Chesapeake Bay TMDL Simulation and Management Support to the Army

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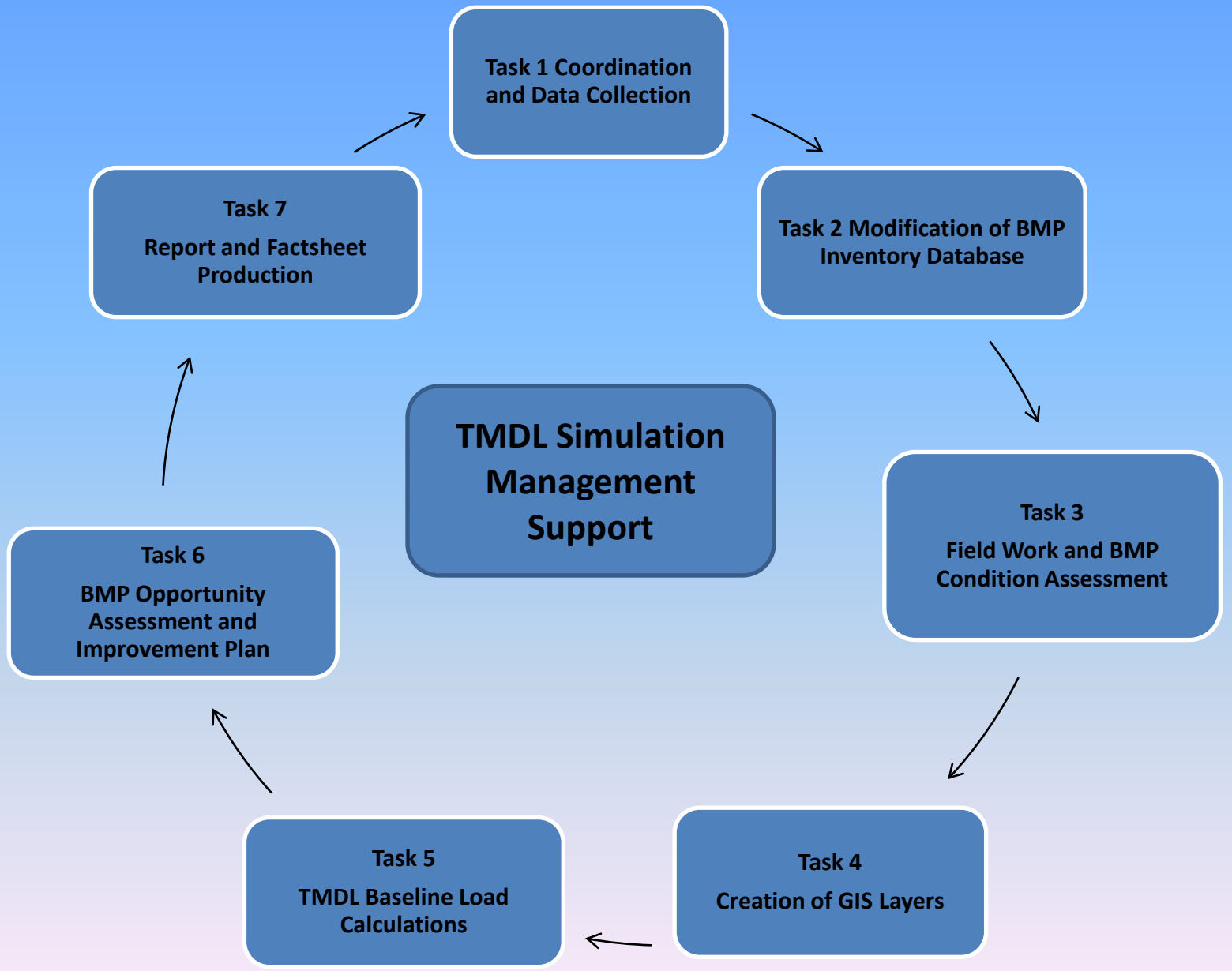
Army Customers

- Army National Guard
- IMCOM Atlantic Region
- Army Reserves (draining to the CB Watershed)

Over 200 Facilities!

Project Overview



Critical Data Needs

- Boundary and acreage
- Land Use
- Best Management Practices (BMPs)
  - Lat/long
  - Installation Dates
  - Acres Treated
  - Efficiencies (using CB tables)

Early -Lessons Learned

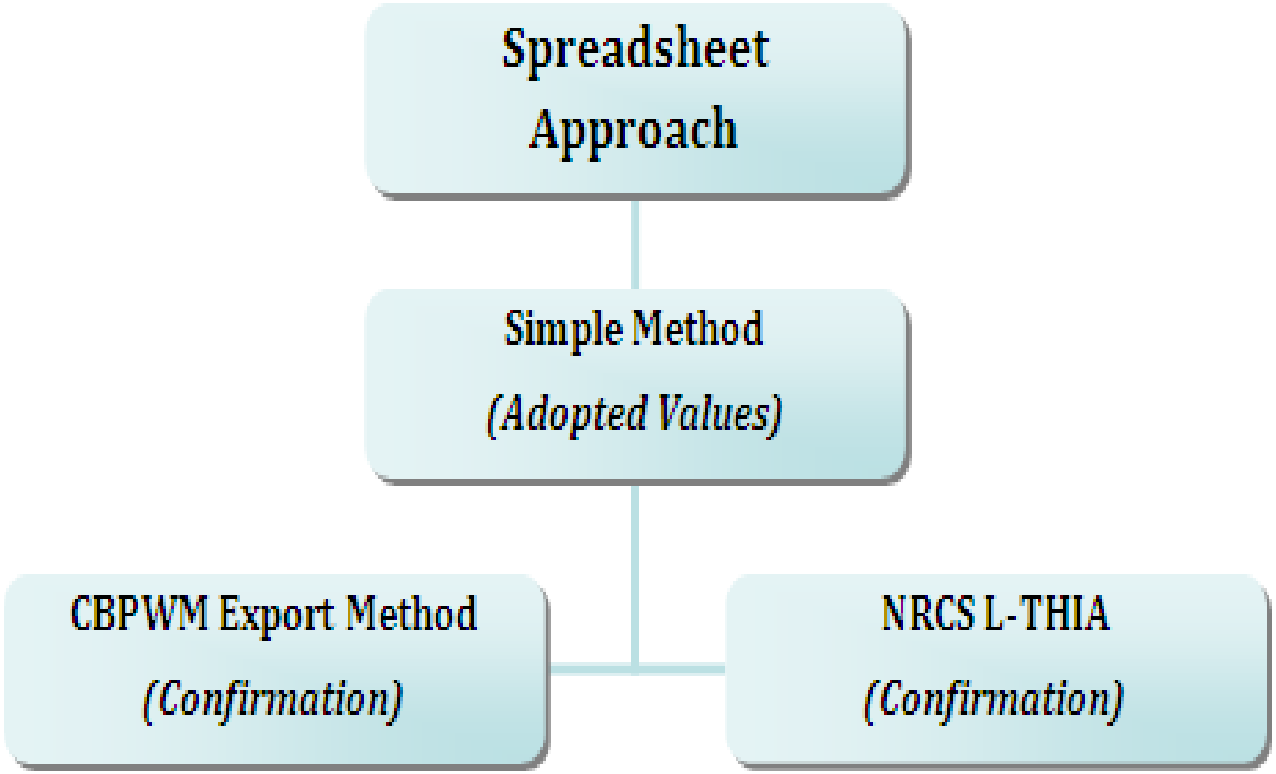
DATA LACKING FOR MOST FEDERAL FACILITIES !!

*Little Current Boundary and Land Use data
*No BMP Inventory or *Mapping of BMPs
*No BMP O&M Program
* No BMP Repository or Tracking System

*Required Additional Field Verification:
GPS Delineations for Property; Land Use, BMPs and Condition Assessments

Modeling Approaches

Figure 4.1: Spreadsheet Modeling Approach



Simple Method

- Where:
- P= Rainfall (inches per year)
- Rv= Runoff Fraction (percent of rain that is runoff)
- A= Area (acres)
- EMC= Event Mean Concentration (mg/l)
- K = Conversion Factor

Final TMDL Report and Factsheet

CHESAPEAKE BAY TOTAL MAXIMUM DAILY LOAD (TMDL)
STUDY FOR DELAWARE ARMY NATIONAL GUARD

Prepared for:

Prepared by:

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Delaware Army National Guard
Stormwater Total Maximum Daily Load (TMDL) Factsheet
10A90: Pigman Armory

I. GENERAL INFORMATION

Facility: 10A90, Pigman Armory

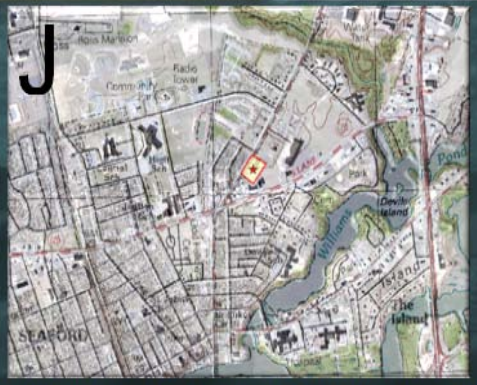
Address: 601 Bridgeville Highway
Seaford, Delaware 19973

County: Sussex County, Delaware

Facility Size: 3.0 acres

Local Watershed: Williams Pond

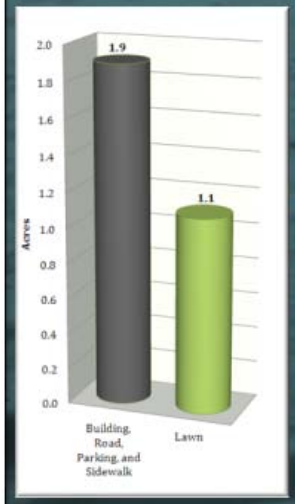
Regional Watershed: Nanticoke River



The Pigman Armory is located in the City of Seaford, Sussex County, Delaware. The 3.0 acre

II. EXISTING LAND USE

The Pigman Armory is located in a moderately urbanized setting. 64-percent of the 3.
(1.9 acres) is categorized as high intensity impervious urban land cover. This include
rooftops, parking areas, and sidewalks. 36-percent of the site (1.1 acres) is categoriz
intensity pervious urban land cover, or lawns.



Building Lawn Road-Parking-S

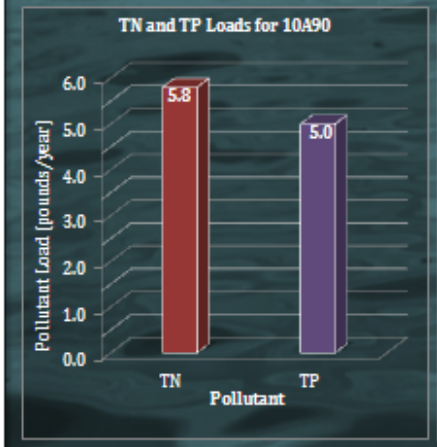
III. EXISTING STORMWATER INFRASTRUCTURE AND BMPs

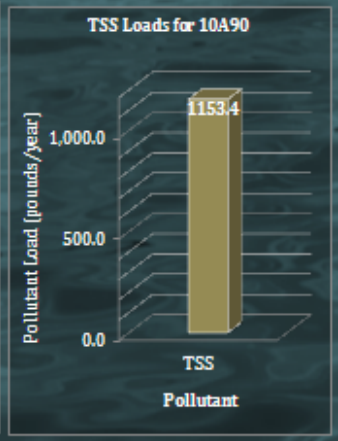
There are no existing stormwater BMPs or stormwater infrastructure located at the
Armory. All runoff from the site flows overland off-site and into the City of Seaford sto
system.

Final TMDL Report and Factsheet

IV. POLLUTANT LOADS

The Pigman Armory is located in Land Segment A10005 and discharges to River Segment EL2_4630_0000 in the Chesapeake Bay Programs Watershed Model. The expected pollutant loads (in pounds/year) from the site contribute less than .05-percent of the load from Land Segment A10005 to the Chesapeake Bay. The site contributes a below average TN load per acre (pounds/acre/year), a below average TP load per acre, and a slightly above average TSS load per acre when compared to other land in Land Segment A10005.





Site 10A90 Pollutant Load Estimates	
Pounds/Year	
TN	5.8
TP	5.0
TSS	1153.4
Pounds/Acre/Year	
TN	1.9
TP	1.7
TSS	384.58

Pollutant	Load (Pounds/Acre/Year		Status
	Site	Land Segment A10005	
TN	1.9	25.9	✓
TP	1.7	2.3	✓
TSS	384.5	163.2	✓

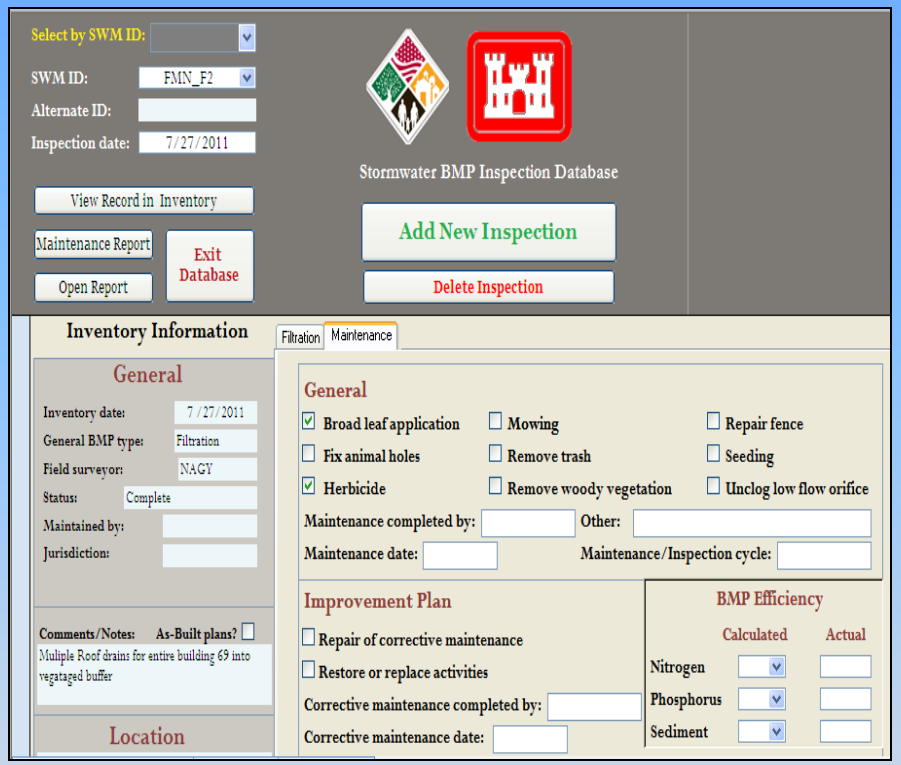
V. OPPORTUNITY ASSESSMENT

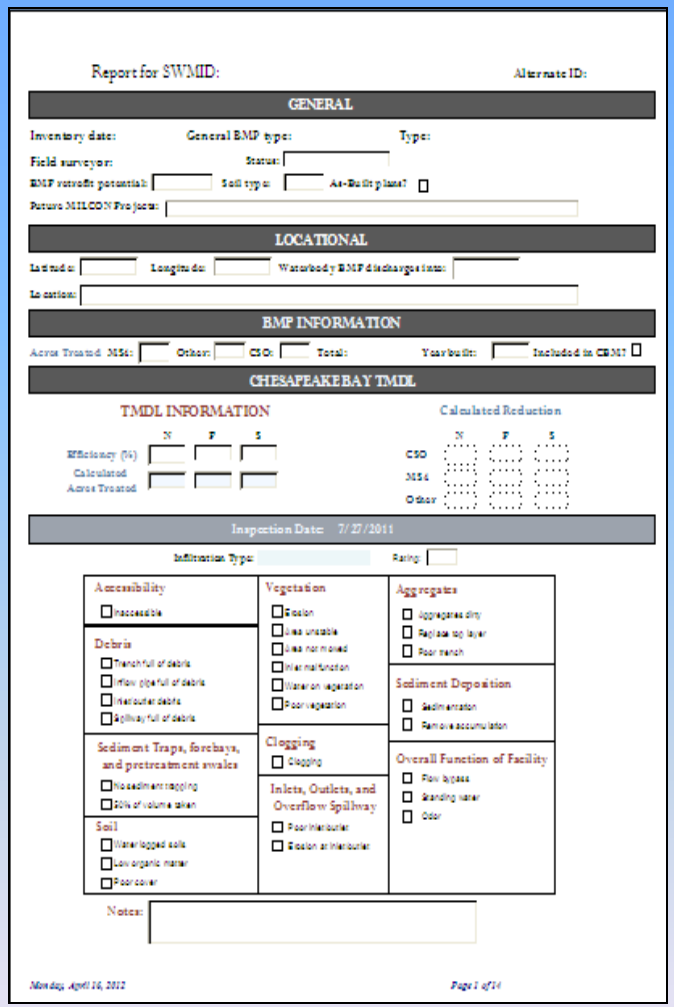
Because of the low percentage of pollutant contribution to the Chesapeake Bay Model Land Segment and the relatively below average or average pollutant load per acre contribution, physical stormwater improvements (BMP Retrofits) at Site 10A90 are not necessary at this time.

Programmatically, an opportunity to support on-going Chesapeake Bay pollutant reduction programs and efforts exists. The Delaware Army National Guard can do the following at Pigman Armory to support on-going efforts:

- Continue to support Delaware Department of Natural Resources and Environmental Control (DNREC) Watershed Implementation Plan (WIP) Phase II processes in the future.
- Continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects.

BMP Database





Long Term Reporting/Tracking of BMPs and Load Reductions to Gauge Progress Toward 2017 and 2025 Reduction Goals

Questions?