UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

GEORGIA STANDARD DRAWINGS - POND

1. The following drawings were prepared in accordance with Practice Code 378 - Pond, Georgia Building Code (International Building Code 2000), and the State of Georgia Rules for Dam Safety. These plans may be used if all of the following conditions are met for the dam and reservoir:
   a) Structure is Low Hazard - failure will not result in loss of life; in damage to homes, commercial or industrial buildings, main highways, or railroads; or in interrupted use of public utilities.
   b) The effective height is less than 35 feet.
   c) The product of storage times effective height of the dam is less than 3,000 acre-feet².
   d) Structure is single purpose.
   e) Structure is not classified as "Category I" by the Georgia EPD Safe Dams Program.
2. Hazard Classification shall be completed prior to construction by an NRCS Engineer in accordance with the Technical Release No. 60, the National Engineer Manual (NEM), and the Georgia Supplement to the NEM. Hazard Classification shall be completed under the supervision of the State Conservation Engineer.

PRE–CONSTRUCTION CERTIFICATION:

THE _____ POND WILL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING DRAWINGS AND PRACTICE CODE 378. ALL CHANGES HAVE BEEN APPROVED BY AN ENGINEER WITH JOB APPROVAL AUTHORITY LEVEL IV OR GREATER. ALL ADDITIONS HAVE BEEN APPROVED BY NRCS.

OWNER	DATE	NRCS REPRESENTATIVE	DATE	ENGINEER (IF REQUIRED)	DATE

AS–BUILT CERTIFICATION:

THIS PRACTICE HAS BEEN CONSTRUCTED IN ACCORDANCE TO THESE PLANS AND MEETS NRCS STANDARDS AND SPECIFICATIONS.

NRCS REPRESENTATIVE	DATE	ENGINEER (IF REQUIRED)	DATE

_____ POND
_____ COUNTY, GEORGIA

INDEX TO DRAWINGS:

VICINITY MAP

POND:
JOB CLASS: _____

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

REVISIONS		
DATE	APPROVED	TITLE
06/11	J HOLLOWAY	STATE ENGINEER

	Date
Designed	
Drawn B WRIGHT	11/10
Checked J HOLLOWAY	11/10
Approved J HOLLOWAY	11/10

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

NRCS Natural Resources Conservation Service
United States Department of Agriculture

File Name
ga–eng–378–pd1.dwg

Drawing Name
Cover

06/17/2011 8:57 AM
Sheet 1 of 12

GENERAL

Detailed engineering plans of the proposed embankment, spillway(s), and reservoir on the attached sheets shall be included as part of these specifications.

RESPONSIBILITIES OF

A. LANDOWNERS:
The landowner is responsible for obtaining all required permits and easements prior to construction. The landowner must acquaint himself with these plans and specifications to determine that the completed structure will fulfill his present and future needs.

B. CONTRACTOR:
The contractor is to be acquainted with the provisions of these plans and specifications, conditions at the site that may affect the schedule of operation, and the location and meaning of all stakes on the site. All benchmarks, grade and line stakes must be left undisturbed and protected by the contractor to facilitate construction and inspection. The contractor is responsible for locating and replacing all utlities, irrigation lines, etc.

C. U.S. DEPARTMENT OF AGRICULTURE - NATURAL RESOURCES CONSERVATION SERVICE
The United States and its employees are in no manner a party to any verbal or written contract between the landowner and the contractor. NRCS employee(s), within limit of personnel available, will assist the landowner with inspection and advise on technique during construction to assure satisfactory compliance with the plans and specifications.

SPECIFICATIONS FOR CONSTRUCTION OF PONDS AND RESERVOIRS

CLEARING: Reservoir areas are to be cleared at least up to the elevation of the crest of the principal spillway. Less clearing may be approved as stated in the National Engineering Manual §520.25. The minimum area cleared must extend the full length of the dam for a distance of 400 feet upstream from the dam and emergency spillway, including the area where the dam and plunge pool will be located. All trees and brush shall be cut as close to the ground as practical and removed from the site before water is impounded. Combustible material must be disposed of by burning, burying at approved locations, or removed from the site and stacked. Any material that will float shall be removed or anchored.

FOUNDATION PREPARATION: The foundation area shall be cleared of all trees, stumps, and debris. All topsoil containing excessive amounts of organic material shall be removed. All sharp breaks shall be sloped to not steeper than 1:1 and the foundation thoroughly scarified before placement of the embankment fill.

CUTOFF TRENCH: A cutoff trench shall be excavated to the depth, bottom width, and side slopes shown on the plans or as staked in the field. The cutoff trench shall be backfilled in layers not to exceed 6 inches in thickness. Standing water shall be removed from the trench before backfilling is started. Compact the fill by completing a minimum of 4 passes over the entire surface of each layer of the fill using either a loaded rubber tired pan, a sheepsfoot roller or equivalent.

SPILLWAY AND BORROW EXCAVATION: Spillway(s) shall be excavated in undisturbed earth and conform to the grades, bottom width, and side slopes shown on the plans. All borrow areas shall be graded so as to be well drained and protected from erosion by the use of diversions or other conservation measures. Side slopes of borrow areas shall be left in such condition that establishment of vegetation, mowing, and maintenance operations will be facilitated. Surface soils excavated and saved from the foundation, spillway, and borrow areas shall be placed on the dam, borrow areas, and spillway to facilitate establishment of vegetation.

EMBANKMENT CONSTRUCTION: The material placed in the embankment shall be free of sod, roots, stones over 6 inches in diameter, and other objectionable materials. The fill material shall be placed and spread over the entire fill, starting at the lowest point of the foundation, in layers not to exceed 6 inches in thickness. Construction of the fill shall be undertaken only at such time that the moisture content of the fill material will permit satisfactory compaction, as determined by the NRCS Engineer on site. Special equipment will be used when the required compaction cannot be obtained by routing of the construction equipment. A minimum of 4 passes of NRCS approved compaction equipment is required.

FILL MATERIAL: Fill material shall be taken from borrow areas designated by NRCS. The NRCS field staff will advise the contractor regarding the maximum allowable depth of cut in each borrow area. In the event this depth is exceeded in the impoundment area, it shall be the responsibility of the contractor, to cover the exposed area with a minimum of 2 feet of impervious material. Approved material will be placed in the core, cutoff trench and pipe bed.

PIPE CONDUIT: The pipe conduit barrel shall be installed at the grade specified. Select backfill material shall be placed at least 3 feet below the pipe to form a firm bed for the pipe. The width of the bed shall be 15 feet to allow for compaction on both sides of the conduit. Select backfill shall be placed below and around the pipe and its component parts in layers not exceeding 4 inches and each successive layer thoroughly hand compacted using a manually directed hand tamper or equivalent. Backfill shall be installed evenly on both sides of the pipe. Mechanical compaction with the hand equipment shall continue until 2 feet of fill is over the pipe. Cathodic protection of the pipe shall be used if the pipe manufacturer deems necessary. Connect pipe sections using bands with annular corrugations and either rod and lug connectors or band angle connectors. Use bands with the width and thickness specified in the appropriate ASTM standard. Place a 3/8 inch thick continuous closed cell neoprene gasket, that conforms to ASTM D 1056, with a minimum width of 7 inches between the bands and pipe sections. Wrap the banded connections with a 4-foot wide section of geotextile around the entire circumference of the joint. 6 inch, 8 inch and 10 inch corrugated metal pipes with flanges or bands may be used for drain pipe if joints are encased in concrete. 6 inch, 8 inch and 10 inch corrugated metal pipes are not to be used for conduit pipe. Pipe conduits shall conform to: (a) for PVC pipe use PVC 1120 or PVC 1220 conforming to ASTM D1785 or ASTM D2241, joints shall be glued with no gaskets; (b) for corrugated aluminum pipe, pipe and bands shall meet ASTM B745 and B790 and be water tight; (c) for HDPE pipe, pipe and fittings shall conform to ASTM D1248 & D3350 or AASHTO M252 & M294.

DRAINAGE DIAPHRAGM: For smooth pipe conduits greater than 8 inches in diameter, corrugated pipe conduits greater than 12 inches in diameter, and dams with an effective height greater than 15 feet, regardless of pipe diameter, a drainage diaphragm is required. Drainage diaphragms will be of materials and dimensions as shown in the drawings, and located as specified.

VEGETATION: Adapted vegetation shall be established on all exposed surfaces of the embankment, spillway, borrow, and spoil areas as soon as possible after construction. Vegetation will be applied as critical area planting and will include seedbed preparation, seeding, liming, fertilizing, and mulching. The dam slopes shall be tracked with a dozer to facilitate vegetation establishment.

EROSION AND SEDIMENT CONTROL: During construction, erosion should be minimized and sediment controlled utilizing Best Management Practices listed in the Manual for Erosion and Sediment Control in Georgia.

CONCRETE SPECIFICATIONS

1. Concrete shall contain:
   (a) A minimum of 6 bags (564 lbs.) of cement per cubic yard of concrete to obtain 3000 psi minimum compressive strength in 28 days.
   (b) Entrained air at 6% plus or minus 1%.
   (c) Coarse aggregate from 3/8" to 1".
   (d) Type I Portland Cement.
2. Concrete will have a 1"-4" slump.
3. Water to cement ratio of 0.5 shall not be exceeded.
5. Superplasticizers (ASTM C 494, Type F or G) may be used to increase workability.
4. Polypropylene fibers shall be used within the concrete. Lengths of fibers shall be 1/2" to 2" and dosage shall be 1.5 lbs./cu. yd. of concrete.
5. Rods or mechanical vibration shall be used to consolidate the concrete.
6. The subgrade shall be well compacted and wetted before the placement of concrete.
7. Reinforcing steel shall meet ASTM A 615 specifications.
8. Concrete shall not be mixed nor placed when the daily minimum temperature is less than 40 degrees F unless facilities are provided to prevent the concrete from freezing.

	Designed	Drawn	Checked	Approved
Date		11/10	11/10	11/10
		B WRIGHT	J HOLLOWAY	J HOLLOWAY

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

NRCS Natural Resources Conservation Service
United States Department of Agriculture

File Name
ga-eng-378-pd1.dwg

Drawing Name
Notes

06/17/2011 8:57 AM
Sheet 2 of 12

CERTIFICATION

I certify that I have made, or caused to be made, a final inspection of this pond project and that all work related thereto has been completed in accordance with these plans and with all other applicable specifications except as listed below.

SIGNED_____TITLE_____DATE_____

EXCEPTIONS:

_____

_____

_____

CONTRACTOR CERTIFICATION

I certify that the cutoff trench, core wall and pipe were installed in accordance with these plans.

Contractor Signature_____

Date:_____

GENERAL INFORMATION

USES FOR IMPOUNDED WATER _____

NORMAL POOL AREA_____ACRES MAX. DEPTH _____FEET

CAPACITY @ NORMAL POOL ELEVATION = _____ ACRE-FEET

SOURCE OF WATER _____

HAZARD CLASS _____ JOB CLASS _____

EARTHWORK

EMBANKMENT	_____	CUBIC YARDS
CUTOFF TRENCH	_____	CUBIC YARDS
PIPE BED	_____	CUBIC YARDS
AUX S/W BERM(IF NEED)	_____	CUBIC YARDS
EXCAVATION	_____	CUBIC YARDS
OTHER	_____	CUBIC YARDS
TOTAL	_____	CUBIC YARDS

PRINCIPAL SPILLWAY

_____" GATE, _____	_____	EACH
CONDUIT PIPE_____" DIA. _____, _____	_____	LF
DRAIN PIPE_____" DIA. _____, _____	_____	LF
RISER TEE____" X____" X____" _____, _____	_____	EACH
HEIGHT OF RISER TO BE ORDERED	_____	FT
TRASH GUARD_____" DIA. _____ _____	_____	EACH
3000 PSI CONCRETE (FIBER REINFORCED)	_____	CU YDS
STEEL REINFORCEMENT (NO. 4 REBAR)	_____	LBS
ROCK RIP RAP (D50=____INCH)	_____	TONS
C-33 SAND	_____	TONS
NO. 57 STONE	_____	TONS
NONWOVEN GEOTEXTILE (8 OZ/SQ YD)	_____	SQ YDS

_____

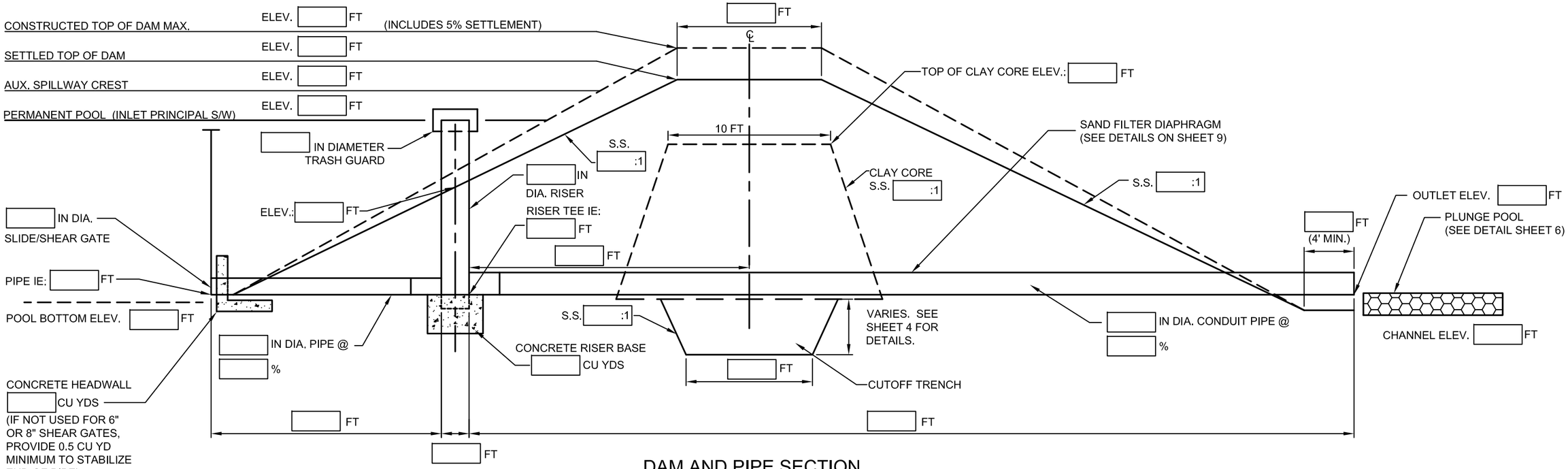
TBM
DESCRIPTION:_____

_____

_____

_____

1. See official "Bid Schedule" for complete listing of bid items not shown on this sheet.
2. Refer to construction specifications and "Pipe Conduit" notes on Sheet 2 for additional information.
3. Provide this sheet to pipe company.



DAM AND PIPE SECTION

	Date
Designed	
Drawn	B WRIGHT 11/10
Checked	J HOLLOWAY 11/10
Approved	J HOLLOWAY 11/10

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

NRCS Natural Resources Conservation Service
United States Department of Agriculture

File Name
ga-eng-368-pd1.dwg

Drawing Name
Pipe Section

06/17/2011 8:57 AM

PROFILE VIEW OF DAM AND AUXILIARY SPILLWAY

HORIZONTAL SCALE 1" = '

VERTICAL SCALE 1" = '

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

		Date
Designed		
Drawn	B WRIGHT	11/10
Checked	J HOLLOWAY	11/10
Approved	J HOLLOWAY	11/10

File Name: go-eng-378-pd1.dwg
Drawing Name: Dam Profile
06/17/2011 8:57 AM
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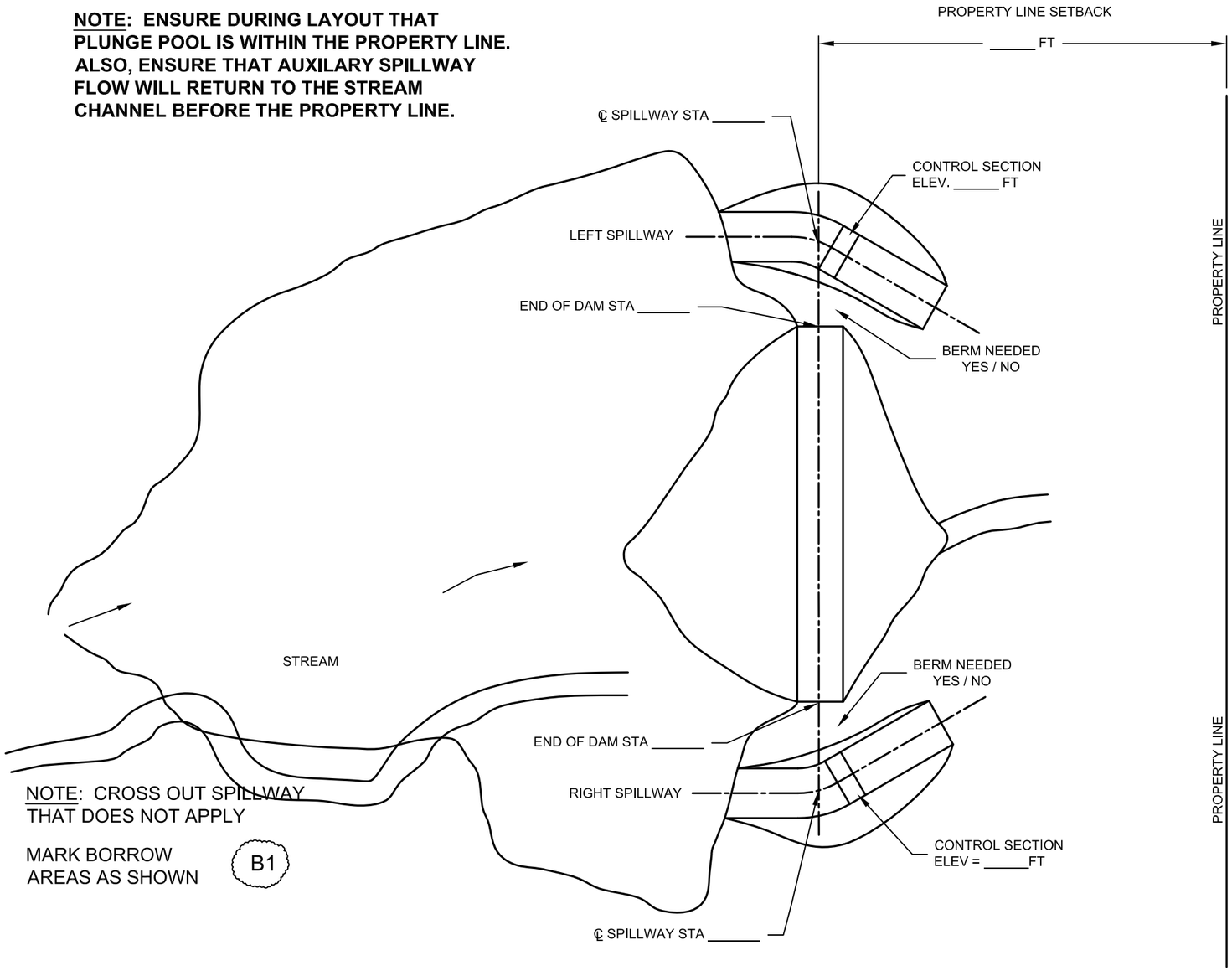
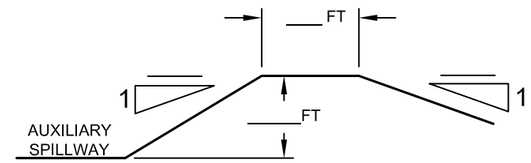
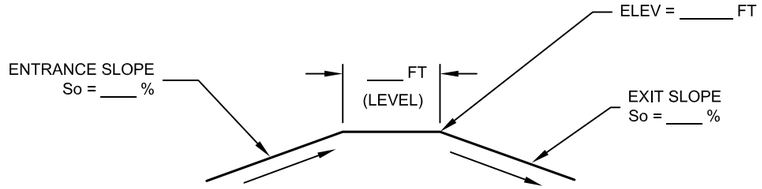
NOTE: ENSURE DURING LAYOUT THAT PLUNGE POOL IS WITHIN THE PROPERTY LINE. ALSO, ENSURE THAT AUXILARY SPILLWAY FLOW WILL RETURN TO THE STREAM CHANNEL BEFORE THE PROPERTY LINE.



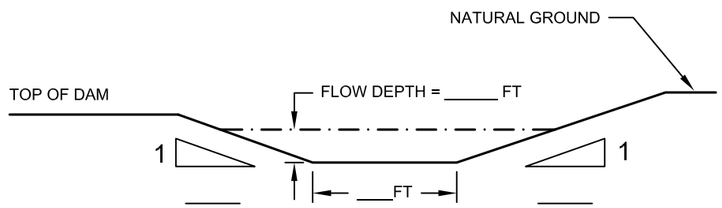
PLAN VIEW OF DAM
NOT TO SCALE



SPILLWAY BERM CROSS SECTION



SPILLWAY LONGITUDINAL SECTION



CROSS SECTION

AUXILIARY SPILLWAY DETAILS
NOT TO SCALE

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

		Date
Designed		
Drawn	B WRIGHT	11/10
Checked	J HOLLOWAY	11/10
Approved	J HOLLOWAY	11/10

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United States Department of Agriculture

File Name
ga-eng-378-pd1.dwg

Drawing Name
Dam Plan

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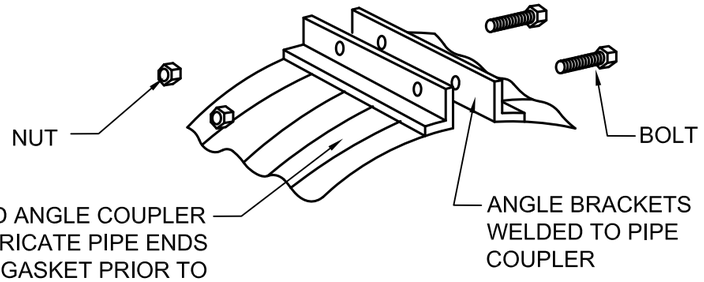
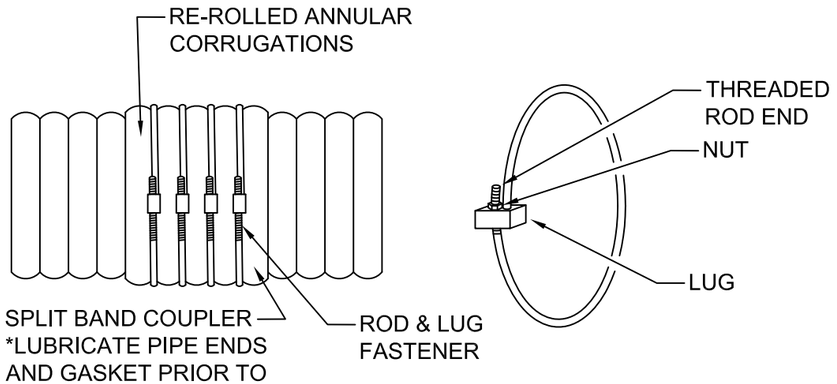
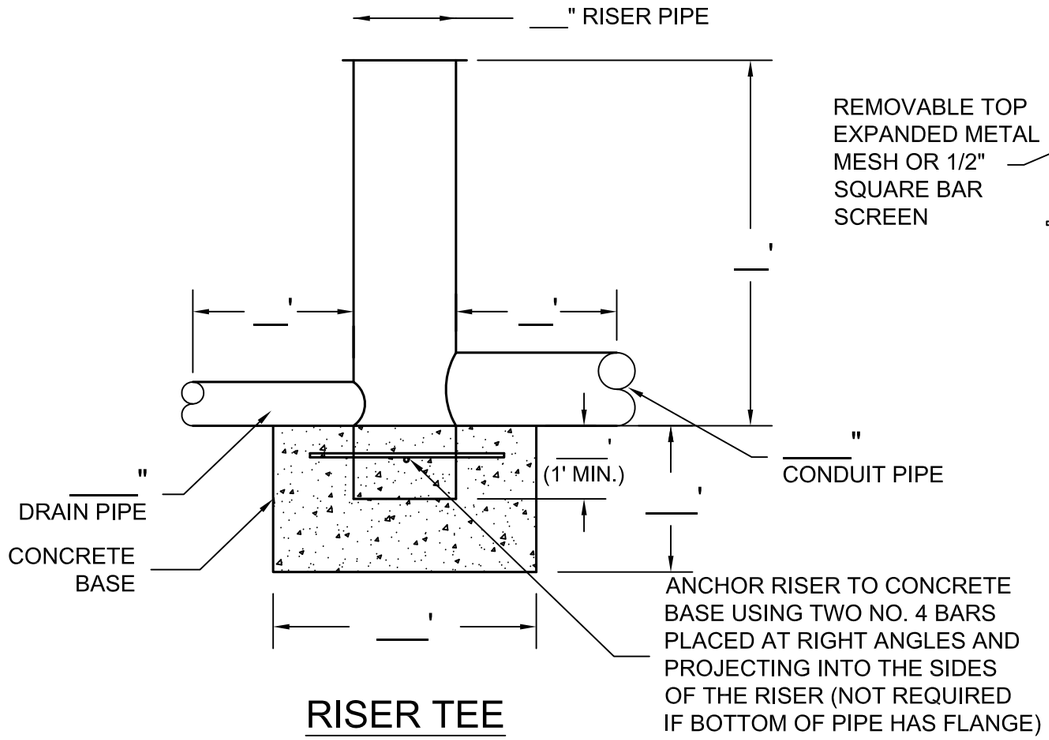


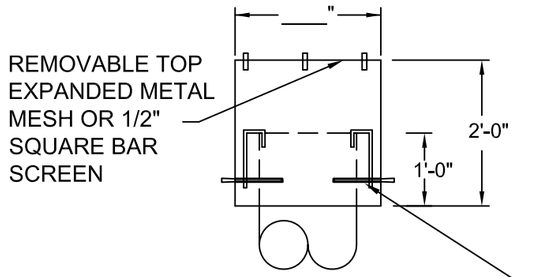
BAND ANGLE CONNECTION



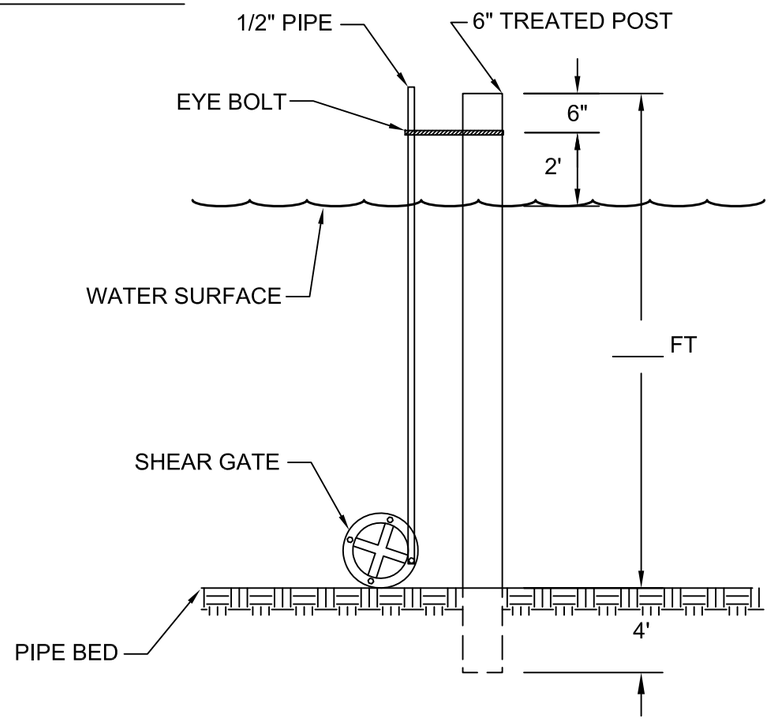
ROD & LUG CONNECTION



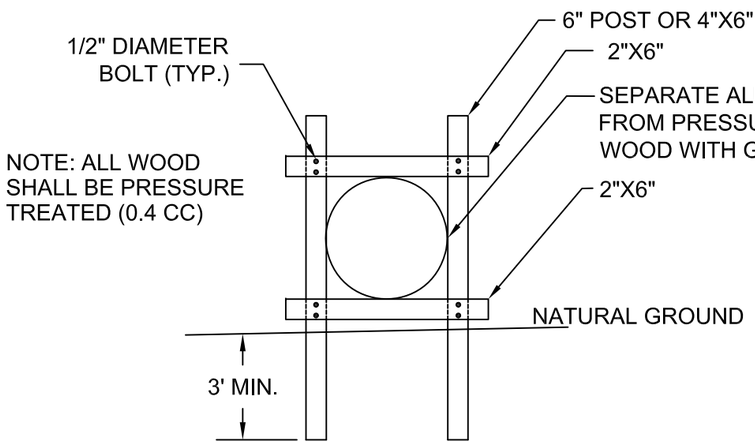
RISER TEE



TRASH RACK



SHEAR GATE INSTALLATION



NOTE: PIPE SUPPORT REQUIRED FOR 18" AND LARGER PIPE OR ANY SIZE PIPE THAT EXTENDS MORE THAN 4' FROM THE DAM.

TYPICAL PIPE SUPPORT ASSEMBLY

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

		Date
Designed		
Drawn	B WRIGHT	11/10
Checked	J HOLLOWAY	11/10
Approved	J HOLLOWAY	11/10

NRCS Natural Resources Conservation Service
United States Department of Agriculture

File Name
ga-eng-378-pd1.dwg

Drawing Name
Detail 1

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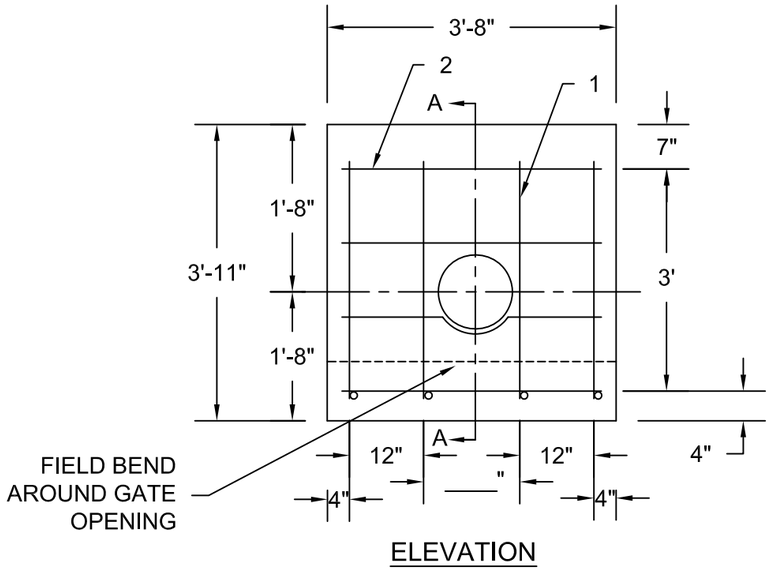
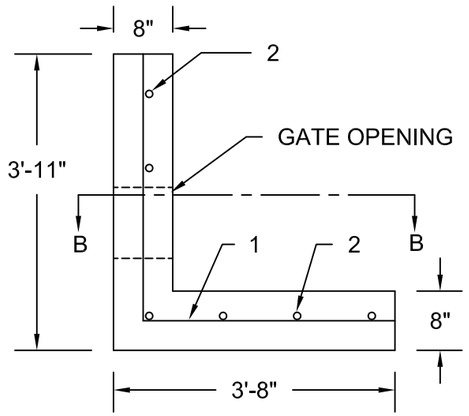
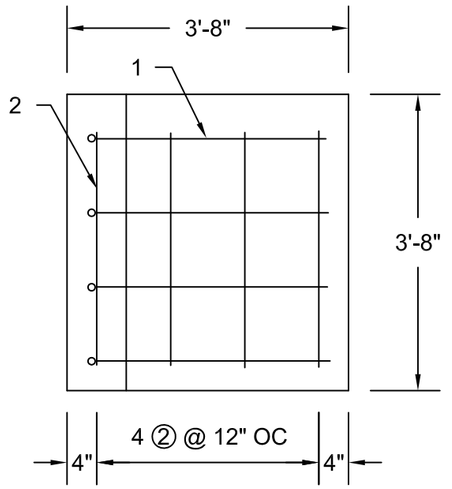


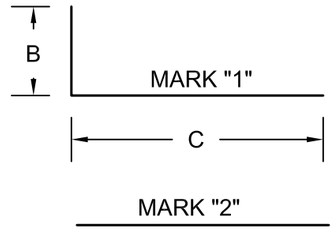
ELEVATION



SECTION A-A



SECTION B-B



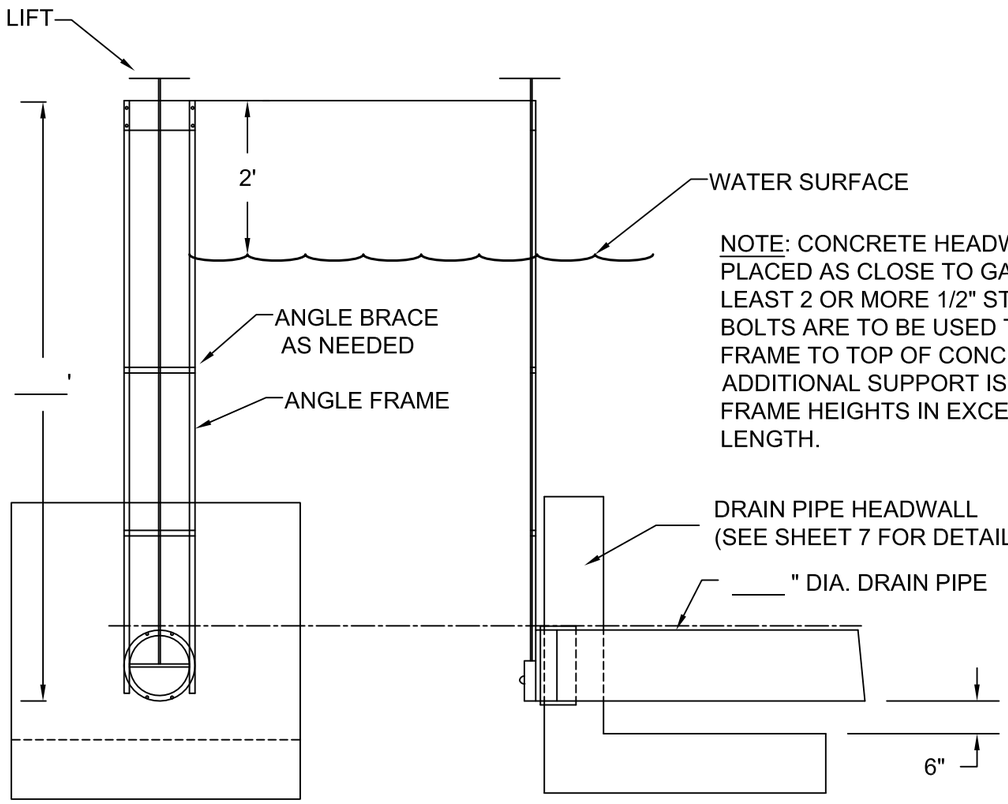
HEADWALL OF DRAIN PIPE

NOTE: THIS HEADWALL DESIGN MAY BE USED FOR DRAIN PIPES UP TO 12" IN DIAMETER.

STEEL SCHEDULE FOR HEADWALL
ALL REINFORCEMENT SHALL BE GRADE 40 STEEL OR BETTER

MARK	SIZE	QUAN.	LENGTH	TYPE	B	C	TOTAL FT.
1	#4	4	6'-3"	BENT	3'-2"	3'-4"	26'
2	#4	7	3'-4"	STRAIGHT			23'-4"

REINFORCING STEEL #4 BARS 49.33 LF, 33 LBS
VOLUME OF CONCRETE .67 CUBIC YARDS



NOTE: CONCRETE HEADWALL IS TO BE PLACED AS CLOSE TO GATE AS POSSIBLE. AT LEAST 2 OR MORE 1/2" STAINLESS STEEL BOLTS ARE TO BE USED TO ATTACH GATE FRAME TO TOP OF CONCRETE HEADWALL. ADDITIONAL SUPPORT IS REQUIRED FOR FRAME HEIGHTS IN EXCESS OF 12' IN LENGTH.

FRONT ELEVATION

SECTION ALONG CENTERLINE

SLIDE GATE

Date
Designed
Drawn B WRIGHT 11/10
Checked J HOLLOWAY 11/10
Approved J HOLLOWAY 11/10

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: ____
COUNTY OF: ____

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

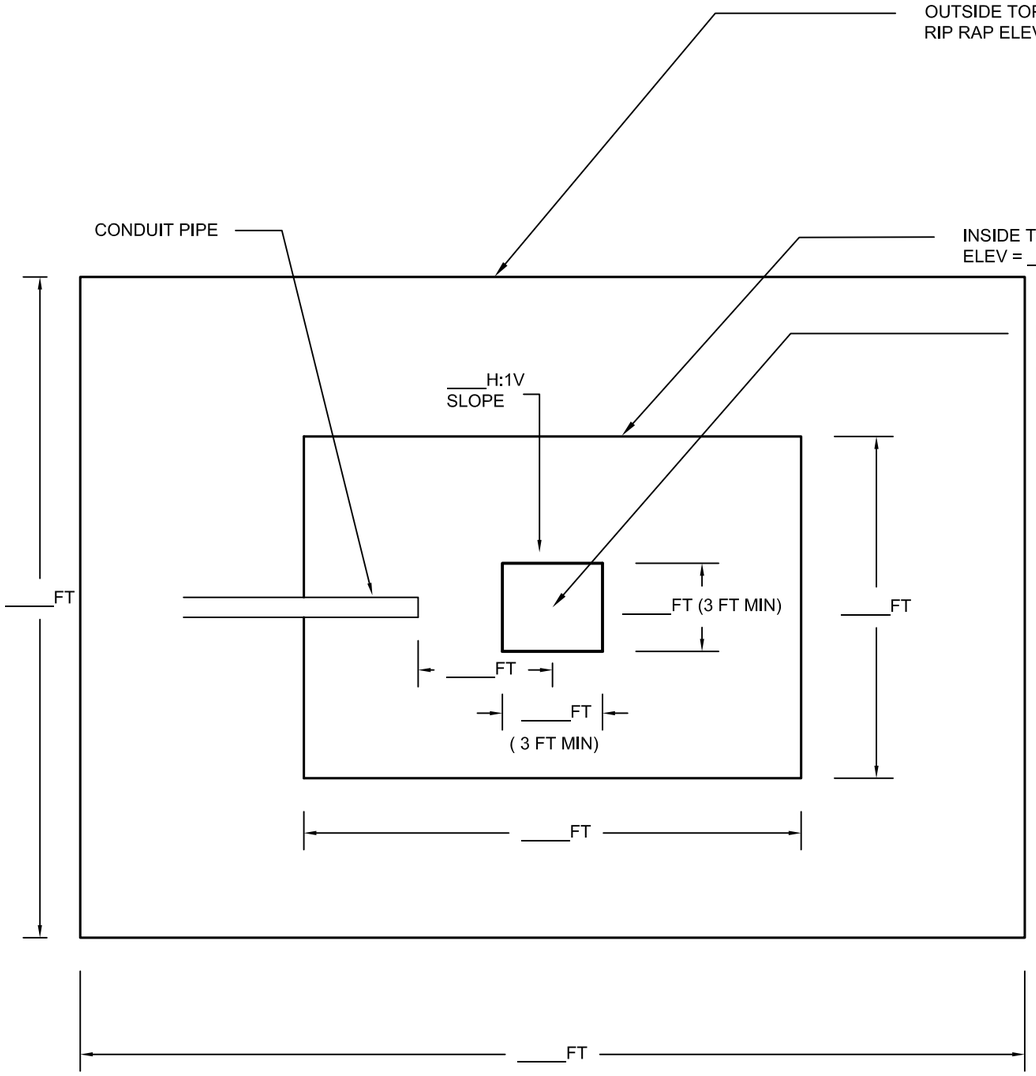
File Name
ga-eng-378-pd1.dwg
Drawing Name
Detail 2
06/17/2011 8:57 AM
Sheet 7 of 12

NOTES:

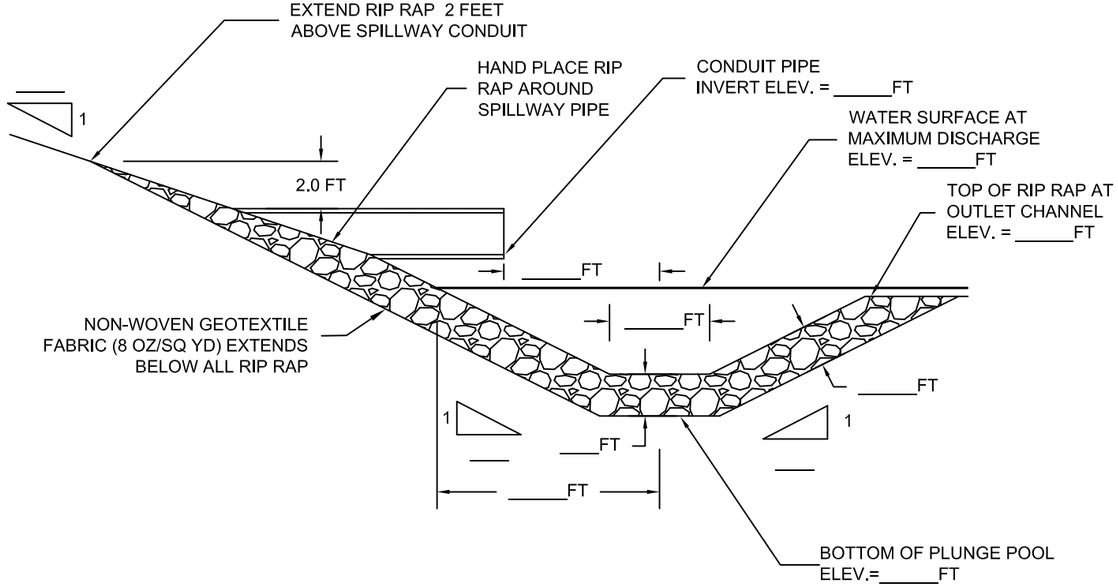
1. PLUNGE POOL REQUIRED FOR PRINCIPAL SPILLWAY SYSTEMS WITH **CONDUITS 18" AND LARGER** OR AS REQUIRED TO PROVIDE OUTLET PROTECTION.
2. DESIGN PLUNGE POOL USING DESIGN NOTE NO. 6 (SECOND EDITION).
3. PLUNGE POOL MAY BE RECTANGULAR OR OVAL.
4. RIP RAP SHALL EXTEND 2' ABOVE THE TOP OF THE PRIMARY SPILLWAY CONDUIT .
5. RIP RAP SHALL BE HAND PLACED AROUND THE CONDUIT.

ESTIMATED QUANTITIES

ROCK RIP RAP (D50 = ____ IN)	_____ TONS
NONWOVEN GEOTEXTILE (8 OZ/SQ YD)	_____ SQ YDS



PLUNGE POOL PLAN VIEW



PLUNGE POOL PROFILE VIEW

	Designed	Drawn	Checked	Approved
		B WRIGHT	J HOLLOWAY	J HOLLOWAY
Date		11/10	11/10	11/10

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

NRCS Natural Resources Conservation Service
United States Department of Agriculture

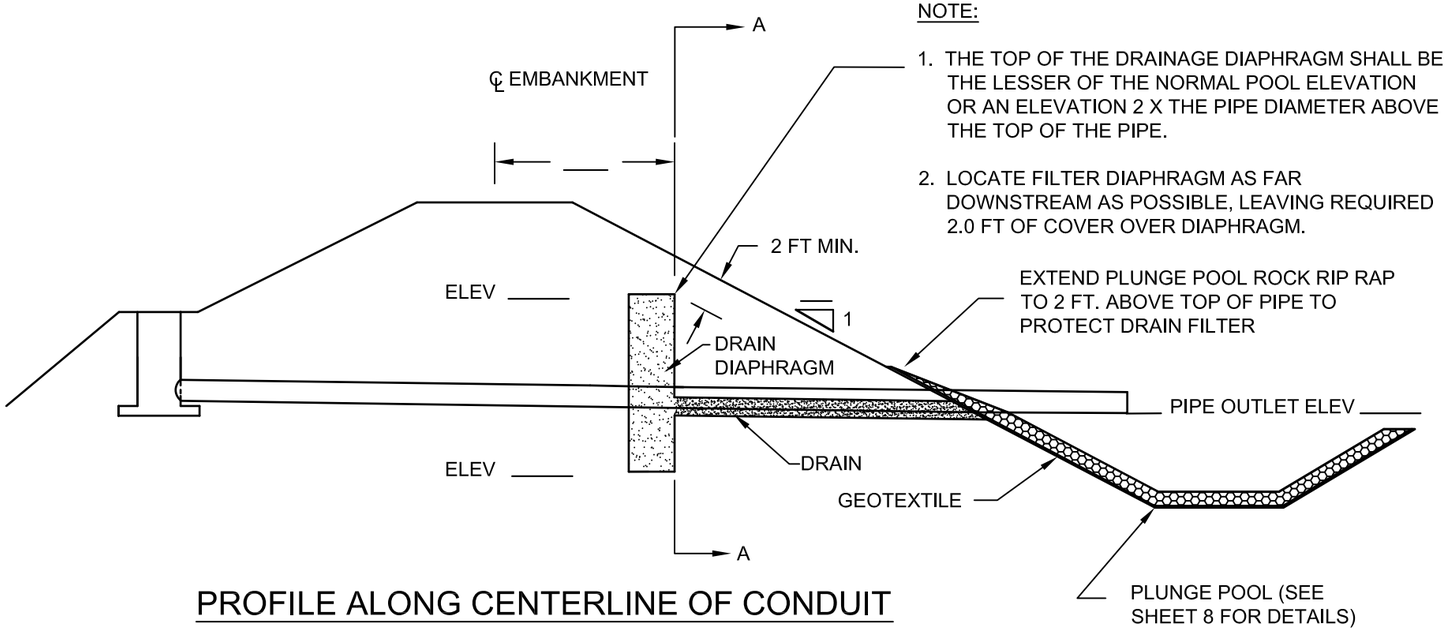
File Name
ga-eng-378-pd1.dwg

Drawing Name
Plunge Pool

06/17/2011 8:57 AM
Sheet 8 of 12

NOTE:

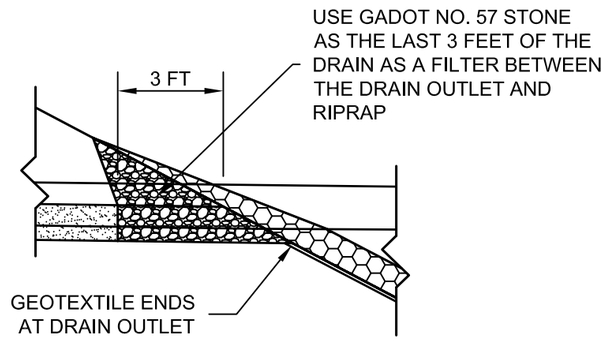
1. THE TOP OF THE DRAINAGE DIAPHRAGM SHALL BE THE LESSER OF THE NORMAL POOL ELEVATION OR AN ELEVATION 2 X THE PIPE DIAMETER ABOVE THE TOP OF THE PIPE.
2. LOCATE FILTER DIAPHRAGM AS FAR DOWNSTREAM AS POSSIBLE, LEAVING REQUIRED 2.0 FT OF COVER OVER DIAPHRAGM.



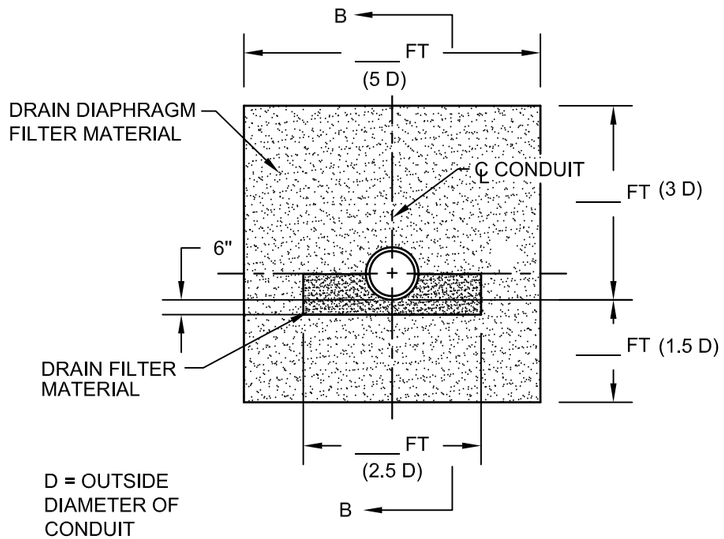
PROFILE ALONG CENTERLINE OF CONDUIT

MATERIAL NOTES

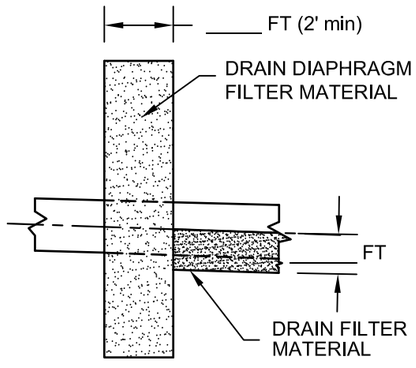
1. THE GEOTEXTILE SHALL BE 8 OZ. CLASS I NONWOVEN WITH A MINIMUM TENSILE STRENGTH OF 180 LBS.
2. THE FILTER MATERIAL SHALL CONFORM TO ASTM C-33 FINE AGGREGATE.



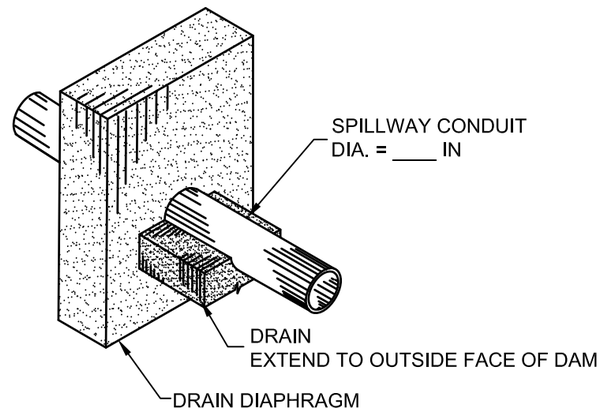
FILTER DRAIN OUTLET



SECTION A-A



SECTION B-B



PARTIAL ISOMETRIC

CONSTRUCTION NOTES:

OPTION #1: DRAIN FILTER MATERIAL SHALL BE PLACED UNIFORMLY IN LAYERS NOT TO EXCEED 8" THICK BEFORE COMPACTION. EACH LAYER SHALL BE THOROUGHLY WETTED & QUICKLY DRAINED TO ACHIEVE ADEQUATE COMPACTION.

OPTION #2: EACH LAYER OF DRAIN FILL SHALL BE COMPACTED BY A MINIMUM OF 2 PASSES OF A VIBRATORY PLATE COMPACTOR WEIGHING AT LEAST 160 POUNDS OR A VIBRATORY SMOOTH WHEELED ROLLER WEIGHING AT LEAST 325 POUNDS.

ESTIMATED QUANTITIES

FILTER MATERIAL (C-33 SAND)	_____ TONS
GADOT NO. 57 STONE	_____ TONS

Modified from Wisconsin - WI-248A

	Date
Designed	
Drawn B WRIGHT	11/10
Checked J HOLLOWAY	11/10
Approved J HOLLOWAY	11/10

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
COUNTY OF: _____

NRCS Natural Resources Conservation Service United States Department of Agriculture

File Name
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Drawing Name
Diaphragm

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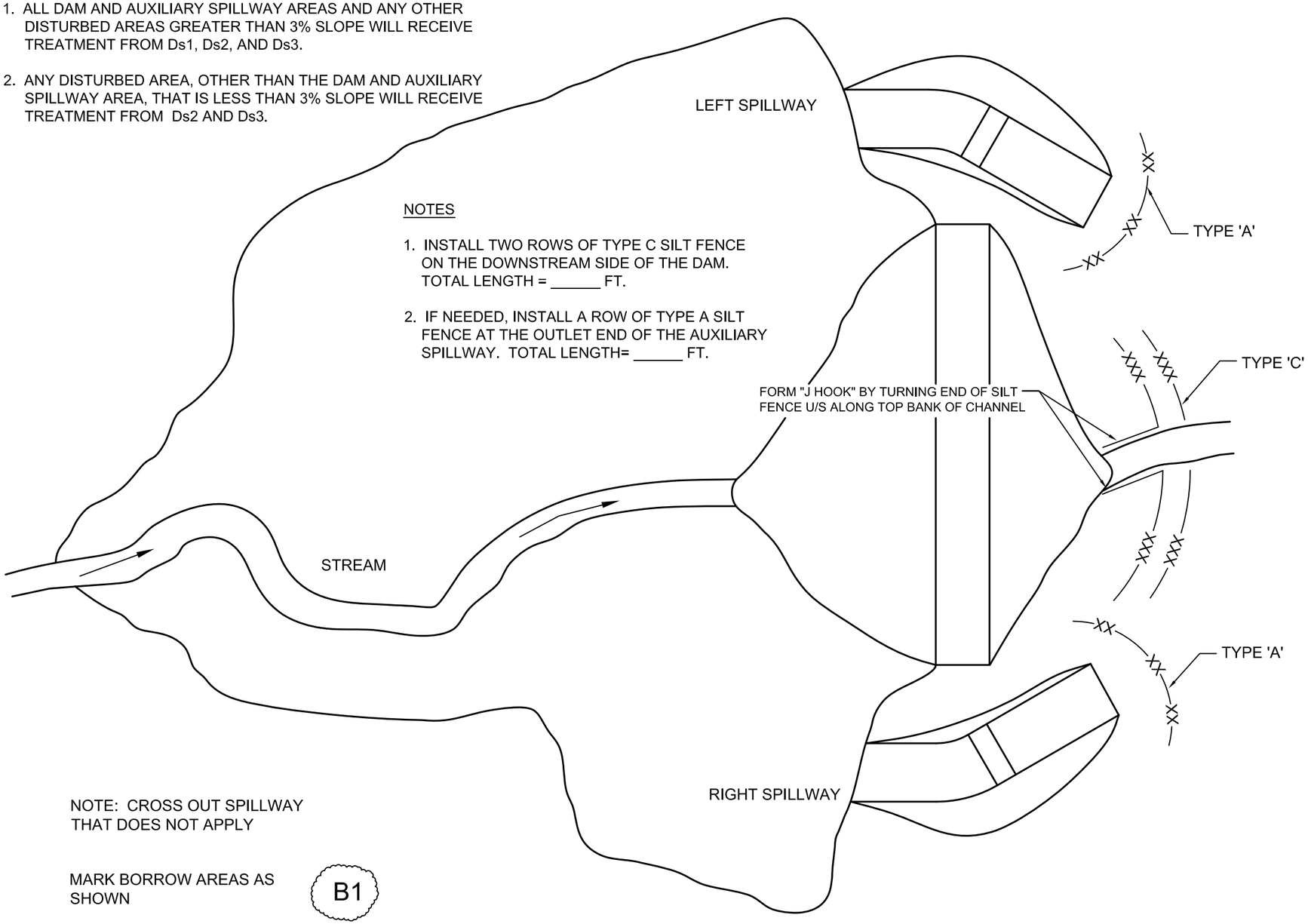
Sheet 9 of 12

NOTES

1. ALL DAM AND AUXILIARY SPILLWAY AREAS AND ANY OTHER DISTURBED AREAS GREATER THAN 3% SLOPE WILL RECEIVE TREATMENT FROM Ds1, Ds2, AND Ds3.

2. ANY DISTURBED AREA, OTHER THAN THE DAM AND AUXILIARY SPILLWAY AREA, THAT IS LESS THAN 3% SLOPE WILL RECEIVE TREATMENT FROM Ds2 AND Ds3.



NOTE: CROSS OUT SPILLWAY THAT DOES NOT APPLY

MARK BORROW AREAS AS SHOWN

B1

EROSION AND SEDIMENT CONROL PLAN

NOT TO SCALE

STRUCTURAL PRACTICES

SYMBOL	PRACTICE	DESCRIPTION
Cd	Checkdam	A small temporary barrier or dam constructed across a swale, drainage ditch, or area of concentrated flow
Ch	Channel Stabilization	Improving, constructing, or stabilizing an open channel existing stream, or ditch.
Co	Construction Exit	A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets
Cr	Construction Road Stabilization	A travelway constructed as part of a construction plan including access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes.
Dc	Stream Diversion Channel	A temporary channel constructed to convey flow around a construction site while a permanent structure is being constructed.
Di	Diversion	An earth channel or dike located above, below or across a slope to divert runoff. This may be a temporary or permanent structure.
Rd	Rock Filter Dam	A permanent or temporary stone filter dam installed across small streams or drainageways.
Sd1	Sediment Barrier	A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, gravel, or a silt fence.
Sr	Temorary Stream Crossing	A temporary bridge or culvert type structure protecting a stream or watercourse from damage by crossing construction equipment.
Su	Surface Roughening	A rough soil surface with horizontal depressions on a contour or slope left in a roughened condition after grading.

VEGETATIVE MEASURES

SYMBOL	PRACTICE	DESCRIPTION
Ds1	Disturbed Area Stabilization (with Mulching Only)	Establishing temporary protection for disturbed areas where seeeding may not have a suitable growing season to produce an erosion retarding cover.
Ds2	Disturbed Area Stabilization (with Temporary Seeding)	Establishing temporary vegetative cover with fast growing seedings on disturbed areas.
Ds3	Disturbed Area Stabilization (with Permananent Vegetation)	Establishing permanent vegetative cover such as trees shrubs, vines, grasses, sod, or legumes on disturbed areas.
Tb	Tackifiers and Binders	Substance used to anchor straw or hay mulch by causing the organic material to bind together.

NOTE: THE PRACTICES SHOWN IN THE LEGEND ABOVE ARE THE MOST COMMONLY USED FOR POND CONSTRUCTION. FOR COMPLETE LIST OF BEST MANAGEMENT PRACTICES AND GUIDANCE ON DESIGN AND USE OF THESE PRACTICES PLEASE SEE THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, 2000 EDITION.

		Date
Designed		
Drawn	B WRIGHT	11/10
Checked	J HOLLOWAY	11/10
Approved	J HOLLOWAY	11/10

GEORGIA STANDARD DRAWINGS
EMBANKMENT POND
PREPARED FOR: _____
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Drawing Name
E&S Plan

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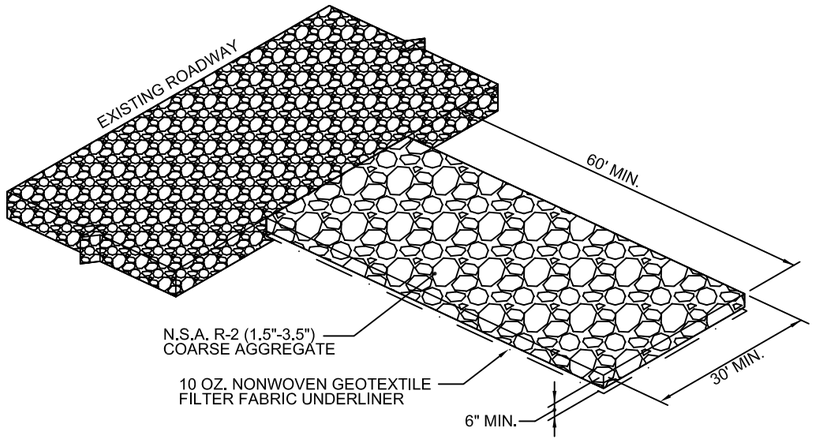
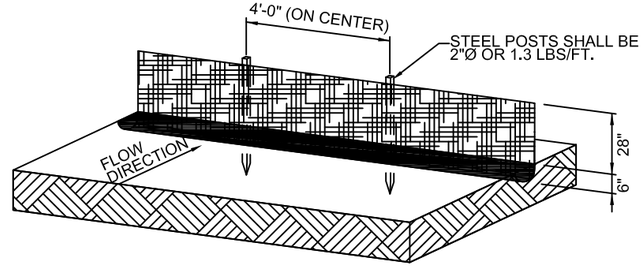


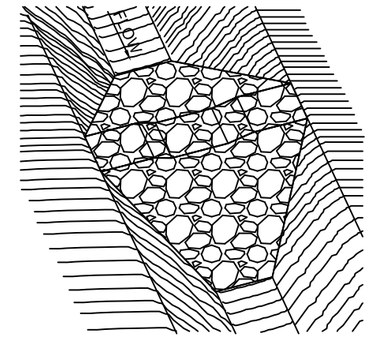
NOTES:
1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1.5-3.5 INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES TO TRAP SEDIMENT.
2. ALL MATERIALS SPILLED, DROPPED,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

Co — CONSTRUCTION ENTRANCE
NTS

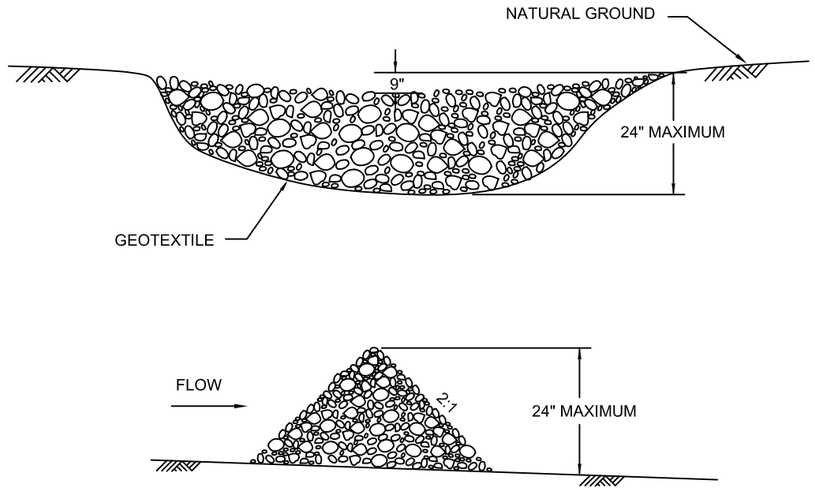


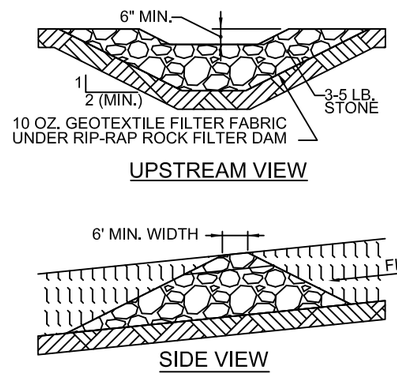
NOTES:
1. TEMPORARY PLANTING MUST BE REPLACED BY PERMANENT GRASS DURING THE FIRST AVAILABLE PLANTING SEASON.
2. SILT CONTROL SHALL BE IN EFFECT PRIOR TO ANY GRADING OR CONSTRUCTION.
3. USE TYPE 'C' WIRE-REINFORCED SILT FENCE AS STATED IN THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA (DEC. 19, 1991), FILTER FABRIC FOR TYPE 'C' FENCE SHALL BE A NON-CALENDERED WOVEN FABRIC CONSTRUCTED WITH MONOFILAMENT YARNS. THE WOVEN WIRE-REINFORCEMENT FENCE SHALL BE AT LEAST 32 INCHES HIGH AND BE AT LEAST 10 GAUGE FOR THE TOP AND BOTTOM WIRES AND 12.5 GAUGE FOR THE REST OF THE WIRE.
4. SPLICED JOINTS SHALL OVERLAP 18", WITH MATCHING POST.
5. DRIVE 4' (48") MIN. POSTS 12"-18" INTO SOIL.
6. DIG DITCH 12" WIDE, 6" DEEP. LAY FABRIC 6"-8" DEEP, THEN BACKFILL.
7. ALONG STREAM BUFFERS AND OTHER SENSITIVE AREAS, TWO ROWS OF TYP C SILT FENCE OR ONE ROW OF TYPE C SILT FENCE BACKED BY HAYBALES SHALL BE USED.
8. TYPE A SILT FENCE MAY BE USED IN AREAS OTHER THAN ALONG THE STREAM BUFFER.

Sd1 — TYPE C SILT FENCE DETAIL
NTS



ISOMETRIC VIEW





UPSTREAM VIEW

SIDE VIEW

Rd — ROCK FILTER DAM
NTS

NOTES:
1. STONE CHECK DAMS SHALL BE CONSTRUCTED OF GRADED SIZE 2-10 INCH STONE. MECHANICAL OR HAND PLACEMENT SHALL BE REQUIRED TO INSURE COMPLETE COVERAGE OF ENTIRE WIDTH OF DITCH OR SWALE AND THAT CENTER OF DAM IS LOWER THAN THE EDGES.
2. 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.
3. AFTER REMOVAL, THE AREA BENEATH THE DAM SHALL BE SEEDED AND MULCHED IMMEDIATELY.

Cd — CHECK DAM
NTS

		Date
Designed		
Drawn	B WRIGHT	11/10
Checked	J HOLLOWAY	11/10
Approved	J HOLLOWAY	11/10

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Drawing Name
E&S Details

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EROSION CONTROL MEASURES

1. CONFIRM LOCATION OF AND CONSTRUCT/INSTALL SILT FENCES AND CHECK DAMS AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.
2. ADD TOPSOIL/SURFACE ROUGHEN AS REQUIRED TO PROVIDE BED FOR PERMANENT
3. APPLY PERMANENT SOIL STABILIZATION.
4. AREAS TO BE LEFT DORMANT FOR LONGER THAN 7 DAYS THAT HAVE NOT ALREADY BEEN PERMANENTLY SEEDED MUST BE TEMPORARILY STABILIZED.
5. AFTER GROUND COVER IS WELL ESTABLISHED AND THE SITE IS STABILIZED, RETURN TO THE SITE AND REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION TO ALL AREAS DISTURBED BY TEMPORARY MEASURES.
6. REMOVE EROSION CONTROL MEASURES WITHIN 30 CALENDAR DAYS AFTER FINAL SITE STABILIZATION.

MANAGEMENT PLAN

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED DAILY AND AFTER EACH HEAVY RUNOFF PRODUCING RAINFALL. ALL NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN A FUNCTIONING EROSION CONTROL SYSTEM. THE FAILURE OF ANY EROSION CONTROL DEVICE TO FUNCTION AS INTENDED, FOR ANY REASON, SHALL BE CORRECTED IMMEDIATELY. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION. STRUCTURES THAT SHALL BE INSPECTED INCLUDE:

SEEDING (Ds2) AND FERTILIZING (Ds3)

SEEDED AREA SHALL BE INSPECTED FOR FAILURE AND NECESSARY REPAIRS SHALL BE MADE WITHIN THE SAME SEASON, IF POSSIBLE.

SILT FENCE (Sd1)

ANY FABRIC WHICH COLLAPSES, TEARS, DECOMPOSES, OR BECOMES INEFFECTIVE WILL BE REPLACED IMMEDIATELY. REMOVE SEDIMENT DEPOSITS BEHIND FENCE WHEN SEDIMENT ACCUMULATES TO 6 INCHES.

ROCK FILTER DAM (Rd), CHECK DAM (Cd) OR BRUSH BARRIERS (Sd1-Bb)

INSPECT FOR SIGNIFICANT EROSION AROUND THE EDGES AND BETWEEN BARRIERS. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS REQUIRED TO PREVENT DAMAGE TO CHANNEL VEGETATION. ADD STONES TO DAMS AS REQUIRED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

VEGETATIVE PLAN

TEMPORARY EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT COVER IS ESTABLISHED AND THEN REMOVED SO THAT DRAINAGE FROM THE SITE IS NOT IMPEDED.
ALL VEGETATIVE STABILIZATION SHALL BE ACCOMPLISHED AS SOON AS CONSTRUCTION PERMITS.

TEMPORARY SEEDING (Ds2)

LIME: 2 TONS PER ACRE
FERTILIZER: APPLY FERTILIZER PER FERTILIZER SCHEDULE
SEEDING: APPLY SEED FOR TEMPERARY VEGETATION PER VEGETATIVE COVER SCHEDULE
MULCH: SHALL BE UNCHOPPED, UNROTTED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2.0 TONS PER ACRE OR 2.5 TONS PER ACRE IF HAY IS USED. MULCH MATERIAL SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS. SPREAD MULCH MECHANICALLY OR UNIFORMLY BY HAND. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY MULCH ANCHORING TOOL, NETTING OR LIQUID MULCH BINDERS. APPROVED TACKIFIERS AND BINDERS ARE LISTED IN THE TACKIFIERS AND BINDERS TABLE.

PERMANENT SEEDING (Ds3)

LIME: 2 TONS PER ACRE
FERTILIZER: APPLY FERTILIZER PER FERTILIZER SCHEDULE
SEEDING: APPLY SEED FOR PERMANENT VEGETATION PER VEGETATIVE COVER SCHEDULE
SEEDBED PREPARATION: AREA TO BE SEEDED SHALL BE LOOSE AND PLIABLE TO A DEPTH OF AT LEAST 4 INCHES. THE TOP LAYER SHALL BE LOOSENED BY RAKING, DISCING OR TRACKING WITH DOZER BEFORE SEEDINGOCCURS. IN LIEU OF SOIL TEST RESULTS, APPLY 1 TO 2 TONS OF DOLOMITIC LIMESTONE AND 1500 POUNDS OF 10-10-10 FERTILIZER PER ACRE. HARROW OR DISC LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF AT LEAST 4 INCHES.
SEEDING: APPLY SEED FOR PERMANENT VEGETATION PER VEGETATIVE COVER SCHEDULE. APPLY SEED UNIFORMLY BY MECHANICALLY OR BY HYDROSEEDER ON A MOIST, FIRM SEEDBED.
MULCH: SHALL BE UNCHOPPED, UNROTTED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2.0 TONS PER ACRE OR 2.5 TONS PER ACRE IF HAY IS USED. MULCH MATERIAL SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS. SPREAD MULCH MECHANICALLY OR UNIFORMLY BY HAND. CLEAN COTTON GIN TRASH MAY BE USED IN LIEU OF STRAW OR HAY MULCH. APPLY GIN TRASH A MAXIMUM OF 1/2 INCH THICK COVERING 75% OF THE AREA. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY MULCH ANCHORING TOOL, NETTING OR LIQUID MULCH BINDERS. APPROVED TACKIFIERS AND BINDERS ARE LISTED IN THE TACKIFIERS AND BINDERS TABLE.

FERTILIZER SCHEDULE

TYPE OF SPECIES	APPLICATION/ YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE LBS./AC.	"N" TOP DRESSING RATE LBS./AC.
COOL SEASON GRASSES	FIRST SECOND MAINTENANCE	6–12–12 6–12–12 10–10–10	1500 1000 400	50–100 1/ 2/ – 30
COOL SEASON GRASSES & LEGUMES	FIRST SECOND MAINTENANCE	6–12–12 0–10–10 0–10–10	1500 1000 400	0–50 1/ – –
GROUND COVERS	FIRST SECOND MAINTENANCE	10–10–10 10–10–10 10–10–10	1300 3/ 1300 3/ 1100	– – –
PINE SEEDLINGS	FIRST	20–10–5	SEE NOTE 1	–
SHRUB LESPEDEZA	FIRST MAINTENANCE	0–10–10 0–10–10	700 700 4/	– –
TEMPORARY COVER CROPS SEEDED ALONE	FIRST	10–10–10	500	30 5/
WARM SEASON GRASSES	FIRST SECOND MAINTENANCE	6–12–12 6–12–12 10–10–10	1500 800 400	50–100 2/ 6/ 50–100 2/ 30
WARM SEASON GRASSES & LEGUMES	FIRST SECOND MAINTENANCE	6–12–12 0–10–10 0–10–10	1500 1000 400	50 6/

NOTE:
1. ONE 21–GRAM PELLET PER SEEDLING PLACED IN THE CLOSING HOLE.

FOOTNOTES:
1/ APPLY IN SPRING FOLLOWING SEEDING.
2/ APPLY IN SPLIT APPLICATION 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.

VEGETATIVE COVER SCHEDULE

MONTH	TEMPORARY Ds2	RATE/ACRE ALONE	RATE/ACRE MIX	RESOURCE AREA	PERMANENT Ds3	RATE/ACRE ALONE	RATE/ACRE MIX	RESOURCE AREA
JAN.	RYE ANNUAL RYEGRASS ANNUAL LESPEDEZA	3 BU. 40 LBS. 40 LBS.	0.5 BU. – 10 LBS.	C M, P, C 3/ C	UNHULLED BERMUDA PENSACOLA BAHIA	– 60 LBS.	6 LBS. 30 LBS.	P, C P, C
FEB.	RYE ANNUAL RYEGRASS ANNUAL LESPEDEZA 2/	3 BU. 40 LBS. 40 LBS.	1.5 BU. – 10 LBS.	C M, P, C M, P, C	SERICEA LESPEDEZA 1/2/ UNHULLED BERMUDA HULLED BERMUDA PENSACOLA BAHIA	– – – 60 LBS.	75 LBS. 6 LBS. 6 LBS. 30 LBS.	C P C P, C
MARCH	ANNUAL RYEGRASS RYE	40 LBS. 3 BU.	– 1.5 BU.	M, P, C C	SERICEA LESPEDEZA 1/2/ HULLED BERMUDA TALL FESCUE PENSACOLA BAHIA	– 10 LBS. 50 LBS. 60 LBS.	60 LBS. 6 LBS. 30 LBS. 30 LBS.	M, P, C P, C M P, C
APRIL	ANNUAL LESPEDEZA 2/ BROWN TOP MILLET	40 LBS. 40 LBS.	10 LBS. 10 LBS.	M, P M, P, C	SAME AS MARCH			
MAY	SAME AS APRIL				SERICEA LESPEDEZA 1/2/ HULLED BERMUDA PENSACOLA BAHIA	– 10 LBS. 60 LBS.	60 LBS. 6 LBS. 30 LBS.	M, P, C P, C P, C
JUNE	BROWN TOP MILLET	40 LBS.	10 LBS.	M, P, C	SAME AS MAY			
JULY	RYE PEARL MILLET BROWN TOP MILLET	3 BU. 50 LBS. 40 LBS.	1.5 BU. – 10 LBS.	M M, P, C P, C	PENSACOLA BAHIA HULLED BERMUDA	60 LBS. 10 LBS.	30 LBS. 6 LBS.	P, C P, C
AUG.	PEARL MILLET RYE ANNUAL RYEGRASS	50 LBS. 3 BU. 40 LBS.	– 1.5 BU. –	P, C M, P M, P, C	PENSACOLA BAHIA	60 LBS.	30 LBS.	P, C
SEPT.	ANNUAL RYEGRASS RYE	40 LBS. 3 BU.	– 1.5 BU.	M, P, C M, P, C	SAME AS AUGUST			
OCT.	ANNUAL RYEGRASS RYE	40 LBS. 3 BU.	– 1.5 BU.	M, P, C M, P, C	UNHULLED BERMUDA PENSACOLA BAHIA TALL FESCUE	– 60 LBS. 50 LBS.	6 LBS. 30 LBS. 30 LBS.	P, C P, C M, P
NOV.	SAME AS OCTOBER				SAME AS JANUARY			
DEC.	SAME AS OCTOBER				SAME AS JANUARY			

FOOTNOTES:
1/ SEED WILL BE SCARIFIED.
2/ INNOCULATE SEED.
3/ M – MOUNTAIN, P – PIEDMONT, C – COASTAL

TACKIFIERS AND BINDERS TABLE

THE FOLLOWING LIST OF TACKIFIERS AND BINDERS ARE APPROVED TO ANCHOR STRAW OR HAY MULCH ON CRITICAL AREAS. A TACKIFIER MAY BE SUBSTITUTED FOR EMULSIFIED ASPHALT. THESE TACKIFIERS ARE ALSO APPROVED TO ANCHOR WOOD CELLULOSE, WOOD PULP FIBER, AND OTHER MULCH MATERIALS APPLIED WITH HYDROSEEDING EQUIPMENT.

PRODUCT OR TRADE NAME	RECOMMENDED APPLICATION RATE
A500 HYDRO–STIK	40 LB./AC.
AGRO TACK MP	PER MANUFACTURERS RECOMMENDATIONS
CONWED CON–TAC	40 LB./AC.
ECOTAK–OP ECOTAK–SATII	PER MANUFACTURERS RECOMMENDATIONS
EMULSIFIED ASPHALT	100 GAL. OF SS–1H OR CSS–1H & 100 GAL. OF WATER/TON OF MULCH
HERCULES SOILLOC–E	PER MANUFACTURERS RECOMMENDATIONS
HYDRO–BOND	35 LB./AC.
RMB–PLUS	80–120 LB./AC.
TACPAC GT	PER MANUFACTURERS RECOMMENDATIONS
TERRA–MULCH TACKING AGENT III	PER MANUFACTURERS RECOMMENDATIONS

Date
Designed
Drawn B WRIGHT 11/10
Checked J HOLLOWAY 11/10
Approved J HOLLOWAY 11/10

GEORGIA STANDARD DRAWINGS
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