Preliminary Jurisdictional Determination and Wetland Delineation

For the site proposed for the

Workshop &Maintenance Area of the Caguas-San Juan Mass Transit System DTM-Project

Barrio Bairoa
Caguas, Puerto Rico

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I. INTRODUCTION

A. Project Description and Location

The Puerto Rico Highway and Transportation Authority (PRHTA) is proposing the construction of a mass transportation system that would extent the existing train system to the town of Caguas. As part of this railroad system PRHTA is proposing the construction of the system workshop and maintenance area in a piece of land that have an area of approximately 178,650m^{-2} or 44.1 acres.

In the last several decades, the Caguas Central area has changed from a predominantly agricultural land-use base to industrial, commercial, and residential land uses. Of particular interest is the rapid increase in urbanization in the city of Caguas. Over 90 percent of the Caguas valley falls within the industrial and high-density residential land-use categories. In recent years, the city of Caguas has served as a residential suburb of the San Juan metropolitan area.

Topographically wise, the property is irregularly level with gentle gradients and shallow depressions. Currently, this piece of land is abandoned from any crop production. The proposed area main agricultural land-use category has changed from sugarcane cultivation to untamed pasture farms.

This land lot is located in the industrial sector of Barrio Bairoa of the Municipality of Caguas. The actual land lot boundaries are the following:

- North: Puerto Rico Land Authority, Industrial Fiber Corp., and Puerto Rico Aqueducts & Sewers Authority.
- South: Sate Expressway PR-30
- East: Las Mercedes Sector of Bairoa Ward
- West: Municipal Department of Transportation and Public Work

Previous field evaluation shows that this land has some areas that do present some of the indicators for the existence of wetlands, such as hydrophytic vegetation, wetland hydrology and/or hydric soil. Furthermore, the construction of State Road PR-30 has increased encroachment and its runoff waters discharges onto the area thru three 24 inches pipes (**Photos 1–3, Pl. 1**). As a result, an isolated depressional area is acting as a temporary storage of runoff volume. Under intensive rainfall, the unnamed creek (**Photos 4 & 5, Pl. 2**) probably overflows increasing the storage capacity on the northern part of the land lot.

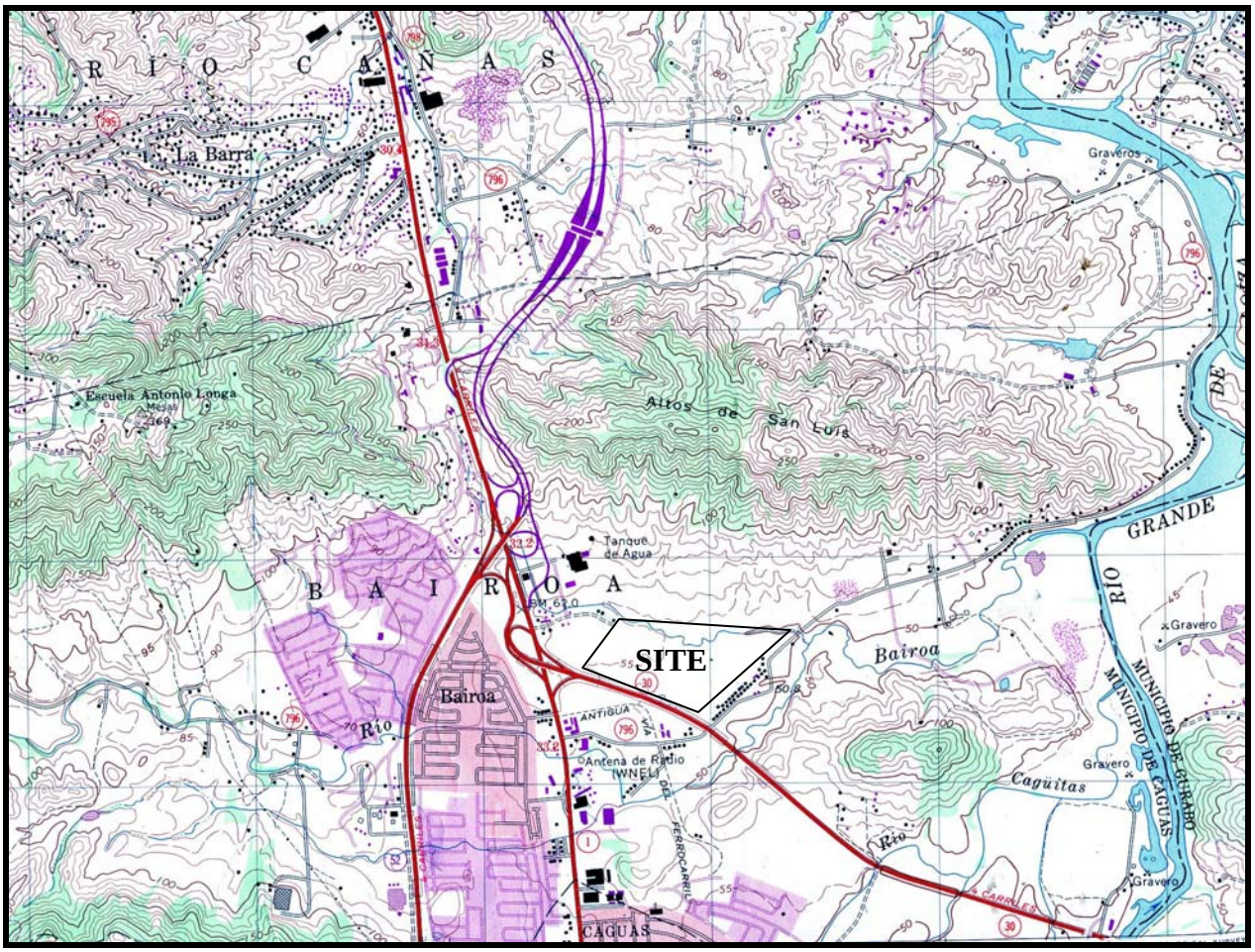

Figure 1: Location Map

B. Purpose

Recognizing the potential for continued or accelerated degradation of the Nation's waters, the U.S. Congress enacted the Clean Water 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 is a wetland for purposes of Section 404 of the Act, and to classify it by wetland type. (According to U.S. Fish and Wildlife Service Cowardin's Classification.)

C. Methodology

The methodology used for this Wetlands Delineation Study is based on the procedures contained in the Wetlands Delineation Manual issued by the Unites 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.

A total of four (4) transects designated "T1", "T2", "T3" and "T4" respectively, were located randomly along the established baseline. A series of fourteen (23 sampling points were distributed along the transects, and designated "T1a" to "T1d, "T2a" to "T2e", "T3a" to "T3g" and "T4a" to "T4g accordingly. Transects and sampling points are identified in the preliminary delineation on Appendix III. The fieldwork was conducted from December 3, 2006 to February 8, 2007.

II. ENVIRONMENTAL INFORMATION

A. Climate

The study area is located within the subtropical humid ecological lifezone. Temperature varies from a minimum of 23 degrees C to a maximum of 27.4 C. Relative humidity averages 78%. Except during January and February, days are warm year-long. Nights are warm throughout the year. The breeze from the Atlantic Ocean lowers afternoon temperatures on most days.

The prevailing winds are from the east. Breeze from the northern mountains lowers afternoon temperatures on most days. Precipitation ranges from 55.6 inches to 89.1 inches throughout the year, averaging 72.3 inches. Being the driest months February, and March averaging 2.79 and 3.01 inches per month respectively. And August (8.08 in/month), September (8.32 in/month), October (8.05 in/month) and November (10.21 in/month) are the wettest months of the year.

Annual Precipitation data for the northeastern coast of Puerto Rico are given on **Figure 2**. **Table 1** shows the monthly precipitation data collected at the Canovanas Station of NOAA Coop-Network.

Annual Precipitation @ Gurabo AES													
YEAR	**MONTH**												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1998	4.58	5.29	4.76	2.32	3.41	6.78	4.35	10.78	15.21	10.71	10.79	10.14	89.12
1999	3.87	1.43	4.17	1.34	1.16	7.29	9.26	3.53	6.07	7.02	18.49	6.45	70.08
2000	3.14	3.43	1.37	1.57	6.84	2.74	1.99	11.15	8.78	4.99	5.78	3.81	55.59
2001	2.62	2.80	0.86	3.16	4.68	1.47	6.34	6.28	3.42	7.73	8.28	7.01	54.65
2002	3.07	2.85	3.50	9.79	4.40	3.53	2.45	7.99	6.15	4.78	2.17	6.41	57.09
2003	5.92	2.79	1.99	14.70	3.49	3.25	3.13	7.15	5.25	6.33	17.16	8.20	79.36
2004	3.74	2.29	7.31	5.13	16.48	3.90	4.98	5.58	16.74	8.18	10.49	4.12	88.94
2005	6.59	0.89	0.12	5.77	8.84	2.20	11.66	11.86	4.96	14.66	8.51	6.48	82.54
TOTAL	4.19	2.72	3.01	5.47	6.16	3.90	5.52	8.04	8.32	8.05	10.21	6.58	72.17

Table 1. Average Precipitation Base on Data Obtain at Gurabo Agricultural Station from 1998 to 2005

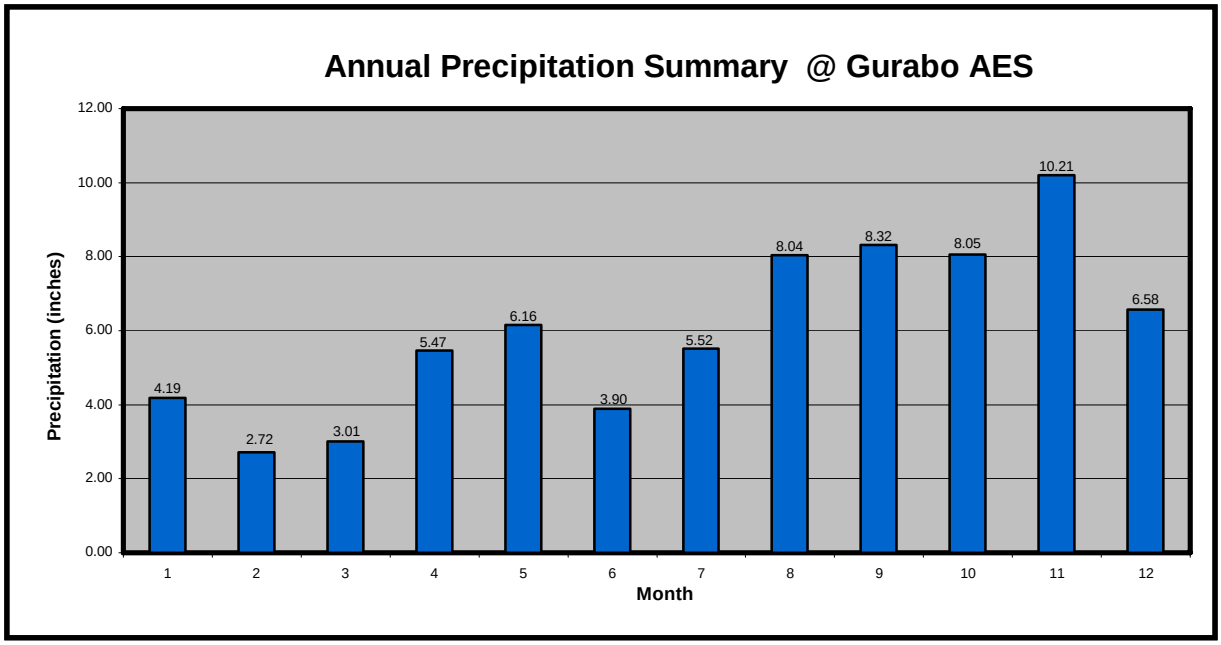

Figure 2: Annual Precipitation Summary at Gurabo Agricultural Experimental Station.

B. Geology

The group of rocks constituting the basement and flanks of the Aguas Buenas-Juncos region is made up largely of volcaniclastics, lavas, intrusives, minor amounts of metamorphic rock of Late Cretaceous to early Tertiary age and locally minor amounts of limestone of early Tertiary age. This rock complex is overlain by Holocene surface deposits, mainly of alluvial origin (**Fig. 3**).

The volcanic rocks are the most abundant rocks in the study area. The Late Cretaceous and rocks of early Tertiary age are highly faulted, and locally folded. The volcaniclastic and other consolidated rock groups are of little hydrologic importance, because they do not have the necessary permeability to serve as water-bearing units. Water in fractures within the volcanic rocks is the source for water discharge in perennial and ephemeral low-flow springs.

The surface deposits are predominantly alluvial in origin and consist of varying lithologies, which reflect both the changing nature of the source material and the dynamics of the fluvial history of the rivers that drain the enclosing basin. The alluvial sediments are composed of poorly sorted clay, silt, and sand. In the vicinity of Caguas, the alluvial sediments range in thickness from near zero at the bedrock-alluvium contact, to more than 150 feet in the center of the valley, and

are mostly composed of silt, clay, and fine-grained sand, with subordinate amounts of gravel and coarse-grained sand. Alluvial sediments in Gurabo and Juncos thin toward the western and eastern ends of the valley and toward the northern and southern edges of the valley, and have a maximum thickness of about 160 feet. The amount of gravel and coarse sand in the alluvium is greater in the Gurabo-Juncos valley than in the Caguas valley. The principal aquifer in the Aguas Buenas-Juncos region is in the alluvial deposits that fill these valleys.

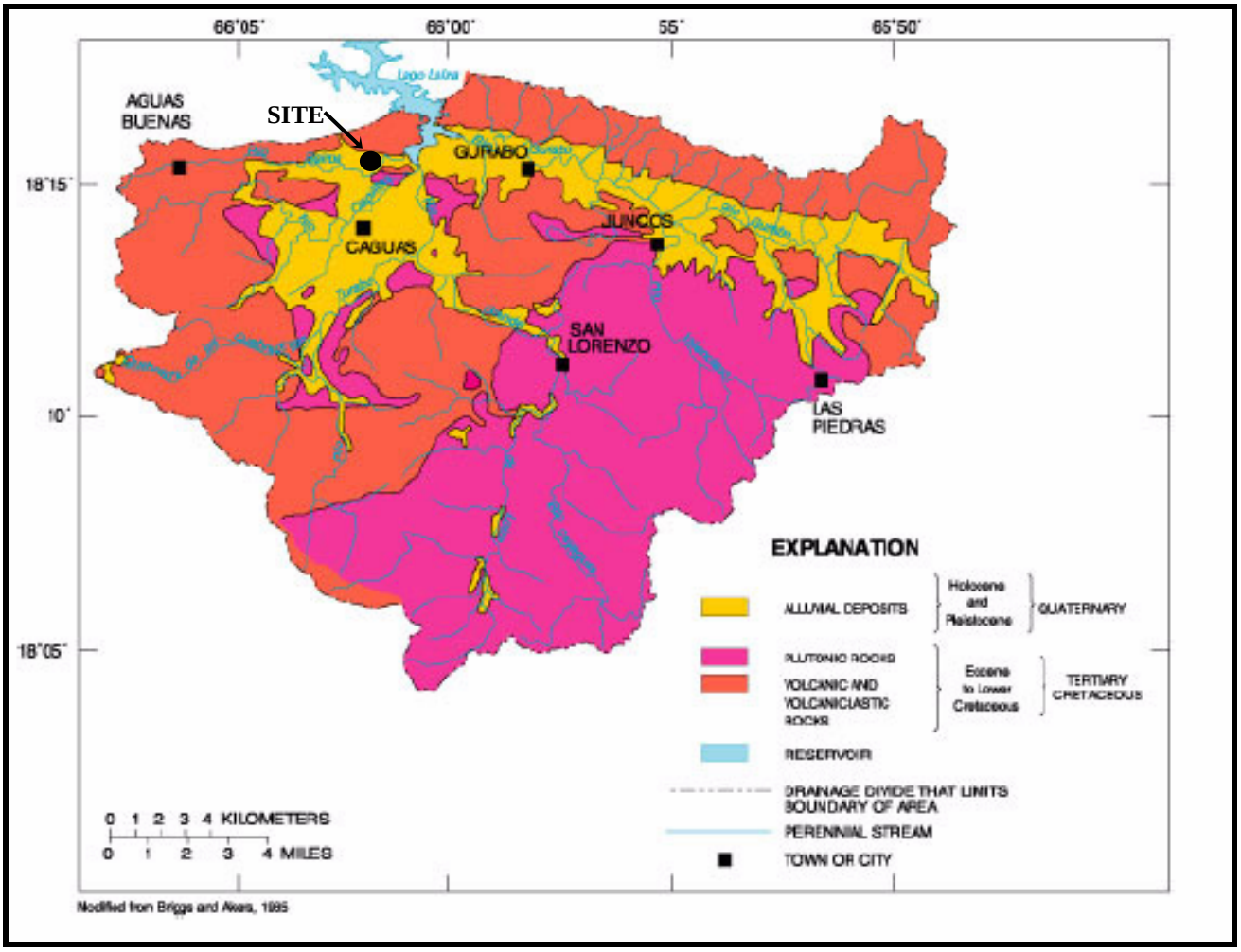

Figure 3: Geologic Map

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.

A. Vegetation

The Corps of Engineers (FR 1982) and the Environmental Protection Agency (FR 1980) jointly define wetlands as: *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.* The Natural Resources Conservation Service of the United States Department of Agriculture lists soils in the proposed project area as non-hydric, but do support the growth of hydrophytes on depressions.

Wetland vegetation can consist of one or more plant associations. Therefore, as mandatory we are taking in consideration the plant species dominance in order to determine if a particular area is dominated by hydrophytic vegetation. For each stratum in the plant community, dominant plant 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 additional species comprising 20 percent or more of the dominance measure for the stratum (50/20 rule).

Measures to express plant species dominance in the community are as fallow:

- Total basal area by species for the tree stratum
- Stem counts or percent for shrubs, tree saplings and woody vines
- Percent of ground cover for herbs
- Frequency of occurrence (percentage of sampling points that contains the species of interest)

Table 2 contained in the U.S. Army Corps of Engineers Wetlands Delineation Manual (Final Report), dated January 1987 outlines Plant Indicator Status Categories.

TABLE 2. PLANT INDICATOR STATUS CATEGORIES		
Indicator category	**Indicator symbol (IND)**	**Definition**
Obligated Wetland Plants	OBL	Plants that occur almost always (estimated probability >99%) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1%) in nonwetlands.
Facultative Wetland Plants	FACW	Plants that occur usually (estimated probability >67% to 99%) in wetlands, but also occur (estimated probability 1% to 33%) in nonwetlands.
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and nonwetlands.
Facultative Upland Plants	FACU	Plants that occur sometimes (estimated probability 1% to <33%) in wetlands, but occur more often (estimated probability >67% to 99%) in nonwetlands.
Obligated Upland Plants	UPL	Plants that occur rarely (estimated probability <1%) in wetlands, but occur almost always (estimated probability >99%) in nonwetlands under natural conditions.

Hydric soils can be assumed to be present when: all dominant plant species have an indicator status of OBL; or all dominant plant species have an indicator status of OBL and/or FACW (at least one dominant species must be OBL).

Surveyed area vegetation is composed of an open vegetated flat dominated by *Paspalum fasciculatum* consociation, *Brachiaria purpuracens-Eriochloa polystachya* association, and small patches or dispersed trees such as *Cordia alliodora, Pithecellobium saman, Erythrina glauca* and *Albizia lebbeck*, and shrubs like *Psidium guajava, Mimosa pigra, Solanum torvum* and *Triumfetta semitriloba*. On the forested patches, the canopy is dominated by, *Spathodea campanulata, Zanthoxilum martinicense, Bambusa vulgaris, Andira inermis,* and. The small trees and shrub stratum under the canopy is dominated by *Casearia*

sylvestris, and the ground cover by *Petiveria alliacea.*

Open wetland areas (**Photo 6, Pl. 2**) are mostly dominated by the hydrophytes *Paspalum fasciculatum, Brachiaria mutica and Eriochloa polystachya.* Other hydrophytic herbs and/or forbs occurring on these areas are: *Paspalum millegrana, Mimosa casta, Scleria mitis, Vigna luteola, Dichanthelium dichotomum, Commelina diffusa, Ipomoea indica,* and *Cissus sicyoides.* There are some small patches of wetlands where water accumulates more, which give rise to obligated wetland herbaceous plants such as *Eliocharis mutata, Typha dominguensis, Ludwigia octovalvsis, Leersia hexandra* and *Colocasia esculenta* to colonize these areas. See **Photos 7& 8, Pl.2.**

On non-wetland areas are dominated by herbs or forbs as: *Malachra capitata, Mimosa púdica, Paspalum conjugatum, Sida stipularis, Solanum torvum, Petiveria alliacea, Stachytarpheta jamaicensis, Centrosema pubescens, Calopogonium coeruleum, Ipomoea indica, Merremia quinquefolia, Sporobolus indicus* and *Cuphea strigulosa.*

Table 3 presents the dominant plant species within the study area, and their habit and indicator category symbol:

Table 3: List of Dominant Plant Species

SCIENTIFIC NAME	COMMON NAME	HABIT	IND
Albizia lebbek	Tall albizzia	Tree	NI
Andira inermis	Angelin tree	Tree	FACW
Aploleia monandra	Purple tradescantia	Herb	NI
Axonopus compressus	Flat-joint carpet grass	Herb	FAC
Bambusa vulgaris	Common bambu	Tree	FACU
Brachiaria mutica	Paragrass	Herb	FACW-
Calopogonium coeruleum		Vine	FACW
Casearia sylvestris	Cafeillo cimarrón	Tree/Shrub	FAC
Centrosema pubescens	Butterfly pea	Vine	NI
Cissus sicyoides	Bejuco de caro	Vine	FAC
Colocasia esculenta	Elephant's ear	Herb	OBL
Cordia alliodora	Capa prieto	Tree	NI
Cuphea strigulosa	Columbia waxweed	Herb	FACW
Cynodon dactylon	Bermuda grass	Herb	FAC
Cyperus alternifolius	Umbrella sedge	Herb	OBL
Cyperus esculentus	Chufas	Herb	FACW

SCIENTIFIC NAME	COMMON NAME	HABIT	IND
Cyperus odoratus	Rusty flatsedge	Herb	FACW
Cyperus rotundus	Purple nut-grass	Herb	FAC
Dichanthelium dichotomum	Cypress witchgrass	Herb	FAC
Eleocharis mutata	Angled spikerush	Herb	OBL
Eleucine indica	Pata de galina	Herb	FAC
Eriochloa polystachyia	Malojilla	Herb	FACW+
Erythrina glauca	Swamp immortelle	Tree	FACW+
Hydrocotyle umbellata	Many-flower penny-wort	Herb	OBL
Ipomoea indica	West-indian morning glory	Vine	FAC
Ipomoea tiliacea	Bejuco de puerco	Vine	FACW
Ludwigia octovalvsis	Mexican seedbox	Herb	OBL
Ludwigia palustris	Marsh purslane	Herb	OBL
Malachra capitata	Mallow	Herb	NI
Marcgravia rectifolia	Bejuco de lira	Woody Vine	FAC
Merremia quinquefolia	Batatilla blanca	Vine	NI
Merremia umbellata	Aguinaldo amarillo	Vine	NI
Mikania congesta	False guaco	Vine	FACW
Mikania cordifolia	Florida keys hempweed	Vine	FAC
Mimosa casta	Gracefull mimosa	Vine	OBL
Mimosa pigra	Black mimosa	Shrub	FACW
Mimosa púdica	Sensitive plant	Herb	FAC
Paspalum conjugatum	Sour paspalum	Herb	FAC
Paspalum distichum	Dallisgrass	Herb	FAC
Paspalum millegrana	Cortadora	Herb	FACW
Paspalum fasciculatum	Yerba venezolana	Herb	FACW
Paullinia pinnata	Bejuco de puerco	Woody Vine	FAC+
Peltophorium inerme	Yellow flamboyant	Tree	NI
Petiveria alliacea	Congo root	Herb	NI
Pithecellobium saman	Monkey-pod	Tree	FACW
Psidium guajava	Guava	Tree/Shrub	FAC
Polygonum punctatum	Dotted smartweed	Herb	OBL
Phyla nodiflora	Common frog-fruit	Herb	FACW
Pueraria lobata	Kudzu vine	Vine	NI
Rhynchospora rariflora	Few-flowered beakrush	Herb	OBL
Scleria mitis	Cortadora	Herb	OBL
Sida stipularis	Wire weed	Herb	NI
Solanum torvum	Turkey berry	Shrub	NI

SCIENTIFIC NAME	COMMON NAME	HABIT	IND
Spathodea campanuata	African tulip tree	Tree	FACU
Sporobolus indicus	West Indian Dropseed	Herb	FACU
Stachytarpheta jamaicensis	Blue Porter-weed	Herb	FACU
Syngonium podophyllum	Arrow-head vine	Vine	NI
Thelypteris angustifolia	Broad-leaf maiden fern	Herb	OBL
Trichostigma octandrum	Bejuco de nasa	Woody Vine	FACU
Triumfetta semitriloba	Burweed	Shrub	FAC
Typha dominguensis	Southern cattail	Herb	OBL
Urochloa maxima	Guinea grass	Herb	FACU
Vigna luteola	Hairy-pod cowpea	Vine	FAC+
Vigna vexillata	Wild cowpea	Vine	NI
Zanthoxilum martinicense	Prickly ash	Tree	NI

B. 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.

Soils in the proposed project area are have been classified by the National Resources Conservation Service of the United States Department of Agriculture as *Mabi* series, which are typical to alluvial fans above the river flood plains. There is a small spot on the northeastern part of the parcel that has been classified as *Mucara* clay soil (MxD). See **Figure 4: Soil Map**.

The *Mabi* series consist of deep, somewhat poorly drained, slowly permeable soils, and with a high available water capacity on alluvial terrace above flood plains not far from the banks of the streams and rivers and are subject to occasionally flooding. Runoff is slow.

They are formed in stratified loamy and clayey alluvial sediments of average thickness and their subsoil is hard, forming a crust. Working them is generally difficult because of the stickiness and plasticity of the clay. The root zone is deep.

In a representative profile the surface layer is very dark grayish brown, very

firmly clay about seven inches. The subsoil, to a depth of about 17 inches thick; it is dark yellowish brown, very firm clay that has common mottles of yellowish brown and light gray. The substratum is dark-gray, slightly acid, firm slightly sticky and plastic silty clay loam or silty clay. It has many medium mottles of reddish brown, yellowish brown and greenish gray.

The *Mucara* series consists of clayey moderately deep, well drained, and moderate permeability and available water capacity. They are on foot slopes, side slopes, and rounded hilltops of strongly dissected uplands.

Typically the surface layer is very dark grayish brown, firm clay about 5 inches deep. The subsoil is about 7 inches thick; it is dark brown, firm clay. Substratum, beginning at 12 inches deep, is highly weathered volcanic rock. Bedrock is at a depth of about 30 inches.

Most field soil examination confirmed mapped type with exception of soil originated from sedimentation along the course of the unnamed creek and some areas of hydric inclusions. See Data Forms on Appendix II.

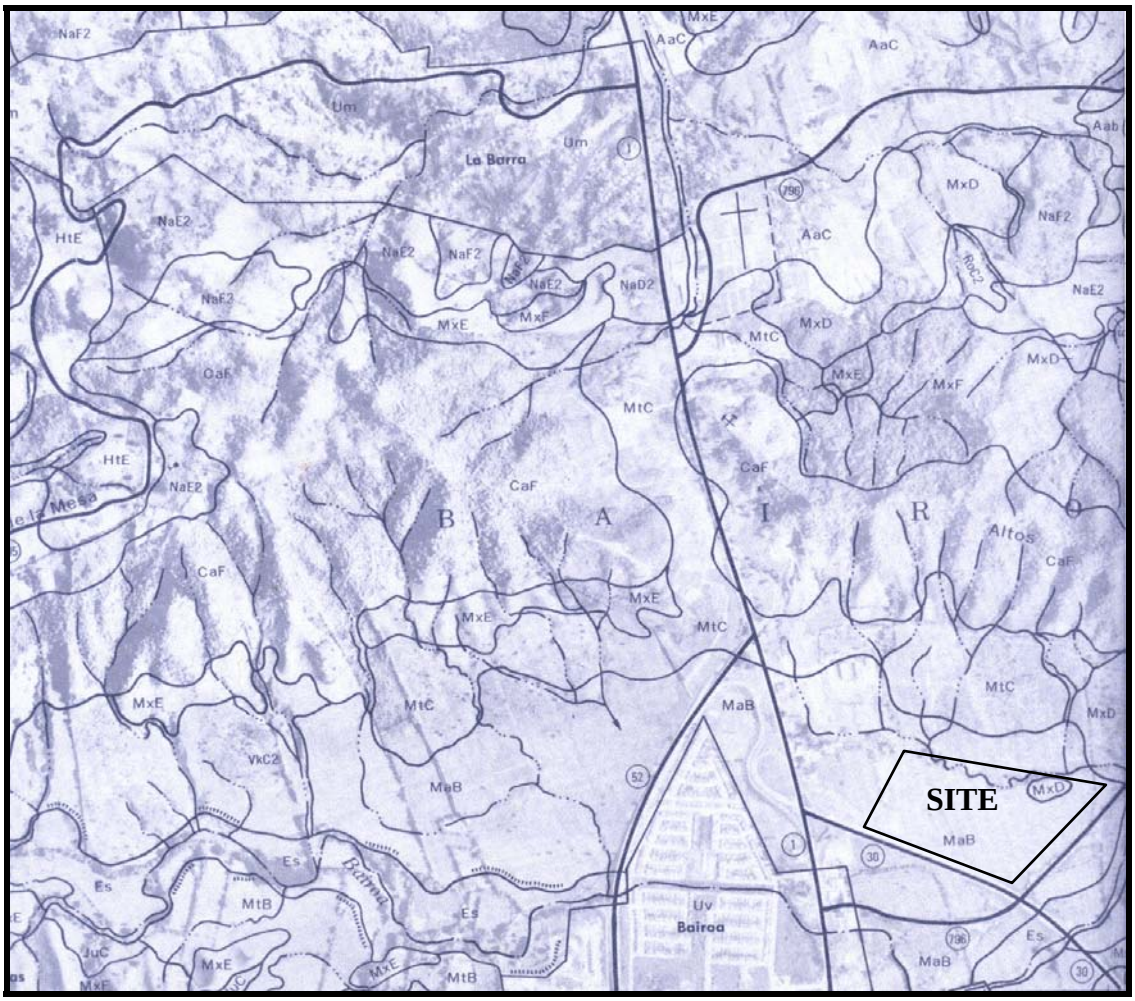

Figure 4: Soil Map

B. Hydrology

In the Caguas valley, ground water moves from southwest to northeast in the southern part and from west to east in the northern part. Low ground-water levels for the year are usually in April and normally correspond to the end of a period of low rainfall. High ground-water levels are usually during November and December, at the end of the wet season.

In this region of the Caguas valley streams and aquifers are generally hydraulically well connected, and water flow through this valley where the water-table may be lower than the stream stage, promoting recharge of the aquifer from the streams. Nevertheless, seepage studies in the Caguas valley indicate that water flowing out of the streams to the aquifer eventually discharges back to the stream, causing a net stream gain (Veve and Palmer 1996.)

The Caguas alluvial valley aquifer is under water-table conditions, but is influenced by the delayed yield of water from clay beds and by anisotropy characterized by a horizontal component of hydraulic conductivity that is several times higher than the vertical component. This aquifer may range in thickness from near zero at the bedrock-alluvium contact to about 130 feet toward the central part of the Caguas valley. The aquifers in the fractured volcanic and plutonic rocks have very low yields, although locally they may represent a viable water source.

Aquifer transmissivity is defined as the rate at which water is transmitted through a unit width of aquifer of confining bed under a unit hydraulic gradient. The transmissivity of the alluvial aquifer can range from less than 66 ft^2/d to a maximum of 4,770 ft^2/d. Along the mainstream channels, transmissivity values are usually higher. The area along the Río Bairoa appears to have the highest transmissivities in the Caguas valley (**Figure 5.**)

Wetland hydrology refers to the presence of water either above the soil or within the soil for 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 hydrology is strongly influenced by the following factors: precipitation, surface runoff, topography, soil texture, drainage capability, and permeability and plant cover. Water comes mainly from precipitation and surface runoff from adjacent uplands and pluvial outlets of State Road PR-30, located in the south. Drainage is deficient on depressions, thus ponding and/or occasionally or seasonal flooding are the most probable mechanisms for wetland existence at this area.

1. Swamps and Marshes

There is no swamps or marshes in or near the study site. About 45% of the surveyed area consists of an isolated depressional vegetated flat where the plain are so low that drainage is deficient, giving rise to the establishment of hydrophytes. In these area the land is covered by surface or groundwater for long enough periods to support vegetation adapted to wet conditions. Depth and duration of floods varies. These *wetlands* are transition areas that are neither totally land nor totally water, having characteristics of both.

2. Natural Stream Systems

As shown in in the USGS Caguas Quadrangle Topographic Map, an unnamed creek that discharged downstream into Rio Bairoa, runs the northern property boundary from west to east as detail. Rio Bairoa flows about 500 metes south to the parcel and goes around thru the east about 300 meters from the parcel.

3. Manmade Structures/Canals

Site survey indicates the presence of two 48 inches pipe, and gutters, which are part of the pluvial system of the State Road PR-30. These pipes open onto two small concrete curves that end into a depressional area.

4. Flood plain

The proposed area is located within the Rio Bairoa floodplain of Caguas alluvial valley, which comprehends the Bairoa, Cagüitas, Turabo and Loiza rivers floodplains.

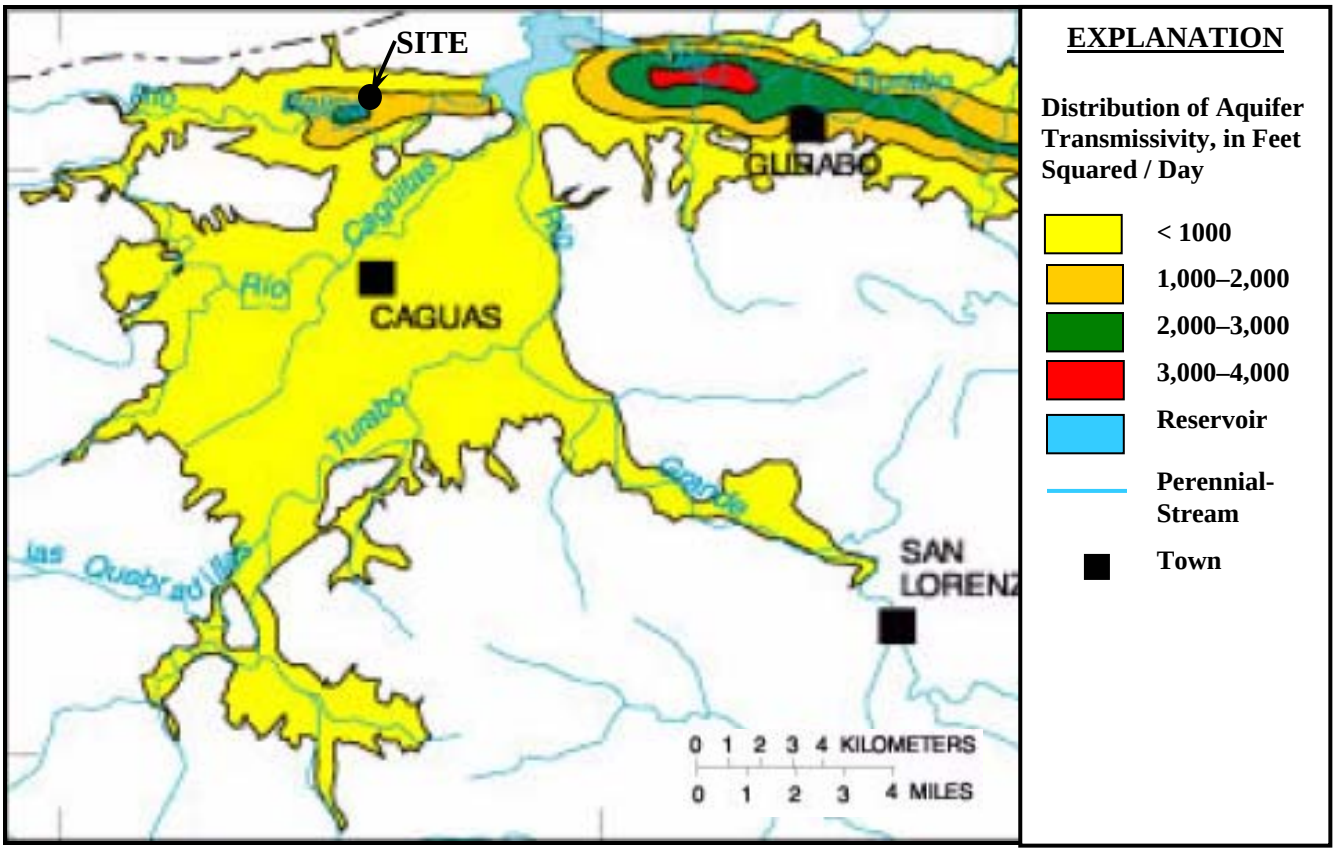

Figure 5: Regionalized apparent transmissivity values in the Caguas alluvial valley.

IV. SUMMARY AND CONCLUSION

A. DATA FORMS SUMMARY

Table 3: Summary of Jurisdictional Determination Data Forms

SUMMARY OF ROUTINE WETLAND DETERMINATION					
Transect/ Plot	**Hydrophytic Vegetation**	**Wetland Hydrology**	**Hydric Soils**	**Is Sampling Point in Wetland?**	**Remarks**
T1a Photos 9 & 10 Plate 3	Yes	Yes	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T1b Photos 11 & 12 Plate 4	Yes	Yes	Yes	Yes	Wetland by ponding. Sampling Point is on a depressional area that is seasonally ponded or saturated
T1c Photo 13 Plate 4 Photo 14 Plate 5	Yes	Yes	Yes	Yes	Sampling point is located on a depression of this seasonal wetland; where soil permeability is very slow doing to clayey soil texture.
T1d Photo 15 Plate 5	No	No	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T2a No Photo available	Yes	No	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T2b Photos 16 & 17 Plate 6	Yes	Yes	Yes	Yes	Wetland by ponding. Sampling point located on the transitional area of this seasonal wetland.
T2c Photo 18 Plate 7	No	No	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T2d Photo 19 Plate 7	Yes	Yes	Yes	Yes	Sampling point located on semi-permanently saturated depression within this seasonal wetland.
T2e Photo 20 Plate 7	No	No	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T3a Photos 21-23 Plate 8	Yes	Yes	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T3b Photos 24 & 25 Plate 9	Yes	Yes	Yes	Yes	Wetland by ponding. Sampling point located on the transitional area of this seasonal wetland.
T3c Photo 26 & 27 Plate 10	Yes	Yes	Yes	Yes	Sampling point located on semi-permanently saturated depression within this seasonal wetland.

SUMMARY OF ROUTINE WETLAND DETERMINATION					
Transect/ Plot	**Hydrophytic Vegetation**	**Wetland Hydrology**	**Hydric Soils**	**Is Sampling Point in Wetland?**	**Remarks**
T3d Photos 28 & 29 Plate 11	Yes	Yes	Yes	Yes	Sampling point located on a semi-permanently saturated depression within this seasonal wetland.
T3e Photos 30 & 31 Plate 12	Yes	No	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T3f Photos 32 & 33 Plate 13	Yes	Yes	Yes	Yes	Sampling point is located on a depression of this seasonal wetland; where soil permeability is very slow doing to clayey soil texture.
T3g Photo 34 Plate 13 Photo 35 Plate 14	Yes	No	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T4a Photos 36 & 37 Plate 14	Yes	Yes	Yes	Yes	Sampling point located within the northern bank flood area of the unnamed creek.
T4b Photo 38 Plate 15	No	No	No	No	Sampling point located on the southern bank of the unnamed creek, which is outside the flood area.
T4c Photos 39 & 40 Plate 15	Yes	No	No	No	Sampling point located on a non-wetland sector within this seasonal wetland.
T4d Photo 41 Plate 15 Photo 42 Plate 16	Yes	Yes	Yes	Yes	Sampling point is located on a depression of this seasonal wetland; where soil permeability is very slow doing to clayey soil texture.
T4e Photo 43 Plate 16 Photos 44 &45 Plate 17	Yes	Yes	Yes	Yes	Wetland by ponding. Sampling point located on the transitional area of this seasonal wetland.
T4f Photo 46 Plate 17 Photos 47 & 48 Plate 18	Yes	Yes	No	No	Sampling point located on an area of this seasonal wetland that presented soils with no hydric indicators.
T4g Photos 49-51 Plate 19	Yes	Yes	Yes	Yes	Sampling point located on semi-permanently saturated depression within this seasonal wetland.

B. CONCLUSION

Site evaluation for wetland indicators on hydrophytic vegetation, wetland hydrology and hydric soils indicates the presence of wetland areas for the purposes of Section 404 of the Clean Water Act within the study limits. A preliminary determination of this wetland is illustrated in the enclosed wetland delineation on Appendix III. Nevertheless, this is a preliminary delineation base on field evaluation according to procedures contained in the 1987 Corps of Engineers Wetlands Delineation Manual; and has not been surveyed by a certified surveyor.

The study comprises the identification of existing wetland systems within the proposed area. However, the proposed site has not been included on the National Wetland Inventory of the Fish and Wildlife Service, thus the study area was field evaluated and identified. This wetland area may be classified as a palustrine vegetated flat (see photos 51-54 on plates 20 and 21), with emergent vegetation, and with either a semi-permanently flooded or saturated, and a seasonally ponded or saturated water regimen.

Field evaluation confirm that wetland in the area occurred on an isolated low laying area, which serves as a temporary storage of runoff volume where the runoff from main watershed accumulates. This wetland was created as a result of the encroachment of the area by the construction of PR-30, and other surroundings uplands that discharged surface runoff onto this area.

In conclusion, wetland determination is limited to those areas that comply with the mandatory criteria. Therefore, those areas that do not comply with vegetation, wetland hydrology, and hydric soil parameters are preliminary excluded from jurisdiction. Only the depressional seasonal wetland on the low-laying areas meets all three parameters (vegetation, wetland hydrology, and hydric soil).

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APPENDIX I
FIELD DOCUMENTATION
PHOTOGRAPHS

Photo 1: View of 24 inches drainpipe under Highway PR-30.

Photo 2 & Photo 3: View of 24 inches drain pipes that empty onto wetland area located in the southern part of the parcel.

Jaime Padilla & Assoc.	**Plate: 1**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 4 & Photo 5: Different views of unnamed creek on northern boundary

Photo 6: vegetated flat dominated by *Paspalum fasciculatum* consociation.

Photo 7: Patch of Colocasia esculenta

Photo 8: Cluster of *Eleocharis mutata*

Jaime Padilla & Assoc.	**Plate: 2**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 9: View of soil profile taken from Sampling Point T1a.

Photo 10: View of the vegetation on SP T1a

Jaime Padilla & Assoc.	**Plate: 3**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 11: View of soil profile taken from Sampling Point T1b.

Photo 12: View of SP T1b pit.

Photo 13: View of the vegetation on SP T1c

Jaime Padilla & Assoc.	**Plate: 4**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 14: Soil profile taken from Sampling Point T1c.

Photo 15: Soil profile taken from Sampling Point T1d.

Jaime Padilla & Assoc.	**Plate: 5**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 16: View of Soil profile taken from Sampling Point T2b.

Photo 17: View of the vegetation on Sampling Point T2b.

Jaime Padilla & Assoc.	**Plate: 6**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 18: View of the vegetation on Sampling Point T2c.

Photo 19: View of soil sample taken on Sampling Point T2d

Photo 20: View of vegetation on SP T2e

Jaime Padilla & Assoc.	**Plate: 7**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 21: View of soil profile taken from Sampling Point T3a.

Photo 22: View of SP T3a soil pit.

Photo 23: View of SP T3a vegetation.

Jaime Padilla & Assoc.	**Plate: 8**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 24: View of Sampling Point T3b soil profile.

Photo 25: View of the vegetation on Sampling Point T3b

Jaime Padilla & Assoc.	**Plate: 9**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 26: View of the vegetation on Sampling Point T3c.

Photo 27: View of the vegetation on Sampling Point T3c.

Jaime Padilla & Assoc.	**Plate: 10**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 28: View of the vegetation on Sampling Point T3d

Photo29: View of the vegetation on Sampling Point 3d

Jaime Padilla & Assoc.	**Plate: 11**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 30: View of soil profile of Sampling Point T3e.

Photo 31: View of the vegetation on Sampling Point T3e

Jaime Padilla & Assoc.	**Plate: 12**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 32: View of SP T3f pit.

Photo 33: View of the vegetation on SP T3f.

Photo 34: View of the vegetation on SP T3g.

Jaime Padilla & Assoc.	**Plate: 13**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 35: View of Sampling Point T3g soil profile.

Photo 36: View of SP T4a pit.

Photo 37: View of the vegetation on SP T4a.

Jaime Padilla & Assoc.	**Plate: 14**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 38: View of the vegetation on SP T4b.

Photo 39: View of Sampling Point T4c pit.

Photo 40: Sampling Point T4c vegetation.

Photo 41: View of SP T4d soil profile.

Jaime Padilla & Assoc.	**Plate: 15**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 42: View of the vegetation on Sampling Point T4d.

Photo 43: View of Sampling Point T4e soil profile.

Jaime Padilla & Assoc.	**Plate: 16**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 44: View of the vegetation on Sampling Point T4e.

Photo 45: View of Sampling Point T4e pit.

Photo 46: View of Sampling Point T4f pit.

Jaime Padilla & Assoc.	**Plate: 17**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 47: View of the vegetation on Sampling Point T4f.

Photo 48: View of Sampling Point T4f soil profile.

Jaime Padilla & Assoc.	**Plate: 18**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 49: View of Sampling Point T4g.

Photo 50: View of SP T4g vegetation.

Photo 51: View of Sampling Point T4g soil profile.

Jaime Padilla & Assoc.	**Plate: 19**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 52: View of semi-permanently flooded or saturated wetland located in the southern part of the parcel.

Photo 53: Another view of the southern part of the semi-permanently flooded or saturated wetland.

Jaime Padilla & Assoc.	**Plate: 20**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 54: Partial view of the semi-permanently flooded or saturated wetland on the western side of the parcel.

Photo 55: View of seasonally ponded or saturated wet sabana located on the northern part of the parcel.

Jaime Padilla & Assoc.	**Plate: 21**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

Photo 46: View of the vegetation on Sampling Point T4f.

Photo 47: View of Sampling Point T4g soil profile.

Jaime Padilla & Assoc.	**Plate: 16**	***JD- Workshop & Maintenance Area-Caguas-San Juan MTS Caguas, Puerto Rico***
	March, 2007	

APPENDIX II
FIELD DOCUMENTATION
DATA FORMS

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS
Applicant/Owner: Behar - Ybarra & Associates
Investigator: Rolando Santos

Date: Dec. 13, 2006
County: Caguas
State: Puerto Rico

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? (Yes) No
(If needed, explain on reverse.)

Community ID: H
Transect ID: T1
Plot ID: a

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Paspalum fasciculatum	H	FACW
2. Mimosa casta	H	OBL
3. Vigna luteola	H	FAC
4. Commelina difusa	H	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4= 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
X Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: No primary wetland hydrology indicators were detected on this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Vertic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-9	Ap	10YR 4/2	No mottles		Clay, slightly plastic & sticky
9-	BE	10YR 5/4	10YR 5/6	Common/distinct	Clay, slightly plastic & sticky
			10YR 5/1	Few/distinct	-volcanic rock fragments

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Sampling point is located on a non-wetland area of this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 13, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T1 Plot ID: b

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Brachiaria mutica	H	FACW
2. Mimosa casta	H	OBL
3. Ipomea indica	H	FAC
4. Centrosema pubescens	H	NI
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

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

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	12 (in.)
Depth to Saturated Soil:	10 (in.)

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):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- X Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 9	Ap	10YR 4/2	2.5YR 4/6	Common/distinct	Clay
9 –	BE	5G 4/1	10YR 5/6	Common/distinct	Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Yes) No (Circle)

Remarks: Wetland by ponding

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 13, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T1 Plot ID: C

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Paspalum fasciculatum	H	FACW
2. Mimosa casta	H	OBL
3. Centrosema pubenscens	H	NI
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/3 = 67%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	2 (in.)
Depth to Saturated Soil:	0 (in.)

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
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Saturated to the surface.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes, depression

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations
Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 8	Ap	10YR 3/2	No mottles	N/A	Clay, plastic
8 - 14	E	5G 4/2	No mottles	N/A	Clay, very plastic
14 +-	BE	10YR 7/5	7.5YR 5/8	Common/distinct	Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- X Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: -Soil profile shows gleyed color at 9 inches from the surface.
-Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Circle) (Yes) No

Remarks: -Sampling point is located on a depression of this seasonal wetland; where soil permeability is very slow doing to clayey soil texture.
-Sampling point is in located on a drainage basin.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 14, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T1 Plot ID: d

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Urochloa maxima	H	FACU
2. Mimosa casta	H	OBL
3. Pueraria lobata	H	NI
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/3 = 50%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	16+ (in.)
Depth to Saturated Soil:	16+ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators were observed at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations
Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR 4/3	No mottles	N/A	Clay
6 -	BE	10YR 5/6	10YR 4/3	Common/distinct	Clay

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Sampling point area have been subject to previous disturbance cause by previously PR-30 State Expressway improvements.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 14, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T2 Plot ID: a

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Sporobolus indicus	H	FACU
2. Desmodium incanum	H	FACU
3. Mimosa púdica	H	FAC
4. Mimosa casta	H	OBL
5. Paspalum millegrana	H	FACW
6. Vigna luteola	H	FAC
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/6 = 67%

Remarks:

HYDROLOGY

- X Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - X Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: N/A (in.)
- Depth to Free Water in Pit: >16 (in.)
- Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No primary wetland hydrology indicators at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 6	Ap	10YR 4/3	No mottles	N/A	Clay
6+	B1	10YR 5/8	10YR 4/3	Common/distinct	Clay

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Sampling point located on an area of a seasonal wetland, which is non-wetland

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 15, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T2 Plot ID: b

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Paspalum fasciculatum	H	FACW
2. Mimosa pudica	H	FAC
3. Commelina difusa	H	FAC
4. Axonopus compressus	H	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	12 (in.)
Depth to Saturated Soil:	10 (in.)

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):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR4/2	2.5YR 5/8	Common/distinct	Clay, slightly plastic
----	----	----	10YR 5/1	Common/distinct	----------
6 – 13	B1	7.5YR 5/8	10YR 5/1	Many/distinct	Clay, many fine black concretions
13 +	B2	10YR 5/6	10YR 6/1	Common/distinct	Clay, plastic, sticky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Circle) (Yes) No

Remarks: Possible problem area: Sampling point is located on the transition area of this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 15, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T2 Plot ID: c

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Urochloa maxima	H	FACU
2. Triumfetta semoitriloba	S/Sh	FAC
3. Petiveria alliacea	H	NI
4. Centrosema pubenscens	H	NI
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/4 = 25%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	>16 (in.)
Depth to Saturated Soil:	>16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators were observed at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 6	Ap	10YR 4/2	No mottles	N/A	Clay
6+	BE	10YR 4/3	10YR 5/8	Few/faint	Clay

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Possible problem area: sampling point located on a non-wetland section within this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 15, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T2 Plot ID: d

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Brachiaria mutica	H	FACW-
2. Commelina diffusa	H	FAC
3. Mikania congesta	H	FACW
4. Vigna luteola	H	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	4 (in.)
Depth to Free Water in Pit:	N/A (in.)
Depth to Saturated Soil:	0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- X Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sampling point located on a drainage basin within the seasonal wetland.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 16	AB	10GY 4/1	No mottles	N/A	Clay, very plastic & sticky.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- _X_ Sulfidic Odor
- _X_ Aquic Moisture Regime
- _X_ Reducing Conditions
- _X_ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- _X_ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Circle) (Yes) No

Remarks: Sampling point located on semi-permanently saturated depression within this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Dec. 15, 2006 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T2 Plot ID: e

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Solanum torvum	S/Sh	NI
2. Mimosa casta	H	OBL
3. Centrosema pubescens	H	NI
4. Merremia umbellata	H	NI
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/4 = 25%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	>16 (in.)
Depth to Saturated Soil:	>16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 16	AB	10YR 5/6	5Y 7/2	Many / Distinct	Clay, very firm, slightly sticky

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Possible problem area: Sampling point located within a non-wetland area of a seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Jan. 15, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T3 Plot ID: a

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Paspalum fasciculatum	H	FACW
2. Mimosa casta	H	OBL
3. Ipomoea indica	H	FAC
4. Vigna luteola	H	FAC
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/4 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	>16 (in.)
Depth to Saturated Soil:	>16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No primary wetland hydrology indicators were observed at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 7	Ap	10YR 4/2	No mottles	N/A	Clay, firm, slickly plastic
7 -12	BE	10YR 4/4	7/5YR 5/8	Common/distinct	Clay, firm, slickly plastic & sticky
12 -	B2	10YR 4/3	10YR 5/1	Common/distinct	Clay, firm, slickly plastic & sticky
			7.5YR 5/8	Common/distinct	

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

Is this Samplig Point Within a Wetland? (Circle) Yes (No)

Remarks: Possible problem area: Sampling point is located on a non-wetland area.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Jan. 15, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T3 Plot ID: b

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Paspalum fasciculatum	H	FACW
2. Mimosa casta	H	OBL
3. Paspalum millegrana	H	FACW
4. Ipomoea indica	H	FAC
5. Vigna luteola	H	FAC
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/5 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No primary wetland hydrology indicators were observed at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 7	A	10YR 4/2	No mottles	N/A	Clay, friable when dry
7 - 12	BE	10YR 4/3	7.5R 5/8	Common/distinct	Clay, slightly sticky, plastic
12+	B2	10YR 4/2	10YR 5/1	Common/distinct	Clay, slightly sticky, plastic
			7.5R 5/8	Common/distinct	

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors

X Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Circle) (Yes) No

Remarks: Possible problem area: Sampling point located on a transitional area of this seasonal wetland.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR 3/2	10YR 5/8	Few/distinct	Clay, slightly sticky, plastic
6 - 12	BE	10YR 4/2	10YR 6/8	Many/distinct	Clay, sticky, plastic
12 -	B2	10YR 6/8	10YR 4/3	Many/distinct	Clay, very sticky, very plastic

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
X Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: -Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).
-Sampling point is located on higher grounds.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Possible problem area: Sampling point located on an area of this seasonal wetland that presented soils with no hydric indicators.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Jan. 15, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T3 Plot ID: c

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eriochloa polystachya	H	FACW
2. Paspalum millegrana	H	FACW
3. Paspalum fasciculatum	H	FACW
4. Ipomoea indica	H	FAC
5. Commelina diffusa	H	FAC
6. Centrosema pubescens	H	NI
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83%

Remarks:

HYDROLOGY

- X Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - X Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	>16 (in.)
Depth to Saturated Soil:	>16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 10	Ap	10YR 3/2	10YR 5/1	Few/distinct	Clay, slightly sticky, plastic
10+	BE	10YR 5/8	7.5R 5/3	Common/distinct	Clay, slightly sticky, plastic
			7.5R 5/8	Few/distinct	

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
X Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Circle) (Yes) No

Remarks: Possible problem area: Sampling point located on a wetland area of this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Jan. 18, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T3 Plot ID: d

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eriochloa polystachya	H	FACW
2. Mimosa casta	H	FACW
3. Brachiaria mutica	H	FACW
4. Ipomoea indica	H	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/4 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sediments deposited over surface of the drainage patterns. These sediments consist of organic debris, intermediately to highly decompose.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 2	Oe	----------	----------	----------	Organic debris
2 - 6	Ap	10YR 3/2	10YR 5/1	Few/distinct	Clay, slightly sticky, plastic
6 -12	BE	10YR 5/2	2.5YR 5/8	Few/distinct	Clay, slightly sticky, plastic
12 -	B2	10YR 6/8	10YR 5/2	Many/distinct	Clay, highly sticky, very plastic

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Organic debris deposited along drainage patterns.
Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Samplig Point Within a Wetland? (Yes) No

Remarks:

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Jan. 18, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T3 Plot ID: e

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Brachiaria mutica	H	FACW+
2. Paspalum millegrana	H	FACW
3. Ipomoea indica	H	FAC
4. Vigna luteola	H	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/4 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: There are not wetland hydrology indicators at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations
Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 9	Ap	10YR 4/2	10YR 3/3	Few/distinct	Clay, friable when dry
9 -14	BE	10YR 4/3	10YR 3/2	Many/distinct	Clay, slightly sticky, plastic
14 -	B2	7.5YR 5/6	10YR 4/2	Common/distinct	Clay, highly sticky, very plastic

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Possible problem area: sampling point located on a non-wetland section within this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Jan. 31, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T3 Plot ID: f

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Mimosa pigra	S/Sh	FACW
2. Eriochloa polystachya	H	FACW
3. Commelina diffusa	H	FAC
4. Leersia hexandra	H	OBL
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: 16 (in.)

Depth to Saturated Soil: 6 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 2	Oe	----------	----------	----------	Organic debris
2 - 11	Ap	10YR 3/2	2.5YR 5/8	Few/distinct	Clay, slightly sticky, plastic
11 -	BE	5GY 3/1	No mottles	----------	Clay, very sticky, very plastic

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
_X_ Sulfidic Odor
_X_ Aquic Moisture Regime
_X_ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
_X_ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Samplig Point Within a Wetland? (Yes) No

Remarks: -Sampling point is located on a depression of this seasonal wetland; where soil permeability is very slow doing to clayey soil texture.
-Sampling point is in located on a drainage basin.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Jan. 31, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T3 Plot ID: g

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eriochloa polystachya	H	FACW
2. Mimosa casta	H	OBL
3. Commelina diffusa	H	FAC
4. Vigna luteola	H	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No primary wetland hydrology indicators were detected on this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR 4/3	10YR 4/2	Many/distinct	Clay, friable when dry
6 -	BE	10YR 4/2	10YR 3/2	Common/distinct	Clay, slightly sticky, plastic
			7.5YR 5/8	Few/faint	

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Possible problem area: sampling point located on the non-wetland area of the transitional zone of a seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Feb. 05, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: T Transect ID: T4 Plot ID: a

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Aploleia monandra	H	NI
2. Polygonum punctatum	H	OBL
3. Thelypteris angustifolia	H	OBL
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/3 = 67%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	>16 (in.)
Depth to Saturated Soil:	>16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sampling point located on the upper limit of the flood area of the creek bank.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR 4/4	No mottles	----------	Loamy sandy, very fine -fine
6 -12	BE	10YR 3/2	No mottles	----------	Sandy loam, fine
12-	B2	10YR 4/1	10YR 5/8	Common/distinct	Sandy loam, fine
			5YR 5/3	Few/faint	----------

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
X Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
X Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Circle) (Yes) No

Remarks: Sampling point located within the northern bank flood area of the unnamed creek.

Approved by HQUSACE 3/92

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Feb. 02, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: T Transect ID: T4 Plot ID: b

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Spathodea campanulata	T	FACU
2. Casearia sylvestris	S/Sh	FAC
3. Petiveria alliacea	H	NI
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

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

Remarks: NI – No Indicator

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: >16 (in.)

Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators were observed at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations
Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 9	Ap	10YR 4/2	No mottles	----------	Clay, friable when dry
9 -16	BE	10YR 3/2	2.5 YR 5/6	Few/distinct	Clay, slightly plastic
16-	B2	10YR 4/3	2.5YR 5/6	Few/distinct	Clay, slightly sticky and plastic

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Sampling point located on the southern bank of the unnamed creek, which is outside the flood area.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Feb. 05, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: H Transect ID: T4 Plot ID: c

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Urochloa maxima	H	FACU
2. Mimosa Casta	H	OBL
3. Centrosema pubescens	H	NI
4. Ipomoea indica	H	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/2 = 50%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	>16 (in.)
Depth to Saturated Soil:	>16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators were observed at this sampling point.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR 4/2	No mottles	----------	Clay, friable when dry
6 - 12	BE	10YR 4/3	2.5 YR 5/8	Few/distinct	Clay, slightly plastic
12 -	B2	10YR 5/6	10YR 5/1	Common/distinct	Clay, slightly sticky and plastic
			10YR 4/3	Few/distinct	

Hydric Soil Indicators:

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

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

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Samplig Point Within a Wetland? Yes (No)

Remarks: Possible problem area: sampling point located on a non-wetland section within this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Feb. 05, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: H Transect ID: T4 Plot ID: d

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Colocasia diffusa	H	OBL
2. Paspalum millegrana	H	FACW
3. Leersia hexandra	H	OBL
4. Commelina difusa	H	FAC
5. Vigna luteola	H	FAC
6. Ipomoea indica	H	FAC
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 6/6 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Sediments deposited on drainage patterns consist of organic debris, intermediately to highly decompose.

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR 4/2	No mottles	----------	Clay, slightly plastic
6 - 12	BE	10YR 4/2	10YR 5/1	Many/prominent	Clay, slightly sticky plastic
			10YR 5/8	Many/distinct	
12 -	B2	10YR 3/2	2.5 YR 5/8	Many/distinct	Clay, very sticky and plastic
			5G 4/1	Few/prominent	

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
X Aquic Moisture Regime
X Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
X Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Samplig Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Feb. 07, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T4 Plot ID: e

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Brachiaria mutica	H	OBL
2. Commelina difusa	H	FAC
3. Paspalum millegrana	H	FACW
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/3 = 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: >16 (in.)

Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 - 6	Ap	10YR 3/2	5G 4/2	Few/distinct	Clay, slightly sticky, plastic
6 - 14	BE	10YR 3/2	5G 4/2	Common/prominent	Clay, sticky, plastic
			2.5YR 4/6	Common/distinct	
14 -	B2	5G 4/1	10YR 5/8	Many/distinct	Clay, very sticky, very plastic

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Samplig Point Within a Wetland? (Yes) No

Remarks: Possible problem area: Sampling point is located on a wetland part within this seasonal wetland.

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Feb. 07, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T4 Plot ID: f

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Brachiaria mutica	H	OBL
2. Paspalum millegrana	H	FACW
3. Ipomoea indica	H	FAC
4. Vigna luteola	H	FAC
5. Centrosema pubescens	H	FAC
6. Pueraria lobata	H	NI
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

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

Project/Site: Workshop & Maintenance Area-Caguas-San Juan MTS Applicant/Owner: Behar - Ybarra & Associates Investigator: Rolando Santos	Date: Feb. 08, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? (Yes) No (If needed, explain on reverse.)	Community ID: H Transect ID: T4 Plot ID: g

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Paspalum fasciculatum	H	FACW
2. Ipomoea indica	H	FAC
3. Mikania congesta	H	FACW
4. Vigna vexillata	H	NI
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

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

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	>16 (in.)
Depth to Saturated Soil:	>16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Mabi clay, 2 to 5% slopes

Drainage Class: Somewhat poorly drained

Taxonomy (Subgroup): Ventic Eutropepts

Field Observations Confirm Mapped Type? Yes (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 3/1	No mottles		Loamy clay
4 - 16	BE	10YR 4/3	7.5YR 5/8	Few/faint	Clay, cobbles & rock fragments
			10YR 6/8	Few/prominent	
			2.5YR 5/6	Few/prominent	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil listed on the Local Hydric Soils List as non-hydric with hydric inclusions on depressions or areas with slow permeability (clayey soils).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Samplig Point Within a Wetland? (Circle) (Yes) No

Remarks: Possible problem area: Sampling point is located on a wetland area within this seasonal wetland.

APPENDIX III
PRELIMINARY WETLAND DETERMINATION