

3. Facility Description

The Broadneck Water Reclamation Facility currently has a maximum water treatment capacity of 8 million gallons per day (mgd). Although the facility operates 24 hours a day, the plant is staffed only one shift per day, seven days a week. For the other two shifts, the facility is monitored remotely at the Millersville headquarters using a SCADA system. Dispatchers and on-call personnel respond to system alarms to resolve operating problems as necessary.

The treatment plant is situated on a 50.32-acre site. The operating facilities occupy approximately 23.6 acres of the site and the balance, 26.7 acres, is forested. Currently, total impervious area is approximately 11 acres, including roads, structure roofs, open tankage, and the shellfish holding pond. Figure 2 shows the current plant layout and includes delineations of the drainage areas.

All storm water run-off from the site drains to the Chesapeake Bay. Based on observations of the facilities and operations, it appears there are few activities at the site where potential pollutants can be released and ultimately contact storm water. Figure 3 shows the Potential Pollutants Flow Paths at different facilities.

3.1. Site Drainage and Storm Water Management Structures

The site topography is gently sloped, with the highest elevation running north-south near the center of the parcel. This topography results in storm water draining to the east and west of the property. A drainage channel located along the southern boundary of the property, documented as an intermittent stream, drains to the Chesapeake Bay. Run-off leaves the site from four primary drainage areas as shown on Figure 2, designated as Drainage Area I, II, III, IV, and V.

No storm water run-off discharges from the shellfish holding pond, designated as drainage area V. The holding pond has a geosynthetic impervious liner and provides emergency wastewater storage and storage of wastewater for maintenance operations.

Any water collected in this pond is directed back to the headworks for treatment. The total drainage area covered by the pond is approximately 4.12± acres.

The pond has an underdrain system to remove groundwater from beneath the pond liner by gravity and convey it to the Underdrain Pumping Station. The Underdrain Pumping Station pumps removed groundwater to the shallow wetland storm water management (SWM) area, described in Drainage Area III of this plan. Under normal operation, the pond will be empty; therefore the pumped ground water should not be contaminated. When the pond is used for storage of wastewater (raw or partially treated), the plant personnel can direct the flow of underdrain water to the plant sanitary sewer system. Refer to the Pond Underdrain System Schematic shown on Figure 4 for clarification.

Descriptions of the drainage areas, plant operating facilities, storm water management measures, and drainage outfalls are provided in the sections below. A summary of the characteristics of storm water drainage for each area is provided in Table 3-1 below with each individual area is described in detail in the next sections.