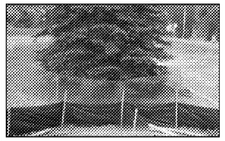
Tree Protection (Tr)



DEFINITION
To protect desirable trees from injury during construction activity.

PURPOSE
To ensure the survival of desirable trees where they will be effective for erosion and sediment control, watershed protection, landscape beautification, dust and pollution control, noise reduction, shade and other environmental benefits while the land is being converted from forest to urban-type uses.

CONSTRUCTION ACTIVITIES
Trees can be damaged or killed by a wide variety of construction activities. Obvious injuries such as broken branches or torn bark deplete the tree's resources and provide entry points for insects, or for diseases such as Oak Wilt.

The worst damage, however, often remains hidden underground. Roots are one of the most vital parts of a tree. They are responsible for nutrient and water uptake, energy storage and anchoring the plant. It is critical that you protect roots that lie in the path of construction.

Soil compaction is the leading killer of urban trees. Tree roots need loose soil to grow, obtain oxygen, and absorb water and nutrients. Stockpiled building materials, heavy machinery, and excessive foot traffic, all damage soil structure. Lacking good soil aeration, roots suffocate and tree health declines.

Requirement for Regulatory Compliance
Many cities and counties in Georgia have tree protection specifications written in their local ordinances. In some areas a permit is needed to remove trees with a specified diameter. It is important for property owners and design professionals to contact the local government to obtain information regarding tree ordinances BEFORE ES&PC plans are designed. Failure to do so could result in heavy fines or delay in construction.

DESIGN CRITERIA
No formal design is required. However, in planning, a number of criteria must be considered.

Tree Protection Zones:
1. Measure the diameter of the tree trunk in inches at 4.5 feet from the ground. This is called the Diameter Breast Height or DBH.
2. Multiply this value by 1.5. This result is the radius of the root protection zone in feet. This is also considered the critical rooting distance.

Once the size of the area is determined, consider fencing materials. Orange tree save fencing or black silt fencing are commonly used.

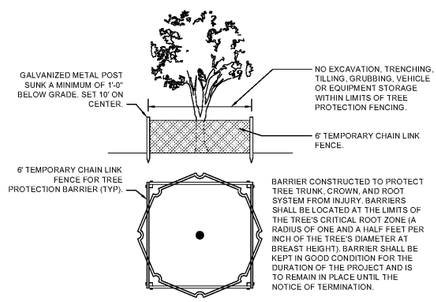
These materials are easy to install but they often get knocked down or removed when it is inconvenient to go around the tree save area. In some cases more permanent materials, such as chain link fencing, may be required. Whatever fencing material is used, it must be maintained throughout the construction process.

Tree Protection Zone Fencing:
Tree protection zone fencing may be one of the following:
1. For areas of large remnant forest to be protected use 4 foot high orange plastic fabric fencing stapled in three locations to treated wood 2x4 stakes. Set stakes 6 foot on center. Rebar is not to be used for trees Figure 6-38.1
2. For single family homes use a treated wood fencing as shown on detail. It may have orange fabric attached to it.
3. For all other developments use 6 foot high chain link fencing attached to galvanized metal post as shown on detail. Figure 6-38.2

For more information about standards for adequate tree protection, refer to guidance by the American National Standard (ANSI) or the International Society of Arboriculture.

TREE PROTECTION

CHAIN LINK FENCE DETAIL



FOR ADDED PROTECTION

-PROVIDE 4" DEEP ORGANIC MULCH OVER ANY UNPROTECTED ROOT ZONE.
-PROVIDE TEMPORARY IRRIGATION WHERE PRACTICAL AND FEASIBLE.

C2 / CE101 — TREE PROTECTION (Tr)
SCALE: NTS
CE102, CE104-106, CE108

Filter Ring (Fr)

DEFINITION
A temporary stone barrier constructed at storm drain inlets and pond outlets.

PURPOSE
This structure reduces flow velocities, preventing the failure of other sediment control devices. It also helps prevent sediment from leaving the site or entering drainage systems, prior to permanent stabilization of the disturbed area.

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 clean-out 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 can be faced with smaller filter 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
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.

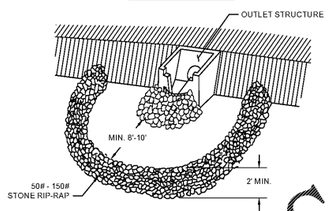
The filter ring may be constructed on natural ground surface, on an excavated surface, or on machine compacted fill.

A common failure of a filter ring is caused by placing it too close to 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.

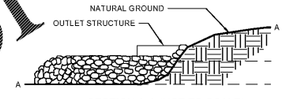
STONE FILTER RING

PERSPECTIVE VIEW



PLAN VIEW (NOT TO SCALE)

CROSS SECTION (NOT TO SCALE)



SECTION A-A (NOT TO SCALE)

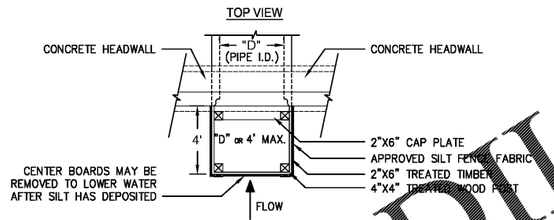
A1 / CE101 — FILTER RING (Fr)
SCALE: NTS
CE102-108

SILT CONTROL GATE WITH SLOTTED BOARD DAM

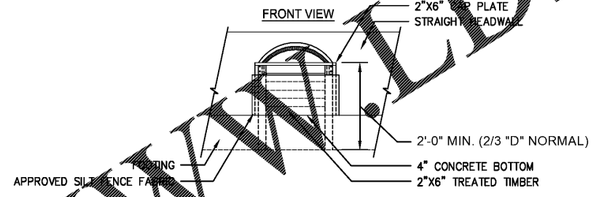
TYPE 2: FOR STRAIGHT HEADWALLS

NOTES:
1. SLOTTED BOARD DAM SHALL BE INSTALLED WITH MINIMUM SIZE 4" X 4" POSTS.
2. BOARDS SHOULD HAVE A 0.5" TO 1"SPACE BETWEEN THEM AND MUST HAVE GROUND OR BOTTOM OF CONCRETE CONTACT.
3. MINIMUM SIZE 3–4" STONE FILTER SHALL BE INSTALLED AROUND THE UPSTREAM SIDE OF THE BOARD DAM.
4. POSTS FOR THE SILT CONTROL GATE SHALL BE 4: X 4" TREATED LUMBER AND FACE BOARDS SHALL BE 2" X 6" TREATED LUMBER WITH NO SPACING ALLOWED BETWEEN BOARDS.
5. AN APPROVED SILT FENCE FABRIC SHALL BE SECURELY FASTENED TO THE FRONT OF THE STRUCTURE USING STABLES (BE SURE TO HAVE SILT FENCE ON UPSTREAM SIDE OF STRUCTURE).
6. SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN IT REACHES ONE–THIRD THE HEIGHT OF THE SILT GATE. FILTER FABRIC SHALL BE REPLACED WHEN DAMAGED AND/OR DETERIORATED.
7. ALL DISTURBED AREAS SHALL BE VEGETATED IMMEDIATELY AFTER CONSTRUCTION WITH PERMANENT VEGETATION.

TOP VIEW



FRONT VIEW



USES: A SILT CONTROL GATE IS A STRUCTURE PLACED ON A PIPE, SINGLE BARREL BOX CULVERT, OR DROP INLET TO FORM A BASIN TO TRAP SILT.
NOTE: SILT CONTROL GATES SHALL NOT BE USED ON STRUCTURES THAT CONVEY STATE WATERS.

C4 / CE101 — RETROFITTING (Rt-Sg & Rt-B)
SCALE: NTS
CE102-108

GSWCC CERTIFICATION
NO. 0000060014
GSWCC LEVEL II DESIGNER
JOHN H. PIGOTT

REVISION NAME-YYYY-MM-DD
FOR (SUBMITTAL NAME)
ISSUED: YYYY-MM-DD
NOT TO BE USED FOR CONSTRUCTION
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

No.	Mark	Description	Date	Appr
0	ISSUE FOR BID		02/03/2021	JHP

GEORGIA PORTS AUTHORITY
GCT CAPACITY IMPROVEMENTS - PHASE 2

ES&PC DETAILS

moffatt & nichol
2 EAST BRYAN ST., STE 501
SAVANNAH, GA 31401
912-231-0044

Designed by:	JHP
Drawn by:	JAH
Checked by:	
Reviewed by:	
Submitted by:	MOFFATT & NICHOL
M&N Project No:	5531-294B
GPA Project No:	1910-1011C
Drawing Scale:	AS NOTED
Plot scale:	1:1 (D SHEET)
Date:	
Rev:	0

GEORGIA REGISTERED No. 18216 PROFESSIONAL ENGINEER HOWARD PIGOTT JR.
SEAL

Sheet Reference No.
CE504
INDEX: OF

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