

12. VEGETATION & WILDLIFE

BACKGROUND AND GENERAL SITE CHARACTERISTICS

Historically, the Property was part of broad Sawgrass flats in the greater Everglades ecosystem that ultimately flowed into Biscayne Bay. Over time, the Property has been converted to agricultural use and most recently has been utilized as a construction and demolition debris (C&D) landfill and material reclamation facility (MRF). Portions of the perimeter of the Property are surrounded by a berm and on portions of the Property a stormwater treatment system has been constructed in conformance with State water quality standards. Several Florida Department of Environmental Protection (FDEP) and Miami-Dade County Department of Environmental Resource Management (DERM) Permits have historically been issued for the C&D and MRF use.

Large areas of the Property have also been, and continue to be, utilized as storage areas for C&D material and reclaimed material. Extensive areas of the Property are currently densely vegetated with invasive and exotic vegetation and suffer from near and regional drainage activities. Soils have been altered through oxidation resulting from drainage and water management activities. The area has been drastically altered by ditching and draining as well as agricultural and landfill activities On-Site. As such few areas on the Property represent typical native habitats for the region.

- A. Identify the dominant species and other unusual or unique features of the plant communities on Map F. Identify and describe the amount of all plant communities that will be preserved in a natural state following development as shown on Map H.**

The results of the vegetation and land use survey for the Property are listed in the following **Table 12.A.1 (R2) – Habitat Acreage** and are illustrated on **Map F.1 (R2) – Vegetation Association**. Please note that all acreages and jurisdictional boundaries must be confirmed by Federal, State and County regulatory agencies. Representative photographs of each land use type are shown in **Exhibit 12.1 (R) Land Use Type Photographs**.

Habitat	FLUCCS	Acreage
Total Landfill Acreage		396
Solid Waste Disposal	8350	216
Unimproved Pasture	2120	147
Brazilian Pepper	4220	32
Australian Pine	4370	1
Total Wetlands Acreage		104
Wet Melaleuca	6191	86
Wet Prairie	6430	17
Ditch	5103	1
Total Site Acreage		500

Source: RS Environmental Consulting, Inc.

Specific descriptions of each of the land use types that were found on the Property are as follows:

Landfill (396 Acres)

Approximately 80% of the Property consists of land designated as Landfill. This existing land use category includes areas with C&D fill as well as former landfill areas that have been converted to different land cover types. Specific descriptions of each of the land cover types within the category of landfill that were found on the Property are as follows.

8350 – Solid Waste Disposal (216 acres)

This category is the dominant land feature found on the Property. Please note that other areas with a different land cover type have not been included in this category, even though these other lands are within areas designated for C&D landfill use. Some areas of the landfill are elevated and covered with fill other areas consist of exposed debris. Areas covered with soil were well recruited by ruderal vegetation including Ragweed (*Ambrosia artimissifolia*), Lead Tree (*Leucaena leucocephala*), Australian Pine (*Casuarina equisetifolia*), Brazilian Pepper (*Schinus terebinthefolius*), and Woman's Tongue (*Albizia lebbek*). Areas that were leveled and graded were further characterized based on their use, e.g. Improved Pasture.

2120 – Unimproved Pasture (147 acres)

These lands are former C&D landfill sites that are now vegetated, fenced and are actively used as cattle pasture. They are topographically distinct from adjacent wetlands with a rise of 3 to 4 feet. Typical of improved pasture, these areas are dominated by herbaceous ruderal plants, albeit grasses are not dominant. Species noted included Wireweed, Ragweed, Cuban Jute (*Sida rhombifolia*), and Beggar-ticks. It should be noted that within this category with a FLUCCS code of 230 – Small Farms, Feeding Operations exists On-Site and includes small, active, makeshift livestock operations. Although too small to show on the map, these consisted of disturbed uplands with mostly bare ground and animal enclosures made from building materials and spare parts.

4220 – Brazilian Pepper Exotic Hardwood Upland Forest (32 acres)

These former landfill areas, typically located on the outer edges of the Property, are now dominated by a canopy of the exotic hardwood Brazilian Pepper. In some cases, this land use type was former pasture that has grown in with shrubby vegetation in the absence of grazing animals or maintenance activities.

4370 – Australian Pine (1 Acre)

These transitional areas dominated by a canopy of Australian Pine were occasionally found lining the ditches on the perimeter of the Property. Understory species are typically repressed by the leaf litter of this exotic hardwood.

Wetlands (104 Acres)

The remaining approximately 20% of the Property can be classified as wetlands as shown on **Map F.2 (R2) – Wetlands**. These areas represent portions of the Property that were not filled as part of the C&D landfill operation. Specific wetland types

found on the Property are described as follows:

6190 – Wet Melaleuca (86 acres)

These wetland areas are dominated by a canopy of Punk Tree (*Melaleuca quinquenervia*). Understories varied from medium to sparse coverage and included Trema (*Trema micrantha*), Strangler Fig (*Ficus aurea*), Ear-Leaf Acacia (*Acacia auriculiformis*), Saltbush (*Baccharis halimifolia*), Shield Fern (*Thelypteris kunthii*), Sword Fern (*Nephrolepis sp.*), and Sawgrass. The state-endangered plant Southern Frogfruit (*Phyla stoechadifolia*) was noted in this habitat in a colony of approximately 20 individuals.

6430 – Wet Prairie (17 acres)

This wetland habitat showed disturbance from ditching and draining as well as impacts from invasive-exotic plants, but appeared the least disturbed in regard to physical impacts compared to the surrounding area. Signature species for this habitat included Sawgrass, Bushy Bluestem and Coinwort (*Centella asiatica*), with any combination of these filling at least 20% of the overall plant coverage. Other species included Common Frogfruit (*Phyla nodiflora*), Southern Cattail (*Typha domingensis*), Jointed Spikerush (*Eleocharis interstincta*), Primrose Willow (*Ludwigia peruviana*), Water Primrose (*Ludwigia octovalvis*), Dog Fennel (*Eupatorium sp.*), Goldenrod (*Solidago sp.*), Ragweed, and Beggar-Ticks.

5103 – Ditch (1 acre)

Perimeter ditches were noted around portions of the Property. Although too small to be mapped, these ditches were typically included in the narrow exotic hardwood land cover type on the outer perimeter of the Property. Smaller ditch-like areas were noted with the interior of the Site as well. Some of these areas were inundated and contained hydrophytes such as Sawgrass, Spatterdock (*Nuphar lutea* subsp. *advena*), Creeping Ox-Eye (*Wedelia trilobata*), and Sword Fern (*Nephrolepis sp.*). Vegetation at the top of bank of these artificial features was typically dominated by exotic hardwood species including Brazilian Pepper, Australian Pine, and Guava (*Psidium guajava*).

Because of the highly disturbed nature of the Property, the entire Site is proposed to be developed. There is no pristine or valuable habitat remaining on the Property that would be feasible to preserve.

- B. Discuss the survey methods were used to determine the absence or presence of state or federally listed wildlife and plants. (Sampling methodology should be agreed to by the regional planning council and other reviewing agencies at pre-application conference stage.) State actual sampling times and dates, and discuss any factors that may have influenced the results of the sampling effort. Show on Map G the location of all transects, trap grids, or other sampling stations used to determine the on-site status of state or federally listed wildlife and plant resources.**

Evaluation and Documentation of Vegetative Communities and Land Cover

Pursuant to the methodology agreed upon at the pre-application conference an evaluation of the Property included a review of the available literature on listed plant and animal taxa within the Property and adjacent sites, review of recent and past

aerial photographs of the Property, and On-Site field analysis.

The Site assessment procedure was conducted in phases; reconnaissance, site specific, taxa specific and comprehensive. Following the preliminary reconnaissance level evaluations of the Property, thorough literature review and field surveys, the Property was surveyed to identify the extent and quality of listed plant and wildlife species and their habitats throughout the study area. The field evaluations were conducted during the daylight hours, unless otherwise indicated, during the spring and early summer months of 2007. Preliminary analyses of the On-Site conditions were conducted during May of 2007 in order to determine the most appropriate locations for vegetation and wildlife transects and field observation locations. These reconnaissance level evaluations were used to finalize the specific location for the observation station assignment and transect positioning. The location of these stations and transects have been situated so as to provide a complete and comprehensive representation of the wildlife utilization and related natural system conditions On-Site. Initial Site vegetation mapping was conducted using ArcView GIS software and 2006 georectified color aerial imagery provided by Miami-Dade County. This evaluation also included a review of the literature as well as recent aerial photographs to identify the possible presence of listed plant species or their habitats. Historic aerial photographs were also consulted to provide additional information concerning habitat alterations, succession, or natural system location, extent and quality.

Habitat types were identified by an ecologist with local knowledge and experience. The locations of habitat types were converted into Arc-View shape files. A review of the DERM Class IV permit history revealed a detailed history of the previous landfill activities, and also included a habitat and wetland field review performed by Law Engineering and Environmental in May 1999. In addition, a 2003 topographical survey, 2004 color-infrared imagery and historical black and white aerial photographs dating back to 1940 were also reviewed to help clarify the photo-interpretation of the 2006 aerials.

The initial historical reviews were supplemented by additional surveys by ground vehicle and pedestrian survey to confirm or amend the preliminary findings. Extensive field evaluations of the study area were conducted by multiple pedestrian surveys of each of the habitat types identified within the study area during these initial analyses. The field reviews were designed to provide data and information relative to the presence of listed species or their habitats within the study area. Documented evidence or field identification of listed species were recorded and identified on a scaled aerial photograph and map of the Property.

On May 2, 2007, a ground-truthing survey was performed. This survey was performed by vehicle and on foot utilizing a hand-held GPS unit preloaded with Property control points and boundary information. During the survey, all plant and animal life, and their signs, were noted with particular attention paid to the potential presence of State and Federal listed species. Additional supplemental pedestrian surveys were conducted by RS Environmental Consulting, Inc. during October 10-11, 2007.

The additional supplemental pedestrian surveys were conducted through all areas of vegetated habitat within the limits of the Property. The field evaluation consisted of a

series of prescribed and random transects. The programmed location of the prescribed transects are depicted on **Map G (R2) – Sample Station Locations**. These predetermined transect locations were designed to pass through all preliminarily identified habitat types On-Site and have been located on a grid sufficient to identify the ecological conditions within the Property. However, additional random transects were used to evaluate areas of potential importance that fall outside the predetermined transect fields of analysis. All transects include the identification of the dominant vegetation encountered along the transect line, the stratum that the vegetation is identified in, and wetland indicator status (using the US Army Corps of Engineers and applicable Florida wetland delineation protocol) along with an indication of relative abundance and dominance within the habitat type. Recent documented accounts of, or actual sightings during the field evaluations of, Critically Imperiled, Imperiled or Rare Listed plant taxa within the limits of the Property were located and recorded on a suitably scaled map and aerial photograph of the Site. **Map G (R2) – Sample Station Locations** depicts identified plant resources multiple individuals, populations or communities.

The field evaluations of both of the Project areas consist of a minimum of five transect lines within each of the specific vegetative habitat types as identified by the *Florida Land Use, Cover and Forms Classification System (FLUCCS)*; Second Edition, published by the Florida Department of Transportation, 1985. The results of the individual transects were combined into a single data set for each of the mapped FLUCCS classifications and included in the discussion on vegetation.

Evaluation and Documentation Protocol for Listed Wildlife Species

Each of the individual community types contained on the Property which was mapped pursuant to the reconnaissance level and comprehensive vegetation and wetland surveys were also evaluated for the presence of “State and Regionally Significant Federally Listed Wildlife” and “State Listed Wildlife Species” as well as their habitats. The analysis included a review of the literature, recent and historic aerial photograph review as well as field evaluation by pedestrian survey. The evaluations were conducted within each discrete habitat type and consisted of a minimum of seven prescribed wildlife observation points established within, or adjacent to, each of the habitat types for the Property. Each of the wildlife observation points were surveyed for wildlife or their indicators during daylight hours on a minimum of four field evaluation days. The indirect indicators of wildlife utilization included, but were not necessarily limited to, tracks, scat, calls or vocalizations, burrows, nests and roosting sites.

All of the various habitat types found within the Property, including parcels dominated by herbaceous plants, woody plant dominated forests and denuded lands, were surveyed along transects spaced to provide adequate sample size that effectively enabled accurate and complete description of the habitat area and all entrained communities or populations. While the general transects and wildlife observation points occurred as shown in **Map G (R2) – Sample Station Locations**, the field review also included additional random transects or wildlife observation locations, where necessary, to completely describe a specific area important ecotone or wildlife use. No trapping was conducted as part of the field evaluation as Site review and field observation was deemed suitable for the habitat areas and potentially included wildlife taxa anticipated to occur within the Property limits.

- C. List all state or federally listed wildlife and plant resources that were observed on the site and show location on Map G. Given the plant communities on-site, list any additional state or federally listed wildlife and plant resources expected to occur on the site and show the location of suitable habitat on Map G. Additionally, address any unique wildlife and plant resources, such as colonial bird nesting sites and migrating bird concentration areas. For species that are either observed or expected to utilize the site, discuss the known or expected location and population size on-site, existence (and extent, if known) of adjacent, contiguous habitat off-site, and any special habitat requirements of the species.**

As stated previously, almost the entire Property has been disturbed. The least disturbed portions of the Site were short-hydroperiod wetlands that contained fairly altered vegetative compositions, including invasive exotics, due to the historic drainage projects of South Florida. More commonly, habitats were wholly altered, with the use of filling and/or agricultural activities or whole scale invasion by exotic plants such as Melaleuca. Although there are remnant wetlands On-Site, there was a distinct lack of areas that would receive long enough periods of inundation to generate the aquatic prey base needed to sustain wetland dependant species. Such areas were confined to man-made drainage features on the Property. In addition, it should be noted that all upland areas on the Site are equally disturbed and unnatural.

A small population of the State-endangered Southern Frogfruit (*Phyla stochaedifolia*) was observed on the margins of Melaleuca wetlands towards the center of the subject Site. This species is locally abundant and can likely be found On-Site in wetland habitats hydric enough to support Sawgrass (*Cladium jamaicense*).

The State-threatened Tricolor Heron (*Egretta tricolor*) was observed near a drainage ditch on the western border of the Property. Similarly, the non-listed Green Heron (*Butorides virescens*) was observed in depression wetlands near the eastern border of the Property. Areas of inundation can be expected to be visited by South Florida wading birds. An overflight by a White Ibis (*Eudocimus albus*) was observed near the southeast corner of the Property. Although state-listed wading bird species were observed on or near the Property, no nesting areas were observed.

The potential for additional listed plant or animal resources to be found On-Site is severely limited due to the altered nature of the Site.

- D. Indicate what impact development of the site will pose to affected state or federally listed wildlife and plant resources.**

Of the listed plants that could possibly be found on the Property, most are scarce enough that they are highly unlikely to be seen outside of their preferred native habitats, particularly in those areas that have been scraped down or filled. The exceptions to this are the Florida Royal Palm and Southern Frogfruit (observed On-Site), both of which are locally abundant and known to recruit into disturbed wetlands. The historical distribution of the Royal Palm was centered around Royal Palm Hammock, in what is now Everglades National Park. Its popularity as a landscape tree and its ability to recruit into a variety of wetland habitats has caused

this species to occur in a much broader range than it was found in historically. As such, protection of this species, if found on the Property, would not be appropriate above and beyond that required by Chapter 24 of Miami-Dade County Code. Southern Frogfruit was found on the margins of Melaleuca habitat, and can likely be found in similar habitats, particularly where light gaps occur. This species is state-listed only. From a regulatory standpoint, this only regulates the collection of the species. There are no state restrictions on development with regards to this species.

Of the listed animals, it is expected that wetland-dependant avian species will occasionally utilize the Property for feeding, as this was observed On-Site. Most of this use will be confined to the few areas that are wet enough to contain aquatic prey. None of the existing disturbed habitat is proposed to be preserved due to the intensive land uses (C&D landfill and MRF) that have occurred on the Property.

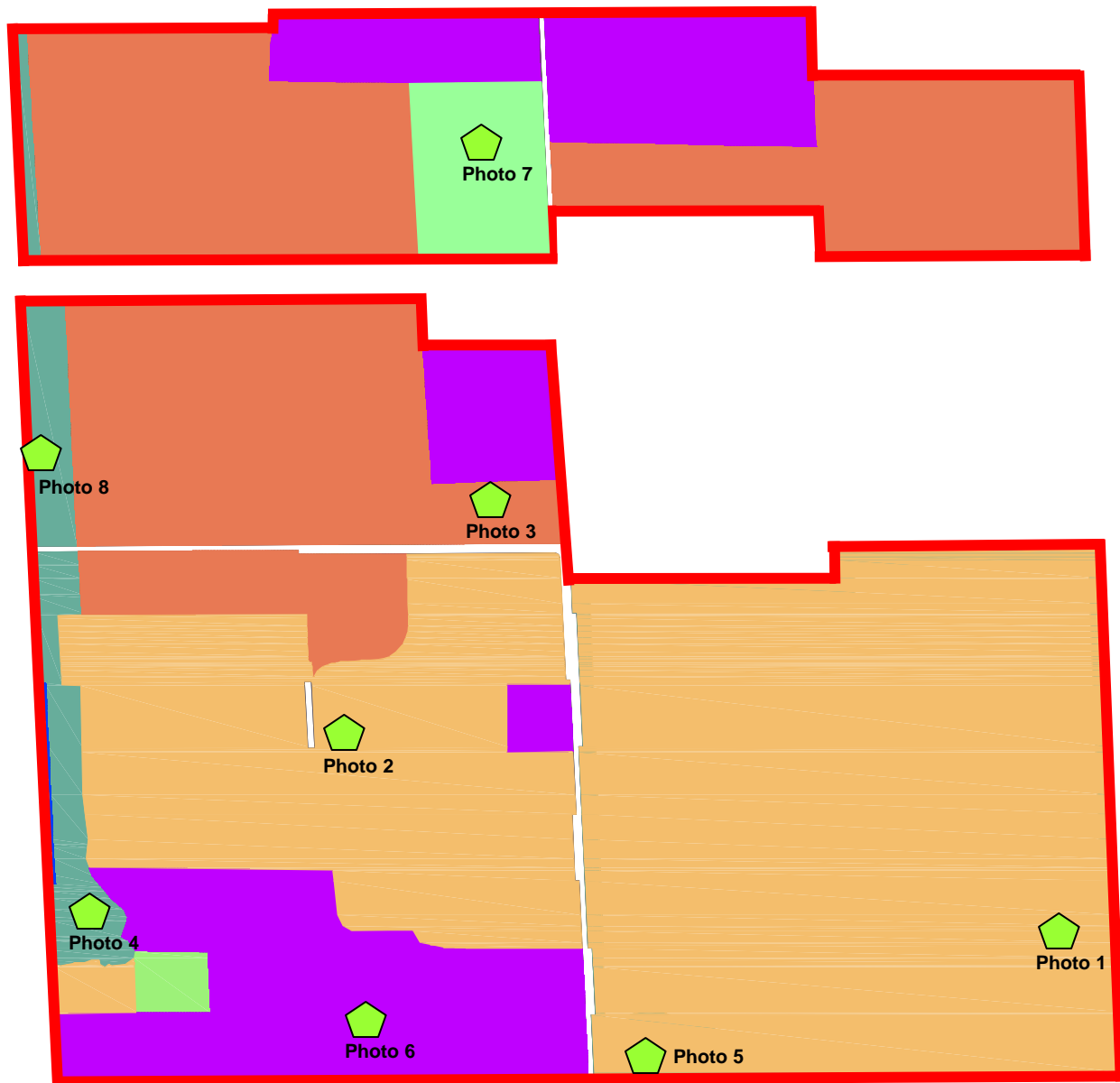
- E. Discuss what measures are proposed to be taken to mitigate impacts to state and federally listed wildlife and plant resources. If protection is proposed to occur on-site, describe what legal instrument will be used to protect the site, and what management actions will be taken to maintain habitat value. If protection is proposed to occur off-site, identify the proposed amount and type of lands to be mitigated as well as whether mitigation would be through a regional mitigation land bank, by acquisition of lands that adjoin existing public holdings, or by other means.**

As a result of the highly disturbed nature of the remaining habitat found within the Property, the entire Site is proposed to be developed. There is no pristine or valuable habitat remaining On-Site that would be feasible to preserve. Although use by listed species has been observed, there is no preferred habitat or critical habitat located On-Site that should be preserved for species management. Because of the significant adverse impacts to historic hydrology patterns and with all of the exotic plant species existing on neighboring property, efforts toward restoration of native habitat would not be practical.

Mitigation for Project-related impacts will be developed pursuant to an environmental resource permit that will be sought for relatively small areas of the Property. This will be specifically discussed in response to **Question 13 – Wetlands** in this ADA. The Project will include the removal of the extensive stands of exotic plants. Mitigation for other Project activities is not proposed due to the significant altered nature of the area and lack of native natural systems On-Site.

Exhibit 12.1 (R2)

Land Use Type Photographs



Source: RS Environmental Consulting, Inc., 2007; Adapted by The Curtis Group, 2008

 Map Not To Scale


Legend:


Property Boundary


Photo Location




Landfill (396 Acres)


 Solid Waste Disposal 8350


 Unimproved Pasture 2120


 Brazilian Pepper 4220

 Australian Pine 4370

Wetlands (104 Acres)

 Wet Melaleuca 6190

 Wet Prairies 6430

 Ditch 5103

**Exhibit 12.1 (R2)
Land Use Type Photos
Beacon Countyline DRI**



Photograph 1: Solid Waste Disposal



Photograph 2: Solid Waste Disposal



Photograph 3: Unimproved Pasture



Photograph 4: Brazilian Pepper



Photograph 5: Australian Pine



Photograph 6: Wet Melaleuca



Photograph 7: Wet Prairie



Photograph 8: Ditch