Operation and Maintenance of Stormwater Conveyance Systems

BRIARCLIFF MANOR SCHOOL DISTRICT

Overall Site Drainage System

The existing stormwater conveyance system at the Briarcliff Middle School and High School site consists of various storm drain inlets including catch basins, yard drains, and trench drains that capture stormwater runoff within the site. These storm drain inlets are connected by a system of manholes and piping which conveys stormwater downstream and off the site. The majority of the storm drain inlets collect stormwater runoff via overland flow from the surrounding impervious surface (i.e. parking areas, paved walkways).

public awareness as well as treatment practices is important in order to eliminate or reduce harmful pollutants from being released

The site has five stormwater outfalls which convey stormwater runoff to streams or New York State Department of Conservation (NYSDEC) wetland areas located just beyond the property boundary. The site and receiving water bodies are within the Pocantico River watershed basin. For this reason, it is important to prevent potential pollutants from entering the stormwater system and remove the pollutants if they should enter the system. Public awareness of stormwater runoff, in addition to treatment practices, is important in order to eliminate or reduce harmful pollutants from being released to downstream waterways.

On-Site Pollutants and Sources of Pollutant

Potential pollutants based on the apparent uses at the site are:

- **Oil Drip –** Different chemicals, such as oil or anti-freeze, may drip from the school buses and vehicles onto the paved surfaces. In most cases the catch basins associated with these areas collect direct entry runoff from the paved surfaces.
- **Floatable Debris –** Floatable debris can range from grass clippings to trash. Besides waste material, a common pollutant that often goes unnoticed is the sand/salt used during the winter months. This material, while beneficial during the winter months, can promote clogging within the stormwater collection system and can lead to increased sediment deposition downstream.
- **Animal Waste –** Animal waste, both natural wildlife and domesticated, contains nitrogen, phosphorous, and other harmful bacteria that is damaging to the environment and downstream waterways.
- **Pesticides/Fertilizers –** Chemicals such as pesticides and fertilizers, which are used for lawn maintenance on the athletic fields and on surrounding landscaped areas, can be hazardous to nearby wildlife and natural environments.

Good Housekeeping

Beyond collecting information regarding the on-site stormwater collection and conveyance system, it is equally important to understand the steps involved in maintaining a healthy site or performing “good housekeeping.”

Litter – Establishing set trash containment and recycling areas on-site will help to eliminate street debris and litter. These areas are well marked and provided at a proper spacing to accommodate the project area.

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Chemical and Equipment Storage – It is best when these items are located indoors and kept free from contact with stormwater runoff.

Animal Waste – The grass in the other fields is grown to a height that minimizes the use by pet owners and waterfowl. The facilities staff is also proactive in properly removing and disposing of animal waste.

Fertilizer and Pesticide Use – Fertilizers are applied four times a year in conformance with county and state requirements. An Integrated Pest Management (IPM) program addressing the pesticide management program has been adopted by the District.

Street Sweeping – Street sweeping is performed annually in the spring by an outside contractor.

Inspection & Maintenance

Given the importance of protecting the environment and restoring natural habitat, it is recommended that a site evaluation be carried out at least once a year. The main purpose of the evaluation is to review the existing stormwater collection and conveyance system to understand how it is performing. Some of the items that would be evaluated are:

- Debris and sediment located in or around the storm drain inlet;
- Evidence of pipe blockages due to sediment buildup or any obstruction;
- Condition of the inlet frame, grate, walls, and floor;
- Condition of the inlet pipes and outlet pipes; and
- Evidence of standing water and flowing water within the catch basin. Looking for color, odor, and debris.

Practice in Action

Briarcliff Manor Middle School and High School facilities staff identified excessive erosion, topsoil scouring, and increased sediment buildup along the pathway leading from the main parking area to the track and football field below. By creating a low retaining wall along the edge of the pathway and installing a shallow swale with interconnecting catch basins, the problem was resolved. The vegetation was restored and sediment deposition along the pathway was greatly reduced.