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 520-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 The landfill is no longer active.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 general vary. Approximately 77 percent of the Site is covered with an average of 10 to 12 feet of C&D material. The C&D material will be spread over the remainder of the Site during Site preparation and landfill closure activities.

No surface water bodies currently exist on-site. Borrow lakes exist on adjacent properties to the west, south, and east. Rainwater runoff generally flows through and off the Site by sheet flow or by percolating through the surficial material at the Site. 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 stormwater management concept for the proposed Beacon Countyline DRI consists of the development located on top of the closed landfill cells. Runoff from the developed areas over the cells will be directed to a network of ponds and swales to store and treat stormwater. The network will protect against flood damage and adverse impacts on the quality of surface and groundwater.

Map I shows a theoretical schematic layout of the Site and required treatment volume as described below. However, such plans may need to be modified to revise the conceptual stormwater management plan. One concept contemplates conveyance of some or all stormwater to water bodies located adjacent to the Project Site. 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 stormwater management system 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. Rainfall on a land area will be collected in storage facilities on the land area prior to discharge to swales located

around the Property perimeter, or to conveyance swales located in public street right-of-way.

As stated previously, the Development will be located on the top of closed landfill cells. Storm water collection systems consisting of interconnected catch basins and manholes will drain these developed areas and not allow runoff to percolate into the closed cells. The collection systems will then discharge into a system of grassy swales located along the perimeter of the Project. These swales will be located outside of the closed cells. Exfiltration trenches will be located in the swales and the combination of surface storage in the swale and exfiltration will provide the required water quality retention to meet the requirements of the South Florida Water Management District and DERM. Having met the water quality requirements, the swales will convey and overflow excess runoff into retentions ponds that will be designed to meet water quantity requirements.

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 19.1 - Land Areas and Anticipated Treatment Volume (T.V.) Requirements** below 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 520 acres. Treatment volume numbers are based on an estimate of 2.5 inches of treatment over 80 percent of the impervious area for each Land Area except number 7. Land Area 7 is expected to be park/recreation area. Treatment volume numbers for this land area are based on 1 inch of treatment across the entire land area.

TABLE 19.1

Land Areas and Anticipated Treatment Volume (T.V.) Requirements

Land Area No.	Acreage	T.V. (ac.-ft.)
1	62	12.9
2	80	16.7
3	74	13.5
4	138	19.4
5	100	20.8
6	26	5.4
7	40	by City
Total	520	88.7

Source: PBSJ, Inc.

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.

The table above shows the total number of acres in each land area. The storage capacity needed to hold and treat stormwater on each drainage basin is determined by the South Florida Water Management District and the City of Hialeah. 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.

A closed landfill is typically required to include a 2-foot thick cover that is intended to prevent or drastically reduce the entry of stormwater into the waste material. The proposed Project will be developed with that that 2-foot thick cover except where buildings and pavement are located as they are expected to substitute for the 2-foot thick cover. The stormwater management system for the Project will require an Environmental Resource Permit that must meet the standards and criteria of the South Florida Water Management District and DERM.

The ponds will be constructed as development begins so that, as each phase of the Project comes on line, there will be adequate treatment volume and pond storage to meet discharge requirements. The development of the Project will not significantly alter the timing or patterns of water flows.

No outfall locations for the site have been identified at this time. However, this determination and requirement will be reviewed with the South Florida Water Management District and DERM. In any event, the post-development discharge will not exceed the pre-development discharge. The Applicant is exploring the possibility of purchasing off-site drainage rights, as an alternative to satisfying stormwater management requirements On-Site.

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

The stormwater system will be operated and maintained as 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.