

**Preliminary Jurisdictional Determination
for the proposed project
Urbanización Monte Sierra
Barrio Caracoles
Mayagüez, Puerto Rico**



Prepared for
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I. INTRODUCTION

1. Site Location and Description

Proposed residential project “**Monte Sierra**” is located in Quebrada Grande Ward of the Municipality of Mayagüez. This is situated south of Kilometer 1.1 of State Road PR-349. **Figure 1: Location Map** presents the lot position in the Mayagüez and Rosario USGS Topographic Quadrangles. The parcel estimated area is about 59.33 acres.

Topographically wise, the proposed project site is located in the hills located on the outskirts of the town of Mayagüez. Site elevations ranges from 50 to 160 meter above sea level, slopes are moderately steep, about 20 to 40 percent. Site is almost all forested, especially along the ravine and gullies that drain upland runoff. The existing relatively permanent topographic conditions constitute the “**normal circumstances**” for the purpose of the 404 jurisdiction.



FIGURE 1: LOCATION MAP

2. Purpose

Recognizing the potential for continued or accelerated degradation of the Nation's waters, the U.S. Congress enacted the Clean Water Act (hereafter referred to as the Act), formerly known as the Federal Water Pollution Control Act (33 USC 1344). The objective of the Act is to maintain and restore the chemical, physical, and biological integrity of the waters of the United States. Section 404 of the Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into the water of the United States, including wetlands. In Puerto Rico, the office responsible for overseeing and enforcing compliance with the Act is the Antilles Regulatory Section, Antilles Office, Jacksonville District, Corps of Engineers.

The purpose of this Jurisdictional Determination is to establish whether or not the proposed project site has wetland features the purpose of Section 404 of the Clean Water Act, and attempting to classify it by wetland type according to 1999 Cowardin's wetland classification.

3. Methodology

The methodology used for this Wetlands Delineation Study is based on the procedures contained in the Wetlands Delineation Manual issued by the United States Corps of Engineers (Final Report dated January 1987).

Based on the low level of complexity and the scarce quantity and quality of available information for the area in question, a Level 3 "**routine**" approach was selected using primarily qualitative procedures.

Because the projected area is situated on moderately steep hills with ravines and upland drainage gullies, a series of sampling points were established on those ravines and gullies that could present mandatory technical criteria. A total of four (4) sampling points were randomly located along the low areas of the ravines. Sampling points are identified in the study design map submitted. The fieldwork was conducted on March 11, 2007.

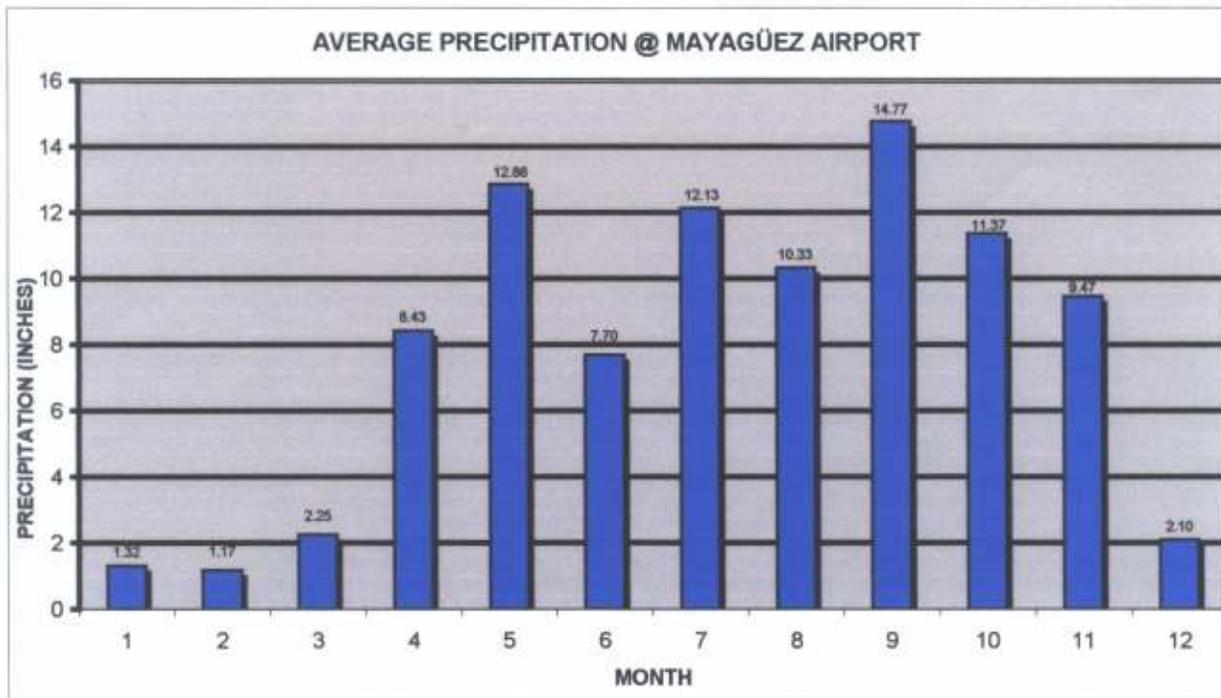
II. ENVIRONMENTAL INFORMATION

1. Climate

The study area is located within the subtropical humid ecological lifezone. In the Mayagüez Area, as in most of Puerto Rico, there is only a small variation each year from the average temperature. Mean daily maximum temperature ranges from 86.1° F in January to 90.2° F in August along the coast. The mean daily minimum temperature varies from 63.3° F in March to 70.9° F in August. Average relative humidity in mid afternoon is about 69% along the coast. Humidity is higher at night, and the average at dawn is about 80 percent. Except during January and February, days are warm yearlong and nights are warm throughout the year.

Much of the rainfall is orographic and is produced by the lifting of moist trade winds over interior ridges. The rainfalls as brief showers that are frequently moderate to heavy, especially in the period May through November, being the period between December thru April the driest (Figure 2). The average precipitation ranges from 1.17 inches in February to 14.77 inches in September, averaging 65.9 inches. The dry season occurs during the period of December through March. Precipitation data for the central northern coast of Puerto Rico are given on Table 1.

**Figure 2: Annual Precipitation Data from the Mayagüez Airport
(Based on data for the period of 1998-2005)**



**Table 1 : Annual Precipitation Data from the Mayagüez Airport
(Based on data for the period of 1998-2005)**

Annual Precipitation @ Mayagüez Airport													
YEAR	MONTH												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1998	3.30	1.54	4.21	3.50	9.18	6.84	18.45	13.52	23.75	6.12	6.56	2.46	8.29
1999	1.30	2.50	8.40	0.50	5.40	12.88	9.71	3.18	16.28	15.24	26.98	0.58	8.58
2000	0.19	0.15	1.16	6.12	19.33	10.71	1.45	16.72	23.22	3.19	1.17	0.16	6.96
2001	0.23	0.32	0.38	12.56	19.33	1.09	21.90	13.53	27.38	18.07	3.26	3.68	10.14
2002	0.50	0.08	0.01	17.01	13.79	5.92	14.04	8.24	4.72	22.83	10.82	2.72	8.39
2003	0.54	3.52	0.19	8.42	6.45	3.22	4.88	6.29	4.59	7.74	17.88	3.42	5.60
2004	3.55	0.93	3.15	5.73	9.37	7.32	12.84	3.82	11.99	4.38	2.98	0.68	5.56
2005	0.92	0.33	0.52	13.62	20.04	13.61	13.79	17.32	6.20	13.35	6.09	3.06	9.07
TOTAL	1.32	1.17	2.25	8.43	12.86	7.70	12.13	10.33	14.77	11.37	9.47	2.10	62.59

2. Geology

There are four major lithologically distinct rock groups present in the Mayagüez region. They are: the Bermeja Complex of Jurassic to Early Cretaceous age; a suite of volcanic, volcanoclastic, plutonic, and sedimentary rocks of Late Cretaceous age; limestone formations of Late Cretaceous age; and alluvial deposits of Quaternary age. The Bermeja Complex of Jurassic to Early Cretaceous age (Montgomery and others, 1994) consists primarily of serpentinite, amphibolite, basalt, and chert. It is highly deformed and metamorphism has destroyed most primary textures, bedding, and lithological relations. It is most extensively exposed in the southwestern part of the Mayagüez region.

III. WETLAND INDICATORS

Wetlands have the following general diagnostic environmental characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Evidence of a minimum of one positive wetland indicator from each parameter must be found in order to make a positive wetland determination.

1. Vegetation

For the purpose of Corps of Engineers Wetland Delineation Manual (Tech. Report Y-87-1), hydrophytic vegetation is defined as the sum of the total macrophyte plant life that grows in water, soil or substrate that is at least periodically deficient in oxygen as result of excessive water content.

Site vegetation consists of more than one plant associations. Therefore, as mandatory we are taking into consideration plant species dominance among other parameter in order to determine jurisdiction. Relative dominant plant species were selected independently from each stratum (upper canopy layer, understory layer, shrub and tall herbs layer, and the ground cover layer) of the plant community. For each stratum of a particular plant community, dominant species are to the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceed 50 percent of the total dominance measure for the stratum, in addition to any other species comprising 20 percent or more of dominance measure for the stratum (50/20 rule). Various measures were used to express the relative dominance of the plant species for each particular plant community:

- Estimating those species having the greatest relative basal area for the tree stratum;

- Percent of aerial cover for herbs stratum;
- Stem density for shrubs and/or saplings and woody vines stratum;
- Frequency of occurrence (percentage of sampling points that contain the species of interest.

For determination purposes, vegetation samples were done visually, using one or more of the plant dominance measurements described above.

Mostly tress, woody vines, and tree saplings and shrubs dominate the study area. Among the identified woody species surveyed along the forested ravines were recognized the presence of, in the main, of species characteristic of stationary formations, in particular evergreen and deciduous stationeries associations, typical of serpentinite forest ranges of western Puerto Rico.

On most surveyed areas, the forest was organized on two (2) stratum, with some deciduous trees such as *Hymanea curbaril*, *Cecropia peltata*, and *Andira inermis* in the canopy stratum, and *Myrcia spendens*, *Syzygium jambos*, *Licaria salicifolia*, and *Casearia sylvestris* in the forest understory. Ground cover was dominated chiefly by *Piper aduncum*, *Ichnanthus pallens* *Teliostachya alopecuroidea*, *Deffenbachia seguine* and *Thelypteris poiteana*. These last two species, which are hydrophytes, are readily found on the basin of the intermittent creek and other wet places found along the ravines and/or gullies.

2. Soils

The soils parameter must be considered in any plant community in which: the community is dominated by one or more FAC species; no community type dominated by OBL species is present; the boundary between wetlands and nonwetlands is gradual or non-distinct; and the area is known to or is suspected of having, significantly altered hydrology. The Natural Resources Conservation Service of the United States Department of Agriculture lists the soils observed in the proposed mitigation area as hydric and non-hydric, but does support the growth of hydrophytes.

According to the Soil Survey of Mayagüez Area of Western Puerto Rico (Sheet No. 46), do not indicate a particular type or association of soils for the site. Instead indicates that the site soils are classified as “**Serpentinite outcrop (So)**”, which are areas where 75 to 100 percent of the soil surface are cover by a serpentinite outcrops. The slope ranges from 0 to 60 percent. In accordance to the Natural Resources

Conservation Service, 80% of the proposed area is of this type of soil. See **Figure 3**.

Some irregularly shaped areas not covered by the outcrop, which consist of gravelly or cobbly soil materials are five inches (5) thick and soil color are red, black, or reddish brown. In few places there are pockets of red or black soils between the outcrops. This type of soil was particularly observed on the intermittent riverbed.

These red or reddish-brown soils use to contain a great portion of iron oxides (derives from primigenial rocks) that have not been exposed to excessive humidity. Therefore, in general the red color indicates that these soils are well drained.

Other types of mapped soil unit are found on lesser amount were **Mucara clay**, 20 to 40% slopes, eroded (**MxF2**) and **Rosario clay**, 20 to 40% slopes, eroded (**RsE2**). Mucara soil series consist of moderately deep, well drained, and moderately permeable. These soils are found on strongly dissected side slopes and narrow ridgetops throughout volcanic uplands.

In a representative soil profile the surface layer is about six (6) inches thick and very dark grayish brown in color. The subsoil, to a depth to 12 inches, is very dark grayish brown to brown in color. The substratum is highly weathered volcanic rock. The depth to the consolidated rock is to about 22 inches.

These soils are very affected by erosion thus they are not suitable for cultivation. Their used are restricted to grazing, woodland, or wildlife habitat. Most of the site's acreage is forested.

Rosario soil series consist of moderate deep, well drained, and moderately permeable soils. These are formed from weathered serpentinite rock. The slope ranges from 12 to 60 percent.

In a representative soil profile the surface layer about six (6) inches thick is dusky red. The subsoil is to about 22 inches deep, is dusky red to dark red slightly sticky and slightly plastic that is abruptly underlain by consolidated seprtinite rock.

Generally, these soils are not suited for cultivation. Their used are limited for untamed pastures, woodlands, or wildlife habitat. Slope, past erosion, shallow root zone, available water capacity, low fertility are limitations.



FIGURE 3: SOIL MAP

3. Hydrology

Wetland hydrology refers to the presence of water either above the soil surface or within the soil for a sufficient period of time during the year, so that it would significantly influence the plant types and soil that occur in a particular area.

Site wetland hydrology is limited to the intermittent creek channel. It is strongly influenced mainly by the surface flow. Other factors such as precipitation, and groundwater discharge may contribute to the wetland hydrology. The wetland hydrologic characteristic is that of a riverine wetland, which intercept the water table so it receives groundwater in addition to precipitation and headwater flooding.

Headwater flooding is the driving forces for wetland existence at this area. Redoximorphic features, drainage patterns, and oxidizing root channels are the most wetland hydrology indicators been observed in the study area.

a. Swamps and Marshes

There is no swamps or marshes in or near the study site. The area is upland located on slopes and ridgetops, which have a very rapid runoff and well-drained soils.

b. Natural Stream Systems

The proposed project site contains two (2) unnamed creeks, which flow from east to west, have a well-characterized stream channel corridor with a shallow riverbed. Parts of these creeks have an intermittent flow in the higher elevations and an upper perennial flow in the lower elevations, with a high gradient and the velocity of the water is high.

On both riverine subsystems, the streambed is largely composed of cobbles and gravel. Although, some part where flow is cause by ground water intersections the streambed bed are vegetated.

Since the water table is not level and generally follows the slope of the land above it, the water table has intersected the land surface in some places, forming springs, streams and marshes.

c. Manmade Structures/Canals

There is no manmade structures or canals within the study area

d. Flood plain

The flood plain are comprise to the creek corridor limited by it channel banks

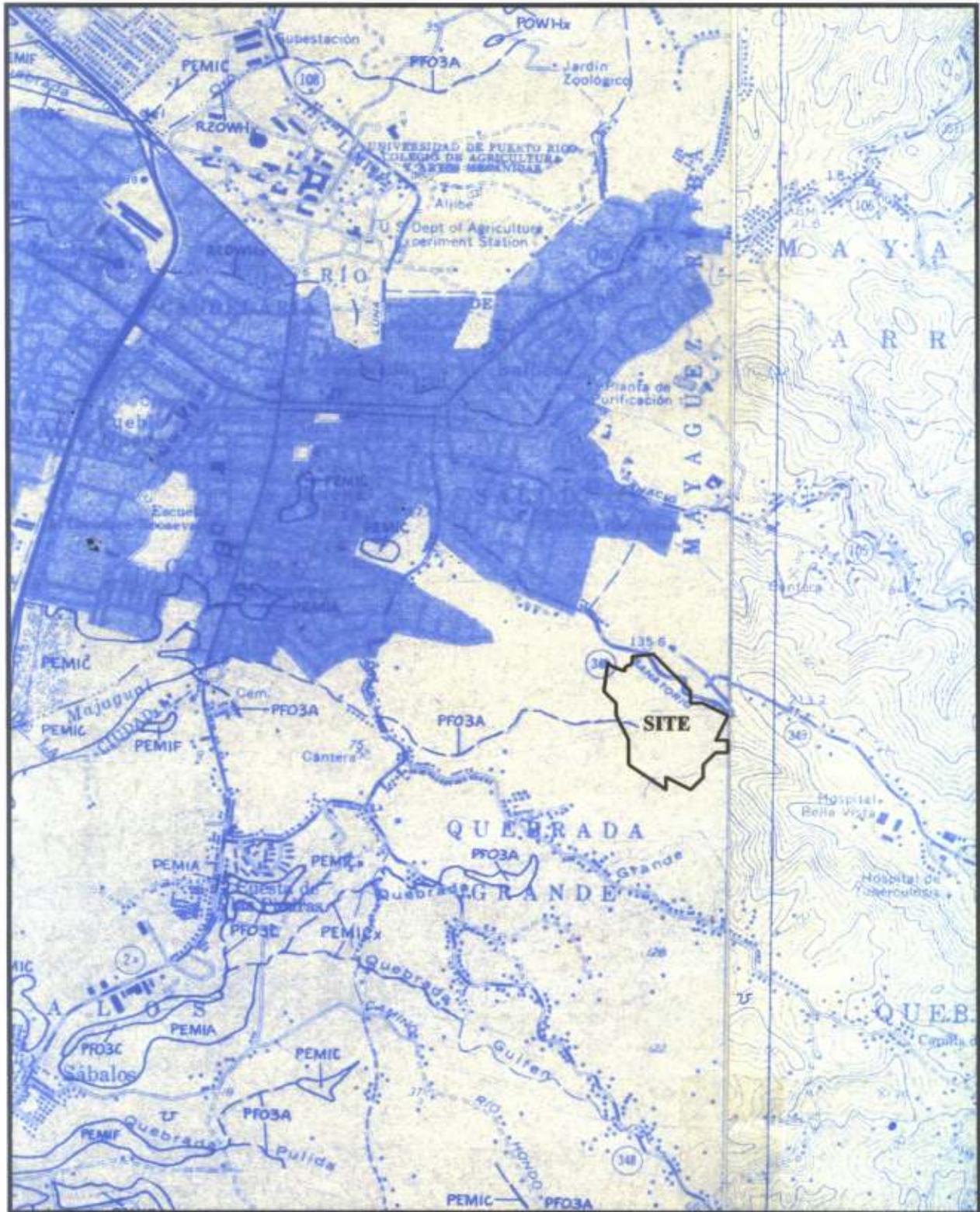


Figure 4: Wetland Inventory Map.

III. SUMMARY OF ROUTINE WETLAND DETERMINATION

TABLE 4: SUMMARY OF ROUTINE WETLAND DETERMINATION					
Transect/ Plot	Hydrophytic vegetation	Wetland hydrology	Hydric soils	Sample point is in wetland	Remarks
1 (Plate 2)	No	No	No	No	
2 (Plate 3)	Yes	No	No	No	
3 (Plate 3)	Yes	No	No	No	
4 (Plate 5)	Yes	Yes	Yes	Yes	Wetland by flooding

V. CONCLUSION

For the purpose of Section 404 of the Clean Water Act, field inspection for hydrophytic vegetation, wetland hydrology and hydric soils indicates the existence of an upland area within a intermittent unnamed creek that has jurisdiction. Field inspection and the preliminary jurisdictional determination coincide with the Fish and Wildlife Service Inventory Map (Mayagüez Quadrangle). According to the FWS Inventory Map, one wetland area is occasionally flooded by headwaters. Water from this creek ultimately ended on the Mayagüez Bay, through the Majagual Canal. (See Figure 5: Wetland Inventory Map)

These jurisdictional wetlands are depicted in the enclosed Preliminary Wetland Delineation.

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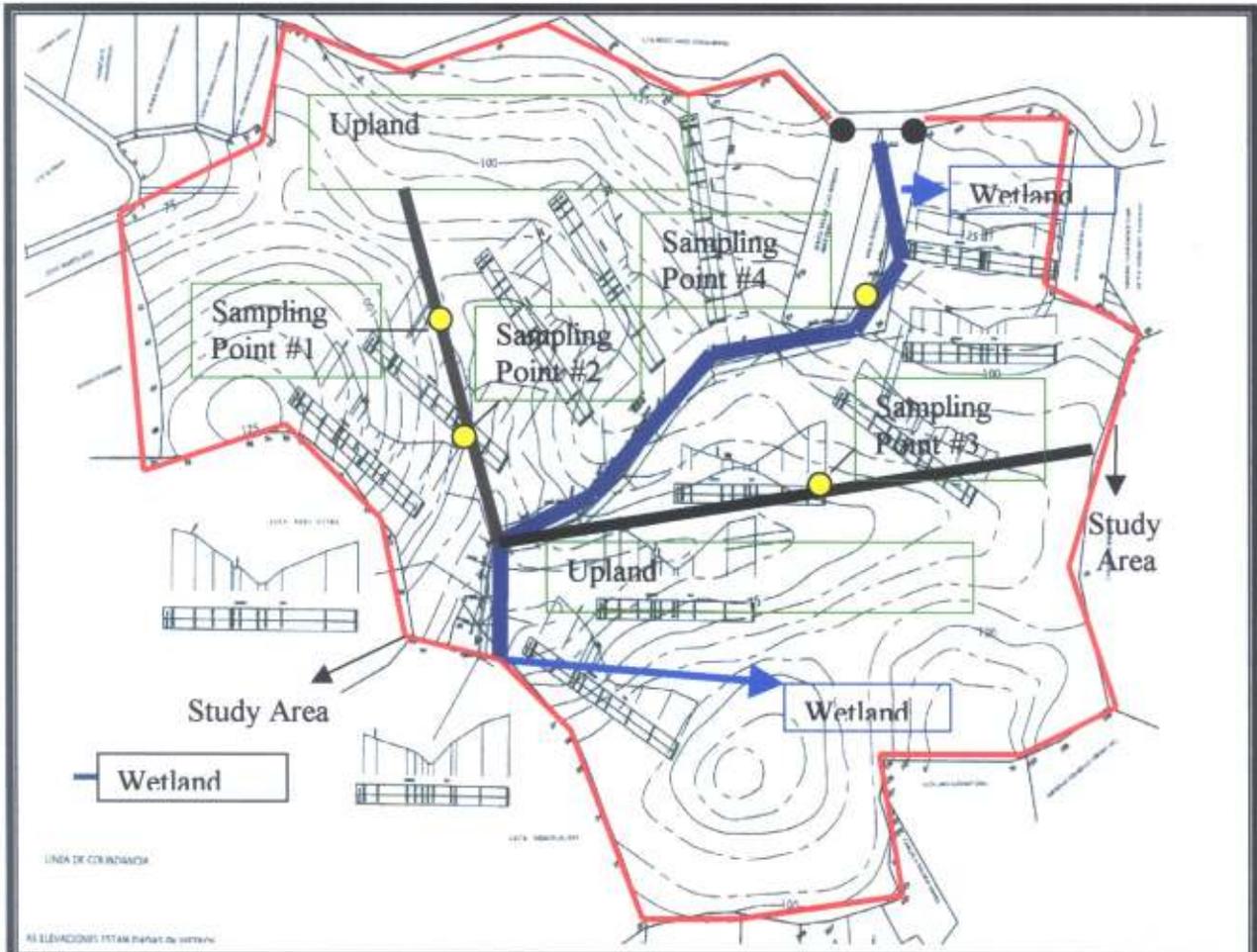
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APPENDIX I
PRELIMINARY WETLAND DELINEATION

Preliminary Jurisdictional Determination
Urbanización Monte Sierra
Barrio Caracoles
Mayagüez, Puerto Rico



**Iván Ruiz & Associates
Environmental Consultants**

**PRELIMINARY
WETLAND
DELINEATION**
marzo, 2007

*Proyecto Residencial
"Monte Sierra"
Barrio Quebrada Grande,
Mayagüez*

**APPENDIX II
FIELD DOCUMENTATION
PHOTOGRAPHS**

Preliminary Jurisdictional Determination
Urbanización Monte Sierra
Barrio Caracoles
Mayagüez, Puerto Rico



Photo 1: View of Sampling Point 1 pit.



Photo 2: View of Sampling Point 2 pit.

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Plate: 1

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Barrio Caracoles
Mayagüez, Puerto Rico**



Photo 3: View of vegetation on SP 2.

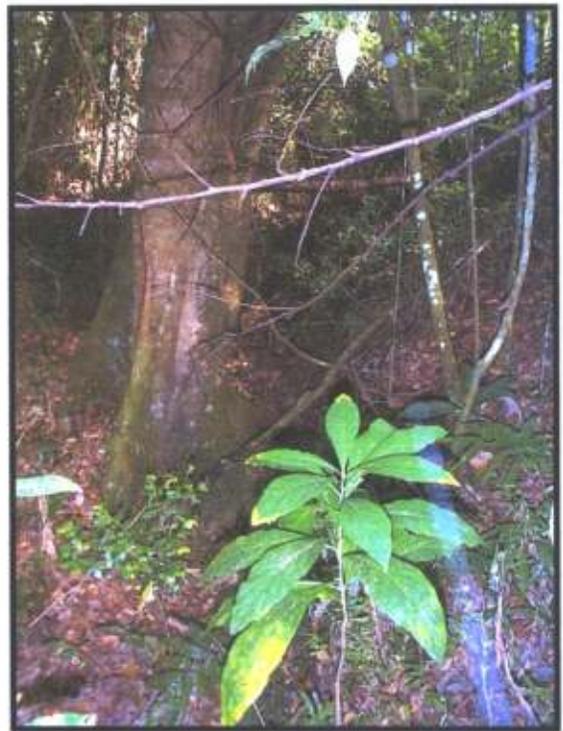


Photo 4: View of vegetation on SP 3.



Photo 5: View of vegetation on SP 4.

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Plate: 2

April 2007

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Photo 6: View of upper perennial unnamed creek.



Photo 7: View of Sampling Point 2 pit.



Photo 8: Sampling Point 4.

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Plate: 3

April 2007

**Preliminary Jurisdictional
Determination
Urbanización Monte Sierra
Mayagüez, Puerto Rico**

**APPENDIX III
FIELD DOCUMENTATION
DATA FORMS**

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Urb. Monte Sierra, Quebrada Grande Ward</u> Applicant/Owner: <u>Desarrolladora Caribeña, Inc.</u> Investigator: <u>Rolando Santos</u>	Date: <u>March 11, 2007</u> County: <u>Mayaüez</u> State: <u>Puerto Rico</u>
Do Normal Circumstances exist on the site? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>H</u> Transect ID: <u>N/A</u> Plot ID: <u>1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Kyllinga brevifolia</u>	<u>H</u>	<u>NI</u>	9. _____	_____	_____
2. <u>Pueraria phaseoloides</u>	<u>H</u>	<u>NI</u>	10. _____	_____	_____
3. <u>Mikania cordifolia</u>	<u>H</u>	<u>FAC</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 1/3 = 33%

Remarks: Sampling point located on an open area, near Municipal pave road.

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>N/A</u> (in.) Depth to Free Water in Pit: <u>>16</u> (in.) Depth to Saturated Soil: <u>>16</u> (in.)	
Remarks: <u>No wetland hydrology indicators were observed at this sampling point.</u>	

SOILS

Map Unit Name (Series and Phase): <u>Serpentine Outcrop</u>		Drainage Class: <u>N/A</u>			
Taxonomy (Subgroup): <u>N/A</u>		Field Observations Confirm Mapped Type? <input checked="" type="radio"/> Yes <input type="radio"/> No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 4	Ap	10YR 3/2	No mottles	N/A	Silty clay loam
4 -	C	10R 4/6	No mottles	N/A	Clay, gravelly and cobbles
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>No hydric soil indicators were observed at this sampling point.</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle) Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soils Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	(Circle) Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>Sampling point located on a gully.</u>	

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Urb. Monte Sierra, Quebrada Grande Ward</u> Applicant/Owner: <u>Desarrolladora Caribeña, Inc.</u> Investigator: <u>Rolando Santos</u>	Date: <u>March 11, 2007</u> County: <u>Mayaüez</u> State: <u>Puerto Rico</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>T</u> Transect ID: <u>N/A</u> Plot ID: <u>2</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Dieffenbachia seguine</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Ichnanthus pallens</u>	<u>H</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>Teliostachya alopecuroidea</u>	<u>H</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>Piper aduncum</u>	<u>T</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Hymenaea courbaril</u>	<u>T</u>	<u>FACU</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/5 - 60%

Remarks: _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>N/A</u> (in.) Depth to Free Water in Pit: <u>>16</u> (in.) Depth to Saturated Soil: <u>>16</u> (in.)	Remarks: <u>No wetland hydrology indicators were observed at this sampling point.</u>

SOILS

Map Unit Name (Series and Phase): <u>Serpentine Outcrop</u>		Drainage Class: <u>N/A</u>
Taxonomy (Subgroup): <u>N/A</u>		Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>

Profile Description: Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 16	AE	10YR 3/2	No mottles	N/A	Silty clay loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: No hydric soil indicators were observed at this sampling point.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No (Circle) Hydric Soils Present? <input type="radio"/> Yes <input checked="" type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
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Remarks: Sampling point located on a dry gully.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Urb. Monte Sierra, Quebrada Grande Ward</u> Applicant/Owner: <u>Desarrolladora Caribeña, Inc.</u> Investigator: <u>Rolando Santos</u>	Date: <u>March 11, 2007</u> County: <u>Mayagüez</u> State: <u>Puerto Rico</u>
Do Normal Circumstances exist on the site? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>T</u> Transect ID: <u>N/A</u> Plot ID: <u>3</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Ichnanthus pallens</u>	<u>H</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Syzygium jambos</u>	<u>S/SH</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Myrcia splendens</u>	<u>T</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Hymenaea courbaril</u>	<u>T</u>	<u>FACU</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 3/4 - 75%

Remarks:

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>N/A</u> (in.) Depth to Free Water in Pit: <u>>16</u> (in.) Depth to Saturated Soil: <u>>16</u> (in.)	
Remarks: <u>No wetland hydrology indicators were observed at this sampling point.</u>	

SOILS

Map Unit Name (Series and Phase): <u>Serpentine Outcrop</u>		Drainage Class: <u>N/A</u>			
Taxonomy (Subgroup): <u>N/A</u>		Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 16	AE	10R 4/2	No mottles	N/A	Silty clay loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: No hydric soil indicators were observed at this sampling point.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No (Circle) Hydric Soils Present? <input type="radio"/> Yes <input checked="" type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Remarks: Sampling point located on a dry gully.	

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Urb. Monte Sierra, Quebrada Grande Ward</u> Applicant/Owner: <u>Desarrolladora Caribeña, Inc.</u> Investigator: <u>Rolando Santos</u>	Date: <u>March 11, 2007</u> County: <u>Mayagüez</u> State: <u>Puerto Rico</u>
Do Normal Circumstances exist on the site? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>T</u> Transect ID: <u>N/A</u> Plot ID: <u>4</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Thelypteris poiteana</u>	<u>H</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Dieffenbachia sequine</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Ichnanthus pallens</u>	<u>H</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Cecropia peltata</u>	<u>T</u>	<u>FAC</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/4 = 67%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other X No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated X Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches X Water-Stained Leaves ___ Local Soil Survey Data X FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>N/A</u> (in.) Depth to Free Water in Pit: <u>5</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>Sampling point located on the basin of an intermittent creek.</u>	

SOILS

Map Unit Name (Series and Phase): <u>Serpentine Outcrop</u>		Drainage Class: <u>N/A</u>
Taxonomy (Subgroup): <u>N/A</u>		Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>

Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 16	AE	10R 4/2	No mottles	N/A	Silty clay loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input checked="" type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
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Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Remarks:	

PREPARERS

Principal Investigators

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Phone: (787) 536-4634

Field Delineation

Rolando Santos

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