



ENGINEERING AND ENVIRONMENTAL SERVICES

Stormwater Division

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TREATMENT SWALE DESIGN SUMMARY

Stormwater Management Construction Plan Review:

A complete Stormwater management construction plan submittal includes a design summary for each Stormwater BMP, design calculations, plans and specifications showing BMP, inlet and outlet structure details.

I. PROJECT INFORMATION

For projects with multiple SCMs, specify which SCM this worksheet applies to:

Project Name: _____ Phase: _____

PIN: _____ Case #: _____

Legal Name of Owner: _____

Owner Contact: _____ Phone: _____

Owner Address: _____

Design Contact Person: _____ Phone: _____

Detention provided for: 1-year 2-year 10-year other _____

II. GENERAL MINIMUM DESIGN CRITERIA FOR ALL SCMs *(Revised 1/3/2017)*

GENERAL MDC 1: SIZING

Design storm depth	ft	<i>(One year, 24 hour storm event)</i>
Design runoff volume	ft ³	<i>(Minimum calculation of entire drainage area)</i>

GENERAL MDC 2: CONTAMINATED SOILS

Contaminated soils within footprint?	Y / N	<i>(Brownfield location?)</i>
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GENERAL MDC 3: SIDE SLOPES

Maximum vegetated side slopes	: 1	<i>(Maximum 3:1 vegetated slopes)</i>
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GENERAL MDC 4: EROSION PROTECTION

10 year storm outlet discharge	cfs	<i>(Must be non-erosive)</i>
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GENERAL MDC 5: EXCESS FLOW

Emergency outlet elevation	ft
Emergency spillway width	ft
Emergency spillway side slopes	: 1
Emergency spillway slope	%

GENERAL MDC 6: DEWATERING

Dewatering method		
Drawdown orifice size	in	<i>(If applicable)</i>

GENERAL MDC 7: CLEAN OUT AFTER CONSTRUCTION

Every SCM impacted by sediment and erosion control during the construction phase shall be cleaned out and converted to its approved design state
In addition, installed SCM's should be inspected and cleaned after each heavy rainfall

GENERAL MDC 8: MAINTENANCE ACCESS

Maintenance access width	ft	<i>(Minimum width of 25 feet)</i>
Side slopes within maintenance access	: 1	<i>(Maximum 3:1)</i>
Access extend to public right of way	Y / N	

GENERAL MDC 9: EASEMENTS

All SCMs and associated maintenance accesses located in permanent recorded easement? (shown and labeled in easement)	Y / N	<i>(Does not include single family residential lots)</i>
Maintenance access width around SCM	ft	<i>(Minimum width of 10 feet)</i>

GENERAL MDC 10: SINGLE FAMILY RESIDENTIAL LOTS

Plats for residential lots that contain an SCM shall include:
(a) The specific location of the SCM on the lot
(b) A typical detail for the SCM to be used
(c) A note that the SCM on the property has been required to meet stormwater regulations and that the property owner may be subject to enforcement actions if the SCM is removed, relocated, or altered without prior approval

GENERAL MDC 11: OPERATION AND MAINTENANCE AGREEMENT

Acknowledgement that the association shall continuously operate and maintain the stormwater control and management facilities	<input type="checkbox"/>
Establishment of an escrow account which can be spent solely for sediment removal, structural, biological or vegetative replacement, major repair, or construction of the SCM	<input type="checkbox"/>

(Check box when completed)

GENERAL MDC 12: OPERATION AND MAINTENANCE PLAN

Specify all operation and maintenance work necessary for the function of all SCM components	<input type="checkbox"/>
Specify methods to be used to maintain or restore the SCMs to design specifications in the event of failure	<input type="checkbox"/>
O&M plan shall be signed by the owner and notarized	<input type="checkbox"/>

(Check box when completed)

III. TREATED SWALE MINIMUM DESIGN CRITERIA *(Revised 1/3/2017)*

TREATED SWALE MDC 1: SEPARATION FROM THE SHWT

SHWT elevation	ft
Bottom elevation of treated swale	ft

*(Determined through soil tests)
(Cannot be excavated below SHWT)*

TREATED SWALE MDC 2: SHAPE

Swale bottom width	ft
Slide slope	:

*(Maximum 6 feet)
(No steeper than 3:1)*

TREATED SWALE MDC 3: SWALE SLOPE AND LENGTH

Longitudinal swale slope	%
Swale length	ft
Ponding depth	ft
Hydraulic retention time	

*(Shall not exceed 7%)
(To ensure flow through grass vegetation)
(Minimum of 4 minutes)*

TREATED SWALE MDC 4: GRASS SPECIFICATION

<p>The grass species in the swale shall be:</p> <ul style="list-style-type: none"> a) non-clumping and deep-rooted; b) able to withstand a velocity of four feet per second; c) managed at an average of six inches; and d) (d) not be cut lower than four inches.
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TREATED SWALE MDC 5: TREATMENT OF LARGER STORMS

Swales shall be designed to non-erosively pass the ten-year storm.

IV. REQUIRED ITEMS CHECKLIST

The following checklist outlines design requirements. Initial in the space provided to indicate the following design requirements have been met and supporting documentation is attached.

Applicant's Initials

- _____ a. The bottom elevation of the treated swale is not lower than the SHWT.
- _____ b. The swale bottom width is a maximum of 6 feet and has side slopes not exceeding 3:1.
- _____ c. The treatment swale is designed such that the treatment volume has a HRT of at least four minutes and a ponding depth of less than six inches to ensure flow through grass vegetation for a 0.75 in/hr storm intensity.
- _____ d. Maximum longitudinal slope shall not exceed 7%.
- _____ e. The grass species in the swale is non-clumping and deep rooted; able to withstand a velocity of four feet per second; managed at an average of six inches; and will not be cut lower than four inches.

NOTE: Executed Stormwater Facility Operations and Maintenance Permit Agreement and payment of surety are required prior to Stormwater Permit issuance.