

## 19. STORMWATER MANAGEMENT

### A. Describe the existing drainage patterns on-site as shown on Map I, including any potential flooding and erosion problems.

The majority of the approximately ±500 acre Beacon Countyline Property was part of the Peerless Landfill that was used for disposal of construction and demolition materials over several years before the Property was acquired by the Applicant. The landfill is no longer active. Portions of the landfill were previously closed in accordance with requirements of Miami-Dade County Department of Environmental Resources Management (DERM) and Florida Department of Environmental Protection (FDEP). The existing ground elevations of the Property generally vary. Approximately 80 percent of the Site is covered with C&D material. The area with C&D material has an average elevation of 10 to 12 feet with numerous high stockpiles of material. Areas without C&D material is at an approximate elevation of 4.5 feet.

In present conditions, runoff moves from higher elevations in disposal areas to lower or unfilled areas, where ponding occurs during rainstorms until the water percolates into the ground or flows off-site, generally in the vicinity of the NW 166 Street (Golden Glades Extension) alignment. Other than the temporary ponding noted above, no significant flooding is evidenced or anticipated.

Currently, erosion is not significant on the Site due to the substantial vegetation re-growth that has occurred following the landfill activity. The mounds of C&D materials are heavily vegetated and do not exhibit any significant erosion problem areas. The C&D material, including the stockpiles, will be spread over the remainder of the Site that is permitted for C&D landfill during Site preparation and landfill closure activities.

No surface water bodies currently exist On-Site. Off-site Borrow lakes exist on adjacent properties to the west, south, and east. The water bodies, located on the west, south, and east sides of the Property, are connected to the Biscayne Aquifer and may be considered as recharge points.

### B. Describe the various elements of the proposed drainage system shown on Map I, including any wetlands to be used as part of the system, and discuss the design criteria (including stage-storage/stage discharge assumption) to be used for the various elements. Provide typical cross-sections (showing dimensions, slopes and control elevations) for any proposed lakes or swales. Identify the control elevation for all drainage structures. Include information as to what design storm will be used for what portions of the system.

The conceptual master stormwater management system would consist of three basic components. The first component is a stormwater collection system that collects runoff from the Development located at the top of the landfill in a system of interconnected catch basins. This collection system then discharges into the second component which consists of grassy swales and exfiltration trenches (French drains). The swales would be located along the toe of the landfill at the perimeter of the Site. The system of swales and French drains would consist of an estimated 22,600 linear feet of dry retention swales and approximately 17,500 linear feet of French drains. French drains would conform to the requirements of Miami-Dade Public Works

Department and would be a minimum of fifteen (15) feet deep. This component would provide On-Site dry retention that would exceed the SFWMD water quality treatment requirements. Additionally, the French drains would percolate the runoff into the ground, thereby recharging the groundwater.

This second component would in-turn overflow excess runoff into the third component that consists of two On-Site lakes. These lakes would provide On-Site wet retention. The design storm would be the 100-year 72-hour event with no off-site discharge. The 60-acre site that is being dedicated to the City would provide its own stormwater management system operated by the City of Hialeah. The conceptual stormwater management plan and typical details of the lake shore and swales are included in **Exhibit 19.1 – Conceptual Stormwater Management** and **Exhibit 19.2 – Conceptual Stormwater Details**.

**Map I – Master Drainage Plan**, shows a schematic layout of the Site and required water quality treatment volume for each land area segment. The land area segments are separated by the major roadways and the Golden Glades Exchange right-of-way. The water quality volumes are also described in **Table 19.B.1 (R2) – Land Areas & Anticipated Treatment Volume (T.V.) Requirements**. The conceptual master stormwater management plan showing the location of perimeter swales and On-Site lakes is shown in **Exhibit 19.1**.

One concept contemplates conveyance of some of the stormwater runoff to water bodies located adjacent to the Project Site. The proposed conceptual stormwater management system for the Site does not include off-site lake storage and does not anticipate the need for such storage. However, the Applicant wishes to have this option available should the need arise. Off-site lake storage would be subject to the need for such storage and the ability to negotiate storage rights with the owners of the lakes on adjacent properties. In any event, the Project's water management system will be designed in conformance with the requirements of the FDEP, South Florida Water Management District and Miami-Dade DERM.

To the extent that the 100-year 72-hour design storm will be contained entirely On-Site, the Applicant's current design concept conservatively treats all closed landfill cells as a single closed basin wherein all stormwater is collected and conveyed in a combined system that provides adequate treatment and storage, with no downward percolation of stormwater on cells that will contain a waste layer after closure.

State water quality standards will be maintained by employing BMPs to handle the relocation and storage of landfill materials properly during project construction. A waste relocation plan will be developed to minimize the disturbance of landfill materials on site and to prevent erosion/runoff into adjacent wetlands and other surface waters prior to waste relocation. **Exhibit 13.3** located in revised **Question 13 – Wetlands**, shows the potential locations of silt barriers and floating turbidity barriers. The following actions will be employed to prevent erosion and runoff into adjacent wetlands and other surface waters as necessary:

- To control soil erosion due to wind, during site preparation, the disturbed areas of the Site will be sprayed with water using water trucks. Keeping the soil surface moist will control dust and soil erosion. Contractors will be required to have water trucks On-Site to control dust.

- To control soil erosion due to water, erosion control devices (silt fences, temporary swales and hay bales, as appropriate) will be installed in the immediate vicinity of the waste relocation areas. Erosion control devices will stop soil particles carried by water from entering waterways, stormwater drains, drainage swales, and surface water detention areas. Contractors shall be responsible for maintaining appropriate erosion control devices.
- Silt barriers/floating turbidity barriers will be used during waste relocation that may impact the adjacent surface water. Turbidity barriers will prevent turbidity in water in the vicinity of the earthwork location from spreading to other areas of the surface water pond.

Gravel will be placed at the entrance of the Site to clean mud from truck tires. Gravel will minimize the amount of mud and soil carried off-site by trucks.

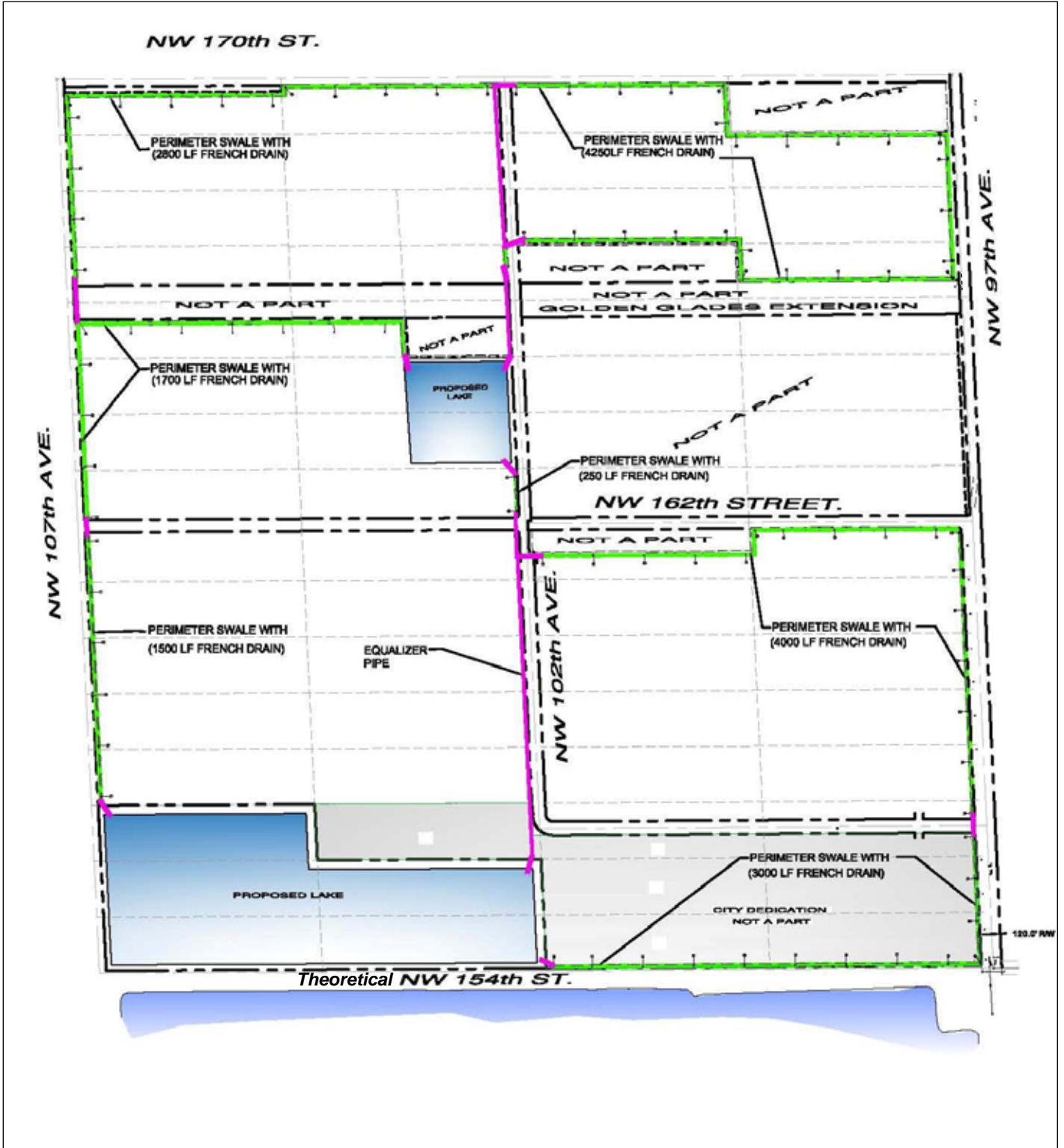
Currently, it is not anticipated that dewatering will be required for site development; however, it is acknowledged that permits/approvals will be required from SFWMD and DERM if dewatering is necessary. If there is a potential for induced movement of existing contamination plumes resulting from the necessary dewatering activities for development, the applicant will coordinate with DERM and SFWMD staff to address the associated issue.

A stage-storage analysis of each proposed stormwater detention and retention facility will be performed to determine the treatment volume provided in the system. The treatment volumes will be based on South Florida Water Management District requirements. **Table 19.B.1 (R2) – Land Areas & Anticipated Treatment Volume (T.V.) Requirements** indicates the acreage of each land area and the anticipated treatment volume requirements. Because pond areas do not require treatment volume, the numbers do not total 500 acres. Treatment volume numbers are based on an estimate of 2.5 inches of treatment over 80 percent of each Land Area (assumed 80 percent impervious) except Number 7 which will be a 60-acre site dedicated to the City. The City would provide a storm water management system for Land Area Number 7. This site is expected to include a large park/recreation area with a police station and a fire station. The site is expected to be less than 40 percent impervious and that 1.0 inch of Treatment Volume would be required. Please note that the previous Land Area Number 6 has been deleted.

| <b>Table 19.B.1 (R2)<br/>Land Areas &amp; Anticipated<br/>Treatment Volume (T.V.) Requirements</b> |                |                                   |
|--|----------------|-----------------------------------|
| <b>Land Area Number</b>  | <b>Acreage</b> | <b>Treatment Volume (ac.-ft.)</b> |
| 1  | 56             | 9.3                               |
| 2  | 70             | 11.7                              |
| 3  | 68*            | 9.8                               |
| 4  | 146*           | 17.3                              |
| 5  | 100            | 16.7                              |
| 6  | Omitted        | Omitted                           |
| 7  | 60             | 5.0 – By City of Hialeah          |
| <b>Total</b>   | <b>500</b>     | <b>69.8</b>                       |

Source: PBS&J, Inc.

\* Acreage includes lakes that do require T.V.







Notes:

1. French Drain and catch basin on perimeter swale.
2. Diameter of culverts and equalizer pipe to be determined.

Source: PBS&J, 2008

 Map Not To Scale

Legend:

-  Property Boundary
-  Swale (22,600 LF MIN) & French Drain (17,494 LF MIN)
-  Culvert Connection
-  Culvert with Control Structure (Overflow)

**Exhibit 19.1**  
**Conceptual Stormwater Management**  
**Beacon Countyline DRI**



- C. From Map I, indicate the total number of acres in each drainage area and specify the acreage of any portions of drainage areas outside the site boundaries. Complete the following table for on-site drainage areas.

**Table 19.B.1 (R2) – Land Areas & Anticipated Treatment Volume (T.V.) Requirements**, shows the total number of acres in each post-development drainage basin. These basins encompass no off-site drainage areas. The storage capacity needed to hold and treat stormwater in each drainage basin will be based on the SFWMD requirements. The design storm conditions are described below. The required treatment volume will be provided as discussed in **Section 19.B.** above.

- D. Specify and compare the volume and quality of run-off from the site in its existing condition to the anticipated run-off at the end of each phase of development. (The parameters to be used to define "quality" and methodology should be agreed to by the regional planning council and other reviewing agencies at the pre-application conference stage.) Identify any changes in timing or pattern of waterflows between pre- and post-development conditions. Indicate major points of discharge and ultimate receiving water body(ies). Indicate what provisions will be incorporated in the design of the drainage system, including a summary description of any Best Management Practices to be utilized, to minimize any increase in run-off from the site and to minimize any degradation of water quality in the ultimate receiving body over that occurring in its pre-development state.

Approximately 80 percent of the ±500 acre Beacon Countyline Property was part of the Peerless Landfill that was used for disposal of construction and demolition materials over several years before the Property was acquired by the Applicant. Through implementation of an approved landfill closure plan, including a stormwater management system as described in **Section 19.B.**, current drainage patterns will be substantially changed to provide flood protection, and stormwater protection and treatment in accordance with all applicable regulations.

The conceptual master storm water management plan is designed to retain the 100-year 72-hour storm on site with no off-site discharge. Thus, the proposed system vastly improves the existing conditions. As described in **Section 19.B.**, BMPs would be employed to maintain the state water quality standards during construction.

- E. **Who will operate and maintain the drainage system after completion of the development?**

The stormwater system will be operated and maintained as a unified system by a Property Owners Association or Community Development District or other appropriate entity deemed acceptable to the permitting agencies. Facilities located within public road rights-of-way will be dedicated to the applicable public entity for maintenance.