321-536-1988

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Attn: Zack Munger
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Project: Hammock Road Parcel
2801 Hammock Road
Mims, FL
PID: Portion of 21-35-09-00-511
Tax Act: 2103214
Acres: ~6 acres

Mr. Munger,
The proposed construction area was reviewed for the presence of wetland habitat, protected species, delineation of any wetland habitat, and if there were any additional constraints to development. The client is investigating the ability to expand the adjacent industrial facility in Mims, Florida (***Figure 1***).

A site visit was completed by Harnden Environmental (HE) staff on October 4, 2024. The project area was traversed on foot. Photographs of the site are included in ***Appendix A***. The site is disturbed, but undeveloped. The site also includes several surface waters and a wetland. There is also areas where trash and construction debris has been piled. The following observations are a summary of the findings of the site review.

Soils, Elevation, and Flood Zone Data
The project area is mapped as having upland soil (Orsino Fine Sand – Non-Hydric [41]) and hydric (wetland) soils, (Anclote sand, Depressional [2], Canaveral Urban Land Complex [10], Copeland-Bradenton-Wabasso Complex, Limestone Substratum [16], Turnbull and Riomar Soils, Tidal [58]) on the NRCS Soil Survey map (***Figure 2***). Suggesting the site could include wetlands. This soil data is from a large-scale survey and represents the potential soils on a site. This is not always indicative of the actual soil characteristics on-site.

Table 1. Soil Types On-site

2—Anclote sand, Depressional*
10—Canaveral Urban Land Complex*
16—Copeland-Bradenton-Wabasso Complex, Limestone Substratum*
41—Orsino Fine Sand
58—Turnbull and Riomar Soils, Tidal*

*Hydric Soil Types

On-site soil reviews confirm that hydric (wetland) soils do occur within the project area

Current Land Use

Land use descriptions have been created for the entire state by the Florida Department of Transportation (FDOT). These classifications are used to generally categorize land types by use and vegetative compositions. The descriptions that are closest to the habitats on-site are utilized to document the current land use. Modifications of categories is sometimes done to be more descriptive of conditions on-site. Geographic Information Systems (GIS) were used to compile the data and calculate the acreages on-site. Note that calculated acreages are not exact. The current land use has been depicted on ***Figure 3***.

There are six types of land use on-site. A summary of current land uses on-site is below.

1560 – Industrial Facility (3.34 acres)

This portion of the project area is industrial settling ponds. The ponds appear to be constantly inundated. The ponds percolate groundwater to the surrounding, lower elevation wetland system. It is HE's opinion this portion of the site would be considered industrial facilities, and thus be considered **upland**.

4220 – Brazilian Pepper (0.98 acres)

This portion of the project area is vegetated with mainly Brazilian pepper (*Schinus terebinthifolia*), with some slash pine (*Pinus elliottii*), cabbage palm (*Sabal palmetto*), live (*Q. virginiana*) and laurel (*Q. laurifolia*) oak. The understory is saw palmetto (*Serinoa repens*) in some areas. There is also an upland cut drainage swale that is part of the polygon. It is HE's opinion this portion of the site would be considered **upland**.

5110 – Excavated Ditch (0.26 acres)

This portion of the project area is an excavated ditch. The ditch is part of the local drainage system. The ditch runs directly in the Indian River Lagoon (a protected waterbody). It is HE's opinion this portion of the site would be considered **surface water**.

6120 – Mangrove Swamp (1.62 acres)

This portion of the project area is a mangrove swamp. The wetland is depicted in all historical maps. The wetland is vegetated mainly with white mangrove (*Laguncularia racemosa*) and black mangrove (*Avicennia germinans*). Estuarine marsh understory species were also present. These species included sea ox-eyed daisy (*Borrichia frutescens*), leather fern (*Acrostichum danaeifolium*), and salt grass (*Disticlis spicata*). The polygon includes **50% coverage of Brazilian pepper**. This wetland polygon includes some wetland ditching that connects directly to the excavated ditch on the southern end of the project area conveying stormwater directly to the Indian River Lagoon. It is HE's opinion this portion of the site would be considered **wetland**.

6280 – Hydric Hammock (3.98 acres)

This portion of the project area is a wetland hammock habitat. The wetlands are depicted in many historical maps. The wetland hammock is vegetated with cabbage palm, live and laurel oak, red cedar (*Juniperus virginiana*), with some elm (*Ulmus floridana*). There are some areas with sparse saw palmetto and wax myrtle (*Myrica cerifera*). There were also other understory wetland vegetation present in the hammock areas. These species included duck potato (*Sagittaria graminea*), swamp fern (*Blechnum serrulatum*), dayflower (*Commelina* spp.), chain fern (*Woodwardia virginica*), leather fern,

road grass (*Eleocharis baldwinii*), marsh goldenrod (*Solidago fistulosa*), star rush (*Rhynchospora colorata*), pennywort (*Hydrocotyle bonariensis*), and water hyssops (*Bacopa caroliniana*). There are excavated ditches within this wetland habitat. There is also a small area vegetated by Australian pines (*Casuarina equisetifolia*). The polygon includes **50% coverage of Brazilian pepper**. It is HE's opinion this portion of the site would be considered **wetland**.

7430 – Upland Spoil Piles (0.20 acres)
This portion of the project area are spoil piles resulting from the adjacent ditching in the wetlands. The piles are up to four feet above the natural grade. There are Brazilian peppers located on the spoil piles. It is HE's opinion this portion of the site would be considered **upland spoil piles**.

Table 2. Current Land Use of the site.

Code	Description	Acreage
1560	Industrial Facility	3.34
4220	Brazilian Pepper	0.98
5110	Excavated Ditch	0.26
6120*	Mangrove Swamp	1.62
6280*	Hydric Hammock	3.98
7430	Upland Spoil Piles	0.20

*Wetland code

The site includes a large natural wetland system, excavated settling ponds, and excavated ditches (surface water). These features are depicted on ***Figure 1***. The wetland on-site is a hydric hammock and mangrove swamp. Field observations indicate that there were hydric (wetland) soil indicators and hydrologic indicators on-site, confirming **wetlands do** occur on-site. The indicators included striping in the top 6 inches of the soil profile, muck, and sulfur odor. The flagged wetland boundaries are depicted in ***Figure 1***.

The National Wetland Inventory (NWI) map depicts the site as having wetlands in the project area.

Floodplain Map
Flood maps are developed utilizing the current, most up to date, elevation data available. The FEMA floodplain map indicates that the project area includes Zone X and AE. Zone X are areas in the 500 year floodplain. These are considered areas of minimal flood risk. Zone AE is in the 100 year floodplain and has a 1% annual flood chance. It is possible that **compensating storage** will be required for development of the acreage of the project that is below Flood Zone X.

Protected Species
The project area is currently undeveloped. Due to the habitats on-site, it is possible that protected species could utilize habitats on-site. There are wildlife trails in the project area. No evidence of a wading bird rookery was observed. The utilization of these habitats by protected species is likely low because of the dense Brazilian pepper stands on-site. Because of the conditions on-site, the site is not ideal habitat for protected species.

The site is too wet for gopher tortoises to occur. Since the surface waters are connected to the Indian

River Lagoon, there were fisheries species located within the project area. Species such as tarpon (*Megalops atlanticus*) were observed within the project area.

A large eastern rat snake (*Pantherophis alleghaniensis*) was observed in a brush pile on-site. Rat snakes are not a protected species.

Uniform Mitigation Assessment Method (UMAM)

The UMAM is the means to evaluate the quality of a wetland system. This quality assessment allows a reviewer to determine the amount of mitigation that will be required in order to impact a wetland system for development or some other land use conversion. The quality value is multiplied by the acreage of the wetland to be impacted. This value will be the amount of credit that is required to offset the proposed wetland impact.

Mitigation Plan:

The proposed project is to construct an expansion of the adjacent facilities. The site is located in northern Brevard County. The Site is located in the Northern Indian River Lagoon (Basin 21) surface water basin. The proposed project would be located in hydric hammock and mangrove swamp. The proposed impacts would be the entire project area. Resulting in approximately 5.60 acres of direct wetland impact.

The proposed project will include wetland impacts. Direct impacts will occur. To initiate discussions regarding UMAM analysis preliminary values have been proposed below.

Preliminary UMAM Calculations

Table 1. Direct Impacts

	Without			With					
ID	Landscape	Water	Veg	Landscape	Water	Veg	Delta	Acres	FU Loss
WL1	6	7	6	0	0	0	0.633	1.62	1.025
WL2	6	7	5	0	0	0	0.600	3.98	2.388
Total								5.6	3.413

Table 2. Secondary Impacts

	Without			With					
ID	Landscape	Water	Veg	Landscape	Water	Veg	Delta	Acres	FU Loss
WL1	0	0	0	0	0	0	0.0	0.0	0.0
Total								0.0	0.0

In general the wetlands are not in good conditions. Proposed UMAM calculations for direct impacts are depicted in ***Table 1***. There are some ditches and upland berms within the systems that detract from the natural conditions on-site. Additionally, the project area is adjacent to industrial facilities, roads, and a railroad. This leads to less than pristine hydrology and impacts to the vegetative communities on-site.

The vegetative communities on-site include a minimum of 50% Brazilian pepper encroachment. This encroachment is in both the hydric hammock and the mangrove swamp leading to the reduced vegetative community score.

Since the entire project site is surrounded by disturbance (road and railroad) and industrial facilities, it is not anticipated that there would be secondary wetland impacts to adjacent wetland systems (***Table 2***). If a portion of the wetland will be impacted, then secondary impacts will be assessed for the acreage of the remaining upland. Secondary impacts are at a lower rate resulting in less required mitigation, than direct impacts.

The data and figure provided are to start discussions regarding the proposed project and options to offset potential wetland impacts.

By rule, mitigation has to be within the same surface water basin and has to be a similar type of habitat (in-kind). Exceptions are sometimes possible, but are not easily agreed upon. It is anticipated that estuarine forested credits will have to be used for the mangrove swamp area and freshwater forested credits could be used for the hydric hammock area. These findings will have to be confirmed by the regulatory agency review staff.

Mitigation could possibly be accomplished by purchasing credits from mitigation bank within the same surface water basin. There are several banks within the basin. Presently there is not a bank within the basin that has Federal estuarine forested credits. Green Wing Mitigation Bank is coming online that will have estuarine credits that could be used for mitigation. Pricing for the credits has not been fully determined. It is anticipated the dual (State/Federal) forested estuarine credits could be up to $700,000 per credit. Forested freshwater credits would be slightly less. Therefore, it is anticipated that wetland mitigation costs would range from $2,000,000 to $2,300,000.

Summary

The project area is located adjacent to Hammock Road in Mims, Florida. There are wetlands and surface waters on-site.

According to the proposed plan there will be wetland impacts (***Figure 1***). The entire wetland system encompassed on-site would be impacted. It is anticipated that impacts to surface waters could be considered temporary in nature. Any wetland impacts (direct and secondary will have to be offset by mitigation). The estimated wetland impacts are 5.6 acres of direct impact. With consideration of the qualities of the wetlands, it is estimated that 3.413 credits from a wetland mitigation bank within the surface water basin could offset the potential wetland impacts. These credits would have to be Federal forested credits and a portion of them would have to be estuarine forested credits.

The Green Wing mitigation bank is located in the basin and reportedly have the available forested mitigation credits within a few months. It is suggested that if the proposed project will move forward, the mitigation bank should be contacted as quickly as possible regarding the estuarine credits. These credits are quite rare and will sell out quickly. If these credits are not available then other potential mitigation could be discussioned with regulatory agencies regarding out-of-kind and out-of-basin mitigation credits or purchasing appropriate lands, restoring them, and donating them to an environmental agency. These

methods are difficult and typically much more costly than purchasing credits.

It is anticipated that the site will be under the jurisdiction of the Florida Department of Environmental Protection (FDEP) and the U.S. Army Corps of Engineers (ACOE).

There was a FDEP environmental permit issued for a small project on-site. It is believed that a new FDEP individual permit will have to issued for the proposed construction. A Federal dredge and fill permit will also have to be obtained from ACOE.

The site will require substantial fill and possibly muck removal. Fill cost could be large. Potentially the 5.6 acres of wetland habitat could need 5 to 7 feet of fill. Civil engineering activities will determine these values.

No gopher tortoise burrows were observed during the assessment. Because of the habitat types on-site, a 100% gopher tortoise burrow survey will not be required.

A pre-application meeting with regulatory agencies could help to confirm what types of mitigation should be utilized.

If you have any further questions feel free to give us a call.

Thank you for your business.

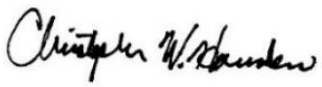

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Figure: Preliminary Land Use
Project: Hammock Road Parcel
Mims, FL
Site: Parcels_2103214 (Portion)
Note: Boundaries are approximate.

Figure 1

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Appendix A
Site Photographs 10/04/24

Photograph 1. Southern ditch along project area, facing west. Ditch attaches directly to the Northern Indian River Lagoon.

Photograph 2. Eastern edge of the project area, facing south. Note the ditch and mangroves.

Photograph 3. Eastern edge of project area, facing north.

Photograph 4. Northern edge of project area. Facing east.

Photograph 5. Western edge of project area, facing south.

Photograph 6. Australian pine area in interior of site, facing north.

Photograph 7. Typical interior of site, facing east. Note pepper.

Photograph 8. Typical interior of site, facing south. Note pepper.

Photograph 9. Typical interior of site, facing south. Note pepper.

Photograph 10. Typical interior of site, facing east. Note pepper.

Photograph 11. Typical hydric hammock area of site, facing north. Note hummocking.

Photograph 12. Upland spoil area of site, facing northwest.

Photograph 13. Upland spoil area of site, facing north.

Photograph 14. Typical upland hammock area of site, facing north. Cleared.

Photograph 15. Typical hydric hammock area of site, facing north.

Photograph 16. Large eastern rat snake observed on-site.