Escambia County Waste Services Department
Perdido Landfill
Borrow Pit Investigation
Cantonment, Florida

Geotechnical Investigation & Laboratory Testing

Introduction and Purpose

This document and attachments constitute a work plan for geotechnical subsurface investigation and laboratory testing at a site owned by Escambia County. The objective of the subsurface investigation and testing described herein is to characterize the subsurface geotechnical conditions at the site, define the subsurface geotechnical profile and to determine the thickness and properties of soil for landfill construction and operation. The subsurface geotechnical investigation will consist of soil borings and sampling, and piezometer installation to estimate the elevation of the local groundwater table.

Soil Boring and Testing Procedure

The proposed geotechnical subsurface investigation includes a total of thirteen (13) borings (9 borings and 4 piezometers) at locations depicted in Figure 1 under Attachment A. The County staff will create access to the drilling location areas, including clearing thick vegetation. Once the sampling locations are cleared, the Geotechnical Consultant shall stake the boring locations at the northing and easting locations identified in Figure 1 under Attachment A based on GPS. The Geotechnical Consultant will mobilize a truck-mounted hollow stem drilling rig and begin drilling at these staked locations. Due to site specific constraints, actual drilling locations may slightly vary from the staked locations. Final survey at drilled locations will be confirmed by HDR after completion of drilling.

The thirteen (13) borings will be advanced to an elevation 5-foot below groundwater. Based on the available information to HDR, groundwater is anticipated at approximately 40-45 ft NGVD. For budgetary purposes Consultant may assume 500 feet of drilling into subsurface soil material.

Sampling of native soils will be performed using a split spoon sampler at a maximum of 5-foot depth intervals in the borings using a combination of standard penetration testing and sampling (SPT). Sampling details are as follows:

- A continuous sample from the top 10 feet will be collected at each boring location.
- After 10 ft depth, SPT and open-end drive samples should be performed at 5-foot depth intervals in each boring.

Geotechnical Consultant's staff will document drilling and sampling procedures and visually log soil materials in accordance with ASTM D2487. Geotechnical Consultant will obtain necessary permits, utility clearance, and coordinate with Escambia County staff. Permits for borings which may encounter groundwater will be obtained as required by County regulations. All borings other than those designated as piezometers will be grouted after completion. Backfill will consist of a mixture of neat cement, bentonite and water, and will be placed for the full depth of each boring.

Laboratory testing of selected samples recovered from the subsurface investigation will be performed. Laboratory tests will be assigned by HDR with input from the Geotechnical

Consultant. The Geotechnical Consultant shall provide digital images of the samples recovered. The laboratory testing program and estimated number of tests are as follows:

Table 1 – Laboratory Testing Program for Subsurface Material

Laboratory Test	Testing Standard	Estimated Number of Tests
Moisture Content	ASTM D2216	10
Atterberg Limits	ASTM D4318	3
Sieve analysis (#200 wash)	ASTM D6913	26
Sieve Analysis	ASTM D1140	2
Standard Proctor	ASTM D698	2

Piezometer Drilling, Sampling and Installation

The Geotechnical Consultant will install 4 piezometers at locations identified in Figure 1. Approximate depth of each piezometer is estimated to be elevation 40 to 50 feet, NGVD (subject to change based on soil boring data). Each piezometer will have a 5-foot long screen near the bottom. After installation, the Geotechnical Consultant will develop these piezometers with an accessible end cap. The piezometer construction is simple and temporary and do not require casing or concrete pad. These piezometers will be abandoned by the County upon completion of data collection.

Data Report

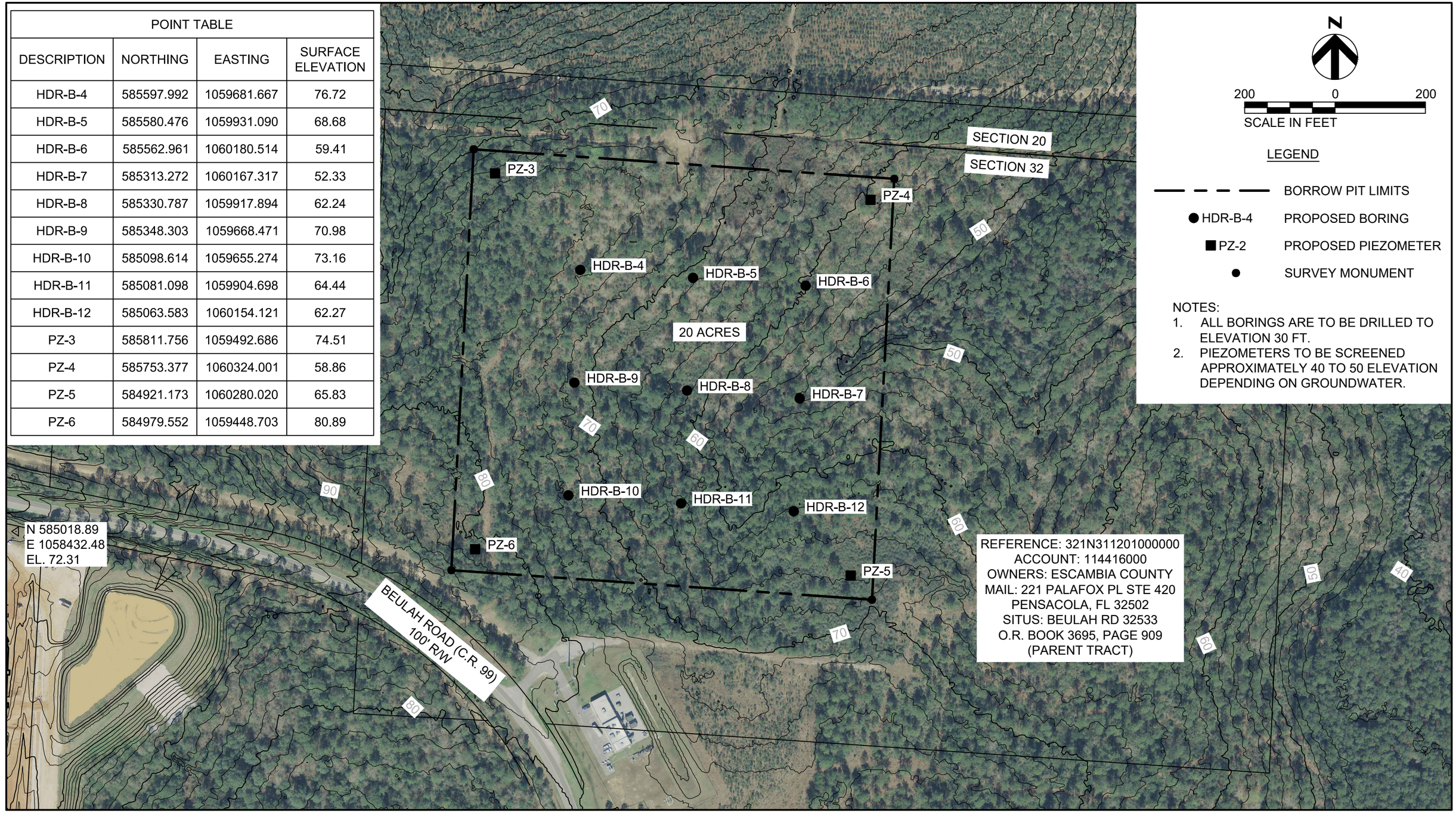
The Geotechnical Consultant will submit results of the geotechnical subsurface investigation in a data report to HDR for review, and issue a final report after addressing HDR's review comments. The data report should contain the following information:

- Subsurface investigation
  - Description of drilling methods and equipment
  - Summary of boring locations and depth
  - Boring plan with boring locations (HDR will provide the boring plan drawing electronic file)
  - Photographs of the site conditions at the boring and test pits
  - General description of subsurface geotechnical profile
  - Groundwater depth summary
  - Boring Logs
    - Description of encountered soils in accordance with ASTM D2487 with Unified Soil Classification System (USCS) classification.
    - Sampling intervals and blow counts from SPT or ring/tube sampler
    - Relevant test results including moisture content, dry density, Atterberg limits and sieve analysis
- Laboratory testing
  - Summary of number of tests performed and applicable testing standards
  - General discussion of test results by material type including range of results
  - Summary of test results in tabular form
  - Individual test data sheets

Attachments:
Attachment A: Subsurface Investigation Plan

Attachment A
Subsurface Investigation Plan

POINT TABLE			
DESCRIPTION	NORTHING	EASTING	SURFACE ELEVATION
HDR-B-4	585597.992	1059681.667	76.72
HDR-B-5	585580.476	1059931.090	68.68
HDR-B-6	585562.961	1060180.514	59.41
HDR-B-7	585313.272	1060167.317	52.33
HDR-B-8	585330.787	1059917.894	62.24
HDR-B-9	585348.303	1059668.471	70.98
HDR-B-10	585098.614	1059655.274	73.16
HDR-B-11	585081.098	1059904.698	64.44
HDR-B-12	585063.583	1060154.121	62.27
PZ-3	585811.756	1059492.686	74.51
PZ-4	585753.377	1060324.001	58.86
PZ-5	584921.173	1060280.020	65.83
PZ-6	584979.552	1059448.703	80.89



PROJECT TITLE
BORROW PIT PERMITTING
ESCAMBIA COUNTY, FLORIDA

SHEET TITLE
BORROW PIT
SUBSURFACE INVESTIGATION PLAN

PROJECT NUMBER
10241945

PROJECT MANAGER
M. ROBERTS, P.E.

DATE
OCTOBER 2020

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER
FIGURE 1