEAK PROOF.

AS DIRECTED BY THE ENGINEER, PRESSURE TESTING USING EITHER WATER OR AIR SHALL BE PERFORMED ON ALL NON-PERFORATED HDPE LEACHATE FORCE MAIN AND GRAMITY PIPING. THE TEST PRESSURES SHALL BE 10 PSI OR 1.5 TIMES THE DESIGN PRESSURE (WHICHEVER IS GREATER). THE PRESSURE SHALL BE MAINTAINED WITHIN A MAXIMUM VARIATION OF 5 PERCENT DURING THE ENTIRE LEAKAGE TEST. LEAKAGE MEASUREMENTS SHALL NOT BE STARTED UNTIL A CONSTANT TEST PRESSURE HAS BEEN ESTABLISHED. THE TEST SHALL BE CONDUCTED FOR A MINIMUM OF ONE HOUR.

PIPE AND FITTINGS SHALL BE INSTALLED WITH THE INVERT CONFORMING TO THE REQUIRED SLOPES AND ALIGNMENT, AND WITH THE PIPE BOTTOM UNIFORMLY AND CONTINUOUSLY SUPPORTED BY A FIRM BEDDING AND FOUNDATION.

FOR SHORTER THAN STANDARD PIPE LENGTHS, FIELD CUTS MAY BE MADE WITH EITHER HAND OR MECHANICAL SAWS, OR PLASTIC PIPE CUTTERS. ENDS SHALL BE CUT SQUARE AND PERPENDICULAR TO THE PIPE AXIS. BURRS SHALL BE REMOVED AND ENDS SMOOTHLY BEVELED BY A MECHANICAL BEVELER OR BY HAND WITH A RASP OR FILE.

THE CONTRACTOR SHALL ASSEMBLE ALL PIPE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPE MANUFACTURER USING THE BUTT-FUSION WELDING METHOD.

THE CONTRACTOR SHALL NOT USE COMPACTION EQUIPMENT DIRECTLY OVER THE PIPE UNTIL SUFFICIENT BACKFILL HAS BEEN PLACED TO ASSURE THAT SUCH EQUIPMENT WILL NOT DAMAGE OR DISTURB THE PIPE.

THE QUALITY ASSURANCE MONITOR WILL OBSERVE THE FOLLOWING CONTRACTOR ACTIVITIES:

A. A GEOTEXTILE WILL BE INSTALLED BETWEEN THE GEOMEMBRANE AND GRAVEL DRAINAGE ENVELOPE, AS SPECIFIED ON THE CONSTRUCTION DRAWINGS.

B. EQUIPMENT USED FOR PLACING GRANULAR MATERIAL WILL NOT BE DRIVEN DIRECTLY ON THE GEOMEMBRANE.

C. A MINIMUM THICKNESS OF TWO FOOT OF MATERIAL WILL BE MAINTAINED BETWEEN A LIGHT TRACKED VEHICLE AND THE GEOMEMBRANE.

D. PIPES WILL BE INSTALLED AT THE MINIMUM SLOPE INDICATED ON THE DRAWINGS.

E. PLACEMENT OF THE GEOTEXTILE FILTER, THE COLLECTION PIPES, AND THE GRAVEL DRAINAGE ENVELOPE, AND JOINTS AND CONNECTIONS OF THE COLLECTION SYSTEM WILL BE OBSERVED BY THE QUALITY ASSURANCE MONITOR.

THE QUALITY ASSURANCE MONITOR WILL INFORM THE PROJECT MANAGER IF THE ABOVE CONDITIONS ARE NOT MET.

5.4.4 ALTERNATE LEACHATE COLLECTION LAYER

A. THE GEOCOMPOSITE DRAIN SHALL BE INSTALLED DIRECTLY OVER THE GEOMEMBRANE THAT HAS BEEN CLEANED PRIOR TO PLACEMENT. ADJACENT ROLLS SHALL OVERLAP A MINIMUM OF 4 INCHES AND THE NET BE TIED TOGETHER WITH PLASTIC FASTENERS. FASTENERS SHALL BE PLACED EVERY FIVE FEET ALONG ADJACENT ROLLS, EVERY 6 INCHES IN THE ANCHOR TRENCH, AND EVERY 6 INCHES ALONG END TO END SEAMS. THE GEOTEXTILE SHALL BE SEWN OR HEAT BONDED.

B. THE SOIL COVER MATERIAL SHALL BE INSTALLED AS DESCRIBED IN SECTION 5.4.2 AND SHALL MEET THE REQUIREMENTS DESCRIBED IN SECTION 4.6.

5.5 FINAL COVER SYSTEM

THE CONTRACTOR WILL BE RESPONSIBLE FOR CONSTRUCTION OF THE FINAL COVER SYSTEM IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. ALTERNATE II FINAL COVER SYSTEM REQUIREMENTS ARE COVERED IN SHEETS 42-44.

5.5.1 FINAL COVER COMPACTED SOIL

THE FINAL COVER COMPACTED SOIL SHALL MEET REQUIREMENTS OF SECTION 4.11.

5.5.2 FINAL COVER GEOSYNTHETICS INSTALLATION

A. THE GEOMEMBRANE INSTALLATION FOR FINAL COVER, ALTERNATE I FINAL COVER, AND ALTERNATE II FINAL COVER SHALL MEET THE REQUIREMENTS OF SECTION 5.3.

B. THE GEOTEXTILE FOR ALTERNATE II FINAL COVER SHALL CONSIST OF A NON-WOVEN MATERIAL. THE GEOTEXTILE ROLLS SHALL BE PLACED SO THAT THEIR LONG DIMENSION IS APPROXIMATELY PARALLEL TO THE DIRECTION OF THE SLOPE ON WHICH THEY LIE. THE ROLLS SHALL BE ROLLED DOWN SLOPE AND POSITIONED SO THAT THE OVERLAP IS A MINIMUM OF SIX INCHES. THE GEOTEXTILE IS TO BE CONTINUOUSLY SEWN BETWEEN SUCCESSIVE PANELS OR OVERLAPPED AND HEAT BONDED TO PREVENT WIND DAMAGE.

THE QUALITY ASSURANCE MONITOR WILL:

I. MONITOR DEPLOYMENT AND SEAMING TECHNIQUES TO OBSERVE COMPLIANCE WITH THE SPECIFICATIONS;

II. OBSERVE INSTALLATION OF THE GEOTEXTILE IN THE ANCHOR TRENCH; AND,

III. NOTIFY THE PROJECT MANAGER OF ANY MATERIAL OR INSTALLATION DEFICIENCIES.

C. THE GEOCOMPOSITE FOR FINAL COVER AND ALTERNATE I FINAL COVER SHALL BE INSTALLED DIRECTLY OVER THE GEOMEMBRANE THAT HAS BEEN CLEANED PRIOR TO PLACEMENT. ADJACENT ROLLS SHALL OVERLAP A MINIMUM OF 4 INCHES AND THE NET BE TIED TOGETHER WITH PLASTIC FASTENERS. FASTENERS SHALL BE PLACED EVERY FIVE FEET ALONG ADJACENT ROLLS, EVERY 6 INCHES IN THE ANCHOR TRENCH, AND EVERY 6 INCHES ALONG END TO END SEAMS. THE GEOTEXTILE SHALL BE SEWN OR HEAT BONDED.

5.5.3 FINAL COVER GENERAL FILL & VEGETATIVE/EROSION LAYER

A. THE FINAL COVER GENERAL FILL MATERIAL SHALL BE A MINIMUM ONE FOOT THICK AND SHALL MEET REQUIREMENTS OF SECTION 4.12.

B. THE FINAL COVER VEGETATIVE/EROSION LAYER SHALL MEET THE REQUIREMENTS OF SECTION 4.14.

C. THE GENERAL FILL & VEGETATIVE/EROSION LAYER SHALL BE PLACED BY LIGHT, WIDE TRACKED EQUIPMENT HAVING A MAXIMUM OF 5 PSI ON A MINIMUM OF ONE FEET OF COVER MATERIAL. ONLY NOMINAL COMPACTION NEED BE APPLIED TO THE GENERAL FILL & VEGETATIVE/EROSION LAYER. OVER COMPACTION DUE TO EQUIPMENT TRAFFIC MUST BE AVOIDED. CARE MUST BE EXERCISED TO ELIMINATE THE POSSIBILITY OF DAMAGE TO THE GEOSYNTHETICS DURING GENERAL FILL MATERIAL PLACEMENT. WRINKLES NOTED IN THE GEOSYNTHETICS DURING GENERAL FILL & VEGETATIVE/EROSION LAYER PLACEMENT SHOULD BE RELAXED AND CORRECTED IN ACCORDANCE WITH THE GEOMEMBRANE INSTALLER'S RECOMMENDATIONS. GENERAL FILL & VEGETATIVE/EROSION MATERIAL SHALL NOT BE PLACED DOWN THE SLOPES. LOADED TRUCK TRAFFIC ON THE FINAL COVER SHALL BE ON A MINIMUM 4 FEET OF COVER.

D. THE QUALITY ASSURANCE MONITOR WILL MAKE A VISUAL OBSERVATION OF THE GENERAL FILL & VEGETATIVE/EROSION LAYER PRIOR TO PLACEMENT. MATERIAL PLACEMENT SHALL BE MONITORED THROUGHOUT EACH DAY BY THE QUALITY ASSURANCE MONITOR. THICKNESS MEASUREMENTS SHALL BE TAKEN ON A MINIMUM 100 FOOT GRID BY A REGISTERED LAND SURVEYOR IN THE STATE OF GEORGIA.

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DESCRIPTION: ISSUED FOR BID

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SHEET TITLE: CONSTRUCTION QUALITY ASSURANCE PLAN - 4

PROJECT TITLE: DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION

CLIENT: AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805

SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH: 678 319-9849 FAX: 678 319-9849

CADD FILE: 11-14 COA PLAN

DATE: APRIL 2026

SCALE: AS SHOWN

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ATLANTIC COAST CONSULTING, INC.

SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH: 678 319-9849 FAX 678 319-9851

AUGUSTA – RICHMOND COUNTY, GEORGIA

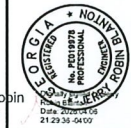
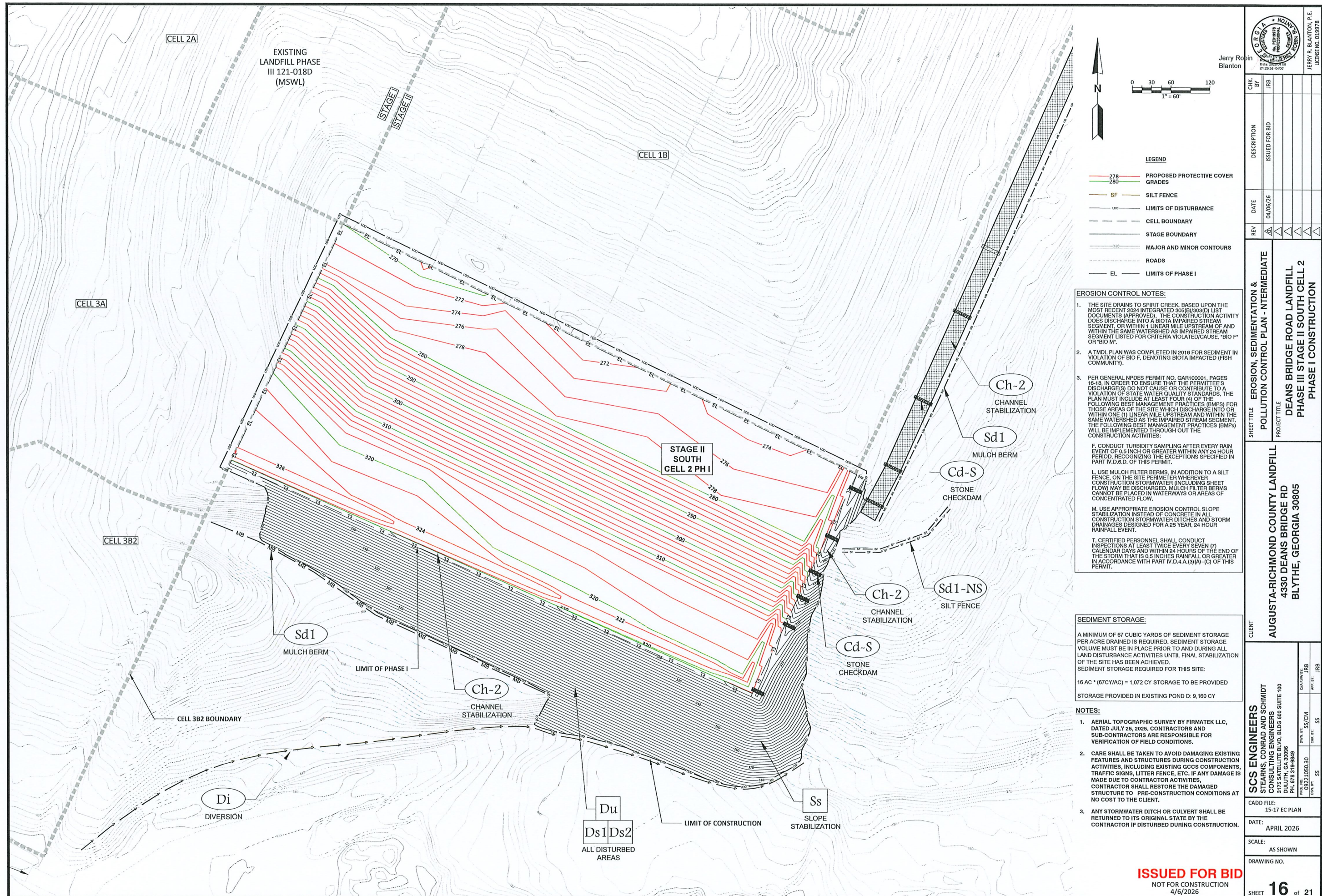
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DEANS BRIDGE ROAD MSW LANDFILL PHASE III DESIGN & OPERATION PLAN CONSTRUCTION QUALITY ASSURANCE PLAN

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Jerry R. Blanton

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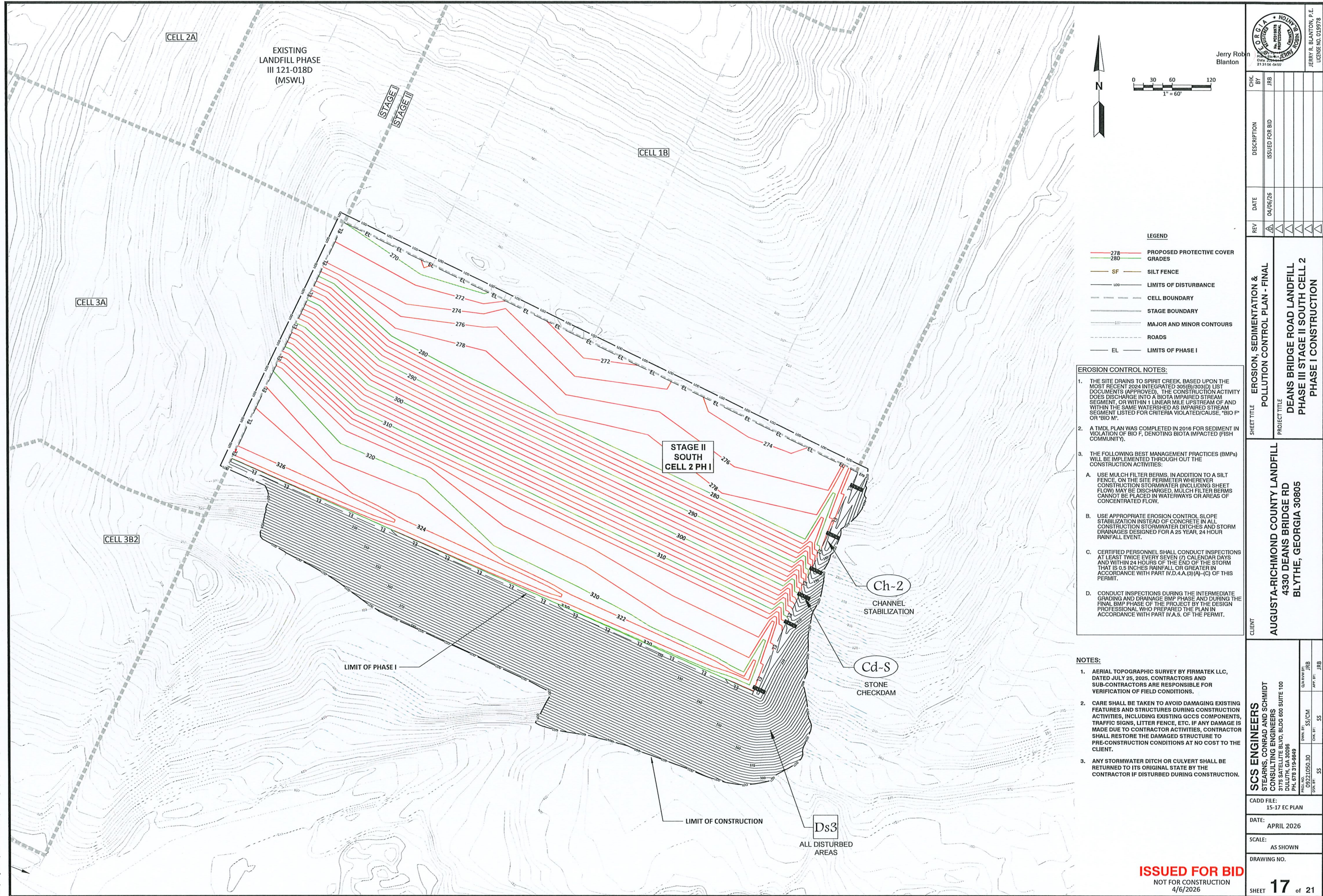
SHEET TITLE	EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN - INTERMEDIATE
PROJECT TITLE	DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION

CLIENT	AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805
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SCS ENGINEERS	STEARN, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH: 678 919-9849
CADD FILE:	15-17 EC PLAN
DATE:	APRIL 2026
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SHEET	16 of 21
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L:\Projects\09221050.30\Drawings\Engineering Drawings\Stage2 South Ph1 Cell\15-17 EC PLAN.dwg Apr 06, 2026 - 10:21am Layout Name: 17 - EC PHASE 3 By: ssin



ISSUED FOR BID
NOT FOR CONSTRUCTION
4/6/2026

- LEGEND**
- 278 PROPOSED PROTECTIVE COVER GRADES
 - 280
 - SF SILT FENCE
 - 100 LIMITS OF DISTURBANCE
 - CELL BOUNDARY
 - STAGE BOUNDARY
 - MAJOR AND MINOR CONTOURS
 - ROADS
 - EL LIMITS OF PHASE I

- EROSION CONTROL NOTES:**
- THE SITE DRAINS TO SPIRIT CREEK. BASED UPON THE MOST RECENT 2024 INTEGRATED 305(B)/305(D) LIST DOCUMENTS (APPROVED), THE CONSTRUCTION ACTIVITY DOES DISCHARGE INTO A BIOTA IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS IMPAIRED STREAM SEGMENT LISTED FOR CRITERIA VIOLATED/CAUSE, "BIO F" OR "BIO M".
 - A TMDL PLAN WAS COMPLETED IN 2016 FOR SEDIMENT IN VIOLATION OF BIO F, DENOTING BIOTA IMPACTED (FISH COMMUNITY).
 - THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPs) WILL BE IMPLEMENTED THROUGHOUT THE CONSTRUCTION ACTIVITIES:
 - USE MULCH FILTER BERMS, IN ADDITION TO A SILT FENCE, ON THE SITE PERIMETER WHEREVER CONSTRUCTION STORMWATER (INCLUDING SHEET FLOW) MAY BE DISCHARGED. MULCH FILTER BERMS CANNOT BE PLACED IN WATERWAYS OR AREAS OF CONCENTRATED FLOW.
 - USE APPROPRIATE EROSION CONTROL SLOPE STABILIZATION INSTEAD OF CONCRETE IN ALL CONSTRUCTION STORMWATER DITCHES AND STORM DRAINAGES DESIGNED FOR A 25 YEAR, 24 HOUR RAINFALL EVENT.
 - CERTIFIED PERSONNEL SHALL CONDUCT INSPECTIONS AT LEAST TWICE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF THE STORM THAT IS 0.5 INCHES RAINFALL OR GREATER IN ACCORDANCE WITH PART IV.D.4.A.(3)(A)-(C) OF THIS PERMIT.
 - CONDUCT INSPECTIONS DURING THE INTERMEDIATE GRADING AND DRAINAGE BMP PHASE AND DURING THE FINAL BMP PHASE OF THE PROJECT BY THE DESIGN PROFESSIONAL WHO PREPARED THE PLAN IN ACCORDANCE WITH PART IV.A.5. OF THE PERMIT.

- NOTES:**
- AERIAL TOPOGRAPHIC SURVEY BY FIRMATEK LLC, DATED JULY 25, 2025. CONTRACTORS AND SUB-CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.
 - CARE SHALL BE TAKEN TO AVOID DAMAGING EXISTING FEATURES AND STRUCTURES DURING CONSTRUCTION ACTIVITIES, INCLUDING EXISTING GCCS COMPONENTS, TRAFFIC SIGNS, LITTER FENCE, ETC. IF ANY DAMAGE IS MADE DUE TO CONTRACTOR ACTIVITIES, CONTRACTOR SHALL RESTORE THE DAMAGED STRUCTURE TO PRE-CONSTRUCTION CONDITIONS AT NO COST TO THE CLIENT.
 - ANY STORMWATER DITCH OR CULVERT SHALL BE RETURNED TO ITS ORIGINAL STATE BY THE CONTRACTOR IF DISTURBED DURING CONSTRUCTION.

SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 DULUTH, GA 30096 PH. 678 319-9849		DRAWING NO.		DATE		SCALE		CADD FILE:		PROJECT NO.		PROJ. NO.		DWG. SET		CLAS. REV. BY:		CHK. BY:		APP. BY:		JRB	
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AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805		SHEET TITLE EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN - FINAL		PROJECT TITLE DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION		REV		DATE		DESCRIPTION		CHK. BY:		JRB									
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ITEM #35 ALL SAMPLING LOCATIONS, PERENNIAL AND INTERMITTENT, AND OTHER WATER BODIES INTO WHICH STORM WATER DISCHARGED ARE SHOWN ON SHEET 15.	ITEM #37 THE GRAPHIC SCALE AND NORTH ARROW ARE SHOWN ON SHEETS 15-17.
ITEM #36 INITIAL PHASE 1. PRIOR TO THE LAND DISTURBING ACTIVITY, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE AREA SITE DEVELOPMENT INSPECTOR. 2. THE CONTRACTOR SHALL OBSERVE THE PROJECT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO INSURE THAT LAND STRIPPED OF ITS NATURAL COVER IS EXPOSED ONLY IN SMALL QUANTITIES. 3. NO STAGING AREAS, MATERIAL STORAGE, CONCRETE WASH OUT AREAS, OR DEBRIS BURN AND BURIAL HOLES SHALL BE LOCATED WITHIN 500 FT. OF DESIGNATED TREE PROTECTION AREAS OR STREAM BUFFERS. 4. THE OWNER AGREES TO PROVIDE AND MAINTAIN OFF-STREET PARKING ON THE SUBJECT PROPERTY DURING THE ENTIRE CONSTRUCTION PERIOD. 5. A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE AT ALL TIMES. POST ON DAY ONE. 6. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND-DISTURBING ACTIVITIES 7. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARKED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARKED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS. 8. PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE OR ONTO ANY PUBLIC ROADWAY AS SHOWN ON PLANS. THE CONSTRUCTION ENTRANCE SHALL BE MINIMUM 20' X 50' AND CONSTRUCTED IN ACCORDANCE WITH THE APPROVED CO DETAIL ON THESE PLANS. 9. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCE/EXITS, ALL PERIMETER EROSION CONTROL AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE CLEARING PHASE I EROSION & SEDIMENTATION CONTROL/SITE MAP PLAN. INITIAL EROSION CONTROL MEASURES INCLUDE PERIMETER SILT FENCE, BRUSH BARRIERS, TEMPORARY SEDIMENT POND AND ANY OTHER MEASURES REQUIRED TO TREAT SEDIMENT COLLECTION AND STORMWATER RUNOFF. 10. TYPE "C" SILT FENCE SHOULD BE INSTALLED AT THE PERIMETER OF THE DISTURBED AREA AS SHOWN ON THE PLAN. SILT SHOULD BE REMOVED WHEN ACCUMULATION REACHES ½ HEIGHT OF THE BARRIER. THE PERIMETER SILT FENCE SHOULD BE INSPECTED DAILY FOR ANY FAILURES. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY. 11. TREE PROTECTION FENCING AND STREAM BUFFER LIMITS SHOULD BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBANCE ACTIVITY AND MAINTAINED UNTIL FINAL LANDSCAPE IS INSTALLED. THE TREE PROTECTION FENCING SHOULD BE INSPECTED DAILY. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY. 12. ONCE THE INITIAL EROSION CONTROL MEASURES ARE IN PLACE THE CONTRACTOR SHALL REQUEST AN INSPECTION BY THE DESIGN PROFESSIONAL WITHIN 7 DAYS OF COMPLETING THE BMP INSTALLATION. NO OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR UNTIL THE PROJECT PROFESSIONAL APPROVES THE INSTALLATION OF SAID EROSION CONTROL MEASURES. IF UNFORESEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT AN ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE SITE INSPECTION WITH CONSULTATION WITH DESIGN PROFESSIONAL. 13. NO BURN OR BURY PITS SHALL BE PERMITTED ON THE CONSTRUCTION SITE WITHOUT WRITTEN PERMISSION BY THE OWNER AND/OR THE ENGINEER OF RECORD. 14. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE. 15. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT GRASSING. 16. CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY. 17. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE. 18. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS, I.E., MANDATORY STOP WORK ORDER. INTERMEDIATE PHASE 1. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL GROUND COVER IS EXPOSED ONLY IN SMALL QUANTITIES AND THEREFORE LIMITED DURATION, BEFORE PERMANENT EROSION PROTECTION IS ESTABLISHED. 2. MAINTAIN FULL COORDINATION WITH THE DESIGN PROFESSIONAL, CONTRACTOR AND REGULATORY INSPECTOR AT ALL TIMES REGARDING PROJECT SEQUENCE. 3. SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN. 4. ALL SLOPES STEEPER THAN 3:1 AND WITH A HEIGHT OF 10 FT. OR GREATER, AND CUTS AND FILLS WITHIN STREAM BUFFERS, SHALL BE STABILIZED WITH APPROPRIATE EROSION CONTROL MATTING OR BLANKETS. 5. STORM DRAIN OUTLET PROTECTION SHALL BE PLACED AT ALL OUTLET HEADWALLS AS SOON AS THE HEADWALL IS CONSTRUCTED. 6. MULCH OR TEMPORARY VEGETATION SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE. 7. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION. 8. THE CONTRACTOR SHALL MAINTAIN THE SD3 TEMPORARY SEDIMENT POND UNTIL PERMANENT GROUND COVER IS ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT OF THE POND WHEN IT REACHES THE 1/3 DEPTH OF BASIN. 9. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. 10. THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1-3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM A VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY. CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY. 11. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE. 12. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS. NOTE: STOP WORK ORDER MAY BE ISSUED. FINAL PHASE 1. MAINTAIN FULL COORDINATION WITH THE DESIGN PROFESSIONAL, CONTRACTOR AND REGULATORY INSPECTOR AT ALL TIMES REGARDING PROJECT SEQUENCE. 2. SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN. 3. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE. 4. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH PERMANENT GRASSING. 5. PERMANENT GRASSING SHOULD BE INSTALLED. 6. THE CONTRACTOR SHALL MAINTAIN ALL SEDIMENT PONDS AND EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED. 7. THE SILT FENCE AND BRUSH BARRIER SHOULD BE REMOVED ONCE THE INSPECTOR HAS APPROVED THE SITE FOR FINAL STABILIZATION. 8. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE. SEE BMP SYMBOL LEGEND ON 20	ITEM #38 EXISTING CONTOUR LINES AND PROPOSED CONTOUR LINES ARE DEPICTED ON SHEETS 15-17.
ITEM #39 THIS PROJECT DOES NOT USE ALTERNATIVE BMPs WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMPs AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY EPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION).	ITEM #40 THIS PROJECT DOES NOT USE ALTERNATIVE BMPs FOR APPLICATION TO THE EQUIVALENT BMP LIST.
ITEM #41 THE DELINEATION OF THE APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS REQUIRED BY THE LOCAL ISSUING AUTHORITY ARE SHOWN ON SHEETS 15	ITEM #42 THERE ARE WETLANDS AND STATE WATERS ADJACENT TO THE PROJECT SITE, AREAS SHOWN ARE AS DELINEATED ON SHEET 15. ALL APPROPRIATE BUFFERS ARE SHOWN ON SHEET 15.
ITEM #43 THE DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE ARE SHOWN ON SHEET 18.	ITEM #44 (HYDROLOGY APPROVED DURING THE MASTERPLAN APPROVAL BY THE STATE OF GEORGIA.)
ITEM #45 (HYDROLOGY APPROVED DURING THE MASTERPLAN APPROVAL BY THE STATE OF GEORGIA.)	ITEM #46 THERE ARE NO PROPOSED STORM PIPES. HYDROLOGY APPROVED DURING THE MASTERPLAN APPROVAL BY THE STATE OF GEORGIA.
ITEM #47 SOIL SERIES AND THEIR DELINEATIONS SHOWN ON SHEET 20	ITEM #48 LIMITS OF DISTURBANCE ARE SHOWN ON SHEETS 3-5
ITEM #49 A MINIMUM OF 87 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED IS REQUIRED. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED. SEDIMENT STORAGE REQUIRED FOR THIS SITE 16 AC * (87CY/AC) = 1,072 CY STORAGE TO BE PROVIDED STORAGE PROVIDED IN EXISTING POND D 9,190 CY	ITEM #50 SHEETS 15-17 ADDRESS BMP'S FOR ALL PHASES OF CONSTRUCTION. THE PLANS SHOW THE LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. USE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6, WITH LEGEND.
ITEM #51 SEE SHEET 21 FOR EROSION CONTROL DETAILS FOR STRUCTURAL PRACTICES.	

VEGETATIVE PLAN				
SEEDING REQUIREMENTS				
VEGETATIVE PRACTICES		POUNDS PER ACRE	DEPTH OF COVER (INCHES)	DATE OF PLANTING
D3	PERMANENT SEEDING			
	BERMUDA GRASS - HULLED	10	0.25 - 0.5	2/15 - 7/1
	BERMUDA GRASS - UNHULLED	10	0.25 - 0.5	11/1 - 2/1
	PENSACOLA BAHIA GRASS	60	0.25 - 0.5	YEAR ROUND
D2	LESPEDEA - SCARIFIED	60	0.25 - 0.5	2/15 - 6/15
	TEMPORARY SEEDING			
D1	ANNUAL RYEGRASS	40	0.25 - 0.5	8/15 - 4/1
	BROWN TOP MILLET	40	0.25 - 0.5	4/1 - 7/15
MULCHING ONLY FOR AREAS REQUIRING STABILIZATION WHEN NO VEGETATION IS AVAILABLE, USE MULCHING UNTIL THE SEASON FOR PLANTING THE REQUIRED VEGETATION IS REACHED. DRY STRAW OR HAY SHALL BE SPREAD AT THE RATE OF 2 1/2 TONS PER ACRE. THE MULCH SHALL BE ANCHORED IN THE SOIL WITH A DISK HARROW. MECHANICALLY APPLIED CLAY AND ASPHALT EMULSION STRAW AND FIBER MESH ROLL PLACED AND ANCHORED WITH STAPLES				
NOTES: AREAS WITHOUT FINAL COVER THAT WILL BE EXPOSED FOR MORE THAN THREE MONTHS WILL BE PLANTED WITH TEMPORARY GRASS. SEEDING RATES ARE BASED ON 100% PURE LIVE SEED SCHEDULES FROM THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. A TEMPORARY COVER SHOULD BE USED WHEN PLANTING UNHULLED BERMUDA GRASS AND PENSACOLA BAHIA GRASS. SEEDING RATES MAY VARY DEPENDING ON SOILS, SEASON, AND OTHER FACTORS. SEEDING MIXTURE MAY BE REVISED TO INCLUDE SPECIES OF GRASS THAT HAVE PROVEN SUCCESSFUL FOR THE SITE.				
FERTILIZER REQUIREMENTS				
SPECIES	ANALYSIS OR EQUIVALENT N-P-K	ANALYSIS OR EQUIVALENT N-P-K	ANALYSIS OR EQUIVALENT N-P-K	ANALYSIS OR EQUIVALENT N-P-K
BERMUDA GRASS - HULLED	FIRST	6-12-12	1500	50-100
	SECOND	6-12-12	800	50-100
	MAINTENANCE	10-10-10	400	30
BERMUDA GRASS - UNHULLED	FIRST	6-12-12	1500	50-100
	SECOND	6-12-12	1000	50-100
	MAINTENANCE	10-10-10	400	30
PENSACOLA BAHIA GRASS	FIRST	6-12-12	1500	50-100
	SECOND	6-12-12	800	50-100
	MAINTENANCE	10-10-10	400	30
SLIT THE APPLICATION WHEN HIGH RATES ARE USED. APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES. APPLY IN THE SPRING AFTER SEEDING. N-P-K = NITROGEN-PHOSPHORUS-POSSIUM.				



REV	DATE	DESCRIPTION	CHK. BY
1	04/06/26	ISSUED FOR BID	JRB
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SHEET TITLE	PROJECT TITLE
NPDES NOTES - 2	DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION

CLIENT

AUGUSTA-RICHMOND COUNTY LANDFILL
4330 DEANS BRIDGE RD
BLYTHE, GEORGIA 30805

SCS ENGINEERS	STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD, BLDG 600 SUITE 100 PHILADELPHIA, PA 19106 PH. 678.319-9849	PROJ. NO.	DRAW. SET	QUANTITY
		09/22/050.30	SS/CM	JRB
		CNCL. DT.	APP. BY:	JRB
		\$5	\$5	

CADD FILE:	18-20 NPDES
DATE:	APRIL 2026
SCALE:	AS SHOWN
DRAWING NO.	

GEORGIA UNIFORM CODING SYSTEM FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES

GEORGIA SOIL AND WATER CONSERVATION COMMISSION

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	OCEDEAM			A small temporary barrier or dam constructed across a seale, drainage ditch or area of concentrated flow.
Ch	CHANNEL STABILIZATION			Improving, constructing or stabilizing on open channel, existing stream, or ditch.
Co	CONSTRUCTION ERT			A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
Cr	CONSTRUCTION ROAD STABILIZATION			A travelway constructed as part of a construction plan including access roads, subdivision roads, parking areas and other on-site vehicle transportation routes.
Dc	STREAM DIVERSION CHANNEL			A temporary channel constructed to convey flow around a construction site while a permanent structure is being constructed.
Di	DIVERSION			An earth channel or dike located above, below or across a slope to divert runoff. This may be a temporary or permanent structure.
Dn1	TEMPORARY DOWNSTREAM STRUCTURE			A flexible conduit of heavy-duty fabric or other material designed to safely conduct surface runoff down a slope. This is temporary and inexpensive.
Dn2	PERMANENT DOWNSTREAM STRUCTURE			A paved chute, pipe, sectional conduit or similar material designed to safely conduct surface runoff down a slope.
Fr	FILTER RING			A temporary stone barrier constructed at storm drain inlets and pond outlets.
Ga	GABION			Rock filter baskets which are hand-placed into position forming soil stabilizing structures.
Gr	GRADE STABILIZATION STRUCTURE			Permanent structures installed to protect channels or waterways where otherwise the slope would be sufficient for the running water to form gullies.
Lv	LEVEL SPREADER			A structure to convert concentrated flow of water into less erosive sheet flow. This should be constructed only on undisturbed soils.
Rd	ROCK FILTER DAM			A permanent or temporary stone filter dam installed across small streams or drainage ways.
Re	RETAINING WALL			A wall installed to stabilize cut and fill slopes where maximum permissible slopes are not obtainable. Each situation will require special design.
Rt	RETRO FITTING			A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment filter.
Sd1	SEDIMENT BARRIER			A barrier to prevent sediment from leaving a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or filter.
Sd2	INLET SEDIMENT TRAP			An impounding area created by excavating around a storm drain drop inlet. The excavated area will be filled and stabilized on completion of construction activities.
Sd3	TEMPORARY SEDIMENT BASIN			A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	TEMPORARY SEDIMENT TRAP			A small temporary pond that drains a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or filter.
Sk	FLOATING SURFACE SKIMMER			A buoyant device that releases/draws water from the surface of sediment ponds, traps, or basins at a controlled rate of flow.
Spb	SEEP BERM			A linear control device constructed as a diversion perpendicular to the direction of runoff to enhance dissipation and infiltration, while creating multiple sedimentation chambers with the employment of intermediate dikes.

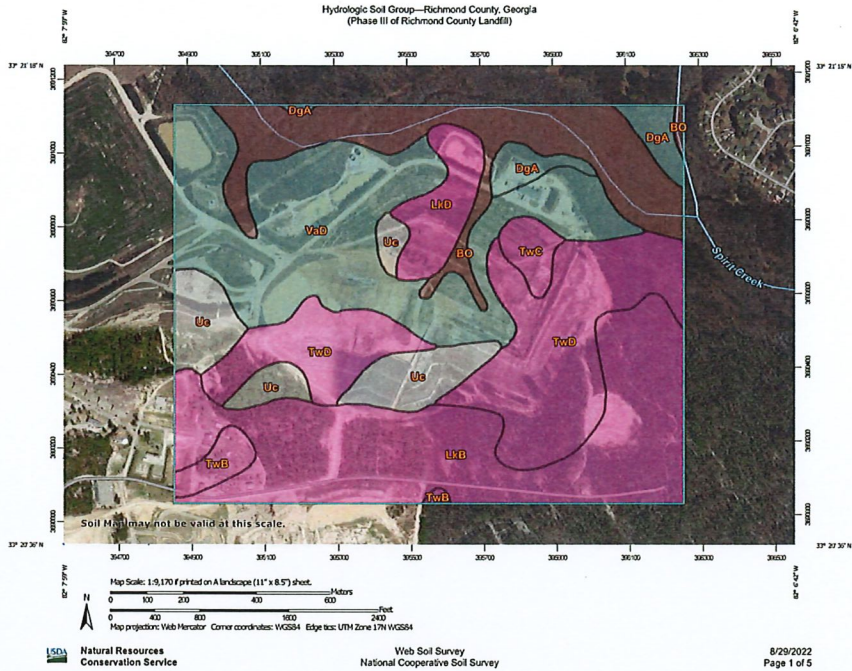
STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Sr	TEMPORARY STREAM CROSSING			A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment.
St	STORMWATER OUTLET PROTECTION			A paved or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Su	SURFACE ROUGHENING			A rough soil surface with horizontal depressions on a contour or slopes left in a roughened condition after grading.
Tc	TURBIDITY CURTAIN			A floating or stacked barrier installed within the water (it may also be referred to as a floating boom, silt barrier, or silt curtain).
Tp	TOPSOILING			The practice of stripping off the more fertile soil, storing it, then spreading it over the disturbed area after completion of construction activities.
Tr	TREE PROTECTION			To protect desirable trees from injury during construction activity.
Wt	VEGETATED WATERWAY OR STORMWATER CONVEYANCE CHANNEL			Paved or vegetative water outlets for diversions, terraces, berms, dikes or similar structures.

VEGETATIVE PRACTICES

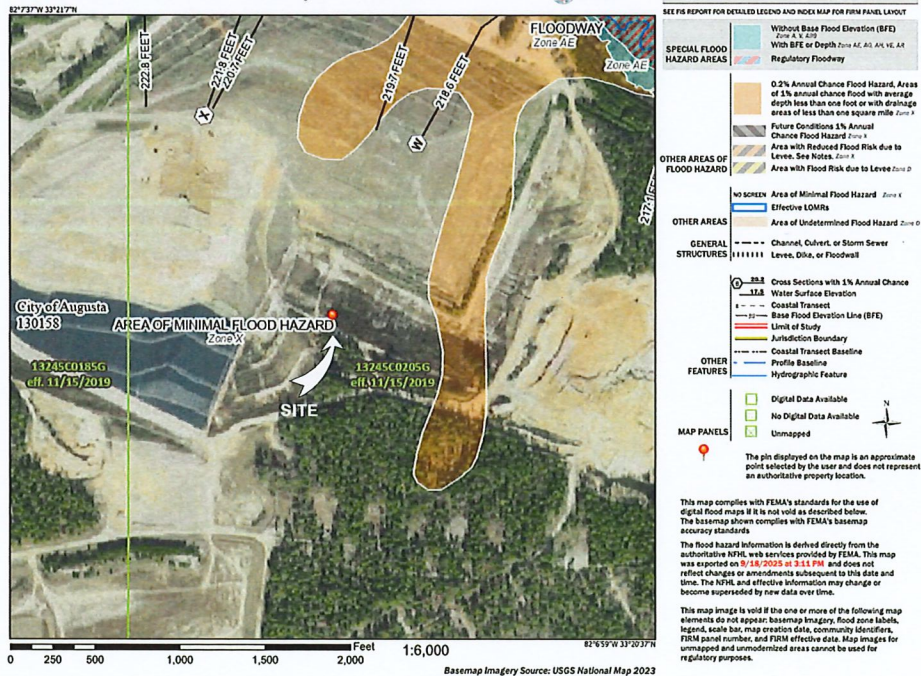
CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE			Strip of undisturbed original vegetation, enhanced or restored existing vegetation or the reestablishment of vegetation surrounding an area of disturbance or bordering streams.
Cs	COASTAL DUNE STABILIZATION (WITH VEGETATION)			Planting vegetation on dunes that are denuded artificially constructed, or re-nourished.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)			Establishing temporary protection for disturbed areas where seedlings may not have a suitable growing season to produce an erosion retarding cover.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP SEEDING)			Establishing a temporary vegetative cover with fast growing seedlings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)			Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (SEEDING)			A permanent vegetative cover using sods on highly erodible or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS			Controlling surface and air movement of dust on construction site, roadways and similar sites.
Fi-Co	FLOODPLANTS AND COAGULANTS			Substance formulated to assist in the solids/liquid separation of suspended particles in solution.
Sb	STREAMBANK STABILIZATION (USING FLOW VEGETATION)			The use of readily available native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems.
Ss	SLOPE STABILIZATION			A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKERS AND BINDERS			Substance used to anchor straw or hay mulch by causing the organic material to bind together.

GoSICC (Amended - 2013)



SOIL MAP

National Flood Hazard Layer FIRMette

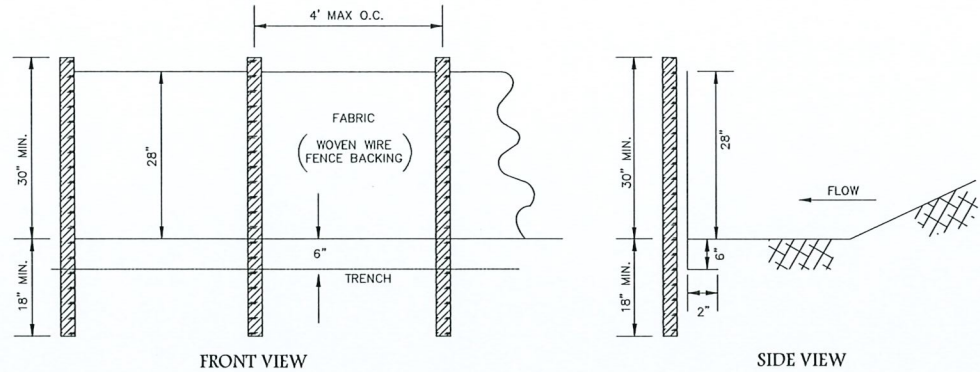


FIRM

ISSUED FOR BID
NOT FOR CONSTRUCTION
4/6/2026

CHK. BY	JRB	DESCRIPTION	ISSUED FOR BID	DATE	04/06/26	REV	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772
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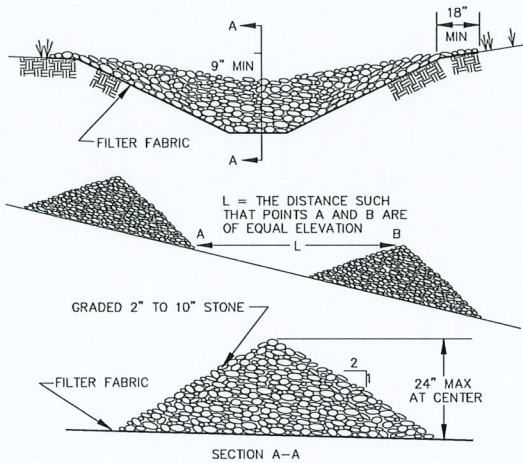
\\DUL-FS01\Drawings\Projects\09221050.30\Drawings\Engineering Drawings\Stage2 South Ph1 Cell\21 ERO DETAILS.dwg Apr 06, 2026 - 10:32am Layout Name: ERO DETAILS By: ssin



SILT FENCE - TYPE C
N.T.S.

NOTE:
USE 36" D.O.T. APPROVED FABRIC.
USE STEEL POSTS--ONLY

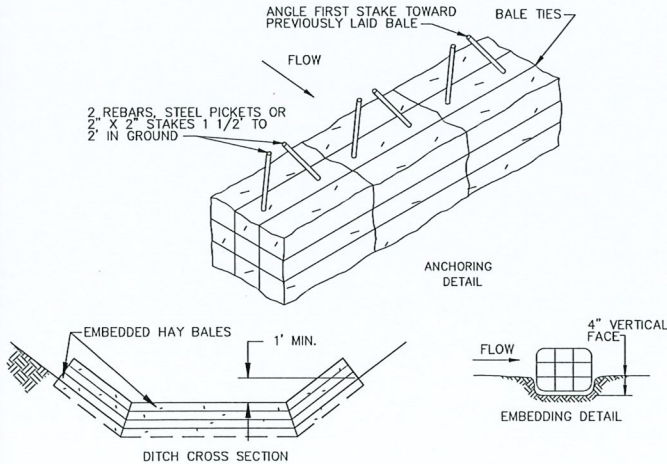
Sd1-C



NOTE: TO BE INSTALLED AS SHOWN ON PLANS AND/OR AS DIRECTED BY ENGINEER.

STONE CHECK DAM
N.T.S.

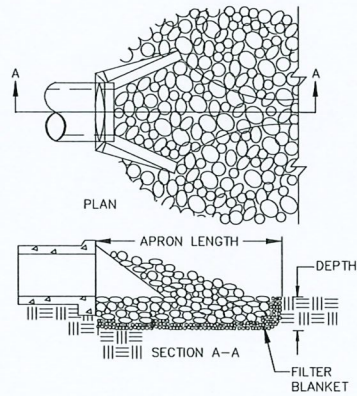
Cd



NOTE: TO BE INSTALLED AS DIRECTED BY ENGINEER.

CHECK DAM - HAY BALES
N.T.S.

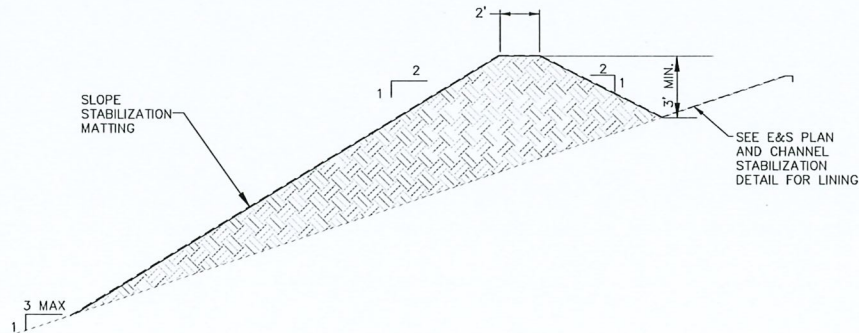
Cd-H



- NOTES:
1. D₅₀ EQUALS MEDIAN RIPRAP SIZE IN FEET.
 2. RIPRAP DEPTH EQUAL TO 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 12".
 3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP IN THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
 4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

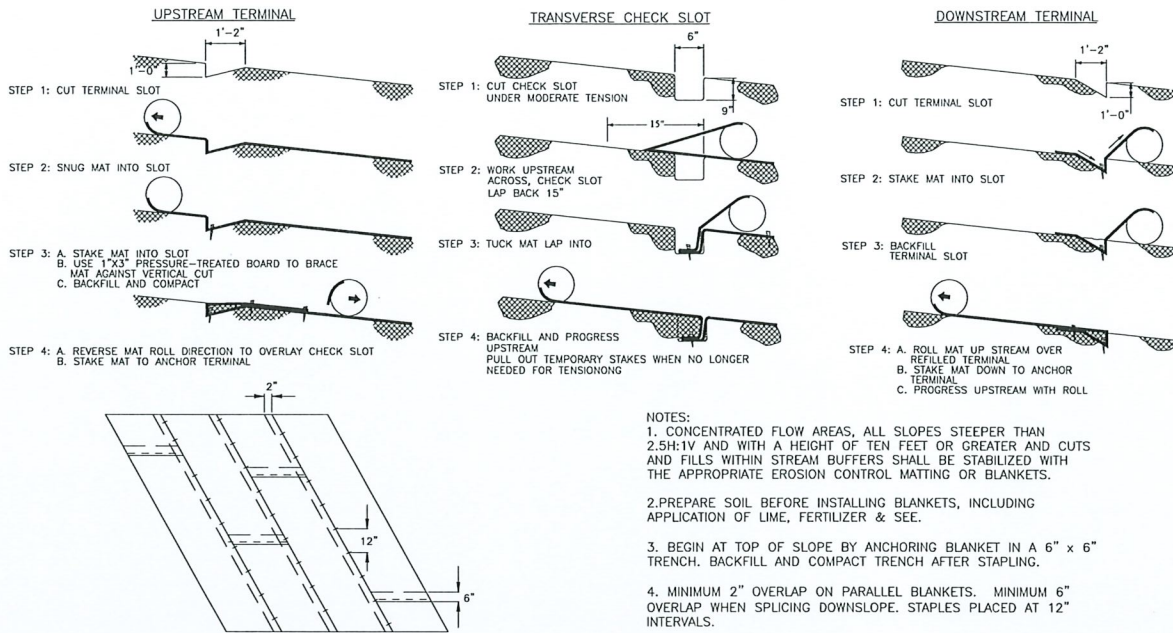
STORM DRAIN OUTLET PROTECTION
N.T.S.

St



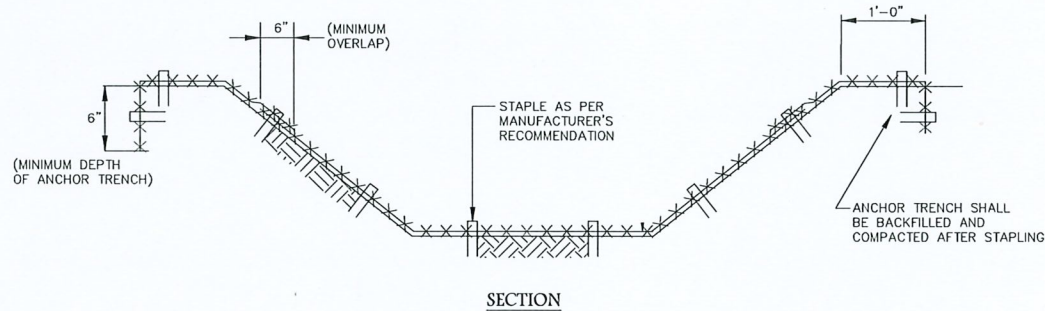
DIVERSION BERM
N.T.S.

Di



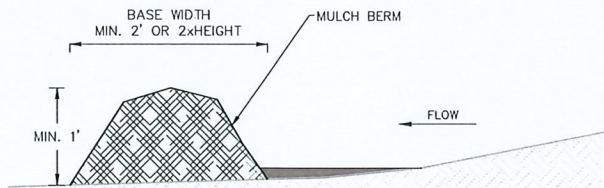
MATTING AND BLANKETS
N.T.S.

Mb



CHANNEL STABILIZATION WITH EROSION MAT
N.T.S.

Ch-2



MULCH BERM
N.T.S.

Sd1

ISSUED FOR BID
NOT FOR CONSTRUCTION
4/6/2026

Jerry R. Blanton, P.E.
LICENSE NO. 019978

CHK. BY	DESCRIPTION	DATE	REV
JRB	ISSUED FOR BID	04/06/26	1
			2
			3
			4

SHEET TITLE	EROSION, SEDIMENTATION & POLLUTION CONTROL DETAILS
PROJECT TITLE	DEANS BRIDGE ROAD LANDFILL PHASE III STAGE II SOUTH CELL 2 PHASE I CONSTRUCTION

CLIENT	AUGUSTA-RICHMOND COUNTY LANDFILL 4330 DEANS BRIDGE RD BLYTHE, GEORGIA 30805
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SCS ENGINEERS	STEARNES, CONRAD AND SCHMIDT CONSULTING ENGINEERS 3175 SATELLITE BLVD., BLDG 600 SUITE 100 DULUTH, GA 30096 PH. 678 319-9849
CADD FILE:	21 ERO DETAILS
DATE:	APRIL 2026
SCALE:	AS SHOWN
DRAWING NO.	
SHEET	21 of 21