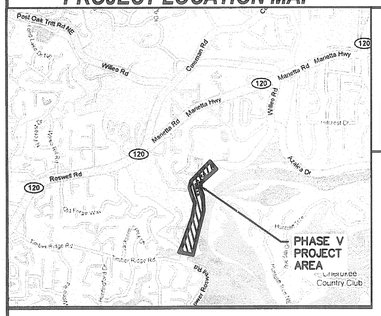
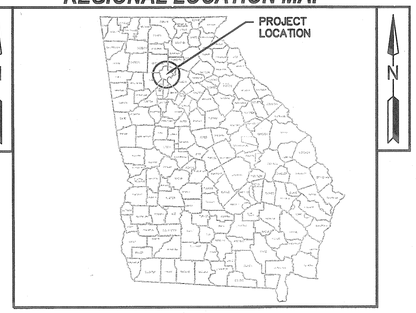
PROJECT LOCATION MAP



REGIONAL LOCATION MAP



WILLEO TRAIL - PHASE V

EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS PROPOSED PEDESTRIAN TRAIL

GA DOT PROJECT CITY OF ROSWELL,
FULTON COUNTY, GEORGIA

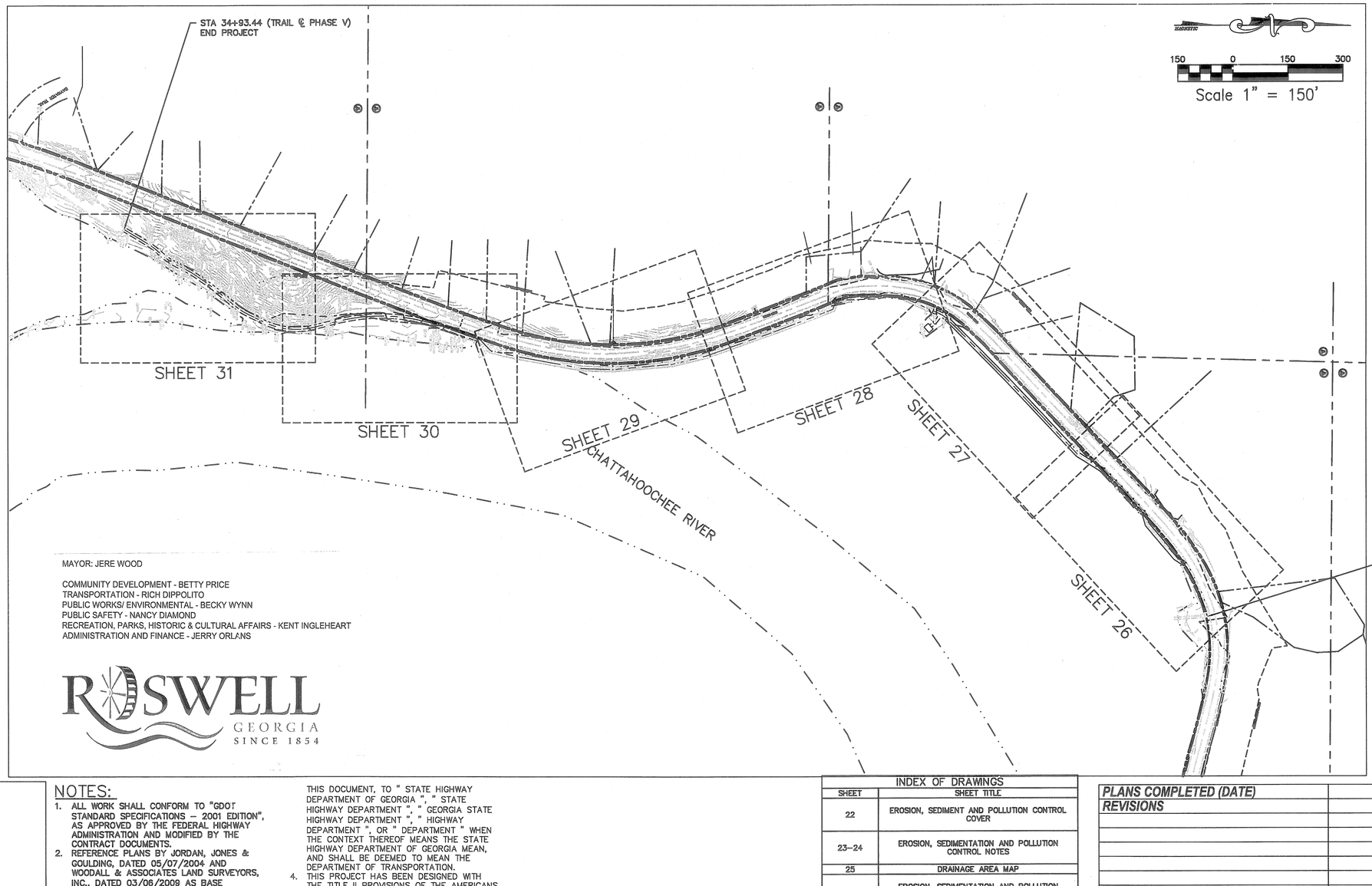
STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	22	

AEC
50 Warm Springs Circle
Roswell, Georgia 30075
(770) 641-1942
www.aecatl.com
LAND PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE

GEORGIA REGISTERED No. 027118 PROFESSIONAL ENGINEER MARK D. VANDEWATER

24 HOUR ENGINEERING
CONTACT - STEVE ROWE
(770) 641-1942 WORK

AEC JOB # 09-2891.22
PROGRESS SET 03-05-10



MAYOR: JERE WOOD

COMMUNITY DEVELOPMENT - BETTY PRICE
TRANSPORTATION - RICH DIPPOLITO
PUBLIC WORKS/ ENVIRONMENTAL - BECKY WYNN
PUBLIC SAFETY - NANCY DIAMOND
RECREATION, PARKS, HISTORIC & CULTURAL AFFAIRS - KENT INGLEHEART
ADMINISTRATION AND FINANCE - JERRY ORLANS

ROSWELL
GEORGIA
SINCE 1854

LENGTH OF PROJECT
3,493.44 LF
0.66 MILES

NOTES:

1. ALL WORK SHALL CONFORM TO "GDOT STANDARD SPECIFICATIONS – 2001 EDITION", AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION AND MODIFIED BY THE CONTRACT DOCUMENTS.
2. REFERENCE PLANS BY JORDAN, JONES & GOULDING, DATED 05/07/2004 AND WOODALL & ASSOCIATES LAND SURVEYORS, INC., DATED 03/06/2009 AS BASE INFORMATION FOR THIS DRAWING.
3. ALL REFERENCES IN THIS DOCUMENT, WHICH INCLUDE ALL PAPERS, WRITINGS, DOCUMENTS, DRAWINGS, OR PHOTOGRAPHS USED, OR TO BE USED IN CONNECTION WITH THIS DOCUMENT, TO " STATE HIGHWAY DEPARTMENT OF GEORGIA ", " STATE HIGHWAY DEPARTMENT ", " GEORGIA STATE HIGHWAY DEPARTMENT ", " HIGHWAY DEPARTMENT ", OR " DEPARTMENT " WHEN THE CONTEXT THEREOF MEANS THE STATE HIGHWAY DEPARTMENT OF GEORGIA MEAN, AND SHALL BE DEEMED TO MEAN THE DEPARTMENT OF TRANSPORTATION.
4. THIS PROJECT HAS BEEN DESIGNED WITH THE TITLE II PROVISIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA).
5. NOTICE OF INTENT IS REQUIRED. SEE SHEET 23 FOR ADDITIONAL INFORMATION.

INDEX OF DRAWINGS

PLANS COMPLETED (DATE)	
REVISIONS	

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	23	

ESPCP PROJECT NOTES:

The existing site is a partially wooded area to be developed into a multi-use trail and is located adjacent to Willeo Road.

The primary permittee for this project is:
City of Roswell - Parks & Recreation Department
38 Hill Street, Suite 100
Roswell, GA 30075

The 24-hour local contact person responsible for erosion control emergencies is: Jeff Pruitt (City of Roswell Parks & Recreation Department). Office - (770) 641-3705 Mobile - (678) 414-5363.

The total project area is 1.6 acres. The project disturbed acreage will be 1.6 acres. An NOI is required for this project.

The receiving water(s) is the Chattahoochee River.

ESPCP GENERAL NOTES:

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.

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.

PLAN ALTERATIONS

The Erosion Sedimentation and Pollution Control Plan (ESPCP) is provided by the Department. It addresses the staged construction of the project based on common construction methods and techniques. If the Contractor elects to alter the stage construction from that shown in the plans or utilize construction techniques that render this plan ineffective, the Contractor shall revise the plans in accordance to Special Provision 161 of the contract.

The Contractor, the Certified Design Professional and the WECS shall carefully evaluate this plan prior to commencing land disturbing activities. A major modification or deletion of structural BMP's with a hydraulic component requires a formal revision of the ESPCP and the signature of a GSWCC Level-II certified design professional. Additional BMP's may be added per Special Provision 161 - Control of Soil Erosion and Sedimentation.

TEMPORARY MULCHING

EPD General Permit GAR 100002 requires "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding." - The Department typically requires disturbed areas to be stabilized every 7 days. The construction documents, special provisions, or Specifications may require mulching more often than 7 days.

VEGETATION AND PLANTING SCHEDULE

All temporary and permanent vegetative practices including plant species, planting dates, seeding fertilizer, lime and mulching rates for this project can be found in section 700 of the current edition of the Department's specifications and other applicable contract documents, special provisions, or landscaping plans.

SEQUENCE OF MAJOR ACTIVITIES

The Contractor is responsible for developing the construction schedule for the project. The construction schedule for this project shall be submitted with the NOI. A copy of the construction schedule shall be maintained at the project site.

PETROLEUM STORAGE, SPILLS AND LEAKS

The plans provided herein do not anticipate the storage of petroleum products onsite. The Contractor shall at a minimum provide an action plan and keep the necessary materials on site for the capture and disposal of any petroleum product leaks or spills associated with the servicing, refueling or operation of any equipment utilitized in the work. A copy of the action plan shall be submitted to the Project Engineer and maintained on the project site. All personnel operation or servicing equipment shall be familiar with this plan. The Contractor shall not park, refuel or maintain equipment within stream buffers.

If the Contractor elects to store petroleum products on site, the Contractor shall prepare an ESPCP addendum that addresses the additional BMPs needed for onsite storage and spill prevention for petroleum products. This plan shall be prepared by a Certified Design Professional as required by GAR100002 for inclusion with these plans. The Contractor's attention is specifically directed to Standard Specification 107 - Legal Regulations and Responsibility to the public for additional requirements.

SOIL SERIES INFORMATION

Due to the size and scope of this project and the nature of soil series maps, it is not reasonably possible to identify the precise locations of the referenced soils on the plans. The NRCS soil survey and soil series maps for the project area are available online at: http://websoilsurvey.nrcs.usda.gov/.

POST-CONSTRUCTION BMP'S

All permanent, post-construction BMP's are shown in the construction plans and in the ESPCP plan. The post-construction BMP's for this project may consist of permanent vegetation, permanent slope drains and/or flumes, rip-rap at pipe outlets for velocity dissipation and outlet stabilization, vegetated swales/ditches where practical, channel/ditch stabilization with Turf Reinforcing Mats, rip-rap and concrete ditch lining where necessary. The post-construction BMP's will provide permanent stabilization of the site and prevent accelerated transportation of sediment and pollutants into receiving waters.

SILT FENCE INSTALLATIONS WITH J-HOOKS AND SPURS

Silt fence should never be run continuously. The silt fence should turn back into the fill or slope to create small pockets that trap silt and force stormwater to flow through the silt fence. This technique, or configuration, is commonly referred to as J-hooks or spurs. The J-hooks shall be utilized on all silt fences that are located around the perimeter of the project and along the toe of embankments or slopes. The J-hooks shall be spaced in accordance with the Typical Location Details for silt fences/baled straw. Spacing for J-hooks shall not be less than 50 feet except as noted. Silt fences that are near the outlet of culverts, cross drains, and storm drains shall have a minimum of three (3) J-Hooks on both sides of the structure at spacing not to exceed 30 feet. J-Hooks shall be paid for as silt fence items per foot. All costs and other incidental items are included in cost of installing and maintaining the silt fence.

MAINTENANCE AND STABILIZATION MEASURES

See Special Provision 161 and 700 and other contract documents for maintenance and stabilization measures.

WASTE DISPOSAL

Where attainable, locate waste collection areas, dumpsters, trash cans and portable toilets at least 50 feet away from streets, gutters, watercourses and storm drains. Secondary containment shall be provided around liquid waste collection areas to minimize the likelihood of contaminated discharges. The Contractor shall comply with applicable state and local waste storage and disposal regulations and obtain all necessary permits. Solid materials, including building materials, shall not be discharged to Waters of the State, unless authorized by a Section 404 Permit.

INSPECTIONS

All inspections shall be documented on the appropriate Department inspection forms. See Special Provision 167 and other contract documents for inspection requirements. These inspections shall continue until the Notice of Termination (NOT) is submitted.

Failure to perform inspections as required by the contract documents and the NPDES permit shall result in the cessation of all construction activities with the exception of Traffic Control and Erosion Control. Continued failure to perform inspections shall result in non-refundable deductions as specified in the contract documents.

By agreement with Georgia EPD, the Department's Construction Project Engineer will be responsible for the seven day inspections required for new BMP installations.

NON-STORM WATER DISCHARGES

Non-storm water discharges defined in Part III.A.2 of the NPDES Permit will be identified after construction has commenced. These discharges shall be subject to the same requirements as storm water discharges required by the Georgia Erosion and Sedimentation Control Act, the NPDES Permit, the Clean Water Act, the Manual For Erosion and Sediment Control in Georgia, Department Standards, and contract documents.

DE-WATERING ACTIVITIES AND USE OF PUMPS

Any pumped discharge from an excavation shall be routed through a sediment basin or shall be treated equivalently with suitable BMP's. The Contractor shall ensure the post BMP treated discharge is sheet flowing. Failure to create sheet flow will obligate the contractor to perform water quality sampling of their pumped discharges. The contractor shall prepare sampling plans in accordance with the current GAR100002 NPDES permit utilitizing by a Certified Design Professional. No separate payment will be made for water quality sampling of pump discharges.

OTHER CONTROLS

The contractor shall follow this ESPCP and ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

The contractor shall control dust from the site in accordance with Section 161 of the current edition of the Department's Specifications.

MONITORING SAMPLING METHODS & PROCEDURES

See Special Provision 167 and other contract documents for Monitoring Sampling Methods and Procedures.

READY MIX CHUTE WASH-DOWN

The washing of ready-mix concrete drums and dump truck bodies used in the delivery of portland cement concrete is prohibited on this site. In accordance with standard Specification 107 - Legal Regulations and Responsibility to the Public, only the discharge "chute" utilized in portland cement concrete delivery may be rinsed free of fresh concrete remains. The Contractor shall excavate a pit outside of State water buffers, at least 25 feet from any storm drain and outside of the travel way, including shoulders, for a wash/pit area. The pit shall be large enough to store all wash-down water without overtopping the pit. Immediately after the wash-down operations are completed and after the wash-down water has soaked into the ground, the pit shall be filled in and the ground above shall be graded to match the elevation of the surrounding areas smoothed out. Alternate wash down plans must be approved by the Project Engineer.

Wash-down plans describe procedures that prevent wash down water from entering streams and rivers. Never dispose of wash-down water down a storm drain. Establish a wash-down water pit location that includes the following: (1) the pit is located away from a storm drain, stream or river, (2) the pit is accessible to the vehicle being used for wash-down, (3) the pit has enough volume for wash-down water, and (4) make sure you have permission to use the area for wash-down. On some sites you may not have permission or access to a location which allows for a wash-down pit. In those cases, the Contractor may have to wash-down into a wheelbarrow or other container and carry the container for transport to a proper disposal site. For additional information, refer to the Georgia Small Business Environmental Assistance Program's "A Guide for Ready Mix Chute/Hopper Wash-down".

DISHCARGES INTO, OR WITHIN ONE LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT

All outfalls are either located further than one (1) linear mile upstream, or outside of the watershed of an Impaired Stream Segment that has been listed for criteria violeted, "Bio F" (Impaired Fish Community) and/or "Bio M" (Impaired Macro Invertebrate Community), within Category 4a, 4b or 5, and the potential cause is either "NP" (nonpoint source) or "UR" (urban runoff).

RATIONALE FOR REPRESENTATIVE STORMWATER MONITORING

*The following factors were considered when determining the stormwater monitoring point locations.

-<u>The size of the drainage basins traveling through the project site</u> - There are no large drainage basins traveling through this project. The majority of the drainage on this project is sheet flow from Willeo Road. For this project the Chattahoochee River was chosen.

-<u>Location of monitoring points</u> - Typically monitoring points are spread out evenly throughout the project site. This project has three (3) basins which were chosen as a monitoring points.

-<u>Type of soils present and terrain</u> - Typically monitoring points are located in areas where soil type erosive characteristics transition. Also monitoring points are typically located in areas where terrain characteristics change. The soil types and terrain throughout this project are relatively similar.

- <u>Construction Method</u> - Typically Monitoring Points are located in areas where construction clearing methods change. Typical clearing and grading methods will be used. This includes cutting trees and removing the root matrix with grading equipment. The project site will be fine graded and seeded as indicated in the attached sediment and erosion control documents. The Monitoring Points chosen are located where similar construction methods will be used. There are no significant construction clearing method changes throughout the subject project.

RATIONALE FOR EXCLUDING TEMPORARY SEDIMENT STORAGE POND.

-In accordance to the State of Georgia Department of Natural Resources Environmental Protection Division, General Permit No. GAR 100002 (Authorization to Discharge under the National Pollutant Discharge Elimination System Storm Water Discharge Associated with Construction Activity for Infrastructure Construction Projects) Part IV.D.3.a.3, sediment basins providing at least 1800 cubic feet of storage per acre are required. The following is a written rationale explaining the decision not to use sediment basins for the subject infrastructure project:

-Significant earth moving operations are not proposed for this project. The scope of site work includes the following; installing sediment and erosion control Best Management Practice's (BMP's), tree clearing, tree stump removal, minor grading for path installation (concrete sidewalk or boardwalk) and re-vegatation of disturbed areas. Stormwater sheet flows across the majority of this project. Any concentrated flows will occur parallel to the installed silt fence.

-The BMP's will include the installation of a double row of silt fence along downhill limits of disturbance where sediment could be carried off-site be means of stormwater sheet flow. Double row of silt fence will be installed adjacent to any water body. Check dams will be installed in any non-jurisdictional concentrated flow areas. Rock dams will be installed at low points to outlet any areas of concentrated flow that may occur parallel to silt fence. Straw mulching, temporary vegetation, as well as permanent vegetation will be installed as outlined in the Erosion Sedimentation and Pollution Control Plan.

The disturbed area for this project is 1.6 acres. Required Silt Fence per 1/4 acre of Disturbed Area/100 LF of Silt Fence (per manual for Erosion and Sedimentation Control in Georgia) = 640 LF. 3,196 linear feet of silt fence will be provided.

RATIONALE FOR ONE-PHASE EROSION CONTROL PLAN.

-In accordance to the State of Georgia Department of Natural Resources Environmental Protection Division, a single phase Plan may be used provided there will be no mass grading and the initial sediment storage and perimeter control BMPs, intermediate grading and drainage BMPs and final BMPs are the same. Typical construction activities are limited to clearing, grubbing and fine grading of the trail bed. During the initial clearing of the site perimeter BMPs will be installed. There are no planned concentrated flow areas leaving the project area nor are any drainage systems proposed. Therefore, a single phase Plan is appropriate for this pedestrian trail project.

Monitoring Site	Primary or Alternate Site	Location (STA and Side)	Name of Receiving Water	Applicable Construction Stage for Monitoring	Sampling Type (Outfall or Receiving Water)	Drainage Area (Ac)	Disturbed Area (Ac)	Warm or Cold Water Stream	Appendix B NTU Value (Outfall Monitoring Only)
Rock Dam A	Primary	27+43.62 Left 7.93'	Chattahoochee River	All	Outfall	0.31	0.02	Cold	25
Rock Dam B	Primary	28+87.47 Left 8.00'	Chattahoochee River	All	Outfall	0.12	0.01	Cold	25
Rock Dam C	Primary	32+67.14 Left 8.00'	Chattahoochee River	All	Outfall	0.11	0.01	Cold	25

A-EC
50 Warm Springs Circle
Roswell, Georgia 30075
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LAND PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE

GSWCC #6980
EXP. 3-11-2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

51-01

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN (ESPCP)

General Note: All measures outlined in this plan are to be in accordance with the "Manual for Erosion and Sediment Control in Georgia," latest edition.

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	24	

Project Name: Willeo Trail Phase V
Location: City of Roswell, Fulton County, Georgia
BEGINNING: Latitude: N 34° 00' 9.07"
Longitude: W 84° 22' 55.43"

I. Certifications

Owner / Operator Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Owner / Operator's Printed Name: _____
Title: _____

Signature: _____ ***Date:*** _____

DEVELOPER
CITY OF ROSWELL
PARKS & RECREATION DEPARTMENT
38 HILL STREET, SUITE 100
ROSWELL, GA 30075
CONTACT: JEFF PRUITT
(770) 641-3705

ENGINEER
AEC, INC.
50 WARM SPRINGS CIRCLE
ROSWELL, GEORGIA 30075
CONTACT:
MARK VAN DE WATER, P.E.
(770) 641-1942

Designer Certification

"I certify that the Permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of best management practices and sampling methods is expected to meet the requirements contained in the Georgia NPDES Permit No. GAR 100002."

Signature: _____ **Date:** _____
GSWCC Level II Certified Design Professional #

"I certify under penalty of law that this Plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my direct supervision.."

Signature: _____ **Date:** _____
GSWCC Level II Certified Design Professional #

I CERTIFY THAT THE GEORGIA 2008 305(b)/303(d) LIST DOCUMENTS HAVE BEEN CONSULTED TO DETERMINE THE PROJECT SITE IS NOT WITHIN 1 LINEAR MILE UPSTREAM OR DOWNSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF AN BIOTA IMPAIRED STREAM SEGMENT.

DATE: _____
MARK VAN DE WATER, PE
GSWCC #: 0000006962
EXPIRES: 03 / 11 / 2012

7-Day BMP Inspection by Design Professional

The below statement is to be signed by the Design Professional after construction has begun and initial BMPs have been installed and inspected.

The Design Professional was notified of on _____ that land disturbance activities had begun on the subject project. As required by the Georgia NPDES Permit No. GAR 100002, an inpsection of the erosion control measures (BMPs) was conducted by the Design Professional on _____. A copy of the inspection letter can be obtained from the Owner or Design Professional.

Signature: _____ **Date:** _____

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
INFRASTRUCTURE CONSTRUCTION PROJECTS

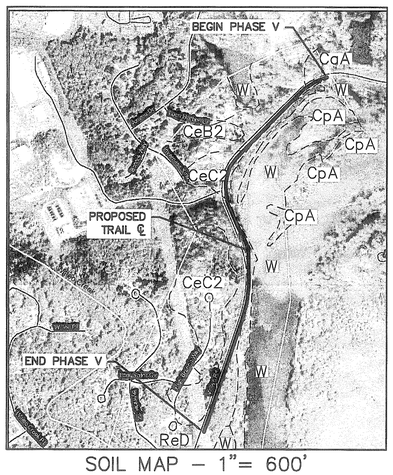
SWCD: _____

Project Name: Willeo Trail Phase V _____ **Address:** _____

City/County: City of Roswell, Fulton County _____ **Date on Plans:** 03-05-2010 _____

Plan Page #	Included Y/N		TO BE SHOWN ON ES&PC PLAN
24	Y	*1.	The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. **(The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)**
36-31	Y	*2.	Level II certification number issued by the Commission, signature and seal of the certified design professional. **(Signature, seal and Level II number must be on each sheet pertaining to ES&PC plan or the Plan will not be reviewed)**
26-31	Y	*3.	The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
22	Y	*4.	Provide name, address and phone number of primary permittee.
23	Y	*5.	Note total and disturbed acreage of the project or phase under construction.
22	Y	*6.	Provide land lot and district numbers for site location. Describe critcal areas and any additional measures that will be utilized for these areas.
22	Y	*7.	Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
ALL	Y	*8.	Graphic scale and north arrow.
ALL	Y	*9.	Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following: Existing Contours: USGS 1":2000' Topographical Sheets; Proposed Contours: 1" : 400' Centerline Profile
25	Y	*10.	Delineation and acreage of contributing drainage basins on the project site.
26-31	Y	*11.	Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.
26-31	Y	*12.	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. Clearly note and delineate all areas of impact.
39	Y	*13.	Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged.
N/A	N	*14.	Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
24	Y	*15.	Soil series for the project site and their delineation.
23	Y	*16.	Identify the project receiving waters and describe all adjacent areas including streams, lakes, residential areas, wetlands, etc. which may be affected.
N/A	N	*17.	Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Biota Impaired Stream Segment must comply with Part III. C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.
N/A	N	*18.	If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 18 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.
39	Y	*19.	Delineate on-site drainage and off-site watersheds using USGS 1" : 2000' topographical sheets.
ALL	Y	*20.	Inital date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
26-31	Y	*21.	The limits of disturbance for each phase of construction.
23	Y	*22.	Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activites until final stabilization of the site has been achieved. A written rationale explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the plan for each common drainage location in which a sediment basin is not provided. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls.
N/A	N	*23.	Use of 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). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org
26-31	Y	*24.	Best Management Practices to minimize off-site vehicle tracking of sediments and the generation of dust.
23	Y	*25.	BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited.
23	Y	*26.	Provide BMPs for the remediation of all petroleum spills and leaks.
26-31	Y	*27.	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.
23	Y	*28.	Description of the nature of construction activity.
23	Y	*29.	A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs.
N/A	N	*30.	Description and chart or timeline of the intended sequence of major activites which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activites, excavation activites, utility activites, temporary and final stabilization).
23	Y	*31.	Description of the practices that will be used to reduce the pollutants in storm water discharges.
23	Y	*32.	Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.
24	Y	*33.	Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stateo on page 15 of the permit.
24	Y	*34.	Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on page 14 of the permit.
24	Y	*35.	Certification statement and signature of the permittee or the duly authorized representative as stated in section V.G.2.d. of the state general permit.
23	Y	*36.	An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activites are completed.
23	Y	*37.	Indication that non-exempt activites shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation without first acquiring the necessary variances and permits.
24	Y	*38.	Indication that the design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation.
23	Y	*39.	Indication that amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.
23	Y	*40.	Indication that waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit.
23	Y	*41.	Documentation that the ES&PC Plan is in compliance with waste disposal, sanitary sewer, or septic tank regulations during and after construction activites have been completed.
23	Y	*42.	Provide complete requirements of inspections and record keeping by the primary permittee.
23	Y	*43.	Provide complete requirements of sampling frequency and reporting of sampling results.
23	Y	*44.	Provide complete details for retention of records as per Part IV.F. of the permit.
23	Y	*45.	Description of analytical methods to be used to collect and analyze the samples from each location.
23	Y	*46.	Appendix B rationale for outfall sampling points where applicable.
23	Y	*47.	Cleary note statement in bold letters- **"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."**
23	Y	*48.	Cleary note maintenance statement in bold letters - **"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."**
23	Y	*49.	Clearly note the statement in bold letters - **"Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."**
32-38	Y	*50.	Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
32-38	Y	*51.	Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

Effective January 1, 2010



SOIL MAP – 1"= 600'

SOILS DATA LEGEND	
SYMBOL	NAME
CaA	Cartecay–Toccoa Complex, 0–2% Slopes, Occassionally Flooded
CeB2	Cecil Sandy Loam, 2–6% Slopes, Moderately Eroded
CeC2	Cecil Sandy Loam, 6–10% Slopes, Moderately Eroded
CpA	Congaree Sandy Loam, 0–2% Slopes, Occasionally Flooded
GgC2	Gwinnett Loam, 6–10% Slopes, Eroded
LDF	Louisburg Stony Sandy Loam, 15–45% Slopes
LnE	Louisburg Sandy Loam, 10–25% Slopes
MJF	Musella and Pacolet Stony Soils, 10–45% SLopes
ReD	Rion Sandy Loam, 10–15% Slopes
Toc	Toccoa Soils
W	Water

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GSWCC #9960
EXP. 3-11-2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

51-02

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	25	

NOTES:

TOTAL PROJECT AREA (ACRES): 1.60
TOTAL DISTURBED AREA(ACRES): 1.60

100 YEAR HEADWATER ELEVATION IS 862.

BASIN	TOTAL ACREAGE (Ac)	DISTURBED ACREAGE	AVERAGE SLOPE	MONITORING LOCATIONS									
				PRE-DEVELOPED					POST-DEVELOPED				
				Q50	Q100	V50	V100	C	Q50	Q100	V50	V100	C
ROCK DAM A	0.31	0.02	8.04%	1.36	1.48	1.43	1.56	0.48	1.36	1.48	1.43	1.56	0.48
ROCK DAM B	0.12	0.01	24.14%	0.54	0.59	0.98	1.07	0.49	0.54	0.59	0.98	1.07	0.49
ROCK DAM C	0.11	0.01	25.18%	0.50	0.55	1.00	1.00	0.50	0.50	0.55	1.00	1.00	0.50

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GSWCC #6980
EXP. 3-11-2012

DRAINAGE AREA MAP

200 0 200 400
Scale 1" = 200'

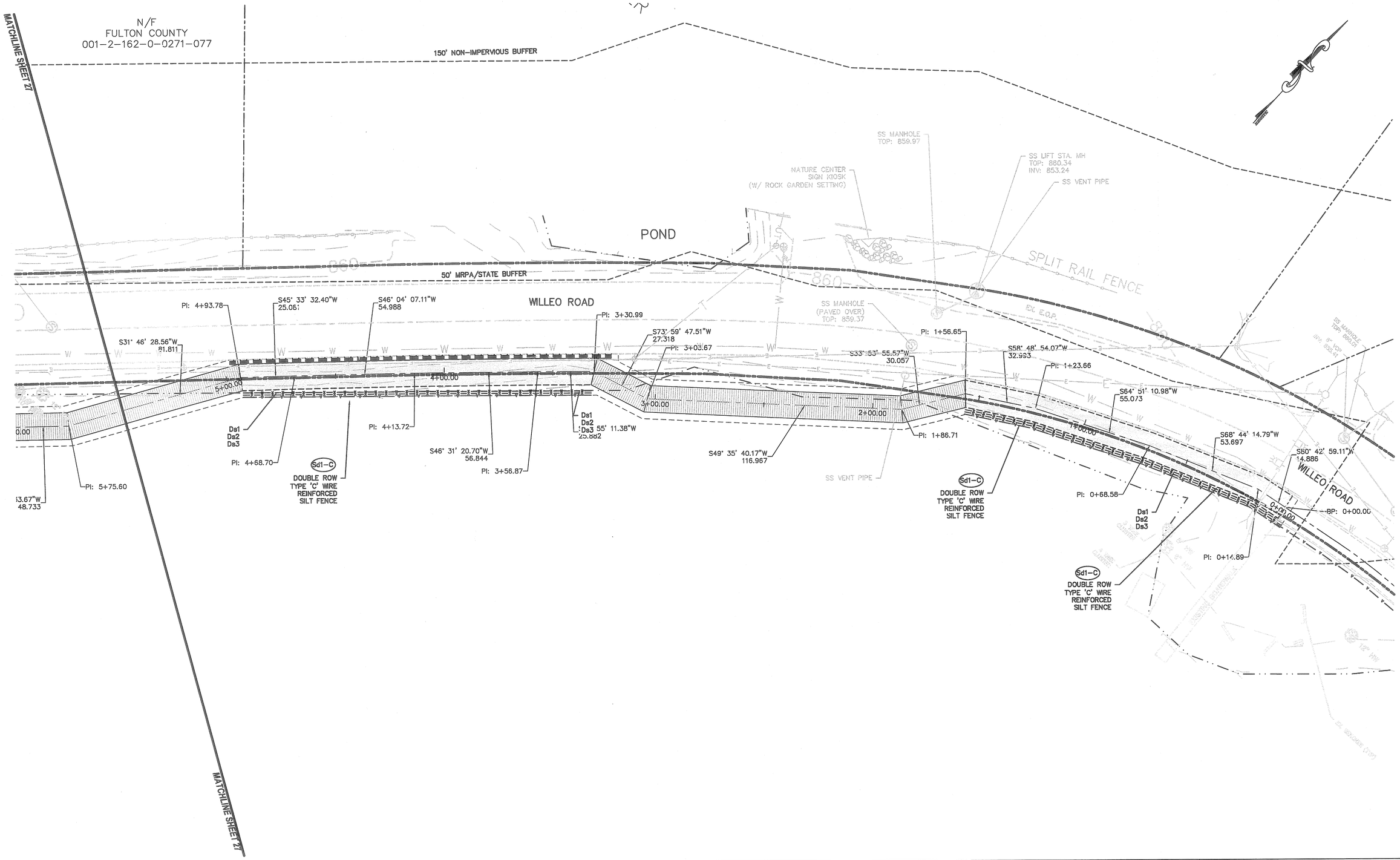
DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

53–01

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	26	



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GEORGIA REGISTERED No. 027718 PROFESSIONAL ENGINEER MARK V. VANDEWATER
GSWCC #6980
EXP. 3-11-2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

54-01

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	27	

150' NON-IMPERVIOUS BUFFER

N/F
JOHN WEILAND HOMES, INC
001-2-162-2-0271-072

N/F
DAVID WALLIS
001-2-162-2-0271-078

N/F
FULTON C
001-2-162-0-

MATCHLINE SHEET 26
MATCHLINE SHEET 27

SS MANHOLE
TOP: 859.23

NO WIRES
ON POLE

50' MRPA/STATE BUFFER

WILLEO ROAD

WILLEO ROAD

MATCHLINE SHEET 28
MATCHLINE SHEET 27

S44° 29' 14.99"W
8.585

PI: 10+77.86

S44° 29' 14.99"W
33.150

PC: 10+86.24
L=25.108
R=69.000
Ch=24.970
S34° 03' 46.53"W
Δ=020.8491

PI: 11+11.35

11+00.00

10+00.00

9+00.00

8+00.00

7+00.00

6+00.00

S31° 46' 2E

PI: 10+44.51

S44° 53' 26.20"W
191.948

PI: 8+52.56

S46° 31' 51.83"W
228.232

PI: 6+24.33

S46° 04' 33.67"W
48.733

PI: 5+75.60

Cd-Hb
HAYBALE
BARRIER

Cd-Hb
HAYBALE
BARRIER

Ds1
Ds2
Ds3

Sd1-C
DOUBLE ROW
TYPE 'C' WIRE
REINFORCED
SILT FENCE

S23° 37' 04.11"W
111.934

MATCHLINE SHEET 27
MATCHLINE SHEET 28

MATCHLINE SHEET 26
MATCHLINE SHEET 27

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GEORGIA REGISTERED No. 027116 PROFESSIONAL MARK D. VANDEWATER
GSWCC #8980
EXP. 3-11-2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

20 0 20 40
Scale 1" = 20'

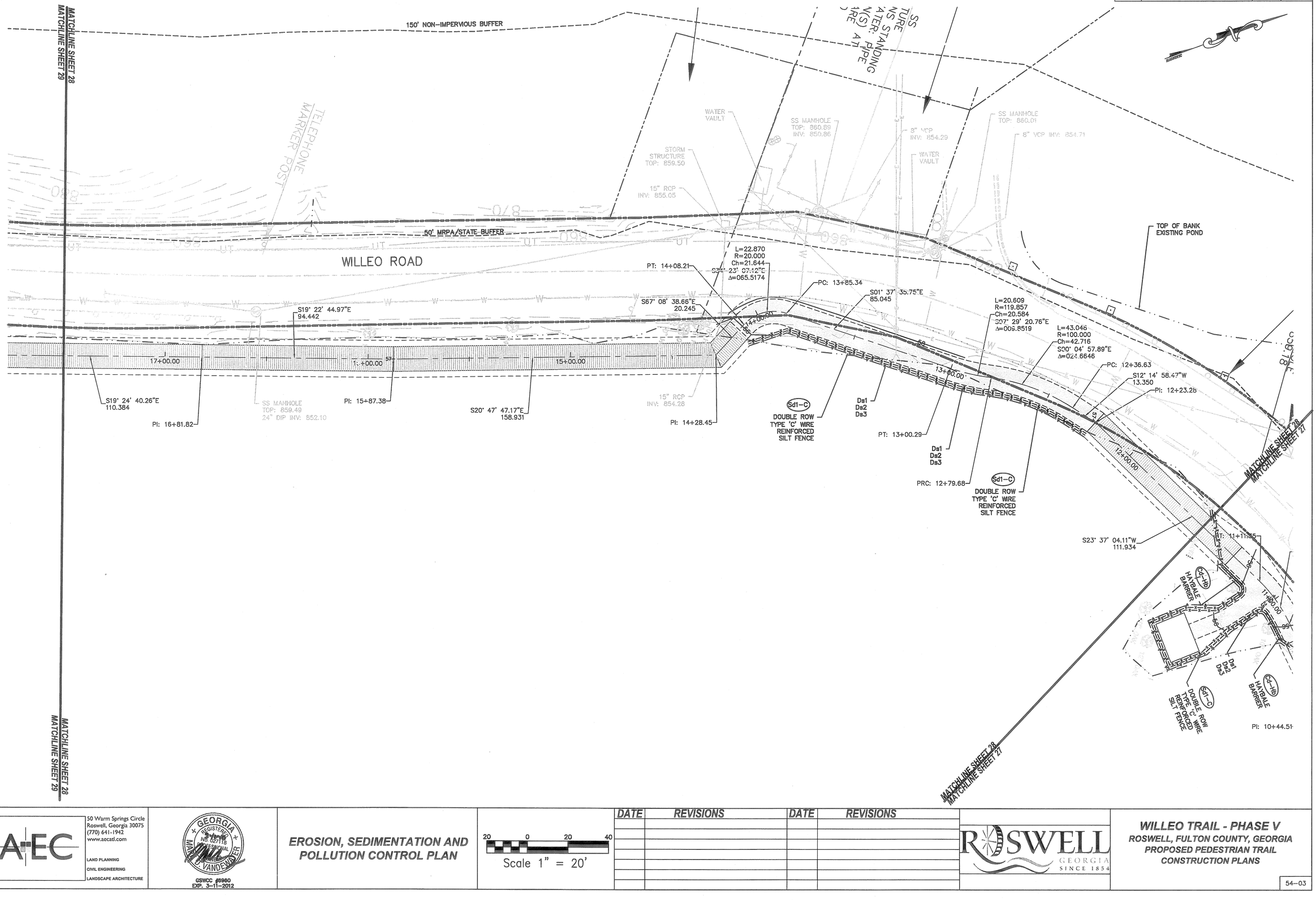
DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

54-02

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	28	



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GEORGIA REGISTERED PROFESSIONAL MARK D. VANDEVENDER
GSWCC #6980
EXP. 3-11-2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

20 0 20 40
Scale 1" = 20'

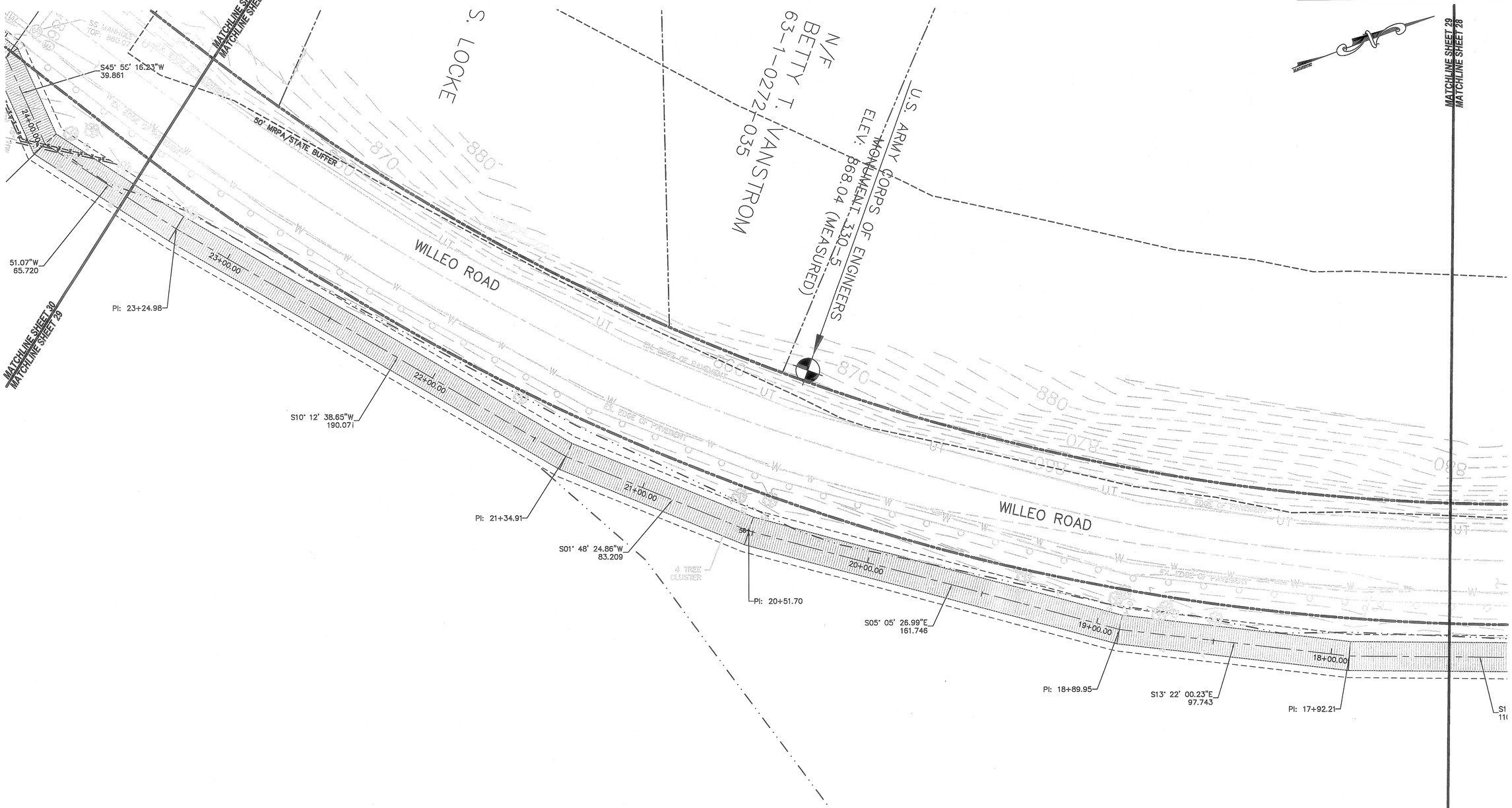
DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL CONSTRUCTION PLANS

54-03

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	29	



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GEORGIA REGISTERED PROFESSIONAL MATTHEW J. VANDEWATER No. 027118
GSWCC #8960
EXP. 3-11-2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL CONSTRUCTION PLANS

54-04

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	30	

MATCHLINE SHEET 31
MATCHLINE SHEET 30

S13° 46' 35.48"E
7.519

PT: 28+29.18

PI: 28+36.70

L=281.825
R=496.134
Ch=278.051
S02° 34' 08.22"W
Δ=032.5464

PC: 28+94.32

S14° 05' 57.52"E
57.621

28+00.00

27+00.00

26+00.00

29+00.00

PC: 25+47.36

25+00.00

50' MRPA/STATE BUFFER

Rd
ROCK DAM

Sd1–C
DOUBLE ROW TYPE 'C' WIRE REINFORCED SILT FENCE

Ds1
Ds2
Ds3

Cd–Hb
HAYBALE BARRIER

SS MANHOLE
TOP: 859.75
24" DIP INV: 853.70

SS MANHOLE
TOP: 862.31
24" DIP INV: 853.55

15" RCP
INV: 856.97

15" RCP
INV: 856.60

8" DIP
INV: 857.57

8" DIP
INV: 858.70

SS MANHOLE
TOP: 863.50

SS MANHOLE
TOP: 860.07

MILLEO ROAD

150' NON–IMI

S18° 50' 31.74"W
116.797

PI: 24+30.56

S45° 55' 16.23"W
39.861

24+00.07

PI: 23+90.70

S12° 45' 51.07"W
65.720

PI

MATCHLINE SHEET 30
MATCHLINE SHEET 29

N/F
FULTON COUNTY
001–2–163–0–0273–014

N/F
FULTON COUNTY
001–2–163–0–0272–009

MATCHLINE SHEET 31
MATCHLINE SHEET 30

MAGNETIC

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GEORGIA REGISTERED No. 027116 PROFESSIONAL ENGINEER MARK D. VANDEVANTER

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EXP. 3–11–2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

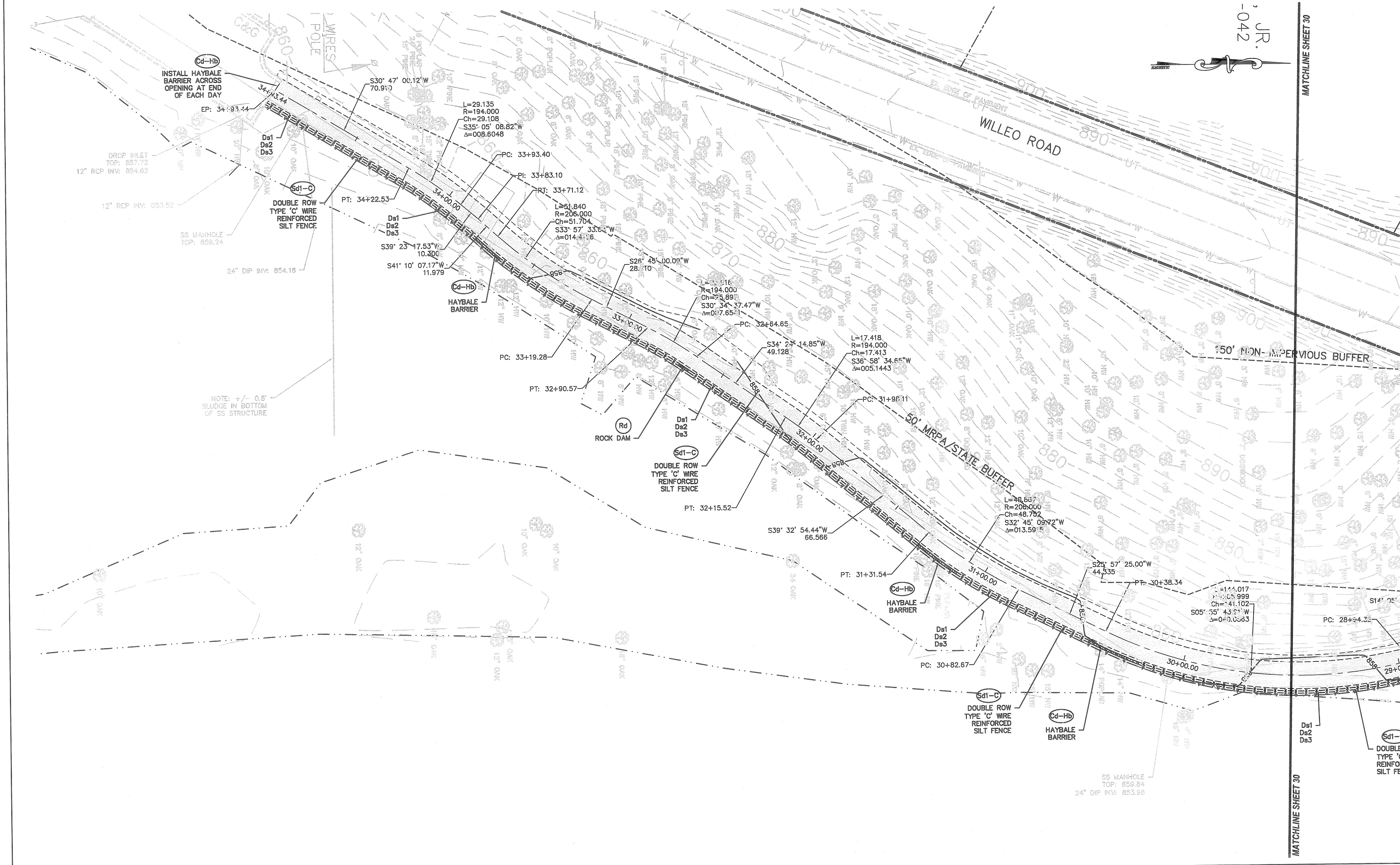
ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

54–05

M:\2009\JOBS\09-2891 WILLEO TRAIL Concept Permitting\09-2891 GDOT Phase 5 - PI01.dwg, 3/8/2010 1:06:27 PM, jjw, KP Asad.pc3, 1:1

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	31	



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EXP. 3-11-2012

EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL CONSTRUCTION PLANS

54-06

CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
Be	EARTH BERM SECTION 161	LINE CODE (Be)	THIS IS A TEMPORARY EARTH BERM CONSTRUCTED AT THE EDGE OF THE EMBANKMENT DURING THE GRADING OPERATION. THIS BERM WILL PREVENT SLOPE EROSION AND DIRECT RUNOFF TO A DOWN DRAIN 'Dn1' OR CATCHMENT AREA. THIS WILL BE USED ON ALL GRADING PROJECTS. THIS ITEM IS TO BE USED ALONG THE TOP OF HIGH FILL SECTIONS TO DIRECT RUNOFF INTO THE TEMPORARY SLOPE DRAINS.
Bf	BUFFER ZONE	Bf Bf SYMBOL Bf	A STRIP OF UNDISTURBED ORIGINAL VEGETATION, ENHANCED OR RESTORED EXISTING VEGETATION, OR THE RE-ESTABLISHMENT OF VEGETATION SURROUNDING AN AREA OF DISTURBANCE OR BORDERING STREAMS, PONDS, WETLANDS, LAKES, AND COASTAL WATERS. THE BOUNDARIES OF THESE AREAS ARE BE DELINEATED BY ORANGE BARRIER FENCE.
ESA	ENVIRONMENTALLY SENSITIVE AREA	LINE CODE ESA-25' (OR 50') STREAM BUFFER, ETC.	ENVIRONMENTALLY SENSITIVE AREA (ESA) CONTAINS RESOURCES THAT ARE ENVIRONMENTALLY, CULTURALLY, OR HISTORICALLY SENSITIVE. ESA AREAS INCLUDE, BUT ARE NOT LIMITED TO: STATE WATER BUFFERS, ARCHAEOLOGICAL SITES, HISTORIC SITES, AND PROTECTED ANIMAL AND PLANT SPECIES HABITATS. IF WORK IS AUTHORIZED IN THIS AREA, THE WORK MUST BE PERFORMED IN ACCORDANCE WITH SECTION 107 AND ANY OTHER APPLICABLE SPECIAL PROVISIONS AND APPLICABLE PLAN NOTES.
	ORANGE BARRIER FENCE	LINE CODE ORANGE BARRIER FENCE	ORANGE BARRIER FENCE DELINEATES ESA AREAS WHERE THE CONTRACTOR SHALL NOT CLEAR, GRUB, PLACE CONSTRUCTION MATERIALS OR EQUIPMENT WITHIN THIS AREA.
Cd-F	FABRIC CHECK DAM CONSTRUCTION DETAIL SECTION 171	FLOW LINE CODE (Cd-F)	A CHECK DAM COMPOSED OF SYNTHETIC FIBER FABRIC, WIRE REINFORCED, POST, AND BRACING PLACED IN DITCHES IN A SPECIAL CONFIGURATION WHICH CONTROLS ENERGY DISSIPATION AND FILTRATION OF STORM WATER. SEE CONSTRUCTION DETAIL D-24b FOR SPACING REQUIREMENT. THIS ITEM IS SUITABLE FOR USE IN ROADSIDE DITCHES THAT ARE PART OF INFRASTRUCTURE CONSTRUCTION PROJECTS. IF THIS ITEM IS USED IN AN AREA WITHOUT A SEDIMENT BASIN CONSIDERATION SHOULD BE GIVEN TO USING TWO OR MORE ROCK FILTER DAMS NEAR THE DISCHARGE POINT.
Cd-Hb	HAYBALE CHECK DAM SECTION 163	LINE CODE (Cd-Hb)	HAYBALE CHECK DAMS ARE RECOMMENDED FOR DRAINAGE AREA LESS THAN ONE ACRE.
Cd-S	STONE OR SANDBAG CHECK DAM SECTION 163, 603	LINE CODE (Cd-S)	STONE CHECK DAMS ARE USED IN ROADWAY DITCHES. GEOTEXTILE UNDERLINER SHALL BE USED WHEN PLACING STONE CHECK DAMS.
Ch-Br	BITUMINOUS TREATED ROVING SECTION 161, 715	LINE CODE (Ch-Br)	THIS ITEM CONSISTS OF PLACING ONE OR MORE LAYERS OF BITUMINOUS TREATED ROVING ON A PLANTED AREA. IN CHANNELS TO STABILIZE VEGETATION AND PREVENT EROSION. BITUMINOUS TREATED ROVING SHALL BE PLACED TO PROTECT THE DITCH FLOWING TO A DEPTH 'Dp' RECOMMENDED BY THE GDOT DITCH PROTECTION PROGRAM. ADDITITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. 'Dp' SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS
Ch-C	CHANNEL CONCRETE SECTION 161, 441	LINE CODE (Ch-C)	THIS ITEM CONSISTS OF CONSTRUCTING A 4" THICK CONCRETE CHANNEL. THE CONCRETE SHALL PROTECT THE DITCH FLOWING TO A DEPTH 'Dp' RECOMMENDED BY THE GDOT DITCH PROTECTION PROGRAM 'Dp' SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
EROSION CONTROL LEGEND AND UNIFORM CODE SHEET
SHEET 1 OF 6
NO SCALE JANUARY 2007
NUMBER EC-L1 52-1

CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
Ch-Rp1	CHANNEL RIP RAP TYPE 1 SECTION 161, 603	LINE CODE (Ch-Rp1)	THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 1 RIP RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP RAP SHALL PROTECT THE DITCH FLOWING TO A DEPTH 'Dp' RECOMMENDED BY THE GDOT DITCH PROTECTION PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED ALONG THIS CHANNEL SUCH AS Sd1-C, Rdc OR Sg. 'Dp' SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS
Ch-Rp3	CHANNEL RIP RAP TYPE 3 SECTION 161, 603	LINE CODE (Ch-Rp3)	THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 3 RIP RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP RAP SHALL PROTECT THE DITCH FLOWING TO A DEPTH 'Dp' RECOMMENDED BY THE GDOT DITCH PROTECTION PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED ALONG THIS CHANNEL SUCH AS Sd1-C, Rdc OR Sg. 'Dp' SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS
Ch-V	CHANNEL GRASS SECTION 161, 700	LINE CODE (Ch-V)	USED TO IMPROVE OR STABILIZE A NEW OR EXISTING CHANNEL. IT IS CONSTRUCTED IN STORMWATER DRAINAGE DITCHES. THIS MEASURE SHALL BE DESIGNED IN ACCORDANCE WITH THE GDOT DITCH PROTECTION PROGRAM ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. TYPICALLY NOT SHOWN IN PLANS.
Co	CONSTRUCTION EXIT CONSTRUCTION DETAIL	LINE CODE (Co)	A STONE STABILIZED PAD LOCATED AT ANY POINT WHERE TRAFFIC WILL BE EXITING A CONSTRUCTION SITE TO A PUBLIC ROAD. BEST USED AT ACCESS POINTS, I.e. NEW LOCATION PROJECTS, BORROW PITS, WASTE PITS, ACCESS ROADS, ETC. SHOULD BE MIN. 20' WIDE AND 50' LONG, AND 6" THICK. REQUIRES A GEOTEXTILE UNDERLINER. INCLUDED IN THE PRICE FOR THE CONSTRUCTION EXIT.
Dc-A	DIVERSION CHANNEL GEOTEXTILE, POLYETHYLENE FILM SECTION 163	LINE CODE —D—D—D-(Dc-A)-D—D—D—	A DIVERSION CHANNEL IS A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE OR POLYETHYLENE FILM. INSTALL TWO ROWS OF Sd1-C PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS DESIGNED FOR A TWO YEAR STORM FREQUENCY WITH A FLOW RATE BETWEEN 0-2.5 fps. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
Dc-B	DIVERSION CHANNEL GEOTEXTILE ONLY SECTION 163	LINE CODE —D—D—D-(Dc-B)-D—D—D—	A DIVERSION CHANNEL IS A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE ONLY. INSTALL TWO ROWS OF Sd1-C PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY. CHANNEL SLOPE AND ROUGHNESS. IT IS DESIGNED FOR A TWO YEAR STORM FREQUENCY WITH A FLOW RATE BETWEEN 2.5-9.0 fps. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
Dc-C	DIVERSION CHANNEL RIPRAP AND GEOTEXTILE SECTION 163	LINE CODE —D—D—D-(Dc-C)-D—D—D—	A DIVERSION CHANNEL IS A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH RIPRAP AND GEOTEXTILE. INSTALL TWO ROWS OF Sd1-C PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL CEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS DESIGNED FOR A TWO YEAR STORM FREQUENCY WITH A FLOW RATE BETWEEN 9.0-13.0 fps. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
Di	DIVERSION CONSTRUCTION DETAIL SECTION 205	LINE CODE (Di)	AN EARTH CHANNEL WITH A COMPACTED SUPPORTING RIDGE ON THE LOWER SIDE. CONSTRUCTED ABOVE, ACROSS OR BELOW A SLOPE TO REDUCE THE LENGTH OF A SLOPE AND TO INTERCEPT RUNOFF AND DIRECT THE RUNOFF TO A STABLE OUTLET. SEE CHAPTHER 6 OF THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA FOR DESIGN CRITERIA AND DETAILS.
Dn1	DOWN DRAIN STRUCTURE FLEXIBLE CONSTRUCTION DETAIL SECTION 163	LINE CODE —T—T—T-(Dn1)-T—T—T—	A TEMPORARY PIPE SLOPE DRAIN IS A PLASTIC FLEXIBLE PIPE TO CARRY WATER FROM THE WORK AREA TO A LOWER ELEVATION. TEMPORARY SLOPE DRAINS SHOULD BE PLACED A INTERVALS OF 500 FEET ON A 0 TO 2 PERCENT GRADE, 200 FEET ON STEEPER GRADES AND MORE FREQUENTLY AS DICTATED BY FIELD CONDITIONS. THE USUAL PIPE SIZE IS 10 INCH CORRUGATED. THE OUTLET AREA SHOULD BE STABILIZED WITH SILT FENCE, SUMP HOLE, HAYBALES, ANGLING OUTLET IN UPHILL DIRECTION OR OTHER APPROPRIATE MEANS FOR VELOCITY DISSIPATION AND EROSION CONTROL. THE PIPE WILL BE ANCHORED WITH STAKES AT INTERVALS NOT TO EXCEED 10'.

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
EROSION CONTROL LEGEND AND UNIFORM CODE SHEET
SHEET 2 OF 6
NO SCALE JANUARY 2007
NUMBER EC-L2 52-2

CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
Dn2-A	PERMANENT DOWN DRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL SECTION 441	LINE CODE (Dn2-A)	A CONCRETE FLUME TYPE "A" IS USED TO DIRECT SURFACE RUNOFF DOWN A ROADWAY SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN ALL DEPRESSED AREAS WHERE WATER WILL FLOW DOWN THE SLOPE. IT IS DESIGNED FOR A 25 YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
Dn2-B	PERMANENT DOWN DRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL SECTION 441	LINE CODE (Dn2-B)	A CONCRETE FLUME TYPE "B" IS USED TO DIRECT SURFACE DITCH RUNOFF DOWN A BACK SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN DEPRESSED AREAS WHERE CONCENTRATED OFFSITE WATER REACHES THE CUT SLOPE. IT IS DESIGNED TO SAFETLY CONVEY WATER DOWN THE CUT SLOPE. IT IS DESIGNED FOR A 25 YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
Dn2-1	PERMANENT DOWNDRAIN STRUCTURE GA. STD. 9017J TP1, D-26 TP1 SECTION 576, 577.	LINE CODE (Dn2-1)	CONCRETE DRAIN INLET WITH METAL PIPE IS USED TO DRAIN CURBS, ON A GRADE, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
Dn2-2	PERMANENT DOWN DRAIN STRUCTURE GA. STD. 9017J TP2, D-26 TP2 SECTION 576, 577.	LINE CODE (Dn2-2)	CONCRETE DRAIN INLET AND METAL PIPE IS USED TO DRAIN CURB, IN A SAG, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
Ds1	MULCH SECTION 163	LINE CODE (Ds1)	THIS IS AN APPLICATION OF STRAW MULCH USED TO REDUCE SOIL EROSION AND STABILIZE THE SOIL. IT IS USED TO CONTROL EROSION IN AREAS WHERE PERMANENT VEGETATION IS OUT OF SEASON OR TO TEMPORARILY STABILIZE AREAS PRIOR TO FINAL GRADING.
Ds2	TEMPORARY GRASSING SECTION 163	LINE CODE (Ds2)	THE SOWING OF A QUICK GROWING SPECIES OF GRASS SUITABLE TO THE AREA AND SEASON IS TO BE USED ON ALL PROJECTS.
Fr	FILTER RING CONSTRUCTION DETAIL	5 FT. MIN. LINE CODE (Fr)	A TEMPORARY STONE BARRIER CONSTRUCTED AT DRAINAGE STRUCTURE INLETS. THIS REDUCES THE VELOCITY OF THE RUNOFF AND FILTERS SEDIMENT FROM THE RUNOFF. SEE CHAPTER 6 OF THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA FOR DESIGN CRITERIA AND DETAILS.
Mb	EROSION CONTROL MATS CONSTRUCTION DETAIL SECTION 716	PATTERN (Mb)	ALL CUT OR FILL SLOPES OF 2.5:1 OR STEEPER AND WITHIN 50' OF ALL CROSS DRAINS AND CULVERTS.
Ps	PERMANENT SOIL REINFORCING MAT CONSTRUCTION DETAIL SECTION 710	LINE CODE (Ps)	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG TERM PROTECTION. (THIS IS CALLED "WI" IN MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
EROSION CONTROL LEGEND AND UNIFORM CODE SHEET
SHEET 3 OF 6
NO SCALE JANUARY 2007
NUMBER EC-L3 52-3

CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
Rd	ROCK FILTER DAM CONSTRUCTION DETAIL SECTION 163, 603.	LINE CODE (Rd)	ROCK FILTER DAMS ARE CONSTRUCTED OF TYPE 3 STONE RIP RAP AND ARE USED TO PROTECT SMALL STREAMS OR DRAINAGEWAYS. TO BE USED IN SMALL DRAINAGE CHANNELS OF 50 ACRES OR LESS. THE RIP RAP SHOULD BE PLACED ON A GEOTEXTILE UNDERLINER.
Rp	RIPRAP SECTION 603	PATTERN (Rp)	RIP RAP IS A FLEXIBLE PERMANENT BLANKET FOR PROTECTION OF FILL SLOPES AND END ROLLS. RIP RAP, TYPE 1 SHOULD BE PLACED ON TOP OF A GEOTEXITLE UNDERLINER AT A MINIMUM 24" THICKNESS OR AS INDICATED ON THE PLANS.
Rt-P	RETROFITTING CONSTRUCTION DETAIL SECTION 163	LINE CODE (Rt-P)	A PERFORATED HALF-ROUND PIPE WITH STONE FILTER PLACED IN FRONT OF A PERMANENT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER. SHOULD BE USED ONLY IN DETENTION PONDS WITH LESS THAN 30 ACRES TOTAL DRAINAGE AREA. SHALL ONLY BE USED IN DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTRUBED AREA. THIS ITEM SHOULD BE DESIGNED ACCORDING TO CHAPTER 6 IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA"
Rt-B	RETROFITTING CONSTRUCTION DETAIL SECTION 163	LINE CODE (Rt-B)	A SLOTTED BOARD DAM WITH STONE PLACED IN FRONT OF A PERMANENT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER. SHOULD BE USED ONLY IN DETENTION PONDS WITH LESS THAN 100 ACRES TOTAL DRAINAGE AREA. SHALL ONLY BE USED IN DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTRUBED AREA. THIS ITEM SHOULD BE DESIGNED ACCORDING TO CHAPTER 6 IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA"
Sb-F	SILT RETENTION BARRIER FLOATING SECTION 170	FLOATING LINE CODE (Sb-F)	A FLOATING BARRIER IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY FORCING IT TO DROP OUT OF SUSPENSION BEFORE IT MOVES OUT OF THE CONSTRUCTION AREA. IT IS USUALLY USED WHERE CONSTRUCTION IS REQUIRED IN A LARGE BODY OF WATER SUCH AS LAKES AND RIVERS. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. THIS ITEM IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED BMP'S.
Sb-S	SILT RETENTION BARRIER STAKED SECTION 170	STAKED LINE CODE (Sb-S)	A STAKED BARRIER IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY FORCING IT TO DROP OUT OF SUSPENSION BEFORE IT MOVES OUT OF THE CONSTRUCTION AREA. IT IS USUALLY USED WHERE CONSTRUCTION IS REQUIRED IN SHALLOW INUNDATED AREAS. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. A STAKED BARRIER MAY BE USED TO PROTECT A SMALL STREAM WHILE IT IS BEING REALIGNED OR WIDENED IN "Ch1". IN THIS CASE THE BARRIER SHOULD EXTEND TO THE BOTTOM OF THE STREAM. IT SHOULD BE LIMITED TO 5' IN HEIGHT UNLESS OTHERWISE DIRECTED. STAKED BARRIERS IN SMALL STREAMS SHOULD EXTEND 1' ABOVE NORMAL WATER. THIS ITEM IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED BMP'S.
Sd1-A	SILT FENCE TYPE A CONSTRUCTION DETAIL SECTION 171	FLOW LINE CODE —A—A—A-(Sd1-A)-A—A—A—	USED ALONG THE TOE OF FILLS OVER 10' HIGH, ALONG THE RIGHT OF WAY LINE OR PARALLEL TO STREAMS. THE FENCE SHOULD NEVER RUN CONTINUOUS. IT SHOULD TURN BACK INTO THE FILL TO CREATE SMALL POCKETS TO TRAP SILT.
Sd1-B	SILT FENCE TYPE B CONSTRUCTION DETAIL SECTION 171	FLOW LINE CODE —B—B—B-(Sd1-B)-B—B—B—	TYPE B MAY BE USED IN LIEU OF BALED STRAW AND AT THE TOE OF FILLS LESS THAN 10 FEET HIGH.
Sd1-C	SILT FENCE TYPE C CONSTRUCTION DETAIL SECTION 171	FLOW LINE CODE —C—C—C-(Sd1-C)-C—C—C—	A WOVEN SYNTHETIC FIBER FABRIC PLACED IN FRONT OF A WIRE FENCE. IT CAN BE USED ALONG THE TOE OF THE FILL, ALONG THE RIGHT OF WAY LINE OR PARALLEL TO STREAMS. IT IS USED TO CAPTURE SEDIMENT FROM FILLS OVER 10 FEET HIGH AND UNDER ALL BRIDGES.

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
EROSION CONTROL LEGEND AND UNIFORM CODE SHEET
SHEET 4 OF 6
NO SCALE JANUARY 2007
NUMBER EC-L4 52-4

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	32	

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

A. SILT FENCE MUST MEET THE REQUIREMENTS OF SECTION 171–TEMPORARY FENCE OF THE DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA, STANDARD SPECIFICATIONS, LATEST EDITION.
B. ADDITIONAL EROSION CONTROL MEASURES WILL BE EMPLOYED WHERE DETERMINED NECESSARY BY ACTUAL SITE CONDITIONS OR ONSITE INSPECTOR.
C. PROVISIONS TO PREVENT EROSION OF SOIL FROM SITE SHALL BE, AS MINIMUM, IN CONFORMANCE WITH THE REQUIREMENTS OF THE COUNTY EROSION AND SEDIMENTATION ORDINANCE AND THE COUNTY CODE OF LAWS DEALING WITH EROSION AND SEDIMENTATION.
D. PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION EXIT SHALL BE CONSTRUCTED AT EACH ENTRY TO OR EXIT FROM THE SITE.
E. THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH STONE, AS WELL AS REPAIR AND/OR CLEAN OUT OF ANY STRUCTURES USED TO TRAP SEDIMENT AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE OR SITE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN SYSTEM MUST BE REMOVED IMMEDIATELY.
F. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE SHALL OCCUR INSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS. ANY DEVIATION FROM PLANS REQUIRES DESIGN ENGINEER'S APPROVAL PRIOR TO COMMENCING.
G. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCES/EXITS, ALL PERIMETER EROSION CONTROL DEVICES AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.
H. OWNER AGREES TO PROVIDE AND MAINTAIN OFF–STREET PARKING ON THE SUBJECT PROPERTY DURING THE ENTIRE CONSTRUCTION PERIOD.
I. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES WHILE ROADWAY FRONTAGE IMPROVEMENTS ARE BEING MADE.
J. THE CONSTRUCTION OF THE SITE WILL COMMENCE AFTER THE GRADING OR LDP HAS BEEN QCQUIRED. CONSTRUCTION SHALL COMMENCE WITH THE INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UPSTREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION AND ALL ROADS/DRIVEWAYS HAVE BEEN PAVED.
K. EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
L. ALL SILT BARRIERS MUST BE PLACED AS ACCESS IS OBTAINED DURING CLEARING. NO GRADING SHALL BE DONE UNTIL SILT BARRIER INSTALLATION IS COMPLETE AND SEDIMENT STORAGE FACILITIES ARE CONSTRUCTED.
M. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL FINAL STABILIZATION HAS BEEN ACHIEVED. CONTRACTOR SHALL CLEAN OUT ALL SEDIMENT PONDS WHEN REQUIRED BY ENGINEER OR THE CITY OF ROSWELL'S INSPECTOR. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
N. THE GENERAL CONTRACTOR SHALL REMOVE ACCUMULATED SILT ONCE THE SILT HAS ACCUMULATED TO ONE–HALF THE ORIGINAL HEIGHT OF THE BARRIER UTILIZED FOR EROSION CONTROL. IN THE DETENTION POND, SILT SHALL BE REMOVED WHEN A DEPTH HAS ACCUMULATED AS SHOWN ON THE MARKER LOCATED AT THE OUTLET CONTROL STRUCTURE AND ALL SILT SHALL BE REMOVED AT THE END OF THE PROJECTS SITEWORK CONSTRUCTION AND AFTER ALL LANDSCAPED AREAS HAVE BEEN ESTABLISHED WITH GROUNDCOVER (GRASSED OR MULCHED). ALL SILT SHALL BE REMOVED FROM ANY TEMPORARY SEDIMENT TRAPS WHEN SEDIMENT HAS ACCUMULATED TO ONE–HALF OF THE HEIGHT OF THE TRAP. RESPONSIBILITY FOR THESE ACTIONS MUST BE DETERMINED BY THE GENERAL CONTRACTOR PRIOR TO ANY CLEARING AND GRADING.
O. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE MANUAL FOR SEDIMENT AND EROSION CONTROL IN GEORGIA OR LOCAL REQUIREMENTS, WHICHEVER ARE MORE STRINGENT; WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED IN ACCORDANCE WITH STATE AND/OR LOCAL STANDARDS.
ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF ROSWELL'S STANDARDS AND SPECIFICATIONS.
Q. A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE WHENEVER LAND DISTURBANCE ACTIVITY IS IN PROGRESS.
R. ALL DISTURBED SEWER EASEMENTS MUST BE DRESSED AND GRASSED TO CONTROL EROSION.
S. ALL OPEN SWALES MUST BE GRASSED, AND RIP–RAP MUST BE PLACED AS REQUIRED TO CONTROL EROSION. A MINIMUM OF 4.5 SQ YDS OF 50 LB STONES SHALL BE PLACED AT ALL DOWNSTREAM HEADWALLS IMMEDIATELY UPON THE INSTALLATION OF PIPES AND DRAINAGE DITCHES. (REFER TO STORM OUTLET PROTECTION DETAIL (St) FOR REQUIRED RIP–RAP SPECIFICATIONS.)
T. SILT BARRIERS SHALL BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.
U. **ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.**
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.
W. **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 SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.**
X. ALL AREAS TO RECEIVE STRUCTURAL FILL TO BE CLEARED, STRIPPED AND FREE OF TOPSOIL, ROOTS, STUMPS, AND ALL OTHER DELETERIOUS MATERIAL. STRUCTURAL FILL TO BE CLEAN FROM ORGANICS AND ALL OTHER DELETERIOUS MATERIAL. FILL TO BE PLACED IN MAXIMUM 8" LIFTS AND COMPACTED TO AT LEAST 95% STANDARD PROCTOR MAXIMUM DENSITY AND TO WITHIN 3%± OF THE OPTIMUM MOISTURE CONTENT, UNLESS OTHERWISE SPECIFIED IN THE PROJECT GEOTECHNICAL REPORT OR BY THE PROJECT GEOTECHNICAL ENGINEER. ALL FILL SOILS TO BE PLACED UNDER THE OBSERVATION OF THE PROJECT GEOTECHNICAL ENGINEER. DOCUMENTATION OF COMPACTION TESTING SHALL BE PROVIDED TO LAND DISTURBANCE ACTIVITY INSPECTOR FOR ALL ROADWAY CONSTRUCTION IN RIGHT–OF–WAY. (INCLUDING DECELERATION LANE) CONTACT LAND DISTURBANCE ACTIVITY INSPECTOR PRIOR TO CONSTRUCTION FOR FURTHER TESTING REQUIREMENTS.
Y. ALL SILT FENCE SHALL BE TYPE C, UNLESS NOTED OTHERWISE.
Z. THE OWNER WILL MAINTAIN STORM WATER RUNOFF CONTROLS AT ALL TIMES. ADDITIONAL CONTROLS WILL BE INSTALLED IF DETERMINED NECESSARY BY THE CITY OF ROSWELL'S INSPECTION.
AA. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL BE THE RESPONSIBILITY OF THE OWNER.
BB. ALL DISTURBED AREAS MUST BE VEGETATED WITH PERMANENT VEGETATION WITHIN 14 DAYS OF FINAL GRADE.
CC. GENERAL CONTRACTOR SHALL FLUSH OUT ANY SILT WITHIN THE STORM DRAINAGE SYSTEM AT END OF PROJECT & CLEAN OUT ALL SILT CONTROL STORM STRUCTURES. SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED LANDFILL. MAXIMUM CUT OF FILL SLOPES ARE 2HOR.:1VERT. CONCENTRATED FLOW AREAS, ALL SLOPES STEEPER THAN 2.5:1 AND WITH A HEIGHT OF TEN FEET OR GREATE AND CUTS AND FILLS WITHIN STREAM BUFFERS SHALL BE STABILIZED WITH THE APPROPRIATE EROSION CONTROL MATTING OR BLANKETS (Mb).
FF. ALL SLOPES STEEPER THAN 3:1 REQUIRE SURFACE ROUGHENING IF THEY ARE TO BE STABILIZED WITH VEGETATION. HOWEVER, IF THE SLOPE IS TO BE STABILIZED WITH EROSION CONTROL BLANKETS OR SOIL REINFORCEMENT, THE SOIL SURFACE SHOULD NOT BE ROUGHENED.
GG. THIS SITE DOES CONTAIN ANY STATE WATERS OR WETLANDS. THIS SITE IS LOCATED WITHIN 200 FEET OF STATE WATERS.
II. WHEN ANY CONSTRUCTION BORDERS A DRAINAGE COURSE: THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ANY BUILDING OR OTHER EXCAVATION SPOILED DIRT CONSTRUCTION TRASH OR DEBRIS, ETC., FROM THE DRAINAGE AREA SHOWN HEREON IN AN EXPEDITIOUS MANNER AS CONSTRUCTION PROGRESSES. THE CONTRACTOR HEREBY AGREES TO STOP ALL WORK AND RESTORE THESE AREAS IMMEDIATELY UPON NOTIFICATION BY THE CITY/COUNTY INSPECTOR AND/OR THE PROJECT'S PROFESSIONAL ENGINEER. UPON COMPLETION OF RESTORATION, A PROFESSIONAL ENGINEER SHALL CERTIFY IN WRITING TO THE PROJECT ARCHITECT, OWNER OR GOVERNING MUNICIPALITY THAT ALL CLEAN–UP IS COMPLETE AND THE DRAINAGE COURSE RESTORED TO ORIGINAL CONDITION AND GRADE.

LAST REVISED: FEBRUARY 20, 2006

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LAND PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE

GEORGIA REGISTERED NO. 027118 PROFESSIONAL ENGINEER MARK D. VANDEWATER
GSWCC #6960
EXP. 3–11–2012

EROSION CONTROL DETAILS

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL CONSTRUCTION PLANS

52–01

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	33	

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Sd1-Bb	BRUSH BARRIER CONSTRUCTION DETAIL	LINE CODE	THIS ITEM CONSISTS OF INTERMINGLED BRUSH, LOGS, ETC. SO AS NOT TO FORM A SOLID DAM. CONSTRUCTED AT THE TOE OF FILL SLOPES DURING THE CLEARING AND GRUBBING OPERATION. THE BARRIER SHOULD BE USED AT THE TOE OF FILL SLOPES ON GRADING PROJECTS IN RURAL AREAS WHERE SUFFICIENT RIGHT OF WAY OR EASEMENT IS AVAILABLE (10 FEET OR MORE). THE BARRIER SHOULD RUN ROUGHLY PERPENDICULAR TO THE FLOW OF WATER WHERE THIS DOES NOT CONFLICT WITH RIGHT OF WAY OR EASEMENT LIMITS. THEY WILL NOT BE PLACED IN WETLANDS. PAYMENT FOR THIS ITEM IS INCLUDED IN THE CLEARING AND GRUBBING COST. NO SEPERATE PAYMENT SHALL BE MADE.
	Sd1-Hb	SEDIMENT BARRIER CONSTRUCTION DETAIL SECTION 163	LINE CODE	A BARRIER OF BALED STRAW IS USED TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT IS USED IN DITCHES AS DITCH CHECKS OR ALONG THE TOE OF SLOPE OR RIGHT OF WAY IN FILLS LESS THAN 10 FEET HIGH. THE BALES SHOULD RUN PARALLEL TO THE SILT YIELDING AREA UNTIL THE TOP OF THE BALE IS 6 INCHES LOWER THAN THE GROUND ELEVATION OF THE BEGINNING BALE. THEY SHOULD THEN TURN INTO THE FILL WITH A LOW POINT FOR THE WATER TO DRAIN OVER THE BALE. IN DITCHES, BALED STRAW SHOULD BE PERPENDICULAR TO THE FLOW. USED FOR SLOPES LESS THAN 1%. USE 100' SPACING. BALED STRAW SHALL BE STAKED SECURELY TO THE GROUND.
	Sd2-B	BAFFLE BOX INLET SEDIMENT TRAP CONSTRUCTION DETAIL D42 SPECIFICATIONS SECTION 163	LINE CODE	USED FOR INLETS RECEIVING RUNOFF WITH A HIGHER VOLUME OR VELOCITY. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING A Q-7cfs.
	Sd2-Bg	BLOCK & GRAVEL DROP INLET PROTECTION CONSTRUCTION DETAIL D42 SPECIFICATIONS SECTION 163	LINE CODE	USED FOR INLET PROTECTION WHERE HEAVY FLOWS ARE EXPECTED AND WHERE OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE. CAN BE USED AT CULVERT INLETS. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING A Q-5-7 cfs.
	Sd2-F	INLET SEDIMENT TRAP CONSTRUCTION DETAILS SECTION 163	(a) OR (b) OR (c) LINE CODE	(a) A SEDIMENT BARRIER CONSISTING OF A PREFABRICATED FRAME WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN (b) A SEDIMENT BARRIER CONSISTING OF A PERFORATED METAL STAND PIPE WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN (c) TYPE C SILT FENCE WITH SUPPORTING FRAME CAN BE USED AS AN ALTERNATE TO INLET SEDIMENT TRAP FOR AREAS WITH SLOPES < 5% THIS ITEM IS USED TO PREVENT SILT FROM ENTERING THE PIPE SYSTEM. SHALL NOT APPLY TO INLETS RECIEVING CONCENTRATED FLOWS. RECOMMENDED FOR INLET RECEIVING FLOWS THAT RANGE FROM Q-0-4 cfs.

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Sd2-G	GRAVEL DROP INLET PROTECTION CONSTRUCTION DETAIL D42 SPECIFICATIONS SECTION 163	LINE CODE	USED FOR INLET PROTECTION WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED. STONE AND GRAVEL ARE USED TO TRAP SEDIMENT. THE SLOPE TOWARD THE INLET SHALL BE NO MORE THAN 3:1. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING A Q-3-5 cfs.
	Sd3	SEDIMENT BASIN CONSTRUCTION DETAIL SECTION 163	LINE CODE	A BASIN EXCAVATED OR AN AREA THAT IS DAMMED. THE BASIN IS DESIGNED TO HOLD A SEDIMENT LOAD OF 67 CUBIC YARDS OF VOLUME PER ACRE OF DRAINAGE AREA. IT IS USED FOR DRAINAGE AREAS OF 3 TO 5 ACRES OR WHERE A ROADWAY CUTS OR FILLS EXCEEDS 1,000 FEET IN LENGTH. IF A SEDIMENT BASIN IS USED ON AN AREA LARGER THAN 5 ACRES SPECIAL CONSIDERATION FOR CLEAN OUT IS REQUIRED. SUFFICIENT RIGHT OF WAY OR PERMANENT EASEMENT NEEDED FOR THE BASIN AND ACCESS FOR CLEAN OUT VIA A ROUTE WITH 3:1 SLOPES OR LESS. SEDIMENT BASINS SHOULD ALSO BE CONSIDERED WHERE HIGH FILLS OVER 30 FEET DRAIN TO ONE LOCATION.
	Sg-1 Sg-2 Sg-3	SILT CONTROL GATES CONSTRUCTION DETAIL D-20 SECTION 163	FRONT VIEW LINE CODE	A SILT CONTROL GATE IS A STRUCTURE PLACED ON A PIPE, SMALL BOX CULVERT, OR DROP INLET TO FORM A BASIN TO CATCH SILT AND PREVENT IT FROM LEAVING THE CONSTRUCTION SITE. IT IS EFFECTIVE ON SMALL DRAINAGE AREAS ONLY. DO NOT USE IN STATE WATERS. Sg-1-TYPE 1: USED ON BOX CULVERTS Sg-2-TYPE 2: USED ON STRAIGHT HEADWALLS Sg-3-TYPE 3: USED ON FLARED END SECTIONS AND TAPERED HEADWALLS
	Sr	STREAM CROSSING SECTION 161	LINE CODE	A TEMPORARY BRIDGE OR PIPE STRUCTURE PROTECTING A STREAM OR WATER COURSE FROM DAMAGE BY CONSTRUCTION EQUIPMENT. THIS AREA MUST BE COMPLETELY STABILIZED. THIS ITEM MUST BE DESIGNED ACCORDING TO CHAPTER 6 OF THE MANUAL FOR EROSION CONTROL IN GEORGIA. FOR CONTRACTOR'S USE ONLY

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION. "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
EROSION CONTROL LEGEND AND UNIFORM CODE SHEET
SHEET 5 OF 6
NO SCALE — JANUARY 2007
NUMBER EC-L5 — DRAWING No. 52-5

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	St	STORM DRAIN OUTLET PROTECTION GA. STD. 1125 & 2332	LINE CODE	A PIPE OR BOX CULVERT OUTLET HEADWALL WITH AN APRON AND DISSIPATOR BLOCKS IS USED TO PREVENT EROSION AND TO SLOW WATER. IT IS USED ON THE OUTLET OF ALL BOX CULVERTS AND ON 48" AND LARGER PIPES. MAY BE USED ON INLET FOR FLOWING STREAMS. USE ON SMALL PIPES WHEN OUTLET VELOCITY IS 12 fps AND GREATER.
	St-Rp	STORM DRAIN OUTLET PROTECTION SECTION 603	PATTERN	THIS ITEM IS ADDED TO "St" WHEN ADDITIONAL PROTECTION IS NEEDED. TYPE 1 RIP RAP PLACED ON FILTER FABRIC SHOULD BE USED AT A 24" THICKNESS. MAY BE USED ON INLETS FOR FLOWING STREAMS. REFER TO CHARTS IN "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR QUANTITIY DETERMINATION.
	Su	SURFACE ROUGHENING SERRATED SLOPES CONSTRUCTION DETAIL SECTION 205	LINE CODE (LINE CODE Su IS SHOWN ON THE PLANS FOR SERRATED SLOPES WHERE SPECIFIED IN THE SOIL SURVEY.)	PROVIDING A ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS, BY OPERATING A CLEATED DOZER ON THE SLOPE IN A VERTICAL DIRECTION. CREATING SERRATED SLOPES IN THE GRADING PROCESS TO CONSTRUCT BENCHES WILL REDUCE RUNOFF VELOCITY AND INCREASE INFILTRATION OF WATER. IN MOST CASES THIS ITEM IS NOT REQUIRTED TO BE SHOWN ON THE PLANS, BUT REQUIRED TO BE COMPLETED BY THE CONTRACTOR UNDER ALL PROJECTS. IF SERRATED SLOPES ARE USED ON THE PROJECT, THEN THIS ITEM SHALL BE SHOWN WHERE SERRATED SLOPES ARE TO BE USED.

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION. "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
EROSION CONTROL LEGEND AND UNIFORM CODE SHEET
SHEET 6 OF 6
NO SCALE — NOV., 2007
NUMBER EC-L6 — 52-6

EXISTING CONDITIONS EROSION CONTROL NARRATIVE:

1. DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY: **GRADING, UTILITY CONSTRUCTION, BUILDING AND DETENTION POND.**
2. **THE SITE IS CURRENTLY UNDEVELOPED AND PAD GRADED. THERE ARE SEVERAL BERMS AND TEMPORARY DOWNDRAINS THROUGHOUT THE SITE.**
3. CRITICAL AREAS: THE SITE IS NOT LOCATED WITHIN 200 FEET OF STATE WATERS.

PHASE 1 EROSION CONTROL NARRATIVE:

- CONTRACTOR SHALL CONFIRM THREE WEEKS PRIOR TO BEGINNING CONSTRUCTION THAT THE N.O.I. HAS BEEN FILED AND ASSOCIATED FEES PAID. THE NOI AND FEES MUST BE SUBMITTED TO E.P.D. AND/OR THE LOCAL ISSUING AUTHORITY AT LEAST 14 DAYS PRIOR TO BEGINNING CONSTRUCTION.
- INSTALL ALL SILT FENCE (Sd1) AND CONSTRUCTION EXIT(S) (Co) SHOWN ON THE PHASE 1 PLAN.
- LAYOUT CONSTRUCTION ROADS, STAGING AREA PADS, HAZARDOUS WASTE CONTAINMENT AREAS AND TOPSOIL STOCKPILE AREAS.
- **INSTALL THE TEMPORARY SEDIMENT BASIN(S) (Sd3) PER THE PLAN.**
- **SET CLEANOUT ELEVATION MARKER ON RISER AT PROPER ELEVATION.**
- **INSTALL OUTLET PROTECTION (St) AT THE TEMPORARY SEDIMENT BASIN OUTLET(S).**
- **CLEAR THE REMAINING SITE AND INSTALL DIVERSION DIKE(S) AND DOWNDRAIN(S).**
- **REMOVE ACCUMULATED SEDIMENT FROM TEMPORARY SEDIMENT BASIN(S) WHEN SEDIMENT REACHES THE DEPTH SHOWN ON THE MARKER(S).**
- INSTALL AND MAINTAIN ALL BMP'S SHOWN ON THE PHASE I PLAN IN ACCORDANCE WITH THE MANUAL FOR SEDIMENT AND EROSION CONTROL IN GEORGIA (LATEST EDITION).
- CALL ENGINEER AT 770-641-1942 FOR INSPECTION WITHIN SEVEN (7) DAYS AFTER THE INITIAL CONSTRUCTION ACTIVITIES COMMENCE.
- SETUP A MONITORING PROGRAM IN ACCORDANCE WITH THE PLANS AND PERMIT.

PHASE 2 EROSION CONTROL NARRATIVE:

- PRACTICE DUST CONTROL (Du) AND APPLY MULCH (Ds1) AND TEMPORARY SEEDING (Ds2) AS REQUIRED.
- CONTINUE MAINTENANCE OF BMP'S INSTALLED IN PHASE I.
- MANIPULATE THE GRADES AS SHOWN AND INSTALL ALL STORM DRAINAGE STRUCTURES AS SHOWN.
- **INSTALL ALL TEMPORARY SEDIMENT TRAPS (Sd2) AS SHOWN.**
- **INSTALL DETENTION POND(S) WITH RETROFIT (Rt).**
- INSTALL STORM OUTLET PROTECTION AT ALL HEADWALLS PER PLANS.
- SET CLEANOUT ELEVATION MARKER ON OUTLET CONTROL STRUCTURE AT PROPER ELEVATION.
- REMOVE ACCUMULATED SEDIMENT FROM DETENTION BASIN WHEN SEDIMENT REACHES THE DEPTH SHOWN ON THE MARKER.
- INSTALL AND MAINTAIN ALL BMP'S SHOWN ON THE PHASE II PLAN IN ACCORDANCE WITH THE MANUAL FOR SEDIMENT AND EROSION CONTROL IN GEORGIA (LATEST EDITION).
- CONTINUE MONITORING PROGRAM IN ACCORDANCE WITH THE PLANS AND PERMIT.

PHASE 3 EROSION CONTROL NARRATIVE:

- CONTINUE MAINTENANCE OF BMP'S THAT ARE CURRENTLY INSTALLED ON SITE.
- CONTINUE MONITORING PROGRAM IN ACCORDANCE WITH THE PLANS AND PERMIT.
- CONSTRUCT BUILDINGS AND PARKING.
- PLANT TREES AND SHRUBS, SPREAD TOPSOIL AND GRASS ALL DISTURBED AREAS UPON COMPLETION OF FINE GRADING AND CURB BACKFILLING.
- **REMOVE ALL ACCUMULATED SILT FROM DETENTION POND AND TEMPORARY SEDIMENT TRAPS. SEE FINAL GRADING PLAN FOR DETENTION POND ELEVATIONS.**
- **EXCAVATE SEDIMENT FOREBAYS AND MICROPOOL, INSTALL RIP RAP AT POND INLETS.**
- PLANT PERMANENT VEGETATION.
- ACHIEVE FINAL STABLIZATION OF ALL AREAS.
- REMOVE ALL SEDIMENT STORAGE DEVICES INCLUDING RETROFIT AND SILT FENCES.
- FILE N.O.T. WITH GEORGIA EPD.

DESIGN CRITERIA:
FORMAL DESIGN IS NOT REQUIRED. THE FOLLOWING STANDARDS SHALL BE USED.
NOTE: STONE CHECK DAMS SHOULD NOT BE USED ON LIVE STREAMS.

DRAINAGE AREA:
FOR STONE CHECK DAMS, THE DRAINAGE AREA SHALL NOT EXCEED TWO ACRES.

HEIGHT:
THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9 INCHES LOWER THAN OUTER EDGES. DAM HEIGHT SHOULD BE 2 FEET MAXIMUM MEASURED TO CENTER CHECK DAM.

SIDE SLOPES:
SIDE SLOPES SHALL BE 2:1 OR FLATTER.

SPACING:
TWO OR MORE CHECK DAMS IN SERIES SHALL BE USED FOR DRAINAGE AREAS GREATER THAN ONE ACRE. MAXIMUM SPACING BETWEEN DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWN STREAM DAM.

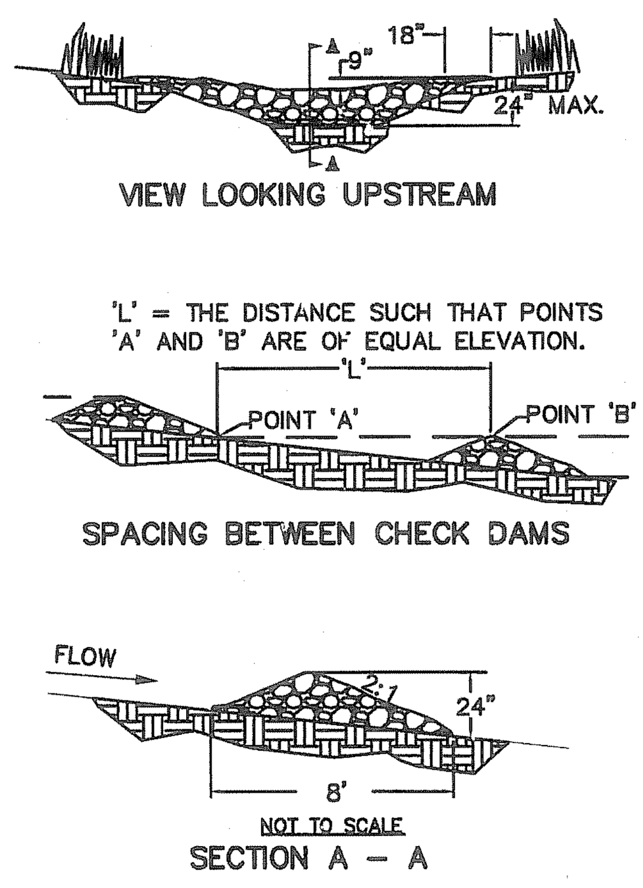
GEOTEXTILES:
A GEOTEXTILE SHOULD BE USED AS A SEPARATOR BETWEEN THE GRADED STONE AND THE SOIL BASE AND ABUTMENTS. THE GEOTEXTILE WILL PREVENT THE MIGRATIONOF SOIL PARTICLES FROM THE SUB GRADE INTO THE GRADED STONE. THE GEOTEXTILESHALL BE SELECTED / SPECIFIED IN ACCORDANCE WITH AASHTO M288-96 SECTION 7.3 SEPARATION REQUIREMENTS, TABLE 3. GEOTEXTILES SHALL BE "SET" INTO THE SUBGRADE SOILS. THE GEOTEXTILE SHALL BE PLACED IMMEDIATELY ADJACENT TO THE SUBGRADE WITHOUT ANY VOIDS AND EXTEND FIVE FEET BEYOND THE DOWN STREAM TOE OF THE DAM TO PREVENT SCOUR.

CONSTRUCTION SPECIFICATIONS:
THE FOLLOWING TYPES OF CHECK DAMS ARE USED FOR THIS STANDARD.

STONE CHECK DAMS: Cd-S
STONE CHECK DAMS SHOULD BE CONSTRUCTED OF GRADED SIZE 2-10 INCH STONE. MECHANICAL OR HAND PLACEMENT SHALL BE REQUIRED TO ENSURE COMPLETE COVERAGE OF ENTIRE WIDTH OF DITCH OR SWALE AND THAT CENTER OF DAM IS LOWER THAN EDGES.

MAINTENANCE:
PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED. SEDIMENT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF ONE-HALF THE ORIGINAL DAM HEIGHT OR BEFORE. IF THE AREA IS TO BE MOWED, CHECK DAMS SHALL BE REMOVED ONCE FINAL STABILIZATION HAS OCCURRED. OTHERWISE, CHECK DAMS MAY REMAIN IN PLACE PERMANENTLY. AFTER REMOVAL, THE AREA BENEATH THE DAM SHALL BE SEEDED AND MULCHED IMMEDIATELY.

NOTE:
KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS FOR A MINIMUM OF 18" TO PREVENT FLOW AROUND DAM



(Cd-S) STONE CHECK DAMS
NOT TO SCALE

50 Warm Springs Circle
Roswell, Georgia 30075
(770) 641-1942
www.aecatl.com

LAND PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE

GEORGIA REGISTERED No. 027118 PROFESSIONAL ... VANDEWATER
GSWCC #6960
EXP. 3-11-2012

EROSION CONTROL DETAILS

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

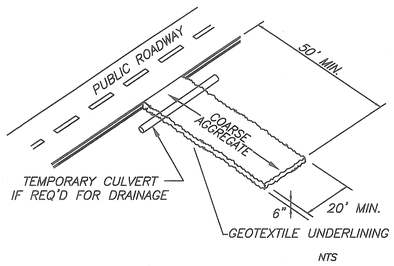
ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

52-02

M:\2009JOBS\09-2891 WILLEO TRAIL Concept Permitting\09-2891 GDOT Phase 5 - P01.dwg, 3/9/2010 8:24:24 AM, jpv, KIP Acad.pc3, 1:1

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	34	



DESIGN CRITERIA:
FORMAL DESIGN IS NOT REQUIRED. THE FOLLOWING STANDARDS SHALL BE USED.

AGGREGATE SIZE:
STONE WILL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5 TO 3.5 INCH STONE).

PAD THICKNESS:
THE GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES.

PAD WIDTH:
AT A MINIMUM, THE WIDTH SHOULD EQUAL FULL WIDTH OF ALL POINTS OF VEHICULAR EGRESS, BUT NOT LESS THAN 20 FEET WIDE.

WASHING:
IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD DOES NOT SUFFICIENTLY REMOVE THE MUD, THE TIRES SHOULD BE WASHED PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND PROVISIONS THAT INTERCEPT THE SEDIMENT-LADEN RUNOFF AND DIRECT IT INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

CONSTRUCTION SPECIFICATIONS:
IT IS RECOMMENDED THAT THE ENTRANCE AREA BE EXCAVATED TO A DEPTH OF 3 INCHES AND BE CLEARED OF ALL VEGETATION AND ROOTS.

DIVERSION RIDGE:
ON SITES WHERE THE GRADE TOWARD THE PAVED AREA IS GREATER THAN 2%, A DIVERSION RIDGE 6 TO 8 INCHES HIGH WITH 3:1 SIDE SLOPES SHALL BE CONSTRUCTED ACROSS THE FOUNDATION APPROXIMATELY 15 FEET ABOVE THE ROAD.

GEOTEXTILE:
THE GEOTEXTILE UNDER LINER MUST BE PLACED THE FULL LENGTH AND WIDTH OF THE ENTRANCE. GEOTEXTILE SELECTION SHALL BE BASED ON AASHTO M288-98 SPECIFICATIONS:
1) FOR SUB-GRADES WITH A CBR GREATER THAN OR EQUAL TO 3 OR SHEAR STRENGTH GREATER THAN 90 kPa, GEOTEXTILE MUST MEET REQUIREMENTS OF SECTION AASHTO M288-96 SECTION 7.3, STABILIZATION REQUIREMENTS.
2) FOR SUB-GRADES WITH A CBR BETWEEN 1 AND 3 OR SHEER STRENGTH BETWEEN 30 AND 90 kPa, GEOTEXTILE MUST MEET REQUIREMENTS OF SECTION AASHTO M299-96 SECTION 7.4, STABILIZATION REQUIREMENTS.

MAINTENANCE:
THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1.5 – 3.5 INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEAN OUT OF ANY STRUCTURES TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

(Co) CONSTRUCTION EXIT
NOT TO SCALE

CONDITIONS:
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON AND OFF-SITE DAMAGE MAY OCCUR WITHOUT TREATMENT.

METHOD AND MATERIALS:
TEMPORARY METHODS:

MULCHES. SEE STANDARD (Ds1) – DISTURBED AREA STABILIZATION (WITH MULCHING ONLY. SYNTHETIC RESINS MAY BE USED INSTEAD OF ASPHALT BY BIND MULCH MATERIAL. REFER TO STANDARD Tb TACKIFIERS AND BINDERS. RESINS SUCH AS CURASOL OR TERRATACK SHOULD BE USED ACCORDING TO MANUFACTURE'S RECOMMENDATIONS.
VEGETATIVE COVER: SEE STANDARD (Ds2) – DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING).
SPRAY-ON ADHESIVES: THESE ARE USED ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS) KEEP TRAFFIC OFF THESE AREAS. REFER TO STANDARD (Tb) TACKIFIERS AND BINDERS.
TILLAGE: THIS PRACTICE IS DESIGNED TO ROUGHEN AND BIND CLODS TO THE SURFACE. IT IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE WIND EROSION STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
IRRIGATION: THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS WET. REPEAT AS NEEDED.
BARRIERS: SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 15 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING WIND EROSION.
CALCIUM CHLORIDE: APPLY AT A RATE THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT

PERMANENT METHODS:

PERMANENT VEGETATION: SEE STANDARD (Ds3) – DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION). EXISTING TREES AND LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
TOP SOILING: THIS ENTAILS COVERING THE SURFACE WITH LESS EROSIVE SOIL MATERIAL. SEE STANDARD Tp – TOP SOILING.
STONE: COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. SEE STANDARD Cr-CONSTRUCTION ROAD STABILIZATION.

Du DUST CONTROL ON DISTURBED AREAS

CONSTRUCTION SPECIFICATIONS

MATERIALS
TOPSOIL SHOULD BE FRIABLE AND LOAMY, FREE OF DEBRIS, OBJECTIONABLE WEEDS AND STONES, AND CONTAIN NO TOXIC SUBSTANCE THAT MAY BE HARMFUL TO PLANT GROWTH. A PH RANGE OF 5.0-7.5 IS ACCEPTABLE. SOLUBLE SALTS SHOULD NOT EXCEED 500 PPM.

TESTING
FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER THE QUANTITY AND QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING.

STRIPPING
STRIPPING SHOULD BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA.
A 4 TO 6 INCH STRIPPING DEPTH IS COMMON, BUT MAY VARY DEPENDING ON THE PARTICULAR SOIL.

TOPSOIL PH
IF PH VALUE IS LESS THAN 6.0, LIME SHALL BE APPLIED AND INCORPORATED WITH THE TOPSOIL TO ADJUST THE PH TO 6.5 OR HIGHER. TOPSOILS CONTAINING SOLUBLE SALTS GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

STOCKPILES
THE LOCATION OF TOPSOIL STOCKPILES SHOULD NOT OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE.

STABILIZATION
STOCKPILES SHALL BE CONTAINED BY SEDIMENT BARRIERS TO PREVENT SEDIMENTATION ON ADJACENT AREAS. STOCKPILES SHALL BE STABILIZED IN ACCORDANCE WITH SPECIFICATIONS **Ds1 AND Ds2 – DISTURBED AREA STABILIZATION (WITH MULCHING) AND (WITH TEMPORARY GRASSING), RESPECTIVELY, OR Pm – POLYACRYLAMIDE OR Tb – TACKIFIERS AND BINDERS.**

SITE PREPARATION (WHERE TOPSOIL IS TO BE ADDED)
TOPSOILING:
WHEN TOPSOILING, MAINTAIN NEEDED EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, DIKES, LEVEL SPREADERS, WATERWAYS, SEDIMENT BASINS, ETC.
GRADING:
GRADES ON THE AREAS TO BE TOPSOILED WHICH HAVE BEEN PREVIOUSLY ESTABLISHED SHALL BE MAINTAINED.
LIMING:
SOIL TESTS SHOULD BE USED TO DETERMINE THE PH OF THE SOIL. WHERE THE PH OF THE SUBSOIL IS 5.0 OR LESS OR COMPOSED OF HEAVY CLAYS, AGRICULTURAL LIMESTONE SHALL BE SPREAD AT THE RATE OF 100 POUNDS PER 1,000 SQUARE FEET. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURE.
BONDING:
USE ONE OF THE FOLLOWING METHODS TO INSURE BONDING OF TOPSOIL AND SUBSOIL:
1. **TILLING.** AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, AND IMMEDIATELY PRIOR TO DUMPING AND SPREADING THE TOPSOIL, THE SUBGRADE SHALL BE LOOSENED BY DISCING OR SCARIFYING TO A DEPTH OF AT LEAST 3 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SUBSOIL.
2. **TRACKING.** PASSING A BULLDOZER OVER THE ENTIRE SURFACE AREA OF THE SLOPE TO LEAVE HORIZONTAL DEPRESSIONS.

APPLYING TOPSOIL
1. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE.
2. A UNIFORM APPLICATION OF 5 INCHES (UNSETTLED) IS RECOMMENDED, BUT MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER OR LANDSCAPE ARCHITECT.

(Tp) TOPSOILING

DESIGN CRITERIA:
- TYPE "A"– PROJECT LIFE SPAN GREATER THAN 6 MONTHS, AND/OR SLOPE GRADIENT IS STEEPER THAN 3:1
- TYPE "B"– PROJECT LIFE SPAN IS LESS THAN 6 MONTHS, AND SLOPE IS LESS THAN OR EQUAL TO 3:1
- TYPE "C"– FILL SLOPES EXCEED A VERTICAL HEIGHT OF 20 FEET AND THE SLOPE GRADIENT IS STEEPER THAN 3:1 OR RUNOFF FLOWS OR VELOCITIES ARE HIGH.

DOUBLE ROW OF TYPE C – ALONG STREAM BUFFERS AND OTHER SENSITIVE AREAS

FILTER FABRICS:
APPROVED SILT FENCE FABRICS ARE LISTED IN THE GEORGIA DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST #36 (QPL-36).

THE FABRIC SHALL MEET THE FOLLOWING PHYSICAL OR DIMENSIONAL REQUIREMENTS.

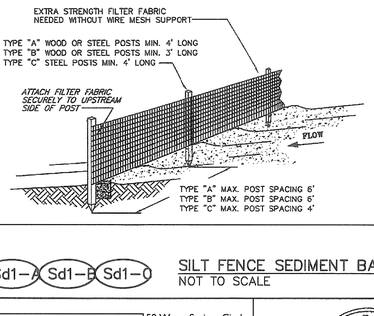
FABRIC REQUIREMENTS			
TYPE FENCE:	A	B	C
TENSILE STRENGTH (LBS. MIN.) (1) (ASTM D-4632)	WRAP-120 FILL-100	WRAP-120 FILL-100	WRAP-120 FILL-180
ELONGATION (%MAX.) (ASTM D-4632)	40	40	40
AOS (APPARENT OPENING SIZE) (MAX. SIEVE SIZE) (ASTM D-4751)	NO. 30	NO. 30	NO. 30
FLOW RATE, GAL/MIN/FT2 (GDT-87)	25	25	70
ULTRAVIOLET STABILITY (2) (ASTM D-4632 AFTER 300 HOURS. WEATHERING IN ACCORDANCE WITH ASTM D-4355)	80	80	80
BURSTING STRENGTH, (PSI MIN) (ASTM D-3786 DIAPHRAGM BURSTING STRENGTH TESTER)	175	175	175
MINIMUM FABRIC WIDTH (IN)	36	22	36

(1) MINIMUM ROLL AVERAGE OF FIVE SPECIMENS.
(2) PERCENT OF REQUIRED INITIAL MINIMUM TENSILE STRENGTH.

SLOPE LENGTH CRITERIA FOR SILT FENCE PLACEMENT

LAND SLOPE (PERCENT)	MAX. SLOPE LENGTH BEHIND FENCE (FEET)
< 2	100
2 TO 5	75
5 TO 10	50
10 TO 20	25
> 20*	15

* IN AREAS WHERE THE SLOPE IS GREATER THAN 20% A FLAT AREA LENGTH OF 10 FEET BETWEEN THE TOE OF THE SLOPE TO THE FENCE SHOULD BE PROVIDED.



POSTS AND WOVEN WIRE SUPPORT:
TYPE "A" FENCE:
POSTS SHALL BE A MINIMUM OF 4 FEET LONG AND EITHER WOOD OR STEEL MAY BE USED. SOFT WOOD POSTS SHALL BE AT LEAST 3 INCHES IN DIAMETER OR NOMINAL 2"X4" AND STRAIGHT ENOUGH TO PROVIDE A FENCE WITHOUT NOTICEABLE MISALIGNMENT. IF HARDWOOD POSTS ARE USED THE SIZE MAY BE REDUCED TO 1½" X 1½" WITH A MINUS TOLERANCE OF ½" PROVIDING THE CROSS SECTIONAL AREA IS A MINIMUM OF 2.25 SQUARE INCHES. STEEL POSTS SHALL BE "U", "T", OR "C" SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER FOOT, AND HAVE PROJECTIONS FOR FASTENING THE FENCE TO THE POSTS. MAXIMUM POST SPACING SHALL BE 6 FEET.

TYPE "B" FENCE:
POSTS SHALL BE A MINIMUM OF 3 FEET LONG. SOFT WOOD POSTS SHALL BE AT LEAST 2 INCHES IN DIAMETER OR NOMINAL 2"X2". IF HARDWOOD POSTS ARE USED THE SIZE MAY BE REDUCED TO 1"X1" WITH A MINUS TOLERANCE OF ½" PROVIDING THE CROSS SECTIONAL AREA IS A MINIMUM OF ONE SQUARE INCH. TYPES "U", "T", OR "C" SHAPED STEEL POSTS WITH A MINIMUM WEIGHT OF 0.75 POUNDS PER FOOT MAY BE USED. MAXIMUM SPACING SHALL BE 6 FEET.

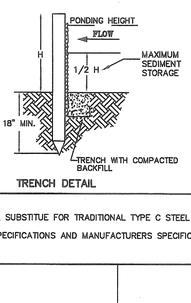
TYPE "C" FENCE:
POSTS SHALL BE STEEL AND HAVE A MINIMUM LENGTH OF 5 FEET. POSTS SHALL BE "U", "T", OR "C" SHAPED AND HAVE A MINIMUM WEIGHT OF 1.3 POUNDS PER FOOT. THE POSTS SHALL HAVE PROJECTIONS FOR FASTENING THE WOVEN WIRE AND FILTER FABRIC. MAXIMUM POSTS SPACING SHALL BE 4 FEET. A WOVEN WIRE SUPPORT FENCE SHALL BE USED WITH TYPE "C" FENCE. THE WIRE FENCE FABRIC SHALL BE AT LEAST 38 INCHES HIGH AND SHALL HAVE AT LEAST 6 HORIZONTAL WIRES. VERTICAL WIRES SHALL HAVE A MAXIMUM SPACING OF 12 INCHES. THE TOP AND BOTTOM WIRES SHALL BE AT LEAST 10 GAUGE AND ALL OTHER WIRES SHALL BE AT LEAST 12 GAUGE.

FASTENERS FOR WOODEN POSTS:
WIRE STAPLES:
STAPLES SHALL BE 17 GAUGE MINIMUM AND SHALL HAVE A CROWN AT LEAST ¾" INCH WIDE AND LEGS AT LEAST ½" INCH LONG. STAPLES SHALL BE EVENLY SPACED WITH AT LEAST 5 PER POST USING DOUBLE STAPLES AT THE TOP POSITION.
NAILS:
NAILS SHALL BE 14 GAUGE MINIMUM, 1 INCH LONG WITH BUTTON HEADS. NAILS SHALL BE EVENLY SPACED WITH AT LEAST 5 PER POST FOR TYPE "A" FENCE AND 4 PER POST FOR TYPE "B" FENCE.

INSTALLATION:
1. INSTALL WHERE SHEET FLOW CONDITIONS EXIST.
2. WHERE NO SEDIMENT TRAP/STORMWATER DISPOSAL SYSTEM IS PRESENT, MAXIMUM SLOPE SHALL NOT EXCEED THOSE IN THE TABLE.
3. APPROVED SILT FENCE FABRICS ARE LISTED IN THE GEORGIA DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST #36 (QPL-36). VERIFY FABRIC BY INSPECTION OF FABRIC NAME PRINTED EVERY 100 FEET OF SILT FENCE.
4. INSTALL ACCORDING TO APPROVED PLAN, AS SHOWN.
5. INSTALL ALONG CONTOURS WITH ENDS POINTING UPHILL.
6. DO NOT PLACE IN WATERWAYS OR AREAS OF CONCENTRATED FLOW.
7. INSTALL WHERE SHEET FLOW CONDITIONS EXIST.
8. DRAINAGE AREA NOT TO EXCEED 1/4 ACRE PER 100 FT OF SILT FENCE.
9. VERIFY FABRIC BY INSPECTION OF FABRIC NAME PRINTED EVERY 100 FT. OF SILT FENCE.
10. START POST INSTALLATION AT THE CENTER OF THE LOWEST POINT WITH REMAINING POSTS SPACED ACCORDING TO FIGURE.
11. PROVIDE A RIPRAP SPLASH PAD OR OTHER OUTLET PROTECTION DEVICE FOR ANY POINT WHERE FLOW MAY TOP THE SEDIMENT FENCE. ENSURE THAT THE MAXIMUM HEIGHT OF THE FENCE AT A PROTECTED, REINFORCED OUTLET DOES NOT EXCEED 1 FT, AND THAT SUPPORT POST SPACING DOES NOT EXCEED 4 FT.
12. USE MINIMUM 18" OVERLAP AT FABRIC ENDS.
13. USE / DOUBLE ROW OF TYPE "C" SILT FENCE ALONG STREAM BUFFERS AND OTHER SENSITIVE AREAS.
14. A TRENCH 6 INCHES IN DEPTH FOR TYPES "A" AND "C", OR 4 INCHES IN DEPTH FOR TYPE "B", SHALL BE EXCAVATED WITH EQUIPMENT SUCH AS A TRENCHING MACHINE OR MOTOR GRADER; OR, IF EQUIPMENT CANNOT BE OPERATED ON THE SITE, BY HAND.
15. POST INSTALLATION SHALL START AT THE CENTER OF THE LOW POINT (IF APPLICABLE) WITH THE REMAINING POSTS SPACED A MAXIMUM OF 6 FEET APART FOR TYPE "A" AND "B" AND 4 FEET APART FOR TYPE "C". POSTS SHALL BE INSTALLED WITH AT LEAST 18 INCHES IN THE GROUND. WHERE AN 18 INCH DEPTH IS IMPOSSIBLE TO ACHIEVE, THE POSTS SHALL BE ADEQUATELY SECURED TO PREVENT OVERTURNING IF THE FENCE DUE TO SEDIMENT LOADING.
16. FILTER FABRIC SHALL BE ATTACHED TO THE POST BY WIRE, CORD, POCKETS, STAPLES, NAILS, OR OTHER ACCEPTABLE MEANS. THE FILTER FABRIC SHALL BE INSTALLED IN SUCH A MANNER THAT 6 INCHES (TYPE "B") OR 8 INCHES (TYPES "A" AND "C") OF FABRIC IS LEFT AT THE BOTTOM TO BE BURIED AND A MINIMUM OVERLAP OF 18 INCHES IS PROVIDED AT ALL SPLICE JOINTS. THE FABRIC SHALL BE INSTALLED IN THE TRENCH SUCH THAT 4 TO 6 INCHES OF FABRIC IS AGAINST THE SIDE OF THE TRENCH WITH 2 TO 4 INCHES OF FABRIC ACROSS THE BOTTOM IN THE UPSTREAM DIRECTION.

MAINTENANCE:
1. INSPECT BARRIERS AT THE END OF EACH WORKING DAY, OR AFTER EACH RAIN, AND REPAIR OR CLEAN AS NECESSARY.
2. REMOVE SEDIMENT FROM BARRIER ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER.
3. PROPERLY DISPOSE OF SEDIMENT AND STABILIZE IT WITH VEGETATION
4. REPLACE FILTER FABRIC WHEN DETERIORATED.
5. DESIGN LIFE OF A SYNTHETIC SILT FENCE IS APPROXIMATELY 6 MONTHS.
6. MAINTAIN UNTIL THE PROJECT IS VEGETATED OR OTHERWISE STABILIZED.
7. REMOVE BARRIERS AND ACCUMULATED SEDIMENT AND STABILIZE THE EXPOSED AREA WHEN THE PROJECT IS STABILIZED.

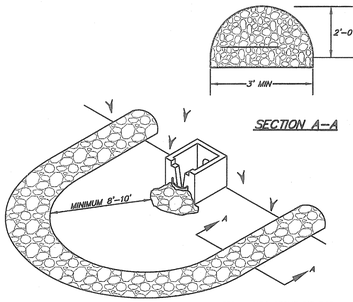
TYPE "A" WOOD OR STEEL POSTS MIN. 4' LONG
TYPE "B" WOOD OR STEEL POSTS MIN. 3' LONG
TYPE "C" STEEL POSTS MIN. 4' LONG



TRENCH DETAIL

SILT FENCE ALTERNATIVE:
1. THE C-POP SEDIMENT BARRIER SYSTEM CAN BE A SUBSTITUTE FOR TRADITIONAL TYPE C STEEL POSTED, WIRE REINFORCED SILT FENCE.
2. INSTALL PER TRADITIONAL TYPE C SILT FENCE SPECIFICATIONS AND MANUFACTURERS SPECIFICATIONS.

(Sd1-A) (Sd1-B) (Sd1-C) SILT FENCE SEDIMENT BARRIER
NOT TO SCALE



#50 – #150 STONE RIP RAP

CONDITIONS:
FILTER RINGS SHALL BE USED IN CONJUNCTION WITH OTHER SEDIMENT CONTROL MEASURES. EXCEPT WHERE OTHER PRACTICES DEFINED IN THIS MANUAL ARE NOT APPROPRIATE (SUCH AS INLETS TO CONCRETE FLUMES). THEY CAN BE INSTALLED AT OR AROUND DEVICES SUCH AS INLET SEDIMENT TRAPS, TEMPORARY DOWNDRAIN INLETS, AND DETENTION POND RETROFITS TO PROVIDE ADDITIONAL SEDIMENT FILTERING CAPACITY.

DESIGN CRITERIA:
FORMAL DESIGN IS NOT REQUIRED. THE FOLLOWING STANDARDS SHALL BE USED:

LOCATION:
THE FILTER RING SHALL SURROUND ALL SIDES OF THE STRUCTURE RECEIVING RUNOFF FROM DISTURBED AREAS. IT SHOULD BE PLACED A MINIMUM OF FOUR FEET FROM THE STRUCTURE. THE RING IS NOT INTENDED TO SUBSTANTIALLY IMPOUND WATER, CAUSING FLOODING OR DAMAGE TO ADJACENT AREAS. THE FILTER RING MAY ALSO BE PLACED BELOW STORM DRAINS DISCHARGING INTO DETENTION PONDS, CREATING A CENTRALIZED AREA, OR "FOREBAY". FOR SEDIMENT ACCUMULATION. THIS PROVIDES FOR EASIER, MORE LOCALIZED CLEANOUT OF THE POND. IF UTILIZED ABOVE A RETROFIT STRUCTURE, IT SHOULD BE A MINIMUM OF 8 TO 10 FEET FROM THE RETROFIT.
STONE SIZE
- WHEN UTILIZED AT INLETS WITH DIAMETERS LESS THAN 12 INCHES, THE FILTER RING SHALL BE CONSTRUCTED OF STONE NO SMALLER THAN 3-5 INCHES (15 – 30 lBS.).
- WHEN UTILIZED AT PIPES WITH DIAMETERS GREATER THAN 12 INCHES, THE FILTER RING SHALL BE CONSTRUCTED OF STONE NO SMALLER THAN 10-15 INCHES (50 – 100 LBS.).
- THE LARGER STONE ON THE UPSTREAM SIDE FOR ADDED SEDIMENT FILTERING CAPABILITIES. HOWEVER, THE SMALLER FILTER STONE IS MORE PRONE TO CLOGGING, REQUIRING HIGHER MAINTENANCE.

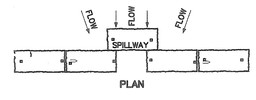
HEIGHT
THE FILTER RING SHALL BE CONSTRUCTED AT A HEIGHT NO LESS THAN TWO FEET FROM GRADE.

CONSTRUCTION SPECIFICATIONS
1. MECHANICAL OR HAND PLACEMENT OF STONE SHALL BE REQUIRED TO UNIFORMLY SURROUND THE STRUCTURE TO BE SUPPLEMENTED. REFER TO APPENDIX C FOR ROCK RIPRAP SPECIFICATIONS.
2. THE FILTER RING MAY BE CONSTRUCTED ON NATURAL GROUND SURFACE, ON AN EXCAVATED SURFACE, OR ON MACHINE-COMPACTED FILL.
3. A COMMON FAILURE OF FILTER RINGS IS CAUSED BY THEIR PLACEMENT TOO CLOSE OR TOO HIGH ABOVE THE STRUCTURE IT IS ENHANCING. WHEN UTILIZED BELOW A STORM DRAIN OUTLET, IT SHALL BE PLACED SUCH THAT IT DOES NOT CREATE A CONDITION CAUSING WATER TO BACK-UP INTO THE STORM DRAIN AND INHIBIT THE FUNCTION OF THE STORM DRAIN SYSTEM.

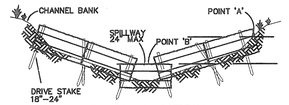
MAINTENANCE
THE FILTER RING MUST BE KEPT CLEAR OF TRASH AND DEBRIS. THIS WILL REQUIRE CONTINUOUS MONITORING AND MAINTENANCE, WHICH INCLUDES SEDIMENT REMOVAL WHEN ONE-HALF FULL. STRUCTURES ARE TEMPORARY AND SHOULD BE REMOVED WHEN THE LAND-DISTURBING PROJECT HAS BEEN STABILIZED.

(Fr) STONE FILTER RING
NOT TO SCALE

DESIGN CRITERIA:
FORMAL DESIGN IS NOT REQUIRED. THE FOLLOWING STANDARDS SHALL BE USED. NOTE: HAYBALE CHECK DAMS SHOULD NOT BE USED ON LIVE STREAMS.
DRAINAGE AREA:
FOR HAYBALES, THE DRAINAGE AREA SHALL NOT EXCEED ONE ACRE.
HEIGHT:
THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9 INCHES LOWER THAN OUTER EDGES. DAM HEIGHT SHOULD BE 2 FEET MAXIMUM MEASURED TO CENTER CHECK DAM.
SIDE SLOPES:
SIDE SLOPES SHALL BE 2:1 OR FLATTER.
SPACING:
TWO OR MORE CHECK DAMS IN SERIES SHALL BE USED FOR DRAINAGE AREAS GREATER THAN ONE ACRE. MAXIMUM SPACING BETWEEN DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWN STREAM DAM.
CONSTRUCTION SPECIFICATIONS:
THE FOLLOWING TYPES OF CHECK DAMS ARE USED FOR THIS STANDARD.
HAYBALE CHECK DAMS: Cd-Hb
STAKED AND EMBEDDED HAY-BALES MAY BE USED AS TEMPORARY CHECK DAMS IN CONCENTRATED FLOW AREAS WHILE VEGETATION IS BECOMING ESTABLISHED. THEY SHOULD NOT BE USED WHERE THE DRAINAGE EXCEEDS ONE ACRE. HAYBALES SHOULD BE EMBEDDED A MINIMUM OF 4 INCHES.
MAINTENANCE:
PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED. SEDIMENT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF ONE-HALF THE ORIGINAL DAM HEIGHT OR BEFORE. IF THE AREA IS TO BE MOWED, CHECK DAMS SHALL BE REMOVED ONCE FINAL STABILIZATION HAS OCCURRED. OTHERWISE, CHECK DAMS MAY REMAIN IN PLACE PERMANENTLY. AFTER REMOVAL, THE AREA BENEATH THE DAM SHALL BE SEEDED AND MULCHED IMMEDIATELY.

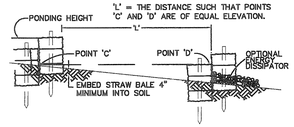


PLAN



VIEW LOOKING UPSTREAM

'L' = THE DISTANCE SUCH THAT POINTS 'C' AND 'D' ARE OF EQUAL ELEVATION.



SECTION A – A SPACING BETWEEN CHECK DAMS

NOTES:
1. EMBED BALES 4" INTO THE SOIL AND "KEY" BALES INTO THE CHANNEL BANKS.
2. POINT 'A' MUST BE HIGHER THAN POINT 'B'. (SPILLWAY HEIGHT)
3. PLACE BALES PERPENDICULAR TO THE FLOW WITH ENDS TIGHTLY ABUTTING.
4. SPILLWAY HEIGHT SHALL NOT EXCEED 24".
5. INSPECT AFTER EACH SIGNIFICANT STORM, MAINTAIN AND REPAIR PROMPTLY
6. DO NOT TOE IN (EMBED) HAYBALES IN STREAM BUFFER AREAS.

(Cd-Hb) HAYBALE CHECK DAMS
NOT TO SCALE

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LAND PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE

GEORGIA REGISTERED No. 027118 PROFESSIONAL ENGINEER MARK D. VANDEMARK
GSWCC #9980
EXP. 3-11-2012

EROSION CONTROL DETAILS

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

56-01

K:\2009\0809092891 WILLEO TRAIL Concept Permitting\09-2891 GDOT Phase 5 - PI-01.dwg, 3/9/2010 8:23:50 AM, jim, KP Acad pc3, 1:1

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	35	

MATERIALS:

ALL BLANKET AND MATTING MATERIALS SHALL BE ON THE GEORGIA DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST (QPL # 62 FOR BLANKETS, QPL # 49 FOR MATTING). ALL BLANKETS SHALL BE NON-TOXIC TO VEGETATION AND TO THE GERMINATION OF SEED AND SHALL NOT BE INJURIOUS TO THE UNPROTECTED SKIN OF HUMANS. AT A MINIMUM, THE PLASTIC NETTING SHALL BE INTERTWINED WITH THE MULCHING MATERIAL / FIBER TO MAXIMIZE STRENGTH AND PROVIDE FOR EASE OF HANDLING.

TEMPORARY BLANKETS: MACHINE PRODUCED TEMPORARY COMBINATION BLANKETS SHALL HAVE A CONSISTENT THICKNESS WITH THE ORGANIC MATERIAL EVENLY DISTRIBUTED OVER THE ENTIRE BLANKET AREA. ALL COMBINATION BLANKETS SHALL HAVE A MINIMUM WIDTH OF 48 INCHES. MACHINE PRODUCED COMBINATION BLANKETS INCLUDE THE FOLLOWING:

STRAW BLANKETS: COMBINATION BLANKETS THAT CONSIST OF WEED-FREE STRAW FROM AGRICULTURAL CROPS FORMED INTO A BLANKET. BLANKETS WITH A TOPSIDE OF PHOTO DEGRADABLE PLASTIC MESH WITH A MAXIMUM MESH SIZE OF ⅝ X ⅝ INCH AND SEWN TO THE STRAW WITH BIODEGRADABLE THREAD IS APPROPRIATE FOR SLOPES. THE BLANKET SHALL HAVE A MINIMUM THICKNESS OF ¾ INCH AND MINIMUM DRY WEIGHT OF 0.5 POUNDS PER SQUARE YARD.

EXCELSIOR BLANKETS: COMBINATION BLANKETS THAT CONSIST OF CURLED WOOD EXCELSIOR (80% OF FIBERS ARE SIX INCHES OR LONGER) FORMED INTO A BLANKET. THE BLANKET SHALL HAVE CLEAR MARKINGS INDICATING THE TOP SIDE OF THE BLANKET AND BE SMOLDER RESISTANT. BLANKETS SHALL HAVE PHOTO DEGRADABLE PLASTIC MESH HAVING A MAXIMUM MESH SIZE OF 1 ½ X 3 INCHES. THE BLANKET SHALL HAVE A MINIMUM THICKNESS OF ½ OF AN INCH AND A MINIMUM DRY WEIGHT OF 0.8 POUNDS PER SQUARE YARD. SLOPES REQUIRE EXCELSIOR MATTING WITH THE TOP SIDE OF THE BLANKET COVERED IN THE PLASTIC MESH, AND FOR WATERWAYS, BOTH SIDES OF THE BLANKET REQUIRE PLASTIC MESH.

COCONUT FIBER BLANKETS: COMBINATION BLANKETS THAT CONSIST OF 100% COCONUT FIBER FORMED INTO A BLANKET. THE MINIMUM THICKNESS OF THE BLANKET SHALL BE ½ OF AND INCH WITH A MINIMUM DRY WEIGHT OF 0.5 POUNDS PER SQUARE YARD. BLANKETS SHALL HAVE PHOTO DEGRADABLE PLASTIC MESH, WITH A MAXIMUM MESH SIZE OF ½ X ½ INCH AND SEWN TO THE FIBER WITH A BREAKDOWN RESISTANT SYNTHETIC YARN. PLASTIC MESH IS REQUIRED ON BOTH SIDES OF THE BLANKET IF USED IN WATERWAYS. A MAXIMUM OF TWO INCHES IS ALLOWABLE FOR THE STITCH PATTERN AND ROW SPACING.

WOOD FIBER BLANKETS: COMBINATION BLANKEST THAT CONSIST OF REPROCESSED WOOD FIBERS THAT DO NOT POSSESS OR CONTAIN ANY GROWTH OR GERMINATION INHIBITING FACTORS. THE BLANKET SHALL HAVE A PHOTO DEGRADABLE PLASTIC MESH, WITH A MAXIMUM MESH SIZE OF ½ X ½ INCH, SECURELY BONDED TO THE TOP OF THE MAT. THE BLANKET SHALL HAVE A MINIMUM DRY WEIGHT OF 0.05 POUNDS PER SQUARE YARD. A MAXIMUM OF TWO INCHES IS ALLOWABLE FOR THE STITCH PATTERN AND ROW SPACING. THIS PRACTICE SHALL BE APPLIED ONLY TO SLOPES.

JUTE MESH: CAN BE APPLIED TO SLOPES. JUTE MESH WITH A 48 INCH WIDTH SHALL SHOW BETWEEN 76 AND 80 WARPINGS AND A ONE YARD LENGTH SHALL SHOW BETWEEN 39 TO 43 WEFTINGS. THE WOVEN MESH SHALL BE AT LEAST 45 INCHES WIDE. YARN SHALL HAVE A UNIT WEIGHT OF AT LEAST 0.9 POUNDS PER SQUARE YARD, BUT NOT MORE THAN 1.5 POUNDS PER SQUARE YARD.

PERMANENT MATTING: PERMANENT MATTING SHALL CONSIST OF A LOFTY WEB OF MECHANICALLY OR MELT BONDED POLYMER NETTING'S, MONOFILAMENTS OR FIBERS WHICH ARE ENTANGLED TO FORM A STRONG AND DIMENSIONALLY STABLE MATRIX. POLYMER WELDING, THERMAL OR POLYMER FUSION, OR THE PLACEMENT OF FIBERS BETWEEN TWO HIGH STRENGTH, BIAXIALLY ORIENTED NETS BOUND SECURELY TOGETHER BY PARALLEL STRENGTH, BIAXIALLY ORIENTED NETS BOUND SECURELY TOGETHER BY PARALLEL LOCK STITCHING WITH POLYOLEFIN, NYLON OR POLYESTER THREADS ARE ALL APPROPRIATE BONDING METHODS. MATS SHALL MAINTAIN THEIR SHAPE BEFORE, DURING, AND AFTER INSTALLATION, UNDER DRY OR WATER SATURATED CONDITIONS. MATS MUST BE STABILIZED AGAINST ULTRAVIOLET DEGRADATION AND SHALL BE INERT TO CHEMICALS NORMALLY ENCOUNTERED IN AN NATURAL SOIL ENVIRONMENT. THE MAT SHALL CONFORM TO THE FOLLOWING PHYSICAL PROPERTIES.

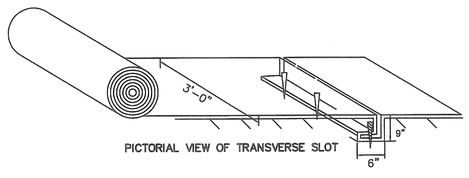
PERMANENT MAT PHYSICAL PROPERTY REQUIREMENTS

PROPERTY	MINIMUM VALUE
THICKNESS	0.5 INCHES
WEIGHT	0.6 PSY
ROLL WIDTH	38 IN.
TENSILE STRENGTH:	
LENGTH (50% ELONGATION)	15 LBS/IN
LENGTH (ULTIMATE)	20 LBS/IN
WIDTH (50% ELONGATION)	5 LBS/IN
WIDTH (ULTIMATE)*	10 LBS/IN
ULTRAVIOLET STABILITY	80%

(1000 HOURS IN AN ATLAS ARC WEATHEROMETER, ASTM G 23, TYPE D, IN ACCORDANCE WITH ASTM D 822)

*ASTM D 1682 – 6" STRIP

CONCENTRATED FLOW AREAS, ALL SLOPES STEEPER THAN 2.5:1 AND WITH A HEIGHT OF TEN FEET OR GREATER AND CUTS AND FILLS WITHIN STREAM BUFFERS SHALL BE STABILIZED WITH THE APPROPRIATE EROSION CONTROL MATTING OR BLANKETS (Mb).



PICTORIAL VIEW OF TRANSVERSE SLOT

(Mb) EROSION CONTROL MATTING AND BLANKETS
NOT TO SCALE

SITE PREPARATION:

AFTER THE SITE HAS BEEN SHAPED AND GRADED TO THE APPROVED DESIGN, PREPARE A FRIABLE SEED BED RELATIVELY FREE FROM CLODS AND ROCKS MORE THAN ONE INCH IN DIAMETER, AND ANY FOREIGN MATERIAL THAT WILL PREVENT CONTACT OF THE SOIL STABILIZATION MAT WITH THE SOIL SURFACE. SURFACE MUST BE SMOOTH TO ENSURE PROPER CONTACT OF BLANKETS OR MATTING TO THE SOIL TO THE SOIL SURFACE. IF NECESSARY, REDIRECT ANY RUNOFF FROM THE DITCH OR SLOPE DURING INSTALLATION.

STAPLES:

THE FOLLOWING ARE CONSIDERED APPROPRIATE STAPLING AND STAKING MATERIALS.
TEMPORARY BLANKETS: THIS INCLUDES STRAW, EXCELSIOR, COCONUT FIBER, AND WOOD FIBER BLANKETS.
STAPLES SHALL BE USED TO ANCHOR TEMPORARY BLANKETS. U-SHAPED WIRE (11 GAUGE OR GREATER) STAPLES WITH LEGS AT LEAST 6 INCHES IN LENGTH AND A CROWN OF ONE INCH OR APPROPRIATE BIODEGRADABLE STALE CAN BE USED. STAPLES SHALL BE OF SUFFICIENT THICKNESS FOR SOIL PENETRATION WITHOUT UNDUE DISTORTION.
PERMANENT MATTING: SOUND WOOD STAKES, 1 X 3 INCHES STOCK SAWN IN A TRIANGULAR SHAPE, SHALL BE USED. DEPENDING ON THE COMPACTION OF THE SOIL, SELECT STAKES WITH A LENGTH FROM 12 TO 18 INCHES. U-SHAPED STAPLES SHALL BE 11 GAUGE STEEL OR GREATER, WITH LEGS AT A MINIMUM OF 8 INCHES LENGTH WITH A 2 INCH CROWN.

PLANTING:

LIME, FERTILIZER, AND SEED SHALL BE APPLIED IN ACCORDANCE WITH SEEDING OR OTHER TYPE OF PLANTING PLAN COMPLETED PRIOR TO INSTALLATION OF TEMPORARY COMBINATION BLANKETS OR JUTE MESH. FOR PERMANENT MATS, THE AREA MUST BROUGHT TO FINAL GRADE, PLOWED, LIMED, AND FERTILIZED. AFTER THE PERMANENT MAT HAS BEEN INSTALLED AND BACKFILLED THE ENTIRE AREA SHALL BE GRASSED. REFER TO SPECIFICATION Ds3

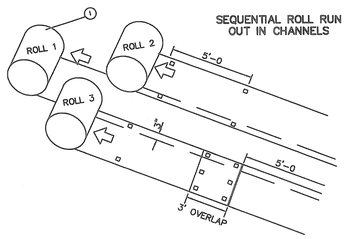
INSTALLATION:

SEE FIGURE FOR TYPICAL INSTALLATION GUIDELINES. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR LAYING AND STAPLING.

MAINTENANCE:

ALL EROSION CONTROL BLANKETS AND MATTING SHOULD BE INSPECTED PERIODICALLY FOLLOWING INSTALLATION, PARTICULARLY AFTER RAINSTORMS TO CHECK FOR EROSION AND UNDERMINING. ANY DISLOCATION OR FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUTS OR BREAKAGE OCCURS, REINSTALL THE MATERIAL AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH. CONTINUE TO MONITOR THESE AREAS UNTIL THEY BECOME PERMANENTLY STABILIZED.

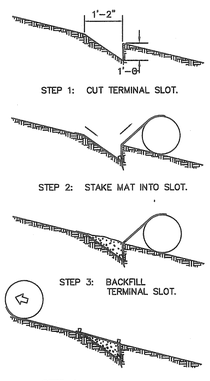
SEQUENTIAL ROLL RUN OUT IN CHANNELS



SEQUENTIAL ROLL INSTALLATION STEPS:

1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND FIRST ROLL. USE CENTER ROLL FOR ALIGNMENT TO CHANNEL CENTER.
4. WORK OUTWARDS FROM CHANNEL CENTER TO EDGE.
5. USE 3" OVERLAP AND STAKE AT 5' INTERVAL ALONG SEAMS
6. USE 3" OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT LINING AT ROLL ENDS.

DOWNSTREAM TERMINAL INSTALLATION:



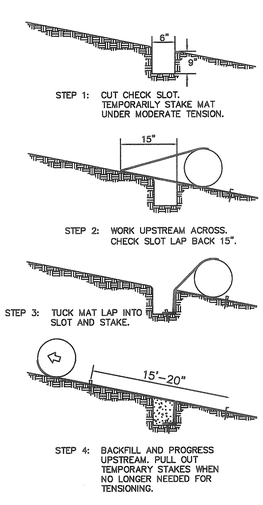
STEP 1: CUT TERMINAL SLOT.

STEP 2: STAKE MAT INTO SLOT.

STEP 3: BACKFILL TERMINAL SLOT.

STEP 4:
A. ROLL MAT UP STREAM OVER REFILLED TERMINAL.
B. STAKE MAT DOWN TO ANCHOR TERMINAL.
C. PROGRESS UPSTREAM WITH ROLL.

TRANSVERSE CHECK SLOT INSTALLATION:



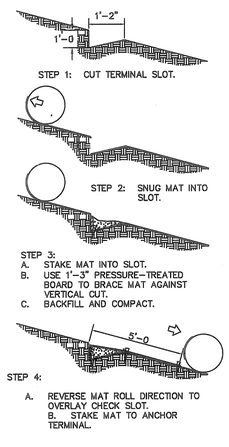
STEP 1: CUT CHECK SLOT. TEMPORARILY STAKE MAT UNDER MODERATE TENSION.

STEP 2: WORK UPSTREAM ACROSS. CHECK SLOT LAP BACK 15".

STEP 3: TUCK MAT LAP INTO SLOT AND STAKE.

STEP 4: BACKFILL AND PROGRESS UPSTREAM. PULL OUT TEMPORARY STAKES WHEN NO LONGER NEEDED FOR TENSIONING.

UPSTREAM TERMINAL INSTALLATION:



STEP 1: CUT TERMINAL SLOT.

STEP 2: SNUG MAT INTO SLOT.

STEP 3:
A. STAKE MAT INTO SLOT.
B. USE 1"-3" PRESSURE-TREATED BOARD TO BRACE MAT AGAINST VERTICAL CUT.
C. BACKFILL AND COMPACT.

STEP 4:
A. REVERSE MAT ROLL DIRECTION TO OVERLAY CHECK SLOT.
B. STAKE MAT TO ANCHOR TERMINAL.

DESIGN CRITERIA:

GRADED AREAS WITH SMOOTH, HARD SURFACES GIVE A FALSE IMPRESSION OF "FINISHED GRADE" AND A JOB WELL DONE. IT IS DIFFICULT TO ESTABLISH VEGETATION ON SUCH SURFACES DUE TO REDUCED WATER INFILTRATION AND THE POTENTIAL FOR EROSION. ROUGH SLOPE SURFACES WITH UNEVEN SOIL AND ROCKS LEFT IN PLACE MAY APPEAR UNATTRACTIVE OR UNFINISHED AT FIRST, BUT ENCOURAGE WATER INFILTRATION, SPEED THE ESTABLISHMENT OF VEGETATION, AND DECREASE RUNOFF VELOCITY. ROUGH, LOOSE SOIL SURFACES GIVE LIME, FERTILIZER AND SEED SOME NATURAL COVERAGE. NICHES IN THE SURFACE PROVIDE MICRO CLIMATES WHICH GENERALLY PROVIDE A COOLER AND MORE FAVORABLE MOISTURE LEVEL THAN HARD FLAT SURFACES. THIS AIDS SEED GERMINATION. THERE ARE DIFFERENT METHODS OF ACHIEVING A ROUGHENED SOIL SURFACE ON A SLOPE, AND THE SELECTION OF AN APPROPRIATE METHOD DEPENDS UPON THE TYPE OF SLOPE. ROUGHENING METHODS INCLUDE STAIR STEP GRADING, GROOVING, AND TRACKING. FACTORS TO BE CONSIDERED IN CHOOSING A METHOD ARE SLOPE STEEPNESS MOWNG REQUIREMENTS, AND WHETHER THE SLOPE IS FORMED BY CUTTING OR FILLING.

CONSTRUCTION SPECIFICATIONS:

CUT SLOPES STEEPER THAN 3:1:

CUT SLOPES WITH A GRADIENT STEEPER THAN 3:1 SHOULD NOT BE MOWED. THEY SHALL BE STAIR STEPPED GRADED OR GROOVED.

1) STAIR STEP GRADING MAY BE CARRIED OUT ON ANY MATERIAL SOFT ENOUGH TO BE RIPPED WITH A BULLDOZER. SLOPES CONSISTING OF SOFT ROCK WITH SOME SUBSOIL ARE PARTICULARLY SUITED TO STAIR STEP GRADING. THE RATIO OF THE VERTICAL CUT DISTANCE TO THE HORIZONTAL DISTANCE SHALL BE LESS THAN 1:1 AND THE HORIZONTAL PORTION OF THE "STEP" SHALL SLOPE TOWARDS THE VERTICAL WALL. INDIVIDUAL VERTICAL CUTS SHALL NOT BE MORE THAN 30 INCHES ON SOFT SOIL MATERIAL AND NOT MORE THAN 40 INCHES IN ROCKY MATERIAL.
2) GROOVING CONSISTS OF USING MACHINERY TO CREATE A SERIES OF RIDGES AND DEPRESSIONS WHICH PERPENDICULAR TO THE SLOPE (ON THE CONTOUR). GROOVES MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION. SUGGESTED IMPLEMENTS INCLUDE DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT END LOADER BUCKET. SUCH GROOVES SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.

FILL SLOPES STEEPER THAN 3:1:

FILL SLOPES WITH A GRADIENT STEEPER THAN 3:1 SHOULD NOT BE MOWED. THEY SHALL BE GROOVED OR ALLOWED TO REMAIN ROUGH AS THEY ARE CONSRUCTED. METHOD (1) OR (2) BELOW MAY BE USED.
1) GROOVE ACCORDING TO # 2 OF "CUT SLOPES STEEPER THAN 3:1".
2) AS LIFTS OF THE FILL ARE CONSTRUCTED, SOIL AND ROCK MATERIAL MAY BE ALLOWED TO FALL NATURALLY ONTO THE SLOPE SURFACE.

COLLUVIAL MATERIALS (SOILS DEPOSITS AT THE BASE OF SLOPES OR FORM OLD STREAM BEDS) SHALL NOT BE USED IN FILLS AS THEY FLOW WHEN SATURATED.

CUTS, FILLS AND GRADED AREAS WHICH WILL BE MOWED (LESS THAN 3:1):

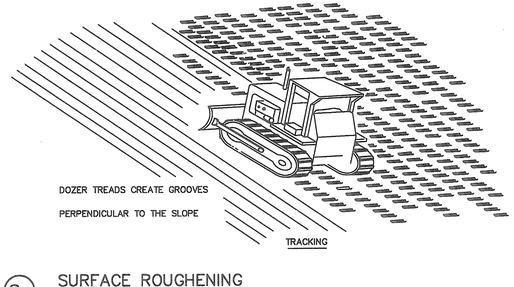
MOWED SLOPES SHOULD NOT BE STEEPER THAN 3:1. EXCESSIVE ROUGHNESS IS UNDESIRABLE WHERE MOWING IS PLANNED. THESE AREAS MAY BE ROUGHENED WITH SHALLOW GROOVES SUCH AS REMAIN AFTER TILLING, DISCING, HARROWING, RAKING, OR USE OF A MULTIPACKER SEDER. THE FINAL PASS OF ANY SUCH TILLAGE IMPLEMENT SHALL BE ON THE CONTOUR (PERPENDICULAR TO THE SLOPE). GROOVES FORMED BY SUCH IMPLEMENTS SHALL BE NOT LESS THAN ONE INCH DEEP AND NOT FURTHER THAN 12 INCHES APART. FILL SLOPES WHICH ARE LEFT ROUGH AS CONSTRUCTED MAY BE SMOOTHED WITH A DRAG LINE OR PICK CHAIN TO FACILITATE MOWING.

ROUGHENING WITH TACKED MACHINERY:

ROUGHENING WITH TRACKED MACHINERY ON CLAYED SOILS IS NOT RECOMMENDED UNLESS NO ALTERNATIVES ARE AVAILABLE. UNDUE COMPACTION OF SURFACE SOIL RESULTS FROM THIS PRACTICE. SANDY SOILS DO NOT COMPACT SEVERELY AND MAY BE TRACKED. IN NO CASE IS TRACKING AS EFFECTIVE AS THE OTHER ROUGHENING METHODS DESCRIBED. WHEN TACKING IS THE CHOSEN SURFACE ROUGHENING TECHNIQUE, IT SHALL BE DONE BY OPERATING TRACKED MACHINERY UP AND DOWN THE SLOPE TO LEAVE HORIZONTAL DEPRESSIONS IN THE SOIL. AS FEW PASSES OF THE MACHINERY AS POSSIBLE SHOULD BE MADE TO MINIMIZE COMPACTING.

SEEDING:

ROUGHENED AREAS SHALL BE SEEDED AND MULCHED AS SOON AS POSSIBLE TO OBTAIN OPTIMUM SEED GERMINATION AND SEED GROWTH. REFER TO SPECIFICATIONS **Ds1, Ds2, Ds3, AND Ds4– DISTURBED AREA STABILIZATION (WITH MULCHING ONLY, TEMPORARY SEEDING, PERMANENT VEGETATION, AND SODDING, RESPECTIVELY.)**



(Su) SURFACE ROUGHENING
NOT TO SCALE

CONDITIONS:

FLOC LOGS

THIS TEMPORARY PRACTICE IS NOT INTENDED FOR APPLICATION TO SURFACE WATER OF THE STATE. IT IS INTENDED FOR APPLICATION WITHIN CONSTRUCTION STORM WATER DITCHES AND STORM DRAINAGES WHICH FEED INTO PRE-CONSTRUCTED SEDIMENT PONDS OR BASINS.

DUST CONTROL

THIS TEMPORARY PRACTICE IS INTENDED FOR DIRECT SOIL SURFACE APPLICATION TO SITES WHERE THE TIMELY ESTABLISHMENT OF VEGETATION MAY NOT BE FEASIBLE OR WHERE VEGETATIVE COVER IS ABSENT OR INADEQUATE.

FEDERAL, STATE AND LOCAL LAW.

ANIONIC PAM APPLICATION SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS RULES OR REGULATIONS GOVERNING ANIONIC PAM. THE OPERATOR IS RESPONSIBLE FOR SECURING REQUIRED PERMITS. **THIS STANDARD DOES NOT CONTAIN THE TEXT OF THE FEDERAL, STATE OR LOCAL LAWS GOVERNING ANIONIC PAM.**

PLANNING CONSIDERATIONS

ANIONIC PAM IS AVAILABLE IN EMULSIONS, POWDERS, AND GEL BARS OR LOGS. IT IS REQUIRED THAT OTHER BEST MANAGEMENT PRACTICES BE USED IN COMBINATION WITH ANIONIC PAM.

THE USE OF SEED AND MULCH FOR ADDITIONAL EROSION PROTECTION BEYOND THE LIFE OF THE ANIONIC PAM IS RECOMMENDED. REPEAT APPLICATION IF DISTURBANCE OCCURS TO TARGET AREA.

THE FOLLOWING ARE ADDITIONAL RECOMMENDATIONS RELATING TO DESIGN WHICH MAY ENHANCE THE USE OF OR AVOID PROBLEMS WITH THE PRACTICE.

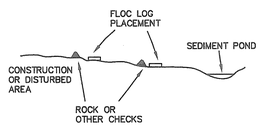
1. USE SETBACKS WHEN APPLYING ANIONIC PAM NEAR NATURAL WATERBODIES.
2. CONSIDER THAT DECREASED PERFORMANCE CAN OCCUR DUE TO ULTRAVIOLET LIGHT AND TIME AFTER MIXING WHEN APPLYING ANIONIC PAM
3. IN FLOW CONCENTRATION CHANNELS, THE EFFECTIVENESS OF ANIONIC PAM FOR STABILIZATION DECREASES.
4. MULCH TO PROTECT SEED IF SEED IS APPLIED WITH ANIONIC PAM.
5. NEVER ADD WATER TO PAM, ADD PAM SLOWLY TO WATER. IF WATER IS ADDED TO PAM, "GLOBS" CAN FORM WHICH CAN CLOG DISPENSERS. THIS SIGNIFIES INCOMPLETE DISSOLUTION OF THE PAM AND THEREFORE INCREASES THE RISK OF UNDER-APPLICATION.
6. **NOT ALL POLYMERS ARE PAM**

OPERATION AND MAINTENANCE

MAINTENANCE WILL CONSIST OF REAPPLYING ANIONIC PAM TO DISTURBED AREAS, INCLUDING HIGH TRAFFIC AREAS WHICH INTERFERE IN THE PERFORMANCE OF THIS PRACTICE.

CRITERIA:

1. APPLICATION RATES SHALL CONFORM TO MANUFACTURER'S GUIDELINES FOR APPLICATION.
2. ONLY THE ANIONIC FORM OF PAM SHALL BE USED. CATIONIC PAM IS TOXIC AND SHALL NOT BE USED.
3. PAM AND PAM MIXTURES SHALL BE ENVIRONMENTALLY BENIGN, HARMLESS TO FISH, WILDLIFE, AND PLANTS. PAM AND PAM MIXTURES SHALL BE NON-COMBUSTIBLE.
4. ANIONIC PAM, IN PURE FORM, SHALL HAVE LESS THAN OR EQUAL TO 0.05% ACRYLAMIDE MONOMER BY WEIGHT, AS ESTABLISHED BY THE FOOD AND DRUG ADMINISTRATION AND THE ENVIRONMENTAL PROTECTION AGENCY.
5. TO MAINTAIN LESS THAN OR EQUAL TO 0.05% OF ACRYLAMIDE MONOMER, **THE MAXIMUM APPLICATION RATE OF PAM IN PURE FORM SHALL NOT EXCEED 200 POUNDS PER/ACRE/YEAR.** DO NOT OVER APPLY PAM. EXCESSIVE APPLICATION OF PAM CAN LOWER INFILTRATION RATE OR SUSPEND SOILS IN WATER, RATHER THAN PROMOTING SETTLING.
6. USERS OF ANIONIC PAM SHALL OBTAIN AND FOLLOW ALL MATERIAL SAFETY DATA SHEET REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS.
7. ADDITIVES SUCH AS FERTILIZERS, SOLUBILITY PROMOTERS OR INHIBITORS, ETC. TO PAM SHALL BE NON-TOXIC.
8. THE MANUFACTURER OR SUPPLIER SHALL PROVIDE WRITTEN APPLICATION METHODS FOR PAM AND PAM MIXTURES. THE APPLICATION METHOD SHALL INSURE UNIFORM COVERAGE TO THE TARGET AND AVOID DRIFT TO NON-TARGET AREAS INCLUDING WATERS OF THE STATE. THE MANUFACTURER OF SUPPLIER SHALL ALSO PROVIDE WRITTEN INSTRUCTIONS TO INSURE PROPER SAFETY, STORAGE, AND MIXING OF THE PRODUCT.
9. GEL BARS OR LOGS OF ANIONIC PAM MIXTURES MAY BE USED IN DITCH SYSTEMS. THIS APPLICATION SHALL MEET THE SAME TESTING REQUIREMENTS AS ANIONIC PAM EMULSIONS AND POWDERS.
10. TO PREVENT EXCEEDING THE ACRYLAMIDE MONOMER LIMIT IN THE EVENT OF A SPILL, THE ANIONIC PAM IN PURE FORM SHALL NOT EXCEED 200 POUNDS PER BATCH AT 0.05% ACRYLAMIDE MONOMER (ADM) OR 400 POUNDS PER BATCH AT 0.025% AMD.



(Pm) POLYACRYLAMIDE (PAM)
NOT TO SCALE

SPECIFICATIONS

PURPOSE:

TO PROVIDE A BUFFER ZONE TO:

1. REDUCE STORM RUNOFF VELOCITIES
2. ACT AS SCREEN FOR "VISUAL POLLUTION"
3. REDUCE CONSTRUCTION NOISE
4. IMPROVE AESTHETICS ON THE DISTURBED LAND
5. FILTERING AND INFILTRATING RUNOFF
6. COOLING RIVERS AND STREAMS
7. PROVIDE FOOD AND COVER FOR WILDLIFE
8. FLOOD PROTECTION
9. PROTECT CHANNEL BANKS FROM SCOUR AND EROSION

(Bf) BUFFER ZONE

DESIGN PRINCIPALS

1. SHEET FLOW SHOULD BE ENCOURAGED AT THE EDGE OF THE VEGETATED STREAM BUFFER.
2. THE STRUCTURE OF THE BUFFER SHOULD CONSIST OF UNDERSTORY AND CANOPY SPECIES. SHRUBS OR UNDERSTORY TREES SHOULD ONLY BE USED ON THIS PROJECT.
3. THE WIDTH SHOULD BE PROPORTIONAL TO THE WATERSHED AREA AND SLOPE.
4. NATIVE AND NON-INVASIVE PLANT SPECIES SHOULD BE USED
5. DENSITY MUST BE CONSIDERED TO DETERMINE IF THE EXISTING BUFFER MUST BE ENHANCED TO ACHIEVE THE NECESSARY GOALS. VEGETATION MUST BE DENSE ENOUGH TO FILTER SEDIMENT AND PROVIDE DETRITAL NUTRIENTS FOR AQUATIC ORGANISM.
6. USE STREAM BANK STABILIZATION TECHNIQUES ON STEEP SLOPES (USING PERMANENT VEGETATION).
7. PLANTINGS FOR BUFFER ESTABLISHMENT AND ENHANCEMENT CAN CONSIST OF BARE ROOT SEEDLINGS, CONTAINER-GROWN SEEDLINGS, CONTAINER-GROWN PLANTS, AND BALLED AND BURLAPPED PLANTS. (REFER TO TABLES IN Ds3 – DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION) ON SHEET ESC-50). STANDARD PERMANENT EROSION CONTROL GRASSES AND LEGUMES MAY BE USED IN DENUDED AREAS FOR QUICK STABILIZATION. STREAMBANKS STABILIZATION TECHNIQUES MAY BE REQUIRED IF STEEP SLOPES AND HYDROLOGIC PATTERNS DEEM IT NECESSARY (REFER TO SPECIFICATION Sb – STREAMBANK STABILIZATION (USING PERMANENT VEGETATION)).
8. SEE TABLES 6-1.1 AND 6-1.2 FOR SUGGESTED PLANT MATERIAL.

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LAND PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE

GEORGIA REGISTERED No. 027118 PROFESSIONAL ENGINEER WARD VANDEWATER

GSWCC #8960
EXP. 3-11-2012

EROSION CONTROL DETAILS

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

56-02

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	36	

STORM DRAIN OUTLET PROTECTION

DESIGN CRITERIA:
STRUCTURALLY LINED APRONS AT THE OUTLETS OF PIPES AND PAVED CHANNEL SECTIONS SHALL BE DESIGNED ACCORDING TO THE FOLLOWING CRITERIA:

CAPACITY
PEAK STORMFLOW FROM THE 25–YEAR, 24 HOUR FREQUENCY STORM OR THE STORM SPECIFIED IN THE TITLE 12–7–1 OF THE OFFICIAL CODE OF GEORGIA ANNOTATED OR THE DESIGN DISCHARGE OF THE WATER CONVEYANCE STRUCTURE, WHICHEVER IS GREATER.

TAILWATER DEPTH
THE DEPTH OF THE TAILWATER IMMEDIATELY BELOW THE PIPE OUTLET MUST BE DETERMINED FOR THE DESIGN CAPACITY OF THE PIPE. MANNING'S EQUATION MAY BE USED TO DETERMINE TAILWATER DEPTH. IF THE TAILWATER DEPTH IS LESS THAN HALF THE DIAMETER OF THE OUTLET PIPE, IT SHALL BE CLASSIFIED AS A MINIMUM TAILWATER CONDITION. IF THE TAILWATER DEPTH IS GREATER THAN HALF THE PIPE DIAMETER, IT SHALL BE CLASSIFIED AS A MAXIMUM TAILWATER CONDITION. PIPES WHICH OUTLET ONTO FLAT AREAS WITH NO DEFINED CHANNEL MAY BE ASSUMED TO HAVE A MINIMUM TAILWATER CONDITION.

APRON WIDTH
IF THE PIPE DISCHARGES DIRECTLY INTO A WELL–DEFINED CHANNEL, THE APRON SHALL EXTEND ACROSS THE CHANNEL BOTTOM AND UP THE CHANNEL BANKS TO AN ELEVATION ONE FOOT ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS). IF THE PIPE DISCHARGES ONTO A FLAT AREA WITH NO DEFINED CHANNEL, THE WIDTH OF THE APRON SHALL BE DETERMINED AS FOLLOWS:
A. THE UPSTREAM END OF THE APRON, ADJACENT TO THE PIPE, SHALL HAVE A WIDTH THREE TIMES THE DIAMETER OF THE OUTLET PIPE.
B. FOR THE MINIMUM TAILWATER CONDITION, THE DOWNSTREAM END OF THE APRON SHALL HAVE A W?TH EQUAL TO THE PIPE DIAMETER PLUS THE LENGTH OF THE APRON. REFER TO FIGURE 6–24.1.
C. FOR A MAXIMUM TAILWATER CONDITION, THE DOWN STREAM END SHALL HAVE A WIDTH EQUAL TO THE PIPE DIAMETER PLUS 0.4 TIMES THE LENGTH OF THE APRON. REFER TO FIGURE 6–24.2.

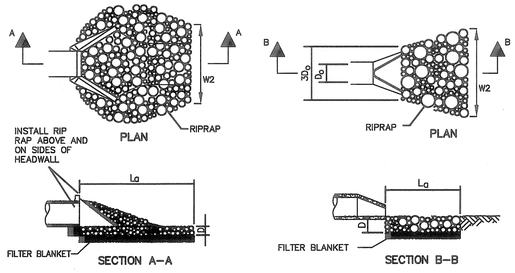
BOTTOM GRADE
THE APRON SHALL BE CONSTRUCTED WITH NO SLOPE ALONG ITS LENGTH (0.0% GRADE). THE INVERT ELEVATION OF THE DOWNSTREAM END OF THE APRON SHALL BE EQUAL TO THE ELEVATION OF THE INVERT OF THE RECEIVING CHANNEL. THERE SHALL BE NO OVERFALL AT THE END OF THE APRON.

SIDE SLOPE
IF THE PIPE DISCHARGES INTO A WELL–DEFINED CHANNEL, THE SIDE SLOPES OF THE CHANNEL SHALL NOT BE STEEPER THAN 2:1.

ALIGNMENT
THE APRON SHALL BE LOCATED SO THAT THERE ARE NO BENDS IN THE HORIZONTAL ALIGNMENT.

GEOTEXTILE
GEOTEXTILES SHOULD BE USED AS A SEPARATOR BETWEEN THE GRADED STONE, THE SOIL BASE, AND THE ABUTMENTS. THE GEOTEXTILES WILL PREVENT THE MIGRATION OF SOIL PARTICLES FROM THE SUBGRADE INTO THE GRADED STONE. THE GEOTEXTILE SHALL BE SPECIFIED ON ACCORDANCE WITH AASHTO M288–96 SECTION 7.5, PERMANENT EROSION CONTROL RECOMMENDATIONS. THE GEOTEXTILE SHOULD BE PLACED IMMEDIATELY ADJACENT TO THE SUBGRADE WITHOUT ANY VOIDS.

MATERIALS
THE APRON MAY BE LINED WITH RIPRAP, GROUTED RIPRAP, OR CONCRETE. THE MEDIAN SIZED STONE FOR RIPRAP, D50, SHALL BE DETERMINED FROM THE CURVES, FIGURE 6–24.1 AND 6–24.2, ACCORDING TO THE TAILWATER CONDITION. THE GRADATION, QUALITY AND PLACEMENT OF RIPRAP SHALL CONFORM TO APPENDIX C.



PIPE OUTLET TO WELL–DEFINED CHANNEL:

PIPE OUTLET TO FLAT AREA – NO WELL–DEFINED CHANNEL:

DESIGN SPECIFICATIONS TABLE

HW I.D.	D_o	Q (CFS)	V (FPS)	L_a (FT.)	W_1 (FT.)	W_2 (FT.)	d_{50} (IN.)	D (IN.)
A-1								
B-1								

(St) STORM DRAIN OUTLET PROTECTION
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:
1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
3. GEOTEXTILE MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER FABRIC OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP A MINIMUM OF 1 FT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER FABRIC.
4. RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.
5. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
6. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFALL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
7. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
8. IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.
9. STONE QUALITY – SELECT STONE FOR RIPRAP FROM FIELD STONE OR QUARRY STONE. THE STONE SHOULD BE HARD, ANGULAR, AND HIGHLY WEATHER–RESISTANT. THE SPECIFIC GRAVITY OF THE INDIVIDUAL STONES SHOULD BE AT LEAST 2.5.
10. FILTER – INSTALL A FILTER TO PREVENT SOIL MOVEMENT THROUGH THE OPENINGS IN THE RIPRAP. THE FILTER SHOULD CONSIST OF A GRADED GRAVEL LAYER OR A SYNTHETIC FILTER CLOTH. SEE APPENDIX C; P. C–1.

MAINTENANCE:
INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

NOTES:
1. LENGTH (La) IS THE RIPRAP LENGTH (AS SHOWN IN THE CHART).
2. DEPTH (D) IS THE RIPRAP DEPTH (1.5 TIMES THE MAXIMUM STONE DIAMETER, OR AS SHOWN ON DRAWINGS BUT NOT LESS THAN 12").
3. INSTALL A 6" MINIMUM DEEP FILTER STONE BLANKET (#57 STONE) OR FILTER FABRIC (AASHTO M288–96 SECTION 7.5) BETWEEN RIPRAP AND SOIL FOUNDATION.
4. IN A WELL–DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH, OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
5. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
6. FOR VELOCITIES UP TO 6.5 FPS, USE GDOT TYPE 3 WITH #57 FILTER BEDDING STONE.
7. FOR VELOCITIES OVER 6.5 FPS, CONSULT TABLE C–1.

TABLE C–1
GRADED RIP–RAP STONE

FLOW VELOCITY (FT./SEC.)	N.S.A. NO.[1]	SIZE INCHES (SQ. OPENING) MAX.	AVG.[2]	MIN.	FILTER STONE N.S.A. NO.[1]
2.5	R-1	1 1/2	3/4	No. 8	FS-1
4.5	R-2	3	1 1/2	1	FS-1
6.5	R-3	6	3	2	FS-2
9.0	R-4	12	6	3	FS-2
11.5	R-5	18	9	5	FS-2
13.0	R-6	24	12	7	FS-3
14.5	R-7	30	15	12	FS-3

TABLE C–2
FILTER BEDDING STONE

N.S.A. NO.[1]	SIZE INCHES (SQ. OPENING) MAX.	AVG.[2]	MIN.[3]
FS-1	3/8	#30 MESH	#100 MESH
FS-2	2	#4	#100 MESH
FS-3	6 1/2	2 1/2	#16

TABLE C–4
FILTER BEDDING STONE

G.D.O.T. NO.[4]	NOMINAL SIZE (INCHES)
3	2" - 1"
4	1 1/2" - 3/4"
5	1" - 1/2"
6	3/4" - 3/8"
57	1" - No. 4

TABLE C–3
GRADED RIP–RAP STONE

G.D.O.T. NO.[4]	SIZE INCHES (SQ. OPENING) MAX.	AVG.[2]	MIN.[3]	COMMON USES
TYPE 3	12	9	5	CREEK BANKS, PIPE OUTLETS
TYPE 1	24	12	7	LAKES, SHORELINES, RIVERS

1. NATIONAL STONE ASSOCIATION
2. AT LEAST 50% OF THE INDIVIDUAL STONE PARTICLES MUST BE EQUAL OR LARGER THAN LISTED SIZE.
3. 85–100% OF THE INDIVIDUAL STONE PARTICLES MAYBE LESS THAN LISTED SIZE.
4. GEORGIA DEPARTMENT OF TRANSPORTATION

Ds1 MULCHING ONLY

MULCHING BY ITSELF MAY BE USED AS TEMPORARY STABILIZATION (MULCHING ONLY) WHEN SEED WILL NOT HAVE A SUITABLE GROWING SEASON. STABILIZATION MAY BE ACCOMPLISHED WITH: STRAW – 2 TONS/ACRE OR HAY–2.5 TONS/ACRE PROVIDED THAT THE APPROPRIATE DEPTH (2–4") IS ACHEIVED. ALL HAY OR STRAW SHALL BE ANCHORED WITH A TACKIFIER (Tb) (EMULSIFIED ASPHALT, GRADE AE–S OR SS–1, AT A RATE OF 100 GAL. OF EMULSIFIED ASPHALT AND 100 GAL. OF WATER PER TON OF MULCH), AND PROVIDED THAT A CONTINUOUS COVERAGE OF 90% OR GREATER OF THE SOIL SURFACE IS MAINTAINED. OTHER ACCEPTABLE MULCHES ARE WOOD WASTE, BARK, OR SAWDUST SPREAD 2–3" DEEP. WHEN MULCH IS USED WITH SEED, FOLLOW THE SPECIFICATIONS FOR TEMPOARARY SEEDING (Ds2) OR PERMANENT SEEDING (Ds3).

Ds2 | Ds3 TEMPORARY AND PERMANENT GRASSING

NOTES:
1. ALL SEEDING RATES ARE EXPRESSED AS PURE LIVE SEED (PLS).
2. MATTING BLANKETS (MB) AND HYDROSEED ARE REQUIRED ON SLOPES STEEPER THAN 2H:1V.
3. THE LANDSCAPE PLANS, IF ANY WILL SUPERCEDE THIS DETAIL FOR PERMANENT VEGETATION.
4. MULCHING ONLY (Ds1) OR TEMPORARY GRASSING (Ds2) SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTURBANCE AND WHEN ROUGH GRADED DISTURBANCE WILL LAST FOR LESS THAN SIX MONTHS. IF ROUGH GRADIED AREAS WILL BE UNDISTURBED FOR LONGER THAN SIX MONTHS OR AREA IS AT FINAL GRADE, THEN PERMANENT VEGETATION (DS3) SHALL BE USED.
5. BLOCK SOD (Ds4) PROVIDES IMMEDIATE COVER AND IS ESPECIALLY EFFECTIVE IN CONTROLLING EROSION ADJACENT TO CONCRETE FLUMES AND OTHER STRUCTURES.
6. THE CONTRACTOR SHALL SELECT A BMP SUITABLE TO THE SEASON OF THE YEAR AND THE GRADING STATUS OF THE AREA TO BE STABILIZED.
7. CONSTRUCTION SPECIFICATIONS FOR EACH BMP SHALL BE AS PUBLISHED IN THE MANUAL FOR SEDIMENT AND EROSION CONTROL IN GEORGIA, LATEST EDITION.

(1) SUBSTITUTE PENSACOLA BAHIA IN THE COASTAL MAJOR RESOURCE AREA OF GEORGIA.
(2) BERMUDA SHOULD NOT BE PLANTED IN THE M–L MAJOR RESOURCE AREA OF GEORGIA.
(3) MULCH FOR HYDROSEED
500 LB. OF WOOD CELLULOSE MULCH OR EQUIVALENT PER ACRE, THEN APPLY STRAW @ 2 TON/AC. OR HAY @ 2.5 TONS/AC. STRAW OR HAY SHALL BE DRY, NOT CAKED, AND FREE OF WEED SEED.
(4) SERICEA LESPEDEZA SHALL BE SCARIFIED AND INNOCULATED WITH "EL" BACTERIA. USE DOUBLE THE RECOMMENDED RATE OF INOCULUM FOR CONVENTIONAL SEEDING AND 4X THE RECOMMENDED RATE FOR HYDROSEEDING. OTHERWISE FOLLOW THE SUPPLIER'S INSTRUCTIONS WHEN INNOCULATING LEGUMES.

FERTILIZER SCHEDULE

Table 6-5.1. Fertilizer Requirements

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 1/2/ 30
2. Cool season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	0-50 lbs./ac. 1/ — —
3. Ground covers	First Second Maintenance	10-10-10 10-10-10 10-10-10	1300 lbs./ac. 3/ 1300 lbs./ac. 3/ 1100 lbs./ac.	— — —
4. Pine seedlings	First	20-10-5	one 21-gram pellet per seeding placed in the closing hole	—
5. Shrub Lespedeza	First Maintenance	0-10-10 0-10-10	700 lbs./ac. 700 lbs./ac. 4/	—
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
7. Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 800 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 2/6/ 50-100 lbs./ac. 2/ 30 lbs./ac.
8. Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50 lbs./ac /6/

1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/ Apply when plants are pruned.
5/ Apply to grass species only.
6/ Apply when plants grow to a height of 2 to 4 inches.

Major Land Resource Areas (MLRA) of Georgia

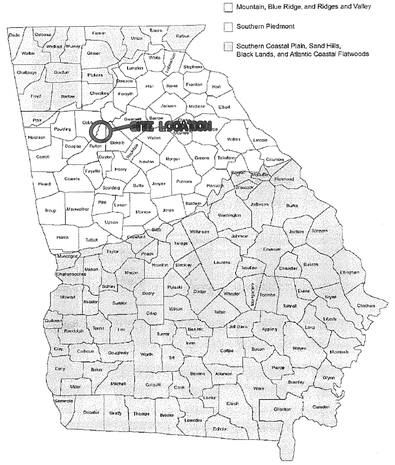


Figure 6-4.1

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LAND PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE

GEORGIA REGISTERED NO. 027118 PROFESSIONAL WILLIAM D. VANDEWATER
GSWCC #8960
EXP. 3–11–2012

EROSION CONTROL DETAILS

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

56–03

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	37	

Ds2 TEMPORARY GRASSING

TEMPORARY GRASSING SHALL CONSIST OF SOWING A QUICK GRASS SUCH AS RYE, BROWN TOP MILLET, OR A GRASS SUITABLE TO THE AREA AND SEASON. MULCH, LIME AND FERTILIZER MAY BE OMITTED UNLESS LOCAL CONDITIONS OR SOIL TESTS INDICATE OTHERWISE. TEMPORARY VEGETATIVE MEASURES SHOULD BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL AND EFFECTIVE STABILIZATION. FOR ADDITIONAL OPTIONS OR IF THE AREA IS EXPECTED TO BE UNDISTURBED FOR LONGER THAN SIX MONTHS, PERMANENT PERENNIAL VEGETATION (Ds3) SHALL BE USED. REFER TO THE COMPANION PLANTING SCHEDULE UNDER PERMANENT GRASSING (Ds3).

Ds2 GRASSING SCHEDULE

GaSWCC (Amended - 2000)

Table 6-4.1 - Temporary Cover or Companion Crops 1/

PLANT, PLANTING RATES, AND PLANTING DATED FOR TEMPORARY COVER OR COMPANION CROPS 1/

Species	Broadcast Rates 2/ - PLS 3/ Per Acre	Per 1000 sq. ft.	Resource Area 4/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
BARLEY (Horduem vulgare)		C	M-L, P		14,000 seed per pound. Winterhardy. Use on productive soils.
alone	3 bu. (144 lbs.)	3.3 lb.			
in mixture	1/2 bu. (24 lbs.)	0.6 lb.			
LESPEDEZA, ANNUAL (Lespedeza striata)			M-L, P, C		200,000 seed per pound. May volunteer for several years. Use inoculant EL.
alone	40 lbs.	0.9 lb.			
in mixtures	10 lbs.	0.2 lb.			
LOVEGRASS, WEEPING (Eragrostis curvula)			M-L, P, C		1,500,000 seed per pound. May last for several years. Mix with Sericea lespedeza.
alone	4 lbs.	0.1 lb.			
in mixtures	2 lbs.	0.05 lb.			
MILLET, BROWNTOP (Panicum fasciculatum)		C	M-L, P		137,000 seed per pound. Quick dense cover. Will provide too much competition in mixtures if seeded at high rates.
alone	40 lbs.	0.9 lb.			
in mixtures	10 lbs.	0.2 lb.			

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Table 6-4.1 - Temporary Cover or Companion Crops 1/ - continued

PLANT, PLANTING RATES, AND PLANTING DATED FOR TEMPORARY COVER OR COMPANION CROPS 1/

Species	Broadcast Rates 2/ - PLS 3/ Per Acre	Per 1000 sq. ft.	Resource Area 4/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
MILLET, PEARL (Pennesetum glaucum)			M-L, P, C		88,000 seed per pound. Quick dense cover. May reach 5 feet in height. Not recommended for mixtures.
alone	50 lbs.	1.1 lb.			
OATS (Avena sativa)			M-L, P, C		13,000 seed per pound. Use on productive soils. Not as winterhardy as rye or barley.
alone	4 bu. (128 lbs.)	2.9 lb.			
in mixtures	1 bu. (32 lbs.)	0.7 lb.			
RYE (Secale cereale)			M-L, P, C		18,000 seed per pound. Quick cover. Drought tolerant and winterhardy.
alone	3 bu. (168 lbs.)	3.9 lb.			
in mixture	1/2 bu. (28 lbs.)	0.6 lb.			
RYEGRASS, ANNUAL (Lolium temulentum)		C	M-L, P		227,000 seed per pound. Dense cover. Very competitive and is not to be used in mixtures.
alone	40 lbs.	0.9 lb.			
SUDANGRASS (Sorghum Sudanese)			M-L, P, C		55,000 seed per pound. Good on droughty sites. Not recommended for mixtures.
alone	60 lbs.	1.4 lb			

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Table 6-4.1 - Temporary Cover or Companion Crops 1/ - continued

PLANT, PLANTING RATES, AND PLANTING DATED FOR TEMPORARY COVER OR COMPANION CROPS 1/

Species	Broadcast Rates 2/ - PLS 3/ Per Acre	Per 1000 sq. ft.	Resource Area 4/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
TRITICALE (X-Triticosecale)			C		Use on lower part of Southern Coastal Plain and in Atlantic Coastal Flatwoods only.
alone	3 bu. (144 lbs.)	3.3 lb.			
in mixtures	1/2 bu. (24 lbs.)	0.6 lb.			
WHEAT (Triticum Aestivum)			M-L, P, C		15,000 seed per pound.
alone	3 bu. (180 lbs.)	4.1 lb.			
in mixtures	1/2 bu. (30 lbs.)	0.7 lb.			

1/ Temporary cover crops are very competitive and will crown out perennials if seeded too heavily.
2/ Reduce seeding rates by 50% when drilled.
3/ PLS is an abbreviation for Pure Live Seed.
4/ M-L represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents Southern Coastal Plain; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs
(See Figure 6-4.1, p. 6-40).

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Ds3 PERMANENT GRASSING

PERMANENT GRASSING SHALL BE APPLIED AND REAPPLIED IF NECESSARY UNTIL FINAL STABILIZATION IS ACHEIVED. FINAL STABILIZATION MEANS THAT ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND THAT FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES, AT LEAST 70% OF THE SOIL SURFACE IS UNIFORMLY COVERED BY PERENNIAL VEGETATION WITHIN THE GROWING SEASON (OR OTHER EQUIVALENT PERMANENT STABILIZATION MEASURES. MULCHING IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS. MULCH APPLIED TO SEEDED AREAS SHALL ACHIEVE 75% SOIL COVER (25% UNCOVERED) WITHIN 24 HOURS AFTER SEEDING (3). REFER TO THE FERTILIZATION REQUIREMENTS CHART FOR TYPES AND RATES OF FERTILIZER APPLICATION.

Ds3 GRASSING SCHEDULE

GaSWCC (Amended - 2000)

Table 6-5.2 - Permanent Cover

PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates 1/ - PLS 2/ Per Acre	Per 1000 sq. ft.	Resource Area 3/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
BAHIA, PENSACOLA (Paspalum notatum)			P, C		166,000 seed per pund. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread into bermuda pastures and lawns. Mix with Sericea lespedeza or weeping lovegrass.
alone or with temporary cover	60 lbs.	1.4 lb.			
with other perennials	30 lbs.	0.7 lb.			
BAHIA, WILMINGTON (Paspalum notatum)			M-L, P		Same as above.
alone or with temporary cover	60 lbs.	1.4 lb.			
with other perennials	30 lbs.	0.7 lb.			
BERMUDA, COMMON (Cynodon dactylon) Hulled seed			P, C		1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fields.
alone	10 lbs.	0.2 lb.			
with other perennials	6 lbs.	0.1 lb.			

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Table 6-5.2 - Permanent Cover - continued

PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates 1/ - PLS 2/ Per Acre	Per 1000 sq. ft.	Resource Area 3/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
BERMUDA, COMMON (Cynodon dactylon) Unhulled seed			P, C		
with temporary cover	10 lbs.	0.2 lb.			Plant with winter annuals.
with other perennials	6 lbs.	0.1 lb.			Plant with tall fescue.
BERMUDA SPRIGS (Cynodon dactylon)	40 cu. ft. or sod plugs 3' x 3'	0.9 cu. ft.			
Coastal, Common, Midland, or Tift 44			M-L		A cubic foot contains approximately 650 sprigs. A bushel contains 1.25 cubic feet or approximately 800 sprigs.
Coastal, Common, or Tift 44			P, C		Same as above.
Tift 78			C		Southern Coastal Plain only.
CENTIPEDE (Eremochloa ophiuroides)	Block sod only		P, C		Drought tolerant. Full sun or partial shade. Effective adjacent to concrete and in concentrated flow areas. Irrigation is needed until fully established. Do not plant near pastures. Winterhardy as far north as Athens and Atlanta.

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Table 6-5.2 - Permanent Cover - continued

PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates 1/ - PLS 2/ Per Acre	Per 1000 sq. ft.	Resource Area 3/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
CROWNVETECH (Coronilla varia)					100,000 seed per pound. Dense growth. Drought tolerant and fire resistant. Attractive rose, pink, and white blossoms spring to late fall. Mix with 30 pounds of Tall fescue or 15 pounds of rye. Inoculate seed with M inoculant. Use from North Atlanta and Northward.
with winter annuals or cool season grasses	15 lbs.	0.3 lb.	M-L, P		
FESCUE, TALL (Festuca arundinacea)					227,000 seed per pound. Use alone only on better sites. Not for droughty soils. Mix with perennial lespedezas or crownvetch. Apply topdressing in spring following fall plantings. Not for heavy use areas or athletic fields.
alone	50 lbs.	1.1 lbs.	M-L, P		
with other perennials	30 lbs.	0.7 lb.			
KUDZU (Pueraria thumbergiana)					Rapid and vigorous growth. Excellent in gully erosion control. Will climb. Good livestock forage.
plants or crowns	3' - 7' apart		ALL		

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Table 6-5.2 - Permanent Cover - continued

PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates 1/ - PLS 2/ Per Acre	Per 1000 sq. ft.	Resource Area 3/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
LESPEDEZA, SERICEA (Lespedeza cuneata)					
scarified	60 lbs.	1.4 lbs.	M-L, P, C		350,000 seed per pound. Widely adapted. Low maintenance. Mix with weeping lovegrass, common bermuda, bahia, or tall fescue. Takes 2 to 3 years to become fully established. Excellent on roadbanks. Inoculate seed with EL inoculant.
unscarified	75 lbs.	1.7 lb.	M-L, P, C		Mix with Tall fescue or winter annuals.
seed-bearing hay	3 tons	138lb.	M-L, P, C		Cut when seed is mature, but before it shatters. Add Tall fescue or winter annuals.

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Table 6-5.2 - Permanent Cover - continued

PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates 1/ - PLS 2/ Per Acre	Per 1000 sq. ft.	Resource Area 3/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
LESPEDEZA Ambro virgata (Lespedeza virgata DC) or Appalow (Lespedeza cuneata [Dumont] G. Don)					300,000 seed per pound. Height of growth is 18 to 24 inches. Advantageous in urban areas. Spreading-type growth has bronze coloration. Mix with Weeping lovegrass, Common bermuda, bahia, tall fescue or winter annuals. Do not mix with Sericea lespedaza. Slow to develop solid stands. Inoculate seed with EL inoculate.
scarified	60 lbs.	1.4 lb.	M-L, P, C		
unscarified	75 lbs.	1.7 lb.	M-L, P, C		
LESPEDEZA, SHRUB (Lespedeza bicolor) (Lespedeza thumbergii)			M-L, P, C		Provide wildlife food and cover.
plants	3' x 3'				
LOVEGRASS, WEEPING (Eragrostis curvula)					1,500,000 seed per pound. Quick cover. Drought tolerant. Grows well with Sericea lespedeza on roadbanks.
alone	4 lbs.	0.1 lb.	M-L, P, C		
with other perennials	2 lbs.	0.05 lb.			

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Table 6-5.2 - Permanent Cover - continued

PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates 1/ - PLS 2/ Per Acre	Per 1000 sq. ft.	Resource Area 3/	Planting Dates by Resource Areas (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
MAIDENCANE (Panicum hemitomon)					For very wet sites. May clog channels. Dig sprigs from local sources. Use along river banks and shorelines.
sprigs	2' x 3' spacing		ALL		
PANICGRASS, ATLANTIC COASTAL (Panicum amarum var. amarulum)	20 lbs.	0.5 lb.	P, C		Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for wildlife. Mix with Sericea lespedeza except on sand dunes.
REED CANARY GRASS (Phalaris arundinacea)					
alone	50 lbs.	1.1 lb.	M-L, P		Grows similar to tall fescue.
with other perennials	30 lbs.	0.7 lb.			
SUNFLOWER, 'AZTEC' MAXIMILLIAM (Helianthus maximiliani)	10 lbs.	0.2 lb.	M-L, P, C		227,000 seed per pound. Mix with weeping lovegrass or other low-growing grasses or legumes.

1/ Reduce seeding rates by 50% when drilled.
2/ PLS is an abbreviation for Pure Live Seed. Refer to Section V.E. of these specifications.
3/ M-L represents to Mountain; Blue Ridge; and Ridges and Valleys MLRAs.
P represents the Southern Piedmont MLRA.
C represents the Southern Coastal Plain; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs.
See Figure 6-4.1.

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GSWCC #8960
EXP. 3-11-2012

EROSION CONTROL DETAILS

20 0 20 40
Scale 1" = 20'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

56-04

Ds3 PERMANENT GRASSING
SHRUB AND TREE COVERS

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	38	

Table 6-5.3. Durable Shrubs and Ground Covers for Permanent Cover

Ground covers include a wide range of low-growing plants planted together in considerable numbers to cover large areas of the landscape. Ground covers grow slower than grasses. Weeds are likely to compete, especially the first year. Maintenance is needed to insure survival. These ground covers will not be used unless proper maintenance is planned. Maintain mulch at three-inch thickness until plants provide adequate cover.

Fall planting is encouraged because the need for constant watering is reduced and plants have time to establish new roots before hot weather.

Common Name	Scientific Name	Mature Height	Plant Spacing	Comments
Albelia	Abelia grandiflora	3-4 ft.	5 ft.	Also a prostrate form 2 feet high. Sun, semi-shade. Semi-evergreen.
Carolina Yellow Jessamine	Gelsemium sempervirens	low	3 ft.	Vine. Yellow, trumpet-like flowers. Hardy, one of best vines. Ever-green. Native to Georgia.
Carpet Blue	Ajuga reptans	2-4 in.	3 ft.	Needs good drainage, partial shade. Blue or white flowers. Evergreen.
Bearberry Cotoneaster	Cotoneaster dammeri	2-4 ft.	5 ft.	White flowers, red fruit. Sun. Evergreen.
Ground Cover Cotoneaster	Cotoneaster salicifoluis 'Repens'	1-2 ft.	5 ft.	White flowers, red fruit. Sun. Evergreen.
Rock Cotoneaster	Cotoneaster horizontalis	1-2 ft.	5 ft.	Semi-evergreen. Sun.
Virginia Creeper	Parthenocissue quinquefolia	low	3 ft.	Red in fall. Vine. Deciduous. Native to Georgia.
Daylily	Hemerocallis spp.	2-3 ft.	2 ft.	Many flower colors. Full sun. Very hardy.
English Ivy	Hedera helix	low	3 ft.	Shade only. Climbs.
Compacta Holly	Ilex crenata 'Compacta'	3-4 ft.	5 ft.	Sun, semi-shade.
Chinese Holly	Ilex cornuta 'Rotunda'	3-4 ft.	5 ft.	Very durable. Sun, semi-shade.
Dwarf Burford Holly	Ilex burfordii 'Nana'	5-8 ft.	8 ft.	
Dwarf Yaupon Holly	Ilex vomitoria 'Nana'	3-4 ft.	5 ft.	Very durable, sun, semi-shade.

Table 6-5.3. Durable Shrubs and Ground Covers for Permanent Cover

Common Name	Scientific Name	Mature Height	Plant Spacing	Comments
Repandens Holly	Ilex crenata 'Repandens'	2-3 ft.	5 ft.	Sun, semi-shade.
Andorra Juniper	Juniperus horizontalis 'Plumosa'	2-3 ft.	5 ft.	Excellent for slopes. Sun.
Andorra Compacta Juniper	Juniperus horizontalis 'Plumosa com-pacta'	1-2 ft.	5 ft.	More compact than andora.
Blue Chip Juniper	Juniperus horizontalis 'Blue Chip'	8-10 in.	4 ft.	
Blue Rug Juniper	Juniperus horizontalis 'Wiltonii'	4-6 in.	3 ft.	Very low. Sun.
Parsons Juniper	Juniperus davurica 'Expansa' (Squamata Parsoni)	18-24 in.	5 ft.	One of the best, good winter cover.
Pfitzer Juniper	Juniperus chinensis 'Pfitzerana'	6-8 ft.	6 ft.	Needs room.
Prince of Wales Juniper	Juniperus horizontalis 'Prince of Wales'	8-10 in.	4 ft.	Feathery appearance.
Sargent Juniper	Juniperus chinensis 'Sargentii'	1-2 ft.	5 ft.	Full sun. Needs good drainage. Good winter color.
Shore Juniper	Juniperus conferta	2-3 ft.	5 ft.	Emerald Sea or Blue Pacific cultivars are good.
Liriope	Liriope muscari	8-10 in.	3 ft.	
Creeping Liriope	Liriope spicata	10-12 in.	1 ft.	Spreads by runners.
Big Leaf Periwinkle	Vinca major	12-15 in.	4 ft.	Lilac flowers in spring. Semi-shade.
Common Periwinkle	Vinca minor	5-6 in.	4 ft.	Lavender-blue flowers in spring. Semi-shade

Table 6-5.3. Durable Shrubs and Ground Covers for Permanent Cover

Common Name	Scientific Name	Mature Height	Plant Spacing	Comments
Cherokee Rose	Rosa laevigata	2 ft.	5 ft.	Rampant grower. Not for restricted spaces. State flower.
Memorial Rose	Rosa weuchuriana	2 ft.	5 ft.	Rampant grower.
St. Johnswort	Hypericum calycenum	8-12 in	3 ft.	Semi-shade.
Anthony Waterer Spirea	Spirea bumalda	3-4 ft.	5 ft.	Sun.
Thunberg Spirea	Spirea thinbergii	3-4 ft.	5 ft.	Sun

Table 6-5.4. Trees for Erosion Control

SITE	SOIL MATERIAL	COMMON SOILS	PLANTING TREE SPECIES 1/	SPACING	PLANTING DATES 3/
Borrow areas, graded areas, and spoil material	Sandy	Lakeland, Troup	Loblolly pine (Pinus taeda)	2/	M-L,P 12/1-3/15 C 12/1-3/1
			Longleaf pine (Pinus palustris)		
	Loamy	Orangeburg, Tifton	Loblolly pine	2/	M-L,P 12/1-3/15 C 12/1-3/1
			Slash pine		
	Clay	Cecil, Faceville	Loblolly pine	2/	M-L,P 12/1-3/15 C 12/1-3/1
			Slash pine		
			Virginia pine (Pinus virginiana)		
Streambanks			Willows 4/ (Salix species)	2 ft x 2 ft	ALL 11/15-3/15

1/Other trees and shrubs listed on Table 6-5.3 may be interplanted with the pines for improved wildlife benefits.

2/Type of Planting	Tree Spacing	No. of Trees Per Acre
Trees alone	4 ft. x 4 ft.	2722
Trees in combination with grasses and/ or other plants	6 ft. x 6 ft.	1210

3/M-L represents the Mountains; Blue Ridge; and Ridges and Valleys MLRAs

P represents the Southern Piedmont MLRA

C represents the Southern Coastal Plain; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs (See Figure 6-4.1).

4/Fertilization of companion crop is ample for this species.

Replanting

It is imperative that the structure of the vegetated stream buffer be maintained. If the buffer has been planted, it is suggested that the area be monitored to determine if plant material must be replaced. See Tables 6-1.1 and 6-1.2 for suggested plant species. Provisions for the protection of new plantings from destruction or damage from beavers shall be incorporated into the plan.

Fertilizer

If appropriate vegetation is chosen, it is unlikely that fertilizer will be necessary.

Local Contacts:

USDA Natural Resources Conservation Service

Georgia Forestry Commission

Table 6-1.1 - Unrooted Hardwood Cuttings

PLANTS SUITABLE FOR USE AS UNROOTED (HARDWOOD) CUTTINGS

Species	Region	Tolerance To Flooding	Tolerance To Drought	Tolerance To Deposition	Tolerance To Shade
Acer negundo Boxelder	C,P,M	H	H	H	L
Baccharis halimifolia Groundsel bush	C,P (lower)	M	M	H	L
Cornus amomum Silky dogwood	P,M	L	M	L	M
Cornus sericia Ssp. stolonifera Red osier dogwood	P,M	L	M	H	M
Crataegus sp. Hawthon	C,P,M	M	H	L	L
Populus deltoids Eastern cottonwood	C,P,M	M	M	H	L
Salix sp. interior Sandbar willow	C,P,M	H	L	H	L
Salix nigra Black willow	C,P,M	H	H	H	L
Salix purpurea Streamco willow	C,P,M	H	M	H	L
Salix x cotteti Bankers willow	P,M	H	M	H	L
Sambucus canadensis American elderberry	P,M	H	M	M	M
Viburnum dentatum Arrowwood viburnum	C,P,M	M	M	M	M
Viburnum lentago Nannyberry viburnum	C,P,M	M	M	L	M

Adapted from the USDA/NRCS Engineering Field Handbook, Chapter 18

Table 6-1.1 - Unrooted Hardwood Cuttings - continued

Legend:

Tolerance to Flooding, Drought, Deposition, and Shade

H = High

M = Medium

L = Low

Region

C = Coastal

P = Piedmont

M = Mountain

Rooting of all species will be improved if nearby vegetation is pruned to increase sunlight penetration.

Whenever possible, harvest hardwood cuttings as close to the repair site as possible.

Many of the above grow naturally along streams, in adjacent wetlands, along sewer and power line easements, and where streams enter lakes and along lake shores. Willows generally grow profusely in stormwater detention ponds in urban areas.

ALWAYS OBTAIN PERMISSION FROM THE PROPERTY OWNER BEFORE HARVESTING PLANTS!

Table 6-1.2 - Native Plant Guide

NATIVE PLANT GUIDE FOR STREAMBANK PLANTING ROOTED STOCK

Species	Region	Stream Zone	Wildlife Value	Notes
Acer rubrum Red Maple	M,P,C	Tree	High Seeds & browse	Rapid growth.
Alnus serrulata Smooth alder	M,P,C	Shrub	Moderate, Cover	Rapid growth. Stabilizes stream-banks. Sun.
Amorpha fruticosa False indigo	M,P,C	Shrub	Moderate	Sun.
Aronia arbutifolia Red chokeberry	M,P,C	Shrub	Moderate Cover & Food	Rhizomatous Colonial Shrub.
Asimina triloba Pawpaw	M,P,C	Tree	Important food for fox & possum	
Betula nigra River Burch	M,P,C	Tree	Good for cavity nester	Full sun.
Carpinus caroliniana American hornbeam	M,P,C	Tree	Low	Partial shade.
Carya cordiformis Bitternut hickory	P,C	Tree	Moderate, food	Wet bottoms.
Catalpa bignonioides Catalpa tree	P,C	Tree	Unknown	
Celtis laevigata Sugarberry	P,C	Tree	High food cover	Partial shade.
Celtis occidentalis Hackberry	P,C	Tree	High	Partial shade.
Cephalantus Occidentalis Buttonbush	M,P,C	Shrub	Moderate, ducks & Shorebirds are users. Nectar for hummingbirds.	Sun.
Chionanthus virginicus Fringe tree	P,C	Tree	Moderate	Tolerant of shade.
Clethra alnifolia Sweet pepperbush	P,C	Shrub	Moderate	Partial shade. Good landscape value.
Cornus amomum Silky dogwood	M,P	Shrub	High, songbirds, Mammals	Shade tolerant. Good bank stabilizer.

Table 6-1.2 - Native Plant Guide - continued

Species	Region	Stream Zone	Wildlife Value	Notes
Cornus stricta Swamp dogwood	M,P	Shrub	High	Good bank stabilizer in shade.
Cornus florida Flowering dogwood	M,P,C	Tree	High, birds, food	Shade tolerant.
Cyrilla racemiflora Titi	C	Tree	Low	Light shade.
Diospyros Virginia Persimmon	M,P,C	Tree	Extremely high Mammals	Not shade tolerant.
Fraxinus caroliniana Carolina ash	C	Tree	Moderate	Rapid growing. Streambank grower. Sun to partial shade.
Fraxinus pennsylvanica Green ash	M,P,C	Tree	Low	Rapid grower. Full sun.
Gleditsia aquatica Water locust	P,C	Tree	Low	Sun.
Gleditsia triacanthos Honey locust	P,C	Tree	Low	Full sun, thorns.
Hibiscus aculeatus Hibiscus Comfort root	C	Shrub	Unknown	Use on open level floodplain areas & Depressions in C.
Hibiscus militaris Hibiscus Halberd-leaved Marshmallow	C	Shrub	Unknown	Use on open level floodplain areas & Depressions in C.
Hibiscus lasiocarpus Hibiscus	C	Shrub	Unknown	Use on open level floodplain areas & Depressions in C.
Hibiscus moscheutos Hibiscus	C	Shrub	Unknown	Use on open level floodplain areas & Depressions in C.
Ilex coriacea Sweet Gallberry	C	Shrub	Unknown	
Ilex decidua Possumhaw	P,C	Shrub	High, food, nest sites	Sun or shade.
Ilex glabra Bitter gallberry or Inkberry	C	Shrub	High	Stoloniferous. Sun to some shade.

Table 6-1.2 - Native Plant Guide - continued

Species	Region	Stream Zone	Wildlife Value	Notes
Ilex opaca American holly	M,P,C	Tree	High, food, cover nests	Prefers shade.
Ilex verticilata Winterberry	M,P	Shrub	High, cover & fruit for birds. Holds berries in winter.	Full sun to some shade. Seasonally flooded areas.
Ilex vomitoria Yaupon	C	Shrub	High, songbirds	Small tree, very adaptable, suckers.
Juglans nigra Black walnut	M,P	Tree	Good	Temporarily flooded wetlands along floodplains.
Juniperus virginiana Eastern red cedar	M,P,C	Tree	High, food	Tolerant to some shade in youth.
Leucothoe axillaris Leucothoe	C	Shrub	Low	Partial shade.
Lindera benzoin Common spicebush	M	Shrub	High, songbirds	Shade, acidic soils. Good understory.
Liriondendron tulipefera Tulip poplar	M,P	Tree	Low	Tolerant to partial Shade.
Liquidambar styraciflua Sweetgum	M,P,C	Tree	Low	Partial shade.
Lyonia lucida Lyonia or Fetterbush	C	Shrub	Low	Sun.
Magnolia Virginia Sweetbay	P,C	Tree	Very low	Shade tolerant.
Myrica cerifera Southern wax myrtle	C	Shrub	Moderate	Light shade.
Nyssa ogeche Ogeechee lime	C	Tree	High, fruit, Cavity nesters	Wetland tree
Nyssa sylvatica Blackgum or sourgum	M,P,C	Tree	Moderate, seeds	Sun to partial shade.
Nyssa aquatica Swamp tupelo	C	Tree	High	Prefers shade.
Ostrya Virginiana Hophornbeam	M,P,C	Tree	Moderate	Tolerant of all sunlight conditions.

Table 6-1.2 - Native Plant Guide - continued

Species	Region	Stream Zone	Wildlife Value	Notes
Persea borbonia Red bay	C	Tree	Good food, for quail and bluebirds.	Understory tree.
Pinus taeda Loblolly pine	P,C	Tree	Moderate	Poor sites.
Platanus occidentalis Sycamore	M,P,C	Tree	Low. Cavity Nesters	Transplants well. Rapid growth in full sun.
Populus deltoides Eastern cottonwood	M,P,C	Tree	High	Invasive roots. Rapid growth.
Quercus alba White oak	M,P,C	Tree	High, food	Prefers moist well drained soil.
Quercus laurifolia Swamp laurel oak	C	Tree	High	
Quercus lyrata Overcup oak	P,C	Tree	High	Sloughs & bottoms.
Quercus michauxii Swamp chestnut oak	M,P,C	Tree	High	Wetter sites than white oak.
Quercus nigra Water oak	M,P,C	Tree	High	
Quercus pagoda Cherrybark oak	M,P	Tree	High	
Quercus phellos Willow oak	M,P,C	Tree	High, mast	Full to partial sun.
Quercus shumardii Shumard oak	P,C	Tree	High	
Salix nigra Black willow	M,P,C	Shrub & Tree	Nesting	Rapid growth, full sun.
Rhododendron atlanticum Coast azelea	P,C	Shrub	Very low	Very fragrant, Suckers.
Rhododendron viscosum Swamp azelea	C	Shrub	Low	
Styrax american	C	Shrub	Unknown	

Table 6-1.2 - Native Plant Guide - continued

Species	Region	Stream Zone	Wildlife Value	Notes
Taxodium distichum Bald cypress	C	Tree	Good perching site	Full sun.
Tsuga canadensis Eastern hemlock	M	Tree	Moderate	Tolerates all light conditions.
Viburnum nudum Swamp haw	M,P,C	Shrub	High	Shade tolerant

Legend:

Region
M = Mountains
P = Piedmont
C = Coastal Plain

Plant List Sources:

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LAND PLANNING
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GEORGIA REGISTERED PROFESSIONAL No. 027118 MARK D VANDEWATER
GSWCC #8960
EXP. 3-11-2012

EROSION CONTROL DETAILS

20 0 20 40
Scale 1" = 20'

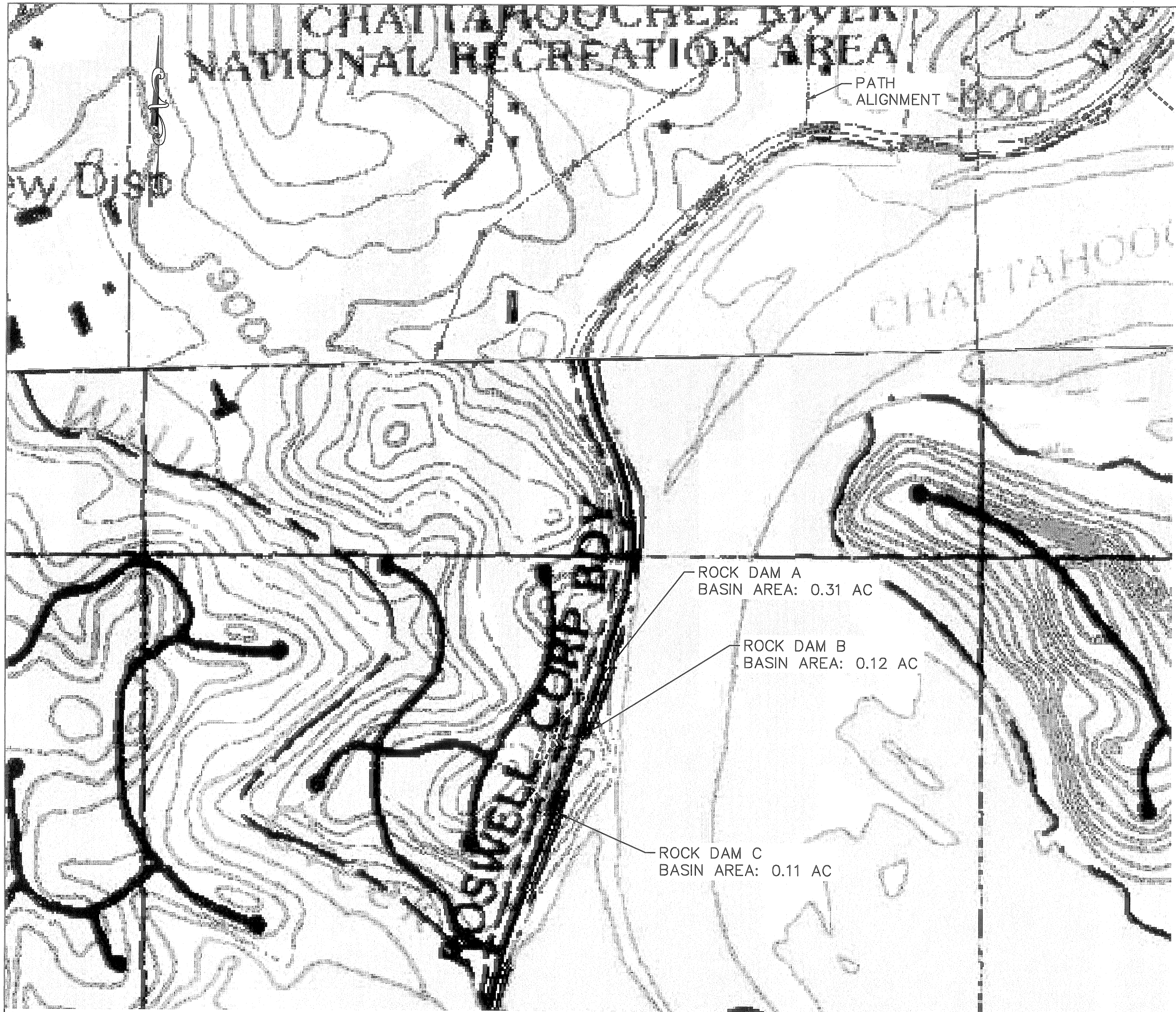
DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

56-05

STATE	PROJECT NUMBERS	SHEET NO.	TOTAL SHEETS
GA	0009057	39	



MAP INFO:

1. ROSWELL QUADRANGLE (1992, 20' CONTOUR INTERVALS)
2. SANDY SPRINGS QUADRANGLE (1997, 10' CONTOUR INTERVALS)
3. MOUNTAIN PARK QUADRANGLE (1992, 20' CONTOUR INTERVALS)

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LAND PLANNING
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EXP. 3-11-2012

WATERSHED MAP

200 0 200 400
Scale 1" = 200'

DATE	REVISIONS	DATE	REVISIONS

ROSWELL GEORGIA SINCE 1854

WILLEO TRAIL - PHASE V
ROSWELL, FULTON COUNTY, GEORGIA
PROPOSED PEDESTRIAN TRAIL
CONSTRUCTION PLANS

55-01