

Field Sampling Plan

Emeralda Marsh Conservation Area – Peat Removal Project

Prepared for:
St. Johns River Water Management District (SJRWMD)

Prepared by:



and



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EC&D Project No. 15-015

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1.0 INTRODUCTION

This sampling plan was written pursuant to the requirements of the lease between the St. John's River Water Management District (SJRWMD) and Sun Gro Horticulture Excavation and Processing, LLC. (Sun Gro) for the removal of phosphorus enriched soil within the Emeralda Marsh Conservation Area (EMCA). The plan is also intended to satisfy permits issued by the Florida Department of Environmental Protection (FDEP) and the US Army Corps of Engineers (USACE). The two components of the sampling plan include Sediment Sampling and Water Quality Sampling.

1.1 PURPOSE

This Field Sampling Plan has been prepared by Sun Gro in consultation with the SJRWMD and Environmental Consulting and Design, Inc. (EC&D). The purpose of the sampling is to evaluate residual organochloride pesticide (OC) levels and metals within each mining unit prior to excavation and to monitor water quality within the lease boundary prior to the discharge of water into the Yale-Griffin Canal.

1.2 PROJECT CONTACTS

Leasee:

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Leasee Consultant:

Environmental Consulting & Design, Inc.
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1.3 LOCATION AND DESCRIPTION

The EMCA is located approximately 8.5 miles northeast of Leesburg in Lake County, Florida. The EMCA Peat Removal Project consists of excavating phosphorus enriched organic sediment (peat) from a 605 acre portion of Area 5 of the EMCA. The excavated material will be mixed and screened on-site to remove debris (large sticks etc.) and then trucked to Sun Gro's facility in Orlando to be blended with other organic materials for sale as potting soil.

2.0 SEDIMENT SAMPLING PLAN

Sampling will be conducted to evaluate the OC pesticide and metals concentrations within the upper 2 ft of the peat deposit within each unit prior to the implementation of excavation activities. The plan and outlined procedures have been developed to ensure that data collected are accurate, defensible, and representative of site conditions. The objective of the sampling is to characterize the pesticide and metals concentrations in the peat prior to any material being transported from the site.

2.1 SAMPLING PARAMETERS

Two peat samples will be collected at five locations (three locations in Unit 2 and one location in Units 1 and 3) and analyzed for OC pesticides, 8 RCRA metals and copper. The sampling locations are shown on Figure 8.

2.2 SAMPLING SCHEDULE

Peat sampling will occur in any given unit prior to commencing any excavation within that unit. The results of the sampling will be provided to the District upon receipt.

2.3 SAMPLING PROCEDURES

Samples will be collected at each sampling location 0-1 ft and 1-2 ft intervals using a stainless steel bucket auger or trowel in accordance with Florida Department of Environmental Protection's (FDEP) 2014 Standard Operating Procedures (www.dep.state.fl.us/water/sas/sop/sops).

If any samples contain chemicals at concentrations that exceed FDEP's SCTLs, delineation for those chemicals will be accomplished by collecting samples around and below the original sample and analyzing these samples for the same chemicals until "clean" samples are obtained. For lateral delineation, four step-out samples will be collected 50 ft east, west, north, and south of the original sample. For vertical delineation, an additional sample will be collected 1 ft below the original sample.

2.4 REPORTING

The sampling effort will be summarized in a brief letter report that will be signed and sealed by a Florida Professional Geologist (PG) experienced in soil assessment. The report will include a recommendation to either blend the affected layer of peat or to dispose the peat offsite. Any peat that cannot be safely blended will be disposed offsite at an approved facility.

3.0 WATER QUALITY SAMPLING PLAN

In addition to the remote dissolved oxygen (DO) monitoring discussed in the Fish Kill Response Plan (Appendix K), water sampling will also be conducted within the work area. The water sampling plan and outlined procedures have been developed to ensure that data collected are accurate, defensible, and representative of site conditions. The objective of surface water sampling is to ensure any offsite discharges of water from the excavated area meet the requirements of the lease (i.e. State Water Quality Standards and the TMDL of Lake Griffin).

As discussed in detail in Appendix H, water is stored in the inactive units within the excavation area until capacity is full (designed to hold double the 100-year, 24-hr storm event). If capacity is reached, water is pumped to the Emergency Storage Area 1 (EM1) and in the event that both the excavation area and EM1 reach capacity, water will then be pumped to Treatment Pond 1 where it will receive treatment with a coagulant to settle suspended and solids from the water column. After being treated with coagulant, water will enter the Polishing Pond where it will be sampled.

3.1 SAMPLING PARAMETERS

Prior to the discharge of water from the site, the water will be analyzed for the parameters listed in Table 2.

Table 2: Analyte list for surface water samples

Analyte	Field/Lab	Units	Threshold
Water Depth	Field	ft	n/a
Dissolved Oxygen	Field	mg/L	> 5
pH	Field	std units	+ / - 0.5 from background
Specific Conductivity	Field	umhos/cm	50% above background or 1275, whichever is greater
Water Temperature	Field	°C	n/a
Air Temperature	Field	°C	n/a
Turbidity	Field	NTU	≤29 above background
Wind Speed & Direction	Field	MPH	n/a
Ortho-phosphorus	Lab	mg/L	*
Total Phosphorus (TP)	Lab	mg/L	*
Total Phosphorus – Dissolved (TP-D)	Lab	mg/L	*
Total Nitrogen (TN)	Lab	mg/L	*
Total Kjeldahl Nitrogen (TKN)	Lab	mg/L	*
Total Suspended Solids (TSS)	Lab	mg/L	*

Source: EC&D, 2016

*No available state standard or criteria. Not to cause degradation to the system

3.2 SAMPLING SCHEDULE

Water sampling will occur only when water from the excavation area reaches the Polishing Pond. On-site water storage capacities are designed to hold water from twice the volume of a 100-year 24-hour storm event. In the event water from the excavation area reaches the Polishing Pond, Sun Gro personnel will notify EC&D to mobilize to the site to retrieve samples. Due to EC&D's close proximity to the site,

samples should be retrieved within 4-6 hours. Since the Polishing Pond is capable of holding 16 days of treated water prior to discharge, there will be ample time to collect samples and receive the analytical results from the laboratory and review the data. The data will be provided to the District upon receipt.

3.3 SAMPLING PROCEDURES

Three to five surface water grab samples will be collected for field and laboratory analysis in accordance with FDEP SOPs. Field parameters will be collected using a Hydrolab or similar instrument capable of measuring DO, conductivity, temperature, turbidity and pH.

3.4 REPORTING

The sampling effort will be summarized in a brief letter report. The report will include a recommendation to either hold or discharge the impounded water.

**Water Quality Sampling Field Log
EMCA Area 5 Peat Removal Project**

Sampler Name(s): _____ Date: _____ Time: _____

Weather Conditions (Circle one): Clear Partly Cloudy Cloudy Rain

Air Temperature: _____ °F Wind Speed: _____ mph Wind Direction: _____

Water Quality Measurements

Total Water Depth: _____ (feet)

Depth from which laboratory samples were collected: _____ (feet)

Sample meter used: _____

Field Measurements:

Depth Collected (ft)	pH (SU)	D.O. (mg/L)	Temperature (°F)	Specific Conductivity (umhos/cm)	Turbidity (NTU)

Comments:

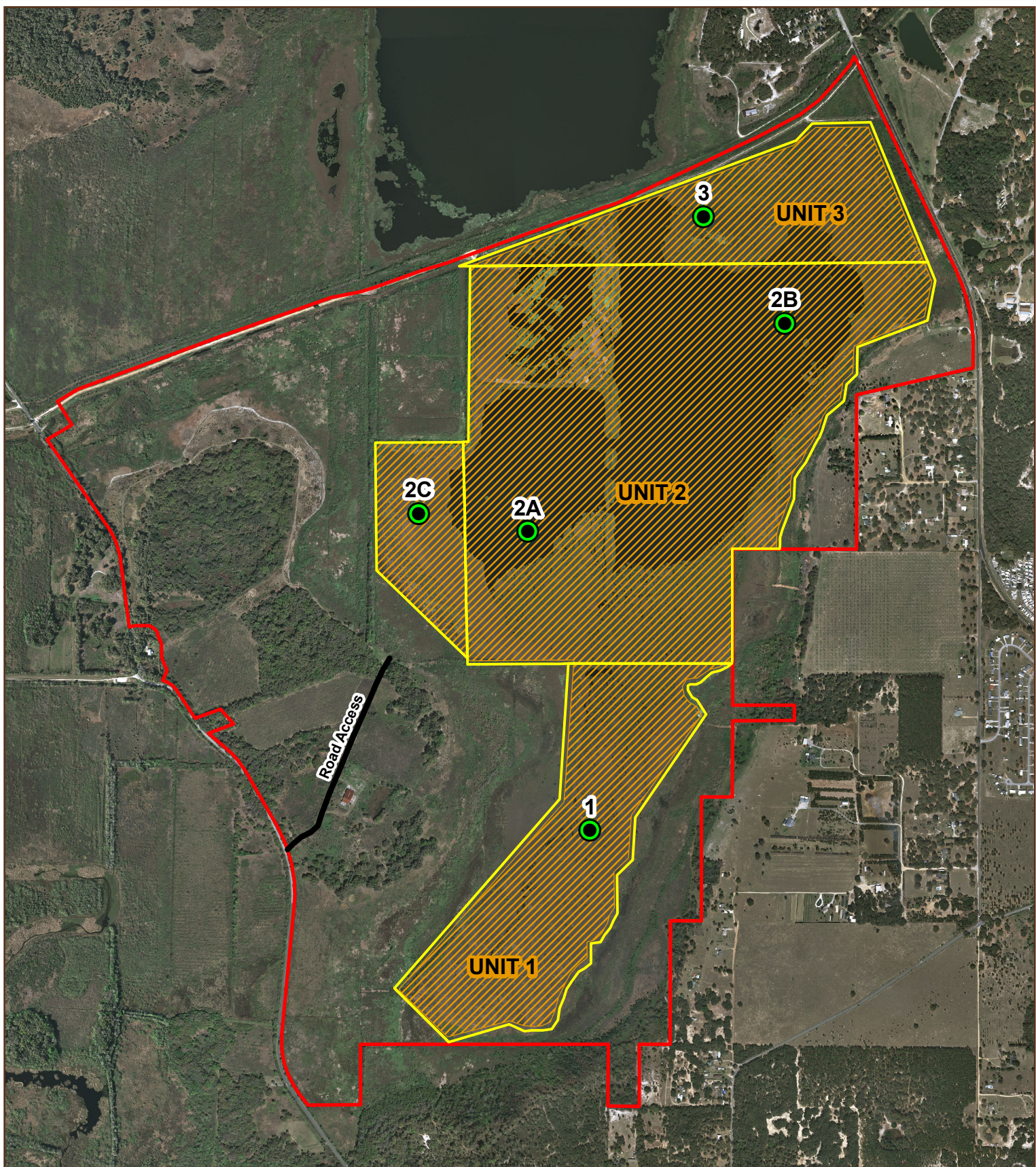





FIGURE 8
ORGANOCHLORIDE
PESTICIDE SAMPLING
LOCATIONS
2014 TRUE COLOR AERIAL
LAKE COUNTY, FLORIDA

1 INCH = 1,400 FEET
 0 250 500 1,000 1,500 2,000
 Feet

MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER.

LEGEND

-  OC Sample Locations (approximate)
-  Lease Area (+/- 1319 Acres)
-  Excavation Area (+/- 605 Acres)



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DATA SOURCES: COUNTY, WMD, USDA/NRCS, FFWCC, SFWS/NWI, FEMA, USGS/NHD&NED, FDOT, FDOT FINAL, FDEP, US CENSUS (TIGER 2008), FDOT, & ECRD.
 NOTE: DATA ARE PROVIDED AS IS. ACRES ARE APPROXIMATE & GIS DERIVED.
 PROJECTION: NAD 1983 HARN STATEPLANE FLORIDA WEST FIPS 0902 FEET