

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System**

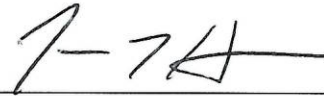
NOV 20 2019

**Post Construction Stormwater Management Guidance for New
Development and Redevelopment**

**Georgia General NPDES Stormwater Permit GAG480000 for Discharges Associated with
Small Municipal Separate Storm Sewer Systems (MS4) At Military Facilities**

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

“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 gathered and evaluate the information submitted. Based on 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.”

A handwritten signature in black ink, appearing to read 'J-L Heidle', written over a horizontal line.

JAMES L. HEIDLE
Director, Public Works

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

Table of Contents

- 1. Utilization of Better Site Design Practices for Stormwater Management**
- 2. Stormwater Runoff Quality**
- 3. Stream Channel and Aquatic Resource Protection**
- 4. Overbank Flood Protection**
- 5. Flood Plain Protection**
- 6. Hydrologic Analysis**
- 7. Groundwater Recharge**
- 8. Stormwater Management System Operation and Maintenance**
- 9. Maintenance and Inspections**

List of Appendices

Appendix A: Fort Stewart/Hunter Army Airfield Green Infrastructure/Low Impact Development (GI/LID) Structure Inspection Checklist

Appendix B: Fort Stewart/Hunter Army Airfield Stormwater Management Structure Inspection Checklist

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

All development activities that are greater than 5,000 square feet and/or are required to submit a Notice of Intent (NOI) for National Pollution Discharge Elimination System (NPDES) permitting requirements for construction and land disturbance activity on Fort Stewart/Hunter Army Airfield (FS/HAAF) shall have an approved Stormwater Management Plan (SWMP). A SWMP shall be valid for one year from the date of the approval by the Directorate of Public Works (DPW) Environmental Division. The minimum design requirements for the SWMP shall include the following:

1. Utilization of Better Site Design Practices for Stormwater Management

- a. All site designs shall implement a combination of approaches collectively known as stormwater better site design practices as described in the Georgia Stormwater Management Manual (SWMM) – Coastal Stormwater Supplement (CSS) and the United States Environmental Protection Agency (U.S. EPA) Technical Guidance for Energy Independence and Security Act (EISA) 2007 section 438 Implementation-DEC 2009. All sites shall also be designed to conform to the EISA 2007 section 438 with utilization of the U.S. EPA Technical Guidance in conjunction with the CSS to meet standards contained herein.
- b. Such practices include conservation of natural features, use of Green Infrastructure Low Impact Development (GI LID) techniques for site design, reduction of impervious cover, and utilization of natural features for stormwater.

2. Stormwater Runoff Quality

All stormwater runoff generated from a site shall be adequately treated before discharge. Stormwater management systems, both structural stormwater controls and better site design practices, must be designed to remove 80% of the calculated average annual post-development total suspended solids (TSS) load and be able to meet another additional watershed or site specific water quality requirements, a stormwater management system complies with this performance standard if:

- a. It is sized to capture and treat prescribed water quality treatment volume, which is defined as the stormwater runoff volume resulting from the 95th percentile rain event of a site as required under the U.S. EPA Technical Guidance for EISA-2007 section 438 Implementation-DEC 2009,
- b. Appropriate structural stormwater controls are selected, designed, constructed, and maintained according to the specified criteria in the GA SWMM / CSS and the U.S. EPA Technical Guidance EISA Section 438 Implementation-DEC 2009, and
- c. Runoff from hotspot land uses and activities such as industrial activities and/or fueling operations is adequately treated and addressed through the use of the appropriate structural stormwater controls and pollution prevention practices.

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

3. Stream Channel and Aquatic Resource Protection

- a. Stream channel protection shall be provided to both downstream and on-site channels by utilizing all three of the following approaches:
 - 1) 24 hour extended detention storage of the 1 year, 24 hour return frequency storm event.
 - 2) Erosion Prevention measures such as energy dissipation and velocity control as referenced in section 4.5 of volume 2 of the Georgia Stormwater Management Manual and chapter 4 section 4.4.3 of the Coastal Stormwater Supplement.
 - 3) Preservation of the applicable stream buffer at minimum of 25 feet.
- b. This requirement may be waived for sites that discharge directly into piped stormwater drainage systems, larger streams, creeks, rivers, or wetlands where the reduction in flows will not have an impact on channel integrity.

4. Overbank Flood Protection

Downstream overbank flood protection shall be provided by controlling the post-development peak discharge rate to the pre-development rate for the 2 year through the 50 year 24 hour return frequency storm event as referenced in section 4.5 of volume 2 of the Georgia Stormwater Management Manual and chapter 4 section 4.4.4 of the Coastal Stormwater Supplement. This requirement does not apply if:

- a. The development directly discharges into open waters or
- b. Provisions are made to provide a conveyance system with adequate capacity to carry stormwater flows to open waters.

5. Flood Plain Protection

- a. The federal Emergency Management Agency (FEMA) defines floodplains as areas subject to a one percent or greater chance of flooding in any given year. Floodway encroachment including structures, fill placement, etc. is prohibited unless cortication with supporting technical data is provided by a registered professional engineer demonstrating that the encroachment will not result in any increase in flood elevations.
- b. Flood plain protection shall be provided such that there is no increase in flood elevations either upstream or downstream for the 100 year 24 hour return frequency storm event as referenced in section 4.5 of volume 2 of the Georgia Stormwater Management Manual. Furthermore any encroachments in the 100 year flood plain shall meet the requirements of the chapter 4 section 4.4.5 of the Coastal Stormwater Supplement, State Flood Damage Prevention requirements, and the Executive Order #11988 Floodplain Management

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

which requires federal service agencies to avoid construction or management practices that will adversely affect floodplains unless it is found that:

- 1) There is no practical alternative and
- 2) The proposed action has been designed to minimize harm to or within the floodplain.

6. Hydrologic Analysis

A hydrologic analysis both upstream and downstream shall be performed to determine the following:

- a. Adequate capacity of the receiving stream.
- b. Whether there are any additional impacts in terms of peak flow increase or water elevations while meeting Minimum Standards (1-5) above.
- c. This analysis shall be performed at the outlet(s) of the site and downstream at each tributary junction to the point(s) in the conveyance system where the area of the portion of the site draining into the system is less than or equal to 10% of the total drainage area above that point or to a point identified by the division.

7. Groundwater Recharge

Annual groundwater recharge rates shall be maintained to the maximum extent technically feasible through the use of nonstructural methods as described in the Georgia Stormwater Management Manual / Coastal Stormwater Supplement and the U.S. EPA Technical Guidance for Implementation of the EISA-2007 Section 438-DEC 2009.

- a. The annual recharge from the post development site shall approximate the annual recharge from the post development based on soil types.
- b. Stormwater runoff from a hotspot site, industrial and/or fueling operations, or land use shall not be infiltrated without effective pre-treatment.

8. Stormwater Management System Operation and Maintenance

The stormwater management system including all structural stormwater controls and conveyances shall have an operation and maintenance plan to ensure that it continues to function as designed. The operation and maintenance plan must provide:

- a. A stormwater system inspection and maintenance checklist (Appendix A and Appendix B) and expected life cycle for replacement of stormwater structural controls. The plan must include relevant contact information for the original design engineer. The developer shall be responsible for all maintenance through the warranty period.

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

- b. The routine and non-routine maintenance tasks to be undertaken.
- c. A post construction schedule for inspection and maintenance of the stormwater structural controls for the DPW Environmental Division to perform as required. All records of inspection and maintenance must be maintained for each control for a period of five years. These records must be available for review by the DPW Environmental Division at all times. Failure to maintain records will be a violation of this guidance.
- d. Any necessary legally binding maintenance agreements. If the development or redevelopment includes a subdivision, there must be clear and concise note(s) referring to the operation and maintenance plan on the tenant's or property lease. All agreements and plans must clearly specify that all property owners within the subdivision or tenant's property are responsible.
- e. Estimated annual inspection, maintenance, and operating costs.
- f. If at any time the DPW Environmental Division determines that the plan is not effective then the DPW Environmental Division may require changes as necessary to guarantee adequate operation of the stormwater management system.
- g. Drainage structures internal to the proposed land development activity will be designed for the 25 year 24 hour storm event. The SWMP must include a demonstration that none of the storm inlets will overtop during the 25 year storm event.
- h. The SWMP shall include a hydrologic/ hydraulic report prepared and certified by a registered professional engineer licensed to practice engineering in the state of Georgia. The report shall be prepared in accordance with the standards of the Georgia Stormwater Management Manual / CSS and the U.S. EPA Technical Guidance for Implementation of EISA-2007 Section 438-DEC 2009.
- i. Land disturbance activities such as timber harvest, demolition, grading, grubbing, or development cannot be implemented until provisions of this stormwater guidance have been met.
- j. Record drawings of the Stormwater Management Facilities by a registered professional engineer are required prior to turn over to the government. Record drawings shall be prepared in accordance with DPW Engineering and Master Planning Division's Policies.
- k. For development of a project in phases, a stormwater master plan is required to indicate how the requirements of this stormwater guidance will be met. This does not preclude the requirement of a SWMP for each phase as it is being developed. The master plan of multi-phased developments shall consolidate stormwater management facilities as much as practicable.

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

9. Maintenance and Inspections

- a. In no case can alterations be made to the stormwater management facilities which may impact perpetual access for inspections of any stormwater management facility or BMP which is to be inspected by the DPW Environmental or maintained by the DPW Services Division Operations and Maintenance, tenant organization, or lease.
- b. The DPW Environmental Division shall determine inspection schedules necessary to enforce the provisions of this guidance.
- c. The DPW Environmental Division, bearing proper credentials and identification, shall be permitted to enter, in accordance with state and federal law, all properties for regular inspections, periodic inspections, observations, measurements, enforcement, sampling, and testing, in accordance with provisions of this guidance. The Director, Public Works, or duly authorized designee DPW Environmental Division shall duly notify the owner of said property or the representative on site except in the case of an emergency.
- d. The DPW environmental Division, bearing proper credentials and identification, shall be permitted to enter, in accordance with state and federal law, all properties for which the FS/HAAF DPW holds a negotiated easement of tenant owned or leased properties for inspections, repairs, maintenance, and other purposes related to any portion of the stormwater management facilities lying within said easements or leased lands.
- e. Measurements, tests, and analyses performed by the DPW Environmental Division or required of any discharger to the MS4 shall be in accordance with 40 CFR Part 136 unless another method is approved by GA EPD.
- f. If after an inspection the condition of a stormwater management facility presents immediate danger to the public health, environment, or because of unsafe conditions or improper maintenance the DPW Environmental Division shall have the right to take action as may be necessary to protect the public and make sure the stormwater management facility is safe.
- g. If after an inspection the condition of the tenant owned or leased stormwater management facility presents immediate danger to the public health, environment, or because of unsafe conditions or improper maintenance the DPW Environmental Division shall have the right to take action as may be necessary to protect the public and make sure the stormwater management facility is safe.
- h. If after an inspection the condition of the stormwater management facility results in a violation of this guidance, the DPW Environmental Division will notify the DPW Services Division Operation and Maintenance and/or tenant owned or leased lands point of contact of the stormwater management facility of the violation and the corrections which were or will need to be implemented with timelines for completion.

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

Appendix A

**Fort Stewart / Hunter Army Airfield
Green Infrastructure/Low Impact Development (GI/LID) Structure Inspection Checklist**

Installation: ☐ Initial Inspection ☐ Re-Inspection

Structure ID: _____ Collection System Sub-Basin: _____

Structure Location: Latitude: _____ Longitude: _____

Bldg. Num. / Street Name: _____

Responsible for Maintenance: [DPW Services Division – Roads & Grounds](#)

Contact: [DPW Environmental Division – Stormwater Program 767-2010](#)

Evaluation Completed By: _____ Evaluation Date: _____

Type of GI/LID: ☐ Bio-Retention ☐ Permeable Paver ☒ Porous Concrete ☐ Rain Garden ☐ Sand Filter Bed

1. Contributing Drainage Area			
Findings	Pass	Fail	Comments
a. Excessive Trash/Debris			
b. Bare/Exposed Soils			
c. Evidence of Erosion			

2. Inlets and Outlets (headwalls, pipes, outfall weirs, etc.)			
Findings	Pass	Fail	Comments
a. Excessive Sediment Accumulation			
b. Structural Defects			
c. Woody Vegetation Obstructing Flow Into/Out of Structure			
d. Evidence of Erosion Around Pipes, Headwalls, or Risers/Weirs			

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**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

3. Facility Condition			
Findings	Pass	Fail	Comments
a. Excessive Trash/Debris			
b. Bare/Exposed Soil			
c. Excessive Sediment Accumulation Altering Grade or Capacity			
d. Evidence of Pollutants			
e. Presence of Woody Vegetation			

Service Orders	
Deficiency	Service Order Number

Signature
Inspector:
Signature:

Revised July 2019

**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

Appendix B

Fort Stewart / Hunter Army Airfield Stormwater Management Structure Inspection Checklist

Installation: ☐ Initial Inspection ☐ Re-Inspection

Structure ID: _____ Collection System Sub-Basin: _____

Structure Location: Latitude: _____ Longitude: _____

Bldg. Num. / Street Name: _____

Responsible for Maintenance: **DPW Services Division – Roads & Grounds**

Contact: **DPW Environmental Division – Stormwater Program 767-2010**

Evaluation Completed By: _____ Evaluation Date: _____

Type of Structure: ☐ Detention ☐ Retention

1. Contributing Drainage Area			
Findings	Pass	Fail	Comments
a. Excessive Trash/Debris			
b. Bare/Exposed Soils			
c. Evidence of Erosion			

2. Inlets and Outlets (headwalls, pipes, outfall weirs, etc.)			
Findings	Pass	Fail	Comments
a. Excessive Sediment Accumulation			
b. Structural Defects			
c. Woody Vegetation Obstructing Flow Into/Out of Structure			
d. Evidence of Erosion Around Pipes, Headwalls, or Risers/Weirs			

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**Fort Stewart/Hunter Army Airfield
Stormwater Management Program
Municipal Separate Storm Sewer System
Post Construction Stormwater Management Guidance for New Development and Redevelopment**

3. Facility Condition			
Findings	Pass	Fall	Comments
a. Excessive Trash / Debris			
b. Bare / Exposed Soil			
c. Excessive Sediment Accumulation Altering Grade or Capacity			
d. Evidence of Pollutants			
e. Presence of Woody Vegetation			

Service Orders	
Deficiency	Service Order Number

Signature
Inspector:
Signature:

Revised July 2019